Naval Facilities Engineering Systems Command Washington
Washington Navy Yard, Washington, D.C.

FFA Final

First Five-Year Review Report

Washington Navy Yard
Washington, D.C.

September 2021

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Prepared for NAVFAC Washington
by CH2M HILL, Inc.
Contract N62470-16-D-9000
CTO 4996

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This report documents the completion of the First Five-Year Review for the following sites at Washington Navy Yard:

- Site 6—Buildings 116, 118, and 197 (Heating and Power Plants, Gun Assembly Shop)
- Site 22—Building 112 (Polishing and Plating Shop)
- The operable unit known as Site Screening Area (SSA) 12—Basewide Fill

This Five-Year Review was conducted as required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in accordance with CERCLA Section 121(c), as amended, and the National Contingency Plan Part 300.430(f)(4)(ii) of the Code of Federal Regulations, and summarizes the evaluation of Remedial Actions that resulted in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, and for which there is a Record of Decision in place.

CAPT Mark Burns
Commanding Officer
NSA Washington

28SEP2021
Date

Executive Summary

The Navy conducted the first Five-Year Review for Washington Navy Yard (WNY) in Washington, D.C., as required by the Comprehensive Environmental Response, Compensation, and Liability Act in accordance with CERCLA Section 121(c), as amended, and the National Contingency Plan Part 300.430(f)(4)(ii) of the Code of Federal Regulations. The report has been prepared in accordance with the U.S. Environmental Protection Agency (USEPA) *Comprehensive Five-Year Review Guidance* (USEPA, 2001), and summarizes the evaluation of Remedial Actions that resulted in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, and for which there is a Record of Decision (ROD) in place. The following WNY sites require a Five-Year Review:

- Site 6— Buildings 116, 118, and 197 (Heating and Power Plants, Gun Assembly Shop)
- Site 22— Building 112 (Polishing & Plating Shop)
- The operable unit known as Site Screening Area (SSA) 12—Basewide Fill

The objective of the Five-Year Review is to evaluate the effectiveness of the remedies to determine whether these continue to be protective of human health and the environment in accordance with the requirements set forth in the RODs. This evaluation was accomplished through a review of various reports and documents pertaining to post-remedy implementation activities, analytical data, and findings, and through site inspections and interviews. The community was notified about the review process through a public notice and a direct mailing to active Restoration Advisory Board (RAB) members.

The Five-Year Review report identifies circumstances that may prevent a particular remedy from functioning as designed or provide sufficient human health and environmental protection. The overall evaluation of the effectiveness of each remedy is presented as a protectiveness statement developed for each site, presented as follows:

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Washington Navy Yard		
EPA ID: DC9170024310		
Region: 3	**State:** D.C.	**City/County:** Washington
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	**Has the site achieved construction completion?** No	
REVIEW STATUS		
Lead agency: Other Federal Agency Department of the Navy (Navy), Naval Facilities Engineering Command (NAVFAC)		
Author name (Federal or State Project Manager): NAVFAC Remedial Project Manager (RPM)		
Author affiliation: Department of the Navy, NAVFAC		
Review period: September 30, 2018 – May 28, 2021		
Date of site inspection: Multiple inspection dates: September 30, 2018; September 25, 2019, and September 30, 2020		

Type of review: Statutory
Review number: 1
Triggering action date: September 30, 2016
Due date *(five years after triggering action date)*: September 30, 2021
ISSUES/RECOMMENDATIONS
OU(s) without Issues/Recommendations Identified in the Five-Year Review: Site 6, Site 22, and SSA 12
No protectiveness issues or recommendations were identified during the Five-Year Review for any of the sites included in this review (Site 6, Site 22, and SSA 12).

Protectiveness Statement(s)		
The Protectiveness Statements for the Sites are summarized below		
Operable Unit: **Site 6—Building 116, 118, and 197 (Heating and Power Plants, Gun Assembly Shop)**	*Protectiveness Determination:* Protective	*Planned Addendum Completion Date:* Not applicable
Protectiveness Statement: The remedy for soil at Site 6 is protective of human health and the environment because exposure pathways that could result in unacceptable risks are being controlled by land use controls (LUCs). These LUCs have been fully implemented, are operating as intended, and achieve the remedial action objective (RAO) in the ROD by restricting intrusive activities and preventing changes in land use.		

Operable Unit: **Site 22—Building 112 (Polishing and Plating Shop)**	*Protectiveness Determination:* Protective	*Planned Addendum Completion Date:* Not applicable
Protectiveness Statement: The remedy for soil at Site 22 is protective of human health and the environment because exposure pathways that could result in unacceptable risks are being controlled by LUCs. These LUCs have been fully implemented, are operating as intended, and achieve the RAOs in the ROD by restricting intrusive activities and preventing changes in land use.		

Operable Unit: **SSA 12—Basewide Fill (Exposure Areas 1, 19, and the Eastern Extension Exposure Area)**	*Protectiveness Determination:* Protective	*Planned Addendum Completion Date:* Not applicable
Protectiveness Statement: The remedy for non-native fill material (soil) at SSA 12 is protective of human health and the environment because exposure pathways that could result in unacceptable risks are being controlled by LUCs. These LUCs have been fully implemented, are operating as intended, and achieve the RAO in the ROD by restricting intrusive activities and preventing changes in land use.		

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Acronyms and Abbreviations

ARARs	applicable or relevant and appropriate requirements
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	contaminant of concern
COPC	constituent of potential concern
CSO	combined sewer overflow
DOEE	District of Columbia Department of Energy and Environment
EA	Exposure Area
EE/CA	engineering evaluation/cost analysis
ER	Environmental Restoration
FFA	Federal Facility Agreement
FS	Feasibility Study
GIS	geographic information system
GSA	Government Services Administration
HHRA	human health risk assessment
IR	Installation Restoration
LUC	land use control
NAVFAC	Naval Facilities Engineering Command
Navy	Department of the Navy
NCP	National Contingency Plan
NDW	Naval District Washington
NIRIS	Naval Installation Restoration Information Solution
NPL	National Priorities List
OU	operable unit
PA	Preliminary Assessment
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PFAS	per- and polyfluoroalkyl substances
PRG	preliminary remediation goals
PWD	Public Works Department
RAB	Restoration Advisory Board
RAO	remedial action objective

RI	remedial investigation
ROD	Record of Decision
RPM	Remedial Project Manager
SEFC	Southeast Federal Center
SSA	Site Screening Area
TBC	to be considered
USEPA	U.S. Environmental Protection Agency
UU/UE	unlimited use/unrestricted exposure
WNY	Washington Navy Yard

SECTION 1

Introduction

This document presents the first Five-Year Review for Washington Navy Yard (WNY) in Washington, D.C. (**Figure 1-1**). It was prepared under the Department of the Navy's (Navy) Naval Facilities Engineering Command (NAVFAC) Atlantic's Comprehensive Long-Term Environmental Action Navy contract number N62470-16-D-9000, Contract Task Order 4996, in accordance with the United States Environmental Protection Agency (USEPA*) Comprehensive Five-Year Review Guidance* (USEPA, 2001). This document summarizes the evaluation of remedial actions that have been implemented for 3 sites at WNY for which there is a Record of Decision (ROD) in place. The WNY sites requiring a Five-Year Review are:

- Site 6— Buildings 116, 118, and 197 (Heating and Power Plants, Gun Assembly Shop)
- Site 22— Building 112 (Polishing & Plating Shop)
- The operable unit known as Site Screening Area (SSA) 12—Basewide Fill

The objective of this Five-Year Review is to evaluate the remedial actions at WNY and determine whether they remain protective of human health and the environment in accordance with the requirements outlined in the ROD for each site. The protectiveness of the remedies was evaluated through reviews of various reports and documents pertaining to post-remedy implementation activities, analytical data and findings, and through site inspections and interviews. A Five-Year Review is intended to identify issues, if any, that may be preventing a particular remedy from functioning as designed or as appropriate, or that could impact the protection of human health and the environment. No protectiveness issues or recommendations were identified during the Five-Year Review for any of the sites included in this review (Site 6, Site 22, and SSA 12).

This report was prepared pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) §121 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA §121 states: "If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with Section 104 or 106, the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews."

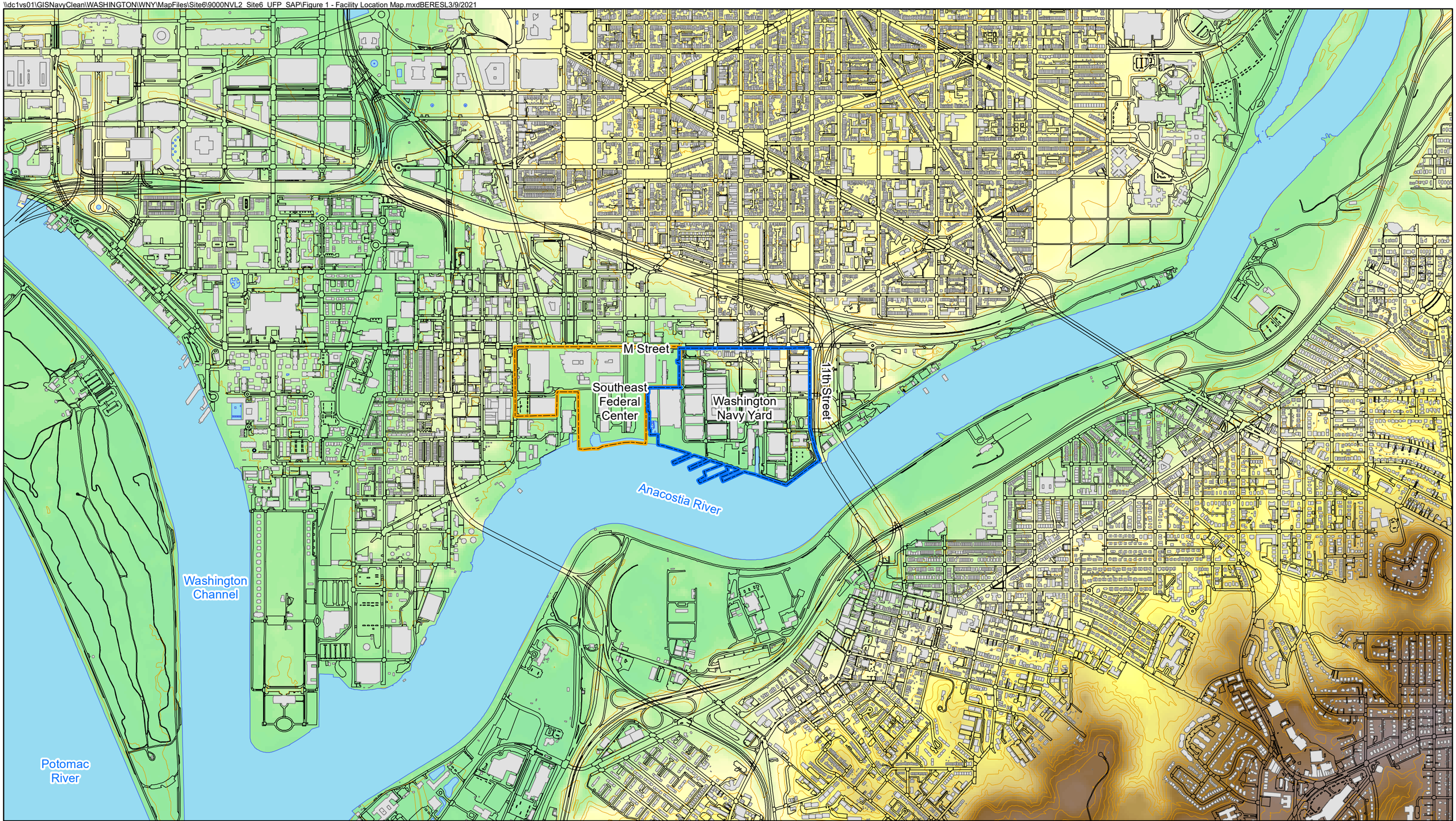
USEPA interpreted this requirement further in the NCP, and 40 Code of Federal Regulations (CFR) §300.430(f)(4)(ii), which states: "If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such actions no less often than every five years after the initiation of the selected remedial action."

In accordance with the *Navy Policy for Conducting Five Year Reviews* (2011), a Five-Year Review is required 5 years from initiating the first remedial action that leaves hazardous substances, pollutants, or contaminants at a site above levels that do not allow for unlimited use/unrestricted exposure (UU/UE). For WNY, the triggering action of this statutory review is the ROD signature for Site 22, dated September 2016, since the remedy for this site contained only the implementation of institutional controls and did not require a remedial action phase.

For completeness purposes, the Navy has included in this report additional information on sites that do not require a Five-Year Review. The additional information includes a summary of the status of sites that

are being investigated under the Environmental Restoration (ER) Program and sites that have been closed with no action.

\\dc1vs01\GISNavyClean\WASHINGTON\WNY\MapFiles\Site6\9000NVL2_Site6_UFP_SAP\Figure 1 - Facility Location Map.mxdBERESL3/9/2021



Legend

- Navy Yard Boundary
- Southeast Federal Center
- Buildings
- Roads

N

0 600 1,200

Feet

Figure 1-1
Washington Navy Yard Location
Five-Year Review
Washington Navy Yard, Washington, D.C.

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SECTION 2

Five-Year Review Process

2.1 Administrative Components

WNY is a Federal facility at which CERCLA activities are funded and implemented by the Navy under the ER Program. The Navy implements CERCLA at WNY in partnership with the USEPA and the District of Columbia Department of Energy and Environment (DOEE).

The WNY Five-Year Review team is led by NAVFAC Washington, with assistance provided by CH2M, the contractor to NAVFAC Washington that provides technical support for the WNY ER Program. Applicable data and documentation covering the period of the review were evaluated for Site 6, Site 22, and SSA 12. The Five-Year Review process included the following elements:

- Community involvement
- Document review
- Data review
- Site inspection
- Interviews

2.2 Community Involvement

The Restoration Advisory Board (RAB) was established in 1997 and is composed of community members as well as representatives of the Navy, DOEE, and USEPA. The Navy provides quarterly written updates that are mailed directly to RAB members, and the RAB meets annually to keep the community informed of environmental issues at WNY. The community was informed of the initiation of the Five-Year Review through a public notice published in the *Washington Post* newspaper (*Local Living D.C.* weekly edition) on February 18, 2021 (**Appendix A**) and by a direct mailing to RAB members on April 13, 2021. As identified in the newspaper notification, information regarding the Five-Year Review sites is available through the Administrative Record maintained on the ER Program public website. In addition, public information is maintained at the following information repository locations (via internet access) and available by calling Naval Support Activity Washington Public Affairs Office at (202) 433-2669.

District of Columbia Public Library
Southeast Branch
403 7th Street, SE
Washington, D.C. 20003
Phone: (202) 698-3377
www.dclibrary.org

Washington Navy Yard Library
805 Kidder Breese, SE
Washington Navy Yard
Washington, D.C. 20374
Phone: (202) 433-413

2.3 Emerging Contaminants

Per- and polyfluoroalkyl substances (PFAS) have been identified by the U.S. Department of Defense and USEPA as “emerging contaminants.” PFAS are of environmental concern because of their persistence in the environment and in organisms, their migration potential in aqueous systems (for example, groundwater), their historically widespread use in commercial products, and their possible health effects at low levels of exposure. A basewide PFAS Preliminary Assessment (PA) has been initiated at WNY in response to the NAVFAC Headquarters directive to conduct a comprehensive evaluation of existing

information about known or potential PFAS releases and potential migration pathways at Naval facilities. The PA is in progress for WNY and is anticipated to be finalized by the end of Fiscal Year 2021.

SECTION 3

Facility Background

3.1 Facility Description, Land, and Resource Use

WNY is located in southeast Washington, D.C., and comprises approximately 63 acres along the north shore of the lower Anacostia River (**Figure 1-1**). Commercial properties along M Street border the facility on the north; a former industrial area and commercial properties along 11th Street to the east; and the Southeast Federal Center (SEFC), owned by the General Services Administration (GSA), on the west. The properties within a 1-mile radius of WNY include industrial, commercial, and residential uses.

Currently, WNY contains administrative, supply, and storage buildings; residences; training facilities; and museums. Buildings and other impervious surfaces cover approximately 95 percent of WNY.

Groundwater at WNY is not used as a potable supply. The U.S. Army Corps of Engineers, Washington Aqueduct Division's Dalecarlia and McMillan Water Treatment Plants—located in Washington, D.C.—provide potable water for WNY. The current source of water to the District public water supply system is surface water from the Potomac River. The nearest known private well is located at a private residence in the Palisades section of the District, approximately 5 miles northwest of WNY (District of Columbia Department of Health, 2003). While groundwater in the District of Columbia is used for non-potable purposes, DOEE is not aware of any public potable water supply wells in the Washington, D.C. area.

3.2 Facility Physical Characteristics

This section describes WNY's physical characteristics and environmental setting. More detailed information can be found in the Site Management Plan (CH2M, 2020).

3.2.1 Climate

The climate of Washington, D.C. is characterized by warm and humid summers and mild winters. July is generally the warmest month, with average daily temperatures in the upper 80s (degrees Fahrenheit). The lowest temperatures are recorded generally in late January and early February, when average high temperatures are in the middle 40s. Average annual precipitation is 41 inches (Johnston, 1964).

3.2.2 Topography

WNY lies on naturally placed deposits and filled areas of the Anacostia River, and slopes generally southward from the facility's northern part to the river. Ground surface elevations range from approximately 50 to 55 feet above mean sea level in WNY's northeastern part to less than 10 feet above mean sea level along the bulkhead adjacent to the Anacostia River.

3.2.3 Hydrology

WNY lies along the Anacostia River floodplain, 2 miles northeast (upstream) of its confluence with the Potomac River. WNY's southern border covers approximately 2,400 feet of Anacostia River shoreline. Adjacent to WNY, the Anacostia River is approximately 1,050 feet wide, tidally influenced, and relatively deep, ranging from about 10 to 15 feet. No other surface water bodies are located on or near the facility.

Asphalt, concrete, and buildings cover the majority of WNY land surface, and most precipitation exits the site as surface runoff, with very little infiltration into the underlying soils. The overall surface

drainage at WNY is toward catch basins and to the south toward the Anacostia River. Runoff collected in catch basins is currently routed through eight stormwater lines that discharge to the Anacostia River. Two District combined sewers and one District separate storm sewer also traverse WNY and discharge to the Anacostia River at the WNY shoreline.

3.2.4 Geology and Hydrogeology

WNY is immediately underlain by heterogeneous fill placed in stages over the last 200 years. The fill is generally thickest (approximately 20 to 30 feet thick) near the river and in the western areas of WNY, where a former embayment of the river had previously existed, and thinnest (approximately 5 to 10 feet thick) at the northern boundary of WNY. The fill is underlain by organic silty clay (alluvium), coarser-grained sand, and gravel materials of the sand and gravel deposits and/or the silt and clay of the Potomac Group, depending on the location at WNY. The geologic formations that underlie WNY consist of a heterogeneous sequence of unconsolidated gravel, sand, silt, clay, and anthropogenic fill.

The water table occurs in the fill hydrogeologic unit in most of WNY and generally slopes south and southwest toward the river. The water table is typically present between 5 and 15 feet below ground surface (bgs). The alluvium hydrogeologic unit appears to serve as a semi-confining unit between the groundwater in the fill and an underlying localized sand and gravel hydrogeologic unit by its lower hydraulic conductivity and fine-grained character. The underlying Potomac silt and clay (below the localized sand and gravel) serve as a relatively impermeable lower limit to the groundwater system underlying WNY. The general groundwater flow direction for the semiconfined sand and gravel unit is south. Tidal fluctuations in the Anacostia River influence the groundwater levels in wells near the shore in all three water-bearing units; however, the influence does not appear to extend farther than about 150 to 200 feet inland.

