Final

REMEDIAL ACTION COMPLETION REPORT

OPERABLE UNIT 7

PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

CONTRACT NUMBER N62470-08-D-1001
CONTRACT TASK ORDER WE13

SEMS Doc ID 588088

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ACRONYMS AND ABBREVIATIONS

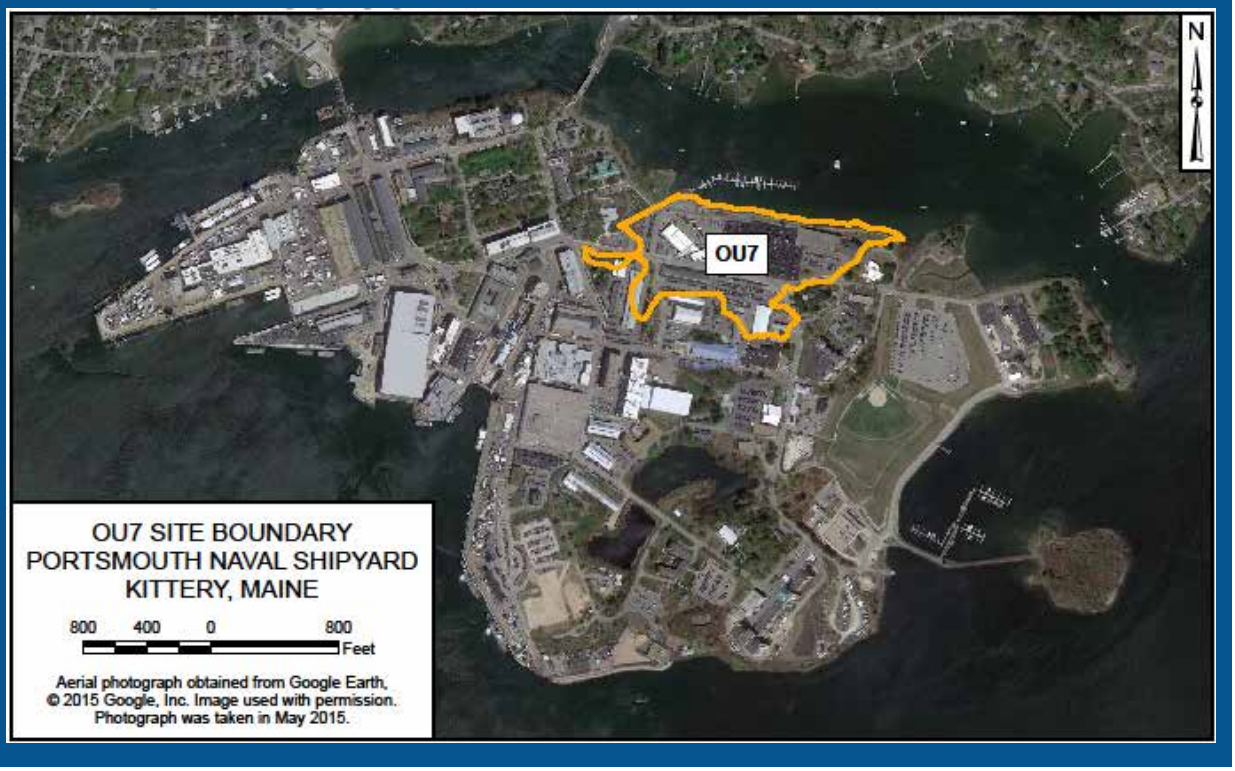
ACM	Asbestos-containing material
BAP	Benzo(a)pyrene
bgs	Below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Chemical of concern
DoD	Department of Defense
ERP	Environmental Restoration Program
FFA	Federal Facility Agreement
FS	Feasibility Study
LTMgt	Long-term management
LUC	Land use control
MEDEP	Maine Department of Environmental Protection
mg/kg	Milligram per kilogram
MTADS	Multi-Sensor Towed-Array Detection System
NPL	National Priorities List
OU	Operable Unit
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PNS	Portsmouth Naval Shipyard
RAB	Restoration Advisory Board
RACR	Remedial Action Completion Report
RAO	Remedial action objective
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RFI	RCRA Facility Investigation
RI	Remedial Investigation
ROD	Record of Decision
SSI	Site Screening Investigation
TCDD	2,3,7,8-Tetrachlorodibenzo-p-dioxin
TEQ	Toxicity equivalency quotient
TRC	Technical Review Committee
TSCA	Toxic Substances Control Act
USEPA	United States Environmental Protection Agency

1.0 OVERVIEW

This Remedial Action Completion Report (RACR) documents that the selected remedy has been implemented and that the remedial action objectives (RAOs) have been met for Operable Unit (OU) 7 at Portsmouth Naval Shipyard (PNS), Kittery, Maine. This document has been prepared per the Department of Defense (DoD)/United States Environmental Protection Agency (USEPA) Joint Guidance Recommended Streamlined Site Closeout and National Priorities List (NPL) Deletion Process for DoD Facilities (January 2006) and Department of the Navy Guidance to Documenting Milestones Throughout the Site Closeout Process (March 2006). This RACR along with the Final Construction Completion Report for OU7 (AGVIQ, April 2016) satisfies the requirement in Section 9.13 of the Federal Facility Agreement (FFA) for a Remedial Action Report for OU7.

OU7 consists of Site 32 - Topeka Pier Site and is located along the northern boundary of PNS, along the Back Channel of the Piscataqua River, as shown on Figure 1-1. PNS is located in Kittery, Maine, north of Portsmouth, New Hampshire, at the mouth of the Great Bay Estuary (commonly referred to as Portsmouth Harbor) and is engaged in the conversion, overhaul, and repair of submarines for the Navy. PNS was included on the NPL on May 31, 1994 with USEPA Identification Number ME7170022019. The FFA for PNS was signed by USEPA and the Navy in September 1999 and became effective in February 2000.

