

Draft Environmental Assessment for Homeporting of the Columbia Class Submarine at Naval Submarine Base Kings Bay, Georgia



May 2023



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DRAFT
ENVIRONMENTAL ASSESSMENT
For
Homeporting of the Columbia Class Submarine
At
Naval Submarine Base Kings Bay, Georgia

May 2023



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Abstract

Designation:	Environmental Assessment
Title of Proposed Action:	Homeporting of the Columbia Class Submarine
Project Location:	Naval Submarine Base Kings Bay
Lead Agency for the EA:	Department of Navy
Affected Region:	Camden County/Georgia
Action Proponent:	United States Fleet Forces Command, Department of the Navy
Point of Contact:	Naval Facilities Engineering Systems Command Atlantic Attn: Code EV21/OJ 6506 Hampton Boulevard Norfolk, VA 23508
Date:	May 2023

United States Fleet Forces Command, a Command of the United States (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 the Council on Environmental Quality Regulations and Navy regulations for implementing the National Environmental Policy Act. The Navy proposes to establish facilities and functions at Naval Submarine Base (NSB) Kings Bay to support the homeporting of the Columbia Class submarines as replacements for the retiring Ohio Class submarines currently homeported at NSB Kings Bay. During the transition period (projected to take place from fiscal year 2028–2042) and to completion, the total numbers of Ohio Class submarines and Columbia Class submarines assigned to NSB Kings Bay would not exceed the number of Ohio Class submarines currently assigned to that facility. The Proposed Action also includes the construction, modification, and demolition of several facilities at NSB Kings Bay to support the transition and proposed action to completion. The Columbia Class submarines will require use of the same supporting facilities and infrastructure as the Ohio Class submarines, which are not replicated elsewhere on the Atlantic Coast. Therefore, NSB Kings Bay is the only Atlantic Coast location that can serve as a homeport for the Columbia Class submarines. This Environmental Assessment evaluates the potential environmental impacts associated with the Proposed Action Alternative and the No Action Alternative to the following resource areas: air quality, water resources, cultural resources, biological resources, and hazardous materials and wastes.



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Executive Summary

ES.1 Proposed Action

The United States (U.S.) Navy proposes to establish facilities and functions at Naval Submarine Base (NSB) Kings Bay to support the homeporting of Columbia Class submarines as replacements for the retiring Ohio Class submarines currently homeported at NSB Kings Bay. Under the Proposed Action, the Navy would construct eight facilities, modify five facilities, and demolish three facilities across three locations on NSB Kings Bay (see **Table ES-1**). Facility changes and development activities would be phased over a period of five years and completed coincident to the arrival of the first Columbia Class submarines in 2028. The Proposed Action does not modify any existing dry-docks or conduct any in-water activity.

During the fiscal year (FY) 2028–2042 transition period from the Ohio Class to the Columbia Class and at completion, the Columbia Class Nuclear Powered Ballistic Missile Submarines (SSBNs) will be phased in as the Ohio Class SSBNs are phased out. Thus, total numbers of submarines homeported at NSB Kings Bay during this time will not exceed the number of Ohio Class submarines currently homeported at the base. Considering facility sustainment and planning efforts, the support operations and personnel numbers associated with the Columbia Class submarines are projected to be comparable to those associated with the Ohio Class submarines. Also, personnel numbers associated with the facilities and functions of the Proposed Action are also not anticipated to increase. Therefore, the Proposed Action will not increase the number of personnel employed at NSB Kings Bay, although an increase in temporary workers will result during the demolition, modification, and construction of 16 facilities and various functions scheduled for completion in 2028.

Table ES-1. Proposed Action Projects

<i>Associated Building Number</i>	<i>Type of Action</i>	<i>Facility Description</i>
Location 1		
5055	Demolition	Quonset hut Paint Booth at the end of the Drydock.
5073	Demolition	Hull Cleaning Shop. Demolition would also require disposal or closure-in-place of the active 1,000-gallon used oil underground storage tank.
5073	Demolition	Six flame lockers adjacent to Building 5073.
5073	Construction	New Hull Cleaning Shop.
5085	Construction/ Exterior Modification	Expansion of the Hull Shop.
5085	Construction	Enclosed facility to provide storage for various shop facilities.
No existing building	Construction	This would be a temporary facility for the functions vacated from Building 5145 and Building 5073 during construction. The temporary facility would be removed following completion of P-684.
5092(M)	Construction	Enclosed Facility to support storage for Shops 51 and 38.
5092	Interior Modification	Berthing Support Building 2 for the upgrade and establishment of electrical and mechanical shops. This consists of interior work to upgrade the electrical systems and installation of a new crane for Shop 51M.

<i>Associated Building Number</i>	<i>Type of Action</i>	<i>Facility Description</i>
5145	Interior Modification	This is a change of occupancy of the Drydock Services Building 5145 to accommodate offices displaced from Drydock Berthing Support Building 5146.
5146	Interior Modification	Drydock Berthing Support Building to expand storage within the facility. The modification includes interior wall demolition, construction of interior spaces, and installation of mechanical and electrical systems.
EHW 1 & 2	Modification	Upgrade of fire suppression system at Explosive Handling Wharves (EHWs) 1 and 2 (see Figure 2.3-3) to provide the rates and pressures that are required by the Columbia Class SSBNs.
Location 2		
4026	Construction	Rotating Machinery Lab (RML) adjacent to Building 4026 for the testing of pumps and valves.
4026	Construction	Battery storage facility for staging, testing, cleaning, and inspecting inbound batteries, as well as staging outbound batteries north of Building 4026.
4028	Construction/ Exterior Modification	Expansion of the Optical Shop for cleaning, repair, and testing of shipboard equipment (approximately 5,000 SF).
4030	Interior Modification	Demolition and installation of interior walls and upgrades of the air conditioning and electrical power systems for an internal server room in the TRF Administrative Facility .
Location 3		
5089	Interior Modification	Reassigning an existing covered storage facility as a construction laydown area.

ES.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to ensure the uninterrupted continuation of the Navy’s Sea-Based Strategic Deterrence mission at NSB Kings Bay by introducing a technologically advanced SSBN into the Atlantic Fleet.

In 1979, the Navy selected NSB Kings Bay as the preferred East Coast site for the Ohio Class submarine. In 1980, an Environmental Impact Statement was completed and with Congressional approval, the Secretary of the Navy announced NSB Kings Bay as the future home of the Ohio Class SSBNs. Subsequently, infrastructure for three major commands was constructed: Trident Training Facility (TTF), Trident Refit Facility (TRF) and Strategic Weapons Facility, Atlantic. Since that time, NSB Kings Bay has continuously operated as the Navy’s only Atlantic Coast Strategic Submarine Base. The Navy has primarily used NSB Kings Bay and its supporting infrastructure (to include refit facilities, submarine support centers, strategic weapons facility, marine security forces and maritime force protection units) for the homeporting of Ohio Class SSBNs. The Columbia Class SSBNs will require use of the same supporting facilities and infrastructure as the Ohio Class SSBNs, which are not replicated elsewhere on the Atlantic Coast. Therefore, NSB Kings Bay is the only Atlantic Coast location that can serve as a homeport for the Columbia Class SSBNs.

The Proposed Action is needed because the Ohio Class SSBNs are reaching the end of their service lives and need to be replaced before degrading to unacceptable conditions. Indefinite life extension of the existing Ohio Class SSBN fleet is not possible and would not meet future mission requirements. While the Navy is evaluating limited life extensions of a select number of Ohio Class submarines, these extensions will require significant time and resources for only a few years of additional service. Even with additional maintenance, these submarines would continue to suffer from reduced reliability and increased costs associated with the obsolescence of legacy Ohio system components. The Columbia Class submarines are the next phase of submarines necessary to ensure the U.S. can meet current and future threats with up-to-date nuclear submarine technology in support of national defense objectives and policies.

ES.3 Alternatives Considered

ES.3.1 Alternative 1 (Proposed Action)

The Proposed Action would establish facilities and functions at NSB Kings Bay to support the homeporting of Columbia Class submarines as replacements for the retiring Ohio Class submarines currently homeported at NSB Kings Bay. No anticipated personnel changes are expected with the homeporting of the Columbia Class submarines.

As shown in **Table ES-1**, the homeporting of the Columbia Class submarines requires various facilities and infrastructure construction improvements. These major construction elements are associated with Military Construction project P-684 (TRF Columbia Expansion). P-684, TRF Columbia Expansion, is composed of demolition, construction, and/or modification of 16 facilities across three different locations on NSB Kings Bay (see **Figure 2.3-1**).

ES.3.2 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be completed. NSB Kings Bay would not have the facilities and functions in place to support the replacement and sustainment requirements of the Columbia Class submarine fleet. The Ohio Class submarines would be extended past their useful lives, thereby adversely impacting the United States' strategic deterrence mission. Maintenance frequency and costs would increase, resulting in a decrease in crew readiness and overall mission capability. The No Action Alternative does not meet the purpose of and need for the Proposed Action; however, the No Action Alternative is used to analyze the consequences of not undertaking the Proposed Action and provides a benchmark for comparative analysis to enable decision makers to compare the magnitude of environmental effects of the action alternatives. The No Action Alternative is carried forward for analysis as required by National Environmental Policy Act (NEPA) regulations and Navy policy.

ES.4 Summary of Environmental Resources Evaluated in the EA

Table ES-2 provides a tabular summary of the potential impacts to the resources associated with the No Action Alternative and Proposed Action.

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1 **Table ES-2. Summary of Potential Impacts to Resource Areas**

<i>Resource Area</i>	<i>No Action Alternative</i>	<i>Alternative 1</i>
Air Quality	No change to existing air quality conditions.	<ul style="list-style-type: none"> Emissions from construction activities would be minimal and temporary, with emissions less than 10.02 tons per year (tpy) for all criteria pollutants. Best Management Practices (BMPs) would be implemented to reduce particulate matter emissions.
Water Resources	No change to existing water resources conditions.	<ul style="list-style-type: none"> No impacts to groundwater, wetlands, or floodplains. No Clean Water Act Section 404 permitting required. All stormwater would continue to be managed under existing permits and additional construction permits as necessary.
Cultural Resources	No change to existing cultural resources.	<ul style="list-style-type: none"> No archaeological resources present in the project area. Proposed Action would not diminish or adversely affect the significance or integrity of the historic properties.
Biological Resources	No change to existing biological resources.	<ul style="list-style-type: none"> Impacted vegetation would consist of maintained grasses and shrubs. Impacts would be negligible. No invasive plant species have been found in the affected areas. Noise and disturbance impacts on wildlife, including protected species, would be temporary and minor. Habitat removal would be negligible. Activities would not further threaten the existence of any protected species or critical habitats.
Hazardous Materials and Wastes	No change to existing hazardous materials and wastes conditions.	<ul style="list-style-type: none"> Demolition may require remediation of asbestos containing materials, lead-based paint, and/or polychlorinated biphenyls. Demolition of Building 5073 would require disposal or closure-in-place of the active 1,000-gallon used oil underground storage tank. Additional use and storage permit may be required to introduce a new hull treatment into usage.

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ES.5 Public and Agency Participation and Intergovernmental Coordination

Council on Environmental Quality (CEQ) regulations direct agencies to involve the public in preparing and implementing their NEPA procedures.

The Navy has prepared this Draft Environmental Assessment (EA) to inform the public of the Proposed Action and to allow the opportunity for public review and comment. The Draft EA will be released for public comment for 30 days. Through the public involvement process, the Navy coordinates with the public and notifies the public of the Proposed Action. Input from the public and from regulatory agencies is incorporated into the analysis of potential environmental impacts, as appropriate.

The Draft EA review period will begin with the publication of a Notice of Availability (NOA) of the Draft EA for three consecutive days in the *Florida Times Union*, starting May 26, 2023. The NOA will also be placed on the NSB Kings Bay Facebook page. The notice describes the Proposed Action, solicits public comments on the Draft EA, provides dates for the public comment period, and announces that the EA will be available for download/review on the Navy's website (<https://nepa.navy.afpims.mil/>). All substantive comments received during the comment period will be addressed in the Final EA.

Based on potential impacts to resource areas and as required by federal environmental laws and regulations, the Navy has initiated consultation with the following organizations:

- U.S. Fish and Wildlife Service
- The Muscogee (Creek) Nation
- Seminole Nation of Oklahoma
- Seminole Tribe of Florida
- Thlopthlocco Tribal Town
- United Keetoowah Band of Cherokee Indians in Oklahoma
- Georgia Department of Natural Resources (GA DNR)
- Georgia State Historic Preservation Officer (GA SHPO)

The Navy has prepared and submitted a Coastal Consistency Determination to GA DNR Coastal Resources Division April 21, 2023 (Appendix E).

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Environmental Assessment for Homeporting of the Columbia Class Submarine at Naval Submarine Base Kings Bay, Georgia

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Abbreviations and Acronyms

<u>Acronym</u>	<u>Definition</u>	<u>Acronym</u>	<u>Definition</u>
ACAM	Air Conformity Application Model	FONSI	Finding of No Significant Impact
ACM	Asbestos Containing Material	FY	Fiscal Year
APE	Area of Potential Effect	GA DNR	Georgia Department of Natural Resources
AST	Aboveground Storage Tank	GA EPD	Georgia Environmental Protection Division
BCC	Birds of Conservation Concern	GHG	greenhouse gas
BCR	Bird Conservation Region	HAP	hazardous air pollutant
BMP	best management practice	HAPC	habitat areas of particular concern
CAA	Clean Air Act	HW	Hazardous Waste
CCA	Candidate Conservation Agreement	HWMP	Hazardous Waste Management Plan
CCD	Coastal Consistency Determination	HWSF	Hazardous Waste Storage Facility
CD/I	Construction and Demolition debris/Industrial	ICRMP	Integrated Cultural Resources Management Plan
CEQ	Council on Environmental Quality	INRMP	Integrated Natural Resources Management Plan
CFR	Code of Federal Regulations	IRP	Installation Restoration Program
CO	carbon monoxide	LBP	lead-based paint
CO ₂	carbon dioxide	MBTA	Migratory Bird Treaty Act
CO ₂ e	CO ₂ equivalent	MMRP	Military Munitions Response Program
CWA	Clean Water Act	MSAT	Mobile Source Air Toxic
CZMA	Coastal Zone Management Act	MSW	Municipal Solid Waste
dB	decibel	MW	megawatt
dBA	A-weighted sound level	NAAQS	National Ambient Air Quality Standards
DERP	Defense Environmental Restoration Program	NEPA	National Environmental Policy Act
DoD	United States Department of Defense	NHPA	National Historic Preservation Act
EA	Environmental Assessment	NO ₂	nitrogen dioxide
EHW	Explosive Handling Wharves	Nox	nitrogen oxides
EO	Executive Order	NOA	Notice of Availability
ESA	Endangered Species Act		
ESQD	Explosive Safety Quantity Distance		

<u>Acronym</u>	<u>Definition</u>	<u>Acronym</u>	<u>Definition</u>
NOAA	National Oceanic and Atmospheric Administration	SPCC	Spill Prevention, Control, and Countermeasure
NPDES	National Pollutant Discharge Elimination System	SSBN	Nuclear Powered Ballistic Missile Submarine
NRHP	National Register of Historic Places	SSGN	Nuclear Powered Guided Missile Submarine
NSB	Naval Submarine Base	SSN	Nuclear Powered Attack Submarine
OB	Open Burning	SWPPP	Storm Water Pollution Prevention Plan
OD	Open Detonation	TMDL	Total Maximum Daily Load
OPNAVINST	Office of the Chief of Naval Operations Instruction	tpy	tons per year
OSHA	Occupational Health and Safety Administration	TRF	Trident Refit Facility
Pb	lead	TSCA	Toxic Substances Control Act
PCB	polychlorinated biphenyl	TTF	Trident Training Facility
PFAS	Per- and polyfluoroalkyl substances	UFC	Unified Facilities Criteria
PM ₁₀	particulate matter less than or equal to 10 microns in diameter	U.S.C.	United States Code
PM _{2.5}	particulate matter less than or equal to 2.5 microns in diameter	USACE	U.S. Army Corps of Engineers
ppm	parts per million	USEPA	U.S. Environmental Protection Agency
ppt	parts per thousand	USFWS	U.S. Fish and Wildlife Service
PSD	Prevention of Significant Deterioration	USGS	U.S. Geological Survey
RCRA	Resource Conservation and Recovery Act	UST	Underground Storage Tank
RML	Rotating Machinery Lab	VOC	Volatile Organic Compound
ROI	Region of Influence		
RONA	Record of Non-Applicability		
SC-GHG	Social Cost of Greenhouse Gases		
SDWA	Safe Drinking Water Act		
SF	square feet/foot		
SHPO	State Historic Preservation Office		
SIP	State Implementation Plan		
SO ₂	sulfur dioxide		

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1. Purpose of and Need for the Proposed Action

1.1 Introduction

United States Fleet Forces Command, a Command of the United States (U.S.) Navy (hereinafter, jointly referred to as the Navy) proposes to establish facilities and functions at Naval Submarine Base (NSB) Kings Bay to support the homeporting of Columbia Class submarines as replacements for the retiring Ohio Class submarines currently homeported at NSB Kings Bay. Under the Proposed Action, the Navy would construct eight facilities, modify five facilities, and demolish three facilities across three areas on NSB Kings Bay. Facility development activities would be phased over a period of five years and be completed coincident to the arrival of the first Columbia Class submarine in 2028.

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

1.2 Background

The U.S. Navy currently operates three kinds of submarines: nuclear-powered attack submarines (SSNs), nuclear-powered guided missile submarines (SSGNs), and nuclear-powered ballistic missile submarines (SSBNs). The SSBNs (which include Ohio Class submarines and Columbia Class submarines) perform a specialized mission of strategic nuclear deterrence and provide the sea-based leg of the U.S. nuclear triad. In order to perform their mission, SSBNs are armed with submarine launched ballistic missiles. The SSBNs' basic mission is to remain undetected at sea as a deterrent to a nuclear attack on the U.S. by another country, thereby ensuring that the U.S. is able to perform a retaliatory nuclear attack.

NSB Kings Bay is the homeport for the Ohio Class SSGNs, SSBNs, and the Trident II missile weapons system, and is the only Atlantic Fleet facility capable of supporting the weapons system. The Ohio Class submarines homeported at NSB Kings Bay are expected to successively reach the end of their service lives between fiscal year (FY) 2028 and 2042, and thus would need to be replaced to ensure uninterrupted operations of Atlantic Fleet SSBNs and Trident II missile weapons systems.

1.3 Location

NSB Kings Bay is located on approximately 16,000 acres in Camden County, Georgia, eight miles north of the Georgia/Florida border and approximately 40 miles north of Jacksonville, Florida (see **Figure 1.3-1**). NSB Kings Bay's location, large acreage, and proximity to the Atlantic Ocean make it an ideal location to support its specialized mission.

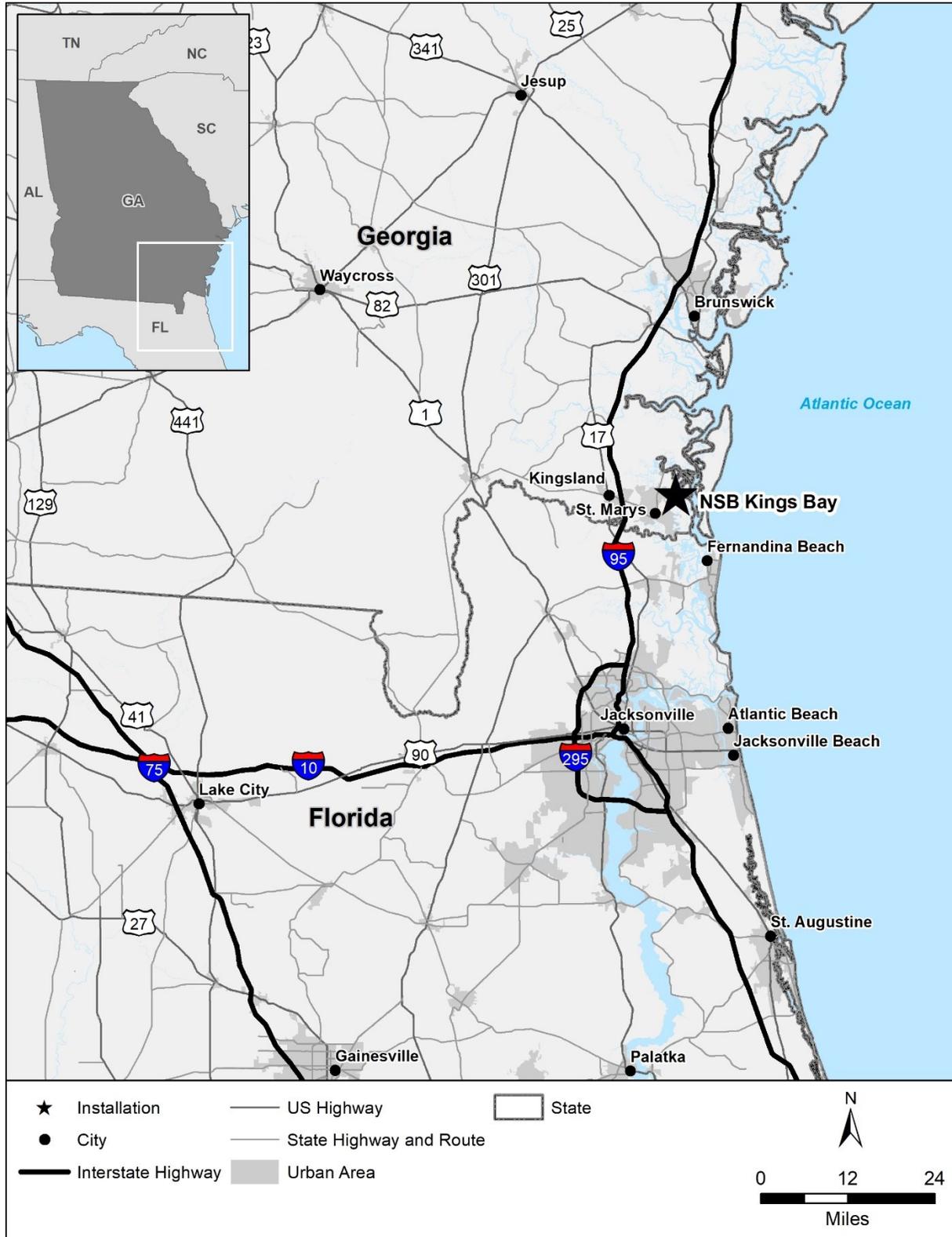


Figure 1.3-1. NSB Kings Bay Location Map

1.4 Purpose and Need for the Proposed Action

The purpose of the Proposed Action is to ensure the uninterrupted continuation of the Navy's Sea-Based Strategic Deterrence mission at NSB Kings Bay by introducing a technologically advanced SSBN into the Atlantic Fleet.

In 1979, the Navy selected NSB Kings Bay as the preferred East Coast site for the Ohio Class submarine. In 1980, an Environmental Impact Statement was completed and with Congressional approval, the Secretary of the Navy announced NSB Kings Bay as the future home of the Ohio Class SSBNs. Subsequently, infrastructure for three major commands was constructed: Trident Training Facility (TTF), Trident Refit Facility (TRF) and Strategic Weapons Facility, Atlantic. Since that time, NSB Kings Bay has continuously operated as the Navy's only Atlantic Coast Strategic Submarine Base. The Navy has primarily used NSB Kings Bay and its supporting infrastructure (to include refit facilities, submarine support centers, strategic weapons facility, marine security forces and maritime force protection units) for the homeporting of Ohio Class SSBNs. The Columbia Class SSBNs will require use of the same supporting facilities and infrastructure as the Ohio Class SSBNs, which are not replicated elsewhere on the Atlantic Coast. Therefore, NSB Kings Bay is the only Atlantic Coast location that can serve as a homeport for the Columbia Class SSBNs.