3.2.5 Habitats and Biota

Approximately 2.7 acres of lawns and parkland, including Leutze Park in the north-central part of the facility, are the only substantially vegetated areas of the largely industrial WNY. Therefore, there is little habitat available for ecological receptors at the facility, except for the limited habitat in the lawns and park. Because WNY abuts the Anacostia River, the near-shore sediments and water column immediately adjacent to WNY represent the only other habitat present for receptor species. Although the Anacostia is a tidally influenced river, the waters of the Anacostia River adjacent to WNY are freshwater and support a warm-water fish community.

3.3 Environmental History

WNY's primary role evolved through different phases from its establishment in 1799, from shipbuilding in the early 1800s, to ordnance (Naval gun) research and construction in the mid-1800s, to ordnance production until the end of World War II, to administrative activities since 1945. While some industrial activities continued after World War II, these activities were phased out by 1961 and former factory and storage buildings were converted to office use. The activities that historically took place at WNY before the 1960s that may have resulted in the release of contaminants to the soil, groundwater, and sediment at the WNY included: gun manufacturing, mounting, machining; metal pressing; foundry, melting, casting; paint shop and paint spraying booth; various laboratories (explosives, optics); electrical and steam power generation and distribution; ship repair; cartridge case foundry; plating, electroplating, polishing; paint, oil, and chemical storage; photographic processing; document incineration; and laundry facilities.

USEPA and the Navy entered a Consent Order in 1997 to perform a RCRA Facility Investigation at WNY. WNY was subsequently added to the National Priorities List (NPL) in 1998. A Federal Facility Agreement (FFA) between USEPA Region 3, DOEE, and the Navy was signed in 1999 (USEPA, 1999) and superseded

the 1997 Consent Order. While the Navy functions as the lead agency for the management and cleanup of the WNY ER Program sites under CERCLA, USEPA, the Navy, and DOEE work together as part of the WNY cleanup team.

A summary of the sites that have been investigated under the ER Program at WNY, including sites that do not require a Five-Year Review, are included as **Table 3-1**. Three WNY sites—Site 6, Site 22, and SSA 12—require a Five-Year Review and are discussed in more detail in Sections 4, 5, and 6.

Table 3-1. WNY ER Sites, Screening Areas, and AOCs

First Five-Year Review

Washington Navy Yard, Washington, D.C.

Administrative Closure - No Action and Desktop Evaluation Sites				
Environmental Restoration Sites				
WNY ER Site	**Description**	**Former Use**	**FYR Required?**	**Closure Document**
1	Building 22	Lead and Brass Foundry	No - closed with No Action	FFA Final Site 1, 2, 3, 7, 9, 11, and 13 Record of Decision Washington Navy Yard, Washington, D.C. September 2007.
2	Buildings 33, 33a, 36, 37, 39, 109	Gun Carriage Shop	No - closed with No Action	FFA Final Site 1, 2, 3, 7, 9, 11, and 13 Record of Decision Washington Navy Yard, Washington, D.C. September 2007.
3	Building 40/41	Gun and Metal Plating Shop	No - closed with No Action	FFA Final Site 1, 2, 3, 7, 9, 11, and 13 Record of Decision Washington Navy Yard, Washington, D.C. September 2007.
4	Buildings 44, 46, 67, and 108	Cartridge Case Shop	No - closed with No Action	FFA Final Site 4 Record of Decision, Washington Navy Yard, Washington, D.C. September 2004.
5	Building 73	Gun Mount, Metal Cleaning, and Fabricating Shop	No - closed with No Action	FFA Final Sites 5 and 16 Record of Decision, Washington Navy Yard, Washington, D.C. September 2006.
7	Building 126	Laundry	No - closed with No Action	FFA Final Site 1, 2, 3, 7, 9, 11, and 13 Record of Decision Washington Navy Yard, Washington, D.C. September 2007.
8	Building 211	Paint and Oil Storage	No - closed with No Action	FFA Final Record of Decision for Site 8, Washington Navy Yard, Washington, D.C. September 2017.
9	Buildings 219 and 220	Gauge and Chemical Laboratory	No - closed with No Action	FFA Final Site 1, 2, 3, 7, 9, 11, and 13 Record of Decision Washington Navy Yard, Washington, D.C. September 2007.
10	Admiral's Row	Flag, Captain, and Visiting Officer Housing	No - closed with No Action	FFA Final Record of Decision for Site 10, Washington Navy Yard, Washington D.C. May 2009.
11	Incinerators	Former Incinerators Removed in 1979	No - closed with No Action	FFA Final Site 1, 2, 3, 7, 9, 11, and 13 Record of Decision Washington Navy Yard, Washington, D.C. September 2007.
13	Building 290	Electrical Equipment	No - closed with No Action	FFA Final Site 1, 2, 3, 7, 9, 11, and 13 Record of Decision Washington Navy Yard, Washington, D.C. September 2007.
14	Building 292	Electrical Equipment	No - closed with No Action	FFA Final Site 14 Record of Decision, Washington Navy Yard, Washington, D.C. DON. September 2005.
16	Building 71	Gasoline and Diesel Fuel Station	No - closed with No Action	FFA Final Sites 5 and 16 Record of Decision, Washington Navy Yard, Washington, D.C. September 2006.
17	Building 201	Automotive Maintenance Facility	No - closed with No Action	FFA Final Record of Decision for Site 17, Washington Navy Yard, Washington, D.C. September 2011.
23	Building 76	Breech Mechanism Shop	No - closed with No Action	FFA Final Record of Decision for Site 23, Washington Navy Yard, Washington, D.C. March 2013.
OU1	Basewide Groundwater	Basewide Groundwater	No - closed with No Action	FFA Final Record of Decision for Operable Unit 1, Washington Navy Yard, Washington, D.C. September 2019.
Site Screening Areas				
SSA	**Description**	**Former Use**	**FYR Required?**	**Closure Document**
1	Building 106	Oil Gasification and Forge Shore Pneumatic Plant	No - closed with No Action	FFA Final NFA Decision Document for SSA 1, 2, 6, 7, 11, and 13 and AOC 1, Washington Navy Yard, Washington, D.C. Navy. December 2006.
2	Buildings 33, 33a, 36, 37, 39, and 109 Quadrangle	Cartridge Case Foundry	No - closed with No Action	FFA Final NFA Decision Document for SSA 1, 2, 6, 7, 11, and 13 and AOC 1, Washington Navy Yard, Washington, D.C. Navy. December 2006.
3 (Reassigned to Site 21)	See Site 21	See Site 21	See Site 21	See Site 21
5 (combined to form SSA 9)	See SSA 9	See SSA 9	See SSA 9	See SSA 9

Table 3-1. WNY ER Sites, Screening Areas, and AOCs

First Five-Year Review

Washington Navy Yard, Washington, D.C.

SSA	Description	Former Use	FYR Required?	Closure Document
6	Building 223	Garbage and Trash House	No - closed with No Action	FFA Final NFA Decision Document for SSA 1, 2, 6, 7, 11, and 13 and AOC 1, Washington Navy Yard, Washington, D.C. Navy. December 2006.
7	Buildings 22, 76, 101, 104, 111, 154, 166, 169, 176, 184, 196, 200, and 218	Former Leaking PCB Transformer Locations	No - closed with No Action	FFA Final NFA Decision Document for SSA 1, 2, 6, 7, 11, and 13 and AOC 1, Washington Navy Yard, Washington, D.C. Navy. December 2006.
8 (Reassigned to Site 22)	See Site 22	See Site 22	See Site 22	See Site 22
9	Buildings 157, 203, 207, and 210	Optical Shop and Laboratory	No - closed with No Action	FFA Final NFA Decision Document for SSA 9, Washington Navy Yard, Washington, D.C. Navy. August 2012.
10 (Reassigned to Site 23)	See Site 23	See Site 23	See Site 23	See Site 23
11	Building 176	Storehouse	No - closed with No Action	FFA Final NFA Decision Document for SSA 1, 2, 6, 7, 11, and 13 and AOC 1, Washington Navy Yard, Washington, D.C. Navy. December 2006.
13	Quarters N/O	Built as Paint Shop in 1866	No - closed with No Action	FFA Final NFA Decision Document for SSA 1, 2, 6, 7, 11, and 13 and AOC 1, Washington Navy Yard, Washington, D.C. Navy. December 2006.
14 (Reassigned to Site 23)	See Site 23	See Site 23	See Site 23	See Site 23
Areas of Concern				
AOC	**Description**	**Former Use**	**FYR Required?**	**Closure Document**
1	Building 142	Public Works Maintenance Shop	No - closed with No Action	FFA Final NFA Decision Document for SSA 1, 2, 6, 7, 11, and 13 and AOC 1, Washington Navy Yard, Washington, D.C. Navy. December 2006.
2 (Reassigned to SSA 3)	See SSA 3	See SSA 3	See SSA 3	See SSA 3
3 (Reassigned to SSA 9)	See SSA 9	See SSA 9	See SSA 9	See SSA 9
4 (Reassigned to SSA 8)	See SSA 8	See SSA 8	See SSA 8	See SSA 8
5 (Reassigned to SSA 7)	See SSA 7	See SSA 7	See SSA 7	See SSA 7
6 (Reassigned to SSA 13)	See SSA 13	See SSA 13	See SSA 13	See SSA 13
7 (Reassigned to SSA 14)	See SSA 14	See SSA 14	See SSA 14	See SSA 14
Closure - Sites Requiring a Five-Year Review				
WNY ER Site	**Description**	**Former Use**	**FYR Required?**	**Closure Document**
6	Buildings 116, 118, and 197	Heating and former Power Plant, Gun Assembly Shop	Yes - LUCs in place	FFA Final Record of Decision for Site 6, Washington Navy Yard, Washington, D.C. September 2016.
22	Building 112	Polishing and Plating Shop	Yes - LUCs in place	FFA Final Record of Decision for Site 22, Washington Navy Yard, Washington, D.C. September 2016.
SSA 12	Fill Material	Fill material placed at the WNY	Yes - LUCs in place	FFA Final Record of Decision for Site Screening Area 12: Exposure Areas 1, 19, 21, and the Eastern Extension Exposure Area, Washington Navy Yard, Washington, D.C. September 2017.

Table 3-1. WNY ER Sites, Screening Areas, and AOCs

First Five-Year Review

Washington Navy Yard, Washington, D.C.

Active Sites, SSAs, and AOCs				
WNY ER Site/SSA/AOC	**Description**	**Former Use**	**FYR Required?**	**Closure Document**
Site 21	Buildings 68, 123, 130, 133, 154, 224, and 246	Ship Repair Department	No - active site, FS in progress	NA
Site 24	Quarters U	Trinity Building, Experimental Ammunition Building, and Naval Reserve Center	No - active site, FS in progress	NA
OU2	Nearshore Sediment	Nearshore Sediment	No - active site, FS in progress	NA
SSA 4	Building 18	Dispensary	No - active site, investigation pending	NA

Notes:

ER - Environmental Restoration

OU - Operable Unit

FYR - Five-Year Review

SSA - Site Screening Area

AOC - Area of Concern

LUC - Land Use Control

NA - Not Applicable

FS - Feasibility Study

SECTION 4

Site 6—Buildings 116, 118, and 197 (Heating and Power Plants, Gun Assembly Shop)

Site 6 (**Figure 4-1**) consists of soil beneath and immediately surrounding Building 116 (former boiler house), Building 118 (former power plant), and Building 197 (former gun assembly shop), and does not include the underlying groundwater. The Site 6 ROD, signed in September 2016, documented the need for implementation of Land Use Controls (LUCs) and Long-Term Management. A Five-Year Review is required because hazardous substances, pollutants, or contaminants remain in excess of levels that allow for UU/UE. This is the first Five-Year Review for Site 6.

4.1 Site Chronology

Table 4-1 presents a chronological list of major Site 6 assessments, investigations, actions, and events.

Table 4-1. Site 6 Chronology

Event	Date
Annual Listing of polychlorinated biphenyls (PCBs) at Naval Facilities identified active transformers in Building 118 with PCB content greater than 500 parts per million	1984
Action – floor trenches between Building 116 and Ash Sluice Pit filled with concrete	1989
PA (Baker, 1993) identified Site 6 as an area of concern	1993
USEPA Special Sampling Investigation (USEPA, 1995) identified elevated PCB concentrations in the sediment that had accumulated in storm sewer manholes	1995
Site Investigation (Baker, 1996) evaluated subsurface soil, groundwater, and soil gas samples collected at Site 6 and coal storage bin; additional investigation recommended	1995 to 1996
Removal Action – PCB-contaminated material removed from Coal Storage Bin/Ash Sluice Pit and concrete decontaminated (OHM, 2000)	1997
NPDES Monitoring – PCB Exceedance at D.C. Combined Sewer Overflow (CSO) #14 (from stormwater discharge from the basement trough of Building 118)	1998
Initial Findings Investigation (CH2M, 2000) evaluated soil and groundwater samples; triggered a removal action to clean and fill Building 118 basement trough	2000
Removal Action – 20 tons of sediment and debris removed from Outfall 10 Storm Sewer; Navy abandoned/ rehabilitated all storm sewer lines on WNY (OHM, 1996; OHM, 2001; Parsons, 1999)	1996 to 2001
Removal Action – PCB material removed from Building 118 trough (OHM, 2001)	2001
Data Gaps Investigation – groundwater samples collected	2001
Focused Remedial Investigation (RI) – not finalized because additional investigation of PCB contamination in Building 118 basement needed	2002
Confirmation Detritus Sampling – Building 118, triggered need for more extension investigation of building interior	2003

Table 4-1. Site 6 Chronology

Event	Date
Supplemental Focused RI – Building 118 (CH2M, 2006) – detritus, soil wipe, and concrete chip samples collected	2006
NPDES Monitoring – PCB exceedance from Building 118 floor sump discharge to D.C. CSO outfall #14	2006
Engineering Evaluation/ Cost Analysis (EE/CA) – Building 118 Detritus Removal (CH2M, 2007)	2007
Removal Action – Building 118 basement decontamination (AGVIQ/CH2M, 2008)	2007
Confirmation Detritus Sampling – from previously cleaned floor areas in Building 118 basement	2009
Focused Soil and Groundwater RI –soil, wipe, and groundwater samples collected from Building 118	2012
Site Screening Area 12 Phase II Screening Investigation (CH2M, 2014a) – groundwater samples collected from Site 6	2013
RI Report (CH2M, 2014b) – recommended FS to address potential for unacceptable risk associated with exposure to contaminants in subsurface soil under future residential land use	1995 to 2013
Feasibility Study (FS) (CH2M, 2015a) - evaluated excavation and LUCs with long-term site management as alternatives	2015
Proposed Plan (Navy, 2016a) – preferred alternative was LUCs and long-term management of the site, as well as periodic groundwater monitoring to confirm polycyclic aromatic hydrocarbon (PAH) and PCB concentrations in groundwater remain stable	2016
ROD (Navy, 2016b) – Selected Remedy was LUCs and Long-term management	2016
LUC Remedial Design (CH2M, 2017a)	2017
Remedial Action Completion Report (CH2M, 2017b) signed	2017
Completed first annual LUC inspection	2018
Completed annual LUC inspection	2019
Completed annual LUC inspection	2020

4.2 Background

4.2.1 Description and History

Site 6 occupies approximately 4.8 acres in the southwestern portion of WNY and consists of Buildings 116, 118, 197. Historical operations within these buildings were associated with ancillary structures such as a former 400,000-gallon oil storage reservoir, storm sewer pipe, and D.C. CSO outfall.
Building 116 was constructed in the early 1900s as a boiler house to supply steam to the former power plant. Coal and bottom ash were stored in a concrete storage bin south of the building. Bottom ash from the Building 116 boilers was transported within trenches, via water, to an ash sluice pit in the corner of the concrete storage bin. Once the ash settled out it was removed by a clamshell bucket, loaded onto trucks, and hauled to a disposal location. The water from the ash sluice pit was discharged to the Anacostia River. Between 1975 and 1980 the boiler house converted from coal to fuel oil, and fuel oil tanks replaced the coal storage bin/ash sluice pit area.

Building 118 was constructed in the early 1900s as the power plant for WNY. Operations included drawing noncontact cooling water from the Anacostia River through an intake tunnel and into a trough for use in steam turbine condensers. These operations also included temporary use of the disconnected water intake tunnel as a storm sewer. Electricity production at WNY ended in 1977 and the intake tunnel was capped. Cooling oil in transformers and switch gears that were used in Building 118 contained PCBs; this equipment was in the basement, first, and second levels of the building, and outside of the northwestern building corner. All the transformers were replaced, retrofitted, or removed from service in the late 1980s.

Building 197 was completed in 1940 and served as a gun assembly shop until 1962. Operations in Building 197 included gun and turret assembly and testing, and use of metal cleaners, lubricants, and petroleum oils. The building was a GSA storage and office building from 1963 to 1993, when it was returned to the Navy for storage use. Building 197 underwent a complete renovation in the late 1990s, and a major addition was completed on the east side of the building (former parking area) in 2000, including five floors of office and support spaces. (The addition to Building 197 was not included in the initial Site 6 boundary, which had been defined in the mid-1990s before the building was expanded.)

A 400,000-gallon oil storage reservoir was constructed in 1919 near the northwestern corner of the current Building 197; it consisted of two tanks separated by a pump house. The oil storage reservoir was filled with concrete and some parts were removed in 1939 prior to construction of Building 197. Outfall 10 is a 16-inch-diameter storm sewer pipe that drains surface runoff from the western sides of Buildings 116 and 118 (along the western border of Site 6). It also collected runoff from the adjacent property formerly owned by GSA.

The D.C. CSO outfall #14 is located east of Buildings 116 and 118 and the coal storage bin/ash sluice pit. This CSO conveys combined sewer flows from parts of Washington D.C. north of WNY to the Anacostia River, but also formerly received the discharge water from the ash sluice pit associated with Building 116 and the non-contact cooling water from Building 118, and conveyed it into the Anacostia River until electricity production ended in 1977. The CSO was later used as an emergency overflow discharge for water that accumulated in the Building 118 basement trough during periods of high storm-induced flooding when the normal discharge pathway to the sanitary sewer was inadequate. Both the CSO and the sanitary sewer pumps from the Building 118 basement trough were disabled in 2008.

4.2.2 Physical Characteristics

Site 6 is covered by impervious surfaces (buildings, sidewalks, streets, and parking areas). The site is in a topographic low and is also very flat. The entire site is roughly 10 feet above mean sea level, with ground surface elevations rising gradually to the northeast, north, and northwest.

Site 6 is situated entirely on a portion of WNY that was reclaimed from a former embayment of the Anacostia River. The soil underlying the Site 6 consists of placed fill, with an average thickness of 16 to 18 feet. Naturally deposited soil material (fine-grained, silty alluvium) that underlies the fill material is approximately 30 to 35 feet thick, and sand and gravel deposits extend 20 to 40 feet beneath the alluvium. The groundwater surface (water table) at Site 6 is an average of 6 to 10 feet below the ground surface and occurs in the fill material. Groundwater also occurs in the sand and gravel deposits. The thick, fine-grained alluvium layer represents a significant barrier to vertical groundwater flow between the overlaying fill and the underlying sand and gravel deposits, and significant head differences are observed between the units. Horizontal groundwater flow in the fill at Site 6 converges from the northeast (WNY), north (SEFC and M Street), and northwest (SEFC) and exits to the south where it discharges into the Anacostia River.

4.2.3 Land and Resource Use

Building 116 currently supplies steam for the heating at WNY. Building 118 is currently used to manage base utilities. Building 197 is currently an office building that serves as Naval Sea Systems Command headquarters. The buildings are surrounded by pavement, sidewalks, and city streets. Land use is not expected to change in the future unless WNY (or the Site 6 portion of it) is closed and sold for another use. There are currently no plans to do this. If the Site 6 portion of WNY is ever sold and redeveloped, its use would likely be densely developed urban commercial or residential property (that is, apartments or townhouses built on small lots with minimal exposed soil).

Groundwater at WNY is not used as a potable supply. The source of the District of Columbia's water supply is the Potomac River.

4.2.4 Initial Response

As summarized in **Table 4-1**, several removal actions, including decontaminating and/or removing certain structures, have been conducted at Site 6 prior to the ROD. Further information about these activities can be found in the RI report (CH2M, 2014b).

