

HARLOW
12/15/04-

02504



Restoration Advisory Board Site Visit

Munitions Response and Environmental Restoration Program Former Naval Facilities Western Vieques, Puerto Rico

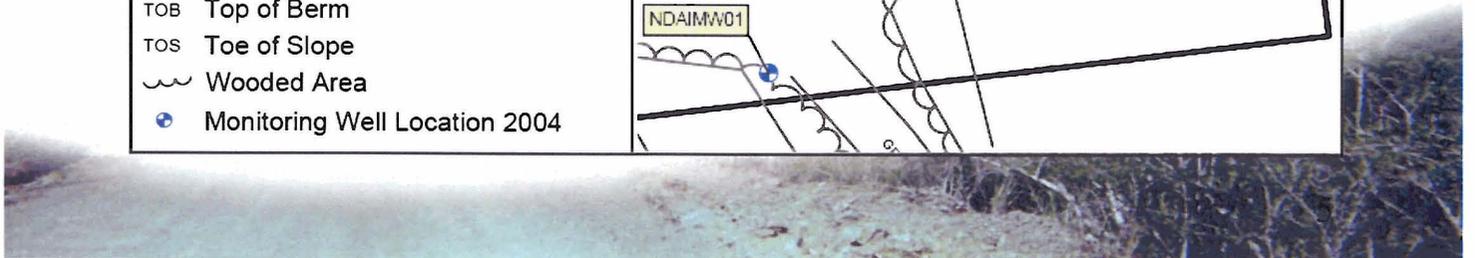
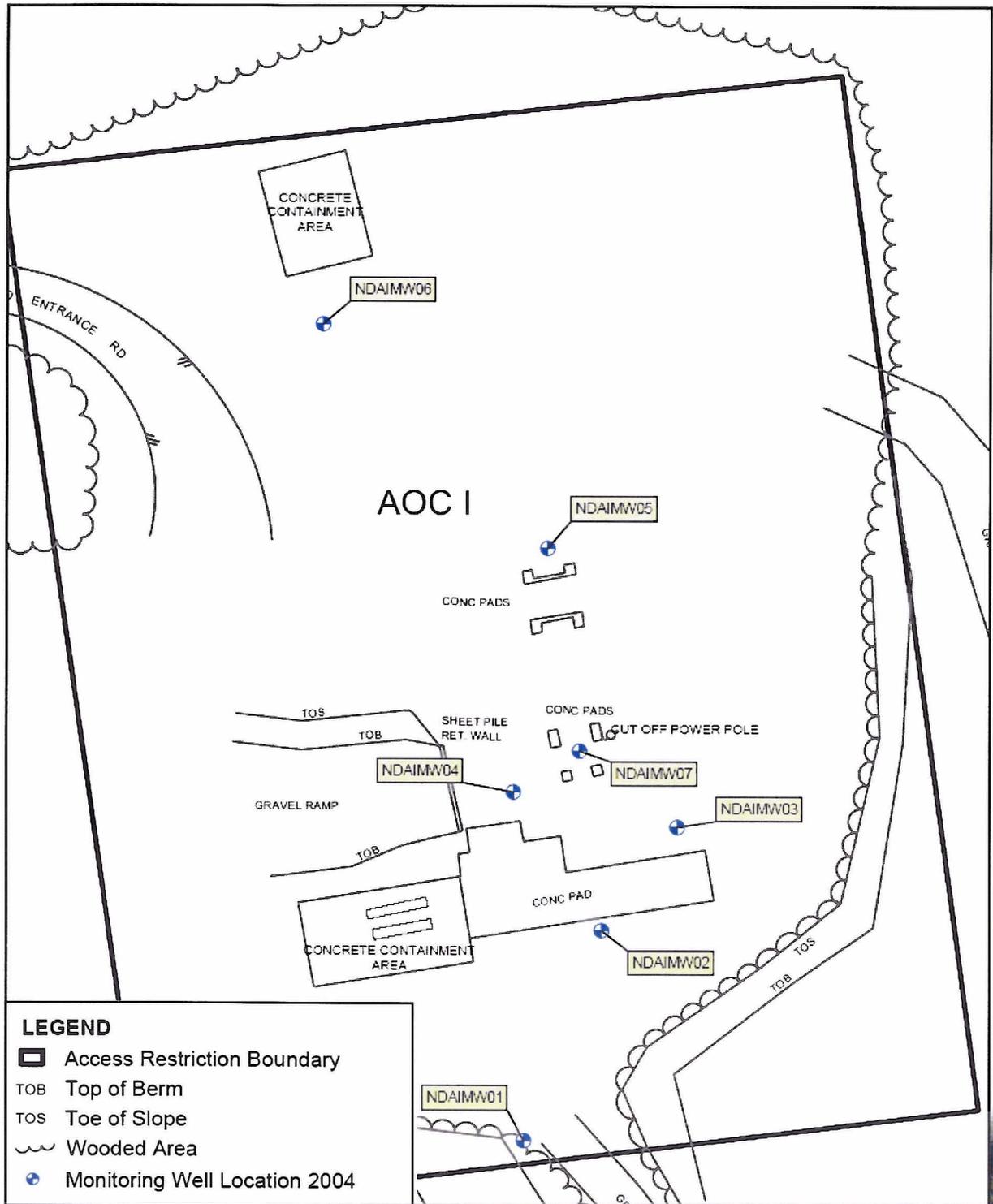
December 15, 2004

Facility Description

- ❖ Naval Ammunitions Storage Detachment consisted of approximately 8,000 acres
 - Operated by the Navy from 1941-1948 primarily for ammunitions storage and support facilities
 - Facility closed from 1948-1962
 - Re-opened 1962 primarily for munitions storage, some limited training, SWMU 4 was used for treatment of old munitions
- ❖ The Navy transferred ownership of the property on April 30, 2000
 - Approximately 3,100 acres transferred to DOI
 - Approximately 4,000 acres transferred to MOV
 - Approximately 800 acres transferred to PRCT
 - Navy retained 100 acres at Mt. Pirata
- ❖ Environmental Investigations
 - Initial Assessment Study (1986)
 - RCRA Assessment (1988)
 - Environmental Baseline Survey (2000)
 - Preliminary Assessments/Site investigations (2000, 2002)
 - No Further Action Report- Nine Sites (2003)
 - Remedial Investigations - Eight sites (Ongoing)



