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INSTALLATION RESTORATION SITES FACT SHEET 17 AUGUST 1992 NSWC INDIAN
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INSTALLATION RESTORATION SITES
FACT SHEETS
FOR
INDIAN HEAD DIVISION
NAVAL SURFACE WARFARE CENTER
INDIAN HEAD, MARYLAND
20640-5035

Please note that the information presented in these Fact Sheets (except Installation Restoration Site 8, Mercury Contamination from Building 766) was obtained from the Draft Preliminary Assessment Report, Naval Energy and Environmental Support Activity (NEESA) Document Number 13-021A of June 1991. The information in the report was obtained by searching available records and interviewing long term Naval Ordnance Station employees who may have observed or participated in past disposal practices. A few of the people interviewed had already retired.

FOREWORD

UPDATE NUMBER 2

The following changes were made to the Fact Sheets on 17 August 1992:

- a. IR Site Numbers, as provided to the EPA, have been included for each site.
- b. Section 8, Work Being Done, for each site now contains the number and types of samples that will be taken at each site. In addition, a list of testing parameters for the samples are included in section 8.
- c. A list of the target compounds and target analytes have been included as Attachment A. The list has been broken down into the following testing parameters:
 - VOC - Volatile Organic Compounds
 - BNA - Base-Neutral Extractable and Acid Extractable Organic Compounds
 - TPH - Pesticides and Polychlorinated Biphenyls (PCBs)
 - and TAL - Target Analytes
- d. Topographical maps of each site have been included as Appendix B.
- e. The Olson Road Landfill, IR Site 42, Fact Sheet has been amended to reflect the findings in the "Final Site Inspection Report: Phase I, Olson Road Landfill" of July 1992.
- f. An error was inadvertently made in section 1, Contamination, for IR Site 44, Soak Out Area, in previous versions of the Fact Sheet. Previous versions of the Fact Sheet stated that Pennchem 9018 is a polysulfide propellant containing mercaptan. The error has been corrected to state that Pennchem 9018 is a polysulfide nonflammable solvent containing mercaptan.
- g. Approximately 200 drums of mercury contaminated soil was removed from IR Site 8 during construction work in 1985. This was accidentally left out of previous versions of the Fact Sheet, but has now been included.

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MERCURY CONTAMINATION FROM BUILDING 766
(IR Site 8)
Fact Sheet

1. Contamination:

Mercury

2. Location:

The drain from Building 766 enters a ditch that leads to a pond which discharges into the Mattawoman Creek

3. From:

Lab operations

4. When:

1958-1981

5. Generated By:

During sensitivity tests, nitrometer bulbs which contained mercury sometimes exploded under pressure. After testing, the spent mercury, which also contained sulfuric acid, was poured into a "slop jar." Tap water was run into the jar to remove the sulfuric acid from the mercury. Small spills from transferring mercury to the "slop jar" were common. Jars of mercury often broke while rinsing in the sink.

6. Amount:

Estimates range from 23 to 500 pounds of elemental mercury

7. Work Completed:

a. The site was identified in the Initial Assessment Study (IAS) of the Naval Assessment for the Control of Industrial Pollutants (NACIP) Program. NACIP is the former name of the Navy Installation Restoration Program (IR) and the IAS is equivalent to the Preliminary Assessment (PA) portion of the IR program.

b. While construction work was being performed in the area of Building 766 in 1985, mercury contamination was spotted in the soil. Approximately 200 drums of mercury contaminated soil was removed from the area near the manhole and was properly disposed.

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MERCURY CONTAMINATION FROM BUILDING 766
(IR Site 8)
Fact Sheet

(continued)

c. The floor drains were sealed shut with concrete and sink drains were re-routed to the sewage treatment system. In addition, mercury traps were placed on the drains to prevent contamination of the sludge produced from sewage treatment.

d. A Confirmation Study was performed to determine the extent of mercury contamination throughout the ditch. The mercury in the soil is present in the highest concentration directly under the pipe which discharges into the ditch. The mercury concentrations then decrease downstream from the pipe. The Confirmation Study recommended monitoring mercury levels over a 5 years period. Water monitoring samples taken between the pond and the Mattawoman Creek have not indicated mercury movement.

e. The U.S. Fish and Wildlife Service has been sampling fish in the Mattawoman Creek for the past 5 years to determine the amount of mercury contamination in the fish. Fish upstream from the outfall's entrance to the Creek have been sampled to determine background levels of mercury within the fish. The background level is the amount of mercury that is normally found in the fish. They have also been sampling fish downstream from the outfall's entrance into the Creek to determine if the levels are different. In the past, fish downstream were found to contain mercury at a level slightly higher than those upstream. The latest report from the U.S. Fish and Wildlife Service indicates that the mercury levels in both the fish upstream and downstream from IR Site 8 contain equivalent mercury levels. Mercury levels of the fish from both areas, however, have been within regulatory limits.

f. A Remedial Investigation and a Feasibility Study were performed to determine the best action for the removal of the mercury contaminated soil and sediment.

8. Work Being Done:

An Interim Removal Action was scheduled to be performed in fiscal year 1992, to remove the soil with the highest concentration of mercury. However, because of the scarcity of data and the length of time since sampling was done, the Interim Removal Action has been postponed. Approximately 200 water and sediment samples will be obtained from the ditch,

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MERCURY CONTAMINATION FROM BUILDING 766
(IR Site 8)
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(continued)

the pond, and Mattawoman Creek during the week of 24 August 1992 to better characterize the location and extent of mercury contamination. Pending the sampling results, an Interim Removal Action may or may not be performed. If the sampling results warrant an Interim Removal Action, the Engineering Evaluation and Cost Analysis (EECA), which was completed in May 1992, will be revised to reflect these results. In addition, a Biomonitoring Study will be performed before, during, and after the remediation to ensure that the life within the wetland area and the Creek is not adversely affected.

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SILVER RELEASE TO SEDIMENTS
(IR Site 39)
Fact Sheet

1. Contamination:

Elemental silver and possibly silver nitrate, dinitropropanol (DNPOH), ethylene dichloride, methyl chloride, and formaldehyde.

2. Location:

Mattawoman Creek southeast of Building 497

3. From:

Production of Bis-2,2-Dinitropropyl Acetal/Formal

4. When:

Acetal/Formal was produced from 1961 to 1965.

5. Generated By:

Silver nitrate is used as a catalyst in the production of Acetal/Formal. Acetal/Formal is a plasticizer, a propellant binder, used in Polaris rocket motors. In the reaction the silver nitrate catalyst is converted to elemental silver. The silver was recovered from the reaction vessel and was returned to the supplier to undergo nitration back to silver nitrate. However, interviews with Navy personnel revealed that a significant amount of silver, as well as the other chemicals listed above, may have entered the creek through spills and human error, such as valves mistakenly left open.

6. Amount:

Unknown.

7. Work Completed:

A Preliminary Assessment was performed and a Site Inspection was recommended under the Navy Installation Restoration program to determine if contamination is actually present.

8. Work Being Done:

A Site Inspection under the Navy Installation Restoration Program will be conducted. This inspection will include taking four ponar grab samples from the top sediment of the Mattawoman Creek and two sediment samples in the Creek near Industrial Wastewater Outfall 05 (IW05). These samples will

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**SILVER RELEASE TO SEDIMENTS
(IR Site 39)
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be analyzed for Acetal/Formal, Pelletized Nitrocellulose (PNC), Unsymmetrical Dimethyl Hydrazine (UDMH), High Bulk Density Nitroguanidine (HBNQ), TALs, VOCs, and BNAs.

