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# White Bluffs, 100-IU-2 Operable Unit Technical Baseline Report

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# 1.0 INTRODUCTION

This document is prepared in support of the 100 Area Environmental Restoration activity at the U.S. Department of Energy's (DOE) Hanford Site near Richland, Washington (Appendix A, maps 1 and 2). It provides a technical baseline of known waste sites and other past disturbances (discovery sites) located in the vicinity of the White Bluffs township, which includes the 100-IU-2 and 100-IU-5 Operable Units (Appendix A, map 3). The report is based on an environmental investigation undertaken by the Waste Site and Facilities Information Office of the Engineering and Technology Department in support of the Environmental Restoration Engineering function. It includes a review and evaluation of numerous Hanford Site current and historical reports, drawings, and photographs, supplemented by site inspections and interviews with current and former employees. No intrusive field investigation or sampling was conducted. All coordinate locations are approximate locations derived from maps, photographs, Global Positioning Surveys, and field estimations. Units of measure are shown as they appear in the reference documents; however, some data and new data have been converted into metric units in accordance with publishing guidelines.

This report describes sites that include potential waste sites, physical attributes or hazards, cribs, pits, ditches, solid waste burial grounds, scattered debris, septic systems, and drain fields. Each site is described separately. Sites that are geographically co-located are described together in a single section. Maps and photographs are included as Appendices A and B.

All of the sites described in this document will be submitted for addition to the Environmental Sites Database upon publication of this report.

# 2.0 BACKGROUND

## 2.1 GENERAL DESCRIPTION AND HISTORY

Before acquisition of the Hanford Site for the Manhattan Project, three small communities were located within the boundaries of the selected site. The small town of White Bluffs was one of these (Appendix B, photograph 1).

The town of White Bluffs was a small agricultural-based community of 500 persons (Tri-City Herald 1968). It was relocated at least twice during its history. It was first located on the east side of the Columbia River and was primarily a trading post on the route used by trappers and native populations. It was then relocated on the west bank of the river until a flood in the early 1900's. After the flood waters receded much of the townsite was relocated to its present location, which is adjacent to Route 2 North just inland of the Columbia River on the Hanford Site (Parker 1979) (Appendix A, map 4).

This second move of the townsite provided two advantages to its former riverbank location; it removed the town from the hazards of annual flooding of the Columbia River, and it took advantage of the newly installed rail system adjacent to the highway now known as Route 2 North. At the turn of the century, White Bluffs had "settled down to a prosperous living from the rich irrigated lands and...one of the longest growing seasons in the West" (Tri-City Herald 1968).

Conversation with several former residents of the White Bluffs area indicates that domestic wastes are most likely to be found randomly near homestead sites. These wastes are likely to consist of cans, bottles, and other solid wastes that could not be recycled for use.

Generally, these domestic wastes were disposed of in open pits or natural depressions convenient to the homeowner to the rear of the homesite or property. Most if not all flammable wastes were burned. Food scraps were usually fed to domestic animals rather than disposed of in a landfill.

In 1943, when the site was taken by the U.S. Army Corp of Engineers to be used for the Manhattan Project, residents were given 30 days or less to vacate. Those residents that hired on as project employees were allowed to remain in their homes until construction activities were nearing completion. The remaining structures were either converted for use or demolished, "some of the homes were in such a state of disrepair that they had no practical use" (Pioneer Association 1982, Wahlen 1991).

Originally a total of 468 houses were acquired by the Government. Of these, 280 were rehabilitated for use as family units, field offices, and storage warehouses. "Most of these buildings were located in the Hanford-White Bluffs Community" (DuPont 1945).

The majority of the site homes were one-story wood frame buildings containing from two to eight rooms (Appendix B, photograph 2). About one-third of the homes contained modern plumbing and inside facilities. Buildings that were placed into service were checked for safety and fire hazards and upgraded electrically for refrigerators and electric ranges. Others that were deemed uninhabitable were boarded up and padlocked, sold, or demolished.

Nearly all of the residences and associated business activities (bank, retail stores, etc.) of the White Bluffs township were located on the east side of the main railway and Railroad Avenue (which became Route 2 North). Likewise, nearly all of the facilities on the west side of Railroad Avenue and on the north and south sides of Federal Avenue were commercial or industrial facilities.

An exception was the American Pipe Plant facilities located to the north and on the east side of Route 2 North (DuPont drawing C-3316; War Department Drawing HAISRE; DuPont 1945; Appendix A, map 4). As a result of this established town layout, the bulk of the warehouse and temporary construction facilities (TC-10 facilities) related to the Manhattan Engineering District (MED) were located to the west of the townsite. Photographs and maps (Appendix A, map 4) show these facilities and indicate which were added by the Government.

The town of White Bluffs contained several privately owned water systems fed individually from the White Bluffs city well, the High School well, the Ice Plant well, and three ranch wells. When taken over by the Government, these systems were found to leak excessively and to be inadequate for construction and fire protection. A larger system was installed that tied the wells together and included two 100,000-gal storage tanks, one elevated and one aboveground wooden stave type. This new water system had a combined capacity of 1,500,000 gal (DuPont 1945).

White Bluffs did not have a municipal sewage disposal system. The local soil conditions favored the use of septic tanks and tile drain fields. Wherever possible, buildings were connected to permanent septic systems. In several cases new systems with large retention capacities and tile fields were provided for remotely located facilities. One such system was constructed in the White Bluffs area with about 300 ft of sewer line installed (DuPont 1945).

Before the Government takeover of the site, one 600-kVa power substation was located at White Bluffs that consisted of 3 to 200 kVa, P 66000/6900 or 2300 transformers. This system was used to provide lighting, small three-phase motor power, and single-phase motor power. Several additional step-down transformers were located at the point of power consumption as well. This existing system, and others like it, provided all early construction power until additional substations could be installed at each reactor construction area (DuPont 1945).

Upon takeover by the Government, steam for heat, cleaning, and testing was provided by temporary "TC-15 Boiler Houses and Steam Lines" (DuPont 1945). One such boilerhouse was located near the 105 Fabrication Shops, located north of the townsite.

A number of temporary buildings were erected at White Bluffs and were identified as TC-10 Buildings. The TC-10 facilities at White Bluffs included the following: Main Pipe Fabrication and Blacksmith Shop, Receiving Warehouses, Miscellaneous Storage Warehouses and Yards, 800 and 900 Division Engineer's Office, Fire Station, and required Field Offices (DuPont 1945) (Appendix B, photographs 3 through 14).

In the early 1970's, a plant-wide safety and housekeeping evaluation focused on farm remnants and deteriorating production facilities. As a result of this evaluation, a program was developed to eliminate these "public nuisances." During 1975, the Cold Storage and the pre-MED gas station facilities at White Bluffs were demolished and buried in place. Any underground storage tanks at the gas station site potentially remain in place. Former employees report that the gas station was located on the east side of Railroad Avenue and on the south side of Federal Avenue. Water wells located in the vicinity were also "covered." Several of the facilities at White Bluffs had been sold as salvage and/or demolished several years before this effort (Wahlen 1991).

In the mid- to late 1980's, a project was completed to identify waste sites that were relatively unknown at the time. Several former employees were interviewed for this effort, and the findings were documented as the 3004 Historical Review (Appendix C). This review document was one primary source of information for this report.

## 3.0 SITE IDENTIFICATION AND SURVEILLANCE METHODS

Sites were identified during surveillance activities that resulted in the publication of the *Historical Background Information of the White Bluffs Pickling Acid Crib Area* (BHI 1994b) and surveillance activities conducted for this baseline report. The surveillance conducted for BHI (1994b) was of a very limited scope and was not intended to be all inclusive. The surveillance activity was conducted by a study of available literature and visual observation during walkdowns of the area. Mapping of the sites was not a requirement, and no effort was made to generate location data beyond a general description of the location of the sites in relation to other known reference points.

However, as a result of that report and the need for a technical baseline report for the 100-IU-2 Operable Unit, additional surveillance of the area was conducted in August 1995.

The selected method of performing the August 1995 surveillance was to datalog locations of known anomalies or sites and to datalog in newly discovered sites using Global Positioning Survey

equipment. Once the data were obtained, preliminary maps were drawn and converted into the Hanford Geographic Information System Arcview database. This mapping effort allowed for fairly accurate location data that could then be used to report individual sites and their location as well as provide spacial maps of the area, depicting the individual sites as either a polygon or point (Appendix A, map 5, White Bluffs with polygons and points laid over).

The names given to each site were selected by the author to best describe the site waste type or physical description. All Washington State Plane (WCS83S) coordinate location data are approximate and measured in meters.

Each of these areas is described in separate chapters of this report (Chapters 4.0, 5.0, and 6.0; Appendix A, map 6). The information provided is not all inclusive of all potential wastes sites located in the area, but is inclusive of sites that were located within the constraints of the field surveillance activity for this report. All known facilities and building sites have been included, as well as some surface debris. However, additional miscellaneous debris is scattered across the site and may not have been seen because of extremely tall, dry vegetation. Debris scatters originated from farming, industrial, and demolition activities that occurred in the area from the early 1800's to the mid-1970's. Field surveillance activities were limited to less than 10 working days, and no intrusive investigation was conducted.

All of the sites described are contained within the White Bluffs area, which measures about 3,500 m by 2,800 m.

A few of the sites described have previously been described in other publications concerning the White Bluffs area. Where this is the case, every effort is made to identify those documents in the applicable chapters of this report. In an effort to maintain order, the sites are grouped as presented in three geographic areas.

Chapter 4.0 describes the geographic area south of Federal Avenue and west of Route 2 North (Appendix A, maps 6, 7, 8, 9, and 10). The southern and western boundaries were determined by the author and based on field observations of the area. This area includes both pre-MED and MED facility sites, cribs, drains, septic disposal sites, and solid and liquid waste disposal sites.

Chapter 5.0 describes the geographic area located north of Federal Avenue and west of Route 2 North (Appendix A, maps 6, 11, 12, and 13). It is bounded on the west by power transmission lines and on the north by field observations. It includes facility sites, drains, and solid and liquid waste disposal sites.

Chapter 6.0 describes the geographic area east of Route 2 North (Appendix A, maps 6, 14, 15, 16, and 17). It is bounded on the north by the 100-H access road, on the south by a power transmission line, and on the east by the Columbia River, Export Water-Line Road, and the 100-F Perimeter Road. It includes drains, subsidences, solid waste sites, burning pits, and other potential liquid waste sites.

## 4.0 SOUTH OF FEDERAL AVENUE AND WEST OF ROUTE 2 NORTH

This area (Appendix A, maps 4 through 10) contained the Priest Rapids Fruit Storage facility (Ice House) and its associated septic system. It also contained the Weld Prep Building, Pipe Storage Buildings (Appendix A, map 4, No. 29), Pipe Storage Platforms (Appendix A, map 4, No. 30), Electrical Storage and Pipe Yards (Appendix A, map 4, No. 31), miscellaneous warehouse and storage yard facilities, and farm sites.

Many of these facilities are not described in detail because they have been removed, burned, or demolished, and no hazardous materials are believed to have been associated with them. Some facilities, however, are described because it was thought that the activities conducted in them may make them significant.

Also located in this area were the White Bluffs City Dump, White Bluffs Surface Basin, Pickling Acid Cribs (BHI 1995), and miscellaneous dumping sites of both solid waste materials and liquids such as oils and other petroleum products.

The sites described in this chapter are addressed as if approached from the south.

### 4.1 PRE-MANHATTAN ENGINEERING DISTRICT COMMUNITY DUMP SITE NUMBERS 1 AND 2

These two sites appear to be a continuation of each other and are addressed in this report as a single site; but, because of the topography of the area, the sites are separated geographically (Appendix A, map 7). Therefore, the sites are identified on reference maps as site numbers 1 and 2, site number 1 being the southernmost. These sites are also described in Section 3.14 of BHI (1994b), although a summary is provided here as well.

The southernmost area, or site number 1, is located at WCS83S coordinates E578681 N146405 (approximate center). The site appears as a large depression measuring about 203 m by 150 m. The site is littered with domestic and industrial debris including cans, bottles, oil cans, glass, wire, rope, toys, and automobile bodies and parts. Along the southern edge at WCS83S coordinates E578633 N146325, industrial wastes were found that include insulators, fuse boxes, conduit, and six 55-gal drums, one of which is labeled "Carbon Tet." It appears that the entire area was also used as a burning pit for the disposal of flammable wastes, and evidence of burning abounds throughout the site (BHI 1994b) (Appendix B, photographs 15 through 18).

The northernmost area, or site number 2, is located at WCS83S coordinates E578528 N146722 (approximate center). This area measures about 305 m long and about 80 m wide at its widest. The site consists of large deposits of oil cans, cans, glass, domestic debris, car parts, and a few full 5-gal cans of grease that were dumped on the ground in the southern section of the site. It also appears that some burning did occur at this location, but to a much smaller degree than that at site number 1 (Appendix B, photographs 19 through 23).

Because of the large number of oil cans found at the site, it is believed that the site was used by both MED and White Bluffs residents for the disposal of domestic-type waste materials (BHI 1994b).

Site numbers 1 and 2 are separated by a dirt roadway that intersects a graveled pre-MED roadway at the north end of site number 2. This roadway ran in an east-west direction and intersected Route 2 North and Federal Avenue at its ends. Evidence indicates that three to four small farms were located on either side of the roadway. These farm sites are not included as wastes sites in this report except where physical hazards or other visible indications are described.

However, a site characterization well (699-77-36) located at WCS83S coordinates E578845 N146865, which is at one of these farm sites, has elevated detectable trichloroethylene. Trichloroethylene has been detected at concentration levels of about 29 ppb (BHI 1994a). Site number 1, described above, is considered to be the most likely source of trichloroethylene contamination in the groundwater according to the employees conducting soil gas evaluations of the surrounding area.

Finally, there is evidence of probable artifact mining or pot hunting. Signs of digging are evident in many of the debris piles. Because of increased disturbances between October and November 1994, it appears that this pot hunting is an ongoing activity (BHI 1994b) (Appendix B, photographs 18 and 24).

## 4.2 DEBRIS SCATTERS RELATED TO MANHATTAN ENGINEERING DISTRICT ACTIVITIES, INDUSTRIAL AND PRE-MANHATTAN ENGINEERING DISTRICT ACTIVITIES

Located between the site described in Section 4.1 and a small ravine just south of the Pickling Acid Crib described in Section 4.6 of this report are several small waste scatters and waste site locations. Because the entire area is covered with scattered debris, mostly industrial but also agricultural, this area is described as a single unit. This area measures about 450 m by 500 m. Each individual site appears in this report in a numerical sequence as if found by approach from the south.

### 4.2.1 Domestic Debris Dump and Building Foundations

Directly west of the sites described in Section 4.1 and on the north side of the previously described east-west gravel roadway at WCS83S coordinates E577955 N146924 (approximate center debris dump), E577982 N146923 (building foundation number 1), E578006 N146925 (building foundation number 2) is a domestic-type waste dump and pre-MED building foundation (Appendix A, maps 8 and 9). Debris found at the site included domestic bottles, glassware, paint cans, and cans, as well as a few army-green containers of heavy industrial nuts and bolts (greater than 2.5 cm in diameter). The site of the surface debris covers an area of about 60 m by 45 m. Two building foundations were found nearby that appear to have been constructed prior to MED activities at the site. One of the buildings appeared to have been a garage or farm shop because of the way that the concrete was formed.

### 4.2.2 Suspected Asbestos Pipe Lagging and Excess Piping

Located east and slightly north of the site described in Section 4.2.1 at WCS83S coordinates E578156 N146936 and E578150 N146965, respectively, are what appears to be excess piping materials (Appendix A, map 8). At the coordinate location of E578156 N146936 is a section of highly degraded piping insulation that appears to be made of asbestos or a similar material. Several 6.1-m

sections of 30.5-cm spiral-welded steel pipe are nearby and a little to the north at coordinate location E578150 N146965 (Appendix B, photograph 25). Other small debris piles are located very nearby that consist of broken vitrified clay piping, plumbing fixtures, and concrete piping (Appendix B, photograph 26).

### 4.2.3 Suspect Waste Disposal Trench 1

This site is located to the north and west of the site described in Section 4.2.2 at WCS83S coordinates E578104 N146996 (approximate center; Appendix A, map 7). The site appears in a 1948 aerial photograph (Appendix B, photograph 1) to be a large open trench, measuring about 70 m long by 50 m wide, but has been backfilled or covered with windblown sand (Appendix B, photograph 26). Surface evidence of dumping at the site includes metal shavings, steel piping, plumbing fixtures, and wooden and metallic debris (BHI 1994b).

### 4.2.4 Excess Railroad Tie Materials

Located directly east of the site described in Section 4.2.3 at WCS83S coordinates E578266 N146999 are several stacks of excess railroad ties (Appendix A, map 8). The ground surface at the site appears to have been graveled, suggesting that the entire area was a warehouse area for industrial-type materials.

### 4.2.5 Waste Disposal Trench 2

Located east of the site described in Section 4.2.4 and along a power line road at WCS83S coordinates E578340 N147021 is a large disposal trench (Appendix A, map 8). This trench can clearly be seen in a 1948 aerial photograph and measures about 90 m long by 40 m wide. It appears as an open trench with industrial wastes filling about one-third of the site. These wastes consist of wooden and metallic debris. There is evidence of chemical or oil dumping and burning along the east side of the trench. This evidence includes discolored soils and empty 55-gal drums that are bulging as if their contents had been burned within the drums (BHI 1994b) (Appendix B, photograph 27).