AOC I – Former Asphalt Plant

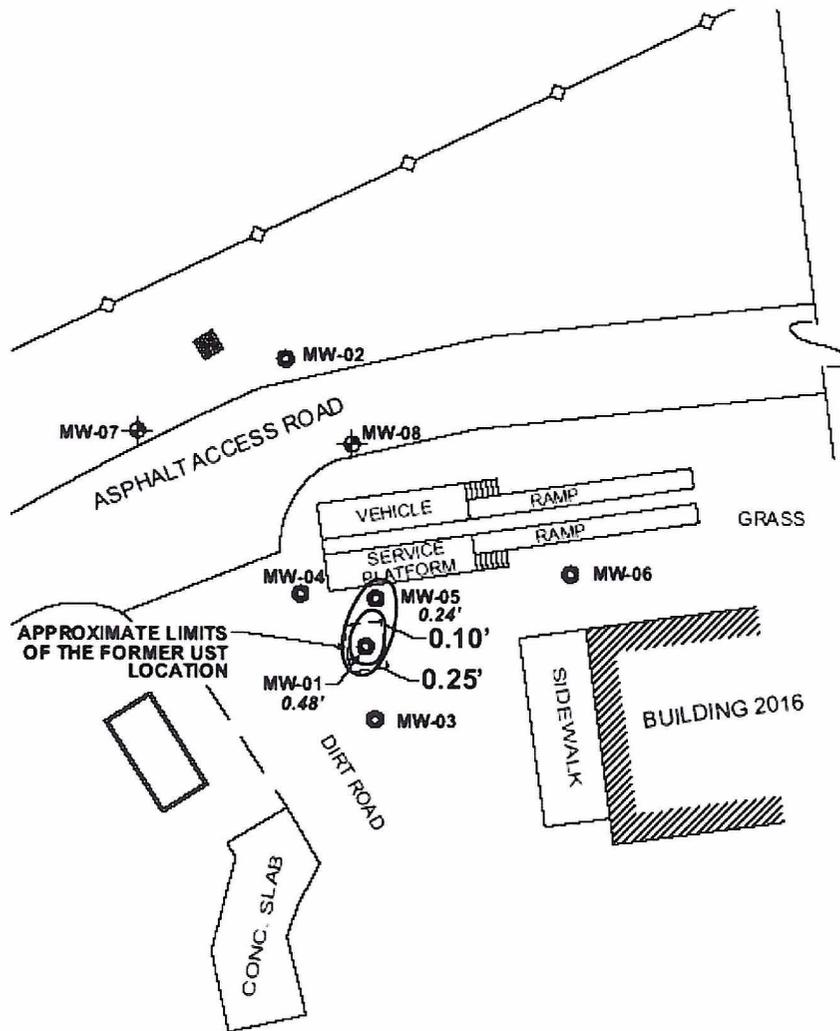


AOC I – Former Asphalt Plant

- ❖ Site used as asphalt plant from the 1960s-1998
- ❖ Site investigations:
 - soil samples collected at 38 locations;
 - 7 groundwater wells installed and sampled
- ❖ Soils detected high metal and petroleum levels at several locations
- ❖ Groundwater detected elevated levels of gasoline constituents at 3 locations (well#s 4,5,7)
- ❖ Additional site investigations recommended to determine extent of petroleum in soils and groundwater
- ❖ Risk assessment will be completed to determine if unacceptable risk to human health



AOC E – Former Underground Waste Oil Tank



LEGEND

- Existing Monitoring Well Location
- MW-01 Location
- ⊕ Monitoring Well Location -
- MW-08 Remedial Investigation
- 0.48' Product Thickness Prior to MPE Pilot Study
- Free Phase Hydrocarbon Plume Limits
- 0.25'

