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NAS PENSACOLA
5090.3a

PROJECT COMPLETION REPORT
FOR
PETROLEUM-CONTAMINATED SOIL REMOVAL
UNDER DELIVERY ORDERS 0006 AND 0017
AT SITES 2662W AND PSC-36, CHEVALIER FIELD
NAVAL AIR STATION PENSACOLA, FLORIDA

Prepared for

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND

By

BECHTEL ENVIRONMENTAL, INC.
OAK RIDGE, TENNESSEE

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Bechtel Job No. 22567

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EXECUTIVE SUMMARY

At the U.S. Naval Air Station in Pensacola, Florida (**NAS** Pensacola) it was necessary to remediate large areas of contaminated soil to clear the way for a major fast-track construction project scheduled to commence in early January. Bechtel Environmental, Inc. (BEI) performed Initial Remedial Actions (IRAs) at Site 2662W for the Navy's Underground Storage Tank (UST) program and Site **PSC-36** for the Installation Restoration (IR) program. The work was performed under Delivery Order **Nos. 0006** and **0017**. The objective was to perform expedited removal of petroleum- and solvent-contaminated soil from several locations at Chevalier Field. Additional contaminated soil was discovered during construction of the new National Training Center. BEI was requested to perform an IRA at ~~this~~ site ~~with~~ remaining funds under Delivery Order 0006.

The selected remediation method for the contaminated soil was excavation and onsite thermal desorption, followed by backfill and compaction of the treated soil. BEI subcontracted Associated Environmental Services (AES) to perform building and pavement demolition, and backfill and compaction of clean soil. Excavation and onsite thermal desorption of the contaminated soil was subcontracted to CAL Testing, who in ~~turn~~ subcontracted the work to Anderson-Columbia, Inc. Survey services were subcontracted to Nobles and Varnum and archeological services were subcontracted to Pensacola Archeology Lab.

The bases for the remedial actions were the Initial Remedial Action Technical Memorandum dated June 1994 as prepared by ABB Environmental Services (ABB-ES) for Task 1 covering the UST plumes, and the Limited Feasibility Study Site **36** of Category VIII Building **3380** (Site **36**) Technical Memorandum dated August 1994 as prepared by Ensafe/Allen & Hoshall (EA&H) for Task 2 covering the combined petroleum and volatile and semivolatile organic compound plume under the IR program.

1.0 PROBLEM STATEMENT

The contaminated soil that required remediation included three separate plumes of **shallow** (less than four feet) petroleum-contaminated soil at the southeast corner of Chevalier Field **as** shown in Figure 1, an additional small petroleum plume at Building 607 (not shown) and a solvent plume with volatile and semivolatile organic compound contaminants (Figure 2). The plumes extended beneath paved runways and flightline aprons, and under Buildings 2662 and **3380**. Task 1 included the remediation of the petroleum plumes and Task 2 included demolition **of** Buildings 2662 and **3380** (Figure 3), plus remediation of the overlapping solvent plume. A contaminant plume that was discovered during construction of the new National Training Center buildings is also shown in Figure 2. The primary contaminant was petroleum, but the soil also had traces of pesticides. Immediate remediation was required in order to prevent costly construction delays.

2.0 SCOPE OF WORK

This work is described in greater detail in the *Remediation WorkPlan, Pensacola Delivery Order 0006, Task 1 Site 2662W* and the *Remediation WorkPlan, Pensacola Delivery Orders 0006 and 0017, Task 2 PSC-36, Category VIII, Building 3380*.

2.1 MOBILIZATION

Mobilization activities were initiated on October 3, 1994. These activities included delivery to the jobsite and work areas of all construction equipment, tools, materials, supplies and miscellaneous articles, office trailer, and work force to begin demolition, excavation, and onsite thermal desorption.

2.2 QUANTITIES OF MATERIALS HANDLED/REMEDIATED

Table 1 summarizes the quantities of materials excavated, treated, disposed, or recycled and the quantities of materials procured, backfilled, and placed for site restoration.

2.2.1 Waste Management

2.2.1.1 Water Treatment

Because it was not necessary to depress the water table, all groundwater drained from the soil plume areas incidental to excavation and backfill activities was pumped directly into the existing industrial waste (IW) system or the bilgewater pipeline. It was therefore not necessary to collect any water for transportation to offsite or onsite treatment facilities. The volume being relatively small, there was no requirement to measure the quantity of water disposed into these systems.

2.2.1.2 Sludge Removed

Although a large portion of the work was performed under the UST program because the petroleum plumes were assumed to have originated from previously closed **USTs** in the area, BEI did not remove any USTs as a part of these tasks; therefore, there was no sludge to report removed from **tanks**.

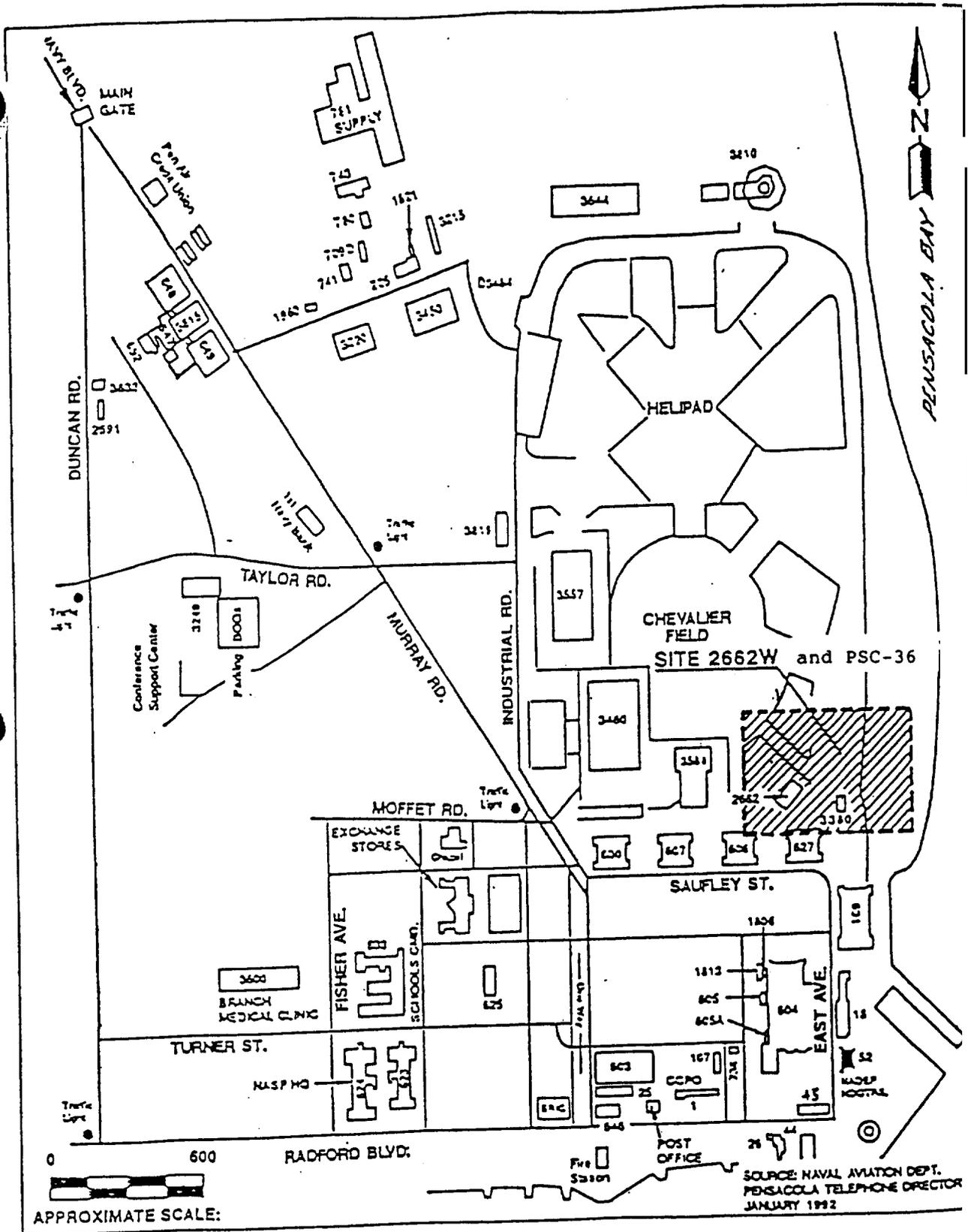


FIGURE 1
SITE LOCATION MAP

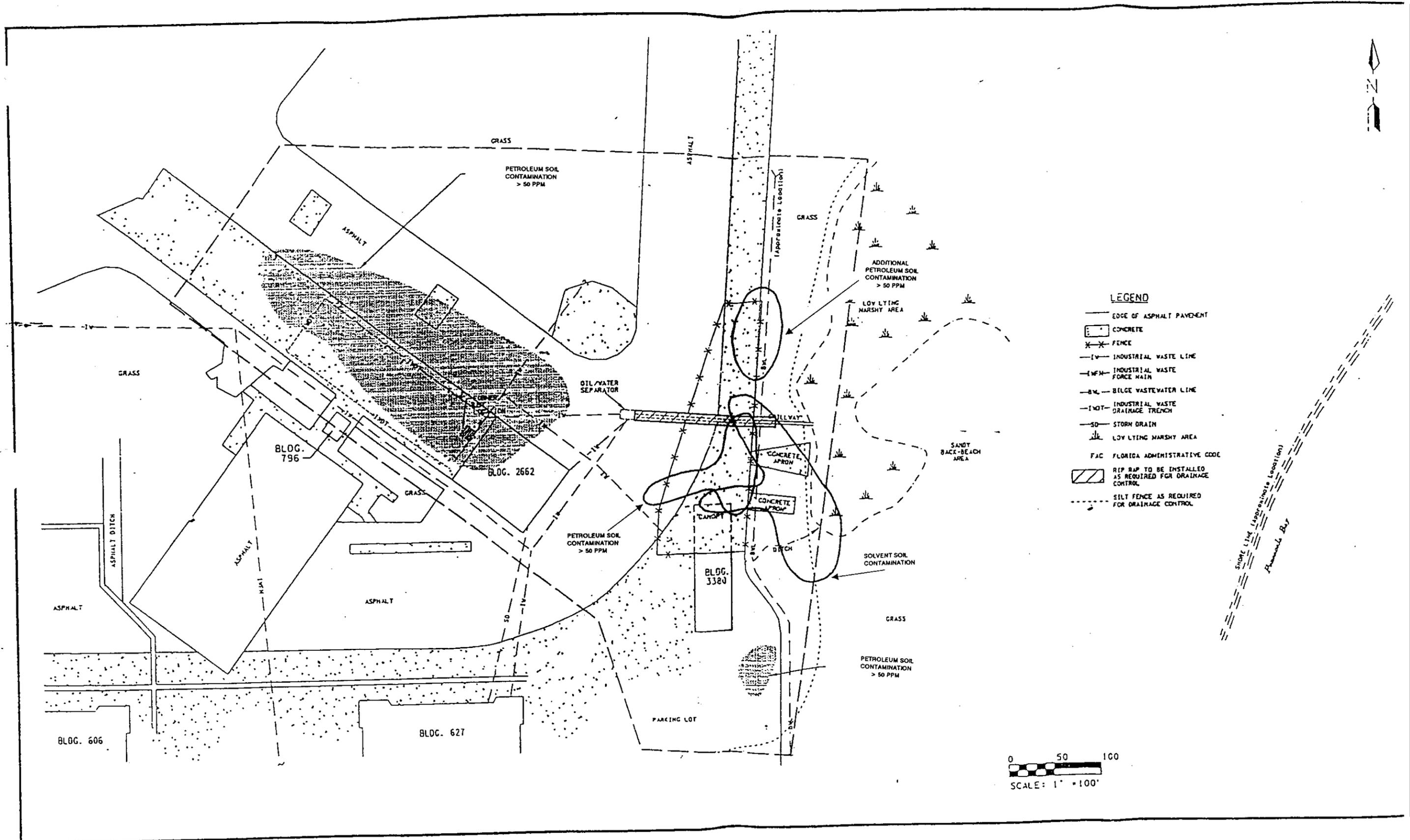
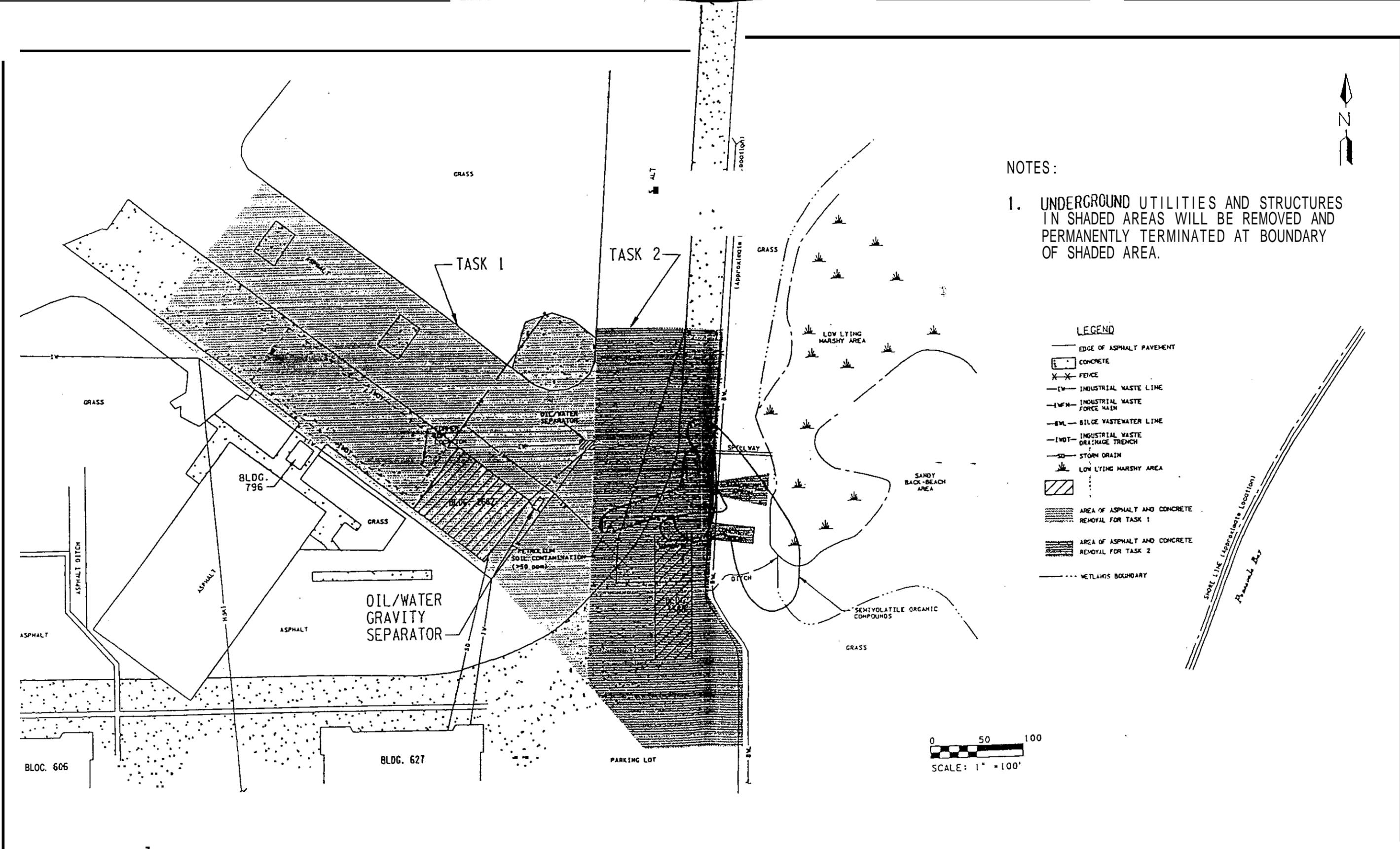