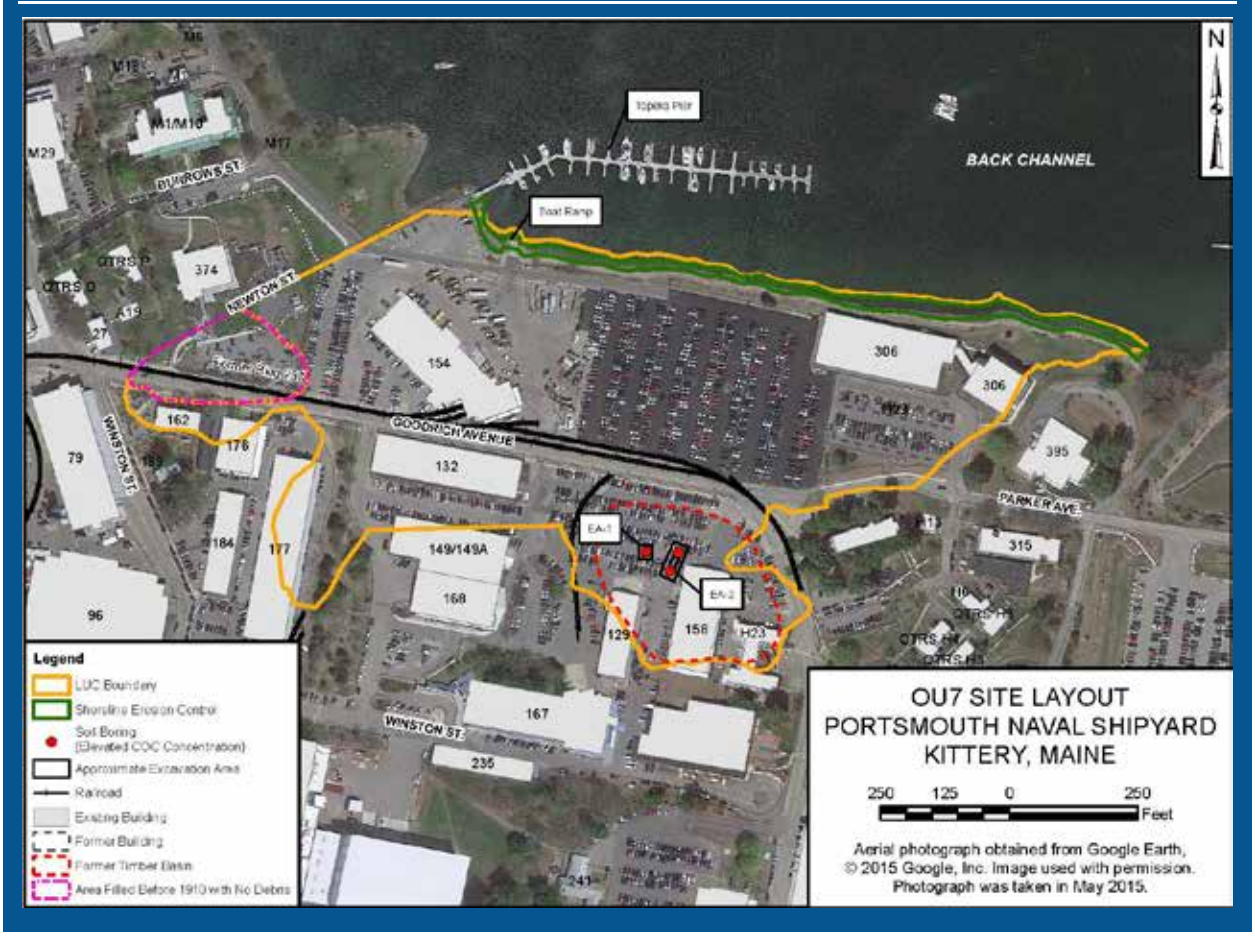
FIGURE 1-1. SITE LOCATION MAP



OU7 is approximately 19 acres, encompassing 17 acres onshore (including parking areas and buildings) and 2 acres of shoreline (intertidal area) (see Figure 1-2). The majority of OU7 has been used for industrial activities since the early 1900s. There is also recreational use of a boat pier and ramp. Currently, activities at OU7 include office parking, equipment storage, vehicle and rail car maintenance (Building 154), transducer repair (Building 306), boat launching, and a hotel (Building H23). Future land use is anticipated to remain the same, with various industrial uses of the site and recreational use of the boat pier and launch (ramp).

OU7 is a tidal area that was filled from approximately 1900 to 1945 to allow use for various industrial activities in support of Shipyard operations. Past industrial activities included storing and milling of lumber, storing and seasoning of wood (in a timber basin), storing coal and scrap iron, and storing combustibles including paints and oils. Materials used to fill the area consisted mostly of rock and soil mixed with some debris, and there are a few intermittent pockets of debris with little soil. By 1945, all filling and possible disposal at OU7 had ceased. Topeka Pier was constructed along the shoreline in the western portion of the site around 1905. The fill is covered by paving, buildings, vegetation, or shoreline erosion controls. The OU7 site boundary has an irregular shape defined by previous filling in this area. Debris materials identified within the fill include slag, ash, metal, cinders, coal clinkers, wood, plastic, glass, concrete, porcelain, and brick, depending on the location at the site. Based on observations of shoreline erosion prior to construction of shoreline erosion controls in 2006, subsurface debris extends to the shoreline and is now covered by the erosion control structures. In an area filled before 1910 in the vicinity of former Building 237, fill material is mostly rock. The chemicals of concern (COCs) associated with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) releases to soil at OU7 are carcinogenic polycyclic aromatic hydrocarbons (PAHs), dioxins/furans, metals (antimony, copper, iron, and lead), and polychlorinated biphenyls (PCBs). Fill was characterized by moderate to low levels of contaminants, with greater concentrations (specifically of dioxins/furans and PCBs) in a portion of the former timber basin. Contaminant concentrations were low in the area filled before 1910 in the vicinity of former Building 237. A Record of Decision (ROD) was signed in 2013, and the main components of the remedy include soil excavation, land use controls (LUCs), and five-year reviews. Soil excavation was conducted from August to September 2015. LUCs include land use restrictions, long-term management (LTMgt) of existing shoreline erosion controls, and management of any excavation of subsurface soil. The Navy is implementing LUCs for OU7 per a LUC Remedial Design (RD) and LTMgt Plan.

FIGURE 1-2. SITE LAYOUT MAP



Several investigations have been conducted at OU7 as part of the DoD Environmental Restoration Program (ERP) to evaluate the extent to which site media were impacted by historical operations. Table 1-1 summarizes the CERCLA process at OU7.

TABLE 1-1. PREVIOUS INVESTIGATIONS AND DOCUMENTATION FOR OU7

INVESTIGATION/ DOCUMENTATION	DATE	ACTIVITIES
Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Data Gap Investigation and Groundwater and Seep and Sediment Monitoring	1994 to 1997	Prior to the Site Screening Investigation (SSI) for OU7, several environmental investigations at PNS including sampling within what is now the OU7 area. In 1994, the investigation conducted to resolve data gaps to address deficiencies in the RFI included installation of a non-site-related monitoring well cluster (the FA monitoring well cluster) in what was later identified as OU7. From 1996 to 1997, a facility-wide groundwater monitoring program was conducted to resolve data gaps in the RFI by providing a snapshot of overall groundwater quality at PNS based on four rounds of quarterly data from monitoring wells at PNS. The FA well cluster was included in this monitoring program. Monitoring of seep water and collocated sediment in several intertidal areas of PNS (i.e., areas exposed during low tide and submerged during high tide) was conducted along with groundwater monitoring to provide data for use in contaminant fate and transport modeling. Four locations were sampled in the OU7 intertidal area. Data from the FA well cluster and seep and sediment monitoring were later used as part of data evaluation activities for the OU7 Remedial Investigation (RI).
SSI	1998	The SSI for OU7 was conducted to document the release or potential release of hazardous substances that may be present, to make recommendations for further action (e.g., an RI), and to eliminate from further investigation those portions of the site that may pose no appreciable risk to the environment or human health. The sampling and analyses targeted potential source areas at OU7 and provided soil and groundwater data for the site. Additionally, the SSI provided geological and hydrogeological information that was combined with other geological and hydrogeological information for the site to understand site conditions including contaminant fate and transport. Based on chemical concentrations in surface and subsurface soil and groundwater samples, the SSI concluded that an RI was necessary. The SSI Report was finalized in 2000.
Multi-Sensor Towed-Array Detection System (MTADS)	1998	This investigation was conducted to generate geophysical maps of Jamaica Island (OU3, located east of OU7) and OU7 to identify ferrous or steel-reinforced concrete containers that may have been used to dispose of materials. The survey was conducted on the approximately one-fourth to one-third of OU7 that was accessible to identify magnetic and electromagnetic anomalies. The portions of the site not surveyed were inaccessible because of equipment, fenced laydown areas, railroad tracks, and other structures. The MTADS showed buried utility lines throughout the OU7 area, but an anomaly in the southeastern corner of the survey area did not correlate to site features (e.g., utilities). Based on historical figures, a railroad previously ran near the location of the anomaly (north of Goodrich Avenue), and utilities were previously located around the anomaly. Although it was likely that this anomaly was associated with former railroad tracks or utilities, the exact nature of the anomaly was unknown. The anomaly was investigated further during the RI; no drums were found. The MTDAS report was finalized in 2001.
Interim Offshore Monitoring	1999 to 2010	Interim offshore monitoring for OU4 was conducted to provide current data on the offshore areas to evaluate whether onshore remedial actions, natural processes, and/or other sources have affected chemical concentrations at OU4. Sediment at the two monitoring stations located in the offshore area of OU7 (MS-03 and MS-04) were sampled during the first seven rounds of the Interim Offshore Monitoring Program. Copper, nickel, and PAH sediment contamination was found. The copper and nickel were from foundry slag in the OU7 offshore area. The sediment data were used as part of data evaluation activities for the OU7 RI.

