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CONTAMINATION ASSESSMENT PLAN FOR BUILDING 1517 NS MAYPORT FL

2/1/2009

TETRA TECH NUS

Comprehensive **L**ong-term **E**nvironmental **A**ction **N**avy

CONTRACT NUMBER N62467-04-D-0055

Contamination Assessment Plan
for
Building 1517

Naval Station Mayport
Jacksonville, Florida

Contract Task Order 0118

February 2009

NAVFAC Naval Facilities Engineering Command
Southeast
NAS Jacksonville
Jacksonville, Florida 32212-0030

TETRA TECH NUS, Inc.

08JAX0085

CONTAMINATION ASSESSMENT PLAN
FOR
SITE BUILDING 1517

NAVAL STATION MAYPORT
JACKSONVILLE, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Naval Facilities Engineering Command
Southeast
NAS Jacksonville
Jacksonville, Florida 32212-0030

Submitted by:
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CONTRACT NUMBER N62467-04-D-0055
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FEBRUARY 2009

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ACRONYMS

AST	Above Ground Storage Tank
bls	Below Land Surface
BPSS	Bureau of Petroleum Storage Systems
°C	Degrees Celsius
COC	Contaminants of Concern
CAP	Contamination Assessment Plan
CLEAN	Comprehensive Long-term Environmental Action Navy
CTO	Contract Task Order
DPT	Direct Push Technology
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FID	Flame Ionization Detector
FL-PRO	Florida Petroleum Range Organics
FOL	Field Operations Leader
GPS	Global Positioning System
GCTL	Groundwater Cleanup Target Level
IDW	Investigation Derived Waste
mg/L	Milligrams per Liter
MWR	Morale, Welfare, and Recreation
NAVFAC SE	Naval Facilities Engineering Command Southeast
NAVSTA	Naval Station
NTU	Nephelometric Turbidity Unit
OVA	Organic Vapor Analyzer
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
PVC	Polyvinyl Chloride
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SAR	Site Assessment Report
SCTL	Soil Cleanup Target Level
SOP	Standard Operating Procedure
SWMU	Solid Waste Management Unit

ACRONYMS (Continued)

TOM	Task Order Manager
TRPH	Total Recoverable Petroleum Hydrocarbons
TtNUS	Tetra Tech NUS, Inc.
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
VOH	Volatile Organic Halocarbon
VSI	Visual Site Inspection

1.0 INTRODUCTION

Tetra Tech NUS, Inc. (TtNUS) has prepared this Contamination Assessment Plan (CAP) for Site Building 1517 at Naval Station (NAVSTA) Mayport, Florida. This CAP was prepared for the United States Navy, Naval Facilities Engineering Command Southeast (NAVFAC SE) under Contract Task Order (CTO) 0118, for the Comprehensive Long-term Environmental Action Navy (CLEAN) IV Contract Number N62467-04-D-0055.

This CAP provides the rationale and methodology for performing field activities to characterize soil and groundwater conditions at the Site Building 1517. The objective of the proposed field investigations is to determine the extent of possible adverse soil and/or groundwater impacts associated with the former 2,000-gallon above ground storage tank (AST) at the Morale, Welfare, and Recreation (MWR) Auto Skills Center, Building 1517. The data collected during the investigation will be used to prepare a Site Assessment Report (SAR) and subsequent corrective action documents, if required, in accordance with Chapter 62-770.600, Florida Administrative Code (FAC). Investigations will characterize the site condition from which to base future courses of action.

1.1 SITE DESCRIPTION

NAVSTA Mayport is located within the corporate limits of the City of Jacksonville, Duval County, Florida, and is approximately 12 miles to the east-northeast of downtown Jacksonville and adjacent to the town of Mayport. The Station complex is located on the northern end of a peninsula bounded by the Atlantic Ocean to the east and the St. Johns River to the north and west. NAVSTA Mayport occupies the entire northern part of the peninsula except for the town of Mayport, which is located to the west between the Station and the St. Johns River.

The area of investigation at NAVSTA Mayport is associated with the MWR Auto Skills Center, Building 1517. Building 1517 formerly maintained a 2,000-gallon, waste oil AST. Building 1517 is located southeast of the intersection of Massey Avenue and Supply Street, behind the MWR Building 414. Figure 1-1 depicts the location of the site on the NAVSTA Mayport facility.

1.2 SITE HISTORY

Building 1517 is currently a MWR Auto Skills Center located southeast of the intersection of Massey Avenue and Supply Street (Figure 1-2). Past and current practices allow patrons to perform vehicle repairs and maintenance at the facility. Patrons were allowed to pour used motor oil into the AST

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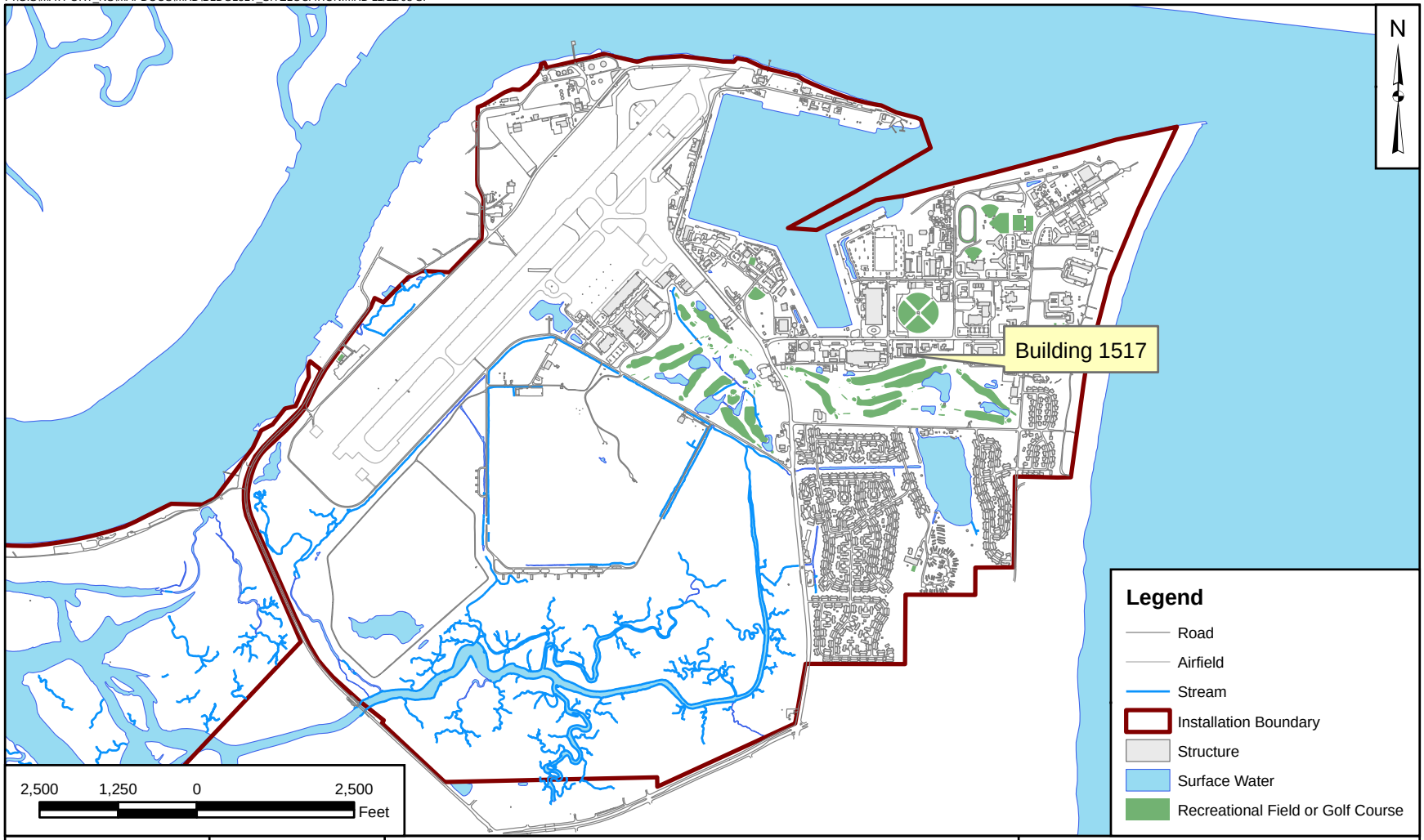

