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CNC CHARLESTON  
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TRANSMITTAL FOR APPROVAL FOR INTERIM MEASURE WORK PLAN FOR AREA OF  
CONCERN 611 (AOC 611) CNC CHARLESTON SC  
9/22/1997  
NAVFAC SOUTHERN



**DEPARTMENT OF THE NAVY**  
SUPERVISOR OF SHIPBUILDING, CONVERSION AND REPAIR, USN  
PORTSMOUTH, VIRGINIA, DETACHMENT ENVIRONMENTAL CHARLESTON  
1899 NORTH HOBSON AVENUE, BUILDING 30  
NORTH CHARLESTON, SOUTH CAROLINA 29405-2106

IN REPLY REFER TO:

Ser: 908

**SEP 2 1997**

Mr. Johnny Tapia  
South Carolina Department of Health  
and Environmental Control  
Bureau of Solid and Hazardous Waste Management  
2600 Bull Street  
Columbia, SC 29201

Dear Mr. Tapia,

Attached is the revised Interim Measure (IM) Work Plan for Area of Concern (AOC) 611. Please replace any previous AOC 611 Work Plan copies with this revised Work Plan and review for approval.

Resolutions to your 8 July, 1997 comments concerning the AOC 611 IM Work Plan are listed below:

Comment:

1. The objectives section should state that the sampling (confirmatory sampling) will be done for all RCRA metals and SVOCs (BEQs).

Resolution:

1. Section 1 rewritten as follows: "The objective of this Interim Measure (IM) is to remove contaminated soils at Area of Concern (AOC) 611 until a sampling program indicates with reasonable confidence that the concentrations of Resource Conservation and Recovery Act (RCRA) metals and Polynuclear Aromatic Hydrocarbons (PAH) at the site are less than levels specified by the United States Environmental Protection Agency (USEPA) Region III Risk-Based Concentrations (RBC) Tables dated September 23, 1996."

Comment:

2. We had agreed that the cleanup objectives for IMs would be either residential or industrial levels (RBCs) in soil (upper and lower intervals). It is not acceptable to compare inorganic concentrations to background reference concentrations, specially since we have not approved those values for zone F.

Resolution:

2. Since this comment was made, discussions between Tony Hunt of Southern Division Naval Facilities Engineering Command (NAVFAC) and yourself resulted in an agreement to utilize background levels which have subsequently been developed and approved by

SCDHEC. Section 1 has been rewritten as follows: "Professional judgment and knowledge of the soil types in the Charleston area suggest that existing levels of these contaminants of concern are within the realm of natural background conditions and soil removal to residential RBC's may not be obtainable."

Any questions and/or comments concerning these resolutions can be directed to Jed Heames at 743-6777, ext. 123.

Respectfully,



J.N.K. Tunstall

cc: G. Randall Thompson, SCDHEC  
Paul Berstrand, SCDHEC  
Jay Basset, US EPA, Region IV  
Reece Batten, SOUTHNAVFACENGCOM



**INTERIM MEASURE FOR**

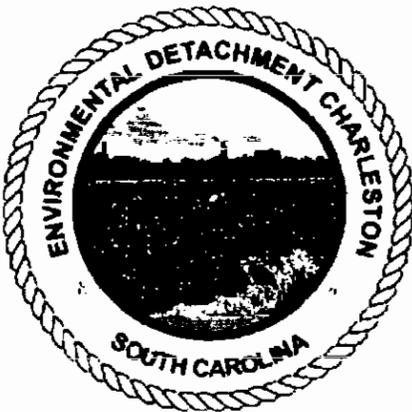
**AOC 611**

**NAVAL BASE CHARLESTON  
CHARLESTON, SC**



Prepared for:

**DEPARTMENT OF THE NAVY  
SOUTHERN DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
CHARLESTON SC**



Prepared by:

**Supervisor of Shipbuilding, Conversion and Repair,  
USN, (SUPSHIP) Portsmouth Va.,  
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1899 North Hobson Ave.  
North Charleston, SC 29405-2106**

September 2, 1997

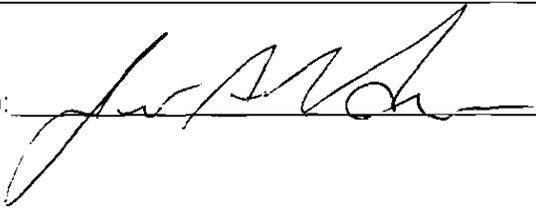
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### APPENDICES