The Proposed Action is needed because the Ohio Class SSBNs are reaching the end of their service lives and need to be replaced before degrading to unacceptable conditions. Indefinite life extension of the existing Ohio Class SSBN fleet is not possible and would not meet future mission requirements. While the Navy is evaluating limited life extensions of a select number of Ohio Class submarines, these extensions will require significant time and resources for only a few years of additional service.

Even with additional maintenance, these submarines would continue to suffer from reduced reliability and increased costs associated with the obsolescence of legacy Ohio system components. The Columbia Class submarines are the next phase of submarines necessary to ensure the U.S. can meet current and future threats with up-to-date nuclear submarine technology in support of national defense objectives and policies. In this regard, the Proposed Action furthers the Navy's execution of its congressionally mandated roles and responsibilities under 10 U.S.C. § 8062.

10 U.S.C. § 8062: "The Navy shall be organized, trained, and equipped primarily for prompt and sustained combat incident to operations at sea. It is responsible for the preparation of naval forces necessary for the effective prosecution of war 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."

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. Considering the Columbia Class SSBN facility requirements criteria for subbase and pier-side sustainment, the analysis focuses on potential impacts from construction, modification, and demolition of facilities associated with the homeporting of the Columbia Class

submarines at NSB Kings Bay. The environmental resource areas analyzed in this EA include: air quality, water resources, cultural resources, biological resources, and hazardous materials and wastes.

The scope of this EA does not include the environmental impacts from submarine movements to offshore military operating areas. Submarine movement, as well as training and testing activities, will be evaluated separately in the upcoming Atlantic Fleet Training and Testing Supplemental Environmental Impact Statement/Overseas Supplemental Phase IV environmental impact analysis. The addition to the Trident Training Facility (TTF) at NSB Kings Bay was addressed under a categorical exclusion completed prior to the initiation of this EA (see Chapter 4, Cumulative Effects).

1.6 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, including the following:

- NEPA (42 United States Code [U.S.C.] sections 4321–4370h), which requires an environmental analysis for major federal actions that have the potential to significantly impact the quality of the human environment.
- CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] parts 1500–1508)
- Navy regulations for implementing NEPA (32 CFR part 775), which provides Navy policy for implementing CEQ regulations and NEPA.
- CEQ, Guiding Principles for Sustainable Federal Buildings and Associated Instructions, 85 Federal Register 86910, 31 December 2020.
- Department of Defense (DoD) Instruction O-2000.16, Volume 1, DoD Antiterrorism Program Implementation: DoD Antiterrorism Standards
- Unified Facilities Criteria (UFC) 2-100-01, Installation Master Planning
- UFC 2-100-02, High Performance and Sustainable Building Requirements
- Naval Facilities Engineering Command Climate Change Planning Handbook Installation Adaptation and Resilience, January 2017
- Clean Air Act (42 U.S.C. section 7401 et seq.)
- Clean Water Act (33 U.S.C. section 1251 et seq.)
- Safe Drinking Water Act (42 U.S.C. section 300f et seq.)
- Rivers and Harbors Act (33 U.S.C. section 401 et seq.)
- Coastal Zone Management Act (16 U.S.C. section 1451 et seq.)
- National Historic Preservation Act (54 U.S.C. section 300101 et seq.)
- Endangered Species Act (16 U.S.C. section 1531 et seq.)
- Migratory Bird Treaty Act (16 U.S.C. sections 703–712)
- Bald and Golden Eagle Protection Act (16 U.S.C. sections 668–668d)

- Resource Conservation and Recovery Act (42 U.S.C. section 6901 et seq.)
- Toxic Substances Control Act (15 U.S.C. sections 2601–2629)
- Executive Order (EO) 11988, Floodplain Management
- EO 12088, Federal Compliance with Pollution Control Standards
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
- EO 13175, Consultation and Coordination with Indian Tribal Governments
- EO 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis
- EO 14008, Tackling the Climate Crisis at Home and Abroad
- EO 14057, Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability

A description of the Proposed Action’s consistency with these laws, policies and regulations is presented in Chapter 5 (**Table 5.1-1**).

1.7 Public Agency Participation and Intergovernmental Coordination

CEQ regulations direct agencies to involve the public in preparing and implementing their NEPA procedures.

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. The Draft EA will be released for public comment for 30 days. Through the public involvement process, the Navy coordinates with the public and notifies the public of the Proposed Action. Input from the public and from regulatory agencies is incorporated into the analysis of potential environmental impacts, as appropriate.

The Draft EA review period will begin with the publication of a Notice of Availability (NOA) of the Draft EA for three consecutive days in the *Florida Times Union*, starting May 26, 2023. The NOA will also be placed on the NSB Kings Bay Facebook page. The notice describes the Proposed Action, solicits public comments on the Draft EA, provides dates of the public comment period, and announces that the EA will be available for download/review on the Navy’s website (<https://nepa.navy.afpims.mil/>). All substantive comments received during the comment period will be addressed in the Final EA.

Based on potential impacts to resource areas and as required by federal environmental laws and regulations, the Navy has initiated consultation with the following organizations:

- U.S. Fish and Wildlife Service (USFWS)
- The Muscogee (Creek) Nation
- Seminole Nation of Oklahoma
- Seminole Tribe of Florida
- Thlopthlocco Tribal Town

- United Keetoowah Band of Cherokee Indians in Oklahoma
- Georgia Department of Natural Resources (GA DNR)
- Georgia State Historic Preservation Officer (GA SHPO)

The Navy has prepared and submitted a Coastal Consistency Determination to GA DNR Coastal Resources Division on April 21, 2023 (Appendix B).

2. Proposed Action and Alternatives

2.1 Proposed Action

The United States (U.S.) Navy proposes to establish facilities and functions at Naval Submarine Base (NSB) Kings Bay to support the homeporting of Columbia Class submarines as replacements for the retiring Ohio Class submarines currently homeported at NSB Kings Bay. Under the Proposed Action, the Navy would construct eight facilities, modify five facilities, and demolish three facilities across three areas on NSB Kings Bay. Facility changes and development activities would be phased over a period of five years and completed coincident to the arrival of the first Columbia Class submarines in 2028. The Proposed Action does not modify any existing dry-docks or conduct any in-water activity.

During the fiscal year (FY) 2028-2042 transition period from the Ohio Class to the Columbia Class and at completion, the Columbia Class Nuclear Powered Ballistic Missile Submarines (SSBNs) will be phased in as the Ohio Class SSBNs are phased out. Thus, total numbers of submarines homeported at NSB Kings Bay during this time will not exceed the number of Ohio Class submarines currently homeported at the base. Considering facility sustainment and planning efforts, the support operations and personnel numbers associated with the Columbia Class submarines are projected to be comparable to those associated with the Ohio Class submarines. Also, personnel numbers associated with the facilities and functions of the Proposed Action are also not anticipated to increase. Therefore, the Proposed Action will not increase the number of personnel employed at NSB Kings Bay, although an increase in temporary workers will result during the demolition, modification, and construction of 16 facilities and various functions scheduled for completion in 2028.

2.2 Screening Factors

The National Environmental Policy Act's (NEPA's) implementing regulations provide guidance on the consideration of alternatives to a federally proposed action and require Federal agencies to evaluate reasonable alternatives to the Proposed Action. Reasonable alternatives are a range of alternatives that are technically and economically feasible and meet the purpose of and need for the Proposed Action. In developing the proposed range of alternatives, the Navy considered mission characteristics, geographic requirements, logistics, training requirements, and existing Navy infrastructure. Based on this review, the following factors were considered when exploring alternatives to the Proposed Action:

- Alternatives must ensure uninterrupted execution of the Sea-Based Strategic Deterrence mission. There can be no disruption to the execution of the Navy's sea-based strategic deterrence mission. Therefore, either through existing infrastructure or new construction, a training facility for the Columbia Class SSBNs must be available by fiscal year (FY) 2026 and be ready to support the first Columbia Class SSBN by FY 2028 to ensure uninterrupted execution of the sea-based strategic deterrence mission. New construction of submarine support facilities and comparable facilities to the Trident Refit Facility (TRF) and Trident Training Facility (TTF) already located at NSB Kings Bay could not be completed on the required timeline.
- Alternatives must preserve and optimize operational readiness and efficiencies. The Navy considers proximity of leadership and resources and logistical efficiencies to maximize operational readiness. Leadership and commands associated with SSBNs are co-located at NSB

Kings Bay (i.e., Strategic Weapons Facility Atlantic, Submarine Group 10, and Submarine Squadron 20). NSB Kings Bay is also home to essential infrastructure and support activities for SSBNs, such as shared maintenance and logistics efforts, access to submarine supplies and parts from the TRF, enhanced training support from the TTF, and a necessary security presence with Marine Corps Security Force Battalion and U.S. Coast Guard Maritime Force Protection Unit.

- Alternatives must make effective and efficient use of existing infrastructure. The Navy carefully analyzes facility requirements to pursue the most advantageous approaches to optimize the use of the Navy's existing infrastructure footprint and increase readiness. It is imperative that the Navy only builds, maintains, and utilizes the minimum infrastructure necessary to efficiently and cost effectively meet mission requirements and operational plans. There is insufficient real estate at East Coast Navy installations to stand up a new homeporting location. Facilities and infrastructure currently located at NSB Kings Bay include the largest covered drydock in the world, and a Magnetic Silencing Facility, which is the only facility of its kind on the East Coast. All torpedoes carried by SSBNs for self-defense are maintained and stored by the Defensive Ordnance Support Facility, located on NSB Kings Bay. Additionally, the TTF, a command on NSB Kings Bay, has over 520,000 square feet (SF) of classroom and office space to train Sailors in the skills necessary to operate and maintain SSBNs and their systems.
- Alternatives must be in proximity to the Atlantic submarine operating areas. The shore-based location must be proximate to the Atlantic Fleet Operating Areas.

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 No Action Alternative and the Proposed Action.

2.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. NSB Kings Bay would not have the facilities and functions in place to support the replacement and sustainment requirements of the Columbia Class submarine fleet. The Ohio Class submarines would be extended past their useful lives, thereby adversely impacting the United States' strategic deterrence mission and resulting in increased maintenance costs and frequency, and a decrease in crew readiness and overall mission capability. The No Action Alternative does not meet the purpose of and need for the Proposed Action; however, the No Action Alternative is used to analyze the consequences of not undertaking the Proposed Action and provides a benchmark for comparative analysis to enable decision makers to compare the magnitude of environmental effects of the action alternatives. The No Action Alternative is carried forward for analysis as required by NEPA regulations and Navy policy.

2.3.2 Alternative 1 (Proposed Action)

Alternative 1 (the Proposed Action) meets the screening factors described in Section 2.2.

The Proposed Action would establish facilities and functions at NSB Kings Bay to support the homeporting of Columbia Class submarines as replacements for the retiring Ohio Class submarines

currently homeported at NSB Kings Bay. No anticipated personnel changes are expected with the homeporting of the Columbia Class submarines.

Under the Proposed Action, the homeporting of the Columbia Class submarines requires various facilities and infrastructure construction improvements. These major construction elements are associated with Military Construction project P-684 (TRF Columbia Expansion).

P-684, TRF Columbia Expansion, is composed of demolition, construction, and/or modification of 16 facilities across three different locations on NSB Kings Bay as shown in **Figure 2.3-1. Table 2.3-1** identifies P-684 projects by type and site.

Table 2.3-1. Projects of P-684

<i>Associated Building Number</i>	<i>Type of Action</i>	<i>Facility Description</i>
Location 1		
5055	Demolition	Quonset hut Paint Booth at the end of the Drydock.
5073	Demolition	Hull Cleaning Shop. Demolition would also require disposal or closure-in-place of the active 1,000-gallon used oil underground storage tank.
5073	Demolition	Six flame lockers adjacent to Building 5073.
5073	Construction	New Hull Cleaning Shop.
5085	Construction/ Exterior Modification	Expansion of the Hull Shop.
5085	Construction	Enclosed facility to provide storage for various shop facilities.
No existing building	Construction	This would be a temporary facility for the functions vacated from Building 5145 and Building 5073 during construction. The temporary facility would be removed following completion of P-684.
5092(M)	Construction	Enclosed Facility to support storage for Shops 51 and 38.
5092	Interior Modification	Berthing Support Building 2 for the upgrade and establishment of electrical and mechanical shops. This consists of interior work to upgrade the electrical systems and installation of a new crane for Shop 51M.
5145	Interior Modification	This is a change of occupancy of the Drydock Services Building 5145 to accommodate offices displaced from Drydock Berthing Support Building 5146.
5146	Interior Modification	Drydock Berthing Support Building to expand storage within the facility. The modification includes interior wall demolition, construction of interior spaces, and installation of mechanical and electrical systems.
EHW 1 & 2	Modification	Upgrade of fire suppression system at Explosive Handling Wharves (EHWs) 1 and 2 (see Figure 2.3-3) to provide the rates and pressures that are required by the Columbia Class SSBNs.
Location 2		
4026	Construction	Rotating Machinery Lab (RML) adjacent to Building 4026 for the testing of pumps and valves.
4026	Construction	Battery storage facility for staging, testing, cleaning, and inspecting inbound batteries, as well as staging outbound batteries north of Building 4026.
4028	Construction/ Exterior Modification	Expansion of the Optical Shop for cleaning, repair, and testing of shipboard equipment (approximately 5,000 SF).

<i>Associated Building Number</i>	<i>Type of Action</i>	<i>Facility Description</i>
4030	Interior Modification	Demolition and installation of interior walls and upgrades of the air conditioning and electrical power systems for an internal server room in the TRF Administrative Facility .
<i>Location 3</i>		
5089	Interior Modification	Reassigning an existing covered storage facility as a construction laydown area.

The proposed facility development described in **Table 2.3-1** would involve changing existing utility connections and installing new utilities for potable water, sanitary sewer, electricity, telecommunications/information technology, and natural gas. Stormwater infrastructure would be upgraded to meet site requirements. Paving and site improvements associated with the facilities identified in Table 2.3-1 include retaining walls, roadways, asphalt and concrete pavement, parking, sidewalks, equipment pads, sodding/grassing, pedestrian, signage, and bicycle features.

All construction, renovation, and demolition will be conducted in accordance with applicable law and Navy policy, including Antiterrorism Force Protection, energy conservation, sustainability, and floodplain management requirements (see Section 1.7). Specific project sites within the three locations are shown in **Figures 2.3-2, 2.3-3, 2.3-4 and 2.3-5**, respectively.

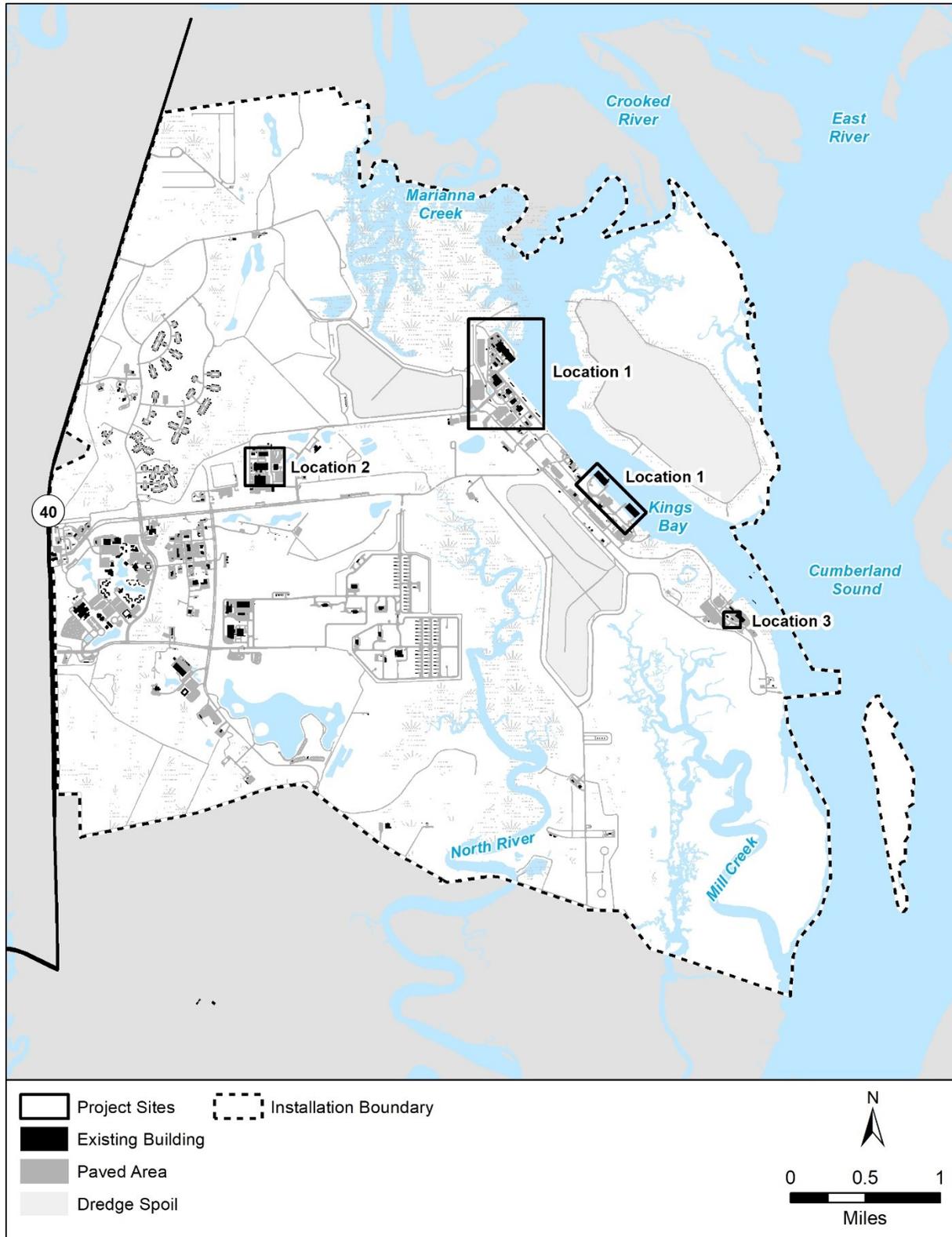


Figure 2.3-1. P-684 Project Locations on NSB Kings Bay



Figure 2.3-2. Project Sites in Location 1

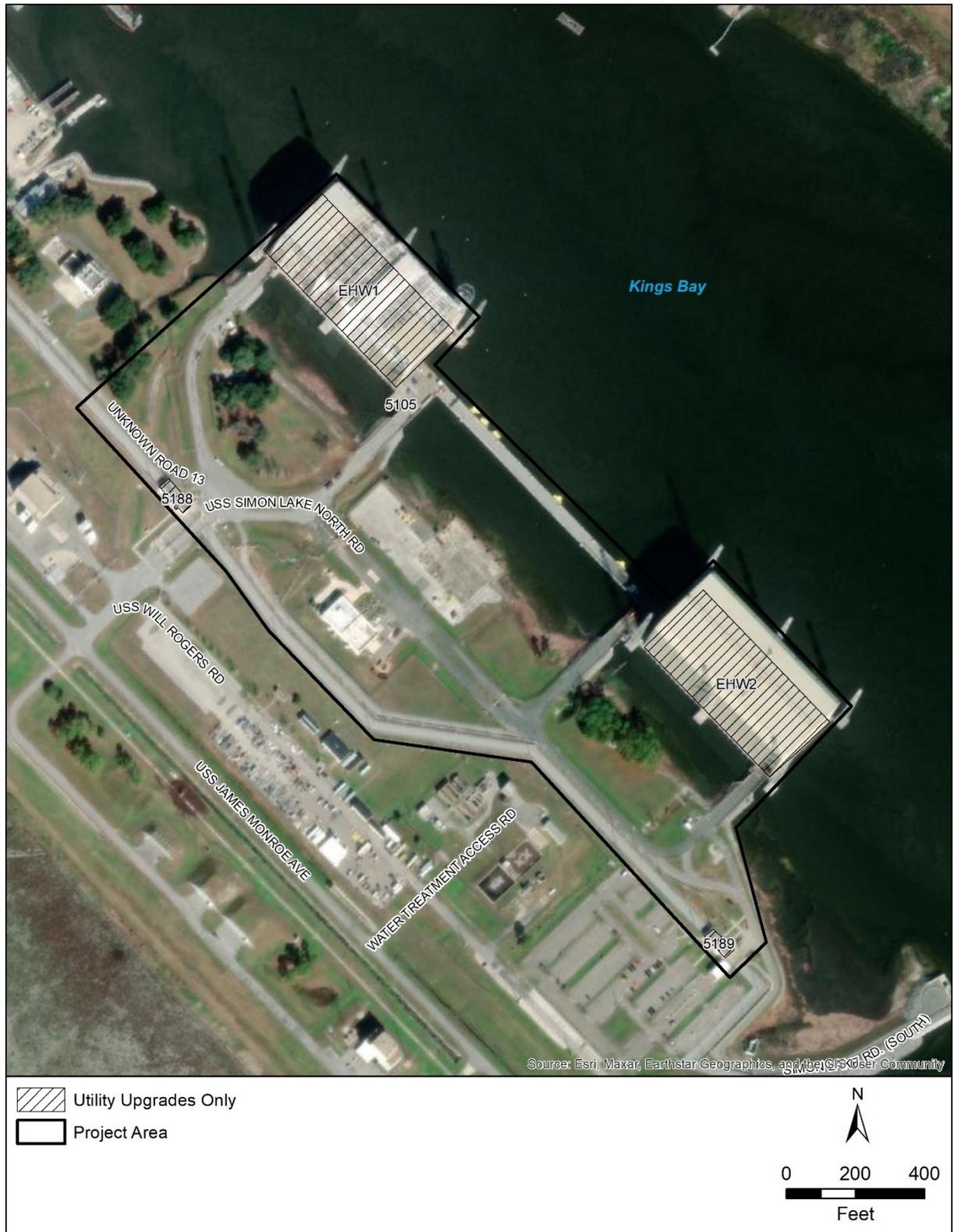


Figure 2.3-3. EHW Sites in Location 1

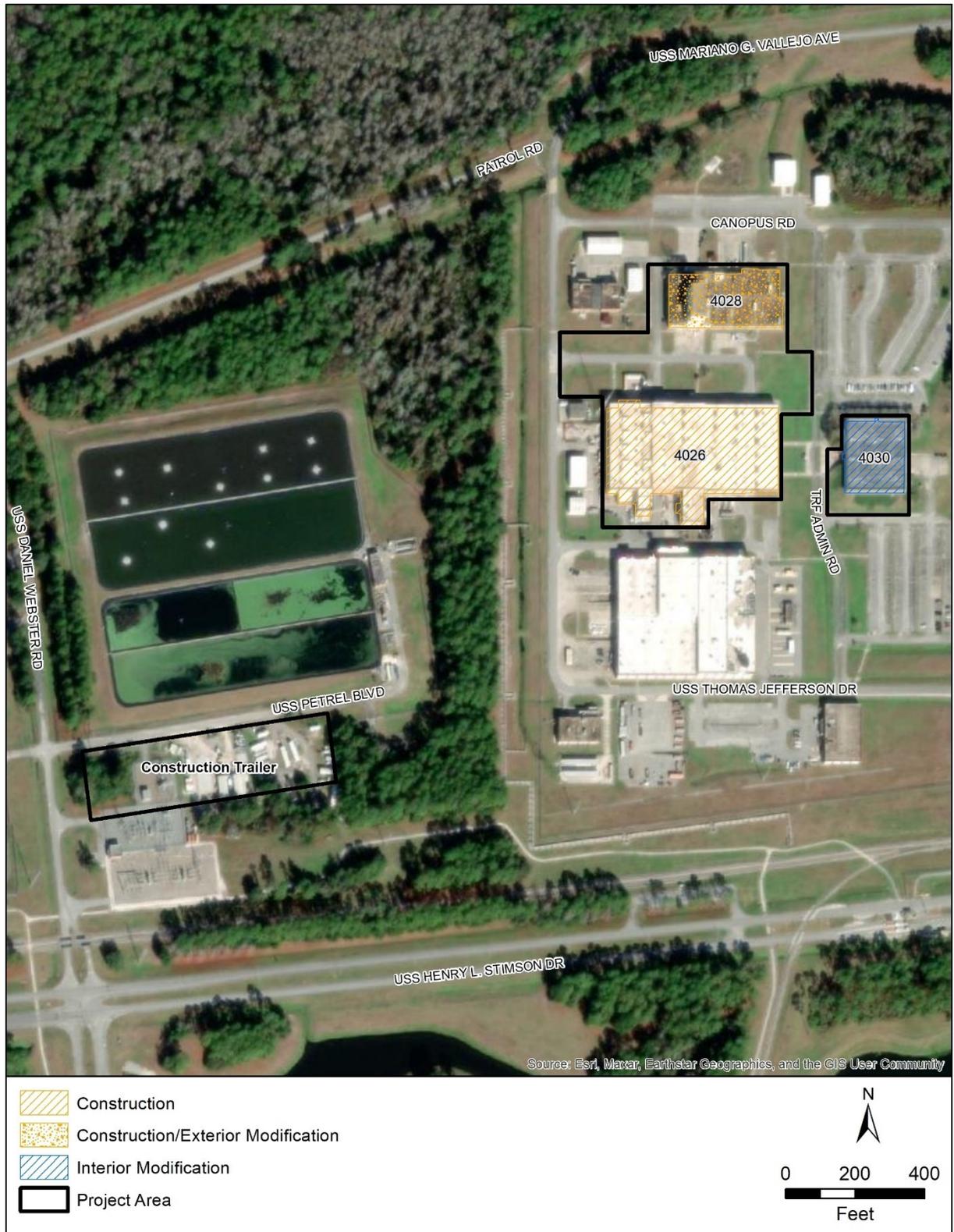


Figure 2.3-4. Project Sites in Location 2



Figure 2.3-5. Project Sites in Location 3

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. These alternatives were rejected as they do not meet the purpose of and need for the Proposed Action, nor did they satisfy the reasonable alternative screening factors presented in Section 2.2. The four alternatives considered but rejected and the justifications for rejection appear below.

