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WORK PLAN SOIL AND GROUNDWATER INVESTIGATION NAVAL EXCHANGE SERVICE STATION BUILDING 1286 CODDINGTON POINT NS NEWPORT RI
10/22/2013
RESOLUTION CONSULTANTS

WORK PLAN
Soil and Groundwater Investigation
Naval Exchange Service Station
NAVSTA Newport, RI
LUST No. LS-2295

FINAL

Prepared for:

Department of the Navy
Naval Facilities Engineering Command, Mid-Atlantic
9742 Maryland Ave.
Norfolk, VA 23511-3095

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Table of Contents

1.0 PROJECT BACKGROUND 1
1.1 Introduction 1
1.2 Site Use and Prior Investigation Summary 1
2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES 4
2.1 Project Manager 4
2.2 Site Supervisor 4
2.3 Site Quality Control Officer 4
2.4 Subcontractors 5
3.0 PLANNING 6
3.1 Health and Safety 6
3.2 Permits and Approvals 7
3.3 Waste Management 7
3.4 Site Security 8
4.0 SOIL AND GROUNDWATER INVESTIGATION 9
4.1 Utility Locating Survey 9
4.2 Well Installation 9
4.3 Well Development, Groundwater Sampling and Survey 10
4.4 Equipment Decontamination 10
4.5 Waste Characterization 11
5.0 ANALYTICAL PROGRAM 13
5.1 Procedures for Sample Collection 13
5.2 Procedures for Sample Documentation 13
5.3 Laboratory Analysis 14
5.4 Quality Assurance/Quality Control 14
5.5 Requirements for Data Evaluation 14
5.6 Decontamination 15
6.0 DOCUMENTATION AND REPORTING 16
6.1 Field Documentation 16
6.2 Summary Report 16
6.3 Anticipated Sequence and Schedule 16

Figures

Figure 1-1 Site Locus, NEX Service Station, NAVSTA Newport, RI 3
Figures 4-1 Proposed Soil Boring Locations 12

1.0 PROJECT BACKGROUND

1.1 Introduction

This Work Plan was prepared by Resolution Consultants (Resolution) for the U.S. Department of the Navy (Navy) and the Naval Facilities Engineering Command (NAVFAC). Resolution is supporting the Navy with environmental activities at the Naval Exchange (NEX) Service Station (also referred to as Building 1286), Coddington Cove, Newport, Rhode Island. This Work Plan is for the installation of monitoring wells with soil and groundwater sampling in order to delineate petroleum impacts discovered at the NEX Service Station.

