DRAFT

SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

For

LAND-WATER INTERFACE AND SERVICE PIER EXTENSION

At

NAVAL BASE KITSAP BANGOR, WASHINGTON

August 2017

This page intentionally left blank.

DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT for LAND-WATER INTERFACE and SERVICE PIER EXTENSION

Lead Agency:	Department of the Navy
Cooperating Agencies:	National Marine Fisheries Service and U.S. Army Corps of Engineers
Title of Proposed Action:	Land-Water Interface and Service Pier Extension
Project Location:	Naval Base Kitsap Bangor
Affected Region:	Kitsap County, Washington
Action Proponent:	Naval Base Kitsap
Designation:	Supplemental Environmental Impact Statement

Abstract

In September 2016, the United States (U.S.) Department of the Navy (Navy) signed a Record of Decision (ROD) regarding the July 2016 Final Environmental Impact Statement (EIS) for *Land-Water Interface and Service Pier Extension at Naval Base Kitsap Bangor*. At the time of Final EIS publication, the Service Pier Extension (SPE) project had not yet been funded by Congress or programmed for implementation, prompting the Navy to defer a decision about the SPE project in the ROD. Regulatory consultations and permit applications associated with the SPE project were also deferred.

This Supplemental EIS (SEIS) addresses only the SPE project as a continuation of the National Environmental Policy Act (NEPA) process for this action. In the months following publication of the 2016 Final EIS and ROD, Congress approved funding for the SPE project and the Navy updated the project design, construction methods, and timing for the pier extension and associated upland development. In addition, in August 2016 the National Marine Fisheries Service finalized new technical guidance for assessing underwater noise effects on marine mammals, which influenced requirements for regulatory consultation under the Endangered Species Act and the Marine Mammal Protection Act.

This SEIS incorporates by reference all SPE-related information and analyses from the 2016 Final EIS. The SEIS focuses on describing the information and analyses that changed since the Final EIS as a result of the updated project design and the new marine mammal regulatory guidance. These changes affected only the analyses of impacts associated with Alternatives 2 and 3 from the 2016 Final EIS and only for the following resource areas: marine water resources; marine vegetation and invertebrates; fish; marine mammals; marine birds; geology, soils, and water resources; and Native American traditional resources and tribal treaty rights. The analysis of Alternative 1 (the No Action Alternative) and other environmental resource areas did not change notably from what was described in the 2016 Final EIS and are therefore not addressed in detail in this SEIS.

The Navy, with the National Marine Fisheries Service and the U.S. Army Corps of Engineers serving as Cooperating Agencies, prepared this SEIS in accordance with NEPA, as implemented by Council on Environmental Quality regulations and Navy regulations for implementing NEPA.

Prepared by: **U.S. Department of the Navy**

Point of Contact: Kimberly Kler
Naval Facilities Engineering Command Northwest
1101 Tautog Circle
Silverdale, WA 98315-1101
Email address: Kimberly.kler@navy.mil

EXECUTIVE SUMMARY

ES.1 Introduction

On September 8, 2016, the United States (U.S.) Department of the Navy (Navy) signed a Record of Decision (ROD) regarding the 2016 Final Environmental Impact Statement (EIS) for *Land-Water Interface and Service Pier Extension at Naval Base Kitsap Bangor* (Navy, 2016a). A Notice of Availability of the ROD was published in the Federal Register (FR) on September 14, 2016 (81 FR 63173). The ROD selected for implementation the preferred alternative for the Land-Water Interface (LWI) project but deferred a decision on the Service Pier Extension (SPE) project pending congressional approval of funding for project implementation.

Subsequent to the 2016 ROD (Navy, 2016b), the U.S. Congress approved funding for the SPE project and the Navy updated the design, planned construction methods, and timing for the pier extension and associated upland development. In addition, in August 2016 the National Marine Fisheries Service (NMFS) had finalized new technical guidance for assessing underwater noise effects on marine mammals, which influenced requirements for regulatory consultation under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). Based on the project changes and the new regulatory guidance, the Navy determined that preparation of a Supplemental EIS (SEIS) was appropriate. This SEIS addresses only the SPE project as a continuation of the NEPA process for this action. This SEIS incorporates by reference all SPE-related information and analyses from the 2016 Final EIS.

The Navy is the lead agency for preparation of this SEIS and NMFS and U.S. Army Corps of Engineers (USACE) are Cooperating Agencies under the National Environmental Policy Act (NEPA).

ES.2 Purpose of and Need for the Proposed Action

The purpose of and need for the SPE Proposed Action have not changed since the 2016 Final EIS. The purpose of the action is to provide additional maintenance berthing capacity and improve associated support facilities for existing homeported and visiting submarines at Naval Base (NAVBASE) Kitsap Bangor.

The SPE project is needed to:

- Provide alternative opportunities for berthing to mitigate restrictions at NAVBASE Kitsap Bremerton on navigating SEAWOLF Class submarines through Rich Passage under certain tidal conditions.
- Improve long-term operational effectiveness for the three SEAWOLF Class submarines on NAVBASE Kitsap.
- Provide berthing and logistical support for SEAWOLF, LOS ANGELES, and VIRGINIA classes of submarines at the Navy's submarine research, development, test, and evaluation hub, which is currently located on NAVBASE Kitsap Bangor.
- Improve submarine crew training and readiness through co-location of command functions at NAVBASE Kitsap Bangor submarine training center.

ES.3 Scope and Content of the Supplemental Environmental Impact Statement

This SEIS supplements the analyses in the 2016 Final EIS by focusing on the changes that resulted from an updated SPE project description (described in Section ES.4 below and in Chapter 2 of this SEIS) and new regulatory guidance for assessing noise impacts on marine mammals (described in Section ES.5 below and in Chapter 3 of this SEIS). The 2016 Final EIS is incorporated by reference in this SEIS and the differences between the Final EIS and the SEIS analyses are highlighted as applicable. Specific resource analyses that changed since the Final EIS and are updated in this SEIS include: marine water resources; marine vegetation and invertebrates; fish; marine mammals; marine birds; geology, soils, and water resources; and Native American traditional resources and tribal treaty rights.

ES.4 Alternatives Considered

The Proposed Action is to extend the existing Service Pier and construct and operate associated facilities to provide maintenance and logistical support to homeported and visiting submarines. The Navy considered two action alternatives that would meet the purpose of and need for the Proposed Action. The Navy also considered a No Action Alternative that would not meet the purpose and need but is required by NEPA. Under Alternative 1 (the No Action Alternative), no service pier extension or associated upland development would occur at NAVBASE Kitsap Bangor. The description and analyses of the No Action Alternative contained in the 2016 Final EIS remain valid and are incorporated by reference in this SEIS. No additional analyses of Alternative 1 (No Action) are included in this SEIS.

Alternative 2 (Preferred) would implement construction and operation of a "short pier" configuration, involving an extension of approximately 520 feet by 68 feet to the existing Service Pier. Proposed new waterfront facilities would include a pier crane on a 28-foot by 60-foot foundation and a 2,100-square foot (sq ft) Pier Services and Compressor Building located on the Service Pier. Proposed upland support facilities would include a Waterfront Ship Support Building at the site of an existing parking lot and a new 420-space parking lot at a nearby site. Approximately 4 acres would be disturbed for a construction laydown area and other construction-related disturbance.

The following components of Alternative 2 would differ from the 2016 Final EIS:

- a reduction in the length of the pier extension from 540 feet to 520 feet
- a reduction in the total overwater area of the pier infrastructure (including floats, mooring dolphins, and wave screen) from 44,000 to 38,924 sq ft
- replacement of 27 permanent 36-inch diameter steel piles with 27 temporary "falsework" piles (also 36-inch diameter steel)
- installation of two fewer permanent 18-inch concrete fender piles (from 105 to 103 concrete piles)
- a reduction of 260 sq ft in the area permanently displaced by piles (from 1,965 to 1,705 sq ft) and a concurrent increase of 189 sq ft of area temporarily displaced by falsework piles (from 0 to 189 sq ft), for a net reduction of 71 sq ft in the total area affected by any displacement (from 1,965 to 1,894 sq ft)
- a one day decrease in the estimated total number of days of in-water pile driving (from an estimated 161 days to 160 days)

- a reduction in the maximum allowable number of impact pile driver strikes during any construction day from 2,000 strikes/day in the Final EIS to 1,600 strikes/day for Alternative 2 in this SEIS (impact pile driving would occur less than 45 minutes/day)
- increased use of vibratory pile driving and decreased use of impact pile driving due to the replacement of 27 permanent steel piles (both vibratory and impact driving) with 27 temporary falsework piles (vibratory only), and the installation of two fewer permanent concrete piles (impact driving); the quieter vibratory pile driving may occur on the same days as the louder impact pile driving, though not simultaneously, and for no more than 5 hours/day)
- an additional 4 acres (for a total of 7 acres) of upland area permanently disturbed due to a change in design of the upland development to include a permanent gravel-covered storage/laydown area instead of revegetation of the 4 acres as proposed under Alternative 2 of the Final EIS

The short pier SPE alternative (Alternative 2) was identified in the 2016 Final EIS as the Preferred Alternative, in part because it would have fewer environmental impacts than Alternative 3. Accordingly, it was also identified as the Environmentally Preferred Alternative under Section 10 of the Rivers and Harbors Act. None of the project design changes or the new regulatory guidance considered in this SEIS resulted in a change to these determinations and they continue to apply to Alternative 2 in this SEIS.

Alternative 3 in this SEIS would involve construction and operation of a “long pier” configuration for the SPE, involving an extension of the existing Service Pier measuring approximately 975 feet long by 68 feet wide, and including the same waterfront and upland support facilities as Alternative 2. The dimensions of the long pier configuration considered in this SEIS are identical to the long pier Alternative 3 that was evaluated in the 2016 Final EIS.

The following components of Alternative 3 would differ from the 2016 Final EIS:

- installation of 50 temporary falsework steel piles (36-inch diameter) to support the construction phase only (and removed upon completion of construction)
- an additional 353 sq ft of area (temporarily) displaced by the 50 falsework piles (expanding the total area of displacement from 1,876 sq ft to 2,229 sq ft
- an additional 4 acres (for a total of 7 acres) of upland area permanently disturbed due to a change in design of the upland development to include a permanent gravel-covered storage/laydown area instead of revegetation of the 4 acres as proposed under Alternative 3 of the Final EIS

Construction of the SPE project would be implemented in a two-phase process: Phase 1 includes waterfront construction of the pier extension (including support facilities on the pier) and the upland development of both a construction laydown/staging area and a new 420-space parking lot. Phase 2 includes construction of an upland area Waterfront Ship Support Building at the site of an existing parking lot. For both Alternative 2 and Alternative 3, construction of the Phase 1 pier extension, parking lot, and laydown area (with associated road and utility improvements) is estimated to begin in the Fall of 2018 and require approximately 2 years to complete. Proposed operations at the Phase I facilities are therefore estimated to begin in the Fall of 2020. Phase 2 construction of the upland ship support building is estimated to begin after completion of Phase 1 construction (Fall of 2020), and would require approximately 2 years to complete (Fall of 2022). Compared to the action evaluated in the 2016 Final

EIS, this proposed timing represents an extension of the overall period during which construction activities would occur from an estimated 2 years to approximately 4 years.

Operations at the extended Service Pier would be the same for both alternatives and the same as described and analyzed in the 2016 Final EIS. Operations would be similar to those that currently occur at the Service Pier, except with the use of two additional submarine moorage spaces there would be a corresponding increase in equipment operations, maintenance activities, transfer of materials on and off the submarines, and vehicular traffic. The average daily number of employees on site at the Service Pier would increase by 322 (from 390 to 712). The proposed SPE project would allow maintenance activities to be performed on three submarines simultaneously, resulting in an increase in the average number of one-way Hood Canal submarine transits to or from the Service Pier from 0.5 per month to 2 per month (as described in the 2016 Final EIS), but no change is proposed in the current number, types, or tempo of submarines homeported or visiting NAVBASE Kitsap for activities unrelated to maintenance.

ES.5 Modification to the Regulatory Guidance and Analytical Methodology

On August 5, 2016, NMFS released *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing—Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts* (NMFS, 2016a). These guidelines finalized the acoustic threshold levels for determining the onset of permanent threshold shift (PTS) in marine mammals in response to underwater impulsive and non-impulsive sound sources. The new criteria use cumulative sound exposure level (SEL_{cum}) and instantaneous peak sound pressure level (dB_{pk}) metrics rather than the decibel root mean square (RMS) metric. NMFS equates the onset of PTS, which is a form of auditory injury, with Level A harassment under the MMPA and "harm" under the ESA. The onset of temporary threshold shift is a form of Level B harassment under the MMPA and "harassment" under the ESA. Both forms of harassment constitute "incidental take" under these statutes. Under the new acoustic guidance (NMFS, 2016a), Level A and Level B Harassment are further defined as:

- Level A Harassment would result from non-serious injury or permanent (hearing) threshold shift
- Level B Harassment would result from behavioral disturbance or temporary (hearing) threshold shift.

Only PTS was addressed in the final acoustic guidance (NMFS, 2016a). The behavioral disturbance (Level B harassment) thresholds have not changed since the 2016 Final EIS. Therefore, this SEIS analyzes potential for injury/harm to marine mammals using the new acoustic guidance and potential for harassment/behavioral disturbance using the prior guidance.

ES.6 Summary of Environmental Consequences of the Proposed Action

Table ES-1 summarizes the potential environmental consequences of implementing the updated SPE project alternatives as evaluated in Chapter 3 of this SEIS. This enables a comparison of the two SEIS action alternatives based on potential construction impacts and long-term impacts from SPE project operations. Comparisons between project impacts analyzed in this SEIS and those identified in the 2016 Final EIS are highlighted as appropriate elsewhere in this SEIS, but Table ES-1 focuses solely on the environmental consequences of the two project alternatives as represented in this SEIS. As discussed in more detail in Chapter 3, all of the impacts identified in this SEIS were determined to be less than significant.

Table ES-1 refers, as appropriate, to Best Management Practices (BMPs), Continuing Practices (CPs), and Mitigation Measures (MMs) that would be applied to reduce project impacts. These are introduced briefly in Section ES.7, which immediately follows Table ES-1, and are discussed in more detail in Section 2.4 (for BMPs) and Appendix B (Mitigation Action Plan) of this SEIS.

Table ES-1 Summary and Comparison of Environmental Impacts

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Marine Water Resources	• Temporary and very localized alteration of seafloor topography and intermittent disturbances of sediments within the 3.9-acre construction footprint due to pile driving and removal, anchor placement, and ground tackle used to moor construction equipment. Sediment displacement at each pile is estimated to be between 0.5 and 3 feet, the amount displaced by a typical vessel anchor. Natural processes would return the seafloor to its original profile within 6 to 12 months following construction. • Temporary and localized changes to water quality through suspension of sediments and turbidity in the water column that would persist for minutes to hours following pile driving, but changes would not exceed marine water quality standards. • BMPs would be implemented along with CPs and any applicable mitigations (see Section 2.4 and Appendix B) to manage and reduce risks to marine water resources during construction. • Navy would apply for a Section 401 Water Quality Certification from WDOE and would apply for a Section 10 Permit through the Rivers and Harbors Act from USACE.	• Small changes in velocity of currents but no measurable changes in sediment deposition or erosion patterns or littoral transport processes expected. • Small-scale changes in flow patterns would result in localized scouring and accumulation of sediments where piles are installed, but these changes are not expected to exceed sediment quality standards. • BMPs would be implemented along with CPs and any applicable mitigations (see Section 2.4 and Appendix B) to manage and reduce risks to marine water resources during pier operations.	• Impacts would be similar to Alternative 2 but would occur within a larger construction footprint (maximum 6.6 acres). • Navy would apply for a Section 401 Water Quality Certification from WDOE and would apply for a Section 10 Permit through the Rivers and Harbors Act from USACE. • BMPs would be implemented along with CPs and any applicable mitigations (see Section 2.4 and Appendix B) to manage and reduce risks to marine water resources during construction.	• Operational impacts would be similar to Alternative 2 but would occur over a larger area due to larger pier infrastructure and number of piles. • BMPs would be implemented along with CPs and any applicable mitigations (see Section 2.4 and Appendix B) to manage and reduce risks to marine water resources during pier operations.

Table ES-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Marine Vegetation and Invertebrates	• Potential temporary disturbance to approximately 0.27 acre of marine vegetation (green macroalgae) within the 3.9-acre construction area from suspended sediments and turbidity during pile driving and vessel anchoring. In-water construction would mostly occur beyond the depth where marine vegetation occurs. • Permanent loss of 0.037 acre of benthic habitat and invertebrate community from installation of permanent piles. • Temporary sediment disturbance and increased turbidity effects (during up to 160 days of in-water construction) on benthic invertebrate communities adjacent to the 0.037 acre permanently lost. • Temporary benthic habitat loss of 0.004 acre from installation of falsework piles. Recolonization of benthic species in areas of removed falsework piles would occur within 2 years. • BMPs would be implemented along with CPs and any applicable mitigations (see Section 2.4 and Appendix B) to manage and reduce risks to marine water resources during construction, which would also benefit marine vegetation and invertebrates.	• Overwater shading of existing marine vegetation communities by the extended pier would be minimal since the SPE footprint is beyond depths conducive to vegetation growth. • Long-term loss of benthic habitat from permanent pile placement (0.037 acre), but over time the piles would themselves be colonized by hard-bottomed species (mussels and sea anemone) and associated benthic communities. • BMPs would be implemented along with CPs and any applicable mitigations (see Section 2.4 and Appendix B) to manage and reduce risks to marine water resources during pier operations, which would also benefit vegetation and invertebrates.	• Same temporary disturbance to approximately 0.27 acre of marine vegetation (green macroalgae) as with Alternative 2, • Permanent loss of 0.043 acre of benthic habitat and invertebrate community from installation of permanent piles. • Similar temporary sediment disturbance on adjacent benthic communities as Alternative 2, but lasting up to 205 days of in-water construction. • Temporary benthic habitat loss of 0.0081 acre from installation of falsework piles. Recolonization would occur within 2 years. • Application of same BMPs and applicable mitigations as for Alternative 2.	• Minimal overwater shading effects on existing marine vegetation communities as described for Alternative 2. • Long-term loss of benthic habitat from permanent pile placement (0.043 acre), with colonization of piles over time (as described for Alternative 2). • Application of the same BMPs and applicable mitigations as for Alternative 2.

Table ES-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Fish and EFH	• A total of 160 pile driving days would result in noise exposure above the cumulative injury and behavioral thresholds but with smaller distances than were evaluated in the 2016 Final EIS. Maximum exposure to impact pile driving of less than 45 minutes per day. A bubble curtain would be used for attenuation and turned on to startle fish away from peak injury zone during impact pile driving of steel piles. • Vibratory pile driving would result in behavioral impacts to fish species that may be present but the duration would be no more than 5 hours per day during the in-water construction period. • Localized and temporary suspended sediments and turbidity on benthic communities that may be prey for fish species during pile driving and vessel anchoring. These impacts would temporarily disrupt Groundfish and Coastal Pelagic EFH. • Due to strong nearshore currents and winds, the amount of suspended sediment (small fine-grained/sandy sediment) that would settle out of the water column onto intertidal beaches would not be expected to adversely impact spawning success of sand lance that spawn near the project site.	• Long-term conversion of soft-bottom habitat to hard-bottom habitat on piles would be a loss of EFH for some species and increase of EFH for other species. • Increase in pier surface area would increase overwater coverage of fish habitat, but would occur over deeper water where vegetation used as EFH does not grow. • No barrier effect on smaller, nearshore migrating juvenile salmonids and forage fish. Little to no effect on larger, offshore migratory fish.	• Impacts would be similar to those described for Alternative 2 except that in-water construction would involve up to 205 days of underwater noise exposure for fish and the larger pier footprint and number of piles would increase the amount of sediment disturbance and loss of benthic habitat (see also impacts to Marine Water Resources and Marine Vegetation and Invertebrates above).	• Operational impacts would be similar to Alternative 2 but would occur over a larger area due to larger pier infrastructure and number of piles.

Table ES-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Fish and EFH (continued)	• Temporary loss of benthic prey and soft bottom habitat from installation and removal of falsework piles (0.004 acre). Recolonization of benthic prey expected within 2 years. • The Navy determined that Alternative 2 "may affect, not likely to adversely affect" determination on Puget Sound Evolutionarily Significant Unit chinook salmon and Hood Canal Evolutionarily Significant Unit summer-run chum salmon and designated critical habitat; Puget Sound Distinct Population Segment steelhead; and Puget Sound Distinct Population Segments of bocaccio and yelloweye rockfish and designated critical habitat. The Navy determined that Alternative 2 "may adversely affect" Pacific coast groundfish EFH, coastal pelagic species EFH, and Pacific coast salmon EFH.			

Table ES-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Marine Mammals	• Increased levels of activity and noise from construction may disturb marine mammal movements with temporary avoidance of certain areas. • Habitat degradation to prey species would be expected during construction but the number of marine mammals indirectly affected by impacts on the prey population would be small. • Pile driving noise would exceed NMFS behavioral disturbance (Level B) and injury (Level A) thresholds for marine mammals. Construction disturbance due to in-water work would occur over two seasons, including a total of 160 days of pile driving. There is a potential for injury harassment to harbor seals that may result in 125 exposures from impact pile driving noise. Mitigation is expected to avoid most potential adverse impacts to marine mammals from impact pile driving, but some exposure may be unavoidable. Pile driving would affect individual marine mammals, but would not cause population-level impacts.	• Operation of the extended Service Pier would not result in permanent impacts to areas used directly by marine mammals. • Minor indirect impacts on prey species would occur due to loss and degradation of benthic habitat. • There would be a minor increase in human activity, vessel traffic, and noise related to maintenance activities on submarines. These effects from operation would not occur at a level to change the prey base for marine mammals or affect marine mammal foraging habitats.	• Direct and indirect impacts on marine mammals during construction would be similar to Alternative 2 and include increased levels of activity and noise that may disturb marine mammal movements with temporary avoidance of certain areas. • Pile driving noise would exceed NMFS behavioral disturbance (Level B) and injury (Level A) thresholds for marine mammals. There is a potential for injury harassment to harbor seals that may result in 155 exposures from impact pile driving noise. Mitigation is expected to avoid most potential adverse impacts to marine mammals from impact pile driving, but some exposure may be unavoidable. Pile driving would affect individual marine mammals, but would not cause population-level impacts.	Impacts would be the same as Alternative 2.

Table ES-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Marine Mammals (continued)	• Pursuant to the MMPA: The Proposed Action would expose marine mammal species within the injury threshold areas to noise levels that would result in injury harassment (from impact pile driving) and behavioral disturbance. • A detailed marine mammal monitoring plan would be developed in consultation with NMFS prior to the onset of work. In-situ acoustic monitoring at commencement of pile driving (impact and vibratory) would verify estimated radial distances to injury threshold zones. Pile driving would affect individual marine mammals, but would not cause population-level impacts and are considered less than significant. • The Navy submitted a Biological Assessment to NMFS for concurrence of "may affect, not likely to adversely affect" Mexico and Central America Distinct Population Segments humpback whale. *Pursuant to the ESA:* Effect determination for the humpback whale (based on infrequent occurrence) is "may affect, not likely to adversely affect;" and "no effect" on Southern Resident killer whale and its critical habitat.		• Monitoring would be implemented to minimize injury to harbor seals and avoid injury to other marine mammals during pile driving. • Information about MMPA and ESA compliance, the Biological Assessment, and the Incidental Harassment Authorization is the same as Alternative 2.	

Table ES-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Marine Mammals (continued)	• The Navy has applied to NMFS for an Incidental Harassment Authorization under the MMPA for behavioral disturbance to transient killer whale, harbor porpoise, Steller sea lion, and California sea lion, and for injury to harbor seal.			
Marine Birds	• Potential benthic community displacement would result in permanent loss of 0.037 acre and a temporary loss of 0.004 acre from installing and removing 27 falsework piles. • Pile driving would create sediment disturbance, turbidity, and airborne and underwater noise. All would be temporary disturbance to marine birds and foraging marbled murrelet. By conducting impact pile driving between 2 hours after sunrise and 2 hours before sunset (between July 15 and September 23), impacts to foraging marbled murrelets would be minimized. • Temporary noise from non pile-driving construction activities would be consistent with the typical ambient noise of the industrial nature of the area and would not significantly disturb marine birds. Further, timing restrictions would be implemented during tree removal (avoiding marbled murrelet breeding season from April 1 to September 23).	• Impacts associated with prey availability, noise, and visual disturbance are expected to be minor, with no species or population-level changes to marine bird behavior or fitness. The 4 acres of vegetation and potential habitat for marbled murrelet and other birds that would remain as a gravel lot rather than be revegetated as proposed in the 2016 Final EIS would not result in a significant reduction in tree habitat available within the area.	• Impacts would be the same as for Alternative 2 except that the area of potential benthic community displacement would increase due to the larger pier footprint and the installation of 50 falsework piles (0.043 acre of permanent and 0.0081 acre of temporary displacement).	• Impacts would be the same as Alternative 2.

Table ES-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Marine Birds (continued)	• The Navy received an email on May 19, 2017 from U.S. Fish and Wildlife Service acknowledging that the Navy will not be reinitiating consultation on the proposed changes.			
Geology, Soils, and Water Resources	• No shoreline construction is proposed, so the changes in project design and construction, including installation and removal of falsework piles, would not affect geology, soils, or water resources. • New facilities to be built would meet requirements of WDOE Stormwater Management Manual and the Energy Independence and Security Act of 2007. • The new parking lot and laydown area would occupy 7 acres. Upland disturbance to soils of approximately 4 acres would result from site clearing, grading, hauling, excavation and filling for the parking lot and the Waterfront Ship Support Building. These 4 acres of impact would be permanent instead of temporary (as evaluated in the 2016 Final EIS).	• Erosion from the 4-acre gravel lot would be controlled through drainage structures and stormwater conveyance structures. The Unified Facilities Criteria guidelines for low-impact development would be implemented into the design of the upland parking lot and would include water quality enhancement and infiltration.	• Impacts would be the same as Alternative 2.	• Impacts would be the same as Alternative 2.

Table ES-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Geology, Soils, and Water Resources (continued)	• The Navy would apply for a Construction Stormwater Permit and operational stormwater discharges would be covered by the NAVBASE Kitsap Bangor Multi-Sector General Permit from U.S. Environmental Protection Agency, Region 10. • Construction BMPs and a Stormwater Pollution Prevention Plan would be implemented to control erosion and sedimentation to protect surface waters, including wetlands and intertidal area. • The project construction sites would be located in documented low risk areas for seismic-induced slope instability.			
Native American Traditional Resources and Tribal Treaty Rights	• No shellfish harvest areas are located within the SPE construction area so the construction footprint and number of piles would not affect access to shellfish. • Impacts to benthic communities from pile driving and sediment disturbance would not impact the overall populations of fish and shellfish that could be harvested by tribes. • Additional water traffic would not significantly affect tribal access to usual and accustomed fishing areas in Hood Canal during the 2-year construction timeframe. •	• The presence and operations of SPE Alternative 2 structures would have minimal impact on salmonids and would not be sufficient to result in population-level impacts on salmon or the tribal harvest of salmon.	• Same as Alternative 2.	• Same as Alternative 2.

Table ES-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Native American Traditional Resources and Tribal Treaty Rights (continued)	• See Section 9 of Appendix B Mitigation Action Plan for a description of Treaty Mitigation that will be implemented.			

Key: BMPs = Best Management Practices; CPs = Continuing Practices; EFH = Essential Fish Habitat; EIS = Environmental Impact Statement; ESA = Endangered Species Act; MMPA = Marine Mammal Protection Act; NAVBASE = Naval Base; NMFS = National Marine Fisheries Service; SPE = Service Pier Extension; USACE = United States Army Corps of Engineers; WDOE = Washington Department of Ecology

ES.7 Best Management Practices, Current Practices, Mitigation Measures, Compensatory and Treaty Mitigation, and Regulatory Compliance

Several measures, including BMPs, CPs, mitigation measures (MM), as well as Compensatory and Treaty Mitigation would be implemented to avoid, reduce, mitigate, and offset the effects of the Proposed Action. For a detailed discussion of each practice and mitigation measure described below, please refer to Appendix B*, Mitigation Action Plan,* of this SEIS. The following is a description and summary of the BMPs, CPs, MMs, Compensatory and Treaty Mitigation, and regulatory compliance that will be implemented under the Proposed Action.

BMPs are existing policies, practices, and measures that the Navy would adopt as part of the proposed action to reduce the environmental impacts of designated activities, functions, or processes. The following BMPs would be implemented as part of the SPE project:

- Creosote-treated piles will be removed by using a vibratory driver or direct pull as preferred methods for removal.
- Removed creosote-treated piles and associated sediments (if any) will be contained on a barge or, if a barge is not utilized, stored in a containment area near the construction site. All creosote-treated material and associated sediments will be disposed of in a state-approved upland disposal site.
- To reduce the likelihood of any petroleum products, chemicals, or other toxic or deleterious materials from entering the water, fuel hoses, oil or fuel transfer valves, and fittings will be checked regularly for drips or leaks and will be maintained and stored properly to prevent spills from construction and pile driving equipment into state waters.
- To limit soil erosion and potential pollutants contained in stormwater runoff, a Stormwater Pollution Prevention Plan will be prepared and implemented in conformance with the *Stormwater Management Manual for Western Washington* (Washington Department of Ecology [WDOE] 2014) (applies to Operations also).

Current practices are physical, structural, or managerial practices that decrease the potential for impacts, particularly related to water quality. The following CPs would be implemented as part of the SPE project:

- To minimize water quality impacts from accidental spills of oil, fuels, or other related materials during construction, oil containment booms will be deployed around the in-water construction site.
- During in-water construction activities, floating booms will be deployed and maintained to collect and contain floatable materials released accidentally. Any accidental release of equipment or materials will be immediately retrieved and removed from the water. Following completion of in-water construction activities, an underwater survey will be conducted to remove any remaining construction materials that may have been missed previously. Retrieved debris will be disposed of at an approved upland disposal site.
- Applicable construction measures (described above) to protect water quality and habitats will also be implemented during operational procedures.

- Barges and other construction vessels will not be allowed to run aground. Additionally, vessel operators will be instructed to avoid excess engine thrust in water depths shallower than 30 feet to the extent possible.
- During post-construction operations of the SPE, the guard panels between Port Security Barrier system pontoons will be cleaned regularly.

MMs are used most frequently to reduce or minimize impacts that are unavoidable. The following MMs would be implemented as part of the SPE project:

- To minimize impacts on marine habitat, limitations will be placed on construction vessel operations, anchoring, and mooring line deployment. Vessel operators will be provided with maps of the construction area with eelgrass beds clearly marked. Resulting seafloor disturbance will be confined to a 100-foot-wide corridor on each side of the structure under construction. A mooring and anchoring plan will be developed and implemented to avoid dragging anchors and lines in special status areas. Spudding/anchoring in existing eelgrass habitat will be avoided.
- To minimize impacts on Endangered Species Act (ESA)-listed fish species, in-water construction will be conducted within the in-water work window (July 16 through January 15). The exception is that relocation of the Port Security Barrier and placement of anchors could occur outside the work window.
- Pile driving of steel piles would be done using primarily vibratory methods to the extent practicable before using impact pile driving methods. Vibratory pile driving reduces noise levels by approximately 20 decibels RMS at 33 feet from the source.
- To attenuate in-water noise, bubble curtains would be used around steel piles being driven by impact methods. The Navy would also consider other equally or more effective noise attenuation methods that may become available. Noise attenuation would not be used for driving concrete piles, because of the much lower level of noise generated by driving of concrete piles compared to steel piles, and the resulting much lower potential for impacts to biota.
- During impact pile driving, a soft-start approach would be used to induce marine mammals to leave the immediate area. This soft-start approach requires contractors to initiate noise from hammers at reduced energy, followed by a waiting period.
- Construction activities would not be conducted during the hours of 10:00 p.m. and 7:00 a.m. Between July 15 and September 23, impact pile driving would only occur between 2 hours after sunrise and 2 hours before sunset to protect foraging marbled murrelets during the breeding season. Between September 24 and January 15, in-water construction activities would occur during daylight hours (sunrise to sunset). The Navy would notify the public about upcoming construction activities and noise at the beginning of each construction season.
- To avoid impacts on marine mammals protected by ESA and MMPA and marbled murrelet protected by ESA, monitoring of shut down and buffer zones around in-water pile driving locations would be implemented. Detailed marine mammal and marbled murrelet monitoring plans would be developed and implemented in consultation with NMFS and the U.S. Fish and Wildlife Service.
- To protect potential breeding marbled murrelets, tree removal would not be conducted during the marbled murrelet breeding season of April 1 through September 23. This timing restriction would also limit exposure of general construction noise and habitat disturbance on migratory birds.

- The Navy would develop a local Notice to Mariners to establish uniform procedures to facilitate the safe transit of vessels operating in the project vicinity. Barge trips and associated bridge openings would be scheduled to avoid peak commuting hours. The Notice to Mariners would also serve to notify divers, including tribal divers, of potential underwater noise impacts.

The following Compensatory and Treaty Mitigation would be implemented as part of the SPE project:

- The Navy would, as part of the Proposed Actions, undertake Compensatory Mitigation to offset unavoidable adverse impacts on aquatic resources under the provisions of the Clean Water Act (CWA) Final Rule for Compensatory Mitigation for Losses of Aquatic Resources. The Navy would purchase habitat credits from the Hood Canal In-Lieu Fee Program, which would implement appropriate mitigation in the Hood Canal watershed.
- The Navy would undertake mitigation projects proposed to address potential effects of the Proposed Actions on reserved treaty rights and resources of the Skokomish, Port Gamble S'Klallam, Jamestown S'Klallam, and Lower Elwha Klallam Tribes.

The Navy must also comply with a variety of federal environmental laws, regulations, and Executive Orders (EOs). These include the following:

- NEPA, which requires an environmental analysis for major federal actions that have the potential to significantly impact the quality of the human environment
- Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA
- Navy regulations for implementing NEPA, which provides Navy policy for implementing Council on Environmental Quality regulations and NEPA
- Clean Water Act
- Rivers and Harbors Act
- Coastal Zone Management Act
- Endangered Species Act
- Energy Independence and Security Act
- Magnuson-Stevens Fishery Conservation and Management Reauthorization Act
- Marine Mammal Protection Act
- Native American Graves Protection and Repatriation Act
- Executive Order (EO) 12088, Federal Compliance with Pollution Control Standards
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
- EO 13175, Consultation and Coordination with Indian Tribal Governments
- EO 13693, Planning for Federal Sustainability in the Next Decade

A description of the Proposed Action's consistency with these laws, policies and regulations, as well as the names of regulatory agencies responsible for their implementation, is presented in Chapter 5 of this SEIS.

DRAFT

Supplemental Environmental Impact Statement

Land-Water Interface and Service Pier Extension

Naval Base Kitsap Bangor, Washington

TABLE OF CONTENTS

List of Figures

List of Tables

Appendices

Abbreviations and Acronyms

Acronym	Definition
BMP	Best Management Practice
CFR	Code of Federal Regulations
CP	Continuing Practice
CWA	Clean Water Act
dB	decibel
dB_{pk}	Peak sound pressure level
EFH	Essential Fish Habitat
EHW-1	Explosives Handling Wharf 1
EHW-2	Explosives Handling Wharf 2
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FR	Federal Register
INRMP	Integrated Natural Resources Management Plan
LWI	Land-Water Interface
MM	Mitigation Measure
MMPA	Marine Mammal Protection Act
NAVBASE	Naval Base
Navy	Department of the Navy
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOA	Notice of Availability
NOI	Notice of Intent
PTS	Permanent Threshold Shift
RMS	Root Mean Square
ROI	Region of Influence
ROD	Record of Decision
SEIS	Supplemental Environmental Impact Statement
SEL	Sound Exposure Level
SEL_{CUM}	Cumulative Sound Exposure Level
SPE	Service Pier Extension
sq ft	square foot/feet
SSN	Nuclear-powered attack submarine
TPP	Transit Protection Program
U.S.	United States
U.S.C.	United States Code
USACE	United States Army Corps of Engineers
WDOE	Washington Department of Ecology
WRA	Waterfront Restricted Area

This page intentionally left blank.

1 Purpose of and Need for the Proposed Action

1.1 Introduction

The United States (U.S.) Department of the Navy (Navy) proposes to implement a Service Pier Extension (SPE) project at Naval Base (NAVBASE) Kitsap Bangor to provide two additional berths and supporting facilities for maintenance and logistical support of existing homeported and visiting submarines. NAVBASE Kitsap Bangor, located on Hood Canal approximately 20 miles west of Seattle, Washington (Figure 1-1), provides berthing and support services to Navy OHIO Class ballistic missile submarines (hereinafter referred to as TRIDENT submarines), as well as a SEAWOLF Class nuclear-powered attack submarine (SSN).

On September 8, 2016, the Navy signed a Record of Decision (ROD) regarding a July 2016 Final Environmental Impact Statement (EIS) for *Land-Water Interface and Service Pier Extension at Naval Base Kitsap Bangor* (Navy, 2016a) (hereinafter the "2016 Final EIS"). The 2016 Final EIS evaluated the environmental effects of implementing two separate Proposed Actions along the NAVBASE Kitsap Bangor waterfront and nearby upland area: a Land-Water Interface (LWI) project and the SPE project introduced above. As described in the 2016 Final EIS, the LWI proposed action involved enhancement of the perimeter security of the Waterfront Restricted Area (WRA) on NAVBASE Kitsap Bangor by constructing physical barriers through shallow waters and onto the immediate upland areas at the northern and southern extent of the WRA. These structures will tie into the existing Port Security Barrier system and the on-land Waterfront Security Enclave system. The SPE proposed action is to construct and operate an extension to an existing Service Pier and associated facilities to provide logistical support. The September 2016 ROD (Navy, 2016b) selected for implementation the preferred alternative for the LWI project but deferred a decision on the SPE project pending congressional approval of funding for SPE implementation. The 2016 Final EIS and ROD can be downloaded from the LWI-SPE project website (http://www.nbkeis.com/lwi/).

Subsequent to the 2016 ROD, the U.S. Congress approved funding for the SPE project and the Navy updated the design and planned construction methods for the pier extension and associated upland development. In addition, in August 2016 the National Marine Fisheries Service (NMFS) had finalized new technical guidance (NMFS, 2016a) for assessing underwater noise effects on marine mammals, which influenced requirements for regulatory consultation under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). Based on the project changes and the new regulatory guidance, the Navy determined that preparation of a Supplemental EIS (SEIS) was appropriate.

This SEIS addresses the SPE action only and evaluates resources and potential impacts resulting from new project design details and the new regulatory guidance. This SEIS incorporates by reference the 2016 Final EIS and refers frequently to sections of the EIS in which the information or analyses are still applicable. The Navy published its Notice of Intent (NOI) to prepare this SEIS in the Federal Register (FR) on March 13, 2017 (82 FR 13437) (Appendix A). No public comments were received in response to the NOI publication.

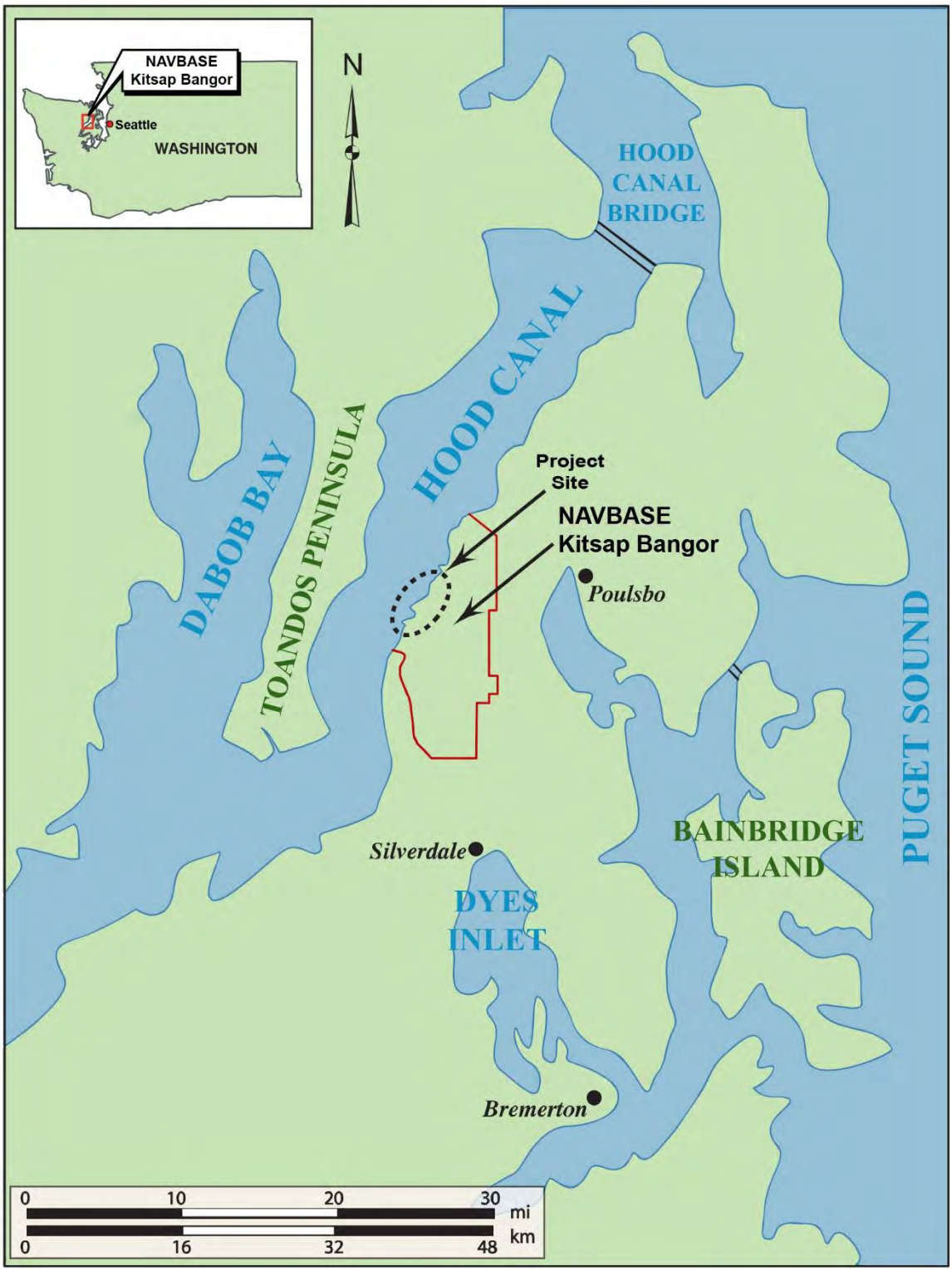


Figure 1–1. Site Location Map for NAVBASE Kitsap Bangor

The Navy prepared this SEIS in accordance with the National Environmental Policy Act (NEPA), as implemented by the Council on Environmental Quality Regulations and Navy regulations for implementing NEPA, for the purpose of supplementing the portions of the 2016 Final EIS regarding implementation of the SPE Proposed Action. Pursuant to applicable regulations, the Navy will prepare, circulate, and file the SEIS in the same fashion (exclusive of scoping) as it did the Draft and Final EIS. By supplementing the 2016 Final EIS, this SEIS advances NEPA's purpose of informing decision-makers and the public about the potential environmental effects of the Navy's Proposed Action and alternatives.

The NMFS and U.S. Army Corps of Engineers (USACE) are Cooperating Agencies under NEPA in the preparation of this SEIS. NMFS is a cooperating agency because of its expertise and regulatory authority over living marine resources. The USACE is a cooperating agency because of its jurisdictional authority over provisions of the Clean Water Act (CWA), which includes the regulation of filling, grading, mechanized land clearing, ditching, other excavation activity in waters of the United States; and the Rivers and Harbors Act, which includes work in or construction of any structure in or over any navigable water of the United States.

1.2 Location

The existing Service Pier is located just north of Carlson Spit, near the southern end of NAVBASE Kitsap Bangor's portion of the Hood Canal shoreline and within Naval Restricted Area 1 (Figure 1-2). Naval Restricted Area 1 also encompasses the WRA, the in-water perimeter of which is physically secured by a floating barrier system known as the Port Security Barrier. The existing Service Pier proposed for extension is located 0.7 mile outside the WRA but within the Port Security Barrier (Figure 1-2).

The proposed upland development sites are located along the frontage roads within a half mile of the Service Pier. The proposed waterfront ship support building site is located at an existing parking lot approximately 1,000 feet southeast of the Service Pier, between Wahoo Road and Sea Lion Road (Figure 1-3). The proposed parking lot and construction laydown area is located about 2,000 feet further south along Sea Lion Road at the intersection with Sturgeon Street.

The project area is located within the usual and accustomed fishing area of five Native American tribes: the Skokomish, Port Gamble S'Klallam, Jamestown S'Klallam, Lower Elwha Klallam, and Suquamish Tribes.

1.3 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to provide additional maintenance berthing capacity and improve associated support facilities for existing homeported and visiting submarines at NAVBASE Kitsap Bangor.

The SPE project is needed to:

- Provide alternative opportunities for berthing to mitigate restrictions at NAVBASE Kitsap Bremerton on navigating SEAWOLF Class submarines through Rich Passage under certain tidal conditions.
- Improve long-term operational effectiveness for the three SEAWOLF Class submarines on NAVBASE Kitsap.

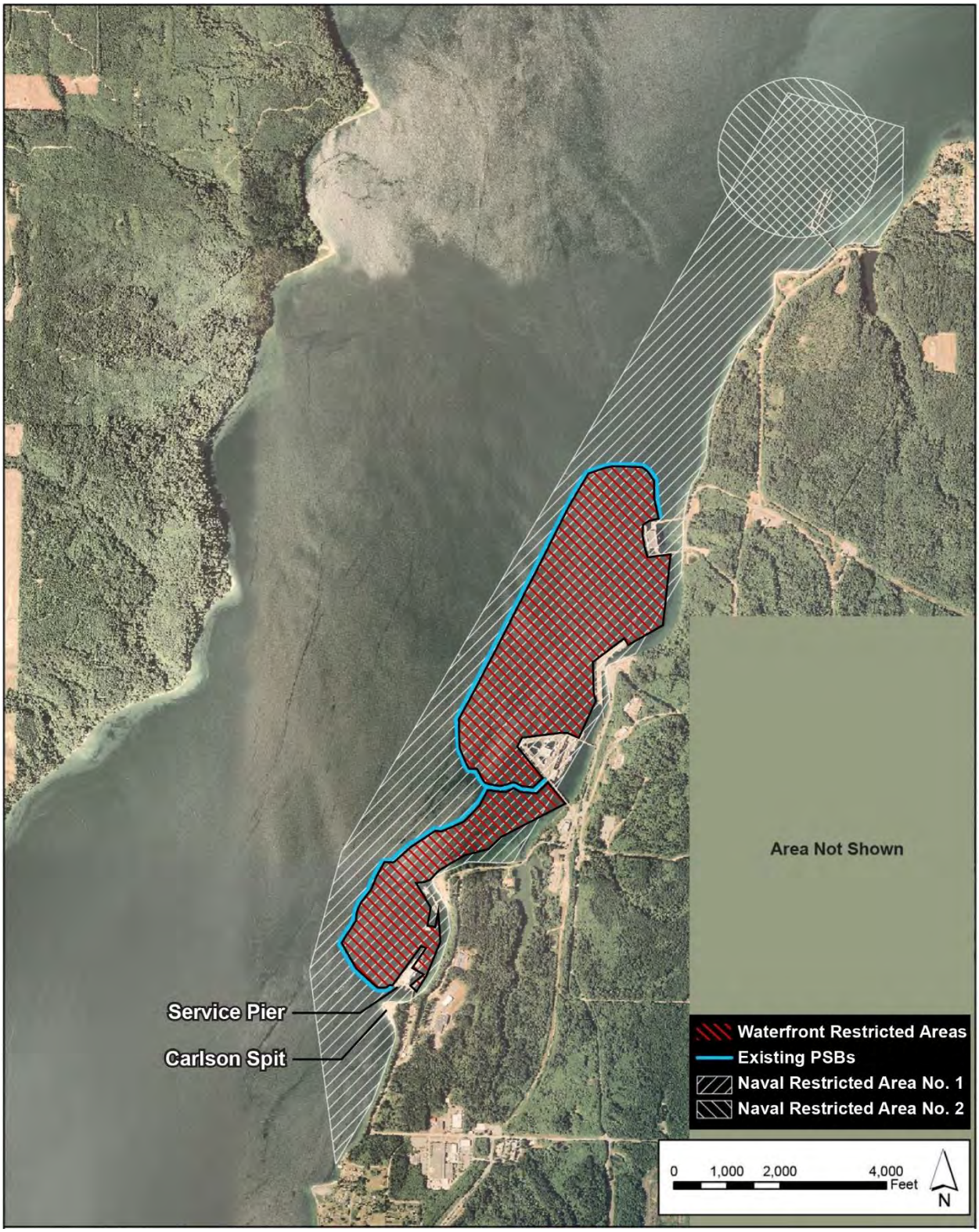


Figure 1-2 Waterfront Restricted Areas at NBK Bangor

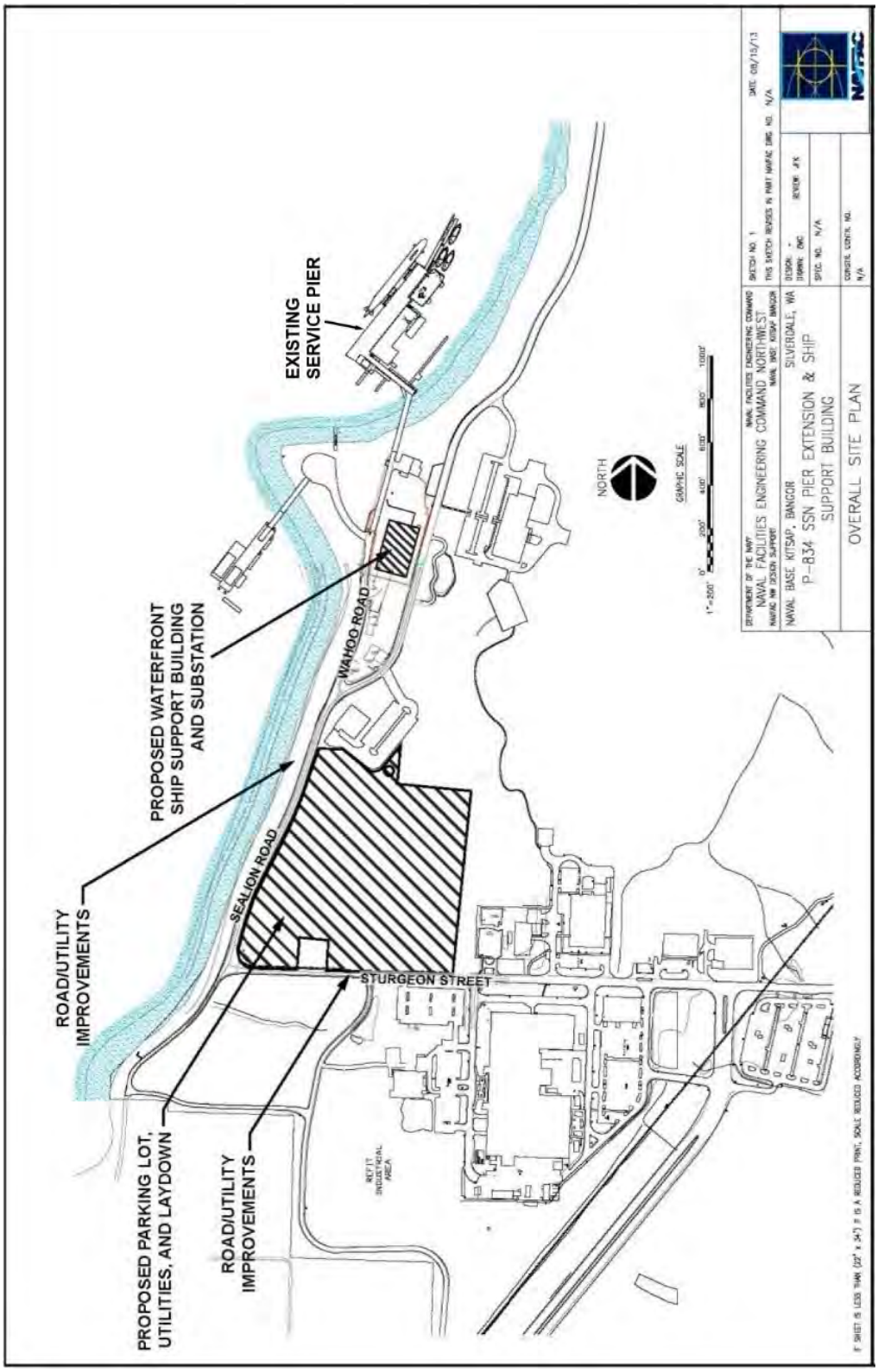


Figure 1-3 Location of Proposed Upland Development Sites Relative to the Existing Service Pier

- Provide berthing and logistical support for SEAWOLF, LOS ANGELES, and VIRGINIA submarine classes at the Navy's submarine research, development, test and evaluation hub, which is currently located on NAVBASE Kitsap Bangor.
- Improve submarine crew training and readiness through co-location of command functions at NAVBASE Kitsap Bangor submarine training center.

The SPE and supporting facilities are proposed to help address infrastructure deficiencies on NAVBASE Kitsap and ensure its capability to support the SEAWOLF fleet. These deficiencies, which are described in Section 1.2.2.1 of the 2016 Final EIS, include inadequate support services facilities, parking, and berthing space at the existing Service Pier. The proposed SPE project would allow maintenance activities to be performed on three submarines simultaneously, resulting in an estimated increase in the average number of one-way Hood Canal submarine transits to or from the Service Pier from 0.5 per month to 2 per month (as described in the 2016 Final EIS), but no change is proposed in the current number, types, or tempo of submarines homeported or visiting NAVBASE Kitsap.

1.4 Scope of Environmental Analysis

In the 2016 Final EIS, the Navy considered two action alternatives and the No Action Alternative for the SPE Proposed Action. Under Alternative 1 (the No Action Alternative), no SPE or associated upland development would occur at NAVBASE Kitsap Bangor. The analyses associated with the No Action Alternative contained in the 2016 Final EIS remain valid and are incorporated by reference in this SEIS.

Subsequent to the 2016 Final EIS, the Navy made changes to both the proposed pier extension design and the planned construction methods for Alternative 2, and made changes only to the proposed construction methods for Alternative 3. Because of these changes to project design and/or construction methods (described in more detail in Chapter 2), each of these revised alternatives is assessed in this SEIS. The cumulative impacts of the Proposed Action in combination with past, present, and future Navy and non-Navy actions are also evaluated, along with other required NEPA considerations.

Since publication of the 2016 Final EIS, NMFS finalized its *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing—Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts* (NMFS, 2016a). The analysis in this SEIS follows the new guidance from NMFS as appropriate.

As explained in Chapter 3, not all resource areas analyzed in the 2016 Final EIS have been evaluated in this SEIS; only those sections affected by the project design changes or the new regulatory guidance, or that had incomplete consultations in the 2016 Final EIS have been addressed. Accordingly, the environmental resource areas that are carried forward for further analysis in this SEIS include: marine water resources; marine vegetation and invertebrates; fish; marine mammals; marine birds; geology, soils, and water resources; and Native American traditional resources and tribal treaty rights. Throughout this SEIS, some project details and other information representing key changes since the 2016 Final EIS are shown as "strike-outs" with blue replacement text to illustrate exactly how the information changed and to enable direct comparison between the Final EIS and the SEIS.

1.5 Key Documents

The following documents (and associated supporting studies) are incorporated by reference in this SEIS:

- Final Environmental Impact Statement for Land-Water Interface and Service Pier Extension at NAVBASE Kitsap Bangor (Navy, 2016a)
- Record of Decision for the Final Environmental Impact Statement for Land-Water Interface and Service Pier Extension at NAVBASE Kitsap Bangor, Kitsap County, Washington (Navy, 2016b)

1.6 Relevant Laws and Regulations

The Navy has prepared this SEIS based upon federal and state laws, statutes, regulations, and policies pertinent to the implementation of the Proposed Action, including the following:

- NEPA (42 United States Code [U.S.C.] sections 4321–4370h), which requires an environmental analysis for major federal actions that have the potential to significantly impact the quality of the human environment
- Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] parts 1500–1508)
- Navy regulations for implementing NEPA (32 CFR part 775), which provides Navy policy for implementing Council on Environmental Quality regulations and NEPA
- Clean Water Act (33 U.S.C. section 1251 et seq.)
- Rivers and Harbors Act (33 U.S.C. section 407)
- Coastal Zone Management Act (16 U.S.C. section 1451 et seq.)
- Endangered Species Act (16 U.S.C. section 1531 et seq.)
- Energy Independence and Security Act (42 U.S.C. 17001, Section 438)
- Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (16 U.S.C. section 1801 et seq.)
- Marine Mammal Protection Act (16 U.S.C. section 1361 et seq.)
- Native American Graves Protection and Repatriation Act (25 U.S.C. section 3001 et seq.)
- Executive Order (EO) 12088, Federal Compliance with Pollution Control Standards
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
- EO 13175, Consultation and Coordination with Indian Tribal Governments
- EO 13693, Planning for Federal Sustainability in the Next Decade

A description of the Proposed Action's consistency with these laws, policies, and regulations, as well as the names of regulatory agencies responsible for their implementation, is presented in Chapter 5 of this SEIS.

1.7 Public and Agency Participation and Intergovernmental Coordination

Regulations from the Council on Environmental Quality direct agencies to involve the public in preparing and implementing their NEPA procedures. The Navy's public involvement plan includes the following:

- **Publish Notice of Intent.** An NOI was published in the FR on March 13, 2017, announcing the Navy's intent to prepare an SEIS. Additional public notices were published in local newspapers

on March 10, 11, and 12, 2017 (*Kitsap Sun, Port Townsend & Jefferson County Leader, and Seattle Times*). The NOI was also made available via the SEIS project website: http://www.nbkeis.com/SEIS.aspx. No public comments were received in response to the NOI publication.

- **Establish and Sustain Regulatory Communication and Coordination.** The Navy will continue to meet with key regulatory agencies. Federal agencies include NMFS, U.S. Fish and Wildlife Service, and USACE. State agencies include the Washington Department of Ecology and the Washington Department of Natural Resources. The USACE Seattle District and NMFS Headquarters have agreed to be Cooperating Agencies on the SEIS.
- **Conduct Government-to-Government Consultation.** The Navy is engaged in ongoing Government-to-Government consultation with the Skokomish, Port Gamble S'Klallam, Jamestown S'Klallam, Lower Elwha Klallam, and Suquamish Tribes who have adjudicated usual and accustomed fishing grounds and stations in the project area.
- **Facilitate Wide Distribution and Public/Agency Review of Draft SEIS.** A Notice of Availability (NOA) of the Draft SEIS was published in the FR on August 18, 2017, which initiated a 45-day public and agency review and comment period. To ensure the widest possible distribution, the Navy distributed the Draft SEIS to government agencies, Native American tribes, local libraries, members of the public who requested copies, and all stakeholders from the 2016 Final EIS mailing list. The Draft SEIS was also posted to the project website (http://www.nbkeis.com/SEIS.aspx). Comments received during the Draft SEIS public comment period will be considered in preparing the Final SEIS. All comments received by mail and via the SPE website will be given equal consideration in preparation of the Final SEIS.
- **Distribute Final SEIS for Public/Agency Review.** The Final SEIS, in conjunction with the 2016 Final EIS, will provide decision makers with a comprehensive review of the potential environmental consequences of implementing the Proposed Action and alternatives, and will identify the Navy's preferred alternative. A summary of the comments received on the Draft SEIS, along with the Navy's responses to comments, will be included in the Final SEIS. Where appropriate, SEIS sections will be updated to respond to public comments. Publication of the NOA for the Final SEIS will begin a 30-calendar-day wait period, during which additional public and agency comments about the Final SEIS will be accepted via the same methods used for the Draft SEIS.
- **Issue a Record of Decision.** The final step in the NEPA process involves the signing of a ROD for the Proposed Action and publication of a NOA of the ROD in the FR. The ROD will identify and explain the Navy's decision, identify alternatives considered, address any additional substantive comments received that were not addressed in the Final SEIS, and discuss other considerations influencing the decision. The ROD will also describe efforts planned to avoid or minimize the environmental impacts resulting from the Navy's decision.

