Draft
Environmental Assessment for Homeporting USS John F. Kennedy (CVN 79) At Naval Base Kitsap-Bremerton, Washington

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March 2025

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DRAFT

ENVIRONMENTAL ASSESSMENT

For

Homeporting USS John F. Kennedy (CVN 79)

At

Naval Base Kitsap-Bremerton, Washington

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Abstract

Designation:	Environmental Assessment
Title of Proposed Action:	Homeporting USS John F. Kennedy (CVN 79)
Project Location:	Naval Base Kitsap-Bremerton, Washington
Lead Agency for the EA:	Department of the Navy
Affected Region:	Kitsap County, Washington
Action Proponent:	United States Fleet Forces Command, Department of the Navy
Point of Contact:	Environmental Planning (EV22SM) Naval Facilities Engineering Systems Command Atlantic 6506 Hampton Boulevard Norfolk, VA 23508
Date:	March 2025

United States (U.S.) Fleet Forces Command, a Command of the U.S. Navy (hereinafter, jointly referred to as the Navy), has prepared this Environmental Assessment in accordance with the National Environmental Policy Act, as implemented by Council on Environmental Quality regulations and Navy regulations. The United States Navy proposes to replace the older Nimitz-class aircraft carrier at Naval Base Kitsap-Bremerton (NAVBASE Kitsap-Bremerton) with a newer Ford-class aircraft carrier - USS John F. Kennedy (CVN 79). The Proposed Action includes the permanent assignment of CVN 79 to NAVBASE Kitsap-Bremerton and includes necessary infrastructure improvements to support the homeporting, specifically upgrades to the electrical distribution system. Upgrades to portions of the electrical distribution system to increase power supply would begin in 2026. CVN 79 will replace one already existing Nimitz-class aircraft carrier currently homeported at NAVBASE Kitsap-Bremerton and its crew. CVN 79 would arrive no earlier than fiscal year (FY) 2029, with approximately 2,800 military personnel, plus their family members.

This Environmental Assessment evaluates the potential environmental impacts associated with the Proposed Action and the No Action Alternative to the following resource areas: air quality, water resources, biological resources, infrastructure, noise, cultural resources, American Indian traditional resources, hazardous materials and waste, and cumulative impacts.

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Executive Summary

The United States Navy proposes to replace the older Nimitz-class aircraft carrier at Naval Base Kitsap-Bremerton (NAVBASE Kitsap-Bremerton) with a newer Ford-class aircraft carrier - USS John F. Kennedy (CVN 79). The Proposed Action includes the permanent assignment of CVN 79 and personnel to NAVBASE Kitsap-Bremerton and includes necessary infrastructure improvements to support the homeporting, specifically upgrades to the electrical distribution system.

ES.1 Description of the Proposed Action

The purpose of the Proposed Action is to replace the older Nimitz-class aircraft carrier at NAVBASE Kitsap-Bremerton with the next generation Ford-class aircraft carrier CVN 79 to sustain the Navy's current aircraft carrier presence on the West Coast and in the Pacific Fleet and support a more capable and lethal forward-deployed U.S. naval presence. The Proposed Action includes upgrades to the electrical distribution system and a decrease of approximately 340 personnel, plus their family members, as Ford-class aircraft carriers require a smaller crew than Nimitz-class aircraft carriers. Upgrades to the electrical distribution system include the demolition and replacement of an existing electrical substation, construction of a new electrical substation, and upgrading transformers and switch gears of two electrical substations to increase power supply levels at the pier used for carrier homeporting.

There will be no in-water construction work under the Proposed Action. To stabilize the new electrical substation, approximately 60 micro-piles will be installed on-land at a depth no greater than 90 feet using duplex drilling methods. Upgrades to the electrical distribution system would begin in early 2026 with the construction of the new electrical substation expected to begin in the summer of 2026. The Nimitz-class aircraft carrier would depart NAVBASE Kitsap-Bremerton in fiscal year (FY) 2029 ahead of the arrival of CVN 79.

ES.2 Alternatives Considered

Several alternatives were considered in this Environmental Assessment to fulfill the purpose and need for the Proposed Action. These alternatives were evaluated based on the following screening factors: 1) Ensure uninterrupted maritime operations of CVN 79 to support execution of the National Defense Strategy, 2) Support the existing required power supply requirements or have the capability to add for CVN 79 use by FY 2029, 3) Make effective and efficient use of existing infrastructure, 4) Preserve and optimize operational readiness and efficiencies, including proximity to storage of ammunition/explosives with necessary capacity and existing maintenance capabilities in proximity to ship berthing space, 5) Located on the West Coast of the United States to follow strategic guidance, and 6) Permit the one-to-one replacement of an existing Nimitz-class aircraft carrier for one Ford-class aircraft carrier, CVN 79.

Based on the screening factors listed above, only one action alternative, the Proposed Action, was identified as meeting the purpose and need for the project. Therefore, the Proposed Action is the only action alternative carried forward for analysis in this Environmental Assessment (EA). The Proposed Action involves providing facilities and functions to support the new Ford-class aircraft carrier USS John F. Kennedy (CVN 79). In the Proposed Action, upgrades to the electrical distribution system are required to increase power supply to levels sufficient for Ford-class aircraft carriers. Electrical distribution system upgrades include the demolition and replacement of an existing electrical substation, construction of a

new electrical substation, and upgrading transformers and switch gears of two existing electrical substations.

Under the No Action Alternative, the Navy would not homeport CVN 79 at NAVBASE Kitsap-Bremerton or provide facilities and functions to support the new Ford-class aircraft carrier USS John F. Kennedy at NAVBASE Kitsap-Bremerton. Infrastructure upgrades to the electrical distribution system would not occur and personnel associated with CVN 79 homeporting would not relocate to NAVBASE Kitsap-Bremerton. The No Action Alternative does not meet the purpose and need for the project; however, the No Action Alternative is carried forward for analysis in this EA to establish a comparative baseline for analysis.

The Navy considered various alternatives in the early planning of this project. However, the following alternatives were dismissed and not carried forward for analysis in this EA. The Navy considered replacing transformers at NAVBASE Kitsap-Bremerton to support homeporting CVN 79. However, this alternative was dismissed as transformer replacement alone would not meet power supply requirements. Ship berth space at a deep-water port with adequate power supply for Ford-class aircraft carriers would not be available by the expected delivery of CVN 79 in FY 2029. The Navy also considered leasing power facilities outside of NAVBASE Kitsap-Bremerton to increase power supply and meet homeporting requirements for Ford-class aircraft carriers. This alternative was ultimately dismissed as there is not a currently existing power facility capable of providing the necessary power requirements to homeport CVN 79. Furthermore, this alternative does not ensure the uninterrupted maritime operations of large surface combatants in support of the National Defense Strategy. Lastly, the Navy considered homeporting CVN 79 at other West Coast Navy installations other than NAVBASE Kitsap-Bremerton. As CVN 79 needs to directly replace one presently homeported Nimitz-class aircraft carrier, the Navy assessed homeporting CVN 79 at Naval Air Station North Island (NASNI) and Naval Station Everett (NAVSTA Everett). NASNI was dismissed from further evaluation as it would not ensure uninterrupted maritime operations of large surface combatants in support of the National Defense Strategy. Currently, NASNI has three deep-water berths, which are all occupied. Homeporting CVN 79 at NASNI would require the relocation of other assets, which would result in additional costs and disrupt current operations. Furthermore, there is no available shoreline to construct an additional ship berth for CVN 79. Homeporting CVN 79 at NASNI would not preserve and optimize operational readiness or efficiencies and would not make effective and efficient use of existing infrastructure. NAVSTA Everett was dismissed from further evaluation as it would not ensure uninterrupted maritime operations of large surface combatants in support of the National Defense Strategy. NAVSTA Everett does not have appropriate nuclear maintenance facilities to support Ford-class aircraft carriers. The nuclear maintenance facility nearest to NAVSTA Everett is in Bremerton, Washington, and would require sailors to commute 3-4 hours each day throughout the duration of maintenance activities. This commute would lead to reduced morale, mental acuity, and quality of life for crew members of CVN 79. Therefore, homeporting CVN 79 at NAVSTA Everett was dismissed for further analysis in this EA.

ES.3 Summary of Environmental Resources Evaluated in the Environmental Assessment

The Council on Environmental Quality (CEQ), NEPA, and Navy instruction for implementing NEPA specify that an EA should address those resource areas potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of environmental impact. The following resources have been addressed in this EA: air quality, water resources, biological resources, infrastructure, noise, cultural resources, American Indian traditional resources, and hazardous materials and waste. Since potential impacts were negligible or nonexistent, the following resources were not

evaluated in this EA: public health and safety, land use, geological resources, visual resources, transportation, and socioeconomics.

ES.4 Summary of Potential Environmental Consequences of the Proposed Action

Potential impacts to resources at NAVBASE Kitsap-Bremerton are summarized in Table ES-1. The analysis contained in this EA has determined the Proposed Action and No Action Alternative would not result in significant environmental impacts. Therefore, no major mitigation actions are needed. Impact avoidance and minimization measures to be implemented are summarized in Table 3.9-2 of this EA.

ES.5 Public Involvement

The Navy is soliciting public and agency comments on the Draft EA during a comment period from March 7, 2025 through April 5, 2025. A public meeting is being held on March 18, 2025, at the Marvin Williams Recreation Center in Bremerton, Washington. Comments received during the comment period will be considered in the Final EA.

Table ES-1 Summary of Potential Impacts to Resource Areas

Resource Area	*No Action Alternative*	*Proposed Action*
Air Quality	No Impact	Temporary increases in emissions are expected during construction activities associated with electrical distribution system upgrades. If CVN 79 arrives before construction is completed, Mobile Utility Support Equipment would be used to provide temporary utility support and would not increase emissions. However, transportation emissions are expected to decrease from a reduction in personnel associated with homeporting CVN 79. The Proposed Action is not expected to cause a violation of the NAAQS or increase health risks to the public, and GHG emission increases are not likely to detract from achieving DoD and Federal GHG goals. Therefore, impacts to air quality under the Proposed Action would be minor and temporary during construction activities. No significant air quality impacts.
Water Resources	No Impact	Impacts to water resources during construction activities and operations would not be significant with implementation of appropriate stormwater infrastructure, flood risk management measures, best management practices (BMPs), and compliance with permit conditions. The Proposed Action does not include any in-water work. No significant water resources impacts.
Biological Resources	No Impact	Activities associated with the Proposed Action would create localized and temporary noise and visual disturbance but would be roughly commensurate with the industrial nature and existing levels at NAVBASE Kitsap-Bremerton. There would be no effect to Endangered Species Act (ESA) listed species, proposed ESA-listed species, or designated critical habitat and no adverse effect to EFH, as defined under MSA. There would be no takes of migratory birds, bald eagles, or marine mammals as defined by the MBTA, Bald and Golden Eagle Protection Act, and MMPA, respectively. No significant impact to biological resources.
Infrastructure	No Impact	Temporary increases in the demand for potable water and wastewater flow are expected under the Proposed Action from an influx of approximately 50 construction workers during construction activities. However, these increases are temporary. The demand for potable water and wastewater flow is expected to decrease compared to current conditions once construction activities are completed due to a decrease in personnel. Upgrading the electrical distribution system would result in temporary impacts to electrical power at NAVBASE Kitsap-Bremerton. During construction, temporary service interruptions are expected at the installation. The Navy would coordinate with Puget Sound Energy to communicate future electrical service demand loads once the design process is completed. No long-term impacts to infrastructure are expected and all minor impacts would be temporary. No significant impact to infrastructure.
Noise	No Impact	No long-term changes to the noise environment in and around NAVBASE Kitsap-Bremerton are expected under the Proposed Action. Construction noise would be temporary, and micro-piles would be installed using duplex drilling methods to mitigate noise disturbances. A micro-pile installation schedule will be communicated to nearby residences and the Child Development Center to minimize noise exposure to humans. No long-term impacts to the noise environment are expected under the Proposed Action. No significant impact to noise.

Resource Area	*No Action Alternative*	*Proposed Action*
Cultural Resources	No Impact	No impacts to known archaeological or architectural resources would occur during construction and operational activities under the Proposed Action. No historical properties at NAVBASE Kitsap-Bremerton would be impacted. Consultation with the Washington SHPO is ongoing according to Section 106 of the NHPA. No significant impacts to cultural resources.
American Indian Traditional Resources	No Impact	Overall implementation of the Proposed Action is expected to have no impact on American Indian traditional resources. Consultation with the Suquamish Tribe was initiated under a government-to-government consultation to address any concerns of the Proposed Action. The Navy does not anticipate significant impacts to American Indian traditional resources.
Hazardous Materials and Waste	No Impact	The construction and operation of the electrical distribution system upgrades would not result in significant impacts to hazardous materials and waste for the Proposed Action. The use of hazardous building materials would be minimal and limited to the construction phase of the project. Hazards to human health would be minimized during construction in contaminated sites by proper treatment of excavated soils and stormwater by adhering to plans, requirements, and BMPs. Operational activities post-construction would not change or increase hazardous materials use or waste. No significant impacts to Hazardous Materials and Waste.

Key: CVN = nuclear-powered aircraft carrier; DoD = Department of Defense; EFH = Essential Fish Habitat; GHG = greenhouse gas; MBTA = Migratory Bird Treaty Act; MMPA = Marine Mammal Protection Act; MSA = Magnuson-Stevens Fishery Conservation and Management Act; NAAQS = National Ambient Air Quality Standards; NAVBASE = Naval Base; NHPA = National Historic Preservation Act; SHPO = State Historic Preservation Officer.

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Abbreviations and Acronyms

Acronym	Definition
ACM	Asbestos-containing material
ADA	Americans with Disabilities Act
APE	area of potential effects
AST	aboveground storage tanks
BMP	best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CGP	Construction General Permit
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CVN	nuclear-powered aircraft carrier
CWA 1972	Clean Water Act of 1972
dB	Decibel(s)
dBA	A-weighted decibel(s)
DNWG	Defense Noise Working Group
DoD	Department of Defense
DPS	Distinct Population Segment
EA	Environmental Assessment
EIS	Environmental Impact Statement
Ecology	Washington Department of Ecology
EFH	Essential Fish Habitat
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
ESQD	explosives safety quantity distance
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMC	Fishery Management Council
FY	Fiscal Year
GHG	greenhouse gas
HAP	hazardous air pollutant
HAPC	Habitat Areas of Particular Concern
HRA	Historical Research Associates
ICRMP	Integrated Cultural Resources Management Plan
IMF	Intermediate Maintenance Facility
INRMP	Integrated Natural Resources Management Plan
IR	Installation Restoration
IRP	Installation Restoration Program
LBP	Lead-based paint
L_{max}	maximum sound level

Acronym	Definition
LUC	Land Use Control
µPa	micro pascals
MBTA	Migratory Bird Treaty Act
MMPA	Marine Mammal Protection Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NAAQS	National Ambient Air Quality Standards
NANSINASNI	Naval Air Station North Island
NAVBASE	Naval Base
NAVSTA	Naval Station
NAVFAC NW	Naval Facilities Engineering Systems Command Northwest
Navy	U.S. Department of the Navy
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSC	Naval Supply Center
O_3	ozone
OU	Operable Unit
PCBs	Polychlorinated biphenyls
PCE	tetrachloroethene (or perchloroethylene)
PFAS	per- and polyfluoroalkyl substances
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
PM_{10}	particulate matter less than or equal to 10 microns in diameter
POLs	Petroleum, oils, and lubricants
PSB	Port security barrier
PSCAA	Puget Sound Clean Air Agency
PSNS	Puget Sound Naval Shipyard
RCRA	Resource Conservation and Recovery
RCW	Revised Code Washington
ROD	Record of Decision
ROI	region of influence
SHPO	State Historic Preservation Officer
SIOP	Shipyard Infrastructure Optimization Program
SO_2	sulfur dioxide
SOP	Standard Operating Procedure
SVOCs	Semi-volatile organic compounds
SWPPP	Stormwater Pollution Prevention Plan
TAP	toxic air pollutant
TPS	test pile study
tpy	tons per year
TSCA	Toxic Substances Control Act
U&A	usual and accustomed
UFC	United Facilities Criteria

Acronym	Definition	Acronym	Definition
U.S.	United States	VOC	volatile organic compound
USEPA	United States Environmental Protection Agency	WAC	Washington Administrative Code
U.S.C.	U.S. Code	WSDOT	Washington State Department of Transportation
USFW	U.S. Fish and Wildlife Service		

1 Purpose of and Need for the Proposed Action

1.1 Introduction

The United States Navy (hereinafter, jointly referred to as the Navy) proposes to replace the older Nimitz-class aircraft carrier at Naval Base Kitsap-Bremerton (NAVBASE Kitsap-Bremerton) with a newer Ford-class aircraft carrier - USS John F. Kennedy (CVN 79). The Proposed Action includes the permanent assignment of CVN 79 and personnel to NAVBASE Kitsap-Bremerton and the necessary infrastructure improvements to support the homeporting, specifically upgrades to the electrical distribution system. Upgrades to portions of the electrical distribution system would begin in 2026. CVN 79 and approximately 2,800 military personnel, plus their family members, are expected to arrive no earlier than fiscal year (FY) 2029.

Ford-class aircraft carriers (shown in Figure 1.1-1) are the next generation of large surface combatants. CVN 79 incorporates more than 23 new technologies, comprising dramatic advances in propulsion, power generation, ordnance handling, and aircraft launch systems. The aircraft carrier will transform fleet warfare, supporting a more capable and lethal forward-deployed U.S. naval presence.

Figure 1.1-1 Ford-Class CVN

Prior to the arrival of CVN 79 into the Pacific Fleet, upgrades to the electrical distribution system are necessary to meet specific mission and modernization requirements of Ford-class aircraft carriers beginning in 2026. These upgrades include the demolition and replacement of an existing electrical substation, construction of a new electrical substation pierside, and upgrades to transformers and switch gears at two existing electrical substations pierside that currently serve aircraft carrier homeporting at NAVBASE Kitsap-Bremerton.

The Navy has prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended by the Fiscal Responsibility Act of 2023, and as implemented by Council on Environmental Quality (CEQ) regulations and Navy regulations for implementing NEPA.

1.2 Background

NAVBASE Kitsap-Bremerton is located on the north side of Sinclair Inlet within the City of Bremerton in Kitsap County, Washington (Figure 1.3-1, NAVBASE Kitsap-Bremerton General Location and Installation Map). For over two decades, the location has served as one of two nuclear-powered aircraft carrier

homeports on the West Coast of the continental United States and hosts shore activities that have depot and intermediate-level maintenance, as well as inactivation and recycling missions for ships and submarines. NAVBASE Kitsap-Bremerton is the installation headquarters and home to Puget Sound Naval Shipyard & Intermediate Maintenance Facility (PSNS & IMF), the largest naval shore facility in the Northwest and one of the largest industrial complexes in Washington State. NAVBASE Kitsap-Bremerton is also home to multiple tenant commands, including Commander, Carrier Strike Group Three; Naval Supply Systems Command Fleet Logistics Center, Puget Sound; Defense Logistics Agency Maritime at PSNS & IMF; Navy Medicine Readiness and Training Command Bremerton; Navy Reserve Center Kitsap; Naval Reactors Representative Office, Puget Sound; and a Naval Sea Systems Command Inactive Ship Maintenance Office for decommissioned warships.

As of November 2024, two Nimitz-class aircraft carriers are currently homeported at NAVBASE Kitsap-Bremerton. One Nimitz-class aircraft carrier and its crew are due to depart NAVBASE Kitsap-Bremerton as it is replaced by CVN 79. The total number of military personnel at the installation would decrease by 340 due to the smaller crew size needed for Ford-class aircraft carriers.

The potential effects from the Proposed Action, including the electrical upgrades to increase power supply at NAVBASE Kitsap-Bremerton to facilitate homeporting of CVN 79, are analyzed within this EA. Should the Navy consider homeporting additional Ford-class aircraft carriers at NAVBASE Kitsap-Bremerton or other West Coast locations in the future, such decisions would be addressed in separate NEPA documentation, as appropriate.

1.3 Location

NAVBASE Kitsap is the Navy's third largest Fleet Concentration Area in the continental United States. Primarily located in Kitsap County, Washington, approximately 20 miles west of Seattle, the installation comprises five major bases: NAVBASE Kitsap-Bremerton, NAVBASE Kitsap-Bangor, NAVBASE Kitsap-Keyport, NAVBASE Kitsap-Manchester, and Naval Hospital Bremerton-Jackson Park. (Figure 1.3-1, NAVBASE Kitsap General Location and Installation Map).

NAVBASE Kitsap supports aircraft carriers, submarines, unmanned underwater vehicles, and U.S. Coast Guard Transit Protection Program vessels. The mission of NAVBASE Kitsap is to serve host command for the Navy's fleet throughout West Puget Sound and to provide infrastructure and base operating support services enabling fleet readiness and warfighter development, generation, and employment from the shore. NAVBASE Kitsap delivers essential shore capabilities and capacity to homeported fleet units, tenant commands, warfighters, and their families across its five locations in Washington, as well as remote activities in Alaska.

The scope of the Proposed Action focuses on the project area shown on Figure 1.3-2, NAVBASE Kitsap-Bremerton Detail Map.

1.4 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to replace the older Nimitz-class aircraft carrier at NAVBASE Kitsap-Bremerton with the next generation Ford-class aircraft carrier CVN 79 to sustain the Navy's

current aircraft carrier presence on the West Coast and in the Pacific Fleet and support a more capable and lethal forward-deployed U.S. naval presence.

The need for the Proposed Action is to provide capabilities for manning, training, and equipping combat-capable naval forces ready to deploy worldwide. In this regard, the Proposed Action furthers the Navy's execution of its congressionally mandated roles and responsibilities under 10 U.S. Code (U.S.C.) section 8062[1].

1.5 Scope of Environmental Analysis

This EA includes an analysis of potential environmental impacts associated with the Proposed Action and the No Action Alternative. The scope of the analysis focuses on potential impacts from providing facilities and functions to support the new Ford-class aircraft carrier USS John F. Kennedy at NAVBASE Kitsap-Bremerton, including demolition, construction, and replacement necessary for upgrading the electrical distribution system to increase power supply in support of homeporting. This EA does not analyze vessel movements of CVN 79. Vessel movements and other training or testing activities are evaluated in separate environmental analyses in the *Environmental Impact Statement (EIS)/Overseas EIS for Northwest Training and Testing*, as described in Section 1.6, Key Documents.

The environmental resource areas analyzed in detail in this EA include: air quality, water resources, biological resources, infrastructure, noise, cultural resources, American Indian traditional resources, hazardous materials and waste, and cumulative impacts. The study area and level of analysis for each resource analyzed does differ due to how the Proposed Action interacts with or impacts the resource.

Potential impacts to the following resource areas are negligible or non-existent so they were not analyzed in detail but are summarized at the beginning of Chapter 3.0, *Affected Environment and Environmental Consequences*: transportation, geological resources, land use, visual resources, public health and safety, and socioeconomics.

[1] 10 U.S.C. section 8062: "The Navy shall be organized, trained, and equipped for the peacetime promotion of the national security interests and prosperity of the United States and for prompt and sustained combat incident to operations at sea. It is responsible for the preparation of naval forces necessary for the duties described in the preceding sentence except as otherwise assigned and, in accordance with integrated joint mobilization plans, for the expansion of the peacetime components of the Navy to meet the needs of war."

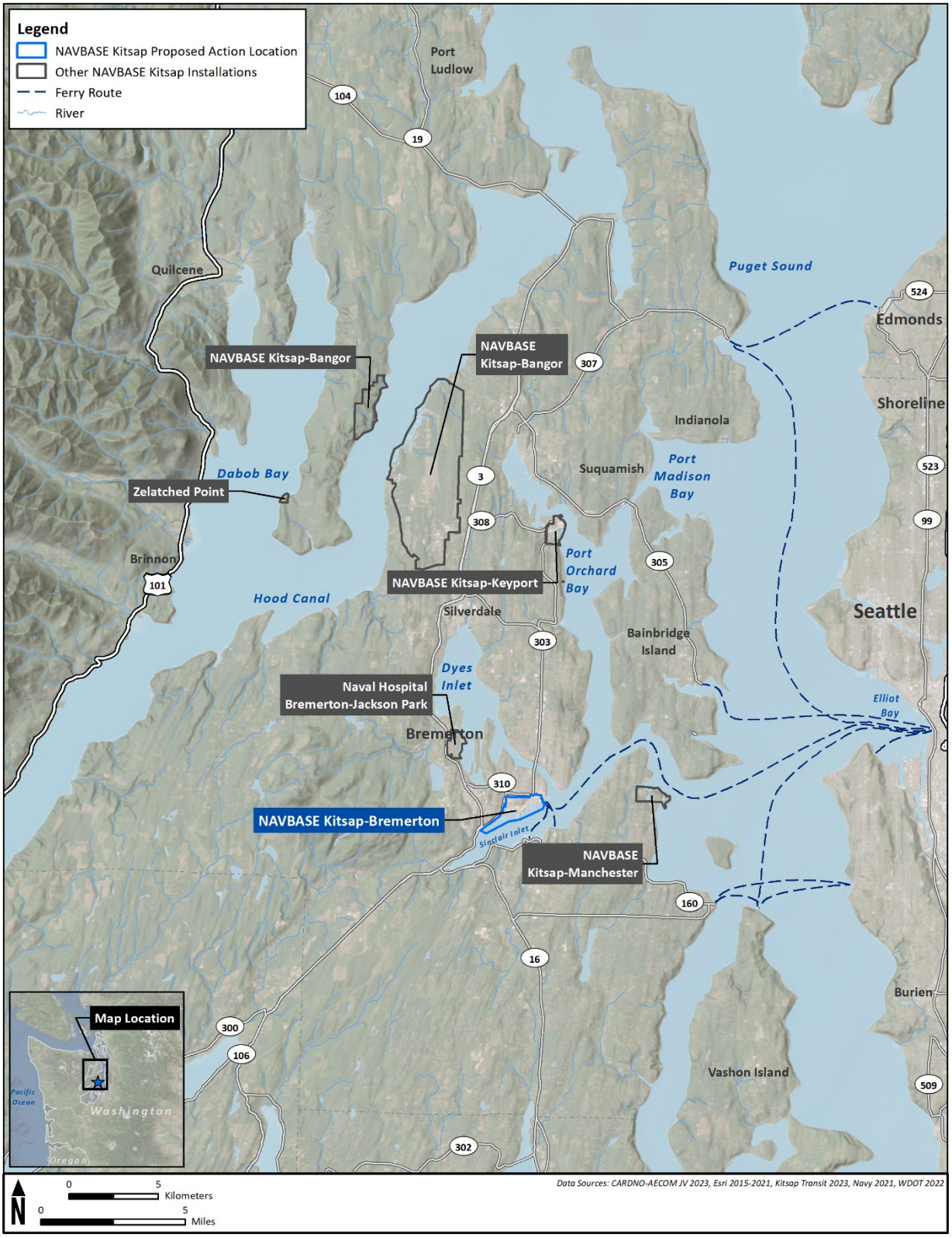

Figure 1.3-1 NAVBASE Kitsap-Bremerton General Location and Installation Map

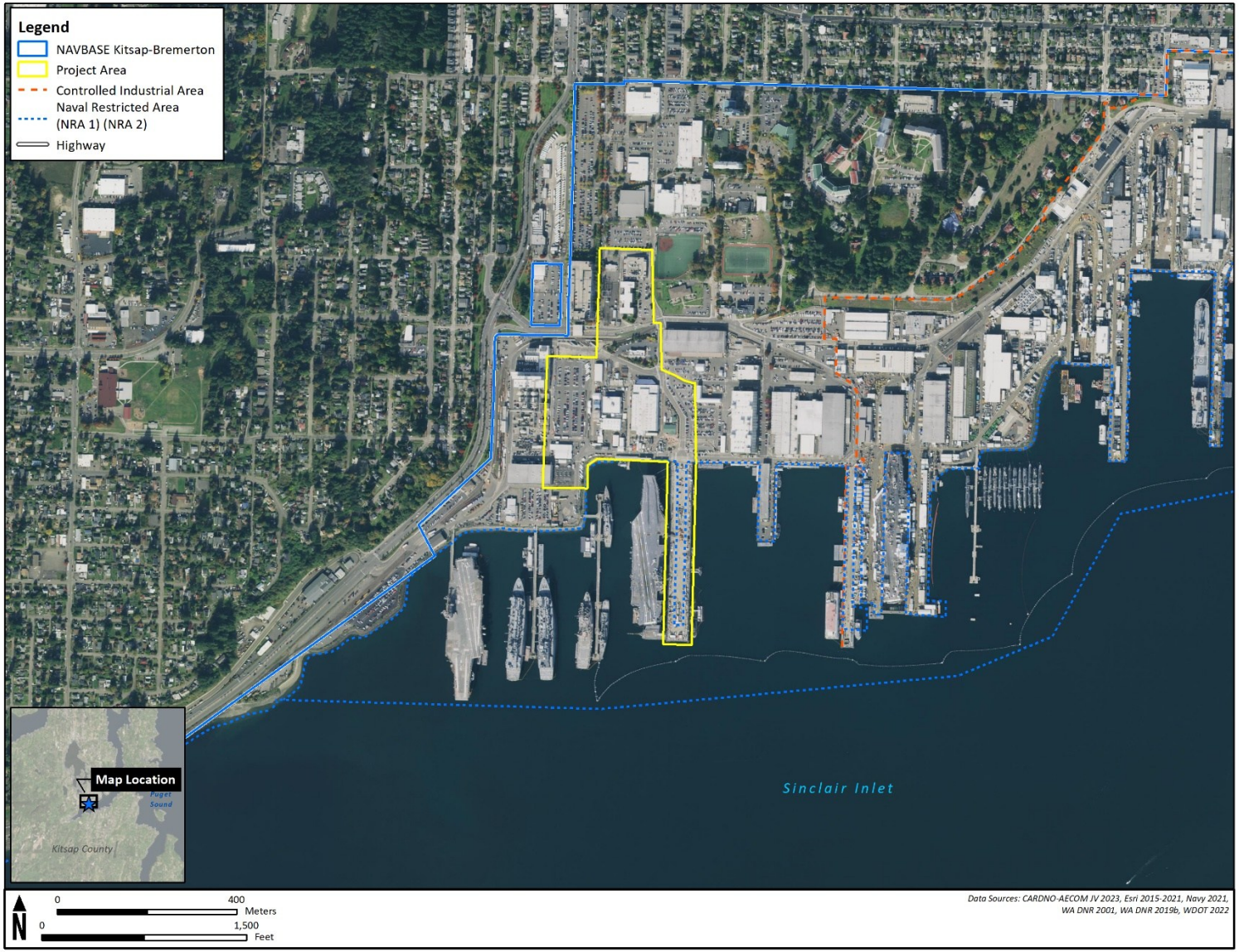

Figure 1.3-2 NAVBASE Kitsap-Bremerton Detail Map

1.6 Key Documents

Key documents are sources of information relevant to this EA. Documents are considered key because of similar actions, analyses, or impacts that may apply to or affect resources in ways like the Proposed Action. CEQ guidance encourages incorporating documents by reference. The following documents are considered key documents:

- **Notice of Intent (NOI) to Prepare an EIS for Bremerton Waterfront Infrastructure Improvements, Bremerton, Kitsap County, WA, and To Announce a Virtual Public Scoping Meeting (June 8, 2022).** This NOI announced the intent of the Navy to produce an EIS that evaluates the potential environmental impacts of construction, modification, replacement, demolition, and operation of waterfront infrastructure and facilities at Puget Sound Naval Shipyard (PSNS) & Intermediate Maintenance Facility (IMF) at NAVBASE Kitsap-Bremerton, Washington. The NOI also announced a 30-day public scoping period beginning June 8, 2022 through July 11, 2022. As of NOI publication, the purpose of the Proposed Action is to address critical deficiencies in dry dock capability, capacity, and seismic survivability at NAVBASE Kitsap-Bremerton to enable PSNS & IMF to meet its mission in supporting the Navy's nuclear fleet.
- **Final EIS for Developing Home Port Facilities for Three Nimitz-Class Aircraft Carriers in Support of the U.S. Pacific Fleet** (July 1999, Record of Decision dated January 28, 2000). This EIS evaluated potential environmental impacts of constructing and operating facilities and infrastructure to homeport three Nimitz-class, nuclear-powered aircraft carriers (CVNs) with the U.S. Pacific Fleet at San Diego, California; Bremerton, Washington; Everett, Washington; and Pearl Harbor, Hawaii. The EIS analyzed impacts associated with facility and infrastructure upgrades at Naval Air Station North Island, Coronado, California, to support homeporting of three CVNs rather than one CVN and two conventionally powered aircraft carriers. The EIS also supported the upgrade of existing CVN support facilities at Puget Sound Naval Shipyard, Bremerton, Washington to meet current standards, and maintained NAVSTA Everett, Washington as a CVN homeport. The Record of Decision (ROD) and following construction and homeporting of Nimitz-class aircraft carriers established NAVBASE Kitsap as one of West Coast homeports for nuclear-powered aircraft carriers.
- **Final Supplemental EIS/Overseas EIS for Northwest Training and Testing** (September 2020, Record of Decision dated September 23, 2021). This Supplemental EIS/Overseas EIS evaluated the potential environmental impacts of continuing military readiness activities in the Northwest Training and Testing Study Area. The Supplemental EIS/Overseas EIS supported the issuance of marine mammal incidental take authorizations under the Marine Mammal Protection Act and incidental takes of threatened and endangered marine species under the Endangered Species Act (ESA). In addition to the at-sea range complexes, the study area also included vessel (including aircraft carrier) transit areas through Puget Sound and Navy pierside locations where sonar maintenance and testing occurs as part of overhaul, modernization, maintenance, and repair activities at NAVBASE Kitsap-Bremerton, NAVBASE Kitsap-Bangor, and NAVSTA Everett (Navy, 2020a).
- **Integrated Natural Resources Management Plan (INRMP) for Naval Base Kitsap** (September 2018). This management plan provides guidance regarding long-term planning of the natural reso NAVBASE Kitsap, including Bremerton. It supports the military mission while protecting and enhancing natural resources in alignment with legal requirements an

stewardship. It was endorsed for approval by the U.S. Navy, U.S. Fish and Wildlife Service (USFWS), Washington State Department of Fish and Wildlife, and National Marine Fisheries Service.

1.7 Relevant Laws and Regulations

The Navy has prepared this EA based upon Federal and state laws, statutes, regulations, and policies pertinent to the implementation of the Proposed Action. The Navy is aware of the November 12, 2024, decision in Marin Audubon Society v. Federal Aviation Administration, No. 23-1067 (D.C. Cir. Nov. 12, 2024). To the extent that a court may conclude that the CEQ regulations implementing NEPA are not judicially enforceable or binding on this agency action, the Navy has nonetheless elected to follow those regulations at 40 C.F.R. Parts 1500– 1508, in addition to the Navy's procedures/regulations implementing NEPA at 32 C.F.R. Part 775, to meet the agency's obligations under NEPA, 42 U.S.C. §§ 4321 et seq.

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 (Table 5.1-1).

1.8 Public and Agency Participation and Intergovernmental Coordination

Federal law and CEQ regulations direct agencies to involve the public in preparing and implementing their NEPA procedures. The Navy is committed to being an environmentally responsible neighbor and maintaining a transparent and collaborative relationship with the community.

The Navy has prepared this Draft EA to inform the public of the Proposed Action and to allow the opportunity for public review and comment. Through the public involvement process, the Navy coordinates with relevant Federal, state, and local agencies and notifies them and the public of the Proposed Action. Input from the public and from regulatory agencies is incorporated into the analysis of potential impacts, as appropriate.

A Notice of Availability of the Draft EA, including information about where the Draft EA may be reviewed, the announcement of a 30-day public comment period, and date and location of one public open-house meeting were published in the *Kitsap Daily News, Kitsap Sun, and the Seattle Times* (See *Appendix D*). The Draft EA is available on the Navy's website, https://www.nepa.navy.mil/CVN79NBK and at local libraries (Kitsap Regional Library, Downtown Bremerton, and Kitsap Regional Library Port Orchard).

The public is invited to submit comments on the Draft EA by any of the following methods:

- by completing a comment form at the public meeting
- electronically, via the project website https://www.nepa.navy.mil/CVN79NBK
- in writing, by mail to: Navy JFK Project Manager, Naval Facilities Engineering Systems Command Atlantic, Attn: Code EV22SM, 6506 Hampton Blvd, Norfolk, Virginia 23508

The Navy has initiated consultation with the Washington State Historic Preservation Officer. The Navy invited the Suquamish Tribe of the Port Madison Reservation to initiate government-to-government consultation to address any concerns about the Proposed Action. A Coastal Consistency Determination was prepared in accordance with the Coastal Zone Management Act and submitted to the Washington Department of Ecology. Correspondence with agencies and the Suquamish Tribe will be included in the Final EA.

2 Proposed Action and Alternatives

2.1 Proposed Action

The United States Navy proposes to replace the older Nimitz-class aircraft carrier at Naval Base Kitsap-Bremerton (NAVBASE Kitsap-Bremerton) with a newer Ford-class aircraft carrier - USS John F. Kennedy (CVN 79). The Proposed Action includes the permanent assignment of CVN 79 and personnel to NAVBASE Kitsap-Bremerton and includes necessary infrastructure improvements to support the homeporting, specifically upgrades to the electrical distribution system. Upgrades to portions of the electrical distribution system would occur in 2026. CVN 79 and approximately 2,800 military personnel, plus their family members, are expected to arrive no earlier than fiscal year (FY) 2029. The timing of construction and delivery of CVN 79 to NAVBASE Kitsap-Bremerton may fluctuate. Based on the most recent electrical distribution system design, construction to upgrade the electrical distribution system is expected to end no earlier than FY 2029.

Approximately 2,800 military personnel would be stationed at NAVBASE Kitsap-Bremerton to meet the crew requirements of CVN 79. The total number of personnel stationed at NAVBASE Kitsap-Bremerton associated with homeported aircraft carriers would decrease by approximately 340 because Ford-class aircraft carriers require a smaller crew than Nimitz-class aircraft carriers. Personnel currently assigned to one of the Nimitz-class aircraft carriers at NAVBASE Kitsap-Bremerton would depart the installation prior to the arrival of personnel assigned to CVN 79.

The estimated 2,800 unaccompanied (single) or accompanied (with families) active-duty personnel associated with CVN 79 crew requirements would live in the community or on NAVBASE Kitsap-Bremerton in unaccompanied or family housing.

Pierside activities (e.g., water supply, electrical power, waste collection) supporting the current Nimitz-class aircraft carrier, including maintenance, will continue in support of CVN 79. As a new ship, the Navy anticipates that maintenance activities for CVN 79 would decrease compared to current maintenance activities for the older Nimitz-class carriers.

The number of port security barrier (PSB) openings at NAVBASE Kitsap-Bremerton is not expected to change from current conditions. There may be a near-term decrease in PSB openings for required CVN 79 vessel maintenance as it is a substantially newer ship compared to the Nimitz-class carrier. Regardless, NAVBASE Kitsap-Bremerton would continue to monitor the number of openings required.

Under the Proposed Action, CVN 79 would be berthed at an existing pier at NAVBASE Kitsap-Bremerton. The Proposed Action does not involve in-water work but does involve upgrades to portions of the electrical distribution system of existing substations on and near the pier.