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PALLADIUM CATALYST IN SEDIMENT
(IR Site 40)
Fact Sheet

1. Contamination:

Palladium

2. Location:

Mattawoman Creek southeast of Building 497

3. From:

Production of Unsymmetrical-Dimethylhydrazine (UDMH)

3. When:

1974 and 1975

4. Generated By:

Palladium was used as a catalyst in the production of UDMH. Forty percent of the catalyst purchased by the NAVORDSTA was lost and we cannot account for the loss. Therefore, it is possible that this catalyst entered the Mattawoman Creek.

5. Amount:

Using the 40% estimated loss of the total purchased, the total amount of palladium that may have entered the creek is 88 pounds.

6. Work Completed:

A Preliminary Assessment was performed and a Site Inspection was not recommended under the Navy Installation Restoration program because palladium is not a regulated hazardous substance. However, we will perform a Site Inspection to ensure that a problem does not exist.

7. Work Being Done:

A Site Inspection under the Navy Installation Restoration Program will be conducted. This inspection will include taking four ponar grab samples from the top sediment of the Mattawoman Creek and two sediment samples in the Creek near the wastewater outfall, which is no longer in use. These samples will be analyzed for Palladium.

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SCRAP YARD
(IR Site 41)
Fact Sheet

1. Contamination:

Polychlorinated Biphenyls (PCBs)

2. Location:

Scrap Yard behind Building 436

3. From:

Storage of PCB and PCB contaminated transformers. By definition, PCB transformers contain oil with greater than 500 parts per million (ppm) of PCBs, while PCB contaminated transformers contain oil within 50 to 500 ppm PCBs.

4. When:

Transformers were stored in the Scrap Yard from the 1960's to 1988.

5. Generated By:

Before Building 1440 was dedicated to the storage of removed PCB equipment, transformers containing PCBs were stored at the Scrap Yard. Transformers in poor condition were stored at the northwest end of the Scrap Yard nearest the Creek. Some of the transformers leaked PCB oil onto the ground.

6. Amount:

Unknown

7. Work Completed:

A Preliminary Assessment was performed and a Site Inspection was recommended under the Navy Installation Restoration program to determine if contamination is actually present.

8. Work Being Done:

A Site Inspection under the Navy Installation Restoration Program will be conducted. This inspection will include:

- a. Obtaining eight soil samples for soil gas analysis of VOCs from eight borings.

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**SCRAP YARD
(IR Site 41)
Fact Sheet**

(continued)

- b. Taking 15 soil samples, three samples per boring at approximately 5 foot intervals, from five soil borings and analyzing for TCLs, TALs, and TPHs.
- c. Installing three monitoring wells and obtaining six groundwater samples, two from each well. These samples will be analyzed for TCLs, TALs, and TPHs.
- d. Obtaining nine soil samples, three per boring at approximately 5 foot intervals, during the installation of monitoring wells. These samples will be analyzed for TCLs, TALs, and TPHs.
- e. Taking 11 sediment samples from the Mattawoman Creek and analyzing for TCLs, TALs, and TPHs.

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OLSON ROAD LANDFILL
(IR Site 42)
Fact Sheet

1. Contamination:

Unknown

2. Location:

Near Building 1728

3. From:

Disposal of various solid wastes from all over Station

4. When:

A period of approximately 5 years ending in 1987

5. Generated By:

Normal operations. Whether hazardous wastes were disposed at the landfill cannot be confirmed or denied by activity records or personnel. Analysis of the former topography suggests that earth moving equipment was used to fill the area.

6. Amount:

Unknown

7. Work Completed:

A Site Inspection was performed under the Navy Installation Restoration Program, as recommended in the Preliminary Assessment, as described below:

a. Branches, pallets, and other visible debris that was located on the site were removed to facilitate sampling efforts.

b. A Magnetometer and Ground Penetrating Radar (GPR) were used to scan the subsurface of the landfill for any buried obstructions that would impede drilling or present a potential hazard.

c. Approximately 75 soil samples were collected at various depths from 24 soil borings and analyzed for VOCs, TCLs, TALs, and TPHs.

d. Four of the soil borings were completed as permanent groundwater monitoring wells and two soil borings were completed as temporary groundwater monitoring wells.

e. Nine groundwater samples were obtained from the six monitoring wells and three grab groundwater samples were taken from 3 boreholes. These samples were analyzed for VOCs, TCLs, TALs, and TPHs.

f. Fifteen sediment samples were collected from the swale located to the northwest and south of the landfill and were analyzed for VOCs, TCLs, TALs, and TPHs.

g. Four surface water samples were taken in the swale and analyzed for VOCs, TCLs, TALs, and TPHs.

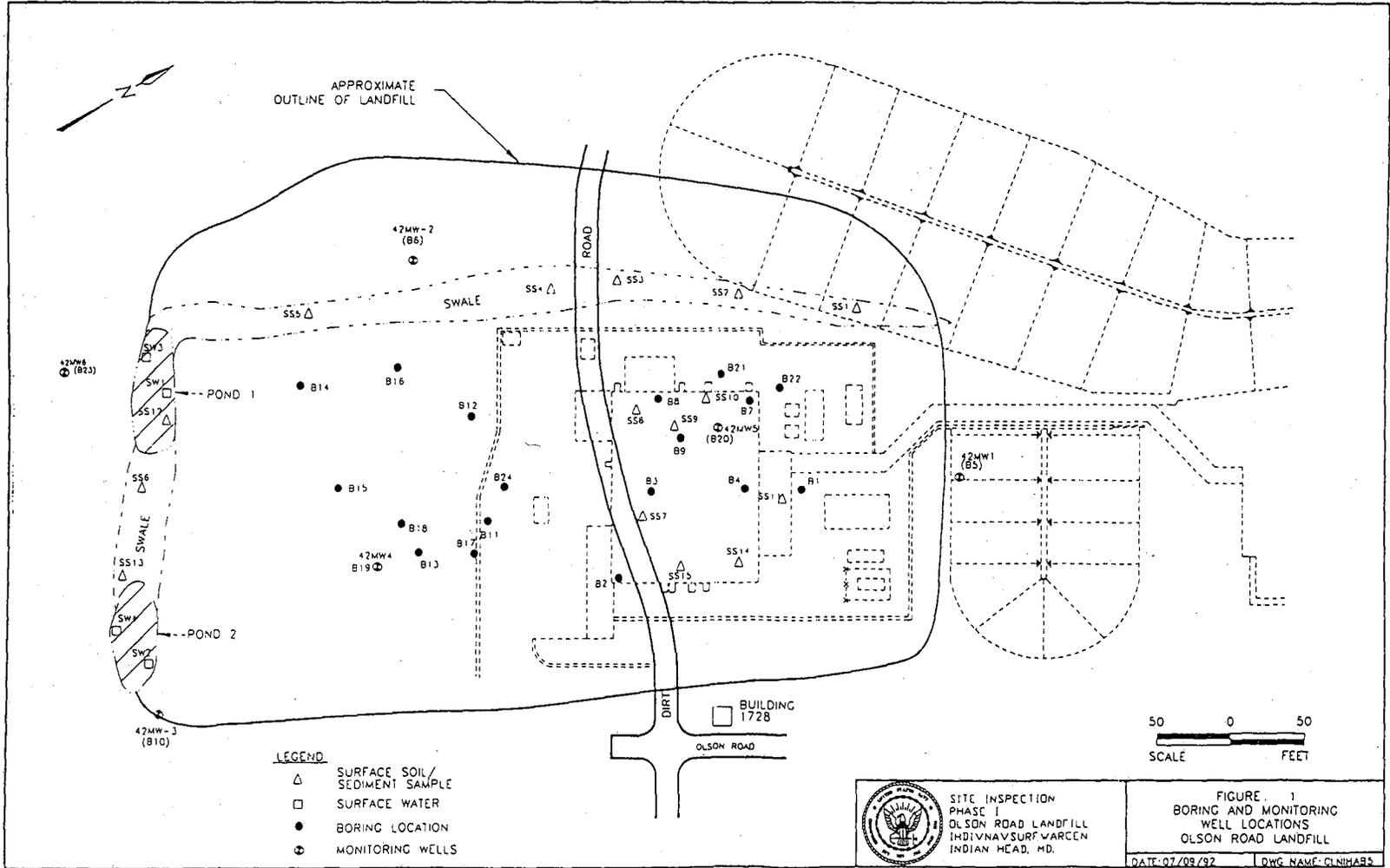
Various volatile and semi-volatile organic compounds, pesticides, and inorganic compounds were discovered in soil and groundwater samples. One compound that was found at levels that exceed the Maximum Contaminant Level (MCL) for drinking water was trichloroethylene (TCE). Table 1 below lists the sample locations and concentrations of trichloroethylene found during the SI. Soil boring, monitoring well, sediment sample, and surface water sample locations are shown in Figure 1. Complete data is given in the "Final Report Site Inspection: Phase I Olson Road Landfill" of July 1992.