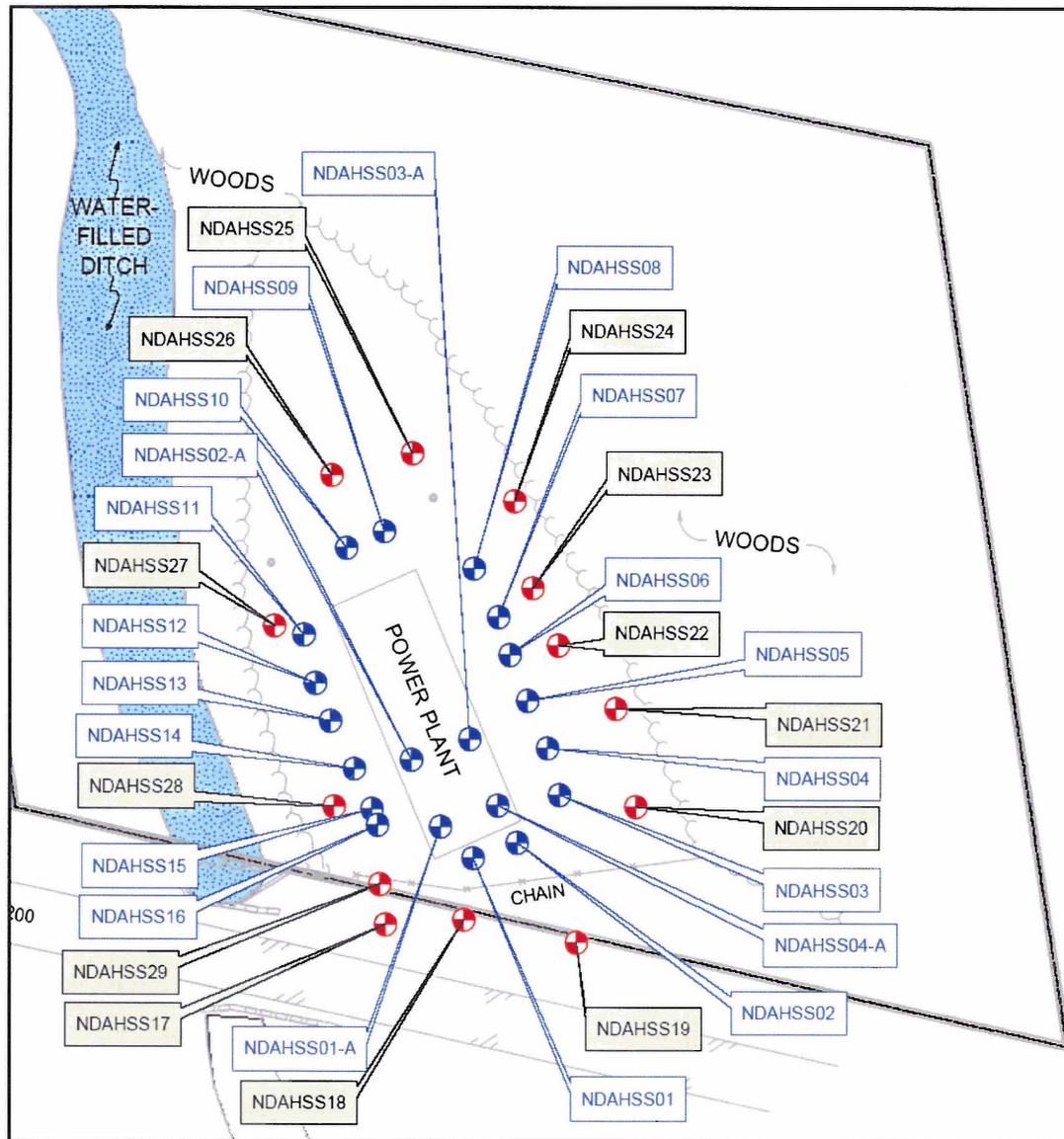


AOC E – Former Underground Waste Oil Tank

- ❖ Site was a 550 gallon tank used to store waste oil from 1970-1996. Removed in 1996
- ❖ Site investigations:
 - soil samples collected at 12 locations;
 - 8 groundwater wells installed and sampled
- ❖ Soils detected high petroleum levels at one location
- ❖ Groundwater detected floating oil layer at well #1
- ❖ Additional site investigations recommended to determine extent of petroleum in soils and groundwater
- ❖ Remedial alternatives considered include: bioremediation, monitored natural attenuation, multi-phase treatment.



AOC H – Former Power Plant/Fire fighting Training Area



Legend

-  Surface Soil Sample Locations
-  Previous Surface Soil Sample Locations
-  Access Restriction Boundary

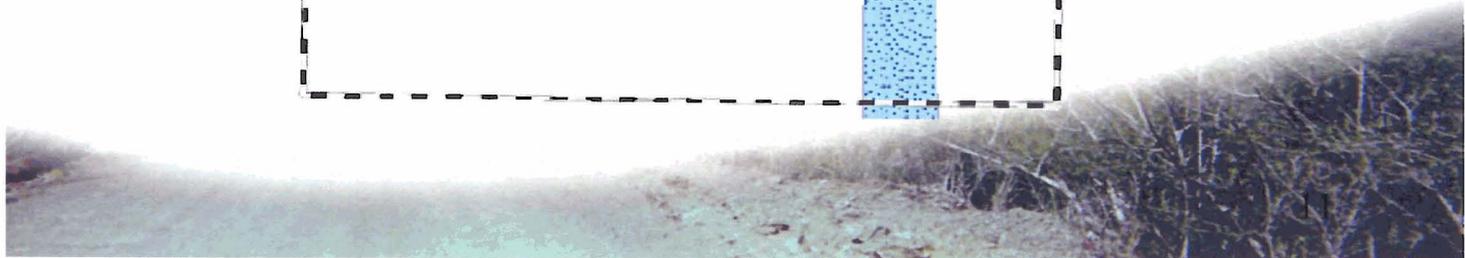
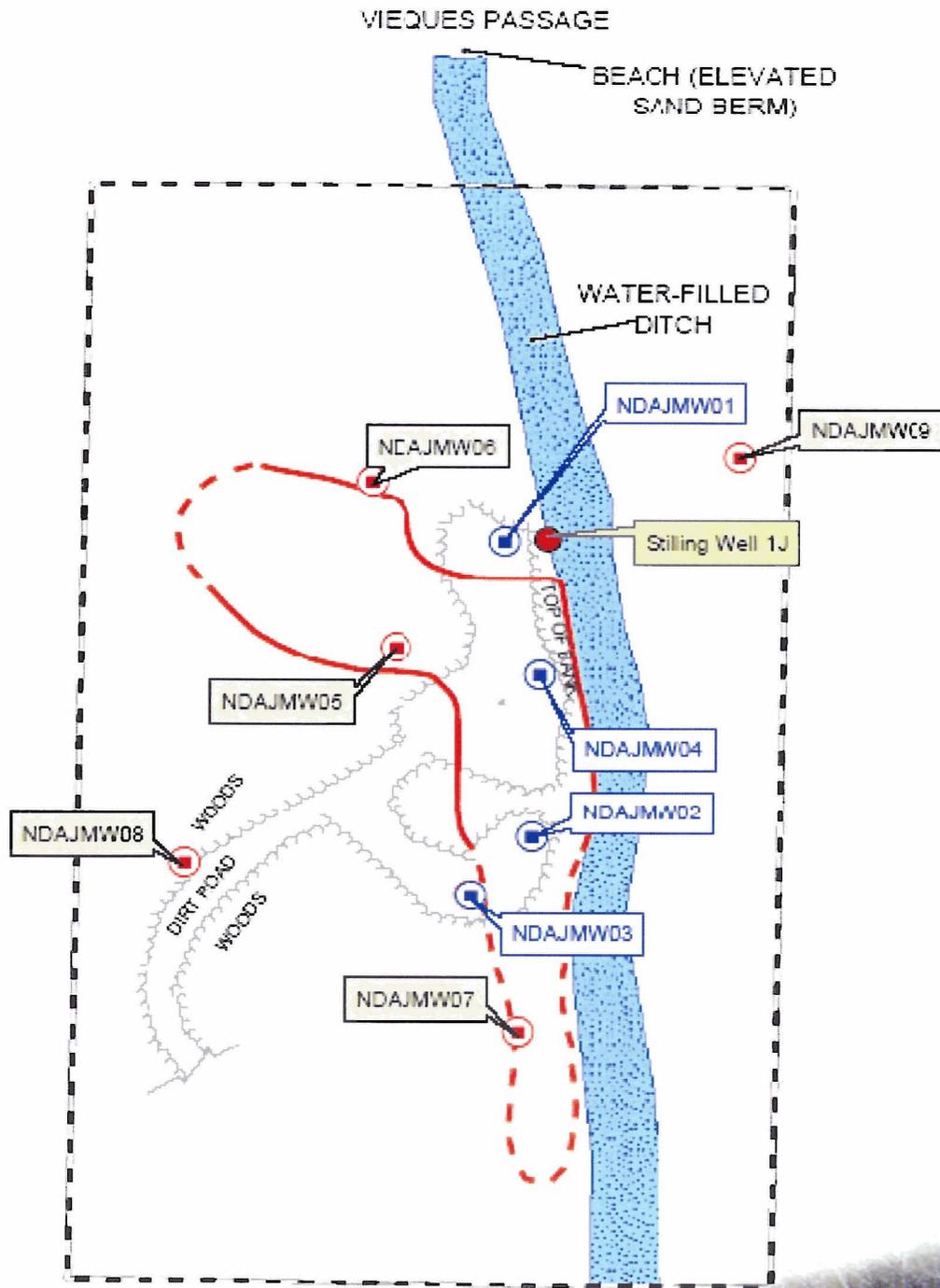


