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TECHNICAL MEMORANDUM REGARDING SAMPLING AND ANALYSIS PLAN FOR OIL
WATER SEPARATORS AREA OF CONCERN 711 THROUGH 720 CNC CHARLESTON SC

4/30/2002
CH2M HILL

POCs 711 → 720

SAMPLING and ANALYSIS PLAN for OIL/WATER SEPARATORS

Sampling and Analysis Plan for Oil/Water Separator AOCs 711 through 720, Charleston Naval Complex

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This technical memorandum (TM) contains instructions for collecting samples in and around oil/water separators (OWSs) at Areas of Concern (AOCs) 711 through 720 in the Charleston Naval Complex. It is a supplement to the *Sampling and Analysis Plan for AOC 713, Zone F and AOC 720, Zone G Oil/Water Separators*, prepared in March 2002.

The OWS AOCs are defined in the *RCRA Facility Assessment (RFA), Charleston Naval Complex* (Department of the Navy, Southern Division, February 2001). Insufficient data exist in the AOC areas to complete an evaluation of the environmental media surrounding the OWSs. In accordance with the recommendations proposed in the RFA, this Sampling and Analysis Plan (SAP) is prepared to conduct Confirmatory Sampling Investigations (CSIs), which will be used to evaluate the presence or absence of contamination from potential releases from the OWSs. This TM presents additional samples for AOC 713, as suggested by Jerry Stamps of the South Carolina Department of Health and Environmental Control (SCDHEC), and lists samples proposed for AOCs 711, 712, 714, 715, 716, 717, and 718. The CSI data evaluation will also include data from samples that were previously collected for the RCRA Facility Investigations (RFIs) in the OWS areas.

Sampling and Analysis Methodology

The sampling and analysis methodology will follow the established RFI SAP for this project, as well as the SAP for AOCs 713 and 720. The following types of samples will be collected:

Subsurface Soil Samples

Subsurface soil samples will be collected at 3 to 5 feet below land surface (ft bls), above the groundwater table. The OWS systems investigated in these AOCs are below grade; the surface soil would not be impacted by potential releases from the units. Subsurface soil will be analyzed for metals, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and polychlorinated biphenyls (PCBs)/pesticides. Boreholes will be properly plugged after collecting soil samples (and groundwater samples, if needed).

Groundwater Grab Samples

Groundwater grab samples will be collected from selected soil boreholes, extending deeper than the soil sampling interval if needed. Groundwater will be analyzed for VOCs, SVOCs, and PCBs/pesticides. Metals will not be analyzed from these unscreened and unfiltered samples.

Water Samples within the OWSs

Water from within the OWSs will be sampled if present. For the OWSs that have partition walls (i.e., AOCs 711 and 716), samples will be composited from each section of the OWS. The water will be analyzed for metals, VOCs, SVOCs, and PCBs/pesticides.

Sludge/Sediment Samples

Sludge/sediment within the OWSs may be sampled if present at sufficient volume. For the OWSs that have partition walls, samples may be composited from each section of the OWS. Sediment will be analyzed for metals, VOCs, SVOCs, and PCBs/pesticides.

No personnel will enter any OWS or other confined space. During the sampling effort, field crews will take measurements of piping visible within the OWS units.

The proposed sampling for each AOC is described in the following paragraphs. Figures 1 and 2 show the AOC locations within CNC.

AOC 711 - Oil/Water Separator at Facility NS200, Zone I

This OWS was investigated as part of the Zone L Sanitary Sewer RFI, as shown in Figure 8. The unit was taken out of service in or before 1996, and RFI samples were collected in 1997. Zone L soil and groundwater samples have been collected in close proximity to the unit. The cover of the OWS is not sealed against surface water intrusion. Additional sampling includes collecting water and sludge samples from within the unit.

AOC 712 - Oil/Water Separator and Waste Oil UST at Facility 240, Zone F

This OWS and former underground storage tank (UST) are located within the AOC 613/AOC 615/SWMU 175 investigated area. As shown in Figure 3, the area around the building and the removed UST was sampled in 1996 and 1997 as part of the Zone F RFI. A groundwater monitoring well adjacent to the OWS was also sampled in 1996 and 1997 for the Zone F RFI. The area around the UST was also investigated as part of the UST program, and approved for No Further Action (UST program samples are not shown on Figure 3). The Commissioner of Public Works (CPW) uses the OWS and it is reportedly cleaned monthly.

Additional sampling at AOC 712 includes collecting three subsurface soil samples around the OWS, and collecting water and sludge samples from within the unit. The CPW will be notified of any hazardous constituents detected within the OWS.

AOC 713 - Oil/Water Separator at Building 241, Zone F

This OWS is described in the *Sampling and Analysis Plan for AOC 713, Zone F and AOC 720, Zone G Oil/Water Separator*. In addition to the three subsurface soil and groundwater

removed or taken out of service on or before 1991. The associated waste oil UST was removed in 1997; SCDHEC approved an NFA ruling for the UST. Zone I RFI samples were collected in 1998 in the general area of the OWS. Additional sampling includes collecting two subsurface soil samples surrounding the approximate location of the OWS; its exact location is not known.

AOC 720 - Oil/Water Separator near Former Building X12, Zone G

This OWS is described in the *Sampling and Analysis Plan for AOC 713, Zone F and AOC 720, Zone G Oil/Water Separator*. The SAP describes three subsurface soil and groundwater samples to be collected around the unit. The OWS is not accessible, so no additional samples (water or sludge) will be collected at AOC 720.

Tables 1 and 2 present a summary of the samples to be collected at AOCs 711 through 720.

