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EXCAVATION REPORT FOR ZONE G BUILDING NS 4 FORMER UNDERGROUND
STORAGE TANK NS 4 CNC CHARLESTON SC
4/1/2003
CH2M HILL

**EXCAVATION REPORT
FOR
ZONE G; BUILDING NS 4
Former Underground Storage Tank NS 4
SCDHEC No: 02099**

**Charleston Naval Complex
North Charleston, South Carolina**

**SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND**

Contract Number N62467-99-C-0960

April 2003

Excavation Report
For
Zone G; Former UST NS 4

**Charleston Naval Complex
North Charleston, South Carolina**

**Submitted to:
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
Charleston, South Carolina 29406**

**Submitted by:
CH2M-JONES, LLC.
Charleston Naval Complex
1849 Avenue F
North Charleston, South Carolina 29405**



J.A. JONES
ENVIRONMENTAL
SERVICES



CH2MHILL

Contract Number: N62467-99-C-0960

April 2003

CH2M-Jones, LLC Signature Page

Plan Written By: Brian R. Crawford, REM

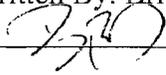


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Charleston Naval Complex
North Charleston, South Carolina

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1.0 INTRODUCTION

1.1 Background

The Charleston Naval Complex is located on the banks of the Cooper River in Charleston County, South Carolina, and lies within the corporate boundaries of the city of North Charleston which is approximately five miles north of the City of Charleston. The Complex is bounded on the east by the Cooper River and on the north, south, and west by the city of North Charleston.

1.2 General Site Description

The CNC is located in the city of North Charleston, on the west bank of the Cooper River in Charleston 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 Berkeley 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. The site is located within the developed portion of CNC (Tetra Tech, NUS [TTNUS], 2000).

UST NS 4 is a former 25,000 gallon Underground Storage Tank (UST) installed in 1952. A 495 gallon Oily-Water Separator (OWS) is located north of the former UST location. The UST stored fuel oil for a boiler house identified as Building NS-2. The UST was used to store No. 5 fuel oil until 1991. From 1991 until its removal in 1996, the tank has stored No. 2 fuel oil. The area was also used to fuel sea planes, and petroleum contamination may have resulted from this activity. Actual dates of seaplane operations are unknown, but this activity was discontinued in the 1950's.

A Corrective Action Plan (CAP) was prepared and approved in March 2003, which presented a plan to excavate delineated soils located at Site NS 4 and implement a monitoring well sampling plan that will be monitored on a quarterly basis. The CAP stated that if after two rounds of quarterly groundwater sampling analytical data shows that there are no contaminants of concern in the wells above the RBSLs, CH2M-Jones, LLC may request to the department a No Further Action. If groundwater analytical results indicate that levels of contaminants are above the RBSLs, additional active remediation or long term monitoring may be recommended.

1.3 Soil Monitoring Results

As stated in the March 2003 CAP, a total of 22 soil samples were collected from twelve locations, which delineated soils for the excavation. Soils were removed just beyond those sample locations (see **Figure 2** for excavation boundaries).

1.4 Excavation Activities- (March 31, 2003)

On 31 March 2003, CH2M-Jones, LLC excavated contaminated soils at Site NS 4 (**Appendix A**). The total amount of contaminated soils removed was 77.95 tons. Soils were excavated with a

trackhoe and direct loaded into haul trucks and sent to a certified subtitle D landfill (see **Appendix B** for manifests). The excavation area was backfilled, compacted and restored to its original conditions.

1.5 Conclusion

On 31 April 2003, the contaminated soils at Site NS 4 were excavated and sent to a certified landfill and the excavation was restored with clean backfill. As stated in the approved CAP, two monitoring wells will be installed as source wells and the existing monitoring wells onsite will be used as up-gradient and down-gradient wells (**Figure 3**). Wells will be sampled for both VOCs and SVOCs. Immediately following the approval of this report and the installation of the new monitoring well, the first round of groundwater sampling will be implemented.