DRAWN BY K. MOORE	DATE 7/1/08	SITE LOCATION MAP SITE BUILDING 1517 CONTAMINATION ASSESSMENT PLAN NAVAL STATION MAYPORT JACKSONVILLE, FLORIDA
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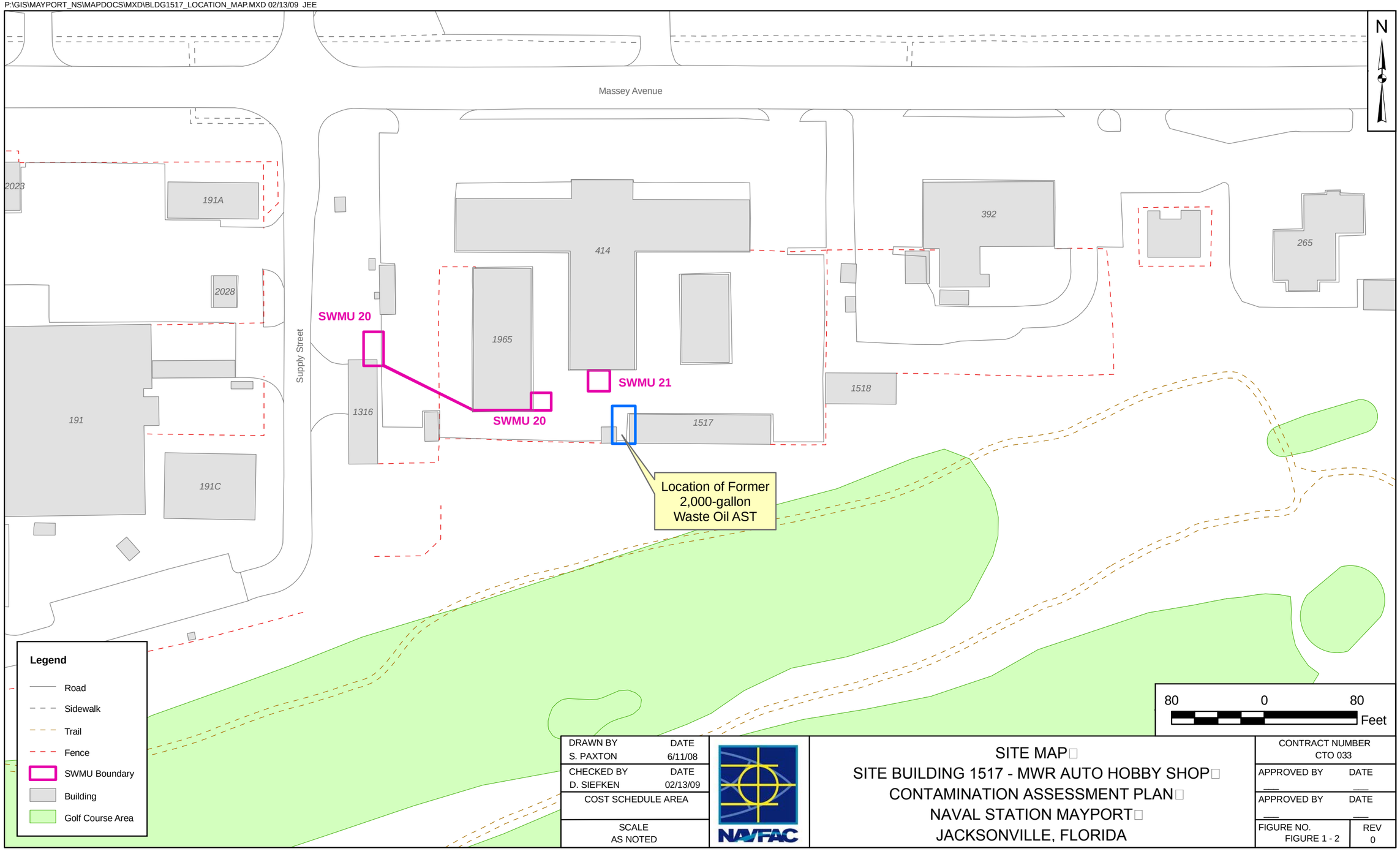

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SITE MAP
SITE BUILDING 1517 - MWR AUTO HOBBY SHOP
CONTAMINATION ASSESSMENT PLAN
NAVAL STATION MAYPORT
JACKSONVILLE, FLORIDA

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FIGURE 1 - 2	0

located upon a concrete pad next to Building 1517 at the MWR Auto Hobby Shop. An opening existed between the concrete pad and this area of Building 1517. As used oil was poured into the AST, any spillage from the pouring process (reportedly, a common occurrence) drained to the opening between the concrete pad and the building. Oil staining was present on the concrete indicating that used oil had come in contact with the soil. The AST was removed from service in May 2004, and the tank removal was completed in October 2005. Used oil is currently poured into drums.

Past field investigations in the areas of Building 1517 include Solid Waste Management Units (SWMUs) 20 and 21; the Auto Skills Center Drain and the Auto Skills Center Scrap Storage Area, respectively. These two SWMUs are located adjacent to Building 414. The Auto Skills Center Drain (SWMU 20) was located on the soil adjacent to a sloped concrete apron leading from the raised concrete floor of Building 1965 to the concrete storm swale in front of the building. A Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Visual Site Inspection (VSI) completed in 1989 reported that stained soils and oily engine parts were present. The Auto Skills Center Scrap Storage Area (SWMU 21) facility contained scrap metal, engine parts, open gas cylinders, a Freon 22™ container, an automotive battery, old appliances, and other scrap metal items that were ultimately collected by the Defense Reutilization and Marketing Office for resale.

In May 1995, a limited confirmatory sampling investigation was conducted by ABB Environmental Services, Inc. at SWMUs 20 and 21 as part of the RFI-VSI (TtNUS, 2007). Field activities included the collection of eight surface and six subsurface soil samples and the installation and sampling of six shallow groundwater monitoring wells. No surface soil, subsurface soil, or groundwater COCs were identified within SWMUs 20 or 21 exceeding either state industrial or residential direct exposure criteria. Therefore, No Action was recommended for SWMUs 20 and 21.

2.0 OBJECTIVE AND SCOPE OF PROPOSED ASSESSMENT

The objective of the proposed assessment described in this CAP is as follows:

- Determine the presence/absence and vertical and horizontal extent of any adverse soil impacts.
- Determine the presence/absence and extent of adverse groundwater impacts (horizontal and vertical) through the installation of temporary [direct-push technology (DPT)] and permanent monitoring wells.
- The results of the investigation will be compiled in a SAR in accordance with Chapter 62-770, FAC, and will include recommendations for future courses of action, if needed.

The investigations will meet the requirements of Chapter 62-770.600, FAC, for completion of a SAR. This shall include gathering information to support a "No Further Action" (NFA), proposal, Natural Attenuation Monitoring Plan, or Remedial Action Plan, as required.

The work in the following sections will be completed in accordance with the Florida Department of Environmental Protection's (FDEP) Standard Operating Procedures (SOPs), revised March 31, 2008.

2.1 MOBILIZATION

Field mobilization activities will be initiated on the first day of each phase of work and will include travel to and from the site, and on-site preparatory activities. These activities will include the identification and marking of sample locations; utility clearance; and receiving, storage, testing and calibration of field equipment.

2.1.1 Utility Clearance

Base personnel will support utility clearance at all required locations, and associated activities will be performed in accordance with TtNUS SOP HS-1.0. Existing records will be reviewed for each intrusive sample location, and each location will be cleared with electromagnetic detection equipment. In addition, a hand auger will be used to advance each soil boring from the surface to approximately 4 feet below land surface (bls). Hand augering will allow clearance (this procedure may be modified if required for compliance with the dig permit) of utilities potentially buried within the upper 4 feet. Prior to initiating any intrusive subsurface investigations, Sunshine State One-Call of Florida (811 or 1-800-432-4770) will be contacted to mark all known utilities in the vicinity of sampling and drilling locations.

Prior to beginning any intrusive subsurface investigations, a dig permit is required to be obtained from the Engineering Division of the Public Works Department. With assistance from TtNUS, the designated

drilling subcontractor will be responsible for obtaining the required dig permit. The point of contact (POC) for obtaining the dig permit is Mr. Wayne Purifoy; at (904) 270-5207, extension 128. The field operations leader (FOL) may be requested to accompany Base utility clearance personnel to the site to review any restrictions to drilling and monitoring well installation activities. An example of a dig permit is provided in Appendix A.

2.2 GROUNDWATER ELEVATION DETERMINATION

2.2.1 Groundwater Flow

In order to substantiate the groundwater flow direction at the site, a minimum of three piezometers will be installed using DPT techniques and materials. The piezometers will be constructed with a well screen length sufficient to intersect the water table surface and penetrate below the static water table approximately 5 feet or more. The top-of-casing elevations will be surveyed using an on-site arbitrary bench mark. The vertical elevations of each piezometer casing will be surveyed to an accuracy of at least 0.01 foot. Prior to sampling, depth-to-water will be measured from the top-of-casing of the piezometer wells using an electronic water level indicator. The relative water table elevation at each location will be calculated by subtracting the depth-to-water measurement from the surveyed top-of-casing elevation. All data will be recorded in the appropriate site-specific field logbook and on groundwater level measurement field forms. In addition, a groundwater flow direction (potentiometric) map will be generated from the water table elevation data.

This information, along with groundwater flow data from adjacent sites (specifically, SWMUs 20 and 21), will be considered during the DPT investigation. In addition, this information will be incorporated to ensure the proper placement of additional sampling points and subsequent permanent monitoring wells should adverse groundwater impacts be detected. Historically, groundwater flow data obtained from monitoring wells located in the immediate vicinity (north and northwest) of the subject site indicated a flow direction in the surficial aquifer to the north-northwest, toward the Mayport Turning Basin and St. Johns River (TtNUS, 2007).

