

Table 6-5. Disposal Sites at Camp Lejeune Complex* (Continued Page 3 of 5)

Site No.	Site Description	Dates Used	Material Deposited	Public Works Development Map Sheet and Coordinates
33	Onslow Beach Road	Unknown	Waste oil and cinders for dust control	19, G11-12/H11-12/ I12-13/J12-13
34	Ocean Drive	Unknown	Waste oil	19, L16-17/M15-16 N14-15/O13-14 P12-13/Q10-12
35**	Camp Geiger Area Fuel Farm	1957-1958	Mogas (spill)	12, C11
36**	Camp Geiger Area Dump	Late 1940s- late 1950s	Mixed industrial and municipal solid waste	12, D13/E13
37	Camp Geiger Area Surface Dump	1950-1951	Motor parts, garbage, wood	12, D11-12
38	Camp Geiger Construction Dump	Present	Construction debris, branches	12 B10
39	Camp Geiger Construction Slab Dump	Unknown	Concrete slabs	12, B9-10/C9-10
40	Camp Geiger Area Borrow Pit	1969-	Auto parts, metal	13, D4
41**	Camp Geiger Dump	Approx. 1946-1970	Mixed industrial and municipal wastes, POL, solvents, old batteries, Mirex, ordnance	13, E2-3
42	Bldg. 705, BCO Dump	1950-1960	Trees, tree stumps, boards	23, D10
43	Agan Street Borrow Pit	Unknown	Boards, trash, WIP sludge, fiberglass	23, H6-7/I6-7
44	Jones Street Dump	1950s	Debris, cloth, boards, old paint cans	23, L6-7/M6-7
45**	Campbell Street Underground Avgas Storage and Adjacent JP Fuel Farm at Air Station	1978	Avgas, JP-4 and JP-5	23, O13-14/P13-14
46	MCAS Main Gate Dump	1958-1962	Construction and demolition debris	23, Q8-9
47	MCAS Rip-Rap Near Stick Creek	Unknown	Construction and demolition debris	23, B11

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Table 6-5. Disposal Sites at Camp Lejeune Complex* (Continued Page 4 of 5)

Site No.	Site Description	Dates Used	Material Deposited	Public Works Development Map Sheet and Coordinates
48**	MCAS Mercury Dumpsite	1956-1966	Dumping of approximately 1 gal. mercury yearly for approximately 10 years	23, D17/E17
49	MCAS Suspected Minor Dump	Unknown	Paint cans	23, C18-19
50	MCAS Small-Craft Berthing Rip-Rap	Unknown	Demolition debris, asphalt, concrete	23, A19-20/B19-20
51	MCAS Football Field	Approx. 1967-1968	Paint cans, hydraulic fluid cans	23, C21-22/D21-22
52	MCAS Direct Refuel Depot	1971	Aviation fuel spill, JP fuels	23, L19-20/M19-20
53	MCAS Warehouse Building Area. Oiled Roads	1970-1975	Crankcase, waste oils, JP fuels, paint thinners	23, H-Q23-26
54**	Crash Crew Fire Training Burn Pit	1950s-Present	Contaminated fuels, oil spills	23, O24-25/P24-25
55	Air Station East Perimeter Dump	1950s-1960	Barrels, tires, trash, metal planking, telephone poles	23, C29-30
56	MCAS Oiled Roads to Marina	1975-	Crankcase and waste oils, contaminated fuels	23, C28-30
57	Runway 36 Dump	Unknown	Debris	23, E-G30-32
58	MCAS Tank Training Area	Unknown	Tank parts, miscellaneous trash	23, D-G33-39
59	MCAS Infantry Training Area	1950s	Stumps	23, P-T26-30
60	Explosive Ordnance Disposal K-326 Range	1974-Present	Burn pits for explosives	15, O9
61	Rhodes Point Road Dump	Unknown	Bivouac waste	15, I9
62	Race Course Area Dump	Unknown	Bivouac waste	14, D8
63	Vernon Road Dump	Unknown	Bivouac wastes	14, H5
64	Marines Road-Sneads Ferry Road - Mogas Spill	1978	Mogas spill Feb. 28, 1975	17, I15/J15

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Table 6-5. Disposal Sites at Camp Lejeune Complex* (Continued Page 5 of 5)

Site No.	Site Description	Dates Used	Material Deposited	Public Works Development Map Sheet and Coordinates
65	Engineer Area Dump	Pre-1958 to 1972	Burn area dump, construction debris	17, K16
66	AMTRAC Landing Site and Storage Area	1950s-Present	Oil spills, POL, battery acid	17, J8
67	Engineers TNT Burn Site	1951	TNT disposal	23, A19-20/B19-20
68**	Rifle Range Dump	1942-1972	Solvents, construction materials, WTP sludge	16, H6-8/I6-7
69**	Rifle Range Chemical Dump	Mid 1950s-1976	Chemical agent test kits, Malathion, DDT, PCBs	16, L14-15/M14-15
70	Oak Grove Field Surface Dump	1940s-1950s	Mess hall wastes, cans, bottles, old paint cans	24, H2/I2
71	Oak Grove Buried Dump	1940s-1950s	Garbage, cans and bottles	24, L1
72	Oak Grove Coal Pile	1940s	Coal storage use for heating living quarters	24, F6
73**	Courthouse Bay Liquids Disposal Area	Late 1940s-mid-1970s	Waste battery acid, POL	17, I11-12
74**	Mess Hall Grease Disposal Area	1950-early 1960s	Pesticides, PCBs	5, N13/014
75**	MCAS Basketball Court Site	Early 1950s	Training agents (CN, CNC, CNB, and/or CNS)	23, 08-9/P8-9
76**	MCAS Curtis Road Site	1949	Training agents (CN, CNC, CNB, and/or CNS)	23, L10/M10/N10

* Site Nos. 1-69 and 73-76 are shown on Figure 2-1; Site Nos. 70-72 are shown on Figure 6-36.
 ** Sites recommended for Confirmation Studies.

Source: WAR, 1982.

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Site No.: 1

Name: French Creek Liquids Disposal Area.

Location: PWDM Coordinates 11, C7/D7; on both sides of Main Service Road at the western portion of the Gun Park Area and Force Troops Complex.

Figures and Photos: 2-1, 6-2, 6-3

Size: Area estimated at 7 to 8 acres (total) for both areas

Previously Reported: No

Activity: These two areas were used for disposal of vehicle fluids.

Materials Involved: Waste motor oil, waste hydraulic fluid, and used battery acid

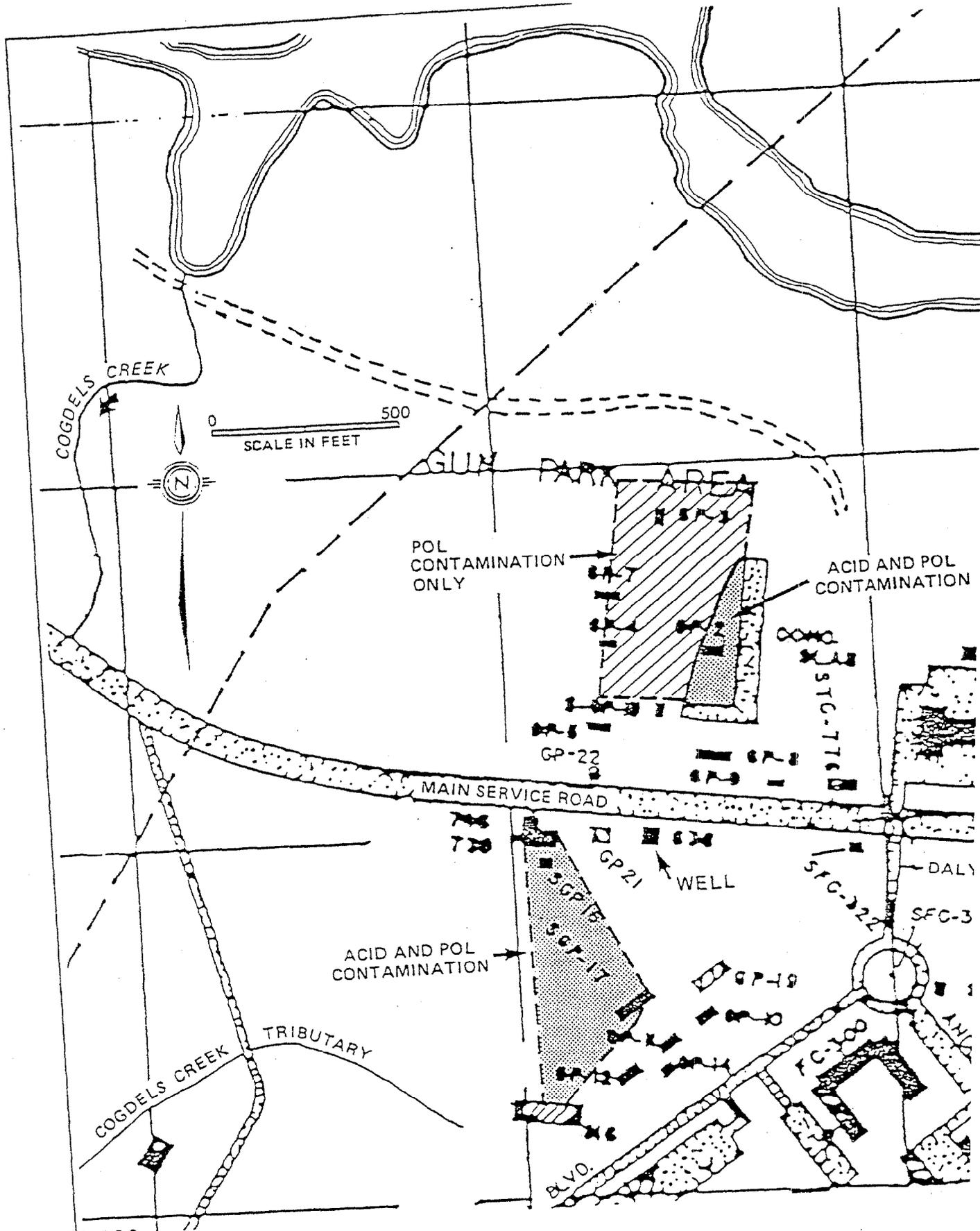
Quantity: One estimate for oil and hydraulic fluids was 5,000 to 20,000 gallons; for used battery acid, 1,000 to 10,000 gallons. See comments below.

When: Late 1940s to mid-1970s

Comments: This area has been used by many different Marine organizations over three decades. These groups included motor transportation, armored personnel carriers, tank battalions, and self-propelled guns. Liquids waste disposal at this site was similar to practices at Courthouse Bay (Site No. 73). The transient nature of the units assigned to this area make it difficult to more accurately estimate waste quantities. Based on Courthouse Bay data, estimated POL quantity is probably low if the estimated waste acid volume is in the correct range. A potable water well is located within about 100 yards and between these disposal areas.

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FIGURE 6-2
Detail of Site No. 1, French Creek Liquids Disposal Area

SOURCE: BASE PUBLIC WORKS DEVELOPMENT
SHEET 11 OF 24, JUNE 30, 1979
Consulting Environmental Engineers

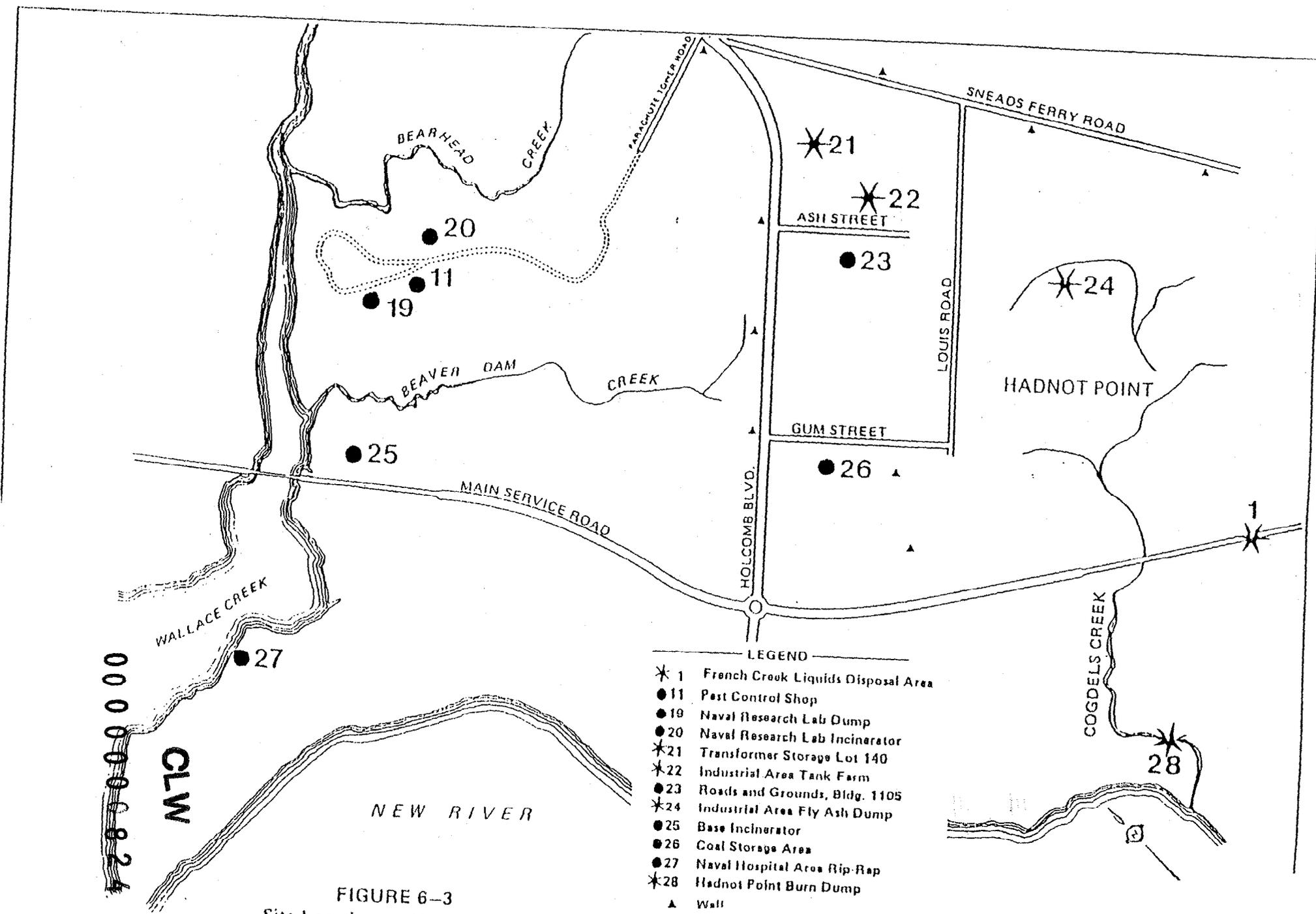


FIGURE 6-3
Site Locations at Hadnot Point

Site No.: 2

Name: Former Nursery/Day-Care Center*

Location: PWDM Coordinates 5, K10; Building 712 on Holcomb Boulevard at Brewster Boulevard.

Figures and Photos: 2-1, 6-4, 6-5, 6-6

Size: See comments section.

Previously Reported: No

Activity: Building 712 first was used for pesticide storage and mixing; later as a children's day-care center.

Materials Involved: Chlordane, DDT, Diazinon, Dieldrin, Lindane, Malathion, 2,4-D, 2,4,5-T, Silvex, Dalapon

Quantity: Contamination would have occurred as a result of small spills, washout, and excess disposal. During 15-year use, it is reasonable to assume several gallons per year were involved. Therefore, estimated quantity involved is on the order of 100 to 500 gallons of various strength liquids. Solid residues in cracks and crevasses may total 1 to 5 pounds. Caution: Quantity estimates are not based on reliable data and are provided for order of magnitude guidance only. Disposal to creek is undocumented.

When: 1945 to 1958

Comments: In late 1957 or 1958, pesticide storage and mixing were moved to Building 1105. Chemical use is reported to have been: Chlordane--100 gallons of 40-percent powder per year; DDT--750 to 1,000 gallons per day of 5- to 15-percent material; Diazinon--25 gallons per month; Dieldrin--less than 100 pounds per year; Lindane--less than 10 gallons of 1-percent material per year; Malathion--100 gallons per year; Silvex (2,4,5-TP)--stored but not used; 2,4,5-T--50 gallons per year--used for 1 year only. The contaminated areas are the fenced playground, approximately 6,300 square feet; the mixing pad covering approximately 100 square feet; the wash pad, approximately 225 square feet; and possibly, the railroad tracks drainage ditch that is a tributary of Overs Creek. Contamination of groundwater or movement of pesticides in groundwater or surface water is as yet undefined.

* Since the IAS team on-site visit, the Nursery/Day-Care Center has been relocated. Table 2-1 shows soil pesticide levels around Building 712. Sampling locations are indicated on Figure 6-4. More testing **CLW** performed at this site.