Electrical distribution system upgrades would include the demolition and replacement of an existing upland electrical substation, construction of a new electrical substation on the carrier pier, and upgrades to the transformers and switch gear of two existing electrical substations on the pier used for carrier homeporting. Best management practices (BMPs) listed in *Appendix E* would be implemented as part of the Proposed Action to reduce potential impacts during construction. Due to existing upland geotechnical conditions at the location of the new substation, approximately 60 micro-piles would be installed on-land at a depth of 90 feet for stabilization. The length of the micro-piles is based on an approximate liquefiable layer thickness of 60 feet at the new substation site. The micro-piles would be installed using duplex drilling methods (i.e., a rotating outside casing and a rotating inside drill bit), as

they cannot be driven via impact or vibratory hammer. The drilling steel (casing) would be advanced to the target depth, the internal bit would be withdrawn, the casing would be filled with grout (a watery concrete), the center bar would be plunged, and the casing would be partially withdrawn. This method of installation is quieter than pile-driving and does not produce vibrational noise typical of impact pile driving, substantially reducing environmental disturbances caused by noise. (See Figure 2.1-1)

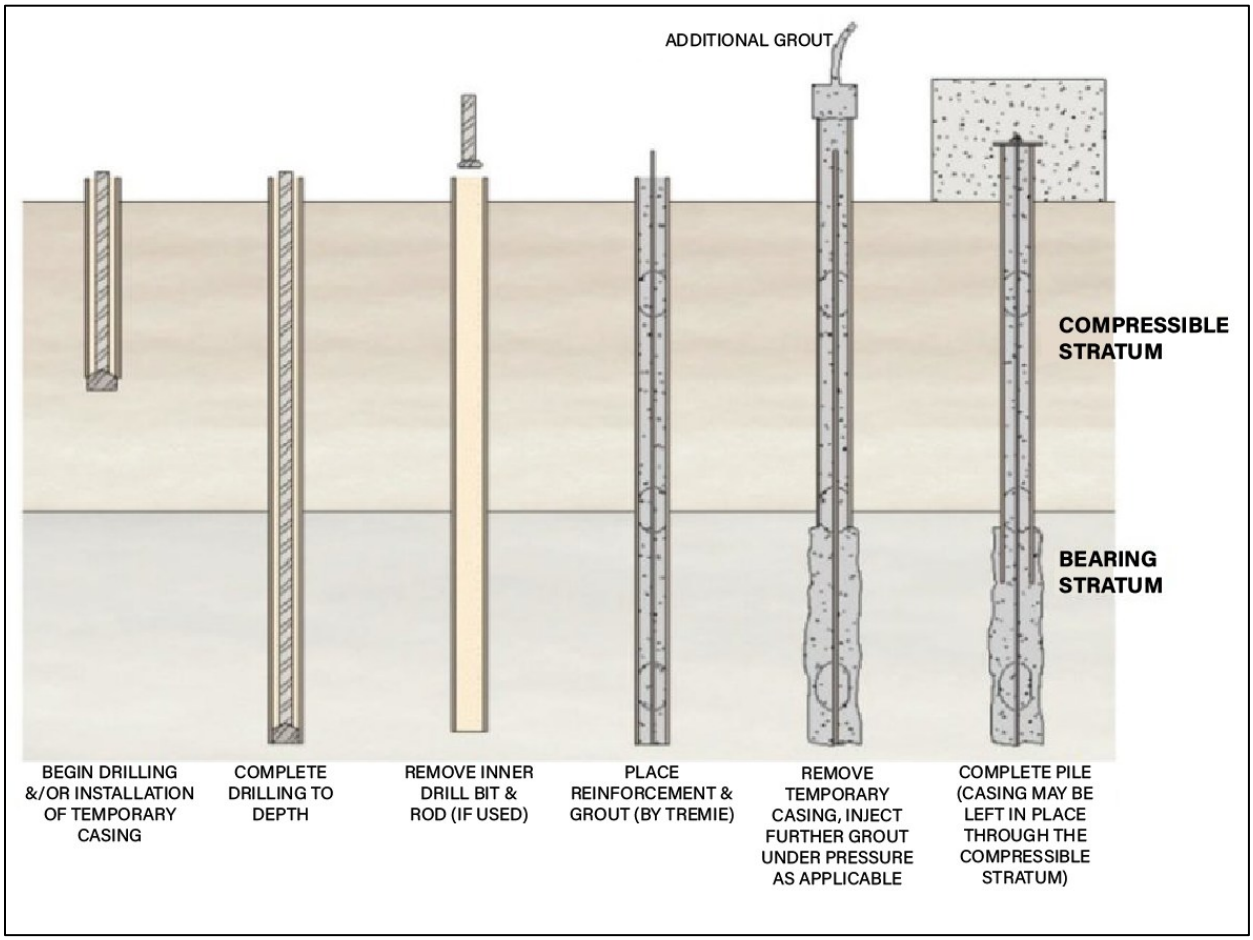

Figure 2.1-1 Micro-pile Construction Sequence

Construction of the new substation, electrical upgrades to the carrier pier, and work at the existing substation would begin in 2026. The overall duration of the proposed construction period is anticipated to last at least 46 months; however, construction activities would occur intermittently for a total of two years of that duration.

All demolition, upgrades, and construction associated with the project would occur within installation boundaries (refer to Figure 2.1-2). Figure 2.1-2 shows the location of the proposed project area.

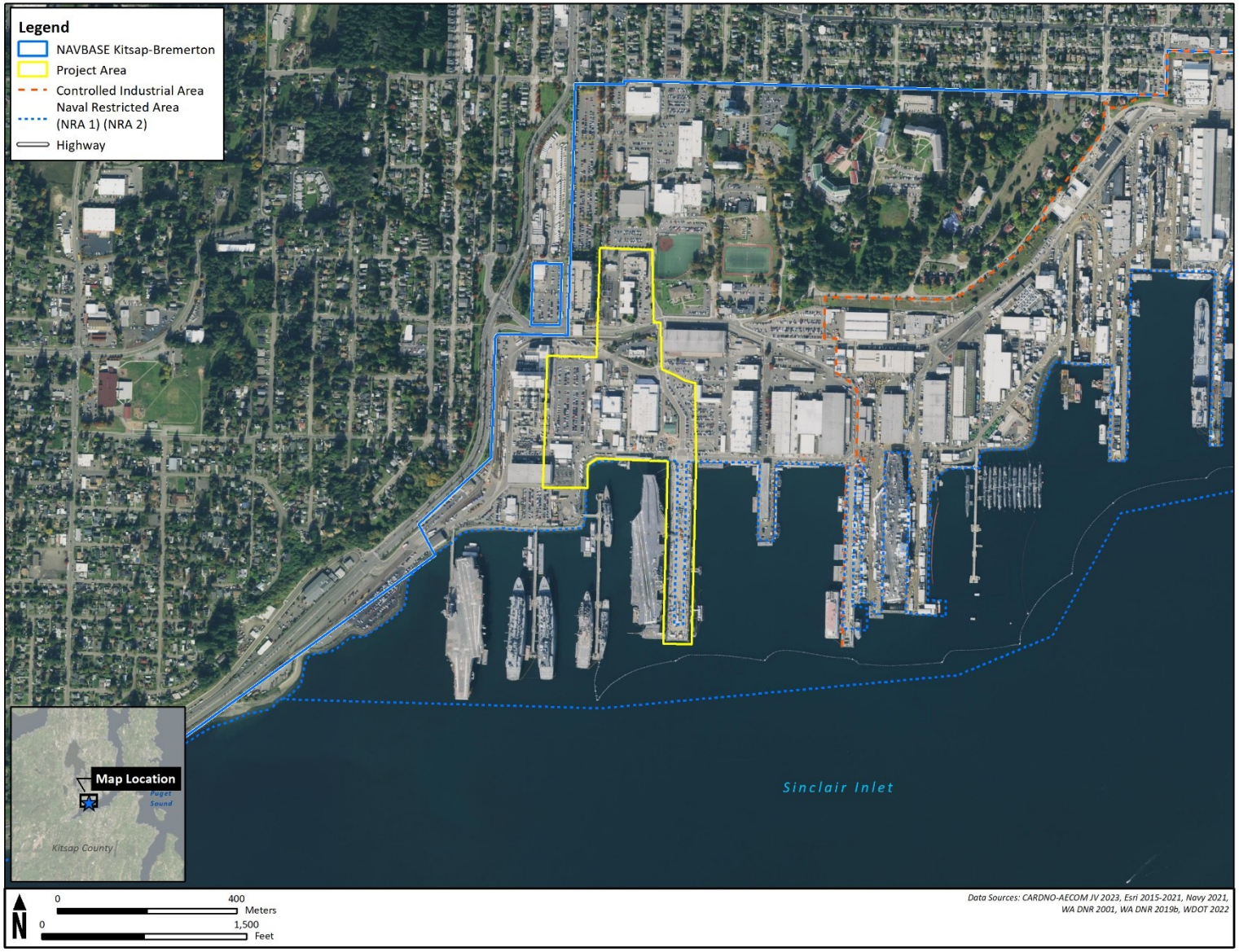

Figure 2.1-2 Proposed Project Area Detail Map

These electrical distribution system upgrades would provide increased power supply and power resiliency to support homeporting CVN 79. In the case that the ship arrives while construction is still occurring, Mobile Utilities Support Equipment Units may be used for up to a year to supply necessary power to the pier associated with CVN 79. Mobile Utilities Support Equipment Units (mobile transformers) provide temporary utility support until the permanent energy utility solution is in place.

2.2 Screening Factors

The National Environmental Policy Act (NEPA) requires Federal agencies to evaluate reasonable alternatives to the Proposed Action. These alternatives must be technically and economically feasible, while meeting the purpose and need for the Proposed Action. In developing the range of alternatives, the Navy considered factors such as mission requirements, geographic needs, facility requirements for training and support, and existing infrastructure. The following key considerations guided the exploration of alternatives to the Proposed Action, meaning the alternatives must:

- Ensure uninterrupted maritime operations of CVN 79 to support execution of the National Defense Strategy. This requires that the ship berthing space be available at a deep-water port near nuclear maintenance facilities for CVN 79 use by FY 2029.
- Provide an adequate power supply or be capable of completing necessary upgrades to support Ford-class carriers, including CVN 79, by FY 2029. The power supply must meet or, with improvements, be capable of meeting applicable energy requirements.
- Maximize the use of existing infrastructure. The Navy evaluated facility requirements to optimize its current infrastructure, aiming to increase readiness while minimizing new construction. Facility development should minimize demolition and disruption of existing operations.
- Maximize the use of existing organizations, manpower, training resources, and local capabilities to maintain operational readiness and efficiency. This includes consideration of proximity to, and capacity of, ammunition and explosives storage, as well as maintenance capabilities near ship berthing areas. The goal is to concentrate maintenance, training, and support resources in one location to optimize readiness.
- Allow for the one-to-one replacement of an existing Nimitz-class aircraft carrier with CVN 79.
- Be located on the West Coast of the United States.
- Provide capabilities for manning, training, and equipping combat-capable naval forces capable of deploying worldwide.

2.3 Alternatives Carried Forward for Analysis

Based on the reasonable alternative screening factors, only one action alternative, the Proposed Action, was identified as meeting the purpose of and need for the project. Accordingly, the Proposed Action is the only action alternative carried forward for analysis in this Environmental Assessment (EA). This document evaluates the potential environmental impacts associated with the No Action Alternative and the Action Alternative.

2.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. The Navy would not homeport CVN 79 at NAVBASE Kitsap-Bremerton or provide facilities and functions to support the new Ford-class aircraft carrier USS John F. Kennedy. The infrastructure upgrades necessary to accommodate CVN 79 homeporting would not occur, and the personnel associated with CVN 79 homeporting would not relocate to NAVBASE Kitsap-Bremerton. The No Action Alternative would not meet the purpose of and need for the Proposed Action; however, as required by NEPA, the No Action Alternative is carried forward for analysis in this EA. The No Action Alternative will be used to analyze the consequences of not undertaking the Proposed Action and will serve to establish a comparative baseline for analysis.

2.3.2 Action Alternative

The components and estimated timeline of the Action Alternative are summarized Table 2.3-1.

Table 2.3-1 Summary of Action Alternative Components and Timeline

Component	*Description*	*Approximate Start*
Electrical Distribution System Upgrades		
Construction of new substation	Construction of a new electrical substation near the pier used for aircraft carrier homeporting. Due to substrate liquefaction issues at the location of the new substation, approximately 60 micro-piles at a depth of 90 feet would be installed on-land to stabilize the new substation.	Early 2026
Upgrades to two existing substations on homeporting pier	Upgrades to portions of the electrical distribution system of existing substations on and near the pier, including upgrades to the transformers and switch gears of two existing electrical substations (no in-water work).	Early 2026
Demolition of an existing substation	An existing substation would be demolished. This area would then likely become a temporary staging area for construction equipment and materials for the construction of the replacement substation. Once complete, the area would likely be converted into an open space for parking.	June 2026
Construction of a replacement substation	The existing substation would be demolished. A replacement substation would be constructed in the parking lot north of the existing substation.	Summer 2026
Homeporting of CVN 79		
Departure of Nimitz personnel	Personnel currently assigned to one of the Nimitz-class aircraft carriers at NAVBASE Kitsap-Bremerton would depart the installation prior to the arrival of personnel assigned to CVN 79.	Late FY 2028 through FY 2029
Arrival of CVN 79 personnel	Stationing of approximately 2,800 military personnel, plus their family members, at NAVBASE Kitsap-Bremerton to meet CVN 79 crew requirements. A decrease of approximately 340 personnel and their families stationed at NAVBASE Kitsap-Bremerton associated with homeported aircraft carriers because Ford-class aircraft carriers require a smaller crew than Nimitz-class aircraft carriers.	FY 2029
Departure of Nimitz-class carrier	The Nimitz-class carrier currently homeported at NAVBASE Kitsap-Bremerton would depart prior to the arrival of CVN 79.	FY 2029

Component	*Description*	*Approximate Start*
Arrival of CVN 79	The timing of construction and delivery of CVN 79 to NAVBASE Kitsap-Bremerton may fluctuate. CVN 79 would be berthed at an existing pier at NAVBASE Kitsap-Bremerton.	FY 2029

Key: FY = Fiscal Year; CVN = nuclear-powered aircraft carrier; NAVBASE = Naval Base.

2.4 Alternatives Considered but not Carried Forward for Detailed Analysis

The following alternatives were considered, but not carried forward for detailed analysis in this EA as they did not meet the purpose and need for the project and satisfy the reasonable alternative screening factors presented in Section 2.2.

2.4.1 Replacement of Transformers at NAVBASE Kitsap-Bremerton Piers

The Navy considered replacing existing transformers on NAVBASE Kitsap-Bremerton. However, this alternative was not carried forward for detailed analysis because transformer replacement alone would not support all the new power requirements given insufficient system capacity. Therefore, ship berthing space at a deep-water port with a power supply adequate for mooring Ford-class aircraft carriers, would not be available for use by FY 2029 to ensure uninterrupted execution of the Navy's maritime mission. As a result, this alternative was not carried forward for detailed analysis.

2.4.2 Use of Leased Facilities off NAVBASE Kitsap-Bremerton

The Navy considered the use of leased power facilities outside of NAVBASE Kitsap-Bremerton boundaries to increase the system capacity to meet the homeporting requirements. This alternative does not ensure the uninterrupted maritime operations of large surface combatants in support of the National Defense Strategy, as there is not a currently existing power facility capable of providing the necessary dedicated or permanent shore power. As a result, this alternative was not carried forward for detailed analysis.

2.4.3 Other West Coast Homeports

The Navy considered homeporting this individual Ford-class aircraft carrier at West Coast Navy installations other than NAVBASE Kitsap-Bremerton. Given that the Ford-class aircraft carrier needs to specifically take the place of one presently homeported Nimitz-class aircraft carrier, the following two other Navy installations were assessed. After careful consideration of each installation, the Navy eliminated them as potential location options because they did not meet one or more of the screening factors:

- Naval Air Station North Island (NASNI) – does not ensure uninterrupted maritime operations of large surface combatants in support of the National Defense Strategy because its three existing deep-water ports near nuclear maintenance facilities are currently occupied by others ships not scheduled to depart. Moreover, there is no available shoreline to construct an additional ship berth to accommodate CVN 79. Homeporting CVN 79 at NASNI would require the relocation of other assets, resulting in additional costs and disruption to existing operations. Accordingly, this alternative would not preserve and optimize operational readiness and efficiencies, nor would it make effective and efficient use of existing infrastructure.

- Naval Station Everett (NAVSTA Everett) – does not ensure uninterrupted maritime operations of large surface combatants in support of the National Defense Strategy because it lacks the appropriate nuclear maintenance facilities to support Ford-class aircraft carriers. Though the Navy first began homeporting CVNs at NAVSTA Everett in 1997, the Navy did not build nuclear maintenance facilities at NAVSTA Everett due to its proximity with the nuclear maintenance facilities located in Bremerton, Washington, roughly 100 miles away by car. As demonstrated by the homeporting of USS Abraham Lincoln at NAVSTA Everett while performing maintenance at NAVBASE Kitsap-Bremerton in 2012, sailors would experience roughly 3-4 hour long commutes each day for the duration of maintenance, leading to a highly stressful environment with reduced morale, mental acuity, and quality of life. Additionally, the region surrounding NAVSTA Everett has grown and changed since 1997, only worsening the commuting conditions. Accordingly, the Navy has not homeported a CVN at NAVSTA Everett since 2015. The inefficiency of such a system would also delay the maintenance schedule. Accordingly, this alternative would not preserve and optimize operational readiness and efficiencies, nor would it make effective and efficient use of existing infrastructure.

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3 Affected Environment and Environmental Consequences

This chapter presents a description of the environmental resources and baseline conditions that could be affected by implementing any of the alternatives and an analysis of the potential direct and indirect effects of each alternative.

All potentially relevant environmental resource areas were initially considered for analysis in this Environmental Assessment (EA). In compliance with the National Environmental Policy Act (NEPA), as amended by the Fiscal Responsibility Act of 2023; as implemented by Council on Environmental Quality (CEQ) regulations at 40 Code of Federal Regulations (CFR) Part 1500 et seq.; and Department of the Navy (Navy) implementing regulations at 32 CFR Part 775, the discussion of the affected environment (i.e., existing conditions) focuses only on those resource areas potentially subject to impacts. Additionally, the level of detail used in analyzing a resource area is commensurate with the level of potential environmental impact.

In accordance with 40 CFR section 1501.3(d), in considering whether an adverse effect is significant, agencies shall examine both the context of the action and the intensity of the effect, while considering the duration of the effect. Agencies may also consider the extent to which an effect is adverse at some points in time and beneficial in others. However, agencies shall not offset an action's adverse effects with other beneficial effects to determine significance.

This chapter includes an analysis of the affected environment and potential impacts to air quality, water resources, biological resources, infrastructure, noise, cultural resources, American Indian traditional resources, and hazardous materials and waste. The potential impacts to the following resource areas are considered negligible or non-existent, so they were not analyzed in detail in this EA:

Transportation: NAVBASE Kitsap-Bremerton has a high level of multimodal transportation demand due to its location in the middle of the City of Bremerton. Transportation corridors leading to NAVBASE Kitsap-Bremerton are currently heavily congested during the weekday morning and afternoon peak hours, especially along Burwell Street. During construction for the Action Alternative, construction equipment, construction materials, and waste materials would arrive/depart by road through existing gates, including the Missouri Gate for trucks and the Charleston Gate for other vehicles. It is assumed that construction equipment generally would be confined to the construction site. At peak construction levels, it is estimated that approximately 50 construction workers per day would be added to the daily weekday commuter trips (as a maximum assumption), and approximately 120 construction trucks per year would be added during the construction period. The impact of the traffic increase during construction would be negligible compared to the approximately 5,500 vehicles that cross the Charleston and Missouri gates each day under the existing condition (SDDC, 2017). After the arrival of CVN 79, transportation levels are anticipated to be below pre-construction levels, as there would be a net decrease in personnel. No operational related impacts are expected to passenger vehicles, active transportation (pedestrian and bicycles), transit, or freight networks.

Marine traffic within Sinclair Inlet includes Navy surface vessels and submarines, passenger ferries, recreational vessels, commercial vessels and barges using permanent mooring buoys at the west end of Sinclair Inlet, and fishing vessels. Navy vessel movements and CVN 79 maritime operations and training exercises are evaluated in separate environmental analyses (see Section 1.5, *Scope of Environmental Analysis*). During construction activities, the temporary increase of approximately 50 construction workers per day is not anticipated to affect passenger ferry service in and out of Bremerton. After the

arrival of CVN 79, the frequency of ships moving in and out of port through the port security barrier at NAVBASE Kitsap-Bremerton is not expected to change from current conditions since CVN 79 is a one-for-one replacement for the Nimitz-class aircraft carrier. Given the anticipated reduction in frequency of maintenance actions because CVN 79 is substantially newer, the Navy anticipates that the number of port security barrier openings may decrease compared to current conditions. Therefore, implementation of the Action Alternative would result in negligible impacts to transportation and maritime traffic.

Geological Resources: The Action Alternative would not change existing geological resources or geological hazard conditions. As the Puget Sound area has experienced several earthquakes, all appropriate and applicable seismic building codes would be incorporated into the design of electrical distribution system upgrades. During construction, worker safety procedures would be followed in the event of an earthquake, including evacuation routes and safety areas in the event of a tsunami threat. The relatively flat topography in the project area would not change from proposed demolition and construction activities. Soils in the project area have been altered or have an urban component (Navy, 2018a). Contaminated soil is present throughout the project area (see Section 3.8 *Hazardous Materials and Waste)*. Much of the fill material in NAVBASE Kitsap-Bremerton is susceptible to liquefaction. The design of electrical distribution system upgrades would address potential substrate liquefaction at the location of the new substation with installation of micro-piles to stabilize the new substation. BMPs listed in *Appendix E* would be implemented as part of the Action Alternative to reduce potential soil impacts during construction. Therefore, the Action Alternative would have negligible impacts on geological resources.

Land Use: The Action Alternative would occur entirely within NAVBASE Kitsap-Bremerton and would not change existing land use designations on the installation. Land use for proposed construction areas in the project area are designated in the Installation Development Plan (Navy, 2016b) as utilities, supply/storage, maintenance/production, and operations with low and moderate development potential. The Action Alternative would be consistent with NAVBASE Kitsap-Bremerton's Installation Development Plan, and implementation of the Action Alternative would have no impact to land use. A Coastal Consistency Determination was prepared in accordance with the Coastal Zone Management Act and submitted to Washington Department of Ecology (Ecology). The Coastal Consistency Determination and related correspondence will be included in the Final EA in Appendix C, *Coastal Consistency Determination.*

Visual Resources: The analysis of visual resources considers the natural and built features of the landscape visible from public viewpoints that contribute to an area's visual quality. Situated on the water in an overall industrial waterfront region, NAVBASE Kitsap-Bremerton presents a consistent visual environment. Dense, mature trees that run parallel to Charleston Boulevard provide a vegetative buffer that obscures views from most nearby residential areas toward the project area. Views of the replacement substation would be mostly obscured by the multi-story parking garage located to its west. The proposed new substation site is within a paved, developed area of the installation. Surrounding facilities would obscure views of the new construction. Construction activities would be temporary, and the resulting structures would be visually consistent with the existing NAVBASE Kitsap-Bremerton visual environment. Therefore, the Action Alternative would result in negligible impacts to visual resources.

Public Health and Safety: The Action Alternative would occur entirely within NAVBASE Kitsap-Bremerton property boundaries, where access is controlled by perimeter fencing and a port security barrier to limit access to authorized persons only. Furthermore, the waters of Sinclair Inlet surrounding

NAVBASE Kitsap-Bremerton are within a naval restricted area, a designation that prohibits persons and vessels from entering without permission. There are no beaches or public access points to the Sinclair Inlet in the project vicinity. The Action Alternative would not change the availability of, or access to, emergency response services (i.e., police, fire, and paramedics) to the surrounding community or the installation.

Applicable facility and infrastructure safety requirements would be incorporated into the design of electrical distribution system upgrades. Vehicles used in construction, demolition, and upgrade activities and for the transport of construction materials would travel on public roadways to access NAVBASE Kitsap-Bremerton and would follow all applicable traffic laws and regulations to minimize risks to other drivers. Demolition and construction activities would be conducted in accordance with established Navy policies for ensuring the health and safety of the public. A project-specific Health and Safety Plan would be prepared prior to the start of construction.

Construction activities along the pier deck would occur within existing explosive safety areas. Prior to starting construction, the Navy would obtain a required approvals from the Naval Ordnance Safety and Security Activity. The approvals would identify safety requirements to be implemented during construction activities. There would be no increased risk to safety because personnel working along the pier deck would follow all safety guidelines for working within explosive safety areas and activities would be consistent with existing operations.

Executive Order (EO) 13045, Protection of Children from Environmental Health Risks and Safety Risks, directs that Federal agencies shall "make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children and shall ensure that their policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks." Standard job-site safety measures implemented as part of the Action Alternative would include securing equipment, materials, and vehicles; erecting fencing; and adhering to any other requirements in the project Health and Safety Plan. An on-base Child Development Center located approximately 300 feet from the nearest construction area and 700 feet from the proposed micro-pile installation area, represents the nearest location to the Proposed Action where children are present. Because children would not have access to the project area and no new land use activities that might potentially impact children would be introduced and impacts from air quality and noise would be temporary and not significant (see Sections 3.1, *Air Quality*, and 3.5, *Noise*) there would be no environmental health or safety risks that may disproportionately affect children from implementation of the Action Alternative or alternatives.

Therefore, implementation of the Action Alternative would result in negligible impacts to public health and safety.

Socioeconomics: The analysis of impacts to socioeconomics focuses on potential effects to population, employee characteristics, schools and childcare, housing, economic activity, and tax revenue. The Action Alternative would result in negligible, short-term, beneficial impacts to socioeconomic issues during the construction, upgrades, and demolition activities. The Action Alternative would not create new long-term jobs or changes to tax revenue following completion of construction activities. There would be a net decrease in personnel, so, the Action Alternative would not create increases in demand for schools, childcare, or housing. As a result, there would be negligible impacts to socioeconomics from implementation of the Action Alternative.

3.1 Air Quality

This discussion of air quality includes criteria pollutants, standards, sources, permitting, and greenhouse gases (GHGs). Air quality in a location is defined by the concentration of various pollutants in the atmosphere. A region's air quality is influenced by many factors, including the type and number of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions.

Most air pollutants originate from human-made sources, including mobile sources (e.g., cars, trucks, buses) and stationary sources (e.g., factories, refineries, power plants), as well as indoor sources (e.g., some building materials and cleaning solvents). Natural sources, such as wildfires, also release air pollutants.

3.1.1 Regulatory Setting

The principal pollutants defining the air quality, called criteria pollutants, include carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), suspended particulate matter less than or equal to 10 microns in diameter (PM_{10}), fine particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$), and lead.

Under the Clean Air Act (CAA), United States (U.S.) Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) (40 Code of Federal Regulations [CFR] part 50) for these pollutants. Washington State has adopted the NAAQS for its state ambient air quality standards (Washington Administrative Code [WAC] Title 173, Chapter 476). Areas that do not meet NAAQS for criteria pollutants are designated "nonattainment areas" for that pollutant. Areas in compliance with the NAAQS are designated as attainment areas. At the time of this applicability analysis, emissions generated by the electrical upgrades needed for homeporting the new CVN 79 as detailed in the Action Alternative would not occur within a Federal CAA designated nonattainment or maintenance area for any criteria pollutants. Therefore, the action is not subject to the General Conformity Rule (USEPA, 2024a).

In addition to criteria pollutants, the CAA also gives USEPA authority to regulate hazardous air pollutants (HAPs). Diesel particulate matter overwhelmingly represents the highest potential cancer risk in the Puget Sound area (PSCAA, 2024), but diesel particulate matter is not specifically captured in the National Emission Inventory. Instead, it is one of many components of particulate matter that are collectively captured as the criteria pollutants PM_{10} and $PM_{2.5}$. Diesel particulate matter comes from diesel-fueled trucks, cars, buses, construction equipment, rail, marine, and port activities. Due to the limited activity stretched across a four-year period, the emission of HAPs would be very low, including during the individual periods of construction activity when diesel-fuel equipment would be operating in the area. These emissions are not estimated to increase substantially above the emission levels that exist currently from diesel-powered operations at the installation. None of these activities or other sources of HAPs are anticipated to be significant emission contributors associated with the Action Alternative. For these reasons, HAPs are not further evaluated in the analysis.

GHGs are gas emissions that trap heat in the atmosphere. These emissions occur from natural processes and human activities. Scientific evidence indicates a trend of increasing global temperature over the past century due to an increase in GHG emissions from human activities. The climate change associated with this global warming is producing negative economic and social consequences across the globe (U.S. Global Change Research Program, 2018).

GHG reporting requirements for facilities that emit 10,000 metric tons per year (tpy) of GHG reported as carbon dioxide (CO_2) equivalent (11,023 tpy) or more have been in place in Washington since 2012 (WAC Title 173, Chapter 441). NAVBASE Kitsap-Bremerton is required to report GHG emissions annually. State lawmakers passed the 2021 Climate Commitment Act that set statewide GHG emission reduction limits for three timeframes: 2030, 2040, and net zero emissions for 2050 (Revised Code of Washington [RCW] 70a.45.020). In March 2020, the Washington Legislature passed the Motor Vehicle Emission Standards - Zero Emission Vehicles law (RCW 70A.30.010), which requires the state to adopt California's vehicle emission standards. This includes new requirements to gradually increase the number of new zero-emission vehicles sold in Washington, until all new vehicles meet the zero-emission vehicles standard starting in 2035. Implementation of this law will serve to reduce vehicle emissions in the State of Washington and help attain the statewide GHG reduction limits, as the transportation sector comprises almost 40 percent of the state's GHG emissions (WDOE, 2022).

The CEQ interim guidance titled *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas (GHG) Emissions and Climate Change* (January 9, 2023) (CEQ, 2023) offers recommendations to help agencies assess the GHG emissions and climate change impacts of their proposed actions in compliance with NEPA. The Navy has reviewed and, where applicable, integrated this guidance into its EA. Updates to the analytical process include, but are not limited to, utilizing early planning stages to incorporate GHG emissions and climate change considerations into identifying potential mitigation and resilience strategies, quantifying the projected GHG emissions or reductions for the action's expected lifespan, and providing further context on GHG emissions.

3.1.2 Affected Environment

The region of influence (ROI) for assessing air quality impacts is Kitsap County, where NAVBASE Kitsap-Bremerton is located. Kitsap County is in the westernmost part of the Puget Sound Air Quality Control Region, a 6,500 square mile area comprised of King County, which includes the Seattle metropolitan area, Snohomish County, Pierce County, Kitsap County, and Puget Sound. The air quality assessment includes an additional focus on sensitive populations in the vicinity of the project area that may experience either short- or long-term increases in air pollutant concentrations during Action Alternative construction or operational activities. NAVBASE Kitsap-Bremerton operates under a Synthetic Minor Permit (Registration No. 21138, NOC No. 9608) issued by Puget Sound Clean Air Agency (PSCAA).

PSCAA, along with Ecology, is responsible for implementing and enforcing state and Federal air quality regulations in Washington. Ecology monitors air pollutants through a network of air quality monitoring sites throughout the state, known as the Washington State Ambient Air Monitoring Network. The state of Washington operates air monitoring stations throughout the Puget Sound Region for O_3, NO_2, CO, $PM_{2.5}$, and SO_2.

PSCAA operates a station in Bremerton, which measures $PM_{2.5}$. This station monitor is located approximately 2.4 miles north of the waterfront area of NAVBASE Kitsap-Bremerton, across Port Washington Narrows. Table 3.1-1 presents published design values based on the most current ambient monitoring levels (USEPA, 2024b) for the region and demonstrates that emission levels are well below the most stringent NAAQS. Lead is not included in this air quality analysis, as there are no sources of lead emissions associated with the Action Alternative. A design value is a statistic that describes the air quality status of a given location relative to NAAQS. Design values are computed and published annually by USEPA's Office of Air Quality Planning and Standards and reviewed in conjunction with the USEPA Regional Offices.

Table 3.1-1 Comparison of 2023 Bremerton-Seattle Region Design Values with NAAQS

Pollutant	*Averaging Time*	*NAAQS*	*Maximum Design Values (Station)*	*Percent of NAAQS*
CO	1-hour	35 ppm	1.6 ppm (Seattle-Beacon Hill)	5
	8-hour	9 ppm	1.3 ppm (Seattle-Beacon Hill)	14
NO_2	1-hour	0.100 ppm	0.042 ppm (Seattle-Beacon Hill)	42
	Annual	0.053 ppm	0.009 ppm (Seattle-Beacon Hill)	17
$PM_{2.5}$	24-hour	35 µg/m^3	17 µg/m^3 (Bremerton – Spruce Avenue)	49
	Annual	9 µg/m^3	5.5 µg/m^3 (Bremerton – Spruce Avenue)	61
O_3	8-hour	0.070 ppm	0.049 ppm (Seattle-Beacon Hill)	70
SO_2	1-hour	0.075 ppm	0.003 ppm (Seattle-Beacon Hill)	4

Note: There are no PM_{10} or lead monitoring sites within *Puget Sound Clean Air Agency's* jurisdiction, which includes the Bremerton-Seattle Region.

Key: µg/m^3 =microgram per cubic meter; CO = carbon monoxide; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; $PM_{2.5}$ = particles with aerodynamic diameters less than or equal to 2.5 micrometers; PM_{10} = particles with aerodynamic diameters less than or equal to 10 micrometers; O_3 = ozone; SO_2 = sulfur dioxide; ppm = parts per million.

Source: USEPA, 2024b.

3.1.3 Environmental Consequences

Effects on air quality are based on estimated direct and indirect emissions associated with the Action Alternative. This analysis evaluated potential air quality impacts with respect to relevant environmental information, including regulations, guidelines, and scientific documentation.

3.1.3.1 No Action Alternative

Under the No Action Alternative, the Navy would not replace the older Nimitz-class aircraft carrier at NAVBASE Kitsap-Bremerton with a new Ford-class aircraft carrier. The permanent assignment of CVN 79 and personnel to NAVBASE Kitsap-Bremerton would not occur, and the Navy would not provide facilities and functions. Therefore, no impacts to air quality or air resources would occur with implementation of the No Action Alternative.

3.1.3.2 Action Alternative

Under the Action Alternative, a new electrical substation would be constructed, two existing substations would receive upgrades, and an existing substation would be demolished and subsequently replaced with a new substation in a different location. Operationally, personnel attached to the Nimitz-class carrier would depart prior to the arrival of CVN 79. CVN 79 would berth at an existing pier at NAVBASE Kitsap-Bremerton, most likely after the completion of the construction activities. However, it is possible that the new CVN could arrive before construction is complete.

The reduction in personnel would result in a net benefit in terms of transportation emissions for commuting. Pierside support and maintenance activities for CVN 79 support and maintenance are anticipated to decrease from current support and maintenance activities for the departing Nimitz-class carrier currently homeported at NAVBASE Kitsap-Bremerton that are managed under the NAVBASE Kitsap-Bremerton air permit. A reduction in pierside support and maintenance activities would result in a decrease in air emissions from these activities. Should any equipment or maintenance operation revisions be required, they would be addressed, as appropriate, under the installation stationary source

permit. CVN 79 maritime operations and training exercises are evaluated in separate environmental analyses (see Section 1.5, *Scope of Environmental Analysis*), so, maritime operational emissions are not evaluated in this EA.

A quantitative assessment of air quality impacts from emissions released during construction of electrical distribution system upgrades, along with supporting calculations, are provided in Appendix A. This analysis evaluates criteria pollutant emissions based on the most recent design values for the region to assess changes in ambient concentrations for criteria pollutants and their effects on compliance with ambient air quality standards. Additionally, GHG emissions were estimated for the construction anticipated under the Action Alternative. Sources of direct GHG emissions considered include, but are not limited to, the use of fuel-burning construction equipment and vehicles for workers or material transport.

Sensitive receptors include, but are not limited to, hospitals, schools, Child Development Centers, elderly housing and convalescent facilities. These are areas where occupants are more susceptible to the adverse effects of air pollution. The closest sensitive receptor location, a Child Development Center, is located approximately 300 feet to the east of where the substation to be demolished is currently located. A multistory office building at 433 Barclay Street lies between the current substation area and the Child Development Center. A parking lot separates the future substation location from the Child Development Center and an adjoining ball field.

Air quality impacts associated with proposed construction would occur from (1) air emissions generated by operation of fossil fuel-powered equipment, trucks, and worker commuter vehicles and (2) fugitive dust emissions (PM_{10}/$PM_{2.5}$) from the operation of equipment on bare soil. Construction activities within the project area would fluctuate throughout the day and from day-to-day in construction areas. Wind conditions would vary throughout the day while construction sources would move around the site such that potential pollutant concentration increases would not persist in any single location. It is therefore unlikely that areas near the construction zones, such as the Child Development Center, would experience increases for any notable duration of hours or days. The largest contributor of air emissions would be from the operation of mobile sources, which includes on-road vehicles. On-road vehicle emissions would be generated by two primary sources, commuting construction workers and on-road trucks involved in the hauling of materials to and from construction areas. Commuting workers have been evaluated at 50 construction workers per day, though activities would be intermittent over the construction period. The emission estimates do not account for any growth in the use of electric vehicles by workers over time. Materials movement was analyzed using trucks bringing materials to or from the Tacoma or Seattle area with an estimated 120 deliveries per year, averaged over four years. Haul trucks delivering or removing gravel, asphalt, concrete, and construction/demolition debris were estimated at 1,492 trips per year, averaged over three years (it is anticipated that the demolition, concrete, gravel and asphalt work will be concluded by 2028, and construction activity will be limited to workers installing electrical equipment in 2029). Total direct and fugitive air pollutant emission estimates by year from proposed construction activities are provided in Table 3.1-2. Detailed emission estimate calculations are provided in *Appendix A.*

Table 3.1-2 Action Alternative Total Construction Activities Emission Estimates by Year

Activity by Year	*Tons per Year*						
	VOCs	*CO*	*NO_x*	*SO_2*	*PM_{10}*	*$PM_{2.5}$*	*CO_2e*
Demolition and Construction 2026	0.14	2.85	0.75	0.00	2.54	0.37	524
Demolition and Construction 2027	0.19	3.02	0.96	0.00	2.35	0.34	534
Demolition and Construction 2028	0.05	1.72	0.18	0.00	1.40	0.19	218
Demolition and Construction 2029	0.02	0.83	0.03	0.00	0.45	0.07	68

Key: CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NO_x = nitrogen oxides; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; SO_2 = sulfur dioxide; VOCs = volatile organic compounds.

Emissions during construction would result primarily from the operation of engines burning fossil fuels, which are released from equipment exhaust stacks several feet above ground. Fugitive dust at ground level would be generated on a short-term and limited basis by on-site trucks and construction equipment operations and would be minimized using standard BMPs for construction activities.

In summary, construction emissions at NAVBASE Kitsap-Bremerton under the Action Alternative would be very small and would not appreciably increase health risks to the public or nearby locations, such as the Child Development Center. Emissions are not anticipated to elevate pollutant concentrations at any given area above the existing background concentrations beyond limited and extremely short durations. Operational emissions from CVN 79 support and maintenance at the pier would be anticipated to be consistent to the existing level of support and maintenance emissions, and so there would be no known new impacts from CVN 79 maintenance activities. The Navy determined that the potential emissions of the Action Alternative would not cause or contribute to a violation of any NAAQS. Therefore, implementation of the Action Alternative would not result in significant air quality impacts.

GHG Emissions from Construction under Action Alternative

GHG emissions generated from the Action Alternative would contribute to the global atmosphere, regardless of the specific location within the ROI that are produced. While climate change results from the incremental addition of GHG emissions from millions of individual sources, the significance of an individual action alone is impossible to assess on a global scale beyond the overall need for global GHG emission reductions to avoid catastrophic global outcomes. Therefore, the analysis of carbon dioxide equivalent (CO_2e) emissions in this EA is for disclosing the differences between existing conditions and the Action Alternative emissions.

The Action Alternative would generate direct GHG emissions of 336 tons of CO_2e per year from demolition and construction activities. This temporary increase would be the equivalent of 1,840 cars driven for a year, each driving the national average of 13,476 miles. Indirect GHG emissions would be generated by the short-term increase in utilities demand (e.g., water and energy) and by debris from both construction and demolition activities sent to local landfills that will eventually decompose and release methane. Operationally, the reduced workforce required would likely reduce GHG emissions as compared to existing conditions due to the reduction in commuting vehicles and therefore emissions, both for the workforce and their families. This would be a permanent, long-term decrease. Operationally, the emissions from CVN 79 maintenance and other berth activities would be similar to emissions from existing Nimitz-class carrier, so no significant change would be anticipated. Overall, GHG

emission increases are not likely to detract from achieving state, Department of Defense (DoD), and Federal GHG goals.

3.2 Water Resources

Water resources discussed in this section include groundwater, surface water, marine water, and floodplains within the vicinity of the project area for activities associated with the Action Alternative at NAVBASE Kitsap-Bremerton. This section does not discuss wetlands because none occur within the project area. Water bodies, including lakes, rivers, streams, and aquifers are protected under the Clean Water Act of 1972 (CWA 1972) that serves to maintain water body quality in the U.S.

3.2.1 Regulatory Setting

Various Federal, state, and local laws and regulations govern water resources in the state of Washington.