- A. SITE DESCRIPTION/HISTORY
  - B. SITE SPECIFIC SAFETY AND HEALTH PLAN
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PREPARER: Michael P. Wheeler

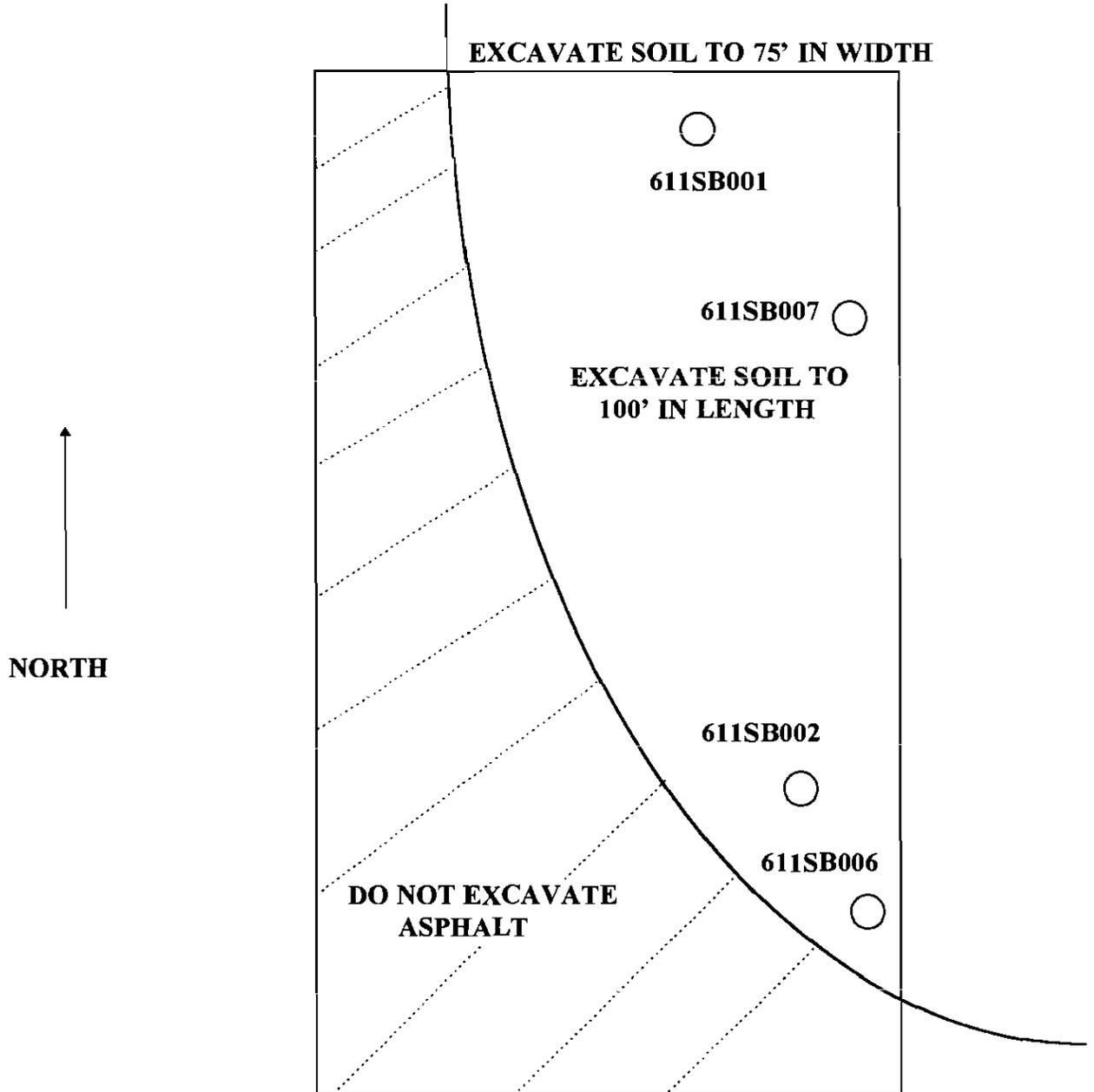
APPROVAL (DETACHMENT): 