FIGURE 2
 LOCATION OF TASK 1 PETROLEUM SOIL PLUMES SITE 2662W
 AND TASK 2 OVERLAPPING SOIL/SOLVENT PLUMES SITE PSC 36



22561 401 FIG3-2T2.DGN

FIGURE 3

D&D ACTIVITIES AND SOIL CONTAMINATION PLUME
 TASK 2 SITE 36 CATEGORY VIII BUILDING 3380

Table 1
Summary of Quantities Excavated, Treated, Disposed, Recycled or Restored

Waste Stream or Material Handled	Estimated Quantity of Soil to be Excavated	Actual Quantity Excavated	Quantity of Material Disposed Offsite	Transporter	Disposal Facility or Material Source	Quantity of Soil Thermally Treated Onsite	Quantity of Material Recycled	Quantity of Backfill Placed
Site 2662W Soil	5,827 yd ³ - Bldg 2662 150 yd ³ - Bldg 607	3,670 yd ³	559 yd ³ (failed first pass of treatment)	Anderson-Columbia	Anderson-Columbia Maxville, FL	3,111 yd ³ (invoiced as 4,355 tons)	N/A	3,111 yd ³
Site PSC-36 Soil	1,745 yd ³	984 yd ³	934 yd ³ (not treated)	Anderson-Columbia	Anderson-Columbia Maxville, FL	50 yd ³ (invoiced as 70 tons)	N/A	50 yd ³
East Chevalier Field Soil	N/A	344 yd ³ (manifested as 483 tons)	344 yd ³ (manifested as 344 tons)	Massey Hauling	BFI Timberlands, Escambia Cnty, AL	N/A	N/A	N/A
Backfill	N/A	N/A	N/A	Kingry-Cerney	McDirt & Martin Marietta Aggregate, Pensacola, FL	N/A	N/A	6,429 yd ³
Concrete	N/A	1,910 yd ³	1,910 yd ³	Kingry-Cerney	Kingry-Cerney Cantonment, FL	N/A	N/A	N/A
Concrete	N/A	900 yd ³	900 yd ³	Associated Environmental	Onsite	N/A	N/A	N/A
Hazardous Concrete	N/A	2.5 yd ³ (manifested as 10,000 pounds)	2.5 yd ³ (manifested as 10,000 pounds)	LSE Transportation	Essex Waste Management, Kingsville, Mo	N/A	N/A	N/A
Lead Paint Chips	N/A	N/A	30 pounds	LSE Transportation	Essex Waste Management, Kingsville, MO	N/A	N/A	N/A
Asphalt	N/A	1,760 yd ³	N/A	Kingry-Cerney	Kingry-Cerney Cantonment, FL	N/A	1,760 yd ³	N/A
Scrap Metal	N/A	N/A	N/A	Kingry-Cerney	Auto Shred, Pensacola, FL	N/A	Lump Sum Contract	N/A
TOTAL QUANTITIES	7,722 yd³	9,568 yd³	4,649.5 yd ³	N/A	N/A	3,161 yd³	1,760 yd ³	9,590 yd³

2.2.2 Quantities of Soil Removed

Greater than anticipated thicknesses of asphalt and concrete in some areas (up to 12 in.) resulted in smaller quantities of soil removal than was anticipated. A total of 4,998 yd³ of soil, 2,810 yd³ of concrete, and 1,760 yd³ of asphalt (9,568 total yd³) were excavated.

2.2.2.1 Task 1 Soil Removal

Task 1 was based on the estimate by ABB-ES for Site 2662W for removal and treatment of approximately 5,827 yd³ of petroleum-contaminated soil in plumes near Building 2662, plus 150 yd³ of petroleum-contaminated soil from a plume near Building 607. These plumes exhibited > 50 ppm volatile organic compounds by headspace analysis. Approximately 3,670 yd³ of soil was excavated from these areas in Task 1.

2.2.2.2 Task 2 Soil Removal

Task 2 was based on the estimate by EA&H for the combined plume at Site PSC-36 (near Building 3380) for removal and treatment of approximately 1,745 yd³ of contaminated soil, having either > 50 ppm VOCs from petroleum-contamination, or known traces of solvents, or both. Approximately 984 yd³ of soil were excavated from this area in Task 2.

2.2.2.3 Additional Soil Plume, East Side of Chevalier Field

Prior to demobilization from NAS Pensacola, additional contaminated soil was discovered on the east side of Chevalier Field, in an area located north of Building 3380. Upon direction from SOUTHDIR, another IRA was performed, removing approximately 344 yd³ of soil.

2.2.3 Quantity of Backfill

Backfill material came both from offsite borrow pits and from soil that was successfully treated onsite by thermal desorption. Approximately 3,161 yd³ of treated material was backfilled and compacted, and approximately 6,429 yd³ of clean fill from offsite sources was backfilled and compacted. The specifications for final grade elevations were established by the Navy Technical Representative (NTR). A total of 9,590 yd³ of backfill material was placed and compacted.

2.3 DEMOLITION

2.3.1 Decontamination and Demolition of Buildings

Two rigid frame steel buildings were removed: Building 2662, located in the Task 1 remediation zone and Building 3380, located in the Task 2 remediation zone. Both buildings were demolished under a separate subcontract, before the removal of pavement and underground utilities. The existing steam lines in these buildings were wrapped with insulation, some of which was asbestos; piping with asbestos insulation was removed by the Navy Public Works Division before mobilization by Bechtel. Mercury vapor lamps were disposed of as special waste.

2.3.1.1 Hazardous Waste Disposal

The concrete floor in Building 2662 was contaminated with hazardous materials (F-listed waste) and was remediated by removing approximately 1/4 in. of the surface concrete using a walk-behind Blastrack abrasive blasting machine. Lead-contaminated paint was discovered on Building 2662. Approximately

10,000 pounds of hazardous debris from the concrete floor and 30 pounds of lead paint chips **left over from** building demolition was containerized in drums and **transported** by LSE Transportation of **Livingston, Louisiana** for disposal at **Essex Waste Management, Kingsville, Missouri**.

2.3.1.2 Scrap Metal Disposal

The lead painted metal **from** Building 2662 was tested by toxic characteristic leaching procedure (TCLP) and found to be nonhazardous. The metal was transported to Auto **Shred in Pensacola, Florida**, for reclamation and recycling. Disposal was included in the fixed-price demolition contract, and **was** not priced or accounted for separately.

2.3.2 Demolition of Pavement and Oil/Water Separator

In addition to building demolition, it was necessary to remove large **areas** of concrete and asphalt pavement from runways and flight line areas to gain access to the contaminated soil. Other underground structures such as concrete lined trenches and pits and an oil/water separator were also removed.

2.3.2.1 Disposal of Construction Debris

Approximately 900 yd³ of concrete was disposed onsite at the direction of the NTR during the early stages of the project.

Approximately 1,910 yd³ of concrete were transported by Kingry Trucking to Kingry-Cemey Landfill and Recycling in Cantonment, Florida, for disposal as construction debris.

Approximately 1,760 yd³ of asphalt were transported by Kingry Trucking to Kingry-Cerney Landfill and Recycling in Cantonment, Florida, for recycling.

2.3.3 Demolition of Underground Utilities

Active utilities in the remediation zone were permanently terminated **as** directed by the NTR. The bilge waste water line that intersected the excavation area on the east side was not removed. The line was temporarily supported to maintain its structural integrity during excavation and backfill work. **A 2-in,** threaded opening was discovered in the pipeline during excavation; the opening **was** reported immediately to the NTR and was repaired by Public **Works** personnel.

2.4 SYSTEM INSTALLATION (N/A - Interim Removal Actions Only)

2.5 REMEDIAL TECHNOLOGY DESCRIPTION

Headspace VOC readings were used to guide soil removal during excavation of the petroleum plumes. Vertical limits of excavation for the petroleum plumes extended down to the level of the local water table or 3 ft, whichever was greater. Surface elevations were determined by survey **and** a laser level **was** used to determine the depth of the excavation for compliance with the technical memoranda (TMs).

Soil was removed **from** the solvent plume according to the area that was marked with survey flags by EA&H, who also marked the boundaries of the adjacent wetlands area with survey flags to **aid** in avoiding encroachment into the wetlands. For the solvent plume, the vertical limit of excavation **was** the local water table.

2.5.1 Low Temperature Thermal Desorption

Low temperature thermal desorption was specified as the remedial technology for treatment of the contaminated soil excavated in the IRAs in Task 1 and Task 2.

The Florida Administrative Code (FAC), Chapter 62-775, provides specific requirements for thermal desorption of petroleum-contaminated soils as defined in Rule 62-775.200, to ensure that the soils are properly handled and are treated to levels that will not endanger public health or cause future contamination of other soils, groundwater, or surface water.

Bechtel executed a competitive bid subcontract for onsite thermal desorption with CAL Tech Testing who in turn subcontracted with Anderson-Columbia to provide and operate a mobile low temperature thermal desorption unit at sites 2662W and PSC 36. The thermal desorption unit was licensed and permitted in the State of Florida. Approximately 3,111 yd³ of petroleum-contaminated soil from Site 2662 was successfully treated onsite, and approximately 50 yd³ of soil from the combined plume at Site PSC-36 was successfully treated onsite.