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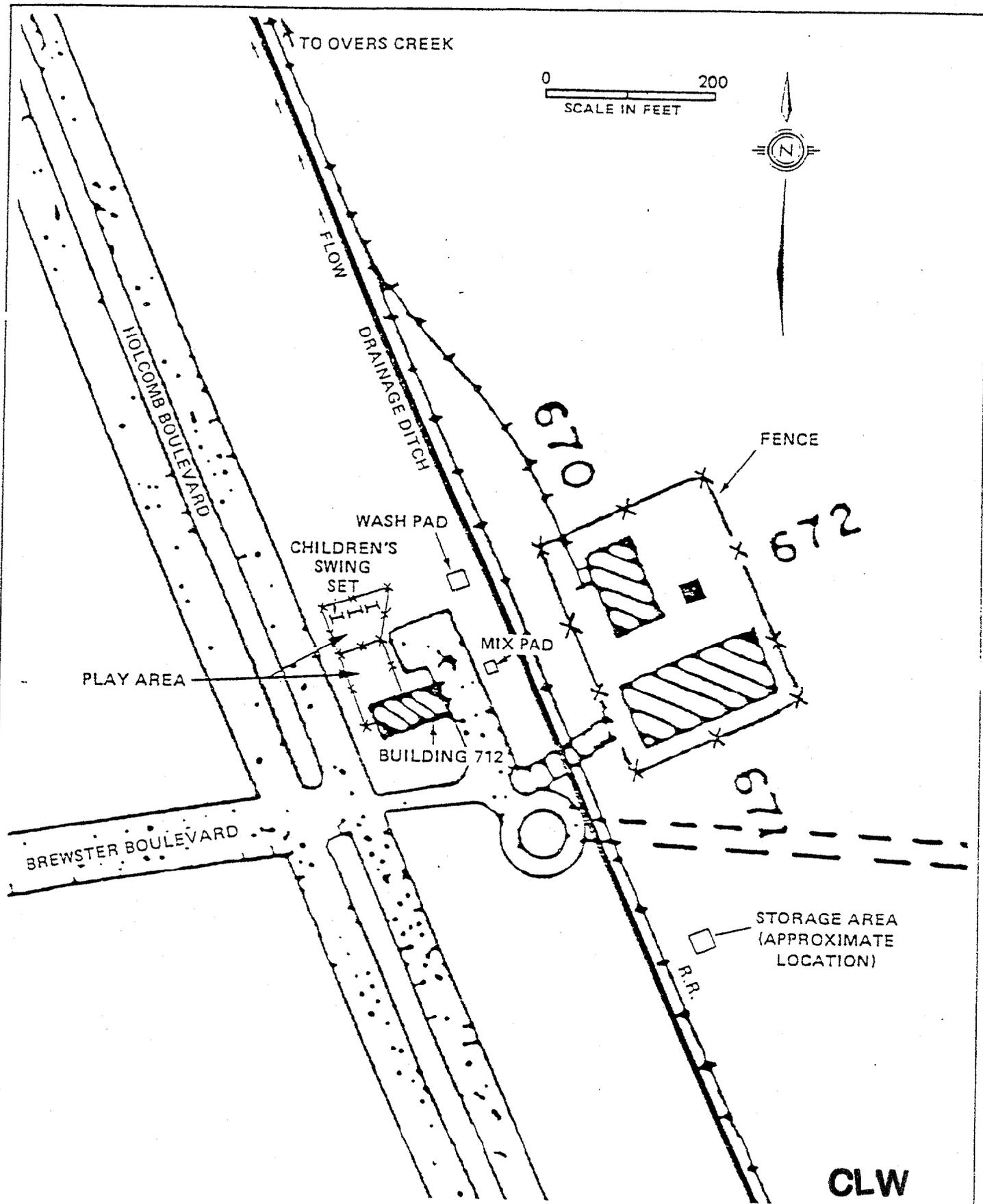
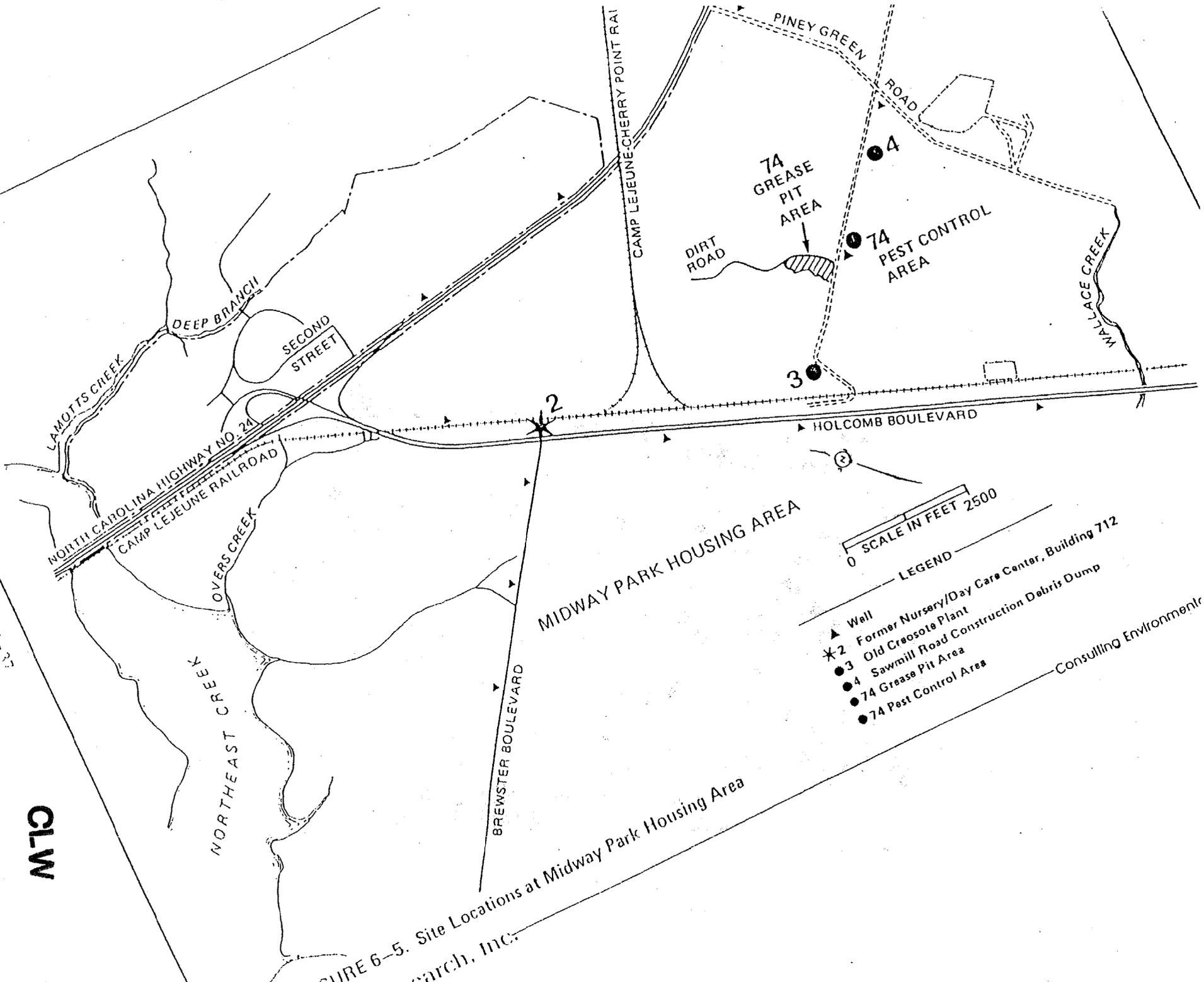


FIGURE 6-4
 Detail of Site No. 2, Former Nursery/Day Care Center

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0 SCALE IN FEET 2500

LEGEND

- ▲ Wall
- * 2 Former Nursery/Day Care Center, Building 712
- 3 Sawmill Road Construction Debris Dump
- 74 Grease Pit Area
- 74 Pest Control Area

FIGURE 6-5. Site Locations at Midway Park Housing Area
 Research, Inc.

Consulting Environmental



FIGURE 6-6
Site No. 2 - Former Nursery/Day Care Center at Building 712
Water Treatment Plant in Foreground

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Site No.: 6

Name: Storage Lots 201 and 203

Location: PWDM Coordinates 6, F3-4/G3-4/H2-4/I2-4/J3; on Holcomb Boulevard between Wallace and Bearhead Creeks.

Figures and Photos: 2-1, 6-7, 6-8a

Size: Lots 201 and 203 are estimated at 25 and 46 acres, respectively.

Previously Reported: Yes EPA Form 8900-1 MC Bul 6280

Activity: The site was and still is used to store hazardous materials. DDT is reported to have been disposed of at Lot 203 when it served as a waste disposal area in the 1940s. There has been long-term storage of DDT and transformers containing PCB. No spills or leaks of PCB have been reported, but reports of white powder (DDT) were noted.

Materials Involved: Pesticides and building debris

Quantity: Inspection of the DDT disposal area reveals no clues to areal extent of disposal. Trees are not disturbed and no ground depressions or mounds can be seen. Reports of disposal activities are vague; no indication of types of containers disposed of, e.g., aerosol cans versus 55-gallon drums. It is reasonable to assume more than 1 or 2 pounds were involved. However, there is no basis for assuming massive quantities were involved. Therefore, for purposes of indicating the perceived magnitude of importance of site, several hundreds of pounds of DDT are assumed to have been disposed of. No physical or other reliable evidence is available to indicate size of contaminated area. However, because some assessment of size is needed to guide any further actions (if any), assume that an area within, say, an 80- to 100-foot radius is involved.

Regarding PCB and DDT spills near storage areas: Minimal information has been discovered during site investigations. No amount of judgment by environmental and public health professionals can yield reliable estimates of spill quantities

(Continued)

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Site No.: 6 (continued)

because conditions are so variable. Guidance for assessing magnitude may be obtained as follows: No direct evidence of PCB spills was found. Therefore, assume no PCBs are involved. Inferences of DDT spills come from reports of white powder on ground. No recollection of size of powdered area is available. Assume that around storage pallets, DDT was spilled in a 1- or 2-foot band. This suggests pounds, not hundreds of pounds, were involved. Over time, quantities may be added. Therefore, assume 100 to 200 pounds of DDT involved.

Caution: Estimates of quantities are not based on reliable data and are provided as order of magnitude guidance only.

When: Lots in a variety of uses from 1940s to present

Comments: These areas have a long history of various uses, including disposal and storage. Area is flat, unpaved, and surface soils have been moved about substantially due to regrading and equipment movement. There is no direct physical evidence of hazardous material contamination.

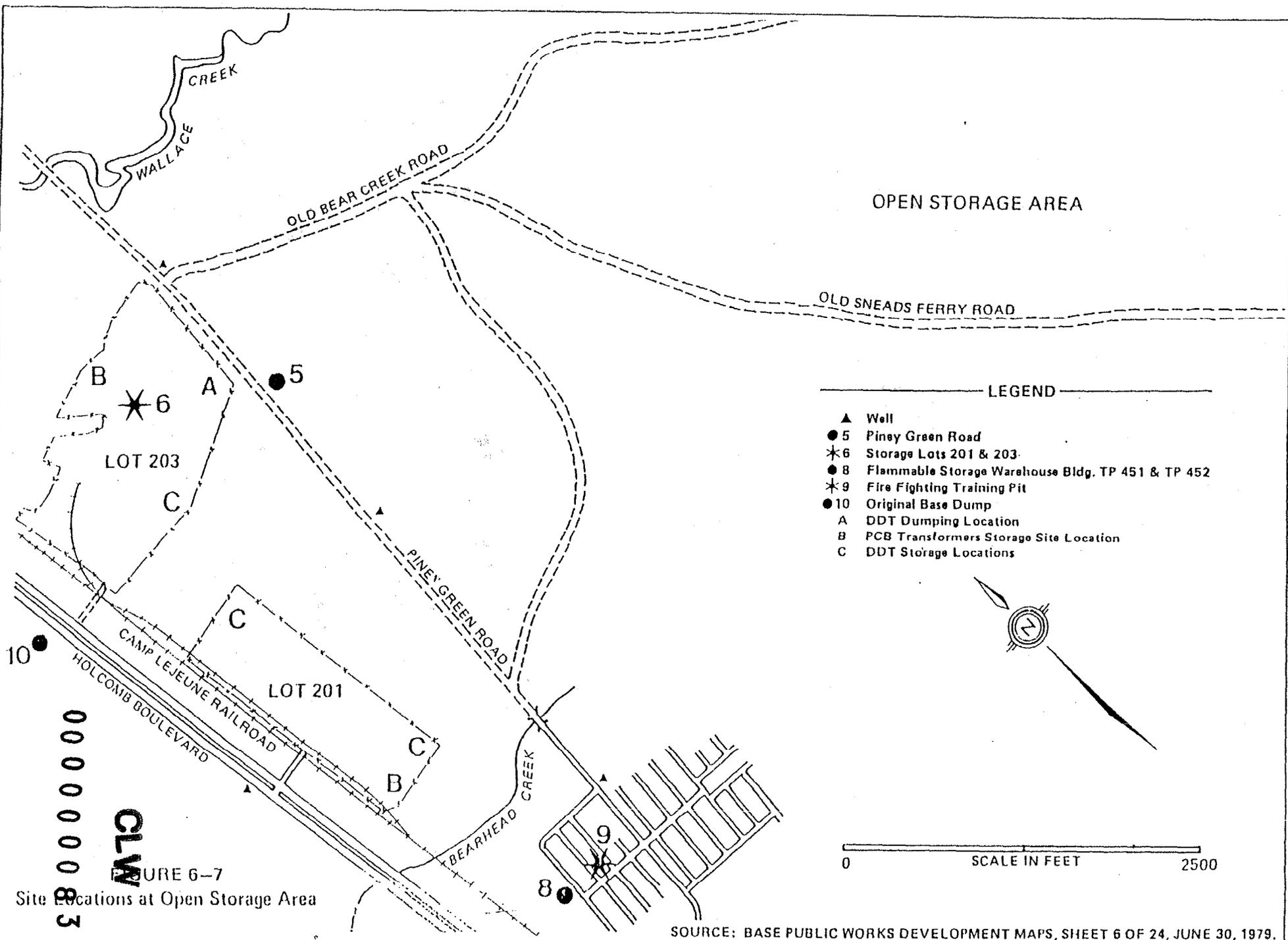
There are 4 areas at the 2 sites which have highest likelihood of DDT contamination, if any contamination exists. These are identified on Figure 6-7. Representative photo is given in Figure 6-8a.

Disturbance of trees is not evident; however, age of trees is estimated at 10 to 20 years. Therefore, trees are more recent than disposal activities and cannot be used as clues to define the disposal area.

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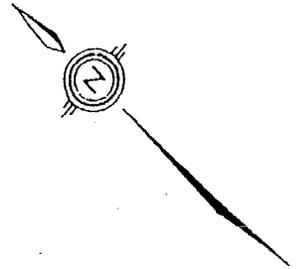
17-9



OPEN STORAGE AREA

LEGEND

- ▲ Well
- 5 Piney Green Road
- * 6 Storage Lots 201 & 203
- 8 Flammable Storage Warehouse Bldg. TP 451 & TP 452
- * 9 Fire Fighting Training Pit
- 10 Original Base Dump
- A DDT Dumping Location
- B PCB Transformers Storage Site Location
- C DDT Storage Locations



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FIGURE 6-7

Site Locations at Open Storage Area

SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAPS, SHEET 6 OF 24, JUNE 30, 1979.

Consulting Environmental Engineers and Scientists



FIGURE 6-8a
Site No. 6 - Storage Lots 201-203

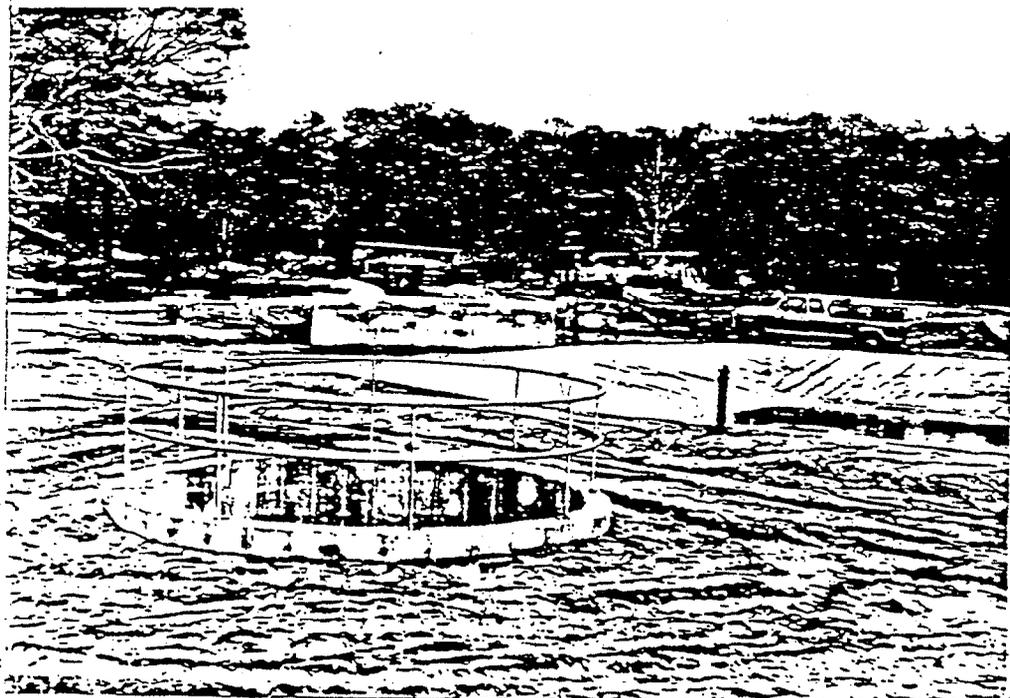


FIGURE 6-8b
Site No. 9 - Fire Fighting Training Pit near Piney Green Road.
Oil Water Separation Pit in Foreground

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Site No.: 9

Name: Fire Fighting Training Pit at Piney Green Road

Location: PWDM Coordinates 6, K3/L3; near Building S-TP-454, between Piney Geen Road and Holcomb Boulevard, south of Bearhead Creek.

