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ASSESSMENT REPORT FOR ZONE H SITE 44 ABOVE GROUND STORAGE TANK 601
(AST 601) CNC CHARLESTON SC
11/01/2004
CH2M HILL

**Site 44 (Zone H, AST 601)
Charleston Naval Complex
North Charleston, South Carolina
SCDHEC Site ID #01537**

Prepared by:

**CH2MHILL
Charleston Naval Complex
1330 Kilo St.
North Charleston, South Carolina 29405**

Prepared for:

**Southern Division Naval Facilities Engineering Command
P.O. Box 190010
North Charleston, South Carolina 29419-9010**

November 2004

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Charleston Naval Complex
North Charleston, South Carolina

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1.0 Introduction

1.1 Background

In 1993, Naval Base (NAVBASE) Charleston was added to the list of bases scheduled for closure as part of the Defense Base Realignment and Closure Act, which regulates closure and transition of property to the community. The Charleston Naval Complex (CNC) was formed as a result of the dis-establishment of the Charleston Naval Shipyard and NAVBASE on April 1, 1996. Corrective Action (CA) activities for Site 44, Above ground storage tank (AST) 601, are being conducted in accordance with the Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC).

1.2 General Site Description and Background

The CNC is located in the City of North Charleston, on the east and west bank of the Cooper River in Charleston County and Berkley County, South Carolina as shown in **Figure 1**. This installation consists of two major areas: an undeveloped dredge materials area on the east bank of the Cooper River on Daniel Island in Berkley County, and a developed area on the west bank of the Cooper River. The developed portion of the base is on the peninsula bounded on the west by the Ashley River and on the east by the Cooper River. This site is located within the developed portion of the base.

AST 601, was a 1,200 gallon steel tank which supplied fuel to boilers located in building NS69. The tank was located in an earthen berm enclosure across from Vesole Street approximately 100 feet from Building NS69. Buried feed and return lines ran from AST 601 to the northeast corner of Building NS69. **Figure 2**.

2.0 Previous Investigations

2.1 Soil investigation

A Rapid Assessment Report (RAR) was submitted in July 2001 by Tetra Tech NUS, (TTNUS). During the investigation, soil samples were collected from various locations and analyzed for hydrocarbon constituents. Laboratory analysis indicated the contamination exceeded the Risk Based Screening Levels (RBSL) for soils. Please refer to TTNUS, July 2001 Rapid Assessment Report, for soil boring locations and analytical results.

On November 27, 2001, sixteen soil samples were collected within eight soil borings by CH2M-Jones. The soil samples were collected at depths of 0-1 and 3-5 feet below land surface (bls) and analyzed for VOCs and SVOCs. Results of the soil analysis indicated contaminants of concern (COCs) were above the RBSL limits. On January 4, 2002, ten additional soil samples were collected from five soil borings by CH2M-Jones. The soil samples were collected at depths of 0-1 and 3-5 feet bls and analyzed for VOCs and SVOCs. Results of the soil analysis indicated that the contamination above established RBSL limits was defined. On March 4, 2002, CH2M-Jones, excavated contaminated soils in two separate locations adjacent to the former AST 601. Please refer to CH2M-Jones' Monitoring and Excavation Report, 2002, for soil boring locations and analytical results.

2.2 Groundwater Investigation

In TTNUSs, 2001 RAR, groundwater sampling indicated that monitoring wells CNC44-MO4 and CNC44-M01 contained free product. In July 2001, SCDHEC requested a Corrective Action Plan (CAP) be submitted. In September, 2001, CH2M-Jones completed and submitted a CAP outlining remedial activities.

On November 20, 2002 monitoring wells CNC44-MW02, CNC44-MW03, CNC44-MW05, CNC44-MW06, CNC44-MW07, CNC44-MW08, CNC44-MW02, and CNC44-MW09 were sampled and analyzed for VOCs. Laboratory analysis indicated that COCs were below RBSL limits. However, monitoring wells CNC44-MW01 and CNC44-MW04 were not sampled due to the continued presence of free product.

3.0 Free Product Remedial Activities

3.1 Free Product Recovery (Bailing)

Free product was gauged and recovered using disposable bailers within monitoring wells CNC44-MW01 and CNC44-MW04. The recovery efforts were performed periodically from February 25, 2002, through February 14, 2003. Refer to **Table 1** for free product thickness, recovery dates and quantities. Approximately 4.00 gallons of free product was recovered from monitoring well CNC44-MW01, and 10.0 gallons from CNC44-MW04 during bailing activities. Recovered product was containerized in a DOT-approved drum and stored within a locked compound at building 1824 at the CNC.