2.5.2 Soil Removed Offsite by Anderson-Columbia for Disposal

Onsite thermal desorption was terminated before completion of processing the contaminated soil from Site 2662 and Site PSC-36. The thermal desorption system is required to undergo a stack test within 30 days of beginning onsite operations. Degratation of the refractory liner occurred in the high temperature final exhaust stack on the desorption unit, which resulted in the stack exhaust opacity (visible exhaust plume) being higher than allowed in the air quality permit; the unit was immediately shut down for inspection. The time required to accomplish the necessary repairs to the stack liner would have caused unacceptable delays in the remediation of the site. In order to meet the schedule terms in its subcontract, Anderson-Columbia therefore elected to remove the remaining untreated soil to its fixed treatment facility in Maxville, Florida, for disposal.

Some of the soil that was remaining to be treated (about 782 tons) was petroleum-contaminated soil from the Site 2662 plume that had not passed the total recoverable petroleum hydrocarbons (TRPH) limits during the first treatment cycle, and was awaiting retreatment. The remainder of the soil (about 1,307 tons) was from the Site PSC-36 plume that had not yet been treated when the stack problem was identified.

2.5.3 Offsite Landfill Disposal of Contaminated Soil

The soil that was excavated during the IRA at the unnamed site on the east side of Chevalier Field was sampled and analyzed for hazardous contaminants and found to contain traces of pesticides. The Northwest District office of the Florida Department of Environmental Protection (FDEP) determined that this soil could not be processed by low temperature thermal desorption. The soil was therefore disposed of at BFI Timberlands Landfill in Escambia County, Alabama, after acceptance by the landfill operator and the State of Alabama. To minimize the amount of soil excavated, only that soil having > 10 ppm VOC headspace readings was removed, and the depth of removal was limited to not more than 12 in. below the Level 2 design elevation for the new construction.

2.6 GENERAL SITE RESTORATION AND DEMOBILIZATION

Clean granular backfill was placed and compacted in the excavation areas, along with processed soil that had been thermally treated onsite and met the FDEP criteria for clean soil. The elevations of all excavated areas were returned to at least the original elevations; the as-built elevations are shown in Appendix A. Demobilization included decontaminating equipment, cleaning work areas, removing equipment from the work site, and removing drummed materials.

3.0 MAJOR PROBLEMS ENCOUNTERED/SOLUTIONS ADOPTED

3.1 NEED FOR EXPEDITED BACKFILL OF REMEDIATED SOIL

To have a better chance of meeting the expedited schedule for soil remediation, it was necessary to place the treated soil back into the excavation before receiving analytical data from the offsite laboratory confirming that the soil met the criteria for clean soil. A method was needed to reduce the risk of backfilling soil before receiving the post-treatment analytical results. This was accomplished by using "immunoassay" field screening test kits to provide a "go-no-go" result for petroleum content in the treated soil. If the TRPH limits for clean soil criteria were not achieved in the first pass through the desorption unit, the screening would identify the problem and the soil was reprocessed. Soil that passed the screening test was immediately backfilled, without having to wait for analytical results from the offsite lab. This strategy proved to be entirely effective, and no backfilled soil had to be re-excavated for retreatment.

3.2 LISTED HAZARDOUS WASTE IN BUILDING 2662

Solvent contamination was detected by EA&H on the surface of the concrete floor in Building 2662. Based on process knowledge, the Navy determined that this was an F-listed waste, requiring that the concrete floor be handled as a hazardous waste.

Solution: In order to avoid the expense of disposing all of the concrete as hazardous waste under the "debris rule," a methodology was developed to remove approximately 1/4 in. of the surface concrete using a walk-behind Blastrack abrasive blasting machine (Appendix D, Photographs 10 and 11). A special QA method was developed to enable measurement of removal of the contaminated cement binder component of the concrete, separate from the unreactive coarse gravel aggregate which remained behind. This reduced the quantity of concrete that was disposed as hazardous waste from a potential of approximately 300 tons to a disposed quantity of approximately 5 tons. The remainder of the concrete was disposed as construction debris.

3.3 UNEXPECTED UNDERGROUND OBSTRUCTIONS

Unexpected underground obstructions were discovered during demolition of paving.

Solution: The trends of potential extra costs were documented and the contractor was authorized to continue work. Additional debris was disposed according to its appropriate waste category. No schedule delay resulted.

3.4 LEAD PAINT ON BUILDING

Paint on Buildings 2662 and 3380 was tested for lead content; lead was found in the paint on Building 2662.

Solution: A lead abatement plan was developed in the field, unit prices were negotiated with the demolition subcontractor for working under changed environmental working conditions, the potential extra costs were trended, and work was authorized to proceed using special equipment (track operated shear) and appropriate personal protective equipment (Appendix D, Photographs 2, 3, 4 and 5). No schedule delay resulted.

3.5 THERMAL TREATMENT STARTUP

Delays were incurred in getting the mobile thermal treatment unit mobilized and operating to meet our schedule. Generally poor performance by the subcontractor was experienced during operations.

Solution: Progress was tracked daily to determine productivity and **costs, scope** of thermal treatment was re-analyzed, 24-hour operations were negotiated with the subcontractor to meet schedule, and BEI and Navy support were coordinated for around-the-clock operations.

3.6 UNEXPLODED ORDNANCE

Civil War era unexploded ordnance was uncovered during excavation of soils, creating potential explosion hazards to personnel and equipment.

Solution: A hold point was declared on all excavation activities and the Navy Explosive Ordnance Disposal (EOD) Team was called in to expedite location and removal of any ordnance in the excavation area before resuming work. The EOD team completed search of area in five working days. This resulted in a one-week schedule slippage that Bechtel **was** unable to recover.

3.7 STACK TEST FAILURE

The thermal treatment subcontractor failed his FDEP-required stack test and shut down the unit before completing the treatment of the soil.

Solution: The contractor loaded and transported the soil offsite to his fixed soil treatment unit in Maxville, Florida, for disposal.

3.8 DEMOLITION, EXCAVATION, AND THERMAL TREATMENT

Costs for demolition, excavation, and thermal treatment were below the estimated amount due to reductions in quantities of soil excavated and improved field methods for demolition. Larger than anticipated volumes of concrete and asphaltic materials in the Task 1 plume area resulted in a reduction in the volume of soil to be treated. This was partially offset by the removal of an additional area of contaminated soil discovered on the east side of Chevalier Field in an area north of Building **3380**, which included dewatering, excavating, backfill and compaction, and offsite disposal in a permitted landfill.

3.9 OFFSITE DISPOSAL OF CONCRETE AND ASPHALT

Due to the presence of underground concrete structures that were not anticipated, and a widely distributed 6 in. to 12 in. thick layer of asphaltic material (possibly foundry sand and or slag) immediately under the pavement, there were larger than anticipated quantities of construction rubble to be transported and disposed offsite.

3.10 ARCHEOLOGICAL STUDY

The discovery of artifacts related to pre-Civil War occupancy made it necessary to have an archaeologist onsite during excavation, the need for which had not been anticipated. A separate report was generated documenting the archeological findings at the site.

3.11 ARTIFACTS AND DEBRIS

Widespread metal debris and other artifacts were encountered in the excavation area. These objects were jamming the flights of the infeed screw conveyor for the thermal desorption unit. The problem was resolved by renting a vibrating screen that **was** used for **bulk** screening of the soil prior to entry into the screw conveyor.

3.12 ADDITIONAL ANALYTICAL COSTS

Cost growth resulted from providing additional post treatment soil analyses requested by **FDEP**. Additional post-treatment testing **was** performed on soil **from** the **Task 2** (solvent) plume that **was** treated onsite before shutdown of the treatment system, and additional post treatment lead sampling and analysis were performed on soil from the Task 1 petroleum plume that was backfilled in the excavation following treatment.

All the above mentioned variances were performed within the original delivery order budget.

APPENDIX A

**AS-BUILT FOR POST REMEDIATION OF
CHEVALIER FIELD, NAS PENSACOLA**

**OVERSIZED 'PAGE
SCANNED IN SECTIONS
TO FOLLOW
ON SUBSEQUENT IMAGES.**

Attachment A

LEGEND

- MONITORING WELL (CLOSED)
- MONITORING WELL (OPEN)
- CONTROL POINT
- ⊕ BENCHMARK
- ⊖ STORM CRATE
- 123.45 SPOT ELEVATION (DECIMAL MARKS LOCATION)
- 123.45TC TOP OF CURVE ELEVATION