**INTERIM MEASURE  
AOC 611**

**SITE MAP**

**BLDG. 1346**

**EXCAVATE SOIL TO AN AREA 75' x 100' BY 1' IN DEPTH**



**INTERIM MEASURE  
AOC 611**

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**1. WORK PLAN OBJECTIVE**

The objective of this Interim Measure (IM) is to remove contaminated soils at Area of Concern (AOC) #611 (refer to site map) until a sampling program indicates with reasonable confidence that the concentrations of Resource Conservation and Recovery Act (RCRA) metals and Polynuclear Aromatic Hydrocarbons (PAH) at the site are less than levels specified by the United States Environmental Protection Agency (USEPA) Region III Risk-Based Concentration (RBC) Tables dated September 23, 1996. Professional judgment and knowledge of the soil types in the Charleston area suggest that existing levels of these contaminants of concern are within the realm of natural background conditions and soil removal to residential RBC's may not be obtainable. This IM may not necessarily be the final remedial action taken at this site. Additional actions may be required as determined by the RCRA Facility Investigation (RFI) process. This IM is consistent with the ultimate cleanup of this site and is not intended to circumvent the public participation process inherent within environmental cleanup under RCRA.

Appendix A contains a detailed description of the site including information on current conditions and past investigations.

Appendix B provides the Site Specific Health and Safety Plan (SSHSP).

**2. WORK PLAN GUIDANCE**

This workplan will utilize and follow the guidance specified in the RFI Comprehensive Workplan dated August 30, 1994.

**3. WASTE MANAGEMENT**

Excavated soils will be characterized in accordance with South Carolina Hazardous Waste Management Regulations (Section SCDHEC R.61-79.261) and disposed of in accordance with all applicable regulations and permits. Soil that is characterized as non-hazardous will be sent to a Subtitle D landfill or approval for

**INTERIM MEASURE  
AOC 611**

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recycling will be obtained from the Waste Assessment Division of SCDHEC. Soil that is characterized as hazardous will be sent to a permitted Treatment Storage Disposal Facility (TSDF).

**4. WORK PLAN IMPLEMENTATION**

Excavation of the site will begin in the area identified on the site map. The extent of contaminated soil was determined to be an area approximately 75' x 100' and 1' in depth. Excavation will consist of removing the contaminated soil. Confirmatory (grab) samples will be collected from the bottom and sides of the excavated area. The confirmatory samples will be utilized in the RFI process. After acceptable cleanup levels are reached, the area will be back filled with clean fill dirt and graded to meet the surrounding area.

**5. SAMPLING**

Confirmatory sampling at the site to validate the goals of paragraph 1 will consist of an adequate number of samples conducted at Data Quality Level III and IV to demonstrate the site is clean. Analysis will be conducted for the contaminants of concern identified in paragraph 1 to confirm the site meets acceptable cleanup levels.

**6. FINAL REPORT**

A final report will be submitted within 90 days after Southern Division Naval Facilities Engineering Command agrees the IM at the AOC is complete (Review of Data and Site Walk-through). This report will summarize actions taken and report the following as required: Excavated volumes, nature of wastes generated, waste disposal, sampling evolutions, sample results, site photographs, problems encountered, and any other information that could be helpful in future remediation or reuse of the site.

**APPENDIX A**

**SITE DESCRIPTION/HISTORY**

## 1. SITE DESCRIPTION:

AOC 611 consists of the former Building 1264, which was used as an automotive hobby shop housing a grease rack. During the late 1950s and early 1960s, Building 1264 was a small, garage-sized structure used for vehicle maintenance. It was located near the parking lot bordered by Ninth Street and Enterprise Avenue. Since operations at this unit were discontinued at such an early time, little information could be located concerning the operations or processes performed in the hobby shop. Below is a table of compounds that exceed preliminary remediation goals (PRGs) for soil contaminants. All results are documented in parts per million.