2.3 SOIL AND GROUNDWATER INVESTIGATION (PHASE I)

2.3.1 Initial DPT Investigation

The investigation at Site 1517 will be conducted in two phases. During the first phase, DPT will be used to advance the predetermined soil borings and collect soil and groundwater samples for laboratory analyses. A biased soil sampling approach has been designed to evaluate the magnitude and extent of any impacts to the soil in the area of the former waste oil AST. It is estimated that at least three soil borings will be initially advanced between the west end of Building 1517 and the location of the former

2,000-gallon waste oil AST. Additional soil borings will be advanced as necessary to delineate identified adverse soil impacts. The initially proposed soil sampling locations are shown on Figure 2-1. If additional sample locations are required for delineation, soil boring locations will be identified by using a "step-out" distance of approximately 10 feet horizontally. Actual sampling locations will be determined in the field by the onsite TtNUS personnel and will take into consideration the site constraints and field screening results. It is anticipated that proposed sampling locations placed in the area of the former AST system may be installed in "flight line grade concrete". This may require the services of a concrete coring subcontractor and will be determined in the field by the on-site TtNUS personnel. Soil displaced during the investigation will be containerized in 55-gallon steel drums, properly labeled, and disposed of in an appropriate manner, as determined by the results of the laboratory analyses. A soil sample log form will be maintained for each of these samples (Appendix A).

At each location, a hand auger will be used to advance the soil borings from the ground surface to approximately 4 feet bls. Hand augering will allow depth-discrete sampling of the shallow soils (less than 2 feet bls) and will aid in shallow underground utility clearance (this procedure may be modified if required for compliance with the dig permit). Surface soil samples will be collected from depths of 0 to 6 inches bls and within an interval of 6 inches to 2 feet bls. Following hand augering to approximately 4 feet bls, soil borings will be advanced at 2-foot depth intervals into the water table using DPT. The water table is anticipated to be approximately 6 to 7 feet bls. Continuous soil cores will be collected from 4 feet bls to the final depth of each boring using a 4-foot long, 2.125-inch outside diameter, stainless steel macrocore sampler with an acetate liner. The soil cores will be visually screened and logged for lithologic descriptions. Samples collected above the water table will be field screened using an Organic Vapor Analyzer (OVA) equipped with a Flame Ionization Detector (FID). For the purpose of this investigation, any adverse contaminant impacts to the soil or groundwater characteristic of the former waste oil AST will be considered a "sole source" and will require three soil samples to be collected per, [Chapter 62-770.600(3)(e), FAC], from locations representing low, medium, and high field screening responses. In the absence of OVA-FID responses, visual, or olfactory evidence, a soil sample will be collected from immediately above the water table and the surface soil interval at the soil sampling point closest to the suspected source area. These samples will be submitted to an FDEP approved, fixed-based laboratory for analysis of the constituents listed for used oil in Table C in Chapter 62-770, FAC. The results will be compared to the FDEP Soil Cleanup Target Levels (SCTLs) established in Chapter 62-777, FAC. The constituents listed in Table C include the additional volatile organic halocarbons (VOHs), polychlorinated biphenyls (PCBs), and total metals (arsenic, cadmium, chromium, and lead) analyses necessary to comply with Chapter 62-713, FAC, therefore, the assessment soil sampling results will be used to characterize the soil investigation derived waste (IDW) for proper disposal. The quantity and type of soil samples to be analyzed by the fixed-base laboratory are provided in Table 2-1.

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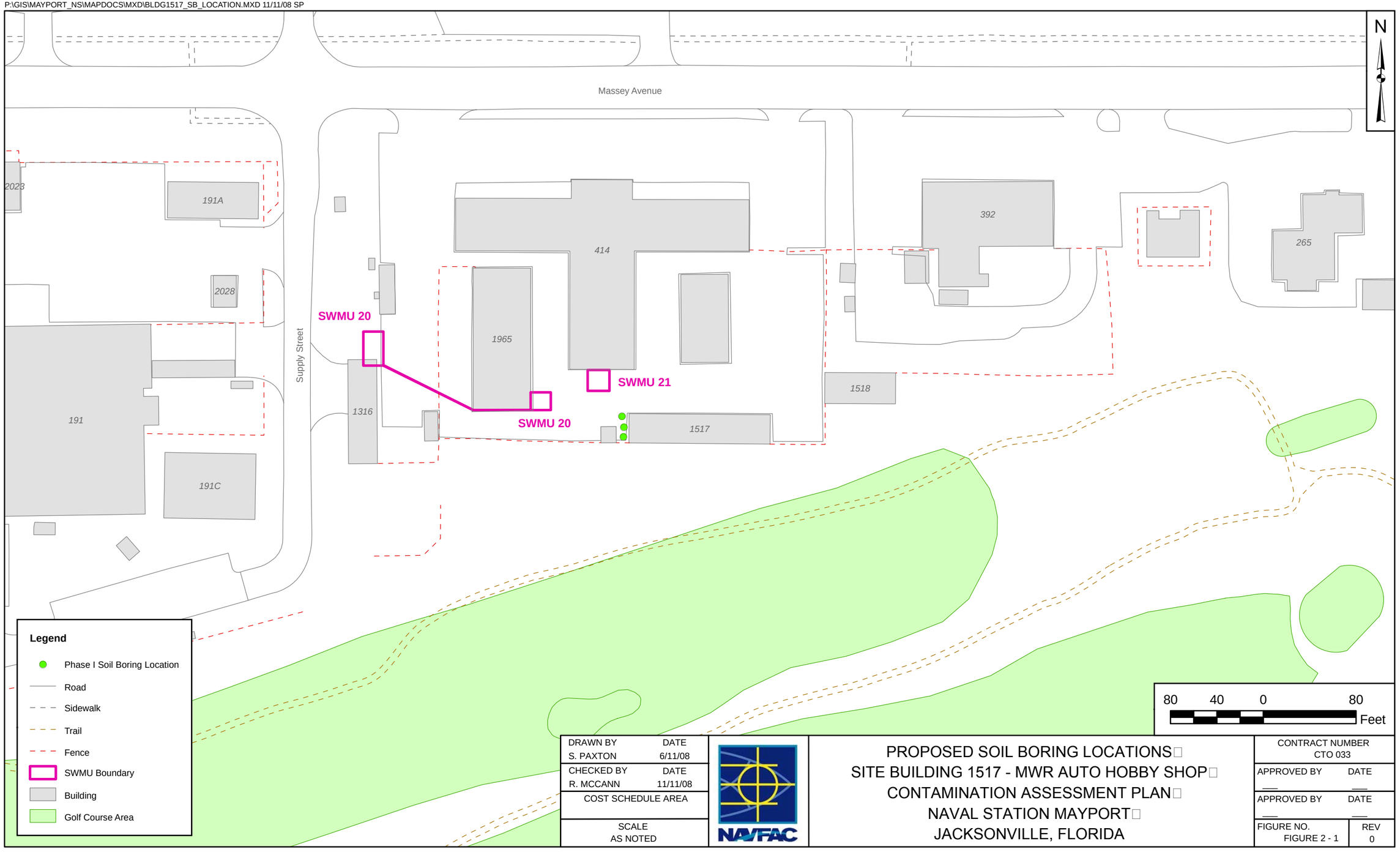

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PROPOSED SOIL BORING LOCATIONS
SITE BUILDING 1517 - MWR AUTO HOBBY SHOP
CONTAMINATION ASSESSMENT PLAN
NAVAL STATION MAYPORT
JACKSONVILLE, FLORIDA

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If it is apparent that adverse impacts to soil and/or groundwater have occurred due to past waste oil disposal methods, one macrocore soil boring will be completed from the land surface to approximately 40 feet bls to verify that no confining layer(s) is breached. The continuous core will be visually screened and logged on soil log forms for lithologic description. Based on lithologic information obtained during the assessment activities at the facility (specifically, SWMUs 20 and 21), the surficial aquifer in the area of Site 1517 is comprised of dredge material. The dredge material primarily consists of fine-grained, well-sorted sands, that may include marine shell fragments to approximately 8 to 16 feet bls. The thickness of the dredge material is a result of the variations in the original topographic contour of the near-shore environments in which the dredge material was placed. Underlying the dredge materials are sediments that comprise the undifferentiated post-Hawthorn deposits, which extend from below the dredge material to approximately 70 to 72 feet bls in this area. These sediments primarily consist of fairly uniform, well-sorted, fine-grained sand and include a light gray to dark gray silt clay layer that is 3 to 7 feet thick (TtNUS, 2007).