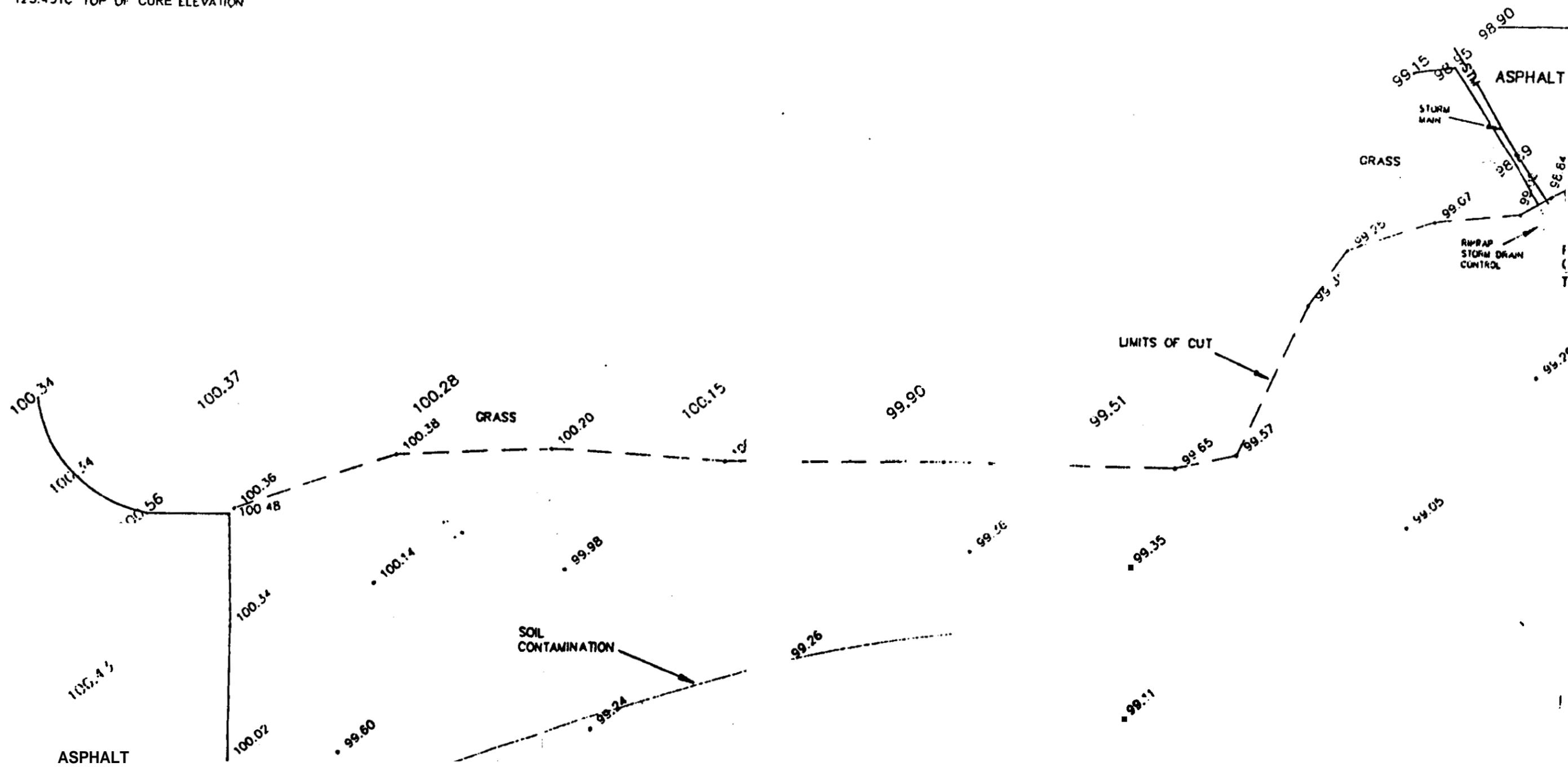
NOTES

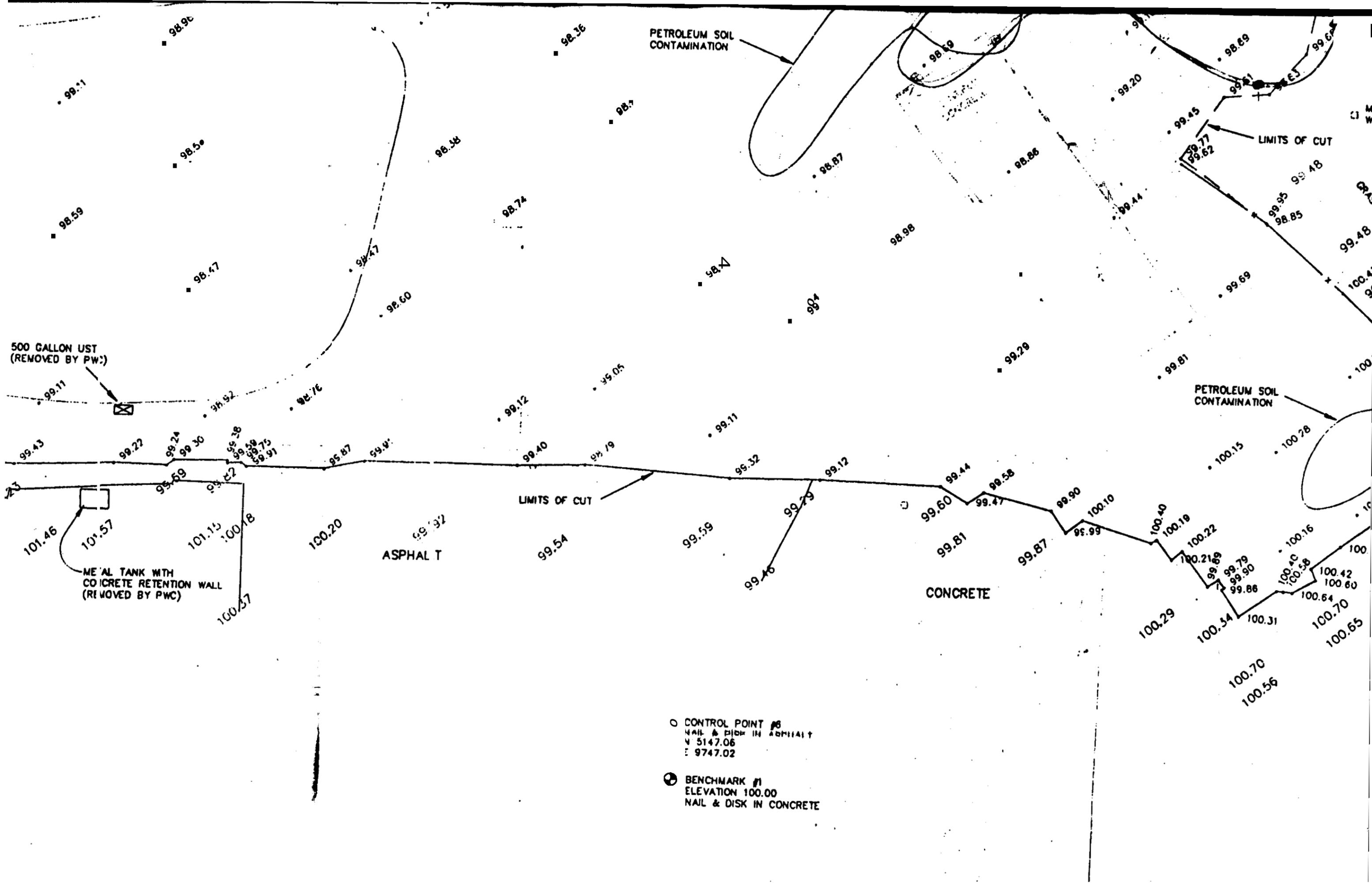
ELEVATIONS ARE BASED ON AN ASSUMED DATUM, AS REFERENCED FROM BENCHMARK #1, ELEVATION 100.00.

NORTHINGS AND EASTINGS ARE BASED ON AN ASSUMED GRID, REFERENCED TO MAGNETIC NORTH.

CONTROL POINT
NAIL & DISK IN
N 5537.25
E 9998.78

● BENCHMARK #4
ELEVATION 99.40
ALUMINUM TAG ON CONCRETE
"20,000 LBS CENTER RING"





PETROLEUM SOIL CONTAMINATION

PETROLEUM SOIL CONTAMINATION

ASPHALT

CONCRETE

500 GALLON UST
(REMOVED BY PW)

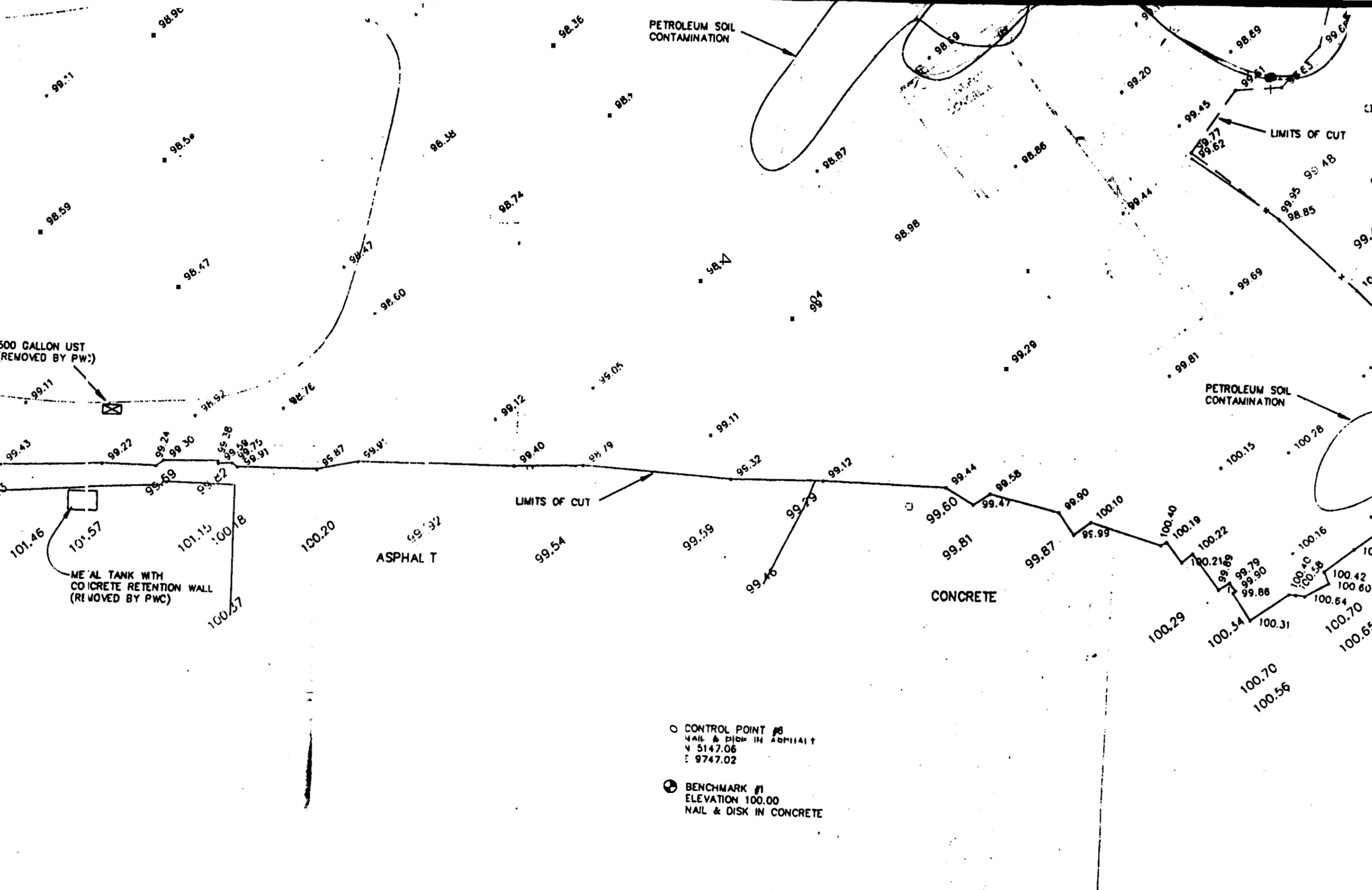
METAL TANK WITH
CONCRETE RETENTION WALL
(REMOVED BY PWC)

LIMITS OF CUT

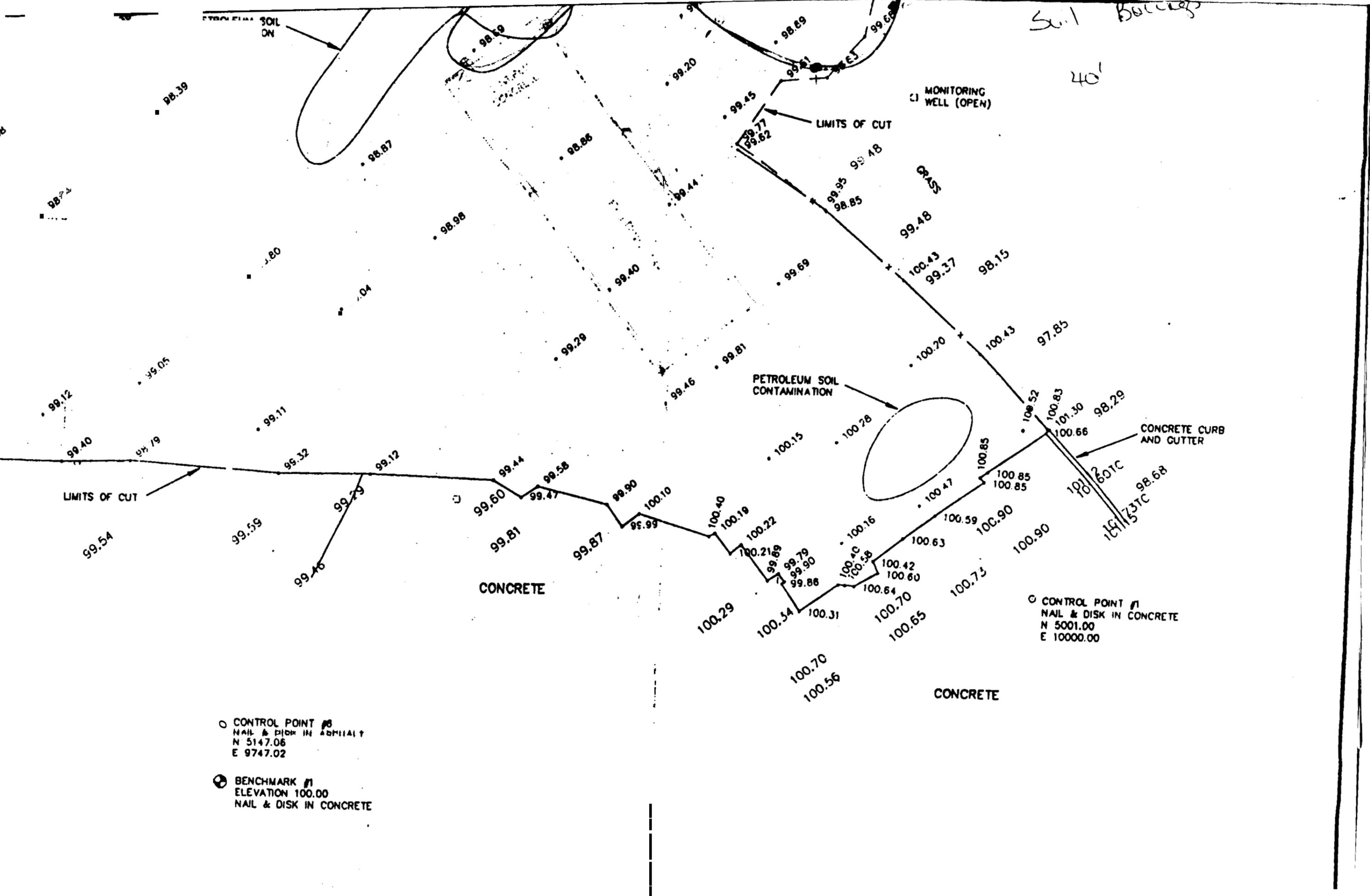
LIMITS OF CUT

○ CONTROL POINT #6
NAIL & DISK IN ASPHALT
N 5147.06
E 9747.02

⊕ BENCHMARK #1
ELEVATION 100.00
NAIL & DISK IN CONCRETE



Soil Borelogs
40'

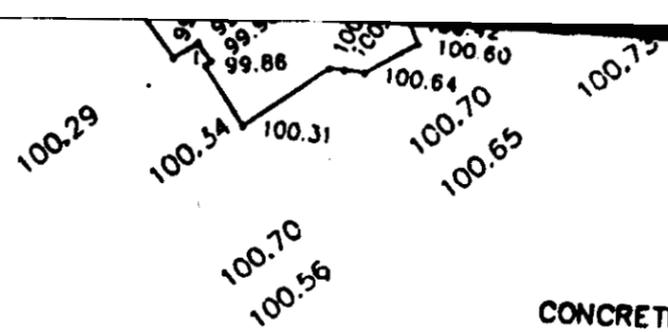


○ CONTROL POINT #6
NAIL & DISK IN ASPHALT
N 5147.06
E 9747.02

⊕ BENCHMARK #1
ELEVATION 100.00
NAIL & DISK IN CONCRETE

○ CONTROL POINT #1
NAIL & DISK IN CONCRETE
N 5001.00
E 10000.00

CONCRETE



⊙ CONTROL POINT #1
 NAIL & DISK IN CONCRETE
 N 5001.00
 E 10000.00

⊙ CONTROL POINT #2
 NAIL & DISK IN CONCRETE
 N 5147.06
 E 9747.02

⊙ BENCHMARK #1
 ELEVATION 100.00
 NAIL & DISK IN CONCRETE

CONCRETE

PREPARED FOR

BECHTEL
 ENVIRONMENTAL, INC.