TABLE 1
 Analytical Summary for CSI Sampling – Oil/Water Separators
 Sampling and Analysis Plan, AOCs 711 through 720, Charleston Naval Complex

Medium	Number of Sample Points	Analytes
AOC 713		
158814.ZF.PR.10		
Subsurface Soils	3 at depth interval 3-5 ft bls	Metals, VOCs, SVOCs, PCBs/pesticides
Groundwater	3 (from soil borehole)	VOCs, SVOCs, PCBs/pesticides
Water	1 inside OWS	Metals, VOCs, SVOCs, PCBs/pesticides
Sludge	1 inside OWS	Metals, VOCs, SVOCs, PCBs/pesticides
AOC 720		
158814.ZG.PR.16		
Subsurface Soils	3 at depth interval 3-5 ft bls	Metals, VOCs, SVOCs, PCBs/pesticides
Groundwater	3 (from soil borehole)	VOCs, SVOCs, PCBs/pesticides
AOC 711		
158814.ZI.PR.13		
See Note 2		
Water	1 inside OWS (composite of both sides of unit)	Metals, VOCs, SVOCs, PCBs/pesticides
Sludge	1 inside OWS (composite of both sides of unit)	Metals, VOCs, SVOCs, PCBs/pesticides
AOC 712		
158814.ZF.PR.10		
See Note 3		
Subsurface Soils	3 at depth interval 3-5 ft bls	Metals, VOCs, SVOCs, PCBs/pesticides
Water	1 inside OWS	Metals, VOCs, SVOCs, PCBs/pesticides
Sludge	1 inside OWS	Metals, VOCs, SVOCs, PCBs/pesticides
AOC 714		
158814.ZF.PR.10		
See Note 3		
Subsurface Soils	3 at depth interval 3-5 ft bls	Metals, VOCs, SVOCs, PCBs/pesticides
Water	1 inside OWS	Metals, VOCs, SVOCs, PCBs/pesticides
Sludge	1 inside OWS	Metals, VOCs, SVOCs, PCBs/pesticides
AOC 715		
158814.ZI.PR.13		
See Note 4		
Subsurface Soils	3 at depth interval 3-5 ft bls	Metals, VOCs, SVOCs, PCBs/pesticides
Water	1 inside OWS	Metals, VOCs, SVOCs, PCBs/pesticides
Sludge	1 inside OWS	Metals, VOCs, SVOCs, PCBs/pesticides
AOC 716		
158814.ZE.PR.28		
Water	1 inside OWS (composite of both sides of unit)	Metals, VOCs, SVOCs, PCBs/pesticides
Sludge	1 inside OWS (composite of both sides of unit)	Metals, VOCs, SVOCs, PCBs/pesticides

TABLE 1
 Analytical Summary for CSI Sampling – Oil Water Separators
 AOCs 711 through 720, Charleston Naval Complex

Medium	Number of Sample Points	Analytes
AOC 717	158814.ZF.PR.10	See Note 3
Subsurface Soils	3 at depth interval 3-5 ft bls	Metals, VOCs, SVOCs, PCBs/pesticides
Groundwater	1 (from soil borehole)	VOCs, SVOCs, PCBs/pesticides
Water	1 inside OWS	Metals, VOCs, SVOCs, PCBs/pesticides
Sludge	1 inside OWS	Metals, VOCs, SVOCs, PCBs/pesticides
AOC 718	158814.ZI.PR.13	See Note 4
Subsurface Soils	2 at depth interval 3-5 ft bls	Metals, VOCs, SVOCs, PCBs/pesticides

Notes:

1. AOC 713 and 720 are described in OWS CSI Sampling and Analysis Plan.
2. AOC 711 is OWS located northeast corner of Bldg NS200 (now called NOAA Bldg 2). Go to front office and notify Amy Whitsett (740-1258) before sampling the unit.
3. AOCs 712, 714, and 717 are at Commission for Public Works (CPW); AOC 712 is at car wash at Bldg. 240; AOC 714 is at Bldg. 242 SW corner; AOC 717 is along Bldg. west side. Notify Frankie (308-8456) for sampling.
4. AOC 715 is assumed at northeast corner of Bldg. 681; small concrete pad with two polyvinyl chloride (PVC) plugs. AOC 718 is on east side of Bldg. Notify Skip Aldrich (554-3762) for sampling.
5. AOC 716 is in front of Bld.g 1024, in Detyens Shipyard.

TABLE 2
 Sample Summary
Sampling and Analysis Plan, AOCs 711 through 720, Charleston Naval Complex

AOC	No. of Subsurface Soil Samples	No. of Groundwater Samples	No. of OWS Water Samples	No. of OWS Sediment Samples (if present)
AOC 711			1	1
AOC 712	3		1	1
AOC 713	3	3	1	1
AOC 714	3		1	1
AOC 715	3		1	1
AOC 716			1	1
AOC 717	3	1	1	1
AOC 718	2			
AOC 720	3	3		
Total	20	7	7	7