In the 1970s, two floor trenches, which conveyed ash from Building 116 to the ash sluice pit, were filled with concrete. The ash sluice pit itself was cleaned in 1989. No confirmation samples were collected at that time, but confirmation concrete chip, concrete core, sub-slab soil, and surface water samples were collected from the coal storage bin/ash sluice pit following a later removal action.

In November 1997, a removal action was completed under the Navy's ER Program to remove PCB-contaminated sediments from the coal storage bin/ash sluice pit and decontaminate the concrete. Approximately 280 cubic yards of material were removed from the coal storage bin/ash sluice pit and disposed of offsite as non-hazardous waste. The floor and sidewalls were then cleaned with high-pressure spray and alkaline detergent. Following the removal and cleaning, confirmation samples were collected from concrete chips, concrete cores, sub-slab soil, and water ponded in the coal storage bin/ash sluice pit and analyzed for PCBs. Clean-up was verified and documented in the post-removal-action report (OHM, 2000).

Between 1996 and 2001, the Navy conducted a series of removal actions to eliminate potential releases of contamination from onsite storm sewers. In 1996, 20 tons of sediment and debris were removed from the storm sewer line leading to Outfall 10 and disposed of as non-hazardous waste (OHM, 1996). Then, between 1998 and 2001, the Navy rehabilitated or abandoned all storm sewer lines on the WNY. The northern 320-foot portion of the sewer line leading to Outfall 10 was abandoned and filled with a low-permeability fill material (similar to a concrete/grout mix); the remainder of the line was replaced or retrofitted with a new lining. The outfall was relocated approximately 150 feet west along the Anacostia River shoreline (downstream) to better fit into the design of the new bulkhead constructed along the SEFC riverfront. These activities are documented by OHM (1996, 2001) and Parsons (1999). No confirmation sampling was conducted or warranted for either of these removal actions because the storm sewers were either relined, replaced, or abandoned, and it was determined that there were no past or current connections to Building 118 or the coal storage bin.

Between January and May 2001, the Navy performed a removal action to characterize and clean the PCB-contaminated detritus (unconsolidated materials within the building basement that were considered to be representative of subsurface soil) from the Building 118 trough, decontaminate the concrete walls and floor of the trough, and modify the trough in Building 118. The Building 118 trough was cleaned and filled in with concrete from its original depth of 15 feet bgs to approximately 4 feet bgs to minimize both the entry of groundwater into the Building 118 trough and subsequent discharge into the sanitary sewer during low-flow periods (the revised depth of the trough is approximately 0.5 foot above mean sea level). During these activities, approximately 11 tons of PCB-contaminated detritus was

removed and disposed of offsite at a licensed disposal facility. Approximately 42,000 gallons of water was generated from the decontamination activities, treated onsite, and discharged to the sanitary sewer system. Prior to concrete filling, post-decontamination composite concrete chip samples were collected from the walls and floor of the trough and analyzed for PCBs, and the results were documented in the post-removal-action report (OHM, 2001).

The Navy performed a second removal action in Building 118 in 2007 under the ER Program. This action involved removing visible detritus from the floors and other horizontal surfaces within Building 118, as well as from the floor drains and pipes leading to the basement trough. The trough was also cleaned. PCB-contaminated porous surfaces within Building 118 that were accessible to human were cleaned or were encapsulated. The cleaning process consisted of scraping, high-pressure vacuuming, and machine scrubbing. Following the removal process confirmation wipe sampling and painting were completed. Clean-up was verified and documented in a post-removal-action closeout report (AGVIQ/CH2M HILL, 2008).

4.2.5 Site Risks

A baseline quantitative human health risk assessment (HHRA) was completed for Site 6 as part of the RI (CH2M, 2014b), and an updated quantitative HHRA was completed as part of the FS (CH2M, 2015a) to provide separate evaluations of the risks associated with soil underneath the combined footprint of Buildings 116, 118, and 197 and for soil outside of the combined footprint of the buildings to aid in remedial decision making. For soil within the building footprint, unacceptable risk was determined for future residents from exposure to the contaminants of concern (COCs) Aroclor 1260; the PAHs benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene; arsenic; and chromium. For soil outside the building footprint, risk was determined to be within USEPA's acceptable risk range.

Groundwater at Site 6 was evaluated to identify potential site-related impacts and screened against USEPA screening levels to identify possible site-related risks. Potentially unacceptable risks were identified for future residential use of the groundwater at Site 6 as a potable water supply. However, risks from groundwater exposure were due to constituents of potential concern (COPCs) that have been found throughout WNY groundwater (such as arsenic, iron, and manganese) and were determined to not be related to Site 6 activities. Groundwater is not considered part of Site 6 and was separately addressed as part of the basewide groundwater operable unit (OU1), which was closed with a no-action ROD in 2019 (Navy, 2019).

The Navy also evaluated the potential for unacceptable risks to plants and animals associated with chemicals in the site soil. Because the ground surface at Site 6 is completely covered by buildings, pavement, and similar impervious surfaces, the presence of natural habitats for ecological receptors is extremely limited and it was determined that exposure to soil contamination is improbable, and there is no potential risk to ecological receptors from contact with soil.

4.3 Response Action Summary

4.3.1 Basis for Remedial Action

Remedial action was determined to be necessary to protect public health and the environment from actual or threatened contact with PAH, PCB, and metals COCs in the subsurface soil beneath the combined footprints of Buildings 116, 118, and 197 at Site 6.

4.3.2 Remedy Selection

The ROD for Site 6 was signed in September 2016 (Navy, 2016b). The site-specific remedial action objective (RAO) presented in the ROD is:

- Prevent direct exposure of human receptors to soil under the current buildings in the combined footprints of Buildings 116, 118, and 197.

The risk drivers are PAH, PCB, and metals contaminants in the subsurface soil beneath the combined footprints of these buildings. Specific remediation criteria were not established for these contaminants because samples could not be collected underneath the entire building complex and any boundary established based on remediation criteria would have greater uncertainty than the boundary established using the footprint of the buildings.

The Selected Remedy for Site 6 is LUCs and Long-term Management to prevent unacceptable risks to human receptors from direct exposure to soil under Buildings 116, 118, and 197. Specific LUC actions consist of the following:

- Restrict activities that could result in human contact with soil, such as soil excavation within the footprint of these buildings.
- Prevent future redevelopment of the property requiring a change in land use that is not compatible with residual site risks, or intrusive activities below the building foundation, such as demolishing the building.

These restrictions will remain in place until Buildings 116, 118, and/or 197 are removed, additional action is taken to fully delineate the extent of contamination in the remaining soil underneath the buildings, and the soil is cleaned up to levels that allow for UU/UE.

Long-term management actions under the Selected Remedy include implementing, managing, reporting on, and enforcing the LUCs, conducting statutory Five-Year Reviews while contaminated soil remains in place to ensure the remedial alternative components continue to meet the RAO, and conducting groundwater monitoring as part of the statutory Five-Year Reviews to confirm PAH and PCB concentrations remain stable and are not increasing to concentrations that could pose unacceptable risks.

4.3.3 Remedy Implementation

The LUC Remedial Design was completed in September 2017 (CH2M, 2017a) to define how the Navy would implement, maintain, and enforce the Site 6 LUCs. Following Navy implementation of LUC requirements, a Remedial Action Completion Report, documenting that the response action is protective of human health and the environment, operating as intended, and achieves the RAO in the ROD, was signed by the Navy and USEPA, and concurred by DOEE, in September 2017 (CH2M, 2017b). The LUC boundary for Site 6 is shown on **Figure 4-2**.

To meet the LUC performance objectives, the Navy incorporated the Site 6 LUC boundary, as well as the terms and conditions of the LUCs, into the installation's existing land use management processes, including installation maps, asset management plans, real estate records, and associated geographic information systems (GIS). Specifically, the Navy loaded relevant Site 6 ER Program information, such as LUC boundaries, conditions, and limitations and Navy Remedial Project Manager contact information into the Naval Installation Restoration Information Solution (NIRIS) Map Service to provide a single source of reference to support its management of LUCs associated with Site 6.

WNY personnel enforce the LUCs using current processes: Naval District Washington Region Excavation Permit process at the work permit stage for any intrusive construction project or activity at the installation that would result in contact with or exposure of subsurface soil, including soil beneath a building; and the Public Works Department-Washington Asset Management site approval process for any proposed changes in land use.

The Navy conducts annual inspections of the environmental use restrictions and controls to assess and document the continued compliance with the LUC requirements for Site 6. Annual inspections began in September 2018; the inspection checklists are included as **Appendix B**.

The RAO has been achieved for Site 6; therefore, the CERCLA response is complete for this site. Long-term management of the LUCs and statutory Five-Year Reviews will continue until Site 6 is determined to be available for UU/UE to document that the remedy remains effective, protective, and continues to meet the RAO specified in the ROD.

4.4 Five-Year Review

4.4.1 Document Review

This initial Five-Year Review consisted of a review of the following documents:

- FFA Final Remedial Investigation Report for Site 6, Washington, D.C. (CH2M, 2014b)
- FFA Final Site 6 Feasibility Study, Washington Navy Yard, Washington, D.C. (CH2M, 2015a)
- Proposed Plan – Site 6, Washington Navy Yard, Washington, D.C. (Navy, 2016a)
- Record of Decision for Site 6, Washington Navy Yard, Washington, D.C. (Navy, 2016b)
- FFA Final Land Use Control Remedial Design – Site 6, Washington Navy Yard, Washington, D.C. (CH2M, 2017a)
- FFA Final Remedial Action Completion Report, Site 6, Washington Navy Yard, Washington, D.C. (CH2M, 2017b)
- Site 6 Annual Inspection Checklist (2018)
- Site 6 Annual Inspection Checklist (2019)
- Site 6 Annual Inspection Checklist (2020)
- FFA Final Uniform Federal Policy-Sampling and Analysis Plan, Five-Year Review, Site 6 Groundwater Sampling, Washington Navy Yard, Washington, D.C. (CH2M, 2021)

4.4.2 Data Review

Groundwater sampling was completed in April 2021 as part of the long-term management requirements of the Site 6 ROD. The objective of the sampling was to confirm that concentrations of PAHs and PCBs (which are COCs in Site 6 soil) remain stable in groundwater (that is, groundwater concentrations are consistent with previous sampling results) and are not increasing to concentrations that could pose potentially unacceptable risks to groundwater users. To achieve the objective, 2 existing groundwater monitoring wells located outside and downgradient of the Site 6 LUC boundary (**Figure 4-3**) were purged and sampled for PCBs (congeners) and PAHs (specifically, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene) to document current concentrations and evaluate temporal trends. Field-filtered PCB congeners were also collected in addition to total PCB congeners to evaluate whether detected PCBs are the result of entrained soil particulates or dissolved concentrations of these parameters. Originally, 5 wells were proposed for sampling; all 5 of these wells had previously been sampled as part of the Site 6 RI and the OU1 (basewide groundwater) RI and found to pose no unacceptable risks. However, 2 wells outside the WNY facility boundary were paved over during redevelopment activities at the adjacent property, and 1 well was inaccessible because of re-grading activities that covered the well with several feet of clean fill.

PCB congeners (total and field-filtered) and PAHs were not detected in either downgradient monitoring well during this sampling event. Therefore, it was concluded that the concentrations of these constituents remain stable in groundwater and the Site 6 soil COCs are not likely leaching to groundwater. As the Five-Year Review process continues, optimization opportunities will be considered to reduce or eliminate the need for groundwater monitoring while ensuring protection of human health and the environment.

4.4.3 Site Inspection

Inspections of the LUCs have been conducted annually at Site 6 since 2018 to ensure LUCs are maintained and any construction or intrusive activities conducted within the LUC boundary are appropriately managed. Annual LUC inspections are conducted by the NAVFAC Washington ER Program Remedial Project Manager (RPM), the facility's Installation Remediation (IR) Program Manager, the Navy's contractor (CH2M), and other facility personnel as needed, and documented on a LUC checklist that is shared with USEPA and DOEE.

There was one minor finding during the annual inspection process that does not affect the protectiveness of the remedy:

- In 2018, visual evidence of intrusive activities (gravel patch in asphalt) was noted within the LUC boundary during the site inspection. The CH2M inspector confirmed with the senior construction manager for Public Works Department (PWD) Washington that the activity was associated with environmental testing of the soil to support a pipe repair project. The Naval District Washington (NDW) Region Excavation Permit (dig permit) process was followed for the project, including environmental review and consultation that identified the presence of LUCs and known contamination at this location. Because the established LUC review procedure and requirements were followed as part of the dig permit process, no corrective action was warranted for this activity.

There were no findings or corrective actions noted during the subsequent site inspections in 2019 and 2020. Site inspections are documented in **Appendix B**. The next site inspection is scheduled for September 2021.

4.4.4 Interviews

Interviews were conducted with WNY facility personnel as part of the annual LUC inspections to evaluate if land use has changed since the last inspection, if there is any evidence of intrusive activities within the LUC boundary (including building basements), if the LUC boundaries and conditions are included in the NIRIS Map Service database, and how the LUCs are incorporated into the base dig permit and asset management processes. Feedback from these interviews is included on the site inspection checklists included as **Appendix B**.

4.5 Technical Assessment

4.5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes, the remedy at Site 6 is functioning as intended by the ROD. LUCs are in place, functioning as intended to restrict activities that could result in human contact with soil and prevent redevelopment of the property requiring a change in land use that is not compatible with site risks, and meeting the RAO. Analytical data were collected from two wells downgradient of the LUC boundary and analyzed for PCB congeners (total and field-filtered) and PAHs. None of these constituents were detected in the groundwater samples. Therefore, the recent groundwater sampling data are comparable to results from

the same wells sampled during the RI and leaching of COCs from the contaminated soil within the LUC boundary is likely not occurring.

4.5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of remedy selection still valid?

Yes, the exposure assumptions, toxicity data, and RAOs used at the time of remedy selection are still valid. Cleanup values were not established for soil underneath Buildings 116, 118, or 197 at Site 6 because samples could not be collected underneath the entire building complex. Therefore, any boundary established from the creation of preliminary remediation goals (PRGs) would have had greater uncertainty than the boundary established using the footprint of the buildings.

No changes in Applicable or Relevant and Appropriate Requirements (ARARs) or to-be-considered (TBC) criteria that adversely affect the protectiveness of the remedy were identified during this Five-Year Review. No changes in the site conditions that would affect exposure pathways were identified, and no new contaminants, sources, or routes of exposure were identified as part of this Five-Year Review.

Although there have been some changes in toxicity values, regulatory levels, and risk characteristics of COCs at Site 6, these changes do not affect the effectiveness of the remedy since the remedy is LUCs, and the contaminated soil is covered in its entirety by buildings and other impervious surfaces.
The standardized risk assessment methodology has not changed significantly since the risk assessments associated with the sites has been completed. Consequently, the protectiveness of the remedy is not affected.

4.5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No, no other information has been identified that calls into question the protectiveness of the remedy.

4.6 Issues

No issues were identified for Site 6 during this Five-Year Review.

4.7 Recommendations and Follow Up Actions

None.

4.8 Protectiveness Statement

The remedy for soil at Site 6 is protective of human health and the environment because exposure pathways that could result in unacceptable risks are being controlled by LUCs. These LUCs have been fully implemented, are operating as intended, and achieve the RAO in the ROD by restricting intrusive activities and preventing changes in land use.

4.9 Next Review

The next Five-Year Review for Site 6 is required by September 2026.

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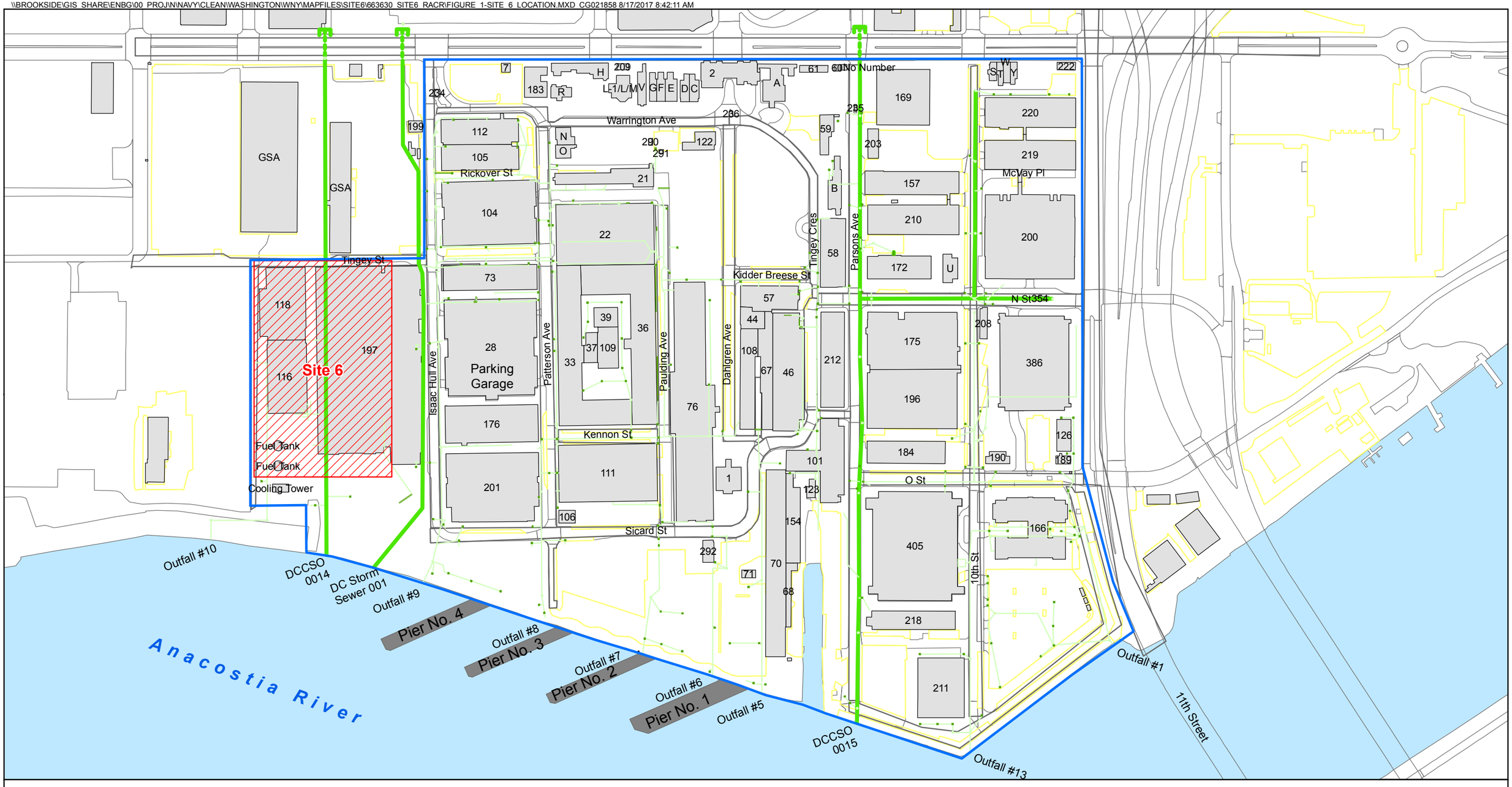


Legend

- WNY Storm Sewer Line
- DC Storm Sewer Line
- Building
- Road Way
- Parking Area
- Water Body
- Site 6
- Navy Yard Boundary