TABLE 1-1. PREVIOUS INVESTIGATIONS AND DOCUMENTATION FOR OU7

INVESTIGATION/ DOCUMENTATION	DATE	ACTIVITIES
Phases I and II RI Field Work	2003 and 2008	Soil, sediment, groundwater, and intertidal surface water (outfalls and nearby surface water) samples were collected at OU7 to support evaluation of the nature and extent of contamination and risk assessment. During Phase I, approximately 70 soil samples, 10 groundwater samples, and six surface water samples were collected and analyzed for OU7 potential contaminants. Approximately 70 sediment samples were collected and analyzed for nickel and copper. A wetlands functions and values assessment of the intertidal area was also conducted. Based on evaluation of Phase I data, it was recommended that Phase II include one round of groundwater sampling, soil sampling in select areas to define the extent of high chemical concentrations, and exploratory borings to define the extent of potential petroleum contamination. The Phase II field work included collection of approximately 50 additional soil samples, 10 additional groundwater samples from OU7 wells and upgradient wells (at Site 30), and approximately 40 sediment samples from the intertidal areas. Data were determined to sufficiently fill the data gaps identified after the Phase I RI sampling event.
Removal Action for Site 32 Shoreline Stabilization	2006	In June 2006, the Navy conducted an emergency removal action along the OU7 shoreline to address erosion north of Building 306. Based on the presence of eroding debris, including foundry slag, the Navy removed surface debris and placed a shoreline erosion control (revetment) structure along the entire OU7 shoreline (approximately 1,200 linear feet) to prevent further erosion. The controls cover the high- to mid-tide portion of the shoreline and consist of a pea-stone layer to create the necessary grade for an 8-ounce, non-woven, geotextile fabric followed by two layers of graded rock. Granite blocks are at the toe of the slope at the mid-tide elevation.
RI Report	2011	The RI Report was prepared to characterize the nature and extent of contamination, evaluate potential risks to human receptors, and determine the potential for OU7 contamination to adversely impact the offshore area. Potential onshore ecological risks were not evaluated because OU7 is in an industrial area with no onshore ecological habitats. The RI indicated that the nature and extent of contamination was sufficiently defined. Potentially unacceptable risks were estimated for current and future exposure to soil at OU7. Exposure to groundwater, surface water, and sediment does not pose unacceptable risks for human receptors. The area filled before 1910 without debris (in the vicinity of former Building 237) was evaluated separately from the rest of the site, and risks were acceptable for all receptors exposed to soil in this area. Groundwater, surface water, sediment, and soil data from OU7 and modeling conclusions showed that migration of contaminants in groundwater from OU7 to the offshore does not pose a current unacceptable risk and would not pose a future unacceptable risk. Evaluation of the existing shoreline erosion controls indicated that no further erosion is occurring; however, these controls need to be maintained to ensure that future erosion of contaminated fill does not occur and impact the offshore environment.
Feasibility Study (FS) Report	2013	Based on the nature and extent of soil contamination determined during the RI, an FS was conducted to develop and evaluate soil remedial alternatives.
Proposed Plan	2013	The Proposed Plan presented the Navy's Preferred Alternative to address contamination. A 30-day public comment period was held from July 16 to August 15, 2013. No modification to the proposed remedy was necessary based on comments received during the public comment period.
ROD	2013	The ROD was signed in September 2013, and the selected remedy includes excavation of soil associated with potentially unacceptable risks to industrial workers and LUCs to prohibit residential land use, require management of excavated subsurface soil, and require LTMgt of the existing shoreline erosion controls at OU7. Based on the selected remedy, the area filled before 1910 without debris is no longer within the OU7 boundary.
LUC RD	2014	The LUC RD provides the necessary implementation actions for LUCs for OU7.

TABLE 1-1. PREVIOUS INVESTIGATIONS AND DOCUMENTATION FOR OU7		
INVESTIGATION/ DOCUMENTATION	DATE	ACTIVITIES
Remedial Action Construction	2015	Remedial action activities, including pre-excavation confirmation sampling, soil excavation, and site restoration were conducted for two excavation areas (EA-1 and EA-2) within the former timber basin area per the 2015 Remedial Action Work Plan. Pre-excavation confirmation sampling was conducted in May and July 2015, and excavation was conducted in August and September 2015.
LTMgt Plan	2016	The LTMgt Plan was prepared to guide site personnel in performing inspection, maintenance, and associated recordkeeping and reporting for the LUC component of the OU7 remedy, which includes restrictions on land use and inspection and maintenance of erosion controls along the shoreline of OU7.

2.0 REMEDIAL ACTION OBJECTIVES

The RAOs and cleanup standards for OU7 were specified in the ROD (Navy, September 2013). RAOs are medium-specific goals that define the objective of conducting remedial actions to protect human health and the environment. Table 2-1 presents a summary of the identified risks at OU7, the RAOs established in the ROD to address each risk, the remedy component to meet each RAO, and the metric and cleanup level for each RAO. Cleanup levels are chemical-specific concentration goals that when achieved will result in acceptable risks to human and ecological receptors. Cleanup levels were developed for dioxins/furans [evaluated collectively based on 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) toxicity equivalency quotients (TEQs)] and total PCBs for industrial (construction and occupational) workers and for carcinogenic PAHs [evaluated collectively as benzo(a)pyrene (BAP) TEQs], dioxins/furans (based on TCDD TEQs), metals (antimony, copper, iron, and lead), and total PCBs for hypothetic future residents. The cleanup levels are based on average exposure concentrations in soil.

TABLE 2-1. SUMMARY OF REMEDIAL ACTION OBJECTIVES FOR OU7			
RISK	RAO	REMEDY COMPONENT	METRIC/CLEANUP LEVEL
Hypothetical future residential exposure to contaminated soil.	Prevent residential exposure through ingestion of, inhalation of, and dermal contact with surface soil containing lead and subsurface soil containing antimony, copper, dioxins/furans, iron, lead, carcinogenic PAH, and PCB concentrations exceeding residential cleanup levels.	Implementation of LUCs to prohibit residential land use and specify requirements for management of excavated soil as part of future construction activities within the LUC boundary (see Figure 1-2).	Implement and maintain LUCs and confirm protectiveness during five-year reviews as long as concentrations of COCs in subsurface soil exceed cleanup levels for residential use. The residential cleanup levels in milligrams per kilogram (mg/kg) are as follows: · Carcinogenic PAHs (based on BAP TEQs): 0.5 · Dioxins/furans (based on TCDD TEQs): 0.000051 · Total PCBs: 7.3 · Antimony: 31 · Copper: 1,500 · Iron: 27,000 · Lead: 400

TABLE 2-1. SUMMARY OF REMEDIAL ACTION OBJECTIVES FOR OU7

RISK	RAO	REMEDY COMPONENT	METRIC/CLEANUP LEVEL
Industrial worker (construction and occupational) exposure to contaminated subsurface soil.	Prevent industrial worker (construction and occupational) exposure through ingestion of, inhalation of, and dermal contact with subsurface soil containing dioxins/furans and PCB concentrations exceeding industrial cleanup levels.	Excavation of contaminated subsurface soil to reduce risks to acceptable levels for current and future industrial exposure to subsurface soil.	Remove soil with dioxins/furans (based on TCDD TEQs) and total PCB concentrations greater than the industrial cleanup levels of 0.0006 and 7.4 mg/kg, respectively, to reduce site-wide average soil dioxins/furans and PCB concentrations at OU7 to less than industrial cleanup levels.
Potential risks to offshore from erosion of contaminated soil.	Protect the offshore environment from erosion of contaminated soil from the OU7 shoreline.	Implementation of LUCs to provide requirements for LTMgt of the existing shoreline erosion controls to prevent future erosion of contamination along the shoreline of OU7.	Implement and maintain LUCs and confirm protectiveness during five-year reviews as long as contaminated soil remains along the shoreline of OU7.

3.0 REMEDIAL ACTIONS

The 2013 ROD (Navy, September 2013) documents the final remedy and includes the following components to meet the RAOs:

- Excavation and offsite disposal of soil associated with potentially unacceptable risks to current and future industrial workers. Two areas in the southeastern portion of the site (within the former timber basin area) were identified with exceedances of industrial cleanup levels.
- Restoration of excavated areas to pre-construction conditions to allow for continued industrial use.
- Implementation of LUCs via a LUC RD to prohibit residential use of the site, require management of excavated subsurface soil, and require LTMgt of the existing shoreline erosion controls at OU7.
- Five-year site reviews to ensure that the remedy remains protective of human health and the environment.

Remedial construction activities were conducted per the Remedial Action Work Plan for OU7 (AGVIQ, April 2015) as discussed in the Construction Complete Report for OU7 (AGVIQ, April 2016). Major activities associated with remedial action construction included confirmation sampling, soil excavation and offsite disposal, and site restoration. Appendix A provides confirmation sampling results and shows the final excavation areas. The following provides a summary of the major activities:

- Confirmation sampling – Pre-excavation confirmation samples were collected in May 2015 to refine the lateral and vertical extent of excavation for the two areas (EA-1 and EA-2) and to reduce or eliminate the need for post-excavation confirmation sampling. Confirmation samples from EA-1 were analyzed for dioxins/furans, and TCDD TEQs were calculated for comparison to the industrial cleanup level. All EA-1 confirmation sample results were less than the industrial cleanup level (0.0006 mg/kg) and were also less than residential cleanup level (0.000051 mg/kg). The final excavation area for EA-1 was determined as approximately 10 feet by 10 feet, and the final excavation depth was 5 feet below ground surface (bgs). Confirmation samples from EA-2 were analyzed for PCBs and total PCB concentrations were calculated for comparison to the industrial cleanup level. Most results were less than both industrial and residential cleanup levels (7.4 and 7.3 mg/kg, respectively); however, two

samples collected from 5 to 8 feet bgs had total PCB concentrations that exceeded the industrial cleanup level and exceeded the Toxic Substances Control Act (TSCA) level for PCBs (50 mg/kg). All of the analyzed confirmation samples collected from 8 to 9 feet bgs contained PCBs at concentrations less than the industrial cleanup level (and also less than the residential cleanup level), and the vertical depth of excavation was determined to be 8 feet bgs. Additional pre-excavation confirmation samples were collected in July 2015 to better delineate the lateral extent of soil with PCB concentrations exceeding the industrial cleanup level. Based on the results of the pre-excavation confirmation samples for EA-2, three areas (North, South, and Central) within the pre-excavation confirmation EA-2 sampling area were identified for soil excavation. EA-2 North was determined to be approximately 10 feet by 10 feet, EA-2 Central and South were irregularly shaped and approximately 120 square feet and 325 square feet in area, respectively. The final excavation depth for the three areas was 8 feet bgs.

