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**SAMPLING AND ANALYSIS PLAN ADDENDUM
FOR SITE 30 —
BUILDINGS 648, 649 and 755, AND INDUSTRIAL
SEWER LINE (TL 045/A NORTH TO IWTP)
NAVAL AIR STATION
PENSACOLA, FLORIDA**



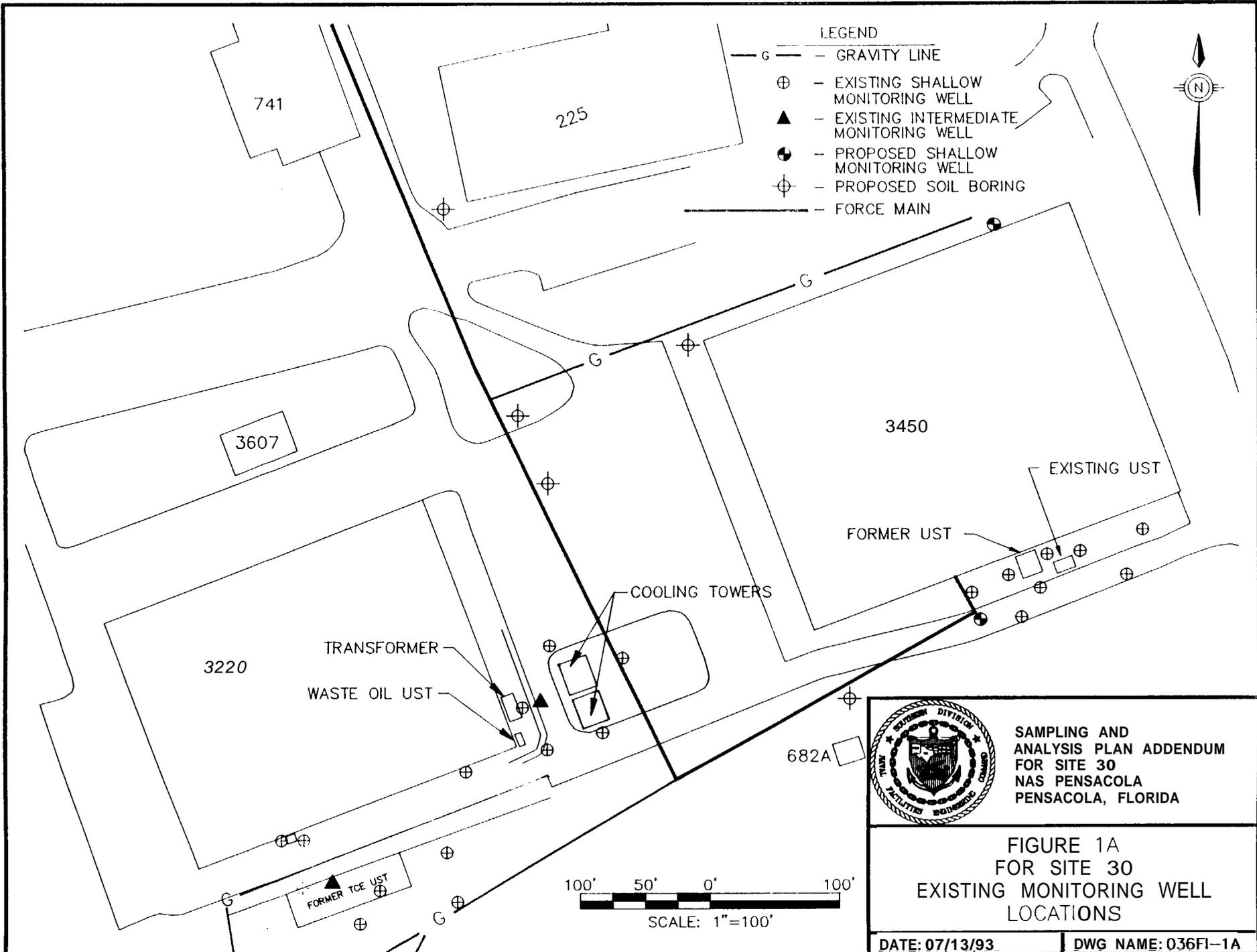
**SOUTHDIV-CONTRACT NUMBER :
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CTO-058**