TABLES

Table 2.3
January 30, 2003 Soil Samples

Sample ID	Benzene	Toluene	Ethyl Benxene	Xylene	Naphthalene	Benzo(a) anthracene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenz(ah) anthracene
UN4SB007-01	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL
UN4SB007-02	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL
UN4SB008-01	< RBSL	< RBSL	< RBSL	< RBSL	69.0 ug/kg acenaphthalene	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL
UN4SB008-02	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL
UN4SB009-01	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL
UN4SB009-02	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	92.6 ug/kg	176 ug/kg	< RBSL	105 ug/kg	< RBSL
UN4SB010-01	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL
UN4SB010-02	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL

Table 2.4
February 20, 2003 Soil Samples

Sample ID	Benzene	Toluene	Ethyl Benxene	Xylene	Naphthalene	Benzo(a) anthracene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenz(ah) anthracene
UN4SB011-01	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	82.0 ug/kg	< RBSL	< RBSL	< RBSL
UN4SB012-02	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	< RBSL	77.0 ug/kg	< RBSL	< RBSL	< RBSL

FIGURES

NOTE Original figure created in color

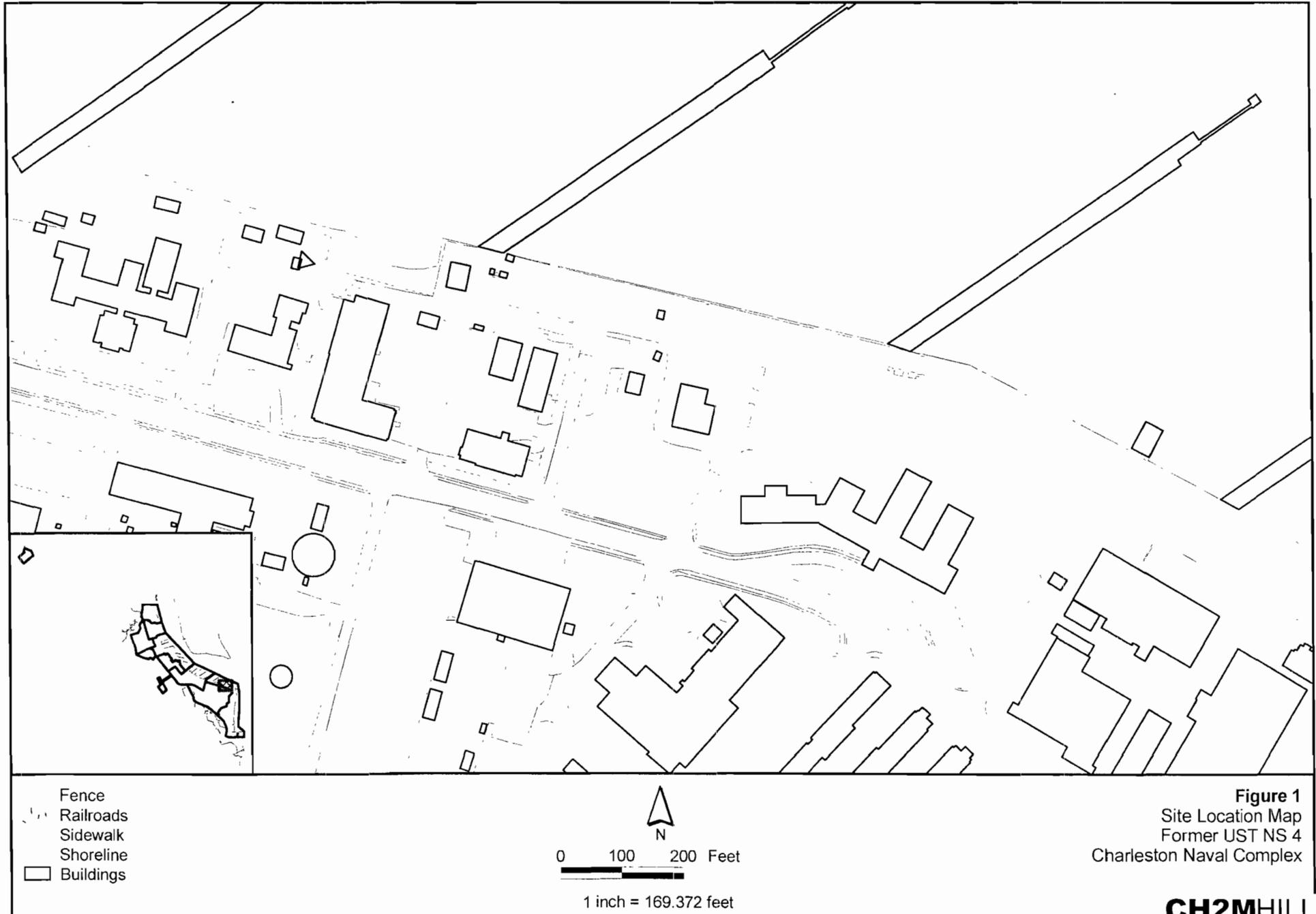
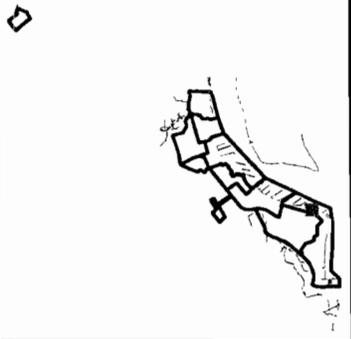
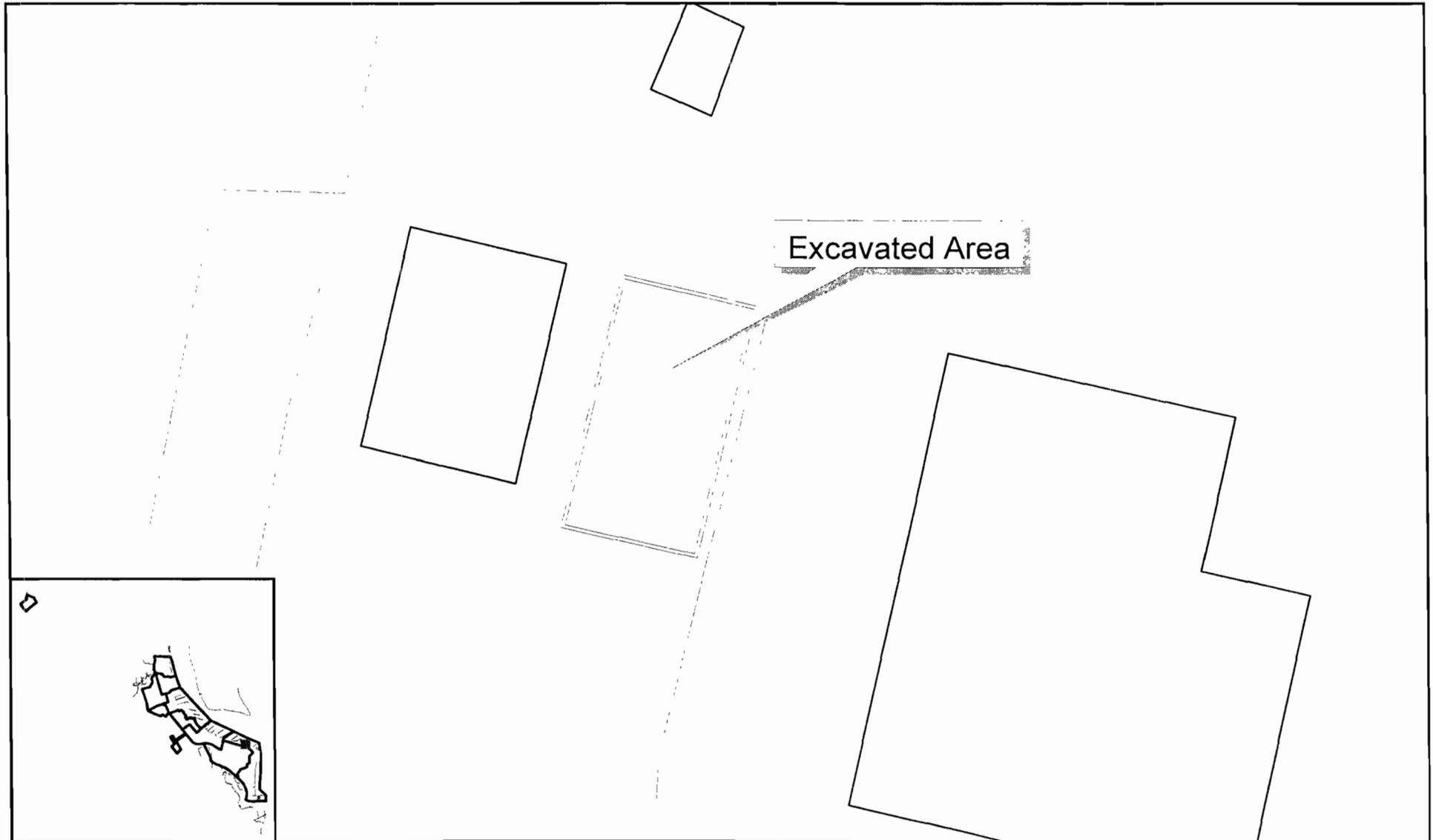