NOTE: Original figure created in color

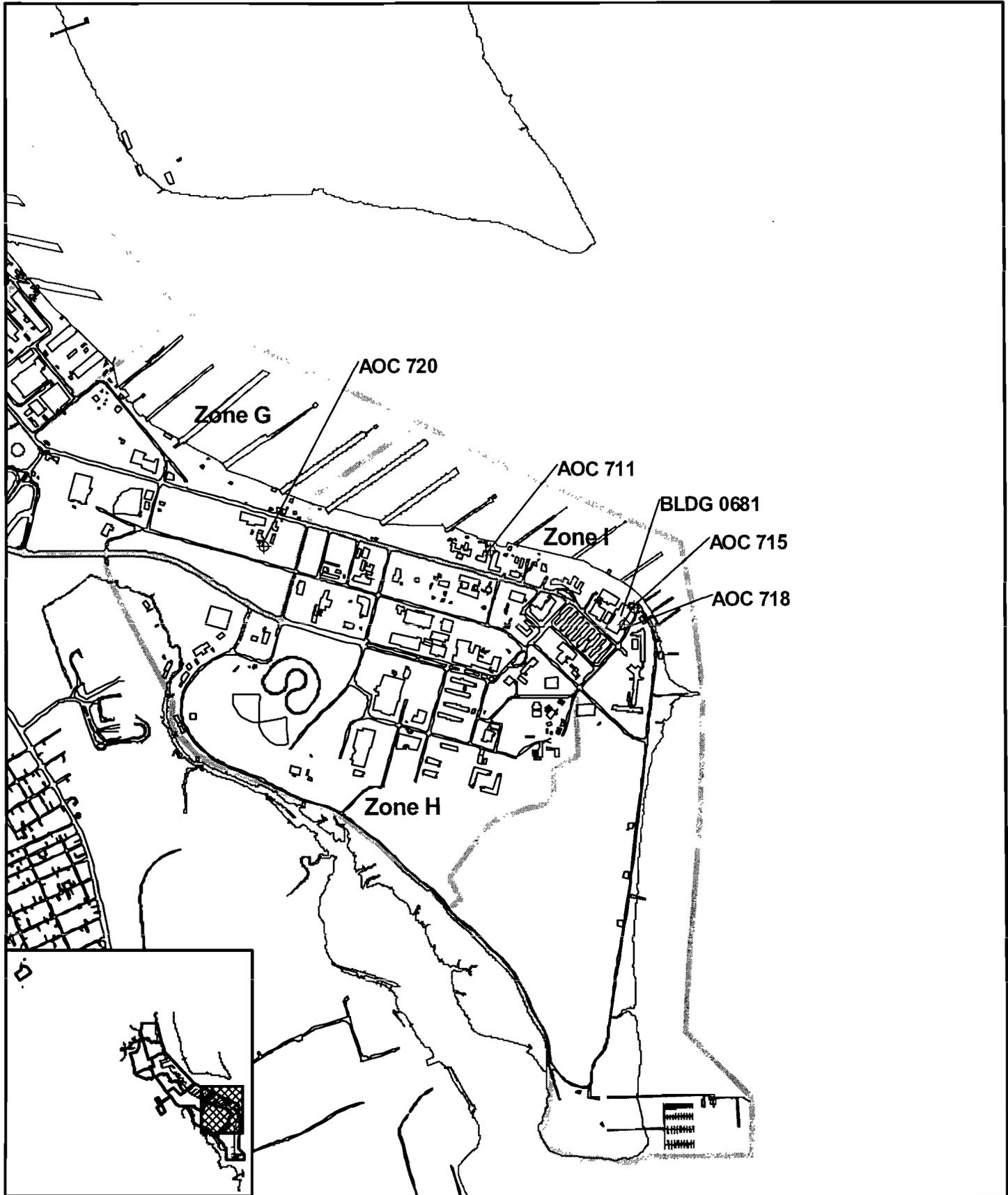


Figure 1
Location of AOCs 711, 715, 718, and 720
Confirmatory Sampling Investigation
Charleston Naval Complex

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NOTE: Original figure created in color

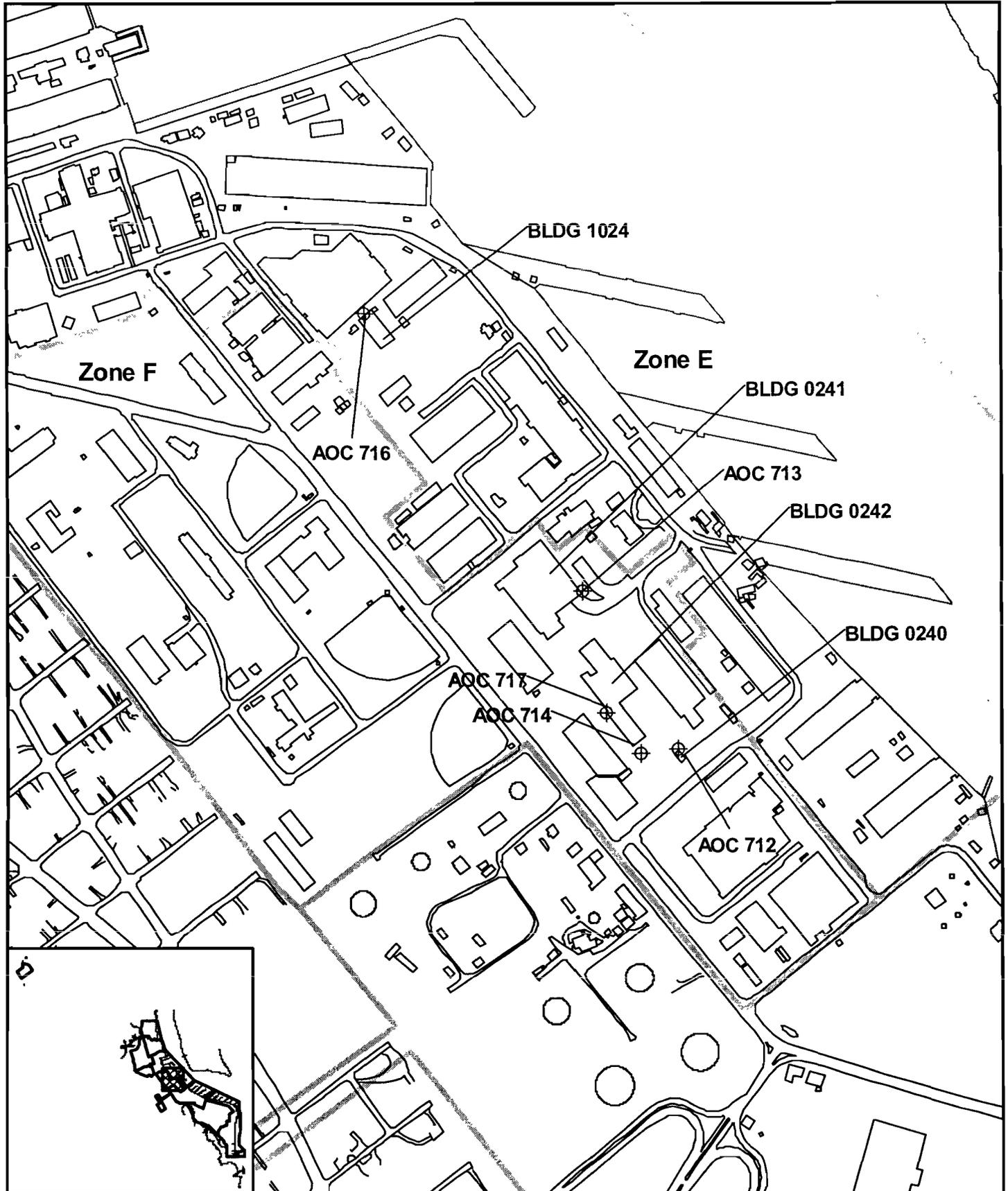
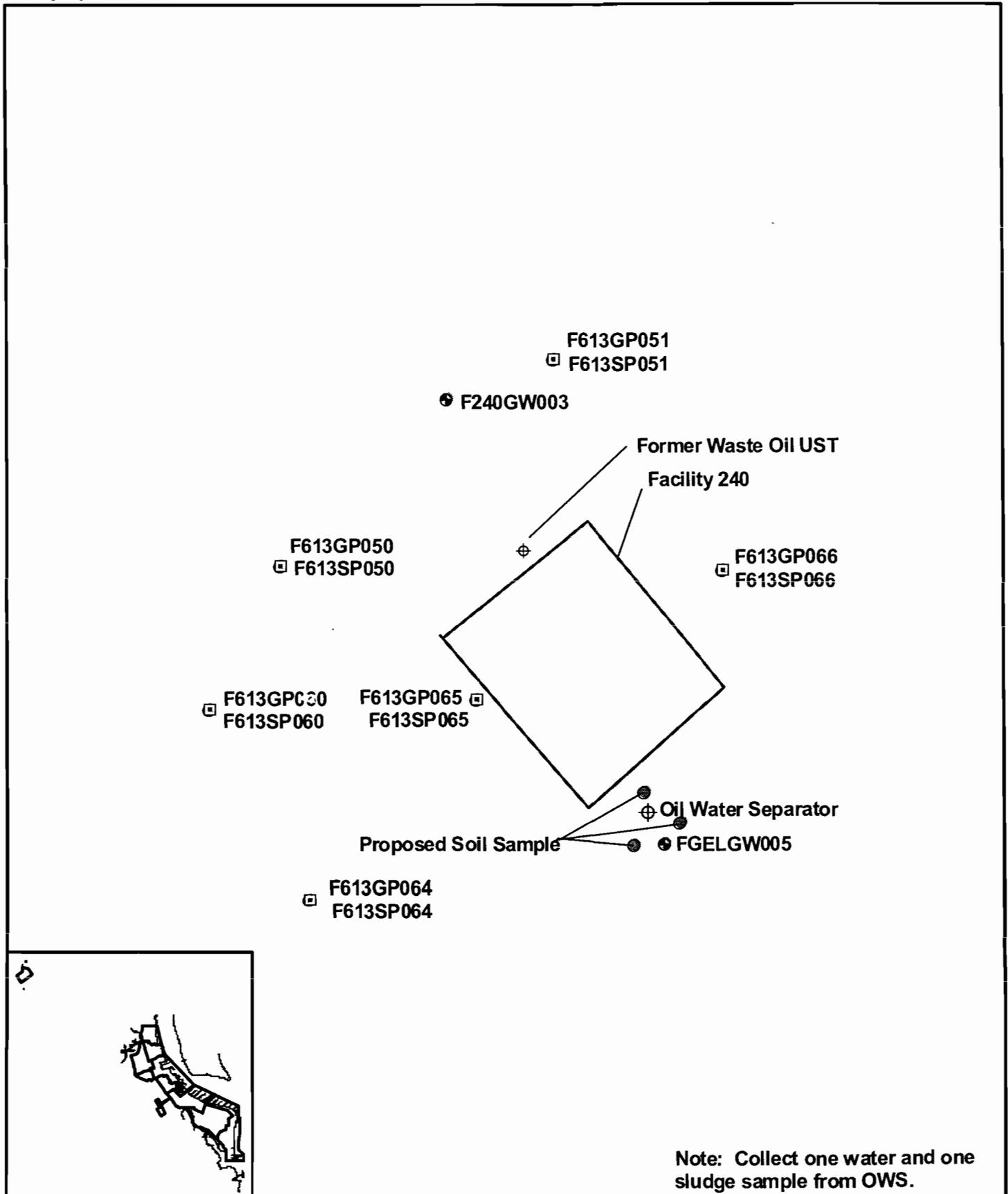