Federally, water resources are protected under the CWA 1972. The CWA 1972 regulates pollutant discharge into waters of the U.S. through the National Pollutant Discharge Elimination System (NPDES) program, to restore and maintain the chemical, physical, and biological integrity of the water. The NPDES program regulates the discharge of point (i.e., end of pipe) and non-point sources (i.e., stormwater) of water pollution.

The USEPA administers the NPDES program within the State of Washington and has general permitting authority. Federal facilities in the State of Washington are eligible for coverage under an individual NPDES permit or the general permits. Construction activities that disturb one or more total acres of land at Federal facilities are eligible for coverage under USEPA's construction general permit (CGP) (Navy, 2021a). Compliance with the CGP requires development of a construction site-specific stormwater pollution prevention plan (SWPPP).

Surface water quality standards contained in WAC 173-210A provide the basis for protecting and regulating the quality of surface waters in the State of Washington. The standards implement portions of the CWA by specifying the designated and potential uses of waterbodies in the state and set water quality criteria to protect those uses and acknowledge limitations. The standards also contain policies to protect high-quality waters (anti-degradation) and specify how criteria are to be implemented.

Section 438 of the Energy Independence and Security Act establishes stormwater design requirements for development and redevelopment projects. Under these requirements, Federal facility projects larger than 5,000 square feet must "maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow."

The criteria and design standards in United Facilities Criteria (UFC) 3-210-10 (DoD, 2023) are required for the planning, design, and construction of all permanent DoD projects in the United States that meet both of the following conditions:

- The project includes construction or expansion of one or more buildings as part of its primary scope (i.e., primary facilities versus supporting facilities).
- The "footprint" is greater than 5,000 gross square feet. Footprint consists of all new impervious surfaces associated with the building(s), including both building area and pavement area of associated supporting facilities (such as parking and sidewalks). Footprint does not include the existing building area to be renovated, existing pavement area to be

resurfaced, or new pavement area other than supporting facilities associated with the building(s).

Requirements and policies regarding stormwater discharges for Navy facilities must comply with all substantive and procedural requirements applicable to point and non-point sources of pollution as required by Executive Order (EO) 12088, *Federal Compliance with Pollution Control Standards*, Department of the Navy's Environmental Readiness Program Manual, OPNAV M-5090.1, and the CWA (Navy, 2021b). Navy policy regarding point source stormwater discharges from Navy facilities is that discharges must meet all applicable Federal, state, and local permit requirements, including control requirements for toxic and non-conventional pollutants and best conventional technology limits for conventional pollutants. The Navy's policy on stormwater management and non-point source pollution control requires commands to ensure that all activities comply with stormwater management and pollution prevention requirements, as stipulated in permits under which the activity is covered.

EO 11988, *Floodplain Management*, requires federal agencies to avoid (to the extent possible) the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development unless it is the only practicable alternative. Flood potential of a site is usually determined by the 100-year floodplain.

EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, amends EO 11988, *Floodplain Management*, and establishes the Federal Flood Risk Management Standard to improve the nation's resilience to current and future flood risks, which are anticipated to increase over time due to the effects of climate change and other threats.

3.2.2 Affected Environment

NAVBASE Kitsap-Bremerton is situated along Sinclair Inlet, which is part of the larger central basin of the Puget Sound that includes major urban and industrial areas. The ROI for water resources analyzed in this EA includes waters within the project area at NAVBASE Kitsap-Bremerton and the Sinclair Inlet with its respective watershed. This section describes existing conditions for water resources within the ROI, including chemical and physical water quality parameters.

3.2.2.1 Existing Conditions

Groundwater

Groundwater is water that exists underground in saturated zones beneath the land surface. Land use controls in the project area prohibit the withdrawal of groundwater for human consumption, equipment maintenance, or equipment decontamination. An aquifer recharge area is located on the western end of NAVBASE Kitsap-Bremerton (Kitsap County, 2021). Most groundwater at NAVBASE Kitsap-Bremerton flows from higher areas into the Sinclair Inlet and the soil surrounding the dry docks (NAVFAC NW, 2022). Strong uplifting forces from the surrounding soil can damage the dry docks; therefore, drainage relief systems have been installed in the vicinity of the dry docks to mitigate uplifting forces and prevent damage to the dry docks (Navy et al., 2004).

Surface Water

Surface waters include lakes, rivers, streams, and wetlands. Sinclair Inlet is approximately 3.5 miles long, with the City of Bremerton to the north and the City of Port Orchard to the south. Freshwater input into the Sinclair Inlet comes from in-flow of groundwater from surrounding slopes and bluffs in the southern and western ends, direct precipitation, and stream runoff. Surface runoff within the Sinclair Inlet

watershed includes contaminants such as pathogens, toxic metals, suspended solids, and oils. Notable streams flowing into Sinclair Inlet include Gorst Creek located in the western end of the Inlet, Blackjack Creek located east of the City of Port Orchard, Ross Creek located west of the City of Port Orchard, and Wright Creek located west of the City of Bremerton (Navy, 2018a). NAVBASE Kitsap-Bremerton contains no streams, natural ponds, lakes, or wetlands (Navy, 2018a).

Stormwater

Most of NAVBASE Kitsap-Bremerton has paved surfaces with an extensive stormwater conveyance system with numerous stormwater outfalls that all drain to Sinclair Inlet (Navy, 2018a). NAVBASE Kitsap-Bremerton currently operates under the 1994 NPDES Industrial Discharge Permit Number WA0002062 (administratively extended since 1998) for discharge to Sinclair Inlet (USEPA Region 10, 1994). The Navy is working with USEPA Region 10 to renew the NPDES Industrial Discharge Permit Number WA0002062. Operational discharges from the existing outfalls at NAVBASE Kitsap-Bremerton will comply with the new permit once it is issued.

Marine Water

Marine waters include waters found in oceans, seas, and saltwater bodies and are characterized by high concentrations of dissolved salts. Maintaining marine water integrity is crucial to marine ecosystems, industries such as fishing, oxygen production from phytoplankton and marine plants, and mitigating climate change through carbon sequestration. The Action Alternative occurs within the waterfront area of NAVBASE Kitsap-Bremerton and contains quay walls, piers, dry docks, and wharves. The waterfront area is directly adjacent to the Sinclair Inlet, which is part of the Puget Sound estuarine system. Sinclair Inlet is less saline than the nearby Pacific Ocean due to freshwater input from stream runoff, in-flow of groundwater, and direct precipitation.

Floodplains

Floodplains, as defined by EO 11988 *Floodplain Management*, include areas defined as flat, lowland areas that are prone to flooding from adjacent water resources with at least a one percent chance of flooding annually. EO 11988 protects floodplains from significant modification and requires Federal agencies to consider the risk when building infrastructure within floodplains. 100-year floodplains are areas that have a one percent or greater chance of flooding each year while the 500-year floodplains are areas that have at least a 0.2 percent chance of flooding each year. A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps indicate that the waterfront area of NAVBASE Kitsap-Bremerton is within Zone AE flood hazard area, which has a one percent annual chance of flood events (100-year floodplain). The waterfront area at NAVBASE Kitsap-Bremerton includes quay walls, piers, dry docks, and wharves. DoD Instruction 4715.03 states the direct and indirect support of floodplain development must be avoided when a viable alternative exists (Navy, 2018a) so that adverse impacts on floodplains are avoided whenever possible.

3.2.3 Environmental Consequences

3.2.3.1 No Action Alternative

Under the No Action Alternative, the Navy would not replace the older Nimitz-class aircraft carrier at NAVBASE Kitsap-Bremerton with a new Ford-class aircraft carrier. The permanent assignment of CVN 79 and personnel to NAVBASE Kitsap-Bremerton would not occur, and the Navy would not provide facilities

and functions. Infrastructure improvements, including upgrades to the electrical distribution system, would not occur at NAVBASE Kitsap-Bremerton.

3.2.3.2 Action Alternative

Under the Action Alternative, the demolition and replacement of an existing upland electrical substation would occur, as well as demolition and replacement of an electrical substation on the carrier pier, and upgrades to associated transformers and switch gears of two electrical substation also located on the pier.

Groundwater

As most of the project area is covered by pavement and buildings, the potential for contact with ground water under the Action Alternative is limited, as long as contaminated materials remain contained and the site usage continues to be industrial according NAVBASE Kitsap Instruction 5090.014, Land Use Controls at NAVBASE Kitsap-Bremerton. The Action Alternative would not affect the quality and quantity of groundwater because support and maintenance for CVN 79 and electrical distribution system upgrades would not extract groundwater, interfere with groundwater supply, or alter existing groundwater quality. Furthermore, groundwater at NAVBASE Kitsap-Bremerton is restricted from being used as a drinking water source. Once construction activities are completed, the Navy would continue to monitor and manage groundwater through restrictions, pavement restoration, and compliance with excavation and land use control plans. Therefore, with the implementation of BMPs and measures for managing groundwater, there would be no significant impacts to groundwater supply and quality under the Action Alternative.

Surface Water

Under the Action Alternative, no adverse impacts are expected as NAVBASE Kitsap-Bremerton contains no streams, natural ponds, lakes, or wetlands.

Stormwater

Under the Action Alternative, electrical distribution system upgrades would not add new paved surfaces because the proposed construction areas within the project area are already covered with paved surfaces. All stormwater runoff from pollution generating surfaces (e.g., buildings, pavement) within proposed construction areas would require management before discharging to the existing stormwater conveyance system within the installation. Underground water quality treatment structures would be designed and installed at construction areas to manage runoff before discharging to the existing stormwater system, which ultimately discharges to the Sinclair Inlet.

During construction activities, some portion of the paved surfaces would likely be removed temporarily. During this period, underlying soils could be exposed to and susceptible to erosion and transport by wind and/or stormwater runoff. Prior to the start of construction, the Navy would apply for coverage under the CGP for Stormwater Discharges from Construction Activities that include measures for managing stormwater runoff and preventing erosion and stormwater transporting soils and pollutants off-site. This permit would require the Navy to prepare a SWPPP that specifies control measures for minimizing the potential for soil erosion. This permit also requires implementation of the best available technology and best conventional pollutant control technology to reduce or eliminate pollutants in stormwater runoff, as well as additional requirements necessary to implement applicable water quality standards. Under the Action Alternative, BMPs listed in *Appendix E* would also be implemented to

prevent untreated stormwater runoff from entering the Sinclair Inlet. These measures include installing catch basins and water detention vaults, which will divert stormwater to existing treatment facilities prior to discharge. Additionally, containment and collection protocols will be in place to prevent dust, dirt, debris, flakes, chips, drips, oil, and other pollutants generated from surface preparation activities from reaching the Inlet. Pier-side fueling and cleaning will also be restricted. A complete list of BMPs is included in *Appendix E*. Therefore, with the implementation of BMPs and measures for managing stormwater runoff, there would be no significant impacts to stormwater runoff volumes or pollutant loadings into Sinclair Inlet under the Action Alternative.

Marine Water

Under the Action Alternative, marine waters are directly adjacent to the project footprint. Construction activities associated with the Action Alternative do not include in-water construction, but upland construction and operational activities have the potential to degrade water quality and integrity of the Sinclair Inlet. Micro-piles to support the new electrical substation will be installed upland (not in-water) using duplex drilling methods. Pierside support and maintenance for CVN 79 could have the potential to impact water quality by introducing contaminants (e.g., petroleum, oils, lubricants, and waste) into adjacent water. These potential impacts would be avoided, minimized, and mitigated using standard operating procedures and impact avoidance and minimization measures (see Section 3.8 Hazardous Materials and Waste). Maintenance activities for CVN 79 are expected to decrease compared to current maintenance activities for the older Nimitz-class carriers. Given an anticipated reduction in frequency of maintenance, the potential for petroleum, oils, lubricants, and waste discharges would be reduced.

To avoid potential contamination, BMPs will be employed to avoid impacts on marine waters from construction activities. Appropriate stormwater pollution BMPs would be implemented in accordance with a project-specific construction SWPPP and in compliance with coverage provisions under the construction stormwater permit; impacts to marine water quality would be minimized through construction and operational BMPs (*Appendix E*) and compliance with CWA 1972 and discharge permits. Therefore, with the implementation of BMPs and measures for managing marine water, there would be no significant impacts to marine waters under the Action Alternative.

Floodplains

The project area is located within the 100-year floodplain. Development within a 100-year floodplain is restricted from EO 11988, Floodplain Management, which requires federal agencies to avoid the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. Section 3(b) of EO 11988 states “If, after compliance with the requirements of this Order, new construction of structures or facilities are to be located in a floodplain, accepted floodproofing and other flood protection measures shall be applied to new construction or rehabilitation. To achieve flood protection, agencies shall, wherever practicable, elevate structures above the base flood level rather than filling in land.”

United Facilities Criteria 3-201-01 specifies that when mission needs require siting a building within or partially within a flood hazard area, the designer of record should obtain and prepare the project-specific *Basis for Flood Risk Design* to determine the appropriate design flood elevation. The appropriate upgrades to the substations on the pier would also account for site-specific sea-level rise scenarios. The remaining project area, where the new substations would be constructed, is FEMA Zone X, considered an area of minimal flood hazard (FEMA, 2017a; FEMA, 2017b). The design of flood protection systems

providing protection to the one percent annual chance flood event would comply with the requirements of 44 CFR section 65.10, and the flood protection system would be certified by the designer of record. By complying with United Facilities Criteria specifications and other applicable guidance, the Action Alternative would not have impacts on flood risk and the project would not alter the function of the floodplain.

Additionally, the proposed new substation would be stabilized by micro-piles. Construction BMPs (*Appendix E*) and project design, such as implementation of appropriate erosion control measures in accordance with a project-specific construction SWPPP and maintaining compliance with the construction stormwater permit, would manage stormwater runoff and decrease the risk of flooding impacts during construction activities. After construction, stormwater would continue to be managed and treated under industrial discharge permits (PSNS & IMF NPDES) to mitigate adverse impacts to floodplains within the vicinity of NAVBASE Kitsap-Bremerton. Therefore, with the implementation of BMPs and measures for mitigating floodplain impacts, there would be no significant impacts to existing floodplains under the Action Alternative.

3.3 Biological Resources

Biological resources include living, native, or naturalized plants and animal species and the habitats within which they occur. Plant associations are referred to generally as vegetation, and animal species are referred to generally as wildlife. Habitat can be defined as the resources and conditions present in an area that support a plant or animal.

Within this EA, biological resources are divided into three major categories: (1) terrestrial vegetation, (2) terrestrial wildlife, and (3) marine species. Marine species are further divided into marine vegetation, marine invertebrates, fishes, essential fish habitat (EFH), marine mammals, and marine birds. Endangered Species Act (ESA) listed species and other special-status species are discussed in their respective categories.

3.3.1 Regulatory Setting

Special-status species, for the purposes of this assessment, are those species listed as threatened or endangered under the ESA and species afforded Federal protection under the Marine Mammal Protection Act (MMPA), the Migratory Bird Treaty Act (MBTA), or the Bald and Golden Eagle Protection Act. In addition, EFH is regulated under the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

The purpose of the ESA is to conserve the ecosystems upon which threatened and endangered species depend and to conserve and recover listed species. Section 7(a)(2) of the ESA requires federal action proponents to consult with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species or result in the destruction or adverse modification of designated critical habitat. Critical habitat cannot be designated on any areas owned, controlled, or designated for use by the DoD where an Integrated Natural Resources Management Plan (INRMP) has been developed that, as determined by the Secretary of the Interior or Secretary of Commerce, provides a benefit to the species subject to critical habitat designation.

All marine mammals are protected under the provisions of the MMPA. The MMPA prohibits any person or vessel from “taking” marine mammals in the United States or on the high seas without authorization.

The MMPA defines "take" to mean "to harass, hunt, capture, or kill or attempt to harass, hunt, capture, or kill any marine mammal."

Both migratory birds and most native-resident bird species are protected under the MBTA, and their conservation by Federal agencies is mandated by EO 13186, *Migratory Bird Conservation*. Under the MBTA it is unlawful by any means or in any manner to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, [or] possess migratory birds or their nests or eggs at any time, unless permitted by regulation. The 2003 National Defense Authorization Act gave the Secretary of the Interior authority to prescribe regulations to exempt the Armed Forces from the incidental taking of migratory birds during authorized military readiness activities. The final rule authorizing the DoD to take migratory birds in such cases includes a requirement that the Armed Forces must confer with the USFWS to develop and implement appropriate conservation measures to minimize or mitigate adverse effects of the Proposed Action if the action will have a significant negative effect on the sustainability of a population of a migratory bird species.

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are protected by the Bald and Golden Eagle Protection Act. This act prohibits anyone, including the Federal government, from taking eagles, including their parts, nests, or eggs without first obtaining a permit issued by the Secretary of the Interior. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb."

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297) led to the formation of eight Fishery Management Councils (FMCs) that share authority with NMFS to help regulate and oversee fishery management in Federal waters (NMFS, 2022). The MSA, defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" of certain managed fisheries species (16 United States Code section 1802[10]). EFH designations include descriptions of the physical and biological environment and the location of all necessary habitats. The EFH regulations clarify that "waters" may include aquatic areas and their associated physical, chemical, and biological properties that are used by the managed fish species, and those areas historically used by those species, where appropriate. "Substrate" includes sediment, hard bottom, structures underlying the waters and associated biological communities (e.g., seagrass). "Necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem. "Spawning, breeding, feeding, and growth to maturity" covers a species' full life cycle (50 CFR section 600.10).

3.3.2 Affected Environment

The ROI for the upland area of NAVBASE Kitsap-Bremerton is the project footprint as shown in Figure 2.1-2. The ROI for the marine area of the installation is the nearshore waterfront of Sinclair Inlet. This section describes the existing conditions of the upland area of the ROI for terrestrial vegetation and terrestrial wildlife and existing conditions of the marine area of ROI for marine species at NAVBASE Kitsap-Bremerton.

3.3.2.1 Terrestrial Vegetation

The upland area of NAVBASE Kitsap-Bremerton is primarily industrial and administrative in function with a mix of paved surfaces and maintained landscaped areas around buildings. Within the landscaped areas of the installation, the primary coniferous trees include Douglas fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), western red cedar (*Thuja plicata*), and western white pine (*Pinus*

monticola). Native deciduous tree species include red alder (*Alnus rubra*), bigleaf maple (*Acer macrophyllum*), and Pacific madrone (*Arbutus menziesii*). Native understory plants such as Indian plum (*Oemleria cerasiformis*), elderberry (*Sambucus* sp.), salmonberry (*Rubus spectabilis*), and rhododendron (*Rhododendron macrophyllum*), as well as ornamental trees, fruit trees, and shrubs make up the remaining vegetation that occurs at the installation and within upland portions of the ROI (Navy, 2018a).

3.3.2.2 Terrestrial Wildlife

Terrestrial wildlife that may be present at NAVBASE Kitsap-Bremerton are those common within developed areas within Kitsap County, which include Douglas squirrel (*Tamiasciurus douglasii*), coyote (*Canis latrans*), opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), river otter (*Lutra canadensis*), and deer (*Odocoileus* sp.). Amphibians and reptiles, such as American bull frog (*Lithobates catesbeianus*), common gartersnake (*Thamnophis sirtalis*), Northwestern salamander (*Ambystoma gracile*), and Northern alligator lizard (*Elgaria coerulea*), may occur within the vegetated areas of the installation.

Birds that are associated with the upland vegetation that may be present at NAVBASE Kitsap-Bremerton include American robin (*Turdus migratorius*), house finch (*Haemorhous mexicanus*), and northwestern crow (*Corvus caurinus*) (Navy, 2018a). There are no ESA-listed terrestrial wildlife occurring within the ROI.

3.3.2.3 Marine Species

The Action Alternative does not involve in-water work. However, aquatic species may be affected by stormwater runoff and have been included for analysis. Marine vegetation, invertebrates, fishes, EFH, marine mammals, and marine birds are presented below.

ESA-Listed Marine Animals

Five fish species, two marine mammal species, and a marine bird are ESA listed, and one invertebrate is proposed ESA-listed that may occur within the ROI (Table 3.3-1). No designated critical habitat occurs in the ROI. Figure 3.3-1 through Figure 3.3-4 show the nearest designated critical habitat for Puget Sound Evolutionarily Significant Unit (ESU) Chinook, Puget Sound Distinct Population Segment (DPS) steelhead, Puget Sound/Georgia Basin DPS bocaccio and yelloweye rockfish, and Southern Resident DPS killer whale.

Table 3.3-1 Presence and Status of Endangered Species Act-listed and Proposed ESA-Listed Species and their Designated Critical Habitat within the ROI

Common Name (ESU[1]/DPS[2])	*Scientific Name*	*ESA Status*	*Species Initial Ruling and Applicable Updates Final Rule (Publication Date; Effective Date)*	*Critical Habitat Designation Initial Ruling and Applicable Updates Final Rule (Publication Date; Effective Date)*	*Critical Habitat Present within the ROI (Designated/ Not Designated/ Exclusion)[3]*
Salmonid Species					
Chinook salmon (Puget Sound ESU)	*Oncorhynchus tshawytscha*	T	64 FR 14308 (March 24, 1999; May 24, 1999) 70 FR 37159 (June 28, 2005; August 29, 2005) 79 FR 20802 (April 14, 2014)[1]	70 FR 52629 (September 2, 2005; January 2, 2006)	**Designated**. Critical habitat designation does not include the DoD restricted space within Sinclair Inlet covered by installation INRMP
Steelhead (Puget Sound DPS)	*Oncorhynchus mykiss*	T	72 FR 26722 (May 11, 2007; June 11, 2007) 79 FR 20802 (April 14, 2014)[1]	81 FR 9251 (February 24, 2016; March 25, 2016)	**Designated outside the ROI**. Designated in freshwater only, including Gorst, Blackjack, Anderson, and Ross Creeks tributary to Sinclair Inlet. Closest designated area is approximately 1.4 km (0.76 nm)

Common Name (ESU[1]/DPS[2])	***Scientific Name***	***ESA Status***	***Species Initial Ruling and Applicable Updates Final Rule (Publication Date; Effective Date)***	***Critical Habitat Designation Initial Ruling and Applicable Updates Final Rule (Publication Date; Effective Date)***	***Critical Habitat Present within the ROI (Designated/ Not Designated/ Exclusion)[3]***
Bull trout (Coterminous United States DPS [Coastal Recovery Unit])	*Salvelinus confluentus*	T	64 FR 58910 (November 1, 1999; December 1, 1999)	70 FR 56212 (September 26, 2005; October 10, 2005) 75 FR 63897 (October 18, 2010; November 17, 2010)	**Designated outside the ROI**. Closest designated area is approximately 16 km (8.6 nm east)
Rockfish Species					
Bocaccio rockfish (Puget Sound/Georgia Basin DPS)	*Sebastes paucispinis*	E	75 FR 22276 (April 28, 2010; July 27, 2010) 82 FR 7711 (January 23, 2017; March 24, 2017)	79 FR 68041 (November 13, 2014; February 11, 2015) correction 80 FR 7977 (February 13, 2015; February 11, 2015)[2]	**Designated**. Does not include the DoD restricted areas in Sinclair Inlet covered by the installation INRMP
Yelloweye rockfish (Puget Sound/Georgia Basin DPS)	*Sebastes ruberrimus*	T	75 FR 22276 (April 28, 2010; July 27, 2010) 82 FR 7711 (January 23, 2017; March 24, 2017)	79 FR 68041 (November 13, 2014; February 11, 2015) correction 80 FR 7977 (February 13, 2015; February 11, 2015)	**Designated**. Not designated within DoD exclusion area of the naval restricted areas in Sinclair Inlet

Common Name (ESU[1]/DPS[2])	***Scientific Name***	***ESA Status***	***Species Initial Ruling and Applicable Updates Final Rule (Publication Date; Effective Date)***	***Critical Habitat Designation Initial Ruling and Applicable Updates Final Rule (Publication Date; Effective Date)***	***Critical Habitat Present within the ROI (Designated/ Not Designated/ Exclusion)[3]***
Marine Mammals					
Humpback whale (1) Mexico DPS (2) Central America DPS	*Megaptera novaeangliae*	(1)-T (2)-E	81 FR 62305, 62259 (September 8, 2016; October 11, 2016)	86 FR 21082 (April 21, 2021; May 21, 2021)	**Not designated**. Closest designated area is within the Strait of Juan de Fuca, west of Angeles Point (approximately 90 km north)
Killer whale (Southern Resident DPS)	*Orcinus orca*	E	70 FR 69903 (November 18, 2005; February 16, 2006)	71 FR 69054 (November 29, 2006; December 29; 2006) 86 FR 41668 (August 2, 2021; September 1, 2021)	**Designated**. Exclusion from critical habitat within the DoD exclusion area of the naval restricted areas in Sinclair Inlet
Birds					
Marbled murrelet	*Brachyramphus marmoratus*	T	57 FR 45328 (October 1, 1992; September 28, 1992)[3]	76 FR 61599 (October 5, 2011; November 4, 2011) 81 FR 51348 (August 4, 2016)	**Designated outside the ROI.** Closest designation is approximately 25 km west within the terrestrial environment.

Common Name (ESU[1]/DPS[2])	*Scientific Name*	*ESA Status*	*Species Initial Ruling and Applicable Updates Final Rule (Publication Date; Effective Date)*	*Critical Habitat Designation Initial Ruling and Applicable Updates Final Rule (Publication Date; Effective Date)*	*Critical Habitat Present within the ROI (Designated/ Not Designated/ Exclusion)[3]*
Marine Invertebrates					
Sunflower sea star	*Pycnopodia helianthoides*	PT	81 FR 16212 (March 16, 2023)	--	**Not Proposed**

Notes: 1 – Publication and Effective Date are the same; 2 – Correcting amendment; 3 – Effective date occurred earlier than publication date due to an order of the U.S. District Court, Western District of Washington at Seattle, dated 15 September 1992.

(1) ESU is a population of organisms that is considered distinct for purposes of conservation. A species with more than one ESU can have more than one ESA listing status, as individual ESUs can be either not listed under the ESA or can be listed as an endangered, threatened, or candidate species.

(2) A species with more than one DPS can have more than one ESA listing status, as individual DPSs can be either not listed under the ESA or can be listed as an endangered, threatened, or candidate species.

(3) Although critical habitat is designated in the ROI, NAVBASE Kitsap-Bremerton is excluded based on national security impacts.

Key: DoD = Department of Defense; DPS = Distinct Population Segment; E = Endangered; ESA = Endangered Species Act; ESU = Evolutionarily Significant Unit; km = kilometers; NAVBASE = Naval Base; nm = nanometers; PT=Proposed Threatened; ROI = Region of Influence; T = Threatened.

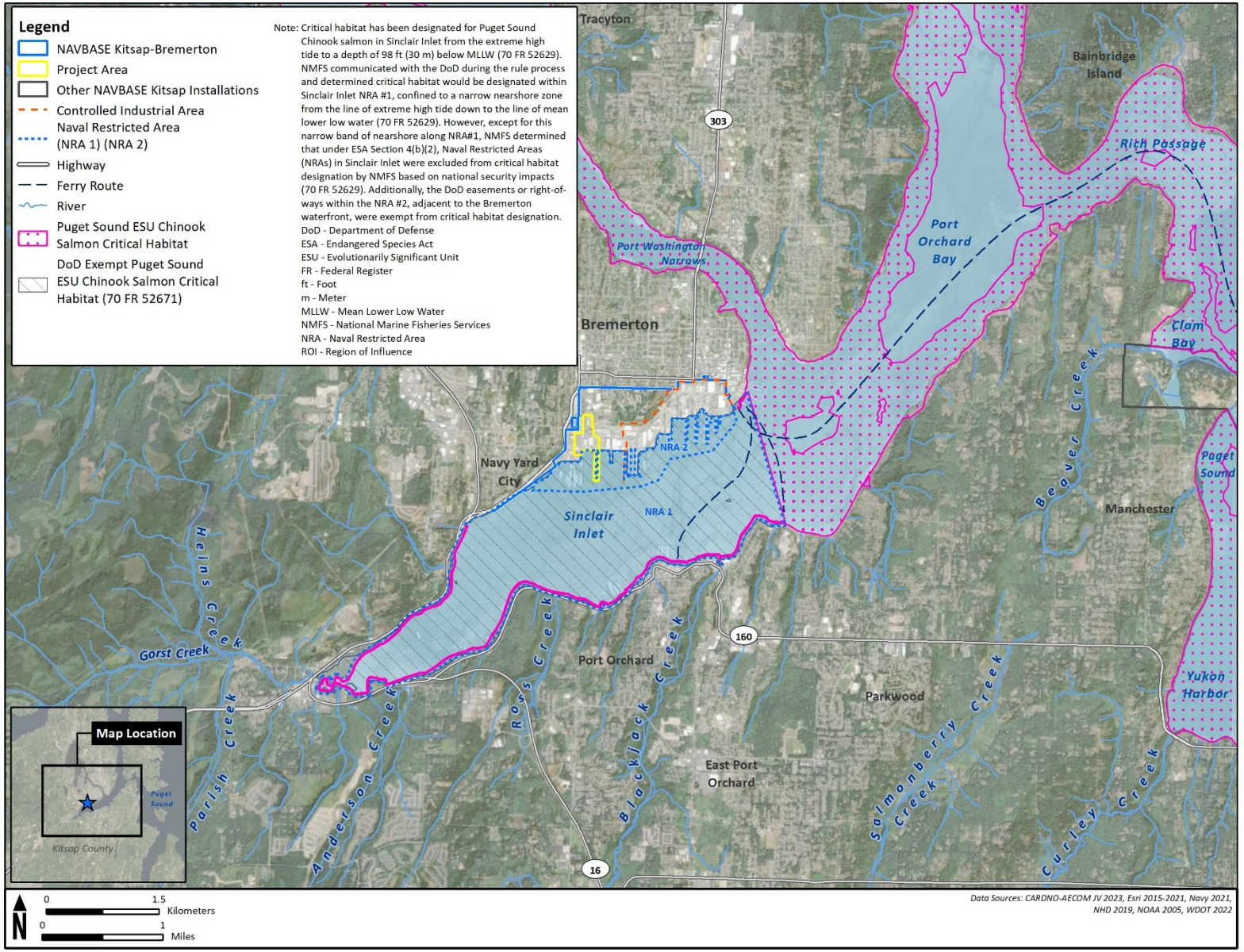

Figure 3.3-1 Puget Sound Chinook ESU Designated Critical Habitat Nearest to the ROI

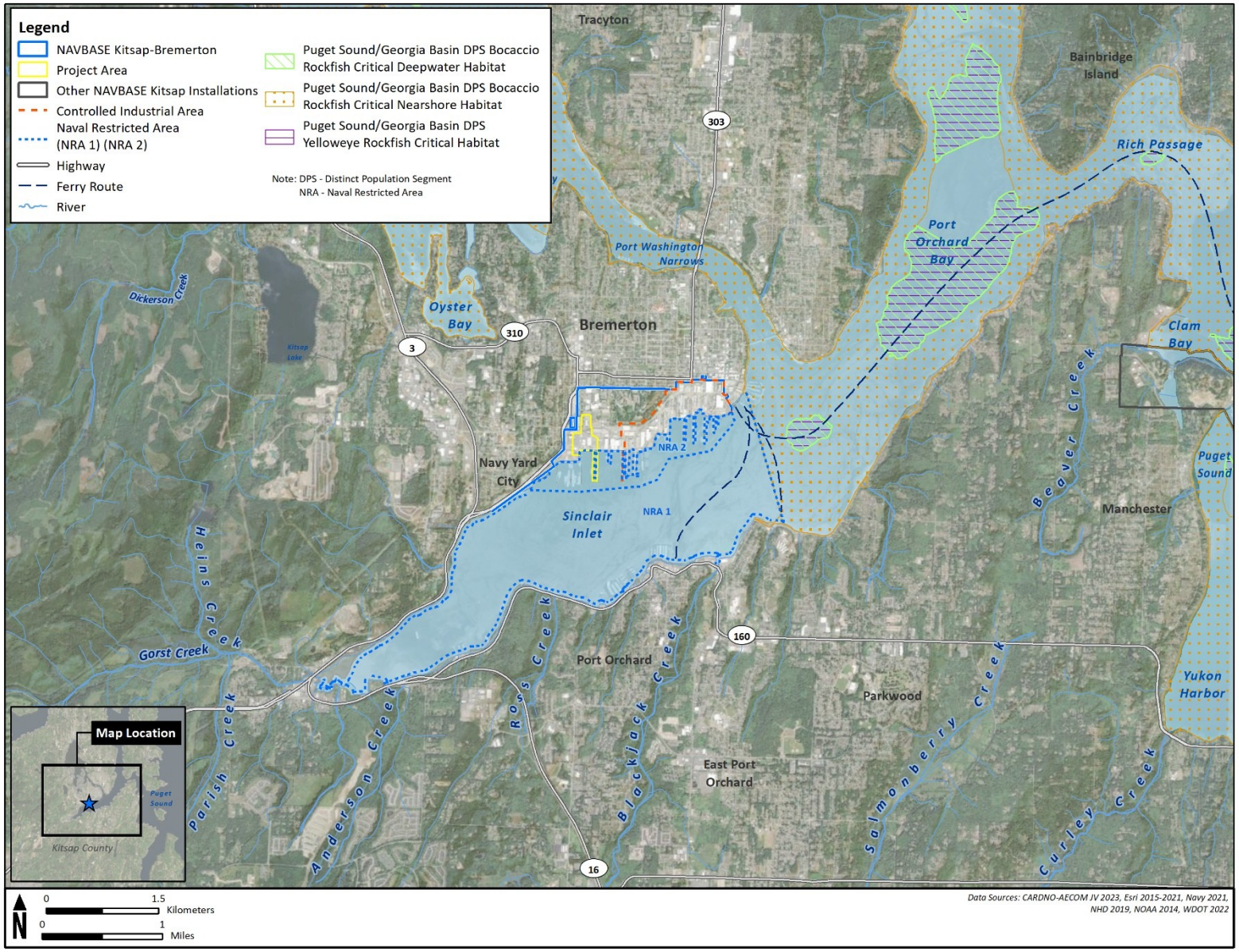

Figure 3.3-2 Puget Sound /Georgia Basin Bocaccio and Yelloweye Rockfish DPS Designated Critical Habitat Nearest to the ROI

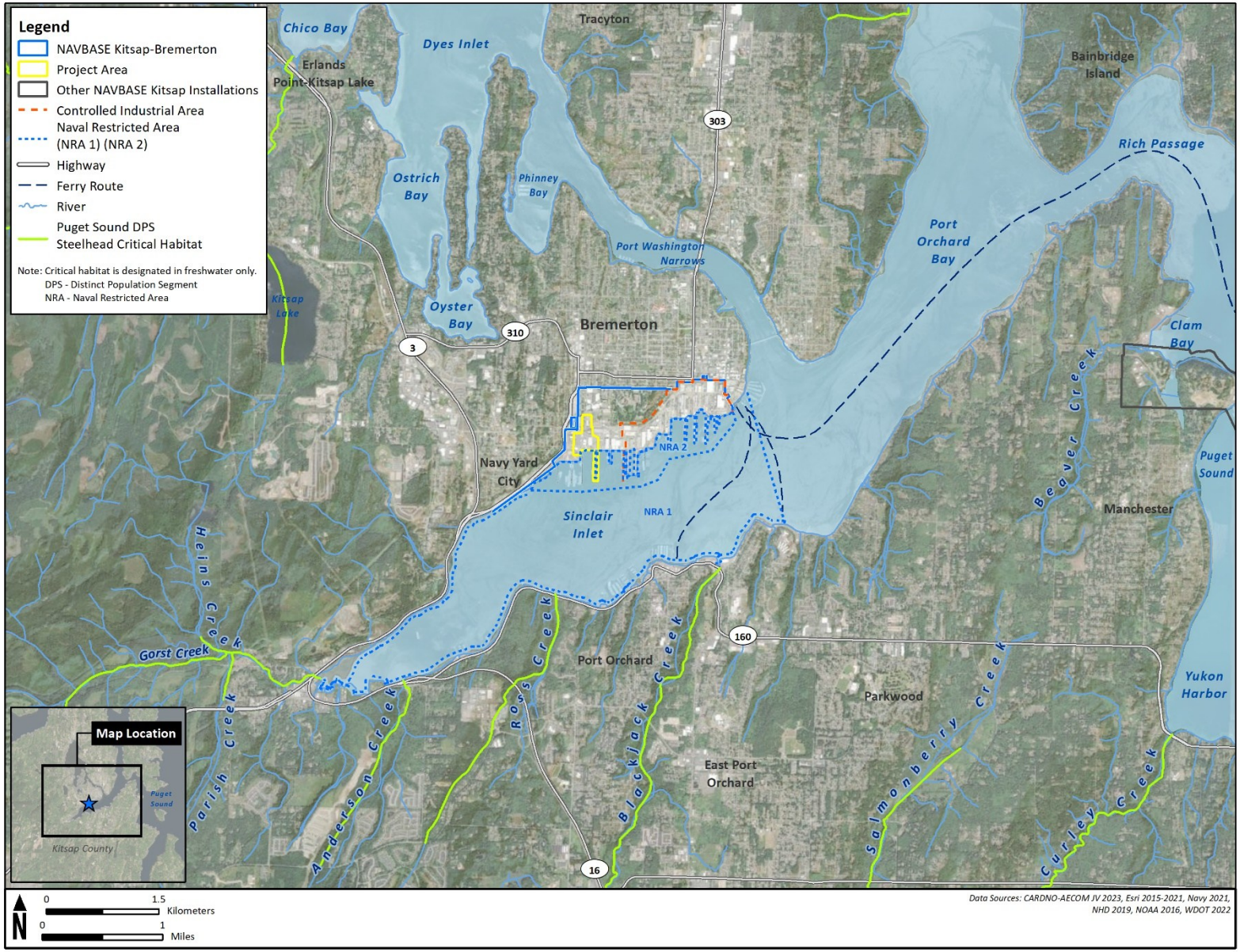

Figure 3.3-3 Puget Sound Steelhead DPS Designated Critical Habitat Nearest to the ROI

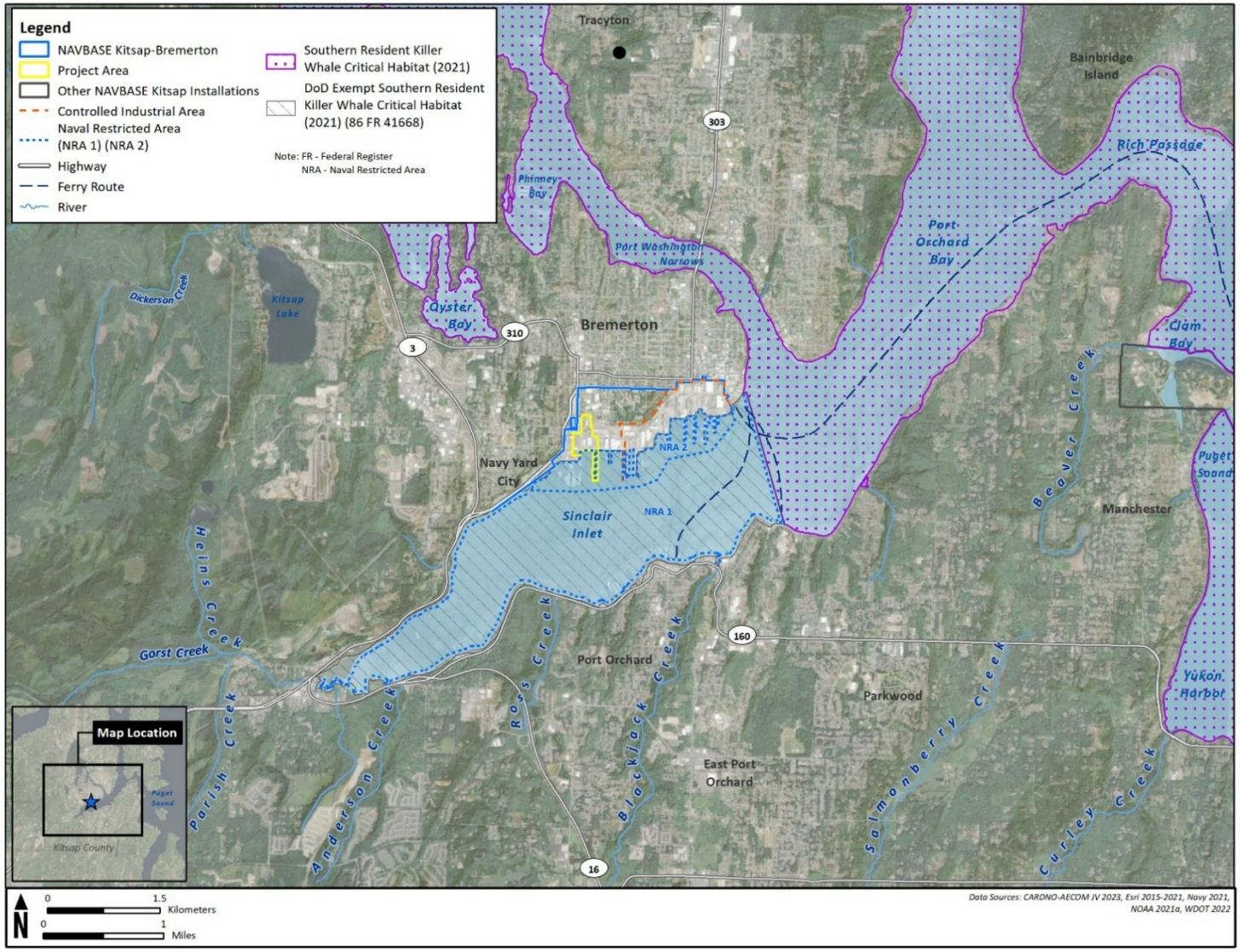

Figure 3.3-4 Southern Resident Killer Whale DPS Designated Critical Habitat Nearest to the ROI

Marine Vegetation

Marine vegetation includes plants (e.g., eelgrass) and macroalgae. Table 3.3-2 contains various marine vegetation that may occur within Sinclair Inlet and adjacent aquatic areas and depicted in Figure 3.3-5. However, NAVBASE Kitsap-Bremerton ROI is limited to macroalgae (Figure 3.3-6).