SHEET TITLE

SPECIFIC PURPOSE SURVEY FOR
 POST-REMEDIATION
 SITE 2662/3380 - AS BUILT

SEAL

NOT VALID UNLESS EMBOSSED

SHEET NO.

1
 /
 1

APPENDIX B
REGULATORY FORMS/CORRESPONDENCE
(Not applicable)

APPENDIX C
ANALYTICAL RESULTS

SUMMARY OF HITS DETECTED FROM SCREENING SAMPLING
AT NADEP PENSACOLA PETROLEUM PLUME ON EAST SIDE OF CHEVALIER FIELD
ANALYTICAL RESULTS FROM NAVY PUBLIC WORKS CENTER LABORATORY, NADEP

Date of sampling: March 7, 1995

Lab Sample ID #	BNA Extractables		METHOD 8270A		Units: ug/kg		51267 (Background)	Det. Limit
	51261	Det.	51263	Det.	51265	Det.		
Field Sample ID	1	Limit	2	Limit	3	Limit		
PARAMETERS:								
Acenaphthene	BDL	165	BDL	165	(50)J	165	BDL	165
Anthracene	BDL	165	BDL	165	(30)J	165	BDL	165
Bis(2-ethylhexyl)phthalate	1200	330	BDL	330	1800	330	BDL	330
Fluoranthene	BDL	165	BDL	165	(100)J	165	BDL	165
Fluorene	BDL	165	BDL	165	(70)J	165	BDL	165
2-Methylnaphthalene	BDL	165	BDL	165	930	165	BDL	165
Napthalene	BDL	165	BDL	165	2800	165	BDL	165
Phenanthrene	BDL	165	BDL	165	180	165	BDL	165
Pyrene	BDL	165	BDL	165	(80)J	165	BDL	165

Note: **J** = Compound present in sample but below calculated detection limits.

All compounds can be found in uncombusted petroleum products, except for **Bis(2-ethylhexyl)phthalate**, which is a plasticizer that may be from contact with latex **gloves** or plastic during sample collection or laboratory handling.

SUMMARY OF HITS DETECTED FROM SCREENING SAMPLING
AT NADEP PENSACOLA PETROLEUM PLUME ON EAST SIDE OF CHEVALIER FIELD
ANALYTICAL RESULTS FROM NAVY PUBLICWORKS CENTER LABORATORY, NADEP

Date of sampling: March 7, 1995

Lab Sample ID #	VOCs METHOD EPA 8260				Units: ug/kg			
	51261	Det.	51263	Det.	51265	Det.	51267	Det.
Field Sample ID	1	Limit	2	Limit	3	Limit	(Background)	Limit
PARAMETERS:								
n-Butylbenzene	390	5	80	1	29	1	BDL	1
sec-Butylbenzene	50	5	4	1	122	5	BDL	1
tert-Butylbenzene	75	5	10	1	240	5	BDL	1
<> Chlorobenzene	BDL	1	2	1	BDL	1	BDL	1
p-Isopropyltoluene	280	5	20	1	470	5	BDL	1
Naphthalene	70	5	BDL	1	230	5	BDL	1
n-Propylbenzene	10	5	2	1	45	1	BDL	1
<> Trichloroethene	3	1	5	1	5	1	BDL	1
1,2,4-Trimethylbenzene	(1080)**	1	28	1	(1000)**	5	BDL	1
1,3,5-Trimethylbenzene	(630)**	5	96	1	470	5	BDL	1
m,p-Xylene	11	2	BDL	2	37	2	BDL	2

Note: ** = Estimated value; value exceeded highest calibration standard.

<> = VOHs

All other compounds can be found in uncombusted petroleum products.

SUMMARY OF HITS DETECTED FROM SCREENING SAMPLING
AT NADEP PENSACOLA PETROLEUM PLUME ON EAST ~~SIDE~~ OF CHEVALIER FIELD
ANALYTICAL RESULTS FROM NAVY PUBLIC WORKS CENTER LABORATORY, NADEP

Date of **sampling**: March 7, 1995

Lab Sample ID #	PESTICIDES		METHOD 8080A		Units: ug/kg		51267	Det.
	51261	Det.	51263	Det.	51265	Det.		
Field Sample ID	1	Limit	2	Limit	3	Limit	(Background)	Limit
PARAMETERS:								
4,4- DDT	7.0	1.947	5.1	1.947	BDL	1.947	BDL	1.947
Dieldrin	7.8	1.221	4.8	1.221	BDL	1.221	BDL	1.221
Endrin	6.9	0.429	BDL	0.429	BDL	0.429	BDL	0.429
Heptachlor	3.3	0.198	2.7	0.198	2.5	0.198	BDL	0.198

Lab Sample ID #	RCRA METALS		METHOD 6010A		Units: ug/kg		51267	Det.
	51261	Det.	51263	Det.	51265	Det.		
Field Sample ID	1	Limit	2	Limit	3	Limit	4	Limit
PARAMETERS:								
Barium	4	2	BDL	2	4	2	6	2
Chromium	4	2	4	2	3	2	BDL	2
Lead	30	10	40	10	20	10	90	10

APPENDIX D
PHOTOGRAPHS

CONTENTS

Photograph No.	Title
1	Asphalt/Concrete Removal, NE Building 2662
2	Shearing Operation - Demolition, Building 2662
3	Looking into Building 2662 as Demolition Takes Place
4	Looking NW into Building 2662, with Partial Demolition
5	Looking NE at Building 2662, Immediately after Building Drops
6	Looking East at Building 3380 as Demolition Begins
7	Looking NE at Building 3380
8	Looking East at Building 3380 as Demolition Progresses
9	Final Rubble being placed in Waste Containers
10	Close-up of Floor, Contrast of Scabbled and Unscabbled
11	Looking at Drums of Floor Sweeping Waste from Building 2662
12	Looking into Oily Water Separator
13	View of Anderson-Columbia Setup
14	Looking East at Pre-treatment Soil Stockpile
15	Looking NE after Pavement Demolition, before Soil Treatment
16	Looking SW after Pavement Demolition, before Soil Treatment
17	Looking East at Soil Thermal Treatment Unit
18	Looking North at Post-treatment Soil Stockpile
19	Two-inch Opening in Bilgewater Line in Solvent Plume
20	Remnants of Old Seawall
21	Looking NE at Solvent Plume
22	Looking West at Area Tested for Soil Density/Compaction