2 Proposed Action and Alternatives

2.1 Proposed Action

The Proposed Action addressed in this Supplemental Environmental Impact Statement (SEIS) is to construct and operate an extension to the existing Service Pier at Naval Base (NAVBASE) Kitsap Bangor, and associated support facilities on the pier and at two nearby upland sites. The Service Pier Extension (SPE) would provide two additional berths for maintenance of existing homeported and visiting submarines. The associated support facilities would provide logistical support for the United States (U.S.) Department of the Navy (Navy's) nuclear-powered attack submarine (SSN) research, development, test, and evaluation hub, which is currently located on NAVBASE Kitsap Bangor.

Construction of the SPE project would be implemented in a two-phase process, with each phase estimated to last 2 years:

- Phase 1 includes waterfront construction of the pier extension (including support facilities on the pier) and the upland development of both a construction laydown/staging area and a new 420-space parking lot (with associated road and utility improvements)
- Phase 2 includes construction and operation of an upland waterfront ship support building at the site of an existing parking lot

Phase 1 construction of the pier extension, parking lot, and laydown area (with associated road and utility improvements) is estimated to begin in the Fall of 2018 and require approximately 2 years to complete. Proposed operations at the Phase I facilities are therefore estimated to begin in the Fall of 2020. Phase 2 construction of the upland ship support building is estimated to begin after completion of Phase 1 construction (Fall of 2020), and would require approximately 2 years to complete (Fall of 2022). Compared to the action evaluated in the 2016 Final Environmental Impact Statement (EIS), this proposed timing represents an extension of the overall period during which construction activities would occur from an estimated 2 years to approximately 4 years.

2.2 Alternatives Eliminated from Further Consideration

A description of the alternatives development process and screening criteria for the SPE Proposed Action, including a description of alternatives that were eliminated from further consideration, was provided in Section 2.2.1 of the 2016 Final EIS. Screening criteria prioritized the following considerations: consistency with master plans and avoidance of mission impacts; avoidance or minimization of impacts on tribal usual and accustomed harvest areas; integration of project facilities into existing infrastructure; and unrestricted ocean access. Alternatives eliminated from further consideration included development of a new pier instead of an extension to the existing pier, and construction of a larger pier extension to accommodate the waterfront support building being proposed at an upland site.

2.3 Alternatives Carried Forward in the SEIS

As in the 2016 Final EIS, the Navy considered two action alternatives for the SPE project in this SEIS, plus a No Action Alternative. Except for the modifications to the proposed design and construction methods, the two SPE action alternatives evaluated in this SEIS are very similar to the two SPE alternatives analyzed in the 2016 Final EIS, and each alternative includes the same upland support facility components and operational characteristics as described in Section 2.2.1 of the 2016 Final EIS. The same

proposed timing and phasing of SPE project implementation described in Section 2.1 above would apply to both action alternatives.

SPE Alternative 2 is the Preferred Alternative, in part because it would have fewer environmental impacts than Alternative 3 and, therefore, it is also the environmentally Preferred Alternative. The larger pier extension under Alternative 3 would result in more piles installed and habitat impacts, over a shorter period of in-water construction than under Alternative 2.

2.3.1 Alternative 1: No Action Alternative

As required by the National Environmental Policy Act (NEPA), the Navy considered a No Action Alternative (Alternative 1) in both the 2016 Final EIS and this SEIS. The No Action Alternative is the same as described in Section 2.2.1.3 of the 2016 Final EIS, in which no SPE or associated support facilities would be constructed or operated at NAVBASE Kitsap Bangor. None of the project design changes or the updated regulatory guidance that prompted the preparation of this SEIS was relevant to the impact analyses for Alternative 1, which were described in relevant resource subsections of Chapter 3 of the 2016 Final EIS. Accordingly, all such analyses are incorporated by reference in this SEIS and are not repeated or discussed further.

2.3.2 Changes to Alternative 2: Short Pier Configuration (Preferred)

2.3.2.1 Design Changes

Alternative 2 in this SEIS (Figures 2-1 and 2-2) is very similar to the short pier configuration described and analyzed as SPE Alternative 2 in the 2016 Final EIS. The differences between the 2016 Final EIS and the SEIS versions of Alternative 2 are listed in Table 2-1 (changes from the EIS are shown in blue text) and include the following general changes to the pier extension design for the SEIS:

- reduced length of the proposed pier extension (from 540 feet to 520 feet long)
- smaller total surface area (from 44,000 square feet [sq ft] to 38,924 sq ft)
- smaller area displaced by piles (from 1,965 sq ft to 1,894 sq ft [see Table 2-1], including 189 sq ft of displacement that would now be temporarily instead of permanently displaced)
- distinction between permanent and temporary piles, which would be removed at the conclusion of the construction phase
- upland development area (approximately 4 acres) would no longer be revegetated after construction but would remain a permanent gravel covered storage/laydown area (resulting in a total of 7 acres of permanently disturbed area)

As shown in Table 2-1, the updated design for Alternative 2 would include installation of the following mix of permanent piles:

- 203 steel 36-inch diameter piles (27 fewer than in the Final EIS)
- 50 steel 24-inch diameter small craft mooring and dolphin piles (no change from the Final EIS)
- 103 concrete 18-inch diameter fender piles (2 fewer than the Final EIS)

In addition, the updated design for Alternative 2 in this SEIS includes 27 temporary falsework piles (each 36-inch diameter steel) that had not been identified in the 2016 Final EIS. Falsework piles are used to temporarily support a construction component until construction is sufficiently advanced to where the new construction can support itself. Falsework piles would be removed at the conclusion of construction.

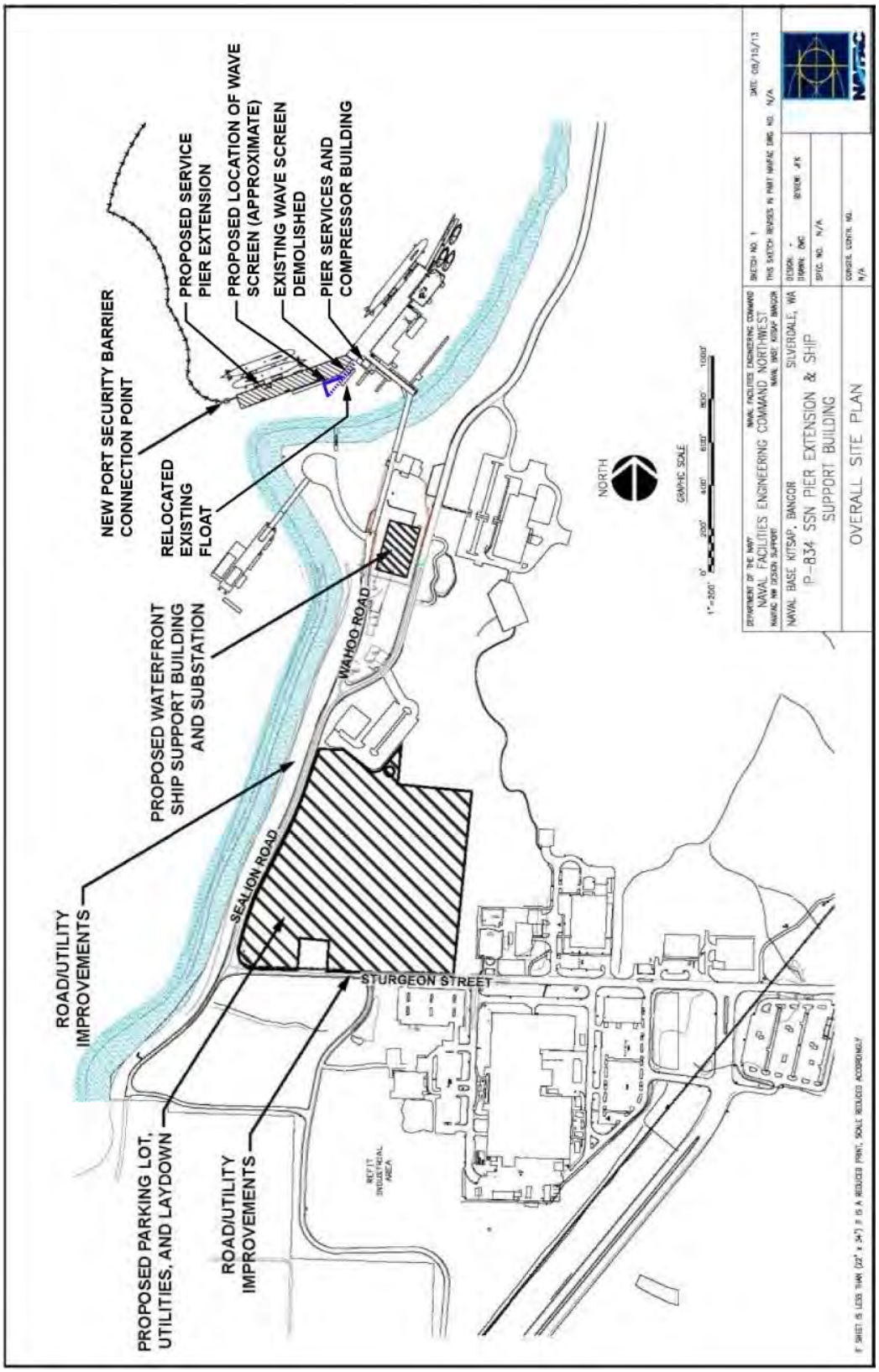


Figure 2-1 Alternative 2 (Short Pier Configuration)

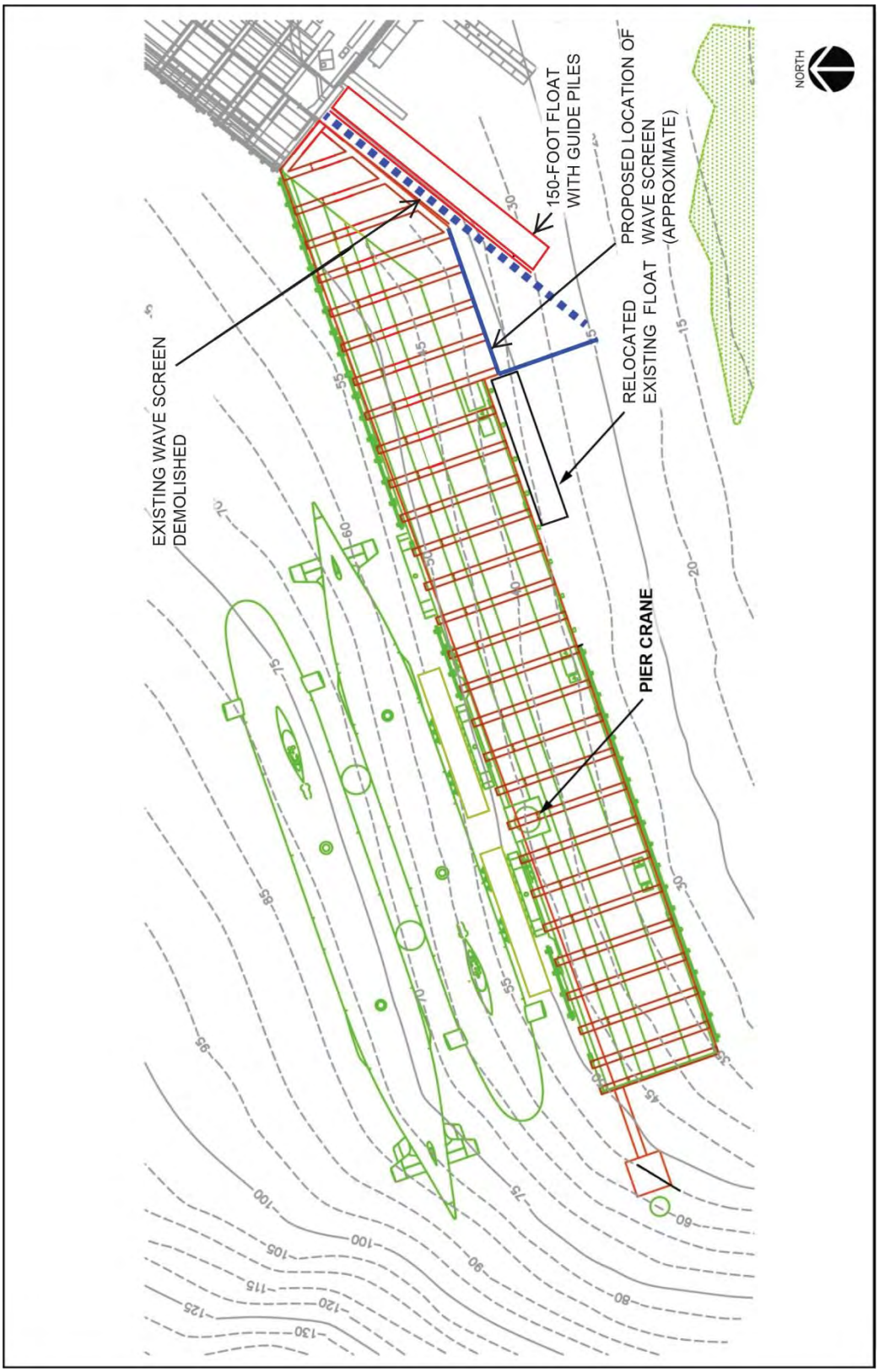


Figure 2-2 Location of 150-foot Float, Wave Screen to be Removed, and New Wave Screen for SPE Project

Table 2-1 Summary of the Action Alternatives for the Proposed Action

SPE Feature	*SPE Alternative 2 Short Pier Configuration 2016 Final EIS*	*SPE Alternative 2 Short Pier Configuration SEIS*	*SPE Alternative 3: Long Pier Configuration 2016 Final EIS*	*SPE Alternative 3: Long Pier Configuration SEIS*
Length and width of pier extension	540 feet long 68 feet wide	520 feet long Same width	975 feet long 68 feet wide	No Change from 2016 Final EIS
Number of permanent steel support piles for SPE Pier and wave screen attachment	230 (36-inch)	203 (36-inch)	500 (24-inch)	No Change from 2016 Final EIS
Number of permanent concrete fender piles	105 (18-inch)	103 (18-inch)	160 (18-inch)	No Change from 2016 Final EIS
Number of permanent small craft mooring and dolphin (for Port Security Barrier reconfiguration) steel piles	50 (24-inch)	No Change from 2016 Final EIS	50 (24-inch)[1]	No Change from 2016 Final EIS
Number of temporary steel falsework piles	Not identified in 2016 Final EIS	27 (36-inch)	Not identified in 2016 Final EIS	50 (36-inch)
Number of creosote-treated timber piles removed	19 (18-inch) 17 (15-inch)	No Change from 2016 Final EIS	19 (18-inch) 17 (15-inch)	No Change from 2016 Final EIS
Total area displaced by piles[2]	1,965 sq ft	1,894 sq ft (including 1,705 sq ft permanent and 189 sq ft temporary displacement)	1,876 sq ft	2,229 sq ft (additional 353 sq ft temporary displacement)
Size of float	150 feet long by 15 feet wide, 2,250 sq ft	No Change from 2016 Final EIS	150 feet long by 15 feet wide, 2,250 sq ft	No Change from 2016 Final EIS
Total over-water area	44,000 sq ft	38,924 sq ft	70,000 sq ft	No Change from 2016 Final EIS
New wave screen	Approximately 200 feet long and 27 feet high, concrete or steel, attached to existing piles	Wave screen is same size and type as in 2016 Final EIS but configuration changed.	Approximately 200 feet long and 27 feet high, concrete or steel, attached to existing piles	Wave screen is same size and type as in 2016 Final EIS but configuration changed.
Barge trips (round trips)	6 per month on average	No Change from 2016 Final EIS	6 per month on average	No Change from 2016 Final EIS

Table 2-1 Summary of the Action Alternatives for the Proposed Action (continued)

SPE Feature	*SPE Alternative 2 Short Pier Configuration 2016 Final EIS*	*SPE Alternative 2 Short Pier Configuration SEIS*	*SPE Alternative 3: Long Pier Configuration 2016 Final EIS*	*SPE Alternative 3: Long Pier Configuration SEIS*
Upland area permanently occupied by new structures/parking lot (maximum)	7 acres	No Change from 2016 Final EIS	7 acres	No Change from 2016 Final EIS
Upland area disturbed by construction (maximum)	4 acres temporary ground disturbance; with revegetation	Same 4 acres but permanent disturbance, with gravel cover instead of revegetation.	4 acres temporary impact; with revegetation	4 acres permanent impact; same disturbance area; but gravel with no revegetation.
New facilities	Pier crane; 2,100 sq ft Pier Services & Compressor Building; 50,000 sq ft Waterfront Support Building; Approximately 420-space parking lot	No Change from 2016 Final EIS	Pier crane; 2,100 sq ft Pier Services & Compressor Building; 50,000 sq ft Waterfront Support Building; Approximately 420-space parking lot	No Change from 2016 Final EIS
Roadway and utility improvements	Transmission line upgrades, switch gear, and new substation (included in upland area disturbed above)	No Change from 2016 Final EIS	Transmission line upgrades, switch gear, and new substation (included in upland area disturbed above)	No Change from 2016 Final EIS
Overall construction duration	24 months	No Change from 2016 Final EIS	24 months	No Change from 2016 Final EIS

Table 2-1 Summary of the Action Alternatives for the Proposed Action (continued)

SPE Feature	*SPE Alternative 2 Short Pier Configuration 2016 Final EIS*	*SPE Alternative 2 Short Pier Configuration SEIS*	*SPE Alternative 3: Long Pier Configuration 2016 Final EIS*	*SPE Alternative 3: Long Pier Configuration SEIS*
Duration of in-water activity for impact pile driving[3]	Estimated total of 161 days of pile driving activity[4] distributed across two in-water work seasons:[5] • Less than 45 minutes/day for approximately 125 days to install permanent steel support piles. • Additional 36 days for concrete fender piles,	Estimated total of 160 days of pile driving[6] activity distributed across two in-water work seasons:[5] • Less than 45 minutes/day for approximately 125 days to install permanent steel support piles. • Additional 35 days for concrete fender piles.	Estimated total of 205 days of pile driving activity[4] distributed across two in-water work seasons:[5] • Less than 45 minutes per day for approximately 155 days to install permanent steel support piles. • Additional 50 days for concrete fender piles.	No change from 2016 Final EIS

Key: EIS = Environmental Impact Statement; SEIS = Supplemental Environmental Impact Statement; SPE = Service Pier Extension; sq ft = square feet

Notes:

1. Included in the total of 500 24-inch permanent steel support piles.
2. Includes the area displaced by all proposed pier extension piles minus the area of piles being removed from the existing Service Pier.
3. While this information focuses on impact pile driving because it is louder and more impactful than vibratory methods, vibratory pile driving would also be applied during the same in-water work periods to partially install permanent steel piles and to install and remove temporary steel piles. Vibratory methods would be applied for up to 5 hours/day but only when impact pile driving is not occurring.
4. The estimate of required pile driving days in the 2016 Final EIS was based on an assumption of 2,000 impact pile strikes per day.
5. The two in-water work seasons would be August 1, 2018 through January 15, 2019 and July 16, 2019 through January 15, 2020.
6. The estimate of required pile driving days for this SEIS is based on an assumption of 1,600 impact pile strikes per day. It also includes time for potential work shutdowns due to observed presence of marine mammal and marbled murrelet, weather delays, security delays, and other operational impact delays (which were not included in the 2016 Final EIS assumptions).

All other design details for the Alternative 2 short pier configuration are the same as described in Section 2.2.1.3 of the 2016 Final EIS.

2.3.2.2 Alternative 2 Construction Methods

Proposed construction methods for SPE Alternative 2 in this SEIS differ from those described in the 2016 Final EIS with regard to: (1) the distinction between temporary (i.e., falsework piles) and permanent piles (including indicator piles) and how they differ in method of installation, and (2) the number of days of in-water use of impact pile driving methods.

The piles used to construct the SPE would fall into two categories: Permanent piles and temporary falsework piles.

- Permanent Piles – As shown in Table 2-1, permanent piles would include 203 piles made of steel pipe (36-inch diameter), 50 steel small craft mooring piles (24-inch diameter), and 103 concrete fender piles (18-inch diameter). Driving of the steel support piles would use a combination of vibratory and impact methods and would require an estimated 125 days of pile driving. Driving of the concrete fender piles would use impact methods only, and would require an estimated 35 additional days of pile driving. Vibratory pile driving activity would occur for up to 5 hours/day and impact pile driving would occur for less than 45 minutes in any given day. All pile driving would be completed within two in-water work seasons (totaling a combined 12 months of in-water work). Indicator piles are a variation of the proposed permanent piles that are tested to assess whether the proper sized hammer is being used and whether required bearing capacities will be achieved. All indicator piles would become part of the permanent structure and are included in the permanent pile count.
- Falsework piles – the updated pier extension design requires 27 steel falsework piles (36-inch diameter) to be installed temporarily and then removed. These piles are used to temporarily support a construction component in place until construction is sufficiently advanced to enable the new structure to support itself. All falsework piles would be installed using a vibratory pile driver only and would be extracted with a vibratory pile driver when the pile is no longer needed for support. Installation/removal of falsework piles (and all other use of a vibratory pile driver, including for extraction of existing timber piles) would occur for up to 5 hours/day during the same 125 days as the installation of permanent piles using impact methods.

The estimated total of 160 days of in-water pile driving activity (steel and concrete) under SEIS Alternative 2 represents a decrease of 1 day compared to the same alternative in the 2016 Final EIS (due to design changes that require 2 fewer concrete piles). The estimated number of pile driving days required takes into account potential shutdowns due to observations of marine mammal and marbled murrelet, weather delays, security delays, and other operational impact delays. Further, the estimated number of impact pile strikes per day was reevaluated based on recent experience with implementation of similar projects in the vicinity, which yielded actual data on the variability in the number of impact strikes required to install similar piles. The projected number of impact pile driving days (125) are based on conservative estimates of how many strikes would be required to drive each pile (a metric that can be highly variable, even for the same type of pile using the same method). The 2016 Final EIS evaluated the alternatives using an assumption of 2,000 strikes per day and did not take into account potential delays as discussed above. Additional evaluation of Alternative 2, based on recent project experience, assumes one less day of pile driving as compared to the 2016 Final EIS by installing piles at a rate of 1,600 strikes/day vs. 2,000 as evaluated in the 2016 Final EIS. However, the actual number of pile driving

days needed to complete the project would likely be less than anticipated as potential delays described above were conservatively estimated. All pile driving is expected to be completed within two in-water work seasons (no change from the 2016 EIS). On any given day of pile driving, an impact pile driver would be applied for less than 45 minutes and a vibratory pile driver would be applied for no more than 5 hours.

2.3.2.3 Alternative 2 Operations

Operation of the SPE and upland support facilities is consistent with the description in Section 2.2.1.3 of the 2016 Final EIS, except that under Alternative 2 in this SEIS there would be a permanent alteration of the 4-acre construction laydown/staging area at one of the upland sites (see Figure 2-1). In the 2016 Final EIS, this area was originally proposed to be revegetated with native forest species following construction, resulting in a temporary disturbance. For the SEIS, this area would be covered with gravel following construction, and would be maintained as a permanent gravel lot.

2.3.3 Changes to Alternative 3: Long Pier Configuration

Alternative 3 in this SEIS (Figure 2-3) is very similar to the long pier configuration described and analyzed as SPE Alternative 3 in the 2016 Final EIS. The differences between the 2016 Final EIS and the SEIS versions of Alternative 3 are listed in Table 2-1 and include the following general changes to the pier extension design for the SEIS:

- addition of 50 steel falsework piles that would be installed and subsequently removed within the construction phase using a vibratory pile driver
- additional area (353 sq ft) displaced by piles (temporarily) due to installed falsework piles
- upland development area (approximately 4 acres) would no longer be revegetated after construction but would remain a permanent gravel covered storage/laydown area

As shown in Table 2-1, the proposed types and quantities of permanent steel piles and concrete fender piles, and the removal of existing timber piles, did not change for SEIS Alternative 3 compared to the Final EIS, but the design of the long pier configuration was updated to include 50 temporary steel pipe falsework piles (each 36 inches in diameter) that had not been identified in the 2016 Final EIS. All other design details for the Alternative 3 long pier configuration are the same as described in Section 2.2.1.3 of the 2016 Final EIS.

2.3.3.1 Alternative 3 Construction Methods

Proposed construction methods for SPE Alternative 3 in this SEIS are consistent with the description in Section 2.2.1.3 of the 2016 Final EIS. Construction of SEIS Alternative 3 differs from the Final EIS version of Alternative 3 only with regard to additional use of a vibratory pile driver to install and remove the 50 temporary steel falsework piles that were not included in the Alternative 3 design in the Final EIS. The installation and removal of these falsework piles would be interspersed with other pile driving activity during the two in-water work seasons and would not change the estimated maximum of 155 days of in-water pile driving for steel pile installation.

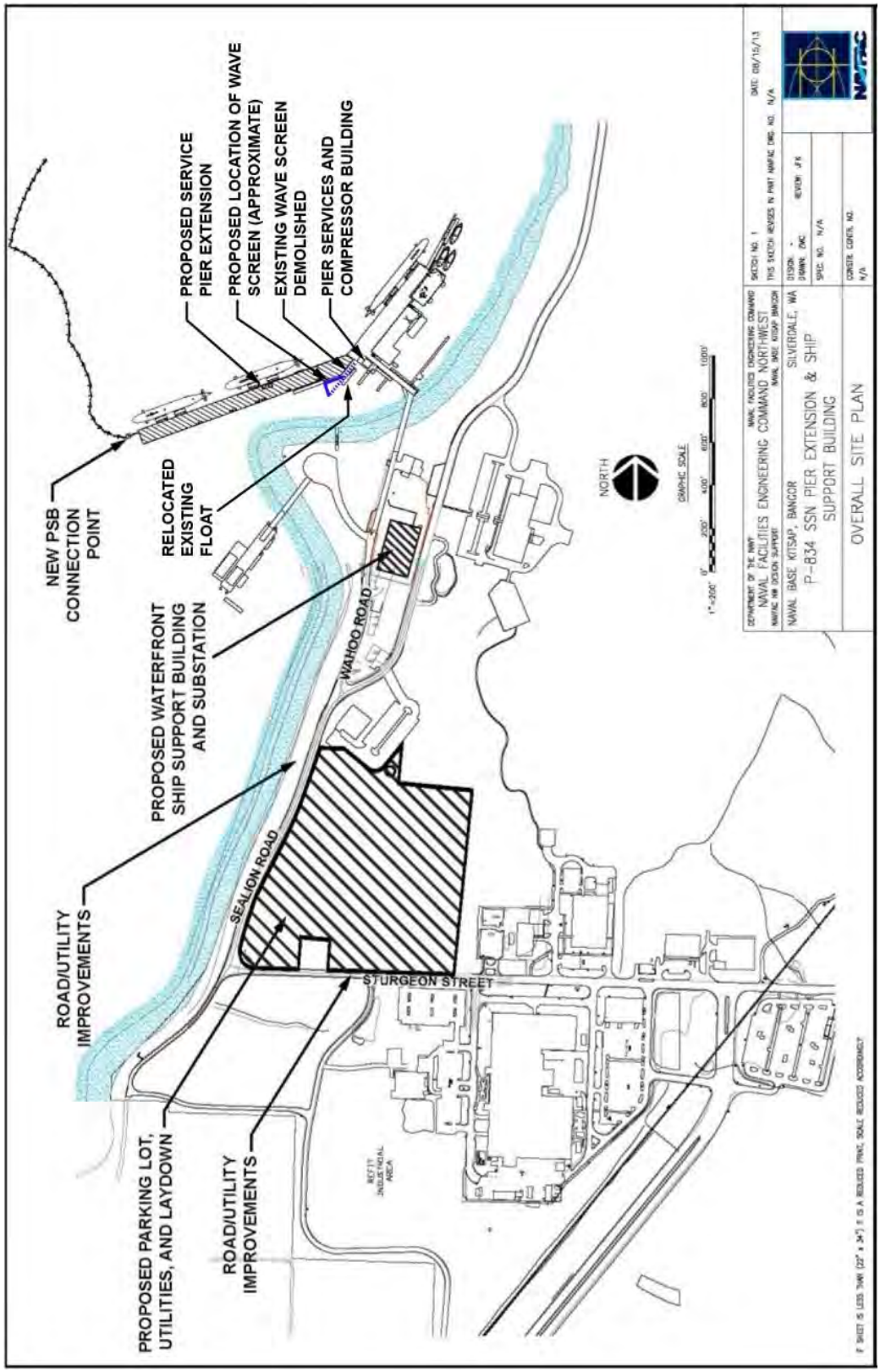


Figure 2-3 Service Pier Extension Alternative 3 (Long Pier Configuration)

Driving of the permanent steel support piles would use a combination of vibratory and impact methods and would require up to 155 days of pile driving. Driving of the concrete fender piles would use impact methods only, and would require up to 50 days of pile driving. Vibratory pile driving activity would occur for up to 5 hours/day and impact pile driving (if required) would occur for less than 45 minutes in any given day. All pile driving would be completed within two in-water work seasons. Indicator piles are a variation of the proposed permanent piles that are tested to assess whether the proper sized hammer is being used and whether required bearing capacities will be achieved. All indicator piles would become part of the permanent structure and are included in the permanent pile count.

The updated pier extension design for Alternative 3 requires 50 steel falsework piles (36-inch diameter) to be installed temporarily and then removed. These piles are used to temporarily support a construction component in place until construction is sufficiently advanced to enable the new structure to support itself. All falsework piles would be installed using a vibratory pile driver only and would be extracted with a vibratory pile driver when the pile is no longer needed for support. Installation/removal of falsework piles (and all other use of a vibratory pile driver, including for extraction of existing timber piles) would occur for up to 5 hours/day during the same 155 days as the installation of permanent piles using impact methods. All pile driving to construct the Alternative 3 configuration would be completed within two in-water work seasons (no change from the 2016 EIS).

2.3.3.2 Alternative 3 Operations

Operation of the SPE and upland support facilities is consistent with the description in Section 2.2.1.3 of the 2016 Final EIS, except that under Alternative 3 in this SEIS there would be a permanent alteration of the 4-acre construction laydown/staging area at one of the upland sites (see Figure 2-3). In the 2016 Final EIS, this area was originally proposed to be revegetated with native forest species following construction, resulting in a temporary disturbance. For the SEIS, this area would be covered with gravel following construction, and would be maintained as a permanent gravel lot.

2.4 Best Management Practices and Current Practices Included in Proposed Action

Aspects of the Proposed Action have the potential to cause environmental impacts. Several measures, including Best Management Practices (BMPs), current practices (CPs), mitigation measures (MMs), as well as Compensatory and Treaty Mitigation would be implemented to avoid, reduce, mitigate, and offset the effects of the Proposed Action. For a detailed discussion of each practice and mitigation measure described below, please refer to Appendix B*, Mitigation Action Plan,* of this SEIS. The following is a description and summary of the BMPs, CPs, and MMs, Compensatory and Treaty Mitigation that will be implemented under the Proposed Action.

BMPs are existing policies, practices, and measures that the Navy would adopt to reduce the environmental impacts of designated activities, functions, or processes. Although BMPs mitigate potential impacts by avoiding, minimizing, or reducing/eliminating impacts, BMPs are distinguished from potential mitigation measures because BMPs are (1) existing requirements for the Proposed Action; (2) ongoing, regularly occurring practices; or (3) not unique to this Proposed Action. In other words, the BMPs identified for this project are inherently part of the Proposed Action and are not potential mitigation measures proposed as a function of the NEPA environmental review process for the Proposed Action. Mitigation measures are discussed separately below.

The following BMPs would be implemented as part of the SPE project:

- Creosote-treated piles will be removed by using a vibratory driver or direct pull as preferred methods for removal.
- Removed creosote-treated piles and associated sediments (if any) will be contained on a barge or, if a barge is not utilized, stored in a containment area near the construction site. All creosote-treated material and associated sediments will be disposed of in a state-approved upland disposal site.
- To limit soil erosion and potential pollutants contained in stormwater runoff, a Stormwater Pollution Prevention Plan will be prepared and implemented in conformance with the *Stormwater Management Manual for Western Washington* (Washington Department of Ecology [WDOE] 2014) (applies to Operations also).
- To reduce the likelihood of any petroleum products, chemicals, or other toxic or deleterious materials from entering the water, fuel hoses, oil or fuel transfer valves, and fittings will be checked regularly for drips or leaks and will be maintained and stored properly to prevent spills from construction and pile driving equipment into state waters.
- During post-construction operations of the SPE, the guard panels between Port Security Barrier system pontoons will be cleaned regularly.
- Applicable construction measures (described above) to protect water quality and habitats will also be implemented during operational procedures.

Current practices are physical, structural, or managerial practices that decrease the potential for impacts, particularly related to water quality. The following CPs would be implemented as part of the SPE project:

- During post-construction operations of the SPE, low impact development and integrated management practices will be developed and implemented.
- To minimize water quality impacts from accidental spills of oil, fuels, or other related materials during construction, oil containment booms will be deployed around in-water construction site.
- During in-water construction activities, floating booms will be deployed and maintained to collect and contain floatable materials released accidentally. Any accidental release of equipment or materials will be immediately retrieved and removed from the water. Following completion of in-water construction activities, an underwater survey will be conducted to remove any remaining construction materials that may have been missed previously. Retrieved debris will be disposed of at an approved upland disposal site.
- Applicable construction measures (described above) to protect water quality and habitats will also be implemented during operational procedures.
- Barges and other construction vessels will not be allowed to run aground. Additionally, vessel operators will be instructed to avoid excess engine thrust in water depths shallower than 30 feet to the extent possible.
- During post-construction operations of the SPE, the guard panels between Port Security Barrier system pontoons will be cleaned regularly.

MMs are used most frequently to reduce or minimize impacts that are unavoidable. The following MMs would be implemented as part of the SPE project:

- To minimize impacts on marine habitat, limitations will be placed on construction vessel operations, anchoring, and mooring line deployment. Vessel operators will be provided with maps of the construction area with eelgrass beds clearly marked. Resulting seafloor disturbance will be confined to a 100-foot-wide corridor on each side of the structure under construction. A mooring and anchoring plan will be developed and implemented to avoid dragging anchors and lines in special status areas. Spudding/anchoring in existing eelgrass habitat will be avoided.
- To minimize impacts on Endangered Species Act (ESA)-listed fish species, in-water construction will be conducted within the in-water work window (July 16 through January 15). The exception is that relocation of the Port Security Barrier and placement of anchors could occur outside the work window.
- Pile driving of steel piles would be done using primarily vibratory methods to the extent practicable before using impact pile driving methods. Vibratory pile driving reduces noise levels by approximately 20 decibels root mean square (RMS) at 33 feet from the source.
- To attenuate in-water noise, bubble curtains would be used around steel piles being driven by impact methods. The Navy would also consider other equally or more effective noise attenuation methods that may become available. Noise attenuation would not be used for driving concrete piles, because of the much lower level of noise generated by driving of concrete piles compared to steel piles, and the resulting much lower potential for impacts to biota.
- During impact pile driving, a soft-start approach would be used to induce marine mammals to leave the immediate area. This soft-start approach requires contractors to initiate noise from hammers at reduced energy, followed by a waiting period.
- Construction activities would not be conducted during the hours of 10:00 p.m. and 7:00 a.m. Between July 15 and September 23, impact pile driving would only occur between 2 hours after sunrise and 2 hours before sunset to protect foraging marbled murrelets during the breeding season. Between September 24 and January 15, in-water construction activities would occur during daylight hours (sunrise to sunset). The Navy would notify the public about upcoming construction activities and noise at the beginning of each construction season.
- To avoid impacts on marine mammals protected by ESA and Marine Mammal Protection Act (MMPA) and marbled murrelet protected by ESA, monitoring of shut down and buffer zones around in-water pile driving locations would be implemented. Detailed marine mammal and marbled murrelet monitoring plans would be developed and implemented in consultation with National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service.
- To protect potential breeding marbled murrelets, tree removal would not be conducted during the marbled murrelet breeding season of April 1 through September 23. This timing restriction would also limit exposure of general construction noise and habitat disturbance on migratory birds.
- The Navy would develop a local Notice to Mariners to establish uniform procedures to facilitate the safe transit of vessels operating in the project vicinity. Barge trips and associated bridge openings would be scheduled to avoid peak commuting hours. The Notice to Mariners would also serve to notify divers, including tribal divers, of potential underwater noise impacts.

The following Compensatory and Treaty Mitigation would be implemented as part of the SPE project:

- The Navy would, as part of the Proposed Actions, undertake Compensatory Mitigation to offset unavoidable adverse impacts on aquatic resources under the provisions of the Clean Water Act (CWA) Final Rule for Compensatory Mitigation for Losses of Aquatic Resources. The Navy would purchase habitat credits from the Hood Canal In-Lieu Fee Program, which would implement appropriate mitigation in the Hood Canal watershed.
- The Navy would undertake mitigation projects proposed to address potential effects of the Proposed Actions on reserved treaty rights and resources of the Skokomish, Port Gamble S'Klallam, Jamestown S'Klallam, and Lower Elwha Klallam Tribes.

3 Affected Environment and Environmental Consequences

Affected environment descriptions for all relevant environmental resource areas were included in Chapter 3 of the 2016 Final Environmental Impact Statement (EIS) and are incorporated by reference in this chapter. In cases where new information about the affected environment for specific resource areas became available after completion of the 2016 Final EIS, such information is updated in this chapter.

In addition, for the following resources, the United States (U.S.) Department of the Navy (Navy) determined that the project changes (including phased construction that would extend the overall construction period) and new regulatory guidance addressed in this Supplemental Environmental Impact Statement (SEIS) resulted in little or no change to the findings of the impact analyses in the 2016 Final EIS. Therefore, the impact assessments from the Final EIS are incorporated by reference for each of the following resource areas (section numbers align with the Final EIS) and they are not described further in this SEIS:

- 3.6 Terrestrial Biological Resources – the impact analyses for this resource area in Section 3.6.2.3 of the 2016 Final EIS remain valid. The Service Pier Extension (SPE) design change regarding no revegetation of the 4-acre upland laydown area would mean that the vegetation loss acknowledged in the 2016 Final EIS at this laydown area would be permanent instead of temporary. This vegetation loss would represent 0.08 percent of existing vegetation at Naval Base (NAVBASE) Kitsap Bangor. There would be no changes to the analysis in the 2016 Final EIS regarding impacts from operation of the project.
- 3.8 Land Use and Recreation – although the 4 acres of laydown construction area would not be revegetated, the impacts to land use would not change substantially from the analysis contained in the 2016 Final EIS. There are no recreational uses at or near the SPE project sites, including the proposed upland parking and laydown sites. There would be no changes to the analysis in the 2016 Final EIS regarding impacts from operation of the project.
- 3.9 Airborne Acoustic Environment – the impact analyses for this resource area in Section 3.9.3.3 of the 2016 Final EIS remain valid as an estimate of worst case noise impacts from project construction. Under SEIS Alternative 2, the total number of days of pile driving activity would be reduced by 1 day, and vibratory pile driving would increase (due to the installation and removal of 27 temporary falsework piles) while louder impact pile driving would decrease (due to installation of 29 fewer permanent piles and fewer impact strikes per day). Overall, the construction impacts to the human acoustic environment would improve marginally from what was described in the 2016 Final EIS. Airborne noise in the area of the upland construction, as well as along the waterfront, would be consistent with the industrial nature of the NAVBASE Kitsap Waterfront. Further, mitigation measures would be implemented to reduce impacts in the acoustic environment (See Appendix B, *Mitigation Action Plan*). There would be no change to the Final EIS's analysis regarding airborne acoustic impacts from operation of the SPE project.
- 3.10 Aesthetics and Visual Quality – The 4 acres of laydown construction area that would not be revegetated under the revised SEIS alternatives would minimally change the impacts to aesthetics and visual quality as described in the 2016 Final EIS. There would be no changes to the analysis in the 2016 Final EIS regarding impacts from operation of the project.
- 3.11 Socioeconomics – The scope of the beneficial socioeconomic impacts identified in the 2016 Final EIS (e.g., job creation and increased economic output from construction spending) would

not change substantially due to the proposed project design changes (project construction costs are not expected to change), but the two-phased construction period proposed in this SEIS (for an estimated total of 4 years rather than 2) would cause such effects to be distributed over a longer construction period. There would be no changes to the socioeconomic analysis in the 2016 Final EIS regarding impacts from operation of the project.

- 3.12 Environmental Justice and Protection of Children – There would be no change in the findings of the environmental justice analysis in the 2016 Final EIS as a function of construction period duration or other proposed changes in project design or construction activity. Similarly, there would be no changes to the Final EIS analysis of impacts on this resource area due to operation of the SPE project.
- 3.13 Cultural Resources – The 2016 Final EIS determined there were no resources within the area of potential effect that were eligible for listing on the National Register of Historic Places. The State Historic Preservation Office concurred with the Navy's determination on October 7, 2015. As stated in the 2016 Final EIS, earth disturbing activities would be monitored by a professional archaeologist and a tribal cultural observer if requested by the affected tribes, and all requirements under the Native American Graves Protection and Repatriation Act would be implemented in the unlikely event they are required. None of these factors would change as a result of the updated project design and implementation plans. There would also be no changes to the 2016 Final EIS analysis of impacts from operation of the SPE project. For a description of Treaty Mitigation that will be implemented, please refer to Appendix B, *Mitigation Action Plan*.
- 3.15 Traffic –SEIS project design changes would result in little or no change to the traffic analyses in the 2016 Final EIS for either construction or operational phases of the SPE project. Construction-related traffic during the more intensive first phase of construction would be reduced slightly because the upland ship support building construction would be deferred to the second phase. During Phase 2, some construction-related traffic would occur to support development of the ship support building, and such traffic would mix with employee traffic associated with SPE operations, but this minimal additional traffic for construction of a single building would be accommodated by existing transportation infrastructure and overall traffic impacts would be less than significant.
- 3.16 Air Quality – Proposed changes in SPE project design and construction activity would not change the findings of the air quality impact analysis in the 2016 Final EIS. Construction emissions would be reduced slightly during the first 2-year construction phase and would be increased slightly during the second phase, but emissions overall would continue to be below established air quality thresholds. Proposed operation of the SPE project has not changed from what was analyzed in the 2016 Final EIS.

For the following additional resource areas, the Navy determined that the SPE project changes and new regulatory guidance described in this SEIS warrant additional analysis and discussion of potential impacts to supplement the 2016 Final EIS:

- marine water resources
- marine vegetation and invertebrates
- fish
- marine mammals

- marine birds
- geology, soils, and water resources
- Native American traditional resources and tribal treaty rights

Impacts to these resource areas were described in Chapter 3 of the 2016 Final EIS and such descriptions remain relevant in terms of the general types and sources of impacts. The changes in the impact analyses pertain to specific details associated with the intensity, extent, distribution, and/or timing or duration of the impacts. Accordingly, the Final EIS impact descriptions for these resource areas are incorporated by reference and the following subsections both summarize and supplement these impact analyses as appropriate. The remainder of this chapter describes the updated impact assessment for each of these resource areas, with an emphasis on the changes from the 2016 Final EIS.

Throughout this chapter, some project details and other information representing key changes since the 2016 Final EIS are shown as "strike-outs" with blue replacement text to illustrate exactly how the information changed and to enable direct comparison between the Final EIS and the SEIS.

3.1 Marine Water Resources

3.1.1 Alternative 2: Short Pier Configuration (Preferred)

3.1.1.1 Construction Impacts

As described in Section 2.3.2 and Table 2-1, the in-water work required to construct SPE Alternative 2 would include removal of 36 existing timber piles and installation of 203 permanent steel piles, 103 permanent concrete fender piles, 50 permanent small craft mooring and dolphin piles, and installation/removal of 27 temporary steel falsework piles, as well as construction of the pier infrastructure itself and the associated support facilities. The primary changes in the proposed construction of Alternative 2 (as compared to the short pier Alternative 2 in the 2016 Final EIS) include: the installation of 29 fewer permanent piles (using both vibratory and impact pile driving methods) and the installation and removal of the 27 new falsework piles (using only vibratory methods), with an associated net decrease of 71 square feet (sq ft) of total area displaced by piles; and a reduction in the overall in-water work period to a maximum of 160 days (1 day less than was assumed in the Final EIS). The location of the proposed new wavescreen would also be changed by installing it shoreward of the previous location but in line with the structural footprint of the SPE.

The types of construction-related impacts to marine water resources from implementation of SPE Alternative 2 were described in Section 3.1.2.3.2 of the 2016 Final EIS (incorporated here by reference) and are summarized below. The fundamental nature of these impacts would not change due to the updates to project design and construction methods in this SEIS. Pile driving would generate temporary and localized alterations of bathymetry (seafloor topography); temporary, small-scale, and localized changes in surface water circulation patterns due to construction equipment and barges; temporary and localized changes in water quality; and disturbance of bottom sediments. The replacement of 29 permanent piles originally proposed with 27 temporary piles would marginally increase the incidence of these types of impacts because temporary piles would disturb the sediments during both installation and removal, but this would be largely offset by decreasing the use of impact pile driving (in favor of vibratory methods) and spreading out the per-pile impacts across a longer construction period (temporary piles would be installed early in the construction phase and removed later). The net change in the incidence of these types of impacts is expected to be negligible given the temporary nature of the

impacts and the rapid dissipation of the effects, and the overall impacts to marine water resources would be less than significant. Longshore sediment transport processes along the NAVBASE Kitsap Bangor shoreline would not be affected because the influence of construction equipment on wave and current energy that are responsible for re-suspending and transporting sediments along the shoreline would be negligible (cbec, 2013).

Temporary changes to the seafloor within the SPE construction site would occur during construction. Given the deep-water setting of the SPE project site, there is no anticipated need for dredging within the construction corridor. However, removal of existing piles, anchor placement, and ground tackle used to moor construction equipment, in addition to effects from pile driving, would result in some physical disturbance to the seafloor, such as mounding and displacement or movement of bottom sediments. These changes would be limited to highly localized areas within the 100-foot-wide construction corridor. The magnitude of sediment displacement is estimated to be between 0.5 and 3 feet, representing the potential displacement of sediment by a typical vessel or barge anchor (width of up to 3 feet). However, the majority of localized sediment disturbance from construction activities would be expected to be much less than the maximum. These impacts are anticipated to be temporary because natural processes that occur at the sediment-water interface (bedload transport, bioturbation [mixing of surface sediment by benthic infaunal organisms], etc.) following completion of construction activity would return the seafloor to near its original profile over time (6 to 12 months) without intervention or mitigation. A period of 6 to 12 months would allow for a full seasonal cycle of storm and wind events, tidal influence, and resumption of ambient sediment transport patterns that would degrade temporary boundary roughness and reshape the seabed to the surrounding environment. Although some movement and redistribution of in-place sediments is anticipated, no substantial changes to bathymetry would occur.

Circulation patterns in the surface water layer (upper 10 to 15 feet of water) in the immediate vicinity of the SPE Alternative 2 site would be affected by short-term and temporary changes due to the presence of construction equipment and barges, which would partially obstruct flows. However, these effects would be localized and would not alter the overall circulation pattern and velocities in the nearshore and deeper water areas along the Bangor waterfront. Construction of SPE Alternative 2 would have no impact on the tidal range or water levels in Hood Canal or the immediate project area because the pier extension would be constructed on a foundation of piles that would not interfere with tidal cycles. Thus, water levels at the project site would be similar to other, adjacent areas of northern Hood Canal.

Changes to water quality through suspension of sediment and turbidity in the water column would be expected to persist for minutes to hours following completion of pile driving activity in a given day. Further, Washington Department of Ecology (WDOE), through the Section 303(d) program, has not classified the water quality in the area of the proposed SPE as impaired (WDOE, 2016) and sediment quality is good based on contaminant levels that are below marine sediment quality standards (Hammermeister and Hafner, 2009).

In summary, the following impacts on marine water resources would be expected during construction of Alternative 2:

- Temporary and localized disturbances to bottom sediments within the construction footprint (maximum 3.9 acres).
- Temporary and localized changes to water quality associated with resuspension of bottom sediments, but changes are not expected to exceed marine water quality standards.

As discussed in Section 2.4 of this SEIS, Best Management Practices (BMPs), Continuing Practices (CP), and Compensatory Mitigation (Appendix B) would be implemented to manage and reduce risks to marine water resources during construction. With implementation of these practices and measures, impacts to marine water resources associated with Alternative 2 would be less than significant.

The Navy is preparing a Coastal Consistency Determination application in compliance with the Coastal Zone Management Act and will be submitted to WDOE in Fall 2017.

3.1.1.2 Operation/Long-term Impacts

Operational/long-term impacts to marine water resources under Alternative 2 are identified in Section 3.1.2.3.2 of the 2016 Final EIS and incorporated here by reference. The presence and operation of the SPE structure would generate small changes in current velocities but would not result in substantial changes to sediment deposition/erosion patterns or longshore sediment transport processes within the project area. In addition, very localized scouring or accumulation of sediments around individual piles can be expected from small-scale changes in flow patterns, which could result in minor changes in sediment texture, but these changes are not expected to exceed sediment quality standards. BMPs, CPs, and Compensatory Mitigation (Appendix B) are also proposed (Section 2.4) that would help to minimize risks to marine water resources during the operational phase of the SPE project. Accordingly, long-term impacts from SPE operations would be less than significant.

3.1.2 Alternative 3: Long Pier Configuration

3.1.2.1 Construction Impacts

As described in Section 2.3.2 and Table 2-1, the in-water work required to construct SPE Alternative 3 would include removal of 36 existing timber piles and installation of 500 permanent steel piles, 160 permanent concrete fender piles, 50 permanent small craft mooring and dolphin piles, and installation/removal of 50 temporary steel falsework piles, as well as construction of the pier infrastructure itself and the associated support facilities. The primary changes in the proposed construction of the long pier Alternative 3 in this SEIS (as compared to the long pier Alternative 3 in the 2016 Final EIS) involves the installation and removal of the 50 additional falsework piles, with an associated increase of 353 sq ft of total area (temporarily) displaced by piles (a 19 percent increase above the 1,876 sq ft of permanent displacement in the Final EIS). The location of the proposed new wavescreen would also be changed by installing it shoreward of the previous location but in line with the structural footprint of the SPE. The duration of the in-water work period (155 days for permanent and temporary steel piles plus 50 days for concrete fender piles) would not change from what was analyzed in the Final EIS, primarily because the additional 50 falsework piles would be installed and removed using vibratory methods only. Since vibratory pile driving can be conducted for up to 5 hours per day whenever impact pile driving (less than 45 minutes per day) is not occurring, the additional 50 temporary piles would be installed and removed within the designated 205-day total in-water work period.

The types of construction-related impacts to marine water resources from implementation of the long pier SPE Alternative 3 were described in detail in Section 3.1.2.3.2 of the 2016 Final EIS (incorporated here by reference). Impacts associated with Alternative 3 would also be very similar to those summarized above in Section 3.1.1 for Alternative 2. Such impacts would include:

- Larger area affected by temporary and localized disturbances to bottom sediments within the construction footprint (maximum 6.6 acres).
- Temporary and localized changes to water quality associated with resuspension of bottom sediments, but changes are not expected to exceed marine water quality standards.

The addition of 50 temporary piles would marginally increase the incidence of these types of impacts because temporary piles would disturb the sediments during both installation and removal. Changes to water quality would be expected to persist for minutes to hours following conclusion of pile driving activity. The increased incidence of sediment disturbance represents a change from the analysis in the 2016 Final EIS but would not substantially alter the analysis or conclusions that were presented in the 2016 Final EIS. The area of the proposed SPE has not been classified as impaired in the latest update to the 303(d) list of impaired waterbodies (WDOE, 2016) and contaminant levels are below sediment water quality standards. The net effect of these types of impacts on the existing marine water resource conditions is expected to be negligible given the temporary nature and rapid dissipation of the effects. BMPs would also be implemented to manage and reduce risks to marine water resources during construction of Alternative 3. Overall, the impacts to marine water resources from implementation of Alternative 3 would be less than significant.

3.1.2.2 Operation/Long-term Impacts

Operational/long-term impacts to marine water resources under Alternative 3 are identified in Section 3.1.2.3.3 of the 2016 Final EIS (incorporated here by reference). As also summarized above for Alternative 2, the presence and operations of the long pier SPE structure would result in small changes in current velocities but would not result in substantial changes to sediment deposition/erosion patterns or longshore sediment transport processes within the project area. In addition, very localized scouring or accumulation of sediments around individual piles can be expected from small-scale changes in flow patterns, which could result in minor changes in sediment texture, but these changes are not expected to exceed sediment quality standards. With the implementation of BMPs, long-term impacts from SPE operations under Alternative 3 would be less than significant.

3.2 Marine Vegetation and Invertebrates

3.2.1 Alternative 2: Short Pier Configuration (Preferred)

3.2.1.1 Construction Impacts

The types of construction-related impacts to marine vegetation and invertebrates that would result from implementation of SPE Alternative 2 were described in Section 3.2.2.3.2 of the 2016 Final EIS (incorporated here by reference) and would be associated with temporary and localized sediment disturbances and associated temporary changes in water quality during pile driving (as summarized above in Section 3.1.1). The fundamental nature of these impacts would not change due to the updates to project design and construction methods in this SEIS. The design replacement of 29 permanent piles with 27 temporary piles would marginally increase the incidence of these types of impacts because temporary piles would disturb the sediments during both installation and removal, but the impacts would be dispersed over a longer construction period. Sediment disturbance and increased turbidity would be localized to the areas of pile placement and extraction, consistent with evaluation in the 2016 Final EIS. Overall, the changes to water quality through resuspension of sediments and turbidity (see Section 3.1.1 above) would be expected to persist for minutes to hours following the conclusion of pile

driving activity in any given day (less than 45 minutes per day for impact driving and up to 5 hours per day of vibratory driving). The net effect of these types of impacts is expected to be negligible given the temporary nature of the impacts and the rapid dissipation of the effects.

The following subsections describe the potential impacts to marine vegetation and benthic invertebrate communities, and focus on how such impacts changed compared to the related analyses in the Final EIS.

Marine Vegetation Communities

The total area of habitat for marine vegetation in the potentially disturbed construction area for SPE Alternative 2 would remain relatively the same as in the Final EIS: 1 acre in the nearshore and 2.9 acres in deep water although there is a slight reduction in permanent displacement. As shown in Table 3.2-1, permanent displacement from pile installation would be reduced from 0.045 acre to 0.037 acre and temporary displacement by falsework piles would increase from 0 to 0.004 acre.

Table 3.2-1 Marine Habitat Impacted by SPE Alternative 2

Habitat Type	*Potential Construction Disturbance Area (Acres)[1]*	*Area Displaced by Temporary Piles (Acres)*	*Area Displaced by Permanent Piles (Acres)[2]*	*Operational Shading (Acres)*
Nearshore	1.0		0	0
Deep Water	2.9	0.004	~~0.045~~ 0.037	1.0
Vegetation Type[3]				
Eelgrass[4]	Negligible		0	0
Green Macroalgae	0.27		0	0
Red Macroalgae	Negligible		0	0
Brown Macroalgae (Kelp)	Negligible		0	0

Notes:

1. The potential temporary construction disturbance area includes the structure footprint and the area within 100 feet of the proposed SPE structure.
2. Includes the area displaced by the proposed pier extension piles minus the area of piles being removed from the existing Service Pier.
3. Eelgrass and macroalgae overlap in their occurrence along the Bangor shoreline. Therefore, the total acreage of marine vegetation potentially impacted cannot be calculated by summing the values for each vegetation type.
4. No piles would be installed in eelgrass and barges would avoid anchoring in eelgrass beds.

Within the 3.9-acre area of potential construction disturbance, approximately 0.27 acre supports marine vegetation communities, primarily green macroalgae (Figure 3.2-1). Eelgrass is also present to a negligible extent near the SPE project area (Figure 3.2-2). However, construction activities would largely occur in deep waters (30 feet below mean lower low water and deeper), beyond the depth where marine vegetation occurs. The area of impacts would consist of the current SPE footprint plus the areas where existing piles would be removed and new piles would be driven, as well as a 100-foot-wide corridor where barges would be stationed and tugboats would maneuver the barges during construction. As discussed in Section 3.2.2.3.2 of the 2016 Final EIS, introduction of the invasive algal species, *Sargassum*, via the hulls of barges and tugboats would be a concern but would be avoided through contractor compliance with Revised Code of Washington 77.15.290 *Unlawful transportation of fish or wildlife – Unlawful transport of aquatic plants – Penalty* (see Appendix B, Mitigation Action Plan). Overall, with implementation of the BMPs, CPs, Mitigation Measures (MMs), and Compensatory Mitigation (Appendix B) described in Section 2.4, impacts to marine vegetation from construction would be less than significant.

Source: Science Applications International Corporation (SAIC), 2009

Figure 3.2-1 Macroalgae Distribution at the SPE Project Site

Source: Anchor QEA, 2012

Figure 3.2-2 Eelgrass Distribution at the SPE Project Site

Benthic Invertebrate Communities

Benthic communities within the footprint of the permanent and temporary pile installation would be lost (Table 3.2-2) and adjacent benthic communities, as well as those within vessel anchoring areas, would be exposed to sediment disturbance and turbidity for up to 160 days (1 day less than evaluated in the 2016 Final EIS).

Table 3.2-2 Benthic Community Resources Impacted by SPE Alternative 2

Impact Type	*Benthic Community Area (Acres)*
Potential Temporary Construction Disturbance	3.9
Temporary loss under piles	0.004
Permanent loss under piles[1]	~~0.045~~ 0.037
Operational Shading	1.0

Note:

1. Includes the area displaced by the proposed pier extension piles (36-inch steel support piles; 24-inch steel mooring piles; and 18-inch concrete fender piles) minus the area of piles being removed from the existing Service Pier.

The sediment disturbances would be temporary and localized to the footprint of pile installation and removal. Areas of disturbance within the locations of the removed creosote timber and falsework steel piles are expected to recolonize within 2 years of disturbance (CH2M Hill, 1995; Romberg et al., 1995; Parametrix, 1994, 1999; Anchor Environmental, 2002; Vivan et al., 2009). Impacts to benthic invertebrate communities due to Alternative 2 would be less than significant.

In summary, the following construction impacts on marine vegetation and benthic invertebrates would occur with implementation of Alternative 2:

- Temporary construction impacts in approximately 3.9 acres; small areas (0.27 acre) of marine vegetation (primarily green macroalgae) disturbed within the 100-foot-wide construction corridor – no change from 2016 Final EIS.
- Permanent benthic habitat loss in pile footprints of approximately 0.037 acre – a reduction of 0.008 acre compared to the same alternative in the 2016 Final EIS.
- Temporary benthic habitat loss of 0.004 acre from installation of temporary piles. Recolonization of benthic species in areas of removed falsework piles is anticipated within approximately 2 years.