### 4.2.6 Irrigation Debris

Located to the west of the site described in Section 4.2.5 at WCS83S coordinates E578217 N147061 are large concrete irrigation pipe sections (Appendix A, map 8). These piping sections are large in diameter and not very long. The site consists of a pipe standing within a large-diameter pipe. Other debris is scattered across the nearby area.

### 4.2.7 Plumbing Debris

Located directly west of the site described in Section 4.2.6 and north of the site described as site number 1 at WCS83S coordinates E577941 N147061 and E577951 N147050 are two piles of plumbing debris (Appendix A, map 8). The debris located at E577941 N147061 consist of ceramic

urinals, sinks, and plumbing fixtures. The debris located at E577951 N147050 consist of a large pile of cast iron piping fixtures (Appendix B, photographs 28 and 29).

### 4.2.8 Large Fenced Depression

Located directly west of the site described in Section 4.2.7 at WCS83S coordinates E577649 N147076 is a large fenced depression (Appendix A, map 7). The site is quite large and measures about 420 m long by 208 m wide. The eastern boundary of the site once was a power distribution line and powerline road. Power poles were removed by cutting them off just above the ground surface. Glass insulator material litters the area. Just west of this powerline is the fencing that surrounds the site. It is a wood post and wire enclosure that appears to have been installed to keep deer out of the area. The fence is in very poor condition today.

The site appears to predate MED activities on the site and appears to have been an irrigation reservoir (BHI 1994b). The site is clearly seen as a marsh on a *United States Department of the Interior Geological Survey, Washington, Hanford Quadrangle, 1924 Edition* map reprinted in 1947 (U.S. Dept. of the Interior 1947). However, no water remains on the surface of the depression today. Natural vegetation covers the site along with several large trees.

### 4.2.9 Pipe Debris and Lead

Located directly east of the site described in Section 4.2.8 and slightly west of the power line road at WCS83S coordinates E578251 N147118 and E578264 N147141 are two debris remnants (Appendix A, map 8). The first of these two consists of two 8-in. steel pipe sections embedded in concrete that appear to have been dumped at the location. The second is a pail or bucket of what appears to be lead (Appendix B, photographs 30 and 31).

### 4.2.10 Loading Docks and Fuel Storage Area

Located east of the site described in Section 4.2.9, and visible from Route 2 North, at WCS83S coordinates E578634 N147125 (north loading dock) are two loading docks and a fuels storage area (Appendix A, map 7). The north loading dock can be seen from Route 2 North and as previously stated is located at WCS83S coordinates E578634 N147125 (center). Just west of this loading dock is a 1.5-m-diameter chemical spill spot, one of several in the area, which appeared to consist of a petroleum product. It is located at WCS83S coordinates E578603 N147118.

To the southeast is a second loading dock at WCS83S coordinates E 578689 N147054 (center). These two loading docks appear to have been a convenient location to offload heavy equipment. Both loading docks measure about 20 m long by 12 m wide.

Adjacent to the loading docks to the east at WCS83S coordinates E578698 N147109 (center) is a bermed fuel storage area. This site has been previously described in Section 3.12 of BHI (1994b). A summary is provided here as well. The site appears to be a rectangular area, measuring about 55 m long and 35 m wide, surrounded by a low soil berm (about 0.5 m tall). The ground within the bermed area has been covered with a layer of coal ash. Within the bermed area are several wooden beams, the tops of which are flush with the ground surface. On the top surface of these beams are

wooden shims placed so as to suggest that the beams once supported large storage tanks. Removal of the coal ash surface layer reveals ground discoloration and evidence of petroleum product contamination. It appears that there were four or five large storage tanks at the site.

Additionally, located just outside the berm on the north side, is a smaller fuel tank storage location, at which the soils are also discolored. It appears to have been used for gasoline storage.

Finally, on the south side of the bermed area, there has been bulk dumping or spillage of petroleum products. The contamination extends about 4 m to the south (BHI 1994b) (Appendix B, photographs 32, 33, and 34).

### 4.2.11 Pre-Manhattan Engineering District Cistern

Located east and slightly north of the site described in Section 4.2.10 at WCS83S coordinates E578757 N147162 is a large concrete cistern (Appendix A, map 7). The top of the cistern is located slightly below grade level and appears as a windblown, tumbleweed-filled subsidence. This site is a physical hazard to persons who may be walking or driving in the area. It is about 3 m across (Appendix B, photograph 35).

### 4.2.12 Pipe Bender and Equipment Dumping Area

East and north of the site described in Section 4.2.11 are two sites, located at WCS83S coordinates E578340 N147225 (pipe bender; Appendix A, maps 8 and 10) and E578305 N147228 (dumping area; Appendix A, maps 7 and 10). Both sites are located just west of a powerline roadway. The Pipe Bender is a large heavy-walled pipe, placed vertically in the ground. Several drilled holes of approximate pipe sizes are around its circumference. The structure was probably used to do rough bending of pipe.

Adjacent to and on the west of the pipe bender is a large area of debris that appears to have been a miscellaneous equipment dumping/storage area. Random dumping of oils also occurred in the area. These two sites cover an area about 95 m long by 45 m wide (Appendix B, photograph 36).

### 4.2.13 Oil and Oil Filter Dump Site

Directly north and east of the equipment dumping area described in Section 4.2.12 at WCS83S coordinates E578223 N147311, is an oil dump area that contains several canister-type oil filters (BHI 1994b). This site measures about 2 m in diameter (Appendix A, map 8; Appendix B, photograph 37).

## 4.3 OIL DUMP

Located directly north of the site described in Section 4.2.13 and across a small ravine at WCS83S coordinates E578342 N147340 (center; Appendix A, map 7) is an oil site. It appears that a large quantity of oils were dumped, forming a near-asphalt-like surface. The site is about 17 m long and 15 m wide (Appendix B, photograph 38).

## 4.4 BURN PILE AND DEBRIS

Directly west of the site described in Section 4.3 at WCS83S coordinates E578168 N147351 and E578193 N147350 are two debris piles (Appendix A, map 10). The first is a small burn pile and appears to be domestic-type debris. The second consists of 5-gal military-type drums (Appendix B, photograph 39).

## 4.5 600-52 WHITE BLUFFS SURFACE BASIN

The site is located directly south of the 100-IU-5 Operable Unit (Pickling Acid Cribs) at WCS83S coordinates E577880.34 N1474191.54 (BHI 1995).

The site, identified as a "Shallow Depression" on map 8 of Appendix A, is characterized by a large natural depression with two dead trees near the center. The site is a long (98 m), wide (36 m) depression (BHI 1995). At the northeast edge of the site there is a pile of concrete demolition waste. A trench was dug from the White Bluffs Ice House to this depression, the bottom of which has remnants of a 6-in. carbon steel pipeline. It is believed that, during MED operations of the Ice House facilities, the waste-water line was routed to this depression for disposal by absorption and/or evaporation (BHI 1994b). The depression is located adjacent to the Pickling Acid Cribs (100-IU-5 Operable Unit). The southeast corner of the Pickling Acid Cribs appears to have washed out, with the effluent flowing to the depression. This washout, if it occurred, would have introduced wastes streams from that source. These waste streams include waste nitric acid, sodium hydroxide, hydrochloric acid, and spent solvents. Sampling indicated elevated levels of chrome and chloride as compared to background levels (BHI 1995) (Appendix B, photograph 40).

## 4.6 PICKLING ACID CRIBS (100-IU-5 Operable Unit)

Located directly north of the site described in Section 4.5 at WCS83S coordinates E577856.92 N147485.59 (approximate center; Appendix A, map 8) (BHI 1995) are the Pickling Acid Cribs.

The Pickling Acid Cribs were constructed by the Atkins and Jones Construction Company. Reportedly, these cribs operated from 1943 to 1945 and received an estimated 37,853 L of nitric and hydrofluoric acid solutions; however, photographic evidence indicates that the cribs were in operation as late as 1948 (BHI 1994b).

The site consists of two cribs located side by side. The west crib is about 200 ft (61 m) by 45 ft (13.7 m) wide. The east crib is about 225 ft (69 m) by 50 ft (15.2 m) wide. Pipes extrude from the surface at about 10-ft (3-m) intervals (DOE-RL 1993). These threaded pipes once had sprinkler-type distribution heads attached. In a 1948 aerial photograph it can clearly be seen that the distributed liquids at these cribs formed a circle around each of these distribution pipes.

Reportedly, the site received "thousands of gallons" of sulfuric and nitric acid solutions. Generally, the acid would have been neutralized before disposal, but it may not have been completely neutralized before disposal. Potentially, acid wastes may have been processed through a septic tank system located across the street from the ice plant (Appendix C), although this is unlikely because a ground-

penetrating radar survey conducted in 1992 indicated that the pipes to the cribs were independent of the septic system (DOE-RL 1993).

It was concluded from investigations conducted that the chemical concentrations detected indicated no threat to human or environmental health. Detected chemicals were within background soil concentration ranges and therefore no threat to groundwater. It was recommended that a "No Further Action Interim Record of Decision" be issued to the DOE and that physical hazards associated with the site be removed as a landlord cleanup action (DOE-RL 1993).

## 4.7 COAL ASH PILES

Located just east of the Pickling Acid Cribs described in Section 4.6 at WCS83S coordinates E577927 N147479 (center; Appendix A, map 7) are several small coal ash piles (BHI 1994b). The site of these piles measures about 30 m long by 15 m wide.

## 4.8 WHITE BLUFFS CITY DUMP

The White Bluffs City Dump is located east of the Pickling Acid Cribs and the main Bonneville Grid powerlines, between Federal Avenue and Route 2 North and adjacent to the site described in Section 4.7 at WCS83S coordinates E578105 N147493 (approximate center). It operated from 1850 (Stenner et al. 1988) until 1944 (BHI 1994b). The site is depicted as the "WB City Dump Site" on map 7 of Appendix A.

The size of the site is unknown because it has been covered with clean fill material; however, it is described as being 125 ft (38.1 m) long, 50 ft (15.2 m) wide, and 10 ft (3 m) deep (Stenner et al. 1988). The current description and spacial mapping was done according to debris found at the site that tended to indicate its southern, eastern, and western boundaries as of August 1995. The site measured about 30 m long by 25 m wide.

Reportedly it received domestic, industrial, and commercial wastes common to the time period. Several bottles, cans, and metallic wastes (wire and other metal objects) were found along a powerline road that defines the southern boundary. Two medicine-type bottles were found that still contain unknown liquids.

## 4.9 BURN SITE AND PAINT DISPOSAL AREA

Located east of the White Bluffs City Dump described in Section 4.8 and just west of the present railroad tracks at WCS83S coordinates E578485 N147534 is evidence of surface burning and paint disposal (Appendix A, map 7). The site measures about 40 m long by 25 m wide. The site is adjacent to Route 2 North and at the southern end of what appeared to be a large warehouse storage area. The entire area is littered with burned wood, partly burned roofing materials, glass, nails, metallic debris, and isolated paint cans (BHI 1994b). There is evidence of surface disposal of paint materials in dried paint chips and deposits (Appendix B, photograph 41).

### 4.10 SUSPECT AUTOMOTIVE REPAIR SHOP

Located west of and slightly north of the site described in Section 4.9 at WCS83S coordinates E578022 N147571 are the remains of what appears to have been an automotive repair shop (Appendix A, map 8). Surface indications consist of jack stands, car parts, wooden debris, and other metallic debris. This site is very close to a few depressions once thought to be the original drain field for excess water generated by the Priest Rapids Ice House (Appendix B, photograph 42).

### 4.11 ORIGINAL PRIEST RAPIDS ICE HOUSE DRAIN FIELD

Located just northwest of the site described in Section 4.10 at WCS83S coordinates E577999 N147609 (approximate center; Appendix A, map 7) are three large depressions thought to be the original drain field for waste water generated at the ice house. The site originally was marked by a steel post and wooden rail fence that can still be found around much of the site, which measures about 40 m long by 30 m wide. It is unknown if this site was used for the disposal of any other wastes or used for any other purpose. A 1948 aerial photograph indicates that waste water was likely to have been disposed of at the site (Appendix B, photograph 43).

### 4.12 SPARE PARTS BURN PIT

Located just west of the site described in Section 4.11 at WCS83S coordinates E577872 N147634 (approximate center) is a dug-out burning pit (Appendix A, map 7). It is known to have been in operation from 1943 to 1948. It was used for the disposal of industrial and commercial wastes, which included flammable wastes, solvents, and waste oils. The site appears to have been backfilled with coal ash and may have also been used to dispose of other solid wastes (Appendix B in BHI 1994b). Evidence at the site indicates that it was about 110 m long by 65 m wide (Appendix B, photograph 44).

### 4.13 SEPTIC TANK - ICE HOUSE

Located east and slightly north of the site described in Section 4.12 at WCS83S coordinates E578100 N147715 is a large septic tank thought to have been associated with the White Bluffs Priest Rapids Ice House (Appendix A, map 8). It was once thought that pickling acid wastes may have been routed through this tank system. However, ground-penetrating radar indicated that this is unlikely (BHI 1994b). It is possible, however, that this tank was used for the disposal of waste waters from the ice house and then drained to the "Shallow Depression" described in Section 4.5 (Appendix B, photograph 45).

### 4.14 PRIEST RAPIDS ICE HOUSE

Located northeast of the site described in Section 4.13, across a small roadway at WCS83S coordinates E578148 N147765 (approximate center), was the Priest Rapids Ice Plant and Cold Storage Facilities (Appendix A, map 7; Appendix B, photograph 46).

When the Government acquired real estate for the Hanford Site, it also took over the Priest Rapids Cold Storage and Ice Plant located in the White Bluffs area. The plant had been owned and operated by a co-operative organization of local fruit growers. However, it had not been in operation for about 26 months before its acquisition by the Government.

The building was principally a three-story, reinforced concrete structure, housing ten cold storage rooms, a fresh ice room, and a combined ice manufacturing and refrigeration equipment room. The refrigeration equipment was an ammonia refrigeration system that was in poor operating condition and had to be completely overhauled before use.

Additionally, the building was in need of repairs because of improper maintenance. The plant had its own water supply system, which was supplied from a well located about 50 ft (15.2 m) south of the ice and equipment room.

Repairs were made immediately to the facility so that it could be used to supply ice and cold storage facilities for the growing work force during construction.

The plant was started on June 20, 1943. By December 1943 a remodeling program was started because the facility was found to be inadequate and the existing refrigeration equipment was failing.

A three-story wood frame, L-shaped addition was added along with 2 in. of cork insulation in the cold storage areas. New and complete wiring, piping, and lighting were installed as part of an overhaul of the refrigeration equipment. Additional refrigeration equipment was also installed. Upon completion in June 1944 the plant had the capability of producing 24 tons of ice a day, but limited production to 15 tons a day. By the end of December 1944 the plant had produced 4,100 tons of ice for local consumption. When the plant was no longer needed by construction, it was turned over to the Area Engineer in a permanent standby condition.

A two-story tile and wood frame structure, measuring 30 ft (9.1 m) by 110 ft (33.5 m) long, on the east side of the plant was used for ice storage by the Olympic Commissary Company (DuPont 1945).

Several smaller facilities are shown on a DuPont plot plan (DuPont drawing C-3316; DuPont 1945; Appendix A, map 4) and are identified by numbers 24, 26, 27, and 29, which are a Well, Pump House, Line Material Storage Building, and Pump House, respectively. Number 24 is located northwest of the Ice House, number 26 southwest, and numbers 27 and 28 to the south.

The facilities were demolished in 1975 and buried in situ by plant forces as part of a program to eliminate "public nuisances" (Wahlen 1991). The site currently appears as a small mound about 30 m long by 25 m wide. A depression lies directly south of this mound in which cork insulation materials and other debris were found.

## 4.15 MAIN PIPE FABRICATION SHOP

Located northwest of the site described in Section 4.14 was the Main Pipe Fabrication Shop. The shop is identified as number 22 on DuPont drawing C-3316 (DuPont 1945; Appendix A, map 4). This shop was used to prepare piping systems for use in the reactor areas and was the source of materials discharged in the 100-IU-5 Operable Unit or Pickling Acid Cribs. In the shop the pipe was prepared for welding by grinding, acid etch (pickling), and cleaning with solvent materials.

Reportedly, carbon tetrachloride was commonly used as a degreasing agent (Appendix B, photographs 3 and 4).

### 4.16 PIPE TESTING SHOP

Located directly west of the site described in Section 4.15 was the Pipe Testing Shop (Appendix A, map 4). This facility was reportedly used as the quality control test and training facility for welders who worked in the Main Pipe Fabrication Shop at White Bluffs (Appendix B, photograph 5).

### 4.17 ELECTRICAL SUBSTATION

Located directly north of the site described in Section 4.15 on the southwest side of the intersection of Commercial and Federal Avenues (DuPont drawing C-3316; DuPont 1945; Appendix A, map 4) was the pre-Hanford electrical substation. Transformers located at the site may have contained polychlorinated biphenyls, and may have leaked, spilled, or have been intentionally released to the soils beneath the transformers. The site is shown on DuPont drawing C-3316 as site number 23 (DuPont 1945; Appendix A, map 4).

