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SOIL BORING AND MONITORING WELL INSTALLATION HANGAR 1000 NAS
JACKSONVILLE FL
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ABB ENVIRONMENTAL

**SOIL BORING AND MONITORING WELL INSTALLATION
HANGAR 1000**

**NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA**

Unit Identification Code: N00207

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April 1997



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/074 are complete and accurate and comply with all requirements of this contract.

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Jacksonville, Florida

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GLOSSARY

bls below land surface
HSA hollow-stem auger
ID inside diameter
NAS Naval Air Station
OSHA Occupational Safety and Health Administration
PVC polyvinyl chloride

TECHNICAL MEMORANDUM
SOIL BORING AND MONITORING WELL INSTALLATION
HANGAR 1000

1.0 INTRODUCTION

The Navy is performing a risk-based closure of the hazardous waste storage tank system formerly located in the keyway of Hangar 1000 at Naval Air Station (NAS) Jacksonville, Jacksonville, Florida. Drilling activities in support of the closure are scheduled to commence in April 1997. These activities will include the installation of up to 14 shallow monitoring wells. Several wells will be installed inside the building east of the keyway. Continuous split-spoon sampling will be conducted to the boring termination depth at all well locations. All wells will be developed and completed with flush-mounted well heads. All samples will be collected for field or laboratory analysis by the Navy's technical representative.

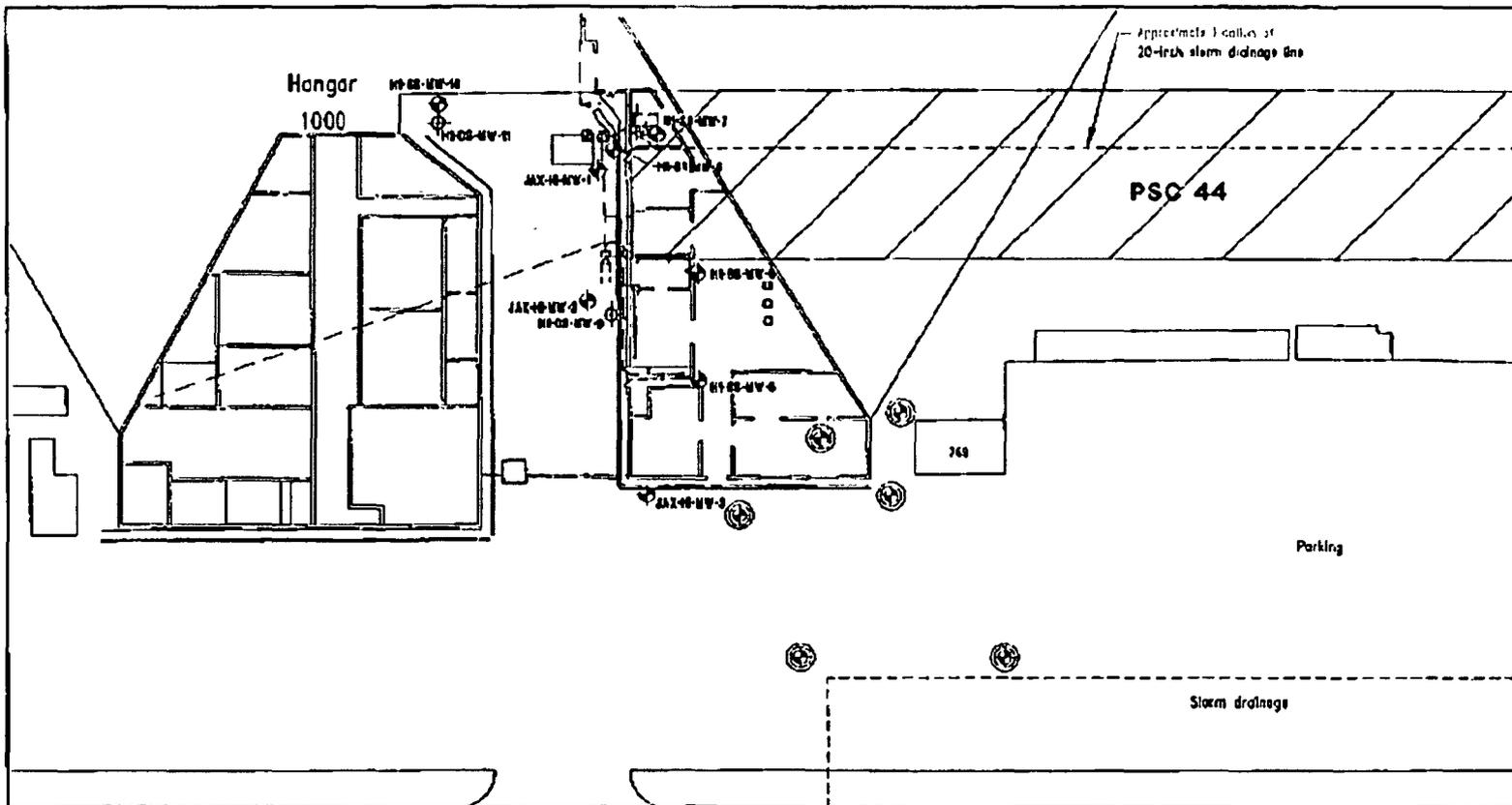
Preliminary activities to be conducted prior to the commencement of fieldwork include meeting with the Navy's technical representatives and NAS Jacksonville base personnel to obtain access and security clearance, determine the location of investigation and decontamination areas, mobilize equipment and supplies to the investigation site, and attend a briefing on site history and the planned field investigation.