COMPOUND	SAMPLE #	RESULT
ARSENIC	611SB002-01	145
ARSENIC	611SB002-02	34.7
ARSENIC	611SB005-01	7.2
ARSENIC	611SB006-01	11.5
ARSENIC	611SB007-01	11.9
BERYLLIUM	611SB005-01	0.39
BERYLLIUM	611SB006-01	0.37
BERYLLIUM	611SB007-01	0.37
CADMIUM	611SB002-01	4.9
COPPER	611SB002-01	746
COPPER	611SB002-02	156
LEAD	611SB002-01	400
LEAD	611SB002-02	70.8
LEAD	611SB007-01	567
MERCURY	611BS001-01	2.3
MERCURY	611SB002-01	16.7
MERCURY	611SB002-02	6.7
THALLIUM	611SB006-02	0.87
THALLIUM	611SB007-02	0.78
BENZO(A)PYRENE	611SB002-01	0.110
BENZO(A)PYRENE EQUIVALENTS	611SB002-01	0.191
BENZO(A)PYRENE EQUIVALENTS	611SB006-01	4.3176
BENZO(A)PYRENE EQUIVALENTS	611SB007-01	0.095
pH	611SB001-02	4.8
pH	611SB003-02	5.01
pH	611SB004-01	5.39
pH	611SB004-02	4.47
METHYLNAPHTHALENE	611SB005-02	12
BENZO(A)ANTHRACENE	611SB006-01	1.9
BENZO(PYRENE	611SB006-01	3
BENZO(B)FLUORANTHENE	611SB006-01	3.5
DIBENZ(A,H)ANTHRACENE	611SB006-01	0.190
DIBENZOFURAN	611SB005-02	0.074
INDENO(1,2,3-CD)PYRENE	611SB006-01	1.4
ALUMINUM	611SB005-01	14,3000
ALUMINUM	611SB007-01	10,500

## **2. CURRENT CONDITIONS:**

AOC 611 is an unpaved area on the Southwest corner of Building 1264. No visible evidence of the former building remains. The preliminary review found no spill reports, inspection reports, employee interviews, or visual observations which would indicate any release at this unit. However, general practices during the operating period for this facility were not as stringent as modern standards. Therefore, a release from this type of facility would not be uncommon. The area is currently partially asphalt paved and partially covered with grass. No evidence of strained vegetation exists. Students from the Academic Magnet High School transverse AOC 611 daily on the way to and from the school's cafeteria.

**ENSAFE/ALLEN & HOSHALL FINAL RCRA  
FACILITY INVESTIGATION WORK PLAN,  
ZONE D, F, & G DATED JUNE 16, 1996,  
SECTION 2.7**

## 2.7 AOC 611, Grease Rack and Hobby Shop, Building 1264

AOC 611 is the former Building 1264, which was used as an automotive hobby shop. Based on a review of historical NAVBASE maps, the location of AOC 611 was changed from the description in the RFA. The CSI proposed for AOC 611 will investigate soil and groundwater for potential releases (E/A&H, 1995b). Table 2-13 describes this AOC.

**Table 2-13  
 AOC 611  
 Site Description**

Number	Description	Materials Released, Stored, or Disposed	Potential Pathways <sup>a</sup>
AOC 611 Grease Rack and Hobby Shop, Building 1264	This site is the former Building 1264, used as an automotive hobby shop from the late 1950s to the early 1960s. No visible evidence of the former building remains. The area is currently partially asphalt paved and grass covered. <sup>a</sup>	Petroleum Products, Antifreeze, Isopropyl Alcohol, Solvents, Degreasers, Enamel Paint, Thinner, Battery Acid, Lead	<b>Soil</b> <b>Soil Gas</b> <b>Groundwater</b> <b>Air</b> <b>Surface Water</b>

**Notes:**

- a = Described in the *Final RCRA Facility Assessment, Volume II*, June 6, 1995.
- b = Pathways scheduled for sampling are bold.

### 2.7.1 Previous Investigations

This site has not been previously investigated.

### 2.7.2 Treatment Alternatives

Because there are no environmental media data, treatment alternatives for this site cannot be evaluated.

### 2.7.3 Data Gaps

Currently no environmental media data have been collected at AOC 611 to characterize the site or to support a detailed evaluation of treatment alternatives, if necessary. To ensure data

collection efforts are sufficient to meet the stated investigation objectives, the following data gaps have been identified and will be resolved:

- There are no data to establish whether COPCs are present for any of the potential migration pathways.
- No data exist to support a detailed evaluation of treatment alternatives, if necessary.

#### 2.7.4 Potential Receptors

Potential receptors who may be exposed to site contaminants include current land users, such as NAVBASE personnel, and any future users this area may support. Data will be generated during the investigation to assess the level of risk to the entire spectrum of current and potential future receptors, including any highly sensitive individuals, who might be exposed through invasive or noninvasive activities. An exposure potential exists for users of the area and workers involved with any invasive activity bringing them in direct contact with subsurface contaminants. Considering the shallow depth to groundwater, generally less than 4 feet bgs, site workers could also be subject to accidental ingestion or dermal exposure to contaminated groundwater. The human health risk assessment will follow the methods described in Volume III of the *Final Comprehensive RFI Work Plan*. **Based on the lack of significant habitat adjacent to AOC 611 and no pathways identified for transfer of contaminants offsite, no ecological receptors will be affected.** Sampling will characterize the potential soil and groundwater pathways highlighted in Table 2-13.