With the implementation of BMPs, CPs, MMs, and Compensatory Mitigation designed to reduce risks to marine water resources (see Appendix B *Mitigation Action Plan*), all such impacts would be less than significant.

3.2.1.2 Operation/Long-Term Impacts

No overwater shading of existing marine vegetation communities would result as the SPE footprint is beyond depths of vegetation growth. As discussed in Section 2.4 of this SEIS, BMPs, CPs, MMs, and Compensatory Mitigation (Appendix B) would be implemented to avoid impacts to vegetation

communities. With implementation of these BMPs, there would be no operational impacts on marine vegetation.

Long-term impacts of operation of the SPE would result from the loss of benthic habitat from permanent placement of piles; however, this loss would be less (0.037 acre) than what was evaluated in the 2016 Final EIS (0.045 acre) with 29 fewer permanent piles left in. Over time, the piles would be colonized by hard-bottomed species such as mussels and sea anemones that would attach to the piles and create a fouling community. This community would support species such as amphipods, annelids, gastropods, and predatory sea stars. Further, overwater shading created from the SPE structure and associated floats would occur over deeper water and is unlikely to impact sessile sediment burrowing and other immobile benthic organism productivity.

Therefore, long-term impacts from operation of the SPE on marine vegetation and invertebrates would be reduced compared to those evaluated in the 2016 Final EIS and would be less than significant.

3.2.2 Alternative 3: Long Pier Configuration

3.2.2.1 Construction Impacts

The types of construction-related impacts to marine vegetation and invertebrates that would result from implementation of SPE Alternative 3 were described in Section 3.2.2.3.3 of the 2016 Final EIS (incorporated here by reference) and would be associated with temporary and localized sediment disturbances and associated temporary changes in water quality during pile driving (as summarized above in Sections 3.1.1 and 3.1.2). The fundamental nature of these impacts has not changed due to the updates to project design and construction methods in this SEIS.

As described in Section 2.3.2, Table 2-1, and Section 3.1.2 of this SEIS, the in-water work required to construct SPE Alternative 3 would include removal of 36 existing timber piles and installation of 500 permanent steel piles, 160 permanent concrete fender piles, 50 permanent small craft mooring and dolphin piles, and installation/removal of 50 temporary steel falsework piles, as well as construction of the pier infrastructure itself and the associated support facilities. The only changes to Alternative 3 relative to the 2016 Final EIS) involves the installation and removal of the 50 additional falsework piles and a realignment of the proposed new wavescreen. The duration of the in-water work period (155 days for steel piles plus 50 days for concrete fender piles) would not change from what was analyzed in the Final EIS, primarily because the additional 50 falsework piles would be installed and removed using vibratory methods only. Since vibratory pile driving can be conducted for up to 5 hours per day whenever impact pile driving (less than 45 minutes per day) is not occurring, the additional 50 temporary piles would be installed and removed within the same in-water work parameters.

The following subsections describe the potential impacts to marine vegetation and benthic invertebrate communities from construction of the Alternative 3 SPE project, and focus on how such impacts changed compared to the related analyses in the Final EIS.

Marine Vegetative Communities

The total area of habitat for marine vegetation in the potentially disturbed construction area for SPE Alternative 3 would remain the same as in the Final EIS: 1 acre in the nearshore and 5.5 acres in deep water. As shown in Table 3.2-3, permanent displacement from pile installation would remain at 0.043 acre (as in the Final EIS) and temporary displacement by falsework piles would increase from 0 to 0.0081 acre.

Table 3.2-3 Marine Habitat Impacted by SPE Alternative 3

Habitat Type	*Potential Construction Disturbance Area (Acres)[1]*	*Area Temporarily Displaced by Piles (Acres)*	*Area Permanently Displaced by Piles (Acres)[2]*	*Operational Shading (Acres)*
Nearshore	1.0		0	0
Deep Water	5.6	0.0081	0.043	1.6
Vegetation Type[3]				
Eelgrass[4]	Negligible		0	0
Green Macroalgae	0.27		0	0
Red Macroalgae	Negligible		0	0
Brown Macroalgae (Kelp)	Negligible		0	0

Notes:

1. The potential temporary construction disturbance area includes the structure footprint and the area within 100 feet of the proposed SPE structure.
2. Includes the area displaced by the proposed pier extension piles minus the area of piles being removed from the existing Service Pier.
3. Eelgrass and macroalgae overlap in their occurrence along the Bangor shoreline. Therefore, the total acreage of marine vegetation potentially impacted cannot be calculated by summing the values for each vegetation type.
4. No piles would be installed in eelgrass and barges would avoid anchoring in eelgrass beds.

Despite a larger total disturbance area of 5.6 acres for Alternative 3 (as compared to 3.9 acres for Alternative 2), the area supporting marine vegetation (primarily green macroalgae) would be the same for both alternatives (0.27 acre) (see Figure 3.2-1). Eelgrass is also present to a negligible extent near the SPE project area (Figure 3.2-2). However, construction activities would largely occur in deep waters (30 feet below mean lower low water and deeper), beyond the depth where marine vegetation occurs. As discussed in Section 3.2.2.3.2 of the 2016 Final EIS, introduction of the invasive algal species, *Sargassum*, via the hulls of barges and tugboats would be a concern but would be avoided through contractor compliance with Revised Code of Washington 77.15.290 *Unlawful transportation of fish or wildlife – Unlawful transport of aquatic plants – Penalty* (see Appendix B, Mitigation Action Plan). Overall, with implementation of the BMPs, CPs, and MMs described in Section 2.4, impacts to marine vegetation from construction of Alternative 3 would be temporary, localized, and less than significant.

Benthic Invertebrate Communities

Benthic communities within the footprint of the permanent and temporary pile installation would be lost (Table 3.2-4) and adjacent benthic communities, as well as those within vessel anchoring areas, would be exposed to sediment disturbance and turbidity for up to 205 days (same number as evaluated in the 2016 Final EIS). Water quality impacts from suspended sediment and turbidity would be expected to be localized and persist for minutes to hours following the completion of pile driving activity in a day. Within the areas where temporary piles are installed, there would be a direct loss of benthic communities within the pile footprint (Table 3.2-4). Areas of disturbance within the locations of the removed falsework piles are expected to recolonize within 2 years of disturbance (CH2M Hill, 1995; Romberg et al., 1995; Parametrix, 1994, 1999; Anchor Environmental, 2002; Vivan et al., 2009).

Table 3.2-4 Benthic Community Resources Impacted by SPE Alternative 3

Impact Type	*Benthic Community Area (Acres)*
Potential Temporary Construction Disturbance	6.6
Temporary loss under piles	0.0081
Permanent loss under piles[1]	0.043
Operational Shading	1.6

Note:

1. Includes the area displaced by the proposed pier extension piles minus the area of piles being removed from the existing Service Pier.

In summary, the following construction impacts on marine vegetation and benthic invertebrates would occur with implementation of Alternative 3:

- Temporary construction impacts in approximately 6.6 acres; small areas (0.27 acre) of marine vegetation (primarily green macroalgae) disturbed – no change from 2016 Final EIS.
- Permanent benthic habitat loss under piles of approximately 0.043 acre (no change from Alternative 3 in the 2016 Final EIS).
- Temporary benthic habitat loss of 0.0081 acre from installation of temporary piles. Recolonization of benthic species in areas of removed falsework piles is anticipated within approximately 2 years.

With the implementation of BMPs designed to reduce risks to marine water resources, all such impacts would be less than significant.

3.2.2.2 Operation/Long-term Impacts

Operational impacts of SPE Alternative 3 would be similar to those described in Section 3.2.1.2 for SPE Alternative 2 and would be less than significant.

3.3 Fish

Updates to the affected environment description contained in Section 3.3 of the 2016 Final EIS include the following:

- The Puget Sound/Georgia Basin Distinct Population Segment of Canary rockfish (*Sebastes pinniger*) has been delisted from the Federal List of Threatened and Endangered Species under Endangered Species Act (ESA) and designated critical habitat was also removed (82 Federal Register [FR] 7711).
- Recent surveys conducted by Washington Department of Fish and Wildlife and National Oceanic and Atmospheric Administration did not document bocaccio in Hood Canal; however, they did document the species in other parts of Puget Sound and the San Juan Islands. All sightings were at depths >150 feet, with several in the 600-foot range (Pacunski, 2017). Based on historical rockfish fishing occurrence locations and local ecological knowledge, bocaccio hot spot areas have not been identified in Hood Canal (Natural Resource Consultants, Inc., 2016).

- During the same rockfish surveys mentioned above, Washington Department of Fish and Wildlife found that yelloweye rockfish were well-distributed within the central portion of Hood Canal. They were always found in association with very specific habitats that include steep slopes/walls with high complexity (Pacunski, 2017). The closest sightings to the SPE project site were approximately 4.3 kilometers south (Pacunski, 2017).
- Updates were made to listings of the Puget Sound Evolutionarily Significant Unit of Chinook salmon, Hood Canal summer run Evolutionarily Significant Unit of chum salmon, and Puget Sound Distinct Population Segment Steelhead trout based on revisions to hatchery programs that are proposed for inclusion as part of the Pacific Salmon and steelhead listings under the ESA (81 FR 72759).
- Forage fish surveys conducted in 2014 and 2015 did not detect surf smelt or sand lance; however, beaches with past documented sand lance spawning are still considered to have spawning sand lance (Navy, 2016c).
- Beach seine surveys conducted in 2016 (Frierson et al., 2017) for forage fish and ESA-listed fish species confirmed presence or absence as discussed in the 2016 Final EIS.

3.3.1 Alternative 2: Short Pier Configuration (Preferred)

3.3.1.1 Construction Impacts

Construction-related impacts on fish from implementing SPE Alternative 2 were described in Section 3.3.2.3.2 of the 2016 Final EIS and are incorporated by reference in this section of the SEIS. Primary types and sources of impacts to fish identified in the Final EIS included:

- Construction noise, including impact and vibratory pile driving noise that may exceed current thresholds and guidelines for ESA-listed species behavior and injury.
- Temporary and intermittent construction impacts including increased turbidity, and reduction in aquatic vegetation and benthic habitats.
- Little to no barrier effect on smaller, nearshore-migrating juvenile salmonids and forage fish, or larger, offshore migratory fish.
- Potential impact to adjacent nearshore sand lance spawning habitat.

This section evaluates how the updated design and construction methods proposed in SEIS Alternative 2 would affect or alter these types of impacts. In general, compared to the impact analysis in the Final EIS, the 1 day reduction in the total in-water construction period would minimally reduce the period during which localized sediment disturbance and incidences of underwater noise would occur. Construction-related impacts from the replacement of 29 permanent steel piles with the installation and removal of 27 temporary falsework steel piles would result in reduced noise as all falsework piles would be installed and extracted using a vibratory pile driver which is known to generate substantially lower noise levels than impact pile driving. Resulting impacts would primarily be from an increase in localized sediment disturbance and turbidity during the installation and removal of the 27 temporary falsework piles.

Because construction would occur during the in-water work window of July 16 to January 15 when juvenile salmonids are least likely to be present, impacts to ESA-listed Puget Sound Chinook, Hood Canal summer-run chum, and Puget Sound steelhead would be minimized.

Benthic communities that are prey for fish would either be directly lost during pile placement or adjacent communities would be exposed to sediment disturbance and turbidity. However, this loss and disturbance would occur within the deeper areas of the project site and away from the nearshore benthic communities that serve as prey for juvenile salmonids. Hence, the small temporary loss of 0.004 acre from temporary piles would have a negligible overall effect on benthic communities in the area. Further, benthic organisms that are impacted during in-water construction would be expected to reestablish over a 2-year period (CH2M Hill, 1995; Romberg et al., 1995; Parametrix, 1994, 1999; Anchor Environmental, 2002; Vivan et al., 2009).

Although vegetation (eelgrass and green algae) occurs within the nearshore of the project site, construction would take place in depths greater than 30 feet below mean lower low water where vegetation does not grow. Any turbidity or sediment disturbance would be localized to the immediate pile area and impacts to the nearshore eelgrass areas would be unlikely.

The only forage fish species with documented spawning habitat occurring along the Bangor shoreline is the Pacific sand lance (Figure 3.3-1). Pacific sand lance spawning habitat has been documented along an estimated 1,650-foot length of the shoreline extending from the southern shoreline of Carlson Spit northward to the existing Service Pier causeway (Navy, 2016c). Temporary increase of suspended solids during in-water construction activities would be expected. However, due to strong nearshore currents and nearshore wind waves, the small portion of suspended fine sediments that would settle out of the water column onto intertidal beaches are not expected to adversely impact the spawning success of the nearest forage fish (sand lance) spawning habitat near the project site.

Forage fish that occur in the immediate project vicinity during in-water construction would be exposed to increased levels of turbidity. Based on recent nearshore beach seine data, it is reasonable to assume that forage fish, primarily sand lance, utilize the shoreline at the project site. Therefore, forage fish could be present and potentially affected by construction activities. Impacts on nearshore vegetation and benthic communities from construction would be minimal, with likely no impacts on eelgrass (Section 3.2 of this SEIS). In general, behavioral response including shoreline avoidance from visual stimuli of nearshore-occurring pre-spawn adult sand lance would not be expected from the offshore construction activity. The majority of potential impacts to sand lance and other forage fish are expected to be limited to minor behavioral disturbance and not reduce the forage base for ESA-listed species.

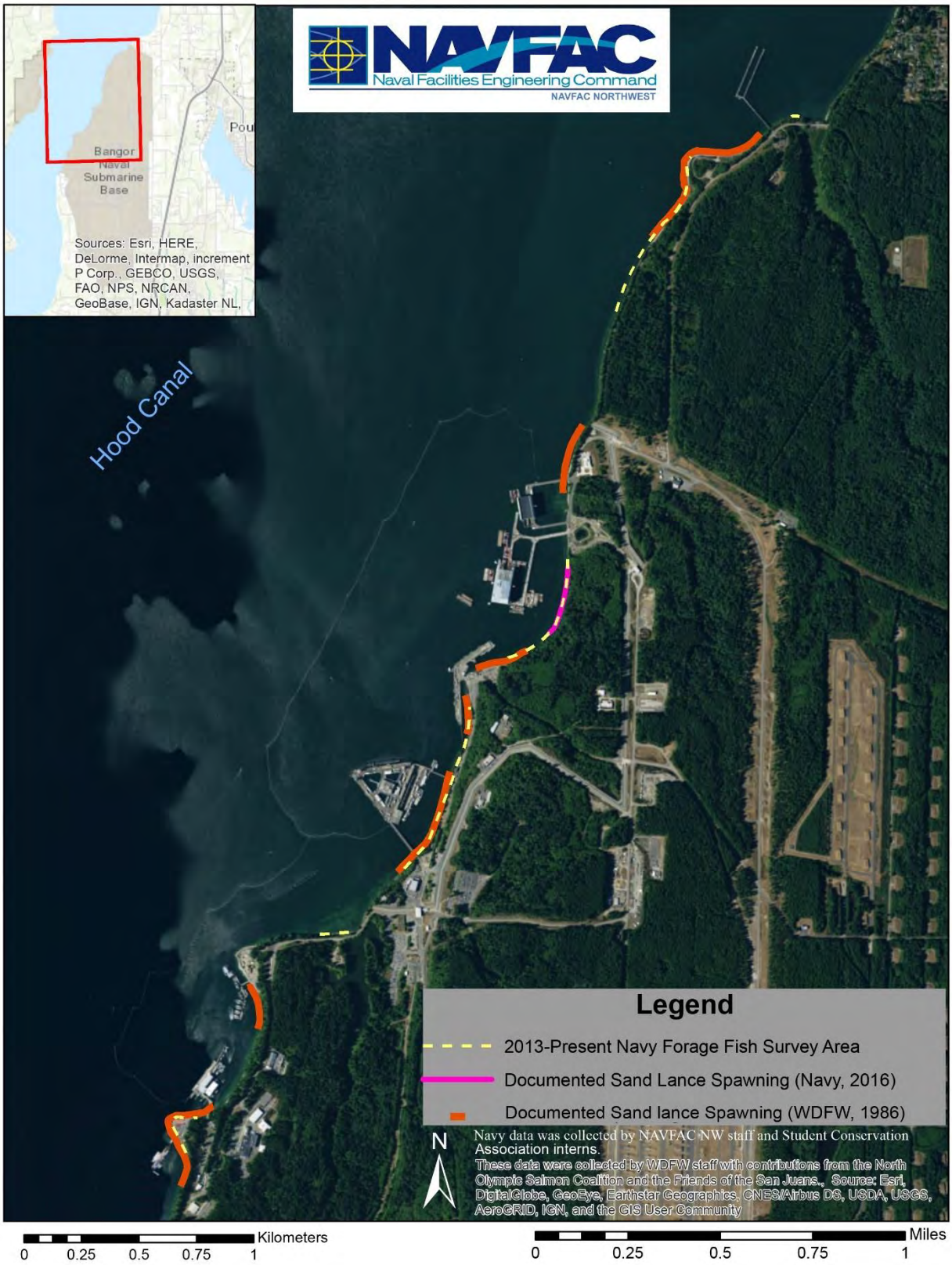


Figure 3.3-1 Forage Fish Spawning Areas at NAVBASE Kitsap Bangor

There would be no change to pile sizes used for the alternatives (see Table 3.3-5 of the 2016 Final EIS). Slight changes to estimated distances from impact pile driving above the peak injury and cumulative injury thresholds were determined based on a reduction in strikes per day from 2,000 to 1,600 pile strikes per day and updated modeling values used for some of the source levels. The 2016 Final EIS calculated noise thresholds based on 2,000 pile strikes per day for impact pile driving. As shown in Table 3.3-1 below, the new distances calculated were slightly larger for peak thresholds, smaller for cumulative thresholds, and the same for behavioral thresholds. Because a bubble curtain or other attenuation device would be used during impact pile driving of steel piles, and would be turned on prior to pile driving to startle fish from the immediate peak injury zone, fish exposure to the high peak noise levels near the pile would be minimized. As also shown in Table 3.3-1, the distance to impacts from exposure to levels above the cumulative injury threshold would be smaller than the analysis contained in the 2016 Final EIS. Because the cumulative Sound Exposure Level (SEL) formula takes into account all impact pile strikes within a 24-hour period, the size of the injury zones are presented as they have increased to their maximum extent through the course of a pile driving day. As a result, during the early portion of the construction day, as shown in Table 3.3-1, the injury zone would be smaller and would only gradually increase out to a maximum extent after all strikes have been completed. Further, the formula assumes fish are remaining within the range of effect during the entirety of active impact pile driving. In other words, an individual fish would have to be constantly within the calculated range during all impact pile driving in order to accumulate energy from every impact strike. During the in-water work window, adults and larger juvenile salmonids may migrate through the area but would not be expected to remain within the area where cumulative injury could occur. Further, all steel piles would be installed using a vibratory pile driver to the extent practicable with impact pile driving needed only to either reach final required depth or for proofing (determining capacity of pile). Impact pile driving, if necessary, would last less than 45 minutes per day.

Table 3.3-1 SPE Alternative 2 Maximum Range to Fish Sound Thresholds from Pile Driving

Method, Pile Type and Size	*Threshold (distance) Fisheries Hydroacoustic Working Group 206 dB PEAK (injury)*	*Threshold (distance) Fisheries Hydroacoustic Working Group 187 dB Cumulative SEL for Fish ≥ 2 g (injury)*	*Threshold (distance) Fisheries Hydroacoustic Working Group 183 dB Cumulative SEL for Fish < 2 g (injury)*	*Threshold (distance) Popper et al. 2014 > 207 dB PEAK (onset of injury)*	*Threshold (distance) Popper et al. 2014 203 dB Cumulative SEL (injury)*	*Threshold (distance) 150 dB RMS (potential behavioral)*
Impact Pile Driving[1]						
18-inch concrete pile	< 1 meter	~~28~~ 19 meters	~~52~~ 34 meters	< 1 meter	2 meters	0.21 kilometer
24-inch steel pipe	~~3~~ 5 meters	~~185~~ 159 meters	~~342~~ 295 meters	5 meters	14 meters	2.1 kilometers
36-inch steel pipe	~~5~~ 6 meters	~~185~~ 159 meters	~~342~~ 295 meters	5 meters	14 meters	2.5 kilometers
Vibratory Pile Driving/Extracting						
15-to 18-inch timber[2]	N/A	N/A	N/A	N/A	N/A	21 meters
16- to -24-inch steel pipe	N/A	N/A	N/A	N/A	N/A	54 meters
30- to 36- inch steel	N/A	N/A	N/A	N/A	N/A	117 meters

Key: dB = decibel; N/A = not applicable; < = less than; > = greater than or equal to; RMS = root mean square; SEL = sound exposure level

Notes:

1. Practical spreading loss model (15 log R, or 4.5 dB per doubling of distance) used for calculations. Assumes 8 dB attenuation with use of a bubble curtain for steel piles only. Cumulative SEL calculated as Single Strike SEL + 10 * log (number of pile strikes), assumes 1,600 strikes/day for new distances. 2016 Final EIS used 2,000 strikes.
2. Timber source SPL used was for a 12-inch diameter pile as no reports were available for 15- to 18-inch. Calculated distance to 150 dB RMS expected to be between at least 21 meters and would not reach that calculated for steel (54 meters).

Concrete piles would be installed by an impact pile driver. There are no known documented incidents of injury occurring from pile driving of concrete piles (National Marine Fisheries Service [NMFS], 2012). By installing piles within the in-water work window, only behavioral impacts may occur and thus impacts to salmonids and their forage base would be insignificant.

The installation and extraction of falsework piles would be completed with use of a vibratory pile driver only. No impact pile driving would be required. Timber piles from the existing wave screen would also be extracted using vibratory methods. Vibratory drivers have noise levels more than 30 decibels (dB) root mean square (RMS) less than impact drivers, and do not exceed the injurious noise level threshold for fish. However, fish within 117 meters of the construction area may be exposed to noise levels above the 150 dB RMS behavioral guidance. Vibratory pile driving and extraction of the falsework and timber piles are anticipated to be conducted a maximum of 5 hours in a day and no significant impacts to fish in the area would be expected.

Impacts to designated critical habitat for Puget Sound Chinook and Hood Canal summer-run chum would not change from the analysis in the 2016 Final EIS, which concluded noise levels could be above the behavioral disturbance guidance where critical habitat is designated outside NAVBASE Kitsap Bangor.

As discussed in 3.3.2.3.2 of the 2016 Final EIS, rockfish larvae are pelagic, with their movements somewhat influenced by prevailing currents within a given basin (Palsson et al., 2009). As summarized for coastal systems by Drake et al., (2010), onshore currents, eddies, upwelling shadows, and other localized circulation patterns create conditions that retain larvae rather than disperse them. The shallow sill (approximately 165 feet) at the mouth of Hood Canal further limits the circulation and exchange of water between this basin and waters of the Strait of Juan de Fuca and central Puget Sound (Babson et al., 2006). As a result, Puget Sound basins, including Hood Canal, have greater retention of and reliance on intra-basin rockfish larvae than coastal systems (Drake et al., 2010).

As discussed in Section 3.1.2.3.2 of the 2016 Final EIS, small-scale and temporary (over periods of hours) changes in current direction and intensity of flow are anticipated during construction. However, the overall circulation pattern and velocities into the nearshore and marine deeper-water areas along the Bangor waterfront would be relatively unaffected. Thus, in-water construction activity would have limited and localized effects on circulation and currents, with limited effects on rockfish larval recruitment.

There would be no significant impacts to adult and juvenile ESA-listed bocaccio and yelloweye rockfish or their critical habitat for the following reasons:

- Adult and juvenile yelloweye rockfish occur at deeper depths than where temporary and permanent piles would be installed and extracted and would not be affected by the localized nature of sediment disturbance and turbidity.
- Underwater noise during pile driving would extend out over deeper water potentially exposing bocaccio and yelloweye to injurious levels above the peak and cumulative SEL thresholds as well as exposure to behavioral disturbance. However, adult and juvenile bocaccio sightings in Hood Canal, both historical and current, are so rare (Palsson et al., 2009; NMFS, 2016b,c; Frierson et al., 2016; Natural Resources Consultants, Inc., 2016; and Pacunski, 2017) that their exposure to noise impacts would be discountable. Further, Washington Department of Fish and Wildlife acoustic and remotely operated vehicle surveys did not detect yelloweye or bocaccio habitat features in Hood Canal adjacent to NAVBASE Kitsap Bangor (Frierson et al, 2016). Although yelloweye rockfish have been documented in Hood Canal they were found to be distributed within the central portion of Hood Canal, approximately 4.3 kilometers south of the project site (Pacunski, 2017).
- The majority of potential impacts to sand lance and other forage fish are expected to be limited to minor behavioral disturbance and not reduce the forage base for ESA-listed species.
- Deepwater designated critical habitat for adult and juvenile yelloweye rockfish and adult bocaccio in Hood Canal would be exposed to noise above the fish behavioral threshold during vibratory pile driving and above the behavioral and injury thresholds during impact pile driving in the portion of the area that is not exempt from designation per 79 FR 6802. However, impacts to deepwater designated critical habitat would be discountable due to historically low occurrence as described above.
- Nearshore designated critical habitat for juvenile bocaccio is present within the nearshore areas of Hood Canal. NAVBASE Kitsap Bangor has documented occurrence of eelgrass and other aquatic vegetation shoreward of the SPE. However, critical habitat in this area is exempt from designation per 79 FR 6802 and bocaccio are not expected to occur.

Essential Fish Habitat

Impacts to Essential Fish Habitat (EFH) would include exposure of habitat to underwater noise levels, suspended sediment and turbidity within pile installation footprints, and temporary loss of benthic habitat from installation of the falsework piles. As discussed in Section 3.2.1 in this SEIS, temporary displacement of groundfish EFH would occur from installation of the falsework piles, of which loss during construction would be approximately 0.004 acre. However, benthic communities are anticipated to recolonize within 2 years of disturbance. There would be fewer permanent piles installed as compared to the 2016 Final EIS, resulting in a reduction in soft-bottomed groundfish EFH for flatfish species like English sole but there would be an increase in hard-bottomed/vertical habitat for species like greenling and cabezon that would be affected by permanent piles (0.037 acre) (see Tables 3.2-1 and 3.2-2). Vegetation that is also used as EFH for groundfish and salmon is not present within the depths of the SPE; therefore, direct impacts to vegetation may only occur from work barges/vessels causing turbidity, which may affect nearshore vegetation but would be minor and temporary due to application of BMPs, CPs, Compensatory Mitigation, and minimization measures as discussed in Section 2.4 and in Appendix B. The main impact to EFH would be from underwater noise in the water column that may temporarily degrade groundfish, coastal pelagic, and salmon EFH. As described above for fish, the habitat would only be exposed to levels above the cumulative injury thresholds for less than 45 minutes in a day for impact pile driving concrete and steel piles. Vibratory pile driving would last a maximum of 5 hours in a day.

In addition to listed fish species discussed in Section 3.3.1.3 of the 2016 Final EIS, more than 44 non-ESA listed fish species occur within the project area (Section 3.3.1.6) (Science Applications International Corporation, 2006; Bhuthimethee et al., 2009). Construction-related impacts on non-ESA-listed salmonids and their habitats would be similar to those described above for ESA-listed salmonids. Implementing construction during in-water work windows would also minimize impacts on non-ESA-listed salmonids, including hatchery fish, due to their infrequent occurrence during this work window and result in limited exposure to construction activities.

In Summary, the following impacts from construction on fish, including threatened and endangered fish species, and EFH would occur with implementation of Alternative 2:

- Temporary increase in suspended sediment, turbidity, and underwater noise in the water column.
- Permanent displacement of benthic habitat and loss of benthic species that serves as prey and EFH as a result of installing permanent piles (approximately 0.037 acres). This displacement is less than was evaluated in the 2016 Final EIS (a reduction by 0.008 acres).
- Temporary loss of 0.004 acres of benthic habitat (EFH and prey) from installation of falsework piles.

The above impacts would be less than significant because of the following:

- Suspended sediment and turbidity would be temporary and localized.
- Impact pile driving of steel piles would utilize a noise attenuation device and last less than 45 minutes in a day. Vibratory pile driving would last a maximum of 5 hours in a day and would only cause behavioral disturbance if fish are within 117 meters of vibratory pile driving activity.

- All pile driving would occur during the in-water work window to minimize impacts to juvenile salmonids. Larger juvenile and adult ESA-listed salmonids would be expected to pass by with only short-term exposure to noise. ESA-listed bocaccio and yelloweye are not expected to occur within the area and hence construction impacts including exposure to noise above the peak and cumulative injury thresholds as well as behavioral disturbance thresholds would be discountable.
- The Navy determined that the project may affect, but is not likely to adversely affect ESA-listed Puget Sound chinook, Puget Sound steelhead, Hood Canal summer-run chum, bull trout, bocaccio, and yelloweye rockfish. The Navy determined the project may affect, but is not likely to adversely affect designated critical habitat for Puget Sound chinook, Hood Canal summer-run chum, bocaccio, and yelloweye rockfish. The Navy determined the project may adversely affect coastal pelagic, Pacific coast groundfish, and Pacific coast salmon EFH by temporarily increasing noise in the water column during pile driving. However, the BMPs and MMs that would be implemented (as described above, in Section 2.4, and in Appendix B) would minimize adverse effects to the extent practicable and all effects would cease upon completion of construction.

3.3.1.2 Operation/Long-term Impacts

Operational/long-term impacts to fish under Alternative 2 are identified in Section 3.3.2.3.2 of the 2016 Final EIS and incorporated here by reference. None of the changes in SPE project design evaluated in this SEIS would substantially alter the analysis contained in the Final EIS. The long-term impacts of SPE operations on fish can be summarized as follows:

Essential Fish Habitat

- The shading of offshore benthic habitats would be expected to result in a corresponding loss in habitat productivity, but would be minimized by the depth of the new structure.
- The added artificial lighting would occur over deeper water and have little or no effect on EFH utilized by migratory species of nearshore fish, such as forage fish and juvenile salmon.
- While the habitat utilized by some fish species (e.g., starry flounder and English sole) would experience a reduction in flat benthic habitat, other habitats would be created and utilized by fish species that prefer more structured habitat (e.g., greenling and cabezon).
- The in-water structures would occur offshore of the primary juvenile salmonid migratory pathway and not represent a long-term nearshore migration barrier.

Based on these factors, a determination was made that operation of the SPE under Alternative 2 may adversely affect Pacific salmonid, coastal pelagic, and Pacific groundfish EFH.

Threatened and Endangered Fish and Species of Concern

- Waterfront vessel activity would increase slightly relative to existing conditions, but not sufficient in scale to alter local water or sediment quality, and operations would be consistent with existing practices along the Bangor waterfront, with limited potential to degrade water quality.
- The presence, shading potential, and associated artificial lighting of the larger Service Pier structure, because it would exist in offshore waters of at least 30 feet below mean lower low

water, is not anticipated to alter the behavior of juvenile salmonids using the nearshore migratory pathway.

- The new wave screen would be located further offshore and outside the nearshore migration pathway of juvenile salmonids.
- Adult salmonids would not experience a substantial barrier effect and there would be little or no overall delay in their movements.
- Little or no change in the nearshore presence of, and habitat utilization by, forage fish, including sand lance spawning is anticipated since these species already inhabit areas adjacent to prior construction and infrastructure improvements.
- Based on these factors (above), the effect determination for all listed salmonid species is "may affect, not likely to adversely affect." The effect determination for critical habitat is also "may affect, not likely to adversely affect," except for bull trout and Puget Sound steelhead (no effect).
- No population-level impacts are anticipated for ESA-listed rockfish as bocaccio are very rare in Hood Canal waters and yelloweye rockfish have been well distributed in Hood Canal but mainly central Hood Canal, significantly south (4.3 kilometers) of the project area. No operational stressors are anticipated in designated critical habitats. Therefore, the effect determination for all listed rockfish species and their critical habitats is "may affect, not likely to adversely affect."
- The small increase in vessel activity and associated wakes in close proximity to the nearby documented Pacific sand lance spawning, could have a minor effect on the distribution and behavior of adult and larvae in the immediate project vicinity.

A smaller SPE footprint associated with SEIS Alternative 2 would result in less overwater coverage than was analyzed for related Alternative 2 in the 2016 Final EIS. There would be a temporary reduction in the benthic community that would be expected to recolonize within 2 years, and soft-bottomed habitat impacts would be reduced with fewer permanent piles placed in the water. All other impacts associated with operations would not differ from the 2016 Final EIS. Further, BMPs, CPs, MMs, and Compensatory Mitigation (as discussed in Section 2.4 and Appendix B *Mitigation Action Plan)* would be implemented. Overall, long-term impacts to fish from operations at the extended Service Pier would be less than significant. Determinations for ESA-listed fish (as described above) are currently being reviewed by NMFS (Appendix C).

3.3.2 Alternative 3: Long-Pier Configuration

3.3.2.1 Construction Impacts

The types of construction-related impacts to fish that would result from implementation of SPE Alternative 3 were described in Section 3.3.2.3.3 of the 2016 Final EIS and are incorporated here by reference. The fundamental nature of these impacts has not changed due to the updates to project design and construction methods in this SEIS. The impacts would also be very similar to the description of construction impacts from Alternative 2 in Section 3.3.1.1 above.

The primary change to Alternative 3 as compared to the 2016 Final EIS involves the installation and removal of 50 falsework piles. Pile driving duration would stay the same as evaluated in the 2016 Final

EIS, 2,000 pile strikes per day. Installing and extracting the falsework piles would create a slightly larger area of disturbance to fish and habitat from suspended sediment, turbidity, and underwater noise as well as an increase in temporary loss of benthic communities from the falsework piles. As described in Section 3.2.2.1, a temporary loss of benthic communities that is used as prey would amount to approximately 0.0081 acre. This loss is expected to recolonize within approximately 2 years (CH2M Hill, 1995; Romberg et al., 1995; Parametrix, 1994, 1999; Anchor Environmental, 2002; Vivan et al., 2009).

Because falsework piles would be installed and extracted using vibratory methods, fish within 117 meters of pile driving activity may be exposed to noise above the behavioral threshold guidance (Table 3.3-2). However, this impact would be less than significant given the likelihood that fish would avoid the area when higher noise levels occur.

Table 3.3-2 SPE Alternative 3 Maximum Range to Fish Sound Thresholds from Pile Driving

Method, Pile Type and Size	*Threshold (distance) Fisheries Hydroacoustic Working Group 206 dB PEAK (injury)*	*Threshold (distance) Fisheries Hydroacoustic Working Group 187 dB Cumulative SEL for Fish ≥ 2 g (injury)*	*Threshold (distance) Fisheries Hydroacoustic Working Group 183 dB Cumulative SEL for Fish < 2 g (injury)*	*Threshold (distance) Popper et al. 2014 > 207 dB PEAK (onset of injury)*	*Threshold (distance) Popper et al. 2014 203 dB Cumulative SEL (injury)*	*Threshold (distance) 150 dB RMS (potential behavioral)*
Impact Pile Driving[1]						
18-inch concrete pile	< 1 meter	28 meters	52 meters	< 1 meter	2 meters	0.21 kilometers
24-inch steel pipe	5 meters	185 meters	342 meters	5 meters	14 meters	2.1 kilometers
Vibratory Pile Driving/Extracting						
15-to 18-inch timber[2]	N/A	N/A	N/A	N/A	N/A	21 meters
16- to -24-inch steel pipe	N/A	N/A	N/A	N/A	N/A	54 meters
30- to 36- inch steel	N/A	N/A	N/A	N/A	N/A	117 meters

Key: dB = decibel; N/A = not applicable; < = less than; > = greater than or equal to; RMS = root mean square; SEL = sound exposure level

Notes:

1. Practical spreading loss model (15 log R, or 4.5 dB per doubling of distance) used for calculations. Assumes 8 dB attenuation with use of a bubble curtain for steel piles only. Cumulative SEL calculated as Single Strike SEL + 10 * log (number of pile strikes), assumes 2,000 strikes/day (as was used 2016 Final EIS to stay within two in-water work windows).
2. Timber source SPL used was for a 12-inch diameter pile as no reports were available for 15- to 18-inch. Calculated distance to 150 dB RMS expected to be between at least 21 meters and would not reach that calculated for steel (54 meters).

3.3.2.2 Operation/Long-term Impacts

Operational/long-term impacts to fish under Alternative 3 are identified in Section 3.3.2.3.3 of the 2016 Final EIS and incorporated here by reference. The impacts would also be very similar to the description of operational impacts from Alternative 2 in Section 3.3.1.2 above, except that the larger pier structure

of Alternative 3 would marginally increase effects of shading and artificial lighting. The long-term impacts to fish from operations under Alternative 3 would still be less than significant.

3.4 Marine Mammals

No changes to the affected environment have occurred since the publication of the 2016 Final EIS. As described in the 2016 Final EIS, eight marine mammal species have been documented in Hood Canal waters: humpback whale (*Megaptera novaeangliae*), gray whale (*Eschrichtius robustus*), killer whale (*Orcinus orca*), harbor porpoise (*Phocoena phocoena*), Dall's porpoise (*Phocoenoides dalli*), California sea lion (*Zalophus californianus*), Steller sea lion (*Eumetopias jubatus*), and harbor seal (*Phoca vitulina*). This SEIS evaluates impacts to transient killer whale, harbor porpoise, Steller sea lion, California sea lion, and harbor seal. The remaining species are not included in the analysis based on the following reasons:

- Humpback whales have been detected year-round in small numbers in Puget Sound; in Hood Canal, after an absence of sightings for over 15 years, an individual was seen over a 1-week period in early 2012, with additional sightings in 2015 and 2016 (Orca Network, 2016). However, these sightings are exceptions to the normal occurrence of the species in Washington inland waters.
- Gray whales have been infrequently documented in Hood Canal waters over the past decade. These sightings are an exception to the normal seasonal occurrence of gray whales in Puget Sound feeding areas and are unlikely to be present in Hood Canal.
- The Southern Resident killer whale stock is resident to the inland waters of Washington State and British Columbia; however, it has not been seen in Hood Canal in over 15 years.
- Dall's porpoise has only been documented once in Hood Canal.

Changes to the action alternatives for the SEIS Proposed Action that could result in changes to impacts on marine mammals include changes to: overwater coverage, area displaced by piles, installation and removal of piles, and duration of pile driving activity (see Table 2-1).

3.4.1 Changes to Approach for Assessing Underwater Sound and Marine Mammals

The approach for assessing underwater sound effects on marine mammals used in the 2016 Final EIS was based on two generic acoustic thresholds (i.e., permanent threshold shift [PTS] onset), one for cetaceans (i.e., harbor porpoise) and one for pinnipeds (i.e., harbor seal), that were developed in the late 1990s. Since the adoption of these original generic acoustic thresholds, the understanding of the effects of noise on marine mammal hearing has advanced, making it necessary for the NMFS to develop and finalize its new guidance, *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing—Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts* (NMFS, 2016a). In the new guidance, the two generic acoustic thresholds have been replaced by 10 PTS onset thresholds (with dual metrics for impulsive sounds).

This new 2016 NMFS Guidance is used as the basis for the analysis of SPE underwater acoustic impacts that could result in PTS on marine mammals. For underwater behavioral disturbance thresholds, NMFS continues to use the RMS sound pressure levels, which have not changed since the 2016 Final EIS. Airborne sound behavioral harassment thresholds also have not changed, and impacts of airborne sound are as described in the 2016 Final EIS. Marine Mammal hearing group and generalized hearing range has changed, as shown in Table 3.4-1.

Table 3.4-1 Hearing and Vocalization Ranges for Marine Mammal Functional Hearing Groups and Species Potentially Within the Project Area

(Updated from Table 3.4-4 in the 2016 Final EIS based on NMFS 2016 Guidance)

Functional Hearing Group	*Species*	*Functional Hearing Range* [1]
Low-Frequency Cetaceans	Humpback whale, Gray whale,	7 Hz to ~~25~~ 35 kHz
Mid-Frequency Cetaceans	Killer whale	150 Hz to 160 kHz
High-Frequency Cetaceans	Harbor porpoise, Dall's porpoise	~~200~~ 275 Hz to ~~180~~ 160 kHz
Phocid Pinnipeds	Harbor seal	In-water: ~~75~~ 50 Hz to ~~100~~ 86 kHz In-air: 75 Hz to 30 kHz
Otariid Pinnipeds	California sea lion, Steller sea lion	In-water: ~~100~~ 60 Hz to ~~48~~ 39 kHz In-air: 50 Hz to 75 kHz

Key: dB re 1 µPa @ 1 m = decibels (dB) referenced to (re) 1 micro (µ) Pascal (Pa) at 1 meter; Hz = Hertz; kHz = kilohertz

Note:

1. In-water hearing data from NMFS, 2016a. In-air data from Schusterman, 1981; Hemilä et al., 2006; Southall et al., 2007.

3.4.1.1 Underwater Injury and Behavioral Disturbance Thresholds

The new NMFS 2016 Guidance uses acoustic threshold levels for determining the onset of permanent and temporary hearing threshold shifts in marine mammals in response to underwater impulsive and non-impulsive sound sources. NMFS equates the onset of PTS, which is a form of auditory injury, with Level A harassment under the Marine Mammal Protection Act (MMPA) and "harm" under the ESA. The onset of temporary threshold shift would be a form of Level B harassment under the MMPA and "harassment" under the ESA. Both forms of harassment would constitute "take" under these statutes. For Level A harassment, noise effects on marine mammals were evaluated relative to peak pressure (dB peak) and cumulative sound exposure level metrics (dB cumulative sound exposure level [SEL_{CUM}]), as outlined in the new NMFS 2016 Guidance, rather than the dB RMS metric used in the 2016 Final EIS. In addition, the new guidance indicates that exceedance of the acoustic thresholds for impulsive noise sources is reached if either of the dual criteria is met. The new guidance recommends using the larger of the two thresholds (in this case, SEL_{CUM} metrics).Because of the new guidance, Table 3.4-14 (Current Marine Mammal Injury and Behavioral Harassment Thresholds for Underwater and Airborne Sounds) in the 2016 Final EIS is updated with Table 3.4-2 below.

Table 3.4-2 Injury and Disturbance Threshold Criteria for Underwater and Airborne Noise

(Updated from Table 3.4-14 in the 2016 Final EIS; includes NMFS 2016 Guidance)

	Airborne Noise (impact and vibratory pile driving) [1]	*Underwater Vibratory Pile Driving Noise (non-impulsive sounds)*		*Underwater Impact Pile Driving Noise (impulsive sounds)*	
Marine Mammals	*Disturbance Guideline (haulout)*[2]	*PTS Onset (Level A) Threshold*	*Level B*[6] *Disturbance Threshold*	*PTS Onset (Level A) Threshold*[3]	*Level B*[6] *Disturbance Threshold*
Low-Frequency Cetaceans	Not applicable	199 dB SEL_{CUM}[4]	120 dB RMS	219 dB Peak[5] 183 dB SEL_{CUM}[4]	160 dB RMS
Mid-Frequency Cetaceans	Not applicable	198 dB SEL_{CUM}[4]	120 dB RMS	230 dB Peak[5] 185 dB SEL_{CUM}[4]	160 dB RMS
High-Frequency Cetaceans	Not applicable	173 dB SEL_{CUM}[4]	120 dB RMS	202 dB Peak[5] 155 dB SEL_{CUM}[4]	160 dB RMS
Phocid Pinnipeds	90 dB RMS (unweighted)	201 dB SEL_{CUM}[4]	120 dB RMS	218 dB Peak[5] 185 dB SEL_{CUM}[4]	160 dB RMS
Otariid Pinnipeds	100 dB RMS (unweighted)	219 dB SEL_{CUM}[4]	120 dB RMS	232 dB Peak[5] 203 dB SEL_{CUM}[4]	160 dB RMS

Key: re= referenced to, µPA = micropascal, dB=decibel, SEL_{CUM}=Cumulative Sound Exposure Level, RMS= root mean square; PTS= permanent threshold shift

Notes:

1. Airborne disturbance thresholds not specific to pile driver type. Airborne values re: 20 µPa.
2. Sound level at which pinniped haulout disturbance has been documented. This is not considered an official threshold, but is used as a guideline.
3. Dual metric acoustic thresholds for impulsive sounds: Whichever results in the largest isopleth for calculating PTS onset is used in the analysis.
4. Cumulative sound exposure level over 24 hours. SEL values re: 1 μPa^2 second.
5. Flat weighted or unweighted peak sound pressure within the generalized hearing range.
6. Applies to both cetaceans and pinnipeds. RMS values re: 1 µPa.

3.4.1.2 Calculating Radial Distances to Underwater Marine Mammal Pile Driving Noise Thresholds

Table 3.4-3 provides an update to Table 3.4-15 from the 2016 Final EIS using the 2016 NMFS Guidance for calculating distances to the underwater marine mammal thresholds during impact and vibratory pile driving for the various hearing groups. Although different functional hearing groups of cetaceans (i.e., mid-frequency) and pinnipeds (i.e., otariid) were evaluated, the threshold levels used to develop the injury zones were selected to be conservative (and therefore at the lowest levels); as such, the behavioral disturbance zone for cetaceans was based on the high frequency threshold (harbor porpoise), and the pinniped zone was based on the phocid threshold (harbor seals). Although the low-

frequency calculated distance to the injury threshold was greater than the distance for the high-frequency cetaceans, the latter was selected because low-frequency cetaceans are not likely to occur in the area. In addition, based on the dual criteria and as recommended in the 2016 NMFS Guidance, the cumulative sound exposure level was selected over peak level to calculate injury thresholds because it was more conservative (larger area).

Adjusted maximum distances are provided where the extent of noise reaches land prior to reaching the calculated radial distance to the threshold. Areas encompassed within the threshold were chosen to model the greatest possible affected area at the seaward end of the pier that extends the farthest into the marine environment.

Figure 3.4-1 illustrates the extent and area where noise exceeds the thresholds for a pile representing the worst-case extent of noise propagation (furthest from the shore) for Level B behavioral disturbance for both alternatives. The larger area (shaded in light green) that extends for 11.7 kilometers shows the area where sound from vibratory pile driving has the potential to affect behavior in cetaceans and pinnipeds. The relatively smaller area (shaded in dark blue color) that extends for 541 meters shows the area where sound from impact pile driving has the potential to affect behavior in cetaceans and pinnipeds.

Figure 3.4-2 illustrates the extent and area of zones for Level A potential injury harassment under Alternative 2. The largest area on the figure (shaded in yellow) that extends for 740 meters shows the area where sound from impact pile driving of steel piles has the potential to injure harbor porpoise and is the shutdown zone for cetaceans during impact pile driving of steel piles. The reason why harbor porpoise (high frequency cetaceans) are used in this figure is because the injury zone is greater than the zone calculated for killer whale (mid frequency cetaceans) and the zone for low frequency cetaceans (humpback whale, gray whale) is not shown because they are not expected in Hood Canal. The area shaded in dark blue represents the area where sound from impact pile driving of steel piles has the potential to injure harbor seals that extends for 217 meters and is the approximate shutdown zone for pinnipeds during impact pile driving. The reason why the zone for harbor seal (phocid pinniped) is shown is because the injury zone is greater than the zone calculated for California sea lion and Steller sea lion (otariid pinniped) during impact pile driving of steel piles. The shaded area in green that extends for 64 meters shows the area where sound from vibratory pile driving of steel piles has the potential to injure harbor porpoise and is the shutdown zone for cetaceans during vibratory pile driving of steel piles. The smallest shaded area in red that extends for 26 meters shows the area where sound from vibratory pile driving of steel piles has the potential to injure harbor seals and is the shutdown zone for pinnipeds during vibratory pile driving of steel piles.

Figure 3.4-3 illustrates the extent and area of zones for Level A potential injury harassment under Alternative 3. The reasons why certain species and areas were selected to be shown on the figure are the same as those described for Figure 3.4-2. Harbor porpoise and harbor seals have the greatest chance for injury in their respective marine mammal groups and used conservatively to represent shutdown zones for impact and vibratory pile driving.

Table 3.4-3 Calculated Radial Distances to Underwater Marine Mammal Impact Pile Driving Noise SEL_{CUM} Thresholds, Vibratory Pile Driving Noise Thresholds, and Areas Encompassed Within Threshold Distance[1]

(Updated from Table 3.4-15 in the 2016 Final EIS based on NMFS 2016 Guidance)

Pile Size and Type	*Injury (PTS Onset) Level A Harbor Seal[2] PW*	*Injury (PTS Onset) Level A Sea Lions[2] OW*	*Injury (PTS Onset) Level A Gray Whale[2] LF*	*Injury (PTS Onset) Level A Killer Whale[2] MF*	*Injury (PTS Onset) Level A Harbor Porpoise[2] HF*	*Behavioral Disturbance Level B (160 dB RMS)[3] Radial Distance to Threshold*	*Behavioral Disturbance Level B (160 dB RMS)[3] Area Encompassed by Threshold[4]*
Impact Pile Driving – Alternative 2							
18-inch concrete[5]	19 meters	1 meters	117 meters	2 meters	74 meters	0.046 kilometers	0.006 square kilometer
24-inch steel[6]	34 meters	2 meters	186 meters	5 meters	253 meters	0.464 kilometers	0.62 square kilometer
36-inch steel[6]	217 meters	12 meters	1,006 meters	14 meters	740 meters	0.541 kilometers	0.78 square kilometer
Impact Pile Driving – Alternative 3							
18-inch concrete[7]	21 meters	1 meters	167 meters	2 meters	56 meters	0.046 kilometers	0.006 square kilometer
24-inch steel[8]	40 meters	2 meters	216 meters	5 meters	293 meters	0.464 kilometers	0.62 square kilometer
36-inch steel[8]	252 meters	14 meters	1,168 meters	16 meters	859 meters	0.541 kilometers	0.78 square kilometer
Vibratory Pile Driving/Extracting Alternative 2/3							
24-inch steel[9]	12 meters	1 meter	20 meters	2 meters	30 meters	5.4 kilometers	26.1 square kilometer
36-inch steel[9]	26 meters	12 meters	43 meters	4 meters	64 meters	11.7 kilometers	50.2 square kilometer

Key: LF = low frequency cetacean (humpback whale, gray whale); MF = mid- frequency cetacean (killer whale); HF = high frequency cetacean (harbor porpoise); PW = phocid pinniped underwater (harbor seal); OW= otariid pinniped underwater (sea lion); PTS= permanent threshold shift; dB RMS= decibel root mean square; SEL_{CUM} = Cumulative Sound Exposure Level

Notes:

1. Threshold distances and ensonified areas calculated for representative piles located at seaward end of the Service Pier extension, intended to model a conservative scenario for pile driving. Calculated values were rounded up to the nearest meter.
2. Weighted source levels for the PTS analysis are based on representative spectra for 24-inch concrete, and 24-inch and 36-inch steel (see Tables 4a-4c of Grebner et al., 2016).
3. Distances to behavioral disturbance thresholds calculated using practical spreading loss model and calculations include 8 dB attenuation for impact driven piles.
4. Areas were adjusted wherever land masses are encountered prior to reaching the full extent of the radius around the driven pile.
5. Assumes 1,600 strikes/day. No bubble curtain proposed for concrete pile.
6. Assumes 1,600 strikes/day. Bubble curtain would be used for 24-inch and 36-inch steel piles and representative spectra used were from pile installed with a bubble curtain.
7. Assumes 2,000 strikes/day. No bubble curtain proposed for concrete pile.
8. Assumes 2,000 strikes/day. Bubble curtain would be used for 24-inch and 36-inch steel piles and representative spectra used were from pile installed with a bubble curtain.

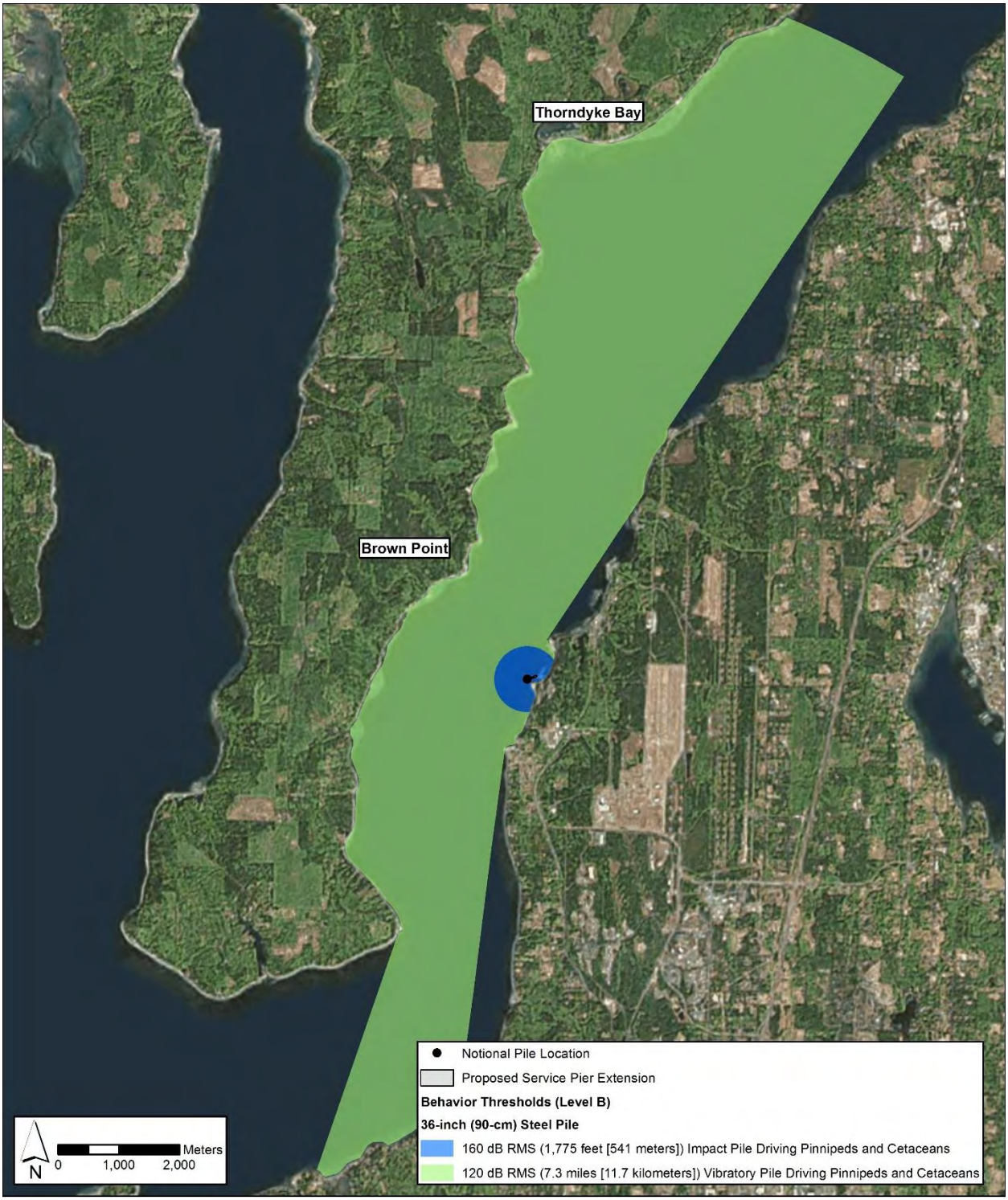


Figure 3.4-1 Representative Behavioral Disturbance Zones due to Underwater Pile Driving Noise during Construction of SPE Alternative 2/3

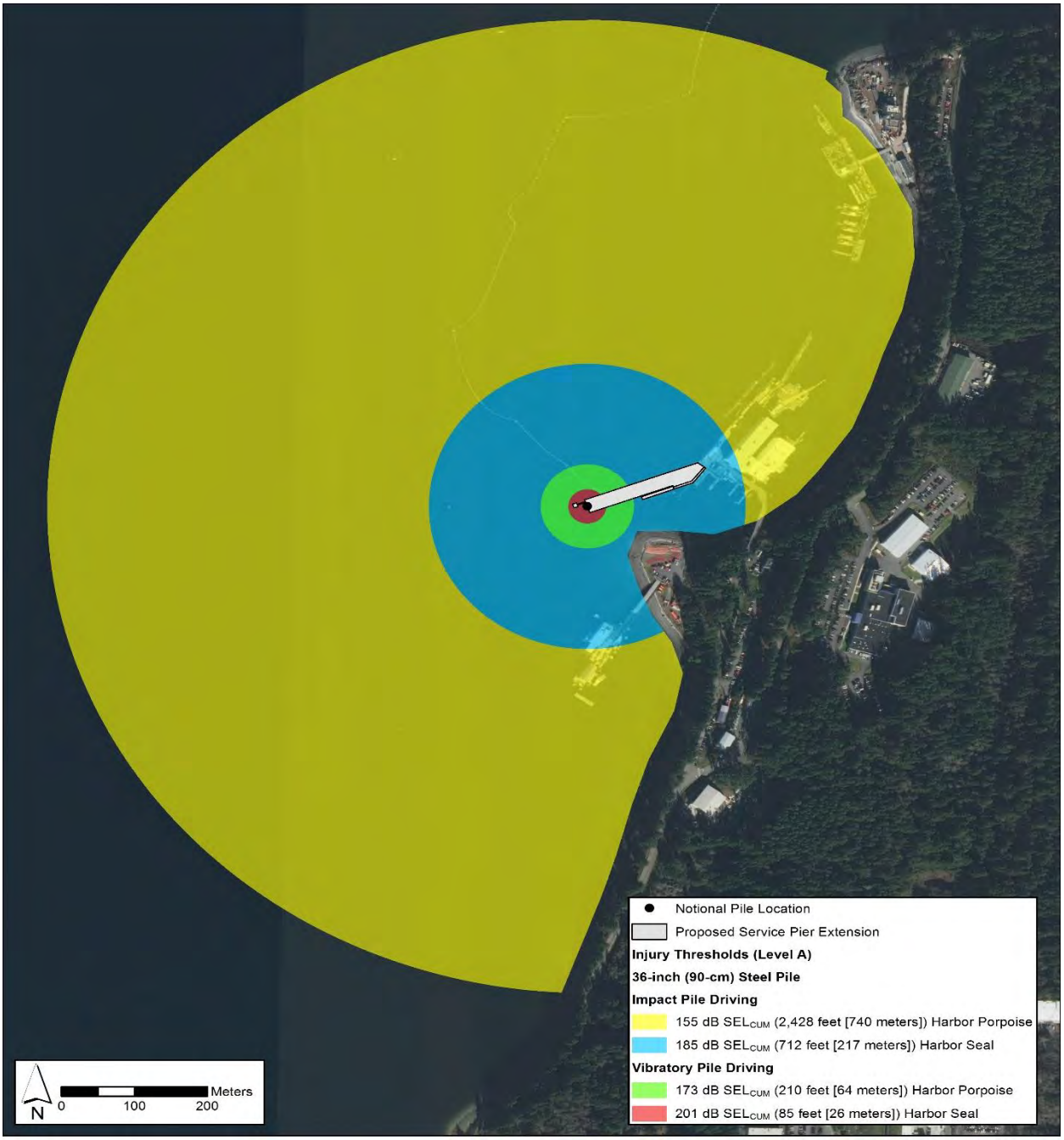


Figure 3.4-2 Representative Injury Zones due to Underwater Pile Driving Noise during Construction of SPE Alternative 2

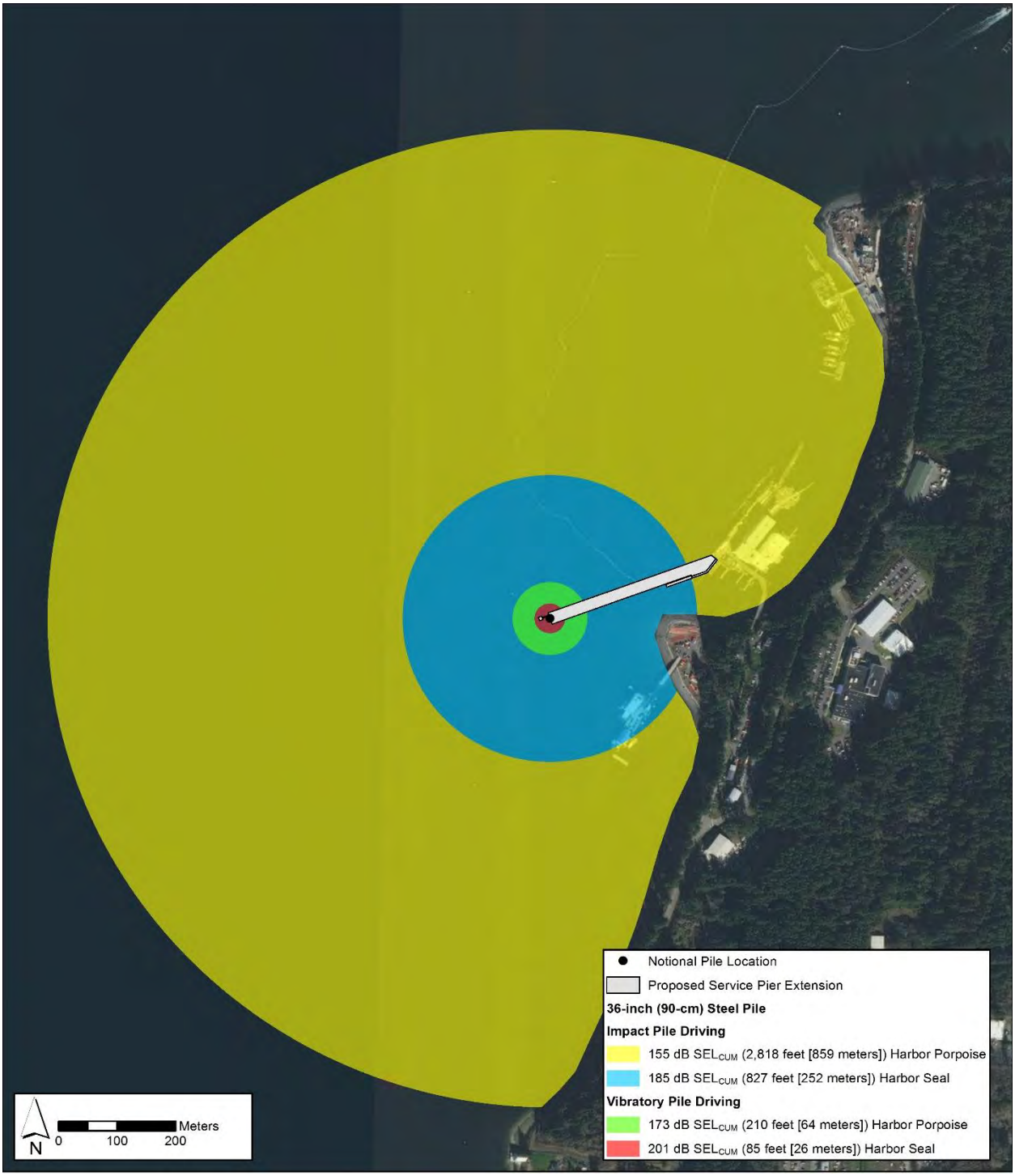


Figure 3.4-3 Representative Injury Zones due to Underwater Pile Driving Noise during Construction of SPE Alternative 3

3.4.2 Alternative 2: Short Pier Configuration (Preferred)

3.4.2.1 Construction Impacts

Potential impacts to marine mammals under Alternative 2 are described in Section 3.4.2.3.2 of the 2016 Final EIS and incorporated here by reference. With the exception of underwater noise-related impacts associated with project construction, impacts from SEIS Alternative 2 would be the same as described in the Final EIS. Direct and indirect impacts to marine mammals associated with airborne noise and project-related changes in water quality, vessel traffic, and prey availability, as discussed in the 2016 Final EIS would not change:

- Airborne impact pile driving noise for 36-inch steel piles for the SPE would likely result in behavioral harassment to harbor seals at a distance of 189 meters and to other pinnipeds (California sea lions and Steller sea lions) at a distance of 60 meters. Elevated airborne construction noise could cause hauled out pinnipeds to return to the water, reduce vocalizations, or temporarily abandon their usual or preferred haul-out locations and move farther from the noise source. Pinnipeds swimming in the vicinity of pile driving may avoid or withdraw from the area or show increased alertness or alarm.
- There could be long-term indirect impacts from localized changes in benthic population composition and vegetation that could affect marine fish populations and marine mammals that prey on fish. These impacts are anticipated to be localized and minor because marine mammals are wide-ranging and have a large foraging habitat available in Hood Canal.
- Reduction in the maximum allowable number of impact strikes during any construction day from 2,000 strikes/day in the 2016 Final EIS to 1,600 strikes/day for Alternative 2 in this SEIS, results in shorter duration of pile driving and shorter cumulative SEL distances.
- Changes in water quality during construction of the SPE would be minor and are not expected to have impacts on marine mammals.
- Collisions of vessels and marine mammals, primarily cetaceans, are not expected during construction or operation because vessel speeds would be low. Harbor seals and sea lions that frequent the waterfront at NAVBASE Kitsap Bangor appear to have habituated to existing levels of activity.