All augering, drilling, and sampling methods must conform to State and all other applicable regulatory agency requirements. All utility clearances must be coordinated with NAS Jacksonville. Boreholes may be added or relocated as necessary for utility clearance, accessibility, and plume delineation to suitable locations that accomplish the intent of the original location. A general site plan and the initial anticipated monitoring well locations are presented on Figure 1.

2.0 SCOPE OF WORK

2.1 SOIL BORINGS. Prior to drilling at the site, each boring location should be explored for the presence of underground obstructions by digging to a minimum depth of 4 feet below land surface (bls) using a wooden-handled posthole digging tool or suitable alternative. Reasonable caution shall be used while digging to avoid damaging underground utilities encountered at the drilling location. Below a depth of 4 feet, split-spoon samples will be collected continuously to the 15 feet boring termination depth. The actual total depths will be determined by the Navy's technical representative based on geologic and hydrogeologic conditions encountered.

2.2 SHALLOW SURFICIAL MONITORING WELL INSTALLATION. Monitoring wells will be installed in the boreholes from which split-spoon samples were obtained. The shallow monitoring wells will be installed by the hollow-stem auger (HSA) drilling method. A 6-1/4 inch inside diameter (ID) HSA will be used to drill to the total depth of 15 feet bls, and a 2-inch ID, Schedule 40, flush-threaded



LEGEND	
	Existing monitoring well location
	Existing deep monitoring well location
	Proposed monitoring wells
TYP	Typical
NAS	Naval Air Station

0 40 80
 SCALE: 1 INCH = 80 FEET

FIGURE 1
 SITE PLAN



YORKTOWN AVENUE

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polyvinyl chloride (PVC) well will be installed. The PVC well will be constructed of 10 feet of 0.010-inch factory-slotted well screen and will bracket the top of the water table. The filter pack will be constructed of 20/30-graded clean quartz sand to a level 1 foot above the top of the well screen. An additional 1-foot-thick layer of 30/65-graded clean quartz sand will be placed above the filter pack. Measurements shall be made to the top of the filter pack and fine sand seal to confirm accurate placement of these materials. The remainder of the borehole annulus will then be grouted to land surface. The grout will consist of neat cement grout mixed with 5 percent bentonite. Neat cement grout used in sealing mixtures will conform to the requirements, including the latest revision thereof, of American Society for Testing and Materials C 150 "Standard Specifications for Portland Cement" Type I. Water used in sealing mixtures will be potable, clean and obtained from a designated source at NAS Jacksonville. No additives or accelerators will be used. No solvents of PVC cement will be used in the well fabrication. A typical well completion diagram for a shallow surficial monitoring well is shown on Figure 2.

2.3 SURFACE PROTECTION OF MONITORING WELLS. Surface completions of each well will require a protective flush-mount bolt-down cover set in a 2-foot by 2-foot by 3-inch concrete pad that slopes away from the well.

2.4 INITIAL WELL DEVELOPMENT. Well development will be initiated no sooner than 24 hours following the completion of grouting. Development will be accomplished by pumping with the intake hose at the bottom of the well. No air or water will be injected into the wells during development. Each well will be developed by removing a minimum of 10 well volumes and until the water is clear and free of apparent turbidity. At well locations with very slow recharge or little water, wells will be developed dry a minimum of three times.

3.0 OTHER WORK ITEMS

3.1 DRILL CUTTINGS DISPOSAL. Fluids and cuttings generated during the advancement of soil borings and well installation will be drummed. A sufficient number of Department of Transportation-approved 55-gallon drums, lids, and bolts must be provided to contain drill cuttings, drilling fluids, development or purge water, and decontamination water if containment is deemed necessary. Once filled, drums must be transported from Hangar 1000 to a Navy-designated storage location at NAS Jacksonville.