### 4.18 WHITE BLUFFS GAS STATION

Located at the intersection of Route 2 North and Federal Avenue on the southwest corner, at WCS83S coordinates E578062 N147983, was a gasoline service station (WB Gas Station Subsidence; Appendix A, map 7). Former employees have identified this site as the White Bluffs service station. The station was demolished in 1975 as part of a sitewide cleanup project (Wahlen 1991). No mention is made of removing the underground storage tanks associated with the structure, and it is believed that the subsidence at the site, measuring about 7 m by 5 m, may be the location of the tanks. However, it is unknown if this is the case because no additional documentation could be found.

## 5.0 NORTH OF FEDERAL AVENUE AND WEST OF ROUTE 2 NORTH

This area measures approximately 1,500 m by 835 m and, for the purposes of this report, is bounded on the west and north by an electrical transmission line to the 100-H Area (Appendix A, maps 11, This area includes french drains, pits, depressions, and warehouse facility foundations.

A portion of the area is shown on DuPont drawing C-3316, which identifies the sites of several buildings and storage areas (DuPont 1945; Appendix A, map 4). These facilities are identified on the drawing as 14, 15, 16, 17, 18, 19, 20, and 35, which is the Returnable Container Yard, Fumigation Chamber (see Section 5.6), Nail and Small Tool Warehouse, Receiving Warehouse Platform, Receiving Warehouse, Carload Receiving Office, MS-9 Warehouse, and the Railroad Freight Station, respectively.

Within this larger area is a warehouse storage area, measuring 785 m long by 755 m wide, the corner locations of which are provided by the following WCS83S coordinate locations: southwest corner -

E577366.65 N147415.14, northwest corner - E576948.56 N148099.30, northeast corner - E577437.92 N148519.79, and southeast corner - E578008.07 N147971.02. All of the sites found during surveillance activities in the area were located within the coordinate boundaries of this warehouse-storage area.

Because the area was used as a storage and warehouse complex, the area contains established roadbeds, railbeds, foundation pads, and graveled surface areas. Much of the area is naturally revegetating.

The sites described in this section are listed from south to north on the west side and south to north on the east side of the area. They are listed this way because no potential significant sites were seen in the center of the area during surveillance of the area.

It must be noted that isolated surface debris was seen west of the transmission lines that form the west boundary, but were not included as a part of this report. These wastes consist of metallic debris, a few drums of what appeared to be tar, and glass bottles, and are similar to those found across the Hanford Site nearly everywhere.

## 5.1 FRENCH DRAIN OR DRY WELL

Located about 185 m from Federal Avenue to the north and about 70 m from the westernmost paved roadway, at WCS83S coordinates E577503.53 N147735.39, is a french drain or dry well (Appendix A, map 12). It is constructed of a 61-cm concrete pipe, has a steel lid, and appears to be about 1 m deep. The sides are perforated, indicating that its purpose may have been for storm runoff or steam condensate. There does not appear to be an inlet pipe inside the structure (Appendix B, photograph 47).

## 5.2 ASH COVERED CONCRETE PAD

Located northwest of the site described in Section 5.1 at WCS83S coordinates E577461.82 N147774.08 (approximate center) is a concrete foundation slab, measuring 25 m by 15 m, that is completely covered with coal ash (Appendix A, map 11). The purpose of the pad is unknown.

## 5.3 AUTOMOTIVE REPAIR SHOP AND ASSOCIATED WASTE SITES

Located northwest of the site described in Section 5.2 were several sites thought to be associated with an automotive repair shop (Appendix A, map 11). Evidence on the ground surface indicates that this was the site of an automobile/equipment repair shop and includes numerous battery caps, engine gaskets, dumped wasted oils, and fragments of tail-light lenses (BHI 1994b). It is believed that the shop was located with its approximate center at WCS83S coordinates E577404.69 N147811.34. Nearby, at WCS83S coordinates E577400.22 N147813.42, is what appears to be surface-dumped waste oil. Another surface-dumped waste oil site is to the west at WCS83S coordinates E577392.48 N147793.77. These sites are in an area measuring about 30 m long by 20 m wide.

In addition to these sites, located adjacent to and just west of the shop site is a fairly large pit at WCS83S coordinates E577368.96 N147800.62 (Appendix A, map 11). This pit was obviously an

engineered structure and is about 8 m square by 2 m deep. It is filled with windblown weeds and is not apparent from a distance.

## 5.4 PAINT DISPOSAL AREA

Located directly north of the site described in Section 5.3 at WCS83S coordinates E577352.58 N147866.13 is a 6-m square paint disposal site (Appendix A, map 12). It appears that excess paint materials were disposed of by pouring them on the ground surface.

## 5.5 SUBSIDENCE

Located directly east and slightly north of the site described in Section 5.4 at WCS83S coordinates E577406.68 N147882.78 is a subsidence (Appendix A, map 11). The site is contained in an area that is about 4 m across; the given coordinates are to the approximate center of the site. A subsidence indicates a subsurface structure with a void space that allows overburden materials to be washed into it by rain runoff.

## 5.6 FUMIGATION CHAMBER BUILDING

Located on the east side of the warehouse storage area, 165 m north of Federal Avenue and 37 m east of the paved roadway at WCS83S coordinates E577859.26 W148035.20, are the remnants of a wooden structure believed to be the fumigation building site (Appendix A, map 12). Surface debris include wood pieces and concrete foundation pieces.

Fumigation buildings were typically in a fenced area and located near personnel living quarters (BHI 1994b). The buildings were used primarily to fumigate bedding materials. Fumigants commonly used at the time included methyl bromide and sulfuryl fluoride (DeFord 1995) (Appendix B, photograph 48).

## 5.7 FRENCH DRAINS

Located west of the site described in Section 5.6 at WCS83S coordinates E577622.74 N148044.38 (drain 1) E577609.57 N148041.69 (drain 2) are two french drains and what appears to be a valve (Appendix A, maps 12 and 13).

## 5.8 CONCRETE FOUNDATION PADS

Located northwest of the site described in Section 5.7 at WCS83S coordinates E577559.93 N148082.72 (approximate center of the six identified by GPS; Appendix A, maps 12 and 13) are several concrete foundation pads, that are equipped with tie-downs close to one another. Several other building locations in the area also are identified by these concrete foundation pads, however, no others were found with tie-down straps. The buildings were probably intentionally destroyed by fire, as the ground surface is littered with charred wood, burned electrical equipment (lights, switches, conduit, etc.), and nails.

### 5.9 FRENCH DRAIN

Located north of the site described in Section 5.8 at WCS83S coordinates E577554.67 N148089.27 is a 61-cm-diameter clay vitrified pipe french drain (Appendix A, maps 12 and 13).

### 5.10 SUBSIDENCE

Located northeast of the site described in Section 5.9, at WCS83S coordinates E577560.20 N148097.97 (approximate center; Appendix A, maps 11 and 13), is a subsidence. This site measures about 1 m square and is lined with concrete, suggesting a valve box or drain system. The subsidence indicates a subsurface structure with a void space that allows overburden to subside into it because of storm runoff. There is also a section of power pole laying across the top of the structure.

## 6.0 EAST OF ROUTE 2 NORTH AND SOUTH OF H AVENUE

This area is bounded by Route 2 North on the west, H Avenue and to some extent the Export Water Line on the North, and a power transmission line to 100-F Area on the south. This area includes all of the White Bluffs residential, commercial, and industrial sites east of Route 2 North that were in use before the Government's takeover in 1943. This area also includes several facility sites of buildings that were constructed for use by E.I DuPont de Nemours & Company and other subcontractors. These facilities can be seen on a historical DuPont drawing C-3316 (DuPont 1945; Appendix A, map 4). It includes solid waste disposal sites, liquid waste disposal sites, burning pits, farm waste dumps, pits, trenches, and facility foundations and sites (Appendix A, maps 4, 5, 14, 15, 16, and 17).

Sites located in close proximity are described as a single site in some cases.

Site descriptions are entered from south to north.

### 6.1 WHITE BLUFFS TOWNSITE

Located in the NE 1/4 of SEC.31, T.14 N., R.27E., W.M., Segment 'R', Tract No. R-1468-R-1609 of the Hanford Site A is the White Bluffs townsite. The city layout is also shown on a plot plan (DuPont drawing C-3316, Appendix A, map 4) that indicates pre-existing facilities and facilities that were constructed for MED activities. Within the city boundaries, facility locations on the map are identified as numbers 24, 32, 33 (six each), 34, 36, 37, 38, 39, 40, 41, 42 (two each), and 43. These facilities are described as follows:

- Site Number 24: Well located north of Federal Avenue and west of Third Avenue.
- Site Number 32: Insulation Warehouse located at the northeast corner of Railroad Avenue and Lincoln Avenue (Appendix B, photograph 10).

- Site Number 33: Office Equipment Warehouses, three located on the south side and one on the north side of Federal Avenue between First and Second Avenues, one located on the west side of First Avenue, half way between Federal Avenue and Lincoln Avenue, and one at the northeast corner of First Avenue and Lincoln Avenue.

- Site Number 34: Elevated Water Storage Tank located at the northwest corner of Second Avenue and Lincoln Avenue.

- Site Number 36: Air and Welding Tool Maintenance Building located on the east side of Railroad Avenue and half way between Federal Avenue and Lincoln Avenue.

- Site Number 37: Fire Station located at the northwest corner of First Avenue and Federal Avenue (Appendix B, photograph 8).

- Site Number 38: Service Division Engineer Office located north of Federal Avenue between First and Second Avenues.

- Site Number 39: Government Checkers and Ration Office located just east of site number 38.

- Site Number 40: Booster Station located adjacent to site number 41.

- Site Number 41: Ground Storage Tank located at the northeast corner of Fifth Avenue and Federal Avenue.

- Site Number 42: Two Stationary Storage Warehouses, both located south of Federal Avenue and east of Railroad Avenue.

- Site Number 43: Fire Inspection Office located near the southwest corner of Federal Avenue and First Avenue.

In addition, field surveillance activities identified what appeared to be a sewer junction box within the confines of the city. It is located about 70 m due north of the Route 2 North and Federal Avenue intersection at WCS83S coordinates E578085.56 N148104.79. The site is about 50 m north of Federal Avenue and about 50 m east of Route 2 North (Arcview). It consists of a shallow concrete box with a heavy steel cover (3 x 2 ft> Steel Access Cover; Appendix A, map 15).

The historic White Bluffs Bank, which still stands, is located at WCS83S coordinates E578192.31 N148118.90 (approximate center of an 18-m square fenced area; Appendix A, map 14). This building was used as an office equipment warehouse and later as a storage facility by the Hanford Fire Department. The building stands in disrepair with its concrete blocks spalling off on the west side. It is completely fenced with an 8-ft-tall cyclone fence to keep personnel out of the facility as it is considered unsafe.

## 6.2 600-5 WASTE OIL DUMP

The site is formerly known as the Asphalt Heliport. It is located about 1/4 mile (0.40 km) east of Route 2 North and about 70 yd (64 m) south of a gravel roadway leading to the 100-F Area (BHI 1995) at WCS83S coordinates E578782.03 N147816.09 (Oil Dump; Appendix A, map 15).

The site consists of a circular heavy oil area about 4.6 m in diameter and a heavy oil ditch about 12.2 m long, 38.1 cm wide, and 2.5 cm deep nearby to the southwest. A shorter heavy oil ditch runs adjacent to the longer ditch and is about 2 m long and is considered a part of the longer ditch. The author believes that these two shallow ditches are actually tire tracks from the truck or trucks that deposited the oil at the site. A metal triangular flag about 45.7 cm long is attached to a 1.3-cm steel pipe located at the site. A 10.2-cm-diameter, 10.2-cm-long steel pipe section with a 2.5-cm-diameter center pipe section is located in the center of the pad and is nearly flush with the ground surface. It appears to have been used as a funnel for the disposal of petroleum products at the site.

Because the site is marked by an intentional metal flag, it is the opinion of this author that the site was used as a planned disposal site. It is likely that the disposal of waste petroleum products occurred before the MED activities began in the area.

Several homestead-type dumps are located nearby. These dumps consist of cans, glass, and domestic debris. In one of these many drycell batteries were dumped. No vegetation grows in an area about 1 m in diameter around the drycell batteries (Farm Dump with 6V Dry Cell Batteries; Appendix A. map 15). The site is located at WCS83S coordinates E578824.14 N147902.15.

At least two homesteads were located nearby; one is less than 15 m to the north and the second is about 35 m to the southeast at a stand of trees. The farm sites consist of foundation and building materials and farm-type wastes (cans, bottles, etc.).

## 6.3 WHITE BLUFFS BANK WELL

Nearby, to the west of the oil dump site, is an early White Bluffs well. The well is concrete structure covered with a steel plate. It is surrounded by a light-duty steel post and orange barricade material. The well can easily be seen from Route 2 North at WCS83S coordinates E57814.9 N147762.6. This site was identified and named by current and former employees and is not shown on existing maps of the area.

## 6.4 SPARE PARTS MACHINE SHOP LANDFILL AND PIT

Located northeast of the WB Bank Fence Perimeter of map 14, Appendix A, Section 6.2 at WCS83S coordinates E578361.32 N148689.07 (approximate center landfill) and E578161.33 N148648.67 (approximate center pit) are two potential landfill sites. The Spare Parts Machine Shop Landfill, the larger of the two sites, is also known as the horseshoe pit. It was once a borrow pit that was later used as a waste disposal site. It appears to have been backfilled over about one-half to two-thirds of its area, which measures about 270 m in diameter. The DuPont drawing C-3316 (DuPont 1947; Appendix A, map 4) indicates that the southwest corner of the site was the location of the MS-9 Warehouses, identified as site 20 on the map. The same map also indicates a well in the vicinity of

the warehouses. The borrow pit was dug in a semicircle to the northeast of these facilities; hence, it was named the horseshoe pit (Appendix B, photographs 49 and 50).

Directly west of the site is a pit oriented in a east-west direction. The pit measures about 90 m long and 40 m wide. No documentation could be found to indicate the purpose of the pit.

## 6.5 AMERICAN PIPE COMPANY FACILITIES

Located directly west of the sites described in Section 6.4 are several sites associated with the American Pipe Company buildings and two additional buildings identified on DuPont drawing C-3316 (DuPont 1947; Appendix A, map 4) as an Excess Material Warehouse and Excess Material Office. This same drawing indicates that the American Pipe Company buildings were constructed by a subcontractor, which would mean that these facilities were a MED addition to the White Bluffs area rather than pre-existing facilities as was previously thought (BHI 1994b). All of these sites are contained in an area about 270 m long by 270 m wide.

Remnants of these facilities were found at the following WCS83S coordinate locations (Appendix A, map 16):

- E577879.96 N148662.93: valve box and 2-in. water line
- E577814.27 N148688.97: concrete foundation
- E577783.11 N148706.08: warehouse foundation
- E577792.11 N148742.61: concrete sump attached to warehouse foundation
- E577854.69 N148718.12: debris pile
- E577895.11 N148728.62: foundation
- E577783.56 N148756.22: potential smokestack base
- E577804 N148771.76, E577803.39 N148766.71: small subsidences that appear to be rotted wooden poles.

The entire area is littered with wood, metal parts, glass, burned building materials, and debris.

## 6.6 628-1 WHITE BLUFFS BURN PIT

Located directly north of the sites described in Section 6.5 at WCS83S coordinates E577950 N148840 (center; Appendix A, maps 14 and 16) is the 628-1 White Bluffs Burn Pit. The site is about 820 m (2,690 ft) north of the Route 2 North and Federal Avenue intersection, just east of an old railroad bed.

The site, about 70 m long by 45 m wide, is covered with sand, gravel, and metallic and wooden debris. Physical evidence at the site (ash and debris) indicate that the affected area was about

1/4 acre (BHI 1995). The site is covered with windblown sand and gravel. Vegetation in the area appears stressed, indicating the potential for hazardous materials (BHI 1994b, 1995).

The coordinates provided are based on field surveillance conducted in August 1995 and subsequent spacial mapping using Arcveiw software of the Hanford Geographic Information System database. Previously, the site was described as being about 1,000 ft (304 m) north of the Route 2 North - Federal Avenue intersection (BHI 1994b, 1995), which was an estimate according to the employees who conducted the field surveillance at the time.

## 6.7 PAINT AND SOLID WASTE DISPOSAL SITE

Located just northwest of and across a paved roadway from the site described in Section 6.6 at WCS83S coordinates E577657.86 N148855.25 is a paint and solid waste disposal site (Red Paint and Junk; Appendix A, map 14).

From the east, from the paved roadway, the site appears as a low sand dune. Just west of the sand dune are isolated spots of what appears to have been red paint that was disposed of by being dumped on the ground surface. Solid wastes include glass, metal shavings, metal parts, and army-green canvas material in an area of about 25 m by 17 m.

## 6.8 CONSTRUCTION CONTRACTOR SHOP LANDFILL

Located directly north of the site described in Section 6.7 at WCS83S coordinates E577654.89 N148994.42 (center; Appendix A, map 14) is a large landfill. It is described as an open pit, measuring about 165 m long by 112 m wide, located north of the shops and south of the water station. Reportedly, the pit was filled to a mound located at its southern end (Appendix C). The same report states that it was contaminated and cleaned out, but that it "responded solidly to a metal detector survey" (Appendix C). It operated from 1943 to 1948 for the disposal of shop wastes (BHI 1994b). The author of the referenced review evidently felt that there was potential for radioactive wastes in this site as he stated in bold type "CHECK IT OUT" in his report. The author is deceased, and it is unknown if further characterization was conducted at this site. A former employee reported that this site was used for the disposal of oils, solvents, and cleaning agents such as carbon tetrachloride. The site currently appears much the same as was described in the referenced report. It is also described in Section 4.3 of BHI (1994b).