Figure 1
Site Location Map
Former UST NS 4
Charleston Naval Complex

CH2MHILL

NOTE: Original figure created in color



- Fence
- Roads - Lines
- Pavement
- Sidewalk
- Buildings

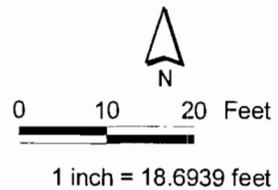
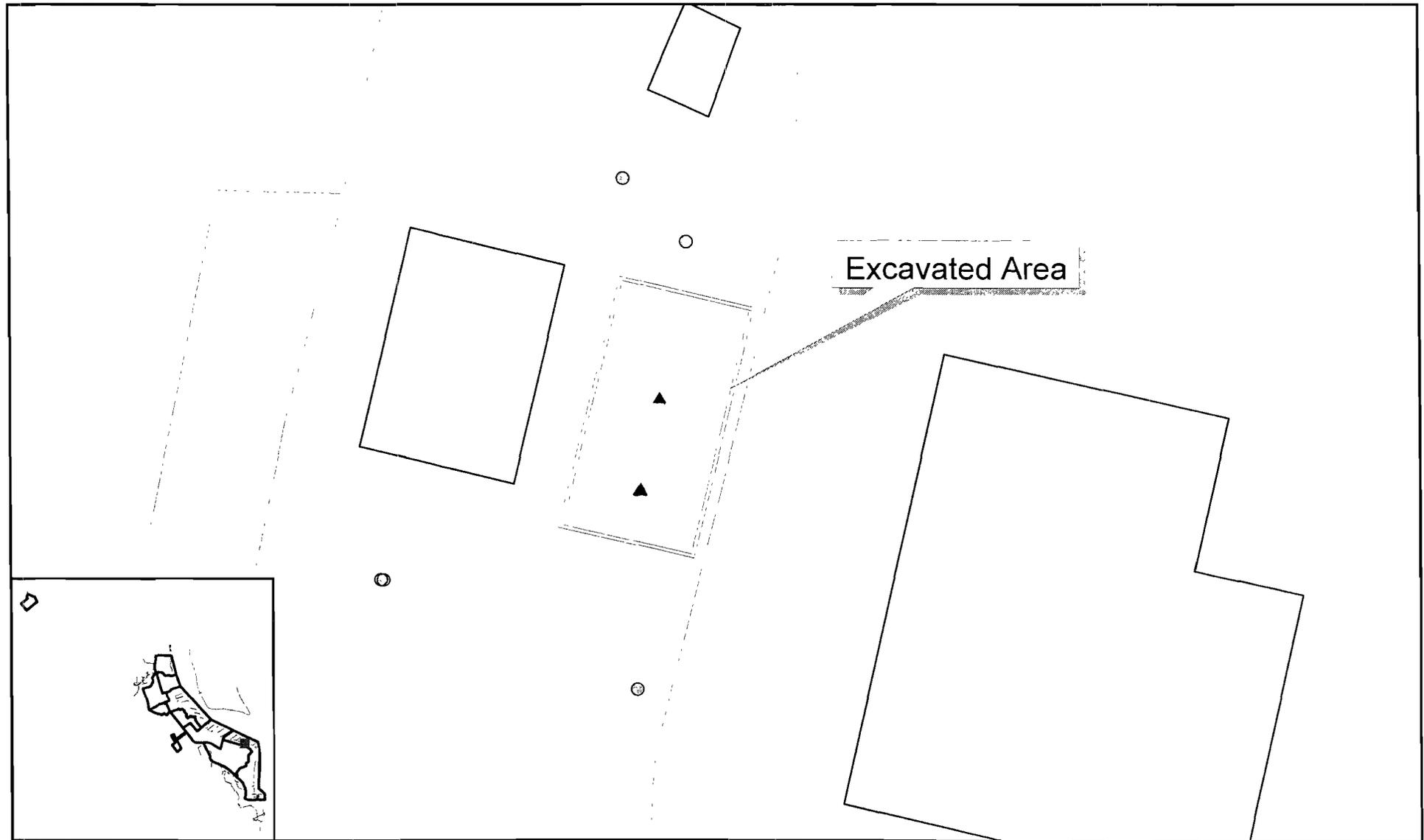