4.0 GENERAL REQUIREMENTS

4.1 SITE ACCESS. Any modification of existing site access required to complete the borings and well installations will be done only with the approval of the Navy. All areas, except inside the building, are anticipated to be accessible by truck-mounted rigs. Indoor areas will require specialized equipment.

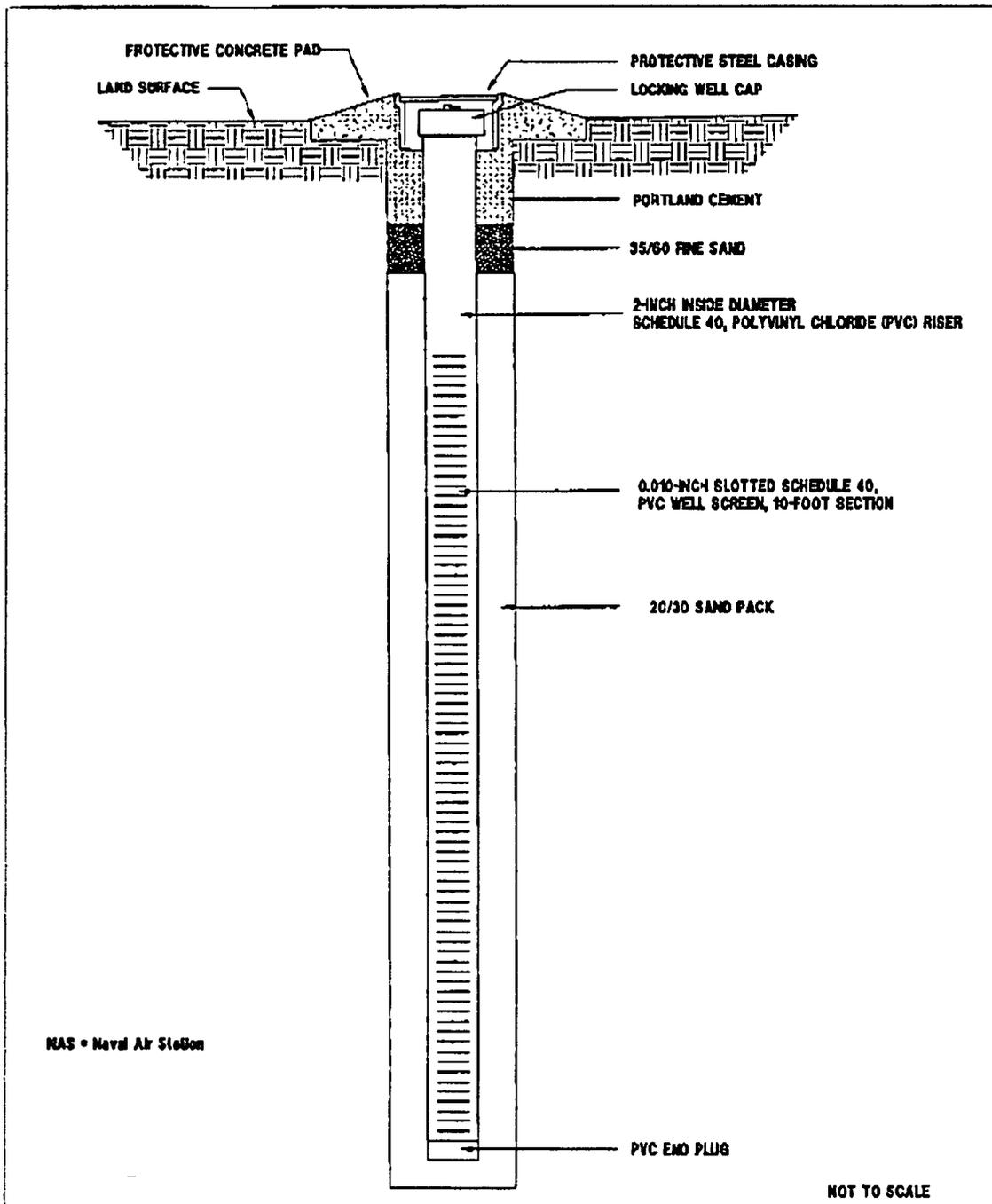


FIGURE 2
TYPICAL SHALLOW MONITORING WELL
INSTALLATION DETAIL



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4.2 SITE MAINTENANCE. The site will at all times be maintained in a neat and orderly condition, free from trash and waste construction materials. Each work area will be left in a similar or improved condition to what existed prior to initiation of site activities.