2.4.1 Leasing of Property for the Homeport of the Columbia Class Submarine

This alternative would consist of the leasing of existing property outside of NSB Kings Bay and homeporting the Columbia Class submarines at that property. This alternative was considered but is not being carried forward for detailed analysis because leasing of property is not viable due to security requirements inherent to the SSBNs' sea-based strategic deterrence mission. Furthermore, this alternative does not use existing Navy infrastructure.

2.4.2 Standing Up a Separate Homeport for the Columbia Class Submarine

This alternative would consist of building a full stand-alone facility consisting of new spaces for all trainers and related support spaces that are required to support the Columbia Class program. Initial engagement with stakeholders considered doubling the footprint of the current maintenance facilities associated with the Ohio Class submarine. With follow-on analysis and fact finding, this alternative is not being carried forward for detailed analysis because changes from Ohio Class to Columbia Class submarines do not involve completely different functions, so expansion/additions were not needed at an increased 100 percent rate. The overlapping time required for supporting the two classes would be relatively short. Investment in brand-new facilities would be wasteful in terms of cost and environmental impact, would involve unnecessary and significant demolition costs and does not use existing Navy infrastructure.

2.4.3 Standing Up the Columbia Class Submarines in a Single Location at NSB Kings Bay

This alternative would consist of demolishing, constructing, and/or modernizing facilities for the homeporting of the Columbia Class submarines at a single site within NSB Kings Bay, specifically Location 1. Location 1 would serve as the site of a "Columbia Class Compound." This alternative was considered but is not being carried forward for detailed analysis in the EA, because operational procedures associated with the TRF mission do not conform to a single location and the available developable area at Location 1 has already been designated for another use.

2.4.4 Renovating/Upgrading the Existing Ohio Class Submarines at NSB Kings Bay

This alternative would involve retrofitting and upgrading the existing Ohio Class submarines currently homeported at NSB Kings Bay. This alternative is not carried forward for detailed analysis in the EA because indefinite life extension of the existing Ohio Class submarine fleet is not possible and would not meet future mission requirements. While the Navy evaluated limited life extensions of a limited number of Ohio Class submarines, these extensions would require significant time and resources for only a few years of additional service. Even with additional maintenance, these submarines would continue to suffer from reduced reliability and increased costs associated with the obsolescence of legacy Ohio system components.

2.5 Best Management Practices Included in Proposed Action

This section presents an overview of the best management practices (BMPs) incorporated into the Proposed Action. **Table 2.5-1** lists BMPs that the Navy will adopt to reduce potential environmental impacts of the Proposed Action. BMPs may be regulatory-driven (e.g., stormwater BMPs) or proactive practices that avoid, minimize, reduce, or eliminate impact. BMPs are distinguished from potential mitigation measures because BMPs are: (1) existing requirements for the Proposed Action, (2) ongoing, regularly occurring practices, or (3) not unique to this Proposed Action. In other words, the BMPs identified in this document are inherently part of the Proposed Action and are not potential mitigation measures proposed as a function of the NEPA environmental review process for the Proposed Action.

Table 2.5-1. Best Management Practices

<i>BMP</i>	<i>Impacts Reduced/Avoided</i>
Facility Drainage Design	Soil Migration
Tarps, stormwater barriers	Soil Migration and Stormwater Contamination
Skimmer dams, spill-control gates, oil-water separators, and roof and canopy structures over waste storage areas and personnel training areas	Stormwater/Groundwater Contamination
Reducing idling of equipment during construction operations	Fugitive Dust/Air Quality
Applying water to areas where equipment is operating	Fugitive Dust/Air Quality
Requiring all construction equipment to be in good condition and properly maintained	Groundwater Contamination/Oil Spills or Leaks
Special Hazards surveys prior to demolition (asbestos containing material, lead-based paint, polychlorinated biphenyls)	Air Quality, Hazardous Waste Contamination, and Public Health and Safety

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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 from implementing any of the alternatives (Proposed Action and No Action Alternative) and an analysis of the potential direct and indirect effects of each alternative. “Significantly,” as used in the National Environmental Policy Act (NEPA), requires considerations of both the potentially affected environment and degree of potential impacts. The potential environmental impact can be thought of in terms of the amount of the likely change. In general, the more sensitive the environment, the less intense a potential impact needs to be in order to be considered significant. Likewise, the less sensitive the environment, the more intense a potential impact would need to be in order to be considered significant. Significance varies with the setting of a proposed action. For instance, in the case of a site-specific action, significance would usually depend on the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant.

All potentially relevant environmental resource areas were initially considered for analysis in this Environmental Assessment (EA). In compliance with NEPA, the Council on Environmental Quality (CEQ), and Department of Navy guidelines, 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 describing a resource is commensurate with the anticipated level of potential environmental impact. This section includes air quality, water resources, cultural resources, biological resources, and hazardous materials and wastes.

The potential impacts to the following resource areas are considered to be negligible or nonexistent so they were not analyzed in detail in this EA (refer to Section 1.5, Scope of Environmental Analysis):

Land Use: Effects to land use could result from changes in how land is developed and used, typically in terms of the types of activities allowed. The Proposed Action would be consistent with, and not alter, the existing industrial land use and type of activities conducted in the project areas. All demolition, construction, and modification projects associated with the Proposed Action would be consistent with existing land uses of the three project areas. Therefore, there would be no effects to land use from implementation of the Proposed Action.

Visual Resources: The visual aesthetics of the three project areas would remain virtually unchanged as a result of implementing the Proposed Action. The three areas would continue to house facilities and infrastructure in support of homeporting Nuclear Powered Ballistic Missile Submarines (SSBNs), and the visual landscape would not change. Therefore, visual resources are not addressed further in the EA.

Geological Resources: Construction, modification, and demolition projects, as described in Section 2.3.2, would all be sited on previously disturbed areas characterized by hardscape, and no new softscape will be transformed to hardscape. Minor impacts to the surface and near-surface geology will occur as a result of grading and leveling, and drilling or digging into the bedrock to secure foundations for the new proposed project facilities. No farmland exists in the Proposed Action area, no mineral resources or sensitive geologic resources will be impacted, and no geologic hazards were identified that could negatively impact the Proposed Action. Additionally, only temporary and minor impacts to soils

are expected. All construction and modification projects associated with the Proposed Action would occur in developed locations where the soil has been previously disturbed (e.g., graded, excavated, filled), and existing soils would be unchanged. During the construction phase, best management practices (BMPs) (e.g., a Storm Water Pollution Prevention Plan [SWPPP], the use of tarps and containment berms, and dust suppression measures) would be used to minimize the migration of soils off-site. Therefore, geological resources are not addressed further in the EA.

Transportation: There would be no change to the existing road network at the installation from implementing the Proposed Action. Temporary increases in traffic would occur due to construction-related vehicles. However, in the context of existing traffic levels on the Naval Submarine Base (NSB) Kings Bay roadway access network and construction vehicles traveling to the installation for demolition, modification or construction associated with the Proposed Action, this temporary increase in worker vehicle and truck trips during facility construction would have a negligible impact on transportation. Therefore, transportation impacts are not addressed further in the EA.

Socioeconomics: The Proposed Action would result in negligible impacts to socioeconomic issues during the construction, modification, and demolition activities. No long-term impacts are anticipated. The Proposed Action would not create new long-term jobs or require housing following completion of these projects. There would not be a noticeable change in the overall personnel numbers. Therefore, there would be negligible impacts to socioeconomics from implementation of the Proposed Action.

Environmental Justice and Protection of Children: Consistent with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, the Navy's policy is to identify and address any disproportionately high and adverse human health or environmental effects of its actions on minority and low-income populations. EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires federal agencies to "make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children and shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks."

Due to NSB Kings Bay's relative isolation from civilian population centers, minority, low-income, and children populations would not be exposed to significant impacts from the construction, modification, or demolition of NSB Kings Bay facilities. Construction noise would have the greatest potential to impact these populations. Construction-related noise emissions from the types of equipment that would be used to implement the Proposed Action projects would range from 74 to 90 A-weighted decibels (dBA) when measured 50 feet from the respective piece of equipment (e.g., dump truck, excavator, or pile hammer) and would quickly diminish as the distance increases (Federal Highway Administration, 2006). For example, 90 dBA from 2,500 feet away is perceived to sound like 56 dBA. Typical human speech is between 55-65 dBA. The nearest sensitive receptor (non-worker), which is military family housing, is located approximately 0.5 miles west of Location 2, two miles west of Location 1, and approximately four miles from Location 3; no low-income or minority populations are located adjacent to or in close vicinity to the project areas. There are no public schools located on NSB Kings Bay. The on-base buildings that house children are approximately one mile west of Location 2, approximately two and a half miles west of Location 1, and approximately four miles west of Location 3.

The project sites require specific security clearances above those required to access family housing, youth activity areas, schools, and sports venues on the installation. In addition to the security checkpoints which would prevent unauthorized access to the Proposed Action locations by children, the temporary laydown areas for construction would be fenced during active construction phase of work, thereby providing additional measures to protect children during that phase of work. The Proposed Action would not disproportionately affect minority or low-income communities. The Navy has determined that there are no environmental health and safety risks associated with the Proposed Action that would disproportionately affect children. Therefore, there would be no effects to environmental justice and protection of children from implementation of the Proposed Action.

Public Health & Safety: The Proposed Action will be conducted at three locations on NSB Kings Bay which are restricted to authorized personnel only. Therefore, the Proposed Action does not include any activities with the potential to affect the safety, well-being, or health of members of the public pertaining to community emergency services, construction activities, operations, and environmental health and safety risks.

Utilities and Infrastructure: All project locations have existing extensive coverage for wastewater, potable water, electricity, natural gas, and telecommunications/information technology lines. Any new construction would be connected to existing NSB Kings Bay infrastructure for these utilities. All connections would be made to existing utilities using existing utility corridors through existing disturbed lands. Generation of solid waste under the Proposed Action would be similar to the volume generated under existing conditions because the total number of submarines at NSB Kings Bay would not exceed the number of Ohio Class submarines currently homeported at the base. The Proposed Action does not include a permanent increase in personnel. Thus, a noticeable increase in utility demand is not anticipated under the Proposed Action, and utilities and infrastructure are not addressed further in the EA.

3.1 Air Quality

3.1.1 Regulatory Setting

3.1.1.1 Criteria Pollutants and National Ambient Air Quality Standards

The principal pollutants defining the air quality, called “criteria pollutants,” include carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), ozone, suspended particulate matter less than or equal to 10 microns in diameter (PM₁₀), fine particulate matter less than or equal to 2.5 microns in diameter (PM_{2.5}), and lead (Pb). CO, SO₂, Pb, and some particulates are emitted directly into the atmosphere from emissions sources. Ozone, NO₂, and some particulates are formed through atmospheric chemical reactions that are influenced by weather, ultraviolet light, and other atmospheric processes.

Under the Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) (40 Code of Federal Regulations [CFR] part 50) for these criteria pollutants. NAAQS are classified as primary or secondary. Primary standards protect against adverse health effects; secondary standards protect against welfare effects, such as damage to farm crops and vegetation and damage to buildings. Some pollutants have long-term and short-term

standards. Short-term standards are designed to protect against acute, or short-term, health effects, while long-term standards were established to protect against chronic health effects.

Areas that are and have historically been in compliance with the NAAQS are designated as attainment areas. Areas that violate a federal air quality standard are designated as nonattainment areas. Areas that have transitioned from nonattainment to attainment are designated as maintenance areas and are required to adhere to maintenance plans to ensure continued attainment.

The CAA requires states to develop a general plan to attain and maintain the NAAQS in all areas of the country and a specific plan to attain the standards for each area designated nonattainment for a NAAQS. These plans, known as State Implementation Plans (SIPs), are developed by state and local air quality management agencies and submitted to USEPA for approval.

3.1.1.2 Mobile Sources

Hazardous Air Pollutants (HAPs) emitted from mobile sources are called Mobile Source Air Toxics (MSATs). MSATs are compounds emitted from highway vehicles and non-road equipment that are known or suspected to cause cancer or other serious health and environmental effects. USEPA's MSAT rule, *Control of Emissions of Hazardous Air Pollutants From Mobile Sources* (66 Federal Register [FR] 17230), provides fuel standards for cleanliness in order to limit emission of MSATs. The rule also identifies several engine emission certification standards that must be implemented (40 CFR parts 59, 80, 85, and 86; FR Volume 72, Number [No.] 37, pages [pp.] 8427–8570, 2007). The final *Tier 3 Motor Vehicle Emission Standards* were published on April 28, 2014 (FR Volume 79, No. 81, pp. 23414-23886, 2014) and established both tailpipe and evaporative emission standards for on-road vehicles to reduce a variety of pollutants, including criteria pollutants and the primary MSATs. Unlike the criteria pollutants, there are no NAAQS for benzene and other HAPs. The primary control methodologies for these pollutants for mobile sources involve reducing their content in fuel and altering the engine operating characteristics to reduce the volume of pollutant generated during combustion. Because this rule is applied at the fuel production and engine manufacturer level, these emission levels are presumed to be within regulated levels and HAPs emissions are not analyzed in detail further.

3.1.1.3 Permitting

The Title V Operating Permit Program consolidates all CAA requirements applicable to the operation of a stationary source, including requirements from the SIP, preconstruction permits, and the air toxics program. It applies to stationary sources of air pollution that exceed the major stationary source emission thresholds, as well as other non-major sources specified in a particular regulation. Navy installations subject to Title V permitting shall comply with the requirements of the Title V Operating Permit Program, which are detailed in 40 CFR part 70 and all specific requirements contained in their individual permits.

3.1.1.4 General Conformity

The USEPA General Conformity Rule applies to federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The emissions thresholds that trigger requirements for a

conformity analysis are called *de minimis* levels. *De minimis* levels (in tons per year [tpy]) vary by pollutant and also depend on the severity of the nonattainment status for the air quality management area in question.

A conformity applicability analysis is the first step of a conformity evaluation and assesses if a federal action must be supported by a conformity determination. This is typically done by quantifying applicable direct and indirect emissions that are projected to result from implementation of the federal action. Indirect emissions are those emissions caused by the federal action and originating in the region of interest, but which can occur at a later time or in a different location from the action itself and are reasonably foreseeable. The federal agency can control and will maintain control over the indirect action due to a continuing program responsibility of the federal agency. Reasonably foreseeable emissions are projected future direct and indirect emissions that are identified at the time the conformity evaluation is performed. The location of such emissions is known, and the emissions are quantifiable, as described and documented by the federal agency based on its own information and after reviewing any information presented to the federal agency. If the results of the applicability analysis indicate that the total emissions would not exceed the *de minimis* emissions thresholds (**Table 3.1-1**), then the conformity evaluation process is completed.

Table 3.1-1. General Conformity *de minimis* Levels

<i>Pollutant</i>	<i>Area Type</i>	<i>tpy</i>
Ozone (VOC or NO _x)	Serious nonattainment	50
	Severe nonattainment	25
	Extreme nonattainment	10
	Other areas outside an ozone transport region	100
Ozone (NO _x)	Marginal and moderate nonattainment inside an ozone transport region	100
	Maintenance	100
Ozone (VOC)	Marginal and moderate nonattainment inside an ozone transport region	50
	Maintenance within an ozone transport region	50
	Maintenance outside an ozone transport region	100
Carbon monoxide, SO ₂ and NO ₂	All nonattainment & maintenance	100
PM ₁₀	Serious nonattainment	70
	Moderate nonattainment and maintenance	100
PM _{2.5} Direct emissions, SO ₂ , NO _x (unless determined not to be a significant precursor), VOC or ammonia (if determined to be significant precursors)	All nonattainment & maintenance	100
Lead (Pb)	All nonattainment & maintenance	25

Key: NO₂ = nitrogen dioxide; NO_x = nitrogen oxides; Pb = lead; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; PM₁₀ = particulate matter less than or equal to 10 microns in diameter; SO₂ = sulfur dioxide; tpy = tons per year; VOC = volatile organic compound.

3.1.1.5 Greenhouse Gases

Greenhouse gases (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 predicted to produce negative economic and social consequences across the globe.

GHGs include carbon dioxide (CO₂), methane, nitrogen oxides (NO_x), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and other fluorinated gases, including nitrogen trifluoride and hydrofluorinated ethers. Each GHG is assigned a global warming potential. The global warming potential is the ability of a gas or aerosol to trap heat in the atmosphere. The global warming potential rating system is standardized to CO₂, which has a value of one. The CO₂ equivalent (CO₂e) rate is calculated by multiplying the emissions of each GHG by its global warming potential and adding the results together to produce a single, combined emissions rate representing all GHGs. Consistent with EO 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*, CEQ submitted interim guidance entitled *National Environmental Policy Act [NEPA] Guidance on Consideration of Greenhouse Gas [GHG] Emissions and Climate Change* (January 9, 2023) (CEQ, 2023). This guidance is similar to previous iterations and suggests that agencies should calculate estimated GHG emissions in NEPA analyses to assess potential effects on climate change.

The new CEQ guidance states that NEPA reviews should provide the social cost of a project's GHG emissions (SC-GHG) even if no other costs or benefits are monetized, because it can help decision-makers and the public understand the effects of a project's GHG emissions. The SC-GHG is the monetary value of the net harm to society associated with adding a small amount of that GHG to the atmosphere in a given year. In principle, it includes the value of all climate change impacts, including (but not limited to) changes in net agricultural productivity, human health effects, property damage from increased flood risk natural disasters, disruption of energy systems, risk of conflict, environmental migration, and the value of ecosystem services. The SC-GHG, therefore, should reflect the societal value of reducing emissions of the gas in question by one metric ton.

The guidance also states that agencies should explain how a proposed action and alternatives would help meet or detract from achieving climate action goals or commitments, including international agreements, federal governmentwide and agency goals and planning documents, and state, regional, and tribal goals. The guidance states that NEPA reviews should consider the projected future state of the environment and the effects of climate change on a proposed action based on the best available climate change reports, such as the National Climate Assessment. The CEQ also encourages agencies to mitigate GHG emissions to the greatest extent possible.

EO 14008, *Tackling the Climate Crisis at Home and Abroad* (FR Volume 86, No. 19, pp. 7619-7633, 2021) instructs agency heads to prepare Climate Action Plans for their agency operations. The Department of the Navy Climate Action Plan (DON, 2022) details the Navy goals to meet the requirements of EO 14008 and EO 14057, *Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability* (FR Volume 86, No. 236 pp. 70935-70943, 2021). These goals include 65 percent reductions in scope 1 and 2 GHG

emissions by 2030, acquiring 100 percent zero-emission, light-duty vehicles by 2027, achieving a 50 percent reduction in GHG emissions from buildings by 2032, diverting at least 50 percent of non-hazardous solid waste from landfills by 2025, instituting nature-based resilience to reduce GHG emissions, and establishing energy resilience to ensure mission accomplishment.

3.1.2 Affected Environment

NSB Kings Bay is in the city of Kingsland, Georgia, which is within the Jacksonville-Brunswick Air Quality Control Region. The affected environment is Camden County. The Air Protection Branch of the Georgia Environmental Protection Division is responsible for implementing and enforcing state and federal air quality regulations in Georgia.

The USEPA classifies Camden County as in attainment for all NAAQS (USEPA, 2022a). **Table 3.1-2** provides the inventory of Camden County’s Annual Air Emissions for 2017.

Table 3.1-2. Camden County Annual Air Emissions Inventory (Year 2017)

Source Category	Air Pollutant Emissions (tons per year)						CO ₂ e (metric tons)
	CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	
Camden County Emissions	18,773	2,335	1,313	587	30	22,806	623,744

Source: (USEPA, 2022b)

Notes: ¹ VOCs and NO_x are precursors to the formation of ozone.

Key: CO = carbon monoxide; NO_x = nitrogen oxides; PM₁₀ = suspended particulate matter less than or equal to 10 micrometers in diameter; PM_{2.5} = particulate matter less than or equal to 2.5 micrometers in diameter; SO₂ = sulfur dioxide; VOC = volatile organic compound.

For stationary sources, the installation is a Title V major source of volatile organic compounds (VOCs), CO, NO_x, SO₂, PM₁₀, and HAPs emissions, and NSB Kings Bay operates under site-wide Title V Operating Permit 9711-039-0003-V-04-0 (issued 11 March 2019). Processes include but are not limited to external combustion units (boilers for steam heat and industrial use); internal combustion engines (diesel emergency generators); surface coating operations for maintenance of marine vessels, vehicles, and facilities; abrasive blasting related to marine vessel and equipment maintenance; and woodworking shops for facility maintenance, packing, and shipping.

3.1.3 Environmental Consequences

Effects on air quality are based on estimated direct and indirect emissions associated with the action alternatives. The region of influence (ROI) for assessing air quality impacts is the air basin in which the project is located, Camden County in the Jacksonville-Brunswick Interstate Air Quality Control Region.

Air Quality Potential Impacts:

- No Action Alternative: No change to existing air quality conditions.
- Alternative 1: Emissions from construction activities would be minimal, with emissions less than 10.02 tpy for all criteria pollutants. BMPs would be implemented to reduce particulate matter emissions.

3.1.3.1 No Action Alternative

Under the No Action Alternative, there would be no change to baseline air quality. Therefore, no significant impacts to air quality or air resources would occur with implementation of the No Action Alternative.

Consistent with 2023 CEQ guidance, the No Action Alternative would also include anticipated climate change effects that are expected to occur regardless of implementation of the Proposed Action. Global warming, reaching 1.5°C in the near-term, would cause unavoidable increases in multiple climate hazards and present multiple risks to ecosystems and humans. Near-term warming and increased frequency, severity and duration of extreme events will place many terrestrial, freshwater, coastal and marine ecosystems at high or very high risks of biodiversity loss. Continued and accelerating sea level rise will encroach on coastal settlements and infrastructure and commit low-lying coastal ecosystems to submergence and loss. Biodiversity loss and degradation, damages to and transformation of ecosystems are already key risks for every region due to past global warming and will continue to escalate with every increment of global warming in the mid to long-term. Climate change risks to cities, settlements and key infrastructure will rise rapidly in the mid- and long-term with further global warming, especially in places already exposed to high temperatures, along coastlines, or with high vulnerabilities. Climate change impacts and risks are becoming increasingly complex and more difficult to manage. Multiple climate hazards will occur simultaneously, and multiple climatic and non-climatic risks will interact, resulting in compounding overall risk and risks cascading across sectors and regions. Some responses to climate change result in new impacts and risks (IPCC, 2022).