1.2 Site Use and Prior Investigation Summary

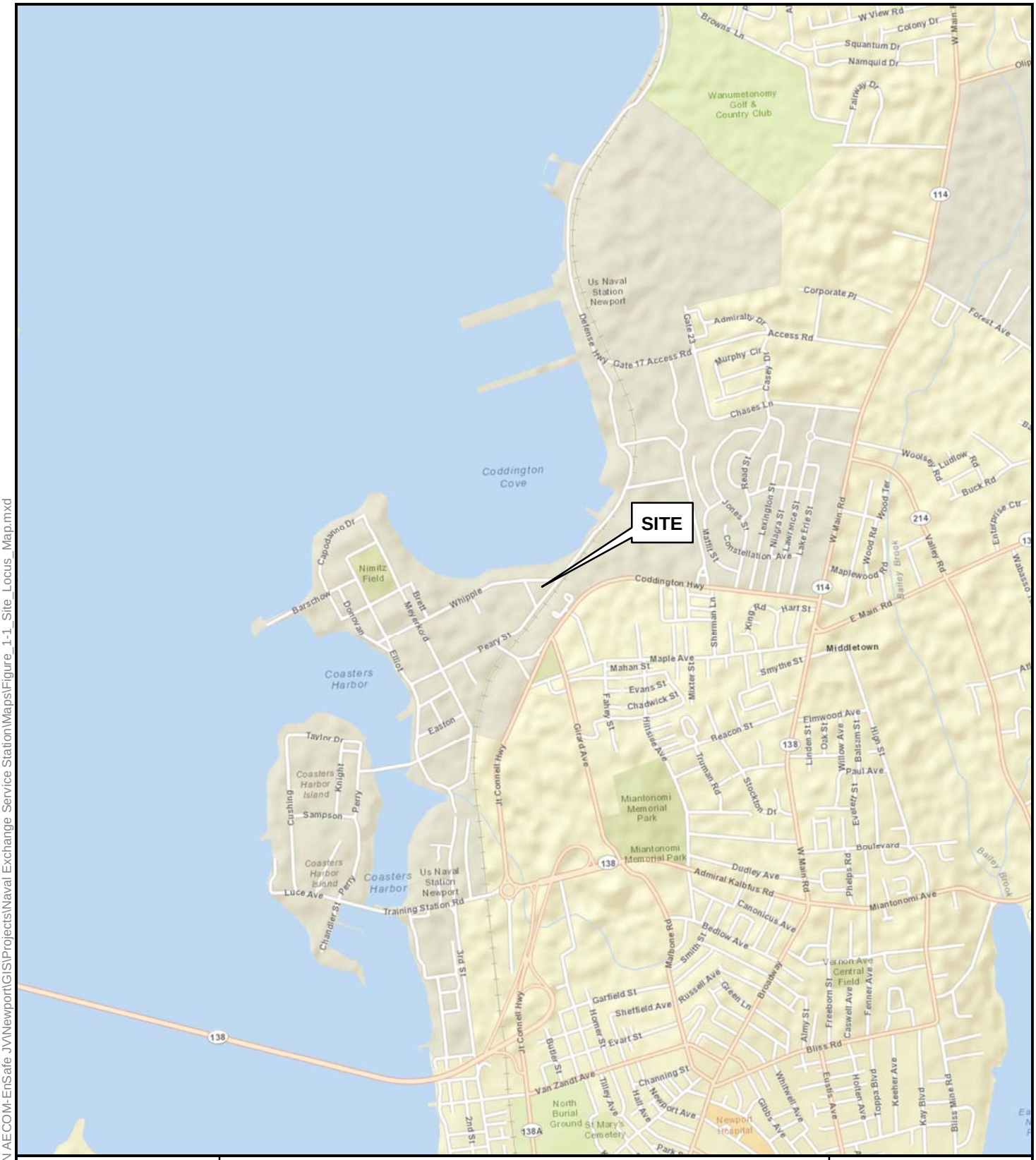
The subject property is currently occupied by an L-shaped building; the westernmost portion of which is occupied by the NEX Service Station (herein referred to as the "Site"), a gasoline dispensing facility, and the easternmost portion of which is occupied by the MWR Auto Skills Shop, garage bays used on the weekend for light auto maintenance training. The Site is located on Coddington Cove in the southwestern portion of NAVSTA Newport, Rhode Island (Figure 1-1), at the southeastern corner of the intersection of Whipple Street and Avenue J. The Site is bound by Whipple Street to the north, beyond which is a parking lot and Narragansett Bay, the intersection of Whipple Street and Peary Street to the east, Building 403 – Technical Training Center to the south, and Avenue J to the west, beyond which is the Navy Lodge.

According to NAVSTA Newport personnel, there are currently three 20,000-gallon gasoline double-walled fiberglass reinforced plastic (FRP) underground storage tank (USTs) located adjacent to the northeast corner of the Site building and one 2,500-gallon doubled-walled FRP No. 2 fuel oil UST located west of the Site building. The USTs were installed in July 1989 during construction of the current Site building. Navy personnel indicated that all three 20,000-gallon USTs currently store gasoline; however, original tank registration paperwork indicate that one of the USTs may have contained diesel at one time. A 550-gallon double-walled FRP waste oil UST was also installed in July 1989, east of the gasoline UST pad. The waste oil UST was removed in October 1997 ("UST Closure Assessment Report" Clean Environment Inc., December 1997) during which no evidence of petroleum impacts were observed.