Figure 2
Location of AOCs 712, 713, 714, 716, and 717
Zones E and F
Confirmatory Sampling Investigation
Charleston Naval Complex

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Note: Collect one water and one sludge sample from OWS.

- Proposed Soil Sample
- Groundwater Well
- Existing Soil Probe Sample
- Existing Groundwater Probe Sample
- Oil Water Separator
- UST

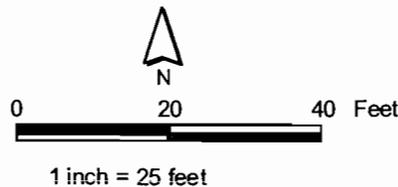
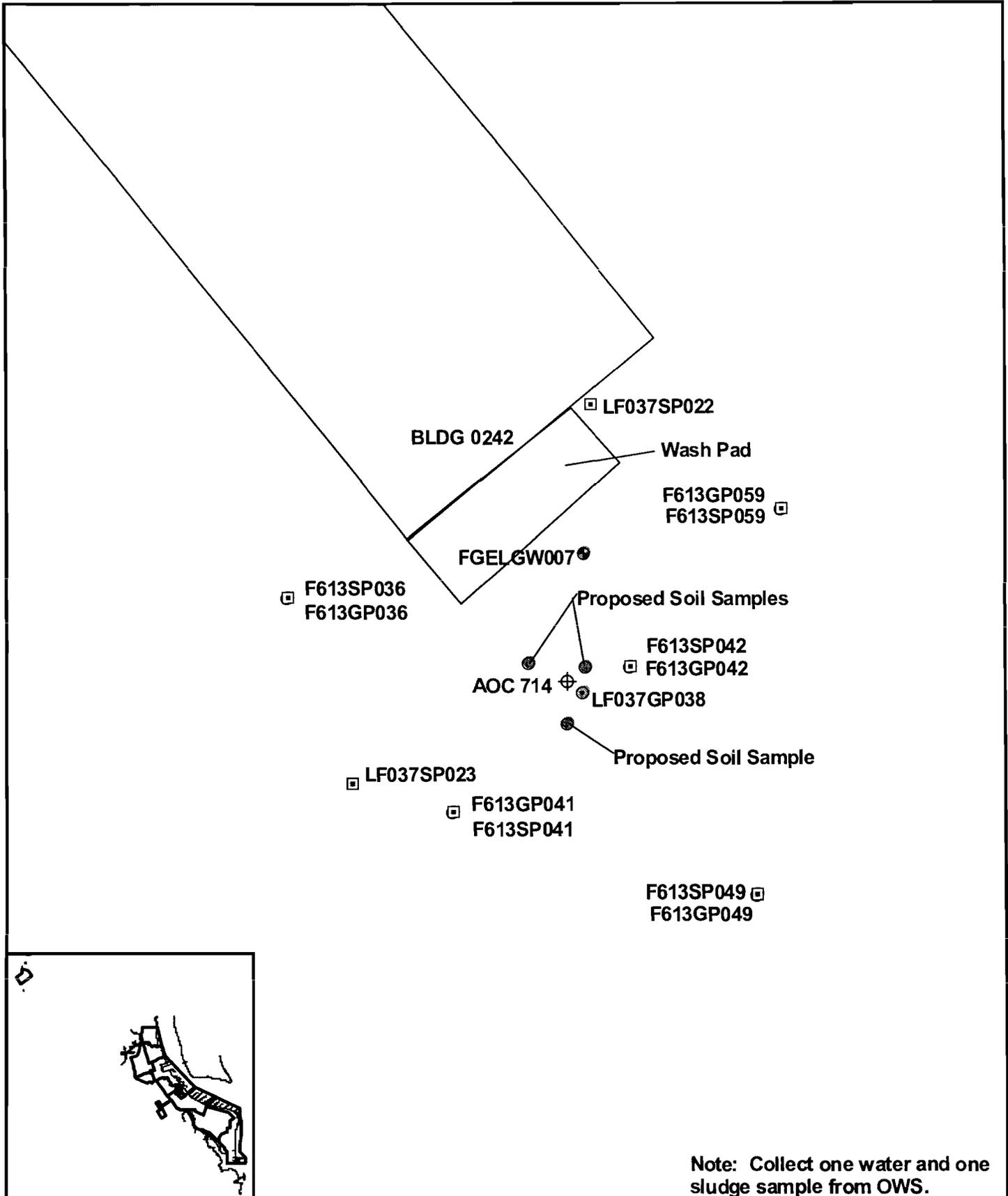