While the types of impacts from underwater noise associated with project construction would be similar to those described in the 2016 Final EIS, based on the new guidance from NMFS for assessing underwater sound effects, the new areas over which potential injury zones for marine mammals is substantially greater than that calculated in the 2016 Final EIS. The injury zone calculated in the 2016 Final EIS was small enough to be fully monitored and avoid potential injury to marine mammals. The new injury zones calculated in this SEIS are substantially larger and cannot be fully monitored; therefore, Level A exposures are included where they were not in the 2016 Final EIS.

As discussed in Section 3.4.2.3.2 of the 2016 Final EIS, marine mammals encountering pile driving during the in-water construction would likely avoid affected areas in which they experience noise-related discomfort, limiting their ability to forage or rest there. However, individual responses to pile driving noise are expected to be variable. Avoidance of the affected area during pile driving operations would reduce the likelihood of injury impacts but also would reduce access to foraging areas in nearshore and deeper waters of Hood Canal.

Table 3.4-4 provides a summary of injury and behavioral disturbance distances associated with pile driving, indicating changes from the 2016 Final EIS. These changes include a new injury threshold for vibratory pile driving and an increase in distance to injury threshold for impact pile driving. Harbor porpoise and harbor seals have the greatest chance for injury and behavioral disturbance in their respective marine mammal groups and used in this table conservatively for comparison. The behavioral disturbance distances remained the same as the 2016 Final EIS.

Table 3.4-4 Summary of Calculated Distances to Underwater Injury and Behavioral Disturbance Thresholds from Vibratory and Impact Pile Driving Alternative 2

Marine Mammal	*Vibratory Pile Driving/Extracting Injury*	*Vibratory Pile Driving/Extracting Behavioral Disturbance*	*Impact Pile Driving Injury*	*Impact Pile Driving Behavioral Disturbance*
Harbor Porpoise	~~N/A~~ 64 meters	11.7 kilometers	~~82 feet (25 meters)~~ 740 meters	541 meters
Harbor Seal	~~N/A~~ 26 meters	11.7 kilometers	~~16 feet (5 meters)~~ 217 meters	541 meters

Note: Harbor porpoise and harbor seals have the greatest chance for injury and behavioral disturbance in their respective marine mammal groups and used in this table conservatively for comparison.

Changes to Evaluation of Potential Species Presence

In the 2016 Final EIS, either density data from the Navy Marine Species Density Database (Navy, 2015) or site-specific survey information was used to quantify take. However, using a density-based analysis for species that occur intermittently does not adequately account for their unique temporal and spatial distributions. For intermittently occurring species, historical occurrence and numbers as well as group size were reviewed to develop a realistic estimate of potential exposure. Therefore, potential exposure estimates are used for this analysis for species without a predictable occurrence are based on a historical likelihood of encounter. The transient killer whale is in this category for Hood Canal. Harbor porpoise density data for Hood Canal were taken from aerial surveys reported in the literature (Smultea et al., 2017). Site-specific monitoring data are available for California sea lion, Steller sea lion, and harbor seal at NAVBASE Kitsap Bangor (Navy, 2016a), allowing the calculation of installation-specific abundances.

Estimating Potential Exposures to Pile Driving Noise

As described in the 2016 Final EIS, to quantitatively assess exposure of marine mammals to noise levels from pile driving, one of three formulas was used depending on the species spatial and temporal occurrence. Although the formulas are the same as described in the 2016 Final EIS, the new 2016 NMFS threshold guidance changed the injury zones as previously described. Although the total estimated number of pile driving days has declined by 1 day compared to the analysis in the Final EIS, exposure estimates for marine mammals would increase for most species based on updated site-specific monitoring data for potential species presence and the new 2016 NMFS Guidance.

The estimated behavioral exposures for harbor seals have decreased from the analysis in the 2016 Final EIS. However, there is an increase in potential injury harassment to 125 exposures because of the increase in distance-to-injury threshold from 5 meters to 217 meters. The 5-meter zone calculated in the

2016 Final EIS was small enough to be fully monitored but the increased size of the injury area in this SEIS is too large for monitors to detect marine mammals entering the area and shut down pile driving prior to potential injury exposures. Table 3.4-5 updates the information from Table 3.4-1 in the 2016 Final SEIS, and summarizes the changes in estimated exposure to individual species during pile driving described in the 2016 Final EIS.

Table 3.4-5 Total Underwater Exposure Estimates to Individual Marine Mammals by Species, SPE Alternative 2

(Updated from Table 3.4-1 in the 2016 Final EIS based on NMFS 2016 Guidance)

Species	*Injury*	*Behavioral Disturbance*
Transient killer whale	0	~~180~~ 48
Harbor porpoise	0	~~875~~2,728
Steller sea lion	0	~~322~~ 500
California sea lion	0	~~5,796~~ 6,000
Harbor seal	125	~~49,625~~ 4,375

In summary, the following construction-related impacts to marine mammals would occur with implementation of Alternative 2:

- Increased levels of activity and noise from construction may disturb marine mammal movements with temporary avoidance of certain areas.
- Habitat degradation to prey species would be expected during construction but the number of marine mammals indirectly affected by impacts on the prey population would be small.
- Pile driving noise would exceed NMFS behavioral disturbance (Level B) and injury (Level A) thresholds for marine mammals. Construction disturbance due to in-water work would occur over two seasons, including a total of 160 days of pile driving. There is a potential for injury harassment to harbor seals that may result in 125 exposures from impact pile driving noise. Mitigation is expected to avoid most potential adverse impacts to marine mammals from impact pile driving, but some exposure may be unavoidable. Pile driving would affect individual marine mammals, but would not cause population-level impacts.

However, marine mammals would be monitored by qualified Marine Mammal Observers during all pile installation activities of the SPE project (see Appendix B*, Mitigation Action Plan*), and shutdown procedures would be implemented if any marine mammal enters the injury threshold zone for pile driving. The updated estimate of total pile driving days for this SEIS builds in assumptions about potential work shutdowns and delays for events like marine mammal presence, so the estimated total of 160 days is essentially a worst case estimate of the duration of in-water work. A detailed marine mammal monitoring plan would be developed in consultation with NMFS prior to the onset of work. In-situ acoustic monitoring at commencement of pile driving (impact and vibratory) would verify estimated radial distances to injury threshold zones. With implementation of monitoring and other minimization measures described in the Mitigation Action Plan (Appendix B), impacts from implementation of Alternative 2 would be less than significant.

Pursuant to the MMPA: The Proposed Action would expose marine mammal species in the area to noise levels that would result in injury harassment (from impact pile driving) and behavioral disturbance. No injurious exposures to noise are expected due to the use of vibratory pile driving as the primary pile

installation method, the small size of the injury zone from vibratory pile driving, and monitoring of the injury zone (see Appendix B*, Mitigation Action Plan*) so that a shutdown would occur if a marine mammal approaches the zone. The Navy is preparing an Incidental Harassment Authorization application for submittal to NMFS.

Pursuant to the ESA: Effect determination for the humpback whale (based on rare occurrence during the in-water work period) is "may affect, not likely to adversely affect;" and the effect determination on Southern Resident killer whale and its critical habitat is "no effect."

3.4.2.2 Operation/Long-term Impacts

Operation would not result in permanent impacts to areas used directly by marine mammals. Minor indirect impacts on prey species would occur due to loss and degradation of benthic habitat from an increase in overwater coverage of 38,924 sq ft. There would be a minor increase in human activity, vessel traffic, and noise related to maintenance activities on submarines. These effects from operation would not occur at a level to change the prey base for marine mammals or affect marine mammal foraging habitats and would be considered less than significant.

3.4.3 Alternative 3: Long Pier Configuration

3.4.3.1 Construction Impacts

Potential impacts to marine mammals from airborne noise and project-related changes in water quality, vessel traffic, and prey availability would be similar to those described in Section 3.4.2.3.3 of the Final EIS, which are incorporated here by reference. These impacts were previously summarized in Section 3.4.2 of this SEIS for Alternative 2. Potential impacts to marine mammals from underwater noise associated with project construction would be different than was described in the 2016 Final EIS. The analysis has been revised based on the new guidance from NMFS.

Table 3.4-6 provides a summary of injury and behavioral disturbance distances associated with pile driving, indicating changes from the 2016 Final EIS. These changes include a new injury threshold for vibratory pile driving and an increase in distance to injury threshold for impact pile driving. In addition, the behavioral disturbance distances have changed because of the use of 36-inch piles that was not included under Alternative 3 as described in the 2016 Final EIS.

Table 3.4-6 Summary of Calculated Distances to Underwater Injury and Behavioral Disturbance Thresholds from Vibratory and Impact Pile Driving Alternative 3

Marine Mammal	*Vibratory Pile Driving/Extracting Injury*	*Vibratory Pile Driving/Extracting Behavioral Disturbance*	*Impact Pile Driving Injury*	*Impact Pile Driving Behavioral Disturbance*
Harbor Porpoise	~~N/A~~ 64 meters	11.6 kilometers	~~72 feet (22 meters)~~ 859 meters	~~1,552 feet (464 m)~~ 541 meters
Harbor Seal	~~N/A~~ 26 meters	11.6 kilometers	~~16 feet (5 meters)~~ 252 meters	~~1,552 feet (464 m)~~ 541 meters

Note: Harbor porpoise and harbor seals have the greatest chance for injury and behavioral disturbance in their respective marine mammal groups and used in this table conservatively for comparison.

Estimating Potential Exposures to Pile Driving Noise

Although the total estimated pile driving days for Alternative 3 have not changed from the Final EIS, exposure estimates for marine mammals would increase for most species based on new site-specific monitoring data for potential species presence and the new 2016 NMFS Guidance. The estimated exposures for harbor seals has decreased from the analysis in the 2016 Final EIS. However, the number of potential injury harassment exposures has increased to 155 because of the increase in the injury threshold distance from 5 meters to 252 meters (slightly greater than the distance under Alternative 2, at 217 meters). The 5-meter zone calculated in the 2016 Final EIS was small enough to be fully monitored but the increased size of the injury area in this SEIS is too large for monitors to detect marine mammals from entering the area and shutdown pile driving prior to potential injury exposures. Table 3.4-7 updates the information from Table 3.4-2 in the 2016 Final EIS, and summarizes the changes in estimated exposure to individual species during pile driving to construct the Alternative 3 long pier configuration of the SPE. It should be noted that exposures estimates are to individual animals but it is likely that the same individual may be exposed repeatedly

Table 3.4-7 Total Underwater Exposure Estimates to Individual Marine Mammals by Species, SPE Alternative 3

(Updated from Table 3.4-2 in the 2016 Final EIS based on NMFS 2016 Guidance)

Species	*Injury*	*Behavioral Disturbance*
Transient killer whale	0	~~180~~ 48
Harbor porpoise	0	~~620~~ 3,383
Steller sea lion	0	~~410~~ 620
California sea lion	0	~~7,380~~ 7,440
Harbor seal	155	~~30,535~~ 5,425

In summary, the following impacts to marine mammals from construction would occur with implementation of Alternative 3:

- Direct and indirect impacts on marine mammals during construction would be similar to Alternative 2 and include increased levels of activity and noise that may disturb marine mammal movements with temporary avoidance of certain areas.
- Some habitat degradation to prey species is expected during construction but the number of marine mammals indirectly affected by impacts on prey population would be small.
- Pile driving noise would exceed NMFS behavioral disturbance (Level B) and injury (Level A) thresholds for marine mammals. Construction disturbance resulting from in-water work would occur over two seasons, including a total of 205 days of pile driving (compared to 160 days for Alternative 2) and result in a higher number of estimated exposures to marine mammals than Alternative 2. There is a potential for injury harassment to harbor seals that may result in 155 exposures from impact pile driving noise. Mitigation is expected to avoid most potential adverse impacts to marine mammals from impact pile driving, but some exposure may be unavoidable. Pile driving would affect individual marine mammals, but would not cause population-level impacts.

However, marine mammals would be monitored by qualified Marine Mammal Observers during all pile installation activities of the SPE project (see Appendix B*, Mitigation Action Plan*), and shutdown procedures would be implemented if any marine mammal enters the injury threshold zone for pile driving. A detailed marine mammal monitoring plan would be developed in consultation with NMFS prior to the onset of work. In-situ acoustic monitoring at commencement of pile driving (impact and vibratory) would verify estimated radial distances to injury threshold zones. With implementation of monitoring and other minimization measures described in Appendix B, impacts from implementation of Alternative 3 would be less than significant.

Pursuant to the MMPA: The Proposed Action would expose marine mammal species in the area to noise levels that would result in injury harassment (from impact pile driving) and behavioral disturbance. No injurious exposures to noise are expected due to the use of vibratory pile driving as the primary pile installation method, the small size of the injury zone from vibratory pile driving, and monitoring of the injury zone so that a shutdown would occur if a marine mammal approaches the zone (see Appendix B*, Mitigation Action Plan*).

Pursuant to the ESA: Effect determination for the humpback whale (based on infrequent occurrence) is "may affect, not likely to adversely affect;" and "no effect" on Southern Resident killer whale and its critical habitat.

3.4.3.2 Operation/Long-term Impacts

Similar to Alternative 2, SPE operations would not result in permanent impacts to areas used directly by marine mammals. Minor indirect impacts on prey species would occur due to loss and degradation of benthic habitat caused by the project increase in overwater coverage (70,000 sq ft compared to 38,924 sq ft for Alternative 2). Similar to Alternative 2, there would be a minor increase in human activity, vessel traffic, and noise related to maintenance activities on submarines. These effects from operation would not occur at a level to change the prey base for marine mammals or affect marine mammal foraging habitats and would be considered less than significant.

3.5 Marine Birds

3.5.1 Alternative 2: Short Pier Configuration (Preferred)

3.5.1.1 Construction Impacts

The types of construction-related impacts to marine birds from implementation of SPE Alternative 2 were described in Section 3.5.2.3.2 of the 2016 Final EIS (incorporated here by reference) and are summarized below. The fundamental nature of these impacts would not change due to the updates to project design and construction methods in this SEIS. Construction of the SPE would directly impact marine birds primarily through underwater and airborne noise generated by pile driving, visual disturbance due to construction activity and vessels, and temporary localized effects on prey availability within the construction zone. Indirect impacts could result from localized changes in the benthic prey (Section 3.2) and forage fish communities (Section 3.3).

Impacts on marine birds from construction of SPE Alternative 2 may include temporary water quality changes (turbidity) in nearshore habitats, noise associated with pile driving and other construction equipment, increased construction vessel traffic, changes in prey availability (benthic community and forage fish), and visual disturbance from the presence of construction workers and equipment during the in-water construction period. Construction-related activities may disturb foraging marine birds because the number of vessels, including barges, and workers in the area would increase. However, birds occurring in the area may have habituated to anthropogenic stressors based on the ongoing military activities at the NAVBASE Kitsap Bangor waterfront. Impacts on marine birds would occur if birds are foraging underwater at the same time that underwater noise is being generated by impact pile driving and, to a lesser extent, vibratory pile driving, but the simultaneous occurrence of underwater foraging and pile driving would be limited in time, scope, and intensity. Birds resting or foraging on the surface of the water, the shoreline, or manmade structures could also be exposed to airborne pile driving noise.

As described in Section 3.2*, Marine Vegetation and Invertebrates*, benthic habitat used by prey species would be temporarily displaced during installation/removal of falsework piles but benthic communities disturbed or lost in these areas would be expected to recolonize within approximately 2 years.

The only change to upland construction would be from the approximately 4 acres of clearing for laydown and other general construction purposes that would not be revegetated. This change does not alter the impact analysis or conclusions. Mitigation measures described in Appendix B would reduce the likelihood of adverse impacts on marbled murrelets, and would also benefit other marine bird species, including Migratory Bird Treaty Act-protected marine bird species.

Consultation with U.S. Fish and Wildlife Service was completed on March 4, 2016 for marbled murrelet with a determination of “may affect, not likely to adversely affect.” The changes discussed in Section 2.3.2 would not require reinitiating consultation with U.S. Fish and Wildlife Service per notification received on May 19, 2017.

3.5.1.2 Operation/Long-term Impacts

The types of construction-related impacts to marine birds from implementation of SPE Alternative 2 were described in Section 3.5.2.3.2 of the 2016 Final EIS (incorporated here by reference) and are summarized below. Such impacts include potential reduction in prey availability and impacts from noise

and visual disturbance. The fundamental nature of these impacts has not changed due to the updates to project design and construction methods in this SEIS.

The proposed increase in the length of the existing pier would permanently displace a small area (approximately 0.037 acre, see Section 3.2.1) of deeper water soft-bottom benthic habitat that is used by prey populations. This could indirectly affect the prey base for marine birds. Installation of additional piles would increase hard-surface benthic habitat for encrusting species, which would benefit waterfowl and seabirds that forage on these resources. Given the water depth, the overwater structures would have a minor effect on biological productivity of sessile benthic organisms. Moreover, these impacts would be highly localized to the immediate vicinity of the pier. Therefore, habitat degradation and barriers for fish and invertebrates in the project area would not result in a significant change in the prey base for marine birds. Increased lighting at the SPE may affect prey availability, depending on the species, for marine birds. Some fish such as sand lance, an important forage fish species, may be attracted by artificial lighting, which may in turn attract predators and facilitate predation on these fish. Thus, localized changes to the prey base for some marine birds are possible but these changes cannot be quantified with available information.

Underwater and airborne noise levels may increase slightly from two additional submarines that would berth at the extended Service Pier. The Bangor waterfront produces an environment of complex and highly variable noise and visual disturbance for marine birds. Marine birds perch on manmade structures and forage and rest in the nearshore and deeper waters along the Bangor waterfront in close proximity to ongoing operations. The increased tempo of future operations of the larger Service Pier would increase the potential for noise and visual disturbance impacts. In general, however, most individual marine birds are likely to habituate to the post-construction activity levels, as they have habituated to activity levels at other developed portions of the Bangor waterfront.

Maintenance of the larger Service Pier would include routine inspections, repair, and replacement of facility components as required, but no pile replacement. These activities could affect marine birds through noise impacts and increased human activity and vessel traffic; however, noise levels would not be substantially higher than current conditions at the Bangor industrial waterfront, to which many marine birds appear to have habituated. Therefore, maintenance activities would have negligible impacts on marine birds.

In summary, impacts of long-term operations of the extended Service Pier on prey availability, noise, and visual disturbance are expected to be minor, with no species or population-level changes to marine bird behavior or fitness. Therefore, the ESA effect determination for operation of SPE Alternative 2 is “may affect, not likely to adversely affect” marbled murrelets. There would be “no effect” on critical habitat for the species.

There would be 4 acres of vegetation and potential habitat for marbled murrelet and other birds that would remain as a gravel lot rather than be revegetated as proposed in the 2016 Final EIS. This would not result in a significant reduction in tree habitat available within the area. Further, the U.S. Fish and Wildlife Service acknowledged that the Navy would not be reinitiating consultation on these changes. Overall, long-term operational impacts to marine birds from Alternative 2 would be less than significant.

3.5.2 Alternative 3: Long Pier Configuration

3.5.2.1 Construction Impacts

Potential impacts to marine birds would be essentially the same as described above for Alternative 2 (and in Section 3.5.2.3.3 of the 2016 Final EIS), except that the area of potential benthic community displacement would increase due to the larger pier footprint and the installation of 50 falsework piles (0.043 acre of permanent displacement and 0.0081 acre of temporary displacement, see Table 3.2-4). All construction activities would implement minimization measures as described in Section 2.4 and benthic communities lost or disturbed from falsework piles would be expected to recolonize within approximately 2 years.

Impacts associated with the change in upland construction under Alternative 3 (i.e., 4 acres of clearing for laydown with no revegetation) would be the same as noted above for Alternative 2. Mitigation measures for protection of marbled murrelets would also protect Migratory Bird Treaty Act-protected marine bird species. No significant impacts to marine birds would result from construction of Alternative 3.

3.5.2.2 Operation/Long-term Impacts

Impacts associated with operation of Alternative 3 would be essentially the same as described above in Section 3.5.1.2 for Alternative 2. Long-term operational impacts on marine birds would be less than significant.

3.6 Geology, Soils, and Water Resources

3.6.1 Alternative 2: Short Pier Configuration (Preferred)

3.6.1.1 Construction Impacts

Alternative 2 construction impacts to geology, soils, or water resources associated with SPE Alternative 2 are described in Section 3.7.2.3.2 of the 2016 Final EIS and are incorporated here by reference. The fundamental nature of these impacts has not changed due to the updates to project design and construction methods in this SEIS, only certain details have been updated. No shoreline construction is proposed, so the change in in-water construction duration and project design, including installation and removal of falsework piles, would not affect geology, soils, or water resources. New facilities to be built would meet requirements of WDOE Stormwater Management Manual and the Energy Independence and Security Act of 2007. The new parking lot and laydown area would occupy 7 acres. Upland disturbance to soils of approximately 4 acres would result from site clearing, grading, hauling, excavation and filling for the parking lot and the Waterfront Ship Support Building. Because of a change in the proposed design of Alternative 2 in this SEIS, these 4 acres of impact would be permanent instead of temporary (as evaluated in the Final EIS). The potential exists for soil erosion, runoff to surface water, and sedimentation, but construction BMPs and a Stormwater Pollution Prevention Plan would be implemented to control erosion and sedimentation to protect surface waters, including wetlands and intertidal area. The project construction sites would be located in documented low risk areas for seismic-induced slope instability (Shannon & Wilson, Inc., 2013). Potential impacts to geology, soils, and water resources in the upland area from construction would be minimal.

With the implementation of BMPs and CPs (see Appendix B, *Mitigation Action Plan*), all potential impacts to geology and soils would be less than significant.

3.6.1.2 Operation/Long-term Impacts

Alternative 2 operational impacts to geology, soils, or water resources associated with SPE Alternative 2 are described in Section 3.7.2.3.2 of the 2016 Final EIS (incorporated here by reference) and are summarized below:

- Currently, stormwater runoff from the Service Pier is collected and pumped to an existing retention pond in the Devil's Hole drainage basin. Under Alternative 2, this conveyance would continue as before, but stormwater runoff from the SPE would be collected in a trench drain on the pier, treated with an on-pier canister system, and discharged to Hood Canal. This system would operate to treat potential contaminants resulting from routine vehicle use on the pier extension, and would be designed to meet the basic treatment requirements of the WDOE Stormwater Management Manual for Western Washington, and then discharged in accordance with a National Pollutant Discharge Elimination System permit. In addition, Spill Prevention, Control, and Countermeasures regulations would require that secondary containment be provided for containers and tanks used to store petroleum products on the SPE and the Pier Services and Compressor Building, which would also be protective of potential spills in the area. Therefore, potential long-term impacts on the intertidal zone associated with the SPE and facilities under this alternative would be minimal.
- SPE upland construction areas that would be cleared of vegetation and not developed (approximately 4 acres) would be covered with gravel and maintained (representing a change from the Final EIS, in which revegetation was proposed). Gravel surfaces, especially when compacted over time, would be considered impervious. Similar to the new SPE parking areas, roadways, and building site parking lot, the design of this additional 4 acres of impervious area would follow the Department of Defense's Unified Facilities Criteria guidelines for low-impact development and would include water quality enhancements and onsite infiltration to the greatest extent feasible.
- Stormwater structures and utilities for permanent facilities would be operated using BMPs to prevent soil erosion and any surface water contamination. Drainage structures along the margins of the access roads would remain in place to control runoff, and new stormwater conveyance structures would be installed in the parking lot area. The parking lot would be subdivided into three drainage areas, and would be terraced and graded so that runoff would sheet-flow into landscape areas between the parking rows. These landscape areas would be designed as bioretention trenches, with amended soil placed in the upper layers to filter stormwater and underdrains at the trench bottoms to collect water that cannot infiltrate. The underdrains would convey excess water to the lower edges of the parking lots and would utilize level spreaders that allow sheet flow into the existing forest. During very large storm events, an emergency overflow system would bypass the level spreaders and connect to the roadside ditch along Sealion Road, which discharges to Hood Canal. Maintenance of these storm drain structures would include routine inspections, repair, replacement of components, as required, and maintenance of vegetation, but no substantial construction activities.

With the exception of the noted change from revegetation of the 4-acre laydown area to a gravel-covered area, the fundamental nature of this analysis has not changed due to the updates to project design and construction methods in this SEIS. The Stormwater Pollution Prevention Plan would be updated and implemented for this new impervious area. Thus, potential impacts on geology, soils, and water resources due to long-term operation of SPE Alternative 2 would be minimal and less than significant.

3.6.2 Alternative 3: Long Pier Configuration

3.6.2.1 Construction Impacts

Alternative 3 construction impacts to geology, soils, or water resources would be the same as described above for Alternative 2 because the upland development would be the same under both alternatives. Such impacts would be less than significant. The changes in project design, including addition/removal of falsework piles, would occur offshore and would not affect geology, soils, or water resources.

3.6.2.2 Operation/Long-term Impacts

The offshore and upland operations activities for SPE Alternative 3 would be the same as for SPE Alternative 2. Therefore, potential impacts on geology, soils, and water resources would be less than significant for SPE Alternative 3.

3.7 Native American Traditional Resources and Tribal Treaty Rights

The Skokomish Indian Tribe, Port Gamble S'Klallam, Jamestown S'Klallam Tribe, and Lower Elwha Klallam Tribe were signatories to the 1855 Treaty of Point No Point. In the Treaty the Tribes reserved the right to fish in their Usual and Accustomed grounds and stations. *United States v. Washington* (384 F. Supp. 312 [W.D. Wash. 1974], aff'd, 520 F.2d 676 [9th Cir. 1975]) established that the Tribes have usual and accustomed fishing grounds and stations co-located in the project area. These co-use waterways and shorelines of Hood Canal are used for shellfish and finfish harvesting, along with Naval use, recreational use, and commercial use of the waterways. In a 1990 court decision known as the Hood Canal Agreement, the Skokomish Indian Tribe, agreed to not assert its primacy over the Port Gamble S'Klallam, Jamestown S'Klallam, and Lower Elwha Klallam Tribes in the Hood Canal north of Ayock Point. The Suquamish Tribe was a signatory to the 1855 Treaty of Point Elliot. The primacy of Skokomish fishing rights in the waters of Hood Canal, over those of other tribes, particularly the Suquamish, was affirmed under a 1985 ruling by the Ninth Circuit Court of Appeals (United States v. Skokomish Indian Tribe, 764 F.2d 670 [9th Cir. 1985]). As a result of the ruling, the secondary rights of the Suquamish were also established. Since the 1985 court decision, the Suquamish Tribe must receive permission from the Skokomish Tribe to fish south of the Hood Canal Bridge; this permission has not been granted. A complete discussion of American Indian traditional resources and tribal treaty rights is found in Section 3.14.1.1 of the 2016 Final EIS.

No tribal fishing (e.g., finfishing, crabbing, shellfishing, subtidal geoduck, shrimping, etc.) occurs at the SPE project site.

Salmonid species that may be present in the vicinity of the SPE project site are discussed in Section 3.3; marine water resources, including longshore sediment transport, are discussed in Section 3.1; and marine vegetation and invertebrates are discussed in Section 3.2.

3.7.1 Alternative 2: Short Pier Configuration (Preferred)

3.7.1.1 Construction Impacts

Alternative 2 would include installation of 203 36-inch diameter steel piles (27 fewer than in the Final EIS), 50 24-inch diameter steel piles (no change from the Final EIS), and 103 18-inch diameter concrete piles (two fewer than the Final EIS). In addition, the updated design for Alternative 2 in this SEIS includes 27 temporary steel falsework piles (each 36 inches in diameter) that had not been identified in the 2016 Final EIS. All other design details for the Alternative 2 short pier configuration are the same as described in Section 2.2.1.3 of the 2016 Final EIS.

As discussed in Section 3.2.2.3 of the 2016 Final EIS, no shellfish harvest areas are located within the SPE construction area so the construction footprint and number of piles would not affect access to shellfish. As discussed in Section 3.2.1.2 above, a small area containing benthic communities within the footprint of the permanent and temporary piles would be lost and adjacent benthic communities, as well as those within vessel anchoring areas, would be exposed to sediment disturbance and turbidity. This impact would not be sufficient to result in population-level effects on benthic communities or impacts on Tribal harvest of shellfish, crabs, or subtidal geoducks.

As discussed in Section 3.3.1.1, the effect of construction of SPE Alternative 2 on salmonid species is expected to be minimal, with localized impacts to individual salmon and steelhead. This impact would not be sufficient to result in population-level effects on salmonids or significant impacts on Tribal harvest of salmon.

The transit of construction-related barges and vessels to and from NAVBASE Kitsap Bangor has the potential to interfere with tribal fishing in the co-use navigable marine waterways adjacent to NAVBASE Kitsap Bangor and along the transit route through Hood Canal. The Navy estimates that an average of six round-trip barge transits per month would occur over the 2-year construction period. Considering that these trips would be inherently temporary, northern Hood Canal is over 2 miles wide on average, vessel traffic in Hood Canal is sparse, and no instances of impact to Tribal fishing vessels from the much larger and recent Explosives Handling Wharf 2 (EHW-2) construction project have been documented, it is expected that construction vessels would be able to avoid tribal fishing vessels. Therefore, this additional water traffic would not significantly affect tribal access to usual and accustomed fishing areas in Hood Canal during the 2-year construction timeframe.

Appendix B of this SEIS (Mitigation Action Plan) describes measures the Navy would undertake to mitigate potential adverse impacts of the SPE Proposed Action on Treaty protected resources.

3.7.1.2 Operation/Long-term Impacts

Impacts associated with operations would not differ from the 2016 Final EIS. A slightly smaller footprint would result in a smaller reduction in benthic community habitat, and no long-term impacts to benthic community populations and tribal shellfish harvests are expected. The presence of SPE Alternative 2 structures would have minimal impact on salmonids and would not be sufficient to result in population-level impacts on salmon or significant impacts on the tribal harvest of salmon. Please see Appendix B, *Mitigation Action Plan* (Section 9), for a discussion of Treaty Mitigation that would be implemented.

3.7.2 Alternative 3: Long Pier Configuration

3.7.2.1 Construction Impacts

Changes to Alternative 3 from the 2016 Final EIS involve the installation and removal of 50 temporary falsework piles with a corresponding increase in the area displaced (temporarily) by piles. Construction-related impacts of SEIS Alternative 3 would be similar to those of Alternative 2, including the same project features on land but with a larger footprint for the pier extension and associated overwater coverage. As discussed in Section 3.2.2.2 above, impacts to benthic communities within the footprint of the permanent and temporary piles would not be sufficient to result in population-level effects on benthic communities or impacts on tribal harvest of shellfish, crabs, or subtidal geoducks.

As discussed in Section 3.3.2.1 above, the effect of construction of SPE Alternative 3 on salmonid species is expected to be minimal, with localized impacts to individual salmon and steelhead. This impact would not be sufficient to result in population-level effects on salmonids or significant impacts on Tribal harvest of salmon.

Similar to Alternative 2, transit of construction vessels could potentially interfere with tribal fishing vessels (six barge round trips per month); however, this additional water traffic during the 2-year construction timeframe would not significantly affect tribal access to usual and accustomed fishing areas in Hood Canal.

3.7.2.2 Operation/Long-term Impacts

There are no changes to operations proposed in this SEIS, so operational/long-term impacts to Native American traditional resources and tribal treaty rights under Alternative 3 are the same as those identified in Section 3.14.2.3.3 of the 2016 Final EIS.

3.7.3 Status of Government-to-Government Consultation

The Navy began government-to-government consultation with the Skokomish Indian Tribe in 2012. On March 3, 2016, the Navy and the Skokomish Indian Tribe signed a Memorandum of Agreement in which the Navy agreed to undertake Treaty Mitigation for the Land-Water Interface (LWI) and SPE projects. Pursuant to that Memorandum of Agreement, the Navy agreed to contribute funding to the Skokomish River Restoration project, with the terms and conditions of the Memorandum of Agreement to apply only after the Navy begins in-water construction. The signed Memorandum of Agreement is still in place, and the Navy continues to provide the Skokomish Tribe with updates on changes to the proposed action. The Navy began government-to-government consultation with the Port Gamble S'Klallam, Jamestown S'Klallam, and Lower Elwha Klallam Tribes in 2012. The Tribes requested, and in May 2016 the Navy agreed to fund one or more of the following Treaty Mitigation projects:

- Shellfish seeding and beach enhancement at locations off Navy property
- Floating Upweller System Management Plan
- Funding for Kilisut Harbor Restoration Project

However, the Navy and Tribes have not reached formal agreement. Tribal Treaty Mitigation is discussed further in the Mitigation Action Plan (Appendix B).

3.8 Summary of Environmental Consequences of the Proposed Action

Table 3.8-1 summarizes the potential environmental consequences of implementing the updated SPE project alternatives as evaluated in Sections 3.1 through 3.7 of this SEIS. This enables a comparison of the two SEIS action alternatives based on potential construction impacts and long-term impacts from SPE project operations. Comparisons between project impacts analyzed in this SEIS and those identified in the 2016 Final EIS are highlighted as appropriate elsewhere in this SEIS, but Table 3.8-1 focuses solely on the environmental consequences of the two project alternatives as represented in this SEIS. As discussed in more detail in Sections 3.1 through 3.7, all of the impacts identified in this SEIS were determined to be less than significant.

Table 3.8-1 refers, as appropriate, to BMPs, CPs, and MMs that would be applied to reduce project impacts. These are introduced briefly in Section 3.9, which immediately follows Table 3.8-1, and are discussed in more detail in Section 2.4 (for BMPs) and Appendix B (Mitigation Action Plan) of this SEIS.

Table 3.8-1 Summary and Comparison of Environmental Impacts

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Marine Water Resources	• Temporary and very localized alteration of seafloor topography and intermittent disturbances of sediments within the 3.9-acre construction footprint due to pile driving and removal, anchor placement, and ground tackle used to moor construction equipment. Sediment displacement at each pile is estimated to be between 0.5 and 3 feet, the amount displaced by a typical vessel anchor. Natural processes would return the seafloor to its original profile within 6 to 12 months following construction. • Temporary and localized changes to water quality through suspension of sediments and turbidity in the water column that would persist for minutes to hours following pile driving, but changes would not exceed marine water quality standards. • BMPs would be implemented along with CPs and any applicable mitigations (see Section 2.4 and Appendix B) to manage and reduce risks to marine water resources during construction. • Navy would apply for a Section 401 Water Quality Certification from WDOE and would apply for a Section 10 Permit through the Rivers and Harbors Act from USACE.	• Small changes in velocity of currents but no measurable changes in sediment deposition or erosion patterns or littoral transport processes expected. • Small-scale changes in flow patterns would result in localized scouring and accumulation of sediments where piles are installed, but these changes are not expected to exceed sediment quality standards. • BMPs would be implemented along with CPs and any applicable mitigations (see Section 2.4 and Appendix B) to manage and reduce risks to marine water resources during pier operations.	• Impacts would be similar to Alternative 2 but would occur within a larger construction footprint (maximum 6.6 acres). • Navy would apply for a Section 401 Water Quality Certification from WDOE and would apply for a Section 10 Permit through the Rivers and Harbors Act from USACE. • BMPs would be implemented along with CPs and any applicable mitigations (see Section 2.4 and Appendix B) to manage and reduce risks to marine water resources during construction.	• Operational impacts would be similar to Alternative 2 but would occur over a larger area due to larger pier infrastructure and number of piles. • BMPs would be implemented along with CPs and any applicable mitigations (see Section 2.4 and Appendix B) to manage and reduce risks to marine water resources during pier operations.

Table 3.8-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Marine Vegetation and Invertebrates	• Potential temporary disturbance to approximately 0.27 acre of marine vegetation (green macroalgae) within the 3.9-acre construction area from suspended sediments and turbidity during pile driving and vessel anchoring. In-water construction would mostly occur beyond the depth where marine vegetation occurs. • Permanent loss of 0.037 acre of benthic habitat and invertebrate community from installation of permanent piles. • Temporary sediment disturbance and increased turbidity effects (during up to 160 days of in-water construction) on benthic invertebrate communities adjacent to the 0.037 acre permanently lost. • Temporary benthic habitat loss of 0.004 acre from installation of falsework piles. Recolonization of benthic species in areas of removed falsework piles would occur within 2 years. • BMPs would be implemented along with CPs and any applicable mitigations (see Section 2.4 and Appendix B) to manage and reduce risks to marine water resources during construction, which would also benefit marine vegetation and invertebrates.	• Overwater shading of existing marine vegetation communities by the extended pier would be minimal since the SPE footprint is beyond depths conducive to vegetation growth. • Long-term loss of benthic habitat from permanent pile placement (0.037 acre), but over time the piles would themselves be colonized by hard-bottomed species (mussels and sea anemone) and associated benthic communities. • BMPs would be implemented along with CPs and any applicable mitigations (see Section 2.4 and Appendix B) to manage and reduce risks to marine water resources during pier operations, which would also benefit vegetation and invertebrates.	• Same temporary disturbance to approximately 0.27 acre of marine vegetation (green macroalgae) as with Alternative 2, • Permanent loss of 0.043 acre of benthic habitat and invertebrate community from installation of permanent piles. • Similar temporary sediment disturbance on adjacent benthic communities as Alternative 2, but lasting up to 205 days of in-water construction. • Temporary benthic habitat loss of 0.0081 acre from installation of falsework piles. Recolonization would occur within 2 years. • Application of same BMPs and applicable mitigations as for Alternative 2.	• Minimal overwater shading effects on existing marine vegetation communities as described for Alternative 2. • Long-term loss of benthic habitat from permanent pile placement (0.043 acre), with colonization of piles over time (as described for Alternative 2). • Application of the same BMPs and applicable mitigations as for Alternative 2.

Table 3.8-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Fish and EFH	• A total of 160 pile driving days would result in noise exposure above the cumulative injury and behavioral thresholds but with smaller distances than were evaluated in the 2016 Final EIS. Maximum exposure to impact pile driving of less than 45 minutes per day. A bubble curtain would be used for attenuation and turned on to startle fish away from peak injury zone during impact pile driving of steel piles. • Vibratory pile driving would result in behavioral impacts to fish species that may be present but the duration would be no more than 5 hours per day during the in-water construction period. • Localized and temporary suspended sediments and turbidity on benthic communities that may be prey for fish species during pile driving and vessel anchoring. These impacts would temporarily disrupt Groundfish and Coastal Pelagic EFH. • Due to strong nearshore currents and winds, the amount of suspended sediment (small fine-grained/sandy sediment) that would settle out of the water column onto intertidal beaches would not be expected to adversely impact spawning success of sand lance that spawn near the project site.	• Long-term conversion of soft-bottom habitat to hard-bottom habitat on piles would be a loss of EFH for some species and increase of EFH for other species. • Increase in pier surface area would increase overwater coverage of fish habitat, but would occur over deeper water where vegetation used as EFH does not grow. • No barrier effect on smaller, nearshore migrating juvenile salmonids and forage fish. Little to no effect on larger, offshore migratory fish.	• Impacts would be similar to those described for Alternative 2 except that in-water construction would involve up to 205 days of underwater noise exposure for fish and the larger pier footprint and number of piles would increase the amount of sediment disturbance and loss of benthic habitat (see also impacts to Marine Water Resources and Marine Vegetation and Invertebrates above).	• Operational impacts would be similar to Alternative 2 but would occur over a larger area due to larger pier infrastructure and number of piles.

Table 3.8-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Fish and EFH (continued)	• Temporary loss of benthic prey and soft bottom habitat from installation and removal of falsework piles (0.004 acre). Recolonization of benthic prey expected within 2 years. • The Navy determined that Alternative 2 "may affect, not likely to adversely affect" determination on Puget Sound Evolutionarily Significant Unit chinook salmon and Hood Canal Evolutionarily Significant Unit summer-run chum salmon and designated critical habitat; Puget Sound Distinct Population Segment steelhead; and Puget Sound Distinct Population Segments of bocaccio and yelloweye rockfish and designated critical habitat. The Navy determined that Alternative 2 "may adversely affect" Pacific coast groundfish EFH, coastal pelagic species EFH, and Pacific coast salmon EFH.			

Table 3.8-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Marine Mammals	• Increased levels of activity and noise from construction may disturb marine mammal movements with temporary avoidance of certain areas. • Habitat degradation to prey species would be expected during construction but the number of marine mammals indirectly affected by impacts on the prey population would be small. • Pile driving noise would exceed NMFS behavioral disturbance (Level B) and injury (Level A) thresholds for marine mammals. Construction disturbance due to in-water work would occur over two seasons, including a total of 160 days of pile driving. There is a potential for injury harassment to harbor seals that may result in 125 exposures from impact pile driving noise. Mitigation is expected to avoid most potential adverse impacts to marine mammals from impact pile driving, but some exposure may be unavoidable. Pile driving would affect individual marine mammals, but would not cause population-level impacts.	• Operation of the extended Service Pier would not result in permanent impacts to areas used directly by marine mammals. • Minor indirect impacts on prey species would occur due to loss and degradation of benthic habitat. • There would be a minor increase in human activity, vessel traffic, and noise related to maintenance activities on submarines. These effects from operation would not occur at a level to change the prey base for marine mammals or affect marine mammal foraging habitats.	• Direct and indirect impacts on marine mammals during construction would be similar to Alternative 2 and include increased levels of activity and noise that may disturb marine mammal movements with temporary avoidance of certain areas. • Pile driving noise would exceed NMFS behavioral disturbance (Level B) and injury (Level A) thresholds for marine mammals. There is a potential for injury harassment to harbor seals that may result in 155 exposures from impact pile driving noise. Mitigation is expected to avoid most potential adverse impacts to marine mammals from impact pile driving, but some exposure may be unavoidable. Pile driving would affect individual marine mammals, but would not cause population-level impacts.	Impacts would be the same as Alternative 2.

Table 3.8-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Marine Mammals (continued)	• Pursuant to the MMPA: The Proposed Action would expose marine mammal species within the injury threshold areas to noise levels that would result in injury harassment (from impact pile driving) and behavioral disturbance. • A detailed marine mammal monitoring plan would be developed in consultation with NMFS prior to the onset of work. In-situ acoustic monitoring at commencement of pile driving (impact and vibratory) would verify estimated radial distances to injury threshold zones. Pile driving would affect individual marine mammals, but would not cause population-level impacts and are considered less than significant. • The Navy submitted a Biological Assessment to NMFS for concurrence of "may affect, not likely to adversely affect" Mexico and Central America Distinct Population Segments humpback whale. *Pursuant to the ESA:* Effect determination for the humpback whale (based on infrequent occurrence) is "may affect, not likely to adversely affect;" and "no effect" on Southern Resident killer whale and its critical habitat.		• Monitoring would be implemented to minimize injury to harbor seals and avoid injury to other marine mammals during pile driving. • Information about MMPA and ESA compliance, the Biological Assessment, and the Incidental Harassment Authorization is the same as Alternative 2.	

Table 3.8-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Marine Mammals (continued)	• The Navy has applied to NMFS for an Incidental Harassment Authorization under the MMPA for behavioral disturbance to transient killer whale, harbor porpoise, Steller sea lion, and California sea lion, and for injury to harbor seal.			
Marine Birds	• Potential benthic community displacement would result in permanent loss of 0.037 acre and a temporary loss of 0.004 acre from installing and removing 27 falsework piles. • Pile driving would create sediment disturbance, turbidity, and airborne and underwater noise. All would be temporary disturbance to marine birds and foraging marbled murrelet. By conducting impact pile driving between 2 hours after sunrise and 2 hours before sunset (between July 15 and September 23), impacts to foraging marbled murrelets would be minimized. • Temporary noise from non pile-driving construction activities would be consistent with the typical ambient noise of the industrial nature of the area and would not significantly disturb marine birds. Further, timing restrictions would be implemented during tree removal (avoiding marbled murrelet breeding season from April 1 to September 23).	• Impacts associated with prey availability, noise, and visual disturbance are expected to be minor, with no species or population-level changes to marine bird behavior or fitness. The 4 acres of vegetation and potential habitat for marbled murrelet and other birds that would remain as a gravel lot rather than be revegetated as proposed in the 2016 Final EIS would not result in a significant reduction in tree habitat available within the area.	• Impacts would be the same as for Alternative 2 except that the area of potential benthic community displacement would increase due to the larger pier footprint and the installation of 50 falsework piles (0.043 acre of permanent and 0.0081 acre of temporary displacement).	• Impacts would be the same as Alternative 2.

Table 3.8-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Marine Birds (continued)	• The Navy received an email on May 19, 2017 from U.S. Fish and Wildlife Service acknowledging that the Navy will not be reinitiating consultation on the proposed changes.			
Geology, Soils, and Water Resources	• No shoreline construction is proposed, so the changes in project design and construction, including installation and removal of falsework piles, would not affect geology, soils, or water resources. • New facilities to be built would meet requirements of WDOE Stormwater Management Manual and the Energy Independence and Security Act of 2007. • The new parking lot and laydown area would occupy 7 acres. Upland disturbance to soils of approximately 4 acres would result from site clearing, grading, hauling, excavation and filling for the parking lot and the Waterfront Ship Support Building. These 4 acres of impact would be permanent instead of temporary (as evaluated in the 2016 Final EIS).	• Erosion from the 4-acre gravel lot would be controlled through drainage structures and stormwater conveyance structures. The Unified Facilities Criteria guidelines for low-impact development would be implemented into the design of the upland parking lot and would include water quality enhancement and infiltration.	• Impacts would be the same as Alternative 2.	• Impacts would be the same as Alternative 2.

Table 3.8-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Geology, Soils, and Water Resources (continued)	• The Navy would apply for a Construction Stormwater Permit and operational stormwater discharges would be covered by the NAVBASE Kitsap Bangor Multi-Sector General Permit from U.S. Environmental Protection Agency, Region 10. • Construction BMPs and a Stormwater Pollution Prevention Plan would be implemented to control erosion and sedimentation to protect surface waters, including wetlands and intertidal area. • The project construction sites would be located in documented low risk areas for seismic-induced slope instability.			
Native American Traditional Resources and Tribal Treaty Rights	• No shellfish harvest areas are located within the SPE construction area so the construction footprint and number of piles would not affect access to shellfish. • Impacts to benthic communities from pile driving and sediment disturbance would not impact the overall populations of fish and shellfish that could be harvested by tribes. • Additional water traffic would not significantly affect tribal access to usual and accustomed fishing areas in Hood Canal during the 2-year construction timeframe.	• The presence and operations of SPE Alternative 2 structures would have minimal impact on salmonids and would not be sufficient to result in population-level impacts on salmon or the tribal harvest of salmon.	• Same as Alternative 2.	• Same as Alternative 2.

Table 3.8-1 Summary and Comparison of Environmental Impacts (continued)

Resource Area	*Alternative 2: Short Pier Configuration Construction*	*Alternative 2: Short Pier Configuration Operations*	*Alternative 3: Long Pier Configuration Construction*	*Alternative 3: Long Pier Configuration Operations*
Native American Traditional Resources and Tribal Treaty Rights (continued)	• See Section 9 of Appendix B Mitigation Action Plan for a description of Treaty Mitigation that will be implemented.			

Key: BMPs = Best Management Practices; CPs = Continuing Practices; EFH = Essential Fish Habitat; EIS = Environmental Impact Statement; ESA = Endangered Species Act; MMPA = Marine Mammal Protection Act; NAVBASE = Naval Base; NMFS = National Marine Fisheries Service; SPE = Service Pier Extension; USACE = United States Army Corps of Engineers; WDOE = Washington Department of Ecology

3.9 Best Management Practices, Current Practices, Mitigation Measures, Compensatory and Treaty Mitigation, and Regulatory Compliance

Several measures, including BMPs, CPs, MM, as well as Compensatory and Treaty Mitigation would be implemented to avoid, reduce, mitigate, and offset the effects of the Proposed Action. For a detailed discussion of each practice and mitigation measure described below, please refer to Appendix B*, Mitigation Action Plan,* of this SEIS. The following is a description and summary of the BMPs, CPs, MMs, Compensatory and Treaty Mitigation, and regulatory compliance that will be implemented under the Proposed Action.

BMPs are existing policies, practices, and measures that the Navy would adopt as part of the proposed action to reduce the environmental impacts of designated activities, functions, or processes. The following BMPs would be implemented as part of the SPE project:

- Creosote-treated piles will be removed by using a vibratory driver or direct pull as preferred methods for removal.
- Removed creosote-treated piles and associated sediments (if any) will be contained on a barge or, if a barge is not utilized, stored in a containment area near the construction site. All creosote-treated material and associated sediments will be disposed of in a state-approved upland disposal site.
- To reduce the likelihood of any petroleum products, chemicals, or other toxic or deleterious materials from entering the water, fuel hoses, oil or fuel transfer valves, and fittings will be checked regularly for drips or leaks and will be maintained and stored properly to prevent spills from construction and pile driving equipment into state waters.
- To limit soil erosion and potential pollutants contained in stormwater runoff, a Stormwater Pollution Prevention Plan will be prepared and implemented in conformance with the *Stormwater Management Manual for Western Washington* (Washington Department of Ecology [WDOE] 2014) (applies to Operations also).

Current practices are physical, structural, or managerial practices that decrease the potential for impacts, particularly related to water quality. The following CPs would be implemented as part of the SPE project:

- To minimize water quality impacts from accidental spills of oil, fuels, or other related materials during construction, oil containment booms will be deployed around in-water construction site.
- During in-water construction activities, floating booms will be deployed and maintained to collect and contain floatable materials released accidentally. Any accidental release of equipment or materials will be immediately retrieved and removed from the water. Following completion of in-water construction activities, an underwater survey will be conducted to remove any remaining construction materials that may have been missed previously. Retrieved debris will be disposed of at an approved upland disposal site.
- Applicable construction measures (described above) to protect water quality and habitats will also be implemented during operational procedures.
- Barges and other construction vessels will not be allowed to run aground. Additionally, vessel operators will be instructed to avoid excess engine thrust in water depths shallower than 30 feet to the extent possible.

- During post-construction operations of the SPE, the guard panels between Port Security Barrier system pontoons will be cleaned regularly.

MMs are used most frequently to reduce or minimize impacts that are unavoidable. The following MMs would be implemented as part of the SPE project:

- To minimize impacts on marine habitat, limitations will be placed on construction vessel operations, anchoring, and mooring line deployment. Vessel operators will be provided with maps of the construction area with eelgrass beds clearly marked. Resulting seafloor disturbance will be confined to a 100-foot-wide corridor on each side of the structure under construction. A mooring and anchoring plan will be developed and implemented to avoid dragging anchors and lines in special status areas. Spudding/anchoring in existing eelgrass habitat will be avoided.
- To minimize impacts on ESA-listed fish species, in-water construction will be conducted within the in-water work window (July 16 through January 15). The exception is that relocation of the Port Security Barrier anchors could occur outside the work window.
- Pile driving of steel piles would be done using primarily vibratory methods to the extent practicable before using impact pile driving methods. Vibratory pile driving reduces noise levels by approximately 20 decibels RMS at 33 feet from the source.
- To attenuate in-water noise, bubble curtains would be used around steel piles being driven by impact methods. The Navy would also consider other equally or more effective noise attenuation methods that may become available. Noise attenuation would not be used for driving concrete piles, because of the much lower level of noise generated by driving of concrete piles compared to steel piles, and the resulting much lower potential for impacts to biota.
- During impact pile driving, a soft-start approach would be used to induce marine mammals to leave the immediate area. This soft-start approach requires contractors to initiate noise from hammers at reduced energy, followed by a waiting period.
- Construction activities would not be conducted during the hours of 10:00 p.m. and 7:00 a.m. Between July 15 and September 23, impact pile driving would only occur between 2 hours after sunrise and 2 hours before sunset to protect foraging marbled murrelets during the breeding season. Between September 24 and January 15, in-water construction activities would occur during daylight hours (sunrise to sunset). The Navy would notify the public about upcoming construction activities and noise at the beginning of each construction season.
- To avoid impacts on marine mammals protected by ESA and MMPA and marbled murrelet protected by ESA, monitoring of shut down and buffer zones around in-water pile driving locations would be implemented. Detailed marine mammal and marbled murrelet monitoring plans would be developed and implemented in consultation with NMFS and the U.S. Fish and Wildlife Service.
- To protect potential breeding marbled murrelets, tree removal would not be conducted during the marbled murrelet breeding season of April 1 through September 23. This timing restriction would also limit exposure of general construction noise and habitat disturbance on migratory birds.
- The Navy would develop a local Notice to Mariners to establish uniform procedures to facilitate the safe transit of vessels operating in the project vicinity. Barge trips and associated bridge openings would be scheduled to avoid peak commuting hours. The Notice to Mariners would also serve to notify divers, including tribal divers, of potential underwater noise impacts.

The following Compensatory and Treaty Mitigation would be implemented as part of the SPE project:

- The Navy would, as part of the Proposed Actions, undertake Compensatory Mitigation to offset unavoidable adverse impacts on aquatic resources under the provisions of the Clean Water Act (CWA) Final Rule for Compensatory Mitigation for Losses of Aquatic Resources. The Navy would purchase habitat credits from the Hood Canal In-Lieu Fee Program, which would implement appropriate mitigation in the Hood Canal watershed.
- The Navy would undertake mitigation projects proposed to address potential effects of the Proposed Actions on reserved treaty rights and resources of the Skokomish, Port Gamble S'Klallam, Jamestown S'Klallam, and Lower Elwha Klallam Tribes.

The Navy must also comply with a variety of federal environmental laws, regulations, and Executive Orders (EOs). These include the following:

- National Environmental Policy Act (NEPA), which requires an environmental analysis for major federal actions that have the potential to significantly impact the quality of the human environment
- Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA
- Navy regulations for implementing NEPA, which provides Navy policy for implementing Council on Environmental Quality regulations and NEPA
- Clean Water Act
- Rivers and Harbors Act
- Coastal Zone Management Act
- Endangered Species Act
- Energy Independence and Security Act
- Magnuson-Stevens Fishery Conservation and Management Reauthorization Act
- Marine Mammal Protection Act
- Native American Graves Protection and Repatriation Act
- EO 12088, Federal Compliance with Pollution Control Standards
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
- EO 13175, Consultation and Coordination with Indian Tribal Governments
- EO 13693, Planning for Federal Sustainability in the Next Decade

A description of the Proposed Action's consistency with these laws, policies and regulations, as well as the names of regulatory agencies responsible for their implementation, is presented in Chapter 5 of this SEIS.