TABLE 2-1

DPT INVESTIGATION LABORATORY SAMPLE SUMMARY – PHASE I

CONTAMINATION ASSESSMENT PLAN
NAVAL STATION MAYPORT
JACKSONVILLE, FLORIDA

Analyte	Proposed Method[1]	Assessment Samples	IDW Samples[2]	Equipment Blanks (Aqueous)	Trip Blanks (Aqueous)	Total Samples
SOIL - VIA FIXED-BASE LABORATORY						
Volatile Organics Aromatics	SW-846 USEPA 8260B	3	0[2]	1	1	5
Volatile Organics Halocarbons	SW-846 USEPA 8260B	3	0[2]	1	0	4
Semivolatile Organic Compounds[3]	SW-846 USEPA 8270C	3	0[2]	1	0	4
Metals[4] (4 RCRA)	SW-846 USEPA 6010B	3	0[2]	1	0	4
Polychlorinated Biphenyls	SW-846 USEPA 8082	3	0[2]	1	0	4
TRPH[5]	FL-PRO	3	0[2]	1	0	4

TABLE 2-1

DPT INVESTIGATION LABORATORY SAMPLE SUMMARY – PHASE I

CONTAMINATION ASSESSMENT PLAN
NAVAL STATION MAYPORT
JACKSONVILLE, FLORIDA

Analyte	Proposed Method[1]	Assessment Samples	IDW Samples[2]	Equipment Blanks (Aqueous)	Trip Blanks (Aqueous)	Total Samples
GROUNDWATER - VIA FIXED-BASE LABORATORY						
Volatile Organics Aromatics	SW-846 USEPA 8260B	1	0[2]	1	1	3
Volatile Organics Halocarbons	SW-846 USEPA 8260B	1	0[2]	1	0	2
Semivolatile Organic Compounds[3]	SW-846 USEPA 8310	1	0[2]	1	0	2
Metals[4] (4 RCRA)	SW-846 USEPA 6010B	1	0[2]	1	0	2
Polychlorinated Biphenyls	SW-846 USEPA 8082	1	0[2]	1	0	2
TRPH[5]	FL-PRO	1	0[2]	1	0	2

Notes:
[1] Method referenced reflects FDEP requirements.
[2] Investigation derived waste (IDW) sample numbers are based upon disposing of 55-gallon drums (one composite sample per site) of soil. Soil analyses for volatiles, polynuclear aromatic hydrocarbons (PAHs), PCBs, Total Recoverable Petroleum Hydrocarbons (TRPH), and metals (collected from environmental samples) will be used to characterize IDW generated soil for proper disposal. Groundwater analyses for environmental samples will be used to determine the appropriate disposal method of the development and purge water.
[3] Includes Priority Pollutant Extractable Organics, 1-methylnaphthalene, 2-methylnaphthalene, and 16 method-listed PAHs included in Table A of Chapter 62-770, FAC.
[4] Analyses for total arsenic, cadmium, chromium, and lead.
[5] Only if contaminants are identified.

USEPA = United States Environmental Protection Agency
FL-PRO = Florida Petroleum Range Organics

During the first phase, the soil sampling location exhibiting the greatest likelihood for impacts will be completed with a temporary groundwater sampling point using DPT techniques and materials. In general, the DPT groundwater sampling system consists of an enclosed 4-foot groundwater sampler attached to 2.125-inch outside diameter steel drive rods, which are hammer driven via DPT to the maximum desired sampling depth. When the desired sampling depth is reached, the outer sleeve of the groundwater sampler is retracted to expose a 4-foot mill-slotted (0.02-inch) well point screen to the formation. FDEP approved silicon tubing will then be lowered through the inner core of the DPT drive rod to the bottom of

the borehole and attached to a peristaltic pump. Considering the COC (used oil, TRPH and their associated derivatives, etc.) the screen interval will be placed within the bore hole to facilitate bracketing the water table, as observed at the time of the investigation. The water table at the site is expected to be between 6 and 7 feet bls. Given use of a 4-foot mill-slotted well point screen, the sample tubing for each sample will be placed within the upper 2 feet of the water table (BPSS, 2005). Due to the small diameter well materials used as part of the sampling approach, field parameters of the groundwater (pH, temperature, turbidity, salinity, dissolved oxygen, and specific conductance) will not be measured during this sampling event. A groundwater sample will be collected once the extracted purge water becomes visibly clear. It is likely that the purge water will not become visibly clear due to fine sediments in this area. In this case, in an effort to minimize turbidity, purging will be conducted for a minimum of 5 minutes before a sample is collected. As per FDEP-SOPs, new tubing will be used for each sampling location.

These samples will be submitted to an FDEP approved, fixed-based laboratory for analysis of the constituents listed for used oil in Table C in Chapter 62-770, FAC. The results will be compared against the FDEP Groundwater Cleanup Target Levels (GCTLs) established in Chapter 62-777, FAC. The quantity and type of soil samples to be analyzed by the fixed-base laboratory are provided in Table 2-1.

Each DPT soil boring will be grouted with neat (i.e., no additives) Type I Portland™ cement. The DPT rig will be used to push hollow rods back down to the bore hole to the final depth at each sample location and fill the bore hole from the bottom up with grout. At a minimum, borings will be grouted at the end of each work week (Friday). Orange safety cones will be placed on each soil boring until the grouting is completed. Grouting of soil borings may be performed sooner (i.e. daily) to alleviate safety concerns in areas of high pedestrian, equipment, or vehicle traffic. Soil and groundwater displaced during this investigation will be placed into a steel 55-gallon drum(s) to remain at an on-site location predetermined by NAVSTA Mayport. Sample locations will be identified with a wooden stake, brightly colored pin flag, or spray marking paint. A global positioning system (GPS) will be used to determine the latitude and longitude coordinates of each individual sample location. This will facilitate future identification of the sample locations, repeatable investigations, and assist in remedial actions. All non-fixed sample location markers will be removed prior to the final field demobilization.

2.4 MONITORING WELL CONSTRUCTION, DEVELOPMENT, AND SAMPLING (PHASE II)

2.4.1 Monitoring Well Installation

The second phase of investigations will be based upon the findings of the laboratory analyses of COCs that were identified in the first phase. If no COCs are identified above FDEP limits during the first phase of the investigation, then no permanent groundwater monitoring wells will be installed as part of this investigation. However, if COCs are identified above FDEP limits, at least one shallow groundwater

monitoring well (maximum depth of approximately 15 feet) will be installed by DPT at the soil sampling point closest to the suspected source area. In addition, monitor wells will be installed in an area that is estimated to be up gradient and down gradient to the source location. If determined by the onsite TtNUS personnel as necessary, one deep monitor well (maximum depth of approximately 30 feet) will be installed. The monitoring wells will be installed in areas in which contaminated groundwater was identified and in areas that will provide verifiable groundwater quality results. The placement of permanent monitoring wells will be based upon laboratory results obtained during the initial DPT investigation.

2.4.2 Monitoring Well Construction

The permanent monitoring wells will be installed using DPT techniques and materials and will be constructed of 2-inch inside diameter, Schedule 40, flush-joint polyvinyl chloride (PVC) riser and flush-joint 0.010-inch factory-slotted well screen. The shallow monitoring well screen section will be approximately 10 feet in length and positioned to intersect the groundwater table surface. After the bore hole is drilled to the desired depth, wells will be installed through the augers. The wells will be installed such that approximately 2 to 3 feet of the well screen interval will be above the saturated zone and 7 to 8 feet of well screen will be below to allow for seasonal groundwater table fluctuations. Groundwater is expected to be encountered at a depth of 6 feet to 7 feet bls. If necessary, one deep well will be installed to approximately 32 feet bls to be utilized for vertical delineation of adverse groundwater impacts. The deep monitoring well is to be constructed using 0.010-inch factory-slotted well screen approximately 5 feet in length. A soil boring log, monitoring well construction form, and certificate of conformance will be maintained for each permanent well installed (see Appendix A). Diagrams showing typical shallow and deep well construction designs are presented on Figures 2-2 and 2-3, respectively.

2.4.3 Monitoring Well Developing and Sampling

Following installation, the monitoring wells will be developed per Navy specifications, but no sooner than 24 hours after placement of grout. Developing the well is necessary to remove the fine sediments from around the well screen interval. Permanent monitoring wells will be developed by bailing and purging or by pumping as determined by the by the onsite TtNUS personnel. Field parameters (pH, temperature, turbidity, and specific conductance) will be measured at equally-spaced timed intervals during the well development. Wells will be developed for a maximum time period of one hour or until the field measurements become stable and the development water is visibly clear.