3.1.3.2 Alternative 1 (Proposed Action)

The impact analysis includes a quantitative assessment of air quality impacts from emissions released from the construction and subsequent operational activities associated with the Proposed Action. This analysis quantified, to the extent possible, emissions from the various components comprising the action alternative and summed the emissions in tpy emitted from the construction activities of all components during each calendar year for an annual total. Construction emissions were estimated using the Air Conformity Applicability Model (ACAM), developed by the Air Force Civil Engineer Center and Solutio Environmental. The ACAM is a tool for estimating criteria pollutant emissions and GHG emissions. HAPs emissions were not quantified as the activities analyzed involve mobile sources primarily operating on a discontinuous basis around NSB Kings Bay. Emissions associated with construction would be minor, discontinuous, and temporary. For these reasons, HAPs were not carried forward in the air quality analysis. For this analysis, project-specific data were used in the model (as provided in Section 2.3.2), when available.

Based on industry standards, the ACAM estimates the total number of days and the number of hours per day that each type of equipment would be used. Assumptions and model inputs are located within the modeling calculations provided in Appendix A. Estimated annual air pollutant emissions from construction activities under the Proposed Action are presented in **Table 3.1-3**.

Because the area is in attainment for all criteria pollutants, the General Conformity thresholds are not applicable. However, the *de minimis* thresholds are provided for comparative purposes. There are no applicable or relevant thresholds for GHG emissions.

Emissions from construction activities would be minimal, with emissions less than 10.02 tpy for all criteria pollutants. Further, best management practices (BMPs) suggested by USEPA to reduce particulate matter emissions could be incorporated, such as the following:

- covering or watering piles and/or access roads
- limiting the speed of grading and earth moving equipment to 15 miles per hour or less
- operating water trucks for stabilization of surfaces under windy conditions
- installing wind fencing
- phasing grading operations

Table 3.1-3. Estimated Annual Air Pollutant Emissions from Construction Activities Under the Proposed Action

Component	Air Pollutant Emissions (tpy)							CO ₂ e (MT)
	CO	NO _x ¹	PM ₁₀	PM _{2.5}	SO _x	VOC ¹	Pb	
Proposed Action	4.49	3.41	10.02	0.13	0.01	1.97	0.00	928
<i>De Minimis</i> Threshold	100	100	100	100	100	100	25	NA
Exceedance?	No	No	No	No	No	No	No	NA

Source: Emissions are estimated using Air Conformity Applicability Model 5.0.18a (Air Force Civil Engineer Center, 2022).

Notes: ¹ VOCs and NO_x are precursors to the formation of ozone.

Key: CO₂e = carbon dioxide equivalents; CO = carbon monoxide; MT = metric tons; NA = Not Applicable; NO_x = nitrogen oxides; Pb = lead; PM₁₀ = suspended particulate matter less than or equal to 10 micrometers in diameter; PM_{2.5} = particulate matter less than or equal to 2.5 micrometers in diameter; SO_x = sulfur oxides; VOC = volatile organic compound.

None of the estimated air pollutant emissions would result in significant air quality impacts in Camden County for the years when the Proposed Action construction activities would occur. The analysis assumed a conservative scenario in which all construction would occur in the same calendar year. In reality, the construction would be phased over approximately five years, and actual annual emissions would be lower. The new buildings, once operational, would also be sources of air pollution, though the emissions are expected to be minor. Once specific equipment for the facilities is known, they would require evaluation to verify exemption and/or inclusion as a permitted source in the installation’s Title V permit. Comfort heating boilers and emergency generators at these facilities would be similar to those at similarly sized facilities on the installation that have been in operation for many years. It is not likely that any emissions associated with new facilities would cause or contribute to any exceedance of the NAAQS or other regulatory thresholds.

The construction portion of the Proposed Action would mainly include mobile source operations that would not require Georgia Department of Natural Resources (GA DNR) air permits. Any other potential operations, such as the demolition of the Building 5055 Paint Booth and use of paints, solvents, and abrasive cleaners in the proposed Building 5073 Hull Cleaning Shop, would undergo review to ensure

that they would comply with applicable GA DNR rules and permitting regulations, and the permit would be updated accordingly. For all equipment subject to 40 CFR part 60, *Standards of Performance for New Stationary Sources*, the Permittee shall comply with the applicable provisions of 40 CFR part 60, Subpart A, *General Provisions*. Because these types of stationary sources are already included in the NSB Kings Bay Title V Air Operating Permit (No. 9711-039-0003-V-04-0), it is anticipated that only minor revisions and updates to the permit would be required to include new sources and remove those taken out of service. It is assumed that much of the emissions from the use of paints, solvents, and abrasive materials would be similar in scope to those in previous years, and any increase in emissions would be small and incremental. There would be no significant impacts to air quality as a result of the Proposed Action.

General Conformity

As presented in **Tables 3.1-2** and **3.1-3**, emissions of all criteria pollutants would not exceed the 100 tpy *de minimis* threshold for General Conformity for the Proposed Action. Regardless, the Proposed Action is exempt from Conformity because Camden County is in attainment for all criteria pollutants.

Greenhouse Gases

GHG emissions for the Proposed Action have been estimated at 928 metric tpy for construction activities. These emissions would be temporary, only lasting the duration of the construction, demolition, and renovation process, and would not be repeated on an annual basis.

In accordance with the recently released CEQ guidance, the SC-GHG was also calculated for the Proposed Action. The SC-GHG estimates provide an aggregated monetary measure (in U.S. dollars) of the future stream of damages associated with an incremental metric ton of emissions and associated physical damages (e.g., temperature increase, sea-level rise, infrastructure damage, human health effects) in a particular year. **Table 3.1-4** provided the range of projected SC-GHG (in 2020 dollars) from 2020 to 2050 at the Interagency Working Group on SC-GHG's suggested range of discount rates. Values are the average across models and socioeconomic emissions scenarios for each of three discount rates (2.5 percent, 3 percent, and 5 percent), plus a fourth value, selected as the 95th percentile of estimates based on a 3 percent discount rate. The fourth value was included to represent higher-than-expected economic impacts from climate change further out in the tails of the SC-GHG distribution.

Table 3.1-4. SC-GHG Estimate for the Proposed Action (Alternative 1)

<i>Discount Rate and Statistic</i>				
<i>Emissions</i>	<i>5%</i>	<i>3%</i>	<i>2.50%</i>	<i>3%</i>
<i>Year</i>	<i>Average (in \$)</i>	<i>Average (in \$)</i>	<i>Average (in \$)</i>	<i>95th Percentile (in \$)</i>
2025	12,992	47,328	70,528	141,056
2030	15,776	51,968	77,024	156,832
2035	17,632	57,536	82,592	173,536
2040	20,416	62,176	89,088	191,168
2045	23,200	67,744	95,584	208,800
2050	25,984	73,312	102,080	224,576

The social cost of emissions during construction would range from approximately \$13,000 to \$160,000. Further, some of these emissions may be mitigated through implementation of construction best management practices, such as limiting idling time and spraying and/or covering unpaved roads and piles.

Climate change presents a global problem caused by increasing concentrations of GHG emissions. While the emissions generated from the construction and operations associated with the Proposed Action at NSB Kings Bay alone would not be enough to cause global warming, in combination with past and future emissions from all other sources they would contribute incrementally to the global warming that produces the adverse effects of climate change. Design and construction standards would be implemented into the proposed facilities in order to work toward the Navy’s objective of achieving 50-percent reduction in GHG emissions from buildings by 2032 (DON, 2022). USEPA and Georgia Environmental Protection Division (GA EPD) require GHG permits only for the largest emitters. Typically, only very large facilities such as power plants and refineries reach the thresholds necessary. Given the minor amount of GHG emissions and compliance with the Navy’s Climate Action plan there would be no significant impacts.

3.2 Water Resources

This discussion of water resources includes groundwater, surface water, wetlands, and floodplains (Table 3.2-1).

Table 3.2-1. Definition and Description of Water Resources

<i>Water Resource Type</i>	<i>Definition/Description</i>
Groundwater	Groundwater is water that flows or seeps downward and saturates soil or rock, supplying springs and wells. Groundwater is used for water consumption, agricultural irrigation, and industrial applications. Groundwater properties are often described in terms of depth to aquifer, aquifer or well capacity, water quality, and surrounding geologic composition. Sole source aquifer designation provides limited protection of groundwater resources which serve as drinking water supplies.
Surface Water	Surface water resources generally consist of wetlands, lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. A Total Maximum Daily Load (TMDL) is the maximum amount of a pollutant that can be assimilated by a water body without causing

Water Resource Type	Definition/Description
	impairment. A water body can be deemed impaired if water quality analyses conclude that exceedances of water quality standards occur.
Wetlands	Wetlands are jointly defined by USEPA and U.S. Army Corps of Engineers (USACE) as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Wetlands generally include “swamps, marshes, bogs and similar areas.”
Floodplains	Floodplains are areas of low-level ground present along rivers, stream channels, large wetlands, or coastal waters. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater recharge, and nutrient cycling. Floodplains also help to maintain water quality and are often home to a diverse array of plants and animals. In their natural vegetated state, floodplains slow the rate at which the incoming overland flow reaches the main water body. Floodplain boundaries are most often defined in terms of frequency of inundation, that is, the 100-year and 500-year flood. Floodplain delineation maps are produced by the Federal Emergency Management Agency and provide a basis for comparing the locale of the Proposed Action to the floodplains.

3.2.1 Regulatory Setting

Table 3.2-2 provides a description of the existing regulatory environment for water resources at NSB Kings Bay, Georgia.

Table 3.2-2. Regulatory Setting for Water Resources

Law, Regulation, or Guidance
The Safe Drinking Water Act (SDWA) is the federal law that protects public drinking water supplies throughout the nation. Under the SDWA, the USEPA sets standards for drinking water quality. Groundwater quality and quantity are regulated under several statutes and regulations, including the SDWA.
The Clean Water Act (CWA) establishes federal limits, through the National Pollutant Discharge Elimination System (NPDES) program, on the amounts of specific pollutants that can be discharged into surface waters 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 nonpoint sources (i.e., stormwater) of water pollution.
The Georgia NPDES stormwater program requires construction site operators engaged in clearing, grading, and excavating activities that disturb one acre or more to obtain coverage under an NPDES Construction General Permit for stormwater discharges. Construction or demolition that necessitates an individual permit also requires preparation of a Notice of Intent to discharge stormwater and a Stormwater Pollution Prevention Plan that is implemented during construction. As part of the 2010 Final Rule for the CWA, titled <i>Effluent Limitations Guidelines and Standards for the Construction and Development Point Source Category</i> , activities covered by this permit must implement non-numeric erosion and sediment controls and pollution prevention measures.
Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredge or fill into wetlands and other Waters of the United States. Any discharge of dredge or fill into Waters of the United States requires a permit from the USACE. Wetlands are currently regulated by the USACE under Section 404 of the CWA as a subset of all “Waters of the United States.” Waters of the United States are defined as (1) traditional navigable waters, (2) wetlands adjacent to navigable waters, (3) non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow perennially or have continuous flow at least seasonally (e.g., typically three months), and (4) wetlands that directly abut such tributaries.
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 (SF) 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.”

<i>Law, Regulation, or Guidance</i>
EO 11990, <i>Protection of Wetlands</i> , requires that federal agencies adopt a policy to avoid, to the extent possible, long- and short-term adverse impacts associated with destruction and modification of wetlands and to avoid the direct and indirect support of new construction in wetlands whenever there is a practicable alternative.
EO 11988, <i>Floodplain Management</i> , 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, which is defined as the area that has a one percent chance of inundation by a flood event in a given year.
EO 13690, <i>Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input</i> , amends EO 11988 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.
The Coastal Zone Management Act of 1972 (CZMA) provides assistance to states, in cooperation with federal and local agencies, for developing land and water use programs in coastal zones. Actions occurring within the coastal zone commonly have several resource areas that may be relevant to the CZMA. The Navy provides a Coastal Consistency Determination to address the Proposed Action’s impact on the coastal zone. Further information on the CZMA and the Coastal Consistency Determination are provided in Appendix E.

3.2.2 Affected Environment

The following discussions provide a description of the existing conditions for each of the categories of water resources at NSB Kings Bay.

3.2.2.1 Groundwater

Three sources provide fresh groundwater in the Kings Bay area: the water table (surficial) aquifer, the secondary artesian aquifer, and the primary artesian aquifer. The water table aquifer is primarily used for irrigation; the primary artesian aquifer serves the public water supply; and the secondary aquifer is not widely used because of its extremely variable water yield (i.e. the amount of water available for use) (NSB Kings Bay, 2018a). Groundwater at NSB Kings Bay is acidic, which contributes to the premature corrosion of some buried utilities. Three 900-foot-deep wells provide potable water for the base. The NSB Kings Bay water treatment plant treats the groundwater pumped from the three wells on-base to remove organics and hardness from the drinking water (NSB Kings Bay, 2015; NSB Kings Bay, 2021a).

NSB Kings Bay releases the water quality results from its groundwater wells for potable use on an annual basis in compliance with the Georgia Drinking Water Standards. The results also inform the public about its water consumption and efforts to minimize the need for withdrawals of groundwater supplies. According to the 2021 Community Confidence Report (which presents the quality of water provided to consumers from the Kings Bay Community Water System), the drinking water at NSB Kings Bay meets all regulatory standards (NSB Kings Bay, 2022). In addition, September 2021 groundwater data collected from six groundwater monitoring wells and analyzed for total and dissolved metals, nutrients, selected organics, oil, and grease indicated none of the detected constituents exceeded maximum contaminant levels for drinking water (NSB Kings Bay, 2021a).

3.2.2.2 Surface Water

Major surface water bodies on and adjacent to the installation include the North River, Crooked River, East River, Cumberland Sound, Kings Bay, and Marianna and Mill Creeks (**Figure 3.2-1**). Other surface

water bodies at NSB Kings Bay include approximately 300 acres of open water (13 manmade ponds totaling 175 acres, 60 acres of estuarine waters, and 75 acres of other lakes/ponds), wetland areas, and a series of open ditches to convey stormwater (NSB Kings Bay, 2018; NSB Kings Bay, 2015). The freshwater ponds are all located on the western portion of the installation, are manmade, and were either initially intended for stormwater retention or drained and re-created as freshwater fisheries.

Section 303(d) of the CWA requires that Georgia establish a list of impaired waters and establish TMDLs for the sources causing the impairment. Georgia Environmental Protection Division (GA EPD) determines whether a water body is supporting its designated uses by collecting water quality data and comparing this data against the water quality criteria. If it is determined that a water body is not supporting its designated use, then GA EPD will typically develop a TMDL as the start of the process of restoring the water body. All water bodies proximate to NSB Kings Bay are identified by the GA EPD as supporting their respective designated uses, and none are identified as impaired water bodies (GA EPD, 2022).

In 2022, the USEPA reported that the Cumberland Sound was in “good” condition and was not included on the State’s 303(d) list (USEPA, 2022c). The overall water quality assessment of the Crooked River in 2022 was also “good” (USEPA, 2022d).

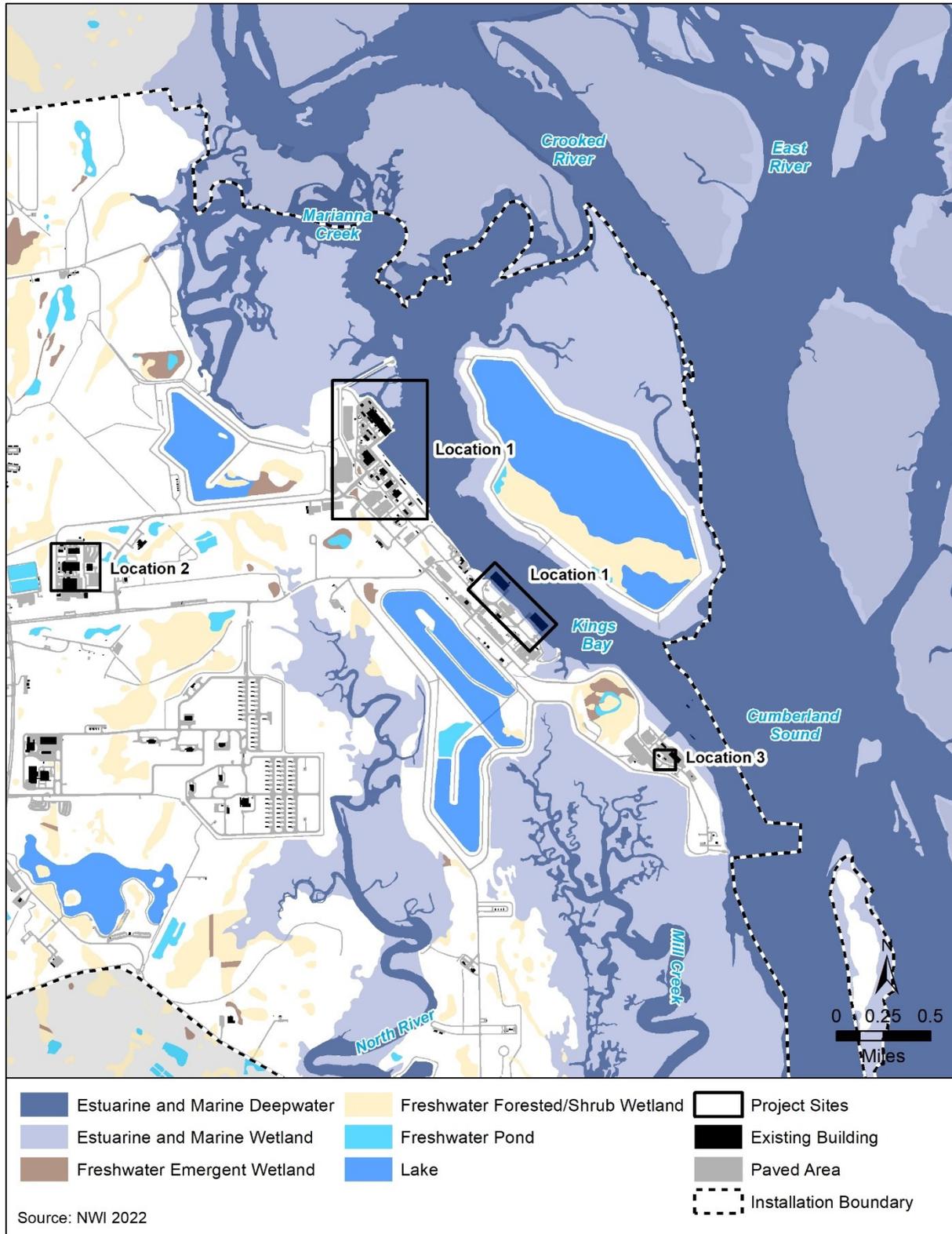


Figure 3.2-1. Water Resources at NSB Kings Bay and Surrounding Areas

For the last 21 years (1999–2021, with exception of 2000), estuarine water and sediment data have been collected from sites on the Crooked River, Kings Bay, and Cumberland Sound, and surface water runoff was collected from streams that discharge from NSB Kings Bay. In October 2021, samples were collected and analyzed as follows:

- estuarine water and surface water: analyzed for metals, nutrients, selected organics, biochemical oxygen demand, total coliform, and fecal coliform; and
- estuarine sediment: analyzed for total metals, nutrients, selected organics, percent moisture, and oil and grease.

In general, the results have been consistent over the 21-year period, and there are no noteworthy trends or observations in the data (NSB Kings Bay, 2021b).

The land development activities at NSB Kings Bay have altered the natural hydrology in favor of stormwater management by diverting runoff from roofs and paved areas to drainage pipes, ditches, and stormwater ponds for the purpose of reducing volume and increasing water quality before discharging into the natural surface water bodies. The majority of stormwater at NSB Kings Bay is conveyed by overland flow, open drainage systems, and culverts under roadways. Underground storm sewers are only common along the waterfront area. A large system of open drainage swales conveys stormwater runoff into manmade retention ponds that help control the quality and quantity of stormwater before it is discharged into surrounding estuaries. The majority of the drainage swales are vegetated; however, there are a few concrete-lined drainage swales on the installation (NSB Kings Bay, 2017). Stormwater controls and BMPs are outlined in the installation’s SWPPP (NSB Kings Bay, 2018b).

3.2.2.3 Wetlands

Salt marsh wetlands (also known as estuarine wetlands) are the largest wetland community type found on NSB Kings Bay (**Figure 3.2-1**). Salt marsh communities cover approximately 30 percent of the NSB Kings Bay property. These wetlands form a continuous border along the edges of the estuaries extending into the mouths of creeks and rivers as far upstream as the zone of tidal influence extends. Salt marshes are an important component of the ecosystem in this area because they provide important functions that include shoreline stabilization, storm buffering, water quality improvement, nutrient cycling, and wildlife habitat for a wide variety of species and uses (including nesting and nursery grounds, forage areas, and cover/protection from predation). Most of these areas are dominated by perennial grasses and brushes (NSB Kings Bay, 2018a; USFWS, 2022).

3.2.2.4 Floodplains

Low existing ground elevations mean that much of the coastal side of NSB Kings Bay is susceptible to flooding during a 100-year storm event. **Figure 3.2-2** shows the extent of the 100-year and 500-year floodplain at NSB Kings Bay.

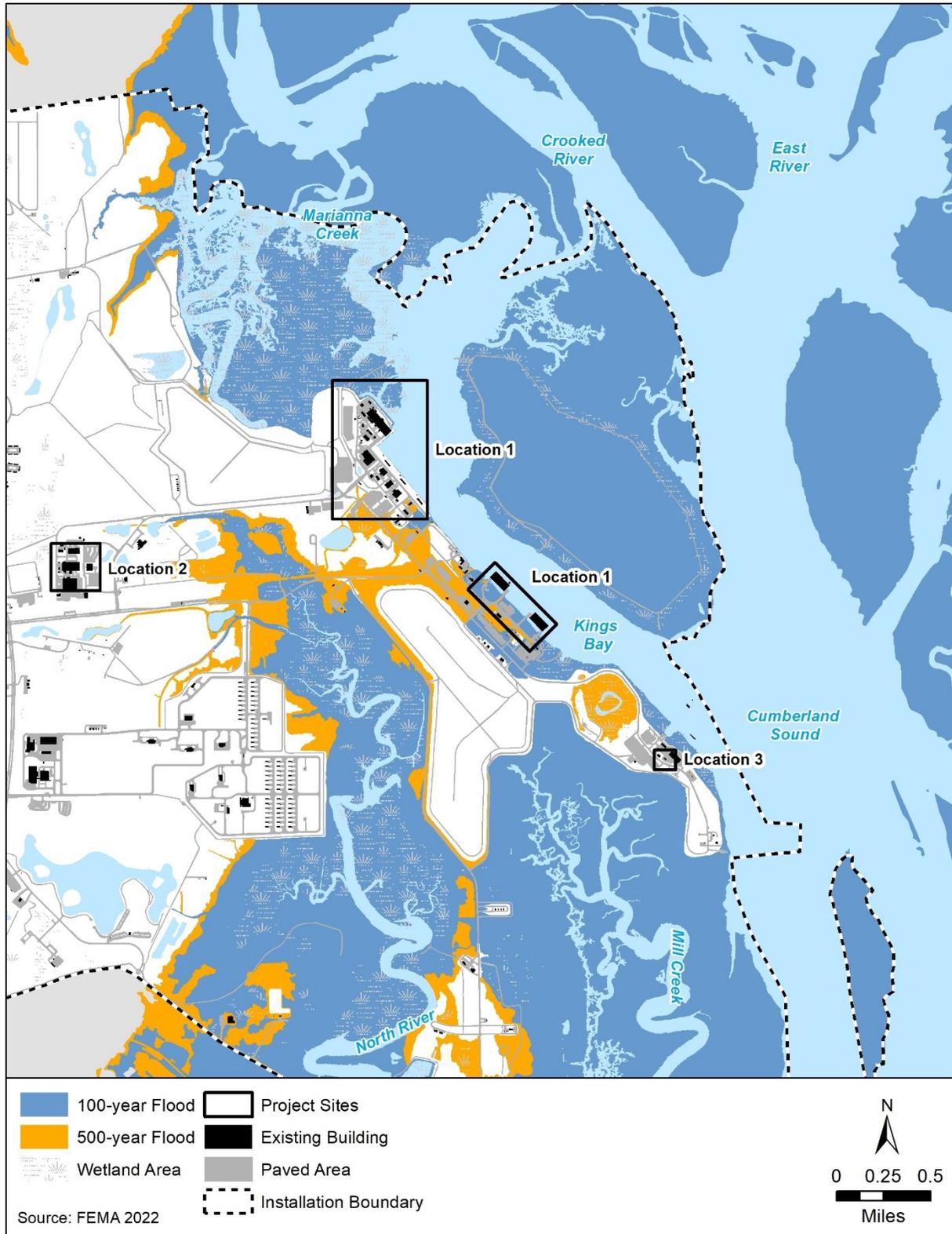


Figure 3.2-2. Floodplains on NSB Kings Bay and Surrounding Areas

3.2.3 Environmental Consequences

The analysis of water resources looks at the potential impacts on groundwater, surface water, wetlands, and floodplains. Groundwater analysis focuses on the potential for impacts to the quality, quantity, and accessibility of the water. The analysis of surface water quality considers the potential for impacts that may change the water quality, including both improvements and degradation of current water quality. The assessment of wetlands considers the potential for impacts that may change the local hydrology, soils, or vegetation that support a wetland. The analysis of floodplains considers if any new construction is proposed within a floodplain or may impede the functions of floodplains in conveying floodwaters.