4 Cumulative Impacts

Cumulative impacts are defined in the Council on Environmental Quality's implementing regulations for the National Environmental Policy Act (NEPA) as "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions."

This cumulative impacts analysis considers resources that were carried forward for additional analysis in Chapter 3. For the majority of these resources, the Region of Influence (ROI) for the analysis is Hood Canal. For Native American tribal treaty rights, the ROI includes the areas in which affected tribes have been granted treaty rights.

The cumulative impacts analysis for the Service Pier Extension (SPE) project considers known past, present, and reasonably foreseeable future actions within the ROI that may have impacts additive to those of the proposed action. Table 4-1 of the 2016 Final Environmental Impact Statement (EIS) provided a list of past, present, and reasonably foreseeable future actions at Naval Base (NAVBASE) Kitsap Bangor and within the ROI that have had, continue to have, or would be expected to have impacts on the natural and human environment. Figures 4-1 and 4-2 of the 2016 Final EIS showed the location of each project relative to the project area. This table and associated figures from the 2016 Final EIS are incorporated by reference in this Supplemental EIS (SEIS). The relevant projects assessed in the cumulative impact analysis were selected based on best available knowledge about proposed future actions as well as a review of available NEPA and permitting documentation for past, current, and future actions. The timeframe represented in the list of future projects encompasses both construction phases associated with the proposed action in this SEIS.

The only new action that has been identified for the cumulative impacts analysis in this SEIS is a planned revision to the United States (U.S.) Department of the Navy's (Navy) Integrated Natural Resources Management Plan (INRMP) for NAVBASE Kitsap (Navy, 2012). The INRMP is a long-term planning document that provides natural resources management strategies for NAVBASE Kitsap Bangor and other Navy properties in Kitsap County. The INRMP strives to fully integrate and coordinate the natural resources program with other NAVBASE Kitsap plans and activities. The INRMP is scheduled for revision in 2017. Revisions to the INRMP will not be substantive enough to change the cumulative impact analyses presented in the 2016 Final EIS.

The Land-Water Interface (LWI) project, which was addressed in the cumulative impacts analysis of the 2016 Final EIS, has been approved by the Navy and implementation is pending completion of required consultations and permitting actions. Therefore, it is considered in this analysis as a separate Navy action that could contribute to cumulative impacts within the ROI.

In addition to specific projects, other regional activities, processes, and trends were considered in the 2016 Final EIS cumulative impact analysis. They included development along the shoreline of Hood Canal, agency plans for improving environmental conditions in the region, Puget Sound trend data, and the effects of natural events and anthropogenic activities on marine mammal habitats in areas far removed from Hood Canal.

In addition to the trend data provided in the 2016 Final EIS, updated information from Puget Sound Partnership (2015) on various indicators was considered and included in the analysis, as appropriate. Some of the relevant trends include the following:

- An increase in harvestable shellfish beds
- A decrease in the biomass of spawning Pacific herring
- A decrease in Chinook salmon population abundance in Hood Canal
- A decrease in the number of Southern Resident Killer Whales
- An improvement in native eelgrass (stability or improvement) in Hood Canal
- Mixed results for marine bird population trends, with a decline in the marbled murrelet population

Regardless of the alternative selected, the proposed Mitigation Action Plan (Appendix B) would be implemented to compensate for impacts on habitats and species to minimize the contribution of the Proposed Action to cumulative impacts. The Mitigation Action Plan proposes measures to mitigate for impacts to shallow-water habitat, aquatic vegetation, and habitat for juvenile salmon and other fish and invertebrate species. The Mitigation Action Plan includes noise attenuation during construction, monitoring to minimize noise impacts, Mitigation Measures (MMs), Compensatory Mitigation, and Treaty Mitigation.

4.1 Marine Water Resources

No substantial changes in the cumulative impacts analysis presented in the 2016 Final EIS have been identified for marine water resources. A summary of the findings of the analysis is presented here, along with updated impact acres for sediments. Detailed discussions of cumulative past, present, and reasonably foreseeable future impacts on marine water resources can be found in Section 4.3.1 of the 2016 Final EIS.

4.1.1 Hydrography

The proposed SPE project may contribute to cumulative impacts to hydrography by causing localized and temporary disturbances of bottom sediments, which have the potential to alter bathymetry, flow patterns, and littoral transport processes. While in-water structures such as piles alter localized flow patterns and circulation, they do not affect regional circulation patterns, tidal flows, or longshore sediment supply and transport processes within Hood Canal.

In-water structures associated with the SPE would be additive to in-water structures associated with the LWI and other projects in the vicinity. As discussed in Section 4.3.1.1 of the 2016 Final EIS, in-water structures contribute to regional changes in nearshore sediment dynamics. The SPE structures and other pile-supported structures could intercept a portion of the longshore sediment supply to the shoreline downdrift from the NAVBASE Kitsap Bangor waterfront. However, the cumulative effect of existing in-water structures at NAVBASE Kitsap Bangor on longshore sediment supply are inconclusive, with evidence that the structures have not caused substantial changes in the morphology of the shoreline (Golder Associates, 2010 [as cited in Navy, 2016a]), as well as evidence that changes in the NAVBASE Kitsap Bangor shoreline have been substantial (MacLennan and Johannessen, 2014 [as cited in Navy, 2016a]).

As discussed in Section 3.1, the impacts of in-water structures associated with either action alternative of the SPE project on sediment transport processes would be minor. As stated in Section 4.3.1.1 of the 2016 Final EIS, the SPE project would contribute cumulatively to changes in sediment supply within Hood Canal, as well as long-term changes in sediment deposition and erosion patterns within NAVBASE

Kitsap Bangor (MacLennan and Johannessen, 2014 [as cited in Navy, 2016a]. Outside of NAVBASE Kitsap Bangor, the scale of these changes related to the cumulative contributions of the SPE project may not be discernable from future changes related to natural processes.

4.1.2 Water Quality

As described in Section 4.3.1.2 of the 2016 Final EIS, water quality in the Hood Canal has been—and is being—impacted by numerous actions in the region, with pollutants affecting water quality parameters such as turbidity, pH, dissolved oxygen, biochemical oxygen demand, and levels of chemical contaminants and fecal bacteria. Construction of the SPE would not be expected to contribute to or exacerbate cumulative water quality impacts because project-related changes would be localized and temporary, and would not overlap in space with those of other cumulative projects. Even if the construction periods for multiple planned projects (e.g., SPE, Transit Protection Program, LWI, and Magnetic Silencing Facility) were to overlap in time, their water quality impacts would be localized, with little potential to overlap in space.

Boat traffic associated with the construction and operation of the SPE pier extension would be minor. As stated in Section 4.3.1.2 of the Final EIS, minor increases in boat traffic would have a minor potential for contributing cumulatively to increased risks of vessel related spills in Hood Canal. Fuel spill prevention and response plans would minimize these risks to the degree that cumulative water quality impacts would not be significant.

4.1.3 Sediment

Past, present, and future actions involving in-water construction, and associated pile driving and dredging, have caused or will cause short-term, localized disturbances to sediment. As stated in Section 4.3.1.3 of the 2016 Final EIS, the estimated cumulative total area of sediment disturbance from in-water structures associated with the SPE project, combined with past, present, and future actions is 36.6 acres.

The proposed project would have a minor contribution to cumulative impacts on sediment quality in Hood Canal. As discussed in Section 3.1.2, impacts on sediment quality from the construction and operational phases of the proposed project would be limited to temporary and localized impacts from construction activities or accidental spills. When combined with impacts associated with other past, present, and future actions in the region, cumulative impacts on sediment quality would not be significant.

4.2 Marine Vegetation and Invertebrates

No substantial changes in the cumulative impacts analysis presented in Section 4.3.2 of the 2016 Final EIS have been identified for marine vegetation and invertebrates. A summary of the findings of the analysis is presented here, along with updated numbers for the area of overwater shading area and loss of soft-bottom habitat resulting from the SPE. Detailed discussions of cumulative past, present, and reasonably foreseeable future impacts on marine vegetation and invertebrates can be found in the 2016 Final EIS.

4.2.1 Marine Vegetation

Table 4-1 quantifies the estimated amounts of marine vegetation loss and overwater shading on NAVBASE Kitsap Bangor associated with past, present, and reasonably foreseeable future actions.

Numbers in this table have been updated from Table 4-2 in the 2016 Final EIS to reflect selection of LWI Alternative 3. Data pertaining to LWI Alternative 2 have been removed.

Table 4-1 Cumulative Loss of Marine Vegetation on NAVBASE Kitsap Bangor in acres

Parameter	*Total Overwater Shading Area*	*Eelgrass Loss*[1]	*Macroalgae Loss*[2]
Past Navy Waterfront Construction and/or *Sargassum* invasion	24.7	5.2	Not determined
EHW-2[3]	6.3	0.09	0.13
Land/Water Interface[4]	0.12~~–0.34~~	0.013~~–0.024~~	0.05~~–0.078~~
Bangor TPP Pier	1.6	TBD	TBD
Service Pier Extension[4]	1.0–1.6	0	0
Magnetic Silencing Facility Modification	0.02	0	0
Non-Navy Future Hood Canal Projects	1.7	Not determined	Not determined
Total	**up to ~~36.3~~ 36.0**	**5.3 plus undetermined amount**	**0.18 plus undetermined amount**

Key: EHW-2 = Explosives Handling Wharf 2; TBD = to be determined; TPP = Transit Protection Program
Notes:

1. For the purposes of cumulative impact assessment, eelgrass loss is the known area of flora under fully shading proposed structures (EHW-2), or the area under Port Security Barrier mooring anchor footprints and Port Security Barrier foot and buoy disturbance footprints (LWI Alternative 3).
2. For the purposes of cumulative impact assessment, macroalgae loss is the known area under the proposed structure (EHW-2), or the area under Port Security Barrier mooring anchor footprints and Port Security Barrier foot disturbance footprints (LWI Alternative 3). Total macroalgae areas were estimated for LWI.
3. Impacts on eelgrass and other marine vegetation from the EHW-2 project were mitigated through purchase of aquatic habitat credits from the Hood Canal In-Lieu Fee Program.
4. Impacts on eelgrass and other marine vegetation from the LWI project will be mitigated as part of the Mitigation Action Plan prepared for that project (Appendix B of the 2016 Final EIS).

The proposed pier extension project would result in temporary disturbance of approximately 0.27 acre of macroalgae, but would not result in a loss of eelgrass or other marine vegetation, as it is located outside of marine vegetation depths. Operations would not contribute to marine vegetation losses. The SPE would contribute 1.0-1.6 acres of overwater shading, but shading would not contribute to cumulative impacts to marine vegetation, as the SPE footprint and associated overwater shading are beyond the depths of vegetation growth.

4.2.2 Benthic Communities

As discussed in Section 4.3.2.2 of the 2016 Final EIS, potential impacts to benthic communities from the SPE include decreased abundance due to shading, increased predation associated with lighting, and loss/alteration of soft-bottom habitat by in-water structures. Based on the revised data presented in this SEIS, the SPE project would result in the conversion of 0.037 acre of soft-bottom habitat to hard surfaces. When combined with other past, present, and future Navy actions, and future non-Navy actions, the estimated cumulative total area of soft-bottom habitat converted to hard surfaces in the ROI remains at 2.8 acres. Cumulative totals would also include an unquantified amount from past non-Navy actions.

The SPE project's contribution to this total would be compensated for by the Mitigation Action Plan (Appendix B). With this plan in place, the action alternatives would have a negligible contribution to

cumulative impacts to benthic communities. Cumulative impacts to benthic communities would be the same as those described in Section 4.3.2.2 of the 2016 Final EIS.

4.2.3 Plankton

Cumulative impacts to plankton would be the same as those described in Section 4.3.2.3 of the 2016 Final EIS. Plankton populations have been largely unaffected by past and present in-water development in the ROI, and future in-water development is also unlikely to adversely impact plankton. Cumulative impacts to plankton in the ROI predominantly consist of reduced productivity associated with creation of sites for plankton filter feeders, overwater shading, and nighttime lighting. The SPE project would contribute to these cumulative impacts. However, because the artificial nighttime lighting for the SPE would not be continuous, and because the area affected by the action is a small amount of the total available habitat in the Hood Canal, the proposed project would have a minor contribution to cumulative impacts to plankton, and cumulative impacts would be inconsequential.

4.3 Fish

The following summarizes the findings of the cumulative effects analysis for fish from Section 4.3.3 of the 2016 Final EIS, and presents updated trend information as applicable. Detailed discussions of cumulative past, present, and reasonably foreseeable future impacts on fish can be found in the 2016 Final EIS.

4.3.1 Salmonids

As discussed in Section 4.3.3.1 of the 2016 Final EIS, the primary impacts of past present and future actions in Hood Canal on salmonids include loss and degradation of habitat, reduced function of migratory corridors, interference with migration, contamination of water and sediments, depletion of dissolved oxygen, and overharvest by fisheries. In-water structures adversely affect salmonid and forage fish habitat, and impede juvenile salmon migration by creating physical barriers. Efforts to reverse the decline of fish populations include regulations, habitat restoration, and establishment of in-water work windows. Despite these efforts, new trend data for Chinook salmon spawning populations of natural origin show declines in numbers since the early 2000s throughout Puget Sound (Puget Sound Partnership, 2015).

The proposed SPE project would contribute to cumulative adverse impacts to salmonids predominantly through exposure to underwater noise associated with pile driving. Construction of the SPE may overlap with in-water construction of other Navy projects (LWI, Explosives Handling Wharf 1 [EHW-1] Pile Replacement, Transit Protection Program [TPP] Pier, and Electromagnetic Measurement Range projects), resulting in a short-term cumulative increase in underwater noise associated with pile driving. As discussed in Section 4.3.3.1 of the 2016 Final EIS, the main cumulative effect of concurrent pile driving would be an increase in the area over which salmonids and other marine biota would be exposed to pile driving noise. Underwater noise levels could be additive for simultaneous pile driving activities associated with two closely located projects, resulting in increases of up to 3 decibels (dB) at locations between operating pile driving rigs (Appendix D of the 2016 Final EIS). In particular, the SPE project and the TPP Pier are located close to one another, and could create louder underwater conditions for salmon occurring in the area between the two projects during the construction period. Simultaneous vibratory pile driving is possible for projects with overlapping construction schedules. However,

simultaneous impact pile driving is unlikely, as the Navy would schedule construction to avoid simultaneous impact hammer strikes at multiple locations.

All proposed Navy projects include measures to mitigate for impacts on salmonids. As discussed in Section 2.3 of the 2016 Final EIS, observing the in-water work window would limit pile driving work to a time period when approximately 95 percent of all juvenile salmonids that occur in the area would be absent. Current and future waterfront projects along NAVBASE Kitsap Bangor would be designed and implemented to minimize impacts on salmonids. Relevant design measures that the Navy would consider include large spacing between piles, increased structure height-over-water in nearshore waters, avoidance of intertidal and subtidal habitats, and use of building materials that allow for light transmission. During construction, actions to minimize impacts would include limiting in-water work to the maximum extent practicable, observing in-water work windows, implementing measures to reduce construction-related noise, and implementing habitat mitigation.

The SPE would also contribute to cumulative impacts to salmonids by causing localized, short-term increases in turbidity. Impacts to nearshore migration barriers, habitats, and biological communities would be negligible, given the depths where the SPE project would be located.

Incorporating minor changes in project design and updated trend data into the analysis, conclusions regarding cumulative impacts to salmonids would be the same as those in Section 4.3.3.1 of the 2016 Final EIS. With minimization and mitigation measures in place, the SPE project would have a minor contribution to cumulative impacts, and when combined with other past, present, and reasonably foreseeable future Navy and non-Navy actions, would not result in significant cumulative impacts to salmonids.

4.3.2 Other Marine Fish Species

As discussed in Section 4.3.3.2 of the 2016 Final EIS, past and present actions in Hood Canal have impacted—and continue to impact—fish presence and abundance by creating barriers to fish movement, increasing the occurrence of predators, creating underwater noise that can harm and disturb fish, altering and reducing habitat, reducing the productivity of food sources, impacting water quality (dissolved oxygen in particular), and impacting fish stocks through overharvest. Future actions are likely to have similar impacts. Trend data have shown a decrease in some marine fish species (Pacific herring and surf smelt) and an increase in others (sand lance and three-spine stickleback) in Puget Sound (Northwest Fisheries Science Center, 2015; Puget Sound Partnership, 2015).

The proposed SPE project would contribute to cumulative adverse impacts to marine fish by causing short-term increases in underwater noise and turbidity (as described for salmonids in Section 4.3.1). As stated in Section 4.3.3.2 of the 2016 Final EIS, it is not possible to specify the significance of this contribution for the impacted species, except that it would occur at a time of downward trends for these populations. Cumulative noise-related impacts from a possible overlap between the construction periods for the SPE and other Navy projects in the vicinity would be similar to those described for salmonids (Section 4.3.1).

Incorporating minor changes in project design and updated trend data into the analysis, conclusions regarding cumulative impacts to marine fish are the same as those in Section 4.3.3.2 of the 2016 Final EIS. Impacts associated with the SPE and other proposed Navy actions would be minimized through the use of design elements and protective measures during construction, and through environmental planning and design of recent and future actions. Minimizing disturbance in intertidal and subtidal

habitats, limiting in-water work, observing work windows, and implementing measures to reduce construction noise would help minimize cumulative impacts so that the continued existence of marine fish species in the ROI would not be at risk.

4.4 Marine Mammals

The following summarizes the findings of the cumulative effects analysis for marine mammals from the 2016 Final EIS. Detailed discussions of cumulative past, present, and reasonably foreseeable future impacts on marine mammals can be found in Section 4.3.4 of the 2016 Final EIS. The analysis has been updated to incorporate revised information on noise-related impacts to marine mammals associated with pile driving, based on new acoustic criteria developed by National Marine Fisheries Service (NMFS) (NMFS, 2016a), which are described in Section 3.4.1 of this SEIS.

As discussed in Section 4.3.4 of the 2016 Final EIS, the primary impacts of past, present, and future actions in the ROI are increases in underwater noise levels, boat movement, human presence, and concentrations of toxic materials and polychlorinated biphenyls in Hood Canal. During construction, high underwater noise levels constitute harassment (a type of "take") of marine mammals under the Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA).

The SPE project would contribute to cumulative impacts associated with in-water structures, human presence, and underwater and airborne construction noise. As discussed in Section 4.3.4 of the 2016 Final EIS, in-water facilities tend to have minimal impacts on marine mammals and may provide some benefits. Additionally, seals and sea lions that frequent the Bangor waterfront have demonstrated their ability to habituate to high levels of human activity. Therefore, the cumulative impacts associated with in-water structures and human presence would not be significant.

Underwater noise associated with pile driving for the SPE would contribute to cumulative impacts on marine mammals associated with other construction projects in the ROI, as well noise impacts from other actions and activities in the ROI. As stated in Section 4.3.4 of the 2016 Final EIS, the temporary nature of noise impacts associated with individual construction projects would reduce the likelihood that noise levels would be additive. However, simultaneous pile driving for multiple planned construction projects at NAVBASE Kitsap Bangor (SPE, EHW-1 Pile Replacement, TPP Pier, and Electromagnetic Measurement Range Projects) could result in additive noise impacts. Simultaneous vibratory pile driving is possible for projects with overlapping construction schedules. However, simultaneous impact pile driving is unlikely, as the Navy would schedule construction to avoid simultaneous impact hammer strikes at multiple locations. Simultaneous pile driving, should it occur, would have the potential to affect more marine mammals (through injury and behavioral harassment) than any single project. As discussed in Appendix D of the 2016 Final EIS, for pile driving activities associated with two closely located projects, underwater noise levels at locations between operating pile driving rigs could be as much as 3 dB greater than noise levels generated by pile driving for a single action. Additionally, the distance at which marine mammals would be exposed to pile driving noise would be approximately 1.3 miles greater than the distance for a single action. Based on revised guidance by NMFS, pile driving associated with the SPE project would result in Level A and B take of marine mammals (injury and behavioral harassment), which would be authorized by NMFS under an Incidental Harassment Authorization. Additional take would occur from other pile driving projects in the vicinity, each of which would be covered by a separate Incidental Harassment Authorization, as applicable.

Cumulative impacts to marine mammals would be reduced through the implementation of impact minimization measures including soft starts and noise attenuating devices (e.g., bubble curtains) for pile driving, and implementation of marine mammal monitoring, with shutdown zones to minimize injury to marine mammals. Because behavioral disturbance zones would be larger than those considered in the analysis in the 2016 Final EIS, monitoring and associated shutdown zones would not be as effective at preventing harassment of marine mammals as previously assumed, and cumulative levels of take of marine mammals would be higher than those considered in the cumulative effects analysis for the 2016 Final EIS. However, regional populations would not be jeopardized. Continued regulation by NMFS of marine mammal exposures to anthropogenic disturbance, coupled with stock assessments, documentation of mortality causes, and research into acoustic effects would continue to minimize cumulative effects. The regulatory process also ensures that each project that may result in noise exposures to marine mammals is assessed in light of the status of the species and other actions affecting the same region. Therefore, cumulative impacts on marine mammals would not be significant.

4.5 Marine Birds

The following summarizes the findings of the cumulative effects analysis for marine birds from the 2016 Final EIS, and presents updated trend information as applicable. The analysis also considers a slightly increased area of permanent upland ground disturbance for the SPE project, as well as increased duration of pile driving activity. Detailed discussions of cumulative past, present, and reasonably foreseeable future impacts on marine birds can be found in the Section 4.3.5 of the 2016 Final EIS. Considering updated project design information and trend information in the analysis, conclusions regarding cumulative impacts to marine birds are the same as these presented in Section 4.3.5 of the 2016 Final EIS.

The impacts of past and current actions on marine birds include disturbance associated with increased human presence, noise, boat movement, and other activities, as well as loss and alteration of habitat. Populations of marine bird species in Hood Canal have declined from historical levels. Based on a recent report from Puget Sound Partnership (2015), some marine bird species have shown no overall change in population density since 2001, while others have declined. The trend for the marbled murrelet is a decline of 5.4 percent annually between 2001 and 2015 (Puget Sound Partnership, 2015).

As stated in Section 3.5.2.3.2 of the 2016 Final EIS, clearance of 11 acres of forest would result in the removal of habitat used by marine birds, including four potential marbled murrelet nest trees. This removal would contribute a small amount to cumulative losses of potential marbled murrelet nesting habitat in the region.

The SPE project, along with other future in-water Navy projects (LWI, EHW-1 Pile Replacement, TPP pier, and Electromagnetic Measurement Range platform construction) and non-Navy projects, would increase the number of in-water structures, and increase human activity levels in the ROI. As stated in Section 4.3.5 of the 2016 Final EIS, in-water facilities themselves tend to have minimal impacts on marine birds and may provide some benefits. Many marine birds perch on, or shelter near, manmade structures on the Bangor waterfront. Marine birds that frequent the NAVBASE Kitsap Bangor waterfront have demonstrated their ability to habituate to high levels of human activity. The net effect of actions in the ROI is expected to be minimal relative to the large range of these species within inland waters, and cumulative impacts would not be significant.

As discussed in Section 4.3.5 of the 2016 Final EIS, the greatest potential for cumulative impacts on marine birds would be simultaneous exposure to pile driving noise (underwater and airborne) from the Navy's current and future waterfront construction projects at NAVBASE Kitsap Bangor (EHW-1 Pile Replacement, LWI, SPE, TPP Pier, and Electromagnetic Measurement Range). Multiple simultaneous construction projects are likely to impact more marine birds (as modeled through behavioral harassment only) than any single project. The main effect of concurrent pile driving would be an increase in the area over which marine birds would be exposed to pile driving noise. Underwater noise levels could be additive for simultaneous pile driving activities associated with two closely located projects, resulting in increases of up to 3 dB at locations between operating pile driving rigs (Appendix D of the 2016 Final EIS). Simultaneous vibratory pile driving is possible for projects with overlapping construction schedules. However, simultaneous impact pile driving is unlikely, as the Navy would schedule construction to avoid simultaneous impact hammer strikes at multiple locations. As stated in Section 4.3.5 of the 2016 Final EIS, project and cumulative impacts would be reduced through the implementation of impact minimization measures, including noise-attenuating devices (e.g., bubble curtains) for impact pile driving, and implementation of marbled murrelet monitoring with shutdown zones to preclude injury to marbled murrelets and other marine birds. With impact minimization measures in place, cumulative impacts would not be significant.

4.6 Geology, Soils, and Water Resources

The following analysis revises the impact areas for soil disturbance and creation of impervious surface from the 2016 Final EIS as appropriate for the SEIS action alternatives. Detailed discussions of cumulative past, present, and reasonably foreseeable future impacts on geology, soils, and water resources can be found in Section 4.3.7 of the 2016 Final EIS. The minor change to the permanent upland impact area (permanent gravel laydown area instead of revegetating, see Section 2.3) and the change to a two-phased construction period totaling approximately 4 years instead of 2 do not change the conclusions presented in the 2016 Final EIS for cumulative impacts to these resources.

4.6.1 Geology and Soils

The SPE project would entail land clearing and soil disturbance that is additive to similar impacts to soils associated with development in the ROI. The SPE project would result in permanent disturbance of 11 acres due to construction of the parking lot and a gravel-covered laydown/staging area at the SPE project site. Section 4.3.7.1 of the 2016 Final EIS estimated that the cumulative area of soil on NAVBASE Kitsap Bangor disturbed by past, present, and future Navy actions will total 1,500 acres. Land clearing associated with the SPE project would be less than 1 percent of this total amount, and would not contribute significantly to cumulative impacts in the region.

4.6.2 Water Resources

As stated in Section 4.3.7.2 of the 2016 Final EIS, development within the ROI by the Navy and other entities has led to cumulative impacts on surface water and groundwater by creating impervious surfaces that increase stormwater runoff, degrade surface water quality, and decrease groundwater infiltration and aquifer recharge. Based on a review of aerial photography, it is estimated that past and present Navy actions have resulted/are resulting in approximately 909 acres of impervious surface. This represents a portion of impervious surface in the ROI, which increases annually. Based on the latest design, the SPE project would create up to 11 acres of new impervious surface on upland portions of the

project area. It is estimated that future Navy actions will create approximately 55 acres of new impervious surface, and non-Navy actions will create approximately 30 acres of new impervious surface within the ROI.

While the SPE project would add slightly to the total amount of impervious surface in the region, its contribution to cumulative impacts to water resources would be negligible, since measures to control and treat stormwater runoff would be implemented, and since the project is located in a groundwater discharge zone that is not utilized as a water source.

4.7 Native American Tribal Treaty Rights

The following summarizes the findings of the cumulative effects analysis for Native American Tribal treaty rights from the 2016 Final EIS. Detailed discussions of cumulative past, present, and reasonably foreseeable future impacts on Native American tribal treaty rights can be found in Section 4.3.14 of the 2016 Final EIS. Cumulative impacts on Native American tribal treaty rights in the ROI include increased use of natural resources (such as fish and shellfish), loss of access to traditional use areas, alteration of traditional areas being used for other purposes, and reduction in the quantity of resources. The impacts are predominantly associated with land development, population growth, ocean acidification, and other forms of pollution. Actions to offset adverse impacts have included identification and preservation of resources, habitat restoration for treaty resources, and providing access to resources. The Navy consults with local affected tribes on projects occurring on NAVBASE Kitsap Bangor and will continue to do so.

The proposed SPE project could contribute to cumulative impacts by potentially impacting finfish availability and potentially impacting access to harvest sites by temporarily increasing the number of construction vessels in the Hood Canal.

Considering minor changes in the project design and associated impacts on tribal treaty rights, conclusions regarding cumulative impacts are the same as those in Section 4.3.14 of the 2016 Final EIS. The SPE project's contribution to cumulative impacts, although small, would be offset through implementation of appropriate mitigation measures determined through ongoing consultations between the Navy and affected tribes.

5 Other Considerations Required by NEPA

In the 2016 Final Environmental Impact Statement (EIS), Section 5.2 summarized regulatory compliance for the Service Pier Extension (SPE) Proposed Action; consistency with other federal, state, and local plans, policies, and regulations; the relationship between short-term use of the environment and maintenance and enhancement of long-term productivity in the affected environment; irreversible or irretrievable commitments of resources; and energy/depletable resource requirements and conservation potential. Regulatory compliance required for the changes to the Proposed Action are updated from the 2016 Final EIS and included in Table 5-1 below. Sections 5.2.1 through 5.2.5 of the 2016 Final EIS that discuss unavoidable adverse impacts; relationship between short-term uses of human environment and the enhancement of long-term productivity; irreversible and irretrievable commitments of resources; energy requirements and conservation potential; and natural or depletable resource requirements and conservation potential are incorporated by reference.

Table 5-1 Summary of Regulatory Compliance for the SPE

Law or Regulation	*Responsible Agency*	*Compliance*
NEPA	Navy	This SEIS has been prepared in accordance with NEPA, Council on Environmental Quality regulations, and Navy NEPA regulations and procedures. Public participation and review is being conducted in compliance with NEPA.
Federal Water Pollution Control Act (CWA)	USACE, U.S. Environmental Protection Agency, and WDOE	Through the Joint Aquatic Resource Permit Application process, the Navy will apply to WDOE for a Section 401 Water Quality Certification. The Navy will also apply for a Construction Stormwater Permit from the U.S. Environmental Protection Agency, Region 10. Operational stormwater discharges will be covered by the NAVBASE Kitsap Bangor Multi-Sector General Permit from the U.S. Environmental Protection Agency, Region 10.
Rivers and Harbors Act	USACE	A Rivers and Harbors Act Section 10 permit from the USACE is required for placement of new structures in navigable waters. The Navy will apply for a Section 10 permit through the Joint Aquatic Resource Permit Application process.
ESA	NMFS and U.S. Fish and Wildlife Service	The SEIS analyzes potential effects on species listed under the ESA. The Navy submitted a Biological Assessment to NMFS on June 6, 2017 and a letter to U.S. Fish and Wildlife Service on May 3, 2017 informing the agency of the SPE project. NMFS is currently reviewing the Biological Assessment. The U.S. Fish and Wildlife Service acknowledged that the Navy will not be reinitiating consultation on the proposed changes to the project (received email dated May 19, 2017). Conclusions stating impacts to bull trout are not measurable and therefore insignificant, and impacts to marbled murrelets are discountable are still valid.
MMPA	NMFS	The Navy submitted an application for an Incidental Harassment Authorization to NMFS in accordance with the MMPA.

Table 5-1 Summary of Regulatory Compliance for the SPE (continued)

Law or Regulation	*Responsible Agency*	*Compliance*
Magnuson-Stevens Fishery Conservation and Management Act	NMFS	The Navy submitted an EFH Assessment to NMFS with the Biological Assessment and is in consultation with NMFS under the Magnuson-Stevens Fishery Conservation and Management Act.
Coastal Zone Management Act	National Oceanic and Atmospheric Administration and WDOE	The Navy is preparing a Coastal Consistency Determination in compliance with the Coastal Zone Management Act. The Coastal Consistency Determination will be submitted to WDOE in Fall 2017, who makes the federal consistency determination.
EO 13175, Government-to-Government Consultation	Navy	The Navy invited government-to-government consultation with potentially affected American Indian tribes concerning potential effects of the Proposed Action on protected tribal resources and treaty rights. A Memorandum of Agreement between the Navy and the Skokomish Indian Tribe was signed on March 3, 2016. Government-to-government consultation with the Port Gamble S'Klallam Tribe, Jamestown S'Klallam Tribe, and Lower Elwha Klallam Tribe is in progress.
Native American Graves Protection and Repatriation Act	Navy and State Historic Preservation Office	If the Navy were to encounter human remains, funerary objects, sacred objects, or objects of cultural patrimony as defined by the Native American Graves Protection and Repatriation Action, the Navy would comply with Native American Graves Protection and Repatriation Action and Navy instructions and consult with the State Historic Preservation Office, affected American Indian tribes, USACE, and other interested parties.
Energy Independence and Security Act, Section 438	Navy	The Proposed Action would maintain site hydrology to the maximum extent feasible and would consider the U.S. Environmental Protection Agency technical guidance for compliance with Section 438 of the Energy Independence and Security Act.
EO 12898, Environmental Justice	Navy	Implementation of the Proposed Action would not result in any disproportionately high and adverse human health or environmental effects on minority or low-income populations.
EO 13045, Children's Health and Safety	Navy	Implementation of the Proposed Action would not result in disproportionate environmental health or safety risks to children.

Table 5-1 Summary of Regulatory Compliance for the SPE (continued)

Law or Regulation	*Responsible Agency*	*Compliance*
EO 13693, Planning for Federal Sustainability in the Next Decade	Navy	The Navy complies with EO 13693 throughout its planning, design, construction, remediation, and environmental management programs. Navy projects are planned and developed in compliance with the Department of Defense Strategic Sustainability Performance Plan, which provides guidelines for installations, ships, aircraft, and tactical vehicles focusing on sustainable buildings, renewable energy, water use efficiency and management, fleet management, sustainable procurement, pollution prevention and waste reduction, electronic stewardship and data centers, performance contracting, and climate change adaptation. These guidelines have informed the planning and design of the SPE Proposed Action. For example, the proposed Waterfront Ship Support Building would be designed and constructed to be eligible to receive, at minimum, a Leadership in Energy and Environmental Design certification of Silver (Section 2.2.1.3.2 of 2016 Final EIS).

Key: CWA = Clean Water Act; EIS = Environmental Impact Statement; EFH = Essential Fish Habitat; EO = Executive Order; ESA = Endangered Species Act; MMPA = Marine Mammal Protection Act; NAVBASE = Naval Base; NEPA = National Environmental Policy Act; NMFS = National Marine Fisheries Service; SEIS = Supplemental Environmental Impact Statement; SPE = Service Pier Extension; USACE = United States Army Corps of Engineers; WDOE = Washington Department of Ecology

This page intentionally left blank.

6 References

Anchor Environmental. (2002). Interim remedial action: Log Pond cleanup/habitat restoration-Year 2 monitoring report. Prepared by Anchor Environmental, LLC, Seattle, WA. Prepared for Georgia Pacific West, Inc., Bellingham, WA.

Anchor QEA. (2012). Eelgrass survey data report, Naval Base Kitsap, Bangor, P-834, SSN Pier Extension and Ship Support Building. Prepared by Anchor QEA, LLC, Seattle, WA, on behalf of KPFF Consulting Engineers. Prepared for Naval Base Kitsap Bangor, Bangor, WA. November 2012.

Babson, A.L., M. Kawase, and P. MacCready. (2006). Seasonal and interannual variability in the circulation of Puget Sound, Washington: A box model study. *Atmosphere-Ocean.* 44(1): 29–45.

Bhuthimethee, M., Hunt, C., Ruggerone, G., Nuwer, J., and Hafner, W. (2009). *NAVBASE Kitsap Bangor fish presence and habitat use, Phase III field survey report, 2007-2008.* Prepared by Science Applications International Corporation, Bothell, WA, and Natural Resources Consultants, Inc. (Ruggerone), Seattle, WA. Prepared for BAE Systems Applied Technologies, Inc., Rockville, MD.

cbec. (2013). Hydrodynamic and Sediment Transport Modeling of the NBK Bangor Waterfront - Draft Technical Report. Mitigation Planning Support for P-983 Waterfront Restricted Area Land Water Interface and P-834 Service Pier Extension, Naval Base Kitsap Bangor, Kitsap County, Washington. Prepared by cbec, inc., West Sacramento, CA. Prepared for U.S. Department of the Navy Naval Facilities Engineering Command Northwest (NAVFAC NW), Silverdale, WA. February 25, 2013.

CH2M Hill. (1995). South Cap monitoring report, Seattle Ferry Terminal. Task 4, Amendment No. O, Agreement Y-5637. Prepared for Washington Department of Transportation, Olympia, WA.

Drake, J. S., Berntson, E. A., Gustafson, R. G., Holmes, E. E., Levin, P. S., Tolimieri, N., . . . Cope, J. M. (2010). Status review of five rockfish species in Puget Sound, Washington: Bocaccio (*Sebastes paucispinis*), canary rockfish (*S. pinniger*), yelloweye rockfish (*S. ruberrimus*), greenstriped rockfish (*S. elongatus*), and redstripe rockfish (*S. proriger*). (NOAA Technical Memorandum NMFS-NWFSC-108). National Marine Fisheries Service Northwest Fisheries Science Center, Seattle, WA. December 2010.

Fisheries Hydroacoustic Working Group. (2008). *Memorandum of agreement in principle for interim criteria for injury to fish from pile driving.* California Department of Transportation in coordination with the Federal Highway Administration, NOAA Fisheries Northwest and Southwest Regions, the Departments of Transportation of Washington and Oregon, and the California Department of Fish and Game. June 12, 2008.

Frierson, T. N., Dezan, W., Lowry, D., Pacunski, R. E., LeClair, L., Blaine, J., . . . Campbell, P. (2016). Final Assessment of Threatened and Endangered Marine and Anadromous Fish Presence and Their Critical Habitat Occurrence Adjacent to Naval Base Kitsap – Bangor: 2014–15 Survey Results. Prepared by Washington Department of Fish and Wildlife. Prepared for Naval Facilities Engineering Command Northwest (NAVFAC NW), Silverdale, WA.

Frierson, T., Dezan, W., Lowry, D., LeClair, L., Hillier, L., Pacunski, R., Blaine, Hennings, A., Phillips, A., Campbell, P. (2017). Final assessment of threatened and endangered marine and anadromous fish presence adjacent to the NAVBASE Kitsap Bangor: 2015-16 beach seine survey results. Final report to NAVFAC NW. Washington Department of Fish and Wildlife. Olympia, WA.

Golder Associates. (2010). Coastal processes analysis for Devil's Hole Mitigation Site, Naval Base Bangor, P977 Project. Prepared by Golder Associates, Redmond, WA. Prepared for Otak, Inc., Kirkland, WA. February 23, 2010.

Grebner, D., Renken, M., and M. Slater. (2016). Weighted Frequency Analysis for Auditory Effects of Underwater Construction Noise. Provided to Commander, Naval Facilities Engineering Command Northwest by Commander, Naval Surface Warfare Center, Carderock Division. 11014 Ser 7300MAS/035 December 8, 2016.

Hammermeister, T., and Hafner, W. (2009). NAVBASE Kitsap Bangor sediment quality investigation: data report. January 2009. Prepared by Science Applications International Corporation, Bothell, WA. Prepared for BAE Systems Applied Technologies, Inc., Bothell, WA.

Hemilä, S., Nummela, S., Berta, A., & Reuter, T. (2006). High-frequency hearing in phocid and otariid pinnipeds: An interpretation based on inertial and cochlear constraints. The Journal of the Acoustical Society of America, 120(6), 3463–3466.

MacLennan, A., and J. Johannessen. (2014). Bangor Beach Littoral Drift Assessment: Kitsap County, WA. Prepared by Coastal Geologic Services, Bellingham, WA. Prepared for Port Gamble S'Klallam Tribe, Port Gamble, WA. October 8, 2014.

NMFS. (2012). Letter of Concurrence regarding ESA Section 7 Informal Consultation and Magnuson-Stevens Fishery Conservation and Management Act EFH Consultation for the Pier 6 Fender System Repairs, Bremerton, Kitsap County, Washington. National Marine Fisheries Service, Seattle, WA. December 20, 2012.

NMFS. (2016a). Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing: Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts. U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration. National Oceanic and Atmospheric Administration Technical Memorandum NMFS-OPR-55, 178 p.

NMFS. (2016b). Draft Rockfish Recovery Plan. Puget Sound/Georgia Basin, Yelloweye Rockfish (*Sebastes ruberrimus*) and Bocaccio (*Sebastes paucispinis*). Prepared by the Office of Protected Resources, West Coast Regional Office.

NMFS. (2016c). Yelloweye rockfish (*Sebastes ruberrimus*), canary rockfish (*Sebastes pinniger*), and bocaccio (*Sebastes paucispinis*) of the Puget Sound/Georgia Basin, 5-year Review: Summary and Evaluation. NOAA's National Marine Fisheries Service West Coast Region, Office of Protected Resources, Seattle, WA. April.

Natural Resources Consultants, Inc. (2016). Identifying Rockfish Hot Spot Areas in Puget Sound through a Spatial Analysis of "Grey" Data. Prepared for NOAA protected Resources Division & Northwest Straits Foundation. September 30.

Navy. (2012). Integrated Natural Resources Management Plan for Naval Base Kitsap Bangor. Naval Base Kitsap, Silverdale, WA.

Navy. (2015). Pacific Navy Marine Species Density Database, Revised Final Northwest Training and Testing Technical Report. May 4, 2015. Naval Facilities Engineering Command Pacific, Pearl Harbor, HI.

Navy. (2016a). Land-Water Interface and Service Pier Extension Environmental Impact Statement. July.

Navy. (2016b). Record of Decision for the Land-Water Interface and Service Pier Extension at Naval Base Kitsap Bangor, Kitsap County, Washington. September 8.

Navy. (2016c). 2015-2016 Surveys for Spawning Surf Smelt and Pacific Sand Lance at Naval Base Kitsap Bangor, Manchester Fuel Depot and Naval Magazine Indian Island. Naval Facilities Engineering Command Northwest, Silverdale, WA. May 2016.

Northwest Fisheries Science Center. 2015. Populated Puget Sound Sees Stark Shift in Marine Fish Species. https://www.nwfsc.noaa.gov/news/features/populated_puget_sound/index.cfm.

Orca Network. (2016). Sightings Archives - various months in 2016. Orca Network. http://www.orcanetwork.org/Archives/index.php?categories_file=Sightings%20Archives%20Home. (Accessed March 19, 2017).

Pacunski, Robert. (2017). Personal communication via email between Robert Pacunski, Washington Department of Fish and Wildlife ROV Operations Manager and Sharon Rainsberry, NAVFAC NW Biologist regarding presence of bocaccio and yelloweye rockfish in Hood Canal. March 17.

Palsson, W. A., Tsou, T.-S., Bargmann, G. G., Buckley, R. M., West, J. E., Mills, M. L., . . . Pacunski, R. E. (2009). *The biology and assessment of rockfishes in Puget Sound.* (FPT 09-04). Fish Management Division, Fish Program, Washington Department of Fish and Wildlife, Olympia, WA. September 2009. http://wdfw.wa.gov/publications/00926/wdfw00926.pdf

Parametrix. (1994). Metro North Beach epibenthic operational monitoring program, 1994 surveys. Prepared by Parametrix, Inc., Kirkland, WA. Prepared for King County Department of Metropolitan Services, Seattle, WA.

Parametrix. (1999). St. Paul Waterway area remedial action and habitat restoration project. 1998 monitoring report. Prepared by Parametrix, Inc., Kirkland, WA. Prepared for Simpson Tacoma Kraft Co., Tacoma, WA.

Point No Point Treaty Council. (2010). *Point No Point Treaty Area and the Salmon and Shellfish Management Areas (map, May 20, 2010)*, Kingston, WA. http://www.pnptc.org/images/FINAL_PNPTCKlallamFishing_052010.jpg (Accessed March 28, 2013).

Puget Sound Partnership. (2015). 2015 State of the Sound: Report on the Puget Sound Vital Signs. November 2015. https://pspwa.app.box.com/v/2015-sos-vitalsigns-report.

Romberg, P.G., C. Homan, and D. Wilson. (1995). Monitoring at two sediment caps in Elliott Bay. In: *Puget Sound Research Conference 1995*. January 12-14, Bellevue, WA. 289–299.

Science Applications International Corporation. (2006). *Naval Base Kitsap-Bangor fish presence and habitat use. Combined phase I and II field survey report (Draft).* Prepared by Science Applications International Corporation, Bothell, WA. Prepared for BAE Systems Applied Technologies, Inc., Rockville, MD.

Science Applications International Corporation. (2009). Naval Base Kitsap at Bangor comprehensive eelgrass survey field survey report. Prepared by Science Applications International Corp., Bothell, WA. Prepared for BAE Systems Applied Technologies, Inc., Rockville, MD.

Schusterman, R. (1981). Behavioral Capabilities of Seals and Sea Lions: A Review of Their Hearing, Visual, Learning and Diving Skills. The Psychological Record, 31, 125–143.

Shannon & Wilson, Inc. 2013. Geotechnical Report - P-834 SSN Service Pier Extension and Ship Support Building, Naval Base at Kitsap Bangor, Silverdale, Washington. Prepared by Shannon & Wilson, Inc., Seattle, WA. Prepared for KPFF Consulting Engineers, Seattle, WA. April 4, 2013.

Smultea, M.A., K. Lomac-MacNair, G. Campbell, S. Courbis, and T.A. Jefferson, 2017. Aerial Surveys of Marine Mammals Conducted in the Inland Puget Sound Waters of Washington, Summer 2013 through Winter 2016. Final Report. Prepared by Smultea Sciences for Commander, U.S. Pacific Fleet and Naval Sea Systems Command. Submitted to Naval Facilities Engineering Command Northwest (NAVFAC NW), Pearl Harbor, Hawaii under Contract No. N62470-15-D-8006 issued to HDR, Inc., San Diego, CA. June 2017

Southall, B. L., Bowles, A. E., Ellison, W. T., Finneran, J. J., Gentry, R. L., Green, G. R., Jr., Tyack, P. L. (2007). Marine mammal noise exposure criteria: Initial scientific recommendations. Aquatic Mammals, 33(4), 411–521.

Vivan, J.M., T.C.M. de Almeida, and M. Di Domenico. (2009). Effects of dredged material disposal on benthic macrofauna near Itajaí Harbour (Santa Catarina, South Brazil). *Ecological Engineering.* 35(10): 1435–1443.

WDOE. (2014). Stormwater Management Manual for Western Washington. December.

WDOE. (2016). Water Quality Assessment 305(b) report and 303(d) list as approved by The Environmental Protection Agency on July 22, 2016. http://www.ecy.wa.gov/programs/wq/303d/currentassessmt.html.

7 List of Preparers

This SEIS was prepared collaboratively between the Navy and contractor preparers.

U.S. Navy

Kimberly Kler
Supplemental EIS Project Manager, NAVFAC Northwest
B.S., Environmental Policy Analysis and Planning, 1993, University of California Davis

Christine Stevenson
NEPA Coordinator, NAVFAC Northwest
B.S., Biology, Grove City College, Pennsylvania
B.S., Meteorology, Texas A&M University

Sharon Rainsberry
Fisheries Biologist, NAVFAC Northwest
B.S. Biology, California State Polytechnic University
M.S., Fisheries Science, University of Washington

David Gibson, P.E.
Engineering Project Manager, NAVFAC Northwest
B.S., Civil Engineering, North Carolina State University

Greg Leicht
Environmental Director, Naval Base Kitsap
B.S., Civil Engineering, Bradley University
Environmental Management Certificate Program, University of Washington

Ben Keasler
Environmental Program Coordinator, Naval Base Kitsap
B.S., Natural Resources Management, Cal Poly San Luis Obispo

Contractors

Craig A. Bloxham (Cardno)
M.A., Geography
Years of Experience: 29
Responsible for: SEIS Project Management

Jennifer Weitkamp, (Cardno)
B.S., Fisheries
Years of Experience: 22
Responsible for: SEIS Deputy Project Manager, SEIS Marine Vegetation and Invertebrates Section, and Fish Section

Travis Gahm (Cardno)
B.S., Biology
Years of Experience: 8
Responsible for: GIS

Edythe Mertz (Cardno)
A.A., General Education
Years of Experience: 28
Responsible for: Graphic Design

Ryan Pingree (Cardno)
M.S., Environmental Science and Management
Years of Experience: 19
Responsible for: Quality Assurance/Quality Control

Kim Wilson (Cardno)
Years of Experience: 30
Responsible for: Technical Editing

Stuart Paulus (AECOM)
PhD, Wildlife Biology
Years of Experience: 35
Responsible for: Review for Cumulative Effects

Robert Nielsen, (AECOM)
PhD, MS, BS in Fisheries Science (University of Washington)
Years of Experience: 45
Responsible for: SEIS Fish Biology Section, NMFS Biological Assessment

Jennifer Pretare, (AECOM)
PhD, Environmental Science, Policy and Management
Years of Experience: 17
Responsible for: SEIS Fish Biology Section, MMPA Incidental Harassment Authorization Application, NMFS Biological Assessment

Kim Anderson, PWS (AECOM)
M.S. Environmental and Forest Biology
Years of Experience: 18
Responsible for: Cumulative Impacts

Glen Mejia (AECOM)
B.A., Environmental Studies and Biology
Years of Experience: 15
Responsible for: Marine Mammals Section

8 Distribution List

This SEIS was distributed to the following agencies/people

Federal Agencies, Commissions, and Elected Officials

Marine Mammal Commission
National Oceanic and Atmospheric Administration
- National Marine Fisheries Services, Northwest Region
- Northwest Fisheries Science Center
- Office of Protected Resources

Pacific States Marine Fisheries Commission
U.S. Army Corps of Engineers, Seattle District
U.S. Coast Guard, District 13
U.S. Environmental Protection Agency
- Region 10
- Washington Operations Office

U.S. Fish & Wildlife Service, Western Washington Office
U.S Representatives
- District 1
- District 2
- District 6
- District 7
- District 8
- District 9

U.S. Senators

State Agencies and Elected Officials

Governor's Office of Indian Affairs
Governor's Office of Regulatory Assistance
Puget Sound Partnership
Washington Department of Archaeology & Historic Preservation
Washington State Department of Ecology
- Northwest Region
- Shorelands and Environmental Assistance Program

Washington State Department of Fish and Wildlife
- Headquarters
- Region 6

Washington State Department of Natural Resources
- Aquatics Shoreline District
- Olympic Region
- South Puget Sound Region

Washington State Office of the Attorney General
Washington State Office of the Governor
Washington State Office of the Lieutenant Governor
Washington State Parks Foundation
Washington State Representatives, District 11
Washington State Representatives, District 23

Washington State Representatives, District 24
Washington State Representatives, District 26
Washington State Representatives, District 27
Washington State Representatives, District 30
Washington State Representatives, District 31
Washington State Representatives, District 32
Washington State Representatives, District 33
Washington State Representatives, District 34
Washington State Representatives, District 35
Washington State Representatives, District 36
Washington State Representatives, District 37
Washington State Representatives, District 43
Washington State Representatives, District 46
Washington State Senator, District 11
Washington State Senator, District 23
Washington State Senator, District 24
Washington State Senator, District 24
Washington State Senator, District 26
Washington State Senator, District 27
Washington State Senator, District 30
Washington State Senator, District 31
Washington State Senator, District 32
Washington State Senator, District 33
Washington State Senator, District 34
Washington State Senator, District 35
Washington State Senator, District 36
Washington State Senator, District 37
Washington State Senator, District 43
Washington State Senator, District 46

Local Agencies and Elected Officials

City of Bainbridge Island
City of Bremerton
City of Port Orchard
City of Port Townsend
City of Poulsbo
City of Seattle
Hood Canal Coordinating Council
Hood Canal Dissolved Oxygen Program
Jefferson County Commissioners
Jefferson County Department of Natural Resources
King County Council
Kitsap County Commissioners
Kitsap County Community Development
Kitsap Regional Coordinating Council
Mason County Commissioners
Northwest Straits Commission

Native American Tribes and Organizations

Jamestown S'Klallam Tribe
Lower Elwha Klallam Tribe
Northwest Indian Fisheries Commission
Point No Point Treaty Council
Port Gamble S'Klallam Tribe
Skokomish Tribe
Suquamish Tribe

Organizations

Hood Canal Coordinating Council
Hood Canal Environmental Council

Libraries

Jefferson County Library
Kitsap Regional Library – Poulsbo Branch
Kitsap Regional Library – Silverdale
Kitsap Regional Library – Sylvan Way Branch
Port Townsend Public Library
Seattle Public Library – Central

This page intentionally left blank.

Appendix A
Notice of Intent

This page intentionally left blank.

noaa.gov. The permit application is also available for review at the Authorizations and Permits for Protected Species Web site: *https://apps.nmfs.noaa.gov/search/search.cfm*.

FOR FURTHER INFORMATION CONTACT: Matt McGoogan at 562–980–4026, or email: *Matthew.McGoogan@noaa.gov*.

SUPPLEMENTARY INFORMATION:

Species Covered in This Notice

Threatened SCCC steelhead.

Authority

Scientific research and enhancement permits are issued in accordance with section 10(a)(1)(A) of the ESA (16 U.S.C. 1531 *et. seq.*) and regulations governing listed fish and wildlife permits (50 CFR 222–227). NMFS issues a section 10(a)1(A) permit based on findings that the permit is (1) applied for in good faith, (2) would not operate to the disadvantage of the listed species which is the subject of the permit, and (3) consistent with the purposes and policies set forth in section 2 of the ESA. Authority to take listed species is subject to conditions set forth in the permit.

Permit Issued

A receipt of application notice for Permit 20085 was published in the **Federal Register** on July 21, 2016 (81 FR 47359), providing 30 days for public comment prior to permit processing. No comments were received. Permit 20085 was issued to Stillwater Sciences on October 31, 2016.

Permit 20085 authorizes take of threatened SCCC steelhead in association with enhancement activities involving the removal of Sacramento pikeminnow (*Ptychocheilus grandis*) from the Chorro Creek watershed in San Luis Obispo County, California. The primary objectives of the enhancement effort involve: (1) Determining the distribution, abundance, size, and age structures of both pikeminnow and steelhead in the watershed; (2) eliminating pikeminnow from the watershed; (3) developing a plan for long-term pikeminnow management in the watershed; and (4) documenting changes in steelhead abundance and distribution in response to pikeminnow removal. Proposed enhancement activities include: (1) Conducting snorkel surveys to assess abundance and distribution of pikeminnow and steelhead; (2) using backpack electrofishing equipment, seines, hook-and-line sampling, and spearfishing to capture pikeminnow; (3) measuring the weight and length of juvenile steelhead collected during sampling activities; (4) returning the collected steelhead alive and unharmed to Chorro Creek; and (5) humanely euthanizing and disposing pikeminnow.

Permit 20085 authorized field activities associated with the enhancement effort to begin on October 31, 2016 (the date the permit was issued), and ceases authorization of the subject activities when the permit expires on December 31, 2020. The annual take of threatened SCCC steelhead that permit 20085 authorizes Stillwater Sciences for the subject enhancement effort is as follows: (1) Non-lethal capture and release of up to 1,500 juvenile steelhead while electrofishing, (2) non-lethal capture and release of up to 150 juvenile steelhead while seining, (3) non-lethal capture and release up to 5 juvenile steelhead while hook-and-line fishing, and (4) non-lethal observation of up to 2,000 juvenile and 10 adult steelhead during instream snorkel surveys. The potential annual unintentional lethal take permit 20085 authorizes is up to 33 juvenile steelhead. Overall, no intentional lethal take of steelhead is authorized or expected as a result of these enhancement activities.

The subject scientific enhancement activities that permit 20085 authorize are expected to support steelhead recovery in the Chorro Creek watershed and are consistent with recommendations and objectives outlined in NMFS' South Central California Steelhead Recovery Plan. See the application for and issued permit 20085 for greater details on the associated scientific enhancement activities and related methodology authorized with this permit.

Dated: March 8, 2017.

Angela Somma,

Chief, Endangered Species Division, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. 2017–04870 Filed 3–10–17; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Intent To Prepare a Supplemental Environmental Impact Statement for Land-Water Interface and Service Pier Extension at Naval Base Kitsap Bangor, Washington

AGENCY: Department of the Navy, DoD.

ACTION: Notice.

SUMMARY: Pursuant to section (102)(2)(c) of the National Environmental Policy Act (NEPA) of 1969, and the regulations implemented by the Council on Environmental Quality (40 Code of Federal Regulations (CFR) parts 1500–1508), the Department of the Navy (DoN) announces its intent to prepare a Supplemental Environmental Impact Statement (EIS) to the July 2016 Final EIS for Land-Water Interface (LWI) and Service Pier Extension (SPE), Naval Base (NAVBASE) Kitsap Bangor, Washington. The Final EIS for LWI and SPE resulted in a Record of Decision (ROD) that was signed on September 8, 2016 for the LWI project only.

The SPE proposed action is to extend the existing Service Pier and construct associated support facilities. The purpose is to provide additional berthing capacity and improve associated support facilities for existing homeported and visiting submarines at NAVBASE Kitsap Bangor. The SPE project is needed to provide alternative opportunities for berthing to mitigate restrictions at NAVBASE Kitsap Bremerton, Washington, on navigating SEAWOLF Class submarines through Rich Passage under certain tidal conditions and to improve long-term operational effectiveness for the three SEAWOLF Class submarines on NAVBASE Kitsap.

The Supplemental EIS will address the SPE project only and will evaluate resources based upon changes in design and new information relevant to environmental concerns per 40 CFR 1502.9. The DoN will evaluate this new, relevant information and incorporate that information into revised analyses where appropriate. The analysis will address, among others, changes to the Alternative 2 design and new regulatory guidance and requirements.

FOR FURTHER INFORMATION CONTACT: Naval Facilities Engineering Command Northwest, 1101 Tautog Circle, Silverdale, Washington 98315–1101, Attn: Ms. Kimberly Kler, LWI/SPE Supplemental EIS Project Manager, 360–396–0927, or project Web site: *http://www.nbkies/lwi.com*.

SUPPLEMENTARY INFORMATION: The DoN announced its intent to prepare an EIS for the LWI and SPE in the **Federal Register** on February 1, 2013 (78 FR 7416), and invited the public to comment on the scope of the EIS. A Draft EIS was released on February 13, 2015 (80 FR 8081), in which the potential environmental effects associated with construction and operation of the LWI and SPE were evaluated. A Final EIS was released on July 15, 2016 (81 FR 46077), addressing comments received on the Draft EIS. The Navy issued a ROD on only the LWI portion of the proposed action on

September 14, 2016 (81 FR 63173), deferring a decision on the SPE.

A Notice of Availability of the Draft Supplemental EIS will be published in the **Federal Register** when ready for public review and the document will be available for a 45 day public comment period. A Final Supplemental EIS will then be prepared to address comments received on the Draft Supplemental EIS. No decision will be made to implement the proposed action until the EIS process is completed and a ROD is signed by the DoN.

Authority: 35 U.S.C. 207, 37 CFR part 404.

Dated: February 23, 2017.

A.M. Nichols,

Lieutenant Commander, Judge Advocate General's Corps, U.S. Navy, Federal Register Liaison Officer.

[FR Doc. 2017-04750 Filed 3-10-17; 8:45 am]

BILLING CODE 3810-FF-P

DEPARTMENT OF EDUCATION

Application for New Awards; Indian Education Formula Grants to Local Educational Agencies; Part I of the Formula Grant Electronic Application System for Indian Education (EASIE) Applications

AGENCY: Office of Elementary and Secondary Education, Department of Education.

ACTION: Notice.

SUMMARY: The Department of Education is issuing a notice inviting applications for new awards for fiscal year (FY) 2017 for Indian Education Formula Grants to Local Educational Agencies, Catalog of Federal Domestic Assistance (CFDA) Number: 84.060A.

DATES: Part I of EASIE Applications Available: March 31, 2017.

Deadline for Transmittal of Part I Applications: April 28, 2017.

FOR FURTHER INFORMATION CONTACT: For questions about the Formula Grants program, contact Bernard Garcia, U.S. Department of Education, 400 Maryland Avenue SW., Room 3W115, Washington, DC 20202-6335. Telephone: (202) 260-1454 or by email: *Bernard.Garcia@ed.gov*. For questions about the EASIE application and uploading documentation, contact the EDFacts PSC, telephone: 877-457-3336 (877-HLP-EDEN) or by email at: *eden_OIE@ed.gov*.