AOC H – Former Power Plant/Fire fighting Training Area

- ❖ Site was a power plant in 1940s and used for fire fighting in 1980s
- ❖ Site investigations:
 - soil samples collected at 33 locations
 - 7 groundwater wells installed and sampled
- ❖ Soils detected elevated levels of pesticides, SVOCs, VOCs
- ❖ Groundwater detected pesticides at one location
- ❖ Risk assessment determined that site did not pose an unacceptable risk
- ❖ Remedial Investigation Report under review by EQB and EPA



AOC J – Former staging Area Disposal site

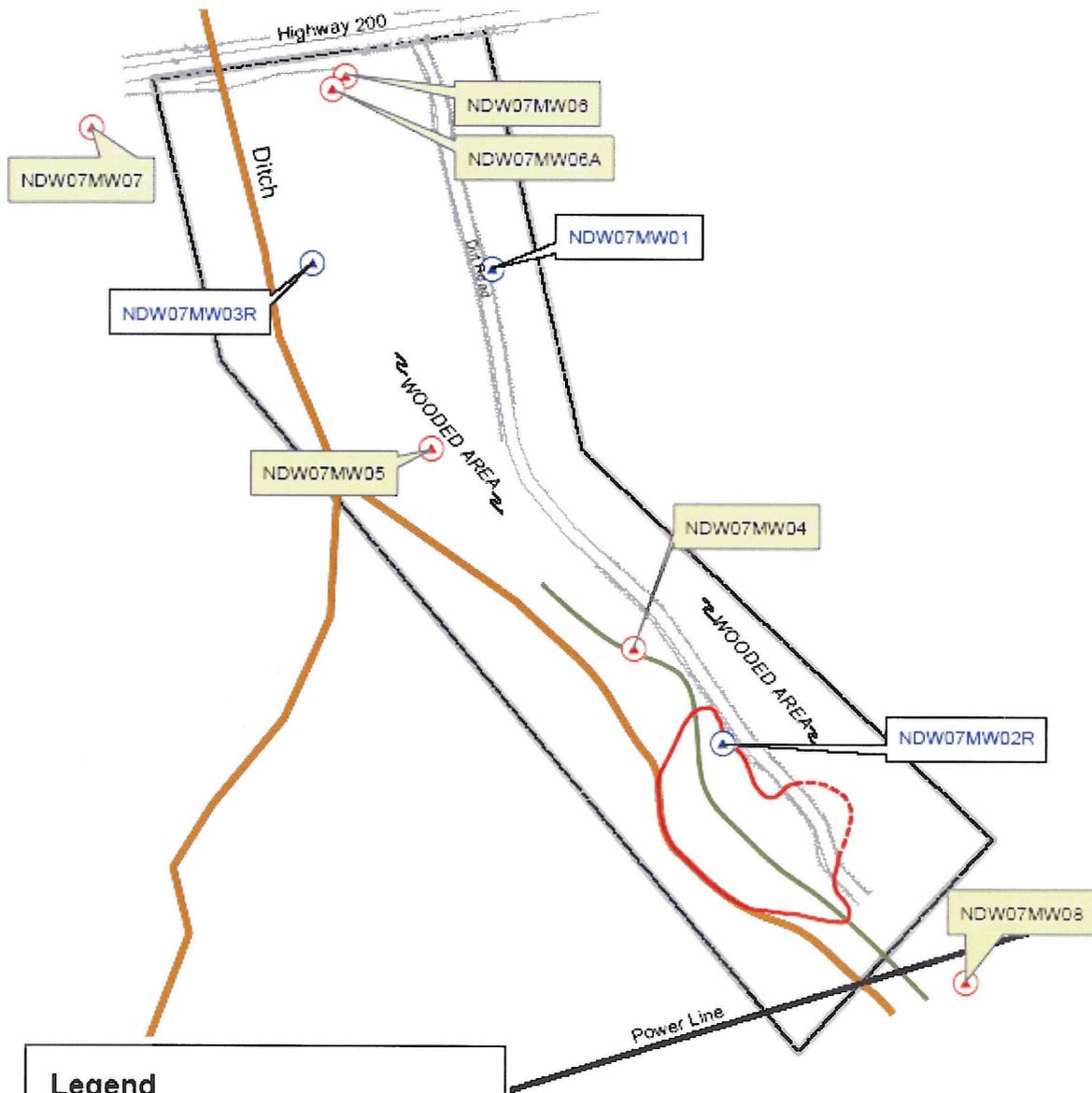


AOC J – Former staging Area Disposal site

- ❖ Site is 1.2 acres and was used as a construction waste disposal site from 1960s to 1973
- ❖ Site investigations:
 - Soil samples collected at 17 locations
 - 8 groundwater wells installed and sampled
- ❖ Soils detected high metal concentrations
- ❖ Groundwater detected metals and perchlorate at one location
- ❖ Risk assessment determined that site did not pose an unacceptable risk
- ❖ Remedial Investigation Report under review by EQB and EPA
- ❖ Engineering Evaluation to be conducted to assess cost-effectiveness of waste removal