In conjunction with this site, two spots were found along the western boundary that appeared to have been oil dumping spots (Appendix A, map 17). They are located at WCS83S coordinates E577586.98 N149051.26, which is the northwest corner of the landfill, and E577593.35 N148999.23. Both of these spots appeared to be about 1.5 m in diameter (Appendix B, photograph 51).

## 6.9 WAREHOUSE FACILITY AND ASSOCIATED SITES

Located directly west of the site described in Section 6.7 is a large warehouse-temporary construction facility area and associated sites/waste locations. This entire area is littered with debris, graveled areas, and evidence of oil or chemical dumping. The most significant sites are described in this section.

Just west of the site described in Section 6.7 are two small valve boxes that are flush with the ground. These boxes are constructed of wood and are filled with sawdust. They are located at WCS83S coordinates E577582.98 N148947.23 and E577589.20 N148931.17 (Appendix A, map 17).

Just south of these valve boxes is a site that appears to be dumped tar and/or paints. It is located at WCS83S coordinates E577593.65 N148913.40 (appendix A, map 17).

Several buildings were located in this area identified by numbers 4, 5, and 6 on Dupont drawing C-3316 (DuPont 1945, Appendix A, map 4). These warehouse facilities were located west of apparent building sites between the valve boxes, and are identified as the MS Warehouse - 100 Areas (number 4), Special Warehouse Number 1 - 105 Areas (number 5), and Special Warehouse Number 2 - 105 Areas (number 6). A French drain was located east of Warehouse Number 1 at WCS83S coordinates E577398.14 N148932.07 (Appendix A, maps 14, 15, and 17). Two of the facility foundations were easily identified at the site and were located at WCS83S coordinates E577388.36 N148923.17 and E577395.47 N148886.74 (center of each site). The third could not be found.

The Central Warehouse, identified as number 7 on DuPont drawing C-3316 (Appendix A, map 4), appeared to have been located at the same location where a white granular material that appears to be a gypsum material was found (Appendix A, map 15). The WCS83S coordinate location of this material is E577504.78 N148821.87.

Located directly west of the northwest corner of the site described in Section 6.7 at WCS83S coordinates E577488.50 N149051.27 (center; 20 X 40 ft Remains of Conc. Pad, Appendix A, map 14) is a small concrete foundation pad. At the southeast corner of the pad is a fairly large subsidence (WCS83S coordinates E577493.80 N149050.03; Appendix A, map 17). A rubber shoe cover, the type of which is used in radiation work areas, was found at the site (Appendix B, photograph 52).

Several small buildings appear to have been located near this concrete foundation pad. Evidence found at the site indicated that they were temporary construction (TC)-type facilities, because wood pads were used as foundation pads. A French drain was found in the area of these temporary building sites (Appendix A, map 17) at WCS83S coordinates E577527.88 N149068.92 (Appendix B, photographs 53 and 54).

## 6.10 WATER STATION AND SPECIAL FABRICATION SHOPS AND WAREHOUSES

Located north of the site described in Section 6.8 and northwest of the site described in Section 6.7 are the remnants of the Special Fabrication Shop and Warehouse, Boilerhouse, Warehouse, Loading Dock/Well, and a Water Station. The Fabrication Shop, Boilerhouse, and Warehouses are identified as numbers 1, 2, and 3 on DuPont drawing C-3316 (DuPont 1945; Appendix A, maps 4 and 14). The water station is mentioned in Appendix C. The entire area surrounding the loading dock and water station is graveled and littered with miscellaneous debris.

The loading dock, located at WCS83S coordinates E577440.79 N149164.90 (center; Appendix A, map 14), is concrete construction and has a well casing in its southeast corner. The water station, located at WCS83S coordinates E577485.23 N149092.92 (point between valve and tower; Appendix A, map 17), consisted of piping, valves, and a tank truck loadout tower (Appendix B, photographs 55 and 56).

The Special Fabrication Shop and Warehouse remnants were found at WCS83S coordinates E577557.21 N149214.67 and E577565.21 N149141.79 (center of both sites; Appendix A, map 14), respectively. The Boilerhouse foundation could not be found. Debris at the site included concrete, transite, glass, and metallic debris. Potentially, the site may contain chemical contamination from solvents, oils, and other chemicals typically used in facilities like those once located at the site (BHI 994b).

## 6.11 J.A. JONES CONSTRUCTION COMPANY NUMBER 2 BURIAL GROUND

The assumed location of this site based on the physical description (BHI 1994b) and physical evidence noted during field surveillance conducted in August 1995 is at WCS83S coordinates E577350 N149070 (center; JA Jones #2 Dump, Appendix A, map 14). This site is located northwest of the White Bluffs townsite and just south of the 100-H access road (H Avenue). It measures about 100 m long by 50 m wide.

A second possible location was discovered when several boxes of data were found during a Pacific Northwest Laboratory move in October 1995. A copy of a drawing generated by Pacific Northwest Laboratory for an unknown document was contained in the data packages. This drawing, H-3-57210, "600 Area Waste Sites," was never approved, and therefore is not available through normal channels. The J.A. Jones Construction Company Number 2 Burial Ground appears on this drawing to be just north of H Avenue and east of Route 2 North. A field surveillance conducted in October 1995 found what appeared to have been a trench at the site. This trench contained the remnants of concrete blocks, wooden irrigation pipe, and old fencing materials that appeared to be from pre-MED activities. Additionally, there is a concrete curb along part of the east side of the trench. The trench did not appear to be backfilled, but did contain a large quantity of windblown sand. The trench appeared to be about 45 m long and 12 m wide and can be seen from H Avenue adjacent to the export water line on the east side.

Reportedly the site contained equipment, wood scraps, concrete, and metallic debris generated by the J.A. Jones Construction Company between 1948 and 1955. In 1971 the site was exhumed and reburied in the 200 Area Burial Grounds, and the site was backfilled with clean fill material.

The site, described as located south of H Avenue, is located directly west of a concrete loading dock, described in Section 6.9, and west of a small gravel roadway. It appears as a vegetation-covered dirt field. Field surveillance indicated that this site was backfilled and is the likely location of the burial ground site.

## 6.12 EARTH BERM AND TRENCH

Located east of the site described in Section 6.8 at WCS83S coordinates E577835.65 N149015.48 berm; Earth Berm, Appendix A, map 15) and E577837.57 N148985.77 (trench; Long Pit, Appendix A, map 14) are an earth berm and a trench. The earth berm appeared to have been some of the material removed from the trench excavation. The trench measures about 40 m long by 10 m wide and does not appear to have been used. No records could be located concerning either the berm or trench.

## 6.13 FARM DUMP SITE AND PARTIALLY BACKFILLED PIT

Located northeast of the site described in Section 6.4 (Spare Parts Machine Shop Landfill) at WCS83S coordinates E578494.44 N148916.04 (center, Farm Dump) and E578589.70 N149091.51 (center, Pit) are a farm dump and partially filled pit (Appendix A, map 14). The farm dump site appeared to measure about 170 m long and 80 m wide. Wastes consist mostly of cans and bottles, but also included some car parts.

The pit, located across a paved roadway to the northeast, appeared to be at least partly backfilled. This pit measured about 60 m long and 25 m wide. It can be seen from the paved roadway with some difficulty. No documentation could be found to indicate its use (Appendix B, photographs 57, 58, and 59).

## 6.14 EAST WHITE BLUFFS CITY LANDFILLS

One White Bluffs City Landfill is located about 30.5 m west of the White Bluffs Ferry Landing at WCS83S coordinates E579188.31 N149456.92 (approximate center; East WB Dump #2, Appendix A, map 14). It operated from 1850 to 1943.

The site is about 140 m long by 60 m wide and, reportedly, it was about 10 ft (3 m) deep. The site has been bulldozed and covered with clean fill material; however, scattered debris (cans, glass, and wood) remain on the surface around the site. Reportedly, the site was used to dispose of industrial and domestic wastes common to the time that it was being used (BHI 1994b, 1995). The site can be seen in a May 1948 aerial photograph of the area. There is a fairly large subsidence (about 1.2 m across; Appendix A, map 15) located at the northwest corner of the site that is filled with windblown tumbleweeds that obscure its depth (Appendix B, photograph 60).

The other White Bluffs City Landfill is located about 30.5 m north of the ferry landing at WCS83S coordinates E579462 N149650 (approximate center; East WB Dump, Appendix A, map 14). Reportedly it operated from about 1900 to 1943 (BHI 1994b).

The site is divided by a dirt roadway, but is mostly located between the roadway and the river. It measured about 160 m long and 60 m wide at its widest point. Surface debris found at the site included wood, metallic, domestic (pots, bowls, and glassware), and industrial debris (cables and plywood sheets). The site has been fully backfilled with clean fill material and is covered by natural vegetation. In a May 1948 aerial photograph of the site, it appears to be flooded with water as a result of a historic flood of the Columbia River that year.

# 7.0 REFERENCES

BHI, 1994a, *100-FR-3 Soil Gas Survey Description of Work*, BHI-00056, Rev. 00, Bechtel Hanford, Inc., Richland, Washington.

BHI, 1994b, *Historical Background Information of the White Bluffs Pickling Acid Crib Area*, BHI-00049, Rev. 1, Bechtel Hanford, Inc., Richland, Washington.

BHI, 1995, *Environmental Sites Database* (formerly known as WIDS), Bechtel Hanford, Inc., Richland, Washington.

DeFord, D.H., 1995, *100-IU-6 Operable Unit Technical Baseline Report*, BHI-00146, Rev. 00, Bechtel Hanford, Inc., Richland, Washington.

DOE-RL, 1993, *White Bluffs Pickling Acid Cribs Expedited Response Action Proposal*, DOE/RL-93-48, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DuPont, 1945, *Construction Hanford Engineer Works U.S. Contract No. W-7412-ENG-1 Dupont Project 9536 History Of The Project*, HW-10970, Volume II, E.I. DuPont de Nemours & Company, Richland, Washington.

Parker, M.B., 1979, *Tales of Richland, White Bluffs and Hanford, 1805 Through 1943, Before the Atomic Reserve*, Gallcon Press, Fairfield, Washington.

Pioneer Association, 1982, *Family Histories from Hanford and White Bluffs, WA Summer 1982*, The White Bluffs Hanford Pioneer Association, U.S. Department of Energy Reading Room, Richland, Washington.

Stenner, R.D., K.H. Cramer, K.A. Higley, S.J. Jette, D.A. Lamar, T.J. McLaughlin, D.R. Sherwood, and N.C. VanHouten, 1988, *Inactive Waste Sites at Hanford*, PNL-6456, Pacific Northwest Laboratory, Richland, Washington.

Tri-City Herald, 1968, *White Bluffs Was Killed By Fast Rush Of Progress*, Tri-City Herald, Kennewick, Washington.

U.S. Dept. of the Interior, 1947 Reprint, *United States Department of the Interior Geological Survey, Washington, Hanford Quadrangle, 1924 Edition*, U.S. Department of the Interior, Washington, D.C.

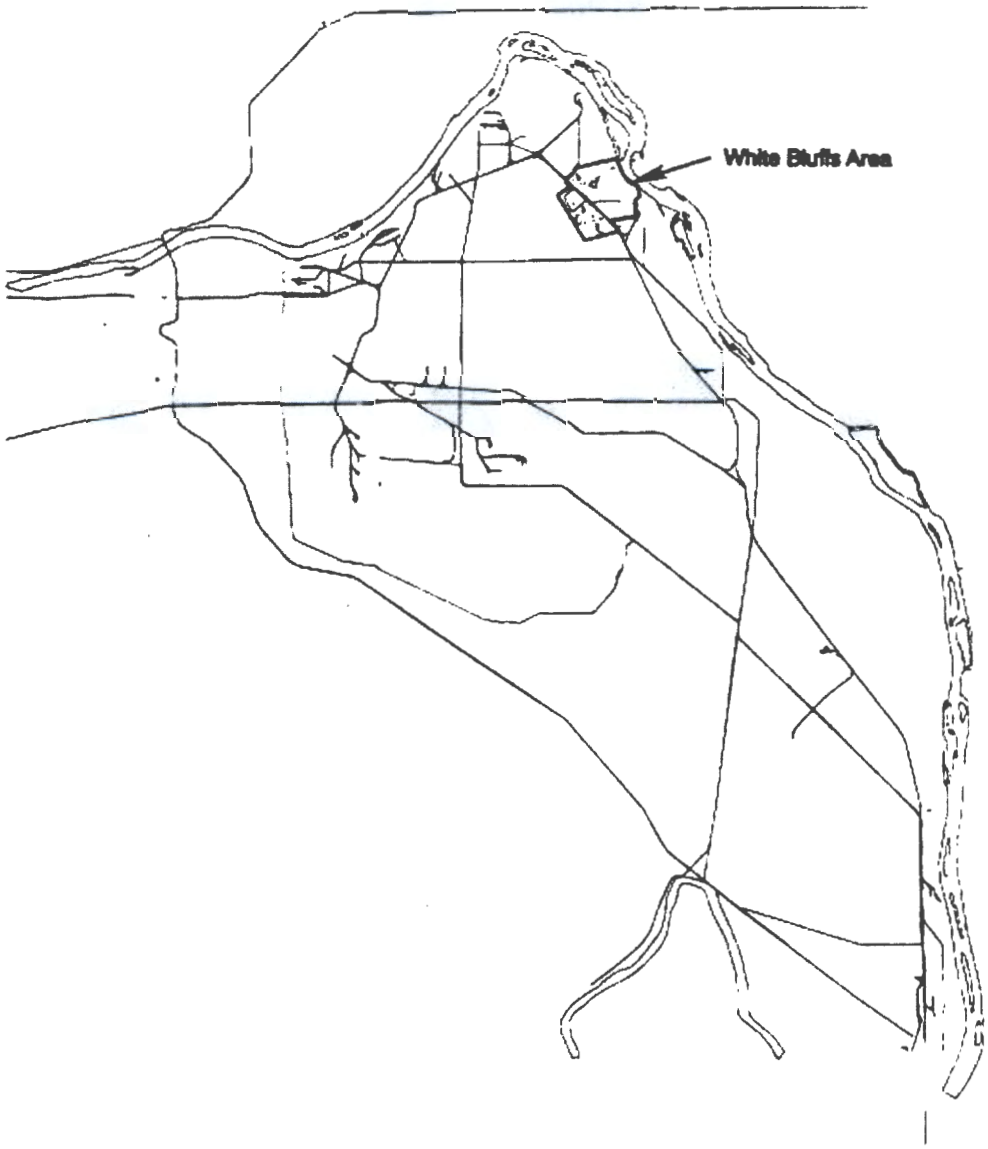
Wahlen, R.K., 1991, *Summary of the Hanford Site Decontamination, Decommissioning, and Cleanup FY 1974 through FY 1990*, WHC-EP-0478, Westinghouse Hanford Company, Richland, Washington.

# APPENDIX A

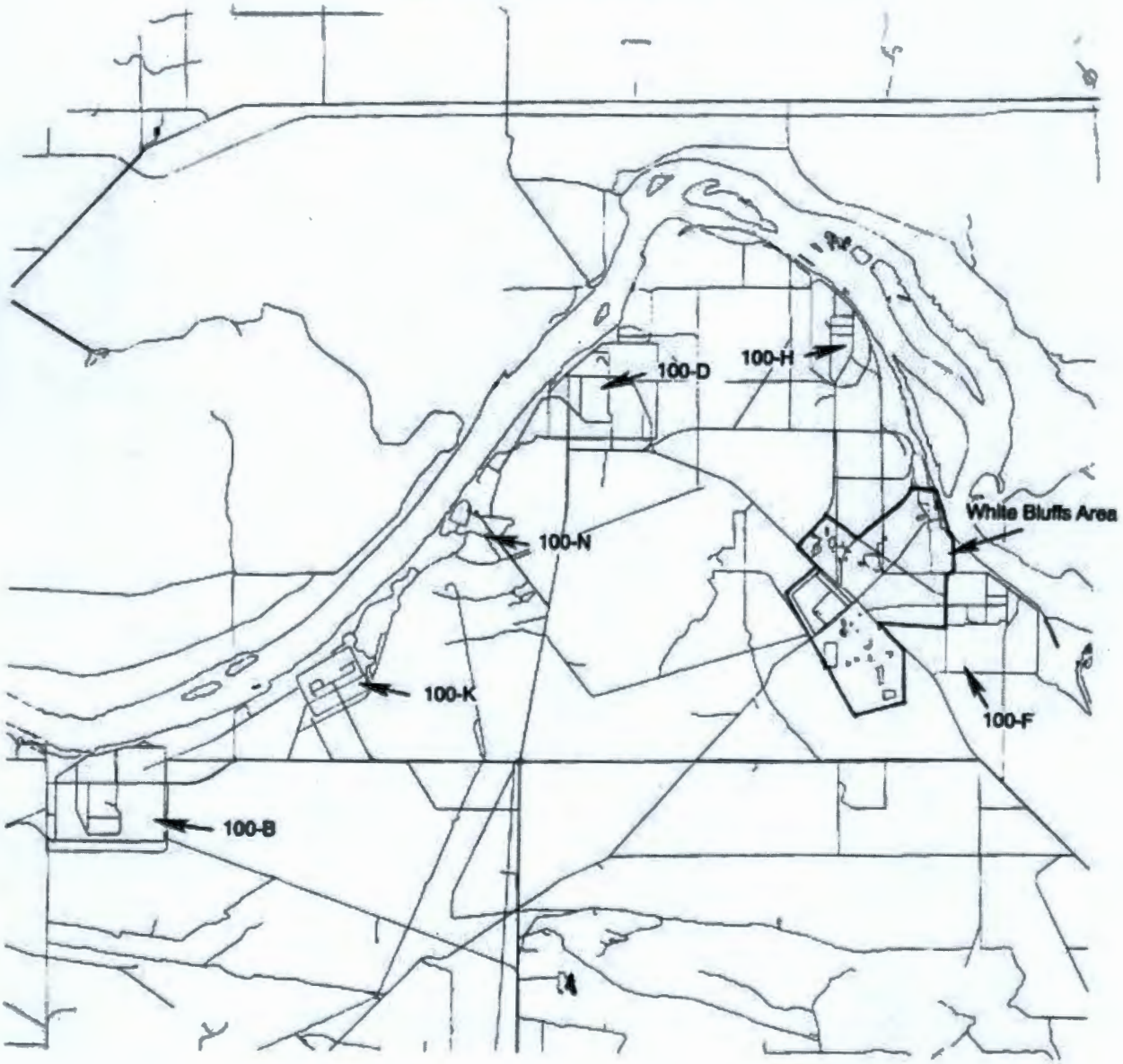
## MAPS

NOTE: Most of the maps in this section were generated using Hanford Geographic Information System (HGIS) database, Arcview software. As such, the maps are appropriate for the intended use in this document, summarizing substantial information gathered during field and literature reviews. Some maps may show sites that have been overwritten by another nearby site title. Enlarged area maps were generated to show the site being described to the best of the software capability. Software deficiencies prevent additional clarifications. The HGIS Arcview database can be accessed directly for additional information.