3.2 Free Product Recovery (Absorbent Socks)

Following bailing activities on February 14, 2003, oil-only absorbent socks with the capacity to absorb approximately 0.25 gallon of free product each were installed within wells CNC44-MW01 and CNC44-MW04 and replaced periodically. Refer to **Table 1** for free product thickness, recovery dates and quantities. To date approximately 2.25 gallons of free product was recovered from monitoring well CNC44-MW01 and approximately 2.25 gallons from CNC44-MW04 using the absorbent socks.

4.0 Conclusions and Recommendations

Free product remains in monitoring wells CNC44-MW01 and CNC44-MW04 at AST 601. While free product has decreased, CH2M-Jones recommends that free product recovery utilizing oil-only absorbent socks continue in affected wells. Once free product has been removed, a groundwater monitoring program should be implemented.

Tables

Table 1
Free Product Measurements and Collection Quantities

Well No.	Date	Product	DTW	FP.	Comments
CNC44-MW01	02/20/2002	4.11	4.70	0.59	No product removed
	02/25/2002	not obtained	not obtained	not obtained	.25 gallons bailed
	03/11/2002	not obtained	not obtained	not obtained	.20 gallons bailed
	03/27/2002	not obtained	not obtained	not obtained	.5 gallons bailed
	11/05/2002	not obtained	not obtained	not obtained	1 gallon bailed
	11/14/2004	2.55	2.58	0.03	.05 gallons bailed
	11/22/2004	3.14	3.26	0.12	.5 gallons bailed
	12/09/2002	3.42	3.49	0.07	.06 gallons bailed
	12/20/2002	2.90	2.95	0.05	.1 gallons bailed
	01/24/2003	3.97	4.25	0.28	.28 gallons bailed
	02/14/2003	not obtained	not obtained	not obtained	.8 gallons bailed
	03/17/2003	not obtained	not obtained	not obtained	Install Absorbent Sock
	03/19/2003	not obtained	not obtained	not obtained	replace
	03/27/2003	not obtained	not obtained	not obtained	replace
	04/04/2003	not obtained	not obtained	not obtained	1/2 full
	05/01/2003	not obtained	not obtained	not obtained	replace
	05/30/2003	not obtained	not obtained	not obtained	replace
	07/24/2003	not obtained	not obtained	not obtained	replace
	07/28/2003	beads	2.53 odor*	not obtained	2" in sock
	10/03/2003	beads	4.35 odor*	not obtained	6" in sock
	12/12/2003	beads	3.89 odor *	not obtained	replace
	01/12/2004	beads	4.43 odor*	not obtained	2" in sock
	02/12/2004	beads	3.80 odor*	not obtained	4" in sock
05/28/2004	beads	3.34 odor*	not obtained	8" in sock	
08/20/2004	no	3.63	0	replace	
10/25/2004	no	3.41	0	replace	
CNC44-MW04	02/20/2002	3.10	3.77	0.67	No product removed
	02/25/2002	not obtained	not obtained	not obtained	.5 gallons bailed
	03/11/2002	not obtained	not obtained	not obtained	2 gallons bailed
	03/27/2004	not obtained	not obtained	not obtained	1.5 gallons bailed
	11/05/2002	not obtained	not obtained	not obtained	2 gallons bailed
	11/14/2002	1.28	2.5	1.22	.7 gallons bailed
	11/22/2002	1.30	1.78	0.48	.75 gallons bailed
	12/09/2002	3.32	3.92	0.60	.6 gallons bailed
	12/20/2002	1.80	2.00	0.20	.6 gallons bailed
	01/24/2003	2.88	3.50	0.62	.62 gallons bailed
	02/14/2003	not obtained	not obtained	not obtained	.6 gallons bailed
	03/17/2003	not obtained	not obtained	not obtained	Install Absorbent Sock
	03/19/2003	not obtained	not obtained	not obtained	replace
	03/27/2003	not obtained	not obtained	not obtained	replace
	04/04/2003	not obtained	not obtained	not obtained	1/2 full
	05/01/2003	not obtained	not obtained	not obtained	replace
	05/30/2003	not obtained	not obtained	not obtained	replace
	07/24/2003	not obtained	not obtained	not obtained	replace
	07/28/2003	beads	1.4 odor*	not obtained	2" in sock
	10/03/2003	beads	3.33 odor*	not obtained	5" in sock
	12/12/2003	beads	2.76 odor *	not obtained	replace
	01/12/2004	beads	3.35 odor*	not obtained	2" in sock
	02/12/2004	odor	2.74 odor *	not obtained	2" in sock
05/28/2004	odor	3.34 odor*	not obtained	spotty free product	
08/20/2004	2.74	2.85	0.11	replace	
10/25/2004	2.81	2.82	0.01	replace	