Figure 2
Excavation Area
Former UST NS 4
Charleston Naval Complex

NOTE: Original figure created in color



- ⊗ Abandoned
- Buildings
- Active
- ▲ Proposed
- Fence
- Pavement
- Sidewalk

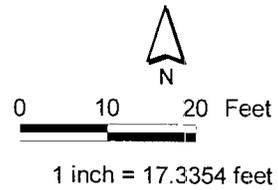
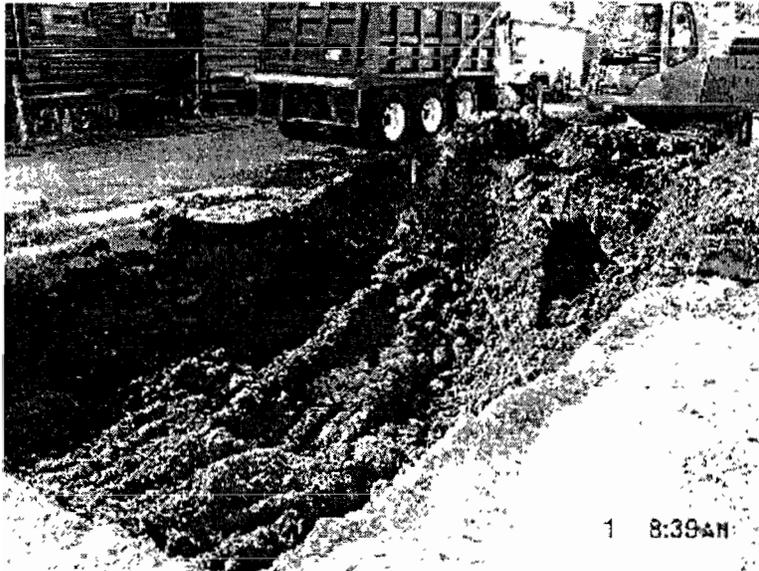