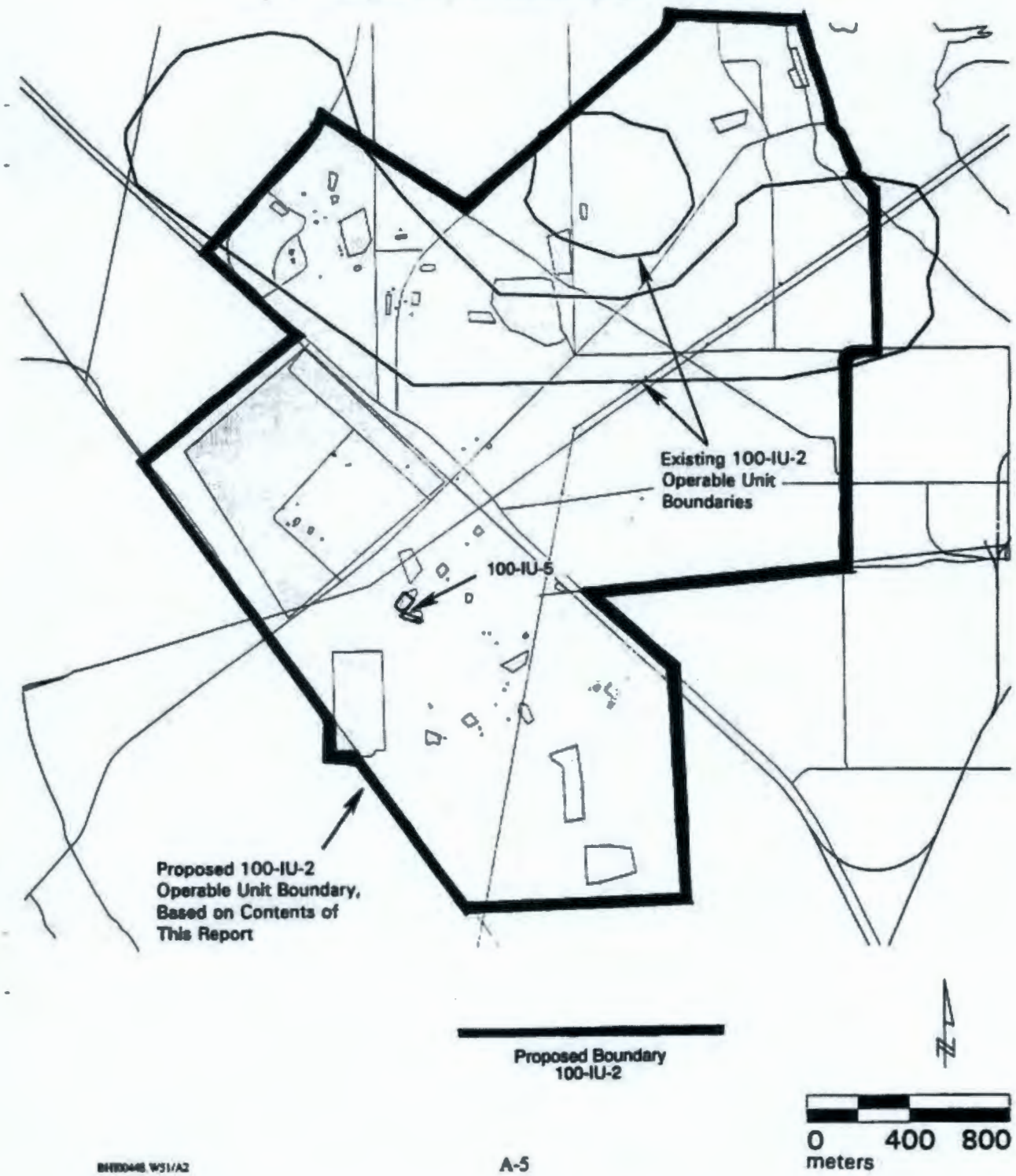
Map 1. Hanford Site.



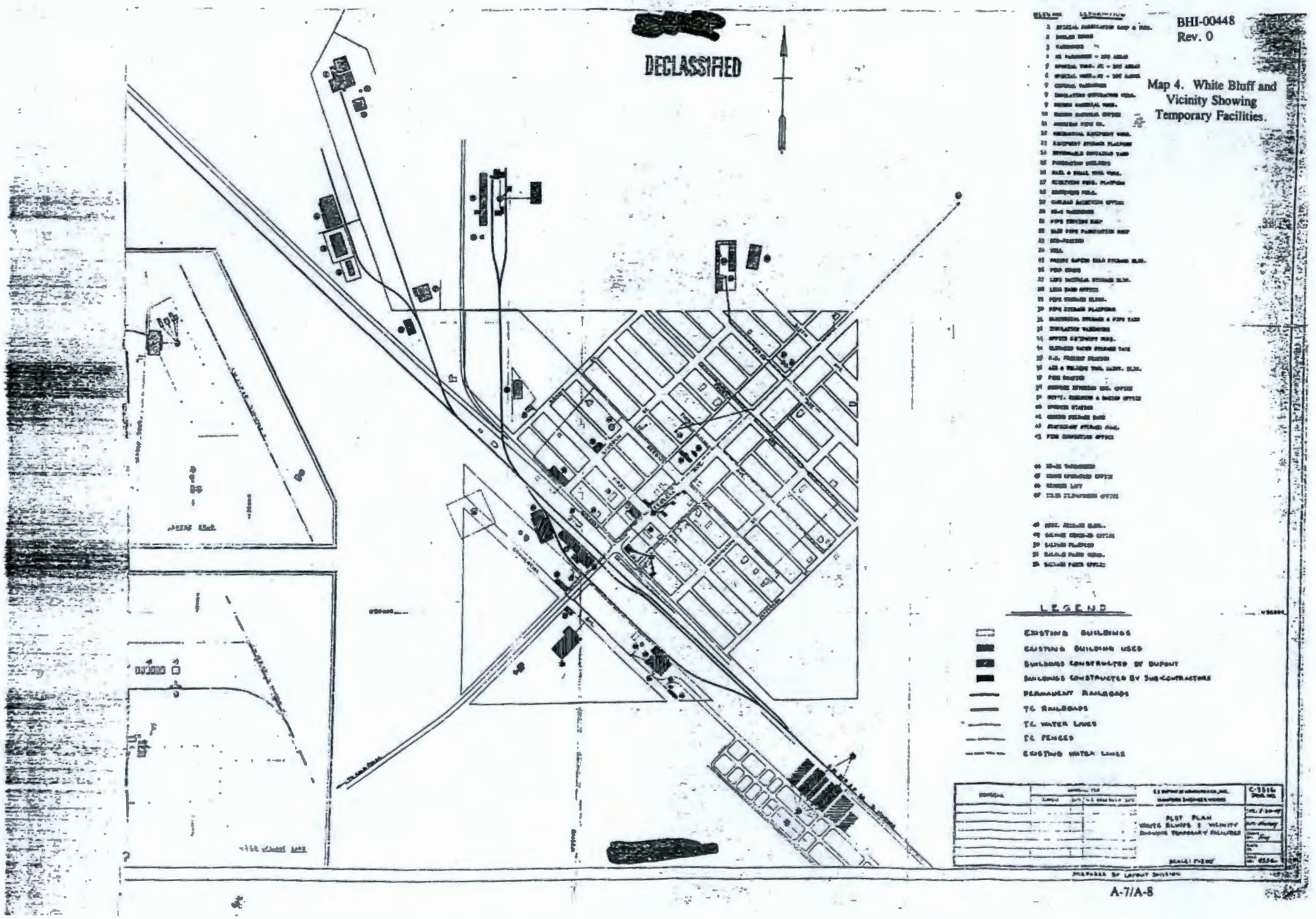
Map 2. 100 Areas - Hanford Site.

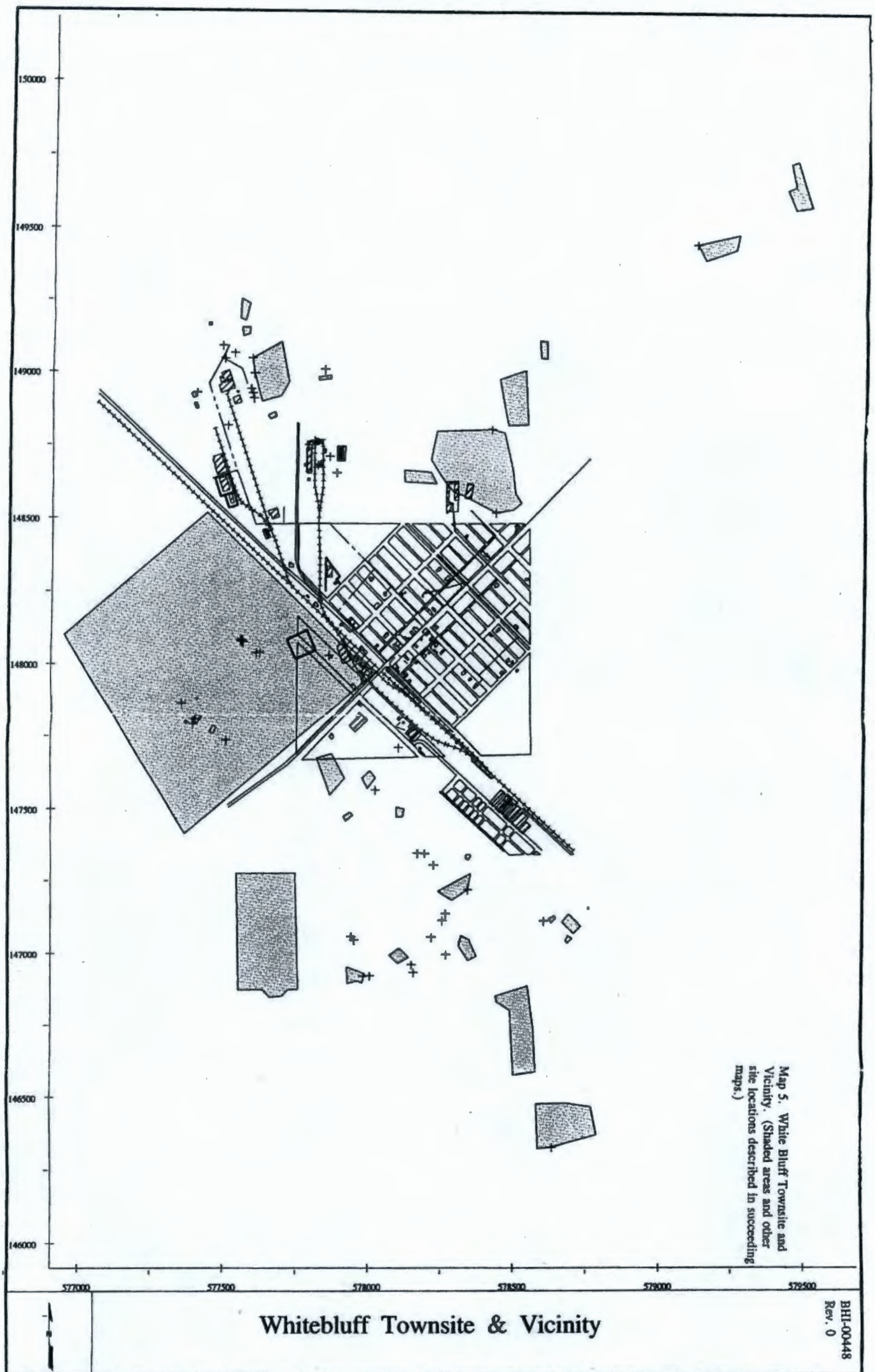


Map 3. Existing and Proposed 100-IU-2 Operable Unit Boundaries.



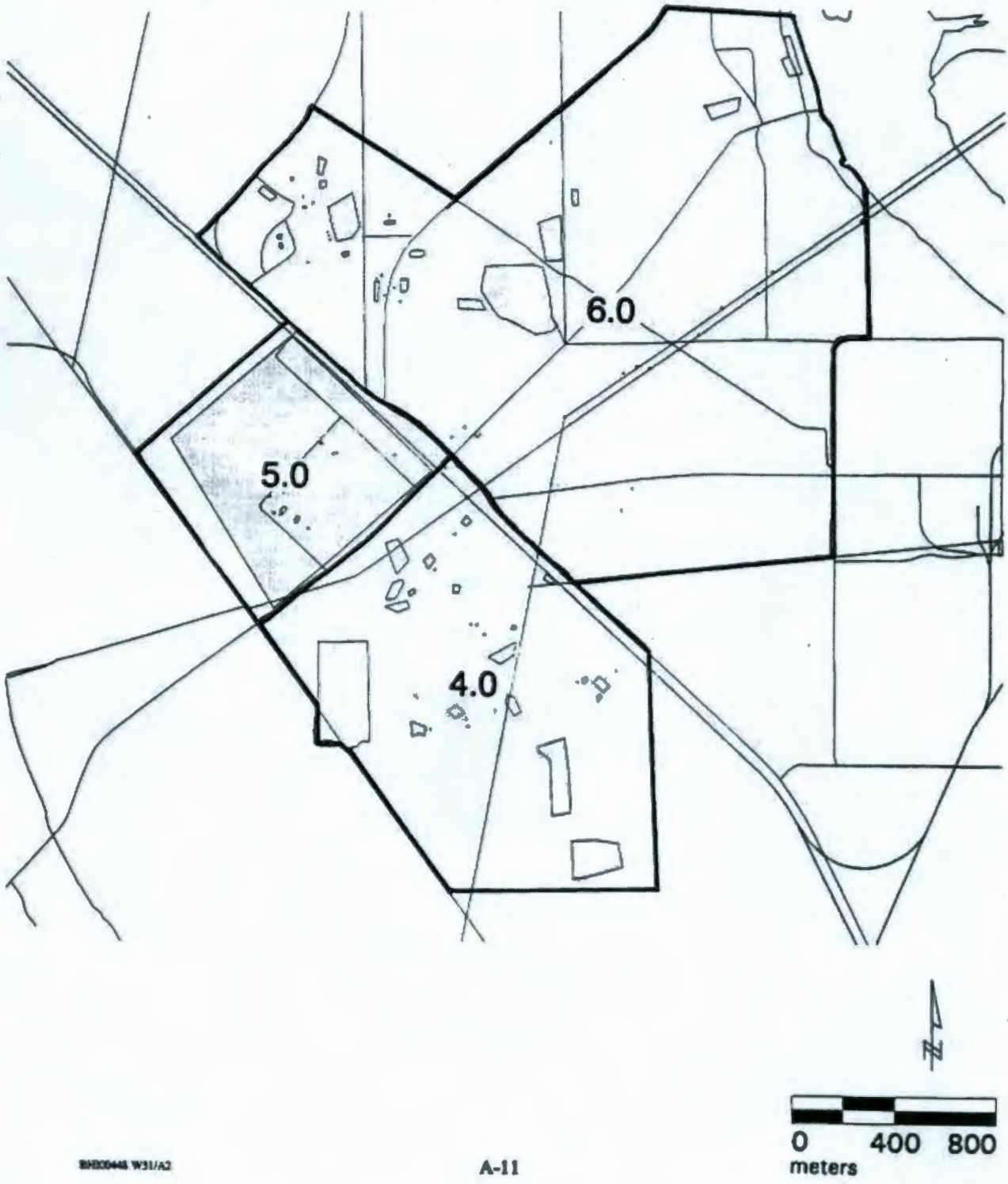
Map 4. White Bluff and Vicinity Showing Temporary Facilities.