Figures and Photos: 2-1, 6-7, 6-8b

Size: Estimated area is approximately 2 acres.

Previously Reported: Yes EPA Form 8900-1 MC Bul 6280

Activity: Fire fighting training carried out in an unlined pit. Flammable liquids burned in pit. No pollution control equipment such as oil-water separators.

Materials Involved: Used oil, solvents, contaminated fuels

Quantity: Approximately 30,000 gallons per year (mostly JP-4 and JP-5).

When: 1960s to present

Comments: Training began after 1961. The pit was unlined until 1981. No leaded fuels were burned. Pit is presently used and an oil-water separator has been installed.

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Site No.: 16

Name: Montford Point Burn Dump (1958-1972)

Location: PWDM Coordinates 2, N11-12; between Wilson Drive and Northeast Creek, about 900 feet east of intersection of Coolidge and Harding Roads.

Figures and Photos: 2-1, 6-9, 6-10, 6-11

Size: Area affected is about 3.5 to 4-acres.

Previously Reported: No

Activity: Burn dump for debris, garbage, and minor quantities of oil

Materials Involved: Building debris, including asbestos, garbage, tires, waste oils

Quantity: Amount of asbestos visible on the surface is estimated to be less than 1 cubic yard. Quantity of waste oil is believed to be very small.

When: Approximately 1958 to 1972. Site now closed.

Comments: Mitigation has been undertaken. Site has been used occasionally for unauthorized disposal of debris since 1972.

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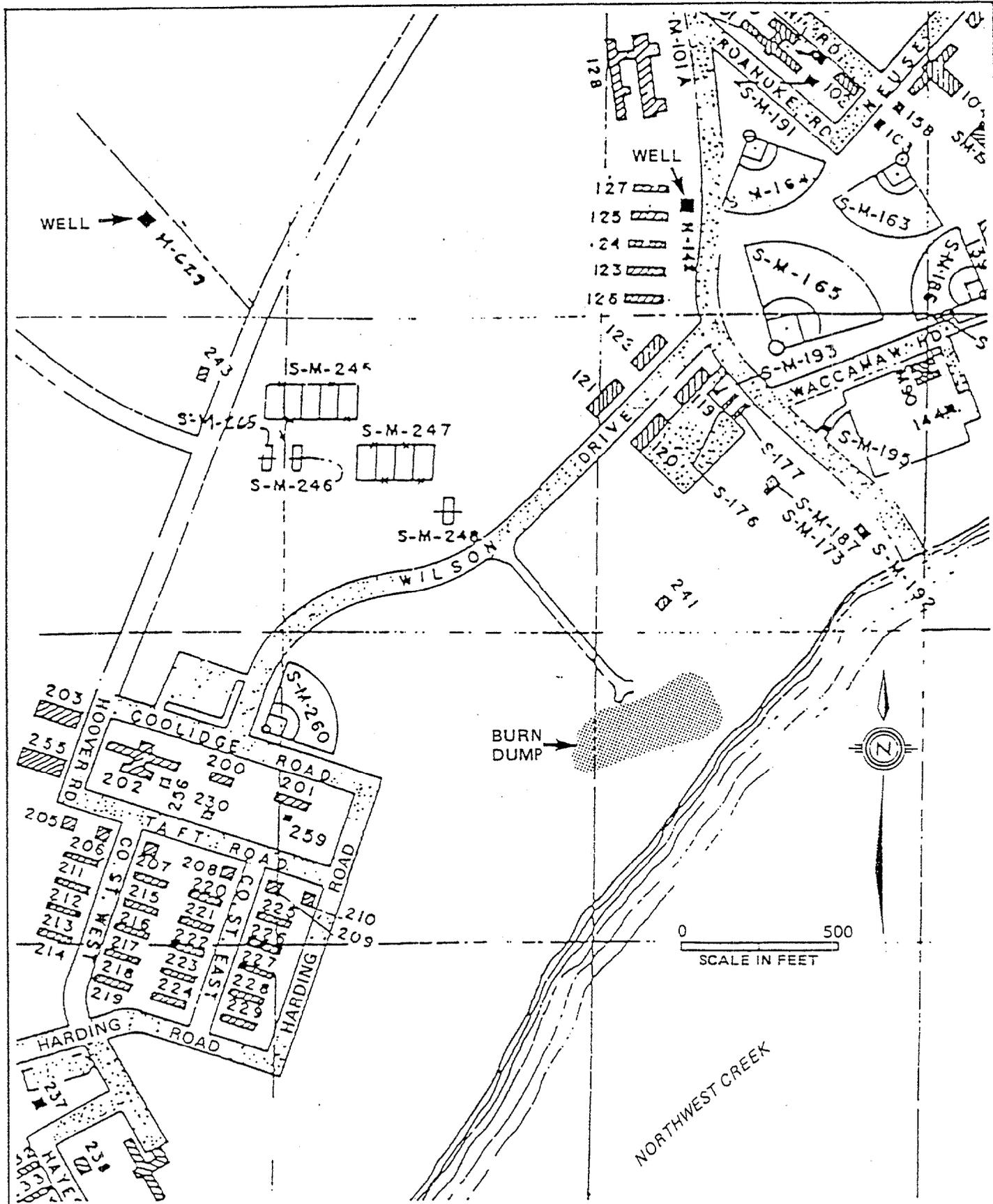


FIGURE 6-9
Detail of Site No. 16, Montford Point Burn Dump

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SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 2 OF 24, JUNE 30, 1979.

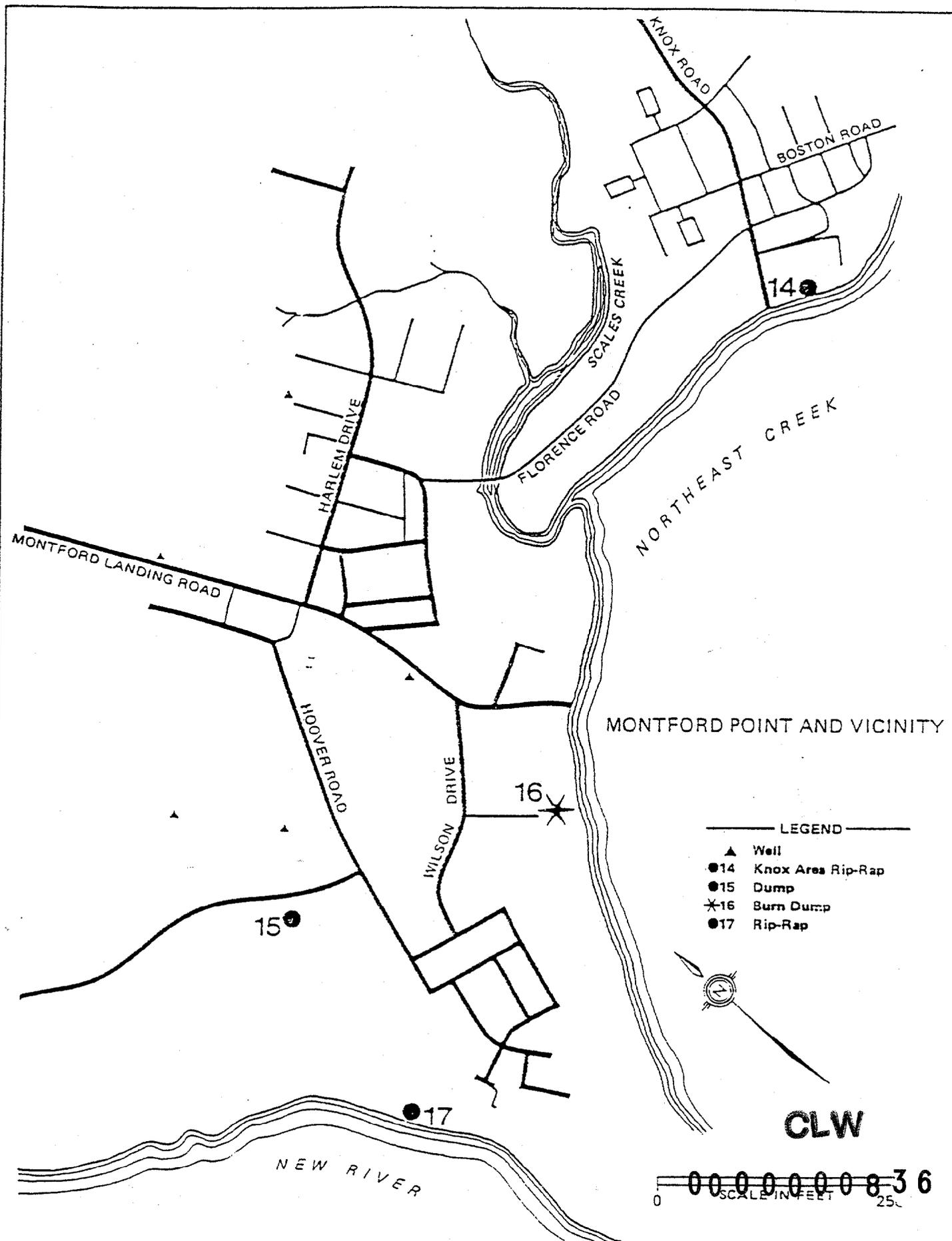


FIGURE 6-10. Site Locations at Montford Point and Vicinity



FIGURE 6-11
Site No. 16 - Montford Point Burn Dump
Showing Asbestos Pipe Insulation

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Site No.: 21

Name: Transformer Storage Lot 140

Location: PWDM Coordinates 1Q, I15; between Ash Street and Sneads Ferry Road on Center Road; transformer oil pit located at the northeastern end of Lot 140, across railroad tracks from Building 702 and about 50 to 60 feet from railroad tracks.

Figures and Photos: 2-1, 6-3, 6-12

Size: Lot 140, approximately 220 feet by 890 feet (almost rectangular); pit, about 25 to 30 feet long by 6 feet wide by 8 feet deep.

Previously Reported: Lot 140, yes (as PCB contamination site only) EPA Form 8900-1, MC Bul 6280; pit, no.

Activity: Lot 140 was used for pesticide mixing and as cleaning site for pesticide application equipment. A pit at this site received oil from transformers.

Materials Involved: Lot 140--Chlordane (dust), DDT (dust), Diazinon, Lindane, Malathion (46-percent solution), Mirex, 2,4-D, Silvex, Dalpon, and Dursban; PCB in small quantities (see below). Pit--transformer oil, probably containing PCBs.

Quantity: Pesticide contamination would have resulted from small spills, washout, and excess disposal. In 1977, before this activity moved to Building PT37, washout was estimated to be 350 gallons per week of overland discharge. At that time, the procedure was to save for reuse any excess pesticide solution. It is reasonable to assume that at least several gallons per year were involved. Therefore, over 20 years, the quantity involved is estimated to be on the order of 100 to 1,000 gallons of various strength liquids.

Transformer oil was drained into pit over about a 1-year period. Sand was occasionally placed in pit by heavy equipment when oil was found standing in pit bottom. The quantity involved is unknown. Assuming the pit received (over 1 year)

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Site No.: 21 (continued)

enough oil to fill the pit to between 1 and 8 vertical feet, the estimated quantity would be on the order of 1,300 to 11,000 gallons.

Caution: Quantity estimates are not based on reliable data and are provided for order of magnitude guidance only.

When: Early 1958 to 1977 for pest control activities; 1950-51 for transformer oil pit usage

Comments: Lot 140 was a multi-purpose area when the Pest Control Shop used it. (Before this, pesticide storage and mixing were at Building 712. Practices there, probably similar to those at Lot 140, resulted in soil contamination (see Table 2-1). For a more detailed listing of quantities involved at Building 712, see Site No. 2 of this section.) The mixing area for pesticides was described as the "southeast corner" of Lot 140. According to MC Bul 6280 for the site, soil in this area is "highly disturbed." There is a possibility that surface soil consists of fill material used for lot leveling. Any soils sampled should be those layers existing at the site in the 1960s (i.e., not fill material).

According to MC Bul 6280, the upper 4 inches of soil in Lot 140 was sampled for PCBs in October 1980. PCB levels of 1 ppm or less were found. No reference to an oil disposal pit was made in MC Bul 6280.

Lot 140 is bounded on its longer sides by dirt roads. An adjacent railroad drainage ditch is a possible off-site and off-base migration route for pesticide-contaminated water and sediment.

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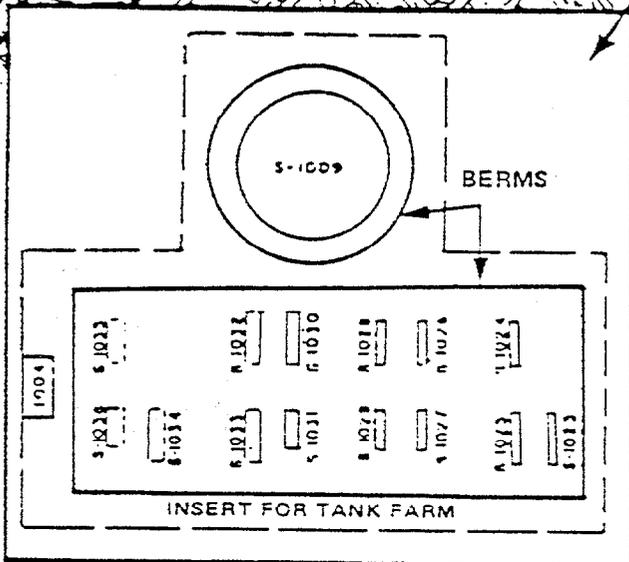
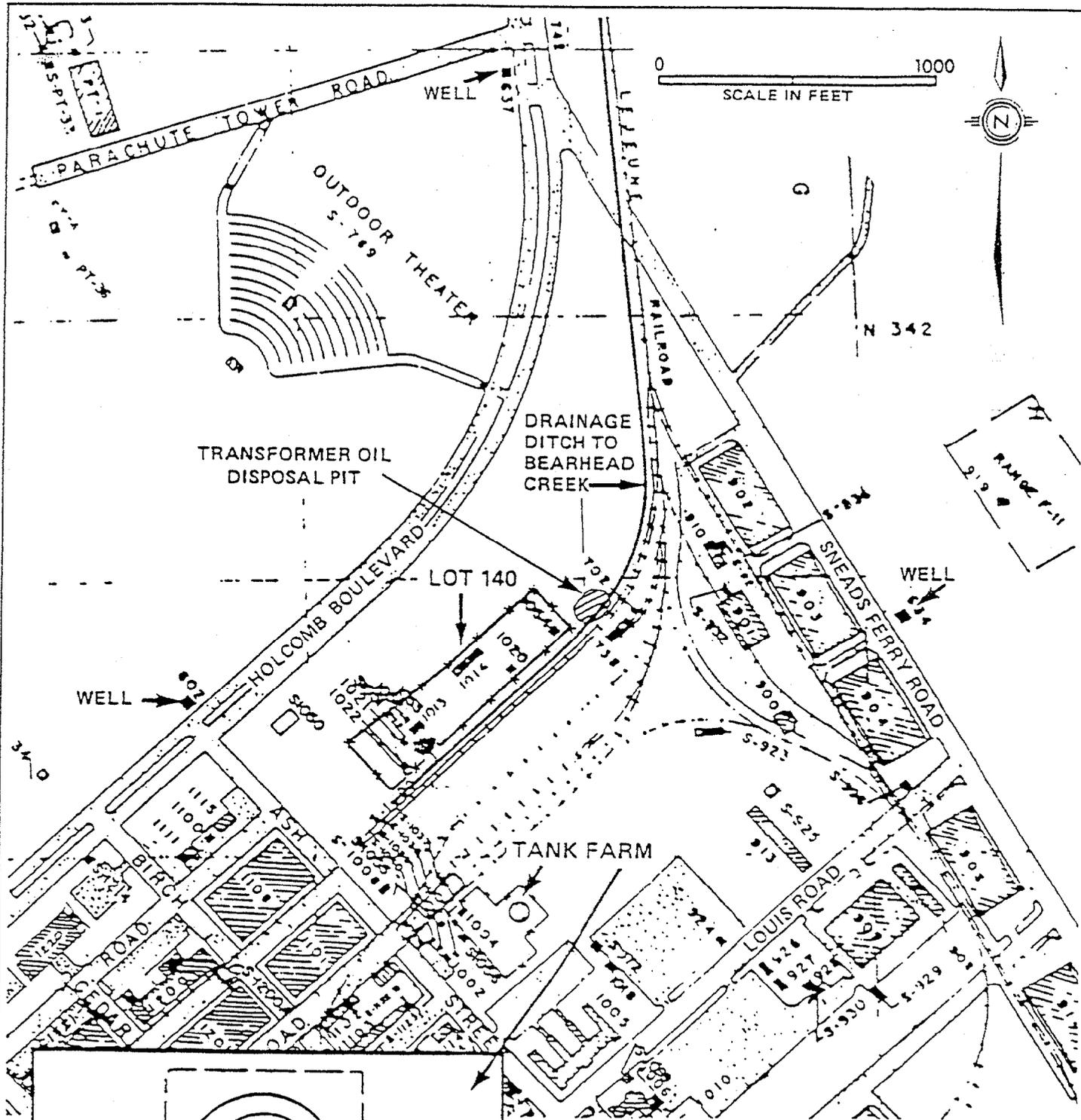


FIGURE 6-12

Details of Sites 21 and 22, Storage Apt 140 with Oil Pit, and Industrial Area Tank Farm, Respectively

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Site No.: 22

Name: Industrial Area Tank Farm

Location: PWDM Coordinates 10, J15; east of intersection of Cribb Road and Ash Street.

