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Project Number 112G00083

Ms. Kymberlee Keckler  
Remedial Project Manager  
U.S. Environmental Protection Agency – Region 1  
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Boston, Massachusetts 02114-2023

Mr. Mark Lewis  
Connecticut Department of Environmental Protection  
Eastern District Remediation Program  
Planning & Standards Division  
Bureau of Water Management  
79 Elm Street  
Hartford, Connecticut 06106-5127

Reference: CLEAN Contract No. N62472-03-D-0057  
Contract Task Order 038

Subject: Draft Remedial Design for Land Use Controls for Sites 3 and 7 Groundwater and  
Revision 1 of Volume II – Groundwater Monitoring Plan, O&M Manual for IRP Sites  
Naval Submarine Base-New London (NSB-NLON), Groton, Connecticut

Dear Ms. Keckler / Mr. Lewis:

On behalf of the United States Navy, Tetra Tech NUS, Inc. (TiNUS) is pleased to submit to the United States Environmental Protection Agency, Region 1 (EPA) three copies and the Connecticut Department of Environmental Protection (CTDEP) one copy of the subject documents for your review and comment. The following issues were resolved during the preparation of Revision 1 of the Groundwater Monitoring Plan:

- Final Responses to USEPA's April 3, 2003 Comments and July 3, 2003 Rebuttals dated August 8, 2003 (see attached).
- Groundwater Monitoring Plan for Sites 3 and 7.

Please provide your comments on these documents at your earliest convenience. If you have any questions regarding the enclosed documents, please contact Mr. Mark Evans of Engineering Field Activity Northeast at (610) 595-0567 (ext. 162) or me at (412) 921-8984.

Sincerely,

A handwritten signature in cursive script that reads 'Corey A. Rich'.

Corey A. Rich, P.E.  
Project Manager/Base Coordinator

Enclosure(s) and Attachment



**TETRA TECH NUS, INC.**

Ms. Kymberlee Keckler and Mr. Mark Lewis  
USEPA Region 1 and CTDEP  
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c: Mr. Roger Boucher, EFANE (letter only)  
Mr. Mark Evans, EFANE (3 copies)  
Mr. Richard Conant, NSB-NLON (1 copies)  
Ms. Jennifer Hayes Stump, Gannett Fleming (1 copy)  
Mr. John Trepanowski, TtNUS-KOP (1 copy)  
CTO 038 – File Copy (1 copy)

**REMEDIAL DESIGN FOR LAND USE CONTROLS**  
**SITE 3 – AREA A DOWNSTREAM WATERCOURSES AND OVERBANK DISPOSAL AREA**  
**AND SITE 7 – TORPEDO SHOPS GROUNDWATER**  
**NAVAL SUBMARINE BASE – NEW LONDON, GROTON, CONNECTICUT**

June, 2005

**1.0 BACKGROUND AND SITE CONDITIONS**

Naval Submarine Base-New London (NSB-NLON) is located in southern Connecticut in the Towns of Ledyard and Groton. NSB-NLON is situated on the eastern bank of the Thames River, approximately 6 miles north of Long Island Sound. It is bordered on the east by Connecticut Route 12, on the south by Crystal Lake Road, and on the west by the Thames River.

NSB-NLON was placed on the National Priorities List (NPL) on August 30, 1990 by the United States Environmental Protection Agency (EPA) pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 and Superfund Amendments and Reauthorization Act (SARA) of 1986. The EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Identification Number for NSB-NLON is CTD980906515. The Navy, EPA, and the State of Connecticut also signed a Federal Facility Agreement (EPA, 1995) for NSB-NLON in 1995.

This Remedial Design was prepared to provide the details of the Land Use Controls (LUCs) for groundwater at Sites 3 and 7. These sites are 2 of 25 sites being addressed by the Navy's Installation Restoration Program at NSB-NLON.

**Site 3 – Area A Downstream Watercourses and Overbank Disposal Area (OBDA)**

Site 3 covers approximately 75 acres and contains mainly undeveloped wooded areas and recreational areas [golf course and lake for swimming (North Lake)]. The location of Site 3 is shown on Figure 1. The Site 3 watercourses include several small ponds and interconnected streams that convey surface water to the Thames River. The major sources of contamination at Site 3 include historical application of pesticides for mosquito control, abandoned disposal areas, and the abandoned septic system leach fields at Site 7 (see Figure 1).