- Soil excavation and offsite disposal – Prior to soil excavation, asphalt pavement around the planned excavation areas was removed. Shoring was not required to complete the excavations. Excavation of EA-1, EA-2 North, and EA-2 Central was completed in August 2015, and excavation of EA-2 South was completed in September 2015. A total of 33.28 tons of excavated material from EA-1 and 42.09 tons of material from EA-2 North was transported to an offsite non-hazardous waste disposal facility. EA-2 Central and EA-2 South encompassed the locations with PCBs at concentrations exceeding the TSCA level. A total of 127.17 tons of excavated material from EA-2 Central and EA-2 South was transported to an offsite TSCA-regulated waste disposal facility. During excavation in EA-2 South, an unknown and unmarked 18-inch terra cotta pipe was discovered running north-south through the southeastern corner of the excavation area. The terra cotta pipe was found to contain two 1-inch steel pipes wrapped in suspected asbestos-containing material (ACM), and the steel pipes were thought to be portions of an abandoned steam line. A separate work plan for removal of the ACM and piping within EA-2 South was prepared (AGVIQ, September 2015), and the ACM and piping were subsequently removed and transported to the PNS Hazardous Waste Facility for disposal with other ACM waste from PNS. After the ACM and piping were removed, soil excavation in the southeastern corner of EA-2 South was completed.

- Site restoration – Backfilling of the excavations consisted of placement of a geotextile layer at the bottom of the excavation covered by an approximate 3-foot layer of 3/8-inch stone covered by another geotextile layer and then covered by a 1.5-inch Type A road base placed to within 3 inches of the ground surface. The excavation areas were then asphalted.

The OU7 LUC RD, completed in September 2014, provides the required LUC implementation activities to comply with the remedy (Navy, September 2014), and the first LUC inspection was conducted in October 2014. LUCs for OU7 prohibit residential land use, require proper management of excavated subsurface soil, and require inspection and maintenance of existing shoreline erosion controls to prevent erosion of contaminated fill along the shoreline to the offshore area. The LTMgt Plan was completed in March 2016 and provides the specific requirements for inspection, maintenance, and associated recordkeeping and reporting for the LUC component of the OU7 remedy. The 2014 OU7 LUC RD is provided as Appendix A of the 2016 LTMgt Plan (Tetra Tech, March 2016).

4.0 DEMONSTRATION OF COMPLETION

The Construction Completion Report for OU7 (AGVIQ, April 2016) documents the completion of soil excavation to reduce COC (dioxins/furans and PCB) concentrations to less than industrial cleanup levels. The results also show that dioxins/furans and PCB concentrations were also reduced to less than residential cleanup levels (see Appendix A) so that dioxins/furans and PCBs are no longer COCs for OU7. LUCs are being implemented and maintained per the LUC RD (Navy, September 2014) and the LTMgt Plan (Tetra Tech, March 2016). Table 4-1 provides a demonstration of attainment of the RAOs for OU7.

TABLE 4-1. DEMONSTRATION OF ATTAINMENT OF RAOS FOR OU7	
RAO	**REMEDIAL ACTION RESULTS**
Prevent residential exposure through ingestion of, inhalation of, and dermal contact with surface soil containing lead and subsurface soil containing antimony, copper, dioxins/furans, iron, lead, carcinogenic PAH, and PCB concentrations exceeding residential cleanup levels.	LUCs prohibiting residential use and requiring appropriate management of excavated soil within the OU7 LUC boundary are being implemented and maintained per the LUC RD to meet this RAO. The protectiveness of LUCs will be confirmed during five-year reviews as long as contamination is present within the LUC boundary that does not allow for unlimited use and unrestricted exposure. Excavation of contaminated soil to meet industrial cleanup levels incidentally reduced lead concentrations in surface soil to less than cleanup levels thereby eliminating risks for exposure to lead in surface soil. Because of the localized nature of dioxins/furans and PCB contamination, excavation to meet industrial cleanup levels also reduced dioxins/furans and PCB concentrations to less than residential cleanup levels. Therefore, dioxins/furans and PCBs are no longer COCs for OU7. Carcinogenic PAH, antimony, copper, iron, and lead concentrations in subsurface soil remain greater than residential cleanup levels.
Prevent industrial worker (construction and occupational) exposure through ingestion of, inhalation of, and dermal contact with subsurface soil containing dioxins/furans and PCB concentrations exceeding industrial cleanup levels.	Contaminated soil with concentrations of dioxins/furans (at EA-1) and PCBs (at EA-2) greater than industrial cleanup levels was removed to meet this RAO.
Protect the offshore environment from erosion of contaminated soil from the OU7 shoreline.	Inspection and maintenance of shoreline erosion controls are being implemented per the LUC RD and LTMgt Plan to meet this RAO. The protectiveness of LUCs will be confirmed during five-year reviews as long as contamination is present within the LUC boundary that does not allow for unlimited use and unrestricted exposure.

5.0 ONGOING ACTIVITIES

Ongoing activities required as part of the OU7 remedy include continued LUC inspections and five-year reviews. Annual inspections are being conducted, including inspection of existing shoreline erosion controls, per the LUC RD (Navy, September 2014) and LTMgt Plan (Tetra Tech, March 2016). The LUC RD and LTMgt Plan will be reviewed and revised as needed to ensure that implementation of LUCs and associated LTMgt activities will continue to meet the RAOs. Five-year reviews are required for OU7 as long as COC concentrations in subsurface soil exceed residential cleanup levels within the LUC boundary. OU7 will be evaluated during the next five-year review for PNS, which will be completed in 2017.

6.0 COMMUNITY RELATIONS

The Navy has been conducting community relations activities for the ERP at PNS since 1986 when the first public informational workshop was held. From approximately 1988 to 1994, Technical Review Committee (TRC) meetings were held on a regular basis. The TRC evolved into the Restoration Advisory Board (RAB), which was established to facilitate public participation in the ERP process. Many of the community members on the TRC joined the RAB; however, the RAB included additional citizens from the Kittery and Portsmouth communities. Many community relations activities for PNS involve the RAB. The RAB provides a forum for discussion and exchange of information on environmental restoration activities between the Navy, regulatory agencies, and the community, and it provides an opportunity for individual community members to review the progress and participate in the decision-making process for various ERP sites. Regular updates on OU7 activities are provided at RAB meetings and have included presentations on OU7

investigation activities and remedial action activities. Details of the history, objectives, and implementation techniques of community relations activities at PNS can be found in the 2012 Community Involvement Plan Update (CH2MHill, June 2012).

The Navy provided a 30-day public comment period on the Proposed Plan for OU7 from July 16 to August 14, 2013, and held a public meeting on July 23, 2013. A notice of availability of the Proposed Plan for OU7 and the date for the public meeting was published on July 16, 2013, in the Portsmouth Herald and Foster's Daily Democrat. Documents applicable to the OU7 remedial action were made available to the public through the PNS ERP public website (current URL http://go.usa.gov/DyRH). Additionally, an index of available documents was made available at the PNS Information Repositories located at Portsmouth Public Library in Portsmouth, New Hampshire, and Rice Public Library in Kittery, Maine.

The public meeting presented the proposed remedy and solicited oral and written comments. At the public meeting, personnel from the Navy, USEPA, and Maine Department of Environmental Protection (MEDEP) were available to answer questions from the attendees during the informal portion of the meeting. Public comments on the Proposed Plan were formally received and transcribed, with responses to substantive comments provided in the ROD (Navy, September 2013).

7.0 CERTIFICATION STATEMENT

The remedial action activities for contaminated soil as described in the ROD for OU7 have been implemented and are in place. RAOs have been met for OU7, and implementation of LUCs, including site inspection and shoreline erosion control inspection and maintenance, will ensure that RAOs will continue to be met. Therefore, the status for OU7 is Response Complete (RC).