Table 1 - Trichloroethylene Contamination
(parts per billion)
Soil (Depth in feet)

Location	4-5	9-11	14-16	19-21	24-26	Water
42B11	7	6			116	130
42B13		10		57		
42B17	8		43			
42B18			33			
42B19		35	290	180		
42B24	93		2		1	
42MW4						4900
42MW5						3

8. Work Being Done:

This site will proceed to the Remedial Investigation/ Feasibility Study (RI/FS) phase of the Navy Installation Restoration Program. During the RI/FS phase, further sampling, such as the installation of additional soil borings and groundwater monitoring wells, will be done to determine the exact location of contamination. The data obtained will be used to evaluate the need for remediation and to determine the appropriate remedial action, if necessary. Defense Environmental Restoration Account (DERA) funds will be allocated for this effort as they become available.



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TOLUENE DISPOSAL
(IR Site 43)
Fact Sheet

1. Contamination:

Toluene

2. Location:

By utility pole across the street from Building 1041

3. From:

Disposal of toluene used for propellant removal

4. When:

Parts cleaning operations took place from the late 1950's through November 1989. We estimate that for a period of approximately two years during the operation, spent solvent was improperly disposed at the base of the pole.

5. Generated By:

After parts were cleaned within Building 1041, the spent solvent was normally combined or "slummed" with sawdust in a 55 gallon drum for treatment at the Strauss Avenue Thermal Treatment Point. Occasionally, however, the spent solvent was carried across the street to the utility pole and poured on the ground at the base of the pole.

6. Amount:

One report estimated that 15 to 20 gallons per week of spent solvent was disposed at the base of the pole. We are unable to determine the amount of solvent disposed at this site.

7. Work Completed:

A Preliminary Assessment was performed and a Site Inspection was recommended under the Navy Installation Restoration program to determine if contamination is actually present.

8. Work Being Done:

A Site Inspection under the Navy Installation Restoration Program will be conducted. This inspection will include obtaining 10 soil samples for soil gas analysis of VOCs from 10 borings. In addition, four soil samples will be taken using a hand auger at a depth not greater than three feet for analysis of VOCs, BNAs, and TPHs.

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SOAK OUT AREA
(IR Site 44)
Fact Sheet

1. Contamination:

An unknown nonflammable solvent, believed to be Pennchem 9018, a polysulfide solvent containing mercaptan.

2. Location:

Area approximately 75 feet east of Building 1363 and 40 feet south of Building 907.

3. From:

Removal of propellant from rocket motor catapult tubes

4. When:

Late 1960's to early 1970's

5. Generated By:

Rocket motor catapult tubes were allowed to soak in the solvent contained in two 55 gallon drums that were welded together. The tubes soaked for 2 to 3 days and were then removed without regard to solvent spillage. However, a smaller catch tank was placed in the larger tank to collect pieces of propellant that would fall out of the tubes.

6. Amount:

Unknown

7. Work Completed:

A Preliminary Assessment was performed and a Site Inspection was recommended under the Navy Installation Restoration program to determine if contamination is actually present.

8. Work Being Done:

A Site Inspection under the Navy Installation Restoration Program will be conducted. This inspection will include:

a. Obtaining 15 soil samples from 15 borings for soil gas analysis of VOCs.

b. Taking nine soil boring samples, three samples per boring at approximately 5 foot intervals, from three soil borings.

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SOAK OUT AREA
(IR Site 44)
Fact Sheet

(continued)

- c. Installing two monitoring wells and obtaining four groundwater samples, two from each well. These samples will be analyzed for VOCs, BNAs, and TPHs.
- d. Obtaining 6 soil samples, three per boring at approximately 5 foot intervals, during the installation of monitoring wells. These samples will be analyzed for VOCs, BNAs, and TPHs.
- e. Taking two soil boring samples using a hand auger to a depth of 1 foot and analyzing for VOCs, BNAs, and TPHs.

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ABANDONED DRUMS
(IR Site 45)
Fact Sheet

1. Contamination:

Unknown

2. Location:

250 feet west of Building 1363

3. From:

Unknown

4. When:

Estimated 15 to 20 years ago

5. Generated By:

Unknown. Possibly the same solvent that was used in the Soak Out Area.

6. Amount:

Assuming the 21 55-gallon drums and two overpack drums had been full, a total of 1295 gallons of solvent would have leaked onto the ground.

7. Work Completed:

A Preliminary Assessment was performed and a Site Inspection was recommended under the Navy Installation Restoration program to determine if contamination is actually present.

8. Work Being Done:

A Site Inspection under the Navy Installation Restoration Program will be conducted. Three soil samples will be taken from three soil borings with a hand auger. The borings will be obtained at a depth not greater than three feet. These samples will be analyzed for VOCs, BNAs, and TALs.

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**CADMIUM SANDBLAST GRIT
(IR Site 46)
Fact Sheet**

1. Contamination:

Cadmium

2. Location:

Gravel area behind Building 855

3. From:

Sandblast grit disposal

4. When:

Mid 1960's to possibly early 1980's

5. Generated By:

Rocket catapult tubes plated with cadmium were sandblasted at Building 855 as part of a resurfacing operation. Often, the cadmium-contaminated grit was dumped in the gravel area behind Building 855.

6. Amount:

Estimates as to the amount, frequency, and time period over which the grit was disposed near the building could not be confirmed.

7. Work Completed:

A Preliminary Assessment was performed and a Site Inspection was recommended under the Navy Installation Restoration program to determine if contamination is actually present.