Table 3.3-2 Marine Vegetation in Sinclair Inlet and Adjacent Aquatic Areas

Vegetation Type	*Ecological Role*	*Location in Sinclair Inlet and Adjacent Aquatic Areas*
Eelgrass (*Zostera spp.*)	Provides food, shelter, and nursery habitat for a wide range of nearshore marine organisms. Helps prevent erosion and maintain shoreline stability. Indicator of changes to water quality.	Uncommon in Sinclair Inlet; closest documented location on southern shore, approximately 1 mile (2 kilometers) east of NAVBASE Kitsap-Bremerton waterfront
Surfgrass (*Phyllospadix spp.*)	Provides food, shelter, and rearing habitat for aquatic species.	Closest mapped location on southern shore, approximately 0.8-mile (1.3 kilometer) east of NAVBASE Kitsap-Bremerton waterfront
Kelp (Order *Laminariales*)	Provides food and refuge for a wide variety of invertebrates and fishes, especially juvenile rockfishes, and foraging habitat for marine mammals. Provide high primary productivity in nearshore waters. Important source of carbon in food webs.	Common east of NAVBASE Kitsap-Bremerton waterfront and in Port Washington Narrows, closest mapped location approximately 0.3-mile (0.5 kilometer) east of NAVBASE Kitsap -Bremerton waterfront
Wireweed (*Sargassum muticum*)	Non-native species that provides habitat for invertebrates but reduces biodiversity by outcompeting native marine vegetation.	Closest mapped location on southern shore, approximately 0.6-mile (1 kilometer) east of the NAVBASE Kitsap-Bremerton waterfront
Sea lettuce (*Ulva spp.*)	Primary producer that forms the basis of many food webs.	Common along the NAVBASE Kitsap-Bremerton waterfront, observed at depths of up to 58 feet (18 meters), most common in shoreline areas with rocky substrate (riprap) or debris Common throughout Sinclair Inlet and adjacent aquatic areas
Other brown, green, and red macroalgae	Primary producers that form the basis of many food webs. May provide habitats for other marine species.	Observed along the NAVBASE Kitsap-Bremerton waterfront Mapped in Sinclair Inlet and adjacent aquatic areas

Key: spp. = species; NAVBASE = Naval Base.

Sources: Washington State Department of Natural Resources 2023a-c; Gelfenbaum et al., 2006; Mumford 2007; Whatcom County Marine Resources Committee 2021; Navy 2021c.

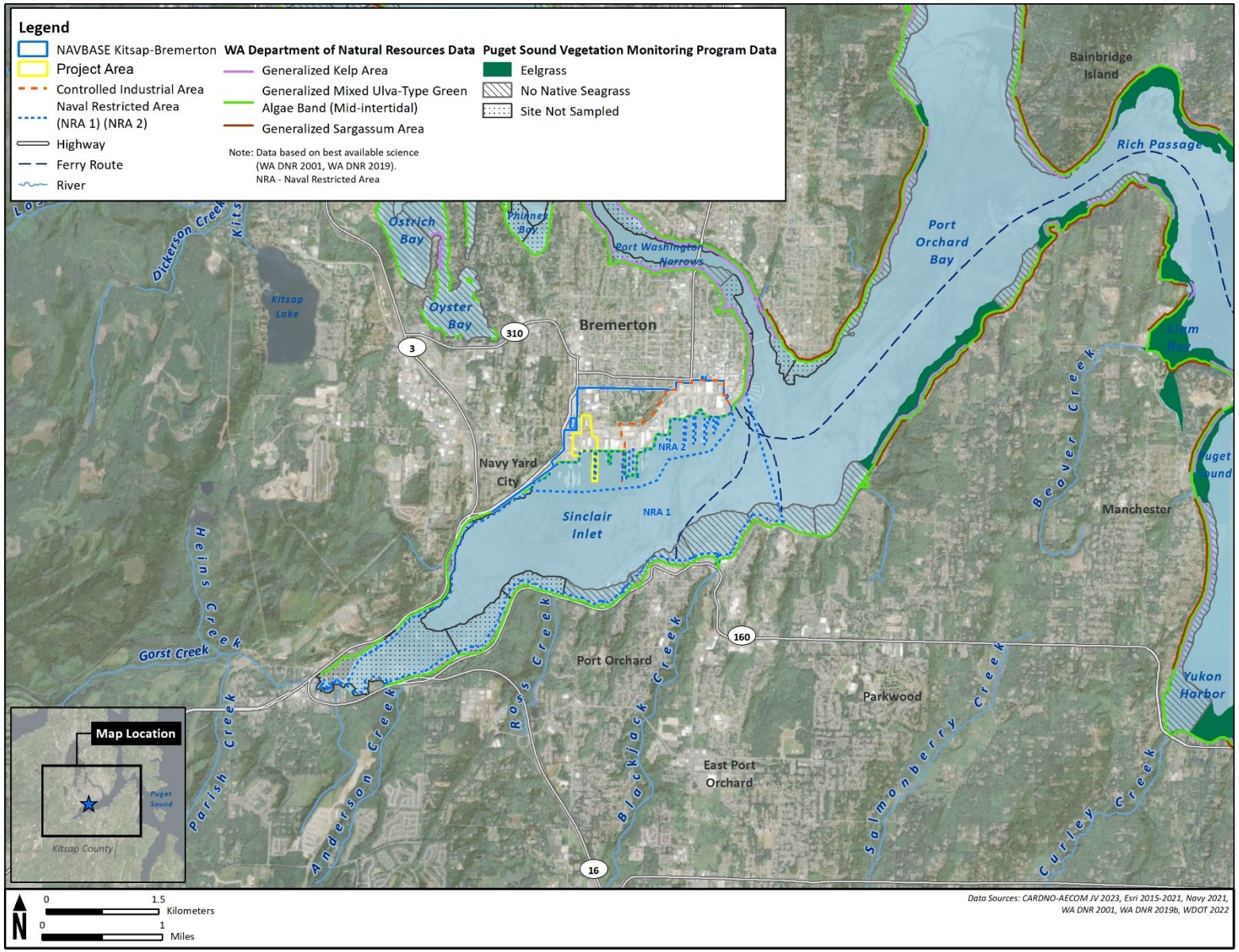

Figure 3.3-5 Generalized Seagrass and Macroalgae Distribution Within the ROI

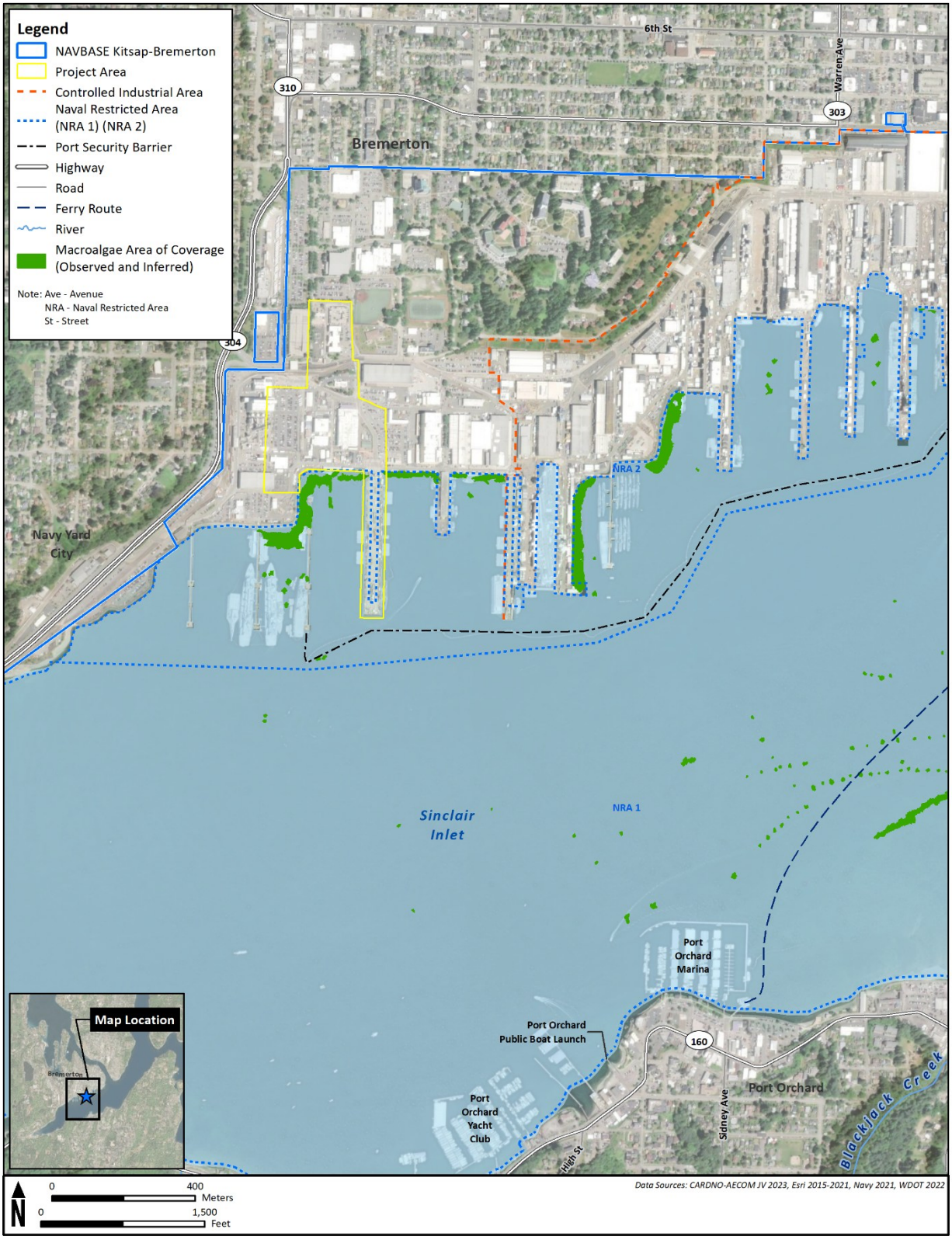

Figure 3.3-6 Distribution of Macroalgae within the ROI (NAVBASE Kitsap-Bremerton Waterfront)

Marine Invertebrates

The community of organisms that live on, in, or near the seafloor is referred to as the benthos. Most of these animals lack a backbone and are called invertebrates. Typical benthic invertebrates include sea anemones, sponges, corals, sea stars, sea urchins, worms, bivalves, and crabs.

No data on distribution or abundance of invertebrates is available for NAVBASE Kitsap-Bremerton, and there have been no comprehensive surveys of invertebrates specific to the waterfront portion of the ROI. However, various studies of marine biota at NAVBASE Kitsap-Bremerton have identified some marine invertebrates that may be present. Examples of common benthic species in the waterfront area include brittle stars (*Amphiodia urtica*), snails (*Odostomia* spp.), sea anemones (*Anthopleura* spp.), shrimp (*Palaemon* spp.), nudibranchs (Nudibranchia), sponges (Porifera), sea cucumbers (*Apostichopus californicus* and *Cucumaria* spp.), sea stars (Asteroidea), and tubeworms (*Serpula vermicularis*) (Navy, 2018a). Common shellfish species include various clams, crabs, and mussels (Mytilidae), limpets (Lottiidae), barnacles (*Balanus* and *Semibalanus* spp.), cockle (*Clinocardium nuttallii*), and geoduck (*Panopea generosa*) (Navy, 2018a).

Fishes

Based on surveys conducted in Sinclair Inlet (Fresh et al., 2006; Frierson et al., 2016; Lowry et al., 2013; Meador, 2014; Navy, 2020c; Pacunski et al., 2022), ten taxonomic groups of marine and anadromous fishes may occur within Sinclair Inlet (Table 3.3-3).

Forage Fish

Forage fish in Puget Sound consist of a variety of small schooling fish, which are major prey for many species of fish, birds, and marine mammals. In addition, several species are subject to commercial and recreational fisheries (Bargmann, 1998). Four species of forage fish have been documented in Sinclair Inlet: Pacific herring (*Clupea pallasii*), surf smelt (*Hypomesus pretiosus*), Pacific sand lance (*Ammodytes personatus*), and northern anchovy (*Engraulis mordax*) (Frierson et al., 2016; Pacunski et al., 2022). Other forage fish present in Puget Sound in smaller numbers are longfin smelt (*Spirinchus thaleichthys*), and other species of smelt (Osmeridae) (Penttila, 2007).

The closest forage fish spawning beaches (Pacific sand lance and surf smelt) are located west and south of NAVBASE Kitsap-Bremerton. Forage fish surveys conducted in 2004, 2005, 2019, 2021, and 2022 at Charleston Beach, located on the west end of the NAVBASE Kitsap-Bremerton waterfront, confirmed surf smelt spawning activity September through May (Rudell, Paul pers. comm., 2022; WDFW, 2005, 2019); additionally, there are forage fish spawning beaches across Sinclair Inlet on the City of Port Orchard's shoreline (WDFW, 2023; Figure 3.3-7). Herring spawning occurs within the Port Orchard-Madison area of South-Central Puget Sound from January through mid-April; surf smelt spawn during summer (May-August), fall-winter (September-March), or year-round in Sinclair Inlet; and Pacific sand lance spawn between November and February (Penttila, 2007).

Table 3.3-3 Taxonomic Groups of Fishes within Sinclair Inlet

Taxonomic Group [1]	*Description*	*Distribution within the ROI*
Batrachoidiformes (plainfin midshipmen)	Broad and flattened head, barbels and fleshy flaps on head, wide mouth	Seafloor
Clupeiformes (anchovy, herring)	Some are anadromous, while others are migratory between the ocean, bays, estuaries, and rivers	Surface, water column
Gadiformes (Pacific tomcod, pollock)	Important commercial fishery resources, associated with bottom habitats	Water column, seafloor
Gasterosteiformes (tubesnout, pipefish, sticklebacks)	Small mouth with tubular snout and armor-like scales; shows a high level of parental care	Surface
Osmeriformes (smelts)	Some are anadromous, while others are migratory between the ocean, bays, estuaries, and rivers	Surface, water column
Perciformes (perch, goby, sandlance)	Largest and most diverse group of bony fishes	Bottom habitat
Pleuronectiformes (flounders)	Occur in bottom habitats throughout the world where they are well camouflaged	Seafloor
Rajiformes (skates)	Large, flat, angular pectoral discs; slender tail	Seafloor
Salmoniformes (salmon, trout)	Some are anadromous, while others are migratory between the ocean, bays, estuaries, and rivers	Surface, water column
Scorpaeniformes (rockfishes, sculpin)	Larval stages are pelagic; depending on species, juveniles and adults can be demersal (bottom oriented) or pelagic	Water column, seafloor

Legend: ROI = Region of Influence.
Notes: [1] Taxonomic groups are based on the following commonly accepted references: Bizzarro et al. (2022).

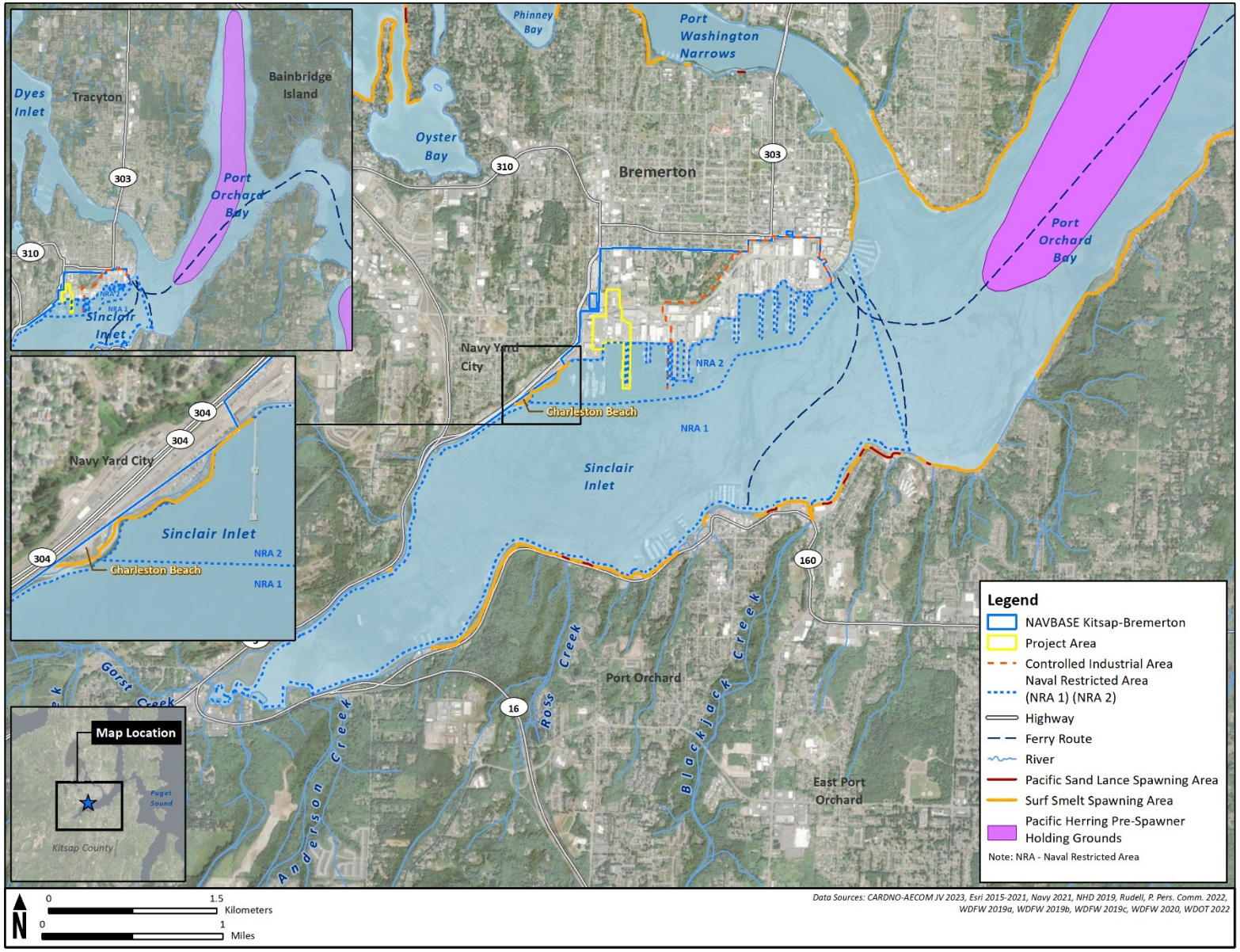

Figure 3.3-7 Forage Fish Spawning Areas within the ROI

Essential Fish Habitat

Federal agencies are required to consult with NMFS on proposed actions authorized, funded, or undertaken by the agency that may adversely affect EFH (MSA section 305[b][2]). NMFS is required to provide conservation recommendations for any Federal activity that would adversely affect EFH under the MSA (section 305[b][4][A]). "Adverse effects" may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR section 600.810).

In addition to EFH designations, areas called Habitat Areas of Particular Concern (HAPC) are also designated by the regional Fishery Management Councils (FMCs). Designated HAPC are discrete subsets of EFH that provide extremely important ecological functions or are especially vulnerable to degradation (50 CFR section 600.805-600.815). Regional FMCs may designate a specific habitat area as an HAPC based on one or more of the following reasons: (1) importance of the ecological function provided by the habitat; (2) the extent to which the habitat is sensitive to human-induced environmental degradation; (3) whether, and to what extent, development activities are, or will be, stressing the habitat type; and (4) rarity of the habitat type (67 FR 2343–2383). Categorization as HAPC does not confer additional protection or restriction to the designated area.

Pursuant to the MSA, the Pacific Fishery Management Council (PFMC) has designated EFH for federally managed species within the waters of Washington, Oregon, and California. The waters of the greater Puget Sound are designated EFH for Pacific coast groundfish, coastal pelagic species, and Pacific coast salmon (PFMC, 2023, 2024a, 2024b, respectively). Table 3.3-4 provides a list of species/life stages and their designated EFH within Sinclair Inlet. Figures 3.3-8 and 3.3-9 show HAPCs for Pacific coast groundfish and Pacific coast salmon in Sinclair Inlet.

Table 3.3-4 Fishes with Designated EFH Occurring within Sinclair Inlet

Species	*Applicable Life Stages*	*Habitat*
Pacific Coast Groundfish		
Arrowtooth flounder *(Atheresthes stomias)*	L, E	Unconsolidated bottom, epipelagic zone
Big skate (*Raja binoculata*)	A, J, E	Mixed sediments
Black rockfish *(Sebastes melanops)*	A, J	Vegetated bottom, hard bottom, unconsolidated sediment
Blue rockfish *(Sebastes mystinus)*	A, L	Vegetated bottom, hard bottom, epipelagic zone
Bocaccio *(Sebastes paucispinis)*	A, J	Steep slopes consisting of sand or rocky substrates
Brown rockfish *(Sebastes auriculatus)*	A, J	Rocky habitat, artificial structures, kelp
Butter sole *(Isopsetta isolepis)*	A	Muddy or silty sediment
Cabezon *(Scorpaenichthys marmoratus)*	A	Hard bottom
California skate *(Raja inornata)*	E	Soft (muddy) bottom sediments
Canary rockfish *(Sebastes pinniger)*	A, J	Rocky, coarse habitat
China rockfish *(Sebastes nebulosus)*	J	Rocky reef, vegetated bottoms (kelp)
Copper rockfish *(Sebastes caurinus)*	A, J	Rocky reef, artificial structures, kelp
Dover sole *(Microstomus pacificus)*	J	Muddy bottom
English sole *(Parophrys vetulus)*	A, J, L	Unconsolidated bottom, epipelagic zone
Flathead sole *(Hippoglossoides elassodon)*	J	Unconsolidated sediments
Greenstriped rockfish *(Sebastes elongatus)*	A	Sandy, coarse sediments
Kelp greenling *(Hexagrammos decagrammus)*	A, L	Rocky reefs near dense algae or kelp, epipelagic zone
Lingcod *(Ophiodon elongates)*	A, J, E	Unconsolidated sediments, rocky reefs, kelp and eelgrass beds, epipelagic zone
Longnose skate *(Raja rhina)*	A, J, E	Mixed sediments
Pacific cod *(Gadus macrocephalus)*	E	Unconsolidated sediments
Pacific grenadier *(Coryphaenoides acrolepis)*	E, L	Unconsolidated sediments, epipelagic zone
Pacific hake *(Merluccius productus)*	A	Epipelagic zone
Pacific sanddab *(Citharichthys sordidus)*	A, J, L, E	Mixed bottom, unconsolidated, epipelagic zone
Petrale sole *(Eopsetta jordani)*	J	Soft sediments
Quillback rockfish *(Sebastes maliger)*	A, J	Artificial structure, rocky reef, mixed bottom, vegetated bottom
Rex sole *(Glyptocephalus zachirus)*	J	Unconsolidated sediments
Rock sole *(Lepidopsetta bilineata)*	A	Hard bottom
Sablefish *(Anoplopoma fimbria)*	A, E	Unconsolidated sediments, drifting kelp, epipelagic zone
Sand sole *(Psettichthys melanostictus)*	A, J, L	Unconsolidated sediments, epipelagic zone
Shortspine thornyhead *(Sebastolobus alascanus)*	A	Deep, high rocky relief habitats
Soupfin shark *(Galeorhinus zyopterus)*	A, J	Unconsolidated sediments, epipelagic zone
Northern Pacific spiny dogfish *(Squalus acanthias)*	A, J	Unconsolidated sediments, epipelagic zone
Splitnose rockfish *(Sebastes diploproa)*	L	Muddy, vegetated bottoms (specifically eelgrass and kelp), epipelagic zone

Table 3.3-4 Fishes with Designated EFH Occurring within Sinclair Inlet

Species	*Applicable Life Stages*	*Habitat*
Spotted ratfish *(Hydrolagus colliei)*	A, J, E	Unconsolidated sediments, low-relief rocky
Starry flounder *(Platichthys stellatus)*	A, J, E	Unconsolidated sediments, epipelagic zone
Yelloweye rockfish *(Sebastes ruberrimus)*	A, J	Deep, high-relief rocky habitat, steep slopes
Yellowtail rockfish *(Sebastes flavidus)*	J	Deep, high-relief rocky habitat, steep slopes
Vermilion rockfish *(Sebastes miniatus)*	A	Deep, high-relief rocky habitat, steep slopes
Coastal Pelagics		
Market squid *(Loligo opalescens)*	A	All estuarine waters above the thermocline and ranging between 10 and 26°C (50 to 79°F).
Northern anchovy *(Engraulis mordax)*	A, L, E	Same as for market squid.
Pacific Coast Salmon		
Chinook *(Oncorhynchus tshawytscha)*	A, J	Estuarine waters and substrates, including the nearshore and tidal submerged environments, and most freshwater bodies historically accessible to salmon (except above certain impassable natural barriers)
Coho *(Oncorhynchus kisutch)*	A, J	Same as for Chinook
Pink *(Oncorhynchus gorbuscha)*	A, J	Same as for Chinook

Key: A = adult; E = eggs; J = juvenile; L = larvae.
Source: Pacific Fishery Management Council, 1998, 2005, 2014, 2023, 2024a, b; NMFS, 2022.

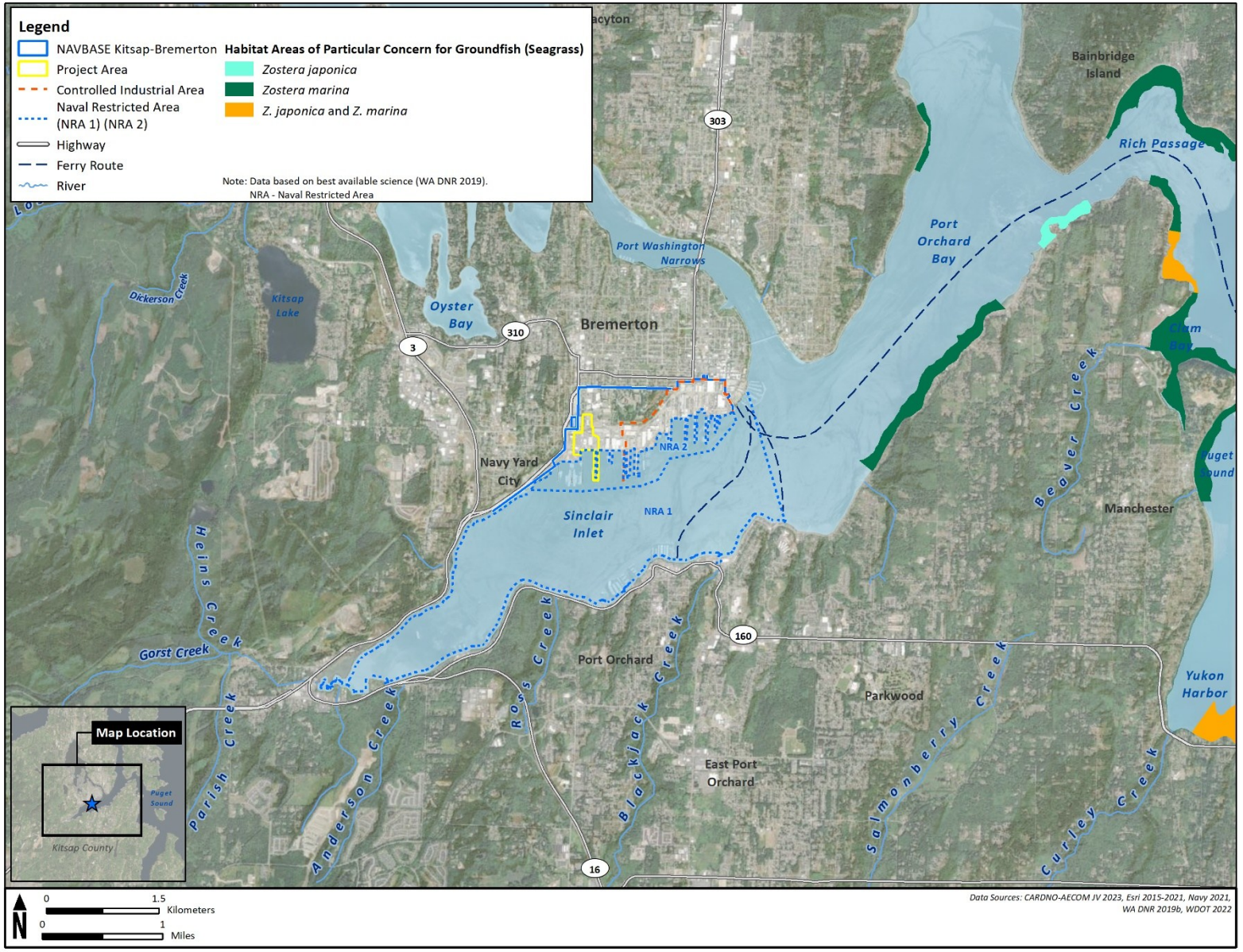

Figure 3.3-8 Pacific Coast Groundfish HAPC – Seagrass

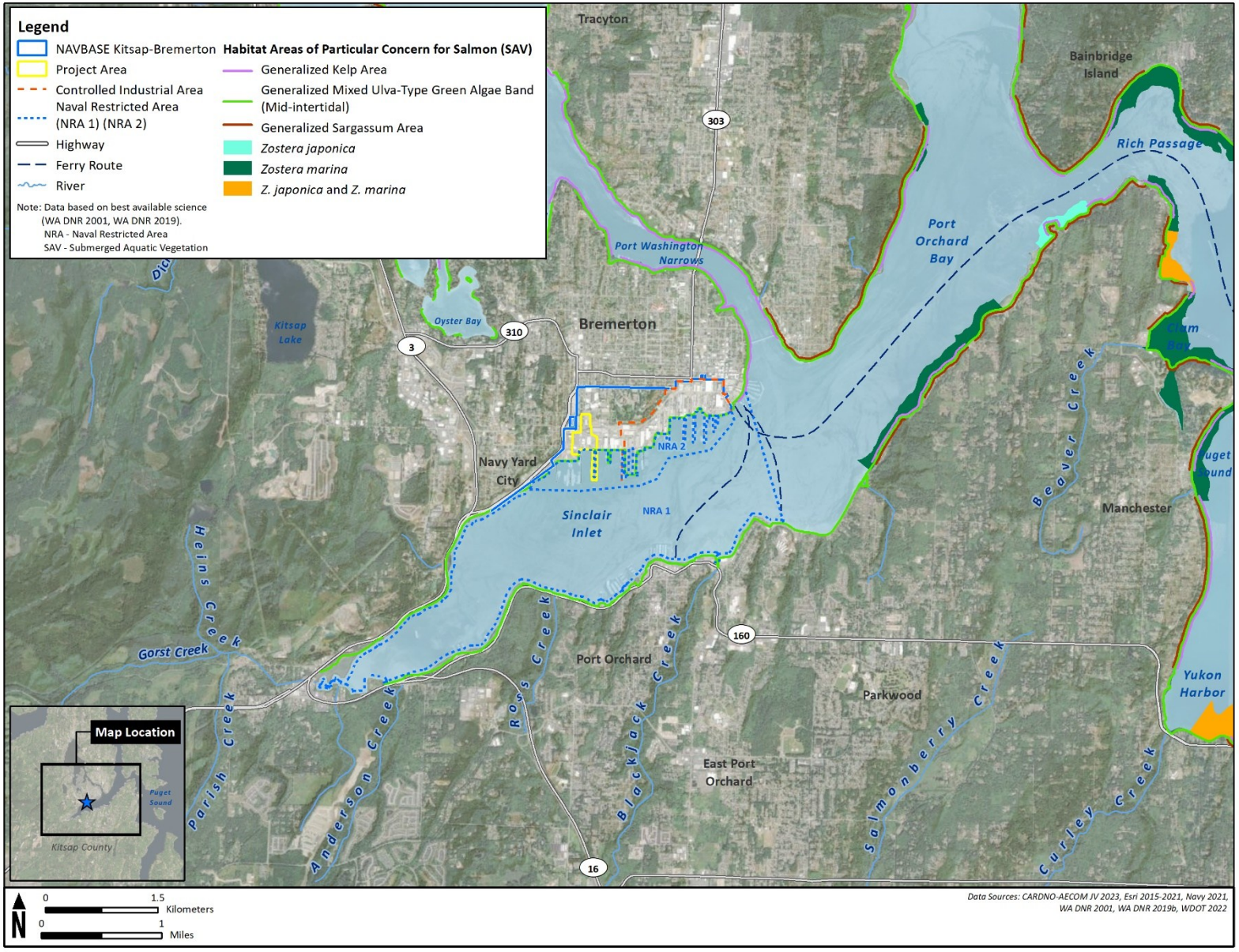

Figure 3.3-9 Pacific Coast Salmon HAPC – Submerged Aquatic Vegetation

Non-ESA-Listed Marine Mammals

Table 3.3-5 shows seals and sea lions (Pinnipeds) that are not ESA-listed but are still afforded protection under the MMPA and that may occur within the ROI and Sinclair Inlet in general. Figure 3.3-10 depicts pinniped haul-out locations near the ROI.

Table 3.3-5 Pinnipeds Potentially Present within Sinclair Inlet

Species and Stock	*Seasonal Timing of Occurrence*	*Frequency of Occurrence[1], in or near Sinclair Inlet*
Steller sea lion (*Eumetopias jubatus*) Eastern United States	Year round, peak in fall and winter	Rare
California sea lion (*Zalophus californianus*) United States	Year round, peak in September to January	Likely, haulout located on-site (PSB floats)
Pacific harbor seal (*Phoca vitulina richardii*) Washington Northern Inland Waters	Year round	Likely, haulout located 0.7-mile (1.13 km) south of NAVBASE Kitsap-Bremerton at Port Orchard

Notes: [1]Frequency of Occurrence: Rare = Few and highly intermittent confirmed sightings, or no confirmed sightings but the distribution of the species is near enough to the area that species could reasonably occur there. Likely = Confirmed and regular use of the area by the species.

Key: PSB = port security barrier; NAVBASE = Naval Base; km = kilometer.

Sources: Navy, 2018a; Carretta et al., 2022.

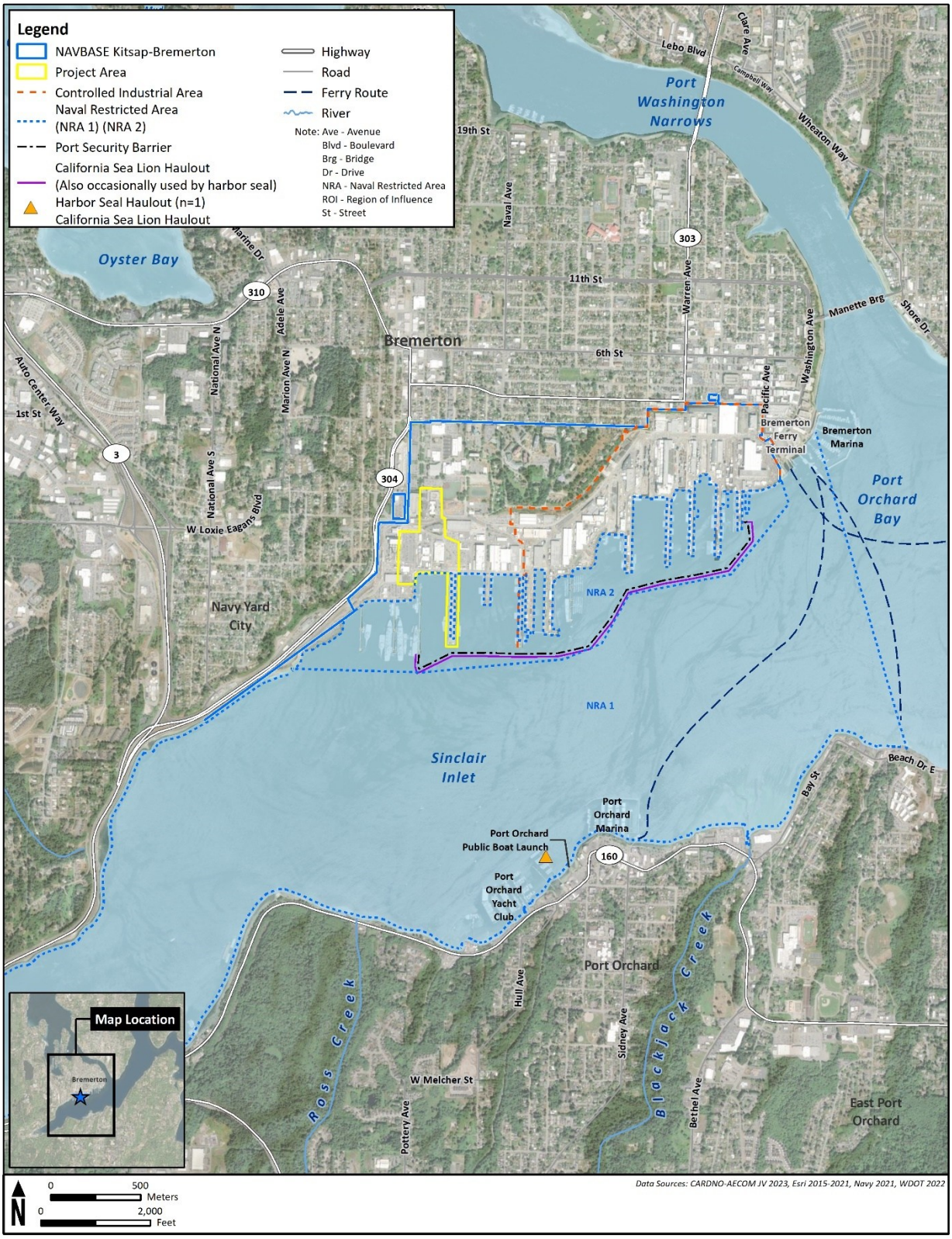

Figure 3.3-10 Pinniped Haulouts within Sinclair Inlet

Marine Birds

Marine birds that are likely to occur along the waterfront of the installation include shorebirds, wading birds, marine waterfowl, raptors, and seabirds. All marine birds are protected under the MBTA. In Puget Sound, bird abundance and diversity are typically highest in the winter, and large numbers of marine waterfowl are present during this time. Seasonal fluctuations reflect the migratory nature of most bird species occurring in Puget Sound and potentially present in the ROI. Some birds, such as osprey (*Pandion haliaetus*) are known to use human-made structures on waterfronts and trees along the shoreline for perching, resting, and nesting, and are also known to nest at NAVBASE Kitsap-Bremerton.

Bald eagles are protected under the Bald and Golden Eagle Protection Act, as well as the MBTA. One bald eagle nest is located north of Pier B in a residential area outside the shipyard, approximately 2,500 feet (762 meters) from the waterfront (Navy, 2018a).

The marbled murrelet (*Brachyramphus marmoratus*) is an ESA-listed bird that may occur as a transient species in the ROI at NAVBASE Kitsap-Bremerton. The Washington, Oregon, and California DPS of the marbled murrelet was federally listed as threatened in 1992 by the USFWS (57 Federal Register [FR] 45328). The critical habitat for nesting was designated for the marbled murrelet in 1996 (61 FR 26256) and revised in 2011 (76 FR 61599). No designated critical habitat occurs within the ROI.