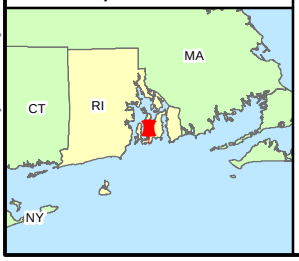
Prior to use as the NEX Service Station, the Site was previously occupied by the Naval Education and Training Center (Building 404). According to a plan provided by NAVSTA Newport dated 8/18/87 for the demolition of this building, there was a 2,000-gallon No. 2 fuel oil UST formerly located at the northwest corner of Building 404. No additional information regarding this former tank was available from Navy personnel.

In April 2013, a construction project was underway at the NEX Service Station to replace the current canopy. During construction, the gasoline dispensers, UST piping and old canopy footings were removed in order to install larger footings for the new canopy. On April 20, 2012, the contractor observed petroleum sheen on the groundwater in one of the Site excavations. Depth to groundwater was approximately 6 feet below grade. Visual and olfactory evidence of petroleum-impacted soil (approximately 3-4 feet in vertical thickness) was observed as well in the "southwest B footing", as noted by the contractor. Based on the current Site configuration, the southwest canopy footing is in the vicinity of the northwest corner of the Site building and the former location of the No. 2 fuel oil UST that was removed as part of the demolition of Building 404.

The observations of impacted soil and groundwater were subsequently reported to the Rhode Island Department of Environmental Management (RIDEM) by NAVSTA Newport personnel, via email. On May 24, 2012, Sofia Kaczor, RIDEM Case Manager, issued Leaking Underground Storage Tank (LUST) number LS-2295 and requested a Site Investigation (SI) be conducted at the Site and a Site Investigation Report (SIR) be completed by July 24, 2013. On May 29, 2013, Navy personnel requested a 60 day extension to the SIR due date, which was granted by Ms. Kaczor via email. On September 16, 2013, Resolution, on behalf of the Navy, issued a second SIR Due Date Extension Request, with a requested due date to complete the entire investigation and submit a final report by February 27, 2014.



Map Location



SITE LOCUS MAP

NAVAL EXCHANGE SERVICE STATION
NAVSTA NEWPORT, RI

0 500 1,000 2,000 3,000 4,000 5,000 6,000 Feet

0 100 200 400 600 800 1,000 1,200 1,400 1,600 Meters

Scale: 1:24,000

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Figure 1-1

Date: September 2013

Project #: 60307272

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2.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

2.1 Project Manager

Project continuity and overall coordination of the work covered under this work plan will be provided by the NAVSTA Newport Contract Task Order (CTO) Manager, Ms. Naomi Ouellette. The CTO Manager will have overall responsibility for coordinating with the Navy RPM to meet the objectives of the work covered under this Work Plan, maintaining proper field documentation, and producing a concise summary report. Notification will be provided to the RIDEM case manager by the CTO Manager at least 48 hours prior to initiate field work. Weekly construction summaries will be provided to the RIDEM case manager by the CTO Manager at the conclusion of each week of field activity that summarize all field activities and changes in scope.

2.2 Site Supervisor

The Site Supervisor will be responsible for overseeing that the maintenance activities are performed in accordance with this Work Plan. The Site Supervisor's responsibilities include:

- Overseeing work performed by the field team
- Coordinate subcontract activities at the site
- Verify that the subcontractors are performing the work in accordance with this Work Plan
- Monitor work progress and schedule and update the CTO Manager daily
- Timely report significant problems encountered to the CTO Manager to allow discussion with the Navy RPM prior to incorporating any changes needed

2.3 Site Quality Control Officer

The Site Quality Control Officer will support the Site Supervisor and will also serve as the Health and Safety Officer. In addition to supporting the Resolution Site Supervisor on a day to day basis, the Site Quality Control Officer's responsibilities include:

- Lead daily Tailgate Safety Meetings prior to the start of work
- Lead residual material sampling prior to maintenance cleaning activities
- Verifying that work performed by Resolution is performed in accordance with the Health and Safety Plan (HASP)
- Verify that the subcontractors are performing the work in accordance with their HASP