#### 2.7.5 Objective

The goal of the CSI is to classify the site as NFI or RFI by using DQO Level III or IV data to determine whether COPCs are present. If an RFI is required, the objective of field investigations shall be to fill the identified data gaps by delineating the horizontal and vertical extent of any soil and/or groundwater contamination as well as the rate of contaminant migration

at the site. Data collection efforts will also support the technical evaluation of identified remedial options.

#### **2.7.6 Screening Alternatives**

No sampling has been conducted to identify COPCs; therefore, selecting a screening alternative would be premature. However, should the analytical results of the proposed high-quality samples identify contamination that has not been adequately defined by the initial sampling, the feasibility of employing cost effective screening methods will be reevaluated. Should screening methods be employed, additional high quality samples will be collected and analyzed to confirm the screening results and to define the nature and extent of contamination detected. All soil boring samples will be screened for VOCs with a PID. All screening results will be recorded in field notebooks and on boring logs.

#### **2.7.7 Sampling and Analysis Plan**

To fulfill the CSI objectives, the following site-specific sampling and analysis requirements have been proposed. Table 2-14 summarizes the types of samples to be collected and the analytical parameters. For purposes of sample location, the boundaries of AOC 611 have been outlined based upon a review of NAVBASE historical figures and maps.

Four soil borings are proposed to identify any contamination due to a release from AOC 611. Samples will be collected at two depth intervals for each soil boring, surface (0 to 1 foot) and subsurface (3 to 5 feet). If saturated soil is encountered above 5 feet bgs, the lower sample interval will be adjusted to avoid sampling the saturated soil.

Groundwater will be addressed by using the analytical data from four of the shallow monitoring wells (CNB-1346-MW-7, CNB-1346-MW-3, CNB-1346-MW-4, CNB-1346-MW-5) and one deep monitoring well (CNB-1346-MW-6) sampled during the AR investigation at AOC 609. Grid wells will be used to provide additional support to the groundwater investigation, if

required. Data from these wells will be reviewed to assess whether additional wells are needed to define the horizontal and vertical extent of groundwater contamination.

Each proposed sampling location is illustrated on Figure 2-8. All sampling procedures will adhere to the NAVBASE *Final Comprehensive RFI Work Plan*.