At-sea marbled murrelet surveys have been conducted since 2000 in Washington State during the nesting season of May through July (McIver et al., 2021). The survey areas investigated by McIver et al. (2021) overlap the ROI but encompass a much larger area that includes the Strait of Juan de Fuca, Puget Sound, Hood Canal, and the San Juan Islands. At-sea density surveys have also been conducted since 2012 adjacent to Navy facilities, including NAVBASE Kitsap-Bremerton (Pearson and Lance, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020; Pearson et al., 2023, 2024). These surveys report very few to zero marbled murrelets within the Puget Sound transect strata surveyed that includes the ROI. Surveys conducted from fall 2023 through spring 2024 reported 0 – 0.006 marbled murrelets per kilometer transect length sampled (Pearson et al., 2024). However, forage fish habitat occurs in Sinclair Inlet, which could attract foraging marbled murrelets.

3.3.3 Environmental Consequences

3.3.3.1 No Action Alternative

Under the No Action Alternative, the Navy would not replace the older Nimitz-class aircraft carrier at NAVBASE Kitsap-Bremerton with a new Ford-class aircraft carrier. The permanent assignment of CVN 79 and personnel to NAVBASE Kitsap-Bremerton would not occur, and the Navy would not provide facilities and functions. Therefore, no changes to biological resources would occur with implementation of the No Action Alternative.

3.3.3.2 Action Alternative

3.3.3.2.1 Terrestrial Vegetation

The upland area of NAVBASE Kitsap-Bremerton is primarily paved, supporting industrial and administrative land uses with minimally landscaped areas around buildings. As construction, demolition, and staging areas for the Action Alternative would be within previously disturbed or paved areas, there would be no significant impacts to existing vegetation. Therefore, implementation of the Action Alternative would not result in significant impacts to terrestrial vegetation.

3.3.3.2.2 Terrestrial Wildlife

Proposed construction, demolition, and staging activities have the potential to impact terrestrial wildlife. Upland construction would temporarily increase human activity levels, which could potentially result in visual disturbance. The use of construction equipment would temporarily increase ambient noise levels. Following the completion of construction and homeporting CVNs, there would be minimal increases in activity and noise at NAVBASE Kitsap-Bremerton (refer to Section 3.5, Noise). Therefore, the analysis of impacts on terrestrial wildlife focuses on construction activities.

Terrestrial Mammals

Mammal species, such as smaller terrestrial mammals (rabbits and squirrels), are expected to be present within the vicinity of proposed project activities. Mammals typically respond to increased noise and human activities through either habitat avoidance or modifying calls/communication to adapt to increased noise environments (Duquette et al., 2021). However, the areas of disturbance would be localized to the construction, demolition, and staging footprints and not distinguishable from existing activities and personnel within the ROI.

Due to the lack of natural terrestrial habitats at NAVBASE Kitsap-Bremerton and the current industrial nature of the installation, construction and associated increases in human activity would not be expected to have a measurable impact on terrestrial mammals that may occur in the project area.

Birds

Bald eagles that forage along the marine shoreline, as well as other bird species protected under the MBTA that occur in the region, are likely habituated to the industrial nature of NAVBASE Kitsap-Bremerton (Caltrans, 2016; Duquette et al., 2021).

Airborne sound emitted from duplex drilling methods proposed for installation of micro-piles at the new substation are expected to be 70 decibels (dB) measured at 50 feet from pile installation (WSDOT, 2023). The proposed location of micro-pile installation is approximately 350 feet north of the shoreline. In addition, an existing building sits between the proposed pile installation and shoreline that would likely create an attenuation barrier. Noise from duplex drilling is not expected to be measurable above existing ambient noise levels along the waterfront. Ambient airborne sound levels at NAVBASE Kitsap-Bremerton (measured daytime levels) range from 69 to 73 A-weighted decibels (dBA) (see Section 3.5, *Noise*) (Navy, 2016a; 2024b). This range in sound level is produced by common industrial equipment, including trucks, cranes, compressors, generators, pumps, and other equipment that might typically be employed along industrial waterfronts, along with small boat noise. The loudest activity is expected to be during demolition activities while using a jackhammer during removal of the existing substation. This activity may reach noise levels of up to 88 dBA at 50 feet (WSDOT, 2023). However, demolition activities are located approximately 1,250 feet from the shoreline, with roads and multiple buildings existing between the sources of the noise and the shoreline. Surrounding noise levels for demolition or other activities associated with construction are expected to be localized and not expected to be above ambient levels. Further, a recent test pile study (TPS) conducted at NAVBASE Kitsap-Bremerton collected continuous weekday noise and vibratory pile driving sound measurements and found that levels of noise and vibration were similar with and without the TPS pile driving activities, and therefore not distinguishable from each other (Navy, 2024).

Bird species that are routinely observed at NAVBASE Kitsap-Bremerton may be present during land disturbing and micro-pile driving activities. If individual birds become disrupted by increased noise environments over the duration of construction activities, potential impacts from noise may result in temporary avoidance of foraging locations or may mask the ability of birds to effectively communicate with mates or to locate predators/prey (Caltrans, 2016). In such an instance, affected bird species would likely move to similar nearby habitats if disturbed. However, these potential impacts are expected to be indistinguishable from background levels as changes in sound level would be negligible. The change in the noise environment is also expected to be short-term, occurring only intermittently during a period of a few weeks to a few months.

Because bald eagles and other migratory birds would be expected to be habituated to the existing industrial environment of the project area, temporary foraging disruptions would not be expected to be substantial or result in take. Therefore, the Navy has determined that construction and demolition activities associated with the Action Alternative would not result in take of bald or golden eagles under the Bald and Golden Eagle Protection Act or seabirds, shorebirds, or other birds protected under the MBTA.

In summary, implementation of Action Alternative would have no significant impacts on terrestrial wildlife.

3.3.3.2.3 Marine Species

There will be no in-water work and thus no potential for underwater noise impacts to marine species, including ESA-listed marine species, forage fish, EFH, marine mammals, and marine birds.

As described in Section 3.2 *Water Resources*, underlying soils from temporary removal of paved surfaces would be exposed and susceptible to erosion and transport by wind and/or stormwater runoff. Potential short-term construction site stormwater impacts generally include pollutants including soil, nutrients, solid waste, oil and grease, and construction debris. There are no streams in the project area, but construction activities involving excavation and the temporary removal of paved surfaces could cause soil and contaminants to enter Sinclair Inlet resulting in temporary turbidity in and around the project area. Additionally, toxic metals and pollutants from construction equipment could enter Sinclair Inlet during nearshore and over-water work on the pier. However, impacts to marine water quality would be avoided through construction and operational BMPs (*Appendix E*) and compliance with CWA and discharge permits. Prior to the start of demolition and construction, the Navy would apply for coverage under the CGP and prepare a SWPPP that includes measures for managing stormwater runoff and preventing erosion and stormwater transporting soils and pollutants off-site. Therefore, with the implementation of BMPs and measures included in the SWPPP, there would be no effect to ESA-listed species, proposed ESA-listed species, or designated critical habitat and no adverse effects to EFH.

In summary, implementation of the Action Alternative would have no significant impact on marine species.

As described under terrestrial wildlife, airborne noise emitted during construction of micro-piles is anticipated to generate non-impulsive noise levels of up to 70 dB at 50 feet, which is anticipated to be undistinguishable from ambient noise levels that occur at NAVBASE Kitsap-Bremerton (Navy, 2024). In addition, the micro-pile installation is proposed approximately 350 feet north of the shoreline and in front of an existing building that is expected to create an attenuation barrier. Demolition activities

proposed at the existing substation location, generating noise levels of up to 88 dB at 50 feet, are further from the shoreline (approximately 1,250 feet) and between roads and multiple buildings. Harbor seals and California sea lions may be hauled-out near the waterfront (See Figure 3.3-10). The airborne noise threshold for behavioral harassment for sea lions is 100 dB root mean square (RMS) re 20 micropascals (µPa) (unweighted) and for harbor seals is 90 dB RMS re 20 µPa (unweighted) (NMFS, 2023). Construction noise behaves as point-source and thus propagates in a spherical manner with a 6 dB decrease in sound pressure level over water ("hard-site" condition) per doubling of distance (WSDOT, 2023). Airborne sound from micro-pile installation or other upland demolition and construction activities would not result in incidental take, as defined by the MMPA, of Pacific harbor seals or California sea lions because airborne noise behavioral harassment thresholds for seals and sea lions would not be exceeded. Therefore, the Action Alternative would have no significant impact on Pacific harbor seals and California sea lions.

ESA-Listed Marbled Murrelet

Potential impacts on the threatened marbled murrelet that could result from elevated noise levels during pile driving were evaluated in the context of criteria established in past USFWS Biological Opinions and research publications that analyzed masking effects on foraging marbled murrelets resulting from elevated airborne noise during impact pile driving (SAIC, 2011, 2012; USFWS, 2013, 2023). Masking of communication between foraging marbled murrelet pairs occurs at a distance of 168 meters (551 feet) from impact pile driving of piles larger than 24-inch diameter steel pipe (generating levels approximately 94 dB – 100 dB at 50 feet) as described by the Marbled Murrelet Science Panel (SAIC, 2012). To date, there are no established masking criteria thresholds for marbled murrelet from non-impulsive sound sources such as what is proposed for duplex drilling of micro-piles.

The loudest construction activity would be during demolition activities and assuming the use of a jack hammer, creating a noise level of 88 dB at 50 feet. Due to the distance from the shoreline that this activity would occur (approximately 1,250 feet) and due to attenuation at 6 dB per doubling of distance, ambient noise levels would be reached approximately 280 feet from activity. Therefore, at 1,250 feet from demolition, noise levels at the shoreline would be indistinguishable from existing ambient noise levels that occur along the NAVBASE Kitsap-Bremerton waterfront. Further, airborne noise generated during construction of micro-piles would also be indistinguishable from ambient noise levels (Navy, 2024). The level of activity and personnel associated with the proposed action would be similar to existing use. As previously discussed, year-round densities of marbled murrelets are expected to be low (Pearson et al., 2024; McIver et al., 2021). Any marbled murrelets that occur would be expected to only be transient individuals (i.e., birds flying over the ROI) and are not expected to be foraging in the ROI or Sinclair Inlet in general. Therefore, in the rare chance that murrelets may be present, visual disturbance or in-air noise would have no effect to foraging marbled murrelets.

With implementation of BMPs, impacts to water quality and aquatic habitat would be avoided. Airborne noise generated during construction and demolition would be localized, temporary, and not distinguishable from existing ambient noise levels. Therefore, implementation of the Action Alternative would not result in significant impacts to biological resources. The Action Alternative would have no effect on ESA-listed and proposed ESA-listed species, and designated critical habitat. There would be no adverse effects to EFH as defined under the MSA with implementation of the Action Alternative. No take

of birds protected under the MBTA and Bald and Golden Eagle Protection Act or take of marine mammals protected under the MMPA would occur under the Action Alternative.

3.4 Infrastructure

This section discusses utilities and infrastructure, including solid waste management; energy/electricity production, transmission, and distribution; and communication infrastructure. Transportation systems, traffic, and marine traffic infrastructure are discussed separately at the beginning of Chapter 3.0, *Affected Environment and Environmental Consequences*. Stormwater is discussed separately under Section 3.2.

3.4.1 Regulatory Setting

Chief of Naval Operation Instruction 4100.5E outlines the Navy's vision for shore energy management. The focus of this instruction is establishing energy goals and implementing strategies to achieve energy efficiency.

Antiterrorism/Force Protection Standards have been adopted by the DoD through Instruction O-2000.16, VOL 1, of May 2021. The standards require all DoD Components to adopt and adhere to common criteria and minimum construction standards to mitigate terrorism vulnerabilities and terrorist threats.

3.4.2 Affected Environment

The ROI for utilities is the Kitsap Peninsula, Kitsap County, the City of Bremerton, and NAVBASE Kitsap-Bremerton utility connections within the shipyard vicinity, which include the pierside connections for the homeporting pier that would supply utilities to CVN 79 while in port. Table 3.4-1 provides a description of the existing conditions for each of the categories under utilities.

Table 3.4-1 Existing Conditions for Utilities at NAVBASE Kitsap-Bremerton

Utility	*Existing Condition*
Solid Waste Management	Solid waste service at NAVBASE Kitsap-Bremerton is provided through contract operations for the installation, and waste is transported to local facilities for proper disposal as part of the contract.
Electrical Power	Puget Sound Energy provides power to NAVBASE Kitsap-Bremerton. The existing power distribution system provides power throughout the installation by distribution feeders that originate from substations within the project area. However, one existing on-installation substation is obsolete and does not provide resiliency or energy security in its current condition. Standby diesel generator power is provided via a central plant. Backup diesel power is available for vessels.
Potable Water	The City of Bremerton provides potable water to NAVBASE Kitsap-Bremerton. The City of Bremerton currently has sufficient supplies of both surface water and groundwater sources to meet expected water demands (City of Bremerton Public Works & Utilities, 2024). All NAVBASE Kitsap-Bremerton water distribution facilities and components can support mission function (Navy, 2016b). The potable water distribution system main line feeds smaller mains that provide potable water and fire protection for existing piers and buildings.
Wastewater	NAVBASE Kitsap-Bremerton currently operates under State Waste Discharge Permit (SWDP) Number ST0007374 for discharge of wastewater to the City of Bremerton Wastewater Treatment Plant via the sanitary sewer (WDOE, 2020). Wastewater discharges from the vessels serviced at the installation are variable and diverse. Sanitary sewer flows consist of ship collection, holding, and transfer discharge; oily waste treatment system plant discharge; and process water collection system discharge. Sanitary sewer/wastewater service is currently provided through a series of force mains throughout the installation, supported by lift stations.

Key: USEPA = Environmental Protection Agency; NAVBASE = Naval Base; NPDES = National Pollutant Discharge Elimination System.

3.4.3 Environmental Consequences

3.4.3.1 No Action Alternative

Under the No Action Alternative, the Navy would not replace the older Nimitz-class aircraft carrier at NAVBASE Kitsap-Bremerton with a new Ford-class aircraft carrier. The permanent assignment of CVN 79 and personnel to NAVBASE Kitsap-Bremerton would not occur, and the Navy would not provide facilities and functions. Therefore, no impacts to utilities and infrastructure would occur with implementation of the No Action Alternative.

3.4.3.2 Action Alternative

Solid Waste Management

Under the Action Alternative, solid waste and construction debris would be generated during construction and demolition activities phased over multiple years. Disposal and recycling of solid waste generated during construction would be the responsibility of the construction contractor. Contractors are required to comply with Federal, state, local, and Navy regulations for the collection and disposal of solid waste from the installation. Construction and demolition debris would be hauled, recycled, and/or disposed of as part of the construction contract. Construction and demolition waste with asbestos-containing material (ACM), lead-based paint (LBP), or other hazardous materials would be removed by

licensed contractors and disposed of in a local hazardous waste-permitted landfill in accordance with Navy, Federal, state, and local laws and regulations (see Section 3.8, *Hazardous Materials and Waste*). Following completion of construction and upon CVN 79 homeporting, there would be a decrease in personnel and a corresponding decrease in the amount of municipal solid waste generated. Solid waste generated by CVN 79 pierside support and maintenance activities is expected to be similar to existing solid waste generated by the departing Nimitz-class carrier. Therefore, implementation of the Action Alternative would not result in significant impacts to solid waste generation, disposal, or service.

Electrical Power

Under the Action Alternative, portions of the electrical distribution system would be upgraded to increase power supply and power resiliency to the installation in support of homeporting CVN 79. These upgrades would include demolishing and replacing an existing electrical substation, constructing a new electrical substation pierside, and upgrading transformers and switch gears at two existing electrical substations pierside that currently serve carrier homeporting at NAVBASE Kitsap-Bremerton. Substations would include new transformers and power equipment with appropriate voltage. Proposed electrical power upgrades with both aboveground and belowground features would involve relocating and connecting to existing facilities. Design of the electrical distribution system upgrades would conform to DoD design guidelines for electrical systems and dockside utilities and ship service distribution systems, including all appropriate safety features.

During construction, potential impacts to electrical systems would include temporary service interruptions at the installation when connecting to the existing power system. The construction contractor would address the construction power demands as needed with multipurpose, on-site, portable energy generating units. Mobile Utilities Support Equipment Units may be used for up to a year to supply additional, necessary power to the pier associated with CVN 79 in the case that the ship arrives while construction is still occurring in FY 2029. As the design is currently in progress for the electrical distribution system upgrades, specific electrical service demand loads are yet to be determined. The Navy would coordinate with Puget Sound Energy regarding future electrical demand and any need for infrastructure improvements beyond installation boundaries during the design process. Following completion of construction and upon CVN 79 homeporting, there would be a decrease in personnel resulting in a slight decrease in residential power demand. Therefore, implementation of the Action Alternative would improve the electrical distribution system and service at the installation and is not anticipated to result in significant adverse impacts to service and power capacity.

Potable Water

The demand for potable water would increase slightly during construction due to the temporary increase of approximately 50 on-site construction workers. Following completion of construction and upon CVN 79 homeporting, there would be a decrease in personnel and a corresponding decrease in potable water demand. Water demand for CVN 79 pierside support and maintenance activities is expected to be similar to existing water demand for the departing Nimitz-class carrier. Overall, the temporary increase in potable water demand during construction would not be expected to impact the regional water supply, as the City of Bremerton currently has sufficient supplies to meet expected water demands. Therefore, implementation of the Action Alternative would not result in significant impacts to potable water service capacity.

Wastewater

Wastewater flow would increase slightly during construction due to the temporary increase of approximately 50 on-site construction workers. Following completion of construction and upon CVN 79 homeporting, there would be a decrease in personnel and a corresponding decrease in wastewater flow. Wastewater flow for CVN 79 pierside support and maintenance activities is expected to be similar to existing wastewater flow for the departing Nimitz-class carrier. Overall, the temporary increase in wastewater flow during construction would not be expected to impact the available wastewater treatment capacity. NAVBASE Kitsap-Bremerton would continue to operate under its existing State Waste Discharge Permit for the discharge of wastewater to the City of Bremerton Wastewater Treatment Plant. Therefore, implementation of the Action Alternative would not result in significant impacts to service capacity for wastewater treatment.

3.5 Noise

This discussion focuses on potential noise effects on the human environment in general. Specific discussion of noise in relation to public health and safety is included at the beginning of Chapter 3.0, *Affected Environment and Environmental Consequences.*

3.5.1 Regulatory Setting

The Noise Control Act of 1972 (42 United States Code [U.S.C.] section 4901 et seq.) directs Federal agencies to comply with applicable Federal, state, and local noise requirements with respect to the control and abatement of environmental noise unless the activity is specifically exempted. The Defense Noise Working Group (DNWG) recommends the exterior 60 dB A-weighted equivalent sound level (Leq) as an initial screening criterion for long-term sources of military noise, such as aircraft, to identify schools with the potential for impacts to classroom learning due to noise (DNWG, 2013). Leq is an average sound level, typically over an 8-hour duration representing a typical school day period. DNWG further defines the number of interfering noise events per school period (or per hour) and the total duration of time that would exceed an Lmax (maximum sound level) 75 dB as the criteria to calculate the potential for classroom impacts (DNWG, 2013). The DNWG classroom criteria was developed specifically for long-term aircraft noise and this action involves only temporary construction noise; however, the criteria provide a conservative approach for impacts to children from temporary noise and are used for that purpose in this analysis.

Although not applicable within NAVBASE Kitsap-Bremerton, state, county, and municipal codes set maximum permissible noise levels for actions within those agencies' regulatory authority and their jurisdiction. At the state level, the WAC Chapter 173-60 provides for categories of noise source and land use zones. The City of Bremerton municipal code outlines maximum permissible A-weighted noise levels ranging from 55 to 70 dB, depending upon the source property and receiving property zoning categories, with a 10 dB reduced limit between 10 p.m. and 7 a.m. (Bremerton Municipal Code 6.32). In this EA, the A is dropped for all A-weighted noise results for brevity. The maximum permissible environmental noise levels for a residential property are 60 dB from industrial originating sources. Exemptions to the City of Bremerton's noise limits include "sounds originating from temporary construction sites as a result of construction activity" occurring between 7 a.m. and 10 p.m. Similarly, the City of Port Orchard, which is south of the installation, describes examples of public noise disturbances and defines daytime exemptions between 7 a.m. and 9 p.m. for "the starting, operations or testing of construction equipment" (Port Orchard Municipal Code 9.24.050). Port Orchard reduces the exemption window to begin one hour later, on weekends and holidays, "8:00 a.m. to 9:00 p.m. on

Saturday, Sunday, New Year's Day, Martin Luther King Jr. Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving, and Christmas." Port Orchard allows for use of such equipment outside of those hours if specifically approved by the city.

3.5.2 Affected Environment

Noise sensitive receptors, defined as locations where noise interferes with normal activities associated with their use, identify locations with the greatest risk of noise impact within the ROI. Common noise sensitive land uses include residential, educational, health, and religious structures. The nearest noise sensitive receptor is the Child Development Center located approximately 300 feet east of the proposed replacement substation construction and 700 feet north of the new substation. Additionally, residences located outside of NAVBASE Kitsap-Bremerton to the west represent the next nearest noise sensitive receptors approximately 600 feet west of the proposed replacement substation construction and 1,300 feet west of the proposed new substation.

The noise environment at the Child Development Center is influenced by ongoing work in the shipyard while the road traffic generates the largest source of noise in the residential areas west of NAVBASE Kitsap-Bremerton. Aircraft overflights generate additional noise at both noise sensitive receptors due to the nearest airfield, Bremerton National Airport, located 5 miles to the southwest. The Federal Aviation Administration's Visual Flight Rules Sectional Chart includes a notice to pilots to avoid flight at or below 2,900 feet above mean sea level in the vicinity of the Navy study area, so most aircraft are expected to operate above this threshold and only a small portion of flights operating in the Class B airspace would generally fly over the ROI and most at relatively high altitudes.

3.5.3 Environmental Consequences

3.5.3.1 No Action Alternative

Under the No Action Alternative, the Navy would not replace the older Nimitz-class aircraft carrier at NAVBASE Kitsap-Bremerton with a new Ford-class aircraft carrier. The permanent assignment of CVN 79 and personnel to NAVBASE Kitsap-Bremerton would not occur, and the Navy would not provide facilities and functions. Therefore, no impacts due to the noise environment would occur with implementation of the No Action Alternative.

3.5.3.2 Action Alternative

Under the Action Alternative, noise impacts are evaluated for noise sensitive receptors, specifically, the Child Development Center on the installation and residences located outside of the installation to the west. The proposed construction of a new electrical substation near the pier would involve the installation of approximately 60 micro-piles on-land, approximately 90 feet in depth, which would utilize duplex drilling methods that would generate less noise than the conventional installation of larger piles through impact or vibratory methods. Table 3.5-1 presents a range of typical noise levels expected for such drilling at regular distances from the construction. The lower estimate is based upon Washington State Department of Transportation (WSDOT) with a source Lmax of 70 dB at 50 feet while the upper estimate utilizes the Federal Highway Administration's (FHWA) construction noise model with a source Lmax of 84 dB at 50 feet. With the Child Development Center located at least 700 feet away from the proposed site of micro-pile installation, exterior Lmax associated with their installation would range from 48 to 63 dB, which would not increase existing noise levels inside the Child Development Center. At the residences west of NAVBASE Kitsap-Bremerton, the Lmax would range from 42 to 57 dB, which falls

below the maximum permissible environmental noise levels for a residential property in the City of Bremerton. Because multi-story buildings are positioned between the Child Development Center and the proposed construction areas that would provide partial shielding of noise, the actual Lmax experienced at the Child Development Center would likely trend towards the lower range of that estimate. Additionally, these noise levels represent exterior values, and interior levels would typically be 15 to 25 dB less (DNWG, 2013).

Other proposed construction would involve demolition of an existing substation at its existing site and construction of a replacement substation just north of the existing site, as well as upgrades to portions of the electrical distribution system of existing substations on and near the pier. However, none of this construction would involve the installation of piles, so, the noise levels would be typical of the existing environment at NAVBASE Kitsap-Bremerton. Temporary construction noise would be minor and would not affect the long-term noise environment at any noise sensitive receptors, such as the Child Development Center within NAVBASE Kitsap-Bremerton or residences outside to the west.

Table 3.5-1 Expected Noise Levels of Micro-piles Installation

Distance (feet)	*Lmax dBA (lower estimate)[1]*	*Lmax dBA (upper estimate)[2]*
50	*70*	*84*
200	58	72
400	52	66
600	48	63
800	46	60
1,000	44	58
1,200	42	57
1,400	41	55

Note: 1) Nearest off-base noise sensitive receptor (residences west of NAVBASE) located approximately 1,200 feet away.
Key: L_{max} = maximum sound level; dBA = A-weighted decibel(s).
Sources: 1) WSDOT, 2023
2) FHWA, 2006

Following completion of construction and upon CVN 79 homeporting, noise-generating operations from CVN 79 support and maintenance activities at the installation are expected to be consistent with existing operations, and no long-term change to the noise environment is anticipated. Therefore, implementation of the Action Alternative would not result in significant noise impacts.

3.6 Cultural Resources

This discussion of cultural resources includes archaeological sites; historic buildings, structures, and districts; and physical entities and human-made or natural features important to a culture, a subculture, or a community for traditional, religious, or other reasons. Cultural resources can be divided into three major categories:

- Archaeological resources are locations where human activity measurably altered the earth or left deposits of physical remains.
- Architectural resources include standing buildings, structures, landscapes, historic districts, and other built-environment resources of historic or aesthetic significance.

- Traditional cultural resources may include archaeological resources, structures, neighborhoods, prominent topographic features, habitat, plants, animals, and minerals that Native Americans or other groups consider essential for the preservation of traditional culture.

3.6.1 Regulatory Setting

Cultural resources are governed by various Federal laws and EOs, including the National Historic Preservation Act (NHPA), Archaeological and Historic Preservation Act, American Indian Religious Freedom Act, Archaeological Resources Protection Act of 1979, the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, and EO 13007, *Indian Sacred Sites*.

Federal agencies' responsibility for protecting historic properties is defined primarily by Sections 106 and 110 of the NHPA. Section 106 requires Federal agencies to consider the effects of their undertakings on historic properties. Section 110 of the NHPA requires Federal agencies to establish—in conjunction with the Secretary of the Interior—historic preservation programs for the identification, evaluation, and protection of historic properties. Cultural resources also may be covered by state, local, and territorial laws.

3.6.2 Affected Environment

The area of potential effects (APE) was determined in accordance with 36 CFR 800.16(d). For this Action Alternative, the Navy determined that the APE encompasses the areas where ground disturbing activities would occur, including new construction and building demolitions and associated staging areas. Because project details are not finalized, the APE was defined broadly to ensure it incorporates all potential construction footprints, utility upgrades, and hardscape improvements. The Navy is consulting with the Washington State Historic Preservation Officer (SHPO) to request an agreement with the extent of the APE. Correspondence with the Tribal Government will be included in *Appendix B* of the Final EA, *Agency and Tribal Consultation*. The Navy is also coordinating with the Suquamish Tribe of the Port Madison Reservation during the NHPA Section 106 consultation process. Correspondence with the Tribal Government will be included in *Appendix B* of the Final EA.

3.6.2.1 Archaeological Resources

While no archaeological sites have been determined eligible for listing in the National Register of Historic Places (NRHP) within the boundaries of NAVBASE Kitsap-Bremerton, previous investigation in 2002 and 2013 included an archaeological sensitivity model that shows the APE is in an area of high probability for archaeological resources. An updated probability model was included in the Maritime Context Study of Puget Sound Naval Shipyard, Washington, completed by Ohio Valley Archaeology, Inc. (OVAI) in 2022.

3.6.2.2 Architectural Resources

There are 30 architectural resources within the APE of the Action Alternative, all of which have been surveyed as part of the Historical Research Associates (HRA) 2017 and HRA 2020 surveys. Building 433, the original Receiving Station Barracks built in 1934, was recommended as a contributing resource to the PSNS Historic District. The Washington SHPO did not concur with the eligibility recommendation; therefore, the Navy manages this building as if it were eligible until the NRHP determination is made. Buildings 735 and 767 were recommended as non-contributing resources to the PSNS Historic District. Buildings 887, 900, 922, 924, 944, 954, and 982 (built between 1985 and 1990) were recommended not eligible for the NRHP under Criteria Consideration G. The remaining 20 resources were built after 1993

and were not evaluated for NRHP significance (HRA, 2020). The Shelton-Bangor-Bremerton Railroad extends through the APE of the Action Alternative and is an NRHP-eligible resource. Though it was originally recorded as an archaeological resource, it is included as part of the built environment.

3.6.2.3 Traditional Cultural Resources

No traditional cultural resources or Native American sacred places have been identified at NAVBASE Kitsap-Bremerton (NAVBASE Kitsap-Bremerton, 2013). The ICRMP identifies one federally recognized Tribal Nation that may be historically, culturally, or linguistically affiliated with the area, the Suquamish Tribe of the Port Madison Reservation (NAVBASE Kitsap-Bremerton, 2013).

3.6.3 Environmental Consequences

Analysis of potential impacts on cultural resources considers both direct and indirect impacts. Direct impacts may occur by: 1) physically altering, damaging, or destroying all or part of a resource; 2) altering characteristics of the surrounding environment that contribute to resource significance; 3) introducing visual, audible, or atmospheric elements that are out of character with the property or alter its setting; or 4) neglecting the resource to the extent that it deteriorates or is destroyed. Direct impacts can be assessed by identifying the type and location of the Action Alternative and by determining the exact locations of cultural resources that could be affected. Indirect impacts primarily result from the effects that are farther removed from the immediate project area, including visual, audible (noise), or atmospheric changes due to project implementation and are harder to quantify.

3.6.3.1 No Action Alternative

Under the No Action Alternative, the Navy would not replace the older Nimitz-class aircraft carrier at NAVBASE Kitsap-Bremerton with a new Ford-class aircraft carrier. The permanent assignment of CVN 79 and personnel to NAVBASE Kitsap-Bremerton would not occur, and the Navy would not provide facilities and functions. Therefore, no impacts to cultural resources would occur with implementation of the No Action Alternative.

3.6.3.2 Action Alternative

Under the Action Alternative**,** a new electrical substation would be constructed, two existing substations would receive upgrades, and an existing substation would be demolished and subsequently replaced with a new substation in a different location.

Archaeological Resources

No undiscovered archaeological resources are expected to be found in the APE because it is in a heavily developed section of the base. Previous construction projects have likely destroyed any archaeological integrity. However, in the event of an inadvertent discovery during ground disturbing operations, the following specific actions would occur. Work in the project area would cease immediately, the construction contractor would secure and protect the discovery, and the discovery would be reported to the NAVBASE Kitsap-Bremerton Cultural Resources Manager. If a discovery is made and it happens to fall under NAGPRA, a Plan of Action would be implemented in consultation with the Tribal Nation and followed. If the discovery is not-NAGPRA related, the NAVBASE Kitsap-Bremerton Cultural Resources Manager would determine if the discovery is eligible for inclusion in the NRHP. If a decision could not be made based on the available information, the discovery would be treated as eligible until an informed decision could be made or for the duration of the project. A generic Historic Properties Treatment Plan

for NAVBASE Kitsap-Bremerton would be implemented to conduct necessary mitigation in consultation with SHPO and the Tribal Nation. Therefore, implementation of the Action Alternative would not result in significant impacts to known archaeological resources.

Architectural Resources

There are two NRHP-eligible architectural resources within the APE of the Action Alternative: Building 433 and the Shelton-Bangor-Bremerton Railroad. In addition, there are two non-contributing resources to the PSNS Historic District: Buildings 735 and 767. None of these resources or the PSNS Historic District would be physically impacted by the implementation of the Action Alternative. Visual elements introduced because of the Action Alternative would not diminish the integrity of these resources nor their overall historic significance. Therefore, implementation of the Action Alternative would not result in significant impacts on architectural resources.

Traditional Cultural Resources

No traditional cultural resources have been identified at NAVBASE Kitsap-Bremerton. Section 106 consultation between the Navy and the Suquamish Tribe of the Port Madison Reservation was initiated on January 14, 2025, via an email to tribal staff. A hard copy of the letter was mailed to the Tribal Chairman on January 16, 2025. The Navy requested the tribe provide information on properties of traditional religious or cultural importance that could be affected by the proposed project. Consultation correspondence will be provided in the Final EA.

Implementation of the Action Alternative would not result in significant impacts to known cultural resources. There are two NHRP eligible properties located within the APE, Building 433 and the Shelton-Bangor-Bremerton Railroad. Under the Action Alternative, no NHRP eligible properties would be physically impacted. Further, the Action Alternative would not diminish the integrity or overall historic significance of NHRP eligible properties. Therefore, implementation of the Action Alternative would not result in significant impacts to known cultural resources.

3.7 American Indian Traditional Resources

This analysis addresses potential impacts from the Action Alternative and alternatives on Federally recognized American Indian protected tribal resources. Protected tribal resources, as defined in DoD Instruction 4710.02*, DoD Interactions with Federally Recognized Tribes* (DoD, 2018), are "those natural resources and properties of traditional or customary religious or cultural importance, either on or off Indian lands, retained by or reserved by or for Indian tribes through treaties, statutes, judicial decisions, or EOs, including tribal trust resources." These resources may include plants, animals, and locations associated with hunting, fishing, and gathering activities. For the purposes of this section, the term "traditional resources" will be used to encompass protected tribal resources.

3.7.1 Regulatory Setting

DoD policy for interactions with federally recognized tribes is detailed in DoD Instruction 4710.02, which requires organizational entities within the DoD (i.e., DoD Components) to consult with tribes whenever proposing an action that may have the potential to significantly affect protected tribal resources, tribal rights, or Indian lands. The Navy policy for consultation with federally recognized American Indian tribes is outlined in the Secretary of the Navy Instruction 11010.14B, Department of the Navy Policy for Consultation with Federally Recognized Indian Tribes, Alaska Native Tribal Entities, and Native Hawaiian Organizations. Commander, Navy Region Northwest Instruction 11010.14A, Policy for Consultation with

Federally Recognized American Indian and Alaska Native Tribes sets forth policy, procedures, and responsibilities for consultations with federally recognized American Indian and Alaska Native tribes in the Navy Region Northwest. Installations meet with tribes in their area, including tribes historically or culturally affiliated with the lands managed by the installation, regardless of whether they have treaty rights or not.

Other Federal laws, EOs, and memoranda contain policies requiring consultation with American Indian tribes regarding concerns specific to native interests. These include the following: NHPA; American Indian Religious Freedom Act; NAGPRA; EO 13175, Consultation and Coordination with Indian Tribal Governments; the Presidential Memorandum dated November 5, 2009, emphasizing agency needs to comply with EO 13175; EO 13007, Indian Sacred Sites; and the presidential memorandum dated April 29, 1994, Government-to-Government Relations with Native American Governments.

In 2021, the Advisory Council on Historic Preservation, the White House CEQ, the USEPA, the U.S. Office of Personnel Management, and thirteen Federal departments, including DoD, entered a Memorandum of Understanding (MOU) Regarding Interagency Coordination and Collaboration for the Protection of Tribal Treaty Rights and Reserved Rights. In the MOU, the signatories commit to protect tribal treaty rights, reserved rights, and similar tribal rights to natural and cultural resources.

3.7.2 Affected Environment

The ROI for American Indian traditional resources includes the project footprint, Sinclair Inlet, and adjacent shoreline for activities at NAVBASE Kitsap-Bremerton.

The Suquamish Tribe has treaty rights and uses traditional resources within the ROI. Ancestors of this Tribe fished, hunted, and gathered resources in harmony with the lands and waterways along Washington's Central Puget Sound region. They lived in winter villages and seasonal home sites and harvested marine and game resources from Sinclair Inlet and Hood Canal extending across the Puget Sound and north to Canada; their descendants continue these activities in the same region today.

Throughout its history, the Tribe has passed down cultural traditions involving natural resources such as water, soil, plants, and animals from one generation to the next. Ethnographic and archaeological evidence demonstrates that ancestral Tribal peoples lived, hunted, and fished at Sinclair Inlet and surrounding areas (Lane, 1974). There are numerous traditional place names within the ROI, including *Cte'lqub* for the area now occupied by NAVBASE Kitsap-Bremerton; there are also names that refer to places at Sinclair Inlet associated with natural resources such as snails, jellyfish, sea cucumber, beach worms, cormorants, and others (Hilbert et a.l, 2001; Lane, 1974). Language in treaties and other Federal laws securing off-reservation fishing and hunting rights has been construed as preserving aboriginal rights that Indians traditionally exercised before the treaties were executed. Treaty fishing and hunting clauses are "not a grant of rights [from the Federal government], but a grant of rights from [the Indians] -- a reservation of those not granted" (*United States v. Winans*, 198 U.S. 371, 381 (1905)). This means that the Tribe retains rights not specifically surrendered to the United States.

The Suquamish Tribe signed treaties with the United States, including the Point Elliott Treaty of 1855. In this treaty, the Tribe ceded lands to the United States while reserving rights to take fish and shellfish and to hunt and gather at off-reservation usual and accustomed grounds and stations. This treaty also reserved tracts for the Tribe.

Sinclair Inlet and NAVBASE Kitsap-Bremerton are within the adjudicated usual and accustomed fishing grounds and stations of the Suquamish Tribe (459 F Supp. 1020, United States v. State of Washington,

W.D. Wash. 1978). The Tribe exercises their treaty-reserved rights to fish and harvest shellfish for personal subsistence, ceremonial, and commercial use (Suquamish Tribe, 2021). However, shellfish harvesting is currently prohibited in Sinclair Inlet, and fish consumption is regulated due to human health risks (Washington State Department of Health, 2021).

Government-to-Government Consultation

The Federal government engages in government-to-government consultation with federally recognized American Indian Tribal Nations regarding traditional resources, tribal rights, and other concerns, in recognition of tribal sovereignty. Tribal access to usual and accustomed fishing grounds and stations near NAVBASE Kitsap-Bremerton would be expected to remain similar to existing conditions. The Navy has invited the Suquamish Tribe to initiate government-to-government consultation on the Action Alternative.

The Navy has ongoing consultation with the affected tribe (Suquamish Tribe of the Port Madison Reservation) and will continue to carefully consider and evaluate information on traditional resources or access to those resources based on further input from the tribal government.

Correspondence with the Tribal Government will be included in *Appendix B* of the Final EA.

Known Tribal Concerns and Priorities

The Navy has ongoing consultation with the affected tribe (Suquamish Tribe of the Port Madison Reservation) and will continue to carefully consider and evaluate information on known tribal concerns and priorities based on further input from the tribal government.

Correspondence with the Tribal Government will be included in *Appendix B* of the Final EA.

3.7.3 Environmental Consequences

The evaluation of impacts on traditional resources considers whether the resource itself is affected or if there is a change in access to the resource. Consultation with potentially affected tribal governments of federally recognized American Indian Tribal Nations is required whenever proposing an action that may have the potential to significantly affect protected tribal resources, tribal rights, or Indian lands, per DoD Instruction 4710.02.

3.7.3.1 No Action Alternative

Under the No Action Alternative, the Navy would not replace the older Nimitz-class aircraft carrier at NAVBASE Kitsap-Bremerton with a new Ford-class aircraft carrier. The permanent assignment of CVN 79 and personnel to NAVBASE Kitsap-Bremerton would not occur, and the Navy would not provide facilities and functions. There would be no change to baseline American Indian traditional resources near NAVBASE Kitsap-Bremerton, nor would there be a change in access to such resources. Therefore, no impacts to American Indian traditional resources would occur with implementation of the No Action Alternative.

3.7.3.2 Action Alternative

The Action Alternative does not include in-water work, there are no expected adverse effects to water quality or marine habitat and species, and there are no expected changes in the port security barrier openings. Tribal access to usual and accustomed (U&A) fishing grounds and stations near NAVBASE Kitsap-Bremerton would be expected to remain similar to existing conditions. The Navy has ongoing consultation

with the affected tribe (Suquamish Tribe of the Port Madison Reservation) and continues to carefully consider and evaluate information on traditional resources or access to those resources based on further input from the tribal government.

The Navy does not anticipate significant impacts to American Indian Traditional Resources.

3.8 Hazardous Materials and Waste

This section discusses hazardous materials, hazardous waste, toxic substances, and contaminated sites at NAVBASE Kitsap-Bremerton.