- Inspecting subcontractor work to document satisfactory performance (i.e., daily reporting and photo documentation)
- Establish and maintain a Rework Item List for work that does not meet the objectives of this Work Plan
- Collecting, inspecting, preparing and shipping soil and groundwater samples
- Exercise stop work authority whenever an unsafe work condition arises

2.4 Subcontractors

The utility locating, monitoring well installation and survey activities will be performed by subcontractors with Resolution oversight. The subcontractors will be responsible for safely performing the site preparation, soil boring installation, and site restoration activities in accordance with this Work Plan and their own HASP. Prior to the award of this work, subcontractors will be screened for safety and quality performance to confirm that they meet the standards set by this Work Plan and the Site Supervisor.

3.0 PLANNING

The following sections describe the planning tasks to be performed in conjunction with the implementation of the maintenance cleaning activities. Relevant Standard Operating Procedures (SOPs) for this project are on file at Resolution Consultants. Relevant RIDEM SOPs will be followed, and are referenced where appropriate.

3.1 Health and Safety

Prior to initiating the soil boring investigation, Resolution will prepare a Site-specific HASP for the proposed activities conducted under this CTO which meets the requirements of 29 CFR 1910.120. Work performed by the field team will be conducted in accordance with the HASP. Field personnel will be required to read and acknowledge understanding of the HASP.

The objective of the HASP is as follows:

- To protect the health and safety of on-site personnel.
- To limit exposure of the public to hazardous substances, pollutants, or contaminants.

The HASP will include the following information, as appropriate for this project:

- Brief Site Description
- Site Safety Hazards
- Chemical Compounds of Concern
- Project Personnel
- Site Training/Medical Surveillance Requirements
- Personnel Protective Equipment (PPE) Requirements
- Air Monitoring Requirements
- Decontamination Procedures
- Work Zones
- Waste Disposal/Handling
- Emergency Response
- Special Operations Safety Requirements

- Emergency Resources
- General First Aid

The HASP is intended to cover Resolution employees and site visitors only. Subcontractors will be required to develop and follow their own HASP, or equivalent document (e.g., Accident Prevention Plan), during all site activities. All site work will be conducted by personnel that have 40 hour OSHA training.

Subcontractors are responsible for providing their staff with their own personal protective equipment, safety glasses, tick repellent, sunscreen, water, etc.

3.2 Permits and Approvals

Prior to excavation, a utility locating service will be used to identify underground utilities in the vicinity of the proposed borings. This will be performed in accordance with Resolution SOP 5-417-Utilities, Underground (on file with Resolution). A ticket with Rhode Island Digsafe will also be opened. Work may not proceed until this process has been completed. All work will also be coordinated with NAVSTA Newport public works through Mr. Fran Furtado.

Permits and approvals from federal, state, or local governments are not required for the work covered under this Work Plan.

3.3 Waste Management

Investigation derived waste (IDW), consisting of soil cuttings from monitoring well installation, purge water, water generated during decontamination processes and PPE, generated during the soil boring activities, groundwater sampling and decontamination activities will be collected in properly labeled 55-gallon drums and temporarily staged on the site for subsequent characterization and off-site disposal as necessary. Soil not used for sampling purposes will be returned to the annulus space of the monitoring wells whenever possible.

In accordance with RIDEM SOPs, prior to being transported off-site, wastes will be properly characterized and profiled for disposal. Waste disposal will be approved as required and the intended facility will confirm their acceptance of the waste prior to transport. Note that, if laboratory analytical results indicate purge and decontamination water are below applicable standards, the water will be returned to the ground surface. It is assumed that the IDW will be non-hazardous.

Waste removal from the site will be documented by manifest or bill of lading. The Navy will be named as the generator of the waste and a representative of the Navy will sign waste profile forms and manifests. The waste disposal subcontractor will prepare disposal manifests or bills of lading and documentation for the Navy's use. The disposal documentation will be included in the SIR.

3.4 Site Security

The Site is located in a secure area. It is not anticipated that additional measures to limit access to the site will be needed. Work will generally be conducted between 7:00 AM and 5:00 PM during daylight hours. No work is expected on weekends or holidays.