8. Work Being Done:

A Site Inspection under the Navy Installation Restoration Program will begin 17 August 1992. This inspection will include taking nine soil samples using a hand auger and analyzing them for TALs.

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**MERCURIC NITRATE DISPOSAL AREA
(IR Site 47)
Fact Sheet**

1. Contamination:

Mercuric Nitrate

2. Location:

South of the concrete pad behind Building 856

3. From:

Disposal of mercuric nitrate dissolved in nitric acid

4. When:

From 1957 through 1965

5. Generated By:

Mercuric nitrate is a catalyst that was used to produce hydrazinium nitroformate, an oxidizer used in the propellants for the Polaris missile. The spent solution, one ounce of mercuric nitrate dissolved in 98% nitric acid, was poured from 55 gallon drums onto a 6 x 4 foot bed of limestone chips.

6. Amount:

Assuming enough limestone was present to neutralize the nitric acid, 274 pounds of mercuric nitrate (equivalent to 169 pounds of elemental mercury) would have precipitated out as a salt.

7. Work Completed:

A Preliminary Assessment was performed and a Site Inspection was recommended under the Navy Installation Restoration program to determine if contamination is actually present.

8. Work Being Done:

A Site Inspection under the Navy Installation Restoration Program will be conducted. This inspection will include taking two soil samples with a hand auger in the ditch where the mercuric nitrate may have settled, and analyzing for VOCs, BNAs, and TALs. In addition, 10 soil samples will be taken with a hand auger at the south edge of the concrete pad. The samples will be taken at various depths from zero to one foot and will be analyzed for VOCs, BNAs, and TALs.

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NITROGLYCERINE PLANT DISPOSAL AREA
(IR Site 48)
Fact Sheet

1. Contamination:

Unknown.

2. Location:

On the hill behind Building 766.

3. From:

Unknown, possibly laboratory samples.

4. When:

Unknown.

5. Generated By:

Unknown. Bottles, metal scrap, solvent containers, and refuse, possibly generated at Building 766, are visible on the hill. Most containers appear to be old and empty.

6. Amount:

Unknown

7. Work Completed:

A Preliminary Assessment was performed and a Site Inspection was recommended under the Navy Installation Restoration program to determine if contamination is actually present.

8. Work Being Done:

a. Two soil samples were taken on the hillside where the bottles and scrap are located in 1991. The samples were analyzed for mercury to determine if this site could be a source of mercury at the Building 766 ditch. No mercury was detected in the samples.

b. A Site Inspection under the Navy Installation Restoration Program will be conducted. This includes obtaining nine soil samples from three borings, three per boring at approximately 5 foot intervals. These samples will be analyzed for VOCs, BNAs, and TPHs.

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CHEMICAL DISPOSAL PIT
(IR Site 49)
Fact Sheet

1. Contamination:

Unknown

2. Location:

Northeast of Building 444.

3. From:

Lab Operations.

4. When:

Limited use up to the early 1970's

5. Generated By:

Bottles containing wastes were placed on a steel grate in the pit and the drop plate was dropped. The plate then crushed the bottles containing waste chemicals. The glass fell into a wire basket and the contents of the bottles were allowed to soak into the bottom of the pit.

6. Amount:

Unknown

7. Work Completed:

A Preliminary Assessment was performed and a Site Inspection was not recommended under the Navy Installation Restoration program. According to Navy personnel, the pit received little, if any, use. No visible signs of disposal can be seen, such as chemical stains or broken glass.

8. Work Being Done:

Three soil samples will be taken at one soil boring and will be analyzed for VOCs, BNAs, TALs, and nitrate esters. Two soil samples will be obtained using a hand auger one at a depth of 0 to 1 foot and the other at a depth of 1 to 2 feet. These samples will also be analyzed for VOCs, BNAs, TALs, and nitrate esters.

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BUILDING 103 CRAWL SPACE
(IR Site 50)
Fact Sheet

1. Contamination:

Elemental mercury and possibly other chemicals.

2. Location:

Crawl space of Building 103.

3. From:

Sinks in Building 103.

4. When:

From 1902 to 1985. During construction in 1985, we discovered that the sinks did not drain to either the sanitary or storm sewer system. Instead, the sinks discharged directly to the soil under Building 103.

5. Generated By:

Laboratory equipment containing mercury was used in Building 103 at various times. During sensitivity tests, nitrometer bulbs, which contained mercury, sometimes exploded under pressure. After testing, the spent mercury, which also contained sulfuric acid, was poured into a "slop jar." Tap water was run into the jar to remove the sulfuric acid from the mercury. Small spills from transferring mercury to the "slop jar" were common. Jars of mercury often broke while rinsing in the sink. Other chemicals were also placed in the sinks. A visual inspection of the crawl space revealed possible asbestos insulation covering the pipes. The insulation appeared to be in good condition.

6. Amount:

Unknown.

7. Work Completed:

a. The sinks were re-routed to the sanitary sewer system. In addition, chemicals are no longer put down the sink.

b. A Preliminary Assessment was performed and a Site Inspection was recommended under the Navy Installation Restoration program to determine if contamination is actually present.

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BUILDING 103 CRAWL SPACE
(IR Site 50)
Fact Sheet
(continued)

8. Work Being Done:

A Site Inspection under the Navy Installation Restoration Program will be conducted. This inspection will include taking soil boring samples from the crawl space under Building 103 and analyzing for VOCs, BNAs, TALs, and nitrate esters.

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BUILDING 101 DRY WELL
(IR Site 51)
Fact Sheet

1. Contamination:

None

2. Location:

Dry well by Building 101

3. From:

N/A

4. When:

N/A

5. Generated By:

Initially, we believed that a laboratory waste stream was separated for disposal purposes. The volatile component was evaporated in a flash tank while the remaining liquid wastes were discharged into a dry well. However, inspection of Department of the Navy, Bureau of Yards and Docks drawings revealed that the flash tank did not discharge to the dry well.

6. Amount:

None.

7. Work Completed:

A Preliminary Assessment was performed and a Site Inspection was not recommended under the Navy Installation Restoration program.

8. Work Being Done:

Based on the evidence of the Department of the Navy, Bureau of Yards and Docks drawings, this site has been dropped from the IR Program. However, if any waste was placed in the dry well, the contamination will be found from wells and soil borings taken in the area. (See IR Site 53.)

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BUILDING 102 DRY WELL
(IR Site 52)
Fact Sheet

1. Contamination:

None

2. Location:

Dry well by Building 102

3. From:

N/A

4. When:

N/A

5. Generated By:

Initially, we believed that a laboratory waste stream was separated for disposal purposes. The volatile component was evaporated in a flash tank while the remaining liquid wastes were discharged into a dry well. However, inspection of Department of the Navy, Bureau of Yards and Docks drawings revealed that the flash tank did not discharge to the dry well.

6. Amount:

None.

7. Work Completed:

A Preliminary Assessment was performed and a Site Inspection was not recommended under the Navy Installation Restoration program.

8. Work Being Done:

Based on the evidence of the Department of the Navy, Bureau of Yards and Docks drawings, this site has been dropped from the IR Program. However, if any waste was placed in the dry well, the contamination will be found from wells and soil borings taken in the area. (See IR Site 53.)