02 SEP 2016

D. S. HUNT
Captain, USN
Commanding Officer
Portsmouth Naval Shipyard

Date

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Appendix A
Post-Remediation Dioxin/Furan and PCB Concentration Evaluation

Post-Remediation Dioxin/Furan and PCB Concentration Evaluation
Operable Unit 7 - Remedial Action Completion Report
Portsmouth Naval Shipyard, Kittery, Maine

As provided in the Record of Decision (ROD) for Operable Unit 7 (OU7) (Navy, September 2013), dioxin/furan and polychlorinated biphenyl (PCB) concentrations in subsurface soil in a portion of the former timber basin within OU7 exceeded residential and industrial cleanup levels. The remedy selected for OU7 includes removal of dioxin/furan- and PCB-contaminated soil to reduce concentrations to less than industrial cleanup levels, thereby resulting in acceptable risks for industrial exposure to soil at OU7. There were no unacceptable risks [and therefore no chemicals of concern (COCs)] for industrial exposure to surface soil at OU7.

Based on the results of the Remedial Investigation (RI) (Tetra Tech, July 2011), subsurface soil at three locations had elevated levels of dioxins/furans and PCBs, and two excavation areas (EA-1 and EA-2) were evaluated in the Feasibility Study (FS) Report (Tetra Tech, June 2013) that would remove dioxin/furan and PCB contamination and reduce concentrations to less than industrial cleanup levels (see Appendix A of the FS Report). Because of the localized nature of dioxin/furan and PCB contamination at OU7, excavation to meet industrial cleanup levels was also expected to reduce dioxin/furan and PCB concentrations to less than residential cleanup levels. As shown in the ROD for OU7, EA-1 was centered around TP-SB27, where dioxin/furan concentrations in the subsurface soil sample from 2 to 5 feet below ground surface (bgs) exceeded the industrial cleanup level [600 nanogram per kilogram (ng/kg) based on 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) toxicity equivalency quotients (TEQs)] and EA-2 was centered around TP-SB14, TP-SB108, and TP-SB112, where PCB concentrations in subsurface soil from approximately 3 to 8 feet bgs exceeded the industrial cleanup level [7.4 milligrams per kilogram (mg/kg) based on total PCBs]. TP-SB27 (for dioxins/furans) and TP-SB14, TP-SB108, and TP-SB112 (for PCBs) were also the only locations that had subsurface soil with concentrations of these COCs exceeding residential cleanup levels (51 ng/kg based on 2,3,7,8-TCDD TEQs and 7.3 mg/kg based on total PCBs). Pre-excavation confirmation samples were collected as part of the remedial action to define the extent of the excavation areas and excavation activities were conducted din 2015 (AGVIQ, April 2015 and April 2016). Table A-1 provides information on TP-SB27 and pre-excavation confirmation sampling for EA-1, and Table A-2 provides information on TP-SB14, TP-SB108, and TP-SB112 and pre-excavation confirmation sampling for EA-2. Figures 2-1 and 2-2 from the Construction Completion Report (AGVIQ, April 2016) show the sample and excavation locations for EA-1 and EA-2, respectively, and these figures are also attached.

As shown in Table A-1, dioxin/furan concentrations in confirmation samples were less than both industrial and residential cleanup levels (600 and 51 ng/kg, respectively), and after excavation of contaminated soil

from 0 to 5 feet bgs at EA-1, dioxins/furans are no longer COCs for both industrial and residential receptors at OU7.

As shown in Table A-2, PCB concentrations in two confirmation samples were greater than the industrial and residential cleanup levels (samples from 5 to 8 feet bgs from EA2-A4 and EA2-A8) and were less than the industrial and residential cleanup levels in the other confirmation samples. No confirmation sample from 8 to 9 feet bgs exceeded the industrial and residential cleanup levels. Three smaller areas (EA-2 North, EA-2 Central, and EA-2 South) were defined to remove PCB-contaminated soil in EA-2, and with excavation of contaminated soil from 0 to 8 feet bgs in these three areas, PCB is no longer a COC for both industrial and residential receptors at OU7.

In addition, as shown in Appendix A of the FS Report, removal of surface soil sample at TP-SB27 (lead concentration of 13,200 mg/kg) as part of EA-1 excavation also reduced the exposure point concentration for lead in surface soil to less than the residential cleanup level. Therefore, lead is no longer a COC for residential exposure to surface soil at OU7.

Concentrations of the COCs for residential exposure to subsurface soil [carcinogenic polycyclic aromatic hydrocarbons (PAHs), antimony, copper, iron, and lead] remain greater than residential cleanup levels; therefore, residential land use controls (LUCs) as part of the OU7 remedy are still required.

References

AGVIQ, April 2015. Final Remedial Action Work Plan, OU7, Portsmouth Naval Shipyard, Kittery, Maine. Revision 0. AGVIQ Environmental Services, Virginia Beach, Virginia.

AGVIQ, April 2016. Final Completion Report Remedial Action OU7, Portsmouth Naval Shipyard, Kittery, Maine. AGVIQ Environmental Services, Virginia Beach, Virginia.

Navy, September 2013. Record of Decision for Operable Unit 7 – Site 32 (Topeka Pier Site), Portsmouth Naval Shipyard, Kittery, Maine.

Tetra Tech, July 2011. Final Remedial Investigation Report for Operable Unit 7, Portsmouth Naval Shipyard, Kittery, Maine. King of Prussia, Pennsylvania.

Tetra Tech, June 2013. Final Feasibility Study Report for Operable Unit 7, Portsmouth Naval Shipyard, Kittery, Maine. King of Prussia, Pennsylvania.

Table A-1 – Excavation Area 1 Sampling and Analysis Rationale, Sample Status, and Analytical Results

Sample Location	Depth (feet bgs)	Sample Type	Purpose of Sample Location [1]	Proposed Analysis Rationale for Confirmation Samples [1]	Sampling Status [1]	Analysis Status [1]	2,3,7,8-TCDD TEQ Result (ng/kg) [1]	Excavation Status [1]
TP-SB27	0 to 1	Discrete	Samples collected as part of Remedial Investigation	Not applicable	Remedial Investigation boring that is in the center of EA1	Analyzed as part of Remedial Investigation	22	Excavated
	2-5	Discrete					1,700	Excavated
	5-8	Discrete					3.2 (duplicate 4.3)	Remains
EA1-A1	2-5	Discrete	Confirmation sample for northern limit of initial excavation area; floor sample for extended excavation area	Analyze initially	Collected, including duplicate	Analyzed	2.7 (duplicate 3.3)	Remains
	5-6	Discrete		Analyze if 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	6-7	Discrete		Analyze if 5- to 6-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	7-8	Discrete		Analyze if 6- to 7-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA1-A2	2-5	Discrete	Confirmation sample for eastern limit of initial excavation area; floor sample for extended excavation area	Analyze initially	Collected	Analyzed	6.7	Remains
	5-6	Discrete		Analyze if 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	6-7	Discrete		Analyze if 5- to 6-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	7-8	Discrete		Analyze if 6- to 7-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA1-A3	2-5	Discrete	Confirmation sample for southern limit of initial excavation area; floor sample for extended excavation area	Analyze initially	Collected	Analyzed	1.7	Remains
	5-6	Discrete		Analyze if 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	6-7	Discrete		Analyze if 5- to 6-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	7-8	Discrete		Analyze if 6- to 7-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA1-A4	2-5	Discrete	Confirmation sample for western limit of initial excavation area; floor sample for extended excavation area	Analyze initially	Collected	Analyzed	0.39	Remains
	5-6	Discrete		Analyze if 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	6-7	Discrete		Analyze if 5- to 6-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	7-8	Discrete		Analyze if 6- to 7-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA1-A5 and A6	5-6	Composite	Confirmation floor sample within initial proposed excavation area	Analyze initially	Collected	Analyzed	14	Remains
	6-7	Composite		Analyze if 5- to 6-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	7-8	Composite		Analyze if 6- to 7-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA1-B1	2-5	Discrete	Confirmation sample for northern limit of extended excavation area	Analyze if EA1-A1 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	5-6	Discrete		Analyze if EA1-A1 5- to 6-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	6-7	Discrete		Analyze if EA1-A1 6- to 7-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	7-8	Discrete		Analyze if EA1-A1 7-8 foot sample exceeds cleanup level	Collected	Not analyzed	---	---
EA1-B2	2-5	Discrete	Confirmation sample for eastern limit of extended excavation area	Analyze if EA1-A2 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	5-6	Discrete		Analyze if EA1-A2 5- to 6-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	6-7	Discrete		Analyze if EA1-A2 6- to 7-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	7-8	Discrete		Analyze if EA1-A2 7-8 foot sample exceeds cleanup level	Collected	Not analyzed	---	---
EA1-B3	2-5	Discrete	Confirmation sample for southern limit of extended excavation area	Analyze if EA1-A3 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	5-6	Discrete		Analyze if EA1-A3 5- to 6-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	6-7	Discrete		Analyze if EA1-A3 6- to 7-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	7-8	Discrete		Analyze if EA1-A3 7-8 foot sample exceeds cleanup level	Collected	Not analyzed	---	---
EA1-B4	2-5	Discrete	Confirmation sample for western limit of extended excavation area	Analyze if EA1-A4 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	5-6	Discrete		Analyze if EA1-A4 5- to 6-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	6-7	Discrete		Analyze if EA1-A4 6- to 7-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	7-8	Discrete		Analyze if EA1-A4 7-8 foot sample exceeds cleanup level	Collected	Not analyzed	---	---

1 –The sampling and analysis rationales for pre-excavation confirmation samples (EA1 samples) were taken from the Sampling and Analysis Plan included as Appendix C in the Remedial Action Work Plan (AGVIQ, April 2015). Information on the sample status and analytical results for pre-excavation confirmation samples was taken from the Construction Completion Report (AQVIQ, April 2016). Information on samples from TP-SB27, the only Remedial Investigation location with subsurface soil samples with exceedances of the residential and industrial cleanup levels for dioxins/furans, was taken from the Remedial Investigation Report for OU7 (Tetra Tech, July 2011). Residential and industrial cleanup levels for dioxins/furans (for subsurface soil), based on 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) toxicity equivalency quotients (TEQs), are 51 and 600 ng/kg, respectively (Navy, September 2013). When excavation was completed, no sample had TCDD TEQ concentrations greater than the residential or industrial cleanup level.