Water Resources Potential Impacts:

- No Action Alternative: No change to existing water resources conditions.
- Alternative 1: No impacts to groundwater, wetlands, or floodplains. No CWA Section 404 permitting required. All stormwater would continue to be managed under existing permits and additional construction permits as necessary.

3.2.3.1 No Action Alternative

Under the No Action Alternative, there would be no change to existing water resources conditions. Therefore, no impacts to water resources would occur with implementation of the No Action Alternative.

3.2.3.2 Alternative 1 (Proposed Action)

The study area for the analysis of effects to water resources associated with the Proposed Action includes the three project locations (see Figures 2.3-2, 2.3-3, 2.3-4, and 2.3-5).

Groundwater

Construction, modification, and demolition projects, as described in Section 2.3.2, would all be sited on previously disturbed areas and no construction-related or ground disturbing activities would encounter groundwater. The underlying groundwater aquifers, as described in Section 3.2.2.1, would not be impacted by implementation of the Proposed Action and there would not be any increases in risk of groundwater pollutants at NSB Kings Bay. Therefore, no impacts to groundwater from the implementation of the Proposed Action are expected.

Surface Water

Under the Proposed Action, none of the construction, modification, or demolition projects involve any in-water construction work. Therefore, no additional permitting for Section 404 of the CWA would be required and impacts to surrounding water quality (i.e., Crooked River and Kings Bay) would not be expected.

Construction activities would create additional impervious surfaces at NSB Kings Bay which would increase the amount of stormwater runoff. However, the stormwater drainage system has enough capacity to meet the existing flows and those of new required facilities (NSB Kings Bay, 2018b). BMPs would be incorporated as part of the Proposed Action during construction and later operationally to

minimize erosion, runoff, and sedimentation, consistent with the installation's SWPPP. Additionally, construction projects that would result in more than one acre of ground disturbing activities would require a NPDES Construction General Permit. The construction contractor would obtain coverage under the Construction General Permit, prepare a construction-specific SWPPP, and implement construction-specific BMPs. All other stormwater would be managed under the NSB Kings Bay NPDES General Permit for Storm Water Discharges Associated with Industrial Activity (IGP), Permit No. GAR050000.

Therefore, implementation of the Proposed Action is not expected to result in significant impacts to surface water resources.

Wetlands

No construction, modification, or demolition projects, as described in Section 2.3.2, would be located within designated wetland areas at NSB Kings Bay. Additionally, the projects associated with the Proposed Action would not change the local hydrology, soils, or vegetation that support the wetland areas on NSB Kings Bay. Therefore, implementation of the Proposed Action is not expected to result in any impacts to the wetlands resource.

Floodplains

No construction, modification, or demolition projects, except for the EHWs in Location 1, as described in Section 2.3.2, would be located within designated 100-year or 500-year floodplain areas at NSB Kings Bay. The modification of the EHWs involves upgrades of existing pipes and will not change the footprint of the existing EHWs. Further, none of the projects associated with the Proposed Action would impede the functions of the floodplains in conveying floodwaters in a natural vegetated state or change the rate at which the incoming overland flow reaches the main water body. Therefore, there would be no impacts to floodplains from implementation of the Proposed Action.

Overall, implementation of the Proposed Action is not expected to result in significant impacts to water resources.

3.3 Cultural Resources

This discussion of cultural resources includes prehistoric and historic 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 (prehistoric and historic) are locations where human activity measurably altered the earth or left deposits of physical remains.
- Architectural resources include standing buildings, structures, landscapes, and other built-environment resources of historic or aesthetic significance.
- Traditional cultural properties 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.

3.3.1 Regulatory Setting

Cultural resources are governed by various federal laws and regulations, including the National Historic Preservation Act (NHPA), Archeological and Historic Preservation Act, American Indian Religious Freedom Act, Archaeological Resources Protection Act of 1979, and the Native American Graves Protection and Repatriation Act of 1990. Federal agencies' responsibility for protecting historic properties is defined primarily by sections 106 and 110 of the NHPA. Section 106 requires federal agencies to take into account 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.

3.3.2 Affected Environment

Cultural resources listed in the National Register of Historic Places (NRHP) or eligible for listing in the NRHP are “historic properties” as defined by the NHPA. The list was established under the NHPA and is administered by the National Park Service (NPS) on behalf of the Secretary of the Interior. The NRHP includes properties on public and private land. Properties can be determined eligible for listing in the NRHP by the Secretary of the Interior or by a federal agency official with concurrence from the applicable State Historic Preservation Office (SHPO). A NRHP-eligible property has the same protections as a property listed in the NRHP. The historical properties include archaeological and architectural resources.

To guide the determination of eligibility of properties for inclusion in the NRHP, the NPS has developed the NRHP Criteria for Evaluation (36 CFR Part 60.4). The criteria are standards by which every property is evaluated for listing in the NRHP. In order to qualify for listing in the NRHP, the site, building, structure, and/or object must possess integrity of location, design, setting, material, workmanship, feeling, and association, and meet at least one of the following four criteria defined by the NPS:

- Criterion A: Are associated with events that have made a significant contribution to the broad patterns of our history; or
- Criterion B: Are associated with the lives of persons significant in our past; or
- Criterion C: Embody the distinctive characteristics of a type, period, or method of construction or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D: Have yielded, or may be likely to yield, information important in prehistory or history.

Archaeological sites are primarily assessed under Criterion D. Buildings less than 50 years old do not meet the NRHP criteria unless they are of exceptional importance under Criterion Consideration G, as described in NPS Bulletin No. 22, *How to Evaluate and Nominate Potential National Register Properties That Have Achieved Significance Within the Last 50 Years*.

The Navy has conducted inventories of cultural resources at NSB Kings Bay to identify historical properties that are listed or potentially eligible for listing in the NRHP (NSB Kings Bay, 2014).

The area of potential effect (APE) for cultural resources is the geographic area or areas within which an undertaking (project, activity, program, or practice) may cause changes in the character or use of any historic properties present. The APE is influenced by the scale and nature of the undertaking and may be different for various kinds of effects caused by the undertaking. For this Proposed Action, the Navy determined that the APE encompasses the areas where ground disturbing activities, including new construction, building renovations and modifications, and building demolitions would occur (i.e., the project areas).

3.3.2.1 Archaeological Resources

NSB Kings Bay maintains an Integrated Cultural Resources Management Plan (ICRMP) to aid in management of cultural resources on the installation in accordance with appropriate federal laws and other applicable Navy regulations (NSB Kings Bay, 2014). The ICRMP is a five-year planning and management tool that outlines installation policies and procedures for the protection, management, and preservation of cultural resources including historic properties, and for integrating cultural resources management into the overall base planning process.

Cultural resource surveys completed at NSB Kings Bay from 1975 through 2012 resulted in the identification of 54 archaeological sites. Of these sites, 35 are considered eligible for listing in the NRHP (NSB Kings Bay, 2014).

3.3.2.2 Architectural Resources

The majority of architectural resources at NSB Kings Bay were built during the Cold War era from 1946 to 1991. An architectural survey conducted in June 2022 recorded 132 buildings constructed at NSB Kings Bay during the Cold War and Post-Cold War era and provided evaluations of eligibility for listing in the NRHP (ERG, 2022). The majority of the resources are less than 50 years of age and, therefore, were evaluated for inclusion in the NRHP using Criteria Consideration G, which requires a resource to possess exceptional significance. Of the 132 resources surveyed, 13 were recommended eligible for listing in the NRHP (Buildings 1065, 4026–4031, 4033, 5060, 5066, 5085, 5092, and 6003). The TRF Mainside Campus was recommended as eligible for listing in the NRHP as a historic district with seven contributing buildings (Buildings 4026–4031 and 4033) (ERG, 2022). Architectural resources are identified for the project areas in **Figures 3.4-1, 3.4-2, and 3.4-3**.

3.3.2.3 Traditional Cultural Properties

To date, no traditional cultural properties or Native American sacred places have been identified at NSB Kings Bay (NSB Kings Bay, 2014). The ICRMP identifies ten federally recognized Tribal Nations that may be historically, culturally, or linguistically affiliated with the area. These Tribal Nations are Cherokee Nation in Oklahoma; Eastern Band of the Cherokee Nation; Chickasaw Nation; Choctaw Nation of Oklahoma; Miccosukee Tribe of Indians of Florida; Muscogee (Creek) Nation of Oklahoma; Seminole Nation of Oklahoma; Seminole Tribe of Florida; Thlopthlocco Tribal Town; and United Keetoowah Band of Cherokee Indians in Oklahoma (NSB Kings Bay, 2014). See Appendix D for all government-to-government correspondence.

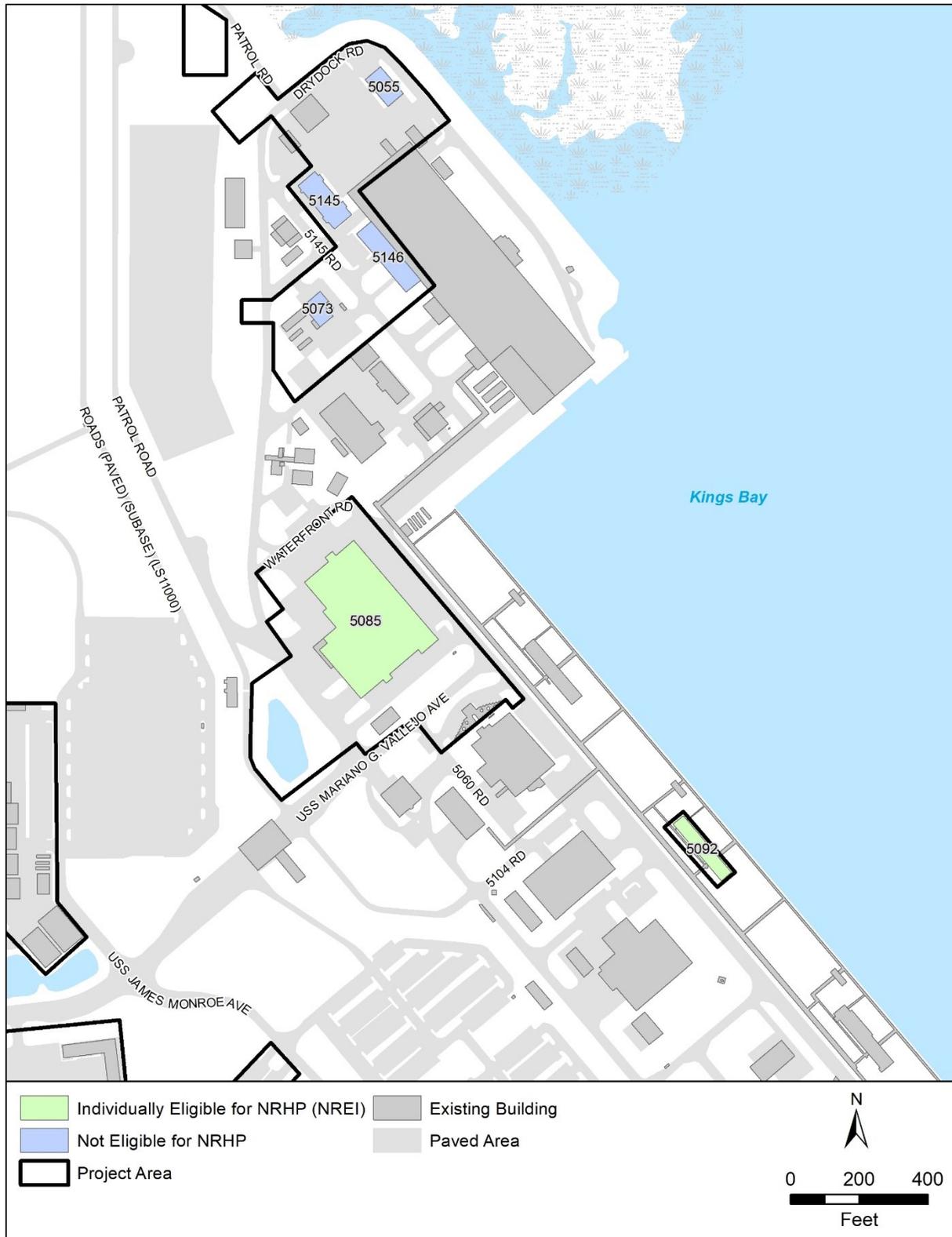


Figure 3.4-1. Architectural Resources in Location 1

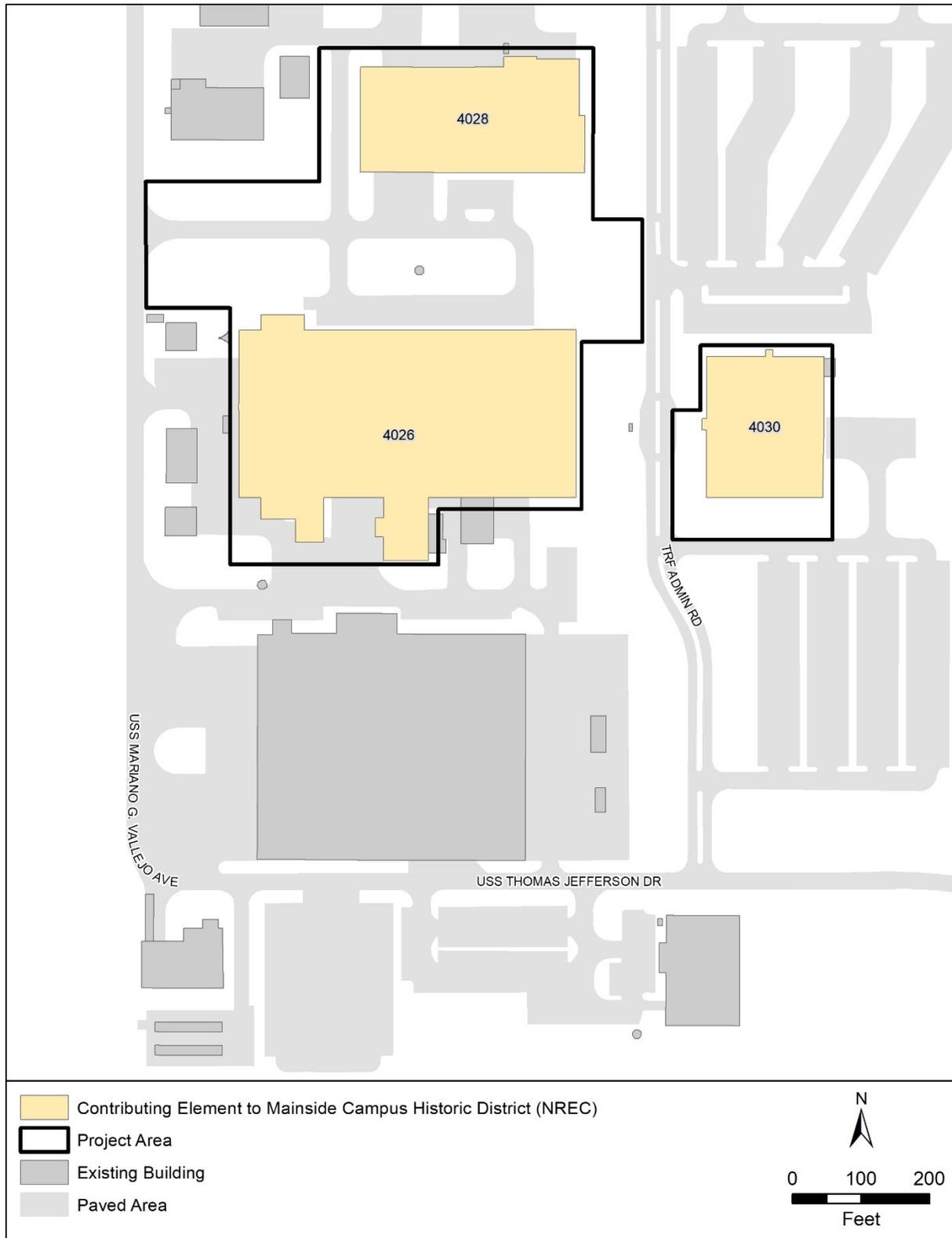


Figure 3.4-2. Architectural Resources in Location 2

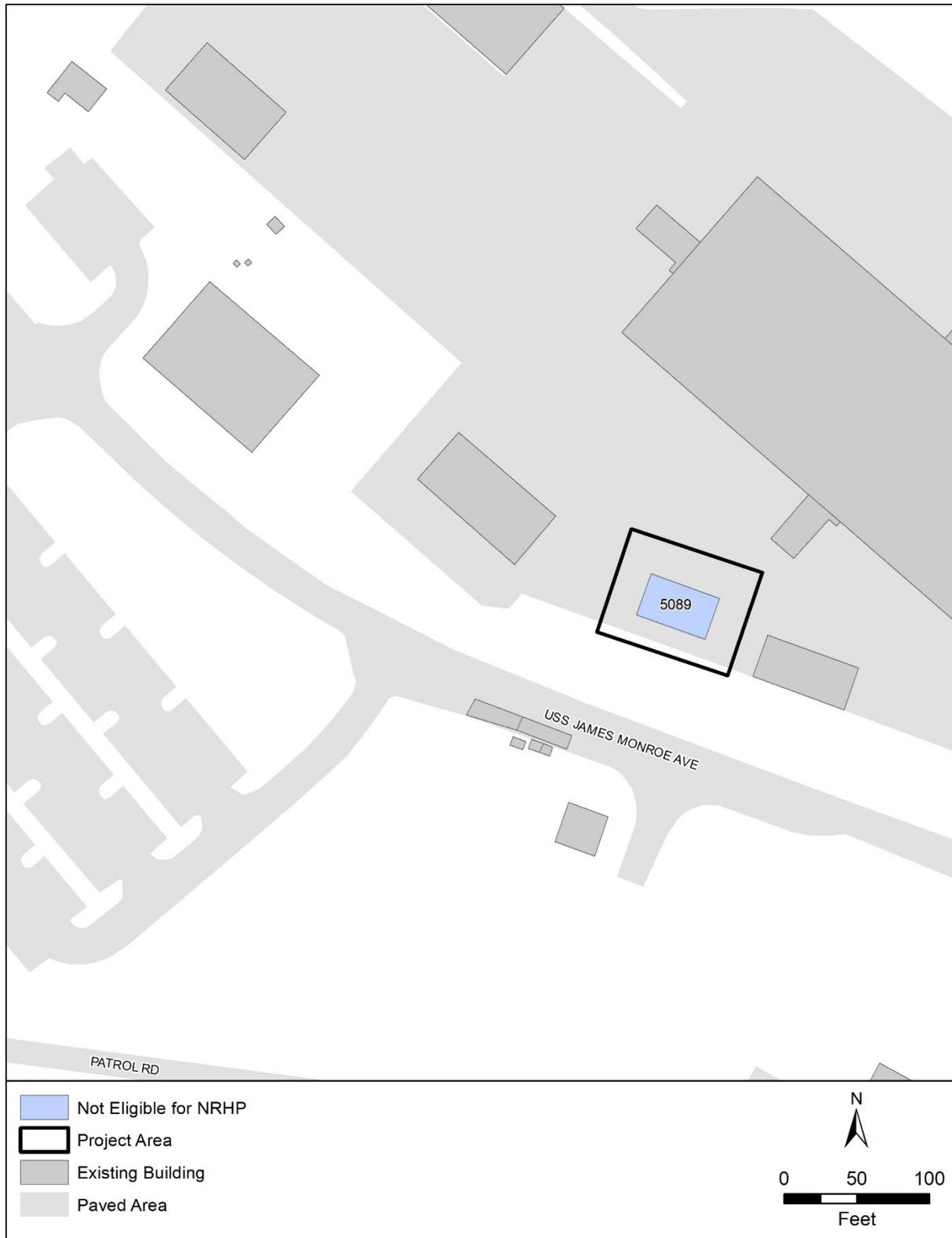


Figure 3.4-3. Architectural Resources in Location 3

3.3.3 Environmental Consequences

Cultural resources are subject to review under both federal and state laws and regulations. Section 106 of the NHPA empowers the Advisory Council on Historic Preservation to comment on federally initiated, licensed, or permitted projects affecting cultural sites listed or eligible for inclusion on the NRHP. Once cultural resources have been identified, significance evaluation is the process by which resources are assessed relative to significance criteria for scientific or historic research, for the general public, and for traditional cultural groups. Only cultural resources determined to be significant (i.e., eligible for listing in the NRHP) are protected under the NHPA.

Cultural Resources Potential Impacts:

- No Action Alternative: No change to existing cultural resources.
- Alternative 1: No archaeological resources present in the project area. Proposed Action would not diminish or adversely affect the significance or integrity of the Mainside Campus Historic District.

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 Proposed Action 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.

3.3.3.1 No Action Alternative

Under the No Action Alternative, there would be no change to cultural resources. Therefore, no significant impacts to cultural resources would occur with implementation of the No Action Alternative.

3.3.3.2 Alternative 1 (Proposed Action)

The Proposed Action includes new construction, building demolitions and building modifications at three locations at NSB Kings Bay (see Figures 2.3-2, 2.3-3, 2.3-4, and 2.3-5). Additional paving and site improvements include retaining walls, roadways, asphalt and concrete pavement, parking, sidewalks, equipment pads, sodding/grassing, and pedestrian and bicycle features. The entirety of the three project locations have been surveyed for archaeological resources (NSB Kings Bay, 2014). There are no NRHP-eligible or listed archaeological sites within or in the vicinity of these locations, therefore, it is not expected that undiscovered archaeological resources would be found during implementation of the Proposed Action at NSB Kings Bay. However, in the event of an inadvertent discovery during ground disturbing operations, the following specific actions would occur. The Project Manager would cease work immediately and the discovery would be reported to the NSB Kings Bay Cultural Resources Manager. The Cultural Resources Manager would secure the location and ensure that all cultural items are left in place and that no further disturbance is permitted to occur. The Cultural Resources Manager would then contact a qualified archaeologist to inspect the site and would continue to follow Standard

Operating Procedure No. 5, *Inadvertent Discoveries*, as outlined in the NSB Kings Bay ICRMP (NSB Kings Bay, 2014).