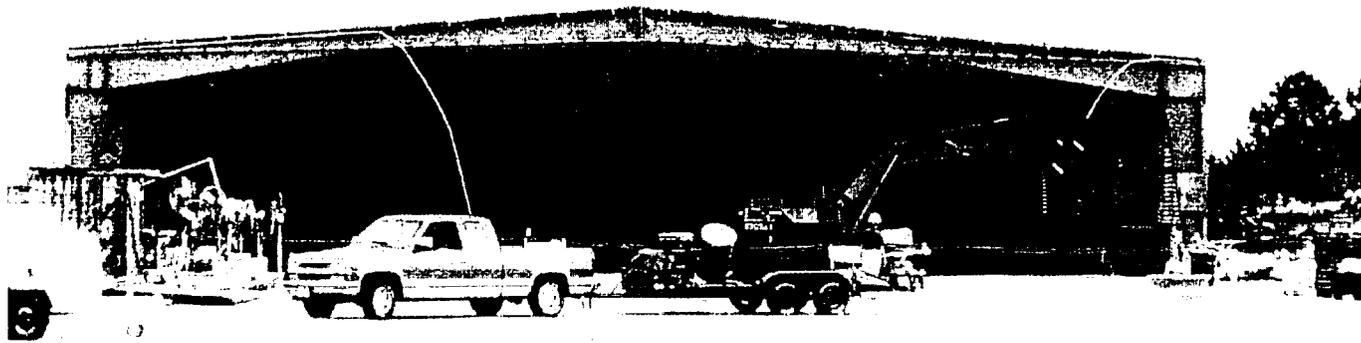


Figure 1

Asphalt/Concrete Removal N.E. Bldg 2662

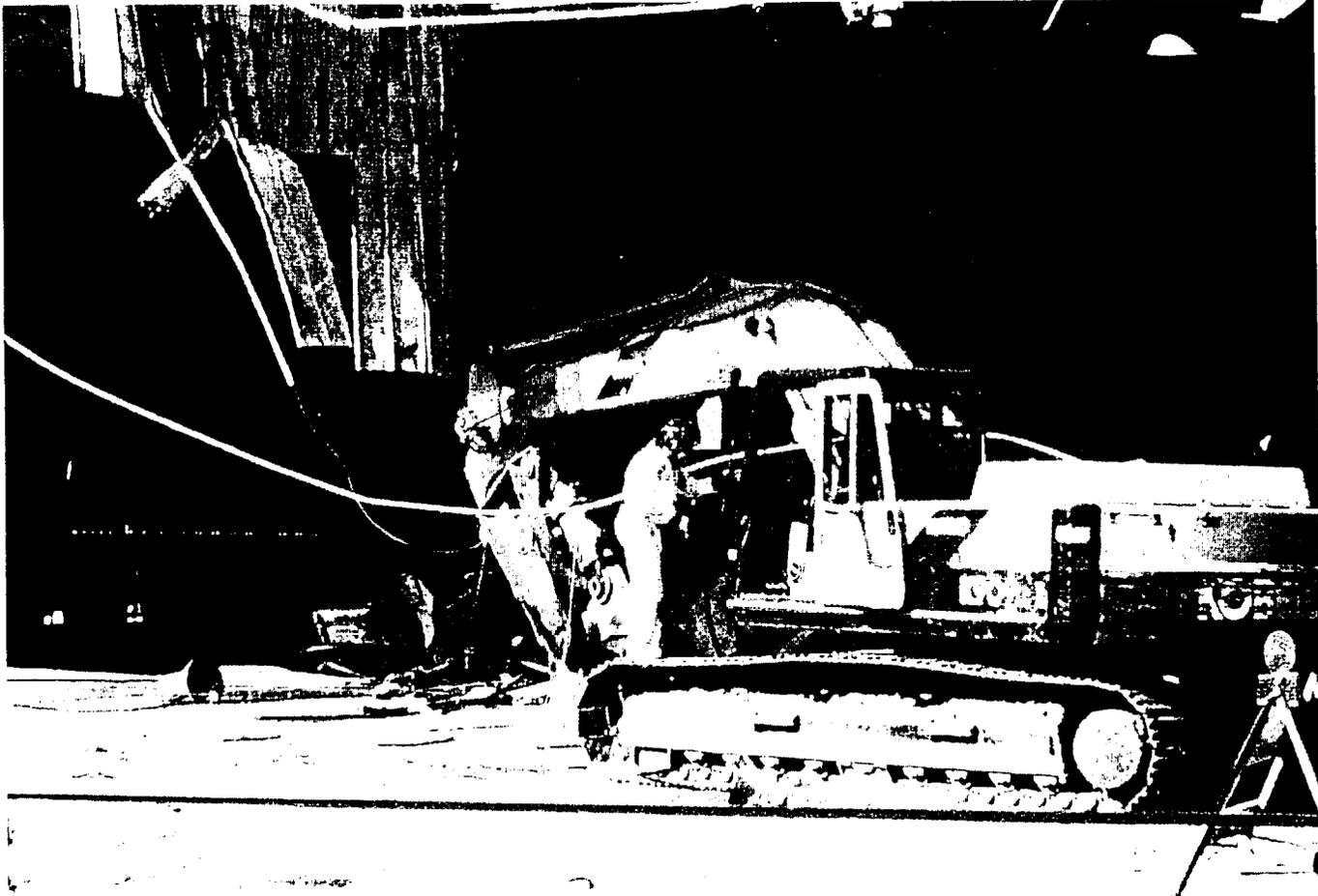


Figure 2

Shear ng Operation-Demolition Bldg 2662

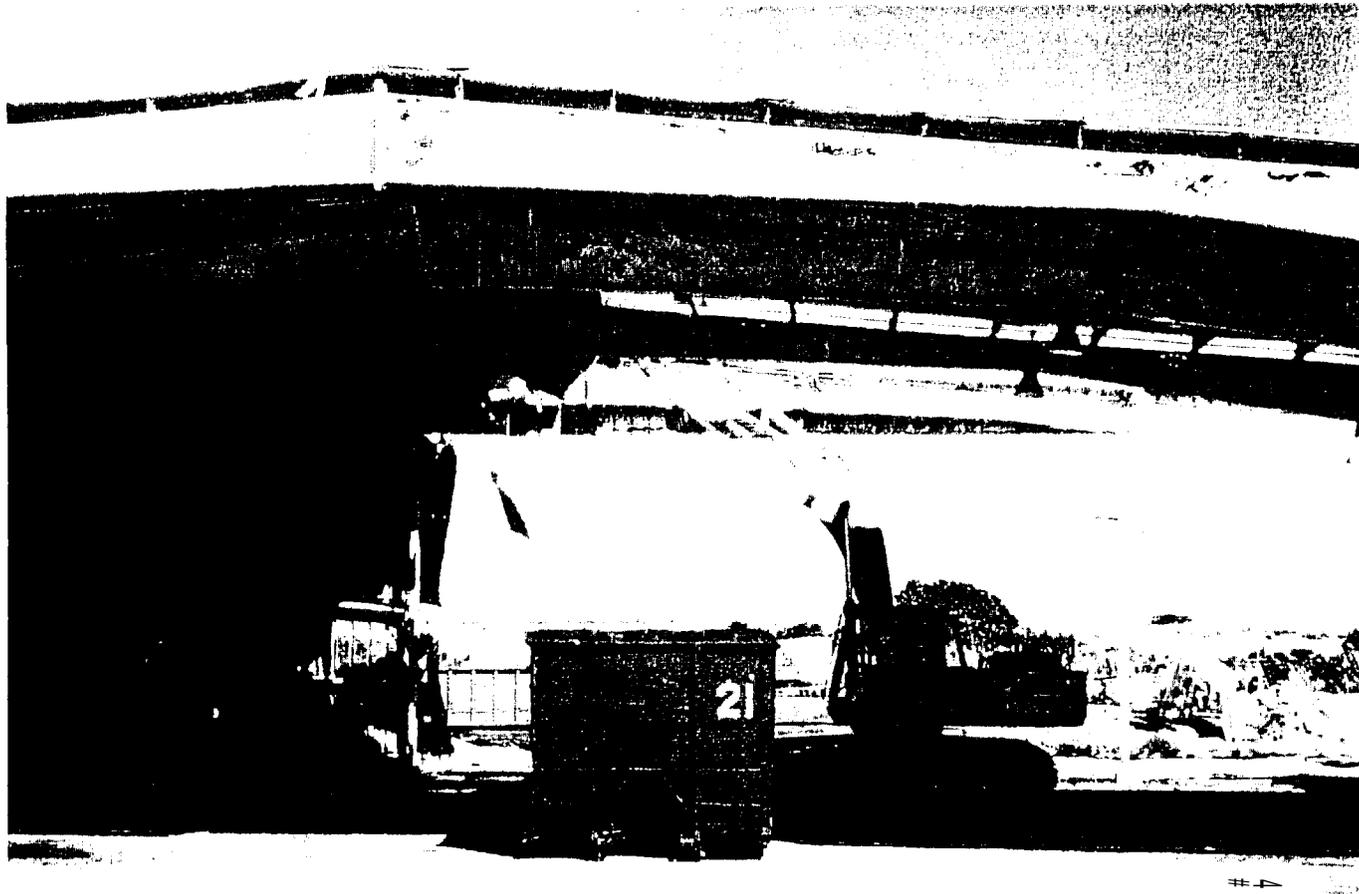


Figure 3

Looking Into Building 2662 as Demolition Takes Place

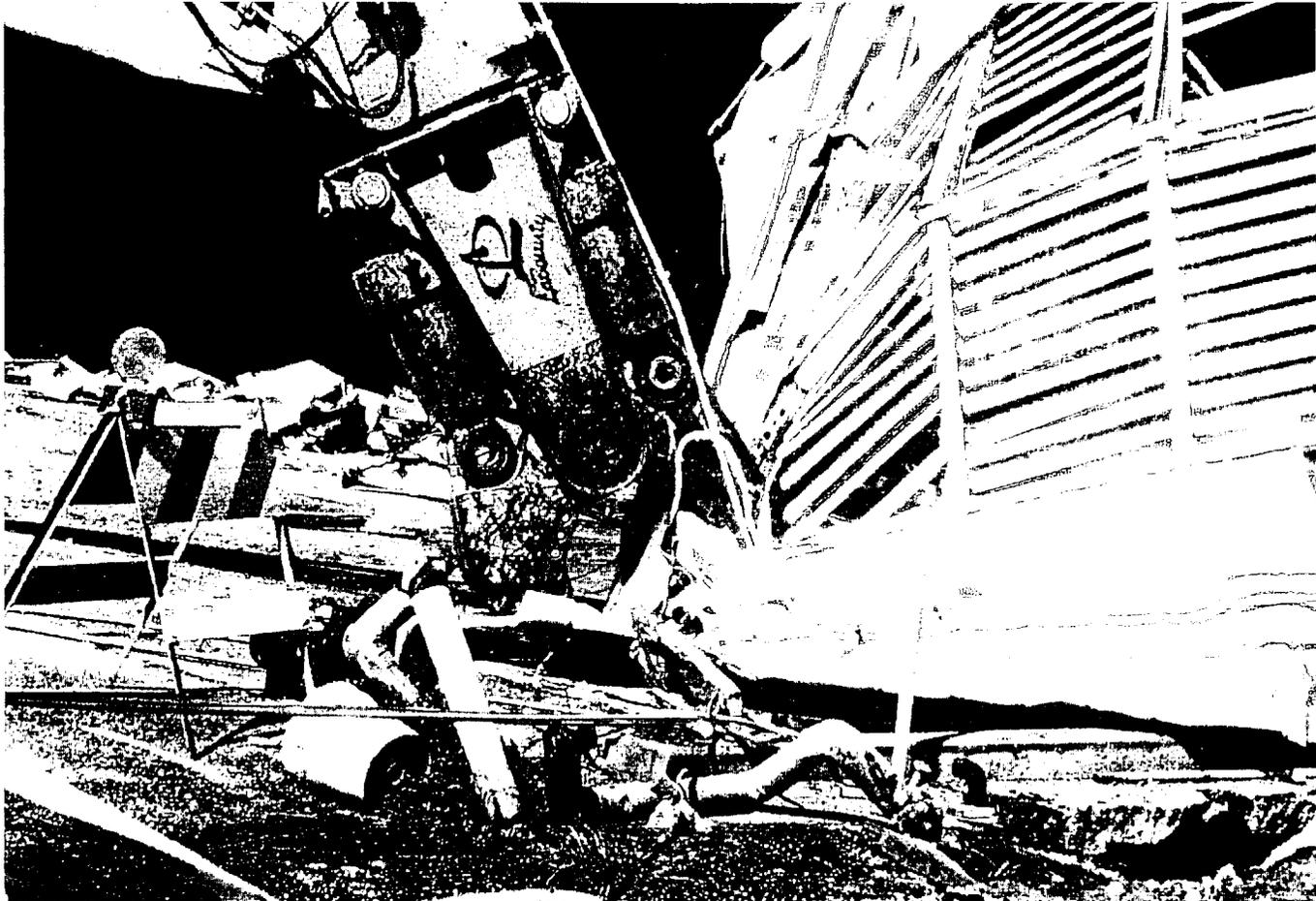


Figure 4

Looking N.W. Bldg 2662 with Partial Demolition



Figure 5

Looking N.E. at Bldg 2662 Immediately After Bldg Drops

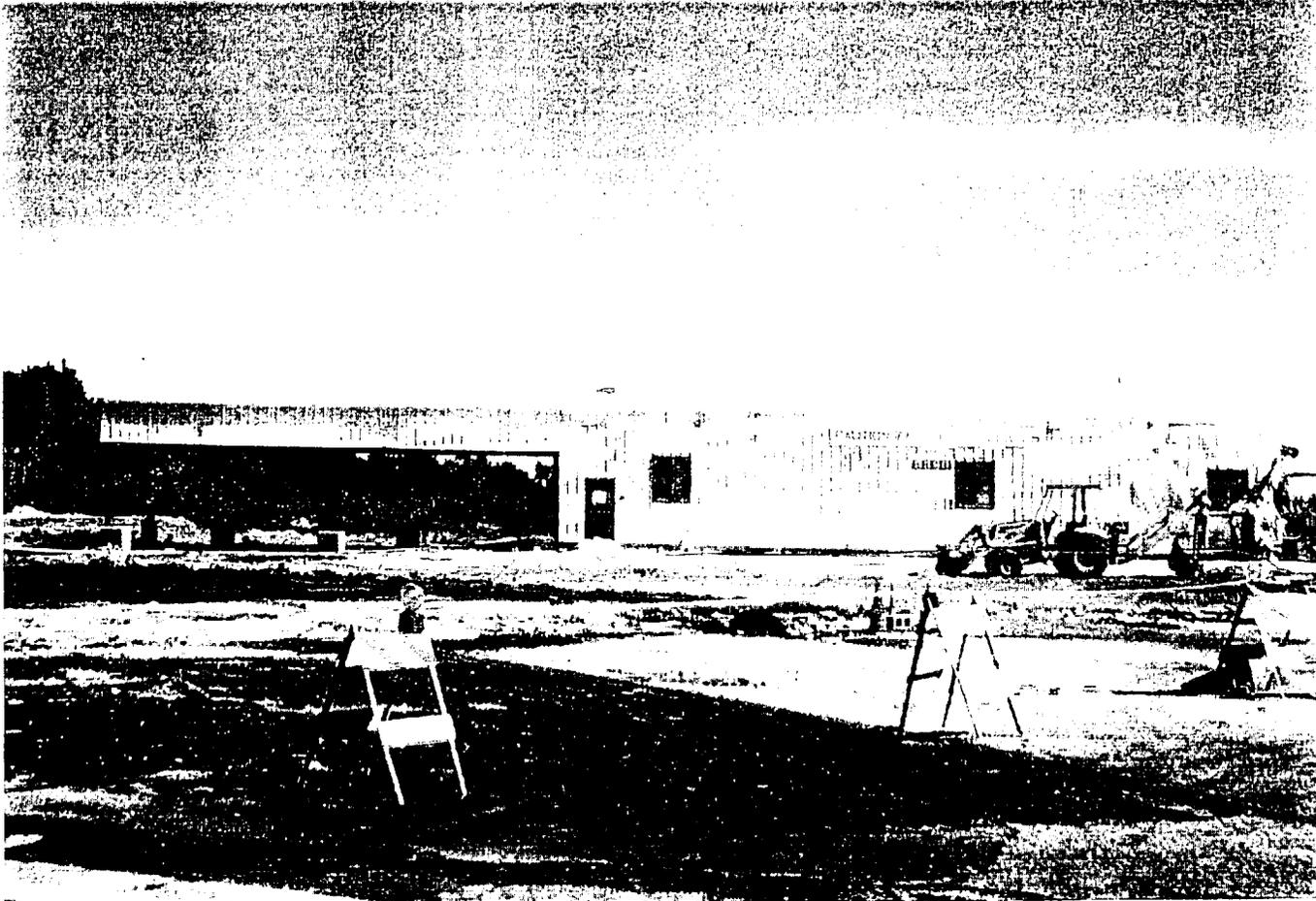


Figure 6

Looking East at Bldg 3380 as Demolition Begins



Figure 7

Looking N.E. Bldg 3380



Figure 8

Looking East at Bldg 3380 as Demolition Progresses



Figure 9

Final Rubble Being Placed in Waste Containers

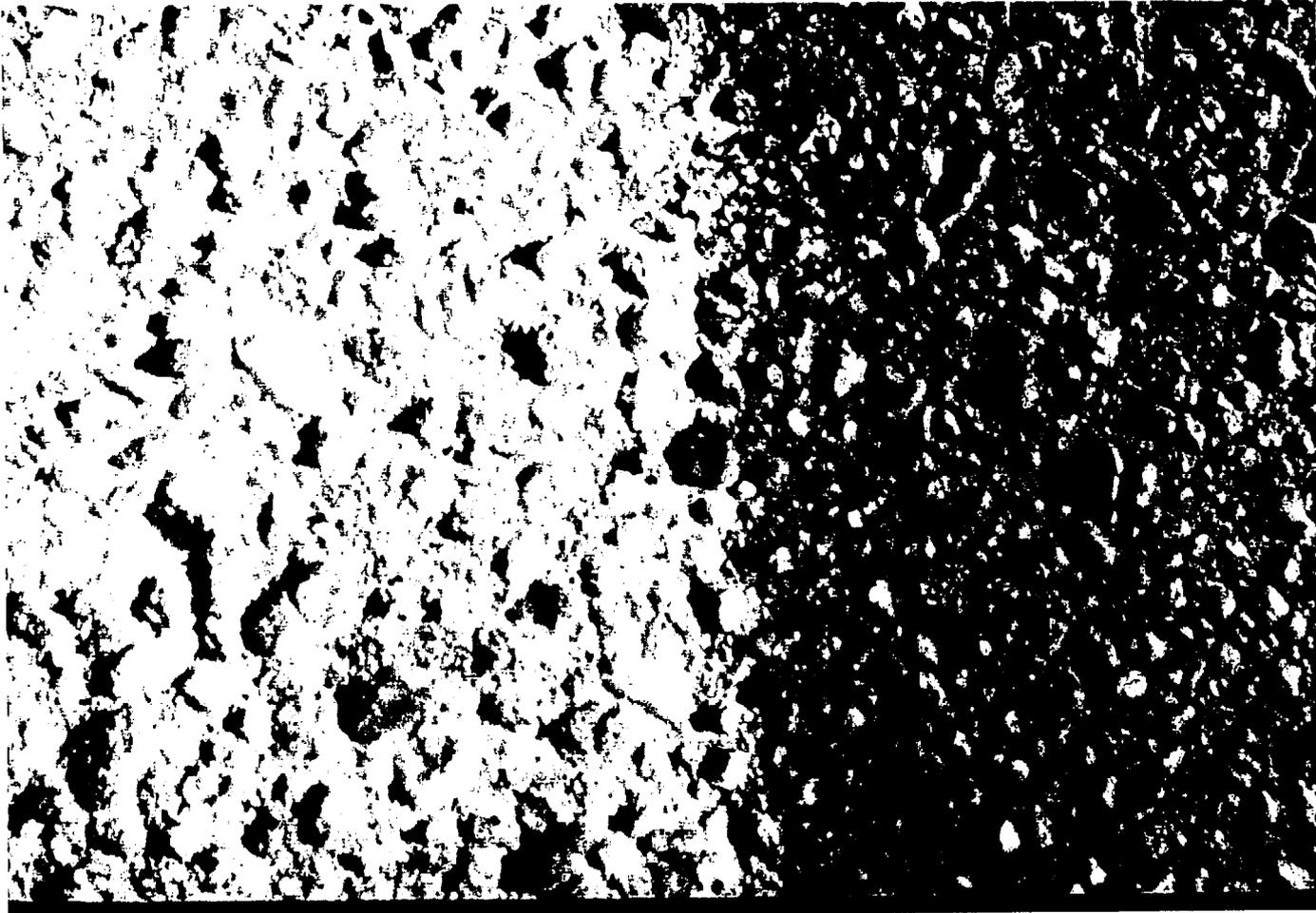


Figure 10

Close-up of Floor, Contrast of Scabbled and Unscabbled



Figure 12

Looking into Oily Water Separator



Figure 11

Looking at Drums of Floor Sweeping Waste from Bldg 2662



Figure 13

View of Anderson-Columbia Set-up



Figure 14

Looking East at Pre-Treatment Soil Stockpile



Figure 15

Looking N.E. After Pavement Demolition Before Soil Treatment



Figure 16

Looking S.W. After Pavement Demolition Before Soil Treatment

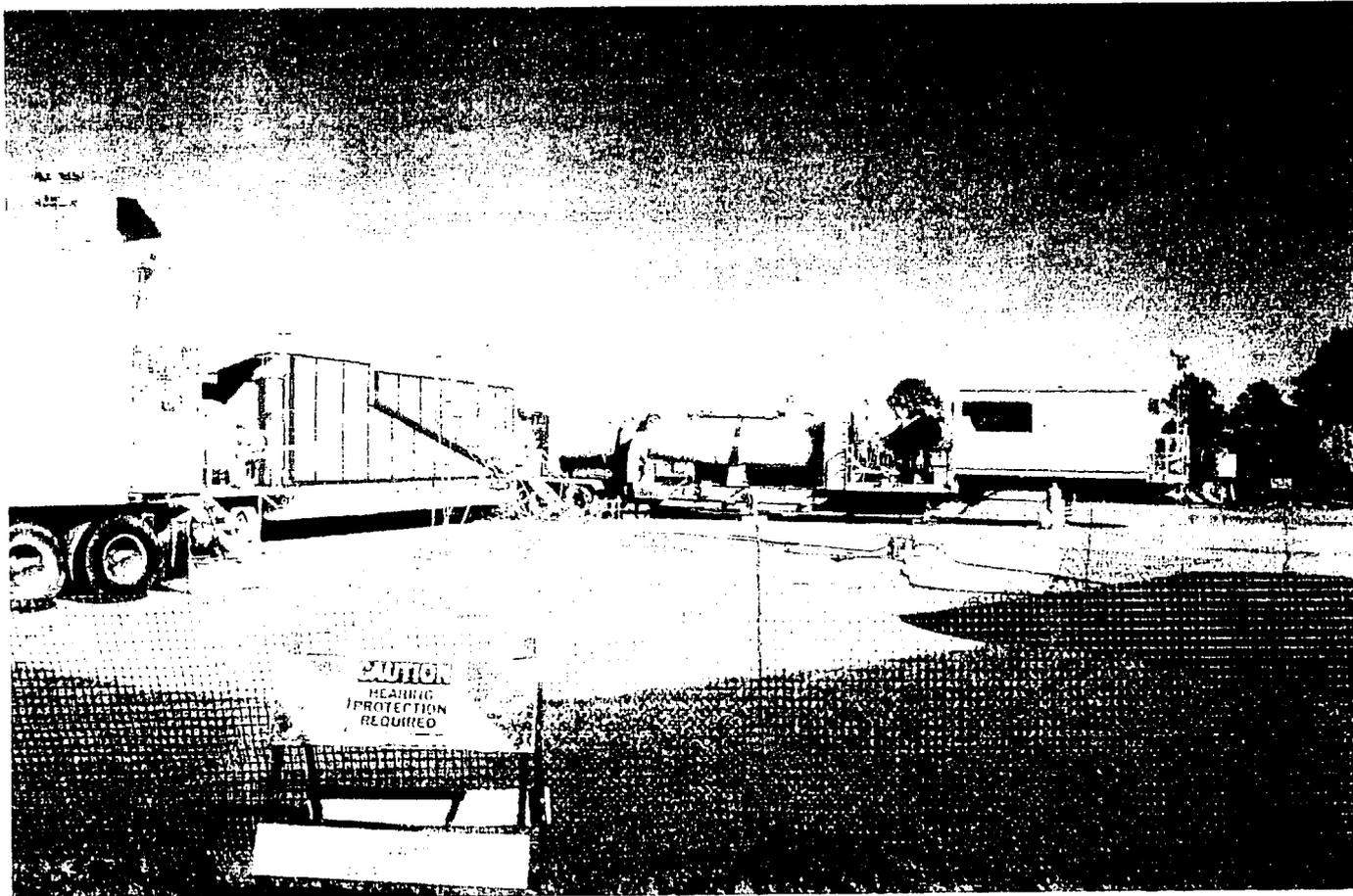


Figure 17

Looking East at Soil Thermal Treatment Unit



Figure 18

Looking North at Post-Treatment Soil Stockpile



Figure 19

4 inch Opening in Bilgewater Pine in Solvent Plume



Figure 20
Remnants of Old Seawall

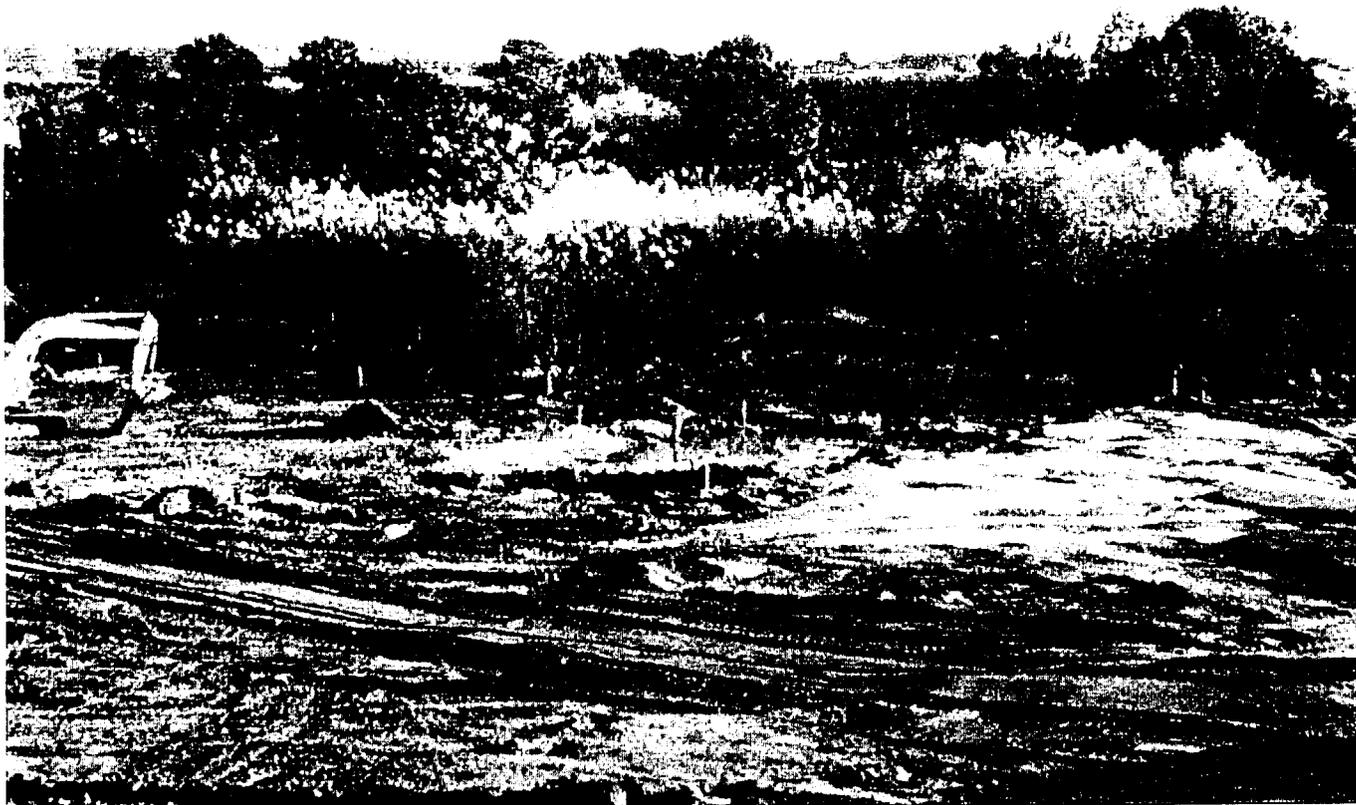


Figure 21
Looking N.E. Solvent Plume

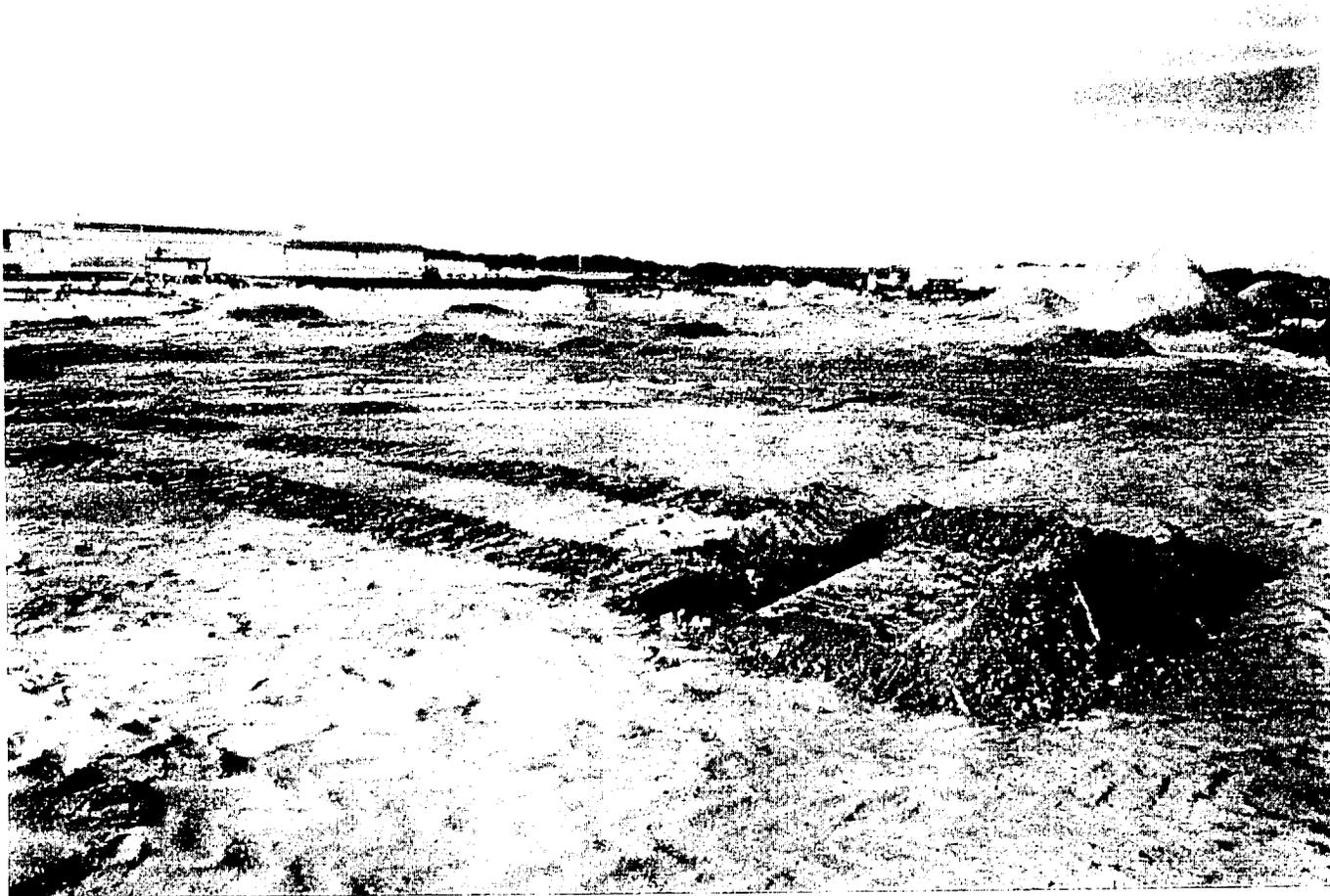


Figure22

Looking West at Area Tested for Soil Density/Compaction

APPENDIX E
SUMMARY OF MANIFESTS

**Weight Manifests for Petroleum Contaminated Soils
 Disposed Offsite-BFI Timberlands
 East Side Chevalier Field
 NAS Pensacola**

Date	Tons
05/3 1/95	23.23
05/3 1/95	21.66
05/3 1/95	23.17
05/3 1/95	23.40
05/3 1/95	20.97
05/3 1/95	23.21
05/3 1/95	21.50
05/3 1/95	25.54
05/3 1/95	21.46
05/3 1/95	24.87
05/3 1/95	22.68
05/3 1/95	23.02
05/3 1/95	24.29