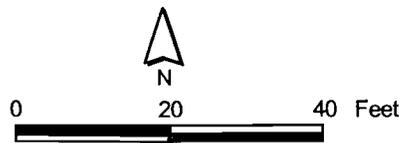
Figure 3
AOC 712 Sampling Locations
Confirmatory Sampling Investigation
Charleston Naval Complex

NOTE: Original figure created in color



Note: Collect one water and one sludge sample from OWS.

- Proposed Soil Sample
- Buildings
- ▣ Existing Soil Probe Sample
- Existing Groundwater Probe Sample
- ⊕ Groundwater Well
- ⊕ Oil / Water Separator AOC

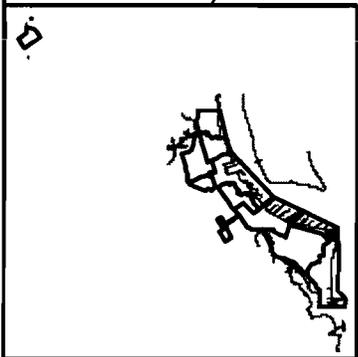
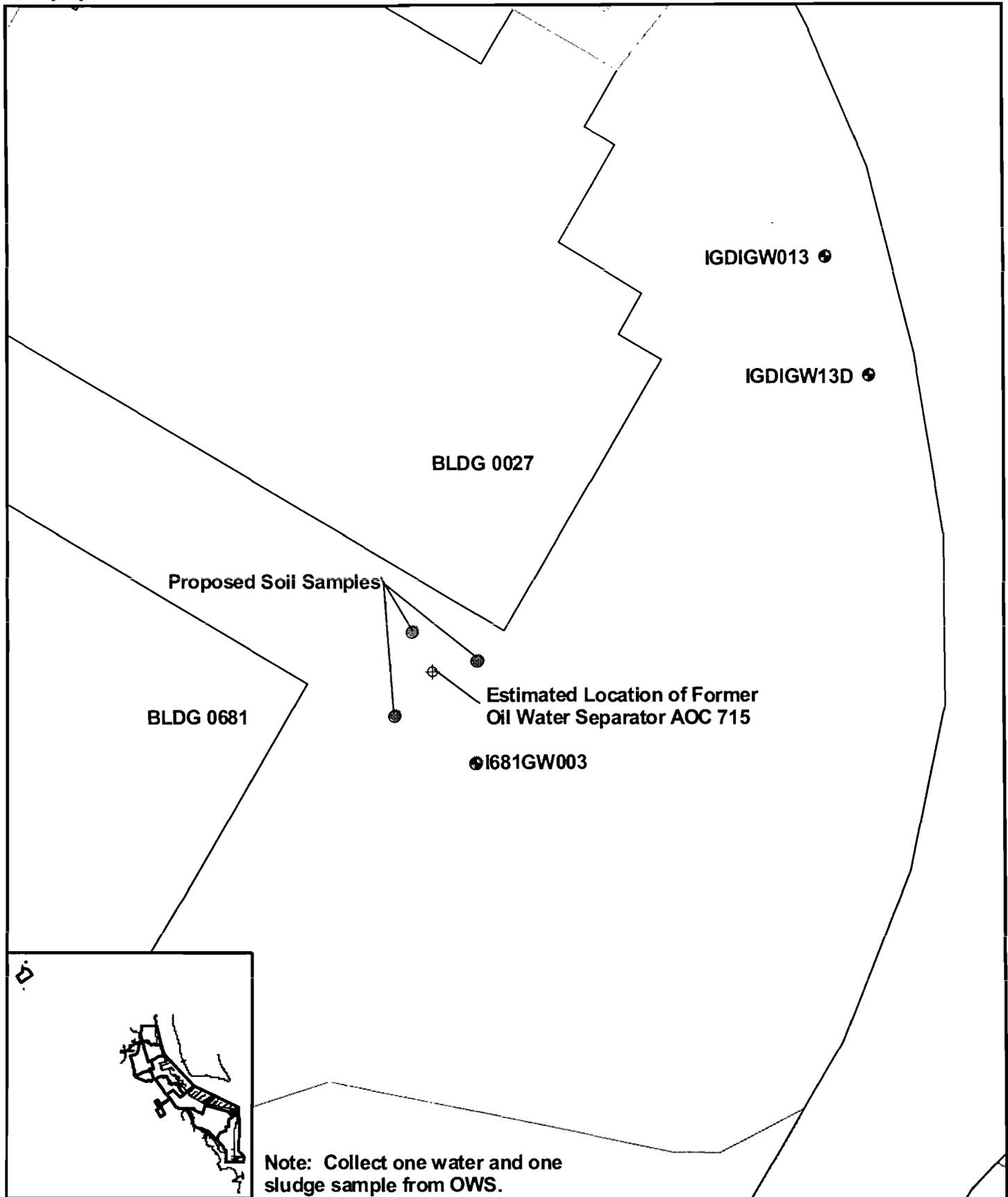


1 inch = 25 feet

Figure 4
AOC 714 Sampling Locations
Confirmatory Sampling Investigation
Charleston Naval Complex

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NOTE: Original figure created in color