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MERCURY CONTAMINATION OF THE SEWAGE SYSTEM
(IR Site 53)
Fact Sheet

1. Contamination:

Mercury

2. Location:

Storm and Sanitary Sewer Pipes

3. From:

Building 102

4. When:

1909 through 1986

5. Generated By:

In 1969, approximately 10 pounds of mercury were discovered in a storm sewer manhole and in 1989, approximately one pound of mercury was discovered in a sanitary sewer manhole. Both manholes have drain line connections to Building 102. Laboratory equipment that contain mercury, such as nitrometers, were used extensively in Building 102. Mercury often entered drains during the cleaning of laboratory equipment. In 1986, when mercury traps were placed on all sinks in Building 102, mercury was discovered in the U-joints of the sinks.

6. Amount:

The Draft Preliminary Assessment Report states that only about ten percent of the mercury sent to Building 102 was returned to the Building 444 storage vault for reclamation. Laboratory workers estimated that approximately one liter of mercury was lost per month. Therefore, it is possible that 28,000 pounds of mercury could have been discharged to the drain lines over the 77 year period that the building operated without mercury traps on the sinks.

7. Work Completed:

- a. The ten pounds of mercury discharged in the storm sewer manhole in 1969 was recovered.
- b. The one pound of mercury discharged in the sanitary sewer manhole in 1989 was recovered.

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MERCURY CONTAMINATION OF THE SEWAGE SYSTEM
(IR Site 53)
Fact Sheet
(continued)

c. A television inspection of the gravity sewer lines was conducted in late 1988. The vitrified clay and terra-cotta pipes were broken, cracked, sagging, separated and, in some cases, collapsed. Mercury contamination of the sewage sludge rose to 150 parts per million while the television inspection was being conducted. This suggests that the sewer cleaning, which was done prior to the television inspection, washed mercury down to the Sewage Treatment Plant. Mercury levels have since dropped to approximately 25 parts per million, the concentration typically measured in the sludge prior to 1988.

8. Work Being Done:

A Site Inspection under the Navy Installation Restoration Program will be conducted. This inspection will include:

- a. Taking 24 soil samples from 12 borings. One sample per boring will be located below the level of the sewer line. These samples will be analyzed for mercury and nitrate esters.
- b. Obtaining 12 sediment samples from sanitary and storm sewer manholes and analyzing for mercury and nitrate esters.

Date Prepared:
17 August 1992

BUILDING 101
(IR Site 54)
Fact Sheet

1. **Contamination:**

Elemental mercury

2. **Location:**

Basement of Building 101

3. **From:**

Use of laboratory equipment that contained mercury and possibly leaking pipes.

4. **When:**

From building construction in 1909 to mid 1980's

5. **Generated By:**

In January 1990, several droplets of mercury were discovered on the insulation of a steam pipe located in the southeast corner room of the basement in Building 101. In addition, in the mid 1980's, an employee noticed solvent odors in the basement when solvent was flushed down the sink in the room above, indicating a leaky pipe.

Laboratory equipment that contained mercury was used in the room above the basement where mercury was discovered. A 1918 blueprint shows four nitrometers located in this room. During sensitivity tests, nitrometer bulbs, which contained mercury, sometimes exploded under pressure. After testing, the spent mercury, which also contained sulfuric acid, was poured into a "slop jar." Tap water was run into the jar to remove the sulfuric acid from the mercury. Small spills from transferring mercury to the "slop jar" were common. Jars of mercury often broke while rinsing in the sink.

6. **Amount:**

Unknown

7. **Work Completed:**

A Preliminary Assessment was performed and a Site Inspection was recommended under the Navy Installation Restoration program to determine the extent of contamination.

Date Prepared:
17 August 1992

**BUILDING 101
(IR Site 54)
Fact Sheet
(continued)**

8. Work Being Done:

A Site Inspection under the Navy Installation Restoration Program will be conducted. This inspection will include:

- a. Taking five wipe samples within the building and analyzing for mercury.
- b. Taking five media samples from within the building and analyzing for mercury.
- c. Obtaining five soil boring samples from beneath the building and analyzing for mercury and nitrate esters.

Date Prepared:
17 August 1992

BUILDING 102
(IR Site 55)
Fact Sheet

1. Contamination:

Mercury

2. Location:

Building 102

3. From:

Use of laboratory equipment that contained mercury

4. When:

From building construction in 1909 to 1963 when renovations to the building were made.

5. Generated By:

On October 6, 1987, metallic mercury was discovered dripping from the ceiling onto the sink table top of the coffee mess, located in the northern end of the basement of Building 102. Review of Department of the Navy, Bureau of Yards and Docks drawings indicate that a nitrometer was once located in the room directly above the area where the metallic mercury was discovered.

While installing mercury traps in the sinks of Building 102 in 1986, the plumber reported approximately a teaspoon of mercury in each of the U-joints.

During sensitivity tests, nitrometer bulbs, which contained mercury, sometimes exploded under pressure. After testing, the spent mercury, which also contained sulfuric acid, was poured into a "slop jar." Tap water was run into the jar to remove the sulfuric acid from the mercury. Small spills from transferring mercury to the "slop jar" were common. Jars of mercury often broke while rinsing in the sink.

6. Amount:

Unknown

7. Work Completed:

a. During building renovations in 1963, the nitrometer operation was moved to the south room on the first floor of Building 102 and the floor was sealed with a two inch layer of concrete.

Date Prepared:
17 August 1992

BUILDING 102
(IR Site 55)
Fact Sheet
(continued)

- b. In the mid 1970's, the nitrometer was moved to the southern room in the basement of Building 102 and in the early 1980's, the floor drains were sealed to prevent mercury release in case of a spill.
- c. Cleanup of the mercury began after the mercury was found dripping from the ceiling, but promptly ceased after asbestos was discovered.
- d. Plastic sheeting was placed under the ceiling to encapsulate the leaking mercury and the northern end of the building was closed to protect the health of the employees.
- e. In February of 1989, the building was abandoned. In June 1991, the water supply to the building was disconnected to eliminate the potential for mercury contamination of the sludge generated from sewage treatment.

8. Work Being Done:

A Site Inspection under the Navy Installation Restoration Program will be conducted. This inspection will include:

- a. Taking five wipe samples within the building and analyzing for mercury.
- b. Taking five media samples from within the building and analyzing for mercury.
- c. Obtaining five soil boring samples from beneath the building and analyzing for mercury and nitrate esters.