The top-of-casing elevations and locations will be surveyed by a Professional Land Surveyor. The depth to groundwater in each well will be measured from the top-of-casing using an electronic water level indicator. Aquifer testing and a tidal survey will not be necessary to determine aquifer characteristics

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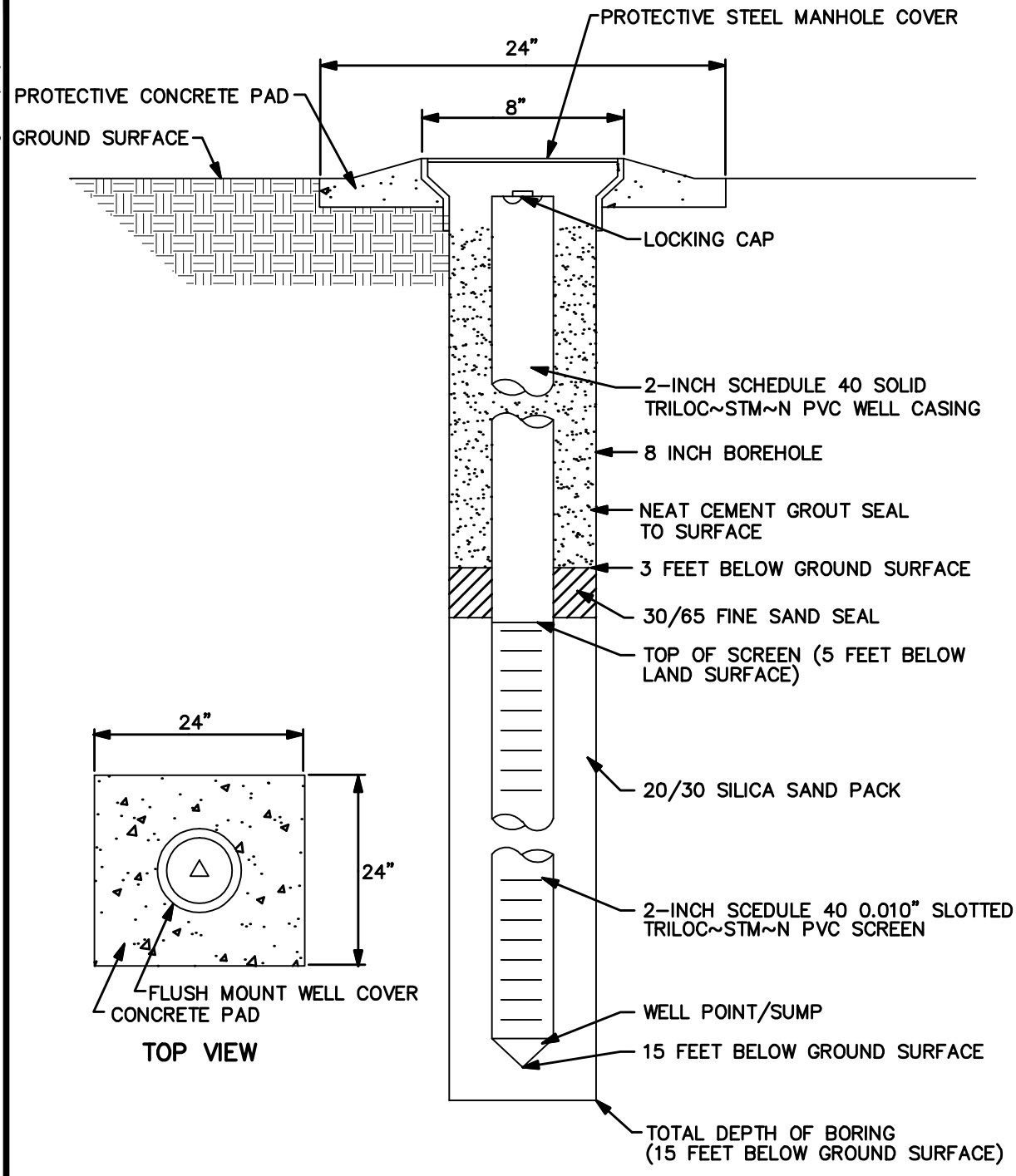

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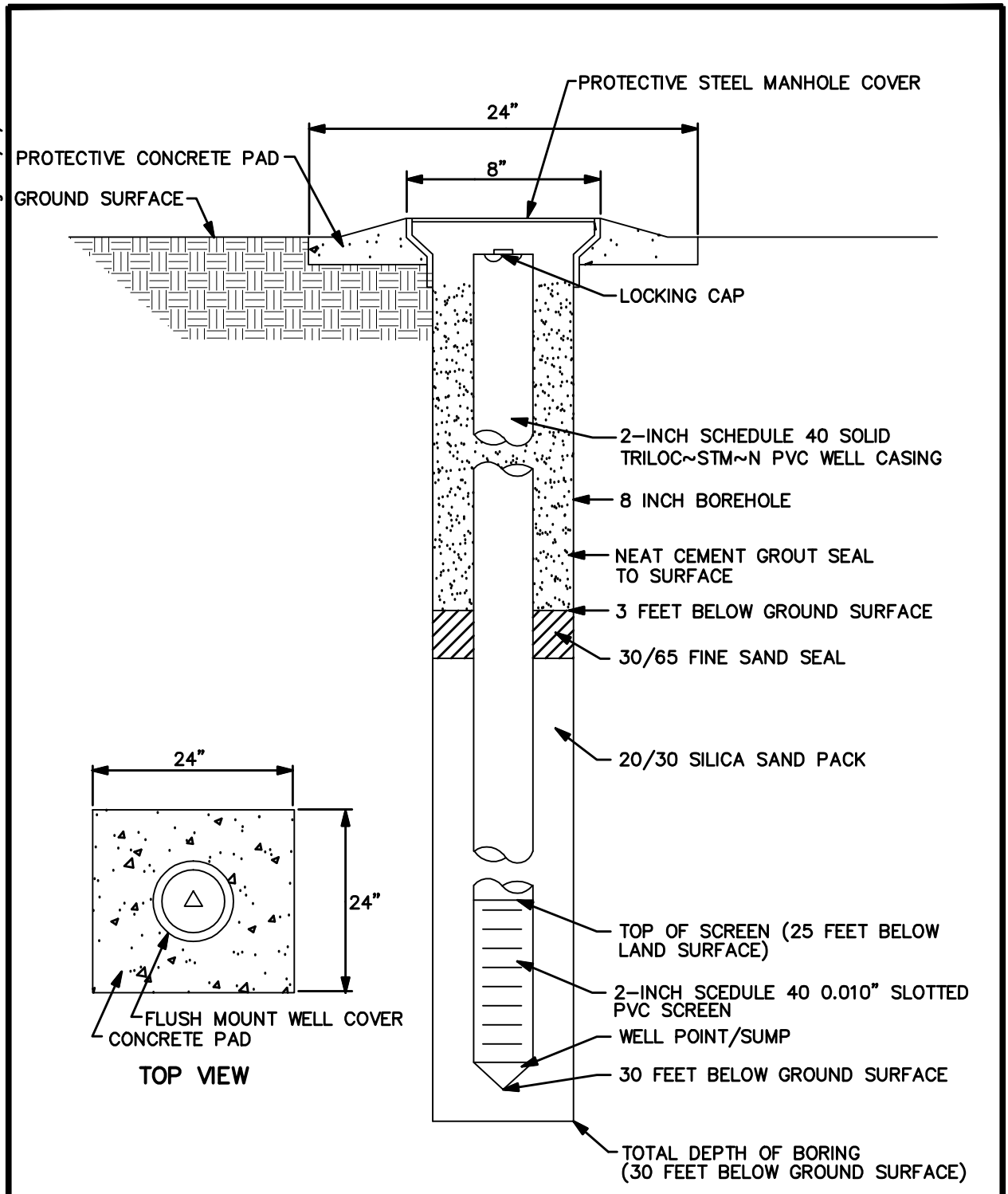

DRAWN BY MF DATE 11/11/08	NAVFAC	TYPICAL DEEP MONITORING WELL DESIGN SITE BUILDING 1517 CONTAMINATION ASSESSMENT REPORT NAVAL STATION MAYPORT JACKSONVILLE, FLORIDA	CONTRACT NO. 1516
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since extensive aquifer data for NAVSTA Mayport has been obtained. This data will be referenced and applied as necessary. TtNUS will utilize existing information on potable wells to complete the potable well survey.

Water quality stabilization will be determined using the following criteria:

- Temperature ± 0.2 degrees Celsius (°C)
- pH ± 0.2 standard units
- Specific conductivity ± 5 percent of reading

Well development data will be maintained on a Monitoring Well Development Record (see Appendix A). No sooner than 24 hours after development, groundwater samples will be collected from monitoring wells in accordance with FDEP SOPs. Prior to obtaining samples, synoptic water levels and total well depths will be measured and recorded on a Groundwater Level Measurement Form (see Appendix A). A second round of water levels will be collected no sooner than one month later on the same data sheet.

The wells will be purged using a peristaltic pump using low flow quiescent purging techniques per FDEP SOPs. The data will be recorded on a Low Flow Purge Data Sheet (see Appendix A). In accordance with variances promulgated in FDEP Bureau of Petroleum Storage Systems (BPSS) guidance documents, the sample tubing for samples collected from shallow permanent monitoring wells will be placed within the upper 2 feet of the water column (BPSS, 2005). Depending on the groundwater parameters, up to five well volumes may be purged. If wells are purged dry with less than three well volumes removed, the water level in the well will be allowed to recover enough to collect five field readings (pH, temperature, turbidity, dissolved oxygen, and specific conductance) prior to collecting a water sample. If the well does not purge dry using the low flow purging technique, groundwater characteristics will be taken after each well volume of water is purged or at 2 to 10-minute intervals, depending on the flow rate. Stabilization will be defined according to the following scenarios:

I. When purging a well that has a partially submerged well screen, a minimum of one well volume will be purged prior to collecting measurements of groundwater parameters listed below. If the well screen is fully submerged, then a minimum of one volume of the pump, associated tubing, and flow cell will be purged prior to collecting field parameters listed below. Purging will be considered complete when three consecutive measurements of the field parameters are within the desired limits as shown below.