Site 3 was investigated during several phases from 1990 to 2002, including the Phase I Remedial Investigation (RI) [Atlantic Environmental Services, Inc. (Atlantic), 1992], Focused Feasibility Study (FFS) (Atlantic, 1994), Phase II RI [Brown & Root Environmental (B&RE), 1997], Basewide Groundwater

Operable Unit RI (BGOURI) [Tetra Tech NUS, Inc. (TtNUS), 2002], and Data Gap Investigation (DGI) for the BGOURI Update/Feasibility Study (FS) (TtNUS, 2004).

A time-critical removal action for the OBDA was completed in 1997 (Navy, 1997) concurrent with the remedial action for Site 2A (Area A Landfill). Accumulated debris, including wooden pallets, telephone poles, and empty tanks, was removed and disposed off site during the removal action (Navy, 1997).

Site 3 soil and sediment [Operable Unit (OU) 3] were remediated during 1999 and 2000 to meet the objectives of the Record of Decision (ROD) (Navy, 1998). Approximately 18,050 tons of pesticide- and metals-contaminated soil and sediment were excavated and disposed at off-site disposal facilities.

During the OU3 remedial action, a new disposal area, Site 3 – New Source Area (NSA), was discovered adjacent to Stream 5 which is located along the northern edge of Site 3. A ROD (Navy, 2004b) was signed for Site 3 - NSA in October 2004. The ROD called for no further action for the petroleum-contaminated soil under CERCLA because petroleum is excluded from consideration under CERCLA; however, the Navy's cleanup plan to address the petroleum-contaminated soil under other applicable regulations was detailed in an appendix of the ROD. The Navy anticipates completion of the cleanup of the debris and approximately 385 cubic yards of contaminated soil at Site 3 - NSA in 2005.

The Chemicals of Concern (COCs) that were identified in Site 3 groundwater and precipitated the need for groundwater LUCs are trichloroethene and vinyl chloride. The remedial goals for these COCs were identified in the Interim ROD (Navy, 2004c). The groundwater at Site 3 is a portion of the Basewide Groundwater OU9. Final actions for OU9 will be selected after interim actions have been selected for all portions of OU9.

### **Site 7 – Torpedo Shops**

Site 7 is located in the northern portion of NSB-NLON on the northern side of Triton Road (see Figure 1). The Navy conducts maintenance activities on torpedoes at the site. Key features at Site 7 are as follows:

- Building 325 is a torpedo overhaul facility that was built in 1955 and had an on-site septic system until 1983, when all of the building's plumbing facilities were connected to sanitary sewers.
- Two underground No. 2 fuel oil tanks were located on the southern side of Building 325. One of the tanks was closed in 1995. A third tank, which was located above ground adjacent to the building, was used for temporary storage of No. 2 fuel oil but, based on field reconnaissance, had been removed as of March 15, 1995.

- Building 450 is the primary MK-48 torpedo overhaul/assembly facility. It was built in 1974 and was served by its own septic system until 1983, when it was connected to sanitary sewers.

The major sources of contamination at Site 7 include potential historical disposal of solvents/chemicals into two on-site septic systems and leaks or spills associated with on-site underground storage tanks (USTs). Contaminated soil was found on the southern side of Building 325 and appears to be related to former USTs used to store fuel oil. Groundwater and suspected soil contamination on the western side of the building appears to be related to the septic tank, sewer lines, or leach field associated with the former septic system. The USTs were closed in the 1990s, and the septic systems were abandoned when sanitary sewers were installed in 1983.

Site 7 was investigated during the Phase I RI (Atlantic, 1992), Phase II RI (B&RE, 1997), and BGOURI (TtNUS, 2002). A ROD (Navy, 2004a) signed for the soil at the site (OU8) in September 2004 called for the excavation and off-site disposal of approximately 1,700 cubic yards of contaminated soil. The Navy anticipates that the remedial action for contaminated soil will be completed in 2005.

The COCs that were identified in Site 7 groundwater and precipitated the need for groundwater LUCs are 1,4-dichlorobenzene, benzene, chlorobenzene, trichloroethene, and hexachlorobenzene. The remedial goals for these COCs were identified in the Interim ROD (Navy, 2004c). The groundwater at Site 7 is also a portion of the Basewide Groundwater OU9.