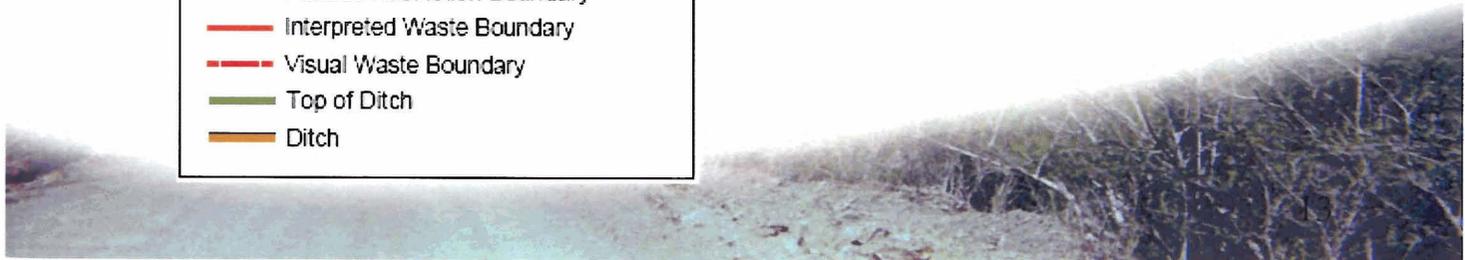


SWMU 7 – Former Disposal Site



Legend

- Monitoring Well Locations
- Previously Installed Monitoring Wells
- Access Restriction Boundary
- Interpreted Waste Boundary
- Visual Waste Boundary
- Top of Ditch
- Ditch

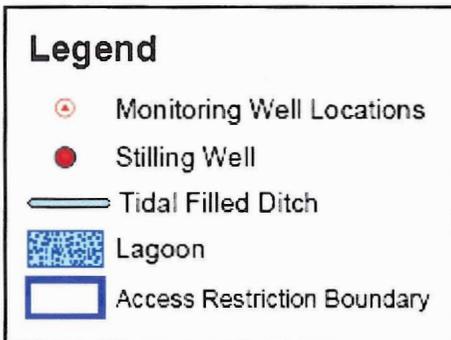
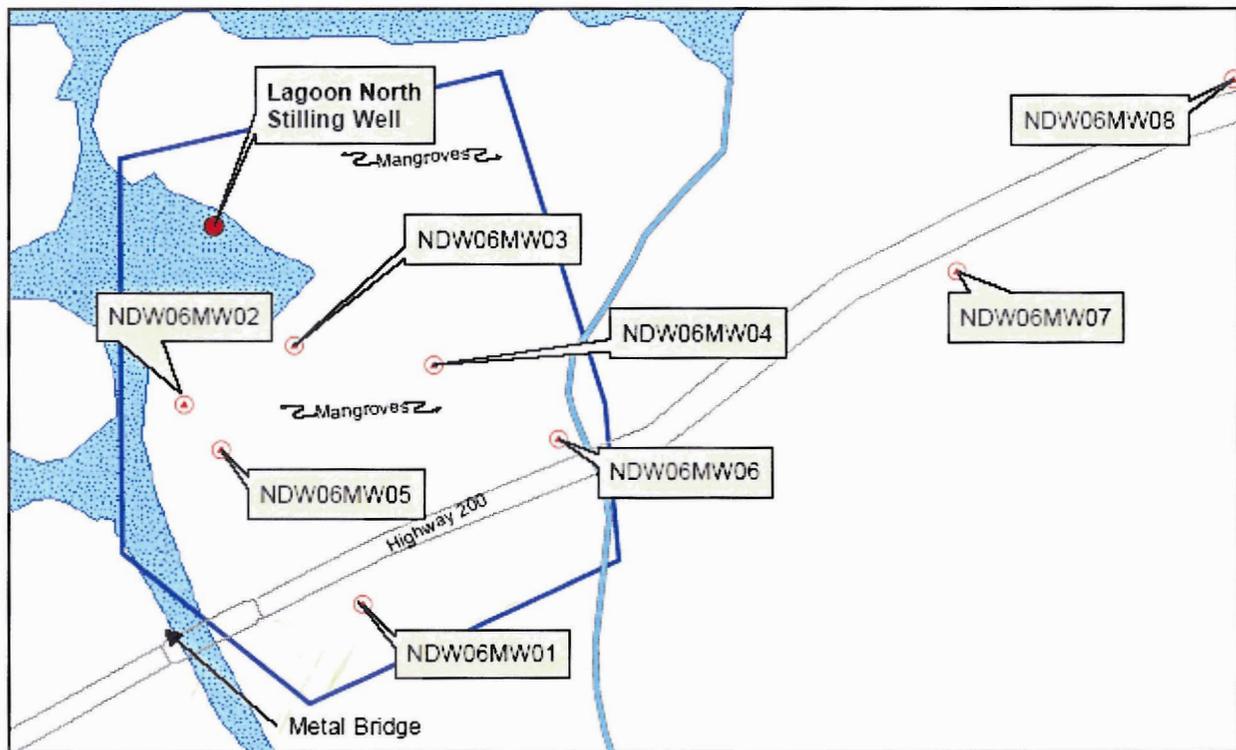


SWMU 7 – Former Disposal Site

- ❖ Site estimated to contain 1,500 cubic yards of waste disposed from 1960s and 1970s
- ❖ Site investigations:
 - Soils samples collected at 15 locations
 - 9 groundwater wells installed and sampled
- ❖ Soils detected elevated levels of metal concentrations, PAHs and pesticides
- ❖ Groundwater detected elevated metals
- ❖ Risk assessment determined that site did not pose an unacceptable risk
- ❖ Remedial Investigation Report under review by EQB and EPA
- ❖ Engineering Evaluation to be conducted to assess cost-effectiveness of waste removal