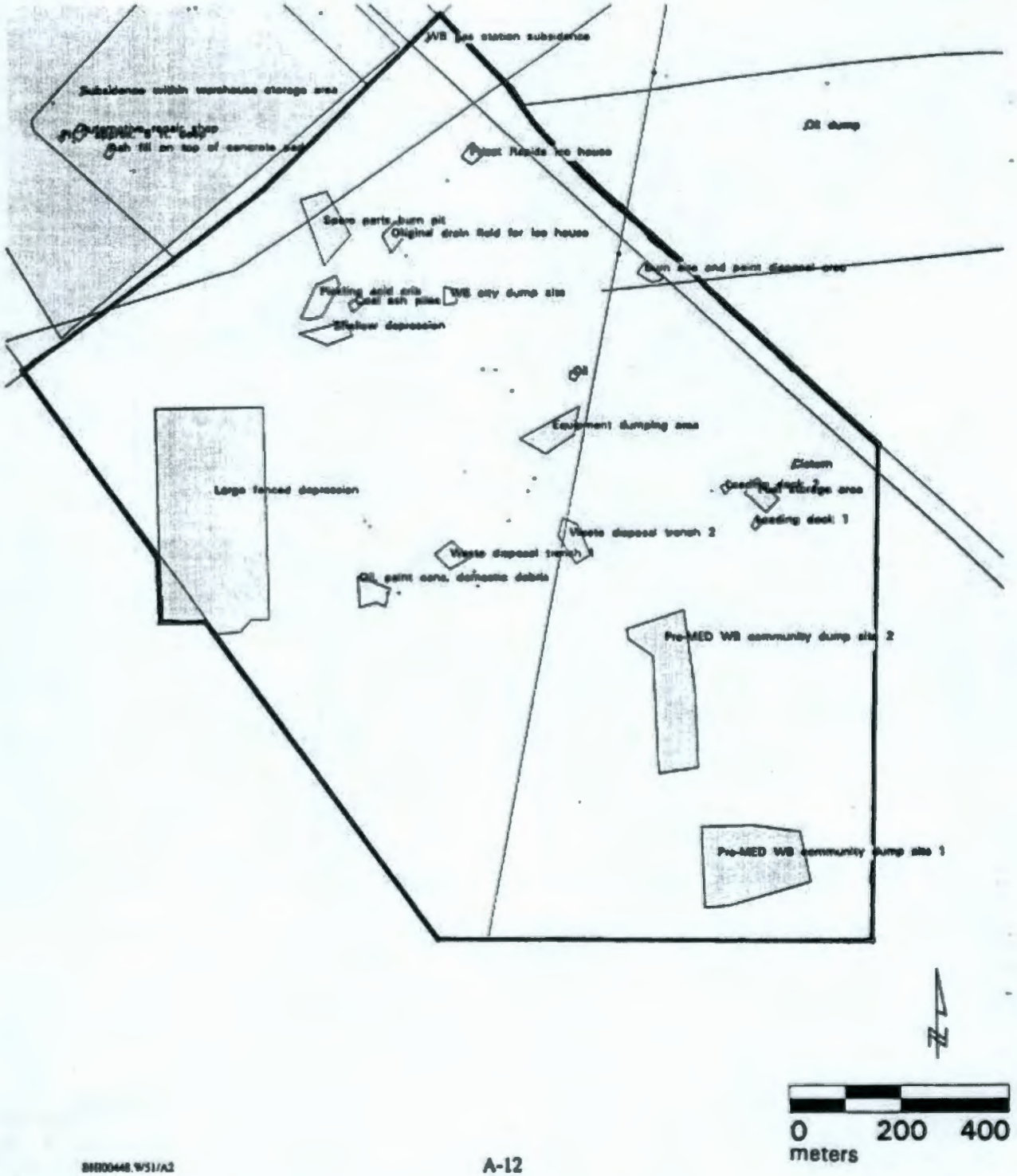



Map 5. White Bluff Townsite and Vicinity. (Shaded areas and other site locations described in succeeding maps.)

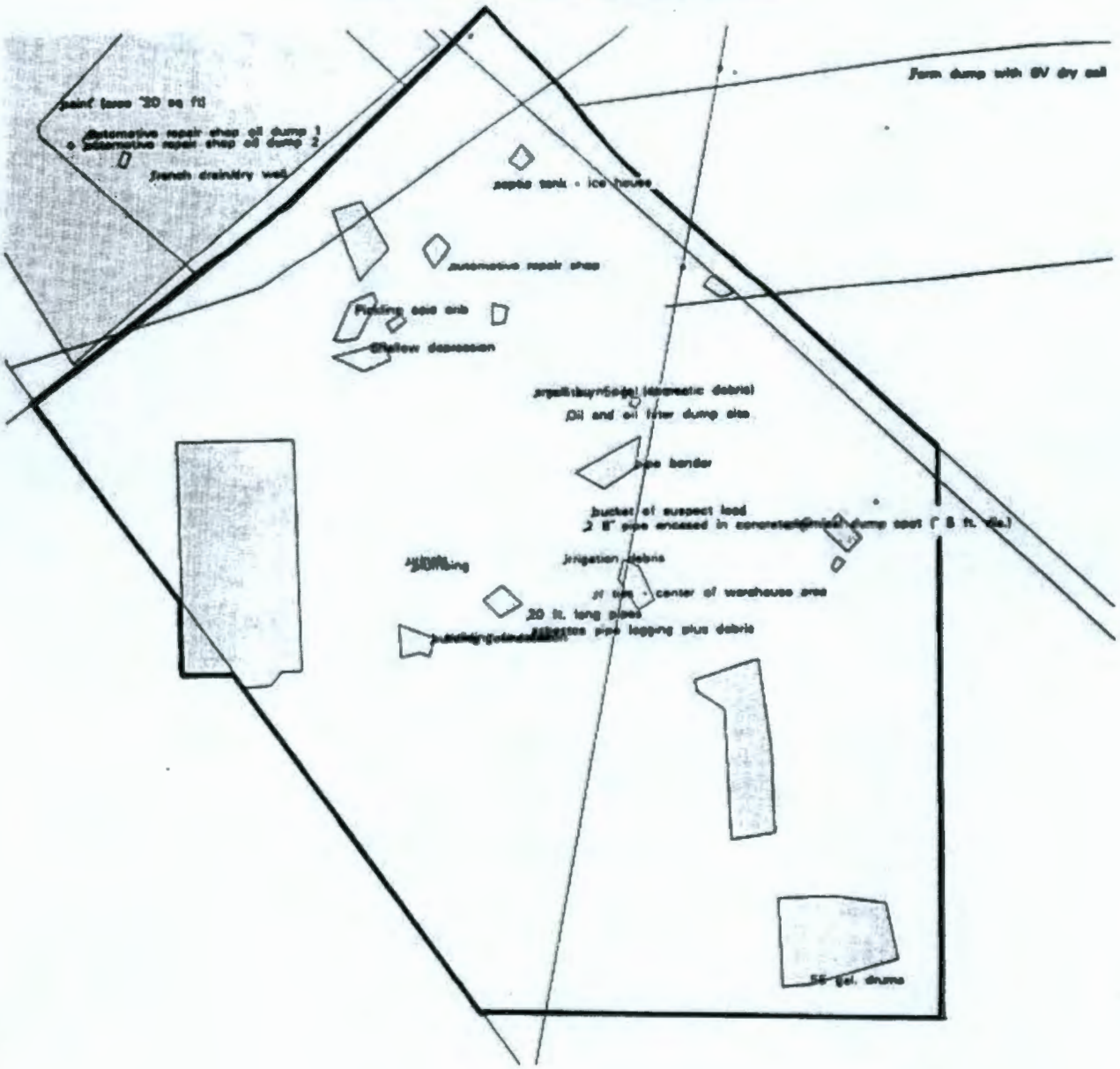
Map 6. Index Map of Areas Discussed in Sections 4.0, 5.0, and 6.0 of this Report.



Map 7. Section 4.0 Sites Depicted by a Polygon.



Map 8. Section 4.0 Sites Depicted by a Point.

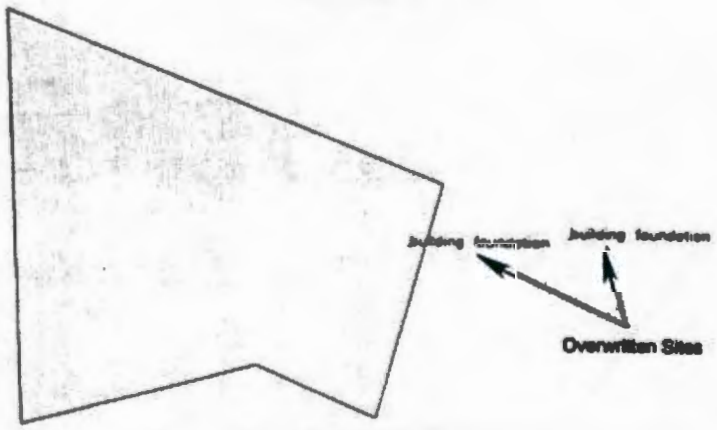


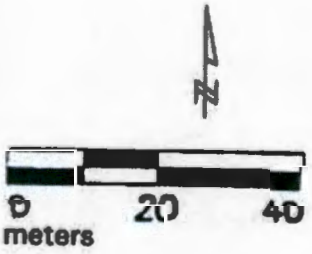



0 200 400
meters

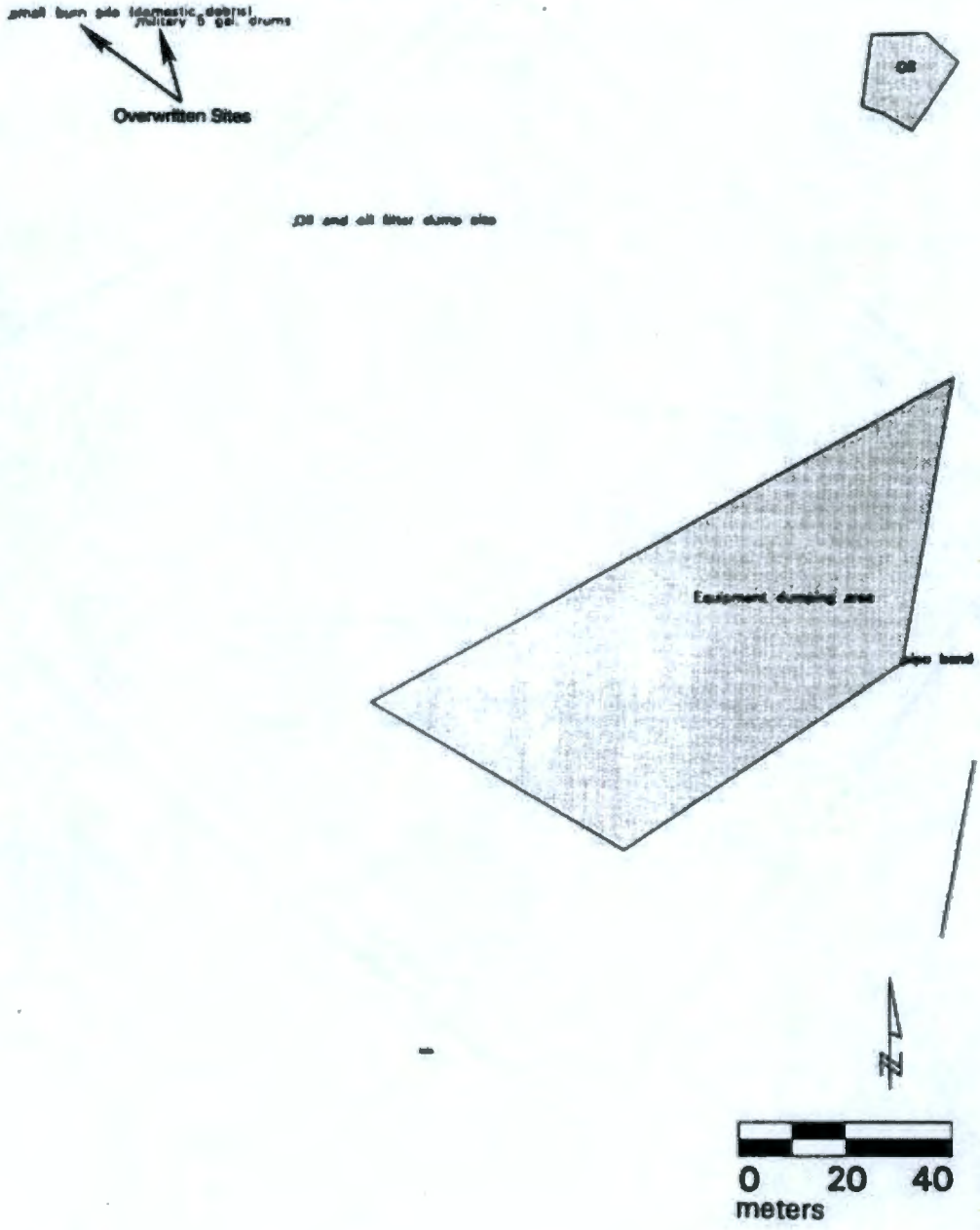
Map 9. Section 4.0 Sites Depicted by a Point
Clarification Map of Description Overwrite.