Table A-2 – Excavation Area 2 Sampling and Analysis Rationale, Sample Status, and Analytical Results

Sample Location	Depth (feet bgs)	Sample Type	Purpose of Sample Location[1]	Proposed Analysis Rationale for Confirmation Samples[1]	Sampling Status[1]	Analysis Status[1]	Total PCB Result (mg/kg) [1]	Excavation Status[1]
TP-SB14	3-5	Discrete	Sample collected as part of Site Screening Investigation	Not applicable	Site Screening Investigation boring in center of EA-2 South	Analyzed as part of Site Screening Investigation	44	Excavated as part of EA-2 South[2]
	7-9	Discrete					21	
TP-SB108	0-1	Discrete	Samples collected as part of Remedial Investigation	Not applicable	Remedial Investigation boring in center of EA-2 South	Analyzed as part of the Remedial Investigation	0.12 U	Excavated as part of EA-2 South[2]
	2-5	Discrete					0.32	
	5-8	Discrete					41	
TP-SB112	0-1	Discrete	Samples collected as part of Remedial Investigation	Not applicable	Remedial Investigation boring in center of EA-2 North	Analyzed as part of the Remedial Investigation	0.19	Excavated as part of EA-2 North[2]
	2-5	Discrete					0.29	
	5-8	Discrete					19	
EA2-A1	2-5	Discrete	Confirmation sample for northern limit of initial excavation area around TP-SB112; floor sample for extended excavation area	Analyze initially	Collected	Analyzed	0.65 U	Remains
	5-8	Discrete		Analyze initially	Collected	Analyzed	0.65 U	Remains
	8-9	Discrete		Analyze if 5- to 8-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-A2	2-5	Discrete	Confirmation sample for eastern limit of initial excavation area around TP-SB112; floor sample for extended excavation area	Analyze initially	Collected	Analyzed	1.1	Remains
	5-8	Discrete		Analyze initially	Collected	Analyzed	0.65 U	Remains
	8-9	Discrete		Analyze if 5- to 8-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-A3	2-5	Discrete	Confirmation sample north of area with extensive utilities to identify potentially uncontaminated area between TP-SB112 and TP-SB14/SB108; floor sample for extended excavation area	Analyze initially	Collected	Analyzed	1.3	Remains
	5-8	Discrete		Analyze initially	Collected	Analyzed	1.4 U	Remains
	8-9	Discrete		Analyze if 5- to 8-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-A4	2-5	Discrete	Confirmation sample south of area with extensive utilities to identify potentially uncontaminated area between TP-SB112 and TP-SB14/SB108; floor sample for extended excavation area	Analyze initially	Collected, including duplicate	Analyzed	1.3 U (duplicate 1.2 U)	Excavated as part of EA-2 Central
	5-8	Discrete		Analyze initially	Collected	Analyzed	57	
	8-9	Discrete		Analyze if 8- to 9-foot sample result exceeds cleanup level	Collected	Analyzed	2.0	Remains
EA2-A5	2-5	Discrete	Confirmation sample along eastern limit of initial excavation area around TP-SB14/SB108; floor sample for extended excavation area	Analyze initially	Collected	Analyzed	1.6 U	Remains
	5-8	Discrete		Analyze initially	Collected	Analyzed	1.6 U	Remains
	8-9	Discrete		Analyze if 8- to 9-foot sample result exceeds cleanup level	Not collected because of shallow refusal	---	---	---
EA2-A6	2-5	Discrete	Confirmation sample along eastern limit of initial excavation area around TP-SB14/SB108; floor sample for extended excavation area	Analyze initially	Not collected because of no recovery	---	---	---
	5-8	Discrete		Analyze initially	Collected	Analyzed	1.5 U	Remains
	8-9	Discrete		Analyze if 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-A7	2-5	Discrete	Confirmation sample for southern limit of initial excavation area around TP-SB14/SB108; floor sample for extended excavation area	Analyze initially	Collected, including duplicate	Analyzed	1.3 U (duplicate 1.4 U)	Remains
	5-8	Discrete		Analyze initially	Collected	Analyzed	1.4 U	Remains
	8-9	Discrete		Analyze if 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-A8	2-5	Discrete	Confirmation sample along western limit of initial excavation area around TP-SB14/SB108; floor sample for extended excavation area	Analyze initially	Collected	Analyzed	1.4 U	Excavated as part of EA-2 South
	5-8	Discrete		Analyze initially	Collected	Analyzed	141	
	8-9	Discrete		Analyze if 8- to 9-foot sample result exceeds cleanup level	Collected	Analyzed	4.8	Remains
EA2-A9	2-5	Discrete	Confirmation sample along western limit of initial excavation area around TP-SB14/SB108; floor sample for extended excavation area	Analyze initially	Collected	Analyzed	1.3 U	Remains
	5-8	Discrete		Analyze initially	Collected	Analyzed	1.3 U	Remains
	8-9	Discrete		Analyze if 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-A10	2-5	Discrete	Confirmation sample east of area with extensive utilities to identify potentially uncontaminated area between TP-SB112 and TP-SB14/SB108; floor sample for extended excavation area	Analyze initially	Collected	Analyzed	1.4 U	Remains
	5-8	Discrete		Analyze initially	Collected	Analyzed	1.9	Remains
	8-9	Discrete		Analyze if 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---

Sample Location	Depth (feet bgs)	Sample Type	Purpose of Sample Location[1]	Proposed Analysis Rationale for Confirmation Samples[1]	Sampling Status[1]	Analysis Status[1]	Total PCB Result (mg/kg) [1]	Excavation Status[1]
EA2-A11	2-5	Discrete	Confirmation sample northeast of area with extensive utilities to identify potentially uncontaminated area between TP-SB112 and TP-SB14/SB108; floor sample for extended excavation area	Analyze initially	Collected, including duplicate	Analyzed	3.8 (duplicate 3.3)	Remains
	5-8	Discrete		Analyze initially	Collected	Analyzed	1.4 U	Remains
	8-9	Discrete		Analyze if 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-A12	2-5	Discrete	Confirmation sample for western limit of initial excavation area around TP-SB112; floor sample for extended excavation area	Analyze initially	Collected	Analyzed	1.3 U	Remains
	5-8	Discrete		Analyze initially	Collected	Analyzed	1.3 U	Remains
	8-9	Discrete		Analyze if 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-A13	8-9	Discrete	Confirmation floor sample within initial excavation area around TP-SB112 to determine depth of excavation	Analyze initially	Collected	Analyzed	1.3 U	Remains
EA2-A14	2-5	Discrete	Confirmation sample for southern limit of initial excavation area around TP-SB112; floor sample for extended excavation area	Analyze initially	Collected	Analyzed	1.3 U	Remains
	5-8	Discrete		Analyze initially	Collected	Analyzed	1.3 U	Remains
	8-9	Discrete		Analyze if 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-A15	2-5	Discrete	Confirmation sample along northern limit of initial excavation area around TP-SB14/SB108; floor sample for extended excavation area	Analyze initially	Collected	Analyzed	1.3 U	Remains
	5-8	Discrete		Analyze initially	Collected	Analyzed	1.4 U	Remains
	8-9	Discrete		Analyze if 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-A16	8-9	Discrete	Confirmation floor sample within initial excavation area around TP-SB14/SB108 to determine depth of excavation	Analyze initially	Collected	Analyzed	1.4 U	Remains
EA2-B1	2-5	Discrete	Confirmation sample for northern limit of extended excavation area	Analyze if EA2-A1 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	5-8	Discrete		Analyze if EA2-A1 5- to 8-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	8-9	Discrete		Analyze if EA2-A1 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-B2	2-5	Discrete	Confirmation sample for northeastern limit of extended excavation area	Analyze if EA2-A2 5 foot sample exceeds cleanup level	Collected	Not analyzed	---	---
	5-8	Discrete		Analyze if EA2-A2 5- to 8-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	8-9	Discrete		Analyze if EA2-A2 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-B3	2-5	Discrete	Confirmation sample for central-eastern limit of extended excavation area	Analyze if EA2-A3 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	5-8	Discrete		Analyze if EA2-A3 5- to 8-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	8-9	Discrete		Analyze if EA2-A3 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-B4	2-5	Discrete	Confirmation sample for central-eastern limit of extended excavation area	Analyze if EA2-A4 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	5-8	Discrete		Analyze if EA2-A4 5- to 8-foot sample result exceeds cleanup level	Not collected because of no recovery/void	---	---	---
	8-9	Discrete		Analyze if EA2-A4 8- to 9-foot sample result exceeds cleanup level	Collected	Analyzed	0.65 U	Remains
EA2-B5	2-5	Discrete	Confirmation sample for southeastern limit of extended excavation area	Analyze if EA2-A5 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	5-8	Discrete		Analyze if EA2-A5 5- to 8-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	8-9	Discrete		Analyze if EA2-A5 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---