### **Selected Remedy**

The remedy selected for the groundwater at Sites 3 and 7 in the Interim ROD (Navy, 2004c) includes the following major components:

- Implementation of institutional controls that identify the location and magnitude of groundwater contamination and restrict extraction and use of the groundwater.
- Monitoring the degradation and potential migration of groundwater contaminants until concentrations decrease to the remedial goals by natural processes and the resulting concentrations are shown to be protective of human health and the environment.

## **2.0 LAND USE CONTROL OBJECTIVES**

The following LUC objectives were selected in the Interim ROD (Navy, 2004c) for Sites 3 and 7 groundwater:

- Prevent the withdrawal and/or use of groundwater from Sites 3 and 7 for potable water purposes or other purposes that may result in unacceptable risks to human health and the environment until the remedial goals identified in the Interim ROD (Navy, 2004c) are met.
- Ensure that groundwater extracted from Sites 3 and 7 during groundwater monitoring or construction dewatering activities is handled, stored, and disposed in accordance with applicable State and federal regulatory requirements.
- Maintain the integrity of the proposed groundwater monitoring system for Sites 3 and 7 until the remedial goals identified in the Interim ROD (Navy, 2004c) are met.

The area subject to groundwater use restrictions is shown on Figure 1.

### **3.0 LAND USE CONTROL IMPLEMENTATION AND MAINTENANCE ACTIONS**

The Navy shall perform the following implementation actions to ensure that the LUC objectives are met:

- Conduct CERCLA five-year reviews and provide copies to EPA and Connecticut Department of Environmental Protection (CTDEP) for review.
- Conduct groundwater monitoring and report the results in accordance with Volume II – Groundwater Monitoring Plan, Operations and Maintenance Manual (TtNUS, 2005). The following data will be included: (i) medium monitored; (ii) analyses and analytical methods; (iii) sampling locations; (iv) sampling frequency; (v) field procedures; (vi) data evaluation procedures; (vii) reporting requirements; and (viii) the decisional criteria for modifications to the monitoring plan.
- Conduct annual inspections of the major component of the LUCs (i.e., the monitoring wells shown on Figure 1) and report the results in accordance with the Groundwater Monitoring Plan, including all of the following data: (i) inspection frequency; (ii) items to be inspected; (iii) corrections of irregularities and problems; (iv) reporting requirements; and (v) the decisional criteria for modifications of the monitoring plan.
- Incorporate groundwater LUC objectives and Figure 1 into the NSB-NLON Installation Restoration Site Use Restrictions Instruction Document (5090.18B dated February 5, 2003) so that contaminated groundwater is not extracted or used in a manner that would threaten human health or the environment. Maintain the Instruction with the latest list of LUCs with associated boundaries and expected durations.

- Place this LUC Remedial Design in the CERCLA Administrative Record and Information Repository for NSB-NLON, and send copies to EPA and CTDEP.
- Notify EPA and CTDEP within 10 days of any activity that is inconsistent with the LUC objectives, or any other action that may interfere with the effectiveness of the LUCs, and notify the regulators regarding how the issue has been addressed or will be addressed within 10 days of sending the regulators the original notification of the breach.
- Notify EPA and CTDEP 45 days in advance of any: (i) proposed land use changes that are inconsistent with the LUC objectives or the selected remedy; (ii) anticipated actions that may disrupt, alter, or negate the effectiveness or need for the LUCs; and (iii) anticipated transfer of the property subject to the LUCs.
- Obtain EPA and CTDEP concurrence prior to modifying, terminating, or implementing measures related to the LUCs.

#### **4.0 REFERENCES**

Atlantic (Atlantic Environmental Services, Inc.), 1992. Phase I Remedial Investigation, Naval Submarine Base - New London, Groton, Connecticut. Colchester, Connecticut. August.

Atlantic, 1994. Draft Focused Feasibility Study, Area A Downstream/OBDA Installation Restoration Program, Naval Submarine Base - New London, Groton, Connecticut. Colchester, Connecticut. April.

B&RE (Brown & Root Environmental), 1997. Phase II Remedial Investigation Report for Naval Submarine Base - New London, Groton, Connecticut. Wayne, Pennsylvania. March.

EPA (United States Environmental Protection Agency), 1995. Federal Facility Agreement Under CERCLA 120, In the Matter of The US Department of the Navy, Naval Submarine Base - New London, Groton, Connecticut. January.

Navy, 1997. Action Memorandum for Overbank Disposal Area, Naval Submarine Base - New London, Northern Division, Lester, Pennsylvania. July.