If you use a telecommunications device for the deaf or a text telephone, call the EDFacts PSC, toll free, at 1-888-403-3336 (888-403-EDEN).

SUPPLEMENTARY INFORMATION:

Note: Applicants must meet the deadlines for Part I to be eligible to complete Part II of the application process. EASIE Part II application dates will be announced in a separate notice inviting applications. Applicants must meet the deadlines for both EASIE Part I and Part II to be eligible to receive a grant. Any application not meeting the Part I and Part II deadlines will not be considered for funding. Failure to submit the required supplemental documentation, described under *Content and Form of Application Submission* in section IV of this notice, by the EASIE Parts I and II deadlines will result in an incomplete application that will not be considered for funding. The Office of Indian Education recommends uploading the documentation at least two days prior to each deadline date to ensure that any potential submission issues are resolved prior to the deadlines.

I. Funding Opportunity Description

Purpose of Program: The Indian Education Formula Grants to Local Educational Agencies (Formula Grants) program provides grants to support local educational agencies (LEAs), Indian tribes and organizations, and other eligible entities in developing elementary and secondary school programs that serve Indian students. The U.S. Department of Education (Department) funds comprehensive programs that are designed to meet the unique cultural, language, and educational needs of American Indian and Alaska Native (AI/AN) students, and ensure that all students meet challenging State academic standards.

As authorized under section 6116 of the Elementary and Secondary Education Act of 1965 (ESEA), as amended by the Every Student Succeeds Act (ESSA),[1] the Secretary will, upon receipt of an acceptable plan for the integration of education and related services, and in cooperation with other relevant Federal agencies, authorize the entity receiving the funds under this program to consolidate all Federal funds that are to be used exclusively for Indian students. Instructions for submitting an integration of education and related services plan are included in the EASIE, which is described under *Application Process and Submission Information* in section IV of this notice.

Note: Under the Formula Grants program, all applicants are required to develop the project for which an application is made in open consultation with parents of Indian children and teachers of Indian children, representatives of Indian tribes on Indian lands located within 50 miles of any school that the LEA will serve if such tribes have any children in such school, Indian organizations (IOs), and, if appropriate, Indian students from secondary schools, including through public hearings held to provide to the individuals described above a full opportunity to understand the program and to offer recommendations regarding the program (ESEA section 6114(c)(3)(C)). LEA applicants are required to develop the project for which an application is made with the participation and written approval of a parent committee whose membership includes parents and family members of Indian children in the LEA's schools; representatives of Indian tribes on Indian lands located within 50 miles of any school that the LEA will serve if such tribes have any children in such school; teachers in the schools; and if appropriate, Indian students attending secondary schools of the LEA (ESEA section 6114(c)(4)). The majority of the parent committee members must be parents and family members of Indian children (ESEA section 6114(c)(4)).

Definitions: The following definition is from section 6112(d)(3) of the ESEA:

Indian community-based organization means any organization that (1) is composed primarily of Indian parents, family members and community members, tribal government educational officials, and tribal members, from a specific community; (2) assists in the social, cultural, and educational development of Indians in such community; (3) meets the unique cultural, language, and academic needs of Indian students; and (4) demonstrates organizational and administrative capacity to manage the grant.

Statutory Hiring Preference:

(a) Awards that are primarily for the benefit of Indians are subject to the provisions of section 7(b) of the Indian Self-Determination and Education Assistance Act (Pub. L. 93-638). That section requires that, to the greatest extent feasible, a grantee—

(1) Give to Indians preferences and opportunities for training and employment in connection with the administration of the grant; and

(2) Give to IOs and to Indian-owned economic enterprises, as defined in section 3 of the Indian Financing Act of 1974 (25 U.S.C. 1452(e)), preference in the award of contracts in connection with the administration of the grant.

(b) For purposes of this section, an Indian is a member of any federally recognized Indian tribe.

Program Authority: 20 U.S.C. 7421 *et seq.*

Applicable Regulations: (a) The Education Department General Administrative Regulations (EDGAR) in 34 CFR parts 75, 77, 79, 81, 82, 84, 97, 98, and 99. (b) The Office of Management and Budget Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement) in 2 CFR part 180, as

[1] All references to the ESEA refer to the ESEA, as amended by the ESSA.

services to feature a "buy" button that a consumer must click on in order to obtain digital content, and they offered differing views as to what consumers believe they have obtained when they click on such a button.

The goal of this meeting is to explore issues and facilitate a discussion on how best to ensure that license terms related to copyright are clearly and effectively communicated to potential consumers in the online environment. We will not address whether the first sale doctrine should be applicable to digital transmissions, which the White Paper discussed at length (see *Background* Section above), or what license terms should or should not be imposed, but will focus on non-legislative solutions, which may include voluntary best practices.

One discussion topic will focus on what copyright-related terms and conditions are important to communicate to consumers in the online environment. Some examples of possible terms include: Ownership (*i.e.*, whether ownership is transferred); use restrictions (*e.g.*, restrictions for noncommercial purposes; geographical limitations; limits to a certain number of viewings or devices); and/or transfer conditions (*e.g.*, restrictions on resale or other distribution).

Another discussion topic will focus on identifying best practices for how to inform consumers about the intellectual property rights associated with the content they are accessing or acquiring, and what activities they are permitted to engage in without implicating those rights. Questions to be addressed may include:

- What term or terms can clearly communicate what consumers are paying for?
- What term or terms should not be used (*e.g.*, "buy," "own," or "purchase") in a digital transaction that is not a sale?
- Would a standardized form of notice, placed in or accessed from a conspicuous location on an e-commerce Web site or app be helpful?
- Would standard icons or symbols be helpful in communicating the terms, and what might those look like?
- Are there consumer messaging models from other fields (*e.g.*, in the consumer privacy context) that can provide useful lessons or examples in this area?

Finally, participants should be prepared to discuss whether additional work should be done to identify best practices in this area, and if so, in what forum and how.

Public Meeting

On April 18, 2017, the Task Force will hold a public meeting to hear views on these issues, including on the process going forward. We seek participation and comment from interested stakeholders, including in particular online services that offer digital transmissions of works to consumers, as well as creators, right holders, consumers, marketing professionals, user interface designers, public interest groups, and academics.

The agenda for the public meeting will be available no later than the week prior to the meeting, and the meeting will be webcast and transcribed. The agenda and webcast information will be available on the Internet Policy Task Force Web site, *http://www.ntia.doc.gov/internetpolicytaskforce*, and the USPTO's Web site, *https://www.uspto.gov/learning-and-resources/ip-policy/copyright/internet-policy-task-force*.

The meeting will be open to members of the public to attend, space permitting, on a first-come, first-served basis. Registration is required and will be available on site on the day of the meeting, space permitting. Persons who have pre-registered (and received confirmation) will have seating held until 15 minutes before the program begins. Pre-registration for the meeting is available at: *http://www.cvent.com/d/fvqhvj/4W*.

The meeting will be physically accessible to people with disabilities. Individuals requiring accommodation, such as sign language interpretation, real-time captioning of the webcast or other ancillary aids, should communicate their needs to Nadine Herbert, Office of Policy and International Affairs, United States Patent and Trademark Office, Madison Building, 600 Dulany Street, Alexandria, VA 22314; telephone (571) 272–9300, at least seven (7) business days prior to the meeting. Attendees should arrive at least one-half hour prior to the start of the meeting, and must present valid government-issued photo identification upon arrival. Members of the public will have an opportunity to make comments at the meeting.

Dated: March 16, 2017.

Michelle K. Lee,

Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office.

Kathy D. Smith,

Chief Counsel, National Telecommunications and Information Administration.

[FR Doc. 2017–05511 Filed 3–20–17; 8:45 am]

BILLING CODE 3510–16–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Intent To Prepare a Supplemental Environmental Impact Statement for Land-Water Interface and Service Pier Extension at Naval Base Kitsap Bangor, Washington; Correction

AGENCY: Department of the Navy, DoD.

ACTION: Notice; correction.

SUMMARY: The Department of the Navy (Navy) published in the **Federal Register** on March 13, 2017, a Notice of Intent (NOI) to prepare a Supplemental Environmental Impact Statement (EIS) for Land-Water Interface (LWI) and Service Pier Extension (SPE) at Naval Base Kitsap Bangor, Washington. The NOI referenced an incorrect project Web site address.

FOR FURTHER INFORMATION CONTACT: Ms. Kimberly Kler, LWI/SPE Supplemental EIS Project Manager, 360–396–0927.

Correction

In the **Federal Register** of March 13, 2017 (82 FR 13437), in the third column, correct the **FOR FURTHER INFORMATION CONTACT** caption to read:

FOR FURTHER INFORMATION CONTACT: Naval Facilities Engineering Command Northwest, 1101 Tautog Circle, Silverdale, Washington 98315–1101, Attn: Ms. Kimberly Kler, LWI/SPE Supplemental EIS Project Manager, 360–396–0927, or project Web site: *http://www.nbkeis.com/lwi*.

Dated: March 15, 2017.

A. M. Nichols,

Lieutenant Commander, Judge Advocate General's Corps, U.S. Navy, Federal Register Liaison Officer.

[FR Doc. 2017–05527 Filed 3–20–17; 8:45 am]

BILLING CODE 3810–FF–P

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Sunshine Act Notice

AGENCY: Defense Nuclear Facilities Safety Board.

ACTION: Notice of closed meeting.

SUMMARY: Pursuant to the provisions of the Government in the Sunshine Act (5 U.S.C. 552b), and the Defense Nuclear Facilities Safety Board's (Board) regulations implementing the Government in the Sunshine Act, notice is hereby given of the Board's closed meeting described below.

DATES: 10:00 a.m.–11:00 a.m., March 23, 2017.

This page intentionally left blank

Appendix B
Mitigation Action Plan

This page intentionally left blank.

MITIGATION ACTION PLAN

For

THE SERVICE PIER EXTENSION

At

NAVAL BASE KITSAP BANGOR, WASHINGTON

July 2017

This page intentionally left blank.

EXECUTIVE SUMMARY

This document presents a Mitigation Action Plan for the proposed construction and operation of the Service Pier Extension (SPE) and associated support facilities on Naval Base Kitsap Bangor (NAVBASE Kitsap Bangor), Washington.

Aspects of this Proposed Action have the potential to cause environmental impacts. Several measures, including current practices (CPs), best management practices (BMPs), and mitigation measures (MMs), will be applied to the project to avoid, reduce, and mitigate the effects from this action.

Project measures include the following:

- BMPs to ensure compliance with the U.S. Environmental Protection Agency's (USEPA) general permit for stormwater discharges from construction sites (operational stormwater management is considered part of project design);
- CPs to minimize the potential for impacts during construction and operational phases of the project;
- Noise attenuation measures during construction, including bubble curtains and soft start for impact pile drivers;
- Monitoring to minimize noise impacts;
- Mitigation measures for biological, cultural, and other resources;
- Compensatory mitigation for impacts to aquatic resources; and
- Treaty mitigation.

These measures are in addition to project compliance with all applicable regulations and permit conditions. The Department of the Navy (Navy) ultimately will be responsible for ensuring agreed-upon measures are implemented.

Measures are described in Sections 2 through 5 of this Mitigation Action Plan. For each category of CPs, BMPs, and MMs, the Mitigation Action Plan provides (1) description of the measure; (2) parties responsible for implementation; (3) planned implementation schedule; (4) planned funding; (5) mitigation-specific performance criteria; (6) monitoring and tracking mechanisms; and (7) enforcement measures. Section 6 of this Mitigation Action Plan describes the Navy's proposed Compensatory Mitigation action, which would offset unavoidable adverse impacts on aquatic resources under the provisions of the Clean Water Act (CWA) Compensatory Mitigation for Losses of Aquatic Resources, Final Rule (U.S. Army Corps of Engineers [USACE] and USEPA 2008). Section 9 of the Mitigation Action Plan describes mitigation projects proposed to address potential effects of the proposed SPE on reserved treaty rights and resources of federally recognized American Indian Tribes. Mitigation measures will be documented in the Record of Decision (ROD) for the Proposed Action.

This page intentionally left blank.

MITIGATION ACTION PLAN

For

THE SERVICE PIER EXTENSION

At

NAVAL BASE KITSAP BANGOR, WASHINGTON

TABLE OF CONTENTS

List of Figures

List of Tables

List of Attachments

Abbreviations and Acronyms

Acronym	Definition
BMP	best management practice
BSS	Beaufort Sea State
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
COMNAVREGNWINST	Commander Navy Region Northwest Instruction
CP	current practice
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DOD	Department of Defense
EHW-2 FEIS	TRIDENT Support Facilities Explosives Handling Wharf (EHW-2) Final Environmental Impact Statement
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
ESA	Endangered Species Act
GPS	Global Positioning System
HCCC	Hood Canal Coordinating Council
ILF	In-lieu fee
IMP	integrated management practices
IRT	Inter-agency Review Team
LID	low impact development
MBTA	Migratory Bird Treaty Act
MLLW	mean lower low water
MM	mitigation measure
MMO	marine mammal observer
MMPA	Marine Mammal Protection Act
MOA	Memorandum of Agreement
MSGP	Multi-Sector General Permit
NAVBASE	Naval Base
NAVFAC	Naval Facilities Engineering Command
Navy	Department of the Navy
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
OPNAVINST	Chief of Naval Operations Instruction
OSHA	Occupational Safety and Health Administration
PSB	Port Security Barrier

Acronym	Definition
ROD	Record of Decision
SEIS	Supplemental Environmental Impact Statement
SEL	sound exposure level
SHPO	State Historic Preservation Officer
SPE	Service Pier Extension
SPL	sound pressure level
SWPPP	storm water pollution prevention plan
TRIDENT	TRIDENT Fleet Ballistic Missile
TTS	temporary threshold shift
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
WAC	Washington Administrative Code
WDOE	Washington Department of Ecology
WRA	Waterfront Restricted Area

1 Introduction

This document presents the Department of the Navy's (Navy's) Mitigation Action Plan for the Proposed Action of constructing a Service Pier Extension and associated pier and upland support facilities (herein referred to as the SPE Project) on Naval Base (NAVBASE) Kitsap Bangor, Washington. NAVBASE Kitsap Bangor, Washington, is located on Hood Canal approximately 20 miles due west of Seattle, Washington (Figure 1-1). The project site for the in-water portion of the SPE project is located within the floating barrier system, which extends beyond the Waterfront Restricted Area (WRA) (Figure 1-2). The project site is within the Hood Canal hydrologic unit code 17110018 and the Water Resource Inventory Area 15 (Kitsap County).

As recognized by the Council on Environmental Quality (CEQ) in their Memorandum about the appropriate use of mitigation and monitoring (CEQ 2011), mitigation is an important mechanism that federal agencies can use to minimize potential adverse environmental impacts associated with their actions. The term mitigation includes avoiding, minimizing, rectifying and reducing impacts, as well as compensating for impacts. Federal agencies rely upon the expertise of professional staff to assess mitigation needs, develop mitigation plans, and oversee mitigation implementation. Agencies may also rely on outside resources and experts to develop appropriate monitoring strategies and to ensure mitigation has the desired effects.

The mitigation measures detailed in this Mitigation Action Plan were developed through a multi-disciplinary approach. Input from environmental professionals from the Navy, agencies, tribes, and private industry influenced the project design; this will result in an action that would avoid and minimize environmental impacts to the maximum extent possible, while still meeting the Navy's mission requirements. Measures to minimize species impacts were developed through consultation with federal resource agency experts. The Navy's proposed compensatory mitigation is to use the Hood Canal Coordinating Council's In Lieu Fee program, which was developed through extensive discussion with federal agencies, tribes, state agencies, local governments, and non-governmental organizations; this is discussed in further detail in Section 6 of this Mitigation Action Plan.

CEQ guidance recommends that agencies not commit to mitigation unless they have sufficient legal authorities and expect there will be resources available to implement the mitigation. The Navy has determined that the mitigation measures within this Mitigation Action Plan are within the Navy's legal authority to implement, and anticipates that resources will be available to ensure mitigation performance. The CEQ also recommends that agencies take steps to ensure that mitigation commitments are actually implemented. The Navy's Environmental Readiness Program Manual (Chief of Naval Operations Instructions [OPNAVINST] 5090.1D CH-1) directs action proponents to identify and track mitigation and monitoring requirements committed to in environmental planning decision documents. This Mitigation Action Plan details specific mitigation measures, parties responsible for implementing each measure, schedule for implementation, funding, performance criteria, monitoring and tracking mechanisms, and enforcement measures.

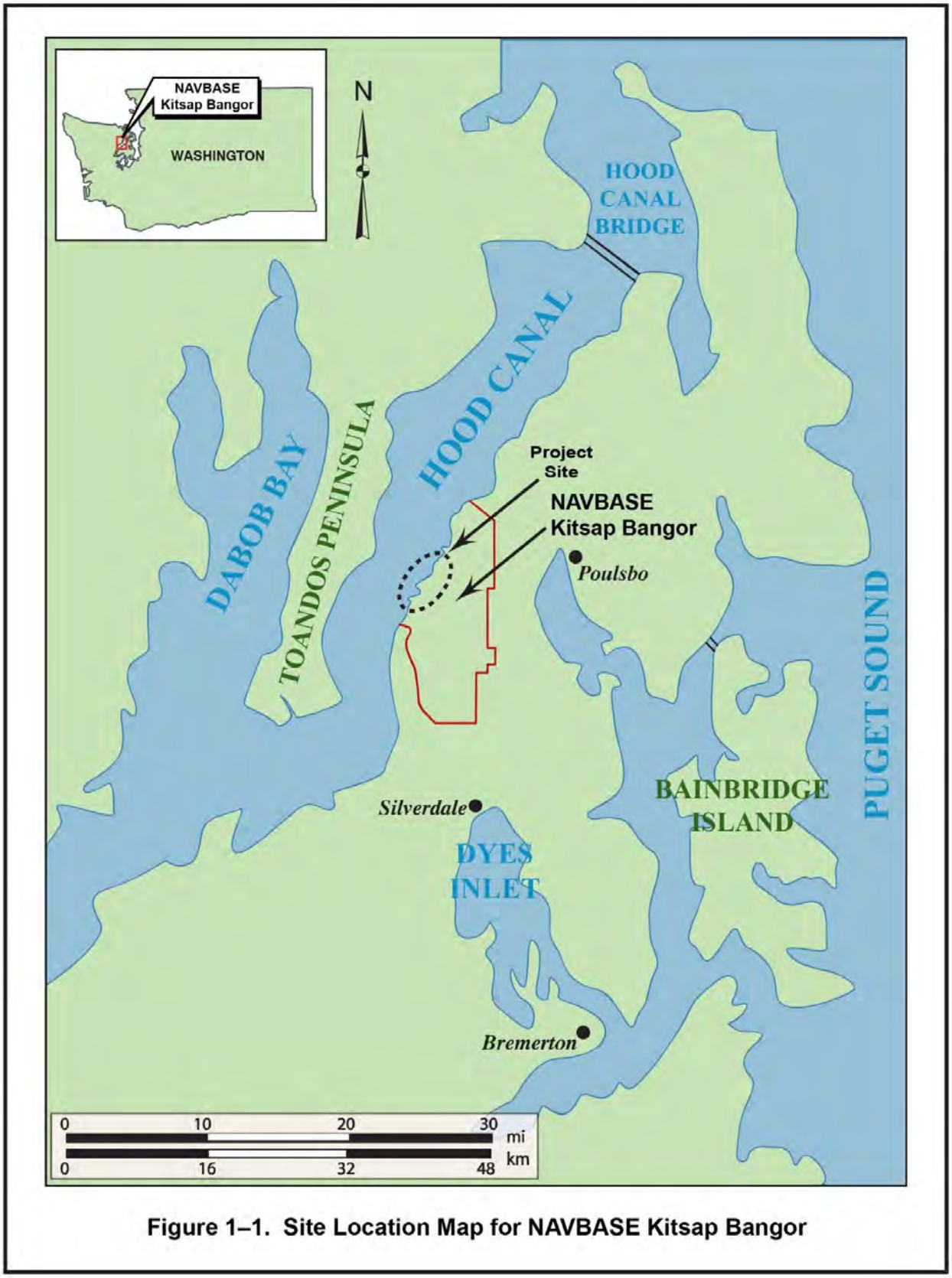


Figure 1–1. Site Location Map for NAVBASE Kitsap Bangor

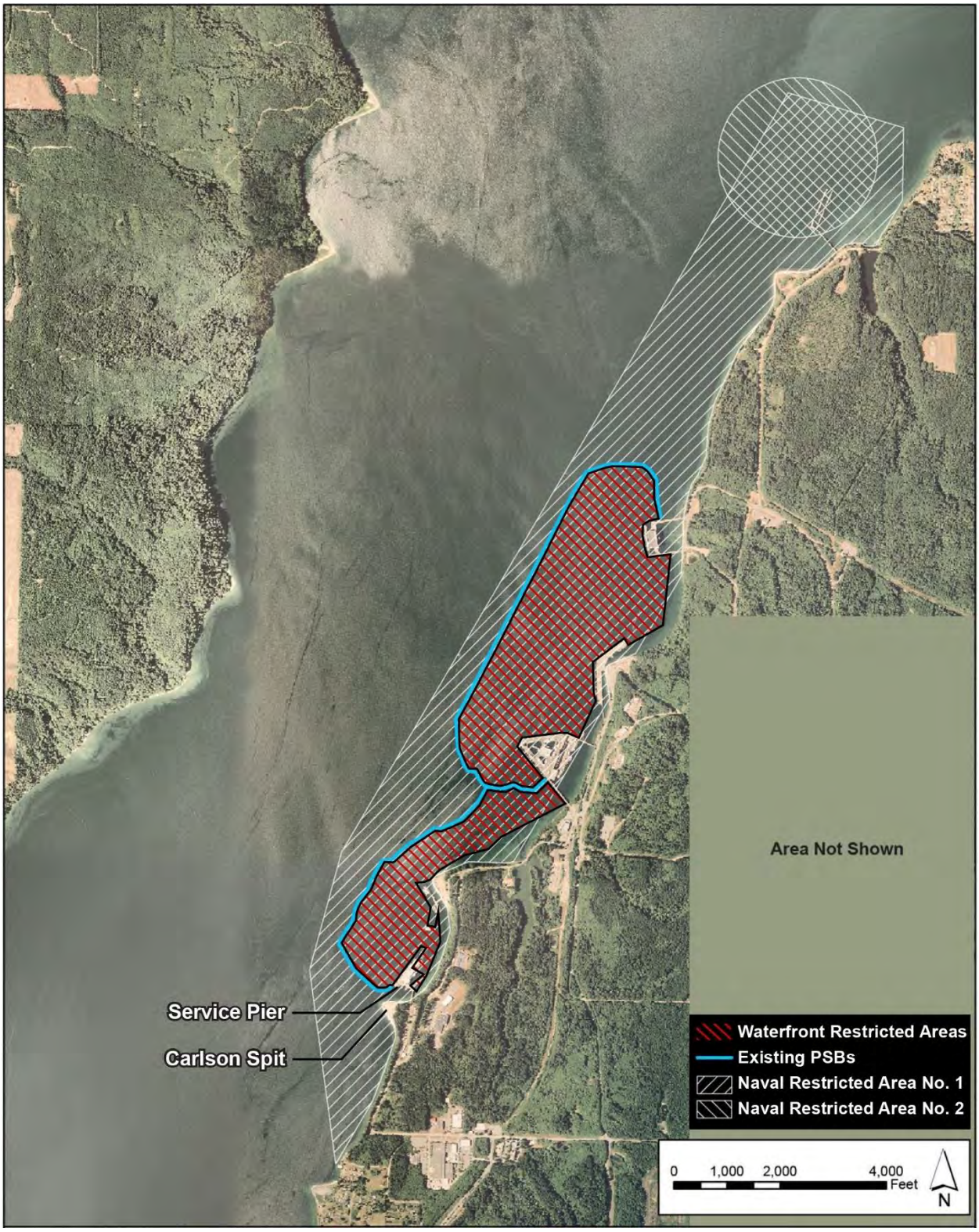


Figure 1-2. Location of the SPE Project

The CEQ encourages agencies to include public involvement components in their mitigation monitoring programs and provide public access to mitigation monitoring information. This Mitigation Action Plan requires the Navy to submit monitoring reports to federal resource agencies at the conclusion of each year of in-water construction. The Navy will make these reports available to the public on a Navy website.

Aspects of the SPE project have the potential to cause environmental impacts. Several measures, including current practices (CPs), best management practices (BMPs), and mitigation measures (MMs), will be applied to the project to avoid, reduce, and mitigate the effects from this action. These measures are in conjunction with project compliance with all applicable regulations or permit conditions. CPs are physical, structural, or managerial practices that decrease the potential for impacts, particularly related to water quality. BMPs are required to ensure compliance with the U.S. Environmental Protection Agency (USEPA) general permit for stormwater discharges from construction sites (operational stormwater management is considered part of project design; see Section 2.4.1). They can be used singly or in combination as appropriate in a particular situation. Mitigation measures are used most frequently to reduce or minimize impacts that are unavoidable. These measures are described in Sections 2 through 5 of this Mitigation Action Plan and summarized in Table 1-1. Section 6 of this Mitigation Action Plan describes the Navy's proposed Compensatory Mitigation action, which would offset unavoidable adverse impacts on aquatic resources under the provisions of the Clean Water Act (CWA) Compensatory Mitigation for Losses of Aquatic Resources, Final Rule (U.S. Army Corps of Engineers [USACE] and USEPA 2008). Section 9 of the Mitigation Action Plan describes mitigation projects proposed to address potential effects of the SPE Proposed Action on reserved treaty rights and resources of federally recognized American Indian Tribes. Mitigation measures will be documented in the Record of Decision (ROD) for the Proposed Action.

1.1 Proposed Action

The Navy proposes to construct and operate an extension to the existing Service Pier that would be capable of a double-breasted (side-by-side) berthing configuration for submarine maintenance. The extension would have a concrete float and mooring camels for the submarines. An existing wave screen would be demolished and a new wave screen constructed to attach to the SPE. A pier crane and Pier Services and Compressor Building would also be located on the Service Pier. The upland development includes a Waterfront Ship Support Building constructed on an existing parking lot, a 420-space parking lot, and construction laydown area. Roadway and utility improvements would also be completed to accommodate the new upland building and parking lot (Figures 1-3 and 1-4). Detailed descriptions of the marine and land components of the Proposed Action, including the purpose and need, are provided in Chapters 1 and 2 of the Supplemental Environmental Impact Statement (SEIS).

Table 1-1. Summary of Mitigation Measures, Current Practices, and Best Management Practices for the SPE Project

Mitigation Measures	*Timing and Methods*	*Responsible Party(ies)*	*Performance and Enforcement*
1. Protection of Marine Water Quality and Seafloor During Construction			
Impact: Contaminant loading via stormwater runoff from construction sites. **BMP 1:** Implement stormwater pollution prevention plan (SWPPP).	Implement SWPPP prior to the start of construction phase. Install and maintain all structural BMPs throughout construction phase in accordance with SWPPP and permit.	The Navy will be responsible for obtaining USEPA Construction General Permit and complying with permit conditions. The contractor will be responsible for implementing and maintaining BMPs specified in the SWPPP.	The Navy will conduct monitoring and inspections as required by SWPPP to document compliance with permit conditions.
Impact: Accidental spill of oil, fuels, or other related materials. **CP 1a:** Implement oil and hazardous spill contingency plan, and deploy containment boom during in-water construction as required.	Use existing NAVBASE Kitsap Bangor fuel spill prevention and response plans (the *Commander Navy Region Northwest Oil and Hazardous Substance Integrated Contingency Plan* and the *NAVBASE Kitsap Bangor Spill Prevention, Control, and Countermeasure Plan* [Commander Navy Region Northwest Instruction (COMNAVREGNWINST) 5090.1, Integrated Contingency Plan, Annex G]); Navy is responsible for providing plans, training, and spill response materials.	The contractor will be responsible for notifying the Navy of any fuel spills. The Navy will be responsible for implementing the plan, training the contractor and crew in spill prevention and containment techniques, notifying appropriate agencies, and providing oversight for incident response.	The contractor will contain and clean up any spilled materials as soon as possible; the Navy will investigate cause of spill; identify and implement appropriate corrective actions to prevent recurrence.
Impact: Incidental release of construction debris and related contaminants, including removed treated timber piles. **CP 1b:** Develop and implement debris management procedures, deploy containment boom during in-water construction, and handle removed treated piles as required.	Develop and implement procedures prior to start of in-water construction activities.	The contractor will be responsible for developing and implementing the procedures. The Navy will be responsible for reviewing and approving the procedures and for monitoring implementation.	The contractor will be responsible for deploying and maintaining booms, as required, throughout construction period and ensuring that all debris and other materials are collected and properly disposed of. Following completion of in-water construction activities, the contractor will conduct an underwater survey to collect and remove any remaining construction materials.

Table 1-1. Summary of Mitigation Measures, Current Practices, and Best Management Practices for the SPE Project (continued)

Mitigation Measures	*Timing and Methods*	*Responsible Party(ies)*	*Performance and Enforcement*
Impact: Prop wash from work vessels could resuspend bottom sediments. **CP 1c:** Vessel traffic will be excluded from depths shallower than 30 feet to the extent possible.	Conduct briefings with vessel operators prior to start of in-water construction activities.	The contractor will be responsible for briefing vessel operators. The Navy will be responsible for monitoring in-water activities and developing and implementing corrective actions as needed.	The Navy will conduct visual inspections to ensure prop wash from vessel operations is not causing sediment resuspension and surface turbidity plumes.
Impact: Grounding of work vessels could disturb bottom sediments. **CP 1d:** Instruct vessel operators to avoid bottoming out (running aground).	Conduct briefings with vessel operators prior to start of in-water construction activities.	The contractor will be responsible for briefing vessel operators. The Navy will be responsible for monitoring in-water activities and developing and implementing corrective actions as needed.	The Navy will conduct visual inspections to ensure work vessels are not grounding during low tides.
Impact: Anchoring work vessels could disturb bottom sediments. **CP 1e:** Develop a mooring and anchoring plan and implement measures to avoid dragging anchors and lines in special status areas.	Develop plan and obtain plan approval prior to start of in-water construction activities. Conduct briefings with vessel operators prior to start of in-water construction activities.	The contractor will be responsible for developing the plan and briefing vessel operators. The Navy will be responsible for reviewing and approving the plan, monitoring in-water activities, and developing and implementing corrective actions as needed.	The Navy will conduct visual inspections to ensure anchor and line recovery operations are causing minimal sediment disturbance.
2. In-Water Work Windows			
Impact: In-water construction activities could interfere with seasonal migrations or life stages of sensitive marine species. **MM 2:** In-water construction will observe an in-water work window to avoid juvenile salmonids.	In-water work would be restricted to periods coinciding with the specified work window (July 16 through January 15).	The construction contractor will be responsible for ensuring that in-water work does not occur outside of the work window except as noted. The Navy will be responsible for monitoring in-water work activities.	The Navy will take necessary corrective actions if the construction contractor does not comply with work window restrictions.

Table 1-1. Summary of Mitigation Measures, Current Practices, and Best Management Practices for the SPE Project (continued)

Mitigation Measures	*Timing and Methods*	*Responsible Party(ies)*	*Performance and Enforcement*
3. Protection of Upland Water Quality During Construction			
Impact: Increased potential for erosion and sedimentation from stormwater runoff. **BMP 3**: Implement SWPPP.	Implement SWPPP prior to the start of construction phase. Install and maintain all structural BMPs throughout construction phase in accordance with SWPPP and permit.	The Navy will be responsible for obtaining permit and complying with permit conditions. The contractor will be responsible for implementing and maintaining BMPs specified in the SWPPP.	The Navy will conduct monitoring and inspections as required by SWPPP to document compliance with permit conditions.
4. Protection of Water Quality During Operations			
Impact: Contaminant loadings from stormwater runoff discharges from the project sites. **BMP 4:** Implement SWPPP.	Implement SWPPP prior to the start of operation phase. Install and maintain all structural BMPs throughout operation phase in accordance with SWPPP, Erosion and Sedimentation Control Plan, and permit.	The Navy will be responsible for obtaining National Pollutant Discharge Elimination System (NPDES) permit and implementing and maintaining BMPs specified in the SWPPP and Erosion and Sedimentation Control Plan.	The Navy will conduct monitoring and inspections as required by SWPPP to document compliance with permit conditions.
Impact: Contaminant loadings from stormwater runoff discharges from the project sites. **CP 4a:** Implement low impact development integrated management practices (IMP).	Implement practices prior to the start of operation phase. Install and maintain all structural IMPs throughout operation phase.	The Navy will be responsible for implementing and maintaining IMPs.	The Navy will conduct monitoring and inspections to document effectiveness of practices and compliance with permit conditions.

Table 1-1. Summary of Mitigation Measures, Current Practices, and Best Management Practices for the SPE Project (continued)

Mitigation Measures	*Timing and Methods*	*Responsible Party(ies)*	*Performance and Enforcement*
Impact: Accidental spills from vessels or wharf operations. **CP 4b:** Implement oil and hazardous spill contingency plan.	Use existing NAVBASE Kitsap Bangor fuel spill prevention and response plans (the *Commander Navy Region Northwest Oil and Hazardous Substance Integrated Contingency Plan* and the *NAVBASE Kitsap Bangor Spill Prevention, Control, and Countermeasure Plan* [COMNAVREGNWINST 5090.1, Integrated Contingency Plan, Annex G]); Navy will be responsible for providing plans, training, and spill response materials.	The Navy will be responsible for implementing the plan, notifying appropriate agencies, and providing oversight for incident response.	The contractor will be responsible for containment and cleanup of spilled materials as soon as possible; The Navy will investigate cause of spill; identify and implement appropriate corrective actions to prevent recurrence.
5. Noise Attenuation During Construction			
Impact: Noise from in-water construction activities could impact marine species. **MM 5a:** Use vibratory driver for pile driving, with the exception of use of impact hammer to drive concrete piles, to proof steel piles and in cases where vibratory methods are not able to drive the pile to tip elevation. **MM 5b:** Deploy air bubble curtain or other noise attenuating device during impact hammer operations for steel piles. **MM 5c:** Use soft start for impact pile driving operations. **MM 5d:** Observe timing restrictions on pile driving.	These measures will apply to all in-water pile driving operations throughout the construction phase.	The contractor will be responsible for implementing these measures. The Navy will be responsible for monitoring construction activities.	Performance objective is minimizing potential for noise-related impacts on sensitive species. The Navy will be responsible for monitoring and enforcing these measures (see #6). Documentation will be submitted by the Navy to the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS).

Table 1-1. Summary of Mitigation Measures, Current Practices, and Best Management Practices for the SPE Project (continued)

Mitigation Measures	*Timing and Methods*	*Responsible Party(ies)*	*Performance and Enforcement*
6. Monitoring to Minimize Noise Impacts Prior to and during Construction			
Impact: Airborne and underwater noise from construction activities could impact sensitive species. **MM 6:** Conduct marine mammal and marbled murrelet monitoring during impact pile driving operations. Suspend pile driving operations when sensitive species are present in shutdown zone (1,000 meters for harbor porpoise and all cetaceans; 220 meters for harbor seals; and 15 meters for sea lions during impact pile driving of steel piles).	Marine mammal and marbled murrelet monitoring will be conducted daily prior to and during pile driving operations to determine whether individuals of these species are present in the shutdown and behavioral disturbance zones and to ensure that pile driving is suspended as needed.	The Navy will be responsible for ensuring trained monitors conduct real-time monitoring for sensitive species. The trained monitors will be responsible for notifying the contractor when sensitive species are present in the shutdown (injury monitoring zone) and behavioral disturbance monitoring zones. The contractor will be responsible for suspending pile driving operations until notified by the trained monitors that the shutdown zone (injury monitoring zone) is clear of sensitive species.	The Navy will be responsible for monitoring and enforcing this measure. Documentation will be submitted by the Navy to NMFS and USFWS.
7–13. Mitigation Measures for Biological, Cultural, and Other Resources during Construction			
Impact: Shading effects and/or physical disturbance of eelgrass. **CP 7a:** Construction barges will avoid grounding in eelgrass beds during construction activities. Vessel operators will be provided with maps of the construction area with eelgrass beds clearly marked. **CP 7b**: Shallow draft, lower horsepower tug boats will be used in the nearshore area and for extended operations in areas shallower than 40 feet below mean lower low water (MLLW), where feasible. **CP 7c**: Construction barges will avoid shading eelgrass beds for extended periods of time.	These measures will be implemented for the duration of in-water construction work.	The construction contractor will be responsible for ensuring that all vessel operators observe these measures. The Navy will also be responsible for monitoring in-water construction activities.	The performance criterion for these requirements is minimizing project-related impacts on eelgrass beds. The Navy will be responsible for monitoring and enforcing these measures.

Table 1-1. Summary of Mitigation Measures, Current Practices, and Best Management Practices for the SPE Project (continued)

Mitigation Measures	*Timing and Methods*	*Responsible Party(ies)*	*Performance and Enforcement*
Impact: Tree removal has the potential to impact migratory birds and potential breeding marbled murrelets. **MM8a:** Tree removal would not occur during the marbled murrelet breeding season of April 1 through September 23. **MM 8b:** Daily restriction for pile driving and no tree removal during marbled murrelet breeding season would also limit exposure of migratory birds to construction noise and habitat disturbance.	This measure will be implemented throughout the duration of construction.	The construction contractor will be responsible for ensuring that these measures are implemented. The Navy will be responsible for implementing this measure.	The Navy will be responsible for enforcing these measures.
Impact: Inadvertent discovery of unknown archaeological resources **MM 9:** In compliance with Section 106 of the National Historic Preservation Act (NHPA), inadvertent discovery of unknown archaeological resources would require work stoppage and consultation with the State Historic Preservation Office (SHPO) and affected tribes.	This measure will be implemented throughout the duration of construction.	The Navy will be responsible for consulting with the SHPO and affected tribes.	The performance criterion for this measure is for the contractor to notify the Navy and shut down the appropriate construction area if unknown archaeological resources are uncovered. The SHPO will be responsible for enforcing this measure.

Table 1-1. Summary of Mitigation Measures, Current Practices, and Best Management Practices for the SPE Project (continued)

Mitigation Measures	*Timing and Methods*	*Responsible Party(ies)*	*Performance and Enforcement*
Impact: Airborne noise levels from pile driving and other construction activities would exceed allowable noise limits for the Occupational Safety and Health Administration (OSHA). Airborne noise would exceed nighttime maximum residential levels imposed by Washington Administrative Code (WAC) (50 A-weighted decibel [dBA]) at Olympic View. Underwater noise from pile driving could affect divers. **MM 10a:** Construction activities will not be conducted during the hours of 10:00 p.m. to 7:00 a.m. Between July 15 and September 23, impact pile driving will occur between 2 hours after sunrise and 2 hours before sunset to protect foraging marbled murrelets during the breeding season. Between September 24 and January 15, in-water construction activities will occur during daylight hours (sunrise to sunset). **MM 10b:** The Navy will notify the public about upcoming construction activities and noise at the beginning of each construction season. The Notice to Mariners (MM 11a) will also serve to notify divers, including tribal divers, of potential underwater noise impacts.	These measures will be implemented throughout the duration of construction. The Navy will notify the public about upcoming construction activities and noise at the beginning of each construction season.	The construction contractor will be responsible for ensuring that all vessel operators observe these measures. The Navy will also be responsible for monitoring in-water construction activities. The Navy will be responsible for implementing these measures.	The Navy will be responsible for enforcing these measures.

Table 1-1. Summary of Mitigation Measures, Current Practices, and Best Management Practices for the SPE Project (continued)

Mitigation Measures	*Timing and Methods*	*Responsible Party(ies)*	*Performance and Enforcement*
Impact: Temporary adverse noise impact to recreational areas. **MM 10b** (as described in MM 10a, b above, and MM 11a below)	These measures will be implemented throughout the duration of construction.	The Navy will be responsible for implementing these measures.	The Navy will be responsible for enforcing these measures.
Impact: Increased marine vessel traffic. **MM 11a:** The Navy would develop a local Notice to Mariners to establish uniform procedures to facilitate the safe transit of vessels operating in the project vicinity. **MM 11b:** Barge trips and associated bridge openings would be scheduled to avoid peak commuting hours.	These measures will be implemented throughout the duration of construction.	The Navy will be responsible for implementing these measures.	The Navy will be responsible for enforcing these measures.
Impact: Disturbance and loss of marine/aquatic habitat. **MM 12:** Compensatory mitigation would be implemented to fully mitigate all impacts on waters of the U.S. The Navy will purchase mitigation credits from the Hood Canal Coordinating Council (HCCC) In-Lieu Fee (ILF) Program to offset the project's unavoidable impacts to waters of the United States (U.S.)	The Navy will purchase mitigation credits prior to the start of in-water construction.	Under the ILF program, the Navy will provide the funding while the HCCC ILF sponsor will be responsible for planning, implementing and managing the mitigation action.	The U.S. Army Corps of Engineers (USACE) will be responsible for verifying that compensatory mitigation complies with the Compensatory Mitigation for Losses of Aquatic resources, Final Rule (USACE and USEPA, 2008).

Table 1-1. Summary of Mitigation Measures, Current Practices, and Best Management Practices for the SPE Project (continued)

Mitigation Measures	*Timing and Methods*	*Responsible Party(ies)*	*Performance and Enforcement*
Impact: Effects on access to and use of Treaty protected resources **MM 13a:** Skokomish River Basin Ecosystem Restoration **MM 13b:** Shellfish seeding and beach enhancement at locations off Navy property. **MM 13c:** Culvert replacement at Little Boston Road over Shipbuilders Creek.	These measures will be implemented as soon as feasible and would take a varying number of years to implement. Methods are described in Section 9.	The Navy will provide funding and the tribal sponsors will be responsible for planning, implementing, and managing the mitigation actions.	The tribal sponsors will be responsible for enforcing these measures.

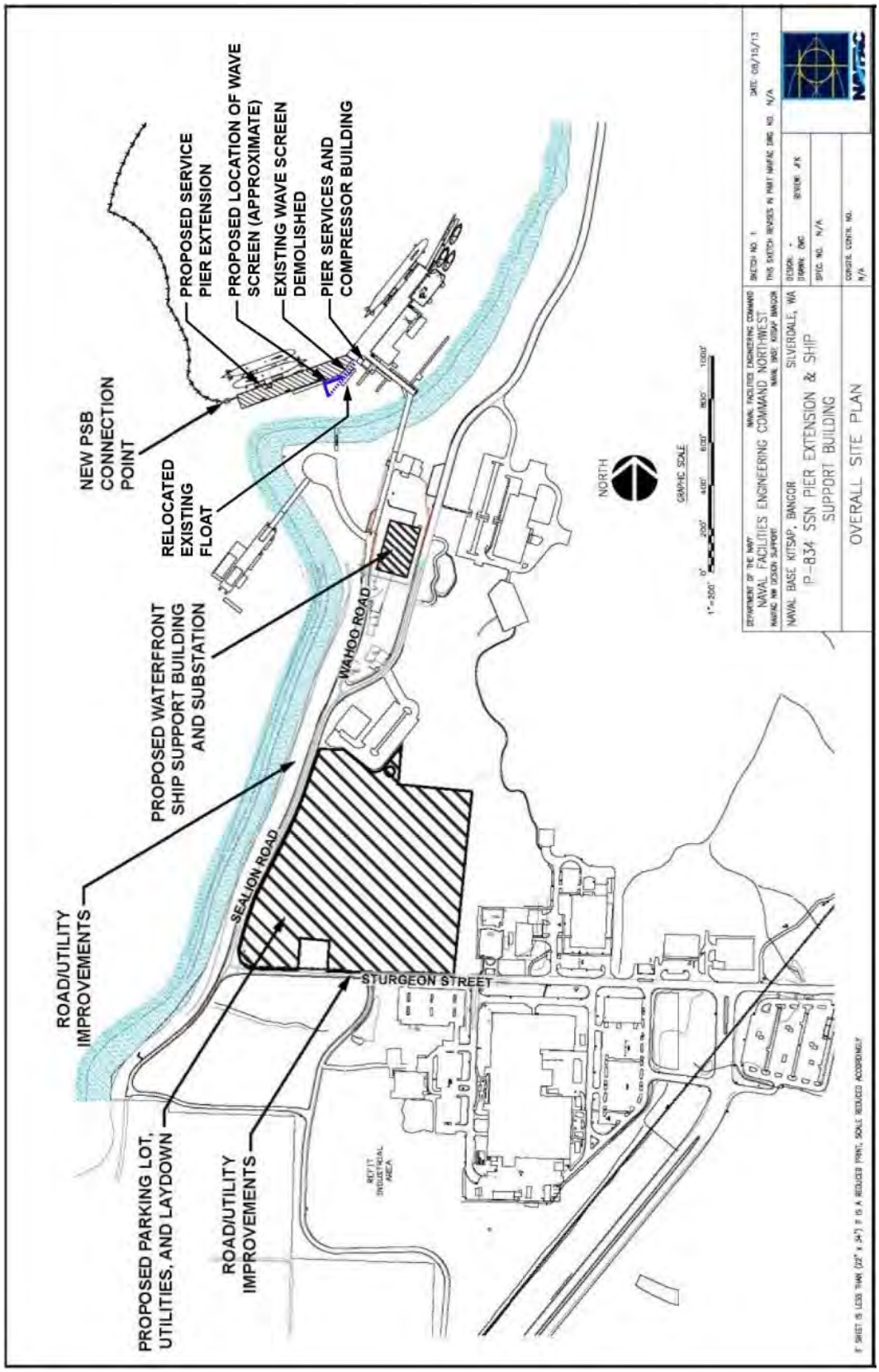


Figure 1-3 Alternative 2 (Short Pier Configuration)

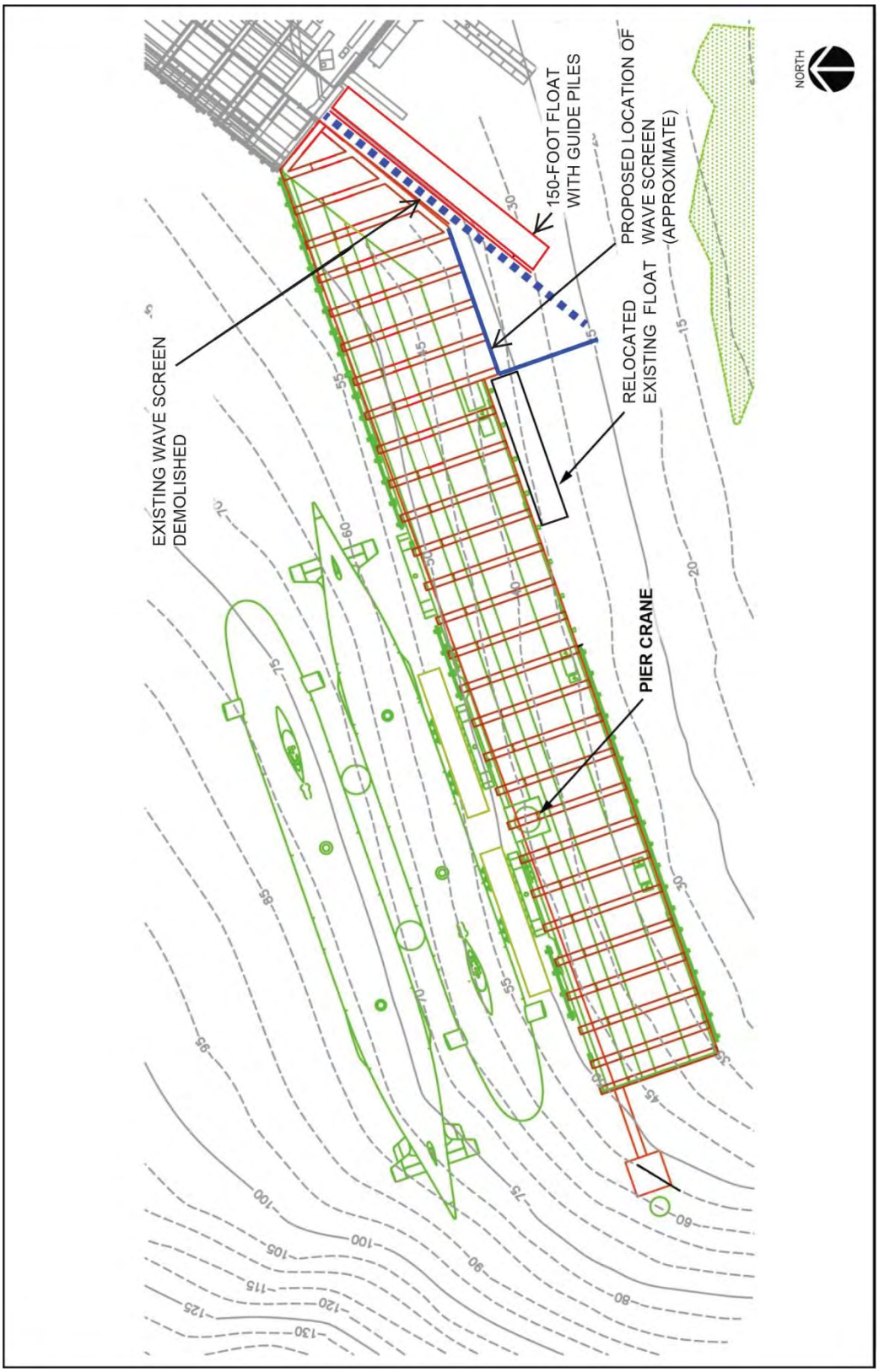


Figure 1-4 Location of 150-foot Float, Wave Screen to be Removed, and New Wave Screen for SPE Project

1.2 Schedule

Upland construction would take approximately 540 days; equipment would include backhoes, bulldozers, loaders, graders, trucks, and a crane/pile driver. Project construction would begin in August 2018 and end in August 2020. All in-water pile driving and wave screen demolition would take place during two in-water work seasons, August 1, 2018 through January 15, 2019 and July 16, 2019 through January 15, 2020. Relocation of Port Security Barrier (PSB) units and anchors will begin in January 2019 and end by August 2019, and may occur either within or outside the in-water work season. Materials and equipment for the in-water work would be brought in by barge, while materials and equipment for upland construction would be brought in by truck. The design life of the SPE Proposed Action is 50 years.

Construction would typically occur 6 days per week. Upland construction would occur between 7:00 a.m. and 10:00 p.m. in accordance with the WAC noise guidelines.

Timing restrictions on pile driving, to protect Endangered Species Act (ESA)-listed marbled murrelet during the breeding season, are described in Section 3.2.4.

1.3 Compensatory Mitigation – In-Lieu Fee

Section 6 of this Mitigation Action Plan describes the Navy's proposed Compensatory Mitigation action, which would offset unavoidable adverse impacts on aquatic resources. Compensatory mitigation is required by CWA Section 404 and Sections 9 and 10 of the Rivers and Harbors Act of 1899. Compensatory Mitigation must comply with USACE and USEPA Compensatory Mitigation for Losses of Aquatic Resources, Final Rule (USACE and USEPA 2008).

1.4 Treaty Mitigation

Section 9 of this Mitigation Action Plan describes the Navy's proposed treaty mitigation actions for impacts from the Navy projects on Treaty protected resources. These mitigation actions are being developed in consultation with the affected Native American Tribes. Agreement on the treaty mitigation actions was reached with the Skokomish Indian Tribe. The Navy is currently in consultation with the Port Gamble S'Klallam Tribe, Jamestown S'Klallam Tribe, and Lower Elwha Klallam Tribe.

1.5 Monitoring and Reporting Procedures

Mitigation measures would be implemented in accordance with this Mitigation Action Plan. Prior to release of bid specifications, construction plans would be provided to the Navy for review and approval. Operational mitigation measures would be monitored by the Navy and any specified responsible parties designated by the Navy.

This Mitigation Action Plan would be in place through all phases of the project, including design, construction, and operation, and would help ensure that project objectives are achieved. The Navy would be responsible for administering the plan and ensuring that all parties comply with its provisions. The Navy may delegate monitoring activities to staff, consultants, or contractors. All construction contractors would submit an Environmental Protection Plan for Construction Management to the Navy for approval prior to beginning construction activities. This plan would document how the contractor intends to comply with all measures applicable to the contract including application of BMPs. The Navy also would ensure that monitoring is documented through periodic reports and that deficiencies are promptly corrected. The designated environmental monitor would track and document compliance with

mitigation measures, note any problems that may result, and take appropriate action to rectify problems.

1.6 Mitigation Monitoring and Reporting Program Implementation

This Mitigation Action Plan was prepared to verify compliance with individual mitigation measures. This plan identifies each mitigation measure by discipline, the entity (organization) responsible for its implementation, and the report/permit/certification required for each measure. Certain inspections and reports must be prepared by qualified individuals, and these are specified as needed. The timing and method of verification for each measure is also specified.

1.7 Adaptive Management

The Proposed Action includes adaptive management to minimize environmental impacts. The Navy would evaluate results from other pile-driving operations and research to ensure the most appropriate noise attenuation measures and procedures are applied during project construction, as discussed in Sections 3.2.1, 3.2.2, and 3.2.3 of this Mitigation Action Plan. Mitigation measures would include visual monitoring of marine mammals and marbled murrelets, and shutdown of pile driving when these species approach or enter areas where injury may occur.

This page intentionally left blank.

2 Current and Best Management Practices

2.1 Protection of Marine Water Quality and Seafloor During Construction

2.1.1 Potential Impacts

Construction-related impacts on water quality would be limited to temporary (minutes to hours) and localized changes associated with resuspension of bottom sediments from pile installation and barge and tug operations, such as anchoring and propeller wash, as well as accidental losses or spills of construction debris into Hood Canal. These changes would be spatially limited to the construction corridor, including areas potentially impacted by anchor drag and areas immediately adjacent to the corridor (i.e., up to approximately 100 feet from the offshore edge of the construction corridor) that could be impacted by plumes of resuspended bottom sediments, and would not violate applicable state or federal water quality standards. Nevertheless, several CPs and BMPs will be implemented to protect marine water quality and the seafloor during construction of the upland and in-water components of the project. These measures are intended to prevent or minimize potential impacts associated with the following:

- Contaminant loadings from stormwater discharges containing runoff from the construction site;
- Accidental spills or releases of contaminants from work vessels;
- Accidental or incidental release of construction debris and related contaminants;
- Excessive sediment resuspension from prop wash;
- Seafloor disturbances from grounding of work vessels; and
- Seafloor disturbances from anchor dragging.

2.1.2 Environmental Protection Measures

The following measures will be implemented to address each of the above potential impacts.

2.1.2.1 Stormwater Pollution Prevention Plan (BMP 1)

Description

During project construction, stormwater management will be in accordance with a USEPA Construction General Permit. The Navy will also seek a Water Quality Certification from the Washington Department of Ecology (WDOE), under Section 401 of the CWA, certifying that the Proposed Action will not violate state water quality standards. The contractor will submit a Storm Water Notice of Intent (NOI) (for coverage under the general permit for construction activities) and a SWPPP for the project will be submitted to the Contracting Officer and approval obtained prior to the commencement of work. The SWPPP will be filed, through the Contracting Officer, to the appropriate federal and/or state agency for approval, a minimum of 14 calendar days prior to the start of construction. The contractor and the Navy will file Notices of Intent for permit coverage and Notices of Termination once construction is complete.

The SWPPP will meet the requirements of the USEPA general permit for stormwater discharges from construction sites, following guidance in WDOE's *Stormwater Management Manual for Western Washington* (WDOE 2014). The SWPPP will specify the BMPs that will be implemented during all phases of construction to limit contaminant discharges to Hood Canal and monitoring requirements to document compliance with permit conditions. In addition, the SWPPP will:

- Identify potential sources of pollution that may be reasonably expected to affect the quality of stormwater discharge from the sites;
- Describe and ensure implementation of practices that will be used to reduce the pollutants in stormwater discharge from the sites;
- Ensure compliance with terms of the USEPA Construction General Permit for stormwater discharge;
- Select applicable BMPs from the USEPA guide to developing SWPPPs for construction sites (USEPA 2007, EPA 833-R-060-04); and
- Select applicable BMPs from the WDOE Stormwater Management Manual for Western Washington (WDOE 2014).

The contractor will be required to install, inspect, and maintain BMPs, and to conduct and document SWPPP site inspections. The contractor will ensure construction operations and management are in compliance with the terms and conditions of the general permit for stormwater discharges from construction activities.

The contractor will create and maintain a three-ring binder of documents at the construction onsite office that demonstrates and documents compliance with the Stormwater Construction Activity permit. The binder will include a copy of the permit Registration Statement, SWPPP and SWPPP update amendments, inspection reports, copies of correspondence with the agency that issued the permit, and a copy of the permit Notice of Termination. At the completion of the project, the folder will be provided to the Contracting Officer and will become the property of the Navy. An advance copy of the Registration Statement will be provided to the Contracting Officer immediately after the form is presented to the permitting agency.

Party(ies) Responsible for Implementation

The contractor will be responsible for preparing and submitting an application for the Construction General Permit. The USEPA will review the application and issue the permit if the application is acceptable. The contractor will be responsible for implementing all required BMPs, including maintenance of structural BMPs, and performing all monitoring and reporting as required by the permit.

Planned Implementation Schedule

A construction General Permit will be obtained prior to the start of all construction work and maintained for the duration of the construction phase. The SWPPP will be implemented prior and during construction. Once construction is complete, the Navy will be responsible for updating the existing industrial SWPPP to reflect changes in the facility and operations associated with the SPE Project.

Planned Funding

Implementation of the Construction General Permit and SWPPP, including installation and maintenance of BMPs, will be part of the contractor's scope of work, and will be funded under the Navy's construction contract.

Mitigation-Specific Performance Criteria

The performance criteria will be as specified in the Construction General Permit.

Monitoring and Tracking Mechanisms

As the co-permittee, the contractor will be responsible for monitoring and reporting per the specifications in the permit.

Enforcement Measures

The Construction General Permit will be enforced by the USEPA. Non-compliance with the permit could be used as a basis for corrective actions and/or fines.

2.1.2.2 Spill Prevention Control Measure (CP 1a)

Description

The existing facility response plans for the Bangor waterfront provide guidance that will be used in a spill response, such as a response procedures, notification, and communication plan; roles and responsibilities; and response equipment inventories (COMNAVREGNWINST 5090.1, Integrated Contingency Plan, Annex G). In the event of an accidental spill, response measures will be implemented immediately to reduce potential impacts on the surrounding environment.

This measure will consist of the following elements:

- Spill kits will be maintained on site and readily available;
- The contractor and crew will be trained in spill prevention and containment techniques;
- Spill prevention will be implemented daily by maintaining awareness in the construction crew and monitoring the activities; and
- Clean and well-maintained equipment and tools will be used.

Additionally, during in-water construction activities, an absorbent oil containment boom will be placed around the construction area to contain accidental oil or hazardous materials spills and prevent or minimize impacts on marine mammals or other fish and wildlife species.

Party(ies) Responsible for Implementation

The Navy will be responsible for providing copies of the spill response plans to the contractors and training the contractor and crew in spill prevention and containment techniques. The Navy also will be responsible for maintaining all equipment and supplies required for a spill response.

The contractor will be responsible for exercising due diligence to prevent, contain, and respond to spills of hazardous material, hazardous substances, hazardous waste, sewage, regulated gas, petroleum, lubrication oil, and other substances regulated by environmental law. In the event of a spill, the contractor will take prompt, effective action to stop, contain, curtail, or otherwise limit the amount, duration, and severity of the spill/release. In the event of any releases of oil and hazardous substances, chemicals, or gases; the contractor will immediately (within 15 minutes) notify the Base or Activity Fire Department, the activity's Command Duty Officer, and the Contracting Officer. The Navy is responsible for verbal and written notifications as required by the federal 40 Code of Federal Regulations (CFR) 355, state, local regulations, and Navy Instructions. Spill response will be in accordance with 40 CFR 300 and applicable state and local regulations.