Table 2-14  
 AOC 611  
 Sampling Plan

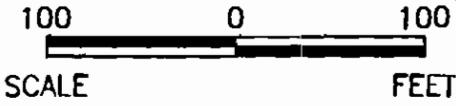
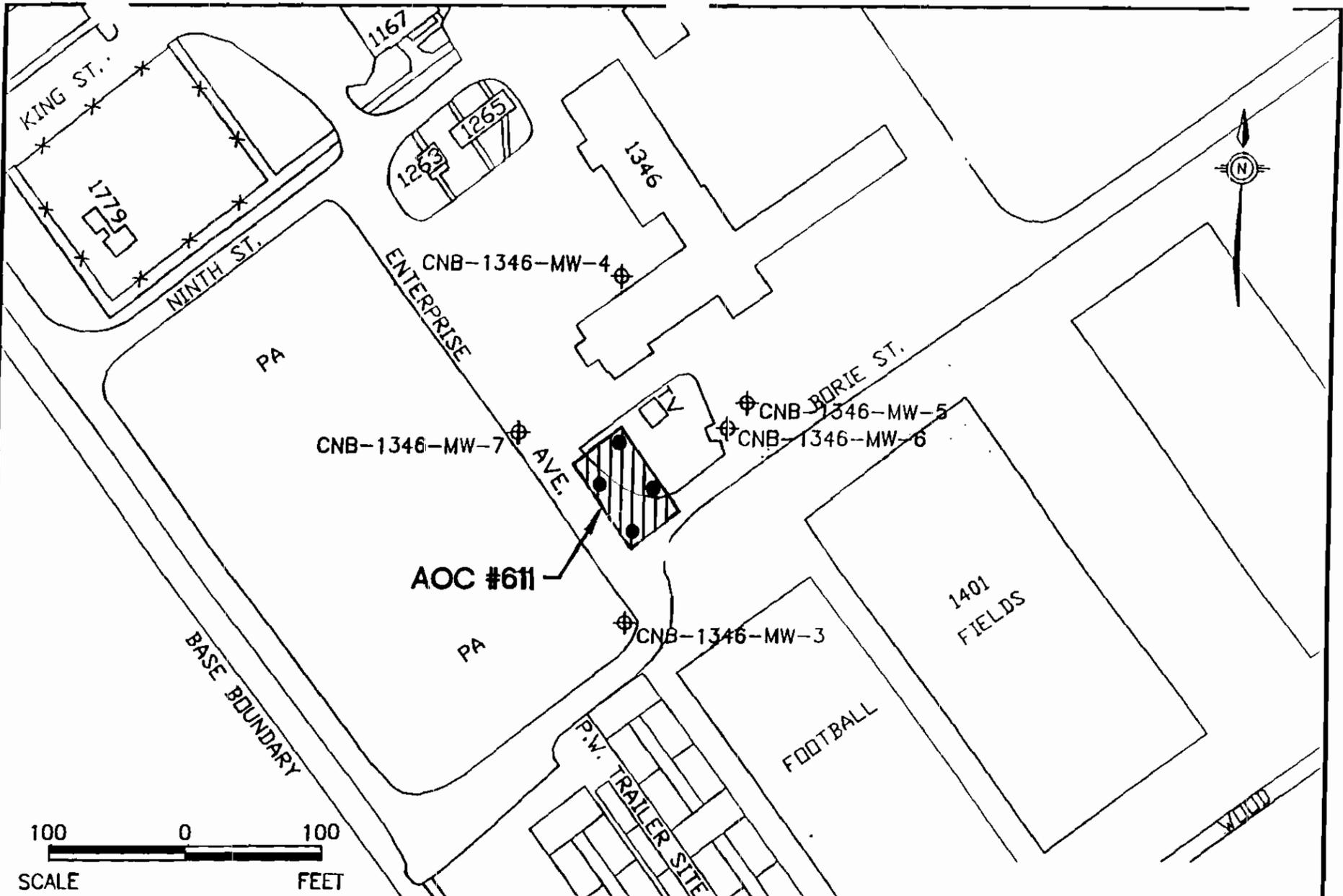
Matrix	Quantity	Analysis
Soil (0-1' bgs)	4	VOCs, SVOCs, Metals, pH
Soil (3-5' bgs)	4	
Sediment	None	
Groundwater (Shallow well)	None	
(Deep well)	None	

**Engineering Parameters:**

Selected soil samples will be tested for permeability, grain size, porosity, TOC, and CEC.

**Notes:**

- The quantities presented are estimated numbers of samples believed to be needed to fulfill the objectives of the investigation. Expansion may be necessary to meet the stated objectives.
- All analyses will be performed per SW-846 except where other methods are specified. DQO Level III analyses will be performed as specified in *Final Comprehensive RFI Work Plan*, with a minimum of 10% duplicates analyzed for all Appendix IX constituents at DQO Level IV. The sample quantities presented do not include QA/QC samples.
- Analytical data from the existing monitoring wells will be used to assess the sites' impact on groundwater.



- LEGEND**
- - SOIL BORING
  - ⊕ - EXISTING MONITORING WELL LOCATION



ZONES D, F, AND G  
FINAL RCRA FACILITY  
INVESTIGATION WORK PLAN  
NAVAL BASE, CHARLESTON  
CHARLESTON, S.C.

**FIGURE 2-8**  
PROPOSED SAMPLING LOCATIONS  
AOC #611  
GREASE RACK AND HOBBY SHOP  
BUILDING 1264

ENSAFE/ALLEN & HOSHALL FINAL RCRA  
FACILITY ASSESSMENT, DATED JUNE 6, 1995  
SECTION 5.90

## **5.90 AOC #611 — Grease Rack and Hobby Shop, Building 1264**

### **5.90.1 Unit Characteristics**

AOC #611 consists of former Building 1264. During the late 1950s and early 1960s, Building 1264 was a small, garage-sized structure used for vehicle maintenance. It was located near the parking lot bordered by Ninth Street and Enterprise Avenue. No visible evidence of the building remains, and the area is paved with asphalt. Since operations at this unit were discontinued at such an early time, little information could be located concerning the operations or processes performed in the hobby shop. AOC #611 is located at map coordinates E-34 on Figure 5-C. The AOC location is shown in Figure 5-90.