05/3 1/95	21.70
05/3 1/95	20.78
05/3 1/95	23.93
05/3 1/95	24.60
05/3 1/95	19.17
05/3 1/95	21.11
05/3 1/95	20.23
05/3 1/95	16.23
05/3 1/95	16.08

TOTAL 482.83

Transportation Cost 22 loads @ 5250.00 \$ 5,500.00

Disposal Cost \$12,045.75

APPENDIX F
PROJECT DATA SHEET AND POSTER

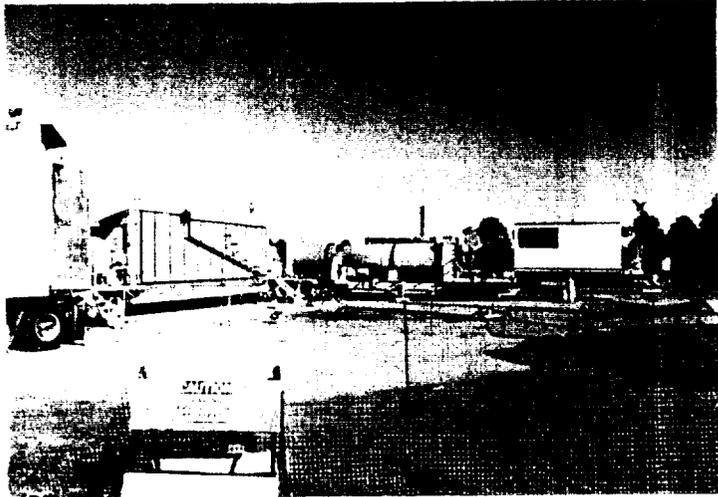
PROJECT DATA SHEET
NAVFAC SOUTH DIV

Project Sites 2662W and PSC-36, Chevalier Field

Location
NAS Pensacola, Florida

Navy Contact Lt(jg) Russell
Phone (904) 452-8068

Bechtel Contact Steve Cowan
Phone (423) 220-2603



Project Description:

Sites 2662W and PSC 36 were near the former location of a 1,000-gal UST that was used for storage of used oil and contaminated fuel. IRAs were performed by Bechtel to remove excessively contaminated soil at these sites. This UST was removed, along with associated petroleum-contaminated soil, during the tank removal program in 1989 and 1990. Task 1 of the IRA included remediation of the petroleum contaminated soil from the three separate plumes, and Task 2 included the demolition of Buildings 2662 and 3380 and remediation of the solvent plume. The excavated soil was thermally treated according to criteria set forth in the Florida Administrative Code Chapter 62-775. The treated soil was returned to the excavation as backfill and was compacted in preparation for the construction of the new training facility. An additional petroleum contaminated plume that contained a trace of solvents located near Building 3380 was remediated and disposed offsite.

TFMR - Project Controls

Project Innovations and Cost Savings:

To avoid the expense of disposing of all the concrete in Building 2662 as hazardous waste under the "debris rule" a methodology was developed to remove approximately 1/4 inch of the surface concrete using a walk behind Blastrack abrasive blasting machine. A special QA method was developed to enable measurement of removal of the contaminated cement binder component of the concrete, separate from the unreactive coarse gravel aggregate which remained behind. This reduced the quantity of concrete that was disposed as hazardous waste from approximately 300 tons to approximately 5 tons. The remainder of the concrete was disposed as construction debris.