Navy, 1998. Record of Decision for Area A Downstream Watercourses/OBDA Pond Soil and Sediment, Naval Submarine Base - New London, Northern Division, Lester, Pennsylvania. March.

Navy, 2004a. Record of Decision for Site 7 Torpedo Shops and Site 14 OBDANE Soil (OU8), Naval Submarine Base - New London, Groton, Connecticut. Engineering Field Activity Northeast, Lester, Pennsylvania. September.

Navy, 2004b. Record of Decision for Site 3 - New Source Area Soil, Naval Submarine Base - New London, Groton, Connecticut. Engineering Field Activity Northeast, Lester, Pennsylvania. October.

Navy, 2004c. Interim Record of Decision for Sites 3, 7, 14, 15, 18, and 20 Groundwater, Naval Submarine Base - New London, Groton, Connecticut. Engineering Field Activity Northeast, Lester, Pennsylvania. December.

TtNUS (Tetra Tech NUS, Inc.), 2002. Basewide Groundwater Operable Unit Remedial Investigation Report for Naval Submarine Base New London, Groton, Connecticut. King of Prussia, Pennsylvania. January.

TtNUS, 2004. Basewide Groundwater Operable Unit Remedial Investigation Update/Feasibility Study Report for Naval Submarine Base New London, Groton, Connecticut. King of Prussia, Pennsylvania. July.

TtNUS, 2005. Volume II – Groundwater Monitoring Plan, Operations and Maintenance Manual, Naval Submarine Base New London, Groton, Connecticut. King of Prussia, Pennsylvania. TBD.