    - Temperature ± 0.2 °C
    - pH ± 0.2 Standard Units
    - Specific Conductivity ± 5 percent of reading

- Dissolved oxygen is not greater than 20 percent of saturation at the field measured temperature
- Turbidity is not greater that 20 Nephelometric Turbidity Units (NTUs)

II. When purging a well and Scenario I is impossible to achieve, three consecutive measurements of the following parameters are required:

- Dissolved oxygen ± 0.2 milligrams per liter (mg/L) or 10 percent, whichever is greater
- Temperature ± 0.2 °C
- pH ± 0.2 Standard Units
- Specific Conductivity ± 5 percent of reading
- Turbidity ± 5 NTUs or 10 percent, whichever is greater

If stabilization is not achieved, five screen volumes must be removed prior to samples being collected in the appropriate sample containers. Samples to be analyzed for volatile constituents will be collected first and immediately sealed in 40-milliliter vials so that no headspace exists. Samples will be analyzed for compounds listed in Table 2-2.

Groundwater samples for assessment purposes will then be collected from each new well utilizing low flow sampling techniques and sent to a fixed-base laboratory for analyses of the constituents listed for used oil in Table C of Chapter 62-770, FAC. Table 2-2 shows the quantity and type of groundwater samples anticipated for fixed-base laboratory analyses associated with this phase of the assessment. The laboratory analyses selected are designed to identify adverse impacts from suspected processes at the MWR Auto Hobby Shop. The data acquired during the sampling event will be recorded on a Groundwater Sample Log Sheet (Appendix A).

A registered surveyor will survey the monitoring wells installed during the site assessment. Horizontal positioning will be measured and plotted for each permanent monitoring well in accordance with the Florida State Plane Coordinate System and the North American Datum of 1983. The top-of-casing elevation of each permanent monitoring well will be surveyed in accordance to the North American Vertical Datum of 1988 and referenced to site features (i.e., building corners, etc.).

2.5 EQUIPMENT DECONTAMINATION

The equipment involved in well installation and well sampling activities will be decontaminated prior to, and during, the respective field activities in accordance with the FDEP SOPs.

TABLE 2-2

PHASE II FIXED-BASE LABORATORY SAMPLE SUMMARY
GROUNDWATER

CONTAMINATION ASSESSMENT PLAN
NAVAL STATION MAYPORT
JACKSONVILLE, FLORIDA

Analyte	Proposed Method[1]	Assessment Samples	IDW Samples[2]	Equipment Blanks (Aqueous)	Trip Blanks (Aqueous)	Total Samples
Volatile Organic Aromatics	SW-846 USEPA 8260B	4	0[2]	1	1	6
Volatile Organic Halocarbons	SW-846 USEPA 8260B	4	0[2]	1	0	5
Semivolatile Organic Compounds[3]	SW-846 USEPA 8270C	4	0[2]	1	0	5
Metals[4] (4 RCRA)	SW-846 USEPA 6010B	4	0[2]	1	0	5
Polychlorinated Biphenyls	USEPA 8082	4	0[2]	1	0	5
TRPHs[5]	FL-PRO	4	0[2]	1	0	5

Notes:
[1] Method referenced reflects FDEP requirements.
[2] Groundwater analyses for assessment samples will be used to determine the appropriate disposal method of the development and purge water.
[3] Includes 1-methylnaphthalene, 2-methylnaphthalene and 16 method-listed PAHs included in Table A of Chapter 62-770, FAC.
[4] Analyses for total arsenic, cadmium, chromium, and lead.
[5] Only if contaminants are identified.

2.6 WASTE HANDLING

Drill cuttings from the DPT screening survey, well installations, and water from the well development, purging, and sampling will be collected and containerized in Department of Transportation (DOT) approved (17-E or 17-H) steel 55-gallon drums. Each drum will be sealed, labeled, and transported to a drum staging area, pending the IDW laboratory analytical results. For this investigation, the confirmatory soil sample analytical data will be used to characterize the soil IDW for disposal. Table 2-1 summarizes the sample requirements for the soil IDW samples. Groundwater analytical results from the fixed-base laboratory will be used for aqueous IDW disposal. The proper method of off-site disposal will be determined using these analytical results. IDW will be transported to the IDW staging area at NAVSTA Mayport pending disposal arrangements. See Appendix A for a copy of the IDW management sheet.

A lined decontamination pad will be constructed and used to collect the water from cleaning of drilling equipment. Decontamination waste materials generated during the site investigation will be containerized for proper disposal.

2.7 SAMPLE HANDLING

Sample handling includes the selection of sample containers, preservatives, allowable holding times, and analytical methods. In addition, sample handling procedures such as sample identification, packaging, and shipping will be in accordance with the FDEP SOPs.

2.8 SAMPLE PACKAGING, SHIPPING, AND NOMENCLATURE

Samples will be packaged and shipped in accordance with FDEP SOPs. The FOL will be responsible for completing the following forms when samples are collected for shipping.

- Sample labels
- Chain-of-Custody labels
- Appropriate labels applied to shipping coolers
- Chain-of Custody forms
- Federal Express Air Bills

Each sample will be assigned a unique sample identification number. The unique label system established for this sampling event is as follows:

1	**2**	**3**	**4**
General Site Name	**Facility Number**	**Sample Identifier**	**Sequence Number**

Where:

1	General Site Name	MPT
2	Facility Number	Building Number
3	Sample Identifier	DPT groundwater location number; monitoring well identification number and soil boring identification number
4	Sequence number	See below

TtNUS personnel will assign identification numbers to DPT locations, specifically for groundwater samples (e.g., DP01, etc.). They will also assign identification numbers to monitoring wells (e.g., 1S for first

shallow well, 2S for second shallow well, etc.). Soil borings associated with this effort will begin at SB01 and continue numbering in a consecutive fashion (e.g., SB02, SB03, etc.).

For soil samples, the sequence number will be representative of the lower depth of the soil sample (e.g., a soil sample collected from the 1 to 3-foot interval of a soil boring will have a sequence number of 03, a sample from the 3 to 5-foot interval will have a sequence number of 05). For groundwater samples collected with the DPT equipment, the sequence number will be representative of the lower depth of the groundwater sample (e.g., a groundwater sample collected from the 6 to 10-foot interval would have a sequence number of 10). Groundwater samples collected from permanent monitoring wells will have a sequence number beginning at 01 and continuing consecutively, based on the sampling round. For example, a groundwater sample collected from shallow monitoring well MW4 at Site Building 1517 during the first groundwater sampling round would have the following nomenclature:

MPT-1517-MW4S-01

A soil sample collected at Site Building 1517 from the 3- to 5-foot interval at boring SB02 would have the following nomenclature:

MPT-1517-SB02-05

2.9 SAMPLE CUSTODY

The chain-of-custody begins with the release of the empty sample bottles from the laboratory and must be documented and maintained from that point forward. To maintain custody of the sample bottles or samples, they must be in someone's physical possession, in a locked room or vehicle, or sealed with an intact custody seal. When the possession of the bottles or samples is transferred from one person to another it will be documented in the field logbook and on the chain-of-custody.

2.10 QUALITY CONTROL SAMPLES

In addition to periodic calibration of field equipment and appropriate documentation on a field calibration sheet (see Appendix A), quality control (QC) samples will be collected or generated during environmental sampling activities. QC samples will be collected in accordance with the requirements established during the Plan of Action negotiations.

Trip Blanks – Trip blank(s) are required if the samples will be analyzed for volatile organic compounds (VOCs). Trip blanks are prepared by the laboratory providing the VOC vials and are prepared by filling the preserved vials with analyte-free water.

Equipment/Field Blanks – Equipment/Field blanks are required for sampling equipment used during the investigation. Equipment blank frequency is 5 percent of samples taken (excluding QC samples).

2.11 FIELD DOCUMENTATION

Field documentation for this assessment will include field logbooks, field log forms, location and sample identification nomenclature, and sample labels.

In addition to chain-of-custody records associated with sample handling, packaging, and shipping, certain standard forms will be completed for sample description and documentation. Dedicated field logbooks will be used to record pertinent field activities. The Task Order Manager's (TOM) name, FOL name, project name and location, and project number will be recorded on the inside of the front cover of all logbooks. Entries will be recorded with waterproof, non-erasable ink. Each page of the logbook will be numbered and dated. All logbook entries must be legible and contain accurate and complete information about an individual's project activities. At the end of all entries for a particular day, or a particular event if appropriate, the investigator will draw a diagonal line across the page below the last entry and initial indicating the conclusion of entries. All entries will be objective, factual, and free of personal feelings. Corrections will be made by drawing a single line through the error and entering the correct data. All corrections will be initialed and dated.