All nonhazardous construction materials, equipment and trash may be disposed of at a designated location at the facility. Unattended construction materials, equipment and trash will be left in a manner such that they do not constitute fire hazards or become or cause nuisance or danger due to forces of nature, such as rain or wind. Construction materials and equipment not in use will be stored at a location on the base designated by the Navy.

4.3 NUISANCE WATER. Nuisance water, such as rainfall or surface water runoff, may be encountered within the work site during the period of performance. Precautions must be taken to ensure that potentially contaminated soil and surface water do not enter the borehole or migrate away from the work area. All due measures should be taken to protect the work from damage by such waters, and to prevent delays in progress of work caused by such water, without adverse effects to the site or of any other property.

4.4 WATER AND POWER. Water will be available from a Navy-designated source at NAS Jacksonville. Any necessary equipment for pumping, if required, and conveying water to the drill sites will not be provided by the Navy. Only potable water from a source approved by the Navy may be introduced into the borehole, if required, at the direction of the Navy.

4.5 SUBSURFACE CONDITIONS. All drilling sites are believed to be underlain by unconsolidated sediments consisting of sand, clay, and silt to at least the anticipated boring termination depths. However, the description of subsurface conditions provided is not represented, including the complete range of conditions that may be encountered in the execution of the work.

4.6 CLEANUP. Upon completion of the described work, all unused or wasted construction materials, refuse, form boards, petroleum-based products, and other waste materials should be removed and disposed of to the satisfaction of the Navy.

4.7 COORDINATION OF WORK. Within 1 week prior to initiation of site activities, all involved parties should convene at a mutually agreed upon location to discuss the details of the project.

5.0 DECONTAMINATION

Decontamination of all drilling related sampling equipment, monitoring well materials, downhole equipment and machinery in accordance with the procedures described below is required.

5.1 LARGE EQUIPMENT DECONTAMINATION. Any portion of the drill rig that will be over the borehole (e.g., kelly bar or mast, drilling platform, hoist or chain pulldowns, spindles, cathead, etc.) will be decontaminated and inspected upon arrival at the site, between each monitoring well, and at the completion of the scope of services in accordance with U.S. Environmental Protection Agency Region IV Standard Operating Procedures as described below.

1. Steam clean and scrub with a wire brush to remove soil, dirt, and rust.

2. Inspect to assure that seals and gaskets are intact and that there are no residual oils, grease, or hydraulic fluids that could drip from the equipment into the borehole.
3. Check swivel packing to ensure that no fluid sprays from the swivel during operation.
4. No grease or oil will be used on drill pipe joints; Teflon™ grease is acceptable.

5.2 DECONTAMINATION OF DOWNHOLE EQUIPMENT. Drilling, sampling, and associated downhole equipment that will come in contact with site soils and groundwater will be cleaned as detailed below.

1. Steam clean and/or high pressure wash drilling equipment, (augers, rods, bits, etc.). The steam cleaner and/or high pressure wash should be capable of generating a pressure of at least 2,500 pounds per square inch and producing hot water and/or steam at 200 degrees Fahrenheit and above.
2. Split spoons shall be scrubbed and washed with laboratory-grade detergent and rinsed thoroughly with tap water. No degreasers shall be used.
3. Well materials (screen, riser, casing) will be cleaned with steam or high pressure wash prior to introduction into the well. Casing and well screen that arrive sealed in plastic from the factory will not require cleaning.

Well casing and screen will be stored wrapped in plastic or in boxes until use.

5.3 DECONTAMINATION STAGING AREA AND DECONTAMINATION FLUID DISPOSAL. Cleaning and decontamination of all equipment will occur at a Navy-designated area onsite. A potable water source for decontamination will be provided by the Navy.

6.0 HEALTH AND SAFETY REQUIREMENTS

In performance of the work, as a minimum, compliance with all applicable U.S. Environmental Protection Agency, Occupational Safety and Health Administration (OSHA), State and local statutes, regulations and ordinances regarding health and safety, including, but not limited to, OSHA 29 Code of Federal Regulations 1910.120 Hazardous Waste Operations and Emergency Response, Final Rule, U.S. Department of Labor, OSHA, March 1990, is required. These include a requirement that all onsite personnel receive a minimum of 40 hours of formal hazardous waste safety training, as well as 3 days of supervised field experience. Background information regarding previous site activities and conditions can be found in the Closure Activities Summary Report, Hangar 1000, NAS Jacksonville, March 1996, prepared by ABB Environmental Services, Inc.

REFERENCES

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