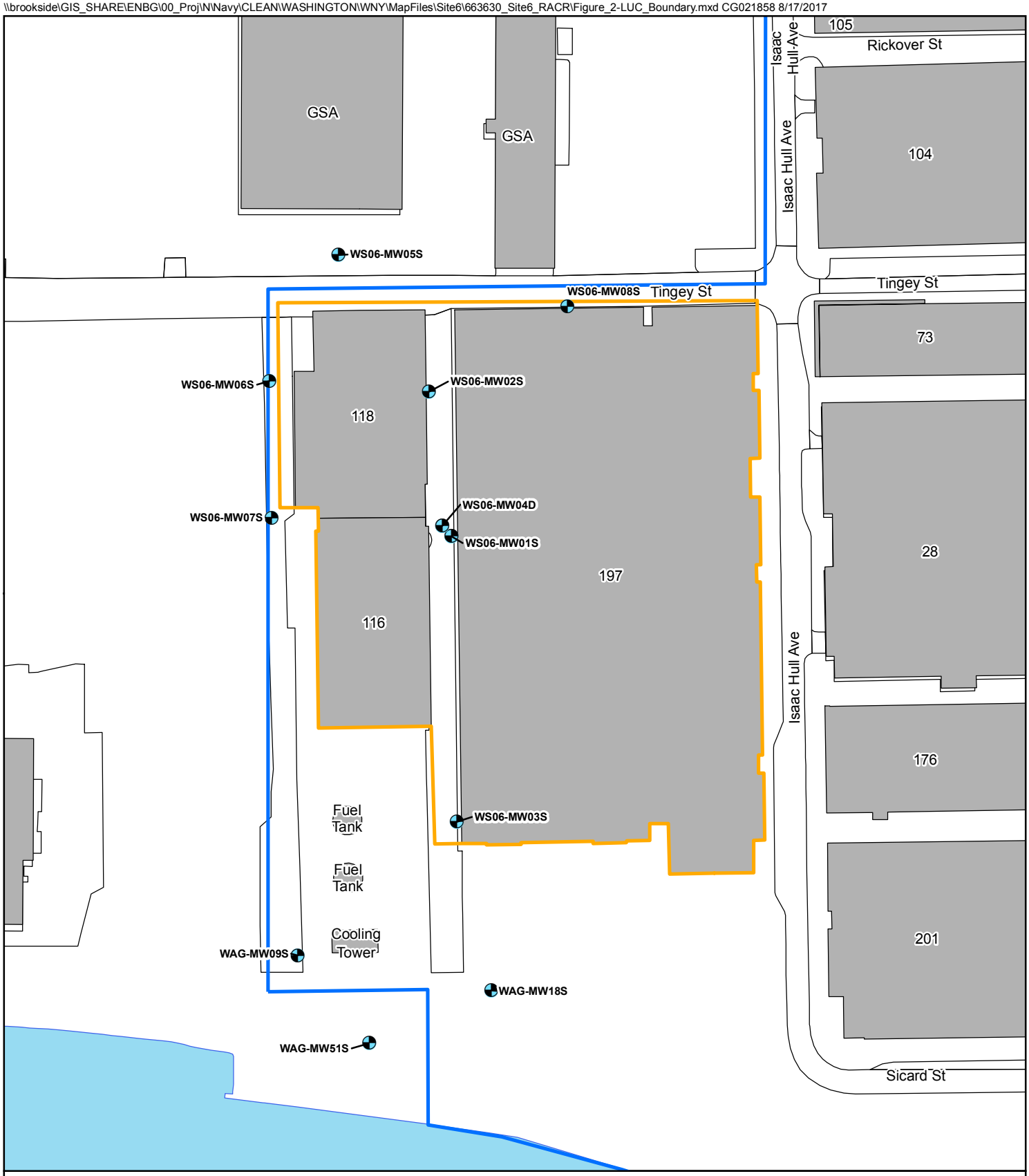
N

0 125 250 Feet

Figure 4-1
Site 6 Location
Five-Year Review
Washington Navy Yard, Washington, D.C.

ch2m

\\brookside\GIS_SHARE\ENBG\00_Proj\N\Navy\CLEAN\WASHINGTON\WNY\MapFiles\Site6\663630_Site6_RACR\Figure_2-LUC_Boundary.mxd CG021858 8/17/2017



Legend

- Monitoring Well
- LUC Boundary
- Navy Yard Boundary

N

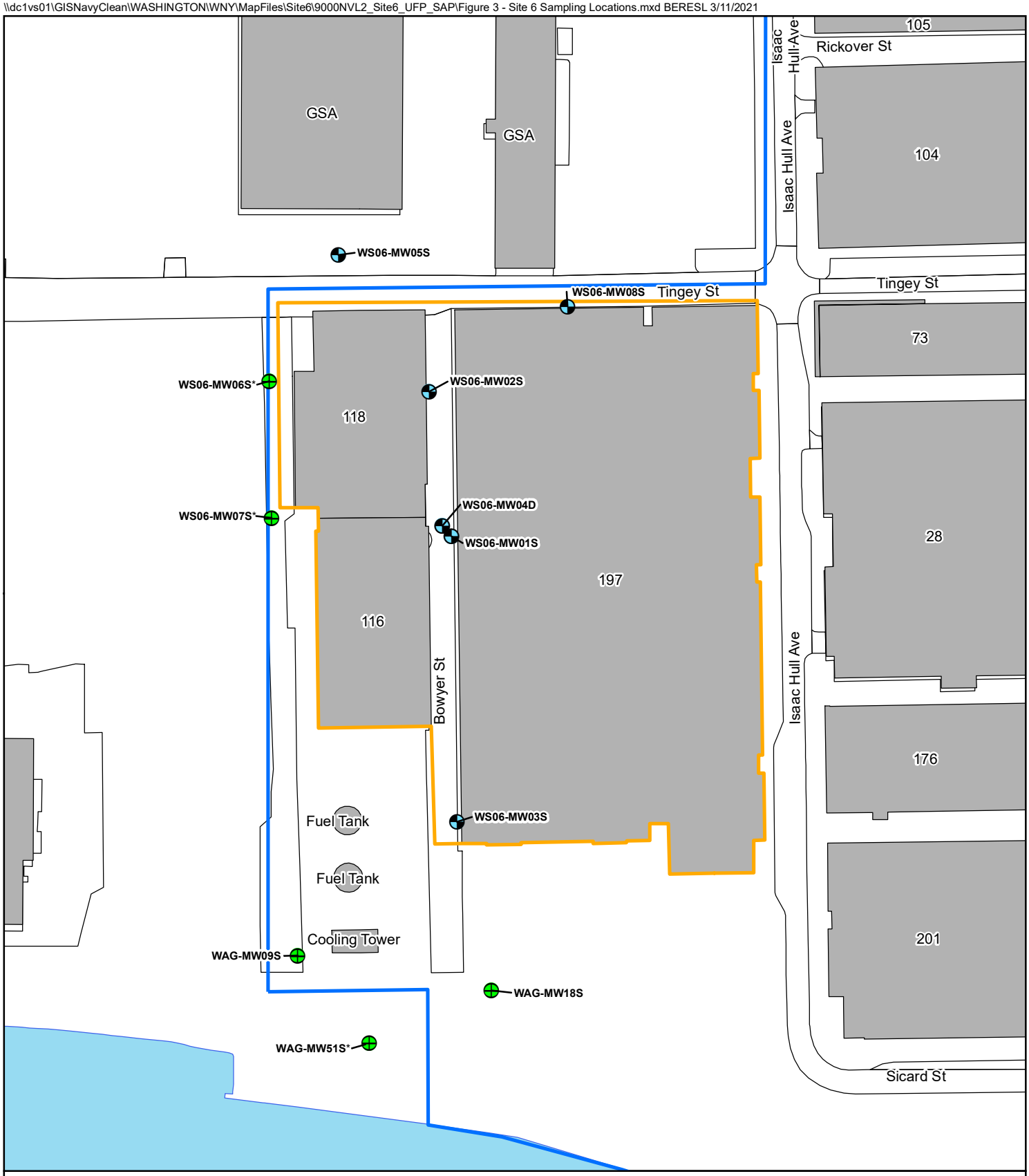
0 62.5 125

Feet

Figure 4-2
Site 6 LUC Boundary
Five-Year Review
Washington Navy Yard, Washington, D.C.

ch2m

\\dc1vs01\GISNavyClean\WASHINGTON\WNY\MapFiles\Site6\9000NVL2_Site6_UFP_SAP\Figure 3 - Site 6 Sampling Locations.mxd BERESL 3/11/2021



Legend

Noted

- Monitoring Well
- Existing Well to be Resampled for Temporal Concentrations
- Site 6 Land Use Control Boundary
- Navy Yard Boundary

* Well unable to be sampled during April 2021 sampling event

N

0 62.5 125

Feet

Figure 4-3
Site 6 Sampling Locations
Five-Year Review
Washington Navy Yard, Washington, D.C.

[redacted]

SECTION 5

Site 22—Building 112 (Polishing and Plating Shop)

Site 22 (**Figure 5-1**) consists of soil beneath and immediately surrounding Building 112 (former plating and polishing shop) and does not include the underlying groundwater. Although not specifically part of Site 22, Building 105 adjoins the southern wall of Building 112, and while there are no data to indicate whether soil beneath Building 105 has been impacted (samples could not be collected underneath the entire building complex during previous investigations), the Site 22 ROD addresses the combined perimeter of these two buildings.

The Site 22 ROD was signed in September 2016 and documented the need for LUCs and Long-Term Management. A Five-Year Review is required because hazardous substances, pollutants, or contaminants remain in excess of levels that allow for UU/UE. This is the first Five-Year Review for Site 22.

5.1 Site Chronology

Table 5-1 presents a chronological list of major Site 22 assessments, investigations, actions, and events.

Table 5-1. Site 22 Chronology

Event	Date
Investigation Report for Site Screening Areas 1, 3, 4, 6, 8, 9, 10, and 11 (CH2M, 2004a) – groundwater samples collected at Site Screening Area 8 (which was later re-classified as Site 22)	2002-2004
Building 112 Investigation (CH2M, 2004b) – soil, groundwater, and standing water samples collected; based on results, Site Screening Area 8 was re-classified to an ER Site (Site 22).	2004
RI Report (CH2M, 2012) – recommended FS to address potential future risks to human health from exposure to soil located under Building 112	2007-2012
FS (CH2M, 2015b) – conducted pre-FS groundwater sampling to evaluate hexavalent chromium in groundwater; evaluated excavation and LUCs with long-term site management as alternatives	2015
Supplemental Groundwater Sampling – analyzed samples for PFAS	2016
Proposed Plan (Navy, 2016c) - preferred alternative was LUCs and long-term management of the site	2016
ROD (Navy, 2016d) - Selected Remedy was LUCs and long-term management	2016
LUC Remedial Design (CH2M, 2017c)	2017
Remedial Action Completion Report (CH2M, 2017d) signed	2017
Completed first annual LUC inspection	2018
Completed annual LUC inspection	2019
Completed annual LUC inspection	2020

5.2 Background

5.2.1 Description and History

Site 22 occupies approximately 0.4 acres in the northwestern portion of WNY. Building 112 was constructed in 1903 as the Seaman Gunner's Repair and Storehouse. Operations such as light machining, bench work, and light motor overhaul and assembly likely were conducted in this building. The building was converted to an electroplating shop in the 1920s. Operations included plating with chromium, cadmium, nickel, copper, lead, tin, gold, and silver. In addition to plating, operations such as pickling, Parkerizing, and polishing were conducted in the building. Plating operations reportedly were continued until the 1950s. Since the 1920s, the building also has housed the U.S. Navy Band and has served as a storage facility for the public works department and furniture.

Building 105, although not historically identified as part of Site 22, adjoins the southern side and shares a common wall with Building 112. It housed the former Plastic Works Shop, is estimated to have been constructed at approximately the same time as Building 112.

5.2.2 Physical Characteristics

Site 22 is covered by impervious surfaces (buildings, sidewalks, and streets). It is partially located in the portion of WNY that was reclaimed from a large embayment of the Anacostia River. The western two-thirds of the site are situated on reclaimed land, while the northeastern corner of the site is situated on the former riverbank. The site is underlain by anthropogenic fill material, with an average thickness of 14 feet. The fill in the western portion of the site is underlain by up to 14 feet of naturally deposited soil material (fine-grained, silty alluvium), with the silty clay of the Potomac Group below that layer. The fill in the northeastern corner of the site is underlain directly by the Potomac Group. The general direction of groundwater flow at WNY is southwest toward the Anacostia River. The groundwater surface (water table) at Site 22 is an average of 5 to 8 feet bgs, although in the northeastern corner where there is only a thin layer of fill, the water table may be encountered in the Potomac Unit.

5.2.3 Land and Resource Use

Building 112 is currently used to house the U.S. Navy Band. The adjacent Building 105 is also currently associated with the U.S. Navy Band. The buildings are surrounded by pavement, sidewalks, and city streets. Land use is not expected to change in the future unless the WNY (or the Site 22 portion of it) is closed and sold for another use. There are currently no plans to do this. In the event that the Site 22 portion of the WNY is ever sold and redeveloped, its use would likely be densely developed urban commercial or residential property (that is, apartments or townhouses built on small lots with minimal exposed soil).

Groundwater at WNY is not used as a potable supply. The source of the city's water supply is the Potomac River.

5.2.4 Site Risks

A baseline quantitative HHRA was completed for Site 22 as part of the RI (CH2M, 2012) to evaluate potential risks associated with constituents detected in soil within the footprint of Building 112 and outside the footprint of Building 112. This approach was used because data collected during the RI showed a clear difference between the concentrations of contaminants in soil beneath the building and those detected outside the building footprint. For soil within the Building 112 footprint, unacceptable risk was determined for future industrial workers and future residents from exposure to hexavalent chromium, the only COC identified in soil. For soil outside the building footprint, risk was determined to be within USEPA's acceptable risk range.

Groundwater also was evaluated in the risk assessment to consider if chemical constituents present in the soil represented a source of groundwater contamination from leaching. The results of this evaluation determined that the contaminants in the soil related to Site 22 do not pose a source of risk in groundwater, even if it were to be used as a drinking water source. Groundwater is not considered part of Site 22 and was separately addressed as part of the basewide groundwater operable unit (OU1), which was closed with a no-action ROD in 2019 (Navy, 2019).

The Navy also evaluated the potential for unacceptable risks to plants and animals associated with chemicals in the site soil. Because the ground surface at Site 22 is completely covered by buildings, pavement, and similar impervious surfaces, the presence of natural habitats for ecological receptors is extremely limited and exposure to soil contamination is improbable. As a result of the lack of receptors and the lack of potential exposure, there is no potential risk to ecological receptors from contact with soil.

5.3 Response Action Summary

5.3.1 Basis for Remedial Action

Remedial action was determined to be necessary to protect public health and the environment from actual or threatened contact with COCs in the soil beneath the Building 112 footprint at Site 22. Although not specifically part of Site 22, Building 105 adjoins the southern wall of Building 112, and there are no data to indicate soil beneath Building 105 has not been impacted by hexavalent chromium (samples could not be collected underneath the entire building complex during previous investigations). Therefore, soil beneath Building was considered when developing the remedial action for Site 22 soil.

5.3.2 Remedy Selection

The ROD for Site 22 was signed in September 2016 (Navy, 2016d). The site-specific RAOs presented in the ROD are:

- Prevent unacceptable risks to human receptors from direct exposure to hexavalent chromium, the COC in soil, currently underneath Building 112
- Prevent unacceptable risks to human receptors from direct exposure to hexavalent chromium that may be present in soil currently underneath Building 105.

Specific remediation criteria were not established for these contaminants because samples could not be collected underneath the buildings and any boundary established based on remediation criteria would have greater uncertainty than the boundary established using the footprint of the buildings.

The Selected Remedy for Site 22 is LUCs and Long-term Management to prevent unacceptable risks to human receptors from direct exposure to soil under Buildings 112 and 105. Specific LUC actions consist of the following:

- Prohibit activities that could result in human contact with soil, such as soil excavation within the perimeter footprint of these buildings or intrusive activities below the building foundation (such as demolishing the building).
- Prohibit future redevelopment of the property requiring a change in land use that is not compatible with residual site risks.

Restrictions will remain in place until Buildings 112 and 105 are removed, additional action is taken to fully delineate the extent of contamination in the remaining soil underneath the buildings, and the soil is cleaned up to levels that allow for UU/UE.

Long-term management actions under the Selected Remedy include implementing, managing, reporting on, and enforcing the LUCs, and conducting statutory Five-Year Reviews while contaminated soil remains in place to ensure the remedial alternative components continue to meet the RAOs.

5.3.3 Remedy Implementation

The LUC Remedial Design was completed in September 2017 (CH2M, 2017c) to define how the Navy would implement, maintain, and enforce the Site 22 LUCs. Following Navy implementation of LUC requirements, a Remedial Action Completion Report, documenting that the response action is protective of human health and the environment, operating as intended, and achieves the RAOs in the ROD, was signed by the Navy and USEPA, and concurred by DOEE, in September 2017 (CH2M, 2017d). The LUC boundary for Site 22 is show on **Figure 5-2**.

To meet the LUC performance objectives, the Navy incorporated the Site 22 LUC boundary, as well as the terms and conditions of the LUCs, into the installation's existing land use management processes, including installation maps, asset management plans, real estate records, and associated GIS. Specifically, the Navy loaded relevant Site 22 ER Program information, such as LUC boundaries, conditions, and limitations and Navy Remedial Project Manager contact information into the NIRIS Map Service to provide a single source of reference to support its management of LUCs associated with Site 6.

WNY personnel enforce the LUCs using current processes: Naval District Washington Region Excavation Permit process at the work permit stage for any intrusive construction project or activity at the installation that would result in contact with or exposure of subsurface soil, including soil beneath a building; and the Public Works Department-Washington Asset Management site approval process for any proposed changes in land use.

The Navy conducts annual inspections of the environmental use restrictions and controls to assess and document the continued compliance with the LUC requirements for Site 22. Annual inspections began in September 2018; the inspection checklists are included as **Appendix C**.

The RAOs have been achieved for Site 22; therefore, the CERCLA response is complete for this site. Long-term management of the LUCs and statutory Five-Year Reviews will continue until Site 22 is determined to be available for UU/UE to document that the remedy remains effective, protective, and continues to meet the RAOs specified in the ROD.

5.4 Five-Year Review

5.4.1 Document Review

This initial Five-Year Review consisted of a review of the following documents:

- Remedial Investigation Report for Sites 22 and 23, Washington Navy Yard, Washington, D.C. (CH2M, 2012)
- Site 22 Feasibility Study, Washington Navy Yard, Washington, D.C. (CH2M, 2015b)
- Proposed Plan, Site 22 at the Washington Navy Yard, Washington, D.C. (Navy, 2016c)
- FFA Final Record of Decision for Site 22, Washington Navy Yard, Washington, D.C. (Navy, 2016d)
- FFA Final Land Use Control Remedial Design – Site 22, Washington Navy Yard, Washington, D.C. (CH2M, 2017c)
- FFA Final Remedial Action Completion Report, Site 22, Washington Navy Yard, Washington, D.C. (CH2M, 2017d)

- Site 22 Annual Inspection Checklist (2018)
- Site 22 Annual Inspection Checklist (2019)
- Site 22 Annual Inspection Checklist (2020)

5.4.2 Site Inspection

Inspections of the LUCs have been conducted annually at Site 22 since 2018 to ensure LUCs are maintained and any construction or intrusive activities conducted within the LUC boundary are appropriately managed. Annual LUC inspections are conducted by the NAVFAC Washington ER Program RPM, the facility's IR Program Manager, the Navy's contractor (CH2M), and other facility personnel as needed, and documented on a LUC checklist that is shared with USEPA and DOEE.

No findings have been noted for Site 22 during these site inspections and no corrective measures have been necessary. Site inspections are documented in **Appendix C**. The next site inspection is scheduled for September 2021.

5.4.3 Interviews

Interviews were conducted with WNY facility personnel as part of the annual LUC inspections to evaluate if land use has changed since the last inspection, if there is any evidence of intrusive activities within the LUC boundary (including building basements), if the LUC boundaries and conditions are included in the NIRIS Map Service database, and how the LUCs are incorporated into the base dig permit and asset management processes. Feedback from these interviews is included on the site inspection checklists included as **Appendix C**.

5.5 Technical Assessment

5.5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes, the remedy at Site 22 is functioning as intended by the ROD. LUCs are in place, functioning as intended to restrict activities that could result in human contact with soil and prohibit redevelopment of the property requiring a change in land use that is not compatible with site risks, and meeting the RAO.

5.5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of remedy selection still valid?