Figures and Photos: 2-1, 6-3, 6-12, 6-13a

Size: Area estimated at 3.5 to 4 acres.

Previously Reported: No

Activity: Site is a fuel storage and dispensing area for vehicles. Leakage has occurred from fuel lines.

Materials Involved: Diesel, unleaded and possibly leaded gasoline

Quantity: 20,000 to 50,000 gallons from an underground line near the tank truck loading facility

When: 1979

Comments: Fuel farm installed in 1940s. There have been problems with leaks. The latest was a 100-gallon leak of diesel fuel in 1981. In 1979, a fuel leak of an estimated 20,000 to 30,000 gallons occurred. The leak was in an underground line slightly to the rear of the tank truck loading facility and between the building and the large aboveground fuel tank. Fuel has been lost through pinhole leaks in the underground lines. There is no evidence of extensive corrosion in the system. Control is maintained by an established fuel audit system.

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FIGURE 6-13a
Site No. 22 - Industrial Area Tank Farm

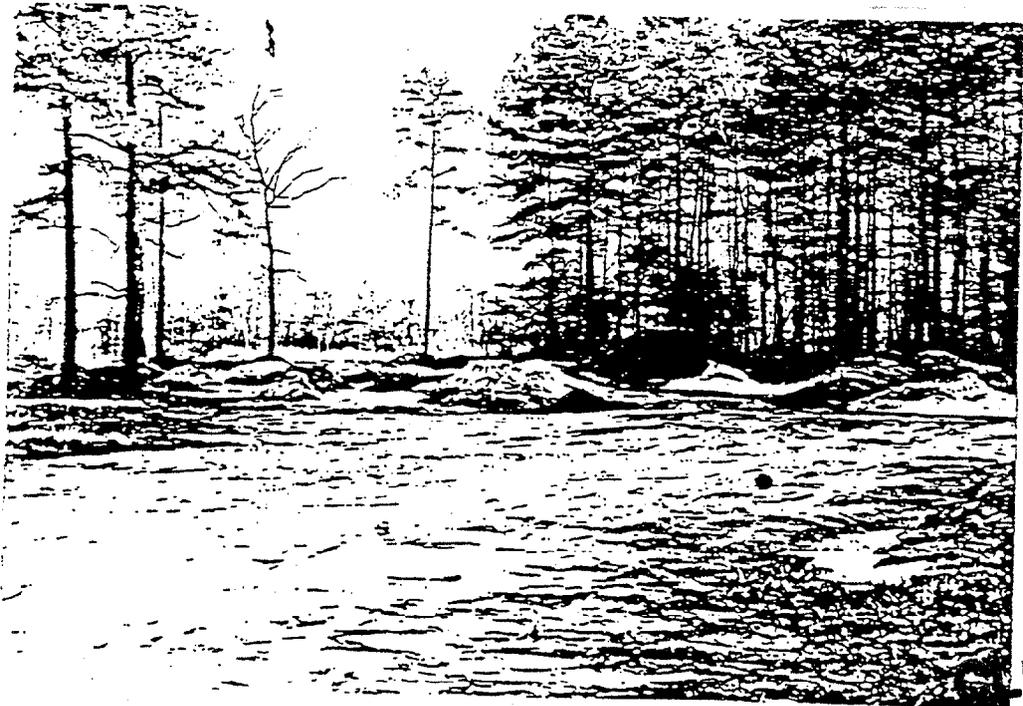


FIGURE 6-13b
Site No. 24 - Industrial Area Fly Ash Dump

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Site No.: 24

Name: Industrial Area Fly Ash Dump

Location: PWDM Coordinates 10, L16-17/M16-17; South of intersection of Birch and Duncan Streets.

Figures and Photos: 2-1, 6-3, 6-13b, 6-14

Size: Area is about 20 to 25 acres.

Previously Reported: No

Activity: Fly ash and cinders dumped on ground surface. Solvents used to clean out boilers were poured on fly ash and cinder piles. During 1960s, construction rubble dumped here. Sludges from WTP and STP also placed here. Furniture stripping wastes also dumped between 1972 and 1979.

Materials Involved: Fly ash, cinders, and solvent from central heating plant, WTP spiractor sludge and sludge from the sewage treatment plant. Limited quantities of furniture lacquers and varnish.

Quantity: The amount of fly ash is estimated at 31,500 tons based on a 10-percent ash content and a usage of 45,000 tons per year of coal over 7 years. The estimate of furniture stripping compounds dumped here is about 45,000 gallons over 7 years. This estimate is based on assuming that one vat of fluids per month was disposed. A vat contains approximately 500 to 550 gallons. The quantity of cleaning solvents which reached this site is not known but is considered to be small.

When: Late 1940s to approximately 1980

Comments: Sandy soil conducive to migration. The eastern boundary of this site is a tributary of Cogdels Creek. Drainage is probably to the east, south and west toward Cogdels Creek and its tributaries. Creek has been rerouted. Old creek channel is now part of fill area.

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Site No.: 24 (continued)

Site includes four areas of potential contamination which are designated on Figure 6-15: (1) the main fly ash dump, (2) a small area to the northeast containing spiractor sludge which has been disturbed since the early 1950s, (3) a denuded area west which has existed since the early 1950s which is a borrow area at which dumping may have occurred, and (4) a smaller denuded area farther west which has existed since before 1949 and at which dumping may have occurred.

Fly ash and bottom ash contain heavy metals that may be mobilized by dissolution in rain water. No thorough mixing of the various solid wastes disposed of at this site is believed to have occurred. Insufficient data exists to try to speculate on possible chemical interactions between these various wastes or to try to define which wastes went to which of the four areas.

Note: Size estimates are based on map and photograph information. Field estimates may have been made, but no field measurements have been performed. Estimates are provided for general guidance only.

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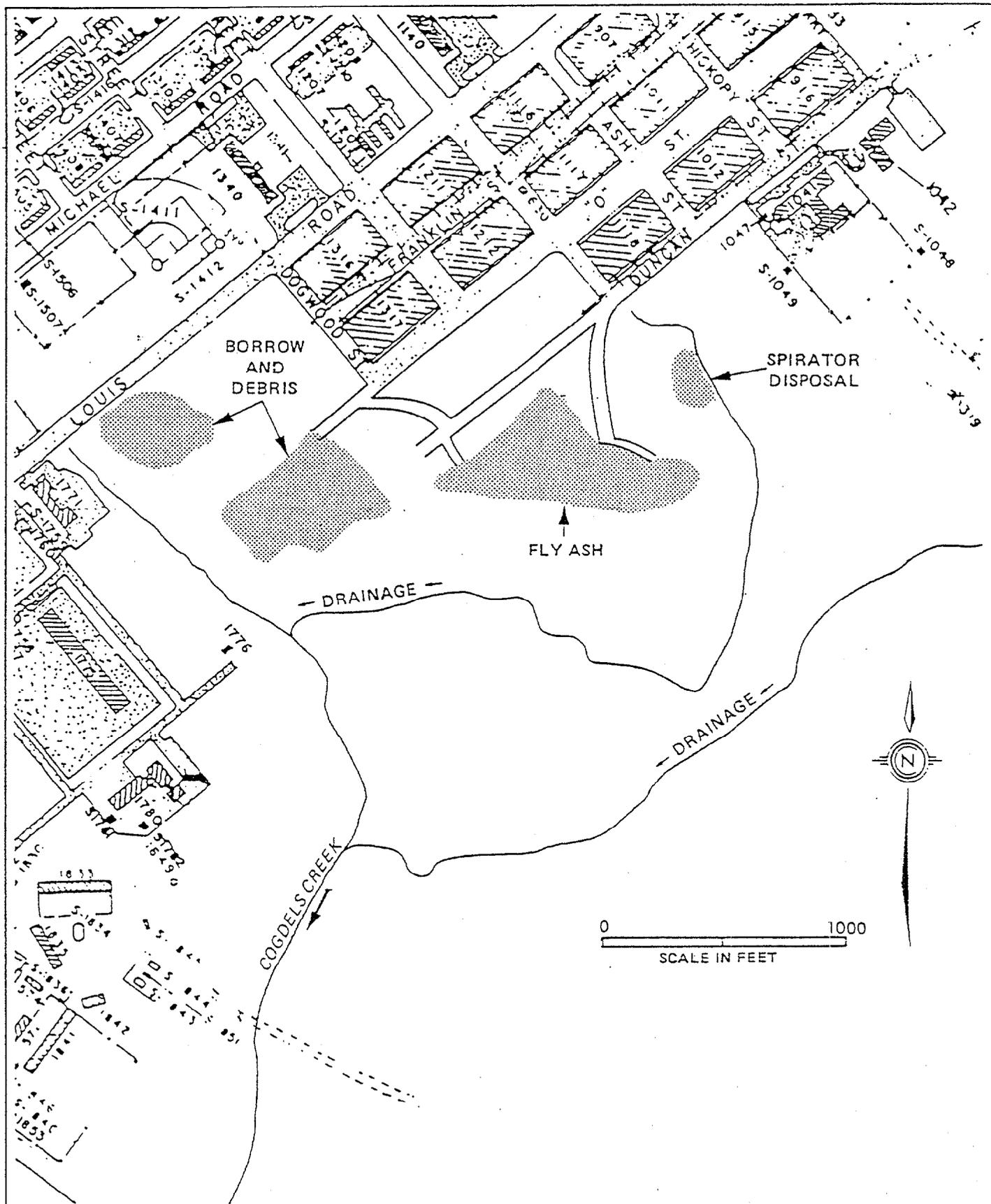


FIGURE 6-14
Detail of Site No. 24, Industrial Area Fly Ash Dump

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SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 10 OF 24, JUNE 30, 1979.

Site No.: 28

Name: Hadnot Point Burn Dump

Location: PWDM Coordinates 10, Q13-14/R13-14; east of Mainside Sewage Treatment Plant on both sides of Cogdels Creek.

Figures and Photos: 2-1, 6-3, 6-15, 6-16a

Size: Area is approximately 23 acres.

Previously Reported: Yes EPA Form 8900-1 MC Bul 6280

Activity: This large disposal area received a variety of solid waste. The site is now closed. The surface has been graded, grass has been planted and is now a recreational area with fishing pond. When site was active, wastes were burned and covered with dirt.

Materials Involved: Mixed industrial type waste, refuse, trash, oil-based paint, garbage

Quantity: Volume of fill is estimated at 185,000 to 370,000 cubic yards. The volume of waste is based on a surface area of 23 acres and a depth ranging from 5 to 10 feet. Because waste was burned, no approximation of remaining amount of specific substances can be reasonably made. However, approximate size of the site provides order of magnitude guidance.

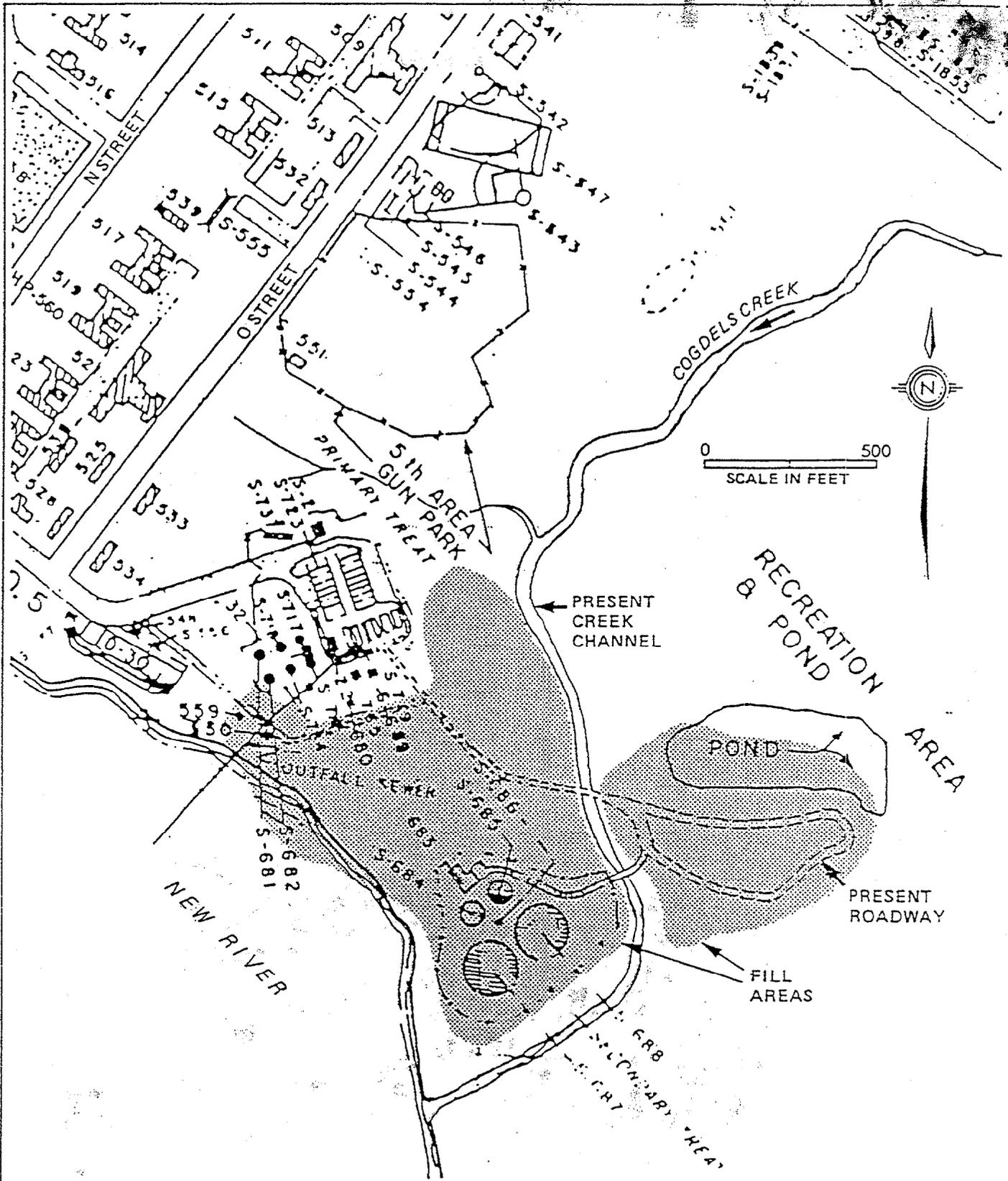
When: Approximately 1946 to 1971

Comments: Reports of leachate and oily seepage to Cogdels Creek. Site is on a former wetland.

Note: Size estimates are based on map and photograph information. Field estimates may have been made, but no field measurements have been performed. Estimates are provided for general guidance only.