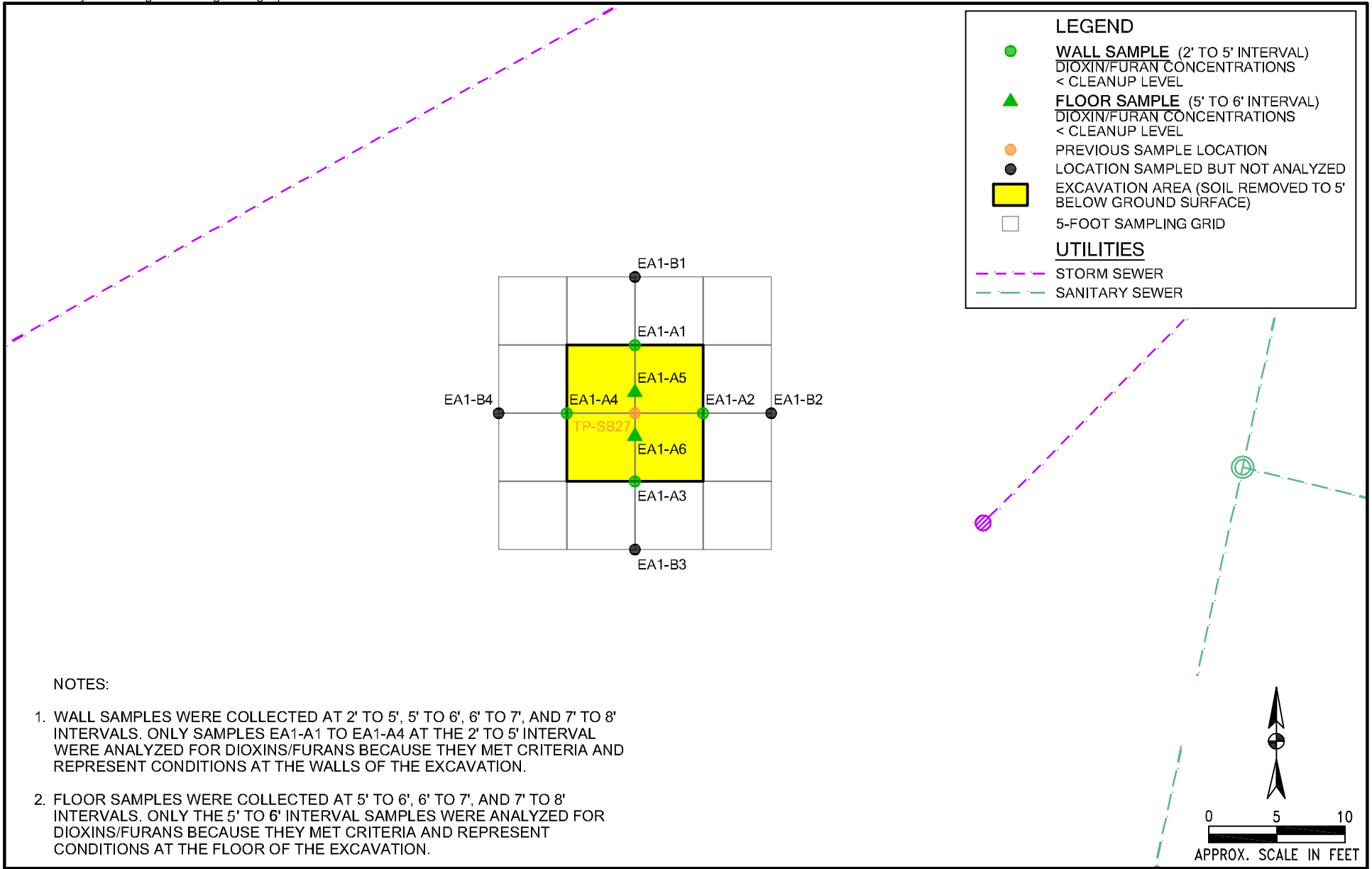
Sample Location	Depth (feet bgs)	Sample Type	Purpose of Sample Location[1]	Proposed Analysis Rationale for Confirmation Samples[1]	Sampling Status[1]	Analysis Status[1]	Total PCB Result (mg/kg) [1]	Excavation Status[1]
EA2-B6	2-5	Discrete	Confirmation sample for southeastern limit of extended excavation area	Analyze if EA2-A6 2- to 5-foot sample result exceeds cleanup level	Soil boring not installed and samples not collected because location was obstructed by underground utilities	---	---	---
	5-8	Discrete		Analyze if EA2-A6 5- to 8-foot sample result exceeds cleanup level		---	---	---
	8-9	Discrete		Analyze if EA2-A6 8- to 9-foot sample result exceeds cleanup level		---	---	---
EA2-B7	2-5	Discrete	Confirmation sample for southern limit of extended excavation area	Analyze if EA2-A7 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	5-8	Discrete		Analyze if EA2-A7 5- to 8-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	8-9	Discrete		Analyze if EA2-A7 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-B8	2-5	Discrete	Confirmation sample for southwestern limit of extended excavation area	Analyze if EA2-A8 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	5-8	Discrete		Analyze if EA2-A8 5- to 8-foot sample result exceeds cleanup level	Collected	Analyzed	1.1	Remains
	8-9	Discrete		Analyze if EA2-A8 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-B9	2-5	Discrete	Confirmation sample for southwestern limit of extended excavation area	Analyze if EA2-A9 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	5-8	Discrete		Analyze if EA2-A9 5- to 8-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	8-9	Discrete		Analyze if EA2-A9 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-B10	2-5	Discrete	Confirmation sample for central-western limit of extended excavation area	Analyze if EA2-A10 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	5-8	Discrete		Analyze if EA2-A10 5- to 8-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	8-9	Discrete		Analyze if EA2-A10 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-B11	2-5	Discrete	Confirmation sample for central-western limit of extended excavation area	Analyze if EA2-A11 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	5-8	Discrete		Analyze if EA2-A11 5- to 8-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	8-9	Discrete		Analyze if EA2-A11 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-B12	2-5	Discrete	Confirmation sample for northwestern limit of extended excavation area	Analyze if EA2-A12 2- to 5-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	5-8	Discrete		Analyze if EA2-A12 5- to 8-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
	8-9	Discrete		Analyze if EA2-A12 8- to 9-foot sample result exceeds cleanup level	Collected	Not analyzed	---	---
EA2-C1	5-8	Discrete	Additional confirmation samples included to refine the extent of PCB concentrations at EA2 Central and South	Additional confirmation samples included to refine the extent of PCB concentrations at EA2 Central and South	Collected	Analyzed	0.52	Remains
EA2-C2	5-8	Discrete			Collected	Analyzed	0.8	Remains
EA2-C3	5-8	Discrete			Collected	Analyzed	6.1	Excavated as part of EA-2 Central
EA2-C4	5-8	Discrete			Collected	Analyzed	2.3	Remains
EA2-C5	5-8	Discrete			Collected	Analyzed	0.1	Excavated as part of EA-2 South

1 –The sampling and analysis rationales for pre-excavation confirmation samples (EA2 samples) were taken from the Sampling and Analysis Plan included as Appendix C in the Remedial Action Work Plan for OU7 (AGVIQ, April 2015) and Construction Completion Report for OU7 (AGVIQ, April 2016). Information on the sample status and analytical results for pre-excavation confirmation samples was taken from the Construction Completion Report. Information on samples from TP-SB14, TP-SB108, and TP-SB-112, the only Remedial Investigation locations with subsurface soil samples with exceedances of the residential and industrial cleanup levels for polychlorinated biphenyls (PCBs), was taken from the Remedial Investigation Report for OU7 (Tetra Tech, July 2011). Total PCBs results where no individual Aroclors were detected are indicated with a “U” for non-detected. Residential and industrial cleanup levels for total PCBs, based on total Aroclors, are 7.3 and 7.4 mg/kg, respectively (Navy, September 2013). When excavation was completed, no sample had PCB concentrations greater than the residential or industrial cleanup level.