3.8.1 Regulatory Setting

Hazardous materials are defined by 49 CFR section 171.8 as "hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (see 49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions" in 49 CFR part 173. Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations.

Hazardous wastes are defined by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments, as: "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed." Certain types of hazardous waste are subject to special management provisions intended to ease the management burden and facilitate the recycling of such materials. These are called universal wastes, and their associated regulatory requirements are specified in 40 CFR part 273. Three types of waste are currently covered under the universal waste regulations for NAVBASE Kitsap-Bremerton: spent batteries, mercury-containing equipment, and hazardous waste lamps (such as fluorescent light bulbs).

Special hazards are those substances that might pose a risk to human health and are addressed separately from other hazardous substances. Special hazards include ACM, polychlorinated biphenyls (PCBs), and LBP. USEPA is given authority to regulate special hazard substances by the Toxic Substances Control Act. Asbestos is also regulated by USEPA under the CAA, and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Another type of special hazard that has been identified by the DoD as "emerging contaminants" are per- and polyfluoroalkyl substances (PFAS). Federal and state regulations are still in the development phase, but interim guidance exists for both. Additionally, DoD and the Navy have both issued PFAS policy memos.

The DoD established the Defense Environmental Restoration Program to facilitate thorough investigation and cleanup of contaminated sites on military installations. Through the program, the DoD identifies, investigates, and cleans up hazardous waste disposal or release sites.

3.8.2 Affected Environment

The ROI for assessing impacts from hazardous materials and waste includes the areas in and around proposed project area where electrical distribution system upgrades and CVN pierside support and maintenance would occur, as well as Sinclair Inlet receiving stormwater discharge.

The Navy implements hazardous material control and management and hazardous waste minimization for all activities through Navy-wide programs promulgated by applicable Office of the Chief of Naval Operations instructions and at the installation by specific instructions issued by the Installation Commander. These programs include, but are not limited to, the Environmental Readiness Program Manual (OPNAV M-5090.1), Navy Safety and Occupational Health Manual (OPNAV M-5100.23), and DoD Environmental Compliance in the United States (DoD Inst. 4715.06) (Navy, 2021, 2024; DoD, 2018). The Puget Sound Naval Shipyard & Intermediate Maintenance Facility Hazardous Waste Management Plan (P5090.5) provides detailed guidance pertaining to the generation, identification, collection, storage, and disposal of hazardous waste at NAVBASE Kitsap-Bremerton. The Navy continuously monitors its operations to find ways to minimize the use of hazardous materials and to reduce the generation of hazardous wastes.

Due to the age of the infrastructure and utilities at NAVBASE Kitsap-Bremerton, the presence of hazardous materials is anticipated. Hazardous materials are frequently associated with power systems and conduit banks manufactured prior to the 1990s due to use of asbestos in building materials and heavy metal coolants and oils.

The Navy, in cooperation with the USEPA, Ecology, Washington Department of Natural Resources, and Suquamish Tribe, is carrying out remedial actions to address contamination at NAVBASE Kitsap-Bremerton in accordance with Records of Decision (ROD) issued under CERCLA. The contaminated sites are part of the PSNS Complex Superfund Site. Two of the six Installation Restoration Operable Units (OUs) in the PSNS Complex Superfund Site are in the project area: OU B Terrestrial and OU Naval Supply Center (NSC) (NAVFAC NW, 2017). Detailed information on each OU is summarized in Table 3.8-1.

Table 3.8-1 Installation Restoration Sites within the Region of Influence

IR Site Name	*Description*
OU B Terrestrial	**Location:** Approximately 200 acres of land along the shoreline of NAVBASE Kitsap-Bremerton, most of which is covered by pavement or buildings. **Contaminants:** Miscellaneous waste on-site include fill materials used in developing the shoreline area; historical spills and releases from industrial operations; and off-site, upgradient sources. Chemicals of concern in soil and groundwater at the project site include metals (including mercury), pesticides, PCBs, total petroleum hydrocarbons (TPH), polynuclear aromatic hydrocarbons, semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs), and PFAS. **Past remedial actions:** Remedies for both soil and groundwater included limiting human exposure and reducing the potential for chemical transport of contaminants. **Upcoming remedial actions:** Develop and implement a plan to stabilize one segment of the shoreline while considering actions to address groundwater discharges to surface water in this area. Develop and add a new section to the Terrestrial Annual Remedy Inspection Report to describe ongoing and completed maintenance and repairs to pavement and the stormwater system. Conduct ongoing evaluations of vulnerability to climate change and pertinent updates to water quality criteria. **Existing management:** Ongoing operations, maintenance, or monitoring include inspection and maintenance, long-term monitoring, and Institutional Controls inspections. **Institutional or land use controls:** PSNS Complex Superfund Site required controls: access control, groundwater restrictions, excavation management, and land use restrictions. **OU B Terrestrial-specific controls**: Currently in development.
OU NSC	**Location:** Approximately 28-acre area that includes two piers and the shoreline areas near those piers. **Contaminants:** Historical contamination on-site is a result of fill material used to expand the working area into the tidelands, as well as historical spills and releases from site operations that included scrapping and recycling, petroleum storage, and oil reclamation. Chemicals of concern in soil and groundwater include VOCs, SVOCs, PCBs, pesticides, TPHs, and several inorganic chemicals, PFAS. **Past remedial actions:** Remedies for soil, groundwater, surface water, and storm drain sediment included site paving enhancement, storm drain soil and debris removal, Institutional Controls (excavation management plan), monitoring, and review. **Upcoming remedial actions:** Develop and add a new section to the Terrestrial Annual Remedy Inspection Report to describe ongoing and completed maintenance and repairs to pavement and the stormwater system. Conduct ongoing evaluations of vulnerability to climate change and pertinent updates to water quality criteria. **Existing management:** Ongoing operations, maintenance, or monitoring include inspection and maintenance of pavement and storm drains, groundwater monitoring, and Institutional Controls inspections. **Institutional or land use controls:** PSNS Complex Superfund Site required controls: access control, groundwater restrictions, excavation management, and land use restrictions. **OU NSC-specific controls:** Currently in development.

Key: IR = Installation Restoration; NAVBASE = Naval Base; NSC = Naval Supply Center; OU = Operable Unit; PCBs = Polychlorinated Biphenyls; PCE = tetrachloroethene (or perchloroethylene); PFAS = Per- and Polyfluoroalkyl Substances; PSNS = Puget Sound Naval Shipyard; ROD = Record of Decision; TCE = trichloroethene.

Source: NAVFAC NW, 2017.

The Navy is conducting ongoing CERCLA investigations for per- and polyfluoroalkyl substances (PFAS) at installation OUs, including each OU in the project area. The necessity and magnitude of a remedial action would be based on PFAS delineation and risk evaluation.

3.8.3 Environmental Consequences

3.8.3.1 No Action Alternative

Under the No Action Alternative, the Navy would not replace the older Nimitz-class aircraft carrier at NAVBASE Kitsap-Bremerton with a new Ford-class aircraft carrier. The permanent assignment of CVN 79 and personnel to NAVBASE Kitsap-Bremerton would not occur, and the Navy would not provide facilities and functions. Therefore, no impacts associated with hazardous materials and wastes would occur with implementation of the No Action Alternative.

3.8.3.2 Action Alternative

Under the Action Alternative, construction for electrical distribution system upgrades would occur in contaminated sites: OU B Terrestrial and OU NSC. These OUs have had and are undergoing remedial actions, continue to be managed, and have institutional and/or land use controls (LUC) in place. Remedial action objectives identified in the OU B Terrestrial ROD (Navy, WDOE, and USEPA, 2004) and OU NSC (Navy, WDOE, and USEPA, 1996) were developed to address all identified risks at the site, including risks to marine sediment quality posed by the potential movement of contaminated stormwater, groundwater, and site soil into Sinclair Inlet. An Excavation Management Plan (NAVFAC NW, 2020) was developed to provide guidance development and construction activities within existing installation restoration (IR) sites at the Bremerton Naval Complex.

Construction activities within OU B Terrestrial and OU NSC could encounter soil and groundwater contamination. Ground disturbance of contaminated soil during construction activities could cause contaminants to become a direct contact or airborne hazard. To minimize potential hazards to human health and the environment from contaminated soil, excavated material would be stockpiled and dewatered, tested, and treated as necessary. Stockpiled soils would be managed for dust control measures, erosion control, runoff treatment, and other elements of the SWPPP. Accumulated water would be containerized for sampling to determine the appropriate method of disposal. In accordance with the Excavation Management Plan, “no water collected within IR sites will be disposed through storm drain or sanitary sewer without testing and approval” from the Navy’s Code 106 (Environmental, Safety, Health and Radiological Controls Department) and Remedial Project Manager. All construction activities would comply with applicable excavation management plans (NAVFAC NW, 2020), LUC plans, project-specific health and safety plans, RCRA requirements for hazardous waste tracking and disposal, the *Puget Sound Naval Shipyard & Intermediate Maintenance Facility Hazardous Waste Management Plan* (Navy, 2020b), and BMPs to minimize potential impacts to the environment or existing controls.

Both the demolition and construction phases could generate potentially hazardous construction and demolition debris, in addition to ACM, PCBs, and LBP/lead-contaminated materials. Potential impacts from hazardous building materials would be minimized by conducting a hazardous building materials inspection followed by mitigation measures such as abatement or encapsulation prior to demolition. The handling and disposal of any hazardous building materials would be conducted in accordance with applicable rules and regulations to minimize exposure to workers and the public. Consequently, the potential for adverse impacts related to hazardous building materials would be minimal and limited to the construction phase of the project.

During construction activities, it is anticipated that hazardous materials typically used in commercial and industrial construction would be used, including paints and coatings, paint thinners, and other common solvents, adhesives, sealants, lubricants, and fuels. Any hazardous materials or waste generated or encountered would be properly stored and disposed of in accordance with local, state, and Federal requirements.

During construction, fuel may be temporarily stored in the construction staging areas for refueling operations. The contractor would be required to follow all Federal regulations and NAVBASE Kitsap-Bremerton requirements pertaining to storage and fueling practices. In addition, the construction contractors would prepare a project-specific Spill Prevention, Control and Countermeasure Plan and comply with applicable state and Federal regulations.

Pierside support activities, including the maintenance of CVN 79, would replace such activities for one of the Nimitz-class aircraft carriers currently homeported at NAVBASE Kitsap-Bremerton. As CVN 79 is substantially newer than the older Nimitz-class carrier, the Navy anticipates that frequency of maintenance actions would be reduced, both short-term and long-term. The types of hazardous materials used would likely be the same, but the quantity of hazardous materials used and hazardous wastes generated during routine pierside maintenance activities are likely to decrease when compared to current conditions.

In accordance with the guidance documents and management plans described above, the Navy would include requirements to minimize the procurement and use of hazardous materials and generation of hazardous waste to the extent possible during construction and CVN 79 homeporting. Additionally, remedial measures are currently in place for the IR sites through institutional and LUCs, operations and maintenance plans, BMPs, and ongoing monitoring of the contamination. Therefore, implementation of the Action Alternative would not result in significant impacts from hazardous materials and wastes, and conditions and circumstances related to hazardous materials and wastes would remain effectively unchanged.

3.9 Summary of Potential Impacts to Resources and Impact Avoidance and Minimization

A summary of the potential impacts associated with the Action Alternative and the No Action Alternative is presented in Table 3.9-1. The analysis contained in this EA has determined that the Action Alternative would not result in significant environmental impacts. Therefore, no major mitigation actions are needed. Table 3.9-2 provides a list of all impact avoidance and minimization measures that would be implemented for the Action Alternative. A list of BMPs is included in *Appendix E* that would also be implemented under the Action Alternative.

Table 3.9-1 Summary of Potential Impacts to Resource Areas

Resource Area	*No Action Alternative*	*Action Alternative*
Air Quality	No impact.	Short-term emissions at NAVBASE Kitsap–Bremerton under the Action Alternative would be minor and would not cause a violation of the NAAQS or appreciably increase health risks to the public. Estimated GHG emission increases are not likely to detract from achieving DoD and Federal GHG goals.
Water Quality	No Impact.	Impacts to water resources during construction activities and operations would not be significant with implementation of appropriate stormwater infrastructure, flood risk management measures, BMPs, and compliance with permit conditions. The Action Alternative does not include any in-water work. No significant water resources impacts.
Biological Resources	No Impact.	Activities associated with the Proposed Action would create localized and temporary noise and visual disturbance but would not be distinguishable from existing levels at Naval Base Kitsap-Bremerton. There would be no effect to ESA-listed species, proposed ESA-listed species, or designated critical habitat and no adverse effect to EFH as defined under the MSA. There would be no take of migratory birds, bald eagles, or marine mammals as defined by the MBTA, Bald and Golden Eagle Protection Act, and MMPA, respectively. No significant impact to biological resources.
Infrastructure	No impact.	No significant impacts to potable water or solid waste management. No adverse impacts to electrical power anticipated. The Navy would coordinate with Puget Sound Energy on an analysis of future electrical demand.
Noise	No impact.	All construction noise would be temporary and minor and would not affect the long-term noise environment at any noise sensitive receptors, such as the Child Development Center or residences west of NAVBASE Kitsap-Bremerton. After construction, operations on the installation are expected to be consistent with existing operations. Therefore, no long-term change to the noise environment is anticipated
Cultural Resources	No impact.	No significant impacts on known archaeological resources or architectural resources. There would be no historic properties affected by the Action Alternative. Consultation with the Suquamish Tribe and Washington SHPO is ongoing according to Section 106 of the NHPA
American Indian Traditional Resources	No impact.	No significant impacts to water quality, marine species and habitat, or tribal access to U&A fishing grounds are expected under the Action Alternative. Furthermore, the Navy invited the Suquamish Tribe of the Port Madison Reservation to initiate government-to-government consultation

Resource Area	*No Action Alternative*	*Action Alternative*
Hazardous Materials and Waste	No impact.	Potential hazards to human health would be minimized during construction in contaminated sites by proper treatment of excavated soils and stormwater in accordance with all applicable plans, requirements, and BMPs. With implementation of impact avoidance and minimization measures the potential for adverse impacts related to hazardous building materials would be minimal and limited to the construction phase of the project. The Action Alternative post-construction activities would not change the types of, nor increase the amount of, hazardous materials used, or hazardous wastes generated, during routine pierside maintenance activities. Therefore, implementation of the Action Alternative would have no significant impacts related to hazardous materials and wastes, and conditions and circumstances related to hazardous materials and wastes would remain unchanged.

Key: BMP = best management practice; ESA = Endangered Species Act; NAAQS = National Ambient Air Quality Standards; NAVBASE = Naval Base; NHPA = National Historic Preservation Act; SHPO = State Historic Preservation Officer; U&A = usual and accustomed

Table 3.9-2 Impact Avoidance and Minimization Measures

Measure	*Anticipated Benefit / Evaluating Effectiveness*	*Implementing and Monitoring*	*Responsibility*	*Estimated Completion Date*
Action Alternative				
Minimize air emissions and energy use that generate GHGs that contribute to climate change.	Comply with DoD and Navy policies for reducing air emissions and energy use.	Consider measures during planning and construction.	NAVBASE Kitsap-Bremerton	Design and construction phase
Implement worker safety procedures to follow in the event of an earthquake, including the posting of evacuation routes and safety areas in the event of a tsunami threat.	Reduce safety risks.	Consider measures during planning and construction.	NAVBASE Kitsap-Bremerton	Design and construction phase
Stormwater Pollution Prevention Plan as part of the Construction General Permit.	Minimize potential for soil erosion and water quality impacts.	Consider measures during planning and construction.	NAVBASE Kitsap-Bremerton	Design and construction phase.
If unrecorded intact archaeological sites are encountered, stop work in the immediate area and follow the procedures set forth in the Inadvertent Discovery Plan for NAVBASE Kitsap-Bremerton Installations.	Avoid impact to previously unrecorded archaeological resources.	Stipulate in construction specifications.	Construction contractor with compliance verification by NAVBASE Kitsap-Bremerton	Construction phase
Comply with applicable excavation management plans, Land Use Control plans, project-specific health and safety plans, RCRA requirements for hazardous waste tracking and disposal, the Puget Sound Naval Shipyard & Intermediate Maintenance Facility Hazardous Waste Management Plan.	Avoid disturbance or release of hazardous materials and wastes.	Stipulate in construction specifications.	Construction contractor with compliance verification by NAVBASE Kitsap-Bremerton	Construction phase

Key: DoD = Department of Defense; GHG = greenhouse gas; NAVBASE = Naval Base; RCRA = Resource Conservation and Recovery Act.

4 Cumulative Impacts

This section (1) defines cumulative impacts, (2) describes past, present, and reasonably foreseeable future actions relevant to cumulative impacts, (3) analyzes the incremental interaction the Action Alternative may have with other actions, and (4) evaluates cumulative impacts potentially resulting from these interactions.

4.1 Definition of Cumulative Impacts

The approach taken in the analysis of cumulative impacts follows the objectives of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and CEQ guidance. Cumulative impacts are defined in 40 Code of Federal Regulations (CFR) section 1508.1(i) (2024) as "effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from actions with individually minor but collectively significant effects taking place of a period of time."

To determine the scope of environmental impact analyses, agencies shall consider cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact analysis document.

In addition, CEQ and the USEPA have published guidance addressing implementation of cumulative impact analyses—Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (CEQ, 2005) and Consideration of Cumulative Impacts in USEPA Review of NEPA Documents (USEPA, 1999). CEQ guidance entitled Considering Cumulative Impacts Under NEPA (CEQ, 1997) states that cumulative impact analyses should:

> "…determine the magnitude and significance of the environmental consequences of the Proposed Action in the context of the cumulative impacts of other past, present, and future actions...identify significant cumulative impacts…[and]…focus on truly meaningful impacts."

Cumulative impacts are most likely to arise when a relationship or synergism exists between a proposed action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or proximity to the Action Alternative would be expected to have more potential for a relationship than those more geographically separated. Similarly, relatively concurrent actions would tend to offer a higher potential for cumulative impacts. To identify cumulative impacts, the analysis needs to address the following three fundamental questions.

- Does a relationship exist such that affected resource areas of the Action Alternative might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
- If one or more of the affected resource areas of the Action Alternative and another action could be expected to interact, would the Action Alternative affect or be affected by impacts of the other action?
- If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the Action Alternative is considered alone?

4.2 Scope of Cumulative Impacts Analysis

The scope of the cumulative impacts analysis involves both the geographic extent of the effects and the timeframe in which the effects could be expected to occur. For this Environmental Assessment (EA), the study area delimits the geographic extent of the cumulative impacts analysis. In general, the study area will include those areas previously identified in Chapter 3.0, *Affected Environment and Environmental Consequences,* for the respective resource areas. The timeframe for cumulative impacts centers on the timing of the Action Alternative.

Another factor influencing the scope of cumulative impacts analysis involves identifying other actions to consider. Beyond determining that the geographic scope and timeframe for the actions interrelated to the Action Alternative, the analysis employs the measure of "reasonably foreseeable" to include or exclude other actions. For the purposes of this analysis, public documents prepared by Federal, state, and local government agencies form the primary sources of information regarding reasonably foreseeable actions. Documents used to identify other actions include notices of intent for Environmental Impact Statements (EISs) and EAs, management plans, land use plans, and other planning related studies.

4.3 Past, Present, and Reasonably Foreseeable Actions

This section will focus on past, present, and reasonably foreseeable future projects at and near the Action Alternative locale. In determining which projects to include in the cumulative impacts analysis, a preliminary determination was made regarding the past, present, or reasonably foreseeable action. Specifically, using the first fundamental question included in Section 4.1, a past, present, or reasonably foreseeable project was included in the cumulative impacts analysis if it was determined that a relationship exists such that the affected resource areas of the Action Alternative (included in this EA) might interact with the affected resource areas of that project. If no such potential relationship exists, the project was not carried forward into the cumulative impacts analysis. In accordance with CEQ guidance (CEQ, 2005), these actions considered but excluded from further cumulative effects analysis are not catalogued here as the intent is to focus the analysis on the meaningful actions relevant to informed decision-making. Future Navy or non-Navy actions that involve impacts to water or sediment quality, marine vegetation, and benthic communities in Sinclair Inlet, either positive or negative, or affect the port security barrier at NAVBASE Kitsap-Bremerton have some potential to impact American Indian traditional resources, including fish and shellfish, and access to those resources. Projects included in this analysis are listed in Table 4.3-1 and briefly described in the following subsections.

Table 4.3-1 Cumulative Action Evaluation

Action	*Timeframe*
Past Actions	
Navy – CVN Maintenance Pier Replacement, NAVBASE Kitsap-Bremerton, WA	2012
Present and Reasonably Foreseeable Future Actions	
Navy – Bremerton Waterfront Infrastructure Improvement EIS, multi-mission dry dock (M2D2)	Improvements would be constructed between 2026 and 2040
Navy – Upgrade Shipyard Electrical Backbone, NAVBASE Kitsap-Bremerton, WA (P891)	Planned for construction in 2025
Navy – Pier 3 Electrical Substation Repair, PSNS & IMF	Planned for construction in 2027
Navy – Marine Structure Maintenance and Pile Replacement Activities, PSNS & IMF, and NAVBASE Kitsap-Manchester	Phase 1: ends 2026; Phase 2: To be determined

Action	*Timeframe*
Navy – Manchester Tank Farm Improvements, NAVBASE Kitsap-Manchester	2021–2026
Navy – Shipyard Infrastructure Optimization Program (SIOP), PSNS & IMF	Ongoing
Navy – Operable Unit B Marine Sediment Remedial Actions	Some project elements could begin in FY 2024 (pending SIOP in-water construction activities)
Navy – NAVBASE Kitsap-Manchester CERCLA actions for PFAS	Ongoing
Navy – Operable Unit A, Operable Unit B Terrestrial, and Operable Unit NSC CERCLA actions for PFAS	Ongoing
City of Bremerton – 6th Street Pavement Preservation Project Phase III	Construction to begin 2024[1]
City of Bremerton – Naval Avenue Bicycle and Pedestrian Enhancement	Construction scheduled for 2026–2027
Marina Breakwater Replacement, Port Orchard Marina (NWS-2022-0513)	2024–2029
Private Development – The Beacon and Beacon II	Construction to begin in 2025
Private Development – Eagle Pointe	Construction not started as of late 2024[1]
Private Development – Riddell Road Apartments	Under construction
Private Development – Sinclair Ridge Subdivision	Under construction
Private Development – McWilliams Apartment	Construction to begin 2024[1]

Note: [1] Construction not started as of March 2025. Information will be updated as available prior to finalizing this EA.

Key: CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; CVN = nuclear-powered aircraft carrier; EIS = Environmental Impact Statement; FY = Fiscal Year; NAVBASE = Naval Base; NSC = Naval Supply Center; Navy = U.S. Department of the Navy; PFAS = per- and polyfluoroalkyl substances; PSNS & IMF = Puget Sound Naval Shipyard and Intermediate Maintenance Facility; WA = Washington.

Sources: NOVA Group Inc, 2012; Navy, 2018a; Navy, 2018b; Navy, 2019a; Navy, 2021a.

4.3.1 Past Actions

U.S. Department of the Navy – Nuclear-Powered Aircraft Carrier (CVN) Maintenance Pier Replacement, Naval Base (NAVBASE) Kitsap-Bremerton, WA

This pier replacement project constructed a new 120-foot-wide concrete pier, with over 2,200 linear feet of berthing, serving current and future classes of CVNs.

The replacement of the pier required major modifications to the upland underground electrical distribution and installation of new pierside distribution. The electrical requirements dictated a new substation and a new generation of shore-power mounds and substations. Substation 73 was replaced with a new substation capable of supplying two CVNs with shore power during maintenance. Waterside substations and distribution were required for shore power and industrial power to support maintenance/repair operations. The substation connections to the pier outlets required 100,000 feet of conduit. The upland distribution included over one mile of new duct bank in conjunction with reuse of existing duct bank.

4.3.2 Present and Reasonably Foreseeable Future Actions

Navy – Bremerton Waterfront Infrastructure Improvement Environmental Impact Statement (EIS)

The Navy proposes to construct and operate a new multi-mission dry dock at Puget Sound Naval Shipyard & Intermediate Maintenance Facility (PSNS & IMF). The Navy is proposing to upgrade, modify, construct, demolish, and/or replace piers, wharves, quay walls, buildings, cranes, mooring, and utilities to make space for the new multi-mission dry dock. The Proposed Action in this EIS includes dredging to create adequate water depth at wharves and piers, and as required for construction of new structures.

Some existing shipyard functions affected by construction at PSNS & IMF would be moved to Naval Base Kitsap-Bangor.

Navy – Upgrade Shipyard Electrical Backbone, NAVBASE Kitsap-Bremerton, WA (P891)

The project would upgrade the shipyard electrical backbone located within the Controlled Industrial Area at NAVBASE Kitsap-Bremerton. The project would demolish and replace the existing electrical Substation FG and upgrade critical electrical infrastructure supporting the PSNS, including transformers, switchgears, relays, and other components.

Navy – Pier 3 Electrical Substation Repair

The project would repair an electrical substation at Pier 3 and upgrade existing electrical distribution equipment. This project is planned for construction in 2027.

Navy – Marine Structure Maintenance and Pile Replacement Activities

The Navy would conduct ongoing maintenance and repair activities on the 15 pile-supported structures located at NAVBASE Kitsap-Bremerton and NAVBASE Kitsap-Manchester (Navy, 2019a). The activities would include pile repair and replacement and general maintenance. General maintenance includes deck resurfacing and recoating corroded metal components; repair activities on wet well concrete spalling, piers (including repairs to piles), and quay walls; and the repair or replacement of damaged or deteriorated guide piles systems, brow floats, pile caps, safety ladders, cable straps, camel and camel connections, and lighting. The Navy signed a Finding of No Significant Impact for the Proposed Action involving Marine Structure Maintenance and Pile Replacement Activities on June 25, 2019 (Navy, 2019b). Phase I of these proposed activities at NAVBASE Kitsap-Bremerton is expected to be completed February 15, 2026. The timing of Phase II project activities is anticipated to begin in 2026. Preplanning for Phase II NEPA and consultations is underway.

Navy – Manchester Tank Farm Improvements, NAVBASE Kitsap-Manchester

The project involves constructing six aboveground storage tanks (ASTs) and permanently closing eight existing underground storage tanks (Navy, 2018b). The new ASTs would be used for storing and distributing both F-76 and JP-5 fuel. Construction of the new ASTs would occur in three phases (two ASTs constructed per phase). Implementation began in 2021 and will continue for approximately 6 years.

Navy – Shipyard Infrastructure Optimization Program

The Navy's Shipyard Infrastructure Optimization Program (SIOP) would modernize and optimize industrial processes and associated facilities at the four Naval shipyards, including PSNS & IMF at NAVBASE Kitsap-Bremerton. The Navy is conducting a three-phased planning process to identify specific investments needed at each shipyard. Phase I studied the shipyard's major industrial processes and established notional infrastructure plans to reduce movements of personnel and equipment within the shipyards. Phase II includes advance planning, engineering studies, computer models and simulations of shipyard processes, area development plans, and installation master plans to optimize facility and equipment layouts. Phase III would implement capital improvements in accordance with the area development plans and master plans. Phase III at PSNS & IMF is expected to transform the historic shipyard into a "Shipyard of the Future" over approximately 20 years. If funded by Congress, Phase III would result in numerous changes in upland facilities, buildings, and utilities, including substantial

infrastructure demolition, construction, and upgrades. These actions would be addressed under separate NEPA analyses once Congress approves funding. The SIOP is currently in Phase II (Navy, 2021a).

Navy – Operable Unit B Marine Sediment Remedial Actions

The Navy is conducting operable unit remedial actions for OU B Marine at NAVBASE Kitsap-Bremerton. The necessity and magnitude of a remedial action would be based on SIOP in-water construction activities and risk evaluation.

Navy – NAVBASE Kitsap-Manchester Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Actions for Per- and Polyfluoroalkyl Substances (PFAS)

The Navy is conducting ongoing CERCLA investigations at NAVBASE Kitsap-Manchester. The necessity and magnitude of a remedial action would be based on per- and PFAS delineation and risk evaluation.

Navy – Operable Unit (OU) A, Operable Unit B Terrestrial, and Operable Unit NSC CERCLA Actions for PFAS

The Navy is conducting ongoing CERCLA investigations at OU A, OU B Terrestrial, and OU NSC. The necessity and magnitude of a remedial action would be based on PFAS delineation and risk evaluation.

Port of Bremerton – Marina Breakwater Replacement, Port Orchard Marina (NWS-2022-0513)

The Port of Bremerton has proposed to replace the North Breakwater, East Breakwater, the approach floats, and gangway at Port Orchard Marina in Sinclair Bay. The project would protect the marina and its vessels and provide Americans with Disabilities Act (ADA) access to the breakwaters by installing an ADA-compliant gangway. The location of the new breakwaters would be within several feet of the existing breakwaters and would keep wave protection of the marina the same at the harbor entrance. After construction of the new breakwaters is complete, the existing breakwaters will be demolished. Construction began in 2024 and expected to be complete in 2029.

City of Bremerton – 6th Street Pavement Preservation Project Phase III

The City of Bremerton is planning to re-pave 6th Street between Naval Avenue and Warren Avenue (City of Bremerton, 2021). The project will include grinding and overlay, pavement markings, and other related street improvements, including upgrading curb ramps for compliance with the ADA. The project also includes the replacement of a signal at Veneta Avenue. The project is currently under design, with construction planned for 2024 – no further public updates available as of March 2025.

City of Bremerton – Naval Avenue Bicycle and Pedestrian Enhancement

The City of Bremerton will reconfigure the Naval Avenue corridor (1st Street to 11th Street), providing bike lanes, wider sidewalks, and removal of barriers that are not compliant with the ADA (City of Bremerton, 2021). The project includes pavement resurfacing; bike lanes, boxes, and detection; wider sidewalks; signal timing and phasing; intersection treatments; curb bulbs; wayfinding signage; pavement markings; and modified storm drainage. Additional project work includes a feasibility study of roundabouts at major Naval Avenue intersections. Project design is complete. Right-Of-Way acquisition is underway with construction planned for 2026 and 2027.

Private Development – The Beacon and Beacon II

The Beacon and Beacon II are located on the east side of Port Washington Narrows. The Beacon received approval permits in 2017. Beacon plans call for a four-story, 111-unit multifamily apartment building built over two levels of parking on 1.39 acres near the intersection of Lower Wheaton Way and

Schley Boulevard. Beacon II would be a 186-unit building also on Wheaton Way (Kitsap Sun, 2020). Building permits have been issued for both Beacon and Beacon II (Kitsap Sun, 2021). Construction is expected to begin in 2026.

Private Development – Eagle Pointe

Eagle Pointe is a five-story, 115-unit apartment building to be built over two stories of parking in downtown Bremerton on the corner of Washington Avenue and Sixth Street. The site review was approved by the City of Bremerton in March 2021. Construction has not begun as of late 2024 - no further public updates available as of March 2025.

Private Development – Riddell Road Apartments

Construction began on the 323-unit Riddell Road Apartments complex at the corner of Riddell Road and Almira Drive in 2020. Construction is ongoing.

Private Development – Sinclair Ridge Subdivision

Sinclair Ridge Subdivision is a 343-lot single-family home site development between Gorst and Port Orchard. The agency approved a preliminary plan in 2020. As of September 2021, the project was undergoing additional site reviews with the City of Bremerton (Kitsap Sun, 2021). Construction is ongoing as of 2024 - no further public updates available as of March 2025.

Private Development – McWilliams Apartments

McWilliams Apartments is a multi-phase 324-unit apartment complex with 554 parking stalls, located 1 mile north of Kitsap Landing along the Highway 303 corridor in East Bremerton. A portion of the project (152 units) was reviewed and approved in late 2021 (Kitsap Sun, 2021). Construction is planned for 2024 – no further public updates available as of December 2024.

4.4 Cumulative Impact Analysis

Where feasible, the cumulative impacts were assessed using quantifiable data; however, for many of the resources included for analysis, quantifiable data is not available, and a qualitative analysis was undertaken. In addition, where an analysis of potential environmental effects for future actions has not been completed, assumptions were made regarding cumulative impacts related to this EA where possible. The analytical methodology presented in Chapter 3.0, *Affected Environment and Environmental Consequences*, which was used to determine potential impacts to the various resources analyzed in this document, was used to determine cumulative impacts. Cumulative impacts are evaluated for resources that would be affected by the Action Alternative as analyzed in detail in Chapter 3.0, Sections 3.1 through 3.8. Tables 4.4-1 through 4.4-7 summarize the cumulative impacts for each resource for each of the projects described in Section 4.3. If a project is not mentioned under a resource, then no reasonably close causal relationship was identified for that project for that resource.

4.4.1 Air Quality

Table 4.4-1 Air Quality Cumulative Impacts Associated with the Action Alternative at NAVBASE Kitsap-Bremerton

Cumulative Projects	*Geographic Overlap*	*Cumulative Effects*
Navy – Bremerton Waterfront Infrastructure Improvement EIS	Kitsap County	The incremental effect of emissions from implementation of the Action Alternative added to

Cumulative Projects	*Geographic Overlap*	*Cumulative Effects*
Navy – Upgrade Shipyard Electrical Backbone, NAVBASE Kitsap-Bremerton, WA (P891)		the cumulative effects of the other actions would generate a very small increase in air emissions in the Puget Sound Air Quality Control Region. Emissions during construction would not appreciably increase health risks to the public. Emissions from on-site construction would mainly occur from the operation of mobile equipment with engines burning fossil fuels and area sources, such as fugitive dust. After construction, the reduction in personnel and related reduction in commuting would result in a net benefit from reduced transportation emissions. The newer carrier would require decreased pierside support and maintenance activities, which would also result in decreased air emissions from these activities. Air emissions from off-site cumulative project impacts would be limited from overlapping with the Action Alternative due to the geographical separation of the projects. Overlapping cumulative impacts could occur from some of the Navy cumulative projects. However, transport of cumulative project emissions to the locality of the Action Alternative would result in insignificant ambient pollutant impacts because of their distance and the very small increase in air emissions during construction of the Action Alternative. As a result, there would be no notable or significant cumulative air quality impacts from the Action Alternative when added to other cumulative project activities occurring in the ROI.
Navy –Pier 3 Electrical Substation Repair, PSNS & IMF		
Navy – Marine Structure Maintenance and Pile Replacement Activities, PSNS & IMF, and NAVBASE Kitsap-Manchester		
Navy – Manchester Tank Farm Improvements, NAVBASE Kitsap-Manchester		
Navy – Shipyard Infrastructure Optimization Program, PSNS & IMF		
Navy – Operable Unit B Marine Sediment Remedial Actions		
City of Bremerton – 6th Street Pavement Preservation Project Phase III		
City of Bremerton – Naval Avenue Bicycle and Pedestrian Enhancement		
Marina Breakwater Replacement, Port Orchard Marina (NWS-2022-0513)		
Private Development – The Beacon and Beacon II		
Private Development – Eagle Pointe		
Private Development – Riddell Road Apartments		
Private Development – Sinclair Ridge Subdivision		
Private Development – McWilliams Apartments		

Key: EIS = Environmental impact statement; NAVBASE = Naval Base; Navy = U.S. Department of the Navy; PSNS & IMF = Puget Sound Naval Shipyard and Intermediate Maintenance Facility; ROI = region of influence; WA = Washington.

4.4.2 Water Resources

Table 4.4-2 Water Resources Cumulative Impacts Associated with the Action Alternative at NAVBASE Kitsap-Bremerton

Cumulative Projects	*Geographic Overlap*	*Cumulative Effects*
Navy – Bremerton Waterfront Infrastructure Improvement EIS	Kitsap County	The Action Alternative would not impact groundwater; groundwater would not be extracted, and existing groundwater quality would not be impacted. No in-water construction is proposed and no adverse impacts to surface waters are expected. Marine waters adjacent to the project footprint have the potential to be degraded from construction activity and pierside support and maintenance; however, these potential impacts to marine waters would be avoided, minimized, and mitigated using standard operating procedures, impact avoidance and minimization measures, and construction and operational BMPs. Floodplains functions are not expected to be affected by electrical distribution system upgrades. Cumulative projects could interact with the Action Alternative and contribute to cumulative marine waters impacts. Similar to the Action Alternative, potential impacts to marine waters from the cumulative projects would be avoided, minimized, and mitigated using standard operating procedures, impact avoidance and minimization measures, construction and operational BMPs. As a result, there would be no notable or significant cumulative water resources impacts from the Action Alternative when added to other cumulative project activities occurring in the ROI.
Navy – Marine Structure Maintenance and Pile Replacement Activities, PSNS & IMF, and NAVBASE Kitsap-Manchester		
Navy – Shipyard Infrastructure Optimization Program, PSNS & IMF		
Marina Breakwater Replacement, Port Orchard Marina (NWS-2022-0513)		

Key: BMP = best management practice; EIS = Environmental impact statement; NAVBASE = Naval Base; Navy = U.S. Department of the Navy; PSNS & IMF = Puget Sound Naval Shipyard and Intermediate Maintenance Facility; ROI = region of influence.

4.4.3 Biological Resources

Table 4.4-3 Biological Resources Cumulative Impacts Associated with the Action Alternative at NAVBASE Kitsap-Bremerton

Cumulative Projects	*Geographic Overlap*	*Cumulative Effects*
Navy – Bremerton Waterfront Infrastructure Improvement EIS	Located outside proposed project area/within NAVBASE Kitsap-Bremerton.	These cumulative projects have the potential to impact both aquatic and terrestrial wildlife on- and off-installation by generating temporary noise and minor increases in human activity. The proposed work under the Action Alternative would also slightly increase stormwater runoff, thereby potentially increasing sedimentation, pollution, and turbidity to local waters and potentially affecting EFH or marine vegetation. However, potential sources of runoff including erosion, loose soils, and pollution would be avoided with compliance to the CWA, implementation of BMPs, discharge and construction general permits. As a result, there would be no notable or significant cumulative impacts to biological resources from the Action Alternative when added to other cumulative project activities occurring in the ROI.
Navy – Upgrade Shipyard Electrical Backbone, NAVBASE Kitsap-Bremerton, WA (P891)		
Navy –Pier 3 Electrical Substation Repair, PSNS & IMF		
Navy – Marine Structure Maintenance and Pile Replacement Activities, PSNS & IMF, and NAVBASE Kitsap-Manchester		
Navy – Shipyard Infrastructure Optimization Program, PSNS & IMF		

Key: BMP = best management practice; CWA = Clean Water Act; EFH = Essential Fish Habitat; EIS = Environmental impact statement; NAVBASE = Naval Base; Navy = U.S. Department of the Navy; PSNS & IMF = Puget Sound Naval Shipyard and Intermediate Maintenance Facility; ROI = region of influence; WA = Washington.

4.4.4 Infrastructure

Table 4.4-4 Infrastructure Cumulative Impacts Associated with the Action Alternative at NAVBASE Kitsap-Bremerton

Cumulative Projects	*Geographic Overlap*	*Cumulative Effects*
Navy – Bremerton Waterfront Infrastructure Improvement EIS	Located outside proposed project area/within NAVBASE Kitsap-Bremerton	These projects would directly affect the electrical utilities system at NAVBASE Kitsap-Bremerton and could potentially affect other on-installation utilities during the modernization program. This could have cumulative impacts to electrical power service at NAVBASE Kitsap-Bremerton. The Navy would coordinate service disruptions to ensure there would be no significant adverse cumulative impacts.
Navy – Upgrade Shipyard Electrical Backbone, NAVBASE Kitsap-Bremerton, WA (P891)		
Navy – Pier 3 Electrical Substation Repair, PSNS & IMF		
Navy – Shipyard Infrastructure Optimization Program, PSNS & IMF	Areas overlap/contain portions of the proposed project.	The project could lead to changes to the current and planned utilities systems at NAVBASE Kitsap-Bremerton. When added to impacts of the Action Alternative, there could be cumulative impacts to electrical power service at NAVBASE Kitsap-Bremerton. The Navy would coordinate service disruptions to ensure there would be no significant adverse cumulative impacts.

Key: NAVBASE = Naval Base; Navy = U.S. Department of the Navy; PSNS & IMF = Puget Sound Naval Shipyard and Intermediate Maintenance Facility; WA = Washington.