As listed in **Table 3.3-1** and shown in **Figures 3.3.-1, 3.3-2, and 3.3-3**, ten architectural resources are included in the implementation of Alternative 1. Implementation of the Proposed Action would involve the interior modification of four buildings (Buildings 5145, 5146, 4030, and 5089). Buildings 5145, 5146, and 5089 are not eligible for listing in the NRHP. Building 4030 was recommended eligible as a contributing building to the Mainside Campus Historic District. However, interior modifications to Building 4030 would consist of the demolition and reconstruction of interior walls; heating, ventilating, and air conditioning upgrades; and electrical upgrades, which would not adversely affect the building's integrity or historical significance (ERG, 2022).

Implementation of the Proposed Action includes construction and modification to four buildings (Buildings 4026, 4028, 5085, and 5092). Buildings 4026 and 4028 are recommended eligible for the NRHP as contributing buildings to the Mainside Campus Historic District. Under Alternative 1, a Rotating Machinery Lab (RML) and covered loading and offloading area would be constructed adjacent to Building 4026. Building 4028 would be expanded by approximately 5,000 SF to accommodate an expanded Optical Shop. The Mainside Campus Historic District is eligible for listing in the NRHP under Criterion A and Criteria Consideration G, for contributions to Cold War history, rather than under Criterion C, for possessing characteristics of exceptional architectural significance. Therefore, implementation of the Proposed Action, which includes exterior building modifications, would not diminish or adversely affect the significance or integrity (and associated NRHP eligibility) of Buildings 4026 and 4028, nor of the Mainside Campus Historic District as a whole (ERG, 2022).

Buildings 5085 and 5092 are recommended individually eligible for listing in the NRHP. Under Alternative 1, additions would be constructed onto Buildings 5085 and 5092. Both buildings were recommended eligible under Criterion A and Criteria Consideration G, for contributions to Cold War history, rather than under Criterion C, for possessing characteristics of exceptional architectural significance. Therefore, implementation of the Proposed Action would not adversely affect the significance or integrity of either building. The Proposed Action would also include the demolition of two buildings (Buildings 5055 and 5073), neither of which are eligible for listing in the NRHP (ERG, 2022).

NSB Kings Bay has determined that the modification and expansion of facilities through the implementation of the Proposed Action would result in a finding of No Adverse Effect on the basis that the proposed changes are mission-critical and do not diminish the ability of the resources to convey their Cold War significance under Criterion A or Criteria Consideration G. These modifications will ensure that the strategic, nuclear-deterrent mission is an ongoing activity that promotes the retention and continued use of these buildings well into the 21st century.

No traditional cultural properties have been identified at NSB Kings Bay. Government-to-government consultation between the Navy and each federally recognized Tribal Nation associated with NSB Kings Bay was conducted for this action in recognition of their status as sovereign nations, to provide information regarding Tribal concerns per Section 106 of the NHPA, as well as information on traditional cultural properties that may be present on or near the Base. Government-to-government consultation letters were sent on April 28, 2023 to the ten federally recognized Tribal Nations with whom the NSB

Kings Bay must consult per the ICRMP (NSB Kings Bay, 2014). All consultation correspondence will be provided in Appendix D.

Therefore, implementation of the Proposed Action would not result in significant impacts to cultural resources.

NSB Kings Bay has initiated consultation with the Georgia SHPO on these findings. See Appendices C and D for all Section 106 and government-to-government consultations.

Table 3.3-1. Architectural Resources Included in the Implementation of the Proposed Action

<i>Building Number</i>	<i>Date Built</i>	<i>NRHP Eligibility</i>	<i>Type of Action</i>
4026	1985	NREC	Construction/Exterior Modification
4028	1988	NREC	Construction/Exterior Modification
4030	1986	NREC	Interior Modification
5055	1989	Not Eligible	Demolition
5073	1989	Not Eligible	Demolition
5085	1988	NREI	Construction/Exterior Modification
5089	1988	Not Eligible	Interior Modification
5092	1989	NREI	Interior Modification
5145	1989	Not Eligible	Interior Modification
5146	1990	Not Eligible	Interior Modification

Key: NRHP = National Register of Historic Places; NREC = Contributing Element to Mainside Campus Historic District; NREI = Individually Eligible for NRHP

3.4 Biological Resources

Biological resources include living, native, or naturalized plant 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 two major categories: (1) terrestrial vegetation and (2) terrestrial wildlife. Threatened, endangered, and other special-status species are discussed in their respective categories.

3.4.1 Regulatory Setting

Special-status species, for the purposes of this assessment, are those species listed as threatened or endangered under the Endangered Species Act (ESA) and species afforded federal protection under the Migratory Bird Treaty Act (MBTA) or Bald and Golden Eagle Protection Act (BGEPA).

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 of the ESA requires action proponents to consult with the U.S. Fish and Wildlife Service (USFWS) or National Oceanic and Atmospheric Administration (NOAA) Fisheries 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 is not 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 Department of Interior or Department of Commerce Secretary, provides a benefit to the species subject to critical habitat designation.

Birds, both migratory and most native-resident bird species, are protected under the MBTA, and their conservation by federal agencies is mandated by EO 13186, *Responsibilities of Federal Agencies To Protect Migratory Birds*. 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 (50 CFR 10.12). In October 2021, the USFWS announced an intent to codify the interpretation that the MBTA prohibits incidental take and to develop an approach to authorize incidental take of migratory birds (86 Federal Register 54667). The USFWS is currently gathering information to develop a proposed rule to authorize incidental take under certain prescribed conditions, and is also considering general-permit-authorization regulations for specified activities including government agency activities other than military readiness activities. However, potential regulations are tentative at this time, pending conclusion of the commenting and rulemaking process.

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are protected by the BGEPA. This act prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald eagles, including their parts, nests, or eggs. The Act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb” (50 CFR 22.6). regulations further define “disturb” as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

See Appendix E for the discussion regarding the CZMA.

3.4.2 Affected Environment

The following discussions provide a description of the existing conditions for each of the categories under biological resources at NSB Kings Bay. Threatened and endangered species are discussed in the applicable section below with a composite list of federally listed species and federal species of concern applicable to the Proposed Action provided in **Table 3.4-1**.

Table 3.4-1. Threatened and Endangered Species Known to Occur or Potentially Occurring in the ROI and Critical Habitat Present in ROI

<i>Common Name</i>	<i>Scientific Name</i>	<i>Federal Listing Status</i>	<i>State Listing Status</i>	<i>Critical Habitat Present?</i>
Wood stork	<i>Mycteria americana</i>	FT	ST	No
Eastern indigo snake	<i>Drymarchon couperi</i>	FT	ST	No
Tricolored bat	<i>Perimyotis subflavus</i>	PE	Species of Concern	Not applicable

Key: FT = federal threatened; PE = proposed for listing as endangered; ROI = region of influence; ST = state threatened.

3.4.2.1 Vegetation

Vegetation includes terrestrial plant species. The NSB Kings Bay INRMP identifies three broad vegetation communities on the installation: (1) waterfront communities (e.g., marsh communities), (2) transition

zone communities (e.g., maritime forests), and (3) inland plant communities (e.g., pine flatwoods and mixed hardwood forest) (NSB Kings Bay, 2018). The INRMP also identifies land use types that are based on operational needs and the intensity of required maintenance, including improved grounds, semi-improved grounds, unimproved grounds, and others. Improved grounds consist of areas on which landscaping and other maintenance activities are conducted for aesthetic and security purposes. Ground cover in these areas is predominantly Bermuda, Bahia, centipede, and native grasses. Semi-improved grounds are areas where landscaping and other maintenance measures are conducted to reduce erosion, control weeds and brush, and reduce fire hazards. Unimproved grounds encompass all other unpaved areas, including forested and non-forested tracts. No maintenance is conducted at these sites. Other lands include areas such as occupied buildings, streets, and parking areas.

The Proposed Action would occur at inland areas consisting of improved grounds. The project activities would be associated with existing structures, the immediately adjacent paved and vegetated areas, and new construction sites. Vegetation within or adjacent to these areas consists mostly of maintained grasses.

A total of 12 plant species designated by the State of Georgia as threatened, species of special concern, or regionally rare potentially occur on NSB Kings Bay (NSB Kings Bay, 2018). However, none of these species are known to be present on or near areas of proposed construction, demolition, or modification activities. No federally listed plant species are known to be on the installation.

Several invasive plant species occur on NSB Kings Bay. Invasive species are of concern because they have the potential to displace native species and reduce species diversity and associated wildlife habitat value. Many of these species spread rapidly through natural means (e.g., rapid seed production) and/or readily colonize disturbed sites such as exposed soils in construction areas. NSB Kings Bay addresses the spread and control of invasive species by implementing BMPs provided in the NSB Kings Bay Landscaping/Grounds Maintenance Plan. BMPs include actions such as hand removal of invasive species and herbicide application.

3.4.2.2 Terrestrial Wildlife

Wildlife includes all animal species, focusing on the species and habitat features of greatest importance or interest. Terrestrial wildlife resources that occur at NSB Kings Bay include numerous species of mammals, birds, amphibians, reptiles, and insects, and their associated habitat areas. Different land use types at the installation provide different types of wildlife habitat, with notable differences in habitat value between developed and undeveloped areas. The three project locations are highly disturbed, landscaped, or developed areas. Such areas generally provide little wildlife habitat value but may support species that are tolerant of human presence and activity, as well as other species that potentially transit the sites from more natural habitats nearby. Landscaped areas may provide food and shelter for small mammals (e.g., mice, rabbits, and squirrels), birds, and reptiles. Predatory species such as raptors may forage in landscaped areas. Few wildlife species occur in developed areas of the installation. Examples of species potentially occurring in these areas include rodents, lizards, and a small number of bird species (e.g., house sparrow [*Passer domesticus*]). Such species may use human structures for nesting, perching, and foraging.

3.4.2.3 Protected Species

Species Protected Under the Endangered Species Act

Two species listed under the ESA (wood stork [*Mycteria americana*] and eastern indigo snake [*Drymarchon couperi*]) and one species proposed for listing under the ESA (tricolored bat [*Perimyotis subflavus*]) could potentially occur near the three project locations or utilize these areas as habitat (Table 3.4-1). The ESA-listed gray bat (*Myotis grisescens*) was potentially detected during acoustic bat surveys on the installation in 2017 (LG2 Environmental Solutions, Inc., 2018). However, the survey report states that it is difficult to differentiate the calls of *Myotis* bat species and that gray bats are typically not found in coastal areas. The report indicates that gray bat occurrence would be unlikely at NSB Kings Bay and would need to be confirmed by netting surveys. The gray bat is not identified as a potentially occurring protected species in the installation INRMP and is not carried forward for further discussion in this EA.

Wood storks (*Mycteria americana*) nest in large colonies known as rookeries, using medium-to-large trees (with a preference for large cypress trees) located in wetlands or on islands surrounded by standing water. In Georgia, the nesting period begins in late winter or early spring and concludes by late summer. Preferred foraging habitats include salt marsh, tidal creeks, mudflats, and small, shallow sloughs that are tributaries to larger tidal creeks. Critical habitat has not been designated for this species.

Wood storks regularly use road-side ditches, drainage swales, and various types of wetlands on NSB Kings Bay for foraging and loafing (Depkin & Bryan, 2015). Wood storks may also roost or nest on or near the installation. Roosting refers to using a structure to sleep. Nesting consists of building a structure for the purpose of incubating eggs and rearing young. Roosting occurs at some areas of the installation, including the golf course, although the number of roosting birds is apparently low. Nesting occurs at an active rookery located at a former dredged material containment area (hereafter referred to as the “containment area”) near the southeastern installation shoreline, the center of which is located about 2,300 feet (0.44 mile) from the Site VI project location. The nesting site is surrounded by a manmade containment berm.

Primary threats to the wood stork include loss of feeding habitat, human manipulation of water levels at nesting sites, predation, and lack of nest tree regeneration. To minimize adverse impacts to nesting wood storks, USFWS has identified management zones for activities close to rookeries; these include a primary protection zone within a 500-foot radius of the center of the rookery, and a secondary protection zone within a 2,500-foot radius (USFWS, 1997).

The **eastern indigo snake** is a wide-ranging species that occurs in a variety of habitats, including flatwoods, hammocks, stream bottoms, riparian thickets, and high ground with well-drained, sandy soils. The average home range of the indigo snakes varies by season, ranging from approximately 250 acres during late summer and fall to approximately 12 acres during the winter. Indigo snakes frequently utilize gopher tortoise burrows as refugia from cold temperatures in winter, for egg laying, and for protection during shedding. Mating occurs from November through March, and eggs are laid in late

spring and hatch approximately three months later. Due to the wide-ranging nature of the indigo snake, habitat destruction and fragmentation are the primary threats to this species.

NSB Kings Bay is located within the historic range of the snake and contains suitable forage and refuge habitat such as dry pine flatwoods, sandy woodlands, and scrub habitats (NSB Kings Bay, 2018). An eastern indigo snake was sighted on the installation, near the solar energy field, in spring of 2016. Gopher tortoise burrows on the installation provide potential winter refugia for the snakes, although surveys have not documented burrow use to date. Due to the potential for this species' occurrence, NSB Kings Bay implements measures contained in the Standard Protection Measures for the Eastern Indigo Snake during applicable activities (USFWS, 2021).

The **tricolored bat** occurs across the eastern and central United States, including Georgia. During winter, these bats hibernate mostly in caves and mines, although individuals may use other structures such as culverts in areas where caves are uncommon. During spring, summer, and fall, tricolored bats occur in wooded areas where they roost primarily in trees. Individuals may also roost in buildings or under bridges. Tricolored bats feed between dusk and dawn on a variety of flying insects. Foraging typically occurs near trees (including forest edges), along waterways, and in riparian habitat. The greatest threats to the species are white-nose syndrome and mortality associated with wind energy turbine strikes.

Tricolored bats were detected during acoustic surveys conducted on NSB Kings Bay in the summer of 2017 (LG2 Environmental Solutions, Inc., 2018). The three project locations occur in areas considered to be moderately suitable bat habitat. Moderate suitability areas generally consist of mixed-use and developed sites that contain structures potentially used for roosting, such as abandoned buildings.

Migratory Birds

NSB Kings Bay is located in the USFWS-designated Bird Conservation Region (BCR) 27, Southeastern Coastal Plain (NABCI, 2022). BCRs are ecologically distinct regions in North America with similar bird communities, habitats, and management issues. BCRs are the smallest geographic scale at which Birds of Conservation Concern (BCC) have been identified, and the lists of BCC species at this scale are expected to be the most useful for governmental agencies to consider in complying with the MBTA and EO 13186. BCC are species, subspecies, and populations of migratory nongame birds that without additional conservation action are likely to become candidates for listing under the ESA (USFWS, 2021). A total of 39 migratory BCC may occur within BCR 27.

NSB Kings Bay provides habitat for numerous neotropical migratory bird species. Neotropical bird species breed in Canada and the U.S. during the summer months and during winter in Mexico, Central America, South America, or the Caribbean islands. Surveys have documented 131 species on the installation (NSB Kings Bay, 2018). During the most recent bird surveys, the numerically dominant species overall were flocking frugivores, such as the yellow-rumped warbler (*Dendroica coronata*) and American robin (*Turdus migratorius*). Other abundant species were winter residents, such as the gray catbird (*Dumetella carolinensis*), hermit thrush (*Catharus guttatus*), and eastern towhee (*Pipilo erythrophthalmus*). Of the migratory species documented on the installation, 10 are considered BCC.

Bald Eagles

Bald eagles occur year-round in Georgia but are more common during winter when nesting occurs. Typical habitat includes estuaries, lakes, reservoirs, rivers, and coastal areas. During winter, bald eagles tend to congregate near open water in trees that are used for roosting, shelter, and for spotting prey (USFWS, 2022). Suitable habitat is present on portions of NSB Kings Bay and in the surrounding area. Nesting is not known to occur on the installation (NSB Kings Bay, 2018).

3.4.3 Environmental Consequences

This analysis focuses on wildlife or vegetation types that are important to the function of the ecosystem or are protected under federal or state law or statute.

3.4.3.1 No Action Alternative

Under the No Action Alternative, there would be no change to biological resources. Therefore, no significant impacts to biological resources would occur with implementation of the No Action Alternative.

3.4.3.2 Alternative 1 (Proposed Action)

The study area for the analysis of effects to biological resources associated with the Proposed Action includes habitats and species that occur or potentially occur on and near the three project locations. Effects to biological resources could potentially occur as a result of construction, demolition, and modification activities.

Biological Resource Potential Impacts:

- No Action Alternative: No change to existing biological resources.
- Alternative 1: Impacted vegetation would consist of maintained grasses and shrubs. Impacts on wildlife habitat would be negligible. Invasive plant species are not known to be present in the affected areas. Noise and disturbance impacts on wildlife, including protected species, would be temporary and minor. Activities would not further threaten the existence of any protected species or critical habitats and would not be expected to result in take of migratory birds or bald eagles.

Vegetation

Construction, demolition, and modification activities would primarily occur on developed parcels and, to a lesser extent, improved/landscaped areas. There would be no vegetation impacts in developed areas. Construction of one facility at Location 1 would result in the removal of a small, vegetated area (refer to **Figure 2.3-2**) that consists of maintained grasses and shrubs. Wildlife habitat impacts resulting from removal of this type of vegetation would be negligible. Paving and site improvements associated with construction of other facilities (e.g., placement of structures such as retaining walls, parking areas, and roadways) could involve vegetation removal, although information on specific sites and areas affected is unavailable at this time. However, based on the locations of the actions (see **Figures 2.3-2 and 2.3-3**), affected vegetation would likely consist of maintained grasses and small herbaceous or woody shrubs. Habitat impacts resulting from the removal of a small area of such vegetation would be negligible. Invasive plant species are not known to occur in areas that would be disturbed by construction or demolition activities. With continued implementation of the Landscaping/Grounds Maintenance Plan, impacts related to invasive species would not be expected. There would be no significant impacts to vegetation under the Proposed Action.

Terrestrial Wildlife

Wildlife could be affected by noise and visual perception of activities associated with construction, demolition, and modification projects. Construction noise would generally be slightly greater than noise levels under ambient conditions. The area in which individual animals could hear or see the activities would extend some distance from the work sites. Noise would extend into relatively small areas of forest and wetland habitats in some cases. These habitats typically support greater species abundance and diversity than maintained/landscaped habitats. Impacts resulting from noise and other types of human disturbance generally include alteration of natural behaviors and avoidance of affected areas, although various species may differ greatly in their response to noise (Manci, Gladwin, Vilella, & Cavendish, 1988; Shannon, et al., 2016). Wildlife near the project sites could be disturbed or displaced by construction and demolition activities. It is expected that such effects would be temporary and would only affect animals near the project areas, as noise levels would decrease with increasing distance from the source. Displaced animals would be able to use habitats within and near the project areas after completion of activities. Resident wildlife could potentially be habituated to noise and human activity to some degree due to the ongoing daily activities on developed portions of NSB Kings Bay (e.g., marine operations and vehicle traffic).

The potential for equipment and vehicles to strike wildlife other than small, widely distributed species (e.g., lizards and insects) would be very low. Direct and indirect effects on wildlife habitat would also be low. As discussed above, the vegetation types removed (primarily grasses and shrubs) provide minimal habitat value.

Therefore, there would be no significant impacts on terrestrial wildlife under the Proposed Action.

Threatened and Endangered Species

Two species listed as threatened under the ESA and one species proposed for listing as endangered could occur within or near the study area of the Proposed Action. These species could potentially occur in areas of maintained vegetation adjacent to existing and proposed facilities or in wooded or wetland habitats near the sites.

Wood Stork

Wood storks would not be expected to occur directly within areas where construction, demolition, and modification activities would occur, but foraging and resting storks could occur in association with nearby wetlands, stormwater drainage features, and surface waters. For example, an individual stork was observed near the Refit Industrial Area during a 2015 survey (Depkin & Bryan, 2015). Noise impacts to foraging or resting individuals located near construction and demolition sites would potentially include disturbance and displacement (Manci, Gladwin, Vilella, & Cavendish, 1988; Shannon, et al., 2016). Such effects would be temporary and would only affect storks near the project areas. Any displaced individuals would be able to use nearby similar habitats. Removal of maintained or landscaped vegetated areas near proposed construction sites would not negatively impact wood stork habitat availability because such areas are not typically used by storks for feeding, roosting, or nesting.

Wood stork roosting (sleeping) and nesting is not expected near Locations 1 or 2. However, storks could potentially roost at the containment area located along the southeastern installation shoreline in the

vicinity of Location 3. In addition, the containment area is an active rookery where nesting has occurred annually for over a decade. Generally, noise and nearby human activity may disrupt roosting and nesting behaviors.

The USFWS wood stork management guidelines provide recommended activity restrictions that are intended to prevent disturbance of roosting and nesting individuals (USFWS, 1997). The guidelines advise avoidance of human activities within 500 to 1,000 feet of roost sites at times when storks may be present. The containment area is located more than 1,000 feet from Location 3. In addition, renovation activities at Building 5089 (Location 3) would occur during daylight hours and would, therefore, not impact roosting, because storks only roost at night.

The guidelines also identify recommended activity restrictions near nesting colonies within primary (500 to 1,500 feet) and secondary (from the primary zone to 2,500 feet) zones. The wood stork rookery at the containment area is located between about 2,200 feet and 2,500 feet from Building 5089. Activities in the secondary zone that are considered potentially detrimental to nesting wood storks include an increase in human activity above levels that existed when the colony formed, alteration of the area's hydrology, and a substantial decrease in wetland and wooded habitat area (USFWS, 1997). These conditions would not occur due to the temporary modification activities at Location 3. In addition, trees and other vegetation between Location 3 and the nesting area provide a visual buffer, which decreases the potential for disturbance (USFWS, 1997). Due to distance between the rookery and Location 3 and the presence of a vegetated buffer, the proposed construction activities at Location 3 would not be expected to have impacts on nesting (e.g., nest construction, temporary or permanent nest abandonment).

Therefore, the Proposed Action may affect, but is not likely to adversely affect, wood storks.

Eastern Indigo Snake

The potential for eastern indigo snakes to occur within areas subject to construction, demolition, and modification activities, or in nearby areas of natural habitat, is low. However, the possibility of occurrence cannot be discounted. Potential impacts to indigo snakes would be similar to those described above for wildlife in general and include noise, disturbance, and displacement (Manci, Gladwin, Villella, & Cavendish, 1988; Shannon, et al., 2016). Effects such as avoidance of construction sites would be temporary. Removal of maintained or landscaped vegetated areas near proposed construction sites would be negligible and would not negatively impact habitat availability for the species. There is potential for any individuals present in areas of construction, demolition, or modification activities to be struck by vehicles or equipment. The potential for strikes would be reduced by adherence to actions contained in the Standard Protection Measures for the Eastern Indigo Snake (USFWS, 2021). Applicable measures consist of educating construction contractor personnel on requirements related to the species, ceasing activities if an indigo snake is sighted, and notifying appropriate installation personnel if an indigo snake is sighted, among others. Based on the above discussion, the Proposed Action may affect, but is not likely to adversely affect, eastern indigo snakes.