2.12 DEMOBILIZATION

Demobilization will occur at the conclusion of all other field activities related to this investigation. Activities to occur during this phase include the installation of well tags on the new monitoring wells, return of all rental field equipment, verification of proper IDW documentation and staging by the FOL, and securing of the site.

2.13 SITE MANAGEMENT AND BASE SUPPORT

TtNUS will perform this project with support from the Navy. This section of the CAP describes the project contacts, support personnel, project milestones, and time frames of all major events.

Throughout the duration of the investigation activities, work at NAVSTA Mayport will be coordinated through NAVFAC SE, FDEP, and NAVSTA Mayport personnel. The primary contacts are as follows:

1. NAVFAC SE
   Ms. Beverly Washington
   (904) 542-6243

2. FDEP
   Mr. John Winters
   (850) 245-8999

3. NAVSTA Mayport Facilities
   Ms. Diane Racine
   (904) 270-6730, extension 208

NAVSTA Mayport personnel will provide the following support functions:

- Assist TtNUS in locating underground utilities and TtNUS' drilling subcontractor in obtaining a dig permit prior to the commencement of drilling operations.
- Provide existing engineering plans, drawings, diagrams, files, etc. to facilitate evaluation of the sites under investigation.
- Provide all historical data, background geological and hydrogeological information, and initial site investigation documents.

NAVSTA Mayport personnel will aid in arranging the following:

- Personnel identification badges, vehicle passes, and/or entry permits.
- A secure staging area (approximately 2,000 square feet) for storing equipment and supplies.
- A supply (e.g., fire hydrant, stand pipe, etc.) of large quantities of potable water for equipment cleaning, sampling, etc.
- As required, provide escorts for contract personnel working in secured areas.

The project will be staffed with personnel from the TtNUS' Jacksonville, Florida office. During field activities, TtNUS will provide an FOL who is familiar with the scope of work to be completed and requirements of working at NAVSTA Mayport. Additionally, TtNUS will supply one DPT rig, one hollow-stem auger drill rig, and a TtNUS field crew to supervise drilling activities and sample the groundwater monitoring wells.

Mr. Mark Peterson is the TOM for CTO 0118 and will be the primary point of contact for the Station and the FOL. He is responsible for cost and schedule control as well as technical performance. Mr. Peterson will provide senior level review and oversight during field activities.

2.13.1 Contingency Plan

In the event of problems that may be encountered during site activities, the NAVFAC SE point of contact will be notified immediately, followed by the TtNUS TOM, and the NAVSTA Mayport point of contact. The TOM will determine a course of action designed not to interfere with the schedule or budget. Contingency plans will be approved in writing through the NAVFAC SE point of contact before being enacted.

3.0 REPORTING REQUIREMENTS

Following the Phase I and Phase II site assessment activities, a SAR will be prepared in accordance with Chapter 62-770, FAC. The SAR will be submitted in draft final and final versions. Formal written responses will be not prepared for comments received on the draft final version of the report; comments will be resolved, as necessary, via conference call, and incorporated into the final version of the SAR.

4.0 PROPOSED SCHEDULE

Field activities, including DPT soil and groundwater screening, monitoring well installation and development, sampling, surveying, and IDW management at Site Building 1517 are proposed to begin in January 2009. The following are the anticipated number of days to complete each task:

FIELD INVESTIGATION

- Utility Clearances 4 days
- DPT and Mobile Laboratory Mobilization 1 day each
- DPT and Mobile Laboratory Investigation 5 days
- Drilling Coordination and Mobilization 2 days
- Monitoring Well Installation and Development 5 days
- Monitoring Well Sampling 2 days
- Off-site Laboratory Analyses/Validation 60 days
- Surveying and Coordination 2 days
- IDW Management/Disposal and Coordination 2 days

REPORT PREPARATION

- Prepare Draft- Final SAR 60 days
- Navy Review of Draft - Final SAR 30 days
- Prepare Final SAR 10 days
- Submit Final SAR 10 days

REFERENCES

BPSS (Bureau of Petroleum Storage Systems), 2005. *Florida Department of Environmental Protection (FDEP) BPSS, Groundwater Sampling Standard Operating Procedures Variances and Clarifications for Bureau of Petroleum Storage Systems Sites*. May.

FDEP (Florida Department of Environmental Protection), 2008. Standard Operating Procedures for Field Activities, DEP-SOP-001/01. March.

FDEP, 2005. Chapter 62-770, Florida Administrative Code (FAC). April.

TtNUS, 2007. *Corrective Measures Study for Solid Waste Management Units 18, 20, 21, and 52, Naval Station Mayport, Mayport, Florida.* June.

APPENDIX A

FIELD FORMS

EXCAVATION PERMIT REQUEST
Naval Station Mayport

PERMIT REQUEST NO. MYPT-10/08-000

1a. Name of Company:	**Date Requested:**		**Date Required:**
1b. Requestor:	**Phone:**	**Cell Phone:**	**Fax:**
E- Mail Address:			
1c. Government Issuing Agency: NS Mayport Public Work Engineering Office Building 1966:		**POC:** C. Wayne Purifoy (904) 5184 x 134	
2a. Project Title:		**Sub Contractor:** *(if different than 1a,1b)*	
2b. Scope of Excavation (Specify Purpose, Method, Length and Depth of Area- Attached Site-Map)			
3. Permit Request Approval prior to locate: (PW Engineering) Name: C. Wayne Purifoy Signature_____ Date: 10/02/06 *Comments: Contractor shall mark area of locate with white paint*			

4. Utility Organization Phone	Ticket#	Name of Locator	Initial	Date	
4a. Primary Elec **JEA Bldg 12** (904) 270-5397 Water & Sewer					
4b. Secondary Elec **IAP Bldg 12** (904) 270-5347					
4c. Natural Gas **Sunshine State** 1-800-432-4770 Tel/Com **Sunshine State** 1-800-432-4770 CATV **Sunshine State** 1-800-432-4770					
4d. Gov Fiber-Optics NMCI Mayport **POC:** David Ludwig @ Bldg 12 (904) 270-5053 E-mail david.ludwig@nmci-isf.com					
4e.Gov Com-Cable GEMD Mayport POC Vern Benson Bldg 450 (904)270-6148 Vern.benson@navy.mil					
4f. PWO Environmental Div **POC** Cheryl Mitchell Bldg 2021 (904)270-6730 Cheryl.Mitchell@navy.mil					
4g. Navy owned –copper (phone cable: **POC** John Buettgen NAS JAX (904)542-4569					

5. Permit Request Approval after locate (PW Engineering)

Name: C. Wayne Purifoy Signature_____ Date:_____

Comments:

Is excavation within or near areas of contamination?

Contractor Supervisor / Representative:

Name:_____ Signature:_____ Date:_____

Note: Locators shall initial and date Excavation Permit Request when locates are complete: **Provide copy to PW Engineering, FAX (904) 270-5115, Attn : C. Wayne Purifoy or e-mail:** carey.purifoy@navy.mil

Note: Contractor shall mark areas with white paint identifying where locates are being requested, Provide Map of area where locates are to be performed.

Note: Locators shall call requestor (1b) to identify locations of excavation, drilling or boring when area is not clearly marked.

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: HESE
Project No.: 112G00369

[] Surface Soil (SS)
[] Subsurface Soil (SU)
[] Sediment (SD)
[] Other:
[] QA Sample Type:

Sample ID No.: HESA-SB00 -000.5-20060331
Sample Location:
Sampled By: DS
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 3/31/2006	**Depth**	**Color**	**Description (Sand, Silt, Clay, Moisture, etc.)**
Time:	0.5		
Method: grab			
Monitor Reading (ppm 0			

COMPOSITE SAMPLE DATA:

Date:	**Time**	**Depth**	**Color**	**Description (Sand, Silt, Clay, Moisture, etc.)**
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	**Container Requirements**		**Collected**	**LAB**
8270	glass	4 oz		Accutest

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	**Duplicate ID No.:**

Signature(s):

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: _____ BORING NUMBER: _____
PROJECT NUMBER: _____ DATE: _____
DRILLING COMPANY: _____ GEOLOGIST: _____
DRILLING RIG: _____ DRILLER: _____

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	PID/FID Reading (ppm): Sampler BZ	PID/FID Reading (ppm): Borehole**	PID/FID Reading (ppm): Driller BZ**
													0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area
Background (ppm): [ ]