4.4.5 Noise

Table 4.4-5 Noise Cumulative Impacts Associated with the Action Alternative at NAVBASE Kitsap-Bremerton

Cumulative Projects	*Geographic Overlap*	*Cumulative Effects*
Navy – Bremerton Waterfront Infrastructure Improvement EIS Navy – Upgrade Shipyard Electrical Backbone, NAVBASE Kitsap-Bremerton, WA (P891) Navy –Pier 3 Electrical Substation Repair, PSNS & IMF Navy – Marine Structure Maintenance and Pile Replacement Activities, PSNS & IMF, and NAVBASE Kitsap-Manchester Navy – Manchester Tank Farm Improvements, NAVBASE Kitsap-Manchester	Located outside proposed project area/within NAVBASE Kitsap-Bremerton.	These cumulative projects would generate temporary noise during construction but would not affect the long-term noise environment. If projects occur in the same timeframe with the minor and temporary construction noise impacts of the Action Alternative, there could be temporary cumulative construction noise impacts, but because the projects are located at a distance from the project area, cumulative impacts would not be significant.
Navy – Shipyard Infrastructure Optimization Program, PSNS & IMF	Areas overlap/contain portions of the proposed project.	This cumulative project would generate additional noise associated with construction but would be temporary and would not affect long-term future noise conditions. If activities occur in the same timeframe as the minor and temporary construction noise impacts of the Action Alternative, and if activities are in proximity, there could be temporary cumulative construction noise impacts.

Key: NAVBASE = Naval Base; Navy = U.S. Department of the Navy; PSNS & IMF = Puget Sound Naval Shipyard and Intermediate Maintenance Facility; WA = Washington.

4.4.6 Cultural Resources

Table 4.4-6 Cultural Resources Impacts Associated with the Action Alternative at NAVBASE Kitsap-Bremerton

Cumulative Projects	*Geographic Overlap*	*Cumulative Effects*
None	The ROI for evaluating cumulative impacts on cultural resources includes the APE. For this Action Alternative, the APE encompasses the areas where ground disturbing activities, including new construction, and building demolitions would occur.	As the Action Alternative would have no impact on known archaeological or architectural resources (see section 3.4 *Cultural Resources*), implementation of the Action Alternative combined with the past, present, and reasonably foreseeable future projects is not anticipated to result in cumulative impacts to known cultural resources.

Key: APE = area of potential effects; ROI = region of influence.

4.4.7 American Indian Traditional Resources

Table 4.4-7 American Indian Traditional Resources Impacts Associated with the Action Alternative at NAVBASE Kitsap-Bremerton

Cumulative Projects	*Geographic Overlap*	*Cumulative Effects*
Navy – Bremerton Waterfront Infrastructure Improvement EIS	The ROI for evaluating impacts on American Indian traditional resources includes Sinclair Inlet and the waterfront of NAVBASE Kitsap-Bremerton.	Past, present, and future activities have the potential to impact protected traditional resources in Sinclair Inlet and the waterfront of NAVBASE Kitsap-Bremerton. Some projects identified could have short-term impacts on traditional aquatic resources due to increased turbidity or other construction-related disturbance to marine habitats and local fisheries. Continued consultation between the Navy and Suquamish Tribe will aid in the ongoing identification of impacts to, and preservation of, traditional resources.
Navy – Upgrade Shipyard Electrical Backbone, NAVBASE Kitsap-Bremerton, WA (P891)		
Navy –Pier 3 Electrical Substation Repair, PSNS & IMF		
Navy – Marine Structure Maintenance and Pile Replacement Activities, PSNS & IMF, and NAVBASE Kitsap-Manchester		
Navy – Manchester Tank Farm Improvements, NAVBASE Kitsap-Manchester		
Navy – Shipyard Infrastructure Optimization Program, PSNS & IMF		
Navy – Operable Unit B Marine Sediment Remedial Actions		
Marina Breakwater Replacement, Port Orchard Marina (NWS-2022-0513)		

Key: NAVBASE = Naval Base; Navy = U.S. Department of the Navy; PSNS & IMF = Puget Sound Naval Shipyard & Intermediate Maintenance Facility; ROI = region of influence; WA = Washington.

4.4.8 Hazardous Materials and Waste

Table 4.4-8 Hazardous Materials and Waste Cumulative Impacts Associated with the Action Alternative at NAVBASE Kitsap-Bremerton

Cumulative Projects	*Geographic Overlap*	*Cumulative Effects*
Navy – Bremerton Waterfront Infrastructure Improvement EIS	Located outside proposed project area/within NAVBASE Kitsap-Bremerton	The Action Alternative would occur in several contaminated sites that have had and are undergoing remedial actions, continue to be managed, and have institutional and/or land use controls in place. All construction activities would comply with applicable excavation management plans, land use control plans, project-specific health and safety plans, RCRA requirements for hazardous waste tracking and disposal, the
Navy – Upgrade Shipyard Electrical Backbone, NAVBASE Kitsap-Bremerton, WA (P891)		
Navy –Pier 3 Electrical Substation Repair, PSNS & IMF		

Cumulative Projects	*Geographic Overlap*	*Cumulative Effects*
Navy – Shipyard Infrastructure Optimization Program, PSNS & IMF		*Puget Sound Naval Shipyard & Intermediate Maintenance Facility Hazardous Waste Management Plan* (Navy, 2020b), and BMPs to minimize potential impacts to the environment or existing controls. These cumulative projects could contribute to total NAVBASE Kitsap-Bremerton use of hazardous materials and output of hazardous wastes associated with demolition and construction activities during the periods covered by these actions. For all projects, with implementation of impact avoidance and minimization measures, the potential for adverse impacts related to hazardous materials and wastes would be minimal and limited to the construction phase of the projects. Some of the construction associated with these cumulative projects would result in net removal of contaminated soil from the OUs though excavation. Therefore, implementation of the Action Alternative combined with the past, present, and reasonably foreseeable future projects would not result in adverse cumulative impacts to hazardous materials and wastes.

Key: BMP = best management practice; NAVBASE = Naval Base; Navy = U.S. Department of the Navy; OU = Operable Unit; PSNS & IMF = Puget Sound Naval Shipyard and Intermediate Maintenance Facility; RCRA = Resource Conservation and Recovery Act.

5 Other Considerations Required by NEPA

5.1 Consistency with Other Federal, State, and Local Laws, Plans, Policies, and Regulations

In accordance with the 40 Code of Federal Regulations section 1502.16(a)(5), analysis of environmental consequences shall include discussion of possible conflicts between the Action Alternative and the objectives of federal, regional, state, and local land use plans, policies, and controls. Table 5.1-1 identifies the principal federal and state laws and regulations that are applicable to the Action Alternative and describes briefly how compliance with these laws and regulations would be accomplished.

Table 5.1-1 Principal Federal and State Laws Applicable to the Proposed Action

Federal, State, Local, and Regional Land Use Plans, Policies, and Controls	***Status of Compliance***
National Environmental Policy Act (NEPA), as amended by the Fiscal Responsibility Act of 2023; Council on Environmental Quality (CEQ) NEPA implementing regulations; Navy procedures for implementing NEPA	This Environmental Assessment (EA) has been prepared in accordance with the CEQ and Navy regulations implementing NEPA. Appropriate public participation and review are being conducted in compliance with NEPA.
Clean Air Act	The applicable regulatory setting and impact analysis is discussed in Section 3.1, *Air Quality*. Annual air emissions would not cause a violation of the National Ambient Air Quality Standards or appreciably increase health risks to the public.
Clean Water Act	The applicable regulatory setting and impact analysis is discussed in Section 3.2, *Water Resources*. Construction activities would be in accordance with the Construction General Permit and would follow a project-specific Stormwater Pollution Prevention Plan (SWPPP). The Action Alternative would comply with the Stormwater Management Manual for SOPs for NAVBASE Kitsap-Bremerton. The SWPPP would identify structural controls, such as erosion and sediment controls, berms, or dikes around critical areas, retention/detention basins, and oil-water separators, if applicable.
Coastal Zone Management Act	The Navy has determined that implementing the Proposed Action would be consistent to the maximum extent practicable with the enforceable policies of the Washington State Coastal Zone Management Program. A Federal Consistency Determination and a letter of concurrence from the Washington Department of Ecology will be included in the Final EA.

Federal, State, Local, and Regional Land Use Plans, Policies, and Controls	***Status of Compliance***
National Historic Preservation Act	The applicable regulatory setting and impact analysis is discussed in Section 3.6, *Cultural Resources.* The Navy is consulting with the Washington State Historic Preservation Officer. Correspondence with the Tribal Government will be included in Appendix B of the Final EA, Agency and Tribal Consultation. The Navy is also coordinating with the Suquamish Tribe of the Port Madison Reservation during the NHPA Section 106 consultation process. Correspondence with the Tribal Government will be included in Appendix B of the Final EA. This includes two NRHP eligible properties located within the APE. Furthermore, no undiscovered archaeological resources are expected to be found in the APE because it is in a heavily built-up section of the base.
Endangered Species Act	The applicable regulatory setting and impact analysis is discussed in Section 3.3, *Biological Resources*. The Navy determined that the Action Alternative would result in no effect to ESA-listed marbled murrelet and would have no effect on other federally listed species.
Magnuson-Stevens Fishery Conservation and Management Reauthorization Act	The applicable regulatory setting and impact analysis is discussed in Section 3.3, *Biological Resources*. The Action Alternative would have no adverse effect on Essential Fish Habitat.
Marine Mammal Protection Act	The applicable regulatory setting and impact analysis is discussed in Section 3.3, *Biological Resources*. The Navy has determined that implementing the Action Alternative would not result in incidental take of marine mammals.
Migratory Bird Treaty Act	The applicable regulatory setting and impact analysis is discussed in Section 3.3, *Biological Resources*. The Action Alternative would not result in take of migratory birds protected under the Migratory Bird Treaty Act.
Bald and Golden Eagle Protection Act	The applicable regulatory setting and impact analysis is discussed in Section 3.3, *Biological Resources*. The Action Alternative would not result in take of bald or golden eagles.
Comprehensive Environmental Response, Compensation, and Liability Act	The applicable regulatory setting and impact analysis is discussed in Section 3.8, *Hazardous Wastes and Materials.* The Action Alternative would occur in Installation Restoration sites, so, potential hazards to human health would be minimized during construction in contaminated sites by proper treatment of excavated soils and stormwater in accordance with all applicable plans, requirements, and BMPs. Construction would be conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act and other Federal, state, and local environmental laws, regulations, and Navy instructions to minimize potential impacts.
Emergency Planning and Community Right-to-Know Act	The applicable regulatory setting and impact analysis is discussed in Section 3.8, *Hazardous Wastes and Materials.* The Action Alternative would not introduce new waste streams or require new Emergency Planning and Community Right-to-Know Act reporting requirements.

Federal, State, Local, and Regional Land Use Plans, Policies, and Controls	***Status of Compliance***
Resource Conservation and Recovery Act	The applicable regulatory setting and impact analysis is discussed in Section 3.8, *Hazardous Wastes and Materials.* The Action Alternative would not result in significant hazardous materials related impacts. Management protocols for hazardous substances related to homeporting CVN 79 would follow existing regulations and procedures for like materials.
Toxic Substances Control Act	The applicable regulatory setting and impact analysis is discussed in Section 3.8, *Hazardous Wastes and Materials.* Management of any listed chemicals would be conducted in accordance with the Toxic Substances Control Act.
Executive Order (EO) 11988, *Floodplain Management* and EO 13690, *Establishing a Federal Flood Risk Management Standard*	The applicable regulatory setting and impact analysis is discussed in Section 3.2, *Water Resources*. The Action Alternative is located within the 100-year flood zone, and flood protection features would be incorporated into the design of the proposed facilities, as deemed appropriate. Therefore, the Action Alternative would be in compliance with EO 11988 and EO 13690.
EO 12088*, Federal Compliance with Pollution Control Standards*	The applicable regulatory setting and impact analysis is discussed in Section 3.1, *Air Quality*, and Section 3.4, *Infrastructure.* The Action Alternative would not exceed National Ambient Air Quality Standards established by the U.S. Environmental Protection Agency under the Clean Air Act. Therefore, the Action Alternative would comply with EO 12088.
EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*	The applicable regulatory setting and impact analysis is discussed in the Public Health and Safety portion of Section 3 *Affected Environment and Environmental Consequences.* The Navy concludes the Action Alternative would not result in environmental health risks or safety risks that may disproportionately affect children.
EO 13175, *Consultation and Coordination with Indian Tribal Governments*	The applicable regulatory setting and impact analysis is discussed in Section 3.7, *American Indian Traditional Resources.* The Navy invited the Suquamish Tribe to initiate government-to-government consultation on the Action Alternative.
State of Washington Administrative Code Chapter 173 210A, Protecting and regulating the quality of surface waters in the State of Washington	The applicable regulatory setting and impact analysis is discussed at the beginning of Section 3.2, *Water Resources.* The Action Alternative would not exceed applicable state surface water quality standards.
State of Washington Administrative Code Chapter 173-60, Kitsap County Code 10.28, City of Bremerton Municipal Code 6.32, and Port Orchard Municipal Code 9.24.050	The applicable regulatory setting and impact analysis is discussed in Section 3.5, *Noise,* which would not apply within NAVBASE Kitsap-Bremerton. All construction noise would be temporary and would not affect the long-term noise environment at any noise sensitive receptors within or outside of NAVBASE Kitsap-Bremerton.

Key: APE = area of potential effects; BMP = best management practice; CCD = Coastal Consistency Determination; CEQ = Council on Environmental Quality; CVN = nuclear-powered aircraft carrier; EA = Environmental Assessment; EO Executive Order; ESA = Endangered Species Act; GHG = greenhouse gas; NAVBASE = Naval Base; Navy = U.S. Department of the Navy; NEPA = National Environmental Policy Act; NRHP = National Register of Historic Places; SOP = Standard Operating Procedure; SWPPP = Stormwater Pollution Prevention Plan.

1.1 Irreversible or Irretrievable Commitments of Resources

Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of non-renewable resources, such as metal and fuel, and natural or cultural resources. These resources are irretrievable in that they would be used for this project when they could have been used for other purposes. Human labor is also considered an irretrievable resource. Another impact that falls under this category is the unavoidable destruction of natural resources that could limit the range of potential uses of that environment.

Implementation of the Action Alternative would involve human labor and non-renewable energy resources (e.g., gasoline, diesel, natural gas, and electrical power generated from these fuels) that would be irreversibly committed for project construction and operations. Utility capacity would be irreversibly committed to meet the demand from project construction and operations. Irreversible consumption of renewable and non-renewable resources would be required for construction, including metals, aggregate, cement, wood, and other materials, as well as labor hours. Finally, planning, design, construction, and operations would require commitment of Federal funds that are not retrievable. Implementing the Action Alternative would not result in significant irreversible or irretrievable commitment of resources.

1.2 Unavoidable Adverse Impacts

This Environmental Assessment (EA) has determined that the alternatives considered would not result in any significant impacts. Implementing the alternatives would result in the following unavoidable environmental impacts:

Table 5.3-1 Unavoidable Adverse Impacts

Resource	*Unavoidable Adverse Impacts*
Air Quality and Greenhouse Gases	Construction activities (e.g., road traffic, fuel-burning equipment) would increase emissions and generate fugitive dust. Implementation of BMPs would reduce fugitive dust plumes. GHG emissions would be generated during the construction period, after which emissions from operations would be anticipated to return to baseline conditions.
Hazardous Materials and Wastes	During construction there would be an increase in the use of hazardous materials, and generation of solid waste and potentially hazardous waste associated with construction activity. Standard construction site BMPs would be implemented to minimize hazards. Operational impacts from hazardous materials and wastes handling would be controlled or eliminated through project design that would incorporate all applicable federal, state, DoD, and Navy safety standards and requirements.
Protection of Children	Impacts related to air quality and noise during construction have the potential to disproportionately affect local populations, including children. These short-term impacts would be localized, temporary, and minimized with the implementation of BMPs.

Key: BMP = best management practice; DoD = Department of Defense; GHG = greenhouse gas; Navy = U.S. Department of the Navy.

5.2 Relationship between Short-Term Use of the Environment and Long-Term Productivity

The National Environmental Policy Act requires an analysis of the relationship between a project's short-term impacts on the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. This refers to the possibility that

choosing one development site reduces future flexibility in pursuing other options, or that using a parcel of land or other resources often eliminates the possibility of other uses at that site.

In the short term, effects on the human environment with implementation of the Action Alternative would primarily relate to the construction activity itself. Air quality and noise would be impacted in the short term. The construction of the substations and operation of a nuclear-powered aircraft carrier (CVN 79) would not significantly impact the long-term natural resource productivity of the area. The Action Alternative would not result in any impacts that would significantly reduce environmental productivity or permanently narrow the range of beneficial uses of the environment.

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6 References

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Appendix A
Air Quality Methodology and Calculations

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TAB A: Demolition and Construction Summary

ACTIVITY PERIOD: 3 Years Work period 8 hr/day

Loader time is based on CY and doubled to account for load time onto trucks.

10 CY used for combined average capacity of dump truck and conrete truck

453.59 grams per pound

productivity from cflhd_production_rates.xls

1 m^3 = 1.31 CY

1 CY = 27.00 CF

1 Acre = 43,560 SF

construction data from P859 _DWGS Submittal.pdf

1 sq meter = 10.76 SF

1 acre = 43,560 SF

2,650 lb/cy of gravel

2026

Excavation/Fill	3,103 CY	16 CY/hr	Loader 37 CY/hr
Grading	388 SY	63 SY/hr	
Asphalt/Concrete/Gravel	961 CY	16 CY/hr	
Bldg Demo	919 CY	25 CY/hr	4,982 CY material transported offsite; 498 truck trips for disposal

				Emissions Factors								Annual Emissions (lbs) - subtotals by equipment								
Equipment	Operating Hours	HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr	CH4 g/hp-hr	VOC lb	CO lb	NOx lb	SO_2 lb	PM10 lb	PM2.5 lb	CO_2 lb	CH4 lb	N2O lb	CO2e lb
Excavator	199	450	0.53	0.03	0.20	0.55	1.48E-03	0.03	0.03	536.74	0.003	3.34	21.22	57.29	0.15	3.40	3.30	56,039	0.29	0.13	56086
Skidsteer Loader	397	95	0.23	0.73	3.89	3.81	2.23E-03	0.55	0.54	693.89	0.029	14.06	74.38	72.89	0.04	10.61	10.29	13,274	0.55	0.25	13362
Dozer	199	275	0.58	0.02	0.09	0.29	1.44E-03	0.02	0.02	536.77	0.002	1.37	6.17	20.46	0.10	1.16	1.12	37,479	0.11	0.05	37497
Compactor	397	105	1.00	0.06	0.26	0.86	1.50E-03	0.06	0.06	536.67	0.004	5.08	24.23	79.21	0.14	5.36	5.20	49,336	0.39	0.18	49399
Grader	99	145	0.58	0.02	0.13	0.46	1.44E-03	0.03	0.03	536.77	0.002	0.37	2.45	8.47	0.03	0.57	0.55	9,881	0.03	0.01	9886
Loader	269	300	0.48	0.03	0.17	0.50	1.47E-03	0.03	0.03	536.73	0.003	2.96	14.18	42.45	0.13	2.63	2.55	45,891	0.26	0.12	45932
										Subtotal in pounds		27.17	142.62	280.78	0.59	23.72	23.01	211,900	1.63	0.74	212,162

2027

Excavation/Fill	2,530 CY	16 CY/hr	Loader 37 CY/hr
Grading	2,530 SY	63 SY/hr	
Asphalt/Concrete/Gravel	664 CY	16 CY/hr	
Bldg Demo	3,306 CY	25 CY/hr	6,500 CY material t; 650 truck trips for disposal

				Emissions Factors								Annual Emissions (lbs) - subtotals by equipment								
Equipment	Operating Hours	HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr	CH4 g/hp-hr	VOC lb	CO lb	NOx lb	SO_2 lb	PM10 lb	PM2.5 lb	CO_2 lb	CH4 lb	N2O lb	CO2e lb
Excavator	162	450	0.53	0.03	0.20	0.55	1.48E-03	0.03	0.03	536.74	0.003	2.72	17.31	46.71	0.13	2.77	2.69	45,691	0.24	0.11	45729
Skidsteer Loader	324	95	0.23	0.73	3.89	3.81	2.23E-03	0.55	0.54	693.89	0.029	11.46	60.65	59.43	0.03	8.65	8.39	10,823	0.45	0.20	10895
Dozer	43	275	0.58	0.02	0.09	0.29	1.44E-03	0.02	0.02	536.77	0.002	0.29	1.32	4.38	0.02	0.25	0.24	8,023	0.02	0.01	8027
Compactor	324	105	1.00	0.06	0.26	0.86	1.50E-03	0.06	0.06	536.67	0.004	4.14	19.75	64.58	0.11	4.37	4.24	40,226	0.32	0.14	40277
Grader	40	145	0.58	0.02	0.13	0.46	1.44E-03	0.03	0.03	536.77	0.002	0.15	1.00	3.45	0.01	0.23	0.23	4,028	0.01	0.01	4030
Loader	351	300	0.48	0.03	0.17	0.50	1.47E-03	0.03	0.03	536.73	0.003	3.86	18.50	55.38	0.16	3.43	3.33	59,869	0.34	0.15	59923
										Subtotal in pounds		22.63	118.52	233.94	0.47	19.70	19.11	168,660	1.37	0.63	168,881

2028

Excavation/Fill	1,378 CY	16 CY/hr	
Grading	12,405 SY	63 SY/hr	
Asphalt/Concrete/Gravel	361 CY	16 CY/hr	1,740 CY material transported offsite; 174 truck trips for disposal

				Emissions Factors								Annual Emissions (lbs) - subtotals by equipment								
Equipment	Operating Hours	HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr	CH4 g/hp-hr	VOC lb	CO lb	NOx lb	SO_2 lb	PM10 lb	PM2.5 lb	CO_2 lb	CH4 lb	N2O lb	CO2e lb
Excavator	111	450	0.53	0.03	0.20	0.55	1.48E-03	0.03	0.03	536.74	0.003	1.87	11.90	32.12	0.09	1.91	1.85	31,420	0.17	0.08	31447
Skidsteer Loader	223	95	0.23	0.73	3.89	3.81	2.23E-03	0.55	0.54	693.89	0.029	7.88	41.70	40.87	0.02	5.95	5.77	7,443	0.31	0.14	7492
Dozer	111	275	0.58	0.02	0.09	0.29	1.44E-03	0.02	0.02	536.77	0.002	0.77	3.46	11.47	0.06	0.65	0.63	21,014	0.06	0.03	21024
Compactor	223	105	1.00	0.06	0.26	0.86	1.50E-03	0.06	0.06	536.67	0.004	2.85	13.58	44.41	0.08	3.00	2.91	27,662	0.22	0.10	27697
Grader	198	145	0.58	0.02	0.13	0.46	1.44E-03	0.03	0.03	536.77	0.002	0.74	4.90	16.93	0.05	1.14	1.11	19,754	0.06	0.03	19764
Loader	223	300	0.48	0.03	0.17	0.50	1.47E-03	0.03	0.03	536.73	0.003	2.45	11.72	35.10	0.10	2.18	2.11	37,941	0.21	0.10	37975
										Subtotal in pounds		16.55	87.27	180.91	0.40	14.82	14.38	145,235	1.03	0.47	145,400

CONSTRUCTION

2026

Excavation/Fill	6,000 CY	16 CY/hr	
Grading	6,000 SY	63 SY/hr	
Concrete/Gravel	5,370 CY	16 CY/hr	
Asphalt	366 CY	16 CY/hr	145 lb/ft^3 density of Hot Mix Asphalt; 11,735 CY material transported; 1,174 truck trips

				Emissions Factors								Annual Emissions (lbs) - subtotals by equipment								
Equipment	Operating Hours	HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr	CH4 g/hp-hr	VOC lb	CO lb	NOx lb	SO_2 lb	PM10 lb	PM2.5 lb	CO_2 lb	CH4 lb	N2O lb	CO2e lb
Dozer	96	275	0.58	0.02	0.09	0.29	1.44E-03	0.02	0.02	536.77	1.58E-03	0.66	2.98	9.89	0.05	0.56	0.54	18,119	0.05	0.02	18127
Loader	847	300	0.48	0.03	0.17	0.50	1.47E-03	0.03	0.03	536.73	3.01E-03	9.31	44.59	133.51	0.40	8.28	8.03	144,334	0.81	0.37	144464
Skidsteer Loader	847	95	0.23	0.73	3.89	3.81	2.23E-03	0.55	0.54	693.89	2.86E-02	29.98	158.65	155.48	0.09	22.62	21.94	28,313	1.17	0.53	28501
Concrete truck	344	300	0.21	0.14	0.65	2.73	1.71E-03	0.09	0.08	530.63	8.74E-03	6.89	31.20	130.18	0.08	4.17	4.04	25,327	0.42	0.19	25394
Roller	23	401	0.58	0.05	0.31	0.85	1.52E-03	0.04	0.04	536.70	3.45E-03	0.56	3.67	10.26	0.02	0.51	0.50	6,451	0.04	0.02	6458
Paving Machine	23	164	0.58	0.06	0.27	0.87	1.50E-03	0.06	0.06	536.67	4.31E-03	0.27	1.35	4.28	0.01	0.30	0.29	2,638	0.02	0.01	2642
Asphalt Curbing Machine	23	130	0.58	0.06	0.26	0.86	1.50E-03	0.06	0.06	536.67	4.22E-03	0.22	1.03	3.36	0.01	0.23	0.22	2,091	0.02	0.01	2094
Compactor	23	105	1.00	0.06	0.26	0.86	1.50E-03	0.06	0.06	536.67	4.22E-03	0.30	1.43	4.68	0.01	0.32	0.31	2,912	0.02	0.01	2916
										Subtotal in pounds		48.19	244.89	451.64	0.66	36.99	35.88	230,186	2.55	1.16	230,596

Hot Mix Asphalt (HMA)	Volume of HMA	Weight of HMA (tons)	VOC lb/ton	VOC lb
Standard Hot Mix Asphalt	9,889	717	0.04	29

2027

Excavation/Fill	11,151 CY	16 CY/hr	
Grading	11,151 SY	63 SY/hr	
Concrete/Gravel	7,958 CY	16 CY/hr	
Asphalt	225 CY	16 CY/hr	145 lb/ft^3 density of Hot Mix Asphalt; 19,335 CY material transported; 1,933 truck trips

				Emissions Factors								Annual Emissions (lbs) - subtotals by equipment								
Equipment	Operating Hours	HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr	CH4 g/hp-hr	VOC lb	CO lb	NOx lb	SO_2 lb	PM10 lb	PM2.5 lb	CO_2 lb	CH4 lb	N2O lb	CO2e lb
Dozer	178	275	0.58	0.02	0.09	0.29	1.44E-03	0.02	0.02	536.77	1.58E-03	1.23	5.54	18.39	0.09	1.04	1.01	33,676	0.10	0.05	33692
Loader	1416	300	0.48	0.03	0.17	0.50	1.47E-03	0.03	0.03	536.73	3.01E-03	15.56	74.53	223.16	0.66	13.83	13.42	241,249	1.35	0.62	241466
Skidsteer Loader	1416	95	0.23	0.73	3.89	3.81	2.23E-03	0.55	0.54	693.89	2.86E-02	50.12	265.18	259.88	0.15	37.81	36.68	47,325	1.95	0.89	47638
Concrete truck	509	300	0.21	0.14	0.65	2.73	1.71E-03	0.09	0.08	530.63	8.74E-03	10.21	46.23	192.94	0.12	6.18	5.99	37,538	0.62	0.28	37637
Roller	14	401	0.58	0.05	0.31	0.85	1.52E-03	0.04	0.04	536.70	3.45E-03	0.34	2.26	6.32	0.01	0.32	0.31	3,971	0.03	0.01	3975
Paving Machine	14	164	0.58	0.06	0.27	0.87	1.50E-03	0.06	0.06	536.67	4.31E-03	0.17	0.83	2.63	0.00	0.19	0.18	1,624	0.01	0.01	1626
Asphalt Curbing Machine	14	130	0.58	0.06	0.26	0.86	1.50E-03	0.06	0.06	536.67	4.22E-03	0.13	0.63	2.07	0.00	0.14	0.14	1,287	0.01	0.00	1289
Compactor	14	105	1.00	0.06	0.26	0.86	1.50E-03	0.06	0.06	536.67	4.22E-03	0.18	0.88	2.88	0.01	0.19	0.19	1,793	0.01	0.01	1795
										Subtotal in pounds		77.94	396.09	708.26	1.05	59.70	57.91	368,461	4.08	1.86	369,118

Hot Mix Asphalt (HMA)	Volume of HMA	Weight of HMA (tons)	VOC lb/ton	VOC lb
Standard Hot Mix Asphalt	6,088	441	0.04	18

Building and Site Construction inc micro pile placement - - 2026& 2027

7,842 SF 60 micropiles Assume 2 installed /day 38 CY total for foundation conc

				Emissions Factors								Annual Emissions (lbs) - subtotals by equipment								
Equipment	Operating Hours	HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO_2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr	CH4 g/hp-hr	VOC lb	CO lb	NOx lb	SO_2 lb	PM10 lb	PM2.5 lb	CO_2 lb	CH4 lb	N2O lb	CO2e lb
Mobile Crane	240	150	1.00	0.04	0.18	0.86	1.47E-03	0.04	0.04	530.93	3.58E-03	3.29	13.92	68.54	0.12	3.23	3.14	42,138	0.28	0.13	42184
Loader	240	300	0.48	0.03	0.17	0.50	1.47E-03	0.03	0.03	536.73	3.01E-03	2.64	12.63	37.83	0.11	2.35	2.27	40,895	0.23	0.10	40931
Skidsteer Loader	240	95	0.23	0.73	3.89	3.81	2.23E-03	0.55	0.54	693.89	2.86E-02	8.50	44.95	44.05	0.03	6.41	6.22	8,022	0.33	0.15	8075
Concrete truck	240	300	0.21	0.14	0.65	2.73	1.71E-03	0.09	0.08	530.63	8.74E-03	4.81	21.79	90.91	0.06	2.91	2.82	17,688	0.29	0.13	17735
										Subtotal in pounds		19.23	93.29	241.34	0.31	14.90	14.45	108,743	1.13	0.52	108,925

2028

Excavation/Fill	212 CY	16 CY/hr	
Grading	212 SY	63 SY/hr	
Concrete/Gravel	229 CY	16 CY/hr	
Asphalt	19 CY	16 CY/hr	145 lb/ft^3 density of Hot Mix Asphalt; 459 CY material transported; 46 truck trips

				Emissions Factors								Annual Emissions (lbs) - subtotals by equipment								
Off-road Equipment	Hours of Operation	HP	Load Factor	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SO2 g/hp-hr	PM10 g/hp-hr	PM2.5 g/hp-hr	CO_2 g/hp-hr	CH4 g/hp-hr	VOC lb	CO lb	NOx lb	SO2 lb	PM10 lb	PM2.5 lb	CO_2 lb	CH4 lb	N2O lb	CO2e lb
Dozer	3	275	0.58	0.02	0.09	0.29	1.44E-03	0.02	0.02	536.77	1.58E-03	0.02	0.11	0.35	0.00	0.02	0.02	639	0.00	0.00	639
Loader	33	300	0.48	0.03	0.17	0.50	1.47E-03	0.03	0.03	536.73	3.01E-03	0.36	1.72	5.16	0.02	0.32	0.31	5,581	0.03	0.01	5586
Skidsteer Loader	33	95	0.23	0.73	3.89	3.81	2.23E-03	0.55	0.54	693.89	2.86E-02	1.16	6.13	6.01	0.00	0.87	0.85	1,095	0.05	0.02	1102
Concrete truck	15	300	0.21	0.14	0.65	2.73	1.71E-03	0.09	0.08	530.63	8.74E-03	0.29	1.33	5.54	0.00	0.18	0.17	1,078	0.02	0.01	1081
Roller	1	401	0.58	0.05	0.31	0.85	1.52E-03	0.04	0.04	536.70	3.45E-03	0.03	0.19	0.53	0.00	0.03	0.03	330	0.00	0.00	330
Paving Machine	1	164	0.58	0.06	0.27	0.87	1.50E-03	0.06	0.06	536.67	4.31E-03	0.01	0.07	0.22	0.00	0.02	0.02	135	0.00	0.00	135
Asphalt Curbing Machine	1	130	0.58	0.06	0.26	0.86	1.50E-03	0.06	0.06	536.67	4.22E-03	0.01	0.05	0.17	0.00	0.01	0.01	107	0.00	0.00	107
										Subtotal in pounds		1.89	9.60	17.98	0.03	1.45	1.40	8,965	0.10	0.05	8,982

Hot Mix Asphalt (HMA)	Volume of HMA	Weight of HMA (tons)	VOC lb/ton	VOC lb
Standard Hot Mix Asphalt	506	37	0.04	1

Onsite Trucks - 2026 through 2028

		g/hr-vehicle Emission Rate									
	Hours	VOC	CO	NOx	SO_2	PM10	PM2.5	CO_2	CH4	N2O	CO2e
2026 Onsite Trucks - Idle	1,356	5.23	21.99	34.17	0.02	2.54	2.34	5727.82	0.27	0.08	5759.01

2027 Onsite Trucks - Idle	2,007
2028 Onsite Trucks - Idle	255

	Emission in Pounds									
	VOC	**CO**	**NOx**	**SO_2**	**PM10**	**PM2.5**	**CO_2**	**CH4**	**N2O**	**CO2e**
2026 Onsite Trucks - Idle/year	15.63	65.74	102.19	0.06	7.59	6.99	17,128	0.81	0.25	17,221
2027 Onsite Trucks - Idle/year	23.14	97.29	151.22	0.09	11.24	10.34	25,346	1.20	0.37	25,484
2028 Onsite Trucks - Idle/year	2.94	12.38	19.24	0.01	1.43	1.32	3,225	0.15	0.05	3,243

Emission factors from EPA model MOVES 3.0.1, Single Unit Short Haul

Commuting Workers -2026 through 2029 Annual Emissions (pounds per year)

	VOC	**CO**	**NOx**	**SO2**	**PM10**	**PM2.5**	**CO2**	**CH4**	**N2O**	**CO2e**
2026 Annual Emissions	32.41	3,670.69	91.70	2.10	2,746.31	412.88	315,531	11.30	1.85	316,362
2027 Annual Emissions	64.81	7,341.38	183.40	4.19	5,492.62	825.76	631,062	22.60	3.71	632,725
2028 Annual Emissions	21.39	2,422.66	60.52	1.38	1,812.56	272.50	208,250	7.46	1.22	208,799
2029 Annual Emissions	10.69	1,211.33	30.26	0.69	906.28	136.25	104,125	3.73	0.61	104,400

Delivery Truck Trips - 2026 through 2029 Annual Emissions (pounds per year)

	VOC	**CO**	**NOx**	**SO2**	**PM10**	**PM2.5**	**CO2e**
2026 Annual Emissions	83.57	1,365.03	89.95	0.63	2.51	2.20	93,938
2027 Annual Emissions	167.13	2,730.05	179.91	1.26	5.03	4.40	187,877
2028 Annual Emissions	55.15	900.92	59.37	0.41	1.66	1.45	61,999
2029 Annual Emissions	27.58	450.46	29.69	0.21	0.83	0.73	31,000

Haul Truck Trips - 2026 through 2028 Annual Emissions (pounds per year)

	Total VMT	**VOC**	**CO**	**NOx**	**SO2**	**PM10**	**PM2.5**	**CO2e**
2026 Annual Emissions	33,096	22.37	126.83	232.72	0.24	100.13	24.27	70,978
2027 Annual Emissions	48,351	32.68	185.29	340.00	0.35	146.28	35.46	103,696
2028 Annual Emissions	4,111	2.78	15.75	28.91	0.03	12.44	3.02	8,817

Fugitive Dust

Year	PM 10 tons/acre-mo	acres	months of disturbance	**PM10 Total Tons**	PM2.5/ PM10 Ratio	**PM2.5 Total Tons**
2026	0.42	0.6	4	**1.08**	0.1	**0.11**
2027	0.42	0.5	6	**1.32**	0.1	**0.13**
2028	0.42	0.3	4	**0.48**	0.1	**0.05**

Calculation for PM10 Total (tons) = 0.42 tons/acre/mo x Y acres x months of disturbance

Emission factors from Western Governor's Association. 2006. Fugitive Dust Handbook. September.

Total Emissions

	Tons per Year						
Year	**VOC**	**CO**	**NOx**	**SO_2**	**PM10**	**PM2.5**	**CO_2e**
2026	**0.14**	**2.85**	**0.75**	**0.00**	**2.54**	**0.37**	**524**
2027	**0.19**	**3.02**	**0.96**	**0.00**	**2.35**	**0.34**	**534**
2028	**0.05**	**1.72**	**0.18**	**0.00**	**1.40**	**0.19**	**218**
2029	**0.02**	**0.83**	**0.03**	**0.00**	**0.45**	**0.07**	**68**

2029 activity is limited to commuting workers and delivery truck trips with electrical equipment.

GHG Comparative Analysis

				average passenger vehicle		
				369	grams of CO2 per mile	
				0.81	lb of CO2 per mile	
		Action Alternative				
CO2 emissions	1,344	Tons total	7,362	cars driving	13,476	miles per year for one year

TAB B: Combined Totals By Year

Area	Component	CY	Grading (SF)	Site Prep - Excavate/Fill (CY)	Building - Total Size (sf)	Foundation footprint (sf)	Asphalt (CY)	Gravel (CY)	Concrete (CY)
A2	Demo of existing facilities	2026-27	20,723	2,303			303	303	
B2	Demo of existing SS H	2026	5,156	573	3,306	3,306	2	148	147
C2	Demo pavement and concrete	2026-2028	272	30			2	4	2
C3	Demo pavement and concrete	2026-2028	1,566	174			16	31	15
D3	Demo pavement and concrete	2026-2028	22,973	2,553			275	326	51
		2026 Total	**27,923**	**3,103**	**3,306**	**3,306**	**300**	**480**	**181**
		2027 Total	**22,767**	**2,530**	**0**	**0**	**298**	**332**	**34**
		2028 Total	**12,405**	**1,378**	**0**	**0**	**147**	**181**	**34**

Demo paving and concrete 2025-2027 increased by 50% to account for all demo in other areas not specifically calculated.

Area	Component	CY	Site Prep - Excavate/Fill (CY)	Paving (CY)	Gravel Work (CY)	Concrete Work (CY)
A2	Construct new SS H yard	2027	5,557		2,195	1,464
B2	Construct new SS H	2026-2027	3,993	207	2,629	527
	Medium voltage yard	2027	1,389		549	366
C2	Paving and Concrete	2027-2028	38	3	38	2
C3	Paving and concrete	2027-2028	174	16	174	15
D3	Construct new SS Z	2026	1,862	160	1,862	167
E3			145		145	40
F3	Upgrade 2 SS on homeporting pier	2026				
G3	Upgrade 2 SS on homeporting pier	2026				
H3	Upgrade 2 SS on homeporting pier	2026				
		2026 Total	**6,000**	**366**	**4,636**	**733**
		2027 Total	**11,151**	**225**	**5,584**	**2,374**
		2028 Total	**1,601**	**19**	**760**	**383**

Construction activity for 2026-2027 accounted for in full each year to account for all construction in other areas not specifically calculated.

Medium voltage yard materials estimated to be 25% of high voltage yard materials

Construction/Demolition Truck Trips

2026	# of trips	Miles/ Round Trip	Total Miles
Disposal	498	18	8968
HMA	37	100	3663
Concrete/ Gravel	537	18	9665
Fill	600	18	10799
		Total VMT	**33096**

Miles per round trip for hot mix asphalt is 100 (50 miles each way)

Miles per round trip for disposal, concrete/gravel, and fill is 18 miles (9 miles each way)

Mileage was determined using Google Maps.

2027	# of trips	Miles/ Round Trip	Total Miles
Disposal	650	18	11700
HMA	23	100	2255
Concrete/ Gravel	796	18	14325
Fill	1115	18	20072
		Total VMT	**48351**

2028	# of trips	Miles/ Round Trip	Total Miles
Disposal	174	18	3131
HMA	2	100	187
Concrete/ Gravel	23	18	411
Fill	21	18	381
		Total VMT	**4111**

TAB C: Demolition areas

	A2	B2	C2	C3	D3	Total
Building SF	N/A	3306.25	N/A	N/A	N/A	**3306.25**
Concrete CY	N/A	146.50	1.62	15.34	51.20	**214.66**
Asphalt CY	302.97	1.89	2.17	15.63	275.25	**597.91**
Gravel CY	302.97	148.39	3.79	30.96	326.46	**812.57**
Excavation CY	2302.57	572.91	30.21	173.96	2552.58	**5632.23**

Notes:
1. All areas approximated by measurements from construction drawings.
2. All asphalt is assumed to be 5 inches thick.
3. All concrete sidewalks/patios etc., assumed to be 4 inches thick.
4. Where designated as concrete "pavement," assumed to be 10 inches thick.
5. Concrete CY and Asphalt CY consider only the concrete and asphalt, not the underlying layers (crushed rock, etc.)
6. Excavation CY assumes an excavation depth of 36 inches for concrete and 38 inches for asphalt.
7. An excavation depth of 36 inches was assumed beneath each building.