Tricolored Bat

Construction, demolition, and modification activities would occur only during the day and would, therefore, not affect tricolored bat foraging. From spring to fall, tricolored bats could potentially roost in structures at the three project locations, although roosting would more likely occur in trees. Because bats in general are susceptible to disturbance when roosting in buildings and other human-made structures (FWC, 2023), noise or structural vibrations resulting from project activities could potentially disturb any roosting individuals present, causing them to leave their roost sites. Any bats roosting in structures that would be demolished would be displaced. Individuals affected by noise or demolition could likely find other nearby suitable roosting habitat on or near the installation, although bats that flee disturbed areas during the day could be exposed to predators. Any tricolored bats roosting in structures that are demolished could potentially detect human activities and leave the structure before being physically harmed by equipment or materials. However, surveys for tricolored bats are recommended prior to demolition of structures that contain features conducive to roosting (e.g., crevices). Due to the temporary duration of noise and disturbance effects and the low probability of physical harm, there would be no significant impacts on the tricolored bat under the Proposed Action. In summary, construction, demolition, and modification activities could result in short-term impacts from disturbance to the wood stork, eastern indigo snake, and tricolored bat, but they would not further threaten the existence of any protected species or critical habitats. Additionally, NSB Kings Bay personnel would continue to manage habitats according to the INRMP, which is designed to protect and benefit threatened and endangered species. The Proposed Action may affect, but is not likely to adversely affect, tricolored bats.

Migratory Birds

Potential impacts on migratory birds, including BCC, would be similar to those discussed above for wildlife in general. Construction noise and human activity could cause any migratory bird located near a project site to alter its behavior or leave the area (Manci, Gladwin, Villella, & Cavendish, 1988; Shannon, et al., 2016). Displaced individuals would be able to use other nearby suitable habitat. The number of migratory birds potentially present at the project sites would likely be small because the sites are developed, although birds could be present in wooded or wetland habitats near the sites. Effects would be temporary and would cease after completion of project activities. Any migratory bird present at a construction or demolition site would leave the area before physical harm could occur. The Proposed Action would not be expected to result in mortality, injury, or other forms of incidental taking of migratory birds, as defined in 50 CFR 10.12.

Bald Eagles

Bald eagle nesting is not known to occur on NSB Kings Bay, and therefore construction, demolition, and modification activities would not affect nesting behavior. Bald eagle occurrence near the project sites would be limited to transient foraging individuals. A foraging eagle located near a project site might leave or avoid the area due to noise disturbance or human activity. The effects would be temporary and would likely have the potential to affect only a small number of individuals. There would be no potential for physical harm due to project activities. The Proposed Action would not be expected to result in incidental take of bald eagles, including disturbance, as defined in (50 CFR 22.6).

3.5 Hazardous Materials and Wastes

This section discusses hazardous materials, hazardous waste, toxic substances, and contaminated sites at NSB Kings Bay.

3.5.1 Regulatory Setting

Hazardous materials are defined by 49 CFR section 171.8 and include “hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table, 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.

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 wastes 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. Four types of waste are currently covered under the universal waste regulations: hazardous waste batteries, hazardous waste pesticides that are either recalled or collected in waste pesticide collection programs, hazardous waste thermostats, 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 asbestos containing material (ACM), polychlorinated biphenyls (PCBs), and lead-based paint (LBP). USEPA is given authority to regulate special hazard substances by the Toxic Substances Control Act (TSCA). Asbestos is also regulated by USEPA under the CAA and the Comprehensive Environmental Response, Compensation, and Liability Act.

The DoD established the Defense Environmental Restoration Program (DERP) to facilitate thorough investigation and cleanup of contaminated sites on military installations (active installations, installations subject to Base Realignment and Closure, and formerly used defense sites). The Installation Restoration Program (IRP) and the Military Munitions Response Program (MMRP) are components of the DERP. The IRP requires each DoD installation to identify, investigate, and clean up hazardous waste disposal or release sites. The MMRP addresses nonoperational rangelands that are suspected or known to contain unexploded ordnance, discarded military munitions, or munitions constituent contamination. The Environmental Restoration Program is the Navy’s initiative to address DERP.

3.5.2 Affected Environment

The Navy has implemented a strict Hazardous Material Control and Management Program and a Hazardous Waste Minimization Program for all activities, including NSB Kings Bay. These programs are

governed Navy-wide by applicable OPNAVINSTs and at the installation by specific instructions issued by the Installation Commanding Officer. The Navy continuously monitors its operations to find ways to minimize the use of hazardous materials and to reduce the generation of hazardous wastes. The affected environment includes NSB Kings Bay, adjacent water bodies, and any community-shared resources (e.g., groundwater) with the potential to be affected by uncontrolled hazardous materials or waste.

3.5.2.1 Hazardous Materials

Hazardous materials stored in bulk quantities at NSB Kings Bay include:

- 67 Underground Storage Tanks (USTs) ranging in capacities from 100 gallons to 25,000 gallons. Contents include: marine diesel fuel, generator diesel fuel, waste oil, burner fuel, auto gasoline, auto diesel fuel, and lubrication oil.
- 17 Aboveground Storage Tanks (ASTs) ranging in capacities from 50 gallons to 210,000 gallons. Contents include: generator diesel fuel, marine diesel fuel, auto diesel fuel, waste oil, motor oil, burner fuel, and industrial waste (NSB Kings Bay, 2017a).

The Base Operating Services Contractor is responsible for maintaining the Bulk Hazardous Material Inventory. All hazardous materials quantities beyond bulk storage are tracked per Emergency Planning and Community Right-to-Know Act reporting requirements. Additionally, NSB Kings Bay maintains a Facility Response Plan (FRP) that includes procedures for responding to any spills of hazardous materials (NSB Kings Bay, 2021a).

3.5.2.2 Hazardous Waste

NSB Kings Bay is a permitted large quantity generator of hazardous waste (HW) and operates two HW units requiring a RCRA operating permit: a HW storage facility (HWSF) located at Building 6020 and an open burn (OB) and open detonation (OD) unit (collectively referred to as OB/OD unit) located within the OB/OD Range for thermal treatment of waste munitions and explosives. NSB Kings Bay operates these units under Hazardous Waste Facility Permit HW-014(S&T)4. The permit issuance date is September 28, 2012, and the permit termination date was September 28, 2022. The installation has submitted a renewal application for the current permit, and the current permit has been extended pending renewal. NSB Kings Bay is registered under USEPA ID number: GA4170090001.

NSB Kings Bay generates four types of universal waste (UW) — batteries, mercury-containing equipment, pesticides and lamps. All UW is managed in accordance with federal, state, and local requirements and requires proper labeling, routine inspection, and adherence to accumulation times (NSB Kings Bay, 2021a).

The provisions of 40 CFR 264 Subpart D require that permitted RCRA Treatment, Storage, and Disposal Facilities (TSDFs) have a Contingency Plan. The Contingency Plan for the HWSF and OB/OD waste munitions/explosives thermal treatment units is contained in the RCRA permit renewal application. The Contingency Plan is continually updated to incorporate changes from permit revisions, operational changes, and personnel changes.

OPNAVINST 5090 (series) requires all installations to develop a Hazardous Waste Management Plan (HWMP) in accordance with applicable federal, state, and local regulations. NSB Kings Bay manages the accumulation, handling, and storage of HW, to include UW, in accordance with the installation HWMP (NSB Kings Bay, 2021).

3.5.2.3 Per- and Poly-fluoroalkyl Substances

Per- and Polyfluoroalkyl substances (PFAS) are a family of thousands of different chemicals which have been widely used in industrial and consumer products since the 1950s. The Navy has used legacy aqueous film-forming foam made with PFAS for fire/emergency response and training activities, as it is the most effective fire suppressant available to protect personnel. The USEPA has classified PFAS as an unregulated or "emerging" contaminant. USEPA lifetime health advisory levels for drinking water are only guidance under the SDWA and are not required or enforceable drinking water standards. In March 2020 the Secretary of Defense issued a policy requiring all DoD-owned water systems, where DoD is the purveyor (i.e., supplier of drinking water to the installation), to test for PFAS at installations world-wide using the most recent USEPA test method (537.1) (CNRSE, 2022c). Under the March 2020 DoD policy, sites that report below the method reporting limit are to be retested every three years, while systems that exceed the reporting limit are to be sampled quarterly for one year, and once every two years until results are below the method reporting limit. Laboratory data for all samples collected will be provided on the installation's consumer confidence reports (CNRSE, 2022c).

In a letter dated 30 November 2020, the Commanding Officer of NSB Kings Bay announced that drinking water sampling that occurred as a result of the March 2020 PFAS sampling policy yielded results below the method reporting limit for all 18 compounds tested, and resampling of drinking water would not be required for three years (NSB Kings Bay, 2020). NSB Kings Bay provides a consumer confidence report on an annual basis as required by the SDWA. According to the most recent report, more than 4,500 tests were run and resulted in safe, high quality potable water for all users at the installation (NSB Kings Bay, 2022).

3.5.2.4 Special Hazards (Asbestos Containing Materials, Lead-Based Paint, Polychlorinated Biphenyls)

Several buildings on the installation were built in the 1950s and hence are likely to contain ACM, PCBs, and/or LBP, all of which were commonly used in building construction of the era.

3.5.2.5 Defense Environmental Restoration Program

On NSB Kings Bay, there are no known active IRP or MMRP sites on or near the three project locations.

3.5.3 Environmental Consequences

The hazardous materials and wastes analysis contained in the respective sections addresses issues related to the use and management of hazardous materials and wastes at NSB Kings Bay.

3.5.3.1 No Action Alternative

Under the No Action Alternative, there would be no change associated with hazardous materials and wastes conditions. Therefore, no impacts would occur with implementation of the No Action Alternative.

3.5.3.2 Alternative 1 (Proposed Action)

The ROI for hazardous materials and wastes includes the areas in and around the three project locations, as well as the water bodies (unnamed streams, Kings Bay, St. Marys River, Cumberland Sound) receiving stormwater discharge from the areas of proposed construction, modification, and demolition.

During implementation of the Proposed Action, it is anticipated that hazardous materials typically used in commercial and industrial construction would be utilized, including paints and coatings, paint thinners and other common solvents, adhesives, sealants, lubricants, and fuels. Contractors performing earth moving, grading, and other site preparation work and performing the utilities, structural, and general construction work would provide these services under the project contracts. During demolition and construction activities, fuel may be temporarily stored in the construction staging areas for refueling operations. The contractor would be required to follow all federal regulations and NSB Kings Bay requirements pertaining to storage and fueling practices. In addition, the construction contractors would prepare an Environmental Protection Plan, project-specific SPCC Plan, project-specific Hazardous Materials Management Plan; and a project-specific SWPPP.

Both the demolition and construction phases would generate potentially hazardous construction and demolition debris, in addition to ACM, PCBs, and LBP/Pb contaminated materials, which the construction contractor(s) would be required to characterize, containerize, label, manage while awaiting transfer, and ultimately transfer off-site for disposal at an appropriately licensed facility. In addition, Buildings 5055 and 5073 are likely to contain hazardous paint and/or oil waste residue. The contractor will be required to conduct inspection and testing and provide proper documentation that is generated and maintained to validate the absence of these hazardous materials and wastes prior to demolition. Specific to the Proposed Action, paints have the potential to be considered HW depending on the components in the paint mixture but if these materials are consumed in the construction process HW would not be generated. The project-specific Hazardous Materials Management Plan would include an HWMP section that delineates the measures required to handle and dispose of any HW or excess hazardous materials.

Hazardous Material and Waste

Potential Impacts:

- No Action Alternative: No change to existing hazardous materials and wastes conditions.
- Alternative 1: Demolition may require remediation of ACM, LBP, and/or PCBs. Additional use and storage permit may be required to introduce a new hull treatment into usage.

Demolition of Building 5073 would require disposal or closure-in-place of the active 1,000-gallon used oil underground storage tank. Disposal or closure of the underground storage tank would follow all applicable federal and state regulations.

The NSB Kings Bay Columbia Class Homeporting Project Contract Manufacturing Operation will create and maintain a file of all inspection and testing reports generated under the Proposed Action. The *Specification 01 57 19.01 25 for Supplemental Temporary Environmental Controls for NSB Kings Bay* requires the construction contractor to establish and maintain a 90-day HW accumulation storage area in compliance with 40 CFR section 262.34 and applicable Georgia and local regulations. Individual waste streams will be limited to 55 gallons of accumulation (or 1 quart for acutely HWs). In addition to the 90-day accumulation storage area, a temporary less-than-90-day satellite accumulation area will be established upon contract award to minimize the number of trucks traveling to and from the 90-day satellite accumulation storage area.

The contractor will also follow requirements outlined in the latest revision of the NSB Kings Bay guidance document *Hazardous Waste and Non-Hazardous Waste Management Guide for Visiting Contractors*. Compliance with the NSB Kings Bay SPCC Plan will be required for any sources of petroleum, oil and lubricants used in implementing the Proposed Action.

In addition, spill kits will be available throughout the three project locations in the event of a potential spill. During the operations and maintenance phase, it is anticipated that hazardous materials similar in type and quantity to those currently used at NSB King Bay would be procured, received, handled, managed, and used in the future, with the exception of the new hull treatment product. Buildings 5073 and 5085 will store and dispense a new hull treatment product (see Section 2.3-2). This hull treatment will be added to the HW manifest before its use in submarine maintenance operations begins, in accordance with all HW management regulations.

In accordance with the guidance documents and management plans described above, the Navy would include requirements to minimize procurement and use of hazardous materials and generation of HWs to the extent possible in the construction, operation, and maintenance of NSB Kings Bay.

With adherence to federal and state laws, as well as Navy guidance documents and project-specific plans, there would be negligible to minor adverse impacts from hazardous materials and waste with the implementation of the Proposed Action.

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

A summary of the potential impacts associated with each of the action alternatives and the No Action Alternative is presented in **Table 3.9-1**. Based on the analysis in this EA, no mitigation measures are required to bring potential impacts below the level of significance.

1 **Table 3.9-1. Summary of Potential Impacts to Resource Areas**

Resource Area	No Action Alternative	Alternative 1
Air Quality	No change to existing air quality conditions.	<ul style="list-style-type: none"> Emissions from construction activities would be minimal and temporary, with emissions less than 10.02 tons per year (tpy) for all criteria pollutants. Best Management Practices (BMPs) would be implemented to reduce particulate matter emissions.
Water Resources	No change to existing water resources conditions.	<ul style="list-style-type: none"> No impacts to groundwater, wetlands, or floodplains. No Clean Water Act Section 404 permitting required. All stormwater would continue to be managed under existing permits and additional construction permits as necessary.
Cultural Resources	No change to existing cultural resources.	<ul style="list-style-type: none"> No archaeological resources present in the project area. Proposed Action would not diminish or adversely affect the significance or integrity of the historic properties.
Biological Resources	No change to existing biological resources.	<ul style="list-style-type: none"> Impacted vegetation would consist of maintained grasses and shrubs. Impacts would be negligible. No invasive plant species have been found in the affected areas. Noise and disturbance impacts on wildlife, including protected species, would be temporary and minor. Habitat removal would be negligible. Activities would not further threaten the existence of any protected species or critical habitats.
Hazardous Materials and Wastes	No change to existing hazardous materials and wastes conditions.	<ul style="list-style-type: none"> Demolition may require remediation of asbestos containing materials, lead-based paint, and/or polychlorinated biphenyls. Demolition of Building 5073 would require disposal or closure-in-place of the active 1,000-gallon used oil underground storage tank. Additional use and storage permit may be required to introduce a new hull treatment into usage.

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4. Cumulative Effects

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

4.1 Definition of Cumulative Effects

The approach taken in the analysis of cumulative effects follows the objectives of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and CEQ guidance. Cumulative effects are defined in 40 Code of Federal Regulations section 1508.1 as “the effects on the environment that result from the incremental effects of the action when added to the other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over 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 U.S. Environmental Protection Agency 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 EPA Review of NEPA Documents (USEPA, 1999). CEQ guidance entitled Considering Cumulative Impacts Under NEPA (CEQ, 1997b) 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 close to the Proposed Action 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 Proposed Action 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 Proposed Action and another action could be expected to interact, would the Proposed Action 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 Proposed Action 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 time frame 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 includes those resources identified in Chapter 3. The time frame for cumulative effects centers on the timing of the Proposed Action.

Another factor influencing the scope of cumulative impacts analysis involves identifying other actions to consider. Beyond determining that the geographic scope and time frame for the actions interrelated to the Proposed Action, 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 reasonably foreseeable future projects within or near the study area. Actions included in this cumulative impacts analysis are listed in **Table 4.3-1** and described below.

Table 4.3-1. Cumulative Action Evaluation

<i>Past, Present, and Reasonably Foreseeable Future Actions</i>	<i>Level of NEPA Analysis Completed</i>
NSB Kings Bay Maintenance Dredging and Channel Widening	EA/MFR
Transit Protection Pier Development	EA and SEA FONSI
Nuclear Regional Maintenance Division Facility	CATEX
Dry Dock Recapitalization	EA and FONSI, MFRs
P676 Trident Training Facility Additions	CATEX
Camden Inlet Development Project	TBD

Key: MFR = Memorandum for Record; SEA = Supplemental Environmental Assessment; CATEX = Record of Categorical Exclusion; FONSI = Finding of No Significant Impact; TBD = To Be Determined

NSB Kings Bay Maintenance Dredging and Channel Widening: Routine maintenance dredging and occasional channel widening is required to continue with safe operations at the installation. Maintenance dredging is undertaken annually within the Kings Bay Basin (to include Locations 1 and 3) and Inner Channel, and periodically within the King Bay Entrance Channel, also called the St. Marys Entrance Channel. Depending on needs and conditions, dredging is done with a barge-mounted cutter suction dredge or a hopper dredge for the entrance channel. The U.S. Army Corps of Engineers (USACE) developed an EA and Memorandum for Record and concluded that using standard dredging best management practices (BMPs) and mitigation measures, there would be no significant impacts from dredging operations at Kings Bay. Dredging activities would occur in accordance with USACE issued Permit SAJ-21 1992-01854, and all conditions required within that permit. In addition, the Florida Department of Environmental Protection has also issued Permit 0196204-016-JC for dredging operations for the portions of these channels that extend into Florida. The typical dredge total is approximately 1.4 to 1.5 million cubic yards per year from within the Kings Bay Basin and another approximately 1.4

million cubic yards of material from the entrance channel. All dredging and channel widening activities occur with adherence to all applicable permit conditions, as well as to the Statewide Programmatic Biological Opinion provided by U.S. Fish and Wildlife Service (USFWS) (NSB Kings Bay, 2021).

Transit Protection Pier Development: An EA was completed in 2017 for six repair and construction projects requiring pile replacement and installation at NSB Kings Bay (NSB Kings Bay, 2017a). A Supplemental EA was later incorporated to incorporate scope changes to the P617 Demolition and Reconstruction Project. New infrastructure construction as part of the SEA included two wave attenuation screen structures, one to the north of the pier facility at Location 3 and one under the terminal platform pier structure; installation of an aboveground, double-walled 5,000-gallon gasoline tank within 50 meters of the existing diesel farm containing three tanks with a combined fuel storage capacity of 150,000 gallons; installation of underground diesel and gasoline piping from the existing diesel farm to the replacement pier structure; and installation of an Operational Storage Facility supporting the U.S. Coast Guard Maritime Force Protection Unit storage requirements. Additionally, the Proposed Action included the potential beneficial reuse of demolition material to be repurposed as an offshore artificial reef. The SEA was finalized August 2021, and the FONSI was signed January 2022 (NSB Kings Bay, 2021b).

Nuclear Regional Maintenance Division Facility: This would be a facility to support Nuclear Regional Maintenance Facility operations at Location 1 and is scheduled to begin construction in FY 2023. The building will be constructed on a former dredge disposal area. A Record of Categorical Exclusion was signed on 14 March 2016.

Dry Dock Recapitalization: This project conducts major repair and maintenance to the Dry Dock and supporting facilities at NSB Kings Bay. Major repair items include superstructure and canopy corrosion control, roof and wall panel replacement, crane overhaul, repair to eight sluice gates, in-water repair of two discharge valves, construction of a new lift station, and an auxiliary seawater system upgrade. The FONSI was signed November 2019. Construction is scheduled to take place over a three-year period and began the second quarter of FY 2020 (NSB Kings Bay, 2019).

P676 Trident Training Facility Additions: This project constructs approximately 16,000 SF of additions to Building 1065 for simulations training at the Trident Training Facility. These training facility upgrades are independent from the Columbia Class submarine homeporting action addressed in this EA because they do not require Columbia Class submarines to be collocated to justify their existence at Kings Bay. A portion of a service road will be realigned. The land area impacted by construction is less than one acre and is previously disturbed. This action falls under Categorical Exclusion # 33. A Record of Categorical Exclusion was signed on 20 January 2022.

Camden Inlet Development Project: This project would redevelop the former Gillman Paper Mill site into a mixed-use development aimed at boosting tourism in Camden County. The redevelopment of approximately 722 acres would include 1,176,000 square feet (SF) of marina and marina facilities with 160 boat slips; a 140-room boutique hotel; 50,000 SF of commercial, office and retail space, 1,200 multi-family units (apartments, condos, vacation rentals), and a 4.8 million-SF eco-tourism park (Atlanta Business Chronicle, 2020). The goal of the development is to boost tourism in Camden County (News4Jax, 2022). The Camden Inlet site is approximately four miles south of the NSB Kings Bay

southern installation boundary in St. Marys adjacent to the North River. Camden County Joint Development Authority in coordination with private developer Jacoby Development Inc. ceremonially broke ground on 26 August 2022, with construction planned to begin early 2023 and completed in phases (News4Jax, 2022).

4.4 Cumulative Impacts 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, which was used to determine potential impacts to the various resources analyzed in this document, was also used to determine cumulative impacts. For the purposes of this EA, impacts to air quality, water resources, and biological resources are carried forward for cumulative impact analysis.

4.4.1 Air Quality

None of the estimated air pollutant emissions would result in significant air quality impacts in Camden County for the years when the Proposed Action construction activities would occur. The construction would be phased over approximately five years, and actual annual emissions would be less than 10.02 tons per year for all criteria pollutants. In consideration of construction projects, past, present, or reasonably foreseeable future actions identified in Section 4.3 could produce an additive amount of emissions from concurrent construction activities (e.g., clearing, grading, facility construction, demolition, dredging, etc.). Cumulative emissions resulting from implementation of the Proposed Action and other construction activities would remain below potential criteria pollutant significance thresholds. Any concurrent and future emissions-generating projects that occur in the vicinity of NSB Kings Bay would also have the potential to contribute additional emissions. The addition of the small, temporary increases in construction emissions associated with this Proposed Action would not be sufficient to elevate the total cumulative air emissions during the period of the Proposed Action activities to a significant impact. Because proposed construction would produce only a nominal amount of emissions (when compared to regional levels), it is not anticipated that current and projected air emissions (when other projects are considered incrementally with the Proposed Action alternative) would cause an exceedance of regional air quality criteria. Therefore, air quality cumulative impacts are not significant.

Greenhouse gas (GHG) emissions would increase the atmosphere's concentration of GHGs, and, in combination with past and future emissions from all other sources, contribute incrementally to the global warming that produces the adverse effects of climate change. As noted in Section 3.1.3, design and construction standards would be implemented into the proposed facilities in order to work toward the Navy's objective of achieving 50-percent reduction in GHG emissions from buildings by 2032 (DON, 2022). USEPA and Georgia Environmental Protection Division (GA EPD) require GHG permits only for the largest emitters. Given the minor amount of GHG emissions and compliance with the Navy's Climate Action plan there would be no significant impacts. Cumulative impacts of climate change in the mid to long-term would have the most potential to affect coastal areas through sea-level rise and increase in

extreme weather events. Therefore, NSB Kings Bay and Camden County may be likely to be adversely impacted in the coming years.

4.4.2 Water Resources

Impacts to water resources would likely result from implementation of the projects described in Section 4.3. In general, impacts to surface waters are localized and temporary in nature. Other past, present and reasonably foreseeable projects occurring near the waterfront area would also contribute to cumulative surface water and stormwater impacts. The Transit Protection Pier Development ongoing maintenance dredging/channel widening, and the Camden Inlet Development project construction have the potential to overlap with the construction, modification, and demolition activities of the Proposed Action, as well as the phasing in of the Columbia Class SSBNs. However, these projects would only cause minor short-term impacts to water resources caused by the temporary suspension of marine sediments in the water column during various operations, and increased surface water runoff from temporary laydown sites requiring vegetation removal. Overall, these impacts would not be considered major since implementation of proper erosion, sedimentation, and stormwater management techniques and project specific BMPs would be incorporated into all projects at NSB Kings Bay. Following construction, implementation of Low Impact Development stormwater management techniques, as well as traditional engineering controls would decrease future impacts to water quality. Therefore, there is no significant cumulative impact to surface waters as a result of implementation of the Proposed Action.