### **5.90.2 Waste Characteristics**

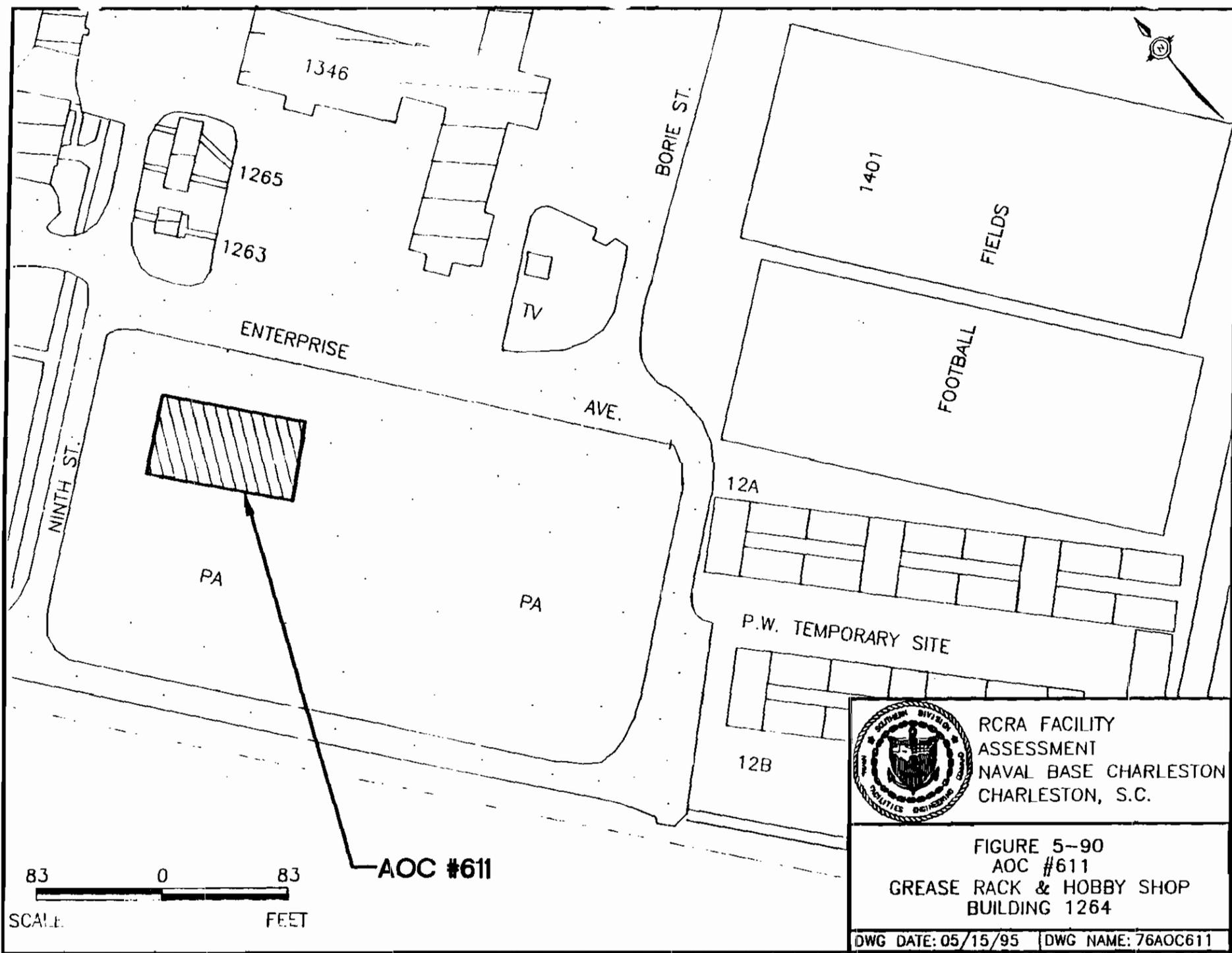
No information regarding the types of materials used was found during this assessment. Similar facilities on Naval Base Charleston have used petroleum products, anti-freeze, isopropyl alcohol, solvents, degreasers, enamel paint, thinner, and battery acid. The constituents of concern include petroleum hydrocarbons, BTEX, PAHs, VOCs, heavy metals (lead), and acids.

### **5.90.3 Migration Pathways**

Soil, groundwater, air, and subsurface gas are potential migration pathways for the constituents of concern. The potential for migration via surface water runoff has been minimized because the area is paved with asphalt.

### **5.90.4 Evidence of Release**

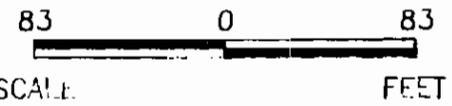
The preliminary review found no spill reports, inspection reports, employee interviews, or visual observations which would indicate any release at this unit. However, general practices during the operating period for this facility were not as stringent as modern standards. Therefore, a release from this type of facility would not be uncommon.