plumbing

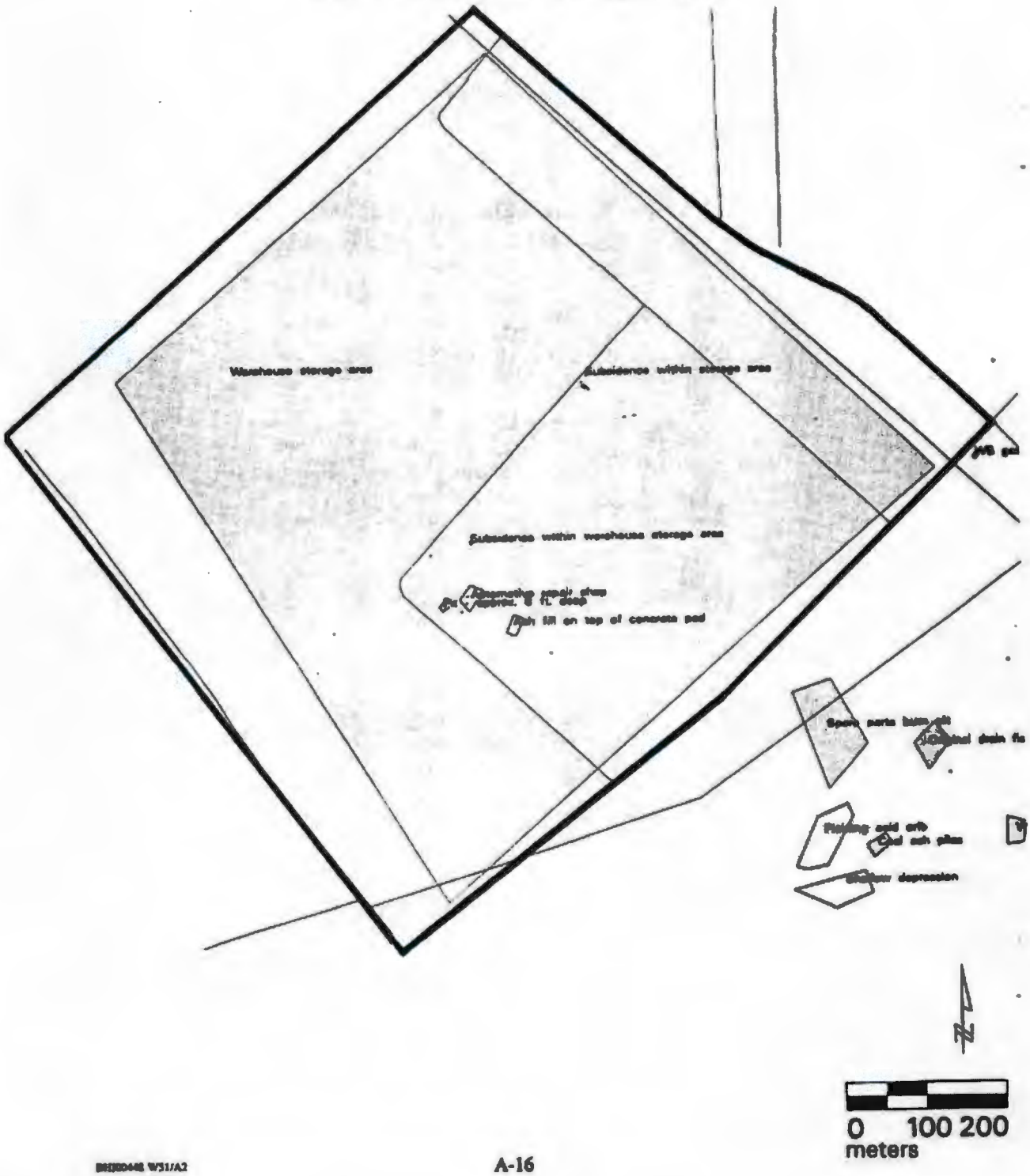


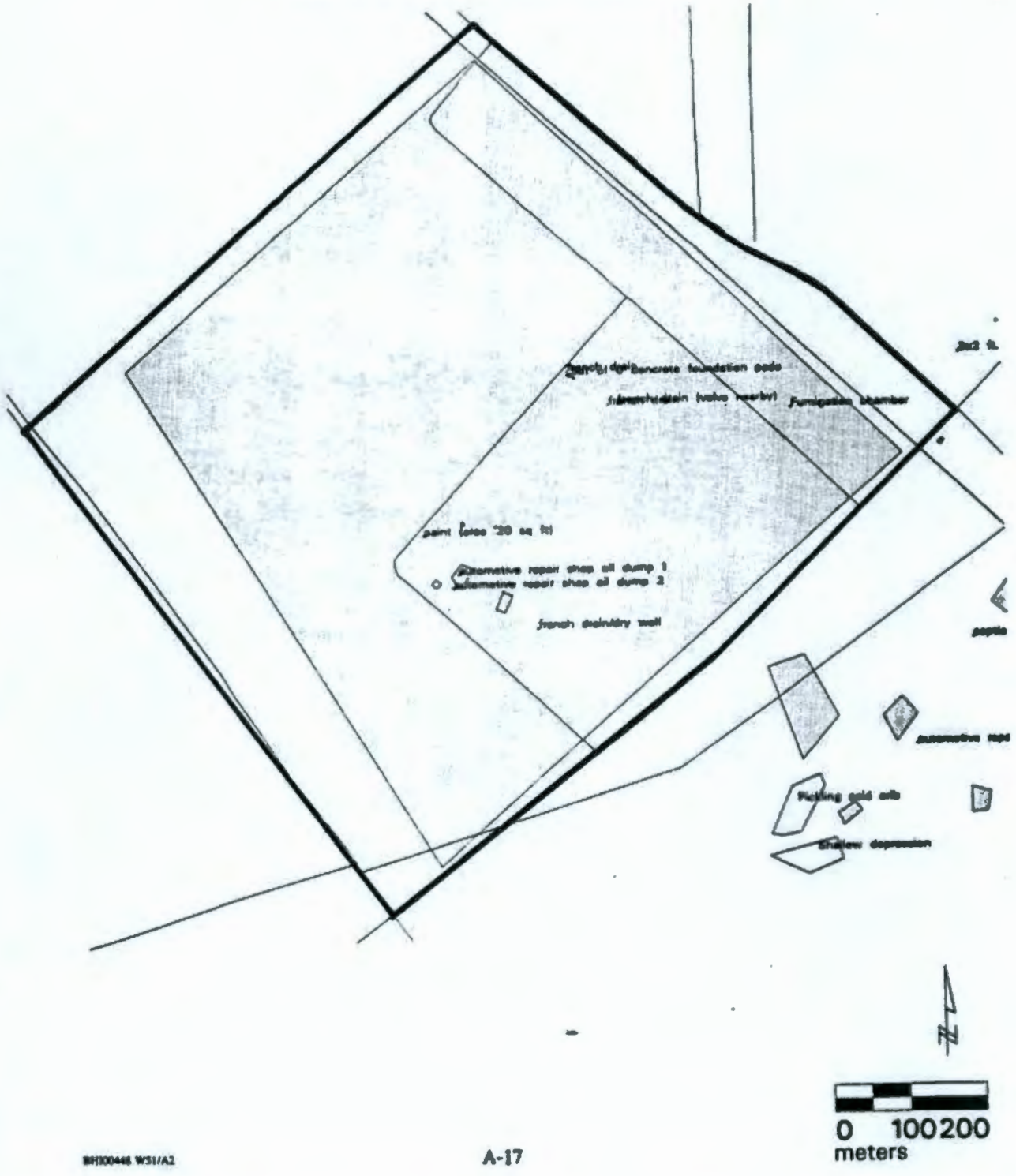
Map 10. Section 4.0 Sites Depicted by a Point Clarification Map of Description Overview.



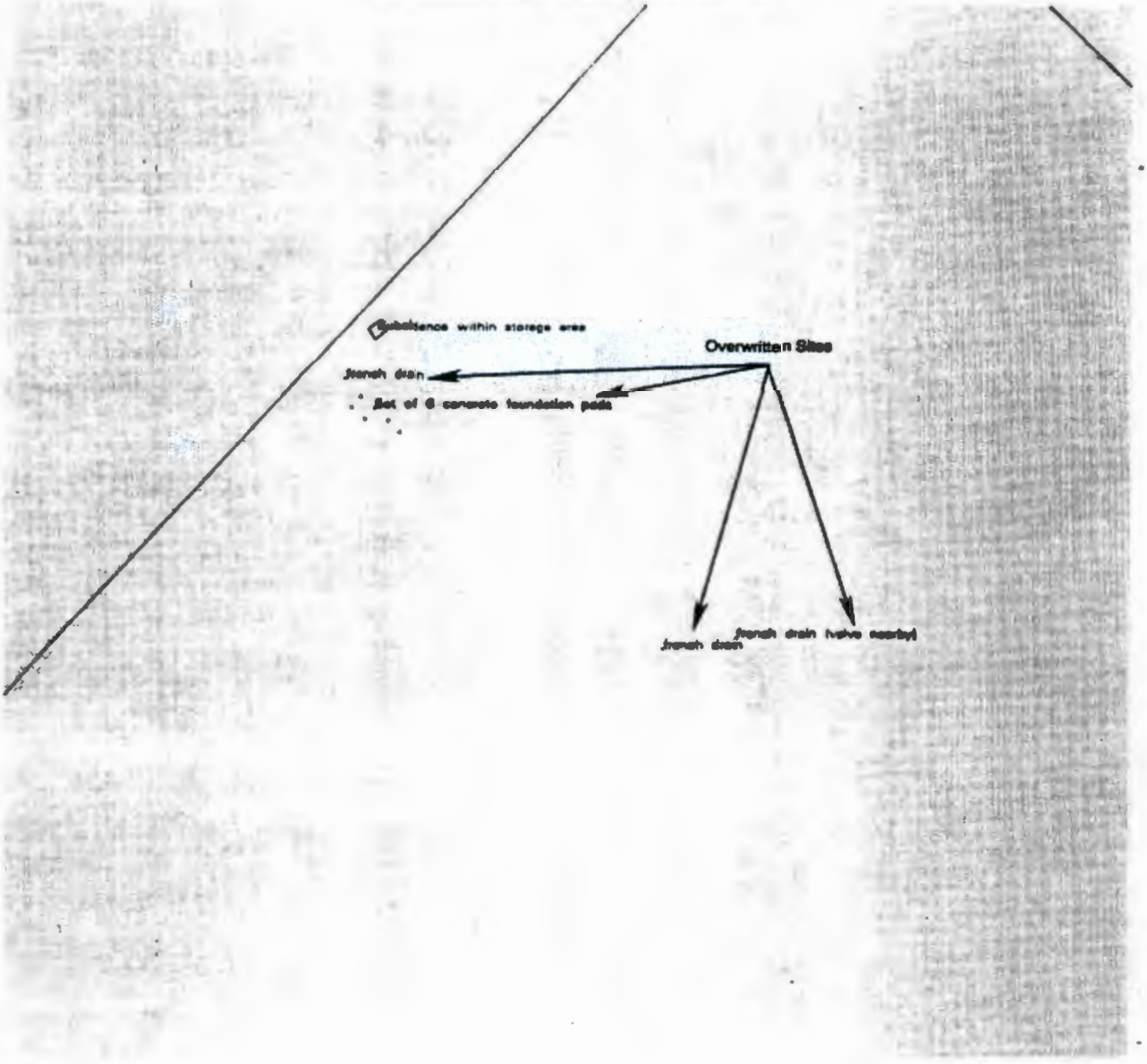
Map 11. Section 5.0 Sites Depicted by a Polygon.



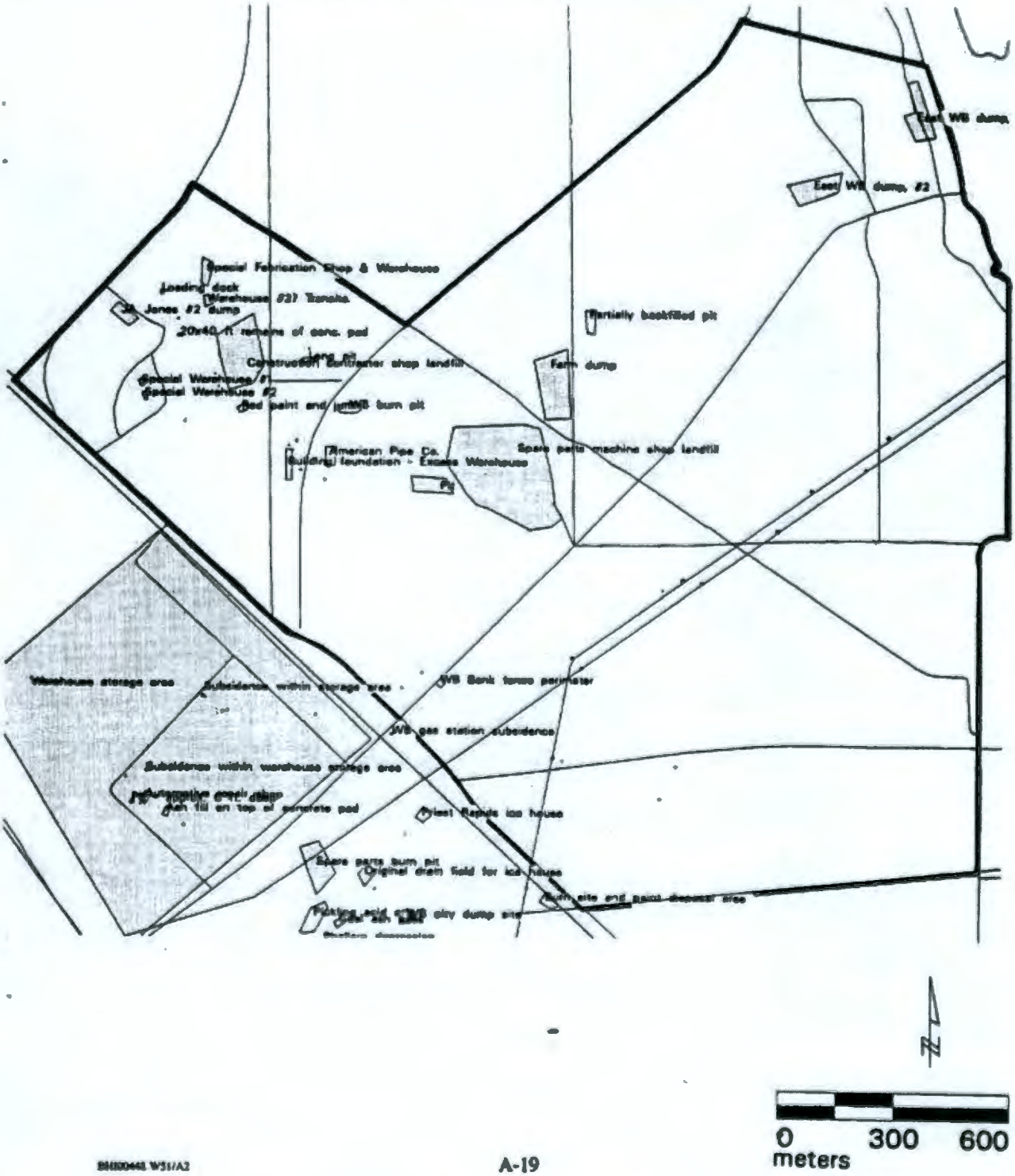
Map 12. Section 5.0 Sites Depicted by a Point.



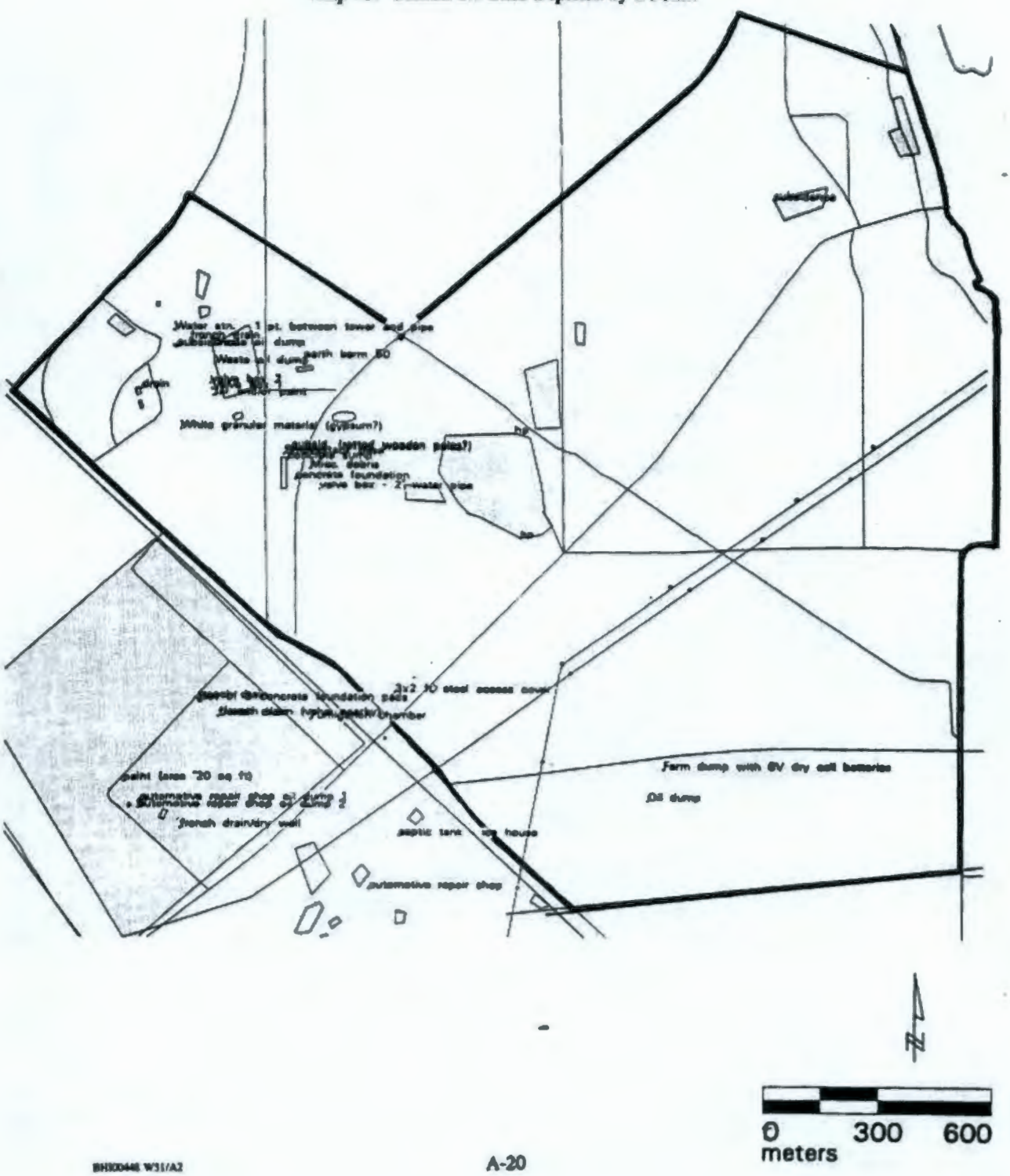
Map 13. Section 5.0 Sites Depicted by a Point Clarification Map of Description Overwrite.



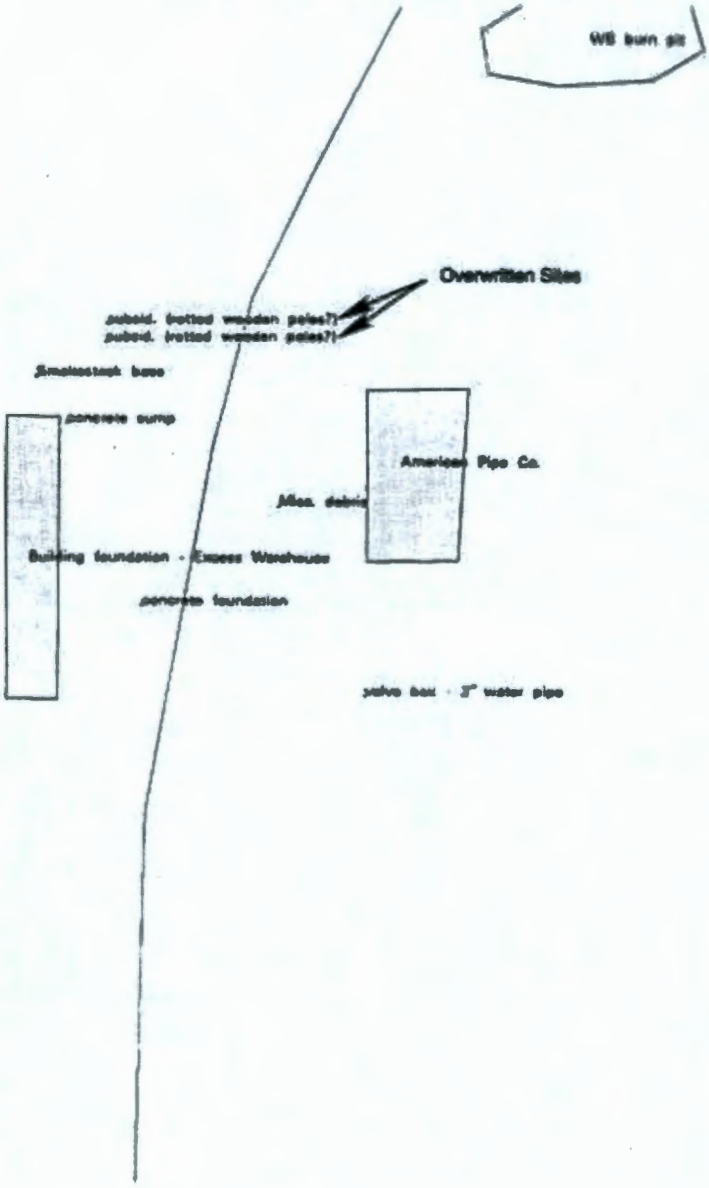
Map 14. Section 6.0 Sites Depicted by a Polygon.