4.4.3 Biological Resources

Incremental impacts to terrestrial wildlife, including protected species, are possible as a result of in-air noise and habitat alteration. With regards to terrestrial wildlife and in-air noise, NSB Kings Bay is an active waterfront area where typical noise measurements of 50 A-weighted decibel (dBA) (for light traffic) to 81 dBA (for a crane) when measured 50 feet from the respective pieces of equipment may occur. Construction noise can range up to 90 dBA, but that level would be for shorter durations. The project locations are highly developed and industrial in nature. Construction projects such as the Transit Protection Pier Development and Dry Dock Recapitalization are occurring or have recently been completed in the vicinity of the Proposed Action project locations, and since background noise and human activity levels are already high, it is expected that wildlife present in the vicinity would generally be tolerant or have acclimated to construction noise and activity levels. NSB Kings Bay addresses conservation of wildlife, including the protected species described in Section 3.4.2.3, primarily through long-term habitat management and, where feasible, habitat creation and restoration (e.g., construction of terraces in the Pagan Creek area to support wood stork feeding). The NSB Kings Bay INRMP identifies habitat conservation goals, objectives, strategies, and projects that are intended to benefit wood storks, eastern indigo snakes, migratory birds, and bald eagles, as well as other protected species found on the installation including bats. Conservation measures focus on species populations, vegetative communities, and habitats at the ecosystem level where applicable. Additionally, early planning considerations and consultation with appropriate regulatory agencies (i.e., USFWS) when necessary, will ensure the continued availability for natural habitat areas that support wildlife and special status species at NSB Kings Bay. Therefore, biological resource cumulative impacts would be less than significant.

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5. Other Considerations Required by NEPA

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

In accordance with 40 Code of Federal Regulations (CFR) section 1502.16(c), analysis of environmental consequences shall include discussion of possible conflicts between the Proposed Action 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 potentially applicable to the Proposed Action and describes briefly how compliance with these laws and regulations would be accomplished. Laws and regulations that are not applicable are not listed.

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

<i>Federal, State, Local, and Regional Land Use Plans, Policies, and Controls</i>	<i>Status of Compliance</i>
National Environmental Policy Act; CEQ NEPA implementing regulations; Navy procedures for Implementing NEPA	This EA has been prepared in accordance with NEPA, CEQ regulations, and Navy NEPA regulations and procedures. Public participation and review will be conducted in compliance with NEPA.
Clean Air Act	Compliant. Camden County is in attainment for all National Ambient Air Quality Standards, and no conformity determination is required.
Clean Water Act	Compliant. Construction activities would be in accordance with the USEPA General Construction Permit, would follow a project-specific Stormwater Pollution Prevention Plan. The proposed action would comply with the Stormwater Management Manual for Georgia. The Stormwater Pollution Prevention Plan would identify structural controls such as erosion and sediment controls, berms, or dikes around critical areas, retention/detention basins, and oil-water separators.
Coastal Zone Management Act	Compliant. The Proposed Action would be fully consistent to the with the enforceable policies of the Georgia Coastal Management Program. NSB Kings Bay will prepare and submit a Coastal Consistency Determination to the Georgia Coastal Management Program.
National Historic Preservation Act	Compliant. The Proposed Action would not diminish or adversely affect the significance or integrity of historic properties. The Navy would consult with the Georgia Historic Preservation Division.
Endangered Species Act	Compliant. Analysis in Section 3.5.3, Biological Resources, Proposed Action may affect, but is not likely to adversely affect, ESA listed species. The U.S. Navy will informally consult with the USFWS.
Migratory Bird Treaty Act	Compliant. The Navy has determined that the Proposed Action would not result in incidental take of migratory birds.
Bald and Golden Eagle Protection Act	Not applicable. Bald or golden eagles do not nest within the study area. Therefore, there would be no take of bald or golden eagles from the Proposed Action.
Emergency Planning and Community Right-to-Know Act	Compliant. The Proposed Action would not affect the amount of hazardous chemicals present at the facility or the amount of hazardous materials that are manufactured, processed, or otherwise used.

<i>Federal, State, Local, and Regional Land Use Plans, Policies, and Controls</i>	<i>Status of Compliance</i>
Resource Conservation and Recovery Act	Compliant. The Proposed Action would result in the generation of solid and hazardous wastes resulting from demolition. These wastes would be managed in full compliance with this act.
Toxic Substances Control Act	Compliant. Under the Proposed Action, the Navy would manage regulated substances in full compliance with the act.
EO 11988, <i>Floodplain Management</i>	Compliant. The Proposed Action does not occur within the 100- or 500-year floodplain.
EO 12088, <i>Federal Compliance with Pollution Control Standards</i>	Compliant. The Proposed Action would comply with all applicable pollution control standards.
EO 12898, <i>Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations</i>	Compliant. The Navy has determined that there are no environmental health and safety risks associated with the Proposed Action that would disproportionately affect minority or low-income populations.
EO 13045, <i>Protection of Children from Environmental Health Risks and Safety Risks</i>	Compliant. The Navy has determined that there are no environmental health and safety risks associated with the Proposed Action that would disproportionately affect children.
EO 13175, <i>Consultation and Coordination with Indian Tribal Governments</i>	Compliant. While there are no tribal implications associated with the Proposed Action, and there would be no direct effects on tribal governments, the Navy has consulted with tribes.

Key: CEQ = Council on Environmental Quality; EA = Environmental Assessment; EO = Executive Order; NEPA = National Environmental Policy Act; NSB = Naval Submarine Base; USEPA = U.S. Environmental Protection Agency; USFWS = U.S. Fish and Wildlife Service.

5.2 Irreversible or Irrecoverable 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 particular environment.

Raw construction materials (e.g., cement, aggregate, wood, steel, water, and fossil fuel) and labor would be expended during facility construction, demolition, and renovation activities. Natural resources and labor would also be used to fabricate material and equipment that would be used at the facility. However, these types of construction materials and labor are not in short supply and their continued use would not adversely impact the availability of these resources. Implementing the Proposed Action would not result in significant irreversible or irretrievable commitment of resources.

5.3 Unavoidable Adverse Impacts

This EA has determined that the Proposed Action would not result in any significant impacts. Implementing the Proposed Action would result in the following unavoidable environmental impacts: temporary noise disturbance to wildlife, temporary air emissions, relocation of indigo snakes in gopher tortoise burrows, if any, at the project site, and ground and soil disturbance. Although these impacts are unavoidable, they are minor, temporary and/or localized, and do not require mitigation measures to bring potential impacts below the level of significance.

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

NEPA 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 to the human environment with implementation of the Proposed Action would primarily relate to the construction activity itself. Air quality and noise would be impacted in the short term. There would be no long-term impacts to the human environment. The construction of the facility and operation would not significantly impact the long-term natural resource productivity of the area given that most of the area has minimal vegetation other than landscaping. The Proposed Action 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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Chapter 2

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

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Appendix A.

Air Quality Methodology and Calculations and General Conformity Rule Record of Non-Applicability (RONA)

A.1 General Conformity Rule - Record of Non-Applicability (RONA) for Clean Air Act Conformity

Environmental Assessment for Proposed Homeporting of the Columbia Class Submarine at Naval Submarine Base Kings Bay, Georgia

Designation:	Environmental Assessment
Title of Proposed Action:	Homeporting of the Columbia Class Submarine At Naval Submarine Base Kings Bay, Georgia
Project Location:	Naval Submarine Base Kings Bay, Georgia
Lead Agency for the EA:	Department of the Navy
Cooperating Agency:	None
Affected Region:	Jacksonville-Brunswick Interstate Air Quality Control Region
Action Proponent:	United States Fleet Forces Command, Department of the Navy
Point of Contact:	James Riddle Community Planner Columbia SSBN (CLB) 910 USS Hunley Ave, #2015 Kings Bay, GA 31547 Email address: james.w.riddle12.civ@us.navy.mil

Proposed Action and Emissions Summary:

The Clean Air Act requires federal actions in-air pollutant nonattainment or maintenance areas to conform to the applicable State Implementation Plan. The State Implementation Plan is designed to achieve or maintain an attainment designation of air pollutants as defined by the National Ambient Air Quality Standards (NAAQS). The regulations governing this requirement are found in 40 Code of Federal Regulations part 93, also known as the "General Conformity Rule," which applies to federal actions occurring in regions designated as nonattainment or areas subject to maintenance plans. Emission (*de minimis*) thresholds have been established for actions with the potential to have significant air quality impacts. A project/action in an area designated as nonattainment/maintenance and exceeding the *de minimis* thresholds must have a general conformity determination prepared to address significant impacts.

NSB Kings Bay is located in Camden County, GA which is within the Jacksonville-Brunswick Interstate Air Quality Control Region (40 Code of Federal Regulations 81.93). This area is designated as being in attainment for all the criteria pollutant NAAQS. Thus, general conformity is not applicable.

Air Emissions Summary

Although General Conformity is not applicable, since Camden County is in attainment for all criteria pollutants, air emissions and comparison to *de minimis* levels are provided for informational purposes only. Based on the maximum annual project emissions estimates identified in **Table 1** below, the maximum annual direct and indirect emissions for the Environmental Assessment Proposed Action are well below the *de minimis* thresholds.

Supporting documentation and emissions estimates can be found in the Environmental Assessment in Section 3.1, Air Quality, and Appendix A, Air Emission Calculations and General Conformity Rule Record of Non-Applicability (RONA).

Table 1. Estimated Annual Air Pollutant Emissions from Construction Activities under the Proposed Action

Year	Air Pollutant Emissions (tons/year)							CO ₂ e
	CO	NO _x	PM ₁₀	PM _{2.5}	SO _x	VOC	Pb	(MT)
Proposed Action	4.49	3.41	10.02	0.13	0.01	1.97	0.00	928
De Minimis Threshold	100	100	100	100	100	100	25	NA
Exceedance?	No	No	No	No	No	No	No	NA

Notes: Emissions estimated using Air Conformity Applicability Model 5.0.18a, (Air Force Civil Engineer Center, 2022).

NA = Not Applicable, VOC = volatile organic compounds, CO = carbon monoxide, NO_x = nitrogen oxides, SO_x = sulfur oxides, PM₁₀ = suspended particulate matter less than or equal to 10 micrometers in diameter, and PM_{2.5} = fine particulate matter less than or equal to 2.5 micrometers in diameter. VOCs and NO_x are precursors to the formation of ozone.

Date RONA Prepared: October 2022

RONA Prepared by: Leidos Corporation

RONA Approval:

Signature

Date

A.2 Detail Air Conformity Applicability Model Report

This section presents an export of results directly from the air quality modeling software, retaining the organizational headings, text, and table formatting produced by the software.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: NSB KINGS BAY
State: Georgia
County(s): Camden
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: Homeporting of the Columbia Class Submarine at NSB Kings Bay, GA

- Project Number/s (if applicable):

- Projected Action Start Date: 1 / 2024

- Action Purpose and Need:

The purpose of the Proposed Action is to ensure the uninterrupted continuance of the Navy's Sea-Based Strategic Deterrence mission at NSB Kings Bay by introducing a technologically advanced nuclear ballistic missile submarine into the Atlantic Fleet.

The Proposed Action is needed because the Ohio Class submarines are reaching the end of their service lives and need to be replaced before degrading to unacceptable conditions. Additionally, the Ohio Class submarines use antiquated technology, which could put the Navy's ability to successfully meet its Sea-Based Deterrence mission at risk. The Columbia Class submarines are the next phase of submarines necessary to ensure the U.S. can meet current and future threats with up-to-date nuclear submarine technology in support of national defense objectives and policies. In this regard, the Proposed Action furthers the Navy's execution of its congressionally mandated roles and responsibilities under 10 U.S.C. § 8062.

- Action Description:

The U.S. Navy proposes to establish facilities and functions at NSB Kings Bay to support the homeporting of Columbia Class submarines as replacements for the retiring Ohio Class submarines currently homeported at NSB Kings Bay. Under the Proposed Action, the Navy would construct eight facilities, modernize five facilities, and demolish three facilities across three areas on NSB Kings Bay. Facility changes and development activities would be phased over a period of five years and completed coincident to the arrival of the first Columbia Class submarines in 2028. The Proposed Action does not modify any existing dry-docks or conduct any in-water work.

During the 2028-2042 transition period from the Ohio Class to the Columbia Class and at completion, the total numbers of Ohio Class submarines and Columbia Class submarines homeported at NSB Kings Bay will not exceed the number of Ohio Class submarines currently homeported at the base. The personnel numbers associated with the Columbia Class submarines are expected to be comparable to those associated with the Ohio Class submarines. Personnel numbers associated with the facilities and functions of the Proposed Action are also not anticipated to increase. Therefore, the Proposed Action will not increase the number of personnel employed at NSB Kings Bay, although an increase in temporary workers will result during the demolition, modification, or construction of 16 facilities and various functions scheduled for completion in 2028.

- Point of Contact

Name: Brad Boykin
Title: CTR
Organization: Leidos
Email: boykinb@leidos.com
Phone Number: 979-575-3552

- Activity List:

Activity Type	Activity Title
2. Construction / Demolition	Proposed Action

Emission factors and air emission estimating methods come from the United States Air Force’s Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location

County: Camden
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Proposed Action

- Activity Description:

13,106 sq ft Demolition
 121,509 sq ft Construction
 68,682 sq fr Modification

- Activity Start Date

Start Month: 1
Start Month: 2024

- Activity End Date

Indefinite: False
End Month: 12
End Month: 2024

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.969232
SO _x	0.009992
NO _x	3.407906
CO	4.487558
PM 10	10.024089

Pollutant	Total Emissions (TONs)
PM 2.5	0.125499
Pb	0.000000
NH ₃	0.004437
CO ₂ e	1022.9

2.1 Demolition Phase

2.1.1 Demolition Phase Timeline Assumptions

- Phase Start Date

Start Month: 1
Start Quarter: 1
Start Year: 2024

- Phase Duration

Number of Month: 12

Number of Days: 0

2.1.2 Demolition Phase Assumptions

- General Demolition Information

Area of Building to be demolished (ft²): 13106

Height of Building to be demolished (ft): 25

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Rubber Tired Dozers Composite	1	1
Tractors/Loaders/Backhoes Composite	2	6

- Vehicle Exhaust

Average Hauling Truck Capacity (yd³): 20 (default)

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Concrete/Industrial Saws Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0357	0.0006	0.2608	0.3715	0.0109	0.0109	0.0032	58.544
Rubber Tired Dozers Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Tractors/Loaders/Backhoes Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	Pb	NH ₃	CO _{2e}
LDGV	000.207	000.002	000.115	003.375	000.004	000.003		000.024	00312.832
LDGT	000.223	000.003	000.205	003.816	000.005	000.005		000.026	00404.718
HDGV	000.903	000.006	000.915	014.342	000.024	000.021		000.052	00909.962

LDDV	000.067	000.001	000.085	003.347	000.002	000.002		000.008	00320.895
LDDT	000.073	000.001	000.128	002.305	000.003	000.003		000.009	00365.624
HDDV	000.120	000.004	002.515	001.601	000.050	000.046		000.032	01269.343
MC	002.725	000.003	000.642	012.977	000.024	000.021		000.053	00388.700

2.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM_{10FD} = (0.00042 * BA * BH) / 2000$$

PM_{10FD}: Fugitive Dust PM 10 Emissions (TONs)
 0.00042: Emission Factor (lb/ft³)
 BA: Area of Building to be demolished (ft²)
 BH: Height of Building to be demolished (ft)
 2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)
 NE: Number of Equipment
 WD: Number of Total Work Days (days)
 H: Hours Worked per Day (hours)
 EF_{POL}: Emission Factor for Pollutant (lb/hour)
 2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
 BA: Area of Building being demolish (ft²)
 BH: Height of Building being demolish (ft)
 (1 / 27): Conversion Factor cubic feet to cubic yards (1 yd³ / 27 ft³)
 0.25: Volume reduction factor (material reduced by 75% to account for air space)
 HC: Average Hauling Truck Capacity (yd³)
 (1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)
 HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
 VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
 0.002205: Conversion Factor grams to pounds
 EF_{POL}: Emission Factor for Pollutant (grams/mile)
 VM: Vehicle Exhaust On Road Vehicle Mixture (%)
 2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
 WD: Number of Total Work Days (days)
 WT: Average Worker Round Trip Commute (mile)
 1.25: Conversion Factor Number of Construction Equipment to Number of Works
 NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

- V_{POL} : Vehicle Emissions (TONs)
- VMT_{WT} : Worker Trips Vehicle Miles Travel (miles)
- 0.002205: Conversion Factor grams to pounds
- EF_{POL} : Emission Factor for Pollutant (grams/mile)
- VM: Worker Trips On Road Vehicle Mixture (%)
- 2000: Conversion Factor pounds to tons

2.2 Site Grading Phase

2.2.1 Site Grading Phase Timeline Assumptions

- Phase Start Date

Start Month: 1
Start Quarter: 1
Start Year: 2024

- Phase Duration

Number of Month: 6
Number of Days: 0

2.2.2 Site Grading Phase Assumptions

- General Site Grading Information

Area of Site to be Graded (ft²): 164682
Amount of Material to be Hauled On-Site (yd³): 16.5
Amount of Material to be Hauled Off-Site (yd³): 16.5

- Site Grading Default Settings

Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	1	8
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	8
Tractors/Loaders/Backhoes Composite	2	7

- Vehicle Exhaust

Average Hauling Truck Capacity (yd³): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.2.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Other Construction Equipment Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0461	0.0012	0.2243	0.3477	0.0079	0.0079	0.0041	122.61
Rubber Tired Dozers Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Tractors/Loaders/Backhoes Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	Pb	NH ₃	CO _{2e}
LDGV	000.207	000.002	000.115	003.375	000.004	000.003		000.024	00312.832
LDGT	000.223	000.003	000.205	003.816	000.005	000.005		000.026	00404.718
HDGV	000.903	000.006	000.915	014.342	000.024	000.021		000.052	00909.962
LDDV	000.067	000.001	000.085	003.347	000.002	000.002		000.008	00320.895
LDDT	000.073	000.001	000.128	002.305	000.003	000.003		000.009	00365.624
HDDV	000.120	000.004	002.515	001.601	000.050	000.046		000.032	01269.343
MC	002.725	000.003	000.642	012.977	000.024	000.021		000.053	00388.700

2.2.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

PM10_{FD}: Fugitive Dust PM 10 Emissions (TONs)
 20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
 ACRE: Total acres (acres)
 WD: Number of Total Work Days (days)
 2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)
 NE: Number of Equipment
 WD: Number of Total Work Days (days)
 H: Hours Worked per Day (hours)
 EF_{POL}: Emission Factor for Pollutant (lb/hour)
 2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
 HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)
 HA_{OffSite}: Amount of Material to be Hauled Off-Site (yd³)
 HC: Average Hauling Truck Capacity (yd³)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL} : Vehicle Emissions (TONs)
 VMT_{VE} : Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
 EF_{POL} : Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT} : Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL} : Vehicle Emissions (TONs)
 VMT_{WT} : Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
 EF_{POL} : Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.3 Building Construction Phase

2.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date

Start Month: 1
Start Quarter: 1
Start Year: 2024

- Phase Duration

Number of Month: 12
Number of Days: 0

2.3.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Office or Industrial
Area of Building (ft²): 121509
Height of Building (ft): 25
Number of Units: N/A

- Building Construction Default Settings

Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	6
Forklifts Composite	2	6
Generator Sets Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8
Welders Composite	3	8

- Vehicle Exhaust

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips

Average Vendor Round Trip Commute (mile): 40 (default)

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

2.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Cranes Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0715	0.0013	0.4600	0.3758	0.0161	0.0161	0.0064	128.78
Forklifts Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0246	0.0006	0.0973	0.2146	0.0029	0.0029	0.0022	54.451
Generator Sets Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0303	0.0006	0.2464	0.2674	0.0091	0.0091	0.0027	61.061
Tractors/Loaders/Backhoes Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875
Welders Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0227	0.0003	0.1427	0.1752	0.0059	0.0059	0.0020	25.653

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	Pb	NH ₃	CO _{2e}
LDGV	000.207	000.002	000.115	003.375	000.004	000.003		000.024	00312.832
LDGT	000.223	000.003	000.205	003.816	000.005	000.005		000.026	00404.718
HDGV	000.903	000.006	000.915	014.342	000.024	000.021		000.052	00909.962
LDDV	000.067	000.001	000.085	003.347	000.002	000.002		000.008	00320.895
LDDT	000.073	000.001	000.128	002.305	000.003	000.003		000.009	00365.624

HDDV	000.120	000.004	002.515	001.601	000.050	000.046		000.032	01269.343
MC	002.725	000.003	000.642	012.977	000.024	000.021		000.053	00388.700

2.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)
 NE: Number of Equipment
 WD: Number of Total Work Days (days)
 H: Hours Worked per Day (hours)
 EF_{POL}: Emission Factor for Pollutant (lb/hour)
 2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = BA * BH * (0.42 / 1000) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
 BA: Area of Building (ft²)
 BH: Height of Building (ft)
 (0.42 / 1000): Conversion Factor ft³ to trips (0.42 trip / 1000 ft³)
 HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
 VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
 0.002205: Conversion Factor grams to pounds
 EF_{POL}: Emission Factor for Pollutant (grams/mile)
 VM: Worker Trips On Road Vehicle Mixture (%)
 2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$$VMT_{WT} = WD * WT * 1.25 * NE$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
 WD: Number of Total Work Days (days)
 WT: Average Worker Round Trip Commute (mile)
 1.25: Conversion Factor Number of Construction Equipment to Number of Works
 NE: Number of Construction Equipment

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
 VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
 0.002205: Conversion Factor grams to pounds
 EF_{POL}: Emission Factor for Pollutant (grams/mile)
 VM: Worker Trips On Road Vehicle Mixture (%)
 2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase

$$VMT_{VT} = BA * BH * (0.38 / 1000) * HT$$

VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
 BA: Area of Building (ft²)

BH: Height of Building (ft)
(0.38 / 1000): Conversion Factor ft³ to trips (0.38 trip / 1000 ft³)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.4 Architectural Coatings Phase

2.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date

Start Month: 7
Start Quarter: 1
Start Year: 2024

- Phase Duration

Number of Month: 6
Number of Days: 0

2.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information

Building Category: Non-Residential
Total Square Footage (ft²): 121509
Number of Units: N/A

- Architectural Coatings Default Settings

Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	Pb	NH ₃	CO _{2e}
LDGV	000.207	000.002	000.115	003.375	000.004	000.003		000.024	00312.832
LDGT	000.223	000.003	000.205	003.816	000.005	000.005		000.026	00404.718
HDGV	000.903	000.006	000.915	014.342	000.024	000.021		000.052	00909.962
LDDV	000.067	000.001	000.085	003.347	000.002	000.002		000.008	00320.895
LDDT	000.073	000.001	000.128	002.305	000.003	000.003		000.009	00365.624
HDDV	000.120	000.004	002.515	001.601	000.050	000.046		000.032	01269.343
MC	002.725	000.003	000.642	012.977	000.024	000.021		000.053	00388.700

2.4.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase

$$VMT_{WT} = (1 * WT * PA) / 800$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
1: Conversion Factor man days to trips (1 trip / 1 man * day)
WT: Average Worker Round Trip Commute (mile)
PA: Paint Area (ft²)
800: Conversion Factor square feet to man days (1 ft² / 1 man * day)

$$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase

$$VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0$$

VOC_{AC}: Architectural Coating VOC Emissions (TONs)
BA: Area of Building (ft²)
2.0: Conversion Factor total area to coated area (2.0 ft² coated area / total area)
0.0116: Emission Factor (lb/ft²)
2000: Conversion Factor pounds to tons

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