**Prepared for:
NAVAL SUPPORT ACTIVITY
NAVAL AIR STATION
PENSACOLA, FLORIDA**



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July 27, 1993

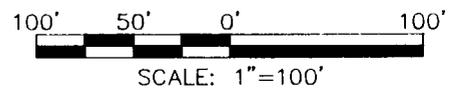


- LEGEND
- G — GRAVITY LINE
 - ⊕ — EXISTING SHALLOW MONITORING WELL
 - ▲ — EXISTING INTERMEDIATE MONITORING WELL
 - ⊙ — PROPOSED SHALLOW MONITORING WELL
 - ⊕ — PROPOSED SOIL BORING
 - — FORCE MAIN



SAMPLING AND ANALYSIS PLAN ADDENDUM FOR SITE 30
 NAS PENSACOLA
 PENSACOLA, FLORIDA

FIGURE 1A
 FOR SITE 30
 EXISTING MONITORING WELL LOCATIONS



DATE: 07/13/93

DWG NAME: 036FI-1A

FLORIDA PROFESSIONAL GEOLOGIST SEAL

I have read and approve of **this** Sampling and Analysis Plan Addendum for Site 30 at the Naval Air Station Pensacola, Florida, and **seal** it in accordance with Chapter 492 of the Florida Statutes. In sealing **this** document, I certify the geological information contained **in** it is true to **the** best of my knowledge and the geological methods and procedures included herein are consistent with currently accepted geological practices.

Name: Henry H. Beiro
License Number: **1847**
State: Florida
Expiration Date: July 31, **1998**



Henry H. Beiro

4-9-97

Date

INTRODUCTION

Since the Work Plan and Sampling and Analysis Plan (*SAP*) were written, the investigation for Sites **30** and **31** (hereafter referred to in this report as Site 30) has been enlarged to include the industrial sewer line (TL 045/A north to IWTP). The additional work was proposed in a modification for negotiation purposes and was submitted to the Navy by EnSafe/Allen & Hoshall (E/A&H) on May **27, 1993**. The additional field work and laboratory analysis to be included in the Remedial Investigation of Site 30 are detailed in this addendum to the *SAP*.

ADDITIONAL WORK

Figure 1 shows the sections of the industrial sewer line to be incorporated into the field investigation. Sampling and analysis procedures required to investigate the industrial sewer line will be performed in accordance with the comprehensive *SAP* (*CSAP*) and the site-specific *SAP*. The results of the sampling and analysis will be summarized in the Remedial Investigation Report for Site 30.

Video and Smoke Test Review

The Navy previously conducted video tests of the force mains and smoke tests of the gravity lines. These results are to be provided to E/A&H by the Navy, if possible, for review to locate any possible leaks in the line. Areas with possible leaks will be targeted for investigation.

Soil Borings

The soil sampling protocol followed during the investigation will be based on whether the sewer is a gravity line or a force main. A soil boring will be advanced to the water table approximately every 100 feet along the gravity line. A soil boring will be advanced to the water table approximately every 200 feet along the force main. Sixty-nine borings, in close proximity to manholes where leakage may have occurred, will be placed along the length of the industrial sewer line. The soil boring locations are illustrated in Figure 1. Figures are presented at the end of the text. In addition, five soil borings to the water table will be completed inside of the

Buildings 648, 647, 3815, **755**, and 649. Boring depths are based on the depth-to-groundwater measurements collected during the Ecology and Environment Phase I investigations. Soil samples will be collected from 0 to 1-foot depth and at 2-foot intervals to the water table in areas of less than **5** feet to the water table. Soil samples will be collected from 0 to 1-foot depth and at 5-foot intervals (4-6', 9-11', etc.) to the water table in areas greater than **5** feet to the water table. These borings will be used to locate industrial sewer line leaks which may have contaminated soil above the water table. Boring locations are tentative and may change based on field observation or video and smoke test results.

Monitoring Wells

Fifteen monitoring wells will be completed along the industrial sewer line, as shown in Figure 1. Eleven shallow depth monitoring wells (approximately 15 feet deep) and four intermediate depth monitoring wells (approximately 40 feet deep, to the top of an underlying confining clay layer) will be completed. Analytical results from industrial sewer line monitoring wells will be used to delineate any impact by the sewer line on other potential sources of contamination (PSC) sites. Some current PSC investigations are: Site 27 — Radium Dial Shop, Site 25 — Radium Spill Area, and Site 11 — North Chevalier Disposal Field. Well locations are tentative and may change based on field observation or video and smoke test results.