ATTACHMENT A

TARGET COMPOUND LIST (TCL)

AND

TARGET ANALYTE LIST (TAL)

TARGET COMPOUNDS

Table 1 - Volatile Organic Compounds (VOCs)

Acetone
Benzene
Bromodichloromethane
Bromoform
Bromomethane
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
Dibromochloromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Ethylbenzene
2-Hexanone
Methyl ethyl ketone (2-Butanone)
4-Methyl-2-pentanone
Methylene chloride
Styrene
1,1,2,2-Tetrachloroethane
Tetrachloroethene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Toluene
Vinyl acetate
Vinylchloride
Xylene

TARGET COMPOUNDS (continued)

Table 2 - Base-Neutral Extractable Organic Compounds (BN)

Acenaphthene
Acenaphthylene
Anthracene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Benzo(g,h,i)perylene
Benzyl alcohol
bis (2-Chloroethyl) ether
bis (2-Chloroethoxy) methane
bis (2-Chloroisopropyl) ether
bis (2-Ethylhexyl) phthalate
4-Bromophenyl phenyl ether
Butyl benzyl phthalate
4-Chloroaniline
2-Chloromaphthalene
4-Chlorophenyl phenyl ether
Chrysene
Dibenzo(a,h)anthracene
Dibenzofuran
Dibutyl phthalate
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
3,3'-Dichlorobenzidine
Diethyl phthalate
Dimethyl phthalate
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Indeno(1,2,3-cd)pyrene
Isophorone
2-Methylnaphthalene
Naphthalene
2-Nitroaniline
3-Nitroaniline
4-Nitroaniline
Nitrobenzene
N-Nitrosodi-n-propylamine
N-Nitrosodiphenylamine
Phenanthrene
Pyrene
1,2,4-Trichlorobenzene
2,4,6-Trichlorophenol

TARGET COMPOUNDS (continued)

Table 3 - Acid Extractable Organic Compounds (A)

Benzoic Acid
4-Chloro-3-methyl phenol
2-Chlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2-Methyl-4,6-dinitrophenol
2,4-Dinitrophenol
2-Methyl phenol
4-Methyl phenol
2-Nitrophenol
4-Nitrophenol
Pentachlorophenol
Phenol
2,4,5-Trichlorophenol

TARGET COMPOUNDS (continued)

Table 4 - Pesticides and PCBs

Alpha-BHC
Beta-BHC
Delta-BHC
Gamma-BHC (lindane)
Heptachlor
Aldrin
Heptachlor epoxide
Endosulfan I
Dieldrin
4,4'-DDE
Endrin
Endosulfan II
4,4'-DDD
Endosulfan sulfate
4,4-DDT
Methoxychlor
Endrin ketone
Chlordane
Toxaphene
PCB-1016
PCB-1221
PCB-1232
PCB-1242
PCB-1248
PCB-1254
PCB-1260

TARGET ANALYTES (TAL)

Table 5 - Metals

Aluminum
Antimony
Arsenic
Barium
Beryllium
Cadmium
Calcium
Chromium
Cobalt
Copper
Iron
Lead
Magnesium
Manganese
Mercury
Nickel
Potassium
Selenium
Silver
Sodium
Thallium
Tin
Vanadium
Zinc