RCRA FACILITY  
ASSESSMENT  
NAVAL BASE CHARLESTON  
CHARLESTON, S.C.

FIGURE 5-90  
AOC #611  
GREASE RACK & HOBBY SHOP  
BUILDING 1264

DWG DATE: 05/15/95 | DWG NAME: 76AOC611



SCALE FEET

AOC #611

**5.90.5 Exposure Potential**

There are no residential areas or sensitive environments in the vicinity of this AOC. The potential for exposure is limited to Naval Base Charleston personnel who frequent the area and future users of the site.

**5.90.6 Recommended Action**

A CSI is recommended for this AOC due to the nature of operations performed at the facility, the hazards associated with the constituents of concern, and the potential migration pathways associated with this unit.

## **APPENDIX B**

# **SITE SPECIFIC SAFETY AND HEALTH PLAN**

**INTERIM/STABILIZATION MEASURE  
AOC 611**

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**APPENDIX B  
ENVIRONMENTAL DETACHMENT CHARLESTON  
SITE SPECIFIC HEALTH AND SAFETY PLAN**

**1. PURPOSE**

This plan provides supplemental site specific information and is to be used in conjunction with the Detachment's Comprehensive Health and Safety Plan.

**2. WORK LOCATION**

AOC 611 is located outside the Southwest corner of Building 1346 of Charleston Naval Base.

**3. WORK SCOPE BRIEF (refer to the work document for full details)**

The work scope consists of excavation of the contaminated soil.

**4. HAZARDS**

Health Hazards

Health hazards are Total Metals and Benzo(a)Pyrene in the soil.

Safety Hazards

Safety hazards of concern include personnel injury hazards from heavy equipment operation and shock hazards of above and/or below ground electrical wiring. Excavation deeper than 5 feet require that the precautions in the trenching and excavation standard of 29 CFR 1926.650/651 be observed.

**INTERIM/STABILIZATION MEASURE  
AOC 611**

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**5. PERSONAL PROTECTIVE EQUIPMENT**

Soil Sampling

Soil sampling will require the use of “Level D, modified” as specified in the Detachment’s Comprehensive Health and Safety Plan.

Dust Producing Operations

Dust producing operations e.g. soil removal requires protective coveralls (e.g. tyvek or cloth) including head covers, booties, and gloves. Respiratory protection requires 3M 6000 or equivalent with High Efficiency Particulate Air (HEPA) filters during the actual dust producing work until Industrial Hygiene (IH) monitoring indicates respiratory protection is unnecessary. Contact the Detachment Safety Branch or Naval Hospital in advance to schedule monitoring to avoid delay.

Change Area

If protective clothing and equipment is not removed at the worksite for cleaning or disposal, provide a clean change area with separate lockers for protective clothing and street clothing to prevent cross contamination. Employees may not leave the workplace with protective clothing or equipment that was worn during the work shift. Employees must wash their hands and face at the end of the work shift.

**6. TRAINING QUALIFICATIONS**

Personnel shall have read or been briefed on former Charleston Naval Shipyard (CNSY) Hazardous Material Training Modules #002 (Particulates) and #008 (Metals). Personnel must be trained on lead using the Detachment’s Lead Course (formally CNSY course YE 3220), and be respirator qualified. Training required by OSHA 29 CFR 1926.650/651 is needed if excavations are deeper than 5 feet. Personnel must be briefed on this Appendix, in particular the health effects.

**INTERIM/STABILIZATION MEASURE  
AOC 611**

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**7. OCCUPATIONAL SAFETY AND HEALTH PRECAUTIONS**

Prior to the start of work, the area must be checked for the presence of above or below ground power, gas, or water lines and marked and secured by lockout/tagout if they will be endangered.

If the excavation is deeper than 5 feet, comply with the requirements of OSHA 29 CFR 1926.650/651 for trenching and excavation.

A good work practice is for workers to stay upwind of any dust produced during soil excavation.

Truck drivers should exit trucks during loading.

**8. MATERIAL SAFETY DATA SHEETS (MSDS)**

Included in the official folder will be MSDSs for Total Metals and a Public Health Statement for Benzo(a)Pyrene.

**9. MEDICAL SURVEILLANCE**

Naval Hospital Medical Surveillance Program For Hazardous Waste Worker (B27/711) and for respirator wearers (A10/716) is required.