Sampling Previously Installed Wells

Sixteen **ABB** monitoring wells (14 shallow wells and two intermediate wells), near the industrial sewer line adjacent to Building 3220 and six **ABB** shallow monitoring wells, near the industrial sewer line adjacent to Building **3450** (Shown in Figure **1-A** Enlargement of Figure 1) will be redeveloped and sampled to determine the impact on groundwater from former leaking underground storage tanks and the industrial sewer line. Preliminary work completed during the UST program has identified high concentrations of methylene chloride, 1,1-dichloroethene, 1,1,1-trichloroethane, trichloroethene, tetrachloroethene, and 1,2-dichlorobenzene in the groundwater.

SAMPLING AND ANALYTICAL REQUIREMENTS

The following table represents the number of samples and the analytical requirements for the addendum scope of work.

Sampling and Analytical Requirements Site 30 Addendum		
Medium	No. of Samples	Analysis
Soil'	223 (12) (4)	CLP TAL/TCL PPS ST
Groundwater'	37 (2)	CLP TAL/TCL PPW
Total	(260) (14) (4)	CLP TAL/TCL PPS/PPW ST

CLP TAL/TCL

Contract Laboratory Program Target Analyte List/Target Compound List

Physical Parameters — Soils (PPS)

Total phosphorus, nitrate-N, total Kjeldahl nitrogen (TKN), heterotrophic plate count, total organic carbon, and cation exchange capacity

Shelby Tubes — Soils (ST)

Bulk density, particle size, percent moisture, specific gravity, porosity, and permeability (collected using a Shelby tube)

Physical Parameters — Water (PPW)

5-day biological oxygen demand (BOD), chemical oxygen demand (COD), hardness, total suspended solids, alkalinity, total phosphorus, nitrate-N, TKN, and heterotrophic plate count

- a — 74 total boring locations. Boring depths are based on the depth to water measurements collected during the Ecology and Environment Phase I investigation. 39 borings x 2 depth intervals = 78 samples; 30 borings x 4 depth intervals = 120 samples; 5 borings x 5 depth intervals = 25 samples.
- b — 20 existing shallow monitoring wells + 2 existing intermediate monitoring wells + 11 new shallow monitoring wells + 4 new intermediate depth monitoring wells.

Soil samples will be collected from the 0-1' interval, then at 5-foot intervals (4-6', 9-11') to the water table. New shallow monitoring wells will be completed to approximately 15 feet depth. Intermediate depth monitoring wells will be completed to approximately 40 feet depth. Monitoring wells will be construction of 10-foot long, 2-inch diameter, 0.01-inch slot width PVC well screen flush threaded to 2-inch diameter PVC riser pipe.