- Proposed Soil Sample
- ⊙ Groundwater Well
- ⊕ AOCs
- ∧ Roads
- Buildings
- ∨ Pavement

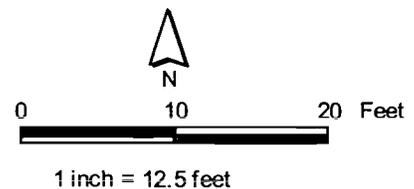
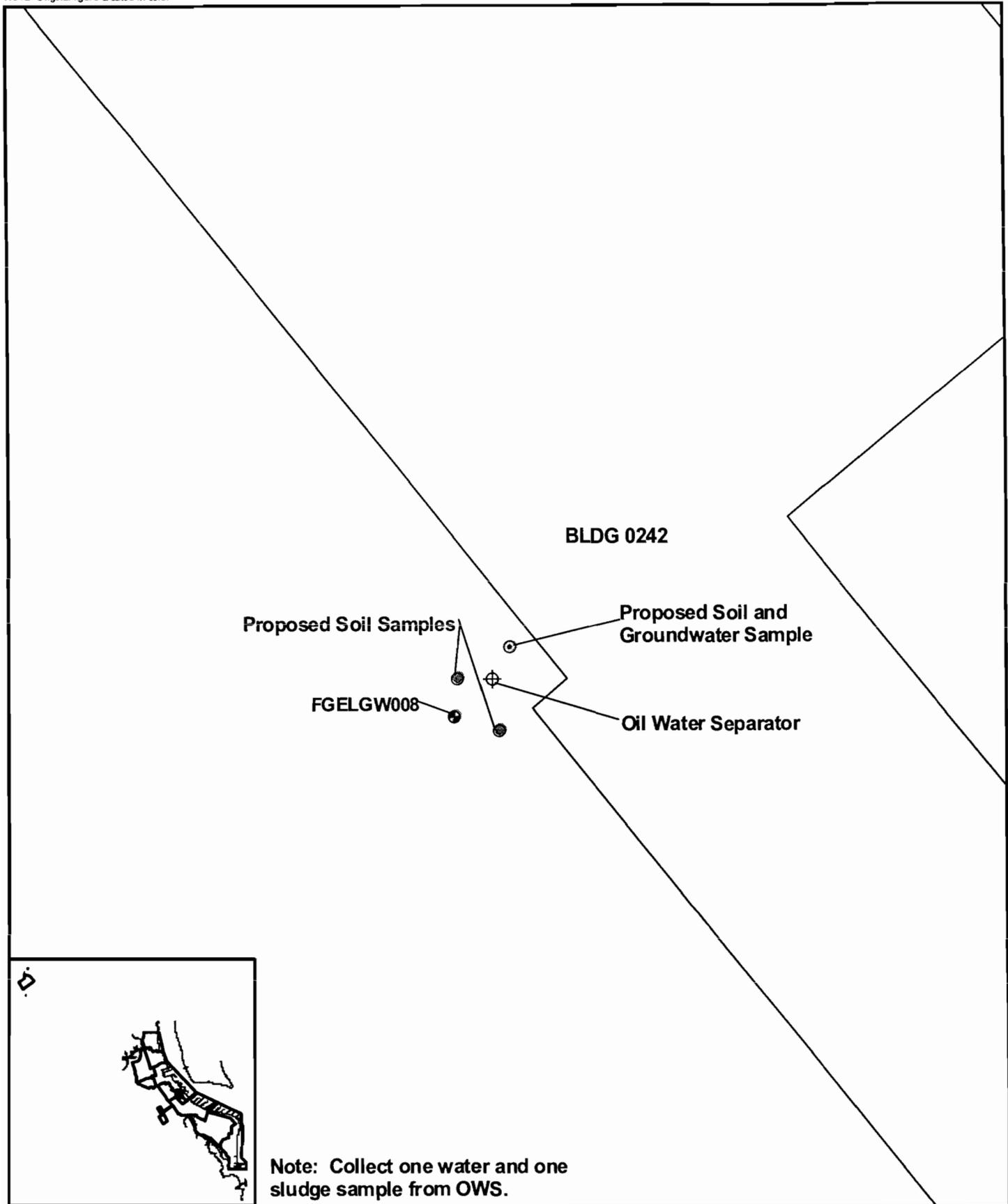


Figure 5
AOC 715 Sampling Locations
Confirmatory Sampling Investigation
Charleston Naval Complex



NOTE: Original figure created in color



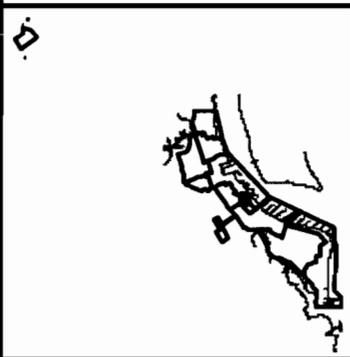
Proposed Soil Samples

BLDG 0242

Proposed Soil and Groundwater Sample

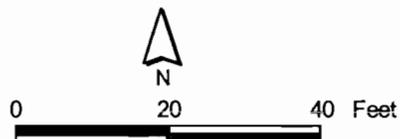
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Oil Water Separator



Note: Collect one water and one sludge sample from OWS.