SWMU 6 – Mangrove Disposal Site

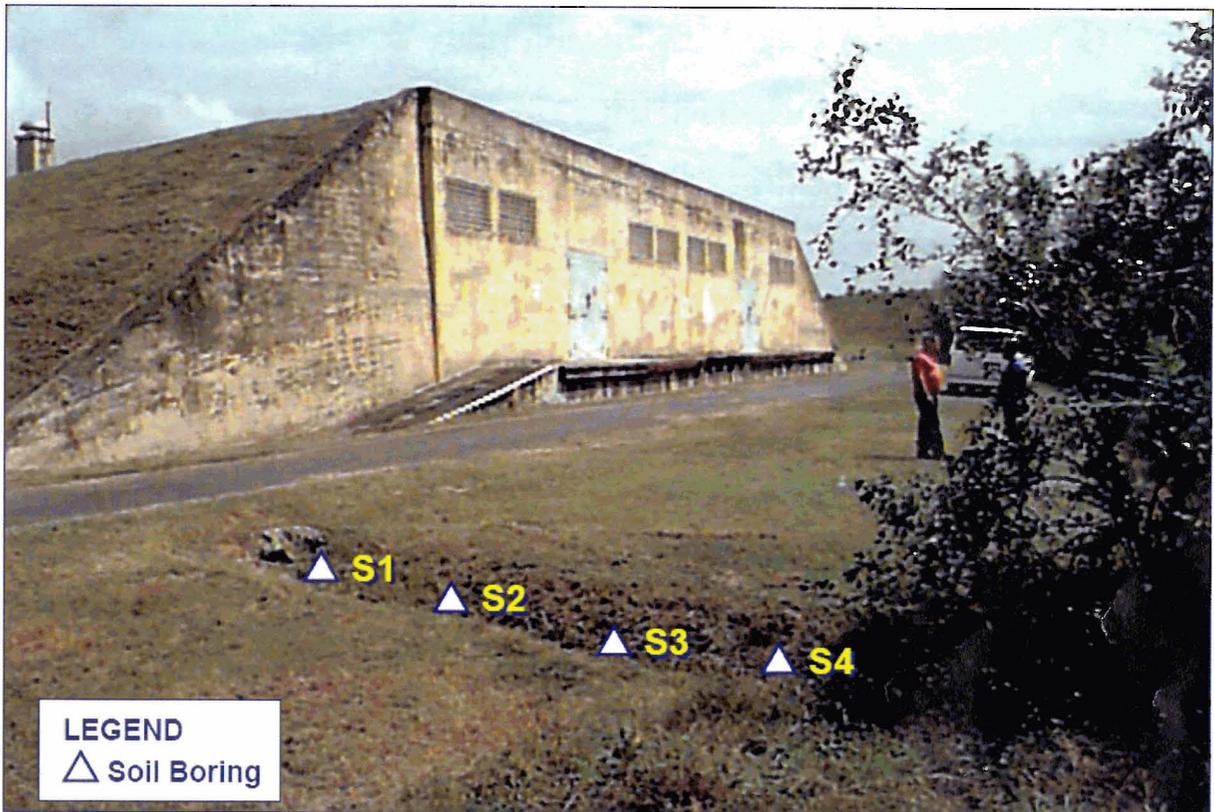


SWMU 6 – Mangrove Disposal Site

- ❖ Site used for disposal of general facility waste from 1960s and 1970s, inert MEC was identified
- ❖ Site investigations:
 - Soil samples collected at 15 locations
 - 8 groundwater wells installed and sampled
- ❖ Soils detected elevated levels of metals, SVOCs and pesticides
- ❖ Groundwater detected elevated levels of metals and PCBs
- ❖ Risk assessment determined that site did not pose an unacceptable risk
- ❖ Remedial Investigation Report under review by EQB and EPA
- ❖ Engineering Evaluation to be conducted to assess cost-effectiveness of waste removal



SWMU 5 – Fuel Disposal Site

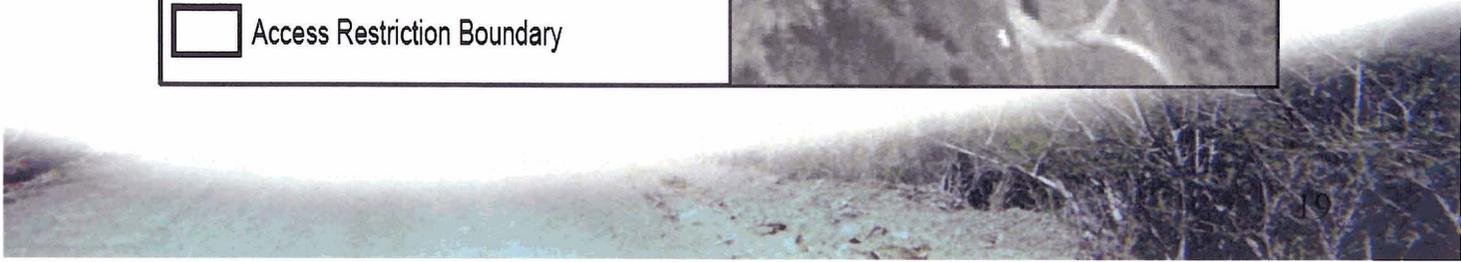
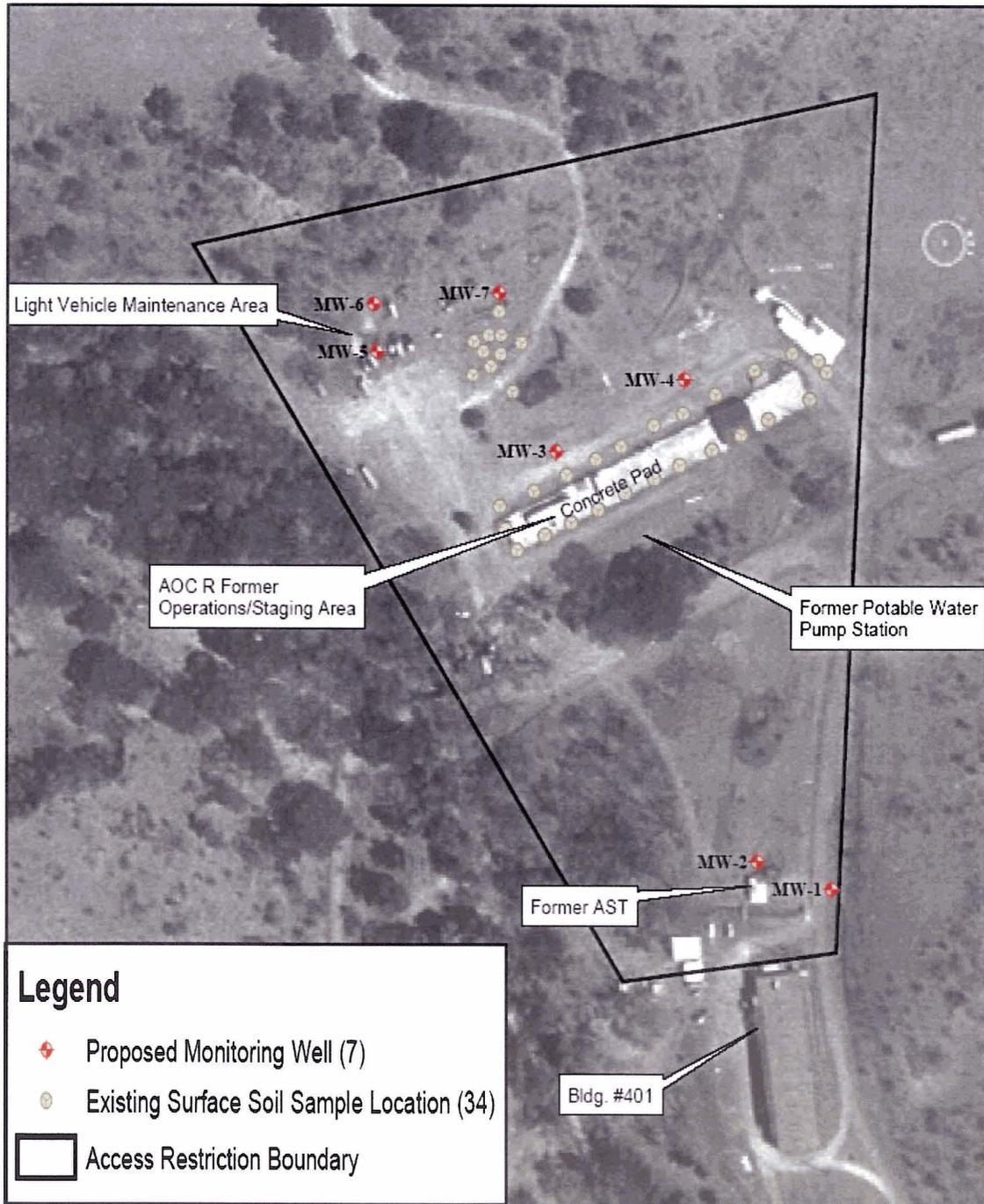