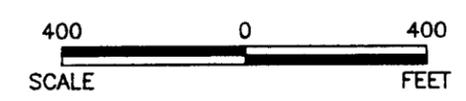
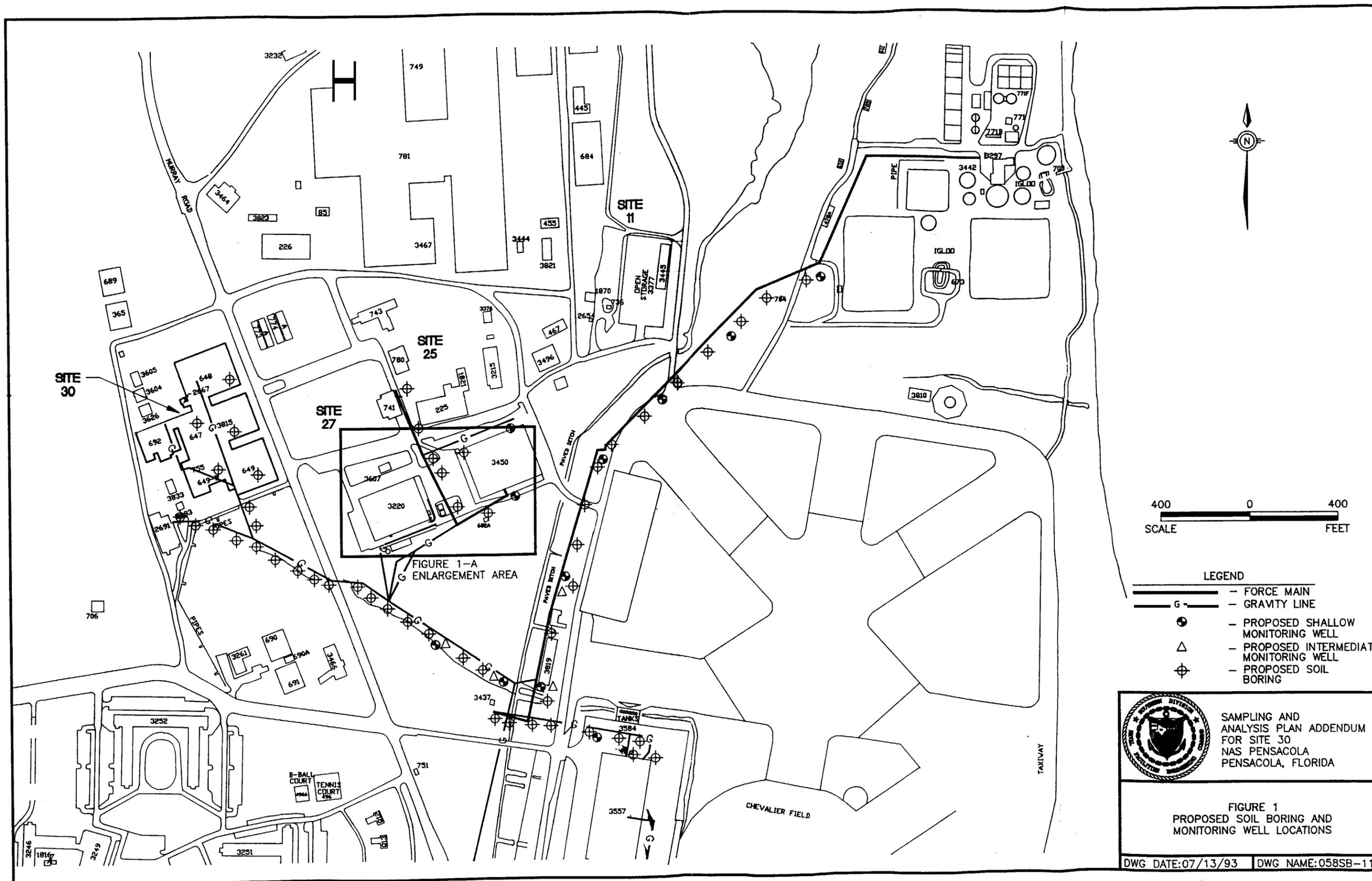
APPLICABLE DOCUMENTS

The following references should be consulted for specific methods and descriptions:

Ecology and Environment, Inc. (1992). *Contamination Assessment/Remedial Activities Investigation Work Plan — Group E Naval Air Station Pensacola, Pensacola, Florida; Building 649 and 755 (Site 30)*. Ecology and Environment, Pensacola, Florida,

EnSafe/Allen & Hoshall (1993). *Comprehensive Long-Term Environmental Action Final Sampling and Analysis Plan for Sites 30 [and 31] — Buildings 649, 755 [and 648], Naval Air Station Pensacola, Florida*. EnSafe/Allen & Hoshall, Memphis, Tennessee.

EnSafe/Allen & Hoshall (1993). *Comprehensive Sampling and Analysis Plan Naval Air Station Pensacola, Florida*. EnSafe/Allen & Hoshall, Memphis, Tennessee.



LEGEND

- FORCE MAIN
- GRAVITY LINE
- PROPOSED SHALLOW MONITORING WELL
- PROPOSED INTERMEDIATE MONITORING WELL
- PROPOSED SOIL BORING



SAMPLING AND ANALYSIS PLAN ADDENDUM FOR SITE 30
NAS PENSACOLA
PENSACOLA, FLORIDA

FIGURE 1
PROPOSED SOIL BORING AND MONITORING WELL LOCATIONS