Yes, the exposure assumptions, toxicity data, and RAOs used at the time of remedy selection are still valid. Cleanup values were not established for soil underneath Buildings 112 and 105 at Site 22 because samples could not be collected underneath the entire building complex. Therefore, any boundary established from the creation of PRGs would have had greater uncertainty than the boundary established using the footprint of the buildings.

No changes in ARARs or TBCs that adversely affect the protectiveness of the remedy were identified during this Five-Year Review. No changes in the site conditions that would affect exposure pathways were identified, and no new contaminants, sources, or routes of exposure were identified as part of this Five-Year Review.

Although there have been some changes in toxicity values, regulatory levels, and risk characteristics of COCs at Site 22, these changes do not affect the effectiveness of the remedy since the remedy is LUCs, and the contaminated soil is covered in its entirety by buildings and other impervious surfaces.

The standardized risk assessment methodology has not changed significantly since the risk assessments associated with the sites has been completed. Consequently, the protectiveness of the remedy is not affected.

5.5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No, no other information has been identified that calls into question the protectiveness of the remedy.

5.6 Issues

No issues were identified for Site 22 during this Five-Year Review.

5.7 Recommendations and Follow Up Actions

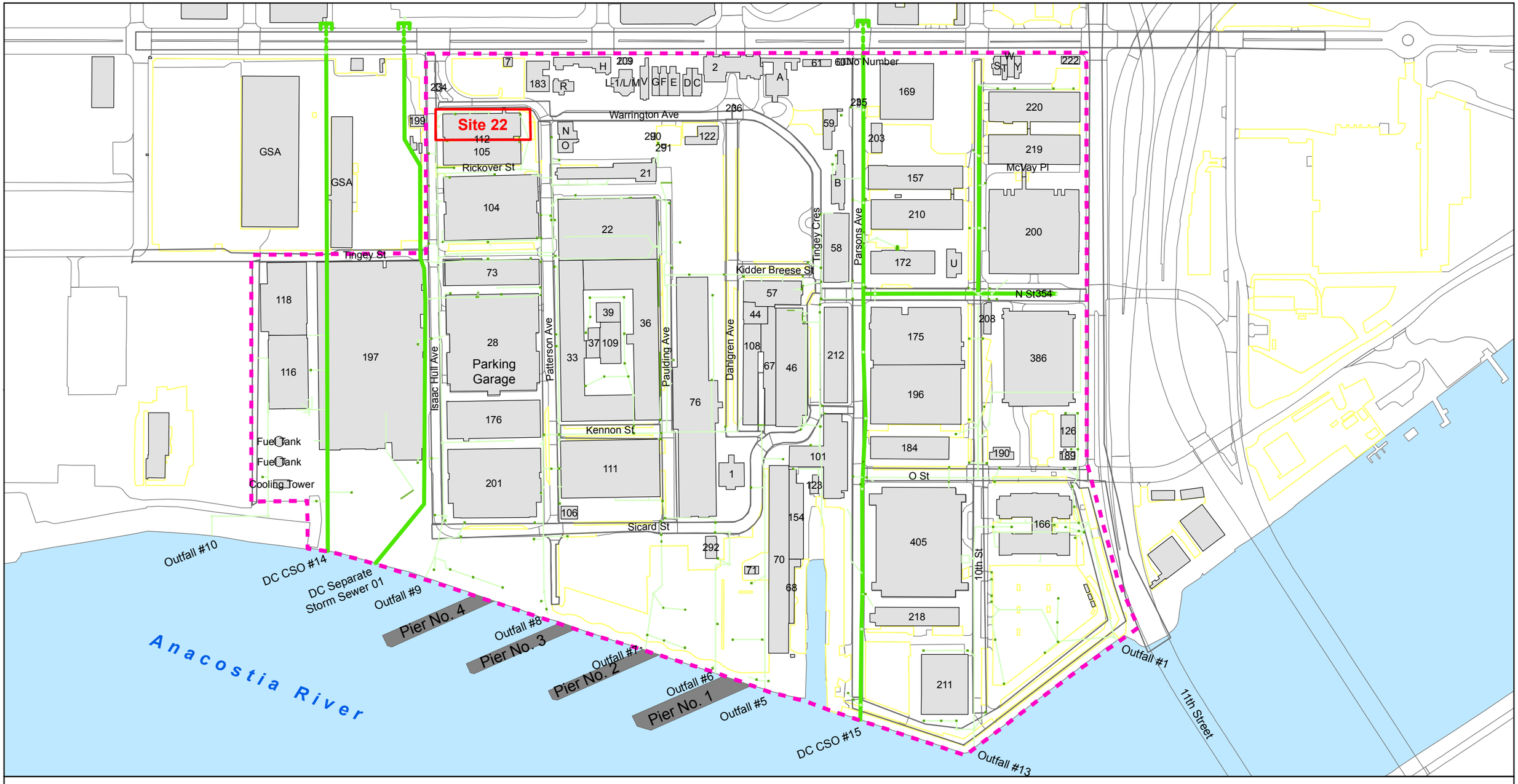
None.

5.8 Protectiveness Statement

The remedy for soil at Site 22 is protective of human health and the environment because exposure pathways that could result in unacceptable risks are being controlled by LUCs. These LUCs have been fully implemented, are operating as intended, and achieve the RAOs in the ROD by prohibiting intrusive activities and prohibiting changes in land use.

5.9 Next Review

The next Five-Year Review for Site 22 is required by September 2026.



Legend

- WNY Storm Sewer Line
- DC Storm Sewer Line
- Building
- Road Way
- Parking Area
- Water Body
- Site Boundary
- Navy Yard Boundary

N

0 125 250 Feet

Figure 5-1
Site 22 Location
Five-Year Review
Washington Navy Yard, Washington, D.C.

[redacted]

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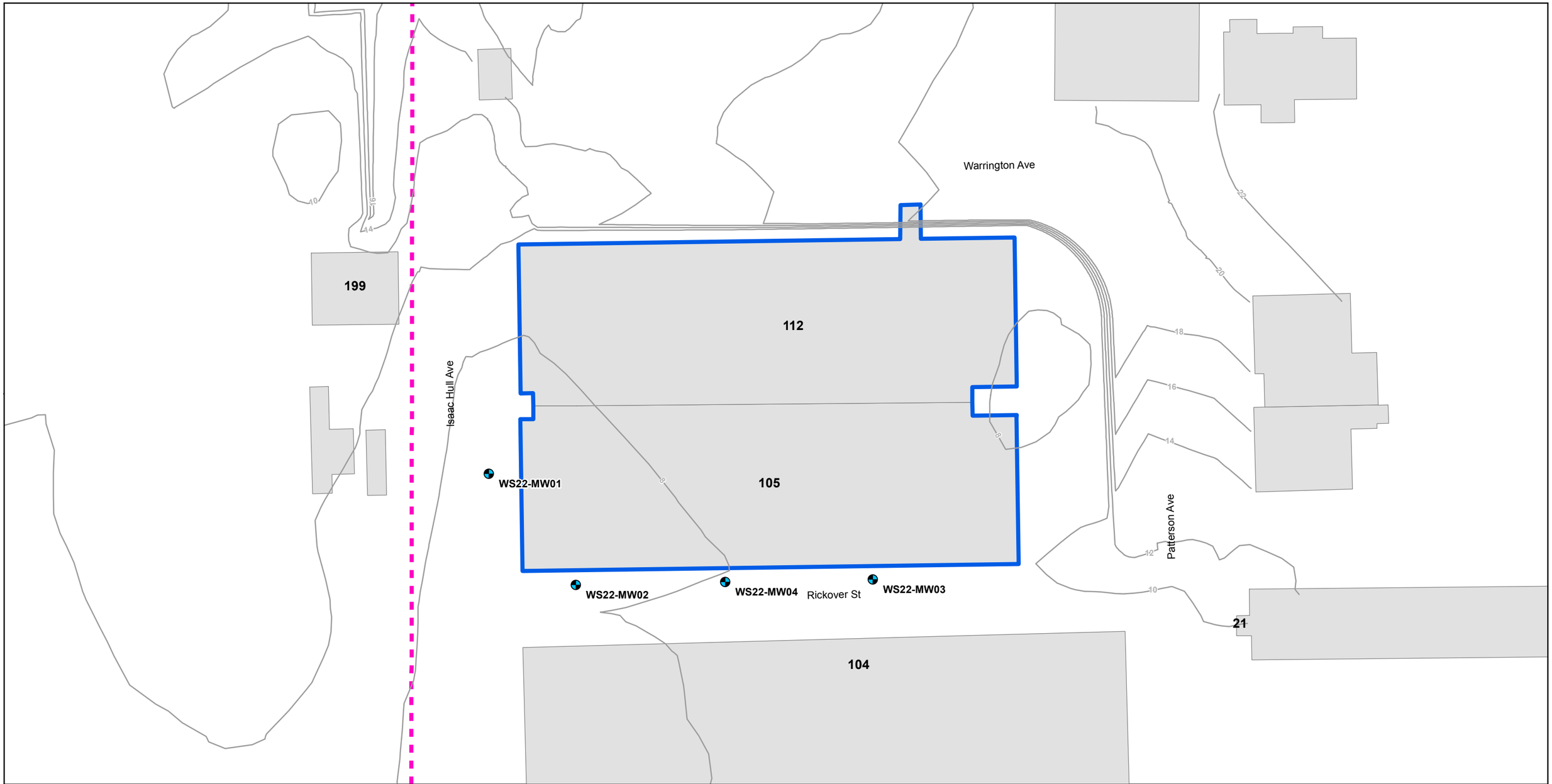

Legend

- Monitoring Well
- Topographic Contour (2 Foot Interval)
- Site Boundary
- LUC Boundary
- Navy Yard Boundary

N

0 20 40

Feet

Figure 5-2
Site 22 LUC Boundary
Five-Year Review
Washington Navy Yard, Washington, D.C.

[redacted]

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SECTION 6

SSA 12—Basewide Fill (Exposure Areas 1, 19, and the Eastern Extension Exposure Area)

The operable unit (OU) known as SSA 12 (**Figure 6-1**) consists of the non-native fill material that had been placed, over time, on the land that constitutes the current WNY. Most of the individual sub-areas of SSA 12, referred to by the term exposure areas (EAs), were determined to not pose a threat, or potential threat, to public health, welfare, or the environment, and were previously removed from further study under the WNY FFA site screening process. The SSA 12 ROD, signed in September 2017, specifically addressed the four remaining sub-areas of SSA 12 (EA 1, EA 19, EA 21, and the Eastern Extension EA). SSA 12 does not include the groundwater at WNY (including groundwater present in the fill).

The SSA 12 ROD documented the need for implementation of LUCs and Long-Term Management for 3 sub-areas (EA 1, EA 19, and the Eastern Extension EA). A Five-Year Review is required because hazardous substances, pollutants, or contaminants remain in excess of levels that allow for UU/UE at these 3 sub-areas. No Action was chosen as the Selected Remedy for the other sub-area, EA 21; therefore, EA 21 is not required to be included in this Five-Year Review. This is the first Five-Year Review for SSA 12.

6.1 Site Chronology

Table 6-1 presents a chronological list of major assessments, investigations, actions, and events for EA 1, EA 19, and the Eastern Extension EA at SSA 12.

Table 6-1. SSA 12 Chronology

Event	Date
Phase 1 and 2 screening (CH2M 2007b, 2008, 2014a) – fill samples collected from vadose and saturated zone and screened against residential risk-based concentrations and screening levels for leaching to groundwater	2005-2014
RI/FS – fill data evaluated in a baseline HHRA and ecological risk evaluation; evaluated remedial alternatives	2014
Proposed Plan (Navy, 2017a) – preferred alternative consisted of LUCs and long-term management	2017
Record of Decision (Navy, 2017b) - Selected Remedy was LUCs and Long-term management	2017
LUC Remedial Design (CH2M, 2018a)	2018
Remedial Action Completion Report (CH2M, 2018b) signed	2018
Completed first annual LUC inspection	2018
Completed annual LUC inspection	2020

6.2 Background

6.2.1 Description and History

EA 1 covers approximately 0.22 acre in the eastern portion of WNY and is located around and under Building 126 (Pass Office) and the O Street Gate.

EA 19 is a thin strip of land (roughly 20 feet by 250 feet) along the Anacostia River near the former Pier 1 and encompasses 0.11 acre. It consists of an estimated 6- to 12-foot-thick layer of fill placed on top of the wooden platform that was constructed out into the Anacostia River to expand the WNY and create a bulkhead and the piers. The wooden platform is supported by wooden pilings driven into the riverbed. The fill was placed sometime between 1920 and 1942.

The Eastern Extension EA, which consists of former EAs 2, 27, 28, 29, 30, 31, and 32, is located in the southeastern corner of WNY and covers approximately 7.21 acres, extending from O Street south to the Anacostia River, between 9th Street (also known as Parsons Avenue) to the west, and 11th Street to the east. EA 2, 27, and 28 are along the shoreline. EA 2 is underlain by original land with unknown fill history. EA 29 was initially filled between 1885 and 1883; EAs 31 and 32 were initially filled between 1905 and 1917; EA 30 was initially filled between 1917 and 1920; and EAs 27 and 28 were initially filled between 1920 and 1942. However additional fill was later placed over much of this area in approximately 1940 to raise the ground surface in the area of the large parking lot.

6.2.2 Physical Characteristics

The fill at EA 1 is covered with buildings, sidewalks, paved roads and parking area, and vegetated topsoil. The fill layer at EA 1 is approximately 10 to 15 feet thick and is underlain by original land that was not reclaimed from the river. Groundwater at EA 1 flows south to the Anacostia River. The water table is encountered about 11.5 feet bgs.

EA 19 is covered with concrete and includes a significant amount of subsurface obstructions (utility conduits and structural concrete and timber). Groundwater at EA 19 fluctuates with the Anacostia River tides and is approximately 4 feet bgs during high tide to 5 feet bgs during low tide.

Buildings, sidewalks, paved parking areas, and topsoil cover fill at the Eastern Extension EA. Fill in the Eastern Extension EA ranges in thickness from approximately 15 feet in the northern portion along O Street to approximately 35 feet deep in the southernmost portion along the Anacostia River. Where the Anacostia Riverwalk runs along the southern edge of the Eastern Extension EA, the fill layer consists of an estimated 6- to 8-foot-thick fill placed on top of the wooden platform that was constructed out into the Anacostia River to expand the WNY. Groundwater at the Eastern Extension EA flows south to the Anacostia River. The groundwater in the southern, low-lying portion of the area is tidally influenced ranging from approximately 2.75 to 3.75 feet bgs during high tide and 4.5 to 5 feet bgs during low tide. In the center, higher portion of the Eastern Extension EA, groundwater is approximately 12.5 feet bgs.

6.2.3 Land and Resource Use

EA 1 is located around and under Building 126, which is the current WNY Pass Office, and the O Street Gate. EA 19 is part of the Anacostia Riverwalk, a publicly accessible concrete walkway that runs along the Anacostia River in southeast Washington, D.C. EA 21 is covered entirely with sidewalks, a paved parking area, and vegetated topsoil. The Eastern Extension EA is located around and under currently occupied buildings (Buildings 166, 211, 218, 405, and 123) and high-traffic paved parking areas. Each of these EAs are currently covered by buildings, sidewalks, paved roads, parking areas, and vegetated topsoil. Land use is not expected to change in the future unless WNY (or the portions of the facility encompassed by EA 1, EA 19, EA 21, and/or the Eastern Extension EA) is closed and sold for another use. There currently are no plans to do this.

In the event that the portions of WNY encompassed by EA 1, EA 19, EA 21, and/or the Eastern Extension EA are ever sold and redeveloped, their use would likely be densely developed urban commercial or residential property (that is, apartments or townhouses built on small lots with minimal exposed soil).

Groundwater at WNY is not used as a potable supply. The current source of water to the District public water supply system is surface water from the Potomac River.

6.2.4 Site Risks

A baseline quantitative HHRA was completed for EA 1, EA 19, and the Eastern Extension EA as part of the SSA 12 RI to evaluate potential risks associated with constituents detected in fill.
For EA 1, unacceptable carcinogenic risk was determined for future industrial workers, future adolescent visitors/trespassers, and future lifetime residents as a result of the PAH concentrations detected in the fill. COCs were identified as benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

For EA 19, unacceptable carcinogenic risk was determined for future lifetime residents as a result of the PAH concentrations detected in the fill. COCs were identified as benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene.
For the Eastern Extension EA, unacceptable carcinogenic risk was determined for future lifetime residents as a result of PAH concentrations detected in the vadose zone fill. COCs were identified as benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

The Navy evaluated groundwater data for EAs located within 250 feet of the Anacostia River to determine if COPCs in the fill may be migrating to groundwater and ultimately to the surface water in the Anacostia River where ecological receptors could be exposed to these COPCs. Groundwater data for EA 1 were not evaluated because EA 1 is located more than 250 feet from the Anacostia River, and would be diluted prior to discharging into the river. Therefore, this data would not be representative of the chemical composition of the groundwater at the point of discharge. For EA 19 and the Eastern Extension EA, no PAHs were detected at mean concentrations greater than the ecological screening values in the groundwater; therefore, no COPCs were identified for groundwater. While the concentrations of some PAHs in the fill within these EAs exceeded their corresponding soil WNY Ecological Soil Screening Level, the groundwater data suggest the PAHs are not migrating from the fill to groundwater and that the fill does not pose an unacceptable risk to ecological receptors in the river. Groundwater is not considered part of SSA 12 and was separately addressed as part of the basewide groundwater operable unit (OU1), which was closed with a no-action ROD in 2019 (Navy, 2019).

The Navy also evaluated the potential for unacceptable risks to plants and animals associated with constituents in the fill. Because EA 1, EA 19, and the Eastern Extension EA are located in a highly developed urban setting, and are reasonably expected to remain so in the future, the current and future presence of natural habitats for ecological receptors is extremely limited and exposure to soil contamination in improbable. As a result of the minimal habitat for current and future receptors and the lack of a current exposure pathway to the fill material, there is no potential current or reasonably anticipated future unacceptable risk to ecological receptors from exposure to the subsurface fill material.

6.3 Response Action Summary

6.3.1 Basis for Remedial Action

Remedial action was determined to be necessary to protect public health and the environment from actual or threatened contact with COCs in subsurface fill beneath EA 1, EA 19, and the Eastern Extension EA in SSA 12.

6.3.2 Remedy Selection

The ROD for SSA 12 was signed in September 2017 (Navy, 2017b). The site-specific RAO presented in the ROD is to prevent direct exposure of human receptors to PAHs in subsurface fill in the areas of EA 1, EA 19, and the Eastern Extension EA. Specific remediation criteria were not established for these EAs within SSA 12. Because of the variation of fill used, the unpredictable spreading pattern of material, and the lack of samples under buildings, EA 1, EA 19, and the Eastern Extension EA are not amenable to delineation of a subset of remediation areas within these EAs without significant additional effort. For these reasons, specific remediation criteria were not established, and the remedy was conservatively applied to the entire boundary of these EAs (including under any buildings), based on historical fill progression.

The Selected Remedy for SSA 12 is LUCs and Long-term Management to prevent unacceptable risks to human receptors from direct exposure to PAHs in subsurface fill beneath EA 1, EA 19, and the Eastern Extension EA. Specific LUC actions consist of the following:

- Prohibit activities that could result in human contact with soil, such as soil excavation within the perimeter footprint of these areas or intrusive activities below the building foundation (such as demolishing the building)
- Prohibit future redevelopment of the property requiring a change in land use that is not compatible with residual site risks

Restrictions will remain in place until action is taken to fully delineate the extent of contamination in the fill within these EAs, and the soil is cleaned up to risk levels that allow for UU/UE.

Long-term management actions under the Selected Remedy include implementing, managing, reporting on, and enforcing the LUCs and conducting statutory Five-Year Reviews while contaminated soil remains in place to ensure the remedial alternative components continue to meet the RAO.