Planned Implementation Schedule

The existing spill response plans will be implemented for the duration of the construction phase. An absorbent oil containment boom will be placed around the construction area during in-water construction activities.

Planned Funding

If Government assistance is requested or required (as described below under *Enforcement Measures*), the contractor will reimburse the Navy for such assistance. Funding for maintaining spill response activities will be part of the Navy's existing Operations and Maintenance budget.

Mitigation-Specific Performance Criteria

Performance criteria will be in accordance with the existing plans.

Monitoring and Tracking Mechanisms

Monitoring and tracking will be in accordance with the existing plans.

Enforcement Measures

Deficiencies in the spill response, notification, or cleanup will be cause for corrective actions. The contractor will reimburse the Government for all costs incurred including sample analysis materials, equipment, and labor if the Government must initiate its own spill cleanup procedures, for contractor responsible spills, when (a) the contractor has not begun spill cleanup procedure within one hour of spill discovery/occurrence or (b) if, in the Navy's judgment, the contractor's spill cleanup is not adequately abating a life threatening situation and/or is a threat to any body of water or environmentally sensitive areas.

2.1.2.3 Construction Debris and Pile Removal Control Measures (CP 1b)

Description

This measure will consist of the following elements:

The contractor will prepare and implement construction debris management procedures. Debris will be prevented from entering the water during all demolition or new construction work. During in-water construction activities, the contractor will deploy and maintain floating booms no further seaward than the 100-foot designated construction corridor to collect and contain floatable materials. Any accidental release of equipment or materials will be immediately retrieved and removed from the water. Uncured concrete or slurries will not be discharged. The contractor will provide a temporary platform or other suitable means of capturing debris from all demolition operations. Debris which could pollute storm water will be stored, covered and frequently removed from the site. Following completion of in-water construction activities, an underwater survey will be conducted to remove any remaining construction materials that may have been missed previously. Removed debris will be disposed of at an approved upland disposal site.

Old piles will be removed using vibratory extraction or direct pull as preferred method. During removal of old piles, removed creosote-treated wood piles and associated sediments (if any) will be contained on a barge or, if a barge is not utilized, stored in a containment area near the construction site. Creosote piles will be cut into 4-foot sections to prevent reuse and all creosote-treated material and associated sediments will be disposed of in a state-approved upland disposal site.

Party(ies) Responsible for Implementation

The Navy will require the construction contractor to retrieve and clean up any debris spilled into Hood Canal. The contractor will be responsible for preparing and implementing the procedures. The Navy will be responsible for reviewing and approving the procedures and for monitoring their implementation.

Planned Implementation Schedule

The construction debris management procedures and controls will be in place and approved by the Navy Contracting Officer prior to the start of any in-water construction work. These procedures will be implemented throughout the in-water construction period including post-construction removal of any remaining debris.

Planned Funding

The construction debris management procedures will be part of the contractor's scope of work, and will be funded under the Navy's construction contract.

Mitigation-Specific Performance Criteria

The performance criteria will be no loss of floatable debris outside of the flotation booms and no debris will be left on the seafloor during and after construction is complete. Following completion of in-water construction activities, an underwater survey will be conducted to remove any remaining construction materials that may have been missed during previous cleanups. All treated timber piles removed will be properly disposed.

Monitoring and Tracking Mechanisms

The Navy will be responsible for monitoring compliance with the construction debris management procedures. The Navy will monitor for compliance using a combination of visual inspections and written correspondence/documentation from the contractor.

Enforcement Measures

Non-compliance with the procedures could be used as a basis for corrective actions or non-payment of contractor invoices.

2.1.2.4 Prop Wash Control Measure (CP 1c)

Description

To minimize disturbances of the seafloor from prop wash, vessel traffic will be excluded from shallow areas outside of the 100-foot construction zone, which will be marked using temporary buoys or other visual guides. Additionally, shallow draft, low horsepower tugboats will be used in the nearshore area and for extended operations in areas shallower than about 40 feet below MLLW.

Party(ies) Responsible for Implementation

The contractor will be responsible for implementing this measure.

Planned Implementation Schedule

This measure will be implemented throughout the construction phase.

Planned Funding

No additional funding will be required for this measure.

Mitigation-Specific Performance Criteria

The performance criterion for this measure is complete avoidance of excessive prop wash, causing unnecessary resuspension of bottom sediments as manifested by the presence of surface turbidity plumes within the project sites.

Monitoring and Tracking Mechanisms

The Navy will have overall responsibility for monitoring in-water construction activities. The construction contractor will be directly responsible for monitoring and for tracking compliance with this measure.

Enforcement Measures

Non-compliance with this measure could be used as a basis for corrective actions or non-payment of contractor invoices.

2.1.2.5 Work Vessel Grounding Control Measure (CP 1d)

Description

To minimize seafloor disturbances, construction of the SPE will be conducted from barges in deep-water areas and/or from land to the extent possible. Construction barges will avoid grounding in eelgrass beds. Vessel operators will be provided with maps of the project site with eelgrass beds clearly marked.

Party(ies) Responsible for Implementation

The construction contractor will be responsible for ensuring that all work vessel operations comply with this measure.

Planned Implementation Schedule

This measure will be implemented throughout the construction phase.

Planned Funding

No additional funding will be required for this measure.

Mitigation-Specific Performance Criteria

The performance criterion for this measure is complete avoidance of vessel grounding at the project site.

Monitoring and Tracking Mechanisms

The Navy will be responsible for monitoring in-water construction activities. The construction contractor will be responsible for monitoring and tracking compliance with this measure.

Enforcement Measures

Non-compliance with this measure could be used as a basis for corrective actions or non-payment of contractor invoices.

2.1.2.6 Mooring and Anchoring Plan (CP 1e)

Description

To minimize the potential for seafloor disturbances, the contractor will submit a mooring and anchoring plan for approval by the Contracting Officer. The plan will identify measures to be taken to avoid or minimize significant impacts on bottom habitats in areas identified on the construction drawings from line or anchor drag. Measures will include:

1. Placement of anchors outside of special status areas, to the extent feasible;
2. Placement and retrieval of any anchors required within special status areas using a secondary work boat and/or vertical lift system to avoid/minimize dragging; and
3. Use of a buoy(s) (surface or subsurface) along the lower portion of mooring lines required within special status areas to avoid/minimize dragging.

Party(ies) Responsible for Implementation

The construction contractor will be responsible for preparing the plan and ensuring that all work vessel operations comply with the approved plan.

Planned Implementation Schedule

This measure will be implemented throughout the construction phase.

Planned Funding

No additional funding will be required for this measure.

Mitigation-Specific Performance Criteria

The performance criterion for this measure is complete avoidance of dragging anchors or lines through sensitive bottom habitat at the project site.

Monitoring and Tracking Mechanisms

The Navy will be responsible for monitoring in-water construction activities. The construction contractor will be responsible for monitoring and tracking compliance with this measure.

Enforcement Measures

Non-compliance with this measure could be used as a basis for corrective actions or non-payment of contractor invoices.

2.2 In-Water Work Window (MM 2)

2.2.1 Potential Impacts

In-water construction work could interfere with migrating salmonids and/or sensitive life stages of protected species during certain portions of the year.

2.2.2 Mitigation Measures (MM 2)

Construction activities with the greatest potential to harm fish, notably pile driving, would observe an in-water work window when ESA-listed salmonids are least likely to be present. The Tidal Reference Area 13 (northern Hood Canal) in-water juvenile salmonid work window is currently July 16 to January

15, as outlined in WAC-220-660-330. The work window reflects best available science considerations for minimizing in-water project impacts on migrating juvenile salmonids, primarily Hood Canal summer-run chum. All in-water work would occur only during the work window to minimize the number of ESA-listed salmonids exposed to underwater noise and other disturbance.

2.2.3 Party(ies) Responsible for Implementation

The construction contractor would be responsible for ensuring that no in-water construction work occurs outside of the work window, except non-pile driving in-water work, and that operations comply with this measure.

2.2.4 Planned Implementation Schedule

This measure would be implemented throughout the construction phase.

2.2.5 Planned Funding

No additional funding would be required for this measure.

2.2.6 Mitigation-Specific Performance Criteria

The performance criterion for this measure is complete avoidance of in-water construction work during non-work windows, as modified.

2.2.7 Monitoring and Tracking Mechanisms

The Navy would be responsible for monitoring in-water construction activities. The construction contractor would be responsible for monitoring and tracking compliance with this measure.

2.2.8 Enforcement Measures

Non-compliance with this measure could be used as a basis for corrective actions or non-payment of contractor invoices. ESA requirements would be enforced by the USFWS and the NMFS. Section 10 permit conditions would be enforced by USACE.

2.3 Protection of Upland Water Quality During Construction (BMP 3)

2.3.1 Potential Impacts

During construction, there would be increased potential for erosion and sedimentation from stormwater runoff, which could entrain sediment that would cause temporary localized degradation of some water quality parameters.

2.3.2 Mitigation Measures

2.3.2.1 Implement Stormwater Pollution Prevention Plan (BMP 3)

Construction activities will be in accordance with the USEPA Construction General Permit. For compliance with the Energy Independence and Security Act (EISA) of 2007, the Navy will maintain site hydrology to the maximum extent feasible. Design of upland features (e.g., laydown area) will consider the USEPA guidance for compliance with the EISA (USEPA 2009) as well as other relevant technical information regarding methods to improve stormwater retention and quality.

A number of measures will be implemented to protect water quality, including installation of a temporary runoff capture and discharge system, and installation of temporary siltation barriers below the excavation/construction zone, to control stormwater runoff into Hood Canal. Proper installation, routine maintenance, and periodic monitoring of BMPs, in accordance with the SWPPP, will ensure that the measures are effective and minimize the potential for impacts on marine water quality.

During shoreside mobilization of equipment, existing native vegetation will not be disturbed outside of the work area. BMPs for clearing, grading, and maintenance will be employed as needed to control erosion and sedimentation, including the possible use of benched surfaces, downdrain channels, diversion berms and ditches, erosion control blankets or turf reinforcement mats, plastic coverings, silt fences and check dams, and straw bales. Gravel pads will be installed at construction area access points to prevent tracking of soil onto paved roads. Water-spraying on soil will be used to control dust generation during earthmoving and hauling.

2.3.3 Party(ies) Responsible for Implementation

The contractor will be responsible for installing, maintaining, and monitoring BMPs, as specified in the SWPPP, and for ensuring compliance with the conditions of the Construction General Permit.

2.3.4 Planned Implementation Schedule

These measures will be completed prior to the start of construction and maintained for the duration of the construction phase.

2.3.5 Planned Funding

Implementation of the Construction General Permit and SWPPP, including installation and maintenance of BMPs, will be part of the contractor's scope of work, and would be funded under the Navy's construction contract.

2.3.6 Mitigation-Specific Performance Criteria

The performance criteria will be as specified in the Construction General Permit.

2.3.7 Monitoring and Tracking Mechanisms

As the co-permittee, the contractor will be responsible for monitoring and reporting per the specifications in the permit.

2.3.8 Enforcement Measures

The Construction General Permit will be enforced by USEPA. Non-compliance with the permit could be used as a basis for corrective actions and/or fines.

2.4 Protection of Water Quality During Operations

2.4.1 Potential Impacts

Operation of the SPE would not require dredging or placement of fill or direct discharges of waste to the marine environment, other than stormwater discharges. Potential operational impacts on water quality would be limited to the following:

- Contaminant loadings from stormwater runoff discharges from the project site, and

- Accidental spills or releases of contaminants from work vessels.

2.4.2 Mitigation Measures

2.4.2.1 Integrated Stormwater Pollution Prevention Plan (BMP 4)

Stormwater runoff discharges during operations will be regulated by the Multi-Sector General Permit (MSGP) and the NAVBASE Kitsap Bangor industrial activity SWPPP. Drainage water from the SPE project site will be collected in a trench drain on the pier, treated using an in-line canister system designed to meet the basic treatment requirements of the WDOE *Stormwater Management Manual for Western Washington*, and then discharged to Hood Canal in accordance with the MSGP permit. Thus, operations will not intentionally release materials that would have a potential to impact marine water quality and WDOE water quality standards would be maintained.

2.4.2.2 Low Impact Development (CP 4a)

To comply with Section 438 of the EISA, the Navy will implement Low Impact Development (LID) strategies in accordance with Unified Facilities Criteria 3-210-10N (*Low Impact Development*; Department of Defense [DOD] November 2010). LID is a stormwater management strategy designed to maintain site hydrology and mitigate the adverse impacts of stormwater runoff and non-point source pollution. LID provides decentralized hydrologic source control for stormwater using IMPs, which are distributed small-scale controls that closely maintain or replicate hydrological behavior of the natural system for a defined design storm event. These strategies are intended to complement the federal, state, and local regulations pertaining to stormwater management. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treats stormwater as a resource rather than a waste product. Many practices have been used to adhere to these principles such as bio-retention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements. By implementing LID principles and practices, water can be managed in a way that reduces the impact of built areas and promotes the natural movement of water within an ecosystem or watershed.

2.4.2.3 Oil and Hazardous Spill Contingency (CP 4b)

Prevention, containment, and cleanup of spills associated with project operations are addressed by the existing facility response plans for the Bangor waterfront (COMNAVREGNWINST 5090.1, Integrated Contingency Plan, Annex G). The plan provides guidance that will be used in a spill response, such as a response procedures, notification, and communication plan; roles and responsibilities; and response equipment inventories. In the event of an accidental spill, response measures will be implemented immediately to reduce potential impacts on the surrounding environment. Containment practices will be consistent with the existing NAVBASE Kitsap Bangor waterfront structures, including the use of in-water containment booms and facility response plans, and will minimize the risk of spills during operations.

2.4.3 Party(ies) Responsible for Implementation

The Navy will be responsible for implementing the SWPPP and complying with the permit conditions. The Navy, in conjunction with the project designer, will be responsible for ensuring that the Proposed Action is designed with features needed to meet the EISA requirements.

2.4.4 Planned Implementation Schedule

The industrial discharge permit and spill response plan are already in place. The SWPPP will be modified to reflect the new waterfront facilities and any related changes in collection, treatment, and discharge of stormwater.

2.4.5 Planned Funding

No additional funding will be required.

2.4.6 Mitigation-Specific Performance Criteria

The performance criterion for stormwater discharges is compliance with the industrial discharge permit conditions. The performance criteria for spill response are included in the plan, and these include training, maintaining equipment and supplies of spill cleanup materials, and effectiveness as determined by regular spill response exercises.

2.4.7 Monitoring and Tracking Mechanisms

Monitoring and reporting requirements for the stormwater discharges are specified in the industrial discharge permit.

2.4.8 Enforcement Measures

The terms and conditions of the industrial discharge permit are enforced by USEPA, and non-compliance with the permit could result in regulatory actions.

This page intentionally left blank.

3 Noise Attenuation During Construction

3.1 Potential Impacts

Pile driving noise would likely result in behavioral disturbance of ESA-listed fish (salmonids and rockfish), ESA-listed marbled murrelet, birds protected under the Migratory Bird Treaty Act (MBTA), and marine mammals protected under the Marine Mammal Protection Act (MMPA). There is also a potential for noise-related injury to these species. This section addresses noise attenuation measures to minimize the potential for noise-related impacts on marine species during construction.

Marine mammal and marbled murrelet monitoring, which would be conducted during pile driving, is discussed in Section 4. The in-water work window restrictions, described in Section 2.2, would also reduce the potential for pile driving noise-related impacts on migrating salmonids.

3.2 Mitigation Measures

The following noise attenuation measures will be implemented to minimize noise levels due to pile driving.

3.2.1 Use of Vibratory Driver in Lieu of Impact Hammer (MM 5a)

3.2.1.1 Description

The vibratory pile driver would be the primary method for driving steel piles; an impact hammer would be used primarily to drive concrete piles and to proof vibratory driven steel piles, but also to drive steel piles which cannot be driven to the required depth using a vibratory pile driver because of geotechnical conditions. Impact pile driving was estimated to occur on any day a vibratory driver would be used for installing steel piles and every day concrete fender piles would be installed (a total of 160 days). Under the preferred alternative, the number of impact hammer strikes would not exceed 1,600 per day and only one pile driver would be used at a time. The maximum duration of vibratory pile driving in a day would be 5 hours. Impact pile driving of concrete piles is estimated to last a maximum of 45 minutes in a day and less than 45 minutes in a day would be required, if necessary, for impact pile driving of steel piles.

3.2.1.2 Party(ies) Responsible for Implementation

The construction contractor would be responsible for ensuring that use of impact hammers does not exceed the parameters described above.

3.2.1.3 Planned Implementation Schedule

This measure would be implemented throughout the construction phases of the Proposed Action.

3.2.1.4 Planned Funding

No additional funding would be required for this measure.

3.2.1.5 Mitigation-Specific Performance Criteria

The performance criterion for this measure is to reduce the use of impact hammers to the extent possible and, at a minimum, comply with the use restrictions described above.

3.2.1.6 Monitoring and Tracking Mechanisms

The Navy would be responsible for monitoring in-water construction activities. The construction contractor would be responsible for monitoring and tracking compliance with this measure.

3.2.1.7 Enforcement Measures

Non-compliance with this measure could be used as a basis for corrective actions or non-payment of contractor invoices.

3.2.2 Deploy Air Bubble Curtains or Other Noise Attenuating Device(s) for Impact Hammer Operations (MM 5b)

3.2.2.1 Description

The contractor would deploy an unconfined air bubble curtain, or other noise attenuating device, around impact hammer operations for steel piles during in-water construction. The purpose of the bubble curtain noise attenuator is to reduce underwater pile driving noise levels. The bubble curtain would also reduce the radius of the area in which injurious or disturbing noise levels could occur, thus reducing the area in which fish, marine mammals, and marine birds would potentially be exposed to injury or disturbance.

3.2.2.2 Party(ies) Responsible for Implementation

The construction contractor would be responsible for ensuring that bubble curtains are deployed and operational around all impact hammer operations.

3.2.2.3 Planned Implementation Schedule

This measure would be implemented during all impact hammer operations for steel piles.

3.2.2.4 Planned Funding

Funding for this measure would be included in the construction contract.

3.2.2.5 Mitigation-Specific Performance Criteria

The performance criterion for this measure is testing of proper bubble curtain deployment. Pile driving would not be allowed to start until a bubble curtain is shown to be deployed properly. Construction contractor would be responsible for not exceeding performance measures.

3.2.2.6 Monitoring and Tracking Mechanisms

The Navy would be responsible for monitoring in-water construction activities. The construction contractor would be responsible for monitoring and tracking compliance with this measure.

3.2.2.7 Enforcement Measures

ESA and MMPA requirements would be enforced by the USFWS and the NMFS. Navy staff would ensure that the bubble curtain has been deployed properly. Assessments would be done by a monitoring contractor. Non-compliance with this measure could be used as a basis for corrective actions or non-payment of contractor invoices.

3.2.3 Soft Start for Pile Driver Operations (MM 5c)

3.2.3.1 Description

The objective of a soft start is to provide a warning and/or give animals in close proximity to pile driving a chance to leave the area prior to an impact driver operating at full capacity, thereby exposing fewer animals to loud underwater and airborne sounds.

- A soft-start procedure would be used at the beginning of each day's in-water pile driving (for impact pile driving only) or any time pile driving has ceased for more than 30 minutes.
- For impact pile driving, the following soft-start procedures would be conducted as follows:
  - If a bubble curtain is used for steel impact pile driving, the contractor would start the bubble curtain prior to the initiation of impact pile driving in order to flush fish from the injury zone near the pile.
  - The contractor would provide an initial set of strikes from the impact hammer at reduced energy, followed by a 30-second waiting period, then two subsequent sets. (The reduced energy of an individual hammer strike cannot be quantified because strikes vary by individual drivers. Also, the number of strikes would vary at reduced energy because raising the hammer at less than full power and then releasing it results in the hammer "bouncing" as it strikes the pile, resulting in multiple "strikes.")

3.2.3.2 Party(ies) Responsible for Implementation

The construction contractor would be responsible for ensuring that soft-start procedures are employed for all pile driver operations.

3.2.3.3 Planned Implementation Schedule

This measure would be implemented throughout the construction phase.

3.2.3.4 Planned Funding

No additional funding would be required for this measure.

3.2.3.5 Mitigation-Specific Performance Criteria

The performance criterion for this measure is consistent use of this method for pile driver operations.

3.2.3.6 Monitoring and Tracking Mechanisms

The Navy would be responsible for monitoring in-water construction activities. The construction contractor would be responsible for monitoring and tracking compliance with this measure.

3.2.3.7 Enforcement Measures

ESA and MMPA requirements would be enforced by the USFWS and the NMFS. Assessments would be done by monitoring Navy reports/records. Non-compliance with this measure could be used as a basis for corrective actions or non-payment of contractor invoices.

3.2.4 Timing Restrictions (MM 5d)

3.2.4.1 Description

Construction activities would not be conducted between the hours of 10:00 p.m. and 7:00 a.m. Pile driving would be limited to daylight hours due to the requirement for visual monitoring of ESA-listed marbled murrelet presence in the construction area (described in Section 4.2.1). Impact pile driving during the first part of the in-water work window (July 15 to September 23) would only occur between 2 hours after sunrise and 2 hours before sunset to protect foraging marbled murrelets during the breeding season. Vibratory pile driving and other construction activities occurring in the water between July 15 and September 23 would occur during daylight hours (sunrise to sunset). Between September 24 and January 15, in-water construction activities would occur during daylight hours (sunrise to sunset).

3.2.4.2 Party(ies) Responsible for Implementation

The construction contractor would be responsible for ensuring that pile driving work occurs during daylight hours only.

3.2.4.3 Planned Implementation Schedule

This measure would be implemented throughout the construction phase.

3.2.4.4 Planned Funding

No additional funding would be required for this measure.

3.2.4.5 Mitigation-Specific Performance Criteria

The performance criterion for this measure is minimizing all construction-related noises during the night.

3.2.4.6 Monitoring and Tracking Mechanisms

The Navy would be responsible for monitoring in-water construction activities. The construction contractor would be responsible for monitoring and tracking compliance with this measure.

3.2.4.7 Enforcement Measures

ESA and MMPA requirements would be enforced by the USFWS and the NMFS. Assessments would be done by monitoring Navy reports/records. Non-compliance with this measure could be used as a basis for corrective actions or non-payment of contractor invoices.

4 Monitoring to Minimize Noise Impacts

4.1 Potential Impacts

Pile driving noise could disturb ESA-listed fish (salmonids and rockfish), ESA-listed marbled murrelet, MBTA-protected birds, and MMPA-protected marine mammals. There would also be a potential for noise-related injury to these sensitive species. Marine mammal and marbled murrelet monitoring would be conducted during pile driving operations to reduce the potential for injury to ESA and non-ESA listed species. The movements of survey boats engaged in marbled murrelet monitoring during pile driving operations would tend to discourage seabirds from foraging or resting inside the injury zones while noise levels are elevated, as seabirds generally withdraw from moving boats. Thus, the marbled murrelet monitoring protocol would also protect MBTA-protected seabird species as well as the marbled murrelet from exposure to construction noise.

4.2 Mitigation Measures

The monitoring program described below would be implemented during the construction phase to reduce impacts on protected species. The monitoring program would include visual monitoring of marine mammals, visual monitoring of marbled murrelets, data collection, and reporting. The monitoring results would be used to assess the need to suspend pile driving operations when sensitive species are present in the work areas. These components are described below. The Navy is in consultation with the regulatory agencies about specific monitoring plans for regulated species. The monitoring plans discussed in this section may be modified as a result of these ongoing consultations.

4.2.1 Monitoring Plans

The Navy would develop protocol monitoring plans for marine mammal occurrence and marbled murrelet occurrence in coordination with the NMFS and the USFWS. A draft marine mammal monitoring plan would be developed and submitted to the NMFS and would be approved prior to the start of construction. Similarly, a marbled murrelet monitoring plan consistent with the USFWS Marbled Murrelet Monitoring Protocol (USFWS 2012) would be developed and submitted to the USFWS and would be finalized prior to construction. The basic element of the marine mammal monitoring plan is to designate a shutdown zone for pile driving that would be defined in consultation with the NMFS to include all areas where underwater sound pressure levels (SPLs) have the potential to exceed physiological injury-related noise levels for marine mammals (Level A take as defined by the MMPA), based on sound attenuation modeling. The injury zones for marine mammals were determined by sound attenuation modeling based on in situ acoustic monitoring results from other pile driving projects (Explosives Handling Wharf and Test Pile Program) at NAVBASE Kitsap Bangor, and results for similar pile sizes that were reported in the literature (Appendix H of the 2016 Final Environmental Impact Statement [EIS]). Modeled or calculated injury zones may be different from the shutdown zones.

The marbled murrelet monitoring plan would define a shutdown zone for impact pile driving as all areas where underwater SPLs have the potential to exceed auditory injury-related noise levels for marbled murrelets, based on sound attenuation modeling. There would be a shutdown zone including areas where airborne SPLs resulting from impact pile driving are anticipated to equal or exceed the auditory masking zone. Conditions governing project shutdown for marbled murrelets could be modified subject

to an adaptive management strategy. SPL criteria for various species groups are described in Section 4.2.1.1.

The individuals who implement the monitoring protocols would assess their effectiveness using an adaptive management approach. Monitoring biologists would use their best professional judgment throughout implementation and would seek improvements to these methods when deemed appropriate. Any modifications to the protocols would be coordinated between the Navy, the USFWS, and the NMFS. There would be multiple dedicated observers for the marine mammal and marbled murrelet survey efforts. Marbled murrelet observers would be certified by the USFWS to perform the Marbled Murrelet Monitoring Protocol (USFWS 2012).

4.2.1.1 Marine Mammal and Marbled Murrelet Visual Monitoring (MM 6)

Shutdown and Behavioral Disturbance Zones (Impact and Vibratory Pile Driving/Removal) for Marine Mammals

For all impact and vibratory pile driving/extraction, a shutdown and disturbance zone will be monitored as outlined in the NMFS-approved Marine Mammal Monitoring Plan. The following guidelines are subject to change based on NMFS' review of the Marine Mammal Monitoring Plan.

- All shutdown and disturbance zones would initially be based on the distances from the source predicted for each threshold.
- The shutdown zone would include all areas where the underwater SPLs are anticipated to equal or exceed the Level A (injury) criteria for marine mammals. The shutdown zone will always be a minimum of 33 feet (10 meters) to prevent injury from physical interaction of marine mammals with construction equipment.
- During impact pile driving of steel piles, the shutdown zone for harbor porpoise and all cetaceans would be 1,000 meters that includes all areas where the underwater SPLs are anticipated to equal or exceed the Level A (injury) harassment criteria for high frequency cetaceans which would reach a modeled distance of 740 meters and Level B behavioral zone of 541 meters. For harbor seals, the shutdown zone (to the extent practical) is 220 meters to include the Level A modeled distance of 217 meters; and for sea lions the shutdown zone is 15 meters that includes the Level A modeled distance of 12 meters. Boat-based marine mammal monitor(s) would be placed between the impact pile driving location and the extent of the shutdown zone for cetaceans.
    - ~~o~~ The behavioral disturbance zone during impact pile driving would include all areas where the underwater or airborne SPLs are anticipated to equal or exceed the Level B (disturbance) harassment criteria for marine mammals during impact pile driving (160 decibels [dB] isopleth). The modeled distance to the 160 dB isopleth for impulsive sound caused by driving 36-inch steel pile is 541 meters.
- During impact pile driving of concrete piles, the shutdown zone would be 100 meters for harbor porpoise and all cetaceans includes the Level A (injury) for high frequency cetaceans which is a modeled distance of 74 meters and Level B distance of 46 meters. The shutdown zone for harbor seals and sea lions would be 50 meters and includes the modeled distance for Level A (injury) and Level B exposure.

- During vibratory pile driving, the shutdown zone would be 70 meters for harbor porpoise and all cetaceans, 30 meters for harbor seals, and 15 meters for sea lions as the Level A (injury) harassment criteria for high frequency cetaceans would reach a modeled distance of 64 meters, for harbor seals the modeled distance would reach 26 meters, and for sea lions the modeled distance would reach 12 meters.
    - ~~o~~ The behavioral disturbance zone during vibratory pile driving (120 dB isopleth) predicts an affected area up to 50.2 square kilometers for 36-inch steel piles. The size of this area would make effective monitoring impractical. As a result, a behavioral disturbance zone equivalent to the size of the predicted 160 dB isopleth for impact pile driving, as described above, would be monitored for pinnipeds and cetaceans during all vibratory pile driving/removal activities.
- The shutdown and behavioral disturbance zones would be monitored throughout the time required to drive a pile. If a marine mammal enters the behavioral disturbance zone, an exposure would be recorded and behaviors documented. However, the pile segment would be completed without cessation, unless the animal approaches or enters the shutdown zone, at which point all pile driving activities would immediately be halted.
- Under certain construction circumstances, where initiating the shutdown and clearance procedures (which could include a delay of 15 minutes or more) would result in an imminent concern for human safety, the shutdown provision may be waived at the discretion of the construction foreman. The marine mammal monitoring plan would define the situations or criteria in which such a scenario may occur.

Shutdown Zone (In-water Construction Activities not Involving a Pile Driving Hammer) for Marine Mammals

During in-water construction activities not involving a pile driver, but having the potential to affect marine mammals, in order to prevent injury to these species from their physical interaction with construction equipment, a shutdown zone of 33 feet (10 meters) would be monitored to ensure that marine mammals are not present in this zone.

These activities could include, but are not limited to: (1) movement of the barge to the pile location, (2) positioning of the pile on the substrate via a crane (i.e., “stabbing” the pile), (3) removal of the pile from the water column/substrate via a crane (i.e., “deadpull”), or (4) placement of sound attenuation devices around the piles.

Shutdown Zone (Impact Pile Driving) for Marbled Murrelets

- Shutdown zones for marbled murrelets include areas where underwater SPLs resulting from impact pile driving are anticipated to equal or exceed auditory injury. There would be a shutdown zone including areas where airborne SPLs resulting from impact pile driving are anticipated to equal or exceed the auditory masking zone. The auditory injury criterion is the 202 dB cumulative sound exposure level (SEL) isopleth for impact pile driving, depending on the number of pile strikes, as determined by sound attenuation modeling. The distance may be adjusted based on the number of pile strikes. The shutdown distances would be specified in consultation with the USFWS.
- The shutdown zones would be monitored throughout the time required to drive a pile with an impact hammer. If a marbled murrelet is observed in the monitored area, impact pile driving

would be stopped until the marbled murrelet leaves the area under its own volition, but pile driving does not need to be stopped for longer than 1 hour per marbled murrelet encounter. Impact pile driving does not need to be curtailed for more than 2 hours total time per day, regardless of the number of marbled murrelets encountered.

- The Navy would document the duration and frequency of shutdowns of impact pile driving due to the presence of marbled murrelets. Should shutdowns occur at a frequency that is significantly affecting the project's schedule for completion, the Navy may convene an adaptive management group consisting of representatives of the Navy and the USFWS to address the issue. The adaptive management group would identify and agree to criteria and timelines for implementation of an adaptive strategy. Any changes or refinements of shutdown zones that are approved by the USFWS would be incorporated into the marbled murrelet monitoring plan.

Visual Marine Mammal Monitoring (MM 6)

A Marine Mammal Monitoring Plan would be finalized prior to commencement of pile driving activities. Based on NMFS requirements, the plan would include, at a minimum, the following procedures for impact pile driving.

Qualifications

Monitoring would be conducted by qualified, trained marine mammal observers (MMOs). An observer is a biologist with prior training and experience in conducting at-sea marine mammal monitoring or surveys, and who has the ability to identify marine mammal species and describe relevant behaviors that may occur in proximity to in-water construction activities. The NMFS requires that the observers have no other construction-related tasks while conducting monitoring. A trained observer would be placed at the best vantage point(s) practicable (e.g., from a small boat, the pile driving barge, on shore, or any other suitable location) to monitor for marine mammals and implement shutdown/delay procedures when applicable by calling for the shutdown to the hammer operator.

Methods of Monitoring

The Navy would monitor the vibratory and impact driver shutdown and behavioral disturbance zones before, during, and after pile driving.

- MMOs would be located at the best vantage point(s) in order to properly see the entire shutdown zone. This may require the use of a small boat to monitor certain areas while also monitoring from one or more land-based vantage points.
- During all observation periods, observers would use binoculars and the naked eye to search continuously for marine mammals.
- If the shutdown zones are obscured by fog, sea state, or poor lighting conditions, pile driving would not be initiated until all zones are visible.
- The shutdown and behavioral disturbance zones around the pile would be monitored for the presence of marine mammals before, during, and after any pile driving activity.
- Marine Mammal Observation Record forms (Attachment A-1) would be used to document observations.

Pre-Activity Monitoring:

The shutdown zones would be monitored for 15 minutes prior to initiating the soft start for impact pile driving. Soft start would be implemented at the beginning of each pile driving day and after breaks of more than 30 minutes (for impact pile driving only). If marine mammals are present within the shutdown zone prior to pile driving or during the soft start for impact pile driving, the start of pile driving would be delayed until the animals leave the shutdown zone. Pile driving would be initiated only after the MMO has determined, through sighting or by waiting approximately 15 minutes, that the animal(s) has moved outside the shutdown zone.

During Activity Monitoring:

The shutdown zones would be monitored throughout the time required to drive/remove a pile or complete other in-water construction activities. If a marine mammal is observed outside of this zone, an exposure would be recorded and behaviors documented, to the extent practicable. However, that pile segment or other in-water construction activity would be completed without cessation, unless the animal approaches/enters the shutdown zone, at which point all pile driving or other in-water construction activities would be halted and delayed until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone or 15 minutes have passed without re-detection of the animal. Pile driving can only resume once the animal has left the shutdown zone of its own volition or has not been re-sighted for a period of 15 minutes. However, the shutdown provision may be waived in situations where shutdown would create an imminent concern for human safety.

Post-Activity Monitoring:

Monitoring of the shutdown and behavioral disturbance zones would continue for 30 minutes following the completion of pile driving. A post-monitoring period is not required for other in-water construction.

Visual Marbled Murrelet Monitoring (MM 6)

The Navy would conduct marbled murrelet monitoring in compliance with the USFWS Protocol for Marbled Murrelet Monitoring during Impact Pile Driving (USFWS 2012). This protocol applies only to impact pile driving. Monitoring would be conducted for marbled murrelets swimming in the water within the underwater auditory injury zone before, during, and after impact pile driving activities. Monitoring of the masking zone would occur before and during impact pile driving. The monitoring distances would be specified in consultation with the USFWS. Monitoring would take place from 30 minutes prior to initiation through completion of impact pile driving activities.

Qualifications

All observers would be experienced biologists certified through the USFWS training to perform the Marbled Murrelet Monitoring Protocol (USFWS 2012).

Methods of Monitoring

The Navy would monitor the impact pile driving auditory injury zone before, during, and after pile driving. Based on the USFWS protocols, the visual marbled murrelet monitoring would include the following procedures for impact hammer pile driving:

Pre-activity monitoring

The following survey methodology would be implemented prior to commencing impact pile driving activity:

- Transect lines would be established using Global Positioning System (GPS).
- Transect lines would be no more than 164 feet apart. As defined by the Beaufort Sea State (BSS) (Attachment B), if the sea state is greater than BSS 2, monitoring cannot be conducted effectively and pile driving activities would cease at BSS 3 or greater. The sea state conditions that would result in stopping pile driving activities may be further defined by wave height or wind conditions, depending on the outcome of ongoing discussions.
- A survey boat would monitor all marbled murrelets within the underwater injury zone radius from pile driving operations. These areas to be monitored would be specified in consultation with the USFWS.
- Impact pile driving would not start until 2 hours after sunrise and would cease 2 hours before sunset during the period from July 15 to September 23. Between September 24 and January 15, impact pile driving can occur during daylight hours.
- Impact pile driving would not commence until observers complete two full sweeps of the entire survey area and have determined that no marbled murrelets are within the underwater injury and non-injurious temporary threshold shift (TTS) zones.
- If marbled murrelets are not present within these monitored zones, the observers would communicate with the Lead Biologist, who would radio the Pile Driving Engineer Lead that impact pile driving can commence.
- If marbled murrelets are within these monitored zones, the survey would continue and pile driving would not commence until the murrelets have left the monitored zones. When a murrelet is detected within the monitored zones, it would be continuously observed until it leaves the monitored zones. If observers lose sight of the murrelet, searches for the murrelet would continue for at least 5 minutes. If the murrelet is still not found, then at least two full sweeps of the monitored zones would be conducted prior to resumption of impact pile driving.
- Boat speed would be from 5 to 10 knots per hour.
- Each boat would have a minimum of two observers using binoculars (not including the boat operator).
- In case of fog or reduced visibility, the observers must be able to see a minimum of 164 feet or pile driving would not commence.
- All bird observations would be recorded on the Seabird Monitoring Data Collection Form (Attachment A-2).

During-activity monitoring

The underwater auditory injury zones would be monitored throughout impact pile driving. The following monitoring protocol would be implemented:

- The survey protocol identified above would continue and be repeated during pile driving with the following additional conditions.
- If marbled murrelets are seen within the monitored zones during impact pile driving, the observers would communicate with the Lead Biologist, who would communicate to the Pile Driving Engineer Lead. This action would require an immediate shutdown of pile driving. The survey would continue and pile driving would not resume until the murrelets have left the monitored zones. If observers lose sight of the murrelet, searches for the murrelet would

continue for at least 5 minutes. If the murrelet still is not found, then at least two full sweeps of the monitored zones would be conducted prior to resumption of impact pile driving.

Visual post-pile driving Observational Survey

These surveys would observe and record unusual or abnormal behavior of marbled murrelets. During these surveys, dead, injured, or sick seabirds may be discovered. In addition to surveys before and during pile driving, searches for seabird carcasses would be conducted following pile driving activities. Survey results would be noted in the Seabird Monitoring Data Collection Form (Attachment A-2).

Any dead diving seabird found within the survey area would be collected, placed in a plastic bag, and kept cool (but not frozen). Carcasses would be submitted to the USFWS (Washington Fish and Wildlife Office in Lacey) for necropsy using the Chain of Custody Record Form in Attachment C.

Data Collection for Marbled Murrelets and Marine Mammals

Each marbled murrelet observer would record information on each survey day using the USFWS-approved Seabird Monitoring Data Collection Form (Attachment A-2) and reference the completed Seabird Monitoring Site/Transects Identification Form (Attachment A-3) (USFWS 2012). The following information would be collected on the data collection form.

- Date and time that pile driving begins or ends;
- Construction activities occurring during each observation period;
- Weather parameters (e.g. wind, humidity, temperature);
- Tide state and water currents: the Beaufort Wind Scale (Attachment B) would be used to determine sea state;
- Visibility;
- Species, numbers, and if possible, sex and age class of marbled murrelets;
- Marbled murrelet behavior patterns observed, including bearing and direction of travel, and if possible, the correlation to SPLs;
- Distance from pile driving activities to marbled murrelets and distance from the marbled murrelet to the observation point;
- Locations of all marbled murrelet observations; and
- Other human activity in the area.

MMOs would use NMFS-approved sighting forms. At a minimum, the following information would be collected on the sighting forms:

- Date and time that pile driving begins or ends;
- Construction activities occurring during each observation period;
- Weather conditions (e.g., percent cover, visibility);
- Water conditions (e.g., sea state, tidal state [incoming, outgoing, slack, low, and high]);
- Species, numbers, and if possible sex and age class of observed marine mammals;
- Marine mammal behavior patterns observed, including bearing and direction of travel, and if possible, the correlation to SPLs;

- Distance from pile driving activities to marine mammals and distance from the observed species to the observation point;
- Locations of all marine mammal observations; and
- Other human activity in the area.

Equipment

The following equipment would be required to conduct marbled murrelet and marine mammal monitoring:

- Portable radio(s) to communicate with the Pile Driving Engineer Lead and with Port Ops and Security;
- Hearing protection for biologists;
- Cellular phones (one per boat) with contact information (other survey boats, Pile Driving Engineer Lead, the USFWS point of contact);
- Three green flags (for boat, barges, or land-based observers) as back-up for radio communication;
- Three red flags (for boat, barges, or land-based observers) as back-up for radio communication;
- Nautical charts;
- Tide and current tables for Hood Canal;
- Steel-cased thermometer or an equivalent electronic instrument with underwater temperature probe;
- Chronometers;
- Binoculars with built-in rangefinder – quality 8 or 10 power (6);
- Monitoring protocols and equipment list in sealed clear plastic cover;
- Notebook with pre-standardized monitoring Seabird Monitoring Data Collection Form on non-bleeding paper;
- Seabird identification guides;
- Large zip-lock bags for samples;
- Clipboard; and
- Pen / Pencil.

The detailed marine mammal and marbled murrelet monitoring plans are in development. Most of the identified equipment cited in this section would also apply to both monitoring efforts; other equipment would be added based on agency discussions.

4.2.1.2 Reporting

Draft annual reports on marine mammal and marbled murrelet monitoring would be submitted to the NMFS and the USFWS, respectively, within 60 days of the end of each in-water work period. Content and data requirements for the reports would be developed in consultation with the NMFS and the USFWS. The reports would include marine mammal and marbled murrelet observations prior to activity, during-activity, and post-activity during pile driving days. Final annual reports would be submitted to the NMFS and the USFWS within 30 days following receipt of comments on the draft reports from the NMFS

and the USFWS. The Navy would make final reports available to the public by posting final reports on a Navy website. At a minimum, the reports would include:

- General data (all reports):
  - Date and time of activity;
  - Water conditions (e.g., sea state, tidal state); and
  - Weather conditions (e.g., percent cover, visibility).
- Description of the pile driving activity being conducted (size and type);
- Pre-, during-, and post-activity observational survey-specific data (Marine Mammal and Marbled Murrelet reports):
  - Dates and time survey is initiated and terminated;
  - Description of any observable marine birds, marine mammals, or fish behavior in the immediate area during monitoring;
  - Actions performed to minimize impacts on marine mammals and marbled murrelets;
  - Description of any "take" (as described in the NMFS or the USFWS Biological Opinions);
  - Copies of field data sheets or logs;
  - Birds salvaged for necropsy (if applicable);
  - Use Chain of Custody Record Form (Attachment C) for dead birds/threatened and endangered species (as required); and
  - Necropsy results, based on information provided by the Agencies (as required).

4.2.1.3 Interagency Notification

Observers would immediately notify the USFWS upon locating a dead, injured or sick marbled murrelet specimen. Notification must be made to the USFWS Law Enforcement Office at (425) 883-8122 or the Services' Western Washington Fish and Wildlife Office at (360) 753-9440, and include the date, time, precise location of the injured bird or carcass, and any other pertinent information. In addition, one of the following Washington Fish and Wildlife Office staff would be notified:

Lindsy Wright – phone: (360) 753-6055

Ryan McReynolds – phone: (360) 753-6047

Emily Teachout – phone: (360) 753-9583

Deanna Lynch – phone: (360) 753-9545

Care should be taken in handling sick or injured birds in order to preserve biological specimens in the best possible state for later analysis of cause of death, if that occurs. In conjunction with the care of the sick or injured specimens or preservation of biological materials from a dead animal, the finder has the responsibility to ensure that evidence associated with the specimen is not unnecessarily disturbed.

4.3 Party(ies) Responsible for Implementation

The Navy would be responsible for conducting marine mammal and marbled murrelet monitoring during pile driving operations. The observers would be responsible for communicating with the construction contractor and providing information on when impact hammer operations can be initiated without

disturbing sensitive species. The construction contractor would be responsible for ensuring that impact hammer operations comply with this measure.

4.4 Planned Implementation Schedule

The monitoring plans would be approved by the NMFS and the USFWS prior to the start of in-water construction activities. Monitoring activities would be performed in accordance with the approved plan throughout the construction phase.

4.5 Planned Funding

Monitoring activities would be funded by the Navy.

4.6 Mitigation-Specific Performance Criteria

The performance objective would be to minimize the take of sensitive marine species, and this objective would be achieved by implementing the approved monitoring plan and limiting pile driving operations to periods when sensitive species are not present in the shutdown and behavioral disturbance zones.

4.7 Monitoring and Tracking Mechanisms

Monitoring and reporting would be in accordance with the approved monitoring plan.

4.8 Enforcement Measures

Compliance with this measure would be enforced by the NMFS and the USFWS.

5 Mitigation Measures for Biological, Cultural, and Other Resources

The SPE project is expected to affect portions of the nearshore benthic and littoral habitats on NAVBASE Kitsap Bangor, particularly as related to potential effects on habitat and migration pathways for salmonids, and forage fish spawning habitat. Short-term and long-term impacts to the benthic community, could affect ESA-listed fish species directly, and all species indirectly through effects on prey resources such as forage fish. The Proposed Action could affect migration of juvenile salmonids along the NAVBASE Kitsap Bangor shoreline. Otherwise, operation of the SPE is not expected to adversely affect ESA-listed species.

5.1 Mitigation Measures for other Biological Impacts

This section addresses mitigation measures for biological impacts other than underwater noise measures (Sections 3 and 4), and compensatory mitigation to address impacts to marine habitats (Section 6).

5.1.1 Potential Impacts

The SPE project is expected to cause unavoidable impacts on marine resources, as well as impacts on terrestrial vegetation and wildlife communities. BMPs and mitigation measures to reduce these impacts are discussed below.

In-water construction would result in water quality impacts and disruption of the seafloor that would affect marine organisms. Installation of piles and anchors would displace marine habitat, while installation of marine structures (piers) would result in shading of marine habitat. Construction of on-land facilities would result in clearing of vegetation, with potential impacts to wildlife species.

5.1.2 Mitigation Measures

Potential impacts on fish and benthic communities will be minimized by several of the environmental protection measures described previously for protecting water quality and the seafloor. These include:

- Deployment of oil containment booms during in-water construction to minimize potential impacts from an accidental oil spill, as required by the CWA Section 401 Water Quality Certifications for the Proposed Action **(CP 1a)**;
- Retrieval of lost debris from the seafloor during and following in-water construction to prevent disturbance of benthic habitat **(CP 1b)**;
- Excluding construction equipment and activities outside of the 100-foot construction corridor **(CP 1c),** prohibiting work vessels to ground in shallow waters **(CP 1d)**; and
- Restricting in-water work to specified work windows to minimize in-water project impacts on potentially occurring ESA-listed fish species that would otherwise be exposed to construction activities, including underwater noise produced during pile driving **(MM 2)**.

Additional measures to prevent or minimize impacts on eelgrass beds are:

- Spudding/anchoring in existing eelgrass habitat will be avoided during in-water construction and vessel operators will be provided with maps of construction area with eelgrass beds clearly marked **(CP 7a)**.

- Shallow draft, lower horsepower tug boats will be used in the nearshore area and for extended operations in areas shallower than 40 feet below MLLW, where feasible **(CP 7b)**.
- Construction barges will avoid shading eelgrass beds for extended periods of time **(CP 7c)**.

To protect migratory birds and potential breeding marbled murrelets, the following mitigation measures would be implemented during upland construction of the SPE project:

- Tree removal would not be conducted during the marbled murrelet breeding season of April 1 through September 23 (**MM 8a)**.
- Daily restrictions for pile driving and no tree removal during the marbled murrelet breeding season would further limit exposure of migratory birds to construction noise and habitat disturbance **(MM 8b).**

5.1.3 Party(ies) Responsible for Implementation

The construction contractor would be responsible for conducting tree removal in accordance with mitigation measures **MM 8a** and **MM 8b**.

5.1.4 Planned Implementation Schedule

Mitigation measures **MM 8a** and **MM 8b** would be implemented throughout tree removal activities.

5.1.5 Planned Funding

Any costs associated with mitigation measures **MM 8a** and **MM 8b** would be included in Navy funding for the construction contract.

5.1.6 Mitigation-Specific Performance Criteria

The performance criterion for the tree removal mitigation measures would be monitoring and enforcement of these measures by the Navy.

5.1.7 Monitoring and Tracking Mechanisms

The Navy would monitor tree removal to ensure that mitigation measures **MM 8a** and **MM 8b** are implemented.

5.1.8 Enforcement Measures

These measures would be enforced by the Navy.

5.2 Mitigation Measures for Cultural Resources Impacts

5.2.1 Potential Impacts

Due to the amount of development along the Bangor shoreline, the Navy determined through a records search (HRA, 2013) that it is unlikely that there are undocumented historic-period resources present. The Navy also determined it is a low likelihood that intact prehistoric archaeological deposits or features are present along the submerged shoreline that could be disturbed during construction activities. Further, the in-land features where the new parking lot and laydown area are to be constructed were determined through an archaeological and architectural survey to not be located in an area that meets the criteria for National Register of Historic Places eligibility.

5.2.2 Mitigation Measures (MM 9)

The Navy concluded Section 106 consultations with the Washington SHPO, concurring with the Navy's findings of no adverse effects on historic properties. If, in the course of the construction, operation, or maintenance of any component of the SPE, there is an unanticipated discovery of cultural or archaeological resources, work would be stopped and the Navy cultural resources manager would be contacted to determine subsequent steps in compliance with Section 106 of the NHPA and other relevant cultural resources legislation. The Navy would continue to comply with DOD policy and other laws and regulations, including the American Indian Religious Freedom Act of 1978 and Native American Graves Protection and Repatriation Act of 1990, if the need arises.

5.2.3 Party(ies) Responsible for Implementation

The Navy would be responsible for completing this mitigation measure.

5.2.4 Planned Implementation Schedule

In the event of inadvertent discovery of unknown archaeological and historic resources during construction, operation or maintenance, work would be stopped and the Navy would consult with the SHPO and affected tribes.

5.2.5 Planned Funding

This mitigation would be funded by the Navy.

5.2.6 Mitigation-Specific Performance Criteria

The specific performance criteria for this measure would be established as part of the agreement implementing the mitigation measures, as developed by the Navy in consultation with the SHPO.

5.2.7 Monitoring and Tracking Mechanisms

Reporting requirements would be specified in the agreement between the Navy and SHPO.

5.2.8 Enforcement Measures

The SHPO would enforce this mitigation measure.

5.3 Other Resources

No mitigation measures and/or environmental protection measures are proposed for reducing impacts on air quality, aesthetics, and socioeconomics because any impacts on these resources from the SPE project are expected to be minimal for reasons discussed below. Mitigation and/or environmental protection measures for geology and soils, noise, land use and recreation, and transportation are described below.

5.3.1 Geology and Soils

Mitigation measures are not necessary for geological resources because the Proposed Action would have only minor direct impacts on geologically hazardous areas and would not involve contaminated soils. However, the Proposed Action will include environmental protection measures such as design of the construction roadway and laydown area to minimize impacts by locating these features in areas away from steep slopes and streams, to the extent practicable. A geotechnical design evaluation has

been performed (Shannon & Wilson, Inc., 2013) to avoid steeper slopes and properly grade the soil, especially in areas where seepage has been observed. Measures to minimize soil erosion are described in Section 2.3.

5.3.2 Noise

Maximum noise levels for the SPE project would occur during use of an impact pile driver, and the noise levels would exceed allowable noise limits for the OSHA (90 dBA) and Navy Occupational Safety and Health (84 dBA) for an 8-hour period. This could potentially cause injury to construction personnel working at the sites. In such conditions, personal protective equipment would be required for personnel working in these areas.

Pile driving of the SPE would result in noise levels in the community of Olympic View approximately equal to the WAC daytime (7:00 a.m. to 10:00 p.m.) limit of 60 dBA. Temporary construction noise during the hours of 7:00 a.m. to 10:00 p.m. is exempt from WAC noise requirements. The WAC residential limit for nighttime (50 dBA) would not be exceeded because pile driving would occur only during daylight hours (**MM10a**).

Due to intervening terrain and vegetation, residential areas on NAVBASE Kitsap Bangor and in the community of Vinland would not experience adverse noise impacts; noise levels would not exceed the WAC limits. Residential properties on the western shore of Hood Canal and in the community of Olympic View directly south of the base would be able to hear pile driving noise but levels would not experience noise levels above the WAC daytime or nighttime limits. The Navy would notify the public about upcoming construction activities and noise at the beginning of each construction season (**MM 10b**).

5.3.3 Air Quality

No mitigation measures are necessary, as the project would not have an adverse impact on air quality. The project site is in an attainment area for all six criteria pollutants and would comply with the national and state ambient air quality standards, including being well below annual allowed emissions for criteria pollutants.

5.3.4 Land Use and Recreation

The project is consistent with land use plans and policies, and there would only be short-term, adverse noise impacts on land use and recreation on the western shore of Hood Canal during construction. Noise levels on the western shore of Hood Canal and in the community of Olympic View would not exceed environmental noise standards; in addition, the WAC provides an exemption for construction noise originating from temporary construction sites. This project would be consistent with the NAVBASE Kitsap Bangor Master Plan and Integrated Natural Resources Management Plan. There are no other regulations pertaining to land use or recreation applicable to this alternative. The Navy would implement the following mitigation measures: Construction activities would not be conducted during the hours of 10:00 p.m. to 7:00 a.m.; pile driving would occur only during daylight hours (**MM 10a**); the Navy would notify the public about upcoming construction activities and noise at the beginning of each construction season (**MM 10b**); and the Navy would develop a local Notice to Mariners to establish uniform procedures to facilitate the safe transit of vessels operating in the project vicinity (**MM 11a**).

5.3.5 Aesthetics

While the project would result in changes in the viewshed, these changes would not be out of character with existing conditions. Therefore, no mitigation measures are necessary.

5.3.6 Socioeconomics

Over 800 direct temporary jobs would be generated, creating a direct increase to the economic output. No direct impacts to commercial or recreational fishing are anticipated because the area affected by in-water construction activities is not open to commercial or recreational fishing (see Section 9.0 for discussion of tribes). No mitigation measures are necessary for socioeconomics.

5.3.7 Traffic

The following measures pertain to traffic:

5.3.7.1 Notice to Mariners (MM 11a)

During construction, the Proposed Action would result in increased marine vessel traffic. The Navy would develop a local Notice to Mariners to establish uniform procedures to facilitate the safe transit of vessels operating in the project vicinity.

5.3.7.2 Barge Traffic (MM 11b)

Construction vessel traffic for the SPE project would require six barge trips per month and 12 associated bridge openings. The bridge openings would result in delays (on average 30 minutes per opening for a total of 6 hours per month) that may adversely impact travelers crossing the Hood Canal Bridge on State Route 104. Impacts on motorists would be minimized by scheduling bridge openings during non-peak traffic hours (6:00 to 8:30 a.m. and 3:30 to 6:00 p.m., Monday through Friday) to the extent possible. The increase in barge trips and associated bridge openings would increase by approximately one-third during the construction period but would not appreciably increase vessel traffic levels in the project area. Further, this level of vessel traffic is not expected to adversely impact vessel transit routes in Hood Canal or Puget Sound. Potential impacts on vessel traffic would be minimized by the U.S. Coast Guard issuing, at the Navy's request, Notices to Mariners at the beginning of each construction season and for bridge openings.

This page intentionally left blank.

6 Compensatory Mitigation (MM 12)

6.1 Introduction

The Proposed Action would result in impacts on sensitive species, including movement of salmonids, and other long-term impacts on marine habitats and species including forage fish. The Proposed Action also would require a Section 10 permit under the Rivers and Harbors Act, and a CWA Section 401 water quality certification from WDOE. To receive permits the Navy must comply with *Compensatory Mitigation for Losses of Aquatic Resources, Final Rule* adopted on April 10, 2008 (USACE and USEPA 2008).

6.2 Regulatory Overview

Compensatory Mitigation is the term given to projects or plans undertaken to offset "unavoidable adverse environmental impacts which remain after all appropriate and practicable avoidance and minimization has been achieved." Compensatory mitigation involves actions taken to offset unavoidable adverse impacts on wetlands, streams, and other aquatic resources. The SPE project will require a Section 10 permit. For impacts authorized under Section 10 of the Rivers and Harbors Act, compensatory mitigation is not considered until after all appropriate and practicable steps have been taken to first avoid and then minimize adverse impacts on the aquatic ecosystem pursuant to 40 CFR Part 230 (i.e., the CWA Section 404(b)(1) Guidelines). Although a Section 404 permit would not be required for the SPE, a CWA 401 water quality certification would be necessary and WDOE also considers compensatory mitigation when issuing this certification.

Compensatory Mitigation for Losses of Aquatic Resources, Final Rule (USACE and USEPA 2008) clarifies the use of mitigation banks and ILF programs and identifies the benefits of these mechanisms for providing compensatory mitigation.

Compensatory Mitigation for Losses of Aquatic Resources, Final Rule emphasizes the use of a watershed approach to compensatory mitigation. The watershed approach involves consideration of several factors to assure proper implementation:

- Watershed needs and Compensatory Mitigation projects to address those needs;
- Landscape scale;
- Historic and potential aquatic resource conditions;
- Past and projected aquatic resource impacts; and
- Terrestrial connections between aquatic resources.

The changes to the regulations for compensatory mitigation are intended to increase the Compensatory Mitigation project success rate and improve the health of the aquatic resources in mitigated areas. The Compensatory Mitigation for Losses of Aquatic Resources, Final Rule was developed to provide better aquatic resource mitigation than the traditional focus on permittee-responsible onsite/in-kind mitigation, which may not always be feasible or appropriate. Any proposed activity that impacts aquatic resources still needs to be addressed in the following order:

- Avoid. Proposed impacts must be avoided to the maximum extent possible.
- Minimize. Impacts that cannot be avoided should be minimized.

- Compensate for remaining impacts. Impacts that cannot be avoided must be compensated for through compensatory mitigation.

The Compensatory Mitigation for Losses of Aquatic Resources, Final Rule establishes a hierarchy or preference for Compensatory Mitigation:

- Mitigation Banks;
- ILF Programs; and
- Permittee-Responsible Mitigation.

The Navy has authority to participate in ILF programs and Mitigation Banks through the Sikes Act and DOD Natural Resource Policy Guidance.

The HCCC has established an ILF program for Hood Canal (HCCC 2014). Mitigation banks and ILF programs are forms of "third-party" compensation because a third party, such as a bank, or ILF sponsor assumes responsibility for the implementation and success of the compensatory mitigation. The emphasis on this rule is that the compensatory mitigation should be determined based on the specific details of the impacted aquatic resources, the watershed, and viability of various Compensatory Mitigation projects that could mitigate the impacts. The changes implemented by this rule should improve the efficiency, predictability, and success rate of Compensatory Mitigation projects. The rule provides for improved review of mitigation and anticipates enhanced mitigation success based on:

- The use of effective standards based on best available science that should increase the success rate of mitigation projects;
- Increased public participation that should lead to more input and ideas for proposed projects; and
- More uniform standards that should increase the viability of mitigation banks and ILF programs compared to the more traditional permittee-responsible mitigation.

6.3 Summary of Impacts Requiring Compensatory Mitigation

The support piles installed for the SPE project would slightly alter current speeds beneath the piers, which would cause minor erosion of fine-grained sediments near some piles impacted by turbulent flows, as well as settling and accumulation of fine-grained sediments at the base of other piles (Chiew and Melville 1987). Over the lifetime of the SPE, tidal currents would result in a gradual coarsening of surface sediments and thin scouring initially around the perimeter of each pile, and groups of piles (Sumer et al. 2001). However, shells and barnacles that accumulate on the piles would also slough off over time and contribute to the sediment content below the piles. The loss of fine-grained sediment would be offset by the accumulation of shell and barnacle particles. These two processes would result in no net impact on seafloor bathymetry below the piles, although there would be minor, localized coarsening of sediment particle size.