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FIGURE 6-15
 Detail of Site No. 28, Hadnot Point Burn Dump 0000000847

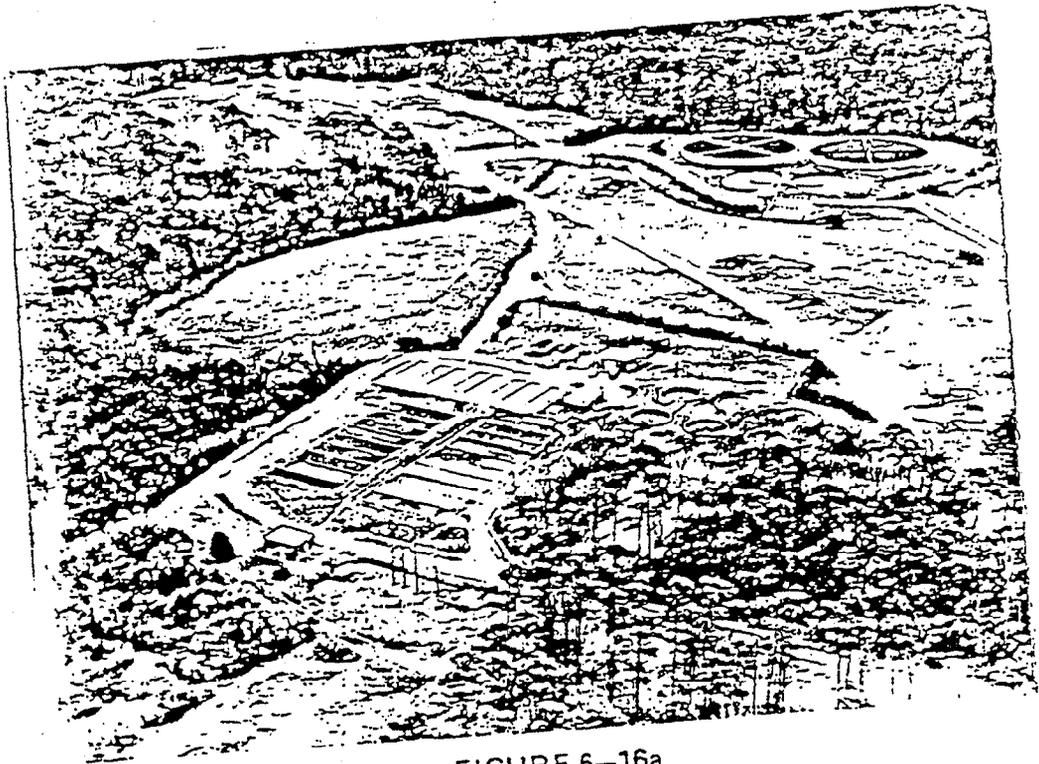


FIGURE 6-16a
Site No. 28 - Hadnot Point Burn Dump

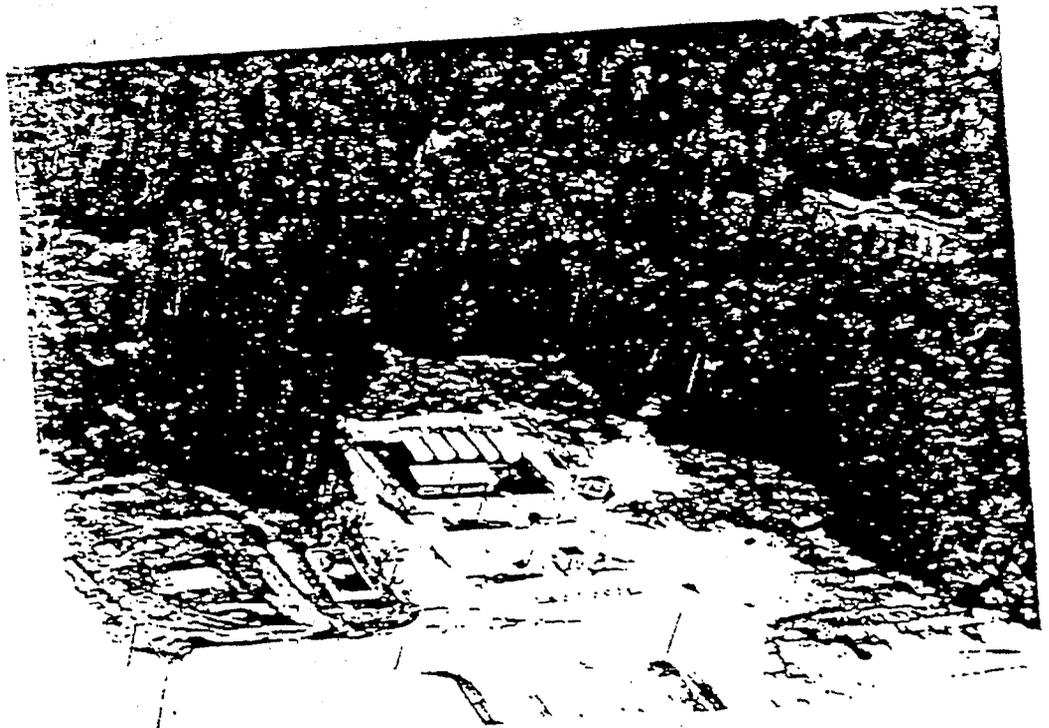


FIGURE 6-16b
Site No. 35 - Camp Geiger Area Fuel Farm

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Site No.: 30

Name: Sneads Ferry Road--Fuel Tank Sludge Area

Location: PWDM Coordinates 18, G12; along a tank trail which intersects Sneads Ferry Road from west, about 6,000 feet south of intersection with Marines Road.

Figures and Photos: 2-1, 6-17

Size: Exact location along trail unknown. See comments below.

Previously Reported: No

Activity: One-time disposal of sludge pumped from fuel tank storing leaded gasoline

Materials Involved: Sludge from fuel storage tank, especially tetraethyl lead and related compounds; tank washout waters.

Quantity: About 600 gallons of tank bottom deposits. See comments below.

When: 1970

Comments: Soils conducive to migration. The hydraulic gradient in the water table aquifer is toward French Creek. A private contractor disposed of the sludge along the tank trail as an expedient measure. Trail alignment is parallel to groundwater gradient.

As yet no records (including contract documents) have been found to indicate amount of sludge disposed of at this site. Two 12,000-gallon tanks were involved. Tanks were pumped out while changing the type of fuel stored. Based on knowledge of tank capacity below tank outflow ports, about 600 gallons of sludge or tank bottoms were dumped. Additional washout water may have been present. There is additional information to suggest that the site has been used for similar wastes from other tanks. Therefore the 600 gallon amount must be considered a minimum. Composition of sludge and/or washout is unknown and may vary from containing substantial amounts of tetraethyl lead to containing mostly cleaning compounds.

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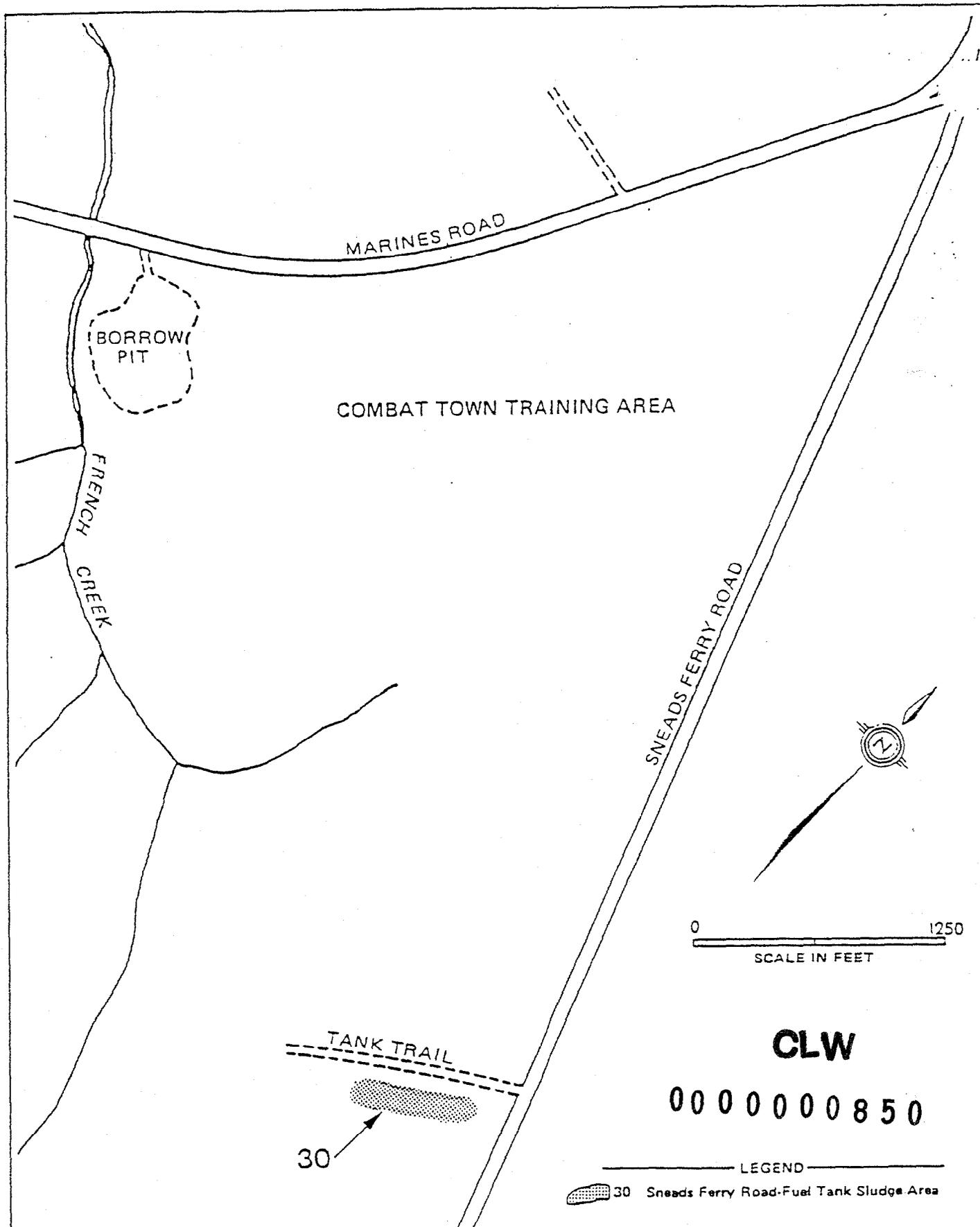


FIGURE 6-17
 Location of Site No. 30 at Combat Town Training Area

Site No.: 35

Name: Camp Geiger Area Fuel Farm

Location: PWDM Coordinates 12, C11; north of intersection of G and Fourth Streets.

Figures and Photos: 2-1, 6-16b, 6-18, 6-19

Size: Area estimated at about 2,500 square feet.

Previously Reported: No

Activity: Area used for storing and pumping fuel. Mogas released to soil through a leak or leaks in underground line near above-ground storage tank and tank pad.

Materials Involved: Mogas

Quantity: The amount of fuel is estimated by Chief Padgett, Camp Lejeune Fire Department, to be in the thousands of gallons. Exact estimates cannot be made as these records were destroyed.

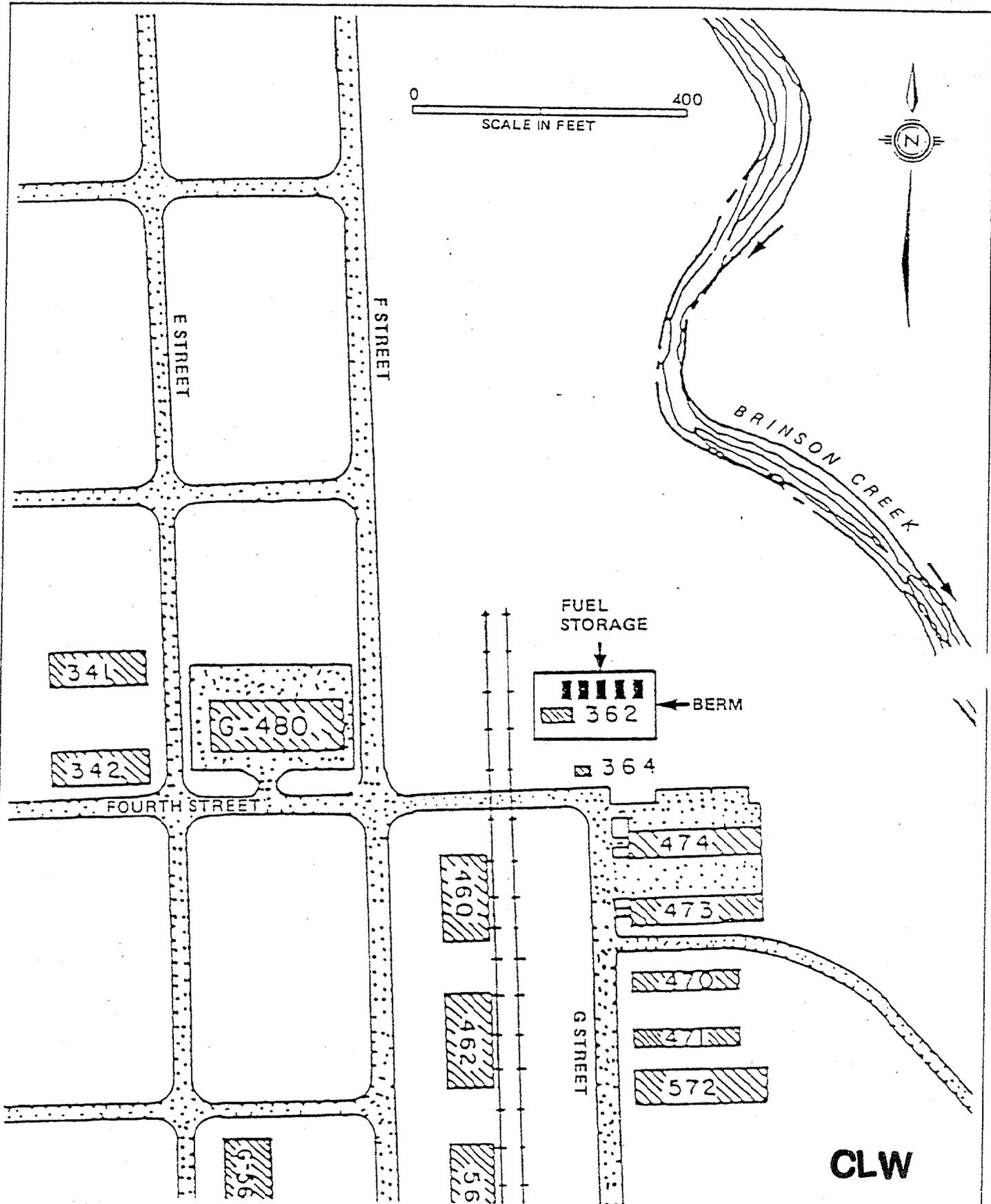
When: 1957 to 1958

Comments: Spill reported to have migrated east and northeast toward and into creek. Spilled fuel at the surface of the shallow aquifer was disposed of by digging holes near the leak and igniting the gas. Fuel that contaminated Brinson Creek was also burned off near the leak.

Note: Size estimates are based on map and photograph information. Field estimates may have been made, but no field measurements have been performed. Estimates are provided for general guidance only.