ATTACHMENT B

TOPOGRAPHIC MAPS
OF
INSTALLATION RESTORATION SITES

Figure B-1 Topographic Map of IR Sites 8 and 48

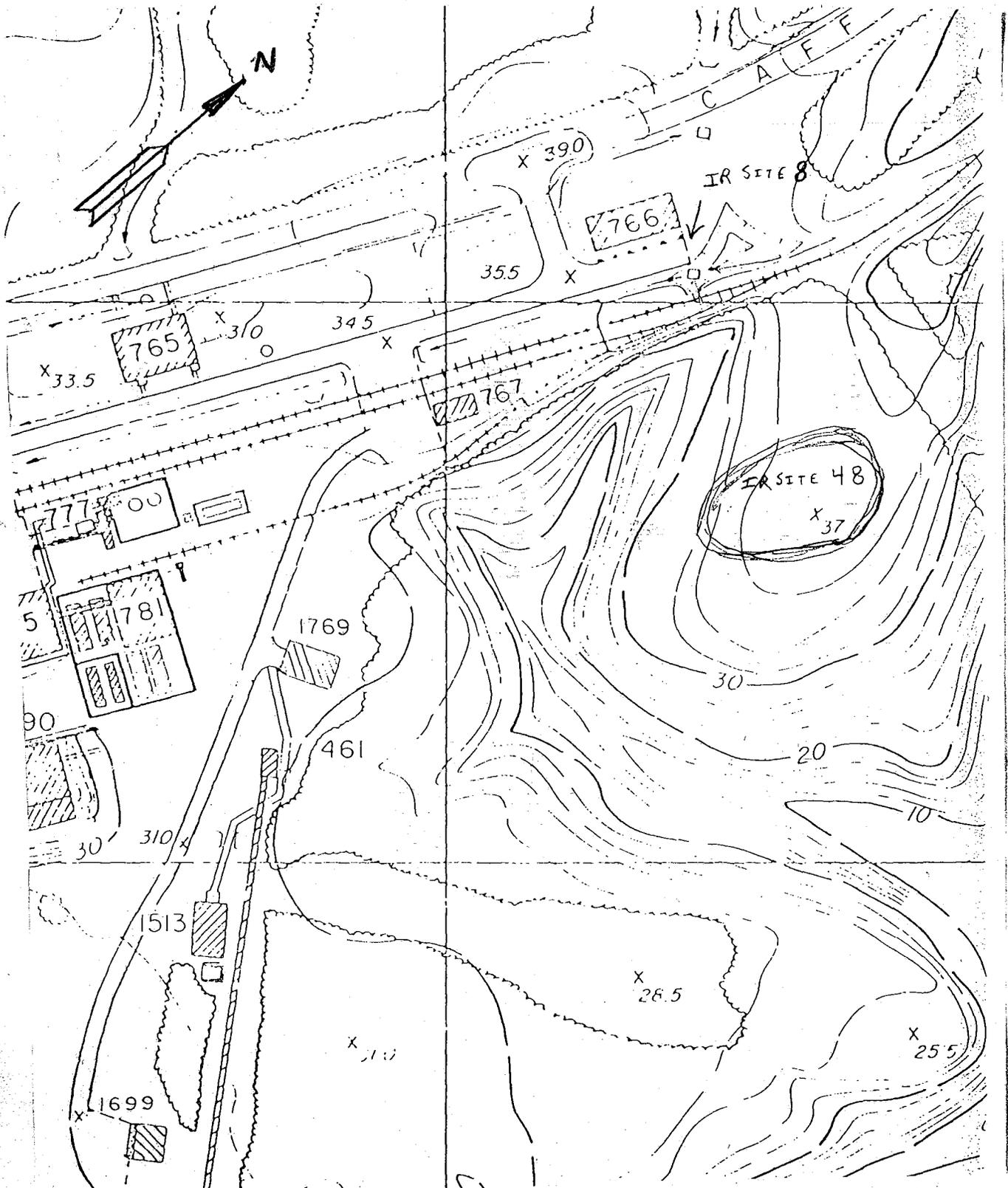


Figure B-2 Topographic Map of IR Sites 39 and 40

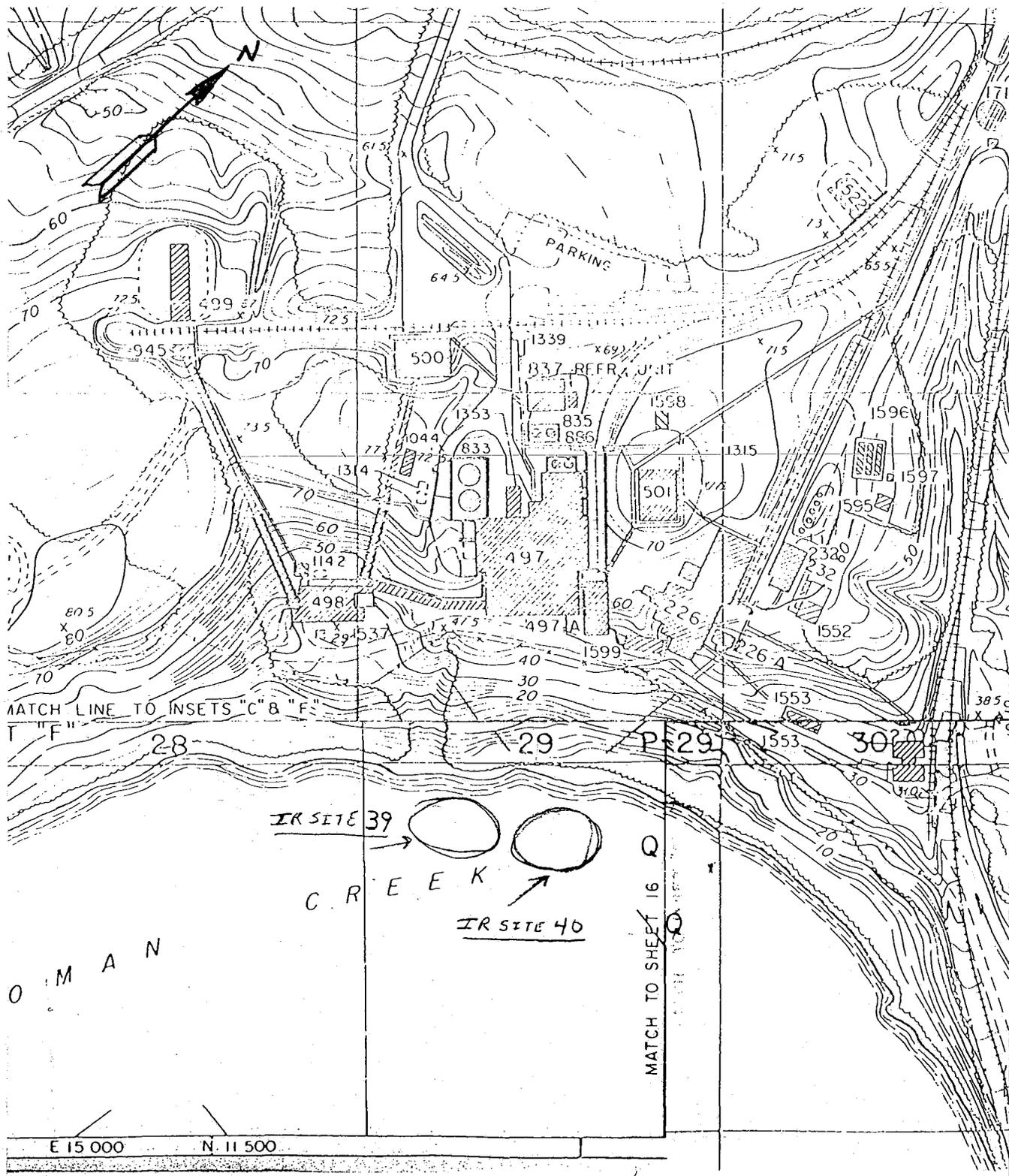


Figure B-3 Topographic Map of IR Site 41