Construction and operation of the SPE structure would not be expected to cause appreciable erosion or deposition of sediments within the project area or interfere with longshore sediment transport and delivery processes (cbec 2013). This conclusion is supported by the Golder Associates (2010) study, which concluded that the presence of other Navy structures along the Bangor shoreline has not caused appreciable changes in the morphology of the shoreline.

The proposed project would impact aquatic resources, which would be mitigated in accordance with the Compensatory Mitigation for Losses of Aquatic Resources, Final Rule (USACE and USEPA 2008). The impacts and mitigation are summarized in Table 6-1.

Table 6-1. Compensatory Mitigation for the SPE Preferred Alternative Impacts on Aquatic Habitat and Waters of the U.S.

SPE Impact	*SPE Alternative 2 Area*	*SPE Anticipated Mitigation*[1]
Habitat displaced by piles in deep water (>30 feet)	0.037 acre	Mitigation for loss of aquatic resources would be provided by the Navy's purchase of credits from the HCCC ILF program for Hood Canal in accordance with the Compensatory Mitigation Rule.
Overwater area (full shading) in deep water (more than 30 feet below MLLW). There would be no shading shallower than 30 feet below MLLW.	1.0[2] acre	Mitigation for loss of aquatic resources would be provided by the Navy's purchase of credits from HCCC ILF program for Hood Canal in accordance with the Compensatory Mitigation Rule.

1. Final mitigation requirements for the selected alternative would be determined through the CWA permitting process. Habitat displaced by piles is included in the habitat in the overwater area. Project would not shade or displace shallow habitat.
2. Acreage is approximate.

6.4 Hood Canal In-Lieu Fee Program

The use of an ILF Program is the Navy's proposed compensatory mitigation approach for the unavoidable impacts on aquatic resources from the Proposed Action.

6.4.1 ILF Program Goal and Objectives

The primary goal of the HCCC ILF Program for Hood Canal is to increase aquatic resource functions in the Hood Canal watershed. This can be accomplished by improving existing mitigation requirements with rigorous site assessment and selection processes that fully support priorities for conserving and restoring Hood Canal. While mitigation seeks to generally offset the impacts of development projects resulting in no net loss, this ILF Program adds value to mitigation processes by implementing projects in a coordinated manner, consistent with existing regulations and legal limitations relating to mitigation. To accomplish this goal, the HCCC incorporated the following objectives into the ILF Program (HCCC 2011):

- Provide a viable option to ensure the availability of high-quality mitigation for unavoidable, site-specific impacts to freshwater wetlands and marine/nearshore aquatic resources in the Hood Canal watershed.
- Promote "net resource gain" (defined as restoration of ecological processes) and improved ecological functions of the Hood Canal watershed.
- Meet the needs and goals of the Hood Canal Integrated Watershed Management Plan approach and the HCCC members.
- Develop, in cooperation with environmental regulatory partners, an ecologically based site selection process to identify the most appropriate mitigation options that result in greater

ecological benefit to the Hood Canal watershed than could be achieved through permittee responsible mitigation.

- Combine the mitigation requirements from individual permitted projects within a service area into larger mitigation sites.
- More efficiently and cost-effectively meet federal, state, and local regulatory requirements by creating a mechanism for fulfilling compensatory mitigation requirements.
- Select the best mitigation sites for the watershed through a rigorous analysis by a group of professional resource managers and local experts, drawing from local knowledge and best available science and analyses.
- Develop a self-sustaining ILF Program that identifies, prioritizes, and completes mitigation projects that result in a "net resource gain" on a watershed scale over time.
- Provide an effective and transparent accounting structure for collecting ILFs, disbursing project funds, and conducting compliance reporting, as required under 33 CFR 332.8.
- Work in an efficient and transparent manner with the Interagency Review Team, to review, analyze, and implement mitigation projects and enact amendments to the ILF Program.

The HCCC has four strategies to accomplish its goal and objectives. These strategies are to: restore aquatic resource functions; enhance existing aquatic resources; establish new functions where they no longer exist; and, under certain circumstances, preserve intact or fully functioning aquatic resource functions. Compensatory mitigation can take one of these four forms, in order of preference:

1. Restoration: returning a damaged aquatic resource to its original condition through restoration of habitat forming processes;
2. Creation: converting an area that has no significant aquatic resources into an aquatic resource area with all of the physical and biological characteristics to replace the area lost or damaged;
3. Enhancement: making changes or improvements to an aquatic resource to replace the functions or values performed by the resources lost or damaged; and
4. Preservation: protecting aquatic resources in an area that is equivalent to the area damaged, and that might otherwise be impacted or lost.

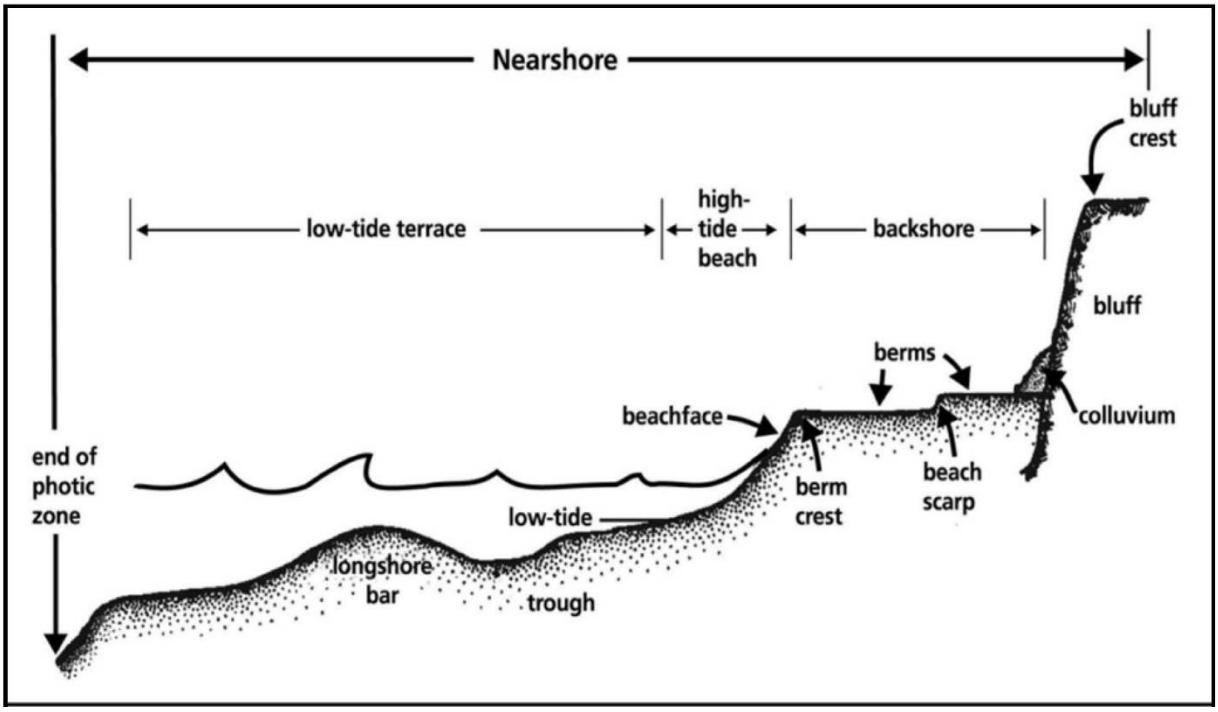
The mitigation strategy selected for each permitted impact would be based on an assessment of type and degree of disturbance at the landscape and/or drift cell scales. Restoration generally would be the first mitigation option considered because the likelihood of success is greater and the impacts on potential ecologically important uplands are reduced compared to enhancement or creation. Restoration also has potential to produce more substantial gains in aquatic resource functions compared to enhancement and preservation.

6.4.2 Hood Canal ILF Service Area

The service area for the Hood Canal ILF Program encompasses those portions of Water Resource Inventory Areas 14, 15, 16, and 17 draining to Hood Canal, defined by a line extending from Foulweather Bluff to Tala Point, south through the Great Bend to its terminus near the town of Belfair, Washington.

The service area is divided into two components for the purposes of this ILF Program:

1. Freshwater Environment, which generally includes areas landward of the marine riparian zone, including freshwater and estuarine wetlands and streams up to and excluding any National Park or National Forest Lands; and
2. Marine / Nearshore Environment, which extends from the marine riparian area at the top of the coastal bluffs to the adjacent aquatic intertidal and subtidal zones (Figure 6-1).



Source: HCCC Draft Hood Canal ILF Program Prospectus

Figure 6-1. Intertidal and Subtidal Zones

6.4.3 Navy's Use of the HCCC ILF Program

The Navy's use of the HCCC's ILF program would follow the requirements of the Final Instrument for the HCCC's ILF program, which was developed based on input from the Inter-agency Review Team (IRT) and prescribes the credit/debit methodology, fee calculation structure, and financial assurances for the program (HCCC 2012). Appendix C of the Final Instrument specifies the procedures for approval of an applicant's use of the program, including mitigation sequencing, and how the ILF program would implement the mitigation. In accordance with the Final Instrument and appendices, the Navy, regulatory agencies, and ILF Program will undertake the following actions:

- On April 19, 2017, the Navy presented an overview of the SPE project to the HCCC Board of Directors. The Navy clarified the project schedule and stated that it will formally ask for the Board's concurrence to purchase credits from the ILF Program to mitigate for impacts from SPE.
- The Navy will complete data collection and a preliminary site and impacts assessment, and provide this information to the applicable regulatory agencies and permitting entities for review.
- The applicable regulatory agencies and permitting entities will review the proposed development project to ensure impacts are avoided and minimized to the maximum extent practicable and all onsite mitigation options are exhausted.

- The permitting agencies will determine if the HCCC ILF Program provides the best option for compensating for unavoidable impacts; if so then the Navy, in cooperation with the Program Sponsor (the HCCC), will complete the site and impacts assessment to determine the amount of credits needed to offset the impact (or debit). This will constitute the ILF Use Plan. The Program Sponsor will review and confirm the ILF Use Plan, and informally consult with the IRT if appropriate. The ILF Use Plan will then be provided to the applicable regulatory agencies and permitting entities.
- The agencies will approve or deny the permit conditioned on purchasing credits from the HCCC ILF Program for mitigation.
- The Navy will purchase mitigation credits from the HCCC ILF Program to offset the project's unavoidable impacts.
- The statement of sale will be sent to USACE, WDOE, and any other applicable regulatory or permitting entities which issued the permit conditioned upon purchasing credits from the HCCC ILF Program.

After mitigation sequencing steps have occurred and mitigation credits have been purchased from the HCCC ILF Program, the following steps (covered in detail in subsequent appendices of the Instrument) describe how mitigation will be implemented:

- The HCCC ILF Program will review impacts and ecological needs at the appropriate, nested scale.
- The HCCC ILF Program will propose mitigation sites and project concepts, along with the draft Spending Agreement, to USACE and WDOE.
- In consultation with the IRT, USACE and WDOE will review and approve the sites and conceptual plans, and sign the Spending Agreement. The HCCC ILF Program Credit and Debit calculations include a factor to account for risk and uncertainty associated with temporal loss.
- The HCCC ILF Program will develop draft and final mitigation plan(s) and site protection instrument(s).
- In consultation with the IRT, USACE and WDOE will review and approve final mitigation plan(s) and final site protection instrument(s).
- The HCCC ILF Program will implement the mitigation project(s).
- All subsequent steps related to credit fulfillment, site maintenance, monitoring/reporting, adaptive management, and site protection will be conducted by HCCC ILF Program and are listed and discussed in Appendices K to P of the Final Instrument.
- Once fees are collected from the applicant, the ILF program will have 3 years to secure a site and begin implementation of the mitigation action.

More information on the HCCC ILF Program can be found on the HCCC website: http://hccc.wa.gov/.

7 Permitting and Consultation Terms and Conditions

ESA consultation with the USFWS is complete, with the USFWS finding that impacts to bull trout would be insignificant and impacts to the marbled murrelet would be discountable, with no additional conservation recommendations (USFWS, 2017). ESA consultation with the NMFS is ongoing. A Section 10 Permit and Section 401 CWA permit will be submitted for approval. Any additional measures to minimize impacts identified during those consultations and permitting processes will be included in this section once those processes are complete.

This page intentionally left blank.

8 Summary of Proposed Measures to Avoid, Minimize, and Compensate for Environmental Impacts on Aquatic Resources

This section summarizes measures that the Navy will implement to avoid, minimize, and compensate for impacts on aquatic resources. Integrated into the Proposed Action are design features and measures to avoid environmental impacts. Where avoidance is not possible, the designs have been modified to minimize those impacts. Design features include the following:

- The number of piles and anchors was minimized while still meeting structural, safety, and security requirements.
- The pier extension was placed in deep water to minimize impacts on marine vegetation and habitat, and interference with nearshore fish migration.
- As many facilities as possible were sited on land versus on the pier to minimize the size of the pier.

Additional measures to avoid, minimize, or compensate for impacts on aquatic resources are described below by resource. Sections of the Mitigation Action Plan providing more detailed descriptions of these measures are cited. Please refer also to Table 6-1 for summaries of aquatic impacts and compensatory mitigation. Residual (i.e., following avoidance and minimization measures) impacts on habitat functions would be compensated for by implementation of the Navy's compensatory habitat mitigation action, which employs a Hood Canal watershed approach, as described in Section 6. Residual impacts are described in Sections 3.1 through 3.17 of the EIS.

8.1 Hydrography

Impacts on hydrography will be avoided by limiting construction vessels to a construction corridor of 100 feet around the new structure (Section 2.1.2.4) and implementing work vessel grounding control measures (Section 2.1.2.5). Impacts on hydrography would be minimized by:

- Keeping the size of the proposed SPE to the minimum needed to provide the functions required;
- Establishing construction debris and pile removal control measures (Section 2.1.2.3);
- Instituting prop wash control measures (Section 2.1.2.4); and
- Preparing and implementing a mooring and anchoring plan to avoid underwater anchor and line drag (Section 2.1.2.6).

8.2 Marine Water Quality

Impacts on marine water and sediment quality will be avoided by preparing and implementing a SWPPP (Section 2.1.2.1) and limiting construction vessels to a construction corridor of 100 feet around the new structure (Section 2.1.2.4). Impacts on marine water quality would be minimized by:

- Implementing spill response control measures in the event of an accidental spill (Section 2.1.2.2);
- Establishing construction debris and pile removal control measures (Section 2.1.2.3);
- Instituting prop wash control measures (Section 2.1.2.4); and
- Preparing and implementing a mooring and anchoring plan (Section 2.1.2.6).

8.3 Eelgrass

Impacts on eelgrass will be avoided by:

- Keeping the size of the proposed SPE to the minimum needed to provide the functions required;
- Limiting construction vessels to a construction corridor of 100 feet around the new structures (Section 2.1.2.4);
- Implementing work vessel grounding control measures (Section 2.1.2.5); and
- Avoiding spudding and anchoring in eelgrass beds (Section 5.1.2).

Impacts on eelgrass will be minimized by:

- Placing the SPE in deep waters;
- Establishing construction debris and pile removal control measures (Section 2.1.2.3);
- Instituting prop wash control measures (Section 2.1.2.4); and
- Preparing and implementing a mooring and anchoring plan (Section 2.1.2.6).

8.4 Benthic Community

Impacts on benthic communities will be avoided by:

- Preparing and implementing a SWPPP (Section 2.1.2.1);
- Limiting construction vessels to a construction corridor of 100 feet around the new structure (Section 2.1.2.4); and
- Implementing work vessel grounding control measures (Section 2.1.2.5).

Impacts on benthic communities will be minimized by:

- Placing the SPE in deep waters;
- Establishing construction debris and pile removal control measures (Section 2.1.2.3);
- Instituting prop wash control measures (Section 2.1.2.4); and
- Preparing and implementing a mooring and anchoring plan (Section 2.1.2.6).

Avoidance and minimization measures described above that are protective of eelgrass beds would also be protective of those benthic species which use eelgrass for habitat (e.g., Dungeness crabs). Residual (following avoidance and minimization measures) impacts on the benthic community and its environmental functions would be compensated for by implementation of the Navy's compensatory mitigation action as described in Section 6.

8.5 Marine Fish

Impacts on marine fish, including ESA-listed species, will be avoided by adhering to the established work window, except as noted, for this portion of Hood Canal (Section 2.2). Impacts on marine fish would be further minimized by:

- Deploying air bubble curtains or other noise attenuating device(s) during impact hammer operations for steel piles (Section 3.2.2).

Other avoidance and minimization measures described above for hydrography, water quality, and eelgrass would also be protective of marine fish habitats (Section 5.1.2).

8.6 Marine Mammals and Birds

Impacts on ESA-listed marine birds and MMPA-protected marine mammals will be avoided by the use of visual monitoring for marine mammals and marbled murrelets prior to and during construction and shutdown of pile driving when these species approach or enter areas where injury could occur (Section 4). Impacts on marine mammals and birds will be minimized by deploying air bubble curtains or other noise attenuating device(s) during impact hammer operations (Section 3.2.2) and employing a soft-start approach during pile driving operations (Section 3.2.3). Other avoidance and minimization measures described above for hydrography, water quality, eelgrass, and marine fish would also be protective of marine mammal and bird aquatic habitats and food resources.

This page intentionally left blank.

9 Treaty Mitigation (MM 13)

As discussed in the 2016 Final EIS, Section 3.14, the SPE Proposed Action would affect American Indian traditional resources subject to tribal treaty rights. The Navy invited and has engaged in government-to-government consultation with the affected tribes to evaluate potentially significant impacts to Treaty-protected resources, and identify appropriate mitigation for the impacts. Underwater noise from pile driving may impact adult salmon and steelhead that would be returning to Hood Canal during the in-water work window and would ordinarily be fish runs harvested by the tribes. Underwater noise may cause salmon and steelhead to move to other areas of Hood Canal to avoid disturbance. This would not result in a net loss of tribal resources, but could increase the time allocated to observe the tribes' fishing rights. The following subsections describe measures the Navy would undertake to mitigate potential adverse impacts of the SPE Proposed Action on Treaty protected resources.

9.1 Skokomish Indian Tribe

The Navy and the Skokomish Indian Tribe have conducted government-to-government consultations to discuss the nature, scope, and schedule of the Navy's Proposed Action. The consultations began in July 2012 and focused on measures to address the potential effects of the project on reserved tribal treaty rights and resources. On March 3, 2016 the Navy and the Skokomish Indian Tribe completed a Memorandum of Agreement (MOA) to undertake treaty mitigations by contributing funding to support Skokomish River Basin restoration, with the terms and conditions of the MOA to apply only after the Navy begins in-water construction.

9.1.1 Skokomish River Basin Ecosystem Restoration

The Skokomish River Basin, located on the Great Bend of Hood Canal, is the largest source of freshwater to Hood Canal and includes the Skokomish Indian Reservation. The mitigation measures identified in the MOA are part of an ecosystem restoration plan for the Skokomish Basin being undertaken by USACE in partnership with the Skokomish Indian Tribe and Mason County, Washington. The plan is described and its alternatives analyzed in the *Skokomish River Basin Mason County, Washington Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement* (Skokomish River Basin EIS; USACE 2015), incorporated here by reference. The preferred alternative (Section 3.11, p. 54-56) consists of the following actions:

- Removal of a levee;
- Placement of large woody debris;
- Reconnection of a side channel; and
- Wetland restoration at two sites.

The Skokomish River Basin EIS (Section 5.9.1, p. 126) summarizes the anticipated unavoidable adverse impacts of the actions itemized above as follows:

- Temporary, minor, and localized degradation of water quality from increases in turbidity during in-water work;
- Temporary, minor disturbance to fish and aquatic insects through increased turbidity and construction activity in the water;
- Temporary clearing of upland and riparian vegetation for access and staging areas;

- Fill of up to 5 acres of wetland where wetland embankments are constructed, which is offset by a net gain of 51 acres of wetlands; plus another 1 acre of disturbance to wetlands for the Side Channel Reconnection inlet; and
- Temporary and localized disruptions to traffic caused by construction vehicle access to worksites.

These impacts would be mitigated as summarized in Section 5.10, p. 127, of the Skokomish River Basin EIS: "Implementation of the recommended plan would involve three ecosystem restoration sites with only minor construction activities in the aquatic environment, primarily for temporary culvert installation for access. Each of the proposed sites would have negligible, short-term construction related effects. All of these minor and temporary effects can be avoided and minimized through construction designs and standard best management practices (BMPs). Specific measurable and enforceable measures would be developed for each site based on the specific effects of the project. The Corps would require construction contractors to adhere to BMPs to protect water quality. Standard construction stormwater BMPs can be incorporated into site designs, operational procedures, and physical measures on site. There are no legal requirements to mitigate for greenhouse gas emissions; however, BMPs are available for fuel and material conservation during construction."

A National Environmental Policy Act ROD was signed on April 18, 2016 for the Ecosystem Restoration Project (USACE, 2016). The project design and construction would be implemented on a cost sharing basis between the federal government (65 percent) and the Skokomish Indian Tribe and Mason County (35 percent). The Navy would contribute funding toward the Skokomish Indian Tribe's cost share.

9.2 Port Gamble S'Klallam Tribe, Jamestown S'Klallam Tribe, and Lower Elwha Klallam Tribe

The Navy began government-to-government consultation with the Port Gamble S'Klallam Tribe, Jamestown S'Klallam Tribe, and Lower Elwha Klallam Tribe for the SPE project in 2012. The Navy proposed the mitigation measures listed below, and the Navy agreed to these mitigation measures, but no formal agreement has been signed. If no formal agreement is made prior to the signing of the ROD, the Navy would fund one or more of the following treaty mitigation projects, if willing and able partners are identified:

- Shellfish seeding and beach enhancement at locations off Navy property; and
- Culvert replacement at Little Boston Road over Shipbuilders Creek.

9.2.1 Shellfish Seeding and Beach Enhancement

With the limitations described above, the Navy would fund shellfish seeding and beach enhancement at locations off Navy properties. This mitigation measure would improve the health of the Hood Canal nearshore areas and shellfish populations.

The procedures and expected environmental impacts of shellfish seeding are described in the *TRIDENT Support Facilities Explosives Handling Wharf (EHW-2) Final Environmental Impact Statement* (EHW-2 FEIS) (Navy 2012; Appendix F, Mitigation Action Plan, p. F-166-169), incorporated here by reference. Beach seeding with juvenile clams or oysters is done by hand during a low tide when the intertidal area is exposed as much as possible. Beach seeding for oysters is also done by washing oyster shell off a barge using a fire hose. The seeding requires an aquaculture permit from USACE. The process does not result in adverse impacts to fish and wildlife or physical features of the environment, and socioeconomic effects are beneficial. Shellfish seeding would not be conducted in locations where eelgrass is present.

The procedures and expected environmental impacts of beach enhancement are described in the EHW-2 FEIS, Appendix F, p. F-157-161, and incorporated here by reference. Beach enhancement involves placing gravel and sand on tidelands (beach nourishment) to enhance shellfish seed habitat. The gravel and sand are placed through the use of barges and dispersal equipment during appropriate tidal windows. The fill placement is regulated by a USACE permit under the authority of CWA Section 404 and also requires a Section 401 Water Quality Certification from WDOE. The work would be conducted during a NMFS-approved in-water work window to minimize potential impacts on ESA-listed fish species and juvenile populations. The impact on ESA-listed species would likely be "may affect, not likely to adversely affect" because adults of these species could be present during the in-water work window. Beach enhancement would not be conducted in locations where eelgrass is present. The fill placement would produce temporary water quality impacts through local turbidity, but no long-term adverse effects on water quality would be expected. Short-term air quality impacts would occur from haul truck and construction equipment exhaust and from brief fugitive dust emissions. Equipment operating during the fill placement would generate noise temporarily, but there would be no sensitive receptors near the proposed mitigation action. Long-term socioeconomic impacts would be beneficial.

9.2.2 Culvert Replacement at Little Boston Road over Shipbuilders Creek

Within the limitations described in the first paragraph of section 9.2, the Navy would provide funding to support the replacement of a culvert at Little Boston Road over Shipbuilders Creek on the Port Gamble S'Klallam Tribe Reservation. The present culvert is undersized, perched, and is a barrier to fish passage. To restore fish migration, the project would install a properly-sized culvert, designed per Washington State Department of Fish and Wildlife stream simulation modeling criteria. The adjacent riparian corridor disturbed by the construction would be restored with native vegetation and appropriate streambed substrate.

The replacement culvert project would receive a Hydraulic Project Approval from Washington Department of Fish and Wildlife. Temporary impacts would be confined to the construction and immediate post-construction periods and could include, but would not be limited to, the following types of impacts, which would be mitigated through standard BMPs in compliance with applicable permits and approvals:

- Temporary roadway or lane closures;
- Removal of existing paving, exposing soil to runoff;
- Removal of existing vegetation, including bank-stabilizing roots;
- Construction stormwater runoff;
- Bank erosion and downstream sedimentation;
- Siltation-related effects on downstream fish and wildlife;
- Inadvertent exposure of, or damage to, archaeological artifacts;
- Potential contaminant release from accidental spills or leaks;
- Construction noise;
- Greenhouse gas emissions from equipment and vehicle exhaust; and
- Fugitive dust emissions.

This page intentionally left blank.

10 List of Preparers

Government Preparers

Amanda J. Bennett
Landscape Architect/Cultural Resources Manager, Naval Facilities Engineering Command (NAVFAC) Northwest
M.L.A. Landscape Architecture, University of Washington
B.F.A. Industrial Design, University of Michigan

David Gibson, P.E.
Engineering Project Manager, NAVFAC Northwest
B.S. Civil Engineering, North Carolina State University

David Grant
Archaeologist, NAVFAC Northwest
B.A. Anthropology/Archaeology, University of Washington
M.A. Anthropology/Nautical Archaeology, Texas A&M University

Cindi Kunz
Wildlife Biologist, NAVFAC Northwest
B.S. Wildlife Science, University of Washington
M.S. Wildlife Science, University of Washington

Greg Leicht
Environmental Director, Naval Base Kitsap
B.S. Civil Engineering, Bradley University
Environmental Management Certificate Program, University of Washington

Kimberly Kler
Project Manager, NAVFAC Northwest
B.S. Environmental Policy Analysis and Planning, University of California, Davis

Michael Slater
Noise
B.S. Mechanical Engineering, Washington State University
M. Eng. Acoustics, Pennsylvania State University
M.B.A. Colorado State University

Stephanie Sparks Sleeman
Marine Biologist, NAVFAC Northwest
B.A. Environmental Policy & Planning, Minor, Marine Science, Western Washington University
M.S. Environmental Science, Evergreen State College

Christine Stevenson
NEPA Coordinator, NAVFAC Northwest
B.S. Biology, Grove City College, Pennsylvania
B.S. Meteorology, Texas A&M University

Consultant Team

Cardno

Jennifer Weitkamp
Deputy Project Manager
B.S. Fisheries, University of Washington

11 Literature Cited

cbec. 2013. Hydrodynamic and Sediment Transport Modeling of the NBK Bangor Waterfront - Draft Technical Report. Mitigation Planning Support for P-983 Waterfront Restricted Area Land Water Interface and P-834 Service Pier Extension, Naval Base Kitsap Bangor, Kitsap County, Washington. Prepared by cbec, inc., West Sacramento, CA. Prepared for U.S. Department of the Navy NAVFAC Northwest, Silverdale, WA. February 25, 2013.

CEQ. 2011. Appropriate use of mitigation and monitoring and clarifying the use of Mitigated Findings of No Significant Impact. Memorandum for Heads of Federal Departments and Agencies. Council on Environmental Quality, Nancy H. Sutley, Chair, Washington, DC. January 14, 2011. http://ceq.hss.doe.gov/current_developments/docs/Mitigation_and_Monitoring_Guidance_14Jan2011.pdf.

Chiew, Y.M., and B.W. Melville. 1987. Local scour around bridge piers. *Journal of Hydraulic Research.* 25(1): 15–26.

DOD. 2010. United Facilities Criteria, Low Impact Development. UFC 3-210-10N.

Golder Associates. 2010. Coastal processes analysis for Devil's Hole Mitigation Site, Naval Base Bangor, P977 Project. Technical memorandum. Prepared by Golder Associates, Redmond, WA. Prepared for Otak, Inc., Kirkland, WA. February 23, 2010.

HCCC. 2011. Prospectus Hood Canal Coordinating Council In Lieu Fee Compensatory Mitigation Program. Poulsbo, WA: Program Sponsor: Hood Canal Coordinating Council. July 29, 2011.

HCCC. 2012. Hood Canal Coordinating Council In-Lieu Fee Program Instrument - Final. Poulsbo, WA; with technical assistance from Environmental Science Associates: Hood Canal Coordinating Council. June 15, 2012.

HCCC. 2014. *In Lieu Fee Mitigation Program web page*. Hood Canal Coordinating Council, Poulsbo, WA. http://hccc.wa.gov/In+Lieu+Fee+Mitigation+Program/default.aspx (Accessed March 19, 2014).

HRA. 2013. Cultural resources inventory and evaluation for the United States Naval Base Kitsap-Bangor Land-Water Interface Project, Kitsap County, Washington. Prepared by Historical Research Associates, Seattle, Washington. Prepared for Naval Facilities Engineering Command, Silverdale, WA. March 27, 2013.

Navy. 2012. TRIDENT Support Facilities Explosives Handling Wharf (EHW-2) Final Environmental Impact Statement. Naval Base Kitsap at Bangor, Silverdale, WA. March 2012.

Shannon & Wilson, Inc. 2013. Geotechnical Report - P-834 SSN Service Pier Extension and Ship Support Building, Naval Base at Kitsap Bangor, Silverdale, Washington. Prepared by Shannon & Wilson, Inc., Seattle, WA. Prepared for KPFF Consulting Engineers, Seattle, WA. April 4, 2013.

Sumer, B.M., R.J.S Whitehouse, and A. Torum. 2001. Scour around coastal structures: a summary of recent research. *Coastal Engineering.* 44(2): 153–190.

USACE. 2015. Skokomish River Basin Mason County, Washington Ecosystem Restoration Integrated Feasibility Report and Environmental Impact Statement. http://www.nws.usace.army.mil/Portals/27/docs/civilworks/projects/Skok%20GI/Skokomish-River-Restoration_Final%20Feasibility%20Report-EIS_2015.pdf (Accessed April 12, 2016).

USACE. 2016. Notification of Finalized Feasibility Report and Environmental Impact Statement for the Skokomish River Basin Ecosystem Restoration Project, Record of Decision signed on April 18, 2016. U.S. Army Corps of Engineers, Seattle District. http://www.nws.usace.army.mil/Missions/Civil-Works/Programs-and-Projects/Projects/Skokomish-River-Basin/. (Accessed June 26, 2017).

USACE and USEPA. 2008. Compensatory Mitigation for Losses of Aquatic Resources - Final Rule. Federal Register Volume 73, Number 70, 19594 – 19705. April 10, 2008.

USEPA. 2007. Developing your stormwater pollution prevention plan: A guide for construction sites. EPA 833-R-060-04. U.S. Environmental Protection Agency.

USEPA. 2009. Technical guidance on implementing the stormwater runoff requirements for Federal Projects under section 438 of the Energy Independence and Security Act. EPA 841-B-09-001. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. December 2009. http://www.epa.gov/owow/NPS/lid/section438/pdf/final_sec438_eisa.pdf.

USFWS. 2012. Protocol for Marbled Murrelet Monitoring During Impact Pile Driving (Revised August 13, 2012). U.S. Fish and Wildlife Service Washington Fish and Wildlife Office, Lacey, WA. http://www.fws.gov/wafwo/pdf/MAMUMonProtocol_Aug2012.pdf

USFWS. 2017. Email correspondence to Navy acknowledging that consultation will not need to be reinitiated based on the proposed changes to the project. May 19.

Washington Department of Fish and Wildlife. 2013. Water Crossing Design Guidelines. Olympia, WA. May 9, 2013. http://wdfw.wa.gov/publications/01501/ (Accessed April 21, 2016).

Washington State Department of Transportation. 2016. WSDOT Environmental Manual, M 31-11.14. Ch. 436: Fish, Wildlife, and Vegetation. June 2016. http://www.wsdot.wa.gov/publications/manuals/fulltext/M31-11/436.pdf

WDOE. 2014. Stormwater Management Manual for Western Washington as Amended in December 2014. Publication Number 14-10-055. Washington State Department of Ecology, Water Quality Program, Olympia, WA. December 2014. https://fortress.wa.gov/ecy/publications/documents/1410055.pdf.

Attachment A-1

Marine Mammal Observation Record Form (Sample)

This page is intentionally blank.

Project Name: _____ Monitoring Location_____ Page _____ of _____
(Pier Location, Vessel based, Land Location, other)

Date: _____ Vessel Name: _____ Time Effort Initiated:_____

Time Effort Completed:_____

Sighting Data

Event Code	Sighting Number (1 or 1.1 if resight)	Time/Duration watching sighting (Start/End time if continuous)	WP # (every time a sighting is made)	Observer	Sighting cue	Species	Dist/ Dir to Animal (from Observer)	Dist to Pile (btwn animal & pile)	# of Animals Group Size (min/max/best) # of Calves	Relative Motion/and Behavior Code (see code sheet)	Const Type During Sighting	Mitigation used during sighting?	Mitigation Type?	Visibility	% Glare	Weath Cond	Sea State and Wave Ht	Swell Dir	Behavior Change/ Response to Activity/Comments
		: : : :					m or km °	m or km	/ / ___ calves	opening closing parallel none Behavior Code: _____	PRE POST SSV SSI V I PC DP ST NONE	Y N	DE SD	B P M G E			Light Mod Heavy	N or S W or E	
		: : : :					m or km °	m or km	/ / ___ calves	opening closing parallel none Behavior Code: _____	PRE POST SSV SSI V I PC DP ST NONE	Y N	DE SD	B P M G E			Light Mod Heavy	N or S W or E	
		: : : :					m or km °	m or km	/ / ___ calves	opening closing parallel none Behavior Code: _____	PRE POST SSV SSI V I PC DP ST NONE	Y N	DE SD	B P M G E			Light Mod Heavy	N or S W or E	
		: : : :					m or km °	m or km	/ / ___ calves	opening closing parallel none Behavior Code: _____	PRE POST SSV SSI V I PC DP ST NONE	Y N	DE SD	B P M G E			Light Mod Heavy	N or S W or E	
		: : : :					m or km °	m or km	/ / ___ calves	opening closing parallel none Behavior Code: _____	PRE POST SSV SSI V I PC DP ST NONE	Y N	DE SD	B P M G E			Light Mod Heavy	N or S W or E	
		: : : :					m or km °	m or km	/ / ___ calves	opening closing parallel none Behavior Code: _____	PRE POST SSV SSI V I PC DP ST NONE	Y N	DE SD	B P M G E			Light Mod Heavy	N or S W or E	
		: : : :					m or km °	m or km	/ / ___ calves	opening closing parallel none Behavior Code: _____	PRE POST SSV SSI V I PC DP ST NONE	Y N	DE SD	B P M G E				N or S W or E	

Sighting #=chronological number of sightings, if resight of same animal, then 1.1, 1.2, etc. WP (Waypoint)=GPS recording of lat/long, time/date stamp. Critical for vessel observers.

Sighting Form last revised October 10, 2012. POC-DoN, NAVFAC NW, Balla-Holden

Sighting Codes
(Sighting Cue & Behavior Codes)

Behavior codes

Code	Behavior	Definition
BR	Breaching	Leaps clear of water
CD	Change Direction	Suddenly changes direction of travel
CH	Chuff	Makes loud, forceful exhalation of air at surface
DI	Dive	Forward dives below surface
DE	Dead	Shows decomposition or is confirmed as dead by investigation
DS	Disorientation	An individual displaying multiple behaviors that have no clear direction or purpose
FI	Fight	Agonistic interactions between two or more individuals
FO	Foraging	Confirmed by food seen in mouth
MI	Milling	Moving slowly at surface, changing direction often, not moving in any particular direction
PL	Play	Behavior that does not seem to be directed towards a particular goal; may involve one, two or more individuals
PO	Porpoising	Moving rapidly with body breaking surface of water
SL	Slap	Vigorously slaps surface of water with body, flippers, tail etc.
SP	Spyhopping	Rises vertically in the water to "look" above the water
SW	Swimming	General progress in a direction. Note general direction of travel when last seen [Example: "SW (N)" for swimming north]
TR	Traveling	Traveling in an obvious direction. Note direction of travel when last seen [Example: "TR (N)" for traveling north]
UN	Unknown	Behavior of animal undetermined, does not fit into another behavior
Pinniped only		
EW	Enter Water (from haul out)	Enters water from a haul-out for no obvious reason
FL	Flush (from haul out)	Enters water in response to disturbance
HO	Haul out (from water)	Hauls out on land
RE	Resting	Resting onshore or on surface of water
LO	Look	Is upright in water "looking" in several directions or at a single focus
SI	Sink	Sinks out of sight below surface without obvious effort (usually from an upright position)
VO	Vocalizing	Animal emits barks, squeals, etc.
Cetacean only		
LG	Logging	Resting on surface of water with no obvious signs of movement

Sighting Form last revised October 10, 2012. POC-DoN, NAVFAC NW, Balla-Holden

Marine Mammal Species

Code	Marine Mammal Species
CASL	California Sea Lion
HSEA	Harbor Seal
STSL	Steller Sea Lion
HPOR	Harbor Porpoise
DPOR	Dall's Porpoise
ORCA	Killer Whale
HUMP	Humpback Whale
UNLW	Unknown Large Whale
OTHR	Other
UNKW	Unknown

Construction Type

Code	Activity Type
SSV	Soft Start (Vibratory)
SSI	Soft Start (Impact)
V	Vibratory Pile Driving (installation and extraction)
I	Impact Pile Driving
PC	Pneumatic Chipping
DP	Dead pull
ST	Stabbing
NONE	No Pile Driving
OTH	Other

Event

Code	Activity Type
E ON	Effort On
E OFF	Effort Off
PRE	Pre Watch
POST	Post Watch
SSV	Soft start-vibratory
SSI	Soft start-impact
WC	Weather Condition/Change
S	Sighting
M-DE	Mitigation Delay
M-SD	Mitigation Shutdown

Mitigation Codes

Code	Activity Type
DE	Delay onset of Pile Driving
SD	Shut down Pile Driving

Sighting Form last revised October 10, 2012. POC-DoN, NAVFAC NW, Balla-Holden

Visibility

Code	Distance Visible
B	Bad (<0.5km)
P	Poor (0.5 – 1.5km)
M	Moderate (1.5 – 10km)
G	Good (10 - 15km)
E	Excellent (>15km)

Glare

Percent glare should be the total glare of observers' area of responsibility. Determine if observer coverage is covering 90 degrees or 180 degrees and document daily. Then assess total glare for that area. This will provide needed information on what percentage of the field of view was poor due to glare.

Weather Conditions

Code	Weather Condition
S	Sunny
PC	Partly Cloudy
L	Light Rain
R	Steady Rain
F	Fog
OC	Overcast

Sea State and Wave Height

Use Beaufort Sea State Scale for Sea State Code. This refers to the surface layer and whether it is glassy in appearance or full of white caps. In the open ocean, it also takes into account the wave height or swell, but in inland waters the wave height (swells) may never reach the levels that correspond to the correct surface white cap number. Therefore, include wave height for clarity.

Code	Wave Height
Light	0 – 3 ft
Moderate	4 – 6 ft
Heavy	>6 ft

Swell Direction

Swell direction should be where the swell is coming from (S for coming from the south). If possible, record direction relative to fixed location (pier). Choose this location at beginning of monitoring project.

Sighting Form last revised October 10, 2012. POC-DoN, NAVFAC NW, Balla-Holden

Attachment A-2

Seabird Monitoring Data Collection Form (Sample)

This page is intentionally blank.

Seabird Monitoring Data Collection Form

Project Name _____ Monitoring Site/Transect ID _____ Date _____

Observers _____

Activity _____ Time and Duration _____

Time	Species	# of birds	Wind speed (Beaufort Marine Scale)	Land Observer Grid Location	Boat Observer Distance	Boat Observer Land/Sea Ward	Observed Behavior*	Comments

*R=resting, F=feeding/diving, P=preening, Y= flushing, T=transiting, N=nesting, O=other

This page is intentionally blank.

Attachment A-3

Seabird Monitoring Site/Transects Identification Form (Sample)

This page is intentionally blank.

Seabird Monitoring Site/Transect Identification Form (Sample)

Seabird Monitoring Site/Transect Identification Form

Project Name

Dolphin repair

Monitoring Dates

November 8, 9, 10, 2012

Number of Monitoring Sites/Transects

4

Insert aerial photo of entire monitoring project area. Identify each monitoring site/station reflecting 50 meter zones for each observer. For example, if there are two observers on a boat transect, the box will be 100 meters wide. Some monitoring stations will overlap and should be indicated here.

This page is intentionally blank.

Attachment B

Beaufort Wind Scale

This page is intentionally blank.

Table 1 – Beaufort Wind Scale develop in 1805 by Sir Francis Beaufort of England

(0 = calm to 12 = hurricane)

Force	Wind (knots)	Classification	Appearance of wind effects on the water	Appearance of wind effects on land	Notes specific to on-water seabird observations
0	<1	Calm	Sea surface smooth and mirror like	Calm, smoke rises vertically	Excellent conditions, no wind, small or very smooth swell. You have the impression you could see anything.
1	1-3	Light air	Scaly ripples, no foam crests	Smoke drift indicates wind direction, still wind vanes	Very good conditions, surface could be glassy (Beaufort 0), but with some lumpy swell or reflection from forests, glare, etc.
2	4-6	Light breeze	Small wavelets, crests glassy, no breaking	Wind felt on face, leaves rustle, vanes begin to move	Good conditions, no whitecaps, texture/lighting contrast of water make murrelets hard to see. Surface could also be glassy or have small ripples, but with a short, lumpy swell, thick fog, etc.
3	7-10	Gentle breeze	Large wavelets, crests beginning to break, scattered whitecaps	Leaves and small twigs constantly moving, light flags extended	Surveys cease, scattered whitecaps present, detection of murrelets definitely compromised, a hit-or-miss chance of seeing them owing to water choppiness and high contrast. This could also occur at lesser wind with a very short wavelength, choppy swell.
4	11-16	Moderate breeze	Small waves 0.3 to 1.1m becoming longer, numerous whitecaps	Dust, leaves, and loose paper lifted, small tree branches move	
5	17-21	Fresh breeze	Moderate waves 1.1 to 2.0 m taking longer form, many whitecaps, some spray	Small trees begin to sway	

This page is intentionally blank.

Attachment C

Chain of Custody Record Form

This page is intentionally blank.

Chain of Custody Record

Date and Time of Collection:	Duty Station:	Collection By:		
Source of Specimen (Person and/or Location) Found At:	Project Name:			
Item No:	Description of Specimen (include Species and Tag Number):			
Item No:	From: (Print Name, Agency)	Release Signature:	Release Date:	Delivered via: FEDEX U.S. Mail In Person Other:
	To: (Print Name, Agency)	Receipt Signature:	Receipt Date:	
	To: (Print Name, Agency)	Receipt Signature:	Receipt Date:	
Item No:	From: (Print Name, Agency)	Release Signature:	Release Date:	Delivered via: FEDEX U.S. Mail In Person Other:
	To: (Print Name, Agency)	Receipt Signature:	Receipt Date:	

This page is intentionally blank.

Appendix C
Agency Correspondence

This page intentionally left blank.

DEPARTMENT OF THE NAVY
NAVAL BASE KITSAP
120 SOUTH DEWEY STREET
BREMERTON, WA 98314-5020

5090
Ser PRB4/ 00011
6 JUN 2017

Mr. Barry Thom, Regional Administrator
National Marine Fisheries Service, West Coast Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, Washington 98115

Dear Mr. Thom:

SUBJECT: SECTION 7 INFORMAL CONSULTATION FOR SERVICE PIER EXTENSION PROJECT AT NAVAL BASE KITSAP BANGOR, SILVERDALE, WA

The United States Navy proposes to implement a Service Pier Extension project at Naval Base Kitsap Bangor, Washington, to provide additional berthing for maintenance of existing homeported and visiting submarines. The Service Pier Extension project also includes construction and operation of associated upland facilities to provide logistical support. Construction of the project will begin in 2018. This project was submitted for Endangered Species Act consultation with your agency in 2015 (WCR-2015-2308); however, consultation was deferred pending the availability of funding for project implementation. A new biological assessment (enclosure) has been prepared to address changes to the project and updated species information.

A review of federally listed species under the jurisdiction of the National Marine Fisheries Service (NMFS) indicates the following species potentially occur within the Action Area:

Puget Sound Evolutionarily Significant Unit (ESU) Chinook (Oncorhynchus tshawytscha);
Hood Canal summer-run ESU chum (O. keta);
Puget Sound Distinct Population Segment (DPS) steelhead (O. mykiss);
Puget Sound/Georgia Basin DPS of bocaccio (Sebastes paucispinis);
Puget Sound/Georgia Basin DPS of yelloweye rockfish (Sebastes ruberrimus);
Mexico DPS humpback whale (Megaptera novaeangliae); and
Central America DPS humpback whale.

Critical habitat is also designated in the project's Action area for Puget Sound ESU Chinook salmon, Hood Canal summer-run ESU chum salmon, and Puget Sound/Georgia Basin DPSs of bocaccio and yelloweye rockfish.

The Navy analyzed potential impacts of the proposed project to federally listed species and designated critical habitats potentially present. Based on the Navy's analyses, the Navy concluded the project may affect, but is not likely to adversely affect Puget Sound Chinook salmon and designated critical habitat; Hood Canal summer-run chum salmon and designated critical habitat; Puget Sound steelhead; Puget Sound/Georgia Basin bocaccio and yelloweye rockfish and designated critical habitats; and the Mexico and Central America DPSs of humpback whale. In compliance with the Magnuson-Stevens Fishery Conservation and Management Act, Essential Fish Habitats were assessed for the Proposed Action. The Navy concluded the Proposed Action may adversely affect Pacific groundfish, Pacific coast salmon, and coastal pelagic Essential Fish Habitats.

Enclosed is a biological assessment that documents our analyses. The Navy requests your concurrence with these conclusions. If you have questions about this project or need additional clarification, please contact Ms. Sharon Rainsberry. She can be reached at (360) 315-2812 or sharon.rainsberry@navy.mil.

Sincerely,

G. B. LEICHT
By Direction

Enclosure: 1. Biological Assessment and Essential Fish Habitat Assessment

Copy to:
Mr. Benjamin Laws, National Marine Fisheries Service

From: Muck, Jim
To: Rainsberry, Sharon A CIV NAVFAC NW, EV22
Cc: Kler, Kimberly H CIV NAVFAC NW, EV21; Leicht, Greg B CIV NAVFAC NW, PRB4
Subject: [Non-DoD Source] Re: Information Update for Naval Base Kitsap Bangor's Service Pier Extension Project - 01EWFW00-2015-I-0412
Date: Friday, May 19, 2017 10:12:51

Sharon,

Thank you for the email with your proposed changes to the Service Pier Extension Project. You state that you will not be reinitiating consultation on the proposed changes. Therefore, I will make this email part of the project file.

Please let me know if you have questions.

Jim

Jim Muck
U.S. Fish and Wildlife Service
510 Desmond Dr. SE, Suite 102
Lacey, WA 98503
(360) 753-9586

On Wed, May 3, 2017 at 10:21 AM, Rainsberry, Sharon A CIV NAVFAC NW, EV22 <sharon.rainsberry@navy.mil> wrote:

Good Morning Jim,

The Service Pier Extension Project involves construction of an extension to the existing Service Pier to provide additional berthing capacity and improves associated support facilities for existing homeported and visiting submarines at Naval Base Kitsap Bangor. Informal Section 7 consultation was completed with your agency and documented in a letter of concurrence for this project and the Land-Water Interface Project on March 4, 2016 (Ref #01EWFW00-2015-I-0412). The letter provided your concurrence that the projects, "may affect, but is not likely to adversely affect" bull trout (Salvelinus confluentus) and marbled murrelet (Brachyramphus marmoratus). The Service Pier Extension Project was subsequently delayed pending funding. Program funding was authorized in late 2016 and the Navy is preparing a Supplemental Environmental Impact Statement to address design changes to the SPE Proposed Action and to evaluate new regulatory guidance for marine mammals that became available since the 2016 Final Environmental Impact Statement. The project is now scheduled to begin construction in July 2018.

The design changes to the SPE project from the 2015 design are listed below:

- The width of the Service Pier extension will be reduced by 2 feet, resulting in a reduction in overwater coverage of 7,228 square feet.
- The total number of permanent steel piles installed will be reduced from 280 to 253.
- 27 temporary steel false-work piles will be installed and removed.
- 4 acres of upland habitat within the existing disturbance footprint will remain a gravel-covered storage/laydown area and will not be re-vegetated.

In addition to the design changes, an above-canopy visual detection of one marbled murrelet in flight was recorded May 12, 2016, over the upland construction area. This detection occurred during one of 5 marbled murrelet protocol surveys, which were conducted May 12 through July 6, 2016. Due to the height at which the detection occurred, it was not considered "occupied behavior". The four additional protocol surveys were not completed during the 2016 survey season, so the results are inconclusive.

Based on the changes to design listed above, and the one, inconclusive, above-canopy visual murrelet detection, we do not believe 1) the new information reveals effects of the action that may affect listed species or critical habitat under your jurisdiction in a manner, or to an extent, not considered in the consultation, or 2) the changes cause an effect to a listed species or critical habitat that was not considered in the consultation. In addition, no new species have been listed or new critical habitat designated that may be affected by this project. Therefore, we are providing this information for your awareness and are not planning to reinitiate consultation.

If you have any questions about this project, please contact me at (360) 315-2812 or email sharon.rainsberry@navy.mil.

Thank you,

Sharon Rainsberry
360-315-2812

From: Bennett, Matthew J CIV USARMY CENWS (US)
To: Goodman, Layna A CIV NAVFAC NW, OP3E21
Cc: Leicht, Greg B CIV NAVFAC NW, PRB4; Burt, Amy E CIV NAVFAC NW, OP3E21; Kler, Kimberly H CIV NAVFAC NW, EV21; Hooper, Brian D CIV USARMY CENWS (US)
Subject: RE: Cooperating Agency for Navy"s Service Pier Extension
Date: Friday, January 20, 2017 13:19:38

Hi Layna,
I concur w/ your statement below. The Navy does not need to prepare another cooperating agency letter for the Navy's Service Pier Extension. We look forward to continued NEPA Cooperating Agency coordination on the project. Thank you.

Matthew J. Bennett, Section Chief
Corps of Engineers Regulatory Branch
206.764.3428
matthew.j.bennett@usace.army.mil

-----Original Message-----
From: Goodman, Layna A CIV NAVFAC NW, OP3E21 [mailto:layna.goodman@navy.mil]

Sent: Thursday, January 19, 2017 4:56 PM
To: Bennett, Matthew J CIV USARMY CENWS (US) <Matthew.J.Bennett@usace.army.mil>
Cc: Leicht, Greg B CIV NAVFAC NW, PRB4 <gregory.leicht@navy.mil>; Burt, Amy E CIV NAVFAC NW, OP3E21 <amy.burt@navy.mil>; Kler, Kimberly H CIV NAVFAC NW, EV21 <kimberly.kler@navy.mil>; Hooper, Brian D CIV USARMY CENWS (US) <Brian.D.Hooper@usace.army.mil>
Subject: Cooperating Agency for Navy's Service Pier Extension

Hello Matt,

Thank you for responding to my question of whether a new Cooperating Agency letter for the Navy's preparation of a supplement to the Service Pier Extension/ Land Water Interface (LWI/SPE) Environmental Impact Statement (EIS) would be needed.

From your voicemail, I understand the cooperating agency relationship that was established for the LWI/SPE EIS remains intact for the supplemental EIS, and no new letter is needed.

Could you please confirm my understanding is correct?

We look forward to working with you and your team on the next phase of this project.

Sincerely,

Layna

Layna A. Goodman, P.G.
Environmental Planning and Conservation Manager (EV2)
NAVFAC NW/ Navy Region Northwest
1101 Tautog Circle
Silverdale, WA 98312
(360) 396-0092

This email, including any attachments, is FOR OFFICIAL USE ONLY, and also may contain pre-decisional or privacy sensitive information that requires protection from unauthorized disclosure. Do not disseminate this email, or its contents, to anyone who does not have an official need for access.

DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, DC 20350-2000

5090
Ser N45/17U132351
February 09, 2017

Ms. Donna S. Wieting
Director, Office of Protected Resources
National Marine Fisheries Service
1315 East West Highway
Silver Springs, MD 20910

Dear Ms. Wieting:

SUBJECT: COOPERATING AGENCY REQUEST FOR THE LAND-WATER INTERFACE (LWI) AND SERVICE PIER EXTENSION (SPE) SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (EIS)

In accordance with the National Environmental Policy Act (NEPA), the Department of the Navy (Navy) is initiating the preparation of a Supplemental EIS to the July 2016 Final EIS for LWI and SPE, Naval Base (NAVBASE) Kitsap Bangor, WA, and is requesting that the National Marine Fisheries Service (NMFS) serve as a cooperating agency. The Final EIS for LWI and SPE resulted in a Record of Decision (ROD) that was signed on September 8, 2016 for the LWI project only. The Supplemental EIS will address the SPE project only and will evaluate resources based upon changes in design and new information. The Navy is projecting a ROD by April 2018.

The SPE proposed action is to extend the existing Service Pier and construct associated support facilities. The purpose is to provide additional berthing capacity and improve associated support facilities for existing homeported and visiting submarines at NAVBASE Kitsap Bangor. The SPE project is needed to:

- Provide alternative opportunities for berthing to mitigate restrictions at NAVBASE Kitsap Bremerton, WA, on navigating SEAWOLF Class submarines through Rich Passage under certain tidal conditions;
- Improve long-term operational effectiveness for the three SEAWOLF Class submarines on NAVBASE Kitsap;
- Provide berthing and logistical support for SEAWOLF, LOS ANGELES, and VIRGINIA submarine classes at the Navy's research, development, test, and evaluation hub for Navy submarines, which is currently located on NAVBASE Kitsap Bangor; and
- Improve submarine crew training and readiness through co-location of command functions at NAVBASE Kitsap Bangor submarine training center. Currently, personnel are required to travel from Pier D on NAVBASE Kitsap Bremerton to NAVBASE Kitsap Bangor for training and maintenance as well as command functions.

5090
Ser N45/17U132351
February 09, 2017

Project construction is anticipated to occur from July 2018 through February 2020. Construction in the water is planned for July through February of each year, beginning in July 2018 and concluding in February 2020.

In accordance with the Council on Environmental Quality's regulations implementing NEPA (40 CFR § 1501.6), Navy respectfully requests that NMFS serve as a cooperating agency in the development of this Supplemental EIS based on NMFS's jurisdiction by law under the Marine Mammal Protection Act and Endangered Species Act and its special expertise with respect to impacts to marine mammals.

As the lead agency, the Navy will be responsible for overseeing preparation of the Supplemental EIS that includes, but is not limited to, the following:

- Gathering all necessary background information, including the most up-to-date scientific research and preparing the Supplemental EIS and all necessary permit applications associated with the proposed action;
- Working with NMFS personnel to determine the method of estimating potential effects to protected marine species, including threatened and endangered species;
- Determining the scope of the Supplemental EIS, including the alternatives evaluated;
- Circulating the NEPA document with the general public, including any other interested parties;
- Scheduling and supervising meetings held in support of the NEPA process and compiling any comments received from the public; and
- Maintaining an administrative record and responding to any Freedom of Information Act (FOIA) requests relating to the Supplemental EIS.

The Navy respectfully requests that NMFS, in its role as cooperating agency, provide support as follows:

- Providing timely comments on working drafts of the Supplemental EIS documents in accordance with approved project schedules and commenting protocols;
- Adhering to the overall schedule as set forth by the Navy in coordination with NMFS;
- Responding to Navy requests for information, in particular related to review of the acoustic effects analysis and evaluation of the effectiveness of protection and mitigation measures;
- Participating, as necessary, in public engagement hosted by the Navy for discussion of issues related to the Supplemental EIS, including public meetings, if conducted;
- Maintaining an administrative record and responding to any FOIA requests relating to the Supplemental EIS; and
- Providing a formal, written response to this request.

2

5090
Ser N45/17U132351
February 09, 2017

The Navy views NMFS' participation as an important element to the successful completion of the environmental planning process of the Supplemental EIS.

The point of contact for this action is Ms. Gloria Kupstas, (703) 695-5213, email: gloria.kupstas@navy.mil.

Sincerely,

S. T. GOODFELLOW
Deputy Director,
Energy and Environmental
Readiness Division (OPNAV N45)

Enclosure: 1. Notional schedule for LWI and SPE Supplemental EIS.

Copy to:
ASN (EI&E)
DASN (E)
OAGC (EI&E)
OPNAV (N97)
COMPACFLT (N465)
COMFLTFORCOM (N465)
CNIC WASHINGTON DC
NAVFAC WASHINGTON DC
CNRNW
NAVFACNW
COMNAVBASE Kitsap Bangor

3

DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

REPLY TO
ATTENTION OF

JUL 2 6 2013

Regulatory Branch

Captain Peter M. Dawson
Naval Base Kitsap
120 South Dewey Street
Bremerton, Washington 98314-5020

Reference: NWS-2013-243
U.S. Navy – Bangor
(Land Water Interface)

NWS-2013-244
U.S. Navy – Bangor
(Service Pier Extension)

Dear Captain Dawson:

The U.S. Army Corps of Engineers (Corps), Seattle District, Regulatory Branch, agrees to participate as a cooperating agency in the preparation of the Environmental Impact Statement (EIS) for the proposed Land-Water Interface project and Service Pier Extension project at Naval Base Kitsap – Bangor. The Land-Water Interface and Service Pier Extension are not connected projects, but are related due to their proximity, anticipated timing of construction, and potential to affect similar environmental resources. Therefore, both proposals are being analyzed in one EIS. Since these projects have independent utility, the Corps will process each permit application for a separate Department of the Army permit. We ask that you send two copies of documents so that a copy could be placed in each permit application's respective administrative record.

After an application is received from you, the Corps would likely process it as an Individual Permit under Section 10 of the Rivers and Harbors Act of 1899. If either action would result in a discharge of dredged or fill material within the mean higher high water line, the action would also be processed under Section 404 of the Clean Water Act. We will incorporate certain parts of the EIS by reference in our application review process.

As a cooperating agency, the Corps would support the Navy by:

a. Attending public scoping meetings.

b. Providing timely comments during the scoping period and timely review and comments on working drafts of the Environmental Impact Sttatement documents.

c. Assisting the Navy in determining appropriate avoidance, minimization, and/or mitigation measures to incorporate into the proposed action.

d. Responding to Navy requests for information in a timely manner.

e. Participating, as necessary, in meetings hosted by the Navy to discuss issues related to waters of the U.S.

f. Adhering to the overall schedule set by the Navy.

A copy of this letter will be furnished to Mr. Gregory Leicht, Naval Base Kitsap, 7001 Finback Circle, Room E-300, Silverdale, Washington 98315 and Mr. Thomas Dildine, Naval Facilities Engineering Command Northwest, 1101 Tautog Circle, Silverdale, Washington 98315. Ms. Karen Urelius, Project Manager, will be the Corps' point of contact for this project. You can reach her at (206) 764-3482, or via email at karen.m.urelius@usace.army.mil.

Sincerely,

for Bruce A. Estok
Colonel, Corps of Engineers
District Engineer

This page intentionally left blank.