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FIGURE 6-18

Detail of Site No. 35, Camp Geiger Area Fuel Farm

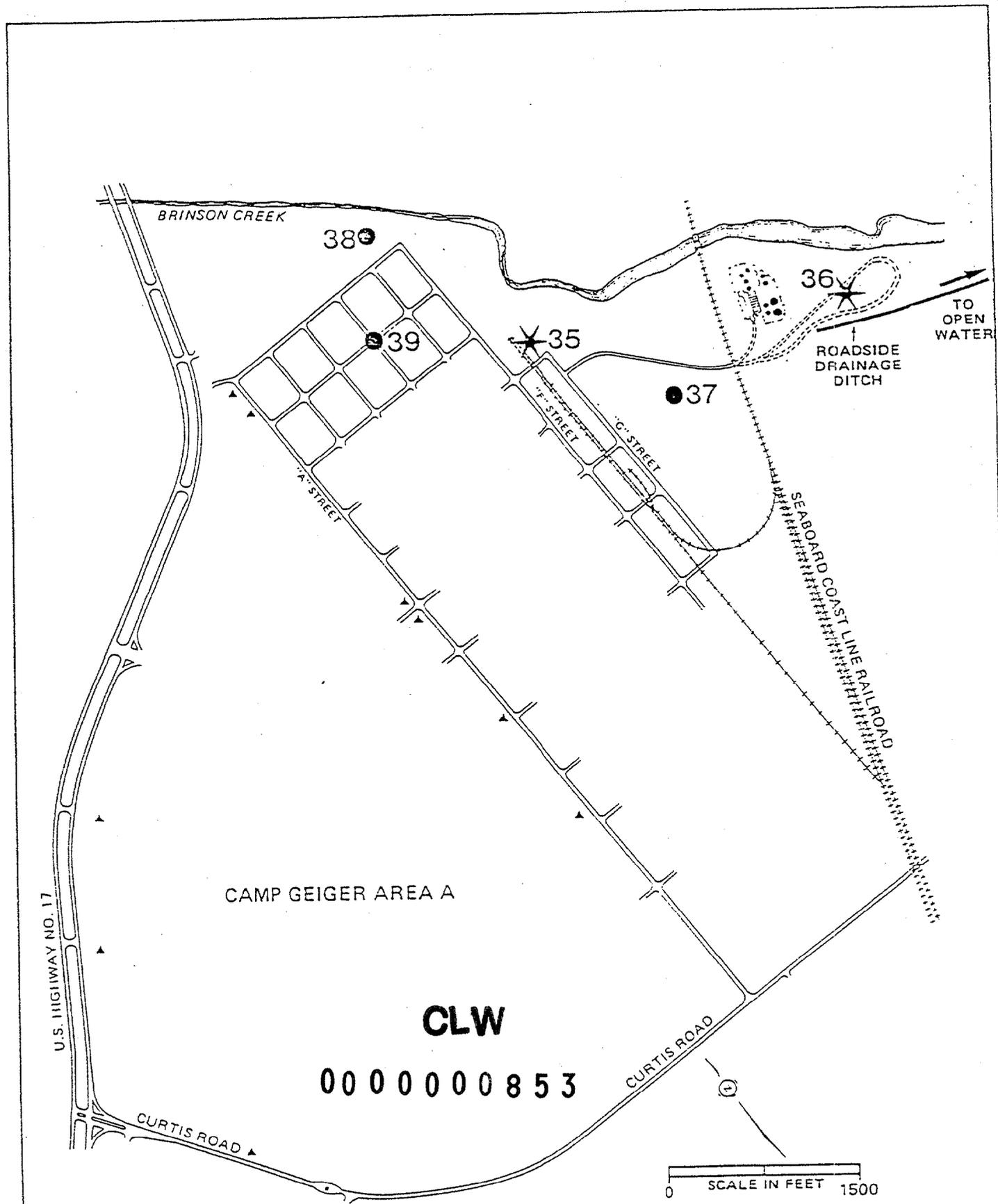


FIGURE 6-19
Site Locations at Camp Geiger Area A

- LEGEND
- ▲ Well
 - *35 Fuel Farm
 - *36 STP Dump
 - 37 Surface Dump
 - 38 Construction Dump
 - 39 Construction Slab Dump

Site No.: 36

Name: Camp Geiger Area Dump

Location: PWDM Coordinates 12, D13, E13; east of Camp Geiger Area Sewage Treatment Plant on south side of Brinson Creek

Figures and Photos: 2-1, 6-19, 6-20

Size: Area is about 25,000 square feet.

Previously Reported: No

Activity: Site was used for disposal of municipal wastes and mixed industrial waste from the air station. Most material was burned and buried, but some unburned material was buried.

Materials Involved: Garbage, trash, waste oils, solvents, hydraulic fluids

Quantity: According to interviews, less than 5 percent of all hydrocarbons used at the air station were disposed of in dumps. The rest was used for dust control on roads or went directly into storm drains. Based on interviews, a conservative estimate is that 700 to 1,000 gallons per week were used on roads. A smaller but undetermined amount was washed into the storm drains. Using a 5-percent estimate for dumping over 9 years, about 25,000 gallons of material could have been dumped into storm drains. Assuming this amount was split between this site and the trailer park dump (Site No. 41), an estimated 10,000 to 15,000 gallons of solvent and oil were placed here. Most probably were burned.

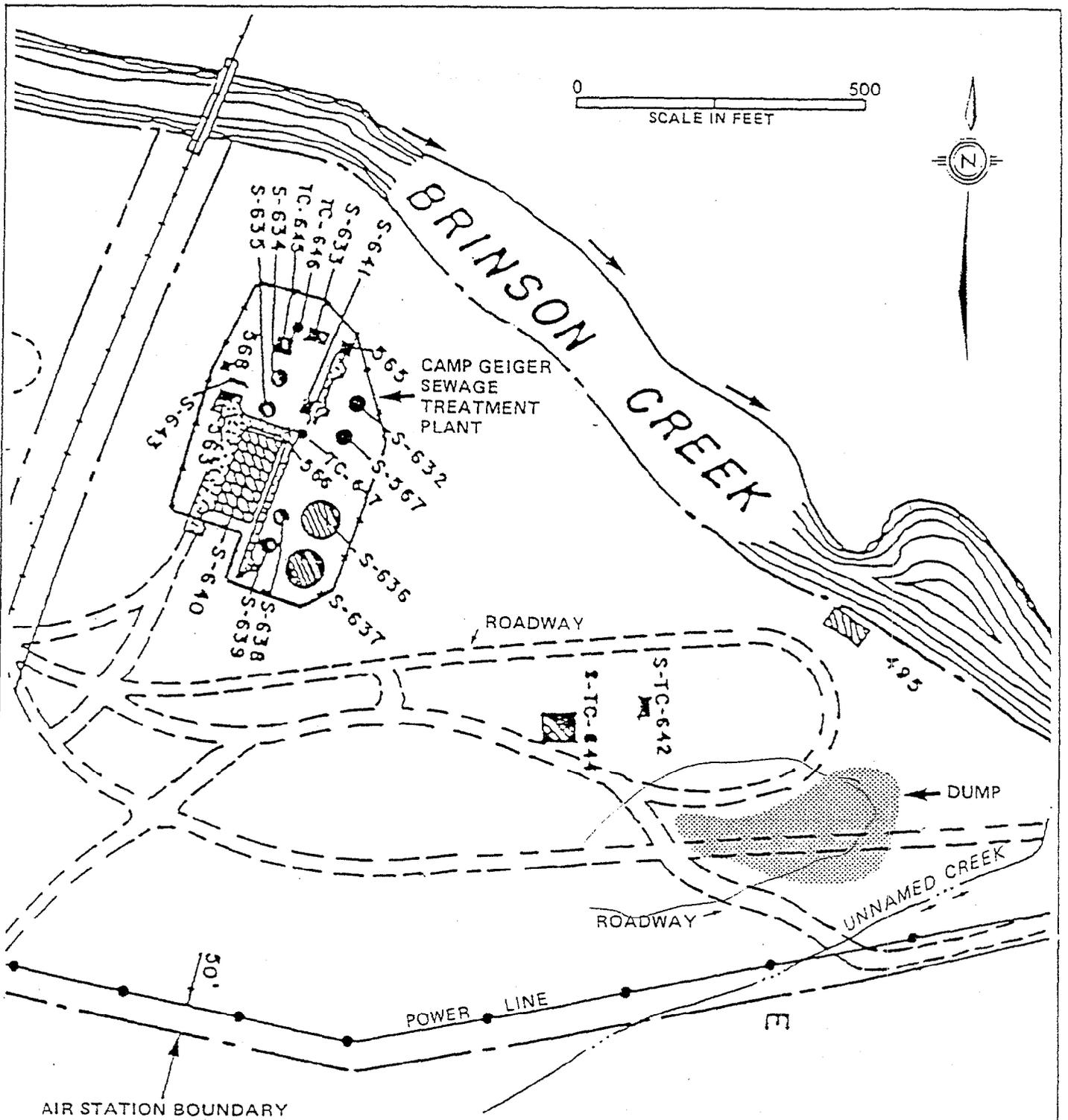
When: Late 1940s to late 1950s

Comments: Movement of contaminants via water table aquifer and surface runoff will be toward Brinson Creek or roadside drainage ditch south of dump. The site covers about 25,000 square feet and rises 10 to 12 feet above grade. Estimated volume is 14,000 cubic yards, based on an average depth of fill of 15 feet.

Note: Size estimates are based on map and photograph information. Field estimates may have been made, but no field measurements have been performed. Estimates are provided for general guidance only.

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FIGURE 6-20
Detail of Site No. 36, Camp Geiger Area Dump (near STP)

Site No.: 41

Name: Camp Geiger Dump

Location: PWDM Coordinates 13, E2-3; south of end of Robert L. Wilson Boulevard, Camp Geiger Trailer Park (abandoned).

Figures and Photos: 2-1, 6-21, 6-22, 6-23a

Size: Area is approximately 30 acres.

Previously Reported: Yes EPA Form 8900-1 MC Bul 6280

Activity: Site was used as an open dump. It received industrial and municipal wastes, as well as construction debris.

Materials Involved: Waste oils, solvents from air station, garbage, asphalt, concrete, old batteries, Mirex, ordnance

Quantity: 10,000 to 15,000 gallons of waste POL and solvents are estimated to have been disposed of (refer to Site No. 36). Most probably were burned. Number of old batteries is believed to be very small. Tons of Mirex in bags. Ordnance was estimated to include thousands of mortar shells; at least one case of grenades and one 105mm cannon shell were also reported.

When: Approximately 1946 to 1970; Mirex in 1964.

Comments: Site was operated as a burn dump. Based on an estimated fill depth of 5 feet, total volume of the site is about 110,000 cubic yards.

In the mid-1960s over a 1- to 2-year period, at least two waste disposal incidents occurred, during which two truckloads of drummed wastes were unloaded. At such times, a fire truck was present. These wastes were described as being similar to those disposed of at the Rifle Range Chemical Landfill (see Site No. 69). No better information regarding drum contents was obtained.

Note: Size estimates are based on map and photograph information. Field estimates may have been made, but no field measurements have been performed. Estimates are provided for general guidance only.

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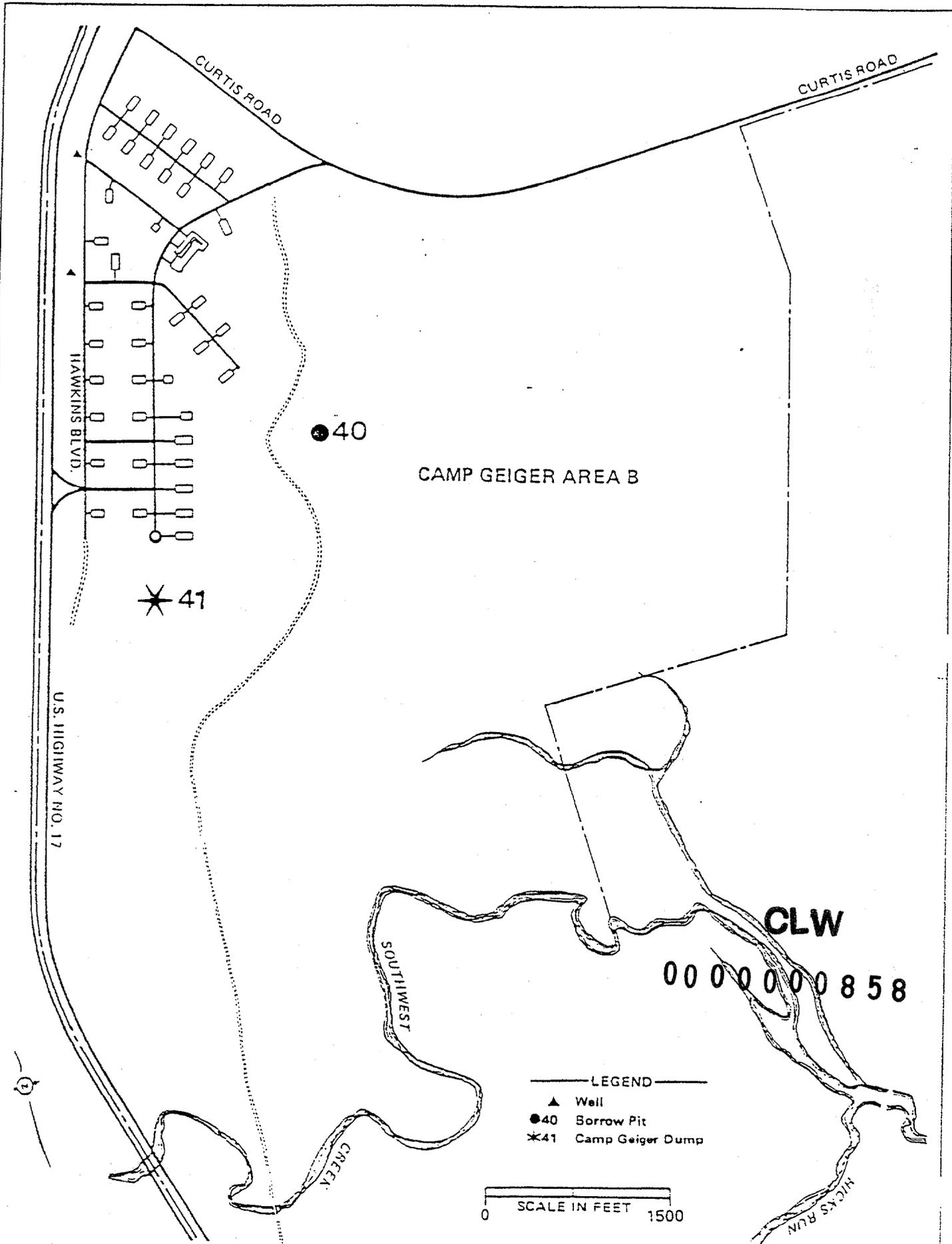


FIGURE 6-22. Site Locations at Camp Geiger Area B

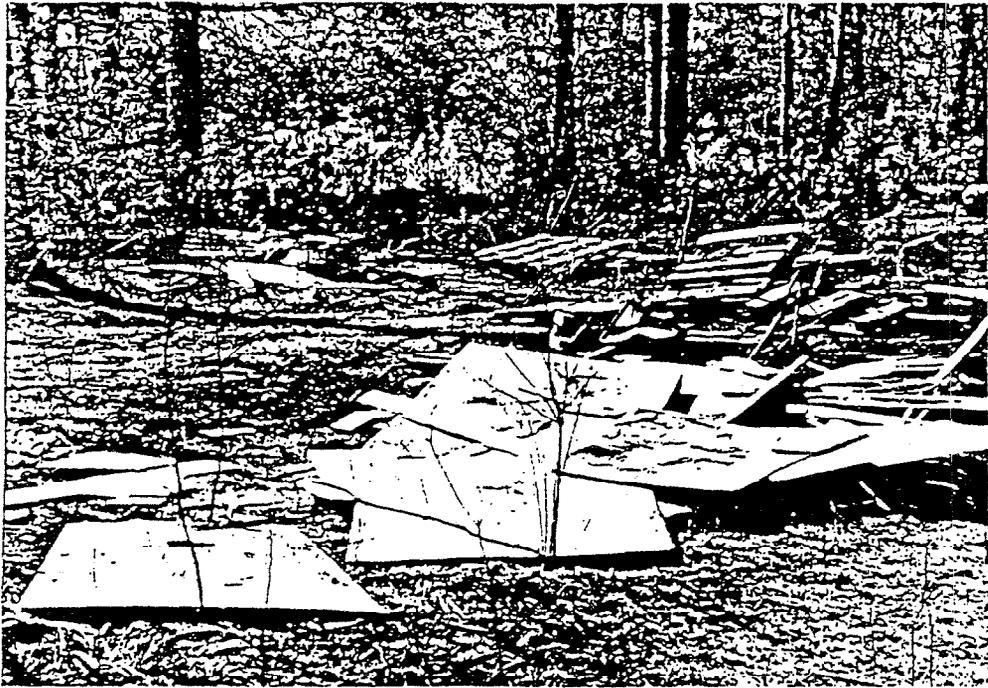


FIGURE 6-23a
Site No. 41 - Camp Geiger Dump Near the Trailer Park

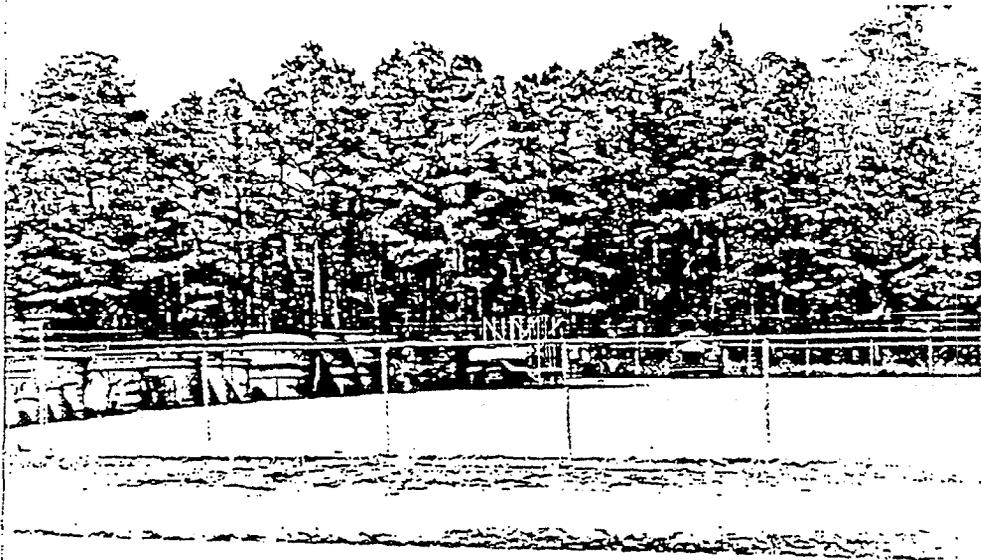


FIGURE 6-23b
Site No. 45 - Campbell Street Underground Fuel Storage Area

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Site No.: 45

Name: Campbell Street Underground Avgas Storage and Adjacent JP Fuel Farm at Air Station

Location: PWDM Coordinates 23, 013-14/P13-14; Campbell Street at White Street (JP Fuel Farm) and approximately 250 feet east of White Street (Avgas).