Figure 3
Monitoring Well Locations
Former UST NS 4
Charleston Naval Complex

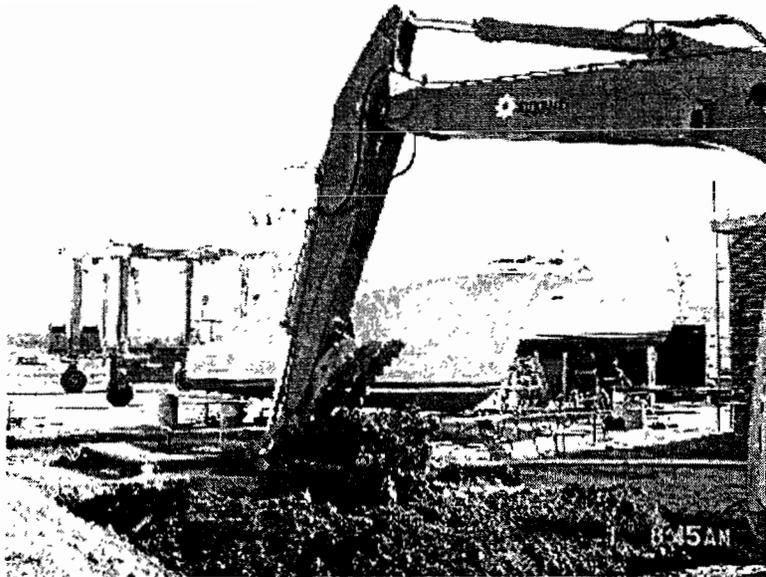
APPENDIX A
EXCAVATION PHOTOS



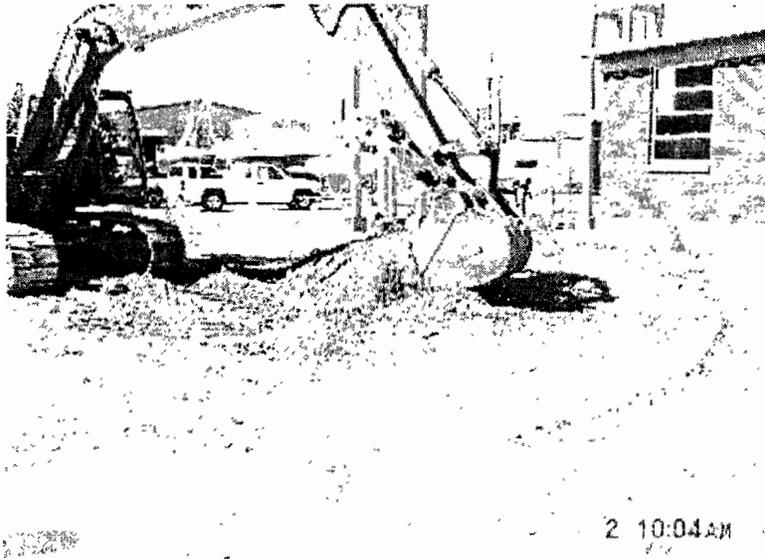
Start of excavation



Loading Trucks



Soil removal



Site restoration

APPENDIX B
MANIFEST

UST-NS4

TM: 1215

4-1-03

OAKRIDGE LANDFILL

A WASTE MANAGEMENT COMPANY

SPECIAL WASTE MANIFEST

APPROVAL # CV 6362

EXPIRATION 03/27/04

Generator: US NAVY

Account Number: 490-439

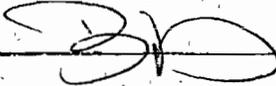
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N CHARLESTON SC (10)

Tele Number: 843-296-8203

Contact: BRIAN CRAWFORD

Generator Signature:

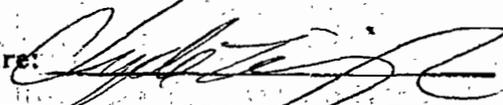


***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLERWARE Truck # 12

Date: 4-1-03

Driver Signature:



***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130

Description of Waste: SOL/SOIL

Ticket Number: 223929

Tonnage: 24.46

Received by: lke

Date: 4/1/03

UST NS4

DATE: 4-1-03
TM: 0900

OAKRIDGE LANDFILL
A WASTE MANAGEMENT COMPANY

SPECIAL WASTE MANIFEST
APPROVAL # CV 6362
EXPIRATION 03/27/04

Generator: US NAVY

Account Number: 490-439

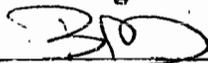
Location / Address : 1849 AVENUE F

N CHARLESTON SC (10)

Tele Number: 843-296-8203

Contact: BRIAN CRAWFORD

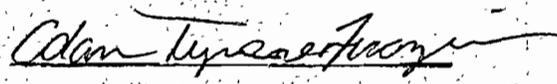
Generator Signature:



***** TO BE COMPLETED BY TRANSPORTER *****

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Date: 4-1-03

Driver Signature: 

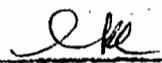
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Disposal Site: Oakridge Landfill DWP 130

Description of Waste: SOL/SOIL

Ticket Number: 223867

Tonnage: 19.00

Received by: 

Date: 4-1-03

UST-NS4

Date: 4-1-03
TM: 0830

OAKRIDGE LANDFILL
A WASTE MANAGEMENT COMPANY

SPECIAL WASTE MANIFEST
APPROVAL # CV 6362
EXPIRATION 03/27/04

Generator: US NAVY

Account Number: 490-439

Location / Address : 1849 AVENUE F

N CHARLESTON SC (10)

Tele Number: 843-296-8203

Contact: BRIAN CRAWFORD

Generator Signature:

[Signature]

***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLERWARE

Truck # 26

Date: 4-1-03

Driver Signature: *[Signature]*

***** TO BE COMPLETED BY OAKRIDGE LANDFILL *****

Disposal Site: Oakridge Landfill DWP 130

Description of Waste: SOL/SOIL

Ticket Number: 223868

Tonnage: 15.17

Received by: *[Signature]*

Date: 4/1/03

UST-NS4

DATE 4-1-03

TM= 0845

OAKRIDGE LANDFILL

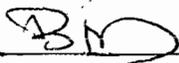
A WASTE MANAGEMENT COMPANY

SPECIAL WASTE MANIFEST
APPROVAL # CV 6362
EXPIRATION 03/27/04

Generator: US NAVY
Account Number: 490-439
Location / Address : 1849 AVENUE F
Tele Number: 843-296-8203

N CHARLESTON SC (10)
Contact: BRIAN CRAWFORD

Generator Signature:

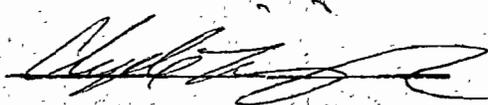


***** TO BE COMPLETED BY TRANSPORTER *****

Transporter of Waste: BUTLERWARE Truck # 12

Date: 4-1-03

Driver Signature:



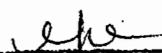
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Disposal Site: Oakridge Landfill DWP 130

Description of Waste: SOL/SOIL

Ticket Number: 223866

Tonnage: 19.32

Received by: 

Date: 4-1-03

APPENDIX B
Monitoring Well Installation Request