6.3.3 Remedy Implementation

The LUC Remedial Design was completed in July 2018 (CH2M, 2018a) to define how the Navy would implement, maintain, and enforce the SSA 12 LUCs. Following Navy implementation of LUC requirements, a Remedial Action Completion Report, documenting that the response action is protective of human health and the environment, operating as intended, and achieves the RAO in the ROD, was signed by the Navy and USEPA, and concurred by DOEE, in September 2018 (CH2M, 2018b). The LUC boundaries for SSA 12 are shown on **Figure 6-2** (EA 1), **Figure 6-3** (EA 19), and **Figure 6-4** (Eastern Extension EA).

To meet the LUC performance objectives, the Navy incorporated the SSA 12 LUC boundaries, as well as the terms and conditions of the LUCs, into the installation's existing land use management processes, including installation maps, asset management plans, real estate records, and associated GIS. Specifically, the Navy loaded relevant SSA 12 ER Program information, such as LUC boundaries, conditions, and limitations and Navy Remedial Project Manager contact information into the NIRIS Map Service to provide a single source of reference to support its management of LUCs associated with SSA 12.

WNY personnel enforce the LUCs using current processes: Naval District Washington Region Excavation Permit process at the work permit stage for any intrusive construction project or activity at the installation that would result in contact with or exposure of subsurface soil, including soil beneath a building; and the Public Works Department-Washington Asset Management site approval process for any proposed changes in land use.

The Navy conducts annual inspections of the environmental use restrictions and controls to assess and document the continued compliance with the LUC requirements for SSA 12. Annual inspections began in September 2019; the inspection checklists are included as **Appendix D**.

The RAOs have been achieved for SSA 12; therefore, the CERCLA response is complete for this site. Long-term management of the LUCs and statutory Five-Year Reviews will continue until SSA 12 is determined to be available for UU/UE to document that the remedy remains effective, protective, and continues to meet the RAO specified in the ROD.

6.4 Five-Year Review

6.4.1 Document Review

This initial Five-Year Review consisted of a review of the following documents:

- FFA Final Remedial Investigation/ Feasibility Study for Site Screening Area 12, Washington Navy Yard, Washington, D.C. (CH2M, 2016)
- Land Use Control Remedial Design Site Screening Area 12, Washington Navy Yard, Washington, D.C. (CH2M, 2018a)
- FFA Final Remedial Action Completion Report, Site Screening Area 12, Washington Navy Yard, Washington, D.C. (CH2M, 2018b)
- SSA 12 Annual Inspection Checklist (2019)
- SSA 12 Annual Inspection Checklist (2020)

6.4.2 Site Inspection

Inspections of the LUCs have been conducted annually at SSA 12 since 2019 to ensure LUCs are maintained and any construction or intrusive activities conducted within the LUC boundaries are appropriately managed. Annual LUC inspections are conducted by the NAVFAC Washington ER Program RPM, the facility's IR Program Manager, the Navy's contractor (CH2M), and other facility personnel as needed, and documented on a LUC checklist that is shared with USEPA and DOEE.

There were two minor findings during the annual inspections, which do not affect the protectiveness of the remedy:

- In 2019, LUC information for EA1, EA19, and the Eastern Extension EA at SSA 12 (Site 19) was not included in NIRIS at the time of the inspection. However, the boundary for the entire SSA 12 (Site 19) fill area is included in NIRIS as an ER site (that is, an area with known or potential contaminated soil/fill), so even though specific LUC information for EA1, EA19, and the Eastern Extension EA was not present at the time of the inspection, contractors proposing work in this area would have been made aware of the potential presence of contamination associated with the subsurface fill throughout SSA 12. To correct this issue, LUC conditions were added to the NIRIS database by the NAVFAC Washington ER Program RPM during the inspection on September 25, 2019. The LUC boundaries for EA1, EA19, and the Eastern Extension EA at SSA 12 (Site 19) were added the NIRIS system by CH2M the next business day (September 26, 2019).

- In 2020, the CH2M inspector confirmed with the Installation Environmental Program Coordinator, PWD Washington that one intrusive activity was approved and completed within the LUC boundary of the Eastern Extension EA at SSA 12 (Site 19) since the previous inspection. The NDW Region Excavation Permit (dig permit) process was followed for the project, including environmental review and consultation that identified the presence of LUCs and known contamination at this location. The contractor was notified of the environmental conditions in this area, and adherence to the environmental restrictions was monitored by PWD to ensure compliance. Because the established LUC review procedure and requirements were followed as part of the dig permit process, no corrective action was warranted for this activity.

Site inspections are documented in **Appendix D**. The next site inspection is scheduled for September 2021.

6.4.3 Interviews

Interviews were conducted with WNY facility personnel as part of the annual LUC inspections to evaluate if land use has changed since the last inspection, if there is any evidence of intrusive activities within the LUC boundary (including building basements), if the LUC boundaries and conditions are included in the NIRIS Map Service database, and how the LUCs are incorporated into the base dig permit and asset management processes. Feedback from these interviews is included on the site inspection checklists included as **Appendix D**.

6.5 Technical Assessment

6.5.1 Question A: Is the remedy functioning as intended by the decision documents?

Yes, the remedy at SSA 12 is functioning as intended by the ROD. LUCs are in place, functioning as intended to restrict activities that could result in human contact with soil and prohibit redevelopment of the property requiring a change in land use that is not compatible with site risks, and meeting the RAO.

6.5.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of remedy selection still valid?

Yes, the exposure assumptions, toxicity data, and RAOs used at the time of remedy selection are still valid. Cleanup values were not established for the fill material within the boundaries of EA 1, EA 19, and the Eastern Extension EA because of the variation of fill used, the unpredictable spreading pattern of material, and the lack of samples under buildings. because samples could not be collected underneath the entire building complex. Instead, the remedy was conservatively applied to the entire boundary of these EAs (including under any buildings).

No changes in ARARs or TBCs that adversely affect the protectiveness of the remedy were identified during this Five-Year Review. No changes in the site conditions that would affect exposure pathways were identified, and no new contaminants, sources, or routes of exposure were identified as part of this Five-Year Review.

Although there have been some changes in toxicity values, regulatory levels, and risk characteristics of COCs at SSA 12, these changes do not affect the effectiveness of the remedy since the remedy is LUCs, and the contaminated soil is covered by buildings, pavement, or recently placed landscaping materials (mulch, sod, planting bed topsoil); therefore, there is no current exposure pathway to the historical fill.

The standardized risk assessment methodology has not changed significantly since the risk assessments associated with the sites has been completed. Consequently, the protectiveness of the remedy is not affected.

6.5.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No, no other information has been identified that calls into question the protectiveness of the remedy.

6.6 Issues

No issues were identified for SSA 12 during this Five-Year Review.

6.7 Recommendations and Follow Up Actions

None.

6.8 Protectiveness Statement

The remedy for fill (soil) at SSA 12 is protective of human health and the environment because exposure pathways that could result in unacceptable risks are being controlled and LUCs restricting intrusive activities and preventing changes in land use are in place.

6.9 Next Review

The next Five-Year Review for SSA 12 is required by September 2026.

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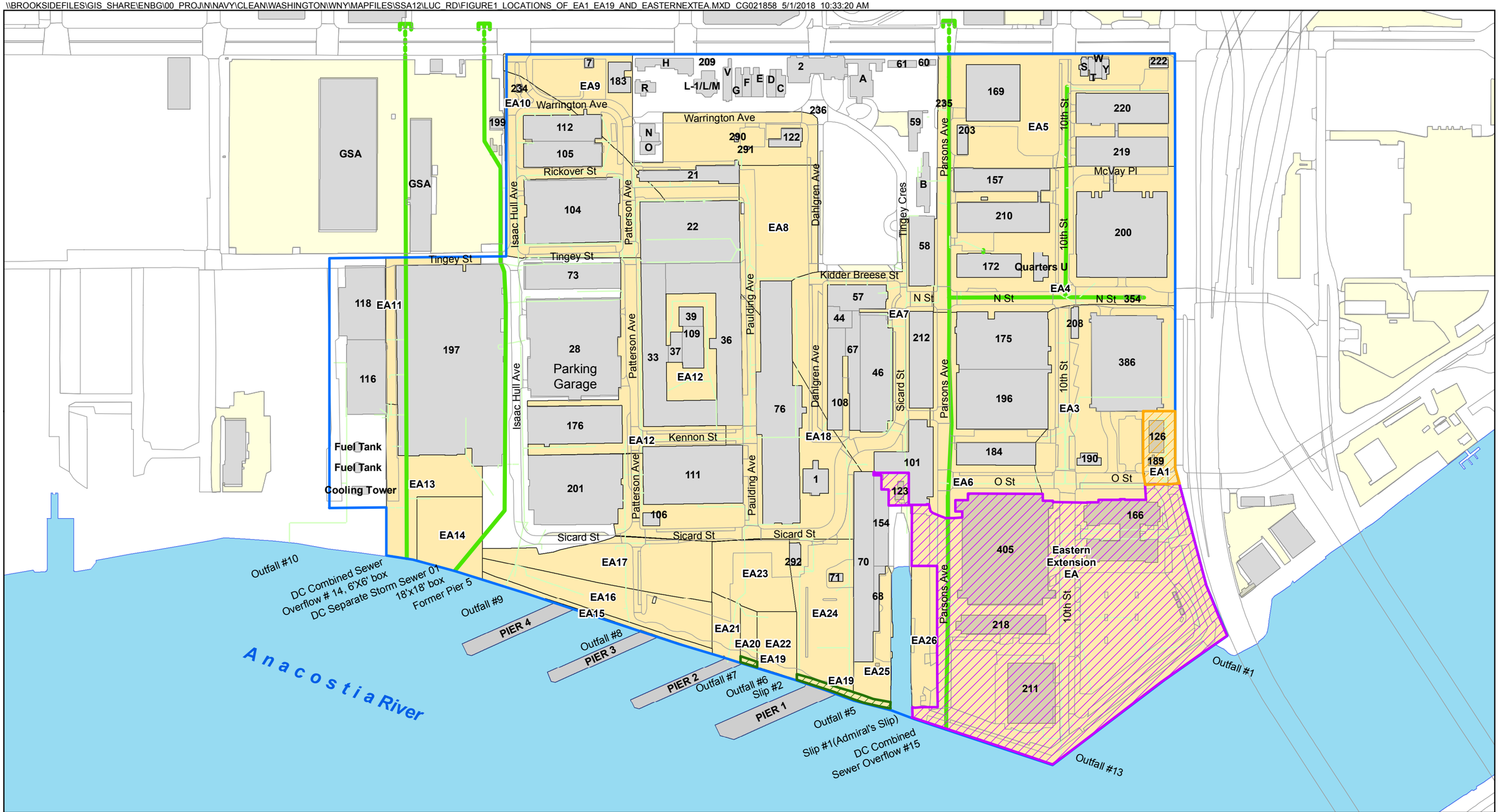

Legend

- EA 1
- Eastern Extension EA
- EA 19
- EAs requiring No Action
- Roadway
- WNY Storm Sewer Line
- DC Storm Sewer Line
- Building
- Parking Area
- Water Bodies
- Navy Yard Boundary

Note:
EAs - Exposure Areas (individual sub-areas of Site Screening Area (SSA) 12)

N

0 250 500 Feet

Figure 6-1
SSA 12 Location (EA 1, EA 19, and the Eastern Extension EA)
Five-Year Review
Washington Navy Yard, Washington, D.C.

ch2m

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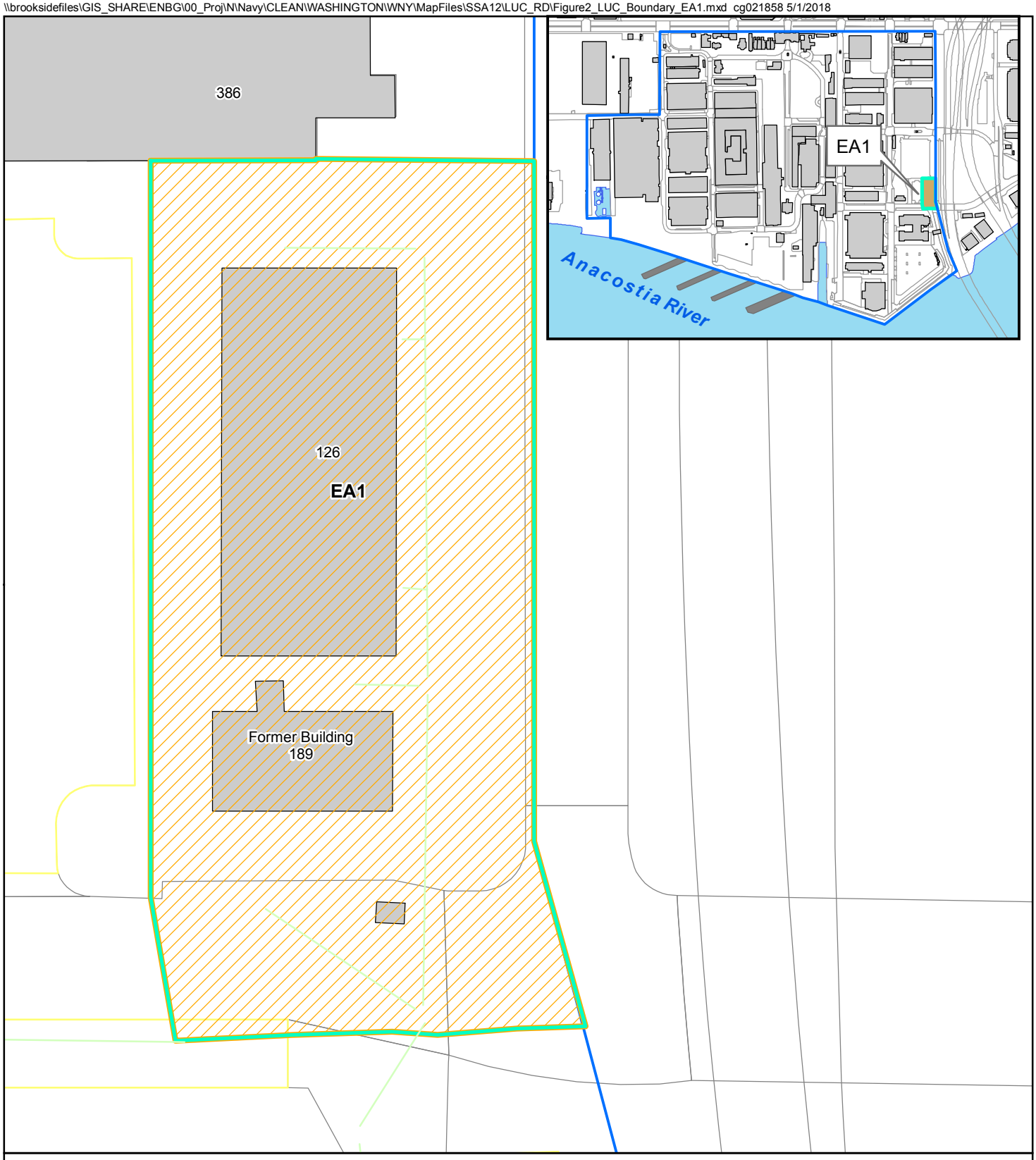


Legend

- LUC Boundary
- EA1
- Road Way
- Parking Area
- Building
- Navy Yard Boundary

N

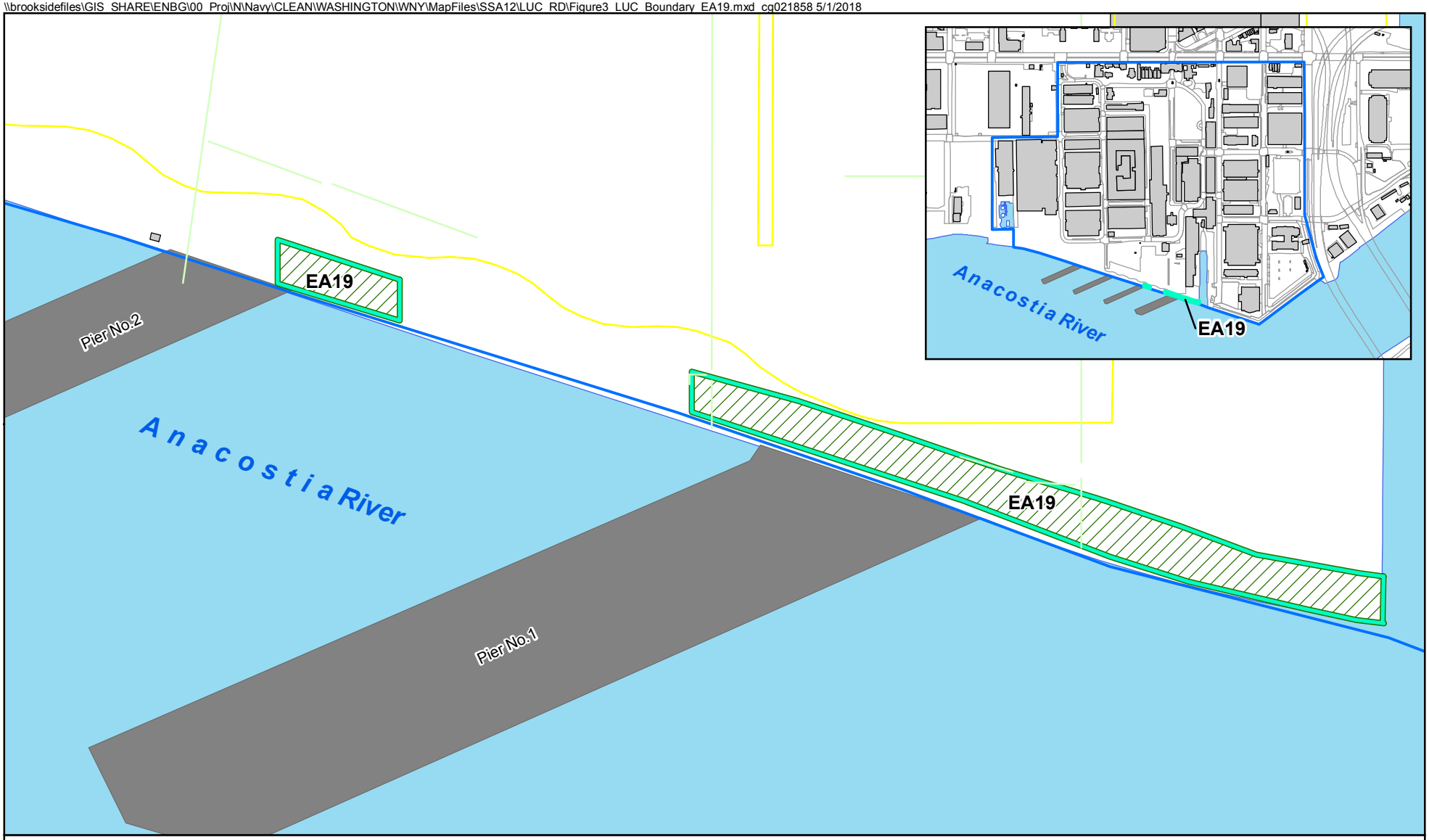
0 15 30

Feet

Figure 6-2
EA 1 LUC Boundary
Five-Year Review
Washington Navy Yard, Washington, D.C.

ch2m.