Figures

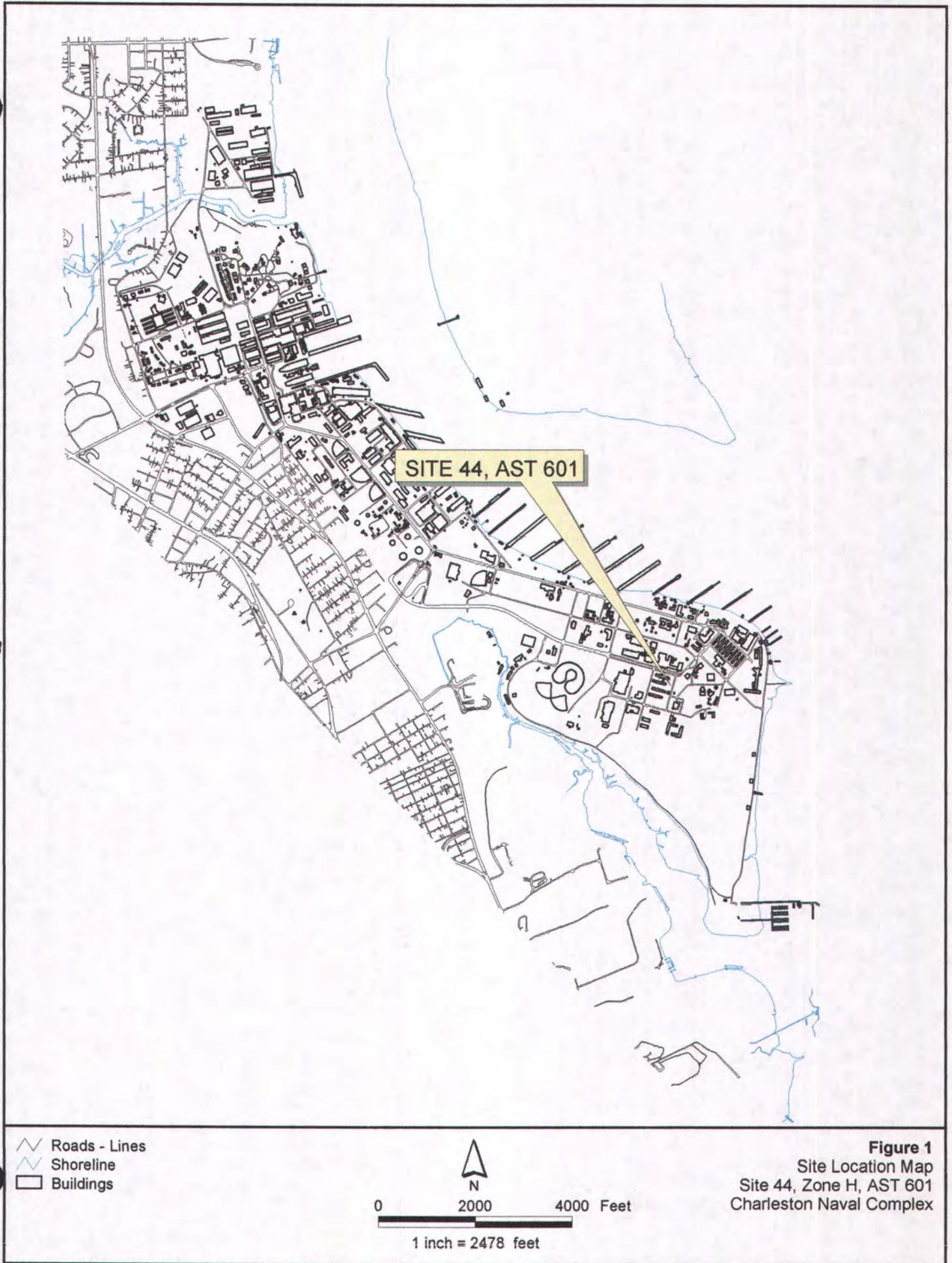
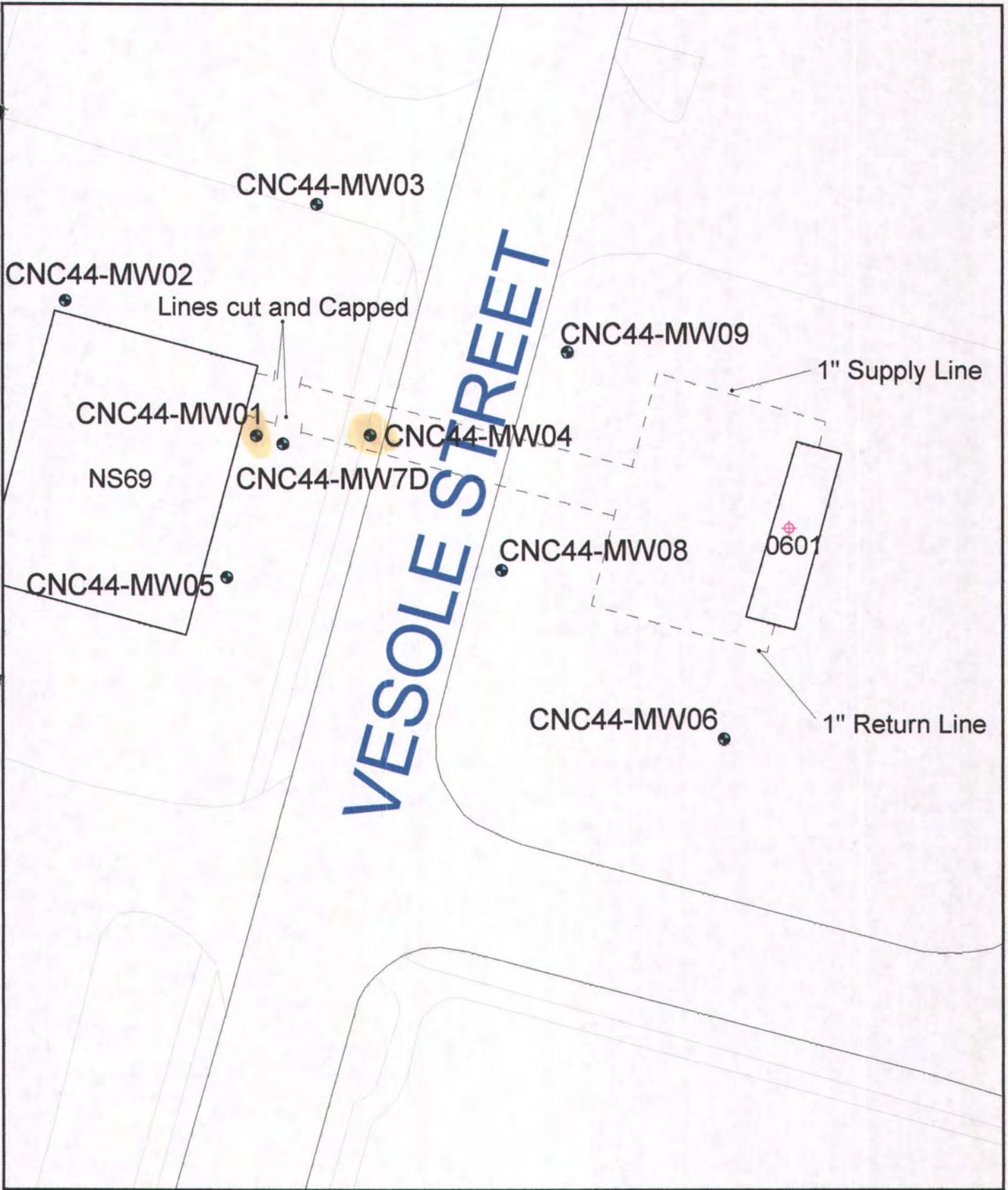


Figure 1
Site Location Map
Site 44, Zone H, AST 601
Charleston Naval Complex



- Active
- ⊕ AST Location
- ▭ Buildings
- ▭ Sidewalk
- ▭ Pavement
- - Supply and Return Lines

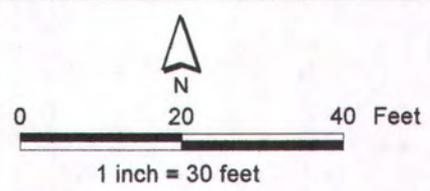


Figure 2
 Site Map
 Site 44, Zone H, AST 601
 Charleston Naval Complex