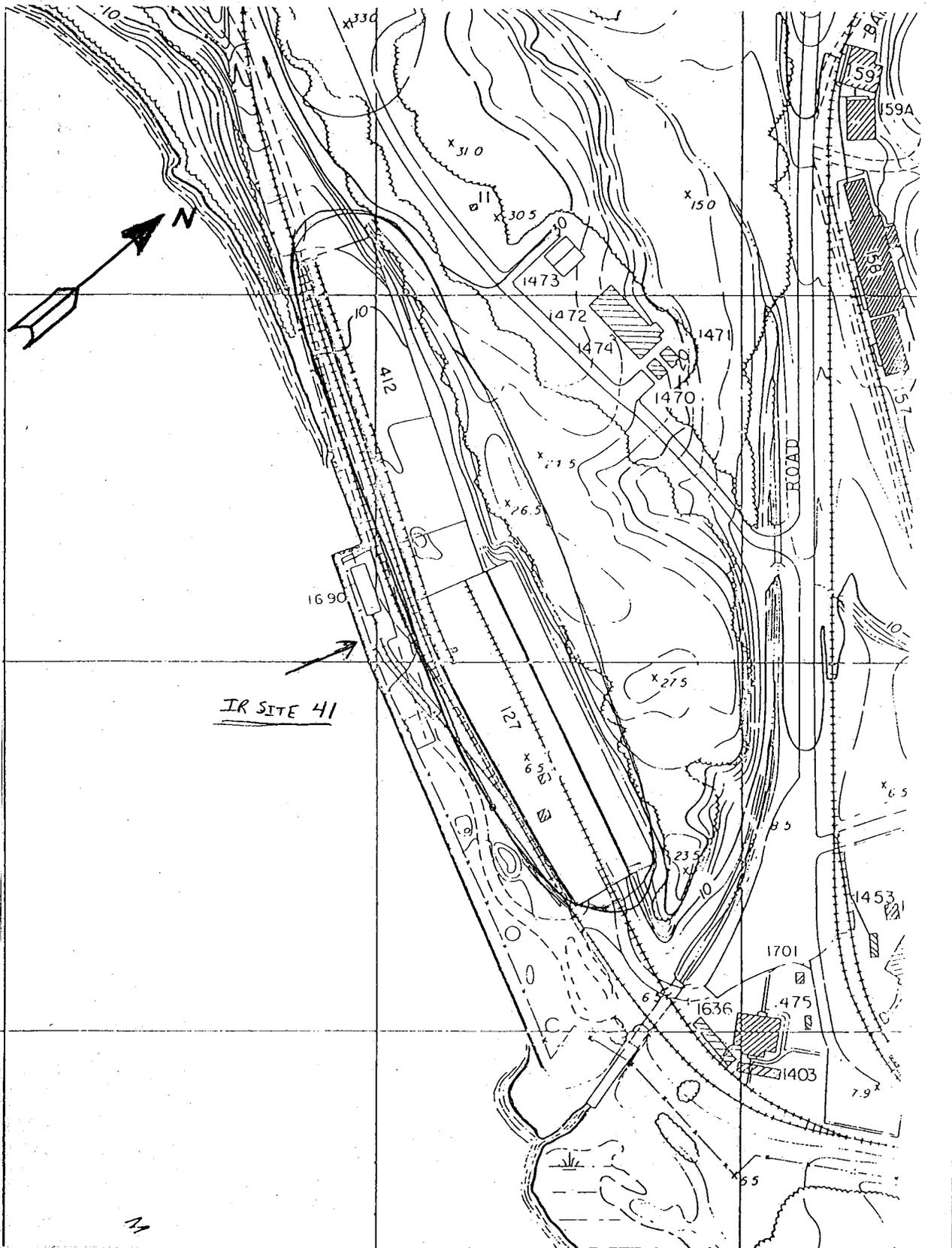


Figure B-4 Topographic Map of IR Site 42

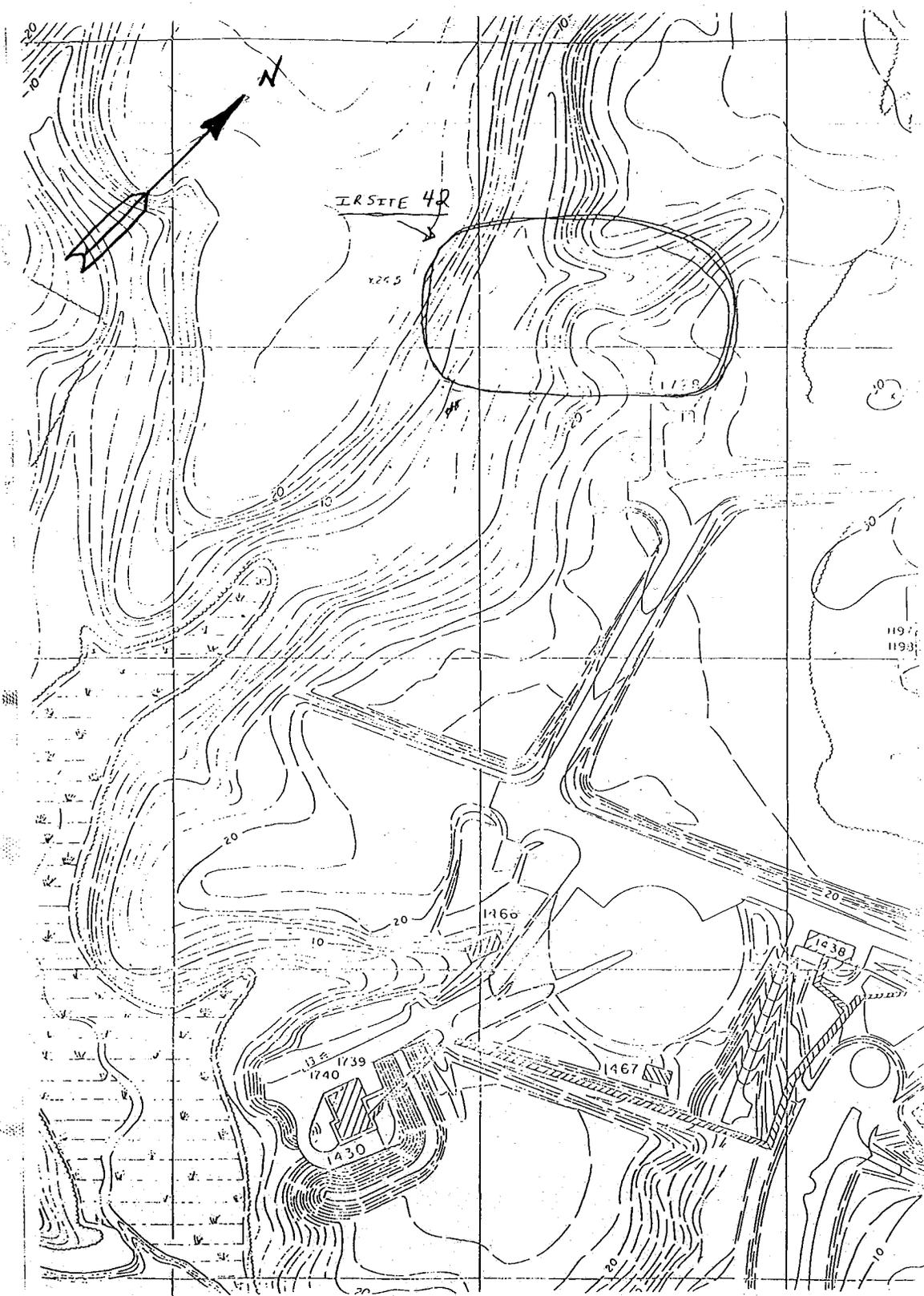


Figure B-5 Topographic Map of IR Site 43

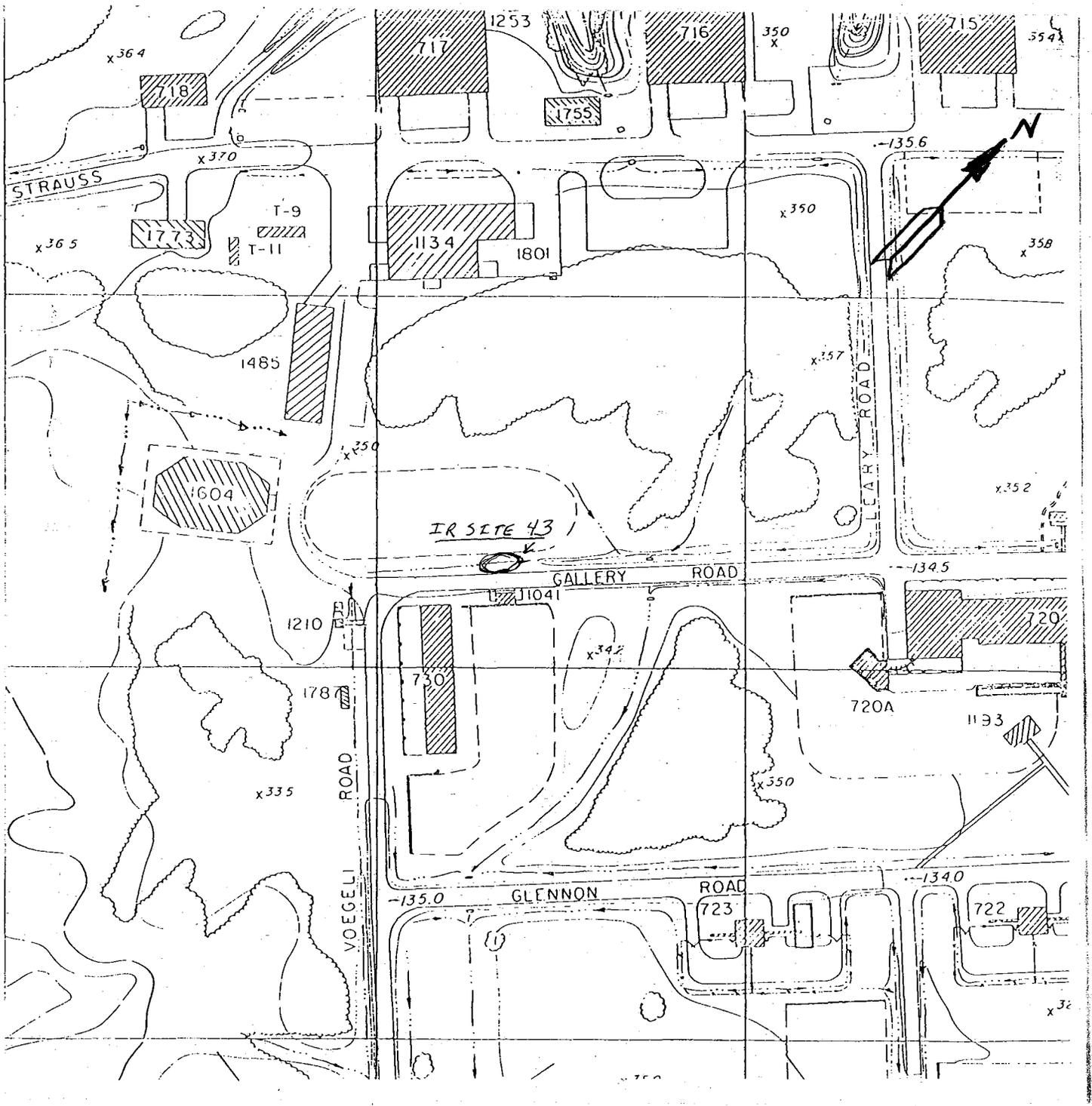


Figure B-6 Topographic Map of IR Sites 44 and 45