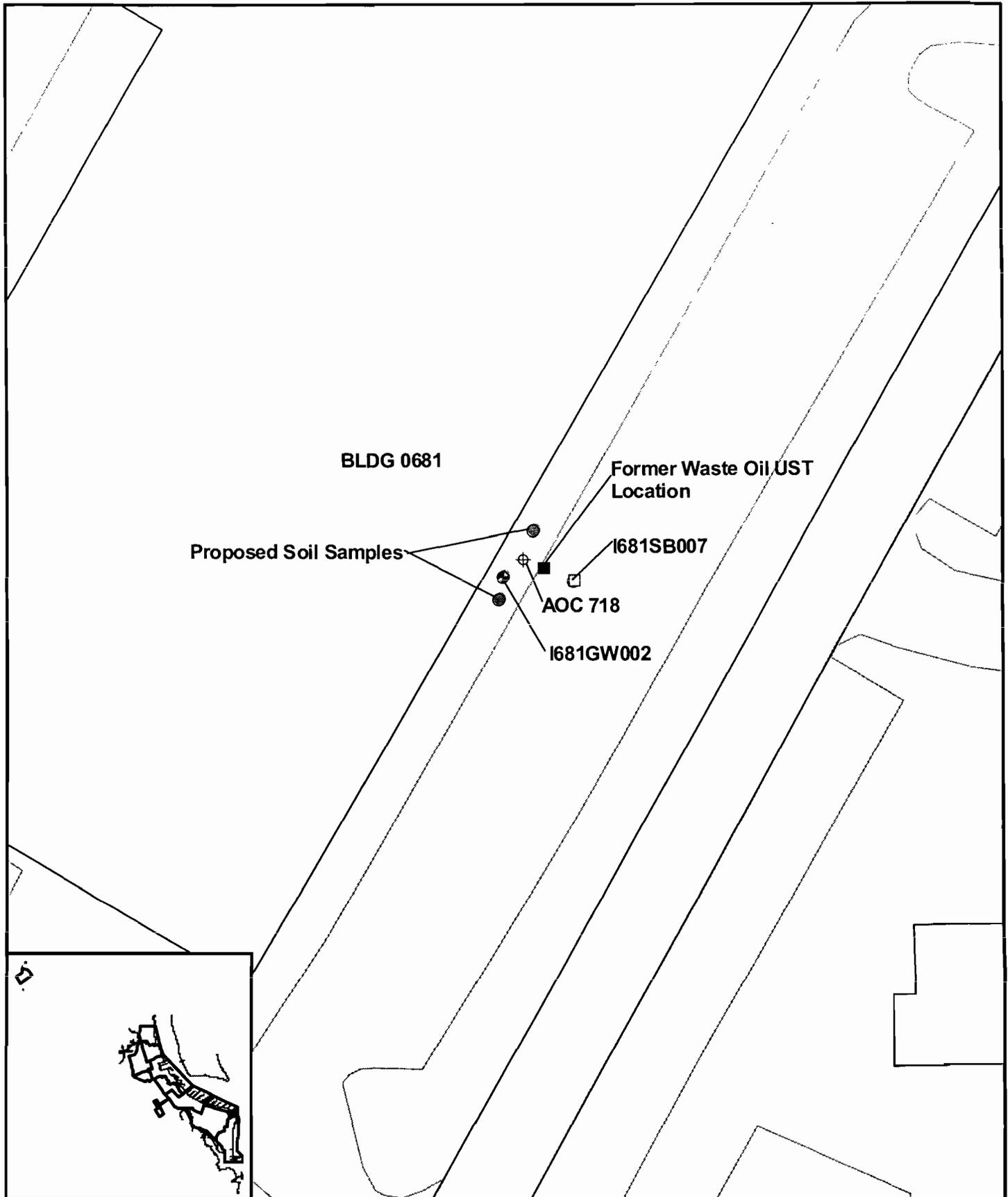
- ⊙ Proposed Soil and Groundwater Sample
- Proposed Soil Sample
- Buildings
- ⊕ Groundwater Well
- ⊕ Oil Water Separator AOC



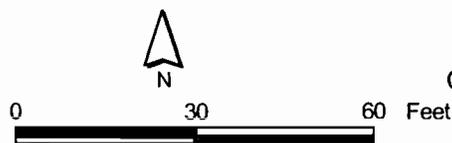
1 inch = 25 feet

Figure 6
AOC 717 Sampling Locations
Confirmatory Sampling Investigation
Charleston Naval Complex

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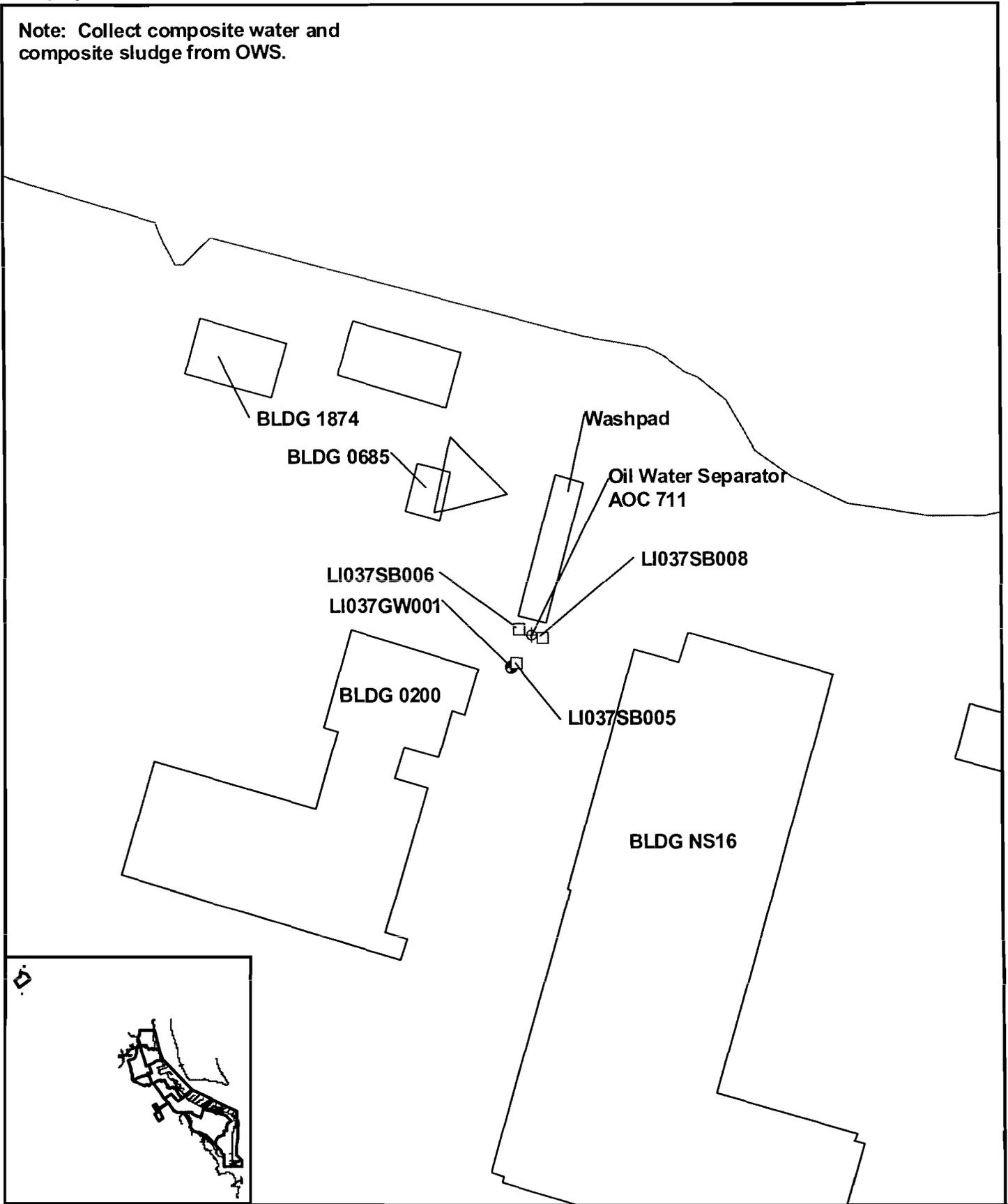
- UST
- Existing Surface Soil
- ⊕ AOCs
- Existing Soil Boring
- Existing Groundwater Well
- ∩ Roads
- ∩ Pavement
- Buildings