\\brooksidefiles\GIS_SHARE\ENBG\00_Proj\N\Navy\CLEAN\WASHINGTON\WNY\MapFiles\SSA12\LUC_RD\Figure3_LUC_Boundary_EA19.mxd cg021858 5/1/2018



Legend

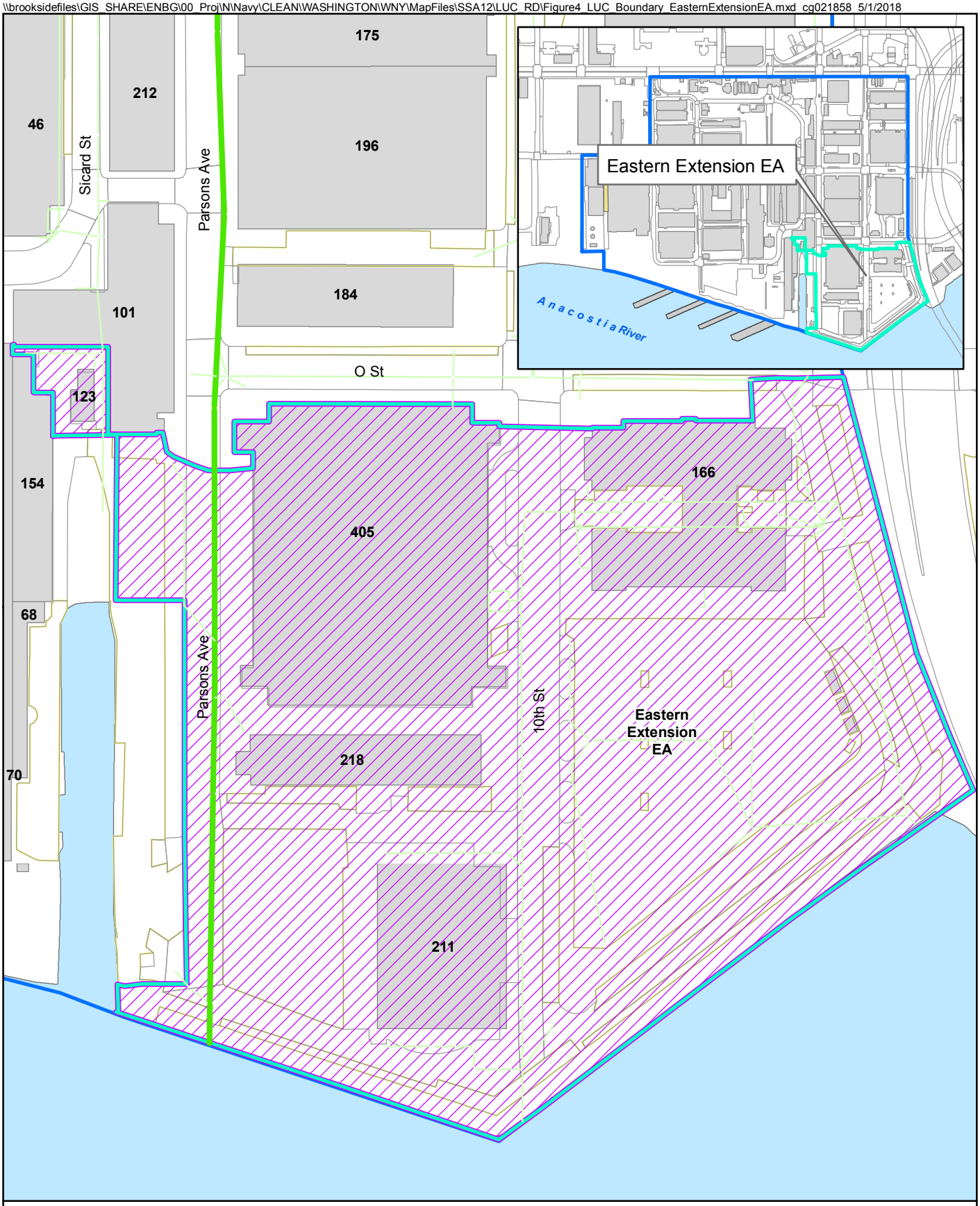
- LUC Boundary
- WNY Storm Sewer Line
- EA 19
- Road Way
- Parking Area
- Navy Yard Boundary

N

0 50 100 Feet

Figure 6-3
EA 19 LUC Boundary
Five-Year Review
Washington Navy Yard, Washington, D.C.

ch2m



Legend

- WNY Storm Sewer Line
- DC Storm Sewer Line
- LUC Boundary
- Eastern Extension EA
- Navy Yard Boundary
- Roadway
- Parking Area
- Building

N

0 65 130 Feet

Figure 6-4
Eastern Extension EA LUC Boundary
Five-Year Review
Washington Navy Yard, Washington, D.C.

ch2m

SECTION 7

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Appendix A
Public Notice

CERCLA Five-Year Review
Washington Navy Yard

The Department of the Navy, in partnership with the U.S. Environmental Protection Agency and the District of Columbia Department of Energy and Environment, is beginning the Five-Year Review process for three Washington Navy Yard sites:

Site 6—former Heating and Power Plants, Gun Assembly Shop (Buildings 116, 118, and 197)
Site 22—former Polishing & Plating Shop (Building 112)
Site Screening Area (SSA) 12—Basewide Fill (fill beneath the southeastern quadrant of the base)

A Five-Year Review is required by Section 121 of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for remedial (environmental cleanup) actions that result in any hazardous substances, pollutants, or contaminants remaining at the site above levels that would allow unrestricted use. The purpose of this review is to ensure that the actions that have been implemented at Washington Navy Yard are adequately protecting human health and the environment. The final report will be made available to the public in September 2021.

The remedial actions for these sites consist of land use controls and long-term management. These actions were selected based on findings contained in documents that are part of the Administrative Record for Washington Navy Yard:

https://www.navfac.navy.mil/products_and_services/ev/products_and_services/env_restoration/installation_map/navfac_atlantic/washington/washington_navy_yard.html

You can also contact the Public Affairs Office for more information:

Naval Support Activity Washington
Public Affairs Office
(202) 433-2669

If you have specific questions or information regarding the effectiveness of the remedies for Site 6, Site 22, or SSA 12, please provide your written feedback to:

Ms. Armalia Berry-Washington
armalia.berry-washin@navy.mil

Appendix B
Site 6 Site Inspection Checklists

Annual Land Use Control Inspection Checklist
Washington Navy Yard, Washington, D.C.

Site Information

Site:	6
Environmental Media:	Subsurface Soil
LUC Objective: • prevent unacceptable risks to human receptors from direct exposure to soil under Buildings 116, 118, and 197 at Site 6	LUC Mitigation Actions: • prohibit activities that could result in human contact with soil, such as soil excavation within the perimeter footprint of these buildings or intrusive activities below the building foundation (such as demolishing the building), unless and until the regulatory agencies review and approve additional site investigation, waste handling, and/or cleanup activities in these areas • prohibit future redevelopment of the property requiring a change in land use that is not compatible with residual site risks unless and until the regulatory agencies review and approve additional site investigation and/or cleanup actions specific to the new land use or redevelopment being considered.

Inspection Items

No.	Inspection Item	Y/N/NA	Summary of Inspection Performed	Finding No.
1	Has land use changed since last inspection?	NA	First inspection; land use is the same as documented in the Record of Decision.	--
2	Is there evidence of intrusive activities in the concrete/asphalt within the LUC boundary and/or in the associated building basements?	Y	Visual evidence of intrusive activities (gravel patch in asphalt) outside northeast corner of Building 116. Building 116, 118, and 197 basements were inaccessible on the date of inspection due to flooding. Obtained verbal confirmation with Paul Hund (WNY Facilities Operations Specialist; phone 202-433-3477) that no intrusive activities have been conducted within these buildings.	1
3	Are the LUC boundaries and conditions included in the NIRIS Map Service database?	Y	Confirmed with Armalia Berry-Washington (Remedial Project Manager [RPM], NAVFAC Washington Environmental Restoration [ER] program; phone 202-685-3273) that an accurate LUC boundary for Site 6 is included and accessible in NIRIS, and LUC documentation (final LUC remedial design) for Site 6 has been uploaded to NIRIS.	--
4	Is there any evidence that LUC reviews are not incorporated into the base dig permit process?	N	Confirmed with Rhonda Ford (National Environmental Policy Act [NEPA] program manager, NAVFAC Washington Public Works Department [PWD]; phone 202-433-6560) that the procedure for incorporating LUCs for PWD Washington is the following: All projects at the PWD undergo environmental review through the NEPA program manager, who reviews Asset Management, A & E, maintenance, and construction projects to determine if the projects are proposed in areas where LUCs are in place. For asset management, LUC sites are indicated on Environmental Conditions of Property forms supplied with the Categorical Exclusion (CATEX; NEPA determination that a federal action does not "individually or cumulatively have a significant effect on the human environment') or Environmental Assessment (NEPA documentation regarding whether a federal action has the potential to cause significant environmental effects). Projects that excavate in Site 6 or 22 are sent to the RPM (Armalia) to ensure communication lines are kept between the command and PWD.	--

Note: If "Y", substantiate in the Summary of Inspection Performed; provide description/photos in supplemental pages as needed.

Corrective Actions

Finding No.	Description of Actions (provide description in supplemental pages as needed)
1	Confirmed with Igor Boras (senior construction manager, PWD Washington; phone 202-685-0095) that gravel patch observed outside Building 116 during inspection is where soil testing was conducted by GBD Joint Venture (contractor) before this contractor proceeded with a pipe repair project associated with Building 116. This project underwent the base dig permit process, where the LUCs at Site 6 were identified. The contractor was notified of the presence of contamination in the subsurface soil and required to collect and analyze soil samples for Site 6 contaminants and provide the results to the ER Program Manager and Hazardous Waste Program Manager, to prevent unacceptable risks to human receptors from direct contact with the soil (per the LUC objectives). Laboratory results were non-detect, and the repair project was approved. Confirmed that established LUC review processes were followed as part of the dig permit process, and no corrective action is needed.

Inspection Certification

Inspected by:	Christine Metcalf		
Company/Organization:	CH2M HILL, Inc.		
Date of Inspection:	9/25/2018	Date of Last Inspection:	NA (first inspection)

I certify that the conditions of the site on the inspection date were as reported above:

Signature

9/25/2018

Date

Annual Land Use Control Inspection Checklist
Washington Navy Yard, Washington, D.C.

Site Information

Site:	6
Environmental Media:	Subsurface Soil
LUC Objective: • prevent unacceptable risks to human receptors from direct exposure to soil under Buildings 116, 118, and 197 at Site 6	LUC Mitigation Actions: • prohibit activities that could result in human contact with soil, such as soil excavation within the perimeter footprint of these buildings or intrusive activities below the building foundation (such as demolishing the building), unless and until the regulatory agencies review and approve additional site investigation, waste handling, and/or cleanup activities in these areas • prohibit future redevelopment of the property requiring a change in land use that is not compatible with residual site risks unless and until the regulatory agencies review and approve additional site investigation and/or cleanup actions specific to the new land use or redevelopment being considered.

Inspection Items

No.	Inspection Item	Y/N/NA	Summary of Inspection Performed	Finding No.
1	Has land use changed since last inspection?	N	Confirmed with Acting Installation Environmental Program Director, NAVFAC Washington Public Works Department (PWD) (Ms. Rhonda Ford) that land use at Site 6 has not changed since the last inspection.	--
2	Is there evidence of intrusive activities in the concrete/asphalt within the LUC boundary and/or in the associated building basements?	N	Conducted a walkthrough and visual inspection of the accessible area within the land use control (LUC) boundary at Site 6. There was no visual evidence of intrusive activities in the concrete/asphalt within the LUC boundary. Confirmed with Ms. Ford that no intrusive activities have been conducted within the LUC boundary, including within the basements of Buildings 116, 118 and 197. Ms. Ford further noted that there are strict protocols in place at WNY to prevent unauthorized intrusive work, including base-specific permit processes, base security oversight, and construction inspections; therefore, it is unlikely that there would be any unauthorized and undocumented intrusive activity. Ms. Ford confirmed with NAVFAC Building Manager for WNY 116/118 (Mr. Mike Sigler) that the sump pump in the basement of Building 118 remains out of service and has not run since the last inspection.	--
3	Are the LUC boundaries and conditions included in the NIRIS Map Service database?	Y	Confirmed with Remedial Project Manager (RPM), NAVFAC Washington Environmental Restoration (ER) Program (Ms. Armalia Berry-Washington) that an accurate LUC boundary for Site 6 is included and accessible in NIRIS, and LUC documentation (final LUC Remedial Design document) is accessible and associated with the Site 6 LUC boundary.	--
4	Is there any evidence that LUC reviews are not incorporated into the base dig permit process?	N	Confirmed with Ms. Ford that the procedure for reviewing and enforcing LUCs for PWD Washington is the following: All proposed Asset Management, A & E, maintenance, and construction projects at WNY undergo environmental review through the NAVFAC Washington PWD Installation Environmental Program (Environmental) to determine if the projects are proposed in locations where contamination is known to be present or LUCs are in place. The NAVFAC Washington ER Program RPM is consulted in these instances. All environmental restrictions identified for work proposed in a given area (such as known	--

			contamination or LUCs) are indicated on Environmental Conditions of Property forms supplied with the Categorical Exclusion (CATEX, which is the NEPA determination that a federal action does not "individually or cumulatively have a significant effect on the human environment") or the Environmental Assessment (NEPA documentation regarding whether a Federal action has the potential to cause significant environmental effects), and this documentation is then attached to the contract for the entity performing the intrusive work. Adherence to the environmental restrictions is monitored by the Resident Officer in Charge of Construction (ROICC) office to ensure compliance. For emergency excavations that do not undergo the dig permit process, the Utilities Branch Head notifies and coordinates with Environmental for guidance prior to conducting intrusive work. No emergency excavations were conducted within the Site 6 LUC boundary since the last inspection.	

Note: If "Y", substantiate in the Summary of Inspection Performed; provide description/photos in supplemental pages as needed.

Corrective Actions

Finding No.	Description of Actions (provide description in supplemental pages as needed)
--	No findings; therefore, no corrective actions required.

Inspection Certification

Inspected by:	Christine Metcalf		
Company/Organization:	CH2M HILL, Inc.		
Date of Inspection:	9/25/2019	Date of Last Inspection:	9/25/2018

I certify that the conditions of the site on the inspection date were as reported above:

Signature

10/1/19
Date

Annual Land Use Control Inspection Checklist
Washington Navy Yard, Washington, D.C.

Site Information

Site:	6
Environmental Media:	Subsurface Soil
LUC Objective: • prevent unacceptable risks to human receptors from direct exposure to soil under Buildings 116, 118, and 197 at Site 6	LUC Mitigation Actions: • prohibit activities that could result in human contact with soil, such as soil excavation within the perimeter footprint of these buildings or intrusive activities below the building foundation (such as demolishing the building), unless and until the regulatory agencies review and approve additional site investigation, waste handling, and/or cleanup activities in these areas • prohibit future redevelopment of the property requiring a change in land use that is not compatible with residual site risks unless and until the regulatory agencies review and approve additional site investigation and/or cleanup actions specific to the new land use or redevelopment being considered.

Inspection Items

No.	Inspection Item	Y/N/NA	Summary of Inspection Performed	Finding No.
1	Has land use changed since last inspection?	N	Confirmed with Installation Environmental Program Coordinator, Public Works Department (PWD) Washington (Mr. Dane Bowker) that land use at Site 6 has not changed since the last inspection.	--
2	Is there evidence of intrusive activities in the concrete/asphalt within the LUC boundary and/or in the associated building basements?	N	Confirmed with Mr. Bowker (through review of base records such as dig permit processes and environmental review) that no intrusive activities have been conducted within the Site 6 LUC boundary, including within the basements of Buildings 116, 118 and 197. As noted during previous inspections, there are strict protocols in place at WNY to prevent unauthorized intrusive work, including base-specific permit processes, base security oversight, and construction inspections; therefore, it is unlikely that there would be any unauthorized and undocumented intrusive activity. Mr. Bowker also confirmed with the Utility Energy Management (UEM) Branch Head (Mr. David Bryhan) that the sump pump in the basement of Building 118 remains out of service and has not run since the last inspection.	--
3	Are the LUC boundaries and conditions included in the NIRIS Map Service database?	Y	Confirmed with Remedial Project Manager (RPM), NAVFAC Washington Environmental Restoration (ER) Program (Ms. Armalia Berry-Washington) that an accurate LUC boundary for Site 6 continues to be accessible in NIRIS, and LUC documentation (final LUC Remedial Design document) is associated with the Site 6 LUC boundary.	--
4	Is there any evidence that LUC reviews are not incorporated into the base dig permit process?	N	Confirmed with Mr. Bowker that the procedure for reviewing and enforcing LUCs for PWD Washington has not changed since the last inspection: All proposed Asset Management, A & E, maintenance, and construction projects at WNY undergo environmental review through the NAVFAC Washington PWD Installation Environmental Program (Environmental) to determine if the projects are proposed in locations where contamination is known to be present or LUCs are in place. The NAVFAC Washington ER Program RPM is consulted in these instances. All environmental restrictions identified for work proposed in a given area (such as known contamination or LUCs) are indicated on Environmental Conditions of Property forms supplied with the Categorical Exclusion (CATEX, which is the NEPA determination that a federal action does not	--

			"individually or cumulatively have a significant effect on the human environment") or the Environmental Assessment (NEPA documentation regarding whether a Federal action has the potential to cause significant environmental effects), and this documentation is then attached to the contract for the entity performing the intrusive work. Adherence to the environmental restrictions is monitored by the Resident Officer in Charge of Construction (ROICC) office to ensure compliance. For emergency excavations that do not undergo the dig permit process, the UEM Branch Head notifies and coordinates with Environmental for guidance prior to conducting intrusive work. No emergency excavations were conducted within the Site 6 LUC boundary since the last inspection.	

Note: If "Y", substantiate in the Summary of Inspection Performed; provide description/photos in supplemental pages as needed.

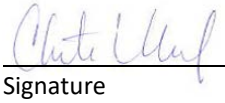
Corrective Actions

Finding No.	Description of Actions (provide description in supplemental pages as needed)
--	No findings; therefore, no corrective actions required.

Inspection Certification

Inspected by:	Christine Metcalf		
Company/Organization:	CH2M HILL, Inc.		
Date of Inspection:	9/30/2020	Date of Last Inspection:	9/25/2019

I certify that the conditions of the site on the inspection date were as reported above:



Signature

9/30/2020

Date

Appendix C
Site 22 Site Inspection Checklists

Annual Land Use Control Inspection Checklist
Washington Navy Yard, Washington, D.C.

Site Information

Site:	22
Environmental Media:	Subsurface Soil
LUC Objectives: • Prevent unacceptable risks to human receptors from direct exposure to hexavalent chromium in soil currently underneath Building 112 • Prevent unacceptable risks to human receptors from direct exposure to hexavalent chromium in soil that may be present in soil currently underneath Building 105	LUC Mitigation Actions: • prohibit activities that could result in human contact with soil, such as soil excavation within the perimeter footprint of these buildings or intrusive activities below the building foundation (such as demolishing the building), unless and until the regulatory agencies review and approve additional site investigation, waste handling, and/or cleanup activities in these areas • prohibit future redevelopment of the property requiring a change in land use that is not compatible with residual site risks unless and until the regulatory agencies review and approve additional site investigation and/or cleanup actions specific to the new land use or redevelopment being considered.

Inspection Items

No.	Inspection Item	Y/N/NA	Summary of Inspection Performed	Finding No.
1	Has land use changed since last inspection?	NA	First inspection; land use is the same as documented in the Record of Decision.	--
2	Is there evidence of intrusive activities in the concrete/asphalt within the LUC boundary and/or in the associated building basements?	N	Performed visual inspection of ground floor of Buildings 112 and 105; no evidence of intrusive activities within these buildings. Obtained verbal confirmation with Steve Hassay (building manager; phone 240-587-9043) that no intrusive activities have been conducted within these buildings.	--
3	Are the LUC boundaries and conditions included in the NIRIS Map Service database?	N	Confirmed with Armalia Berry-Washington (Remedial Project Manager [RPM], NAVFAC Washington Environmental Restoration [ER] program; phone 202-685-3273) that an accurate LUC boundary for Site 22 is included and accessible in NIRIS, and LUC documentation (final LUC remedial design) for Site 22 has been uploaded to NIRIS.	--
4	Is there any evidence that LUC reviews are not incorporated into the base dig permit process?	N	Confirmed with Rhonda Ford (National Environmental Policy Act [NEPA] program manager, NAVFAC Washington Public Works Department [PWD]; phone 202-433-6560) that the procedure for incorporating LUCs for PWD Washington is the following: All projects at the PWD undergo environmental review through the NEPA program manager, who reviews Asset Management, A & E, maintenance, and construction projects to determine if the projects are proposed in areas where LUCs are in place. For asset management, LUC sites are indicated on Environmental Conditions of Property forms supplied with the Categorical Exclusion (CATEX; NEPA determination that a federal action does not "individually or cumulatively have a significant effect on the human environment') or Environmental Assessment (NEPA documentation regarding whether a federal action has the potential to cause significant environmental effects). Projects that excavate in Site 6 or 22 are sent to the RPM (Armalia) to ensure communication lines are kept between the command and PWD.	--

Note: If "Y", substantiate in the Summary of Inspection Performed; provide description/photos in supplemental pages as needed.