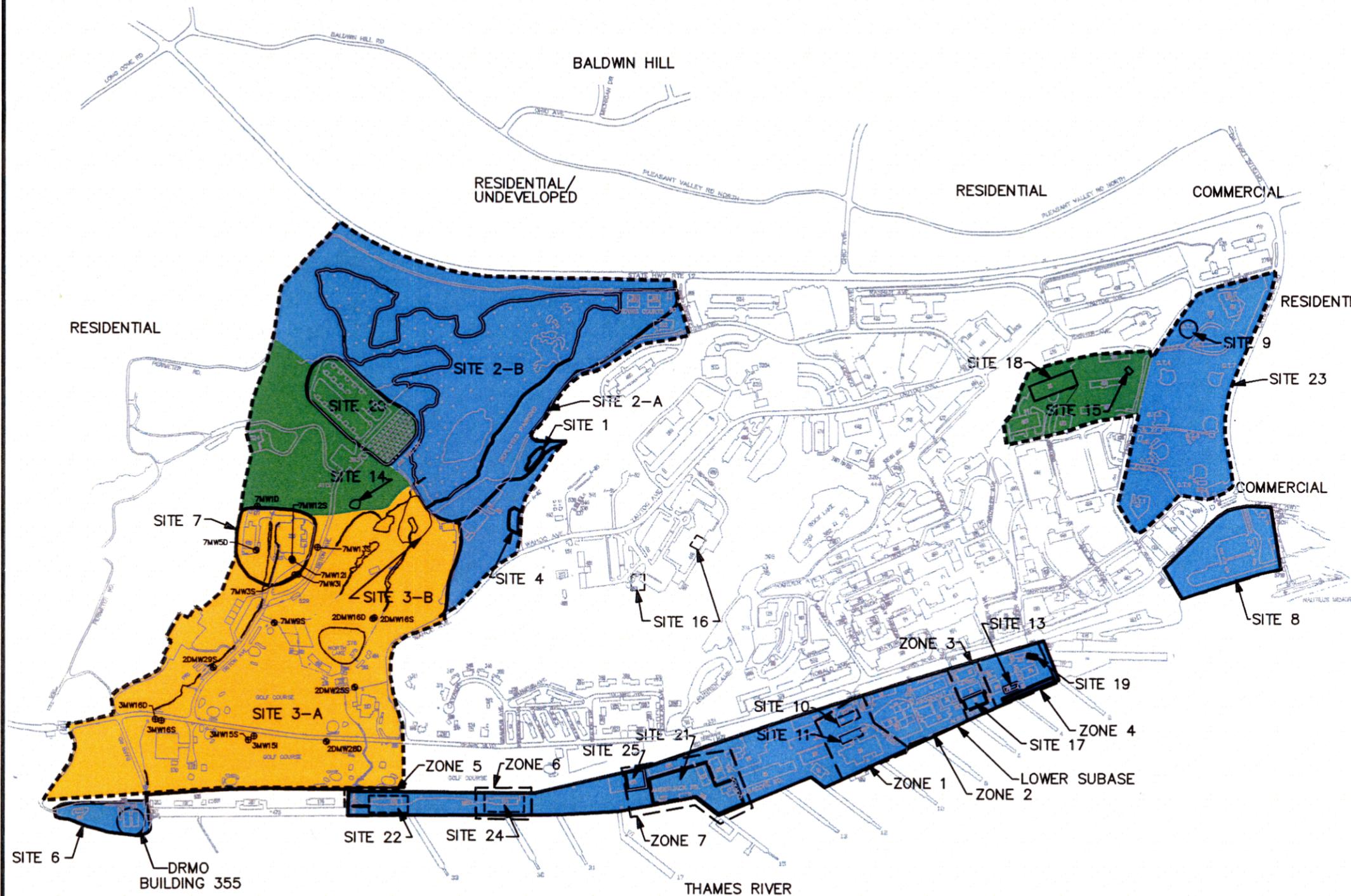
**LEGEND:**

- ⊕ EXISTING MONITORING WELLS
  - ⊕ PROPOSED MONITORING WELLS
  - SITE BOUNDARY
  - - - OU9 BOUNDARY
  - - - LOWER SUBBASE REMEDIAL INVESTIGATION ZONE BOUNDARY
  - AREA WITH GROUNDWATER LUCs
  - AREA WITH NO GROUNDWATER LUC
  - AREA WHERE GROUNDWATER LUCs ARE TBD IN A FUTURE ROD
- LUC LAND USE CONTROL  
 TBD TO BE DETERMINED  
 ROD RECORD OF DECISION

- SITE 1 - CONSTRUCTION BATTALION UNIT (CBU) DRUM STORAGE AREA
- SITE 2 - (A) AREA A LANDFILL AND (B) AREA A WETLAND
- SITE 3 - (A) AREA A DOWNSTREAM WATER COURSES AND (B) OVERBANK DISPOSAL AREA (OBDA)
- SITE 4 - RUBBLE FILL AREA AT BUNKER A-86
- SITE 6 - DEFENSE REUTILIZATION AND MARKETING OFFICE (DRMO)
- SITE 7 - TORPEDO SHOPS
- SITE 8 - GOSS COVE LANDFILL
- SITE 9 - OILY WASTEWATER TANK (OT-5)
- SITE 10 - LOWER SUBBASE-FUEL STORAGE TANKS AND TANK 54-H
- SITE 11 - LOWER SUBBASE-POWER PLANT OIL TANKS
- SITE 13 - LOWER SUBBASE-BUILDING 79 WASTE OIL PIT
- SITE 14 - OVERBANK DISPOSAL AREA NORTHEAST (OBDANE)
- SITE 15 - SPENT ACID STORAGE AND DISPOSAL AREA (SASDA)
- SITE 16 - HOSPITAL INCINERATORS
- SITE 17 - HAZARDOUS MATERIALS/SOLVENT STORAGE AREA (BUILDING 31)
- SITE 18 - SOLVENT STORAGE AREA (BUILDING 33)
- SITE 19 - SOLVENT STORAGE AREA (BUILDING 36)
- SITE 20 - AREA A WEAPONS CENTER
- SITE 21 - BERTH 16
- SITE 22 - PIER 33
- SITE 23 - FUEL FARM
- SITE 24 - CENTRAL PAINT ACCUMULATION AREA (BUILDING 174)

**NOTES:**

- SITE 25 - LOWER SUBBASE-CLASSIFIED MATERIALS INCINERATOR
- 1. SITE BOUNDRIES ARE APPROXIMATE
- 2. SOPA (ADMIN) NEW LONDON INSTRUCTION 5090.18B (2005) INCLUDES SITE USE RESTRICTIONS FOR AREAS WITH GROUNDWATER LUCs.



DRAWN BY DM	DATE 4/7/05
CHECKED BY	DATE
REVISED BY	DATE
SCALE AS NOTED	



LOCATION OF BASEWIDE GROUNDWATER OPERABLE UNIT 9 AND AREAS WITH GROUNDWATER LAND USE CONTROLS  
 NSB-NLON, GROTON, CONNECTICUT

CONTRACT NO. 0083	
OWNER NO. 0038	
APPROVED BY <i>LAB</i>	DATE 5/6/05
DRAWING NO. <b>FIGURE 1</b>	REV. 0

1200A01X