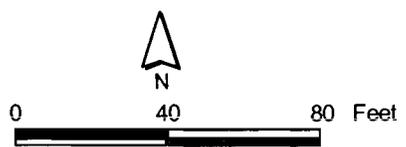
1 inch = 32 feet

Figure 7
AOC 718 Sampling Locations
Confirmatory Sampling Investigation
Charleston Naval Complex

Note: Collect composite water and composite sludge from OWS.



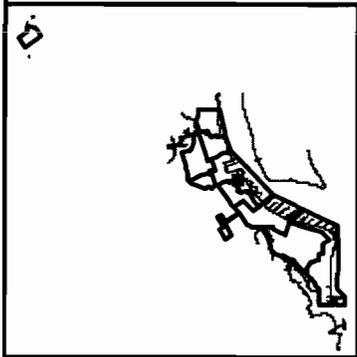
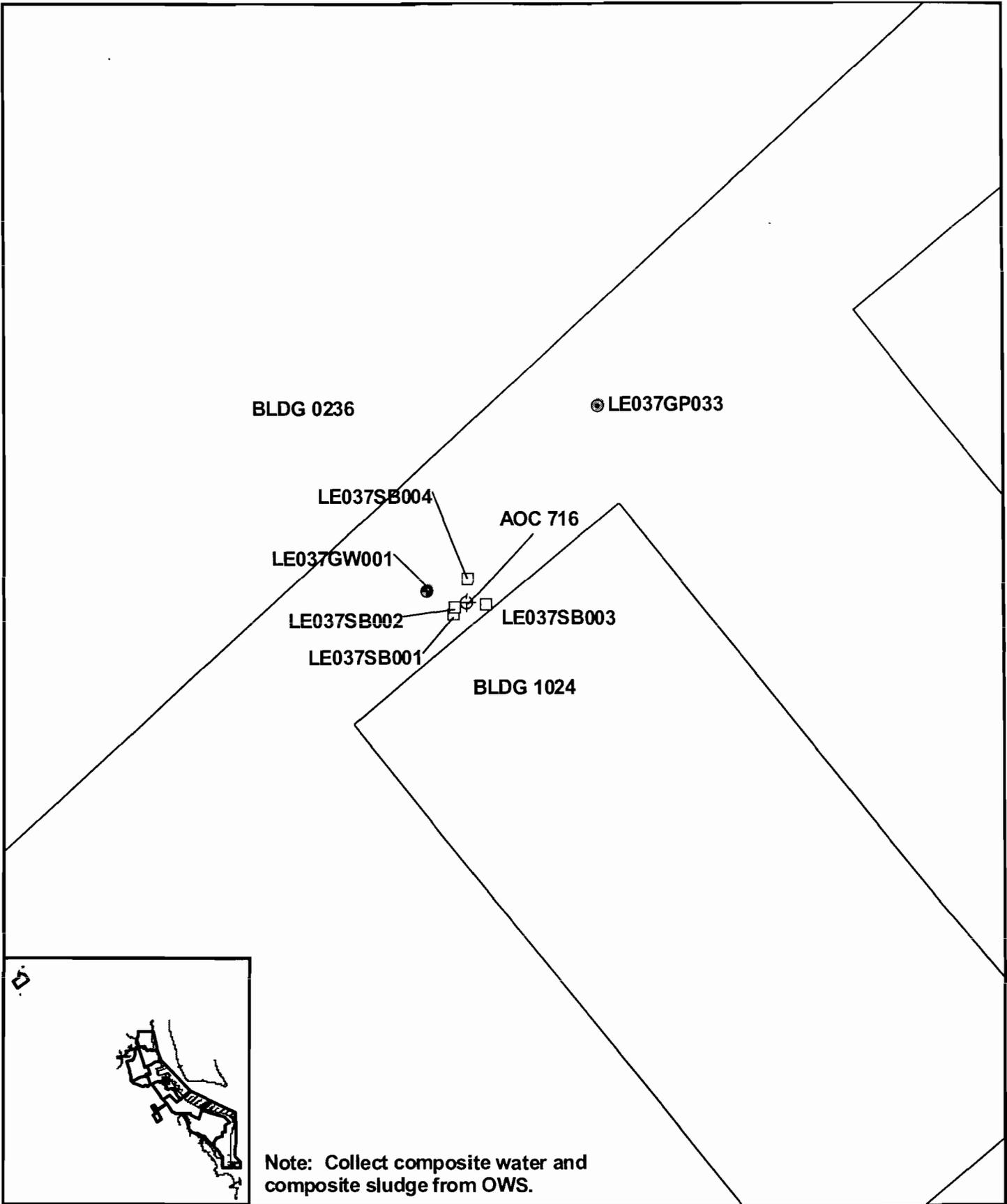
- Existing Soil Boring
- ⊕ Existing Groundwater Well
- ⊕ AOCs
- ∩ Shoreline
- ▭ Buildings



1 inch = 50 feet

Figure 8
AOC 711 Sampling Locations
Confirmatory Sampling Investigation
Charleston Naval Complex

NOTE: Original figure created in color



- Existing Soil Boring
- ⊙ Existing Groundwater Probe
- ⊕ Existing Groundwater Well
- ⊕ Oil / Water Separator AOC
- Buildings

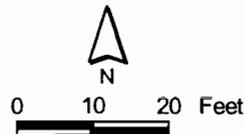


Figure 9
AOC 716 RFI Sampling Locations
Confirmatory Sampling Investigation
Charleston Naval Complex

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