4.0 SOIL AND GROUNDWATER INVESTIGATION

Resolution will oversee the installation of eight monitoring wells, and conduct soil and groundwater sampling at the subject Site in order to delineate soil and groundwater impacts from a suspected petroleum release at the facility.

The approach for this project includes utility locating, drilling for well installation, well development, well sampling and survey of the wellheads.

4.1 Utility Locating Survey

Prior to the initiation of intrusive field work, utility clearance will be conducted in accordance with Resolution SOP 3-01. The utility clearance will be conducted by a geophysical subcontractor under Resolution oversight using ground penetrating radar (GPR), electromagnetic (EM) equipment or other means deemed suitable by the contractor.

4.2 Well Installation

As part of this work plan, Resolution proposes to install eight soil borings at the Site in order to delineate the extent of impacts. Borings will be installed using either Direct Push (Geoprobe) methodology or Hollow Stem Auger rig with continuous sampling via disposable acetate sleeves or stainless steel split spoon. Soil samples will be screened at each interval using a Photoionization detector (PID) calibrated to isobutylene for the presence of volatile organic vapors (VOVs), pursuant to Resolution SOP 3-19 and inspected and characterized pursuant to Resolution SOP 3-16. One soil sample will be submitted from each boring from sample exhibiting the highest PID reading or at the groundwater table interface. Depth to groundwater is not known, but borings will be advanced at least 6 feet into groundwater. Soil samples will be collected and submitted to a fixed-laboratory for analysis of volatile organic compounds (VOCs) via USEPA SW-846 Method 8260 (benzene, toluene, ethylbenzene, and xylenes [BTEX] plus methyl tertiary butyl ether [MTBE] only) and, because there is also a #2 fuel oil tank on-site, for Total Petroleum Hydrocarbons (TPH) via USEPA SW-846 Method 8100 modified. Upon collection, soil samples will be placed into pre-labeled, laboratory-provided containers and preserved in accordance with the method requirements. Samples will be placed on ice and transported under chain-of-custody to a laboratory with current DoD ELAP and Rhode Island certification for the methods required. All samples will be discrete samples and no samples will be composited. Results will be compared to RIDEM Soil Leachability Criteria for a GB Groundwater Area as well as RIDEM Residential Direct Exposure Criteria (RDEC) and Industrial/Commercial Direct Exposure Criteria (ICDEC).

Each boring will be completed as a two-inch flush-mounted PVC monitoring well with 10 feet of 0.010 slotted PVC screen at depth. The annulus will be filled with clean appropriately graded sand pack to at least one foot about the screen. The sand pack will be topped with at least 6 inches of bentonite to seal the annulus space. Native soil with PID readings less than 20 parts-per-million by volume (ppmv) of isobutylene will be used to fill the remaining annulus space to the top of the well head. Wells will be completed with an 8-inch roadbox and two foot square concrete pad.

Refer to Figure 4-1, Proposed Soil Boring Locations, for the locations of the proposed borings. Distribution of borings has been chosen in order to capture both upgradient and downgradient extent as well distribution across the Site itself. Impacted soil was reportedly observed near the "southwest B footing" for the new canopy.

4.3 Well Development, Groundwater Sampling and Survey

No less than 48 hours after wells have been grouted, they will be developed following USEPA SOP 2044 (dated 10/23/01) well development guidelines.

No less than 24 hours after development, each well will be gauged for depth to water. A sample will then be collected from each well in accordance with Resolution SOP 3-14 and USEPA Region 1 Low-Flow Sampling Guidance. Groundwater will be removed using a peristaltic pump and analyzed in the field using a YSI with a flow-through cell or similar equipment for water quality parameters including, temperature, pH, DO, specific conductivity and ORP as well as turbidity. Samples will be placed in laboratory provided containers, stored on ice and transported under chain-of-custody to a Rhode Island certified laboratory for analysis of VOCs via USEPA Method 8260 (BTEX plus MTBE). Results will be compared to RIDEM GB Groundwater Objectives.