		Inches		Feet		Area	Thickness		Cubic feet	Cubic yards	Total Cubic yards		Excavation Depth	Depth	Cubic feet	Cubic yard	Cubic yards
		L	W	L	W	(FT^2)	(inches)	(feet)					(inches)	(feet)			
	A2 asphalt	8.125	4.625	185.713125	105.7136	19632.41	5	0.41666667	8180.17	302.9693	302.9693		38	3.166667	62169.29	2302.566	2302.566
	B2 buildings	2.875	1.125	57.5	22.5	1293.75							36	3	3881.25	143.75	143.75
		0.75	0.5	15	10	150							36	3	450	16.66667	16.66667
		1.375	1	27.5	20	550							36	3	1650	61.11111	61.11111
		2	0.5	40	10	400							36	3	1200	44.44444	44.44444
		1.1875	1.5	23.75	30	712.5							36	3	2137.5	79.16667	79.16667
		1	0.5	20	10	200							36	3	600	22.22222	22.22222
				Total Building Area		3306.25											
	B2 concrete	0.375	0.0625	7.5	1.25	9.375	4	0.33333333	3.125	0.115741	0.925926	There are eight of these.	36	3	28.125	1.041667	8.333333
		0.25	0.25	5	5	25	4	0.33333333	8.333333	0.308642	2.469136	There are eight of these	36	3	75	2.777778	22.22222
		0.31	0.3125	6.25	6.25	39.0625	4	0.33333333	13.02083	0.482253	1.929012	There are four of these	36	3	117.1875	4.340278	17.36111
		1.125	0.3125	22.5	6.25	140.625	4	0.33333333	46.875	1.736111	1.736111		36	3	421.875	15.625	15.625
		0.09375	0.09375	1.875	1.875	3.515625	4	0.33333333	1.171875	0.043403	0.130208	There are three of these	36	3	10.54688	0.390625	1.171875
		0.125	0.125	2.5	2.5	6.25	4	0.33333333	2.083333	0.07716	0.154321	There are two of these	36	3	18.75	0.694444	1.388889
		1	0.75	20	15	300	4	0.33333333	100	3.703704	3.703704		36	3	900	33.33333	33.33333
		0.59375	0.1875	11.875	3.75	44.53125	4	0.33333333	14.84375	0.549769	0.549769		36	3	133.5938	4.947917	4.947917
		0.8125	0.375	16.25	7.5	121.875	4	0.33333333	40.625	1.50463	1.50463		36	3	365.625	13.54167	13.54167
		0.125	0.1875	2.5	3.75	9.375	4	0.33333333	3.125	0.115741	0.115741		36	3	28.125	1.041667	1.041667
		1.1875	1	23.75	20	475	4	0.33333333	158.3333	5.864198	5.864198		36	3	1425	52.77778	52.77778
		0.3125	0.1875	6.25	3.75	23.4375	4	0.33333333	7.8125	0.289352	0.289352		36	3	70.3125	2.604167	2.604167
Concrete	A&B	0.875	0.34375	17.5	6.875	120.3125	10	0.83333333	100.2604	3.713349	3.713349		36	3	360.9375	13.36806	13.36806
Pavement	C&D	0.3125	0.25	6.25	5	31.25	10	0.83333333	26.04167	0.964506	0.964506		36	3	93.75	3.472222	3.472222
	B2 Asphalt	0.1875	0.25	4.2856875	5.71425	24.48949	5	0.41666667	10.20395	0.377924	0.377924		38	3.166667	77.55005	2.872224	2.872224
		0.75	0.25	17.14275	5.71425	97.95796	5	0.41666667	40.81582	1.511697	1.511697		38	3.166667	310.2002	11.4889	11.4889
	C2 Concrete	0.375	0.25	7.5	5	37.5	4	0.33333333	12.5	0.462963	0.462963		36	3	112.5	4.166667	4.166667
		0.625	0.375	12.5	7.5	93.75	4	0.33333333	31.25	1.157407	1.157407		36	3	281.25	10.41667	10.41667
	C2 Asphalt					140.625	5	0.41666667	58.59375	2.170139	2.170139		36	3	421.875	15.625	15.625
	C3 Concrete	3.3125	0.375	66.25	7.5	496.875	10	0.83333333	414.0625	15.33565	15.33565		36	3	1490.625	55.20833	55.20833
	C3 Asphalt	4.875	0.375	97.5	7.5	731.25	5	0.41666667	304.6875	11.28472	11.28472		38	3.166667	2315.625	85.76389	85.76389
		1.125	0.625	22.5	12.5	281.25	5	0.41666667	117.1875	4.340278	4.340278		38	3.166667	890.625	32.98611	32.98611
	D3 Concrete	4.625	0.3125	105.713625	7.142813	755.0926	4	0.33333333	251.6975	9.322131	9.322131		36	3	2265.278	83.89918	83.89918
		13.75	0.25	314.28375	5.71425	1795.896	4	0.33333333	598.632	22.17155	22.17155		36	3	5387.688	199.544	199.544
		0.375	0.25	8.571375	5.71425	48.97898	4	0.33333333	16.32633	0.604679	0.604679		36	3	146.9369	5.442109	5.442109
		1	0.5	22.857	11.4285	261.2212	4	0.33333333	87.07374	3.224953	3.224953		36	3	783.6637	29.02458	29.02458
		1.75	0.25	39.99975	5.71425	228.5686	4	0.33333333	76.18952	2.821834	2.821834		36	3	685.7057	25.39651	25.39651
		1	0.125	22.857	2.857125	65.30531	4	0.33333333	21.76844	0.806238	0.806238		36	3	195.9159	7.256145	7.256145
		0.375	0.25	8.571375	5.71425	48.97898	4	0.33333333	16.32633	0.604679	0.604679		36	3	146.9369	5.442109	5.442109
		1.4375	1.1875	32.8569375	27.14269	891.8256	4	0.33333333	297.2752	11.01019	11.01019		36	3	2675.477	99.09173	99.09173
						0.977	10	0.83333333	0.814167	0.030154	0.030154		36	3	2.931	0.108556	0.108556
	D3 Asphalt	3.25	0.1875	74.28525	4.285688	318.3634	5	0.41666667	132.6514	4.913015	4.913015		38	3.166667	1008.151	37.33891	37.33891
		1.5	0.25	34.2855	5.71425	195.9159	5	0.41666667	81.63163	3.023394	3.023394		38	3.166667	620.4004	22.97779	22.97779
		7.5	4.5	171.4275	102.8565	8816.216	5	0.41666667	3673.423	136.0527	136.0527	Triangular area	38	3.166667	27918.02	1034.001	1034.001
		4.5	2.5	102.8565	57.1425	5877.478	5	0.41666667	2448.949	90.70181	90.70181		38	3.166667	18612.01	689.3338	689.3338
		4.25	1	97.14225	22.857	2220.38	5	0.41666667	925.1585	34.26513	34.26513		38	3.166667	7031.205	260.415	260.415
		1.25	1.25	28.57125	28.57125	408.1582	5	0.41666667	170.0659	6.298737	6.298737	Triangular area	38	3.166667	1292.501	47.8704	47.8704

7.5 4.5 8.75

TAB D: Paving Areas

	A2	B2	C2	C3	D3	E3	Total
Concrete CY	547.54	141.75	1.66	15.34	166.72	40.05	913.05
Asphalt CY	N/A	206.72	3.12	15.63	159.55	N/A	385.02
Gravel CY	1971.14	2506.25	37.63	173.96	1861.78	144.97	6695.72
Excavation CY	1971.14	2506.25	37.63	173.96	1861.78	144.97	6695.72

Notes:

1. All areas approximated by measurements from construction drawings.
2. All asphalt is assumed to be 5 inches thick.
3. All concrete sidewalks etc., assumed to be 4 inches thick.
4. Where designated as concrete "pavement," assumed to be 10 inches thick.
5. Concrete CY and Asphalt CY values consider only the concrete and asphalt, not the underlying layers (crushed rock, etc.)
6. Excavation CY assumes an excavation depth of 36 inches for concrete and 38 inches for asphalt.
7. Gravel CY is assumed to be equal to excavation CY, as there is 36 inches of gravel beneath concrete roads, and 38 inches beneath asphalt paving.

	Inches		Feet		Area	Thickness		Cubic feet	Cubic yards	al Cubic yards	Excavation	Depth	Depth	Cubic feet	Cubic yard	Cubic yards	
	L	W	L	W	(FT^2)	(inches)	(feet)					(inches)	(feet)				
A2 concrete	2.125	0.5	29.56513	6.9565	205.6698	10	0.833333	171.3915	6.347833	12.69567	There are two of these	36	3	617.009376	22.8522	45.7044	
	0.3125	0.5	4.347813	6.9565	30.24556	10	0.833333	25.20463	0.933505	3.734019	There are four of these	36	3	90.736673	3.360618	13.44247	
	7.75	4.25	177.1418	97.14225	17207.95	10	0.833333	14339.96	531.1095	531.1095		36	3	51623.8445	1911.994	1911.994	
B2 concrete	2.3125	1.5625	52.85681	35.714063	1887.732	4	0.333333	629.2438	23.30533	23.30533		36	3	5663.19452	209.7479	209.7479	
	2.625	0.3125	59.99963	7.1428125	428.5661	4	0.333333	142.8554	5.290939	5.290939		36	3	1285.69821	47.61845	47.61845	
	1.375	0.3125	31.42838	7.1428125	224.487	4	0.333333	74.829	2.771444	2.771444		36	3	673.460969	24.943	24.943	
	4.125	0.3125	94.28513	7.1428125	673.461	4	0.333333	224.487	8.314333	8.314333		36	3	2020.38291	74.829	74.829	
	1.0625	0.5	24.28556	11.4285	277.5476	4	0.333333	92.51585	3.426513	3.426513		36	3	832.642653	30.83862	30.83862	
	2.375	0.25	54.28538	5.71425	310.2002	4	0.333333	103.4001	3.829632	3.829632		36	3	930.600612	34.46669	34.46669	
B2 concrete curbs					1.021			2507.3	2559.953	94.81309	94.81309	Curb/gutter CY calculated using (	36	3	13842.8033	512.6964	512.6964	Curb/gutter excavation CY calculated using linear feet of curbing, multiplied by 1.5 feet (width of curbing), multiplied by the depth of gravel. This value was added to the CY of the concrete itself
B2 asphalt	2	0.75	45.714	17.14275	783.6637	5	0.416667	326.5265	12.09358	12.09358		38	3.166667	2481.60163	91.91117	91.91117	
	6.875	3.375	157.1419	77.142375	12122.3	5	0.416667	5050.957	187.0725	187.0725		38	3.166667	38387.2753	1421.751	1421.751	
	0.75	0.625	17.14275	14.285625	244.8949	5	0.416667	102.0395	3.779242	3.779242		38	3.166667	775.50051	28.72224	28.72224	
	1.875	0.25	42.85688	5.71425	244.8949	5	0.416667	102.0395	3.779242	3.779242		38	3.166667	775.50051	28.72224	28.72224	
C2 concrete	0.5	0.3125	11.4285	7.1428125	81.63163	4	0.333333	27.21054	1.007798	1.007798		36	3	244.894898	9.070181	9.070181	
	0.3125	0.1875	7.142813	4.2856875	30.61186	4	0.333333	10.20395	0.377924	0.377924		36	3	91.8355867	3.401318	3.401318	
C2 concrete curbs					1.021			7.14	7.28994	0.269998	0.269998	Curb/gutter CY calculated using (	36	3	39.41994	1.459998	1.459998	Curb/gutter excavation CY calculated using linear feet of curbing, multiplied by 1.5 feet (width of curbing), multiplied by the depth of gravel. This value was a
C2 asphalt	0.9375	0.25	21.42844	5.71425	122.4474	5	0.416667	51.01977	1.889621	1.889621		38	3.166667	387.750255	14.36112	14.36112	
	0.8125	0.1875	18.57131	4.2856875	79.59084	5	0.416667	33.16285	1.228254	1.228254		38	3.166667	252.037666	9.334728	9.334728	
C3 Concrete	3.3125	0.375	66.25	7.5	496.875	10	0.833333	414.0625	15.33565	15.33565		36	3	1490.625	55.20833	55.20833	
C3 Asphalt	4.875	0.375	97.5	7.5	731.25	5	0.416667	304.6875	11.28472	11.28472		38	3.166667	2315.625	85.76389	85.76389	
	1.125	0.625	22.5	12.5	281.25	5	0.416667	117.1875	4.340278	4.340278		38	3.166667	890.625	32.98611	32.98611	
D3 concrete					4580	10	0.833333	3816.667	141.358	141.358		36	3	13740	508.8889	508.8889	
	0.4375	0.3125	9.999938	7.1428125	71.42768	4	0.333333	23.80923	0.881823	0.881823		36	3	214.283036	7.936409	7.936409	
D3 concrete curbs					1.021			647.35	660.9444	24.47942	24.47942	Curb/gutter CY calculated using (	36	3	3574.01935	132.3711	132.3711	Curb/gutter excavation CY calculated using linear feet of curbing, multiplied by 1.5 feet (width of curbing), multiplied by the depth of gravel. This value was a
D3 asphalt	3.1875	5.25	72.85669	119.99925	4371.374	5	0.416667	1821.406	67.45947	67.45947	Triangular area	38	3.166667	13842.6841	512.692	512.692	
	8.25	0.875	188.5703	19.999875	3771.381	5	0.416667	1571.409	58.20033	58.20033		38	3.166667	11942.7079	442.3225	442.3225	
	4	0.4375	91.428	9.9999375	914.2743	5	0.416667	380.9476	14.10917	14.10917		38	3.166667	2895.2019	107.2297	107.2297	
					677.76	5	0.416667	282.4	10.45926	10.45926		38	3.166667	2146.24	79.49037	79.49037	
	4.625	0.25	105.7136	5.71425	604.0741	5	0.416667	251.6975	9.322131	9.322131		38	3.166667	1912.90126	70.84819	70.84819	
E3 concrete	1.5	0.5	34.2855	11.4285	391.8318	10	0.833333	326.5265	12.09358	12.09358		36	3	1175.49551	43.53687	43.53687	
	1.4375	1.1875	32.85694	27.142688	891.8256	10	0.833333	743.188	27.52548	27.52548		36	3	2675.47676	99.09173	99.09173	
E3 concrete curbs					1.021			11.4285	11.6685	0.432167	0.432167	Curb/gutter CY calculated using (	36	3	63.0967485	2.336917	2.336917	Curb/gutter excavation CY calculated using linear feet of curbing, multiplied by 1.5 feet (width of curbing), multiplied by the depth of gravel. This value was added to the CY of the concrete itself

B2 curbs		
	0.75	17.14275
	2	45.714
	2	45.714
	1.25	28.57125
	0.25	5.71425
	1.75	39.99975
	0.625	14.28563
	1	22.857
	0.625	14.28563
	0.25	5.71425
	1.875	42.85688
	0.25	5.71425
	0.625	14.28563
	6.875	157.1419
	22.28	509.254
	22.28	509.254
	20.63	471.5399
	20.63	471.5399

TAB E: Yard Concrete

	Concrete	Excavation	Gravel
	CY	CY	CY
Static Mast	5.93	4.07	0.47
GIS-to-AIR	1.85	2.03	0.18
GIS Support	1.37	1.05	0.59
Transmission Line	1.55	1.73	0.18
Control cabinet	9.22	18.99	6.92
Transformer pad	450.72	2981.01	94.54
Deadend Structure (2)	328.30	342.22	63.70
GIS bus foundation	44.01	151.70	19.90
Capacitor bank pads (3)	73.85	83.22	36.92
Totals	916.80	3586.02	223.41

Assumed 1 foot of gravel below each slab of concrete

Concrete

	Qty	Height	Width/ Diameter	CF	CY
Static Mast Foundations	3	12.75	4	160.2212	5.934119
GIS-to-AIR Foundations	8	10.17	2.5	49.92187	1.848958
GIS-to-AIR top caps	8	1.83	4.5	37.0575	1.3725
GIS Support Foundations	12	8.5	2.5	41.72428	1.545344
GIS Support top caps	12	1.5	3.5	18.375	0.680556
Transmission Line Foundations	2	25	5	490.8739	18.18051

	L	W	L	W	Area (ft^2)	Thickness (ft)	CF	CY	
Control cabinet pad	2.375	0.75	24.32	7.68	186.7776	1.333333	249.0368	9.223585185	
Transformer Foundation	10.25	2.375	104.96	24.32	2552.627	1.5	3828.941	141.8126222	
Transformer Pedestal #1			22	10	220	5.5	1210	44.81481481	top of foundation 130'; top of pedestal 135.5'
Transformer Pedestal #2			22	10	220	5.5	1210	44.81481481	top of foundation 130'; top of pedestal 135.5'
			Linear feet	Height		Thickness	CF	CY	
Transformer Fire wall			263.5	28.5	7509.75	0.666667	5006.5	185.4259259	top of foundation 130'; top of wall 158.5'
Transformer fire wall extensions	1.75		17.92	28.5	510.72	0.666667	340.48	12.61037037	top of foundation 130'; top of wall 158.5'
Transformer fire wall pilasters (3)	0.25	0.25	2.56	2.56	6.5536	28.5	186.7776	6.917688889	
Transformer fire wall pilaster (4th)	0.5	0.25	5.12	2.56	13.1072	29.5	386.6624	14.32082963	

Deadend structure 1			L	W/D	Area (ft^2)	Thickness (ft)	CF	CY	
Slab			43	20	860	5	4300	159.2592593	
Pedestal 1			5.7	3.84			66.01265	2.444913067	top of footing 130'; top of pedestal 135.7'
Pedestal 2			5.7	3.84			66.01265	2.444913067	top of footing 130'; top of pedestal 135.7'

Deadend structure 2			L	W/D	Area (ft^2)	Thickness (ft)	CF	CY	
Slab			43	20	860	5	4300	159.2592593	
Pedestal 1			5.7	3.84			66.01265	2.444913067	top of footing 130'; top of pedestal 135.7'
Pedestal 2			5.7	3.84			66.01265	2.444913067	top of footing 130'; top of pedestal 135.7'

	L	W	L	W/D	Area (ft^2)	Thickness (ft)	CF	CY	
GIS foundation	2.5625	2	26.24	20.48	537.3952	1.5	806.0928	29.85528889	
GIS pedestal (there are 6 of these)			5.5	3.84			63.69642	14.15475986	top of footing 130'; top of pedestal 135.5'

Capacitor bank pads

	L	W	L	W	Area (ft^2)	Thickness (ft)	CF	CY
1	3.375	1.125	34.56	11.52	398.1312	2	796.2624	29.4912
2	3.375	1.125	34.56	11.52	398.1312	2	796.2624	29.4912
3	2.1875	0.875	22.4	8.96	200.704	2	401.408	14.86696296

Excavation

	Depth	Width/ Diameter	CF	CY	
Static Mast Foundations	8.75	4	109.9557	4.072435	1 foot additional excavation for gravel, estimated per drawing
GIS-to-AIR Foundations	11.17	2.5	54.83061	2.030763	1 foot additional excavation for gravel, estimated per drawing
GIS-to-AIR top caps	1.4	4.5	28.35	1.05	Cap protrudes approximately 0.43 feet above grade, estimated per drawing
GIS Support Foundations	9.5	2.5	46.63302	1.727149	1 foot additional excavation for gravel, estimated per drawing
GIS Support top caps	1.07	3.5	13.1075	0.485463	Cap protrudes approximately 0.43 feet above grade, estimated per drawing
Transmission Line Foundations	21	5	412.334	15.27163	1 foot additional excavation for gravel, estimated per drawing

	L	W	Area (ft^2)	Thickness (ft)	CF	CY	
Control cabinet pad	25.32	8.68	219.7776	2.333333	512.8144	18.99313	Assumed 1 foot additional excavation (6 inches around perimeter and 1 foot additional depth) for gravel and forms
	L	W	Area	Depth	CF	CY	
Transformer Pedestal #1	105.96	25.32	2682.907	30	80487.22	2981.008	Assumed excavation to full height of wall; this should account for gravel below concrete
Transformer Pedestal #2							Also assumed 6 inches additional excavation around perimeter of foundation for concrete forms

	L	W	Area	Depth	CF	CY	
Slab	44	21	924	5	4620	171.1111	Assumed excavation to full height of concrete; this should account for gravel below concrete
Pedestal 1							Also assumed 6 inches additional excavation around perimeter of foundation for concrete forms
Pedestal 2							

	L	W	Area	Depth	CF	CY	
GIS foundation	27.24	21.48	585.1152	7	4095.806	151.6965	Assumed excavation to full height of pedestals plus slab; this should account for gravel below concrete
GIS pedestal (there are 6 of these)							Also assumed 6 inches additional excavation around perimeter of foundation for concrete forms

	L	W	Area	Depth	CF	CY	
1	35.56	12.52	445.2112	2	890.4224	32.97861	Assumed excavation to full height of concrete; this should account for gravel below concrete
2	35.56	12.52	445.2112	2	890.4224	32.97861	Also assumed 6 inches additional excavation around perimeter of foundation for concrete forms
3	23.4	9.96	233.064	2	466.128	17.264	

TAB F: Substation H Basement Excavation and concrete

Concrete usage	Inches			Feet					
	L	W	Thickness				Cubic feet	Cubic Yards	
Basement wall - Long side	10.875	0.875	0.125	102.3555	8.2355	1.1765	991.729169	73.46	Multiplied by 2 to account for both long sides
Basement wall - short side	3.1875	0.875	0.125	30.00075	8.2355	1.1765	290.679239	21.53	Multiplied by 2 to account for both short sides
Basement floor	11.125	3.375	0.25	104.7085	31.7655	2.353	7826.35532	289.87	
						Total CY Concrete		**384.86**	

Excavation

Inches			Feet					
L	W	Thickness				Cubic feet	Cubic Yards	
11.125	3.375	1.125	104.7085	31.7655	10.5885	35218.5989	1304.39	Per drawing
			105.7085	32.7655	11.5885	40137.8342	**1486.59**	Assuming 1 foot additional excavation in each horizontal direction (L, W) and 1 foot vertical for gravel, concrete forms, etc.
					Total CY Soil Excavated		**1486.59**	

For substation H, the amount of gravel beneath the concrete is 3326.1179 cubic feet

Total CY gravel	**123.19**	**cubic yards**	assuming 1 foot of gravel below the concrete.

TAB G. EQUIPMENT DATA AND EMISSION FACTORS

Construction Equipment	HP	Load Factor	Emissions Factors							
			VOC	CO	NOx	SO_2	PM10	PM2.5	CO_2	CH4
			g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr
Grader	145	0.58	0.02	0.13	0.46	1.44E-03	0.03	0.03	536.77	1.75E-03
Dozer	275	0.58	0.02	0.09	0.29	1.44E-03	0.02	0.02	536.77	1.58E-03
Excavator	450	0.53	0.03	0.20	0.55	1.48E-03	0.03	0.03	536.74	2.82E-03
Skidsteer Loader	95	0.23	0.73	3.89	3.81	2.23E-03	0.55	0.54	693.89	0.03
Loader	300	0.48	0.03	0.17	0.50	1.47E-03	0.03	0.03	536.73	3.01E-03
Compactor	105	1	0.06	0.26	0.86	1.50E-03	0.06	0.06	536.67	4.22E-03
MOBILE CRANE	150	1	0.04	0.18	0.86	1.47E-03	0.04	0.04	530.93	3.58E-03
CRANE	700	1	0.05	0.33	0.96	1.51E-03	0.04	0.04	530.90	3.69E-03
TELEHANDLER	130	0.48	0.01	0.06	0.19	1.42E-03	0.01	0.01	536.80	7.00E-04
FORKLIFT	74	0.48	0.05	0.20	2.55	1.57E-03	0.02	0.02	595.99	0.01
Air Compressor	173	1	0.06	0.24	1.04	1.51E-03	0.06	0.06	530.86	4.96E-03
Cable Puller	375	0.58	0.10	0.67	1.77	1.64E-03	0.09	0.09	536.56	6.57E-03
Welder	10	0.19	1.17	5.27	4.76	2.55E-03	0.61	0.59	692.63	0.08
Generator - Light Plant 1	264	0.43	0.21	0.67	2.57	1.69E-03	0.13	0.13	530.42	0.01
Generator - Light Plant 2	428	0.43	0.16	0.74	2.56	1.69E-03	0.11	0.11	530.57	8.02E-03
Generator - Light Plant 3	142	1	0.24	0.76	2.85	1.70E-03	0.17	0.16	530.35	0.01
Generator - Light Plant 4	10.5	1	0.83	2.91	4.48	2.16E-03	0.34	0.33	587.99	0.06
Generator Skid Mounted	25	1	0.45	1.82	4.09	2.17E-03	0.23	0.22	589.08	0.03
Generator - Construction Power	671	1	0.16	0.74	2.56	1.69E-03	0.11	0.11	530.57	0.01
Aerial Lift 1	87	0.21	0.59	3.19	3.34	2.17E-03	0.43	0.42	694.31	0.02
Aerial Lift 2	65	0.21	0.61	2.96	4.15	2.19E-03	0.39	0.38	694.24	0.03
Plate Compactor 1	6.5	1	0.83	2.59	4.26	2.16E-03	0.26	0.26	587.97	0.07
Plate Compactor 2	19	1	0.37	1.56	3.84	2.17E-03	0.18	0.18	589.31	0.03
Pile Driver/Extractor	300	1	0.21	0.56	2.62	1.70E-03	0.12	0.11	530.44	0.01
Roller	401	0.58	0.05	0.31	0.85	1.52E-03	0.04	0.04	537	3.45E-03
Paving Machine	164	0.58	0.06	0.27	0.87	1.50E-03	0.06	0.06	537	4.31E-03
Asphalt Curbing Machine	130	0.58	0.06	0.26	0.86	1.50E-03	0.06	0.06	537	4.22E-03
Pile Drivers	350	0.59	0.03	0.20	0.55	1.48E-03	0.03	0.03	537	2.82E-03
Clamshell dredge	2,500	0.66	0.08	0.31	2.59	1.52E-03	0.05	0.05	537	5.94E-03
Crane 2	2,500	0.66	0.08	0.31	2.59	1.52E-03	0.05	0.05	537	5.94E-03
Crawler Dozer	275	0.58	0.02	0.09	0.29	0.00	0.02	0.02	536.77	1.58E-03
Portable Gensets	107	1	0.06	0.26	0.86	0.00	0.06	0.06	536.67	4.22E-03
Concrete truck	300	0.21	0.14	0.65	2.73	1.71E-03	0.09	0.08	530.63	8.74E-03
Clamshell Offloader	2,500	0.66	0.08	0.31	2.59	1.52E-03	0.05	0.05	537	5.94E-03

Note: The MOVES model does not include emission factors for N2O for nonroad equipment. N2O for nonroad equipment is estimated using ratio N2O/CH4 ratio of 0.26/0.57 from EPA (2016), Table B-8.

TAB H: ONROAD EMISSIONS

Construction Worker Commute

Start	Central Kitsap High School		
End	Z-Lot PSNS		
Distance	14.4	mile	
Time	24.5	min	
Direction	**Dist**	**Unit**	**Type**
Sidestreets to WA-3	1.3	mi	Sidestreets
WA-3 to Airport	13.1	mi	Highway
Airport to WA-3 - Shuttle Bus	0.14	mi	Sidestreets
WA-3 to WA-304 - Shuttle Bus	-1.6	mi	Highway
WA-304 to Charleston Beach Rd W - Shuttle Bus	0.9	mi	Sidestreets
Charleston Beach Rd W to Z-lot, Wycoff Way - Shuttle Bus	0.6	mi	Sidestreets
POV Sum Highway	13.1	mi	Highway
POV Sum Sidestreet	1.3	mi	Sidestreets
POV Sum Total	14.4	mi	
Idle time estimate - average	19%		
Average idle time	5	min	
POV Max time during morning (arrive by 2:30 am)	20	min	
POV Max time during afternoon (leave at 3:30 pm)	28	min	
POV estimated additional time in traffic	8	min	
%	29%		

Mode 2 Shift 1			
Total Workers Shift	**50**	**for 2026**	
Fraction of Vehicle Types	**Percentage**		
Passenger Car	33%		
Passenger Truck	67%		
Transit Distance			

Road Type	Vehicle Type	Distance Round Trip Per Worker/Shift (miles)	Total Distance per Day (miles)
Highway	Passenger Car	26.2	434.7
Sidestreets	Passenger Car	2.6	43.1
Highway	Passenger Truck	26.2	875.3
Sidestreets	Passenger Truck	2.6	86.9
	TOTAL RT	28.8	
Idle/Traffic Time			
Road Type	**Vehicle Type**	**Time Round Trip Per Worker/Shift (min)**	**Total Time per Day (min)**
Idle	Passenger Car	10.6	176.5
Idle	Passenger Truck	10.6	355.5

250 work days per year

Road Type	Vehicle Type	Emissions (pounds per year)									
		VOC	CO	Nox	SO2	PM10	PM2.5	CO2	CH4	N2O	Total GHGs CO2e
Highway	Passenger Car	6.602	989.733	16.204	0.474	825.610	123.995	71,369	2.672	0.296	71,523
Sidestreets	Passenger Car	1.023	156.760	2.008	0.074	164.406	24.672	11,151	0.410	0.069	11,182
Idle	Passenger Car	0.276	3.141	0.481	0.034	0.036	0.000	5,110	0.101	0.070	5,134
Highway	Passenger Truck	20.628	2,179.042	63.647	1.238	1,453.031	218.633	186,339	6.846	0.967	186,797
Sidestreets	Passenger Truck	3.220	328.733	7.581	0.189	303.183	45.541	28,497	1.045	0.224	28,589
Idle	Passenger Truck	0.656	13.281	1.778	0.087	0.043	0.038	13,063	0.224	0.229	13,137
Total Emissions		32.41	3,670.69	91.70	2.10	2,746.31	412.88	315,531	11.30	1.85	316,362

Onroad Trucks

453.59 g/lb

100% HDDV grams/mile

VOC	CO	NO_x	SO_x	PM 10	PM 2.5	CO_2e
0.798	13.035	0.859	0.006	0.024	0.021	897.042

EPA MOVES3.0.1 Emission Factors

Assumed distance breakout: Representative Location

50% 62 miles from Seattle Industrial Area

	50%	33 miles	from Port of Tacoma
	100%		

Onroad Truck Traffic 500 trips total

Origination	# trips	Distance miles	Pounds per year						
			VOC	CO	NO_x	SO_x	PM 10	PM 2.5	CO_2e
SIA	250	31,000	54.54	890.86	58.71	0.41	1.64	1.44	61307
PoT	250	16,500	29.03	474.17	31.25	0.22	0.87	0.76	32631
2026 Total			**83.57**	**1,365.03**	**89.95**	**0.63**	**2.51**	**2.20**	**93,938**

TAB I: EPA MOVES3.0.1 Emission Factors

Road Type	Vehicle Type	Speed (MPH)	Emission Factor Units	Emission Factor									
				VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O	Total GHGs (CO2e)
Highway	Passenger Car	35	g/VMT	0.0276	4.1309	0.0676	0.0020	3.4459	0.5175	297.8770	0.0112	0.0012	298.5200
Sidestreets	Passenger Car	15	g/VMT	0.0430	6.5931	0.0844	0.0031	6.9147	1.0377	469.0130	0.0173	0.0029	470.2970
Idle	Passenger Car	0	g/hr	0.1700	1.9367	0.2963	0.0209	0.0219	0.0000	3151.2200	0.0623	0.0432	3165.6400
Highway	Passenger Truck	35	g/VMT	0.0428	4.5170	0.1319	0.0026	3.0120	0.4532	386.2690	0.0142	0.0020	387.2170
Sidestreets	Passenger Truck	15	g/VMT	0.0673	6.8668	0.1584	0.0040	6.3331	0.9513	595.2660	0.0218	0.0047	597.1980
Idle	Passenger Truck	0	g/hr	0.2009	4.0675	0.5445	0.0266	0.0132	0.0116	4000.8500	0.0687	0.0701	4023.4500

Truck/Transit Emission Factors

Road Type	Vehicle Type	Speed (MPH)	Emission Factor Units	Maximum Emission Factor									
				VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O	Total GHGs (CO2e)
Highway	SUSH Truck	35	g/VMT	0.31	1.74	3.19	0.00	1.37	0.33	972.79	0.01	0.00	973.85
Sidestreets	SUSH Truck	15	g/VMT	0.61	3.40	5.80	0.00	4.37	0.89	1445.15	0.03	0.01	1447.54
Idle	SUSH Truck	0	g/hr	5.23	21.99	34.17	0.02	2.54	2.34	5727.82	0.27	0.08	5759.01

SUSH = Single Unit Short Haul

Appendix B
Agency and Tribal Consultation

Correspondence with agencies and the Suquamish Tribe will be included in the Final EA.

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Appendix C
Coastal Consistency Determination

Correspondence with agencies will be included in the Final EA.

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Appendix D
Public and Agency Participation

Correspondence with agencies will be included in the Final EA.

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Appendix E
Best Management Practices

This section presents an overview of the best management practices (BMPs) that are incorporated into the Action Alternative in this document. 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 Action Alternative, (2) ongoing, regularly occurring practices, or (3) not unique to this Action Alternative. In other words, the BMPs identified in this document are inherently part of the Action Alternative and are not potential mitigation measures proposed as a function of the NEPA environmental review process for the Proposed Action. BMPs include actions required by Federal or state law or regulation. Table E-1 includes a list of BMPs. Impact avoidance and minimization measures are discussed individually by resource area in Chapter 3.0, *Affected Environment and Environmental Consequences,* and are summarized in Table 3.9-2.

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Table E-1 Best Management Practices for NAVBASE Kitsap-Bremerton

BMP	*Description*	*Impacts Reduced/Avoided*
General Construction Best Management Practices	Work area is restricted to the authorized project footprint as shown in the design plans.	Reduces potential water quality impacts. These requirements include adherence to construction permit requirements, stormwater management, erosion control, maintenance of construction equipment, spill containment, spill response, and dust control.
	Prior to construction activities, all site limits will be marked using stakes and flagging.	
	Fueling will not occur on the pier or near water. Refueling equipment shall only be permitted at approved fueling facilities. All equipment will use ultra-low sulfur fuel.	
	There will be no discharge of oil, fuels, or chemicals to surface water or onto land or water.	
	Work will be conducted during daylight hours.	
	Do not clean paved areas, equipment, buildings, etc., on piers using wet methods (hosing down).	
	Solid waste containers on pier must be closed or covered at all times, except when waste is being added	
	Demolition and construction on pier must have containment and collection measures in place to prevent dust, dirt, debris, flakes, chips, drips, oil or any other pollutants generated from these surface preparation activities from entering Sinclair Inlet.	
	Containments such as tarps, drapes, shrouding, or other protective devices must be securely fastened to collect materials when applicable.	
	Cleanup of all collected materials must be conducted as necessary, or at least by the end of shift, to prevent their release into the environment and entry into Sinclair Inlet.	
	Soil exposed as part of the project shall be protected from erosion (with plastic sheeting, filter fabric, etc.) after exposure.	
Stormwater Pollution Prevention Plan as part of the Construction General Permit	The construction contractor shall prepare and implement a site-specific construction SWPPP in conformance with the *Stormwater Management Manual for Western Washington* (WDOE 2019) and ensure that all BMPs and other appropriate control measures specified in both the permit and SWPPP are implemented, monitored, and submitted to the Navy for regular review.	Reduces potential water quality impacts
	During demolition and construction, catch basins will be installed to convey stormwater to a series of detention vaults. Stormwater will then flow to existing stormwater treatment facilities, which will then discharge treated stormwater to Sinclair Inlet.	
GHG Emission Control	Minimize GHG and other emissions to the greatest extent possible by using electric-powered equipment, renewable electricity generation and/or grid-based electricity during construction activities.	Reduces impacts from GHG and other emissions

BMP	*Description*	*Impacts Reduced/Avoided*
Debris Containment and Removal	Project-related waste and trash must be secured to ensure it does not enter adjacent surface waters	Reduces impacts to marine waters
	A temporary platform or other suitable means of capturing debris from demolition operations must be provided. These facilities must be in place before starting work.	
	Garbage, plastic, and debris found or created during construction shall be daily removed from the site and disposed of in an approved upland facility. The storage methods and locations while workers are on site will occur so the trash will not enter the water or cause degradation of water quality. Storage methods and locations will be animal-, weather-, and wind-proof.	
	Any floating debris generated during construction shall be retrieved. Debris removed from the marine/aquatic environment shall be disposed at an approved landside disposal facility following local, state, and Federal regulations.	
	All trash will be removed from the project and staging area daily, including concrete blocks or pieces, bricks, asphalt, metal, treated wood, glass, floating debris, and paper. All trash will be disposed of after work is complete.	
Dust Control	The use of control equipment, enclosures, and wet suppression techniques, as practical, and curtailment during high winds.	Reduces visible fugitive dust emissions, in accordance with Puget Sound Clean Air Agency (PSCAA) Regulation I, Article 9, Section 9.15. Fugitive Dust.
	Establish and monitor speed limits for project rights-of-way.	
	Cover all moving, open-bodied trucks transporting materials that can generate fugitive dust.	
	Install dust screens or wind barriers around construction site.	
	During earth-moving activities, pre-apply and re-apply water as necessary to maintain soils in a damp condition, limit the number of exposed areas through planning and timing of project phases, and cover temporarily exposed areas.	
	The contractor shall cover excavated material and stockpiles when not in use.	
	Promptly remove “carry out“ materials from roads adjacent to the site.	
New Structures	All new structures should be designed and constructed to comply with seismic design criteria identified in the DoD’s safety certification program – MIL-STD-1625D(SH) and the DoD UFC.	Reduces potential effects of seismically induced ground movement
Concrete and Grout	Concrete and grout (watery concrete) must not be allowed to enter the water. Project areas utilizing concrete must be sealed against concrete leakage.	Prevents introduction of materials into surface or ground water.

BMP	*Description*	*Impacts Reduced/Avoided*
	Only tremie or precast (marine grade) or cast in place (marine grade) concrete shall be used. No lime, chemicals, or other toxic or harmful materials related to non-marine grade concrete shall be permitted.	
Pile Driving	Micro-pile installation will utilize duplex drilling methods rather than impact or vibratory hammer installation methods.	Reduces impacts to wildlife and ESA-listed species
Inadvertent Discovery Procedures	If archaeological resources are discovered during project activities, work shall be stopped immediately, and the Navy Cultural Resources personnel shall be notified. The Navy will then adhere to the provisions of 36 CFR 800.13(b)(3). If human remains are encountered during project activities, work shall be stopped immediately, and the project Plan of Action will be followed.	Reduces impacts to cultural resources
Visual Resource Compliance	New facilities shall be painted/treated consistent with surrounding infrastructure. New structures include a substation with respective electrical distribution system upgrades.	Reduces impacts to visual resources
Construction Safety Plan	A construction safety plan shall be developed for on-site construction personnel including evacuation procedures in the event of an earthquake, tsunami, or adverse weather conditions. The construction safety plan shall be approved by the Navy prior to work occurring.	Reduces impacts to public health and safety
	Micro-pile installation schedule would be communicated to the Child Development Center staff to facilitate planning outdoor Child Development Center activities during non-construction periods to minimize noise exposure.	
Contamination Management	The construction contractor shall follow the NAVBASE Kitsap-Bremerton Excavation Management Plan. Provisions for excess soil stockpiling, stormwater accumulation, excavation dewatering, sanitary sewer discharges, dust control, and waste management shall be pre-planned prior to excavation and in accordance with the contract documents or the following: • PSNS&IMFINST P5090.5g, Solid Waste Management Plan • NAVSHIPYDPUGET INST P5090.30, BNC Water Pollution Prevention and Control Plan • NAVSHIPYDPUGET INST P5090(4), Contractor's Guide to Environmental Compliance.	Reduces impacts on public health and safety and water quality.

Key: BMP = best management practice.

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