SWMU 5 – Fuel Disposal Site

- ❖ A fuel spill of approximately 7,000 pounds occurred in the vicinity of Bldg. 422
- ❖ PA/SI Site investigations
 - Surface soils collected at 4 locations
 - Subsurface soil samples collected at 4 locations
- ❖ Soils detected elevated levels of one SVOC that may have been from asphalt runoff
- ❖ Risk assessment determined that site did not pose an unacceptable risk



AOC R – Former Staging and Operations Area



AOC R - Former Staging and Operations Area

- ❖ Site used for public works area and staging area from 1965 to 1971, 4 inert MEC location were identified
- ❖ Site investigations:
 - Soil samples collected at 34 locations
 - Soils detected elevated levels of metals and SVOCs
 - Inert munitions items identified at 3 locations
 - Groundwater has not been sampled
- ❖ Site has been recommended for Remedial Investigation to assess soils and groundwater
- ❖ Remedial Investigation(RI) Work Plan under review by EQB and EPA
- ❖ Field work to complete RI and remove MEC to be completed in March



SWMU 4 – Former Open Burn/Open Detonation Area

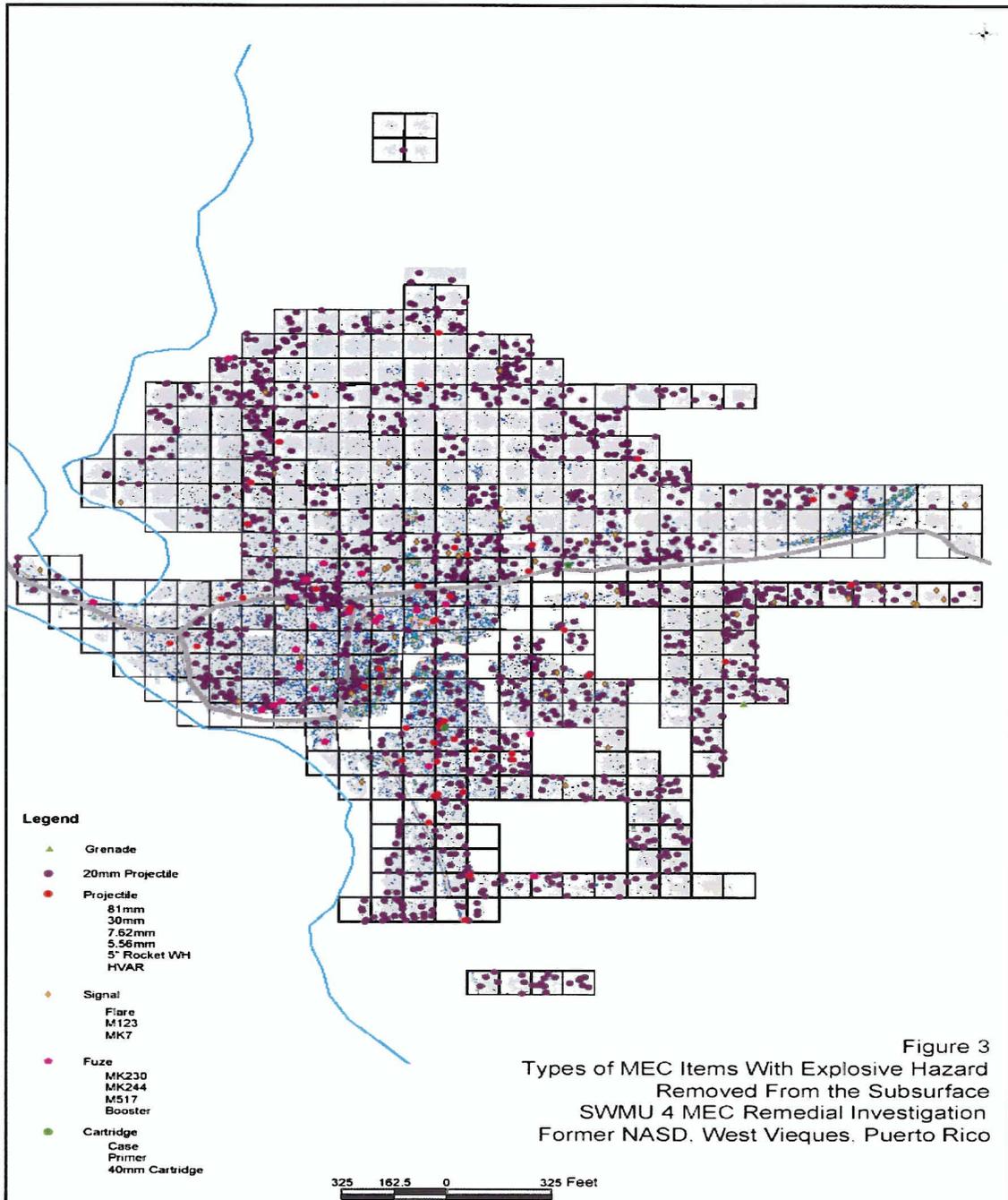


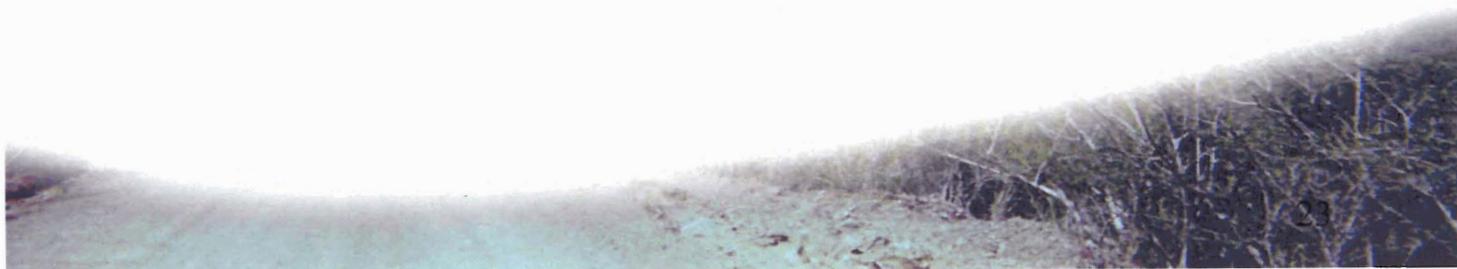
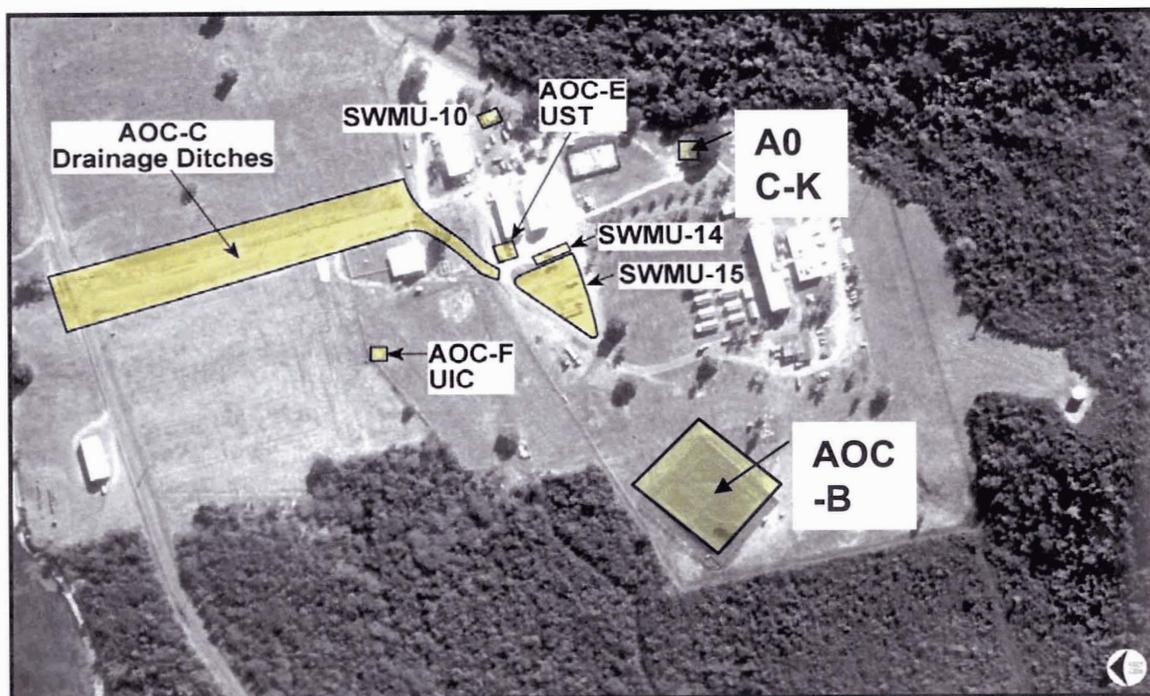
Figure 3
Types of MEC Items With Explosive Hazard
Removed From the Subsurface