A survey of the wellhead elevations will be conducted at the end of the fieldwork by a Rhode Island-licensed surveyor under the direct supervision of Resolution. The locations will be tied into the existing base map developed for the site and/or NAVD where available. The horizontal locations of each point will be established from directly measuring from site features with an accuracy of 0.1 foot.

4.4 Equipment Decontamination

To the maximum extent possible, Resolution will utilize dedicated and disposable sampling equipment to avoid the potential for cross contamination of samples due to inadequate decontamination processes. The sampling equipment will include disposable acetate sampling sleeves or stainless steel split spoons, disposable Teflon or polyethylene tubing, disposable gloves, and laboratory supplied sample bottles.

Non-disposable or non-dedicated sampling equipment (e.g., stainless spoons, stainless bowls, submersible pumps, and water quality meters etc.) will be decontaminated prior to sampling and between samples. Cleaning of equipment is performed to prevent cross-contamination between samples and to maintain a clean working environment for all personnel. Pursuant to Resolution SOP 3-06, decontamination will generally consist of a water rinse station to remove gross contamination (if needed), followed by a non-phosphate detergent (e.g., Alconox) water rinse, and a rinse with de-ionized water. If equipment is to be stored or transported, it will be wrapped in aluminum foil after air-drying. If a hollow stem auger drill rig is required during the project, the auger flights will be decontaminated between each bore hole and split spoon samplers will be decontaminated after each sample collection. All decontamination water generated during decontamination of sampling equipment will be containerized as IDW and properly disposed of at a licensed facility.

4.5 Waste Characterization

In the event that impacted soil IDW is generated as part of these activities, all VOC results for soil will be provided to the transport and disposal subcontractor prior to disposal. Assuming the material is non-hazardous and gasoline impacted, no other analyses will be required.

Groundwater generated as part of well development and groundwater sampling will be temporarily stored on-site in 55-gallon drums pending laboratory analysis results of VOCs. If concentrations of VOCs are all below applicable standards, groundwater will be returned to the ground surface at the Site. If VOCs exceed applicable standards, a waste characterization sample will be collect for analysis of total RCRA 8 metals, Diesel Range Organics (DRO) by USEPA Method 8100, Gasoline Range Organics (GRO) by USEPA Method 8015 and flashpoint.

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Drawn:	JB	09/23/2013
Approved:	NO	09/23/2013
Project #:	60307272	

Map Location

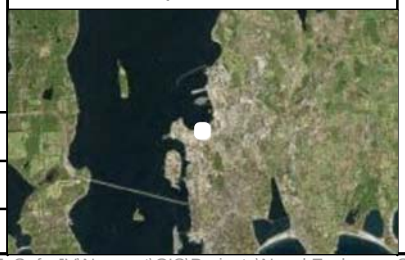

FIGURE 4-1
PROPOSED SOIL BORING LOCATIONS

DRAFT

NAVAL EXCHANGE SERVICE STATION
NAVSTA NEWPORT, RHODE ISLAND

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5.0 ANALYTICAL PROGRAM

This section of the work plan serves as the site-specific analytical program, and describes field activities and procedures with regard to project goals and quality requirements.

5.1 Procedures for Sample Collection

Soil samples will be collected using stainless steel split spoon samplers or dedicated disposable acetate sampling sleeves, pursuant to Resolution SOP 3-21. To the extent practical, discreet VOC samples will be collected from within the sample device or directly from the residual material. No material will be composited or homogenized for sampling.

Groundwater samples will be collected following standard low flow procedures, as previously stated.

Samples will be collected into laboratory provided containers required for the analytical method and preserved in accordance with the analytical method. All containers will be stored at 4°C until submission to the laboratory.

5.2 Procedures for Sample Documentation

The collection of samples will be documented in the field logbook in accordance with Resolution SOPs 3-02 Logbooks; 3-03 Record Keeping, Sample Labeling, and Chain-of-Custody; and 3-04 Sample Handling, Storage, and Shipment.