Remarks: _____

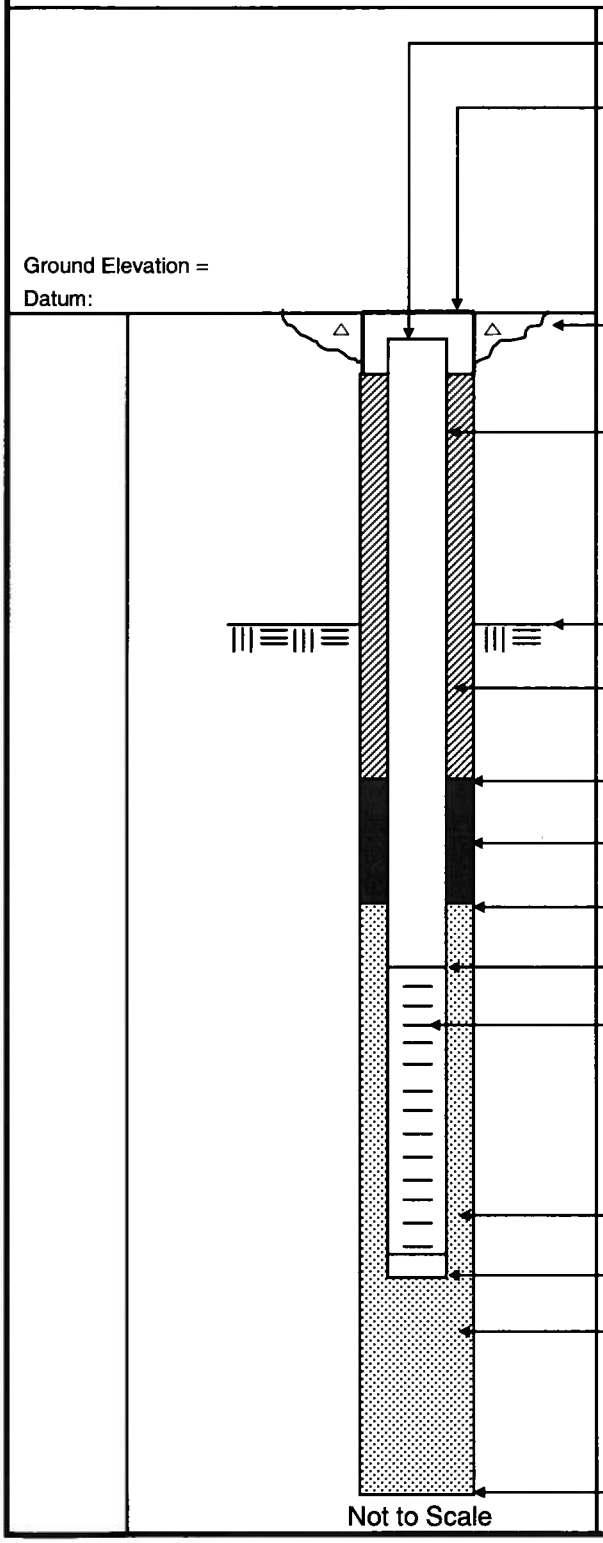
Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech NUS, Inc.

WELL No.: _____

MONITORING WELL SHEET

PROJECT:		DRILLING Co.:		BORING No.:	
PROJECT No.:		DRILLER:		DATE COMPLETED:	
SITE:		DRILLING METHOD:		NORTHING:	
GEOLOGIST:		DEV. METHOD:		EASTING:	



Elevation / Depth of Top of Riser: ____ / ____

Elevation / Height of Top of Surface Casing: ____ / ____

I.D. of Surface Casing: _____

Type of Surface Casing: _____

Type of Surface Seal: _____

I.D. of Riser: _____

Type of Riser: _____

Borehole Diameter: _____

Elevation / Depth Top of Rock: ____ / ____

Type of Backfill: _____

Elevation / Depth of Seal: ____ / ____

Type of Seal: _____

Elevation / Depth of Top of Filter Pack: ____ / ____

Elevation / Depth of Top of Screen: ____ / ____

Type of Screen: _____

Slot Size x Length: _____

I.D. of Screen: _____

Type of Filter Pack: _____

Elevation / Depth of Bottom of Screen: ____ / ____

Elevation / Depth of Bottom of Filter Pack: ____ / ____

Type of Backfill Below Well: _____

Elevation / Total Depth of Borehole: ____ / ____

MONITORING WELL MATERIALS
CERTIFICATE OF CONFORMANCE

Well Designation:_____
Site Name: _____
Date Installed: _____
Project Name: _____

Site Geologist: _____
Drilling Company: _____
Driller:_____
Project Number: _____

Material	Brand/Description	Source/Supplier	Sample Collected ?
Well Casing			
Well Screen			
End Cap			
Drilling Fluid			
Drilling Fluid Additives			
Backfill Material			
Annular Filter Pack			
Bentonite Seal			
Annular Grout			
Surface Cement			
Protective Casing			
Paint			
Rod Lubricant			
Compressor Oil			

To the best of my knowledge, I certify that the above described materials were used during installation of this monitoring well.

Signature of Site Geologist:_____

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Site: _____ Depth to Bottom (ft.): _____ Project Name: _____
Well: _____ Static Water Level Before (ft.): _____ Project Number: _____
Date Installed: _____ Static Water Level After (ft.): _____ Site Geologist: _____
Date Developed: _____ Screen Length (ft.): _____ Drilling Co.: _____
Dev. Method: _____ Specific Capacity: _____
Pump Type: _____ Casing ID (in.): _____

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units _____)	Turbidity (NTU)	Remarks (odor, color, etc.)

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: NAVSTA Mayport **Project No.:** 112G00538
Location: Building **Personnel:** T. Cottenoir
Weather Conditions: _____ **Measuring Device:** Heron
Tidally Influenced: Yes X No ___ **Remarks:** _____

Well or Piezometer Number MPT-	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	PID (ppm) BK/BH
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								
MW -								

ppm=parts per million; BK=background; and BH=borehole of the well.

* All measurements to the nearest 0.01 foot

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: _____ WELL ID.: _____

PROJECT NUMBER: _____ DATE: _____

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments

SIGNATURE(S): _____ PAGE___OF___

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: _____
Project No.: _____

[] Domestic Well Data
[] Monitoring Well Data
[] Other Well Type: _____
[] QA Sample Type: _____

Sample ID No.: _____
Sample Location: _____
Sampled By: _____
C.O.C. No.: _____
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: / Time: / Method:	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other

PURGE DATA:

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method:								
Monitor Reading (ppm):								
Well Casing Diameter & Material Type:								
Total Well Depth (TD):								
Static Water Level (WL):								
One Casing Volume(gal/L):								
Start Purge (hrs):								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD **Duplicate ID No.:**

Signature(s):

Tetra Tech NUS / FDEP Groundwater Sampling Sheet

SITE NAME: MAYPORT		SITE LOCATION: SITE
WELL NO:	SAMPLE ID:	DATE:

PURGING DATA

WELL DIAMETER (in):	TOTAL WELL DEPTH (ft):	STATIC DEPTH TO WATER (ft):	WELL CAPACITY (gal/ft):

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)

_____ Liters

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)

_____ Liters

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (Liters):

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal)	PURGE RATE (gpm)	DEPTH TO WATER (ft)	pH	TEMP. (^{O}C)	COND. (µmhos)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR	ODOR

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: TtNUS/	SAMPLER(S) SIGNATURES	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE: Teflon	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH		
	3	CG	40 ml	HCL	40 ml		8260	SM
	2	AG	1L	--	1 L		8270	VT
	2	AG	1L	H2SO4	1L		TRPH	VT

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

Naval Station Mayport Investigative Derived Waste Drum Log

Contractor Company Name: Tetra Tech NUS, Inc.

Individual Name:

Location Name:
(i.e. SWMU number, Bldg number)

Date of generation:

Expected date of results:

Drum Number: __various (See Table Below for additional info.)_____
(Use site # and unique drum number)

Drum No.	**Type of Waste** (i.e. drill cuttings, purge water)	**Hazardous Or Non-Haz**	**Quantity of Waste** (gals/lbs)	**Date**	**Group Generating Waste**	**Individual's Initials/ Name**

WEEKLY INVESTIGATIVE DERIVED WASTE INSPECTION CHECKLIST
NAVAL STATION MAYPORT

This form is to be completed legibly by the contractor when conducting weekly inspections of IDW drums.

All discrepancies shall be corrected immediately. Failure to correct discrepancy(s) shall result in contractual action.

Date: _____

Inspector: _____ _____

Company Name: _____TtNUS_____

		YES	NO
1.	Are all containers properly labeled/dated?		
2.	Are containers compatible with contents?		
3.	Are all containers in good condition?		
4.	Are containers closed?		
5.	Are lids/caps/bolts/rings tight?		
6.	Are any containers dated longer than 60 days?		
7.	Number of containers inspected.		
Comments:			
Date/nature of repairs or remedial actions:			
Copy to: NAVSTA Mayport N4E FAX: 270-7398 (EACH FRIDAY)			

Enclosure (2)

Revised 1/24/2006

Tetra Tech NUS, Inc.

DOCUMENTATION OF FIELD CALIBRATION

PROJECT NAME : _____ INSTRUMENT NAME/MODEL: _____

SITE NAME: MPT MANUFACTURER: _____

PROJECT No.: 112g00538 SERIAL NUMBER: _____

Date of Calibration	Instrument Name and Model	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot No.)	Remarks and Comments
				Pre-calibration	Post-calibration	Pre-calibration	Post-calibration		