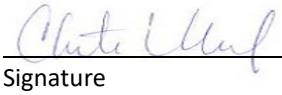
Corrective Actions

Finding No.	Description of Actions (provide description in supplemental pages as needed)

Inspection Certification

Inspected by:	Christine Metcalf		
Company/Organization:	CH2M HILL, Inc.		
Date of Inspection:	9/25/18	Date of Last Inspection:	NA (first inspection)

I certify that the conditions of the site on the inspection date were as reported above:



Signature

9/25/18

Date

Annual Land Use Control Inspection Checklist
Washington Navy Yard, Washington, D.C.

Site Information

Site:	22
Environmental Media:	Subsurface Soil
LUC Objectives: • Prevent unacceptable risks to human receptors from direct exposure to hexavalent chromium in soil currently underneath Building 112 • Prevent unacceptable risks to human receptors from direct exposure to hexavalent chromium in soil that may be present in soil currently underneath Building 105	LUC Mitigation Actions: • prohibit activities that could result in human contact with soil, such as soil excavation within the perimeter footprint of these buildings or intrusive activities below the building foundation (such as demolishing the building), unless and until the regulatory agencies review and approve additional site investigation, waste handling, and/or cleanup activities in these areas • prohibit future redevelopment of the property requiring a change in land use that is not compatible with residual site risks unless and until the regulatory agencies review and approve additional site investigation and/or cleanup actions specific to the new land use or redevelopment being considered.

Inspection Items

No.	Inspection Item	Y/N/NA	Summary of Inspection Performed	Finding No.
1	Has land use changed since last inspection?	N	Confirmed with Acting Installation Environmental Program Director, NAVFAC Washington Public Works Department (PWD) (Ms. Rhonda Ford) that land use at Site 6 has not changed.	--
2	Is there evidence of intrusive activities in the concrete/asphalt within the LUC boundary and/or in the associated building basements?	N	Conducted a walkthrough and visual inspection of the accessible areas within the land use control (LUC) boundary at Site 22. There was no visual evidence of intrusive activities in the concrete/ asphalt within the LUC boundary. Confirmed with Ms. Ford that no intrusive activities have been conducted within the LUC boundary, including within the basements of Buildings 105 and 112. Ms. Ford further noted that there are strict protocols in place at WNY to prevent unauthorized intrusive work, including base-specific permit processes, base security oversight, and construction inspections; therefore, it is unlikely that there would be any unauthorized and undocumented intrusive activity.	--
3	Are the LUC boundaries and conditions included in the NIRIS Map Service database?	N	Confirmed with Remedial Project Manager (RPM), NAVFAC Washington Environmental Restoration (ER) Program (Ms. Armalia Berry-Washington) that an accurate LUC boundary for Site 22 is included and accessible in NIRIS, and LUC documentation (final LUC Remedial Design document) is accessible and associated with the Site 22 LUC boundary.	--
4	Is there any evidence that LUC reviews are not incorporated into the base dig permit process?	N	Confirmed with Ms. Ford that the procedure for reviewing and enforcing LUCs for PWD Washington is the following: All proposed Asset Management, A & E, maintenance, and construction projects at WNY undergo environmental review through the NAVFAC Washington PWD Installation Environmental Program (Environmental) to determine if the projects are proposed in locations where contamination is known to be present or LUCs are in place. The NAVFAC Washington ER Program RPM is consulted in these instances. All environmental restrictions identified for work proposed in a given area (such as known contamination or LUCs) are indicated on Environmental Conditions of Property forms supplied with the Categorical Exclusion (CATEX, which is the NEPA determination that a federal action does not "individually or cumulatively have a significant effect on the human environment") or the Environmental Assessment (NEPA documentation regarding whether a Federal action has the	--

			potential to cause significant environmental effects), and this documentation is then attached to the contract for the entity performing the intrusive work. Adherence to the environmental restrictions is monitored by the Resident Officer in Charge of Construction (ROICC) office to ensure compliance. For emergency excavations that do not undergo the dig permit process, the Utilities Branch Head notifies and coordinates with Environmental for guidance prior to conducting intrusive work. No emergency excavations were conducted within the Site 22 LUC boundary since the last inspection.	

Note: If "Y", substantiate in the Summary of Inspection Performed; provide description/photos in supplemental pages as needed.

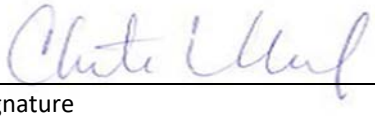
Corrective Actions

Finding No.	Description of Actions (provide description in supplemental pages as needed)
--	No findings; therefore, no corrective actions required.

Inspection Certification

Inspected by:	Christine Metcalf		
Company/Organization:	CH2M HILL, Inc.		
Date of Inspection:	9/25/19	Date of Last Inspection:	9/25/18

I certify that the conditions of the site on the inspection date were as reported above:



Signature

10/1/19
Date

Annual Land Use Control Inspection Checklist
Washington Navy Yard, Washington, D.C.

Site Information

Site:	22
Environmental Media:	Subsurface Soil
LUC Objectives: • Prevent unacceptable risks to human receptors from direct exposure to hexavalent chromium in soil currently underneath Building 112 • Prevent unacceptable risks to human receptors from direct exposure to hexavalent chromium in soil that may be present in soil currently underneath Building 105	LUC Mitigation Actions: • prohibit activities that could result in human contact with soil, such as soil excavation within the perimeter footprint of these buildings or intrusive activities below the building foundation (such as demolishing the building), unless and until the regulatory agencies review and approve additional site investigation, waste handling, and/or cleanup activities in these areas • prohibit future redevelopment of the property requiring a change in land use that is not compatible with residual site risks unless and until the regulatory agencies review and approve additional site investigation and/or cleanup actions specific to the new land use or redevelopment being considered.

Inspection Items

No.	Inspection Item	Y/N/NA	Summary of Inspection Performed	Finding No.
1	Has land use changed since last inspection?	N	Confirmed with Installation Environmental Program Coordinator, Public Works Department (PWD) Washington (Mr. Dane Bowker) that land use at Site 22 has not changed since the last inspection.	--
2	Is there evidence of intrusive activities in the concrete/asphalt within the LUC boundary and/or in the associated building basements?	N	Confirmed with Mr. Bowker (through review of base records such as dig permit processes and environmental review) that no intrusive activities have been conducted within the Site 22 LUC boundary, including within the basements of Buildings 105 and 112. As noted during previous inspections, there are strict protocols in place at WNY to prevent unauthorized intrusive work, including base-specific permit processes, base security oversight, and construction inspections; therefore, it is unlikely that there would be any unauthorized and undocumented intrusive activity.	--
3	Are the LUC boundaries and conditions included in the NIRIS Map Service database?	N	Confirmed with Remedial Project Manager (RPM), NAVFAC Washington Environmental Restoration (ER) Program (Ms. Armalia Berry-Washington) that an accurate LUC boundary for Site 22 continues to be accessible in NIRIS, and LUC documentation (final LUC Remedial Design document) is associated with the Site 22 LUC boundary.	--
4	Is there any evidence that LUC reviews are not incorporated into the base dig permit process?	N	Confirmed with Mr. Bowker that the procedure for reviewing and enforcing LUCs for PWD Washington has not changed since the last inspection: All proposed Asset Management, A & E, maintenance, and construction projects at WNY undergo environmental review through the NAVFAC Washington PWD Installation Environmental Program (Environmental) to determine if the projects are proposed in locations where contamination is known to be present or LUCs are in place. The NAVFAC Washington ER Program RPM is consulted in these instances. All environmental restrictions identified for work proposed in a given area (such as known contamination or LUCs) are indicated on Environmental Conditions of Property forms supplied with the Categorical Exclusion (CATEX, which is the NEPA determination that a federal action does not "individually or cumulatively have a significant effect on the human environment") or the Environmental Assessment (NEPA documentation regarding whether a Federal action has the potential to cause significant environmental effects), and this	--

			documentation is then attached to the contract for the entity performing the intrusive work. Adherence to the environmental restrictions is monitored by the Resident Officer in Charge of Construction (ROICC) office to ensure compliance. For emergency excavations that do not undergo the dig permit process, the Utility Energy Management (UEM) Branch Head notifies and coordinates with Environmental for guidance prior to conducting intrusive work. No emergency excavations were conducted within the Site 22 LUC boundary since the last inspection.	

Note: If "Y", substantiate in the Summary of Inspection Performed; provide description/photos in supplemental pages as needed.

Corrective Actions

Finding No.	Description of Actions (provide description in supplemental pages as needed)
--	No findings; therefore, no corrective actions required.

Inspection Certification

Inspected by:	Christine Metcalf		
Company/Organization:	CH2M HILL, Inc.		
Date of Inspection:	9/30/2020	Date of Last Inspection:	9/25/2019

I certify that the conditions of the site on the inspection date were as reported above:

Signature

9/30/2020

Date

Appendix D
SSA 12 Site Inspection Checklists

Annual Land Use Control Inspection Checklist
Washington Navy Yard, Washington, D.C.

Site Information

Site:	Exposure Area (EA) 1, EA 19, and the Eastern Extension EA at Site Screening Area (SSA) 12
Environmental Media:	Subsurface soil (fill)
LUC Objective: • prevent unacceptable risks to human receptors from direct exposure to polycyclic aromatic hydrocarbons (PAHs) in subsurface fill material at EA 1, EA 19, and the Eastern Extension EA at SSA 12	LUC Mitigation Actions: • prohibit activities that could result in human contact with soil, such as soil excavation within the perimeter of these EAs or intrusive activities (such as demolishing a building), unless and until the regulatory agencies review and approve additional site investigation, waste handling, and/or cleanup activities in these areas of SSA 12 • prohibit future redevelopment of the property requiring a change in land use that is not compatible with residual site risks unless and until the regulatory agencies review and approve additional site investigation and/or cleanup actions specific to the new land use or redevelopment being considered.

Inspection Items

No.	Inspection Item	Y/N/NA	Summary of Inspection Performed	Finding No.
1	Has land use changed since last inspection?	NA	First annual inspection; confirmed with Acting Installation Environmental Program Director, NAVFAC Washington Public Works Department (PWD) (Ms. Rhonda Ford) that land use within the boundaries of EA1, EA19, and the Eastern Extension EA has not changed since the implementation of the land use controls (LUCs) and signature of the Remedial Action Completion Report (RACR) in September 2018.	--
2	Is there evidence of intrusive activities in the concrete/asphalt within the LUC boundary and/or in the associated building basements?	N	Conducted a walkthrough and visual inspection of the accessible areas within the LUC boundaries of EA1, EA19, and the Eastern Extension EA at SSA 12 (Site 19). There was visual evidence of two small, patched areas of asphalt within the Eastern Extension EA boundary south and west of Building 166. However, confirmed with Ms. Ford that these represented older utility repair activities, and no intrusive activities have been conducted within the LUC boundaries, including the areas beneath Building 126 and the O Street Gate at EA 1, the Anacostia Riverwalk at EA 19, and Buildings 166, 211, 218, 405, and 123 at the Eastern Extension EA, since the signature of the RACR in September 2018. Ms. Ford further noted that there are strict protocols in place at WNY to prevent unauthorized intrusive work, including base-specific permit processes, base security oversight, and construction inspections; therefore, it is unlikely that there would be any unauthorized and undocumented intrusive activity in these areas.	--
3	Are the LUC boundaries and conditions included in the NIRIS Map Service database?	N	Reviewed information in NIRIS database with Remedial Project Manager (RPM), NAVFAC Washington Environmental Restoration (ER) Program (Ms. Armalia Berry-Washington). LUC information for EA1, EA19, and the Eastern Extension EA at SSA 12 (Site 19) was not included in NIRIS at the time of the inspection. However, the boundary for the entire SSA 12 (Site 19) fill area is included in NIRIS as an ER site (i.e., an area with known or potential contaminated soil/fill), so even though specific LUC information for EA1, EA19, and the Eastern Extension EA was not present at the time of the inspection, contractors proposing work in this area would have been made aware of the potential presence of contamination associated with the subsurface fill throughout SSA 12.	1

Annual Land Use Control Inspection Checklist
Washington Navy Yard, Washington, D.C.

4	Is there a procedure in place for the installation to enforce LUCs, such as the NDW Region Excavation Permit and the PWD-W Asset Management site approval process?	Y	Confirmed with Ms. Ford that the procedure for reviewing and enforcing LUCs for PWD Washington is the following: All proposed Asset Management, A & E, maintenance, and construction projects at WNY undergo environmental review through the NAVFAC Washington PWD Installation Environmental Program (Environmental) to determine if the projects are proposed in locations where contamination is known to be present or LUCs are in place. The NAVFAC Washington ER Program RPM is consulted in these instances. All environmental restrictions identified for work proposed in a given area (such as known contamination or LUCs) are indicated on Environmental Conditions of Property forms supplied with the Categorical Exclusion (CATEX, which is the NEPA determination that a federal action does not "individually or cumulatively have a significant effect on the human environment") or the Environmental Assessment (NEPA documentation regarding whether a Federal action has the potential to cause significant environmental effects), and this documentation is then attached to the contract for the entity performing the intrusive work. Adherence to the environmental restrictions is monitored by the Resident Officer in Charge of Construction (ROICC) office to ensure compliance. For emergency excavations that do not undergo the dig permit process, the Utilities Branch Head notifies and coordinates with Environmental for guidance prior to conducting intrusive work. No emergency excavations were conducted within the Site 22 LUC boundary since the last inspection.	--
5	Is there any evidence that LUC reviews are not incorporated into these installation processes?	N	See information above.	--

Note: If "Y", substantiate in the Summary of Inspection Performed; provide description/photos in supplemental pages as needed.

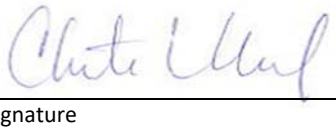
Corrective Actions

Finding No.	Description of Actions (provide description in supplemental pages as needed)
1	LUC conditions were added to the NIRIS database by Ms. Berry-Washington during the inspection on September 25, 2019. The LUC boundaries for EA1, EA19, and the Eastern Extension EA at SSA 12 (Site 19) were added the NIRIS system by CH2M the next business day (September 26, 2019).

Inspection Certification

Inspected by:	Christine Metcalf		
Company/Organization:	CH2M HILL, INC.		
Date of Inspection:	9/25/19	Date of Last Inspection:	NA (first inspection)

I certify that the conditions of the site on the inspection date were as reported above:



Signature

10/1/19
Date

Annual Land Use Control Inspection Checklist
Washington Navy Yard, Washington, D.C.

Site Information

Site:	Exposure Area (EA) 1, EA 19, and the Eastern Extension EA at Site Screening Area (SSA) 12
Environmental Media:	Subsurface soil (fill)
LUC Objective: • prevent unacceptable risks to human receptors from direct exposure to polycyclic aromatic hydrocarbons (PAHs) in subsurface fill material at EA 1, EA 19, and the Eastern Extension EA at SSA 12	LUC Mitigation Actions: • prohibit activities that could result in human contact with soil, such as soil excavation within the perimeter of these EAs or intrusive activities (such as demolishing a building), unless and until the regulatory agencies review and approve additional site investigation, waste handling, and/or cleanup activities in these areas of SSA 12 • prohibit future redevelopment of the property requiring a change in land use that is not compatible with residual site risks unless and until the regulatory agencies review and approve additional site investigation and/or cleanup actions specific to the new land use or redevelopment being considered.

Inspection Items

No.	Inspection Item	Y/N/NA	Summary of Inspection Performed	Finding No.
1	Has land use changed since last inspection?	N	Confirmed with Installation Environmental Program Coordinator, Public Works Department (PWD) Washington (Mr. Dane Bowker), that land use within the boundaries of EA1, EA19, and the Eastern Extension EA has not changed since the last inspection.	--
2	Is there evidence of intrusive activities in the concrete/asphalt within the LUC boundary and/or in the associated building basements?	Y	Confirmed with Mr. Bowker (through review of base records such as dig permit processes and environmental review) that one intrusive activity was approved and completed within the LUC boundary of the Eastern Extension EA at SSA 12 (Site 19) since the last inspection (see details in the Corrective Actions section, below). No other intrusive activities have been conducted within the EA1, EA19, or Eastern Extension EA LUC boundaries since the last inspection. As noted during previous inspections, there are strict protocols in place at WNY to prevent unauthorized intrusive work, including base-specific permit processes, base security oversight, and construction inspections; therefore, it is unlikely that there would be any unauthorized and undocumented intrusive activity.	1
3	Are the LUC boundaries and conditions included in the NIRIS Map Service database?	Y	Confirmed with Remedial Project Manager (RPM), NAVFAC Washington Environmental Restoration (ER) Program (Ms. Armalia Berry-Washington) that accurate LUC boundaries for EA1, EA19, and the Eastern Extension EA at SSA 12 (Site 19) continue to be accessible in NIRIS, and LUC documentation (final LUC Remedial Design document) is associated with these areas.	--
4	Is there a procedure in place for the installation to enforce LUCs, such as the NDW Region Excavation Permit and the PWD-W Asset Management site approval process?	Y	Confirmed with Mr. Bowker that the procedure for reviewing and enforcing LUCs for PWD Washington has not changed since the last inspection: All proposed Asset Management, A & E, maintenance, and construction projects at WNY undergo environmental review through the NAVFAC Washington PWD Installation Environmental Program (Environmental) to determine if the projects are proposed in locations where contamination is known to be present or LUCs are in place. The NAVFAC Washington ER Program RPM is consulted in these instances. All environmental restrictions identified for work proposed in a given area (such as known contamination or LUCs) are indicated on Environmental Conditions of Property forms supplied with the Categorical Exclusion (CATEX, which is the NEPA determination that a federal action does not "individually or cumulatively have a significant effect on the human environment") or the Environmental Assessment (NEPA documentation regarding whether a Federal action has the potential to cause significant environmental effects), and this	--

			documentation is then attached to the contract for the entity performing the intrusive work. Adherence to the environmental restrictions is monitored by the Resident Officer in Charge of Construction (ROICC) office to ensure compliance. For emergency excavations that do not undergo the dig permit process, the Utility Energy Management (UEM) Branch Head notifies and coordinates with Environmental for guidance prior to conducting intrusive work. No emergency excavations were conducted within the EA1, EA19, or Eastern Extension EA LUC boundaries since the last inspection.	
5	Is there any evidence that LUC reviews are not incorporated into these installation processes?	N	See information above.	--

Note: If "Y", substantiate in the Summary of Inspection Performed; provide description/photos in supplemental pages as needed.

Corrective Actions

Finding No.	Description of Actions (provide description in supplemental pages as needed)
1	According to Mr. Bowker, a safety shower was installed at the hazardous waste storage area located within the fenced area of the parking lot behind Building 166 during fiscal year 2020. This area is within the LUC boundary of the Eastern Extension EA at SSA 12 (Site 19). An approximate 50-foot-long trench was dug below the frost line, from the southeast corner of Building 166 to the north side of the connexes in the parking lot, to run power and water to the shower. Pavement was removed and replaced, and the soil was placed back into the trench (i.e., no waste soil was generated). The NDW Region Excavation Permit (i.e., dig permit) process was followed for this project, including environmental review and consultation that identified the presence of LUCs and known contamination at this location. The contractor was notified of the environmental conditions in this area, and adherence to the environmental restrictions was monitored by the ROICC office to ensure compliance. Because the established LUC review procedure and requirements were followed as part of the dig permit process, no corrective action is warranted for this activity.

Inspection Certification

Inspected by:	Christine Metcalf		
Company/Organization:	CH2M HILL, INC.		
Date of Inspection:	9/30/2020	Date of Last Inspection:	9/25/2019

I certify that the conditions of the site on the inspection date were as reported above:

Signature

9/30/2020
Date