Figures and Photos: 2-1, 6-23b, 6-24, 6-25

Size: The underground storage area is approximately 40,000 square feet. The JP Fuel Farm covers approximately 6 acres.

Previously Reported: No

Activity: Underground tank (or tanks) leaked at the fuel storage area during 1978. At the JP Fuel Farm, extensive leakage from underground connecting lines was discovered in about 1981. Southeastern one-third of area (i.e., approximately 2 acres) is generally affected.

Materials Involved: Avgas and JP fuel

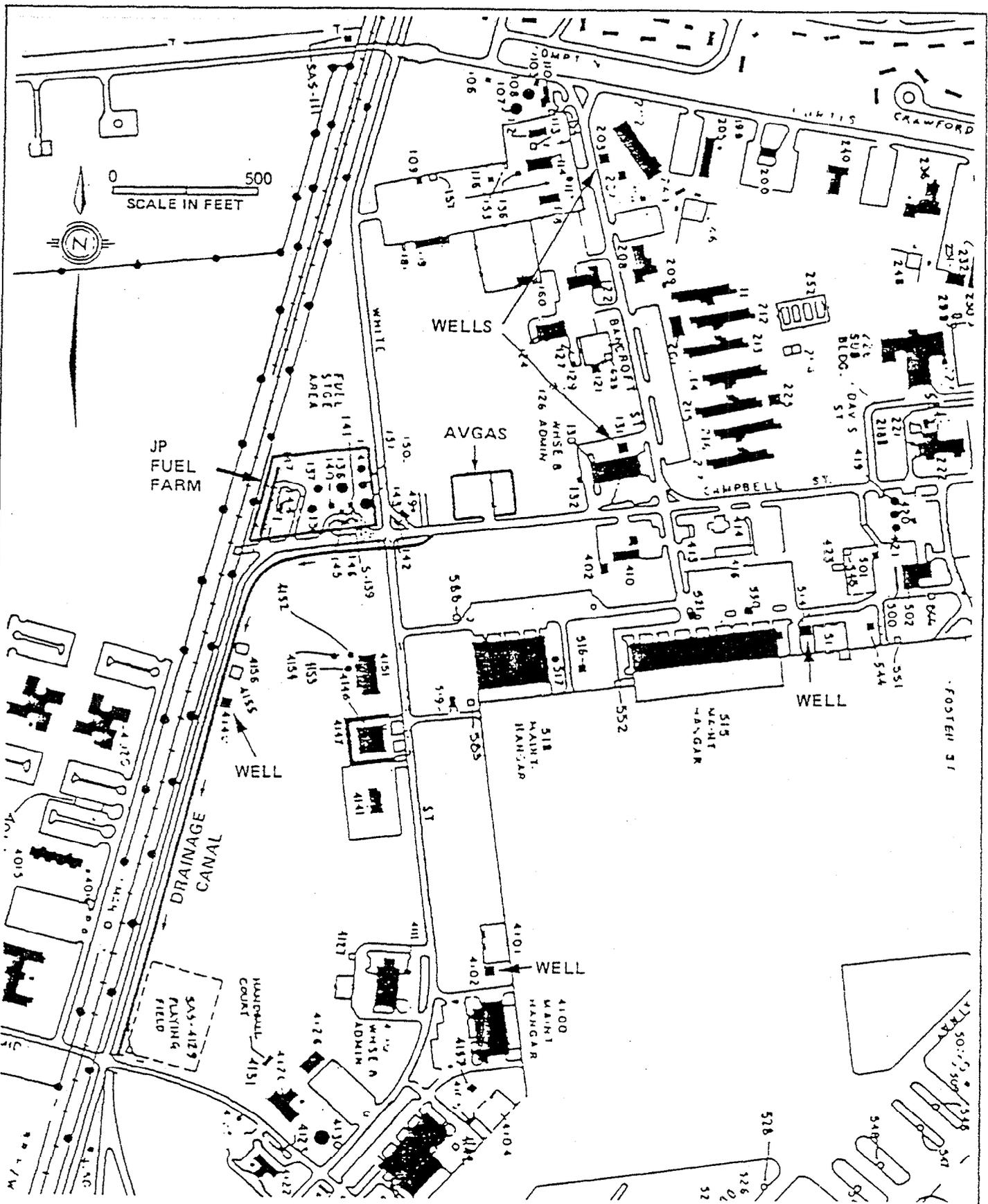
Quantity: 200 to 300 gallons of Avgas. Assuming soils overlying groundwater are generally saturated with oil over about 2 acres, about 600,000 gallons of oil may be involved (i.e., using 20-percent porosity and 5 feet to groundwater). Therefore, estimates are that more than 100,000 gallons of JP fuel have leaked.

When: 1978

Comments: These two storage areas are close together and are considered as one site. Most recent leaks were JP-4 and JP-5 from underground pipes. These pipes have been replaced by an above-ground system in which leaks can be readily detected. An oil-water separator has been installed on the south boundary of the fuel farm, which now shows a substantial amount of oil. Drainage ditch and canal parallel Campbell Street, then flow southward.

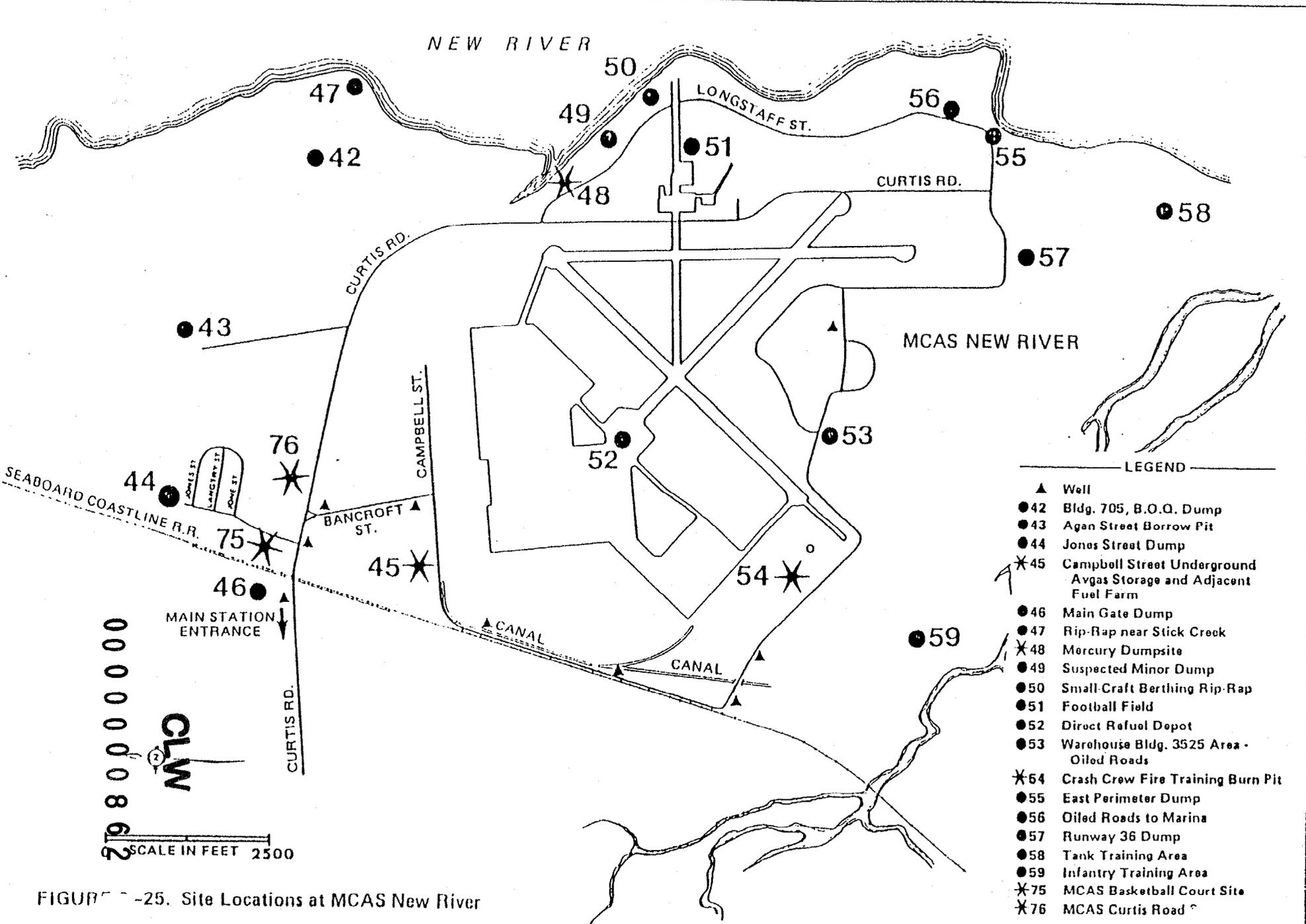
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FIGURE 6-24
 Detail of Site No. 45, Campbell Street Underground Avgas Storage and Adjacent JP Fuel Farm



- LEGEND
- ▲ Well
 - 42 Bldg. 705, B.O.G. Dump
 - 43 Agan Street Borrow Pit
 - 44 Jones Street Dump
 - * 45 Campbell Street Underground Avgas Storage and Adjacent Fuel Farm
 - 46 Main Gate Dump
 - 47 Rip-Rap near Stick Creek
 - * 48 Mercury Dumpsite
 - 49 Suspected Minor Dump
 - 50 Small-Craft Berthing Rip-Rap
 - 51 Football Field
 - 52 Direct Refuel Depot
 - 53 Warehouse Bldg. 3525 Area - Oiled Roads
 - * 54 Crash Crew Fire Training Burn Pit
 - 55 East Perimeter Dump
 - 56 Oiled Roads to Marina
 - 57 Runway 36 Dump
 - 58 Tank Training Area
 - 59 Infantry Training Area
 - * 75 MCAS Basketball Court Site
 - * 76 MCAS Curtis Road

FIGURE 25. Site Locations at MCAS New River

Site No.: 48

Name: MCAS New River Mercury Dump Site

Location: PWDM Coordinates 23, D17/E17; Building 804 on Longstaff Road

Figures and Photos: 2-1, 6-26

Size: The disposal area is in a 100- x 200-foot corridor extending from the rear of Building 804 to the river.

Previously Reported: No

Activity: Mercury was drained from radar units periodically and disposed in woods near photo lab (Building 804).

Materials Involved: Metallic mercury

Quantity: Approximately 1 gallon per year over 10 years, i.e., more than 1,000 pounds total.

When: 1956 to 1966

Comments: Best information indicates that material was carried by hand, probably to area between building and river, and dumped or buried in small quantities at randomly selected spots. The solubility of metallic mercury is about 25 ppb, at 25°C, although this may increase due to chloride or hydride complex formation under the proper environmental conditions. The biological transformations of mercury in the aquatic environment (water and sediment) are complex and can enhance bioaccumulation in the food chain. The EPA drinking water standard for mercury is 2 ppb. One thousand pounds (454 kg) of mercury could contaminate about 184,000 acre-feet ($227 \times 10^6 \text{ m}^3$) of water to this level.

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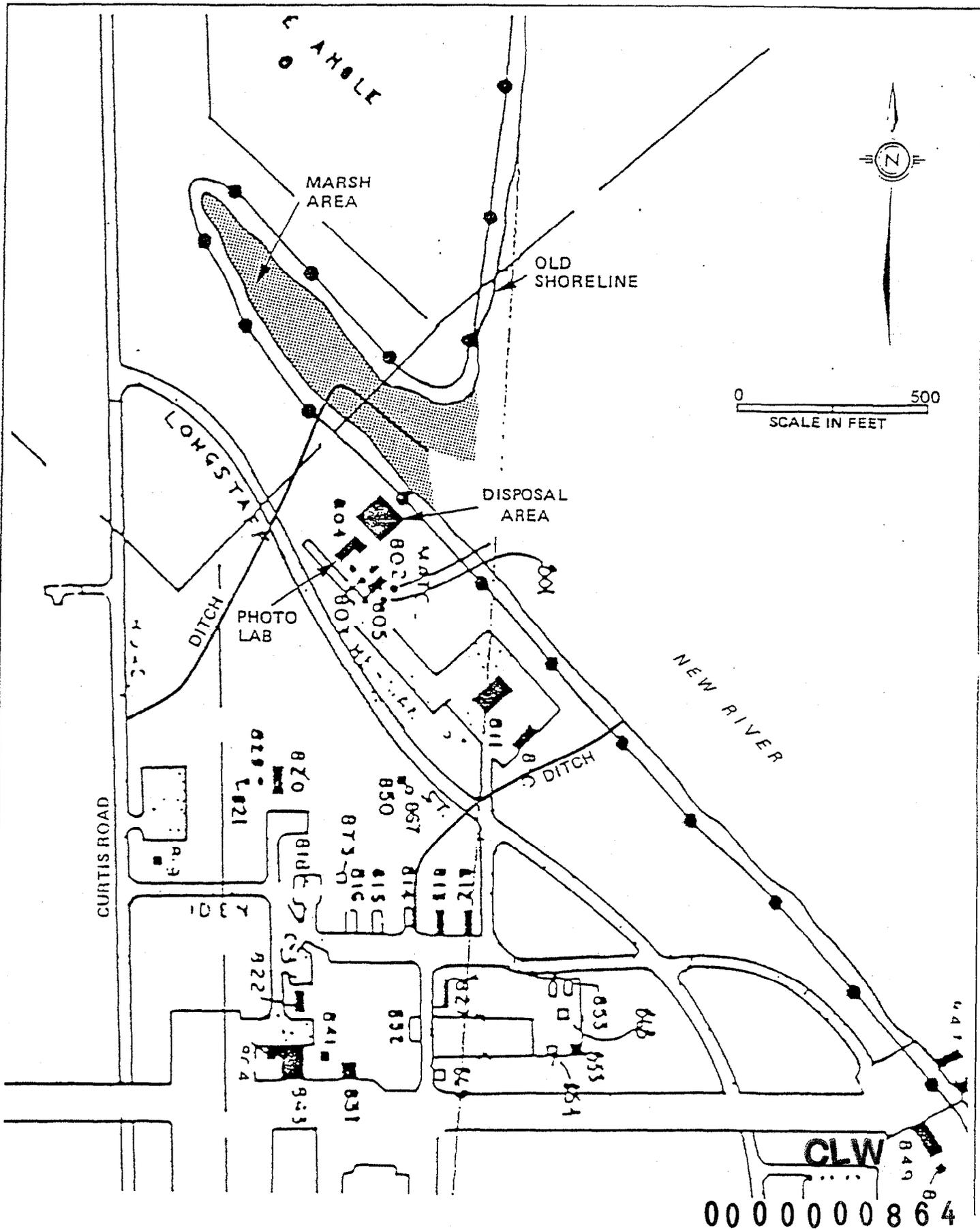


FIGURE 6-26
 Detail of Site No. 48, MCAS New River Mercury Dump Site

Site No.: 54

Name: Crash Crew Fire Training Burn Pit at Air Station

Location: PWDM Coordinates 23, 024-25/P24-25; adjacent to southwest end of Runway 5-23 near Building 3614.

Figures and Photos: 2-1, 6-27, 6-28

Size: Affected area is approximately 1.5 acres.

Previously Reported: Yes EPA Form 8900-1 MC Bul 6280

Activity: Pit used in crash crew training at air station. Waste oils and solvents were burned.

Materials Involved: Contaminated fuels (principally JP-type, although leaded fuel may also have been used), waste solvents

Quantity: Based on present usage of 15,000 gallons of POL annually, nearly 1/2 million gallons of these compounds have been used at this site. If only 1 percent of solvents and POL soaked into ground before lining, then 3,000 to 4,000 gallons would have entered the soils. Caution: Reliable data have not been found from which to quantify soil contamination. The above estimating procedure is used to provide order of magnitude guidance only.

When: First use is believed to have been in mid-1950s.

Comments: Burn pit was lined around 1975. According to some reports, site was used unlined a number of years before this. However, 1964 aerial photographs reveal a very "clean" looking area; no large fuel stains are apparent.

Note: Size estimates are based on map and photograph information. Field estimates may have been made, but no field measurements have been performed. Estimates are provided for general guidance only.