2 –Samples EA2-A13 and EA2-A16 from 8 to 9 feet below ground surface (bgs) confirmed that PCB contamination did not extend below 8 feet bgs in soil around TP-SB112 and TP-SB14/SB108, respectively.

FIGURES 2-1 AND 2-2 FROM CONSTRUCTION COMPLETION REPORT FOR OU7

PATH: D:\Project Drawings\2015 Dwgs\15 Agviq VA\4031 OU7 FILE: EA2-RFI-FIG 2-1.DWG PLOTTED: 1/8/16.



NOTES:

1. WALL SAMPLES WERE COLLECTED AT 2' TO 5', 5' TO 6', 6' TO 7', AND 7' TO 8' INTERVALS. ONLY SAMPLES EA1-A1 TO EA1-A4 AT THE 2' TO 5' INTERVAL WERE ANALYZED FOR DIOXINS/FURANS BECAUSE THEY MET CRITERIA AND REPRESENT CONDITIONS AT THE WALLS OF THE EXCAVATION.

2. FLOOR SAMPLES WERE COLLECTED AT 5' TO 6', 6' TO 7', AND 7' TO 8' INTERVALS. ONLY THE 5' TO 6' INTERVAL SAMPLES WERE ANALYZED FOR DIOXINS/FURANS BECAUSE THEY MET CRITERIA AND REPRESENT CONDITIONS AT THE FLOOR OF THE EXCAVATION.

DATE: JANUARY 2016
CHKD: W.L.H.
DRAWN: C.E.H.
PROJ. No.: 4031

SITE MAP - EXCAVATION 1

Portsmouth Naval Shipyard
Kittery, Maine

AGVIQ
2809 S. Lynnhaven Rd. Ste 200
Virginia Beach, VA. 23452
757-318-9420

FIGURE
2-1

LEGEND

WALL SAMPLE (5' TO 8' INTERVAL)
PCB CONCENTRATIONS > CLEANUP LEVEL; BUT FLOOR SAMPLE (8' TO 9' INTERVAL) PCB CONCENTRATIONS < CLEANUP LEVELS

FLOOR SAMPLE (8' TO 9' INTERVAL)
PCB CONCENTRATIONS < CLEANUP LEVELS

WALL SAMPLE (2' TO 5' AND/OR 5' TO 8' INTERVALS)
PCB CONCENTRATIONS < CLEANUP LEVELS

PREVIOUS SAMPLE LOCATION

LOCATION SAMPLED BUT NOT ANALYZED

EXCAVATION AREA (SOIL REMOVED TO 8' BELOW GROUND SURFACE)

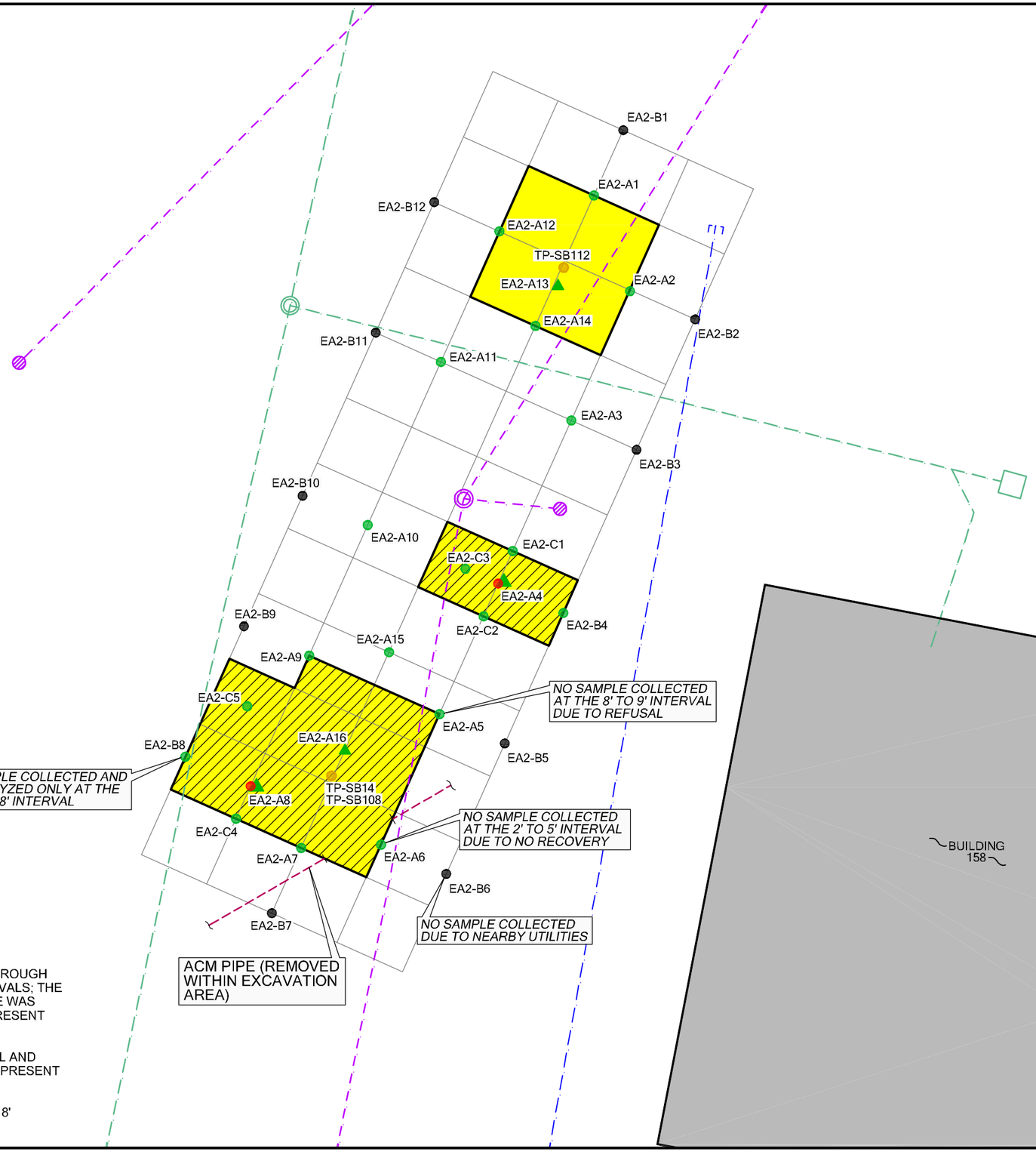
REMOVED MATERIAL AND DISPOSED OF AS TSCA REGULATED WASTE

5-FOOT SAMPLING GRID

UTILITIES

STORM SEWER

SANITARY SEWER



NOTES:

1. UNLESS OTHERWISE NOTED, AND EXCLUDING SAMPLES EA2-C1 THROUGH -C5, SAMPLES WERE COLLECTED AT 2' TO 5', 5' TO 8', 8' TO 9' INTERVALS; THE 8' TO 9' INTERVAL WAS NOT ANALYZED IF THE SHALLOWER SAMPLE WAS BELOW CLEANUP LEVELS BECAUSE THEY MET CRITERIA AND REPRESENT CONDITIONS AT THE WALL OF THE EXCAVATION.
2. FLOOR SAMPLES WERE COLLECTED AT ONLY THE 8' TO 9' INTERVAL AND WERE ANALYZED FOR PCBs BECAUSE THEY MET CRITERIA AND REPRESENT CONDITIONS AT THE FLOOR OF THE EXCAVATION.
3. SAMPLES EA2-C1 THROUGH EA2-C5 WERE COLLECTED FROM 5' TO 8' INTERVAL ONLY.

FIGURE 2-2

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SITE LSITE MAP - EXCAVATION 2 OCATION MAP

Portsmouth Naval Shipyard
Kittery, Maine

DATE: JANUARY 2016
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PATH: D:\Project Drawings\2015 Dwgs\15 Agvig VA\4031 OU7 FILE: EA2-RFI-FIG 2-2.DWG PLOTTED: 1/25/16.