The soil samples will be indentified according to the following scheme:

RS-SB#-MMDDYY

Where,

= soil boring number

MMDDYY = the month, day, and year of collection

The groundwater samples will be indentified according to the following scheme:

RS-MW#-MMDDYY

Where,

= monitoring well number

MMDDYY = the month, day, and year of collection

5.3 Laboratory Analysis

For all fixed-laboratory analyses other than those used for waste characterization only, analyses will be conducted in accordance with the DoD QSM, Version 4.2. Analyses will be conducted by a fixed laboratory with current DoD ELAP and Rhode Island certification for the methods and matrices required. Analyses conducted for the purpose of disposal characterization only are considered screening-level analyses. Laboratory limits of detection must be below the applicable RIDEM soil and groundwater criteria, whenever possible. For analyses not addressed by the DoD QSM, the SOP laboratory protocols specific to the laboratory subcontractor will be applied. The analyses will be performed according to the following analytical methods:

- VOCs – SW-846 8260 (BTEX plus MTBE only)
- TPH – GRO via SW-846 8015, DRO via SW-846 8100
- RCRA 8 metals – SW-846 6010/6020 (waste characterization samples only)
- Ignitability (Flashpoint) – SW-846 1030 (waste characterization samples only)

5.4 Quality Assurance/Quality Control

The laboratory will perform all of the internal quality control procedures that are specified in the DoD QSM and laboratory SOPs and will demonstrate method requirements for accuracy, precision and repeatability through the use of laboratory control samples, surrogate compounds, and laboratory duplicates as appropriate for the method. The laboratory will document outliers or other quality-related issues in the Case Narrative accompanying the analytical data.

Quality control procedures for sample handling and documentation are described in the applicable SOPs. A trip blank will be submitted for each cooler containing VOC samples. One field duplicate will be collected for soil and one field duplicate will be collected for groundwater. No additional QC samples (e.g., equipment blanks, MS/MSD or MS/Matrix Duplicate samples) will be collected.

5.5 Requirements for Data Evaluation

All data will be reviewed by the Project Chemist or CTO Manager upon receipt to confirm that the analyses requested were performed on all samples submitted. In addition, fixed-laboratory data for soil and groundwater analyses for VOCs and TPH will undergo limited validation using guidance provided by the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, EPA-540-R-08-01,* (June 2008) and the *USEPA New England Environmental Data Review Supplement for Regional Data Review Elements and Superfund Specific Guidance/Procedures* (April 22, 2013). Limited validation will consist of review of the samples

results presented to confirm that the analytical methods, target analytes, and reporting limits requested in the laboratory scope of work and chain-of-custody were provided; review of the sample-specific measurement performance indicators against the required measurement performance criteria; and qualification of the sample results in accordance with the guidelines cited. Memoranda summarizing the validation actions will not be generated, however limitations and bias identified during validation will be summarized in the report.

5.6 Decontamination

Decontamination of field and sampling equipment will be performed in accordance with Resolution SOP 3-06, Equipment Decontamination.

6.0 DOCUMENTATION AND REPORTING

Resolution Consultants will oversee all aspects related to the soil and groundwater investigation. A Site Supervisor and Quality Assurance Officer (also serving as Health and Safety Officer) will be on site throughout the duration project, providing oversight of the groundwater monitoring well installation and soil and groundwater sampling. Detailed notes and photo documentation of relevant site activities will be performed.

6.1 Field Documentation

Documentation and reporting field records will be kept in accordance with SOP 3-02 Logbooks.

6.2 Summary Report

Following completion of the soil and groundwater investigation, a SIR Report will be prepared for the site, in accordance with RIDEM UST Regulations, Rules 12.08 and 12.09. The report will describe the completed work at the site, summarize pertinent results, and present conclusions and recommendations, pursuant to Rules 12.08 and 12.09.

6.3 Anticipated Sequence and Schedule

The following general sequence and schedule is anticipated for the soil and groundwater investigation at the Site.

- Finalize Work Plan in early November 2013
- Implement field work in November 2013
- Draft SIR Report in January 2014
- Final SIR Report in February 2014