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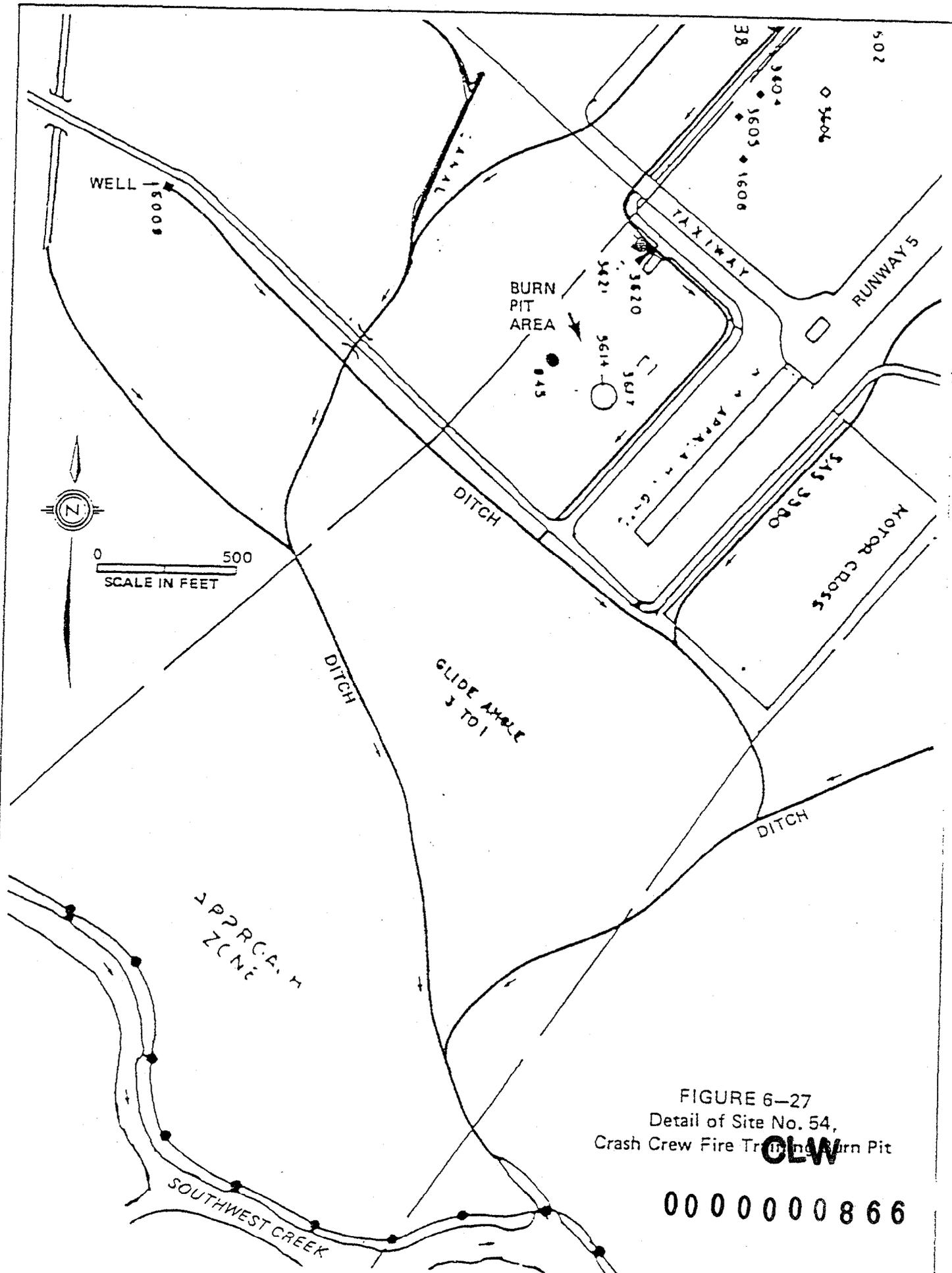


FIGURE 6-27
 Detail of Site No. 54,
 Crash Crew Fire Training Burn Pit

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SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 23 OF 24, JUNE 30, 1979 AND
 MCAS DRAINAGE - PUBLIC WORKS DRAWING 12277



FIGURE 6-28
Site No. 54 - Crash Crew Fire Training Burn Pit

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Site No.: 68

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Name: Rifle Range Dump

Location: PWDM Coordinates 16, H6-8/I6-7; west of Range Road, about 2,000 feet west of Rifle Range water treatment, about 800 feet east of Stone Creek.

Figures and Photos: 2-1, 6-29, 6-30, 6-31

Size: Estimated area is 3 to 4 acres of primary disposal area within an originally disturbed area of approximately 35 to 40 acres.

Previously Reported: No

Activity: Operated as a dump for materials from Rifle Range activities

Materials Involved: Construction debris, WTP sludge, solvents (see comments below)

Quantity: Using 3 to 4 acres as area and assuming 10 feet of fill, volume is estimated at 50,000 cubic yards. Solvent amounts are estimated to be 1,000 to 2,000 gallons, based on period of use and quantities noted in comments (below).

When: 1942 to 1972

Comments: Sandy soils in area make site favorable for migration of contaminants. Although site is downgradient from Potable Well Nos. RR-47 and RR-97, heavy pumping may allow contaminants to move upgradient and cause the contamination found in these wells. However, this dump may not be the source of the contamination because total amounts of solvents in the dump cannot be accurately determined.

The report of solvent waste being disposed at the Rifle Range Dump has not been substantiated by follow-up interviews. Although the number of personnel qualifying with weapons at the rifle range apparently has decreased to 20,000 to 30,000 per year (range use has been higher during war years), weapon cleaning practices are probably unchanged for at least the last 20 years. Typically, weapon cleaning occurs at the "parent organization" and does not occur in the rifle range area except for the relatively small number of people working there. Dry cleaning solvent waste used for weapon cleaning does not exceed 20 to 30 gallons per year. Some discrepancy exists as to whether or not "bore cleaner" is presently used, but if it is, quantities used are expected to be similar to the amounts of dry cleaning solvents. No other unusual or specialized activity that uses solvents has been identified in this area.

Note: Size estimates are based on map and photograph information. Field estimates may have been made, but no field measurements have been performed. Estimates are provided for general guidance only.

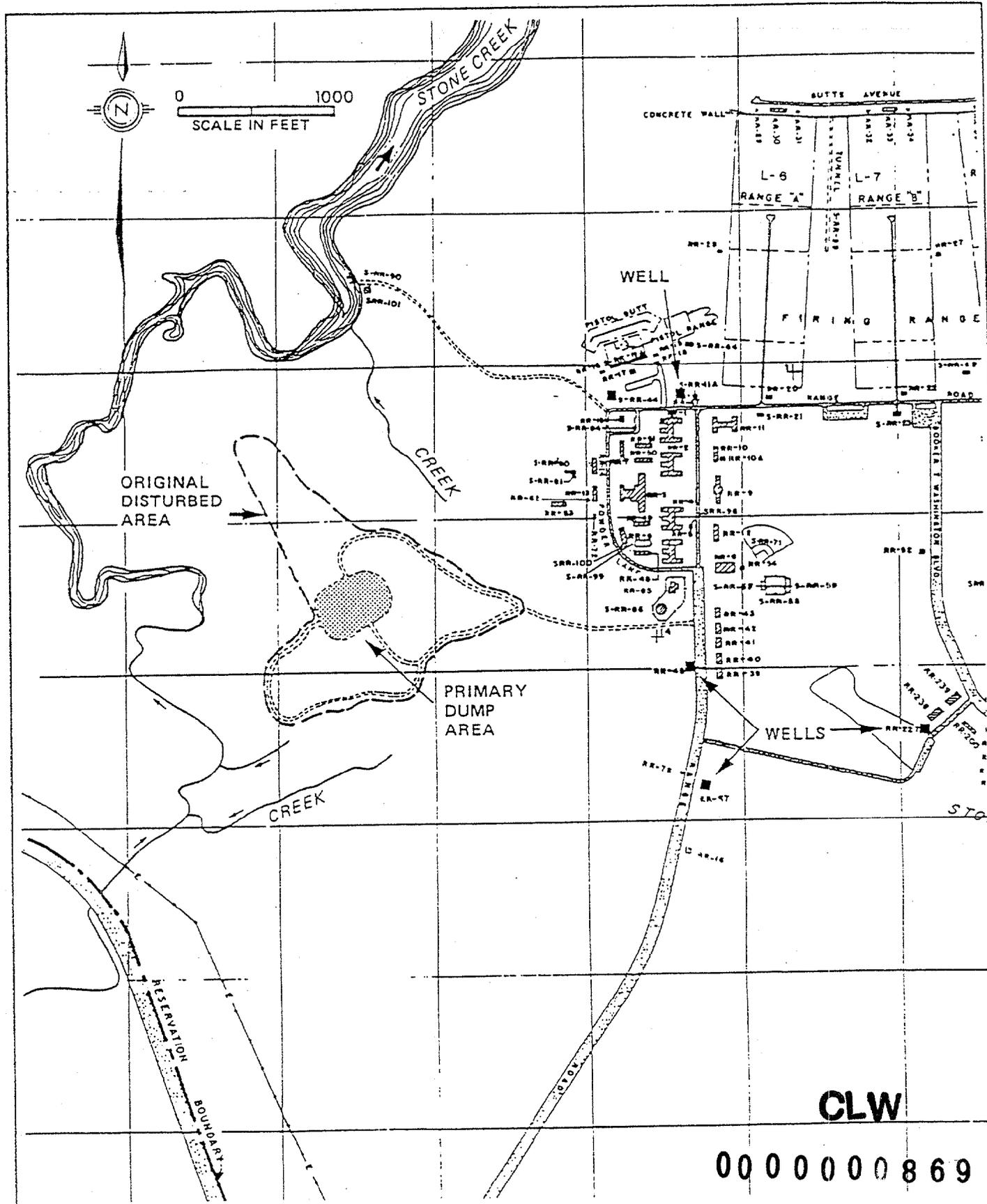


FIGURE 6-29
Detail of Site No. 68, Rifle Range Dump

SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 16 OF 24, JUNE 30, 1979.

Water and Air Research, Inc. Consulting Environmental Engineers and Scientists

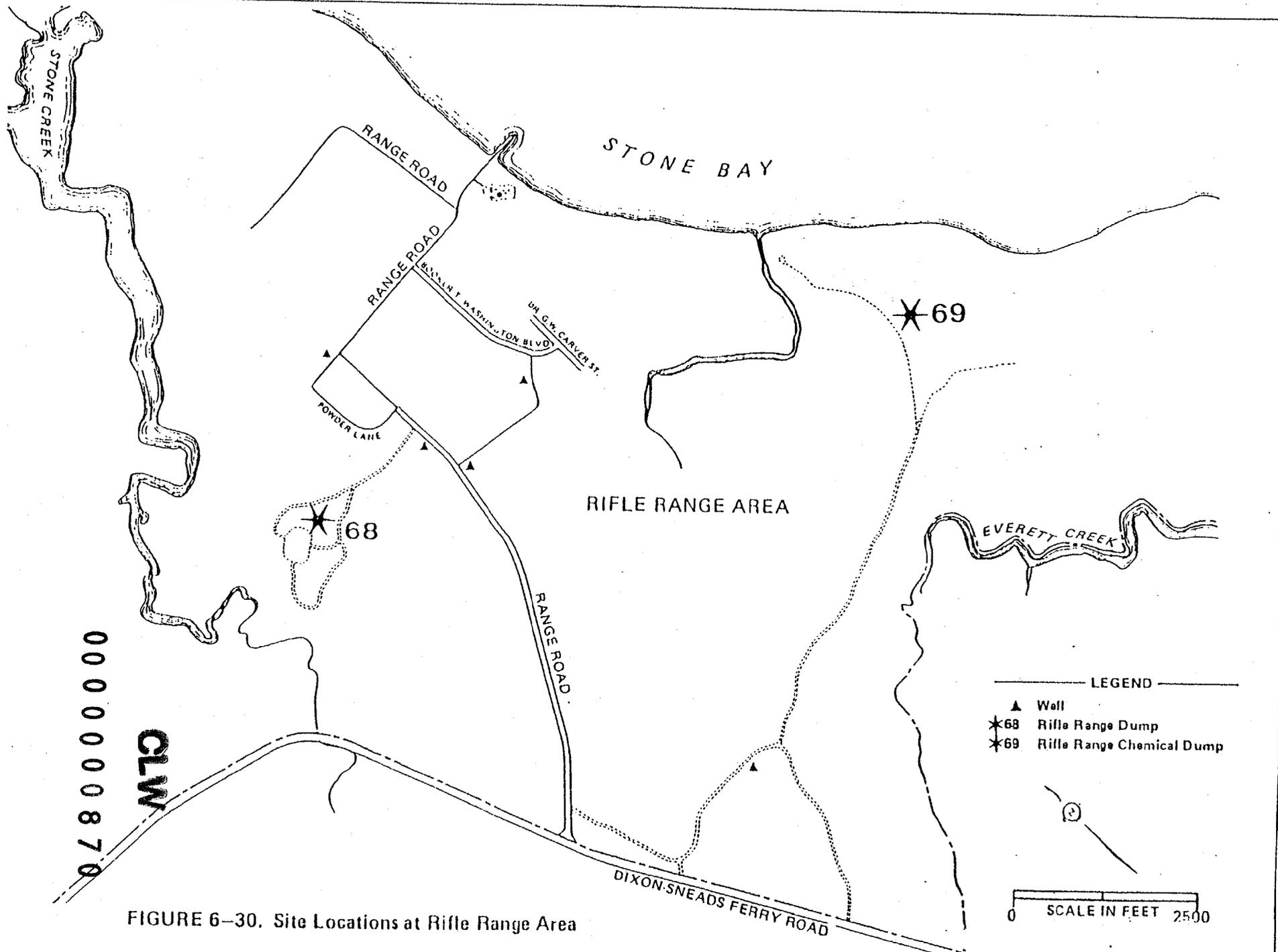


FIGURE 6-30. Site Locations at Rifle Range Area



FIGURE 6-31
Site No. 68 – Rifle Range Dump

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Site No.: 69

Name: Rifle Range Chemical Dump

Location: PWDM Coordinates 16, L14-15/M14-15; about 8,000 to 9,000 feet due east of intersection of Range and Sneads Ferry Roads, north of Everett Creek.

Figures and Photos: 2-1, 6-30, 6-32, 6-33

Size: Estimated area is about 6 acres.

Previously Reported: Yes EPA Form 8900-1 MC Bul 6280

Activity: Former site for chemical wastes, including various pesticides, PCBs, fire retardants

Materials Involved: Pentachlorophenol, DDT, TCE, Malathion, Diazinon, Lindane, gas cylinders, HTH, PCBs, drums of "gas" that were probably a training agent containing chloroacetophenone (CN), all other hazardous materials generated or used on base, chemical agent test kits for chemical warfare, which contain no agent substances. See Table 2-3 for reported contaminant levels in surface and groundwater at or near this site.

Quantity: Overall volume may be 93,000 cubic yards. This is based on an area of approximately 6 acres and an assumed depth of 10 feet.

When: Approximately 1950 to about 1976

Comments: The former base safety officer prepared a list of what and where chemicals were buried in the landfill. This list has been lost, but some information is known from an interview.

Disposal was in pits/trenches between 6 to 20 feet deep. At least 12 different dumpings have been documented.

(Continued)

Site No.: 69 (Continued)

This site is at a higher elevation than surrounding terrain. Subsurface contaminant migration could be in many directions. Groundwater seeps were observed in the surrounding area.

Two reports of atmospheric emissions were noted. One incident occurred possibly as a result of meteorological conditions; the second incident was caused by accidental disturbance of the ground at the site by grading/disking machinery.

Some PCBs, sealed in cement septic tanks, are reported to be buried here.

Both fired and unfired blank rifle cartridges were found on the ground within the boundaries of this site. The presence of these cartridges indicate that troop training exercises may have extended into this area, possibly at night when warning signs might not have been seen.

The chemical agent test kits were a type called "Kit, Chemical Agent Detector, M9" for detecting mustards, nitrogen mustards, arsenicals and phosgene. The following is a contents listing of the kit from the kits' "General Directions."

- 1 Kit Carrier with Carrying Strap
- 1 Air Sampling Pump, with Flashlight
- 36 Mustards Detector Tubes
- 20 Nitrogen Mustards Detector Tubes
- 20 Arsenicals Detector Tubes
- 20 Phosgene Detector Tubes
- 20 Sampling Tubes
- 2 Aluminum Bottles of Liquid Reagent
- 1 Blue Bottle of Liquid Reagent
- 1 Red Bottle of Liquid Reagent
- 1 Aluminum Vial of Solid Reagent
- 1 Protective Cover
- 1 Set of General Directions for Use of Kit, Chemical Agent Detector, M9
- 1 Pack of Envelopes and Report Forms
- 1 Pencil

One disposal incident occurred in 1953 or 1954. About 50 drums of what is believed to be training agent were delivered on rubber padded trucks and were buried in two trenches (see Figure 6-32). The drums were described as being "not nearly as heavy as if filled with oil". These drums were placed in the pit one at a time and laid side by side. These two pits were up to 20 feet deep and the drums were stacked so

(Continued)