Lead paint was found on Building 2662 and a lead abatement plan was developed in the field. Unit prices were negotiated with the demolition subcontractor, potential costs were trended, and the work was authorized to proceed using special equipment (track operated shear) and appropriate personal protective equipment. No schedule delay resulted.

Project Data Sheet (continued)

Scheduled Completion:

DO 0006 December 1994
DO0017 October 1994

Actual Completion:

May 1995
October 1994

Budget:

DO 0006 \$1,909,782.00
DO 0017 110,526.00

cost:

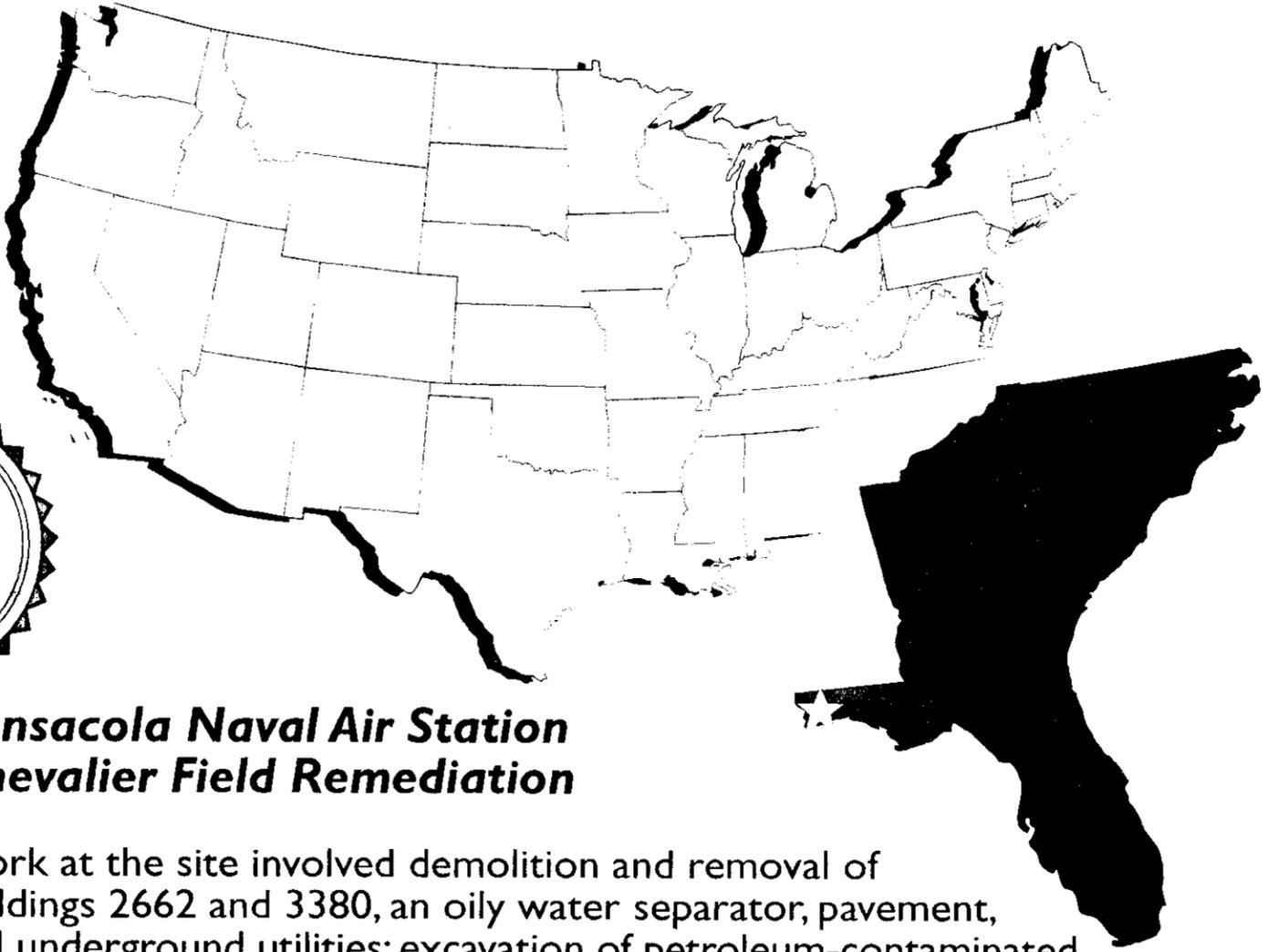
\$1,909,500.00
82,700.00

Scope Additions:

Prior to mobilization, additional contaminated soil was discovered on the east side of Chevalier Field in an area north of Building 3380. This additional work was performed within the original budget under Delivery Order 0006.

Southern Division
Engineering Command

1st
Completed
Site



Pensacola Naval Air Station Chevalier Field Remediation

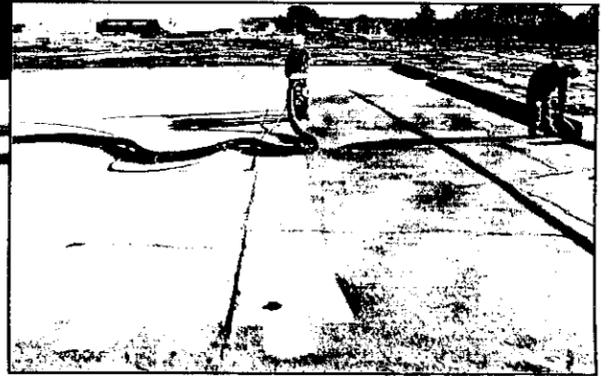
Work at the site involved demolition and removal of buildings 2662 and 3380, an oily water separator, pavement, and underground utilities; excavation of petroleum-contaminated soil; thermal treatment of the soil and backfilling the original excavation with the clean soil. This removal was critical for support of the scheduled start of the largest single fast-track construction project in Southern Division's history. The project was completed on schedule and under budget and incorporated many cost-saving activities.



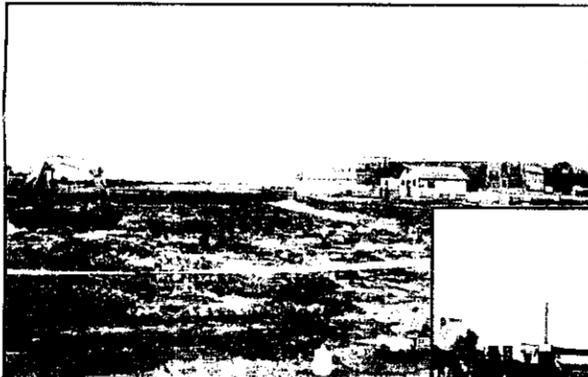
Demolition of concrete and asphalt pavement



Demolition of building 2662



Scabbling of building 2662 floor



Excavation of Site 2662 plume



Thermal treatment of petroleum-contaminated soil



Backfill of treated soil into Site 2662 excavation

Navy RAC Completed Sites