SWMU 4 MEC Remedial Investigation
Former NASD, West Vieques, Puerto Rico

SWMU 4 – Former Open Burn/Open Detonation Area

- ❖ Site used for open burning and detonation of expired munitions 1969 to 1979
- ❖ Site Investigations
 - MEC Investigation investigated over 11,000 metallic anomalies
 - Over 1,700 metal items identified (16%) were MEC items that were removed
 - Extent of munitions estimated to occur over 200 acres
 - Soils investigations detected elevated levels of metals and explosives
 - Groundwater samples identified elevated metals
- ❖ Site has been recommended for Remedial Investigation to assess soils and groundwater impacts
- ❖ Remedial Investigation Work Plan under review by EQB and EPA
- ❖ Munitions removal will be based on risk and land use plan, to be completed by DOI



Sites In Public Works Area



Proposed No Further Action Sites

Table 1. Sites Recommended for NFA Status	
SWMU/AOC	Historical Operation
SWMU 5	Former IRFNA/MAF-4 Disposal Site
SWMU 10	Former Waste Paint and Solvents Disposal Ground
SWMU 14	Former Wash Rack
SWMU 15	Former Waste Transportation Vehicle Parking Area
AOC B	Former Wastewater Treatment Plant (WWTP)
AOC C	Former Transportation Shop Drainage Ditch
AOC F	Former Underground Injection Control (UIC) Septic Tank
AOC K	Former Water Well
AOC L	Abandoned Septic Vault