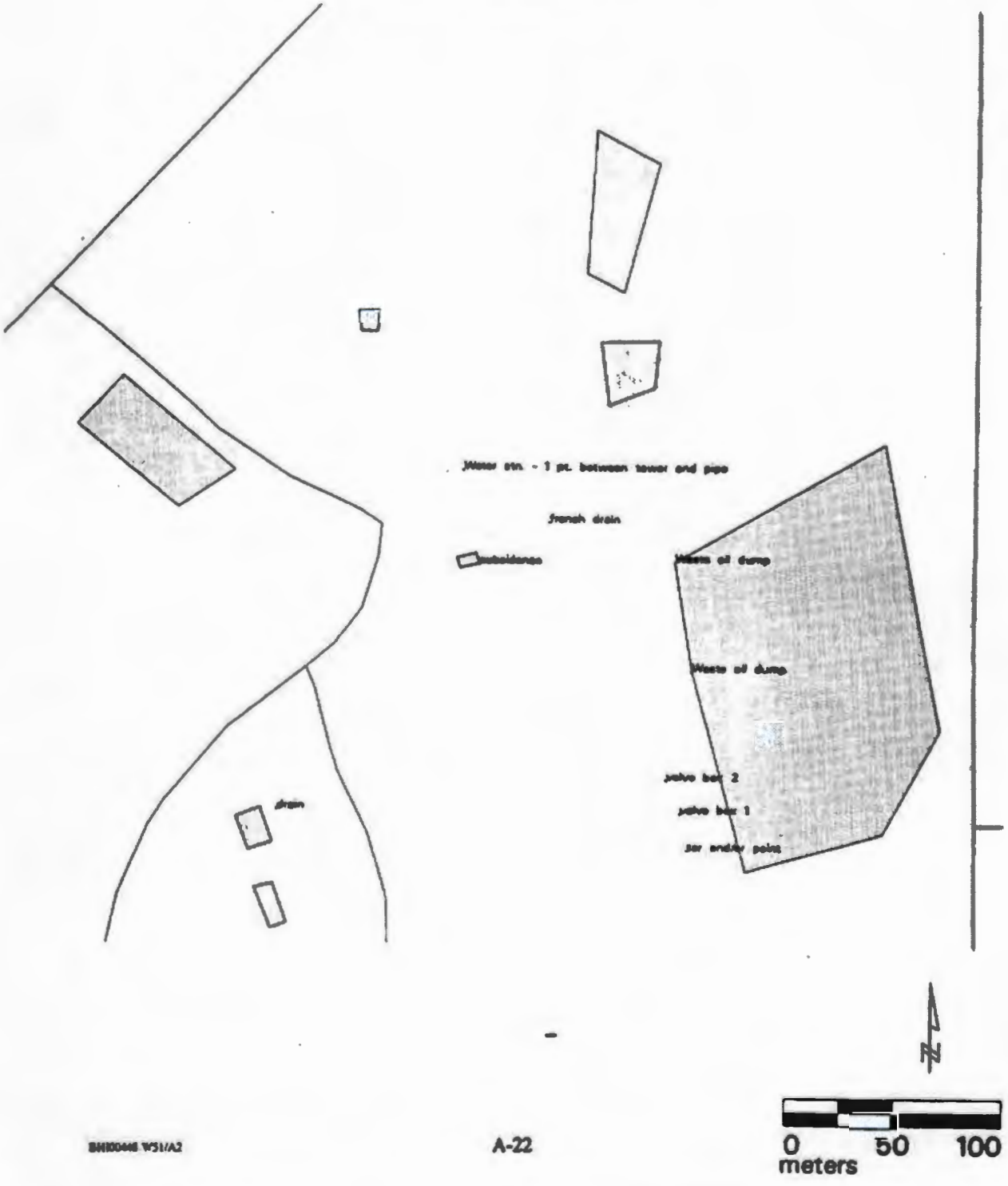
Map 15. Section 6.0 Sites Depicted by a Point.



Map 16. Section 6.0 Sites Depicted by a Point Clarification Map of Description Overwrite.



Map 17. Section 6.0 Sites Depicted by a Point Clarification Map of Description Overwrite.



# APPENDIX B

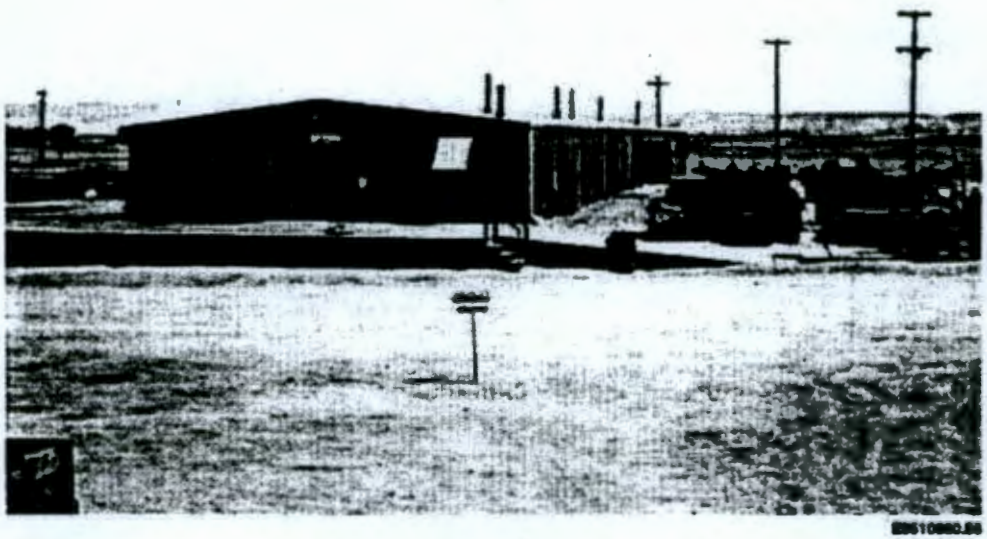
# PHOTOGRAPHS

Photograph 1. White Bluffs Aerial Photo, 1948.

White Bluffs Aerial Photo 1948

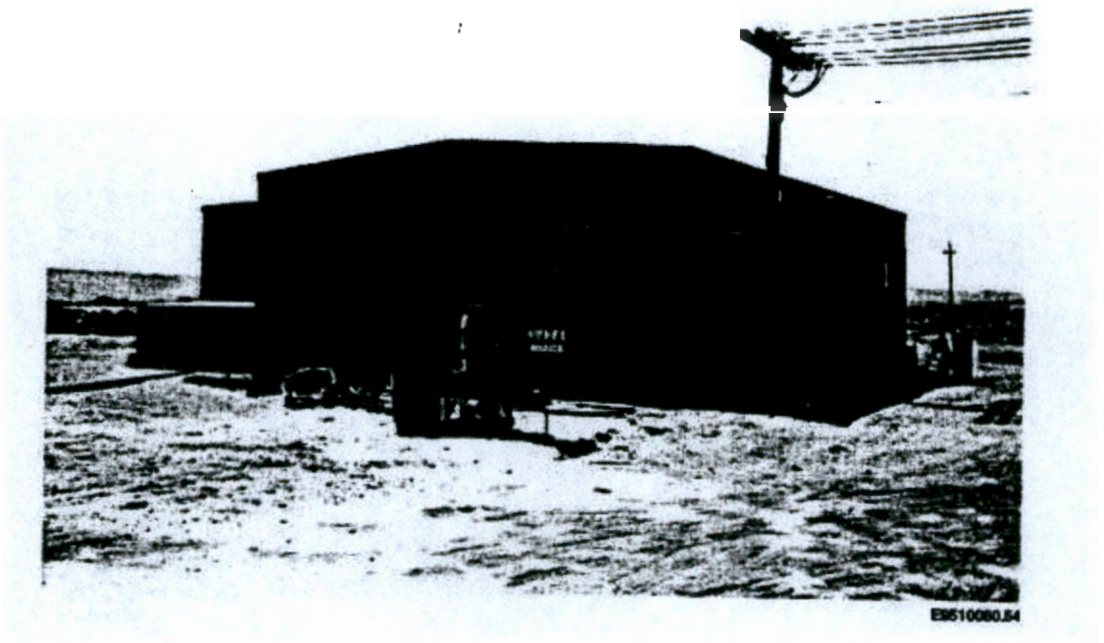
Photograph 2. Typical Home Utilized by the Manhattan Engineering District.

Photograph 3. TC-10 Main Pipe Warehouse Looking North.



Photograph 4. TC-10 Main Pipe Fabrication Shop Looking Northwest.

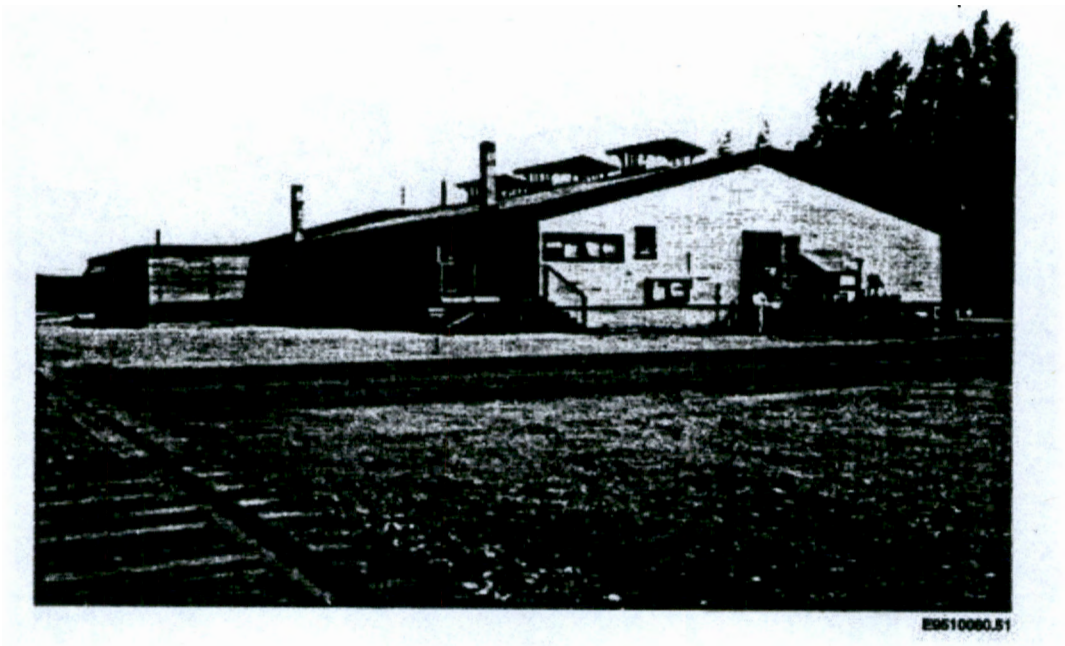
Photograph 5. TC-10 Welding Test Shop Looking South.



Photograph 6. TC-10 Nail and Small Tool Warehouse Looking West.

E9510060.52

Photograph 7. TC-10 Receiving and MS Warehouse Looking West.



Photograph 8. White Bluffs Fire Station Looking Southwest.

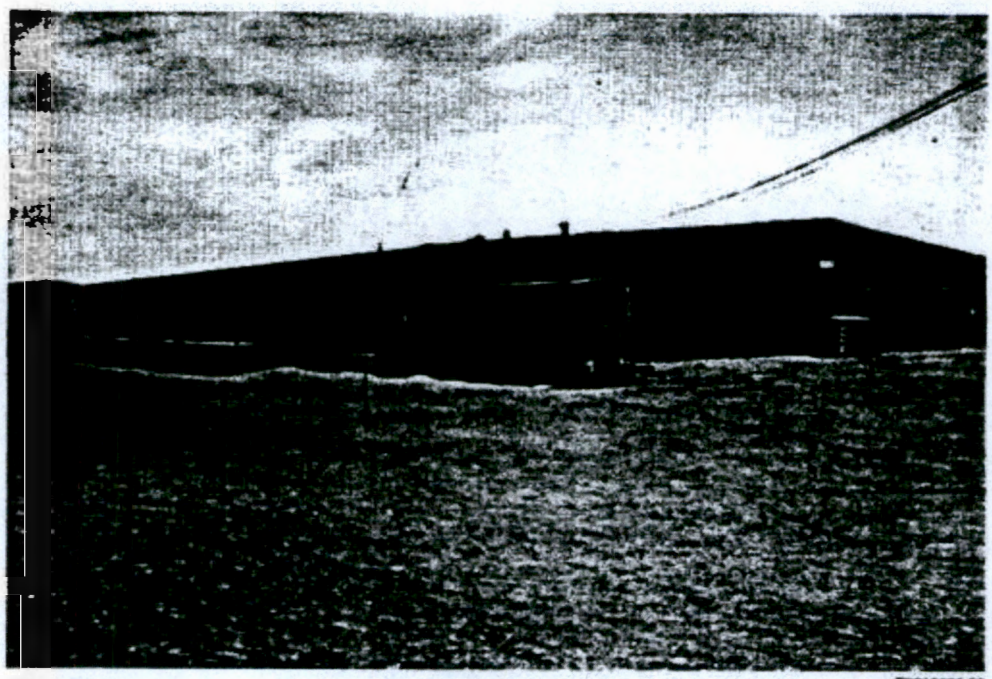
Photograph 9. TC-10 Excess Equipment Storage Building Looking Southwest (Building Purchased from the American Pipe Company).

Photograph 10. TC-10 Insulation Warehouse Looking Northwest.

Photograph 11. TC-10 Central Receiving Warehouse Looking Southwest.

Photograph 12. TC-10 Line Yard Office Looking West.

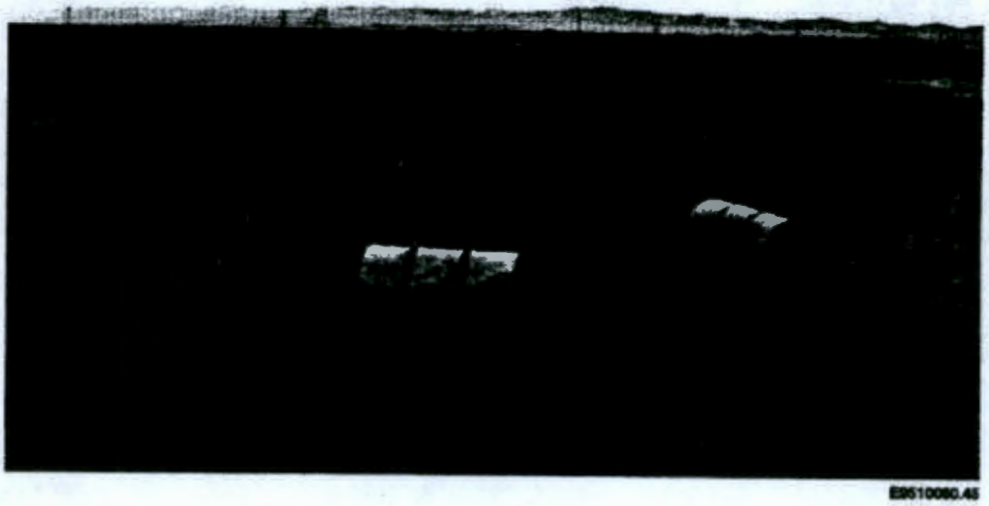
Photograph 13. TC-10 MS-9 Warehouse Looking Northwest.



E9610080.58

Photograph 14. TC-10 MS-9 Warehouse Looking West.

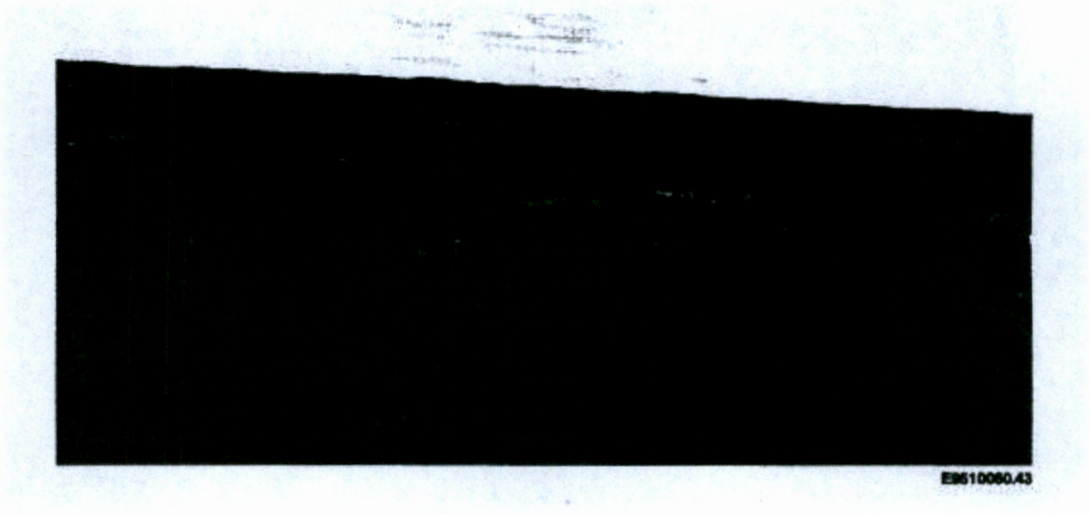
Photograph 15. Community Dump Site Number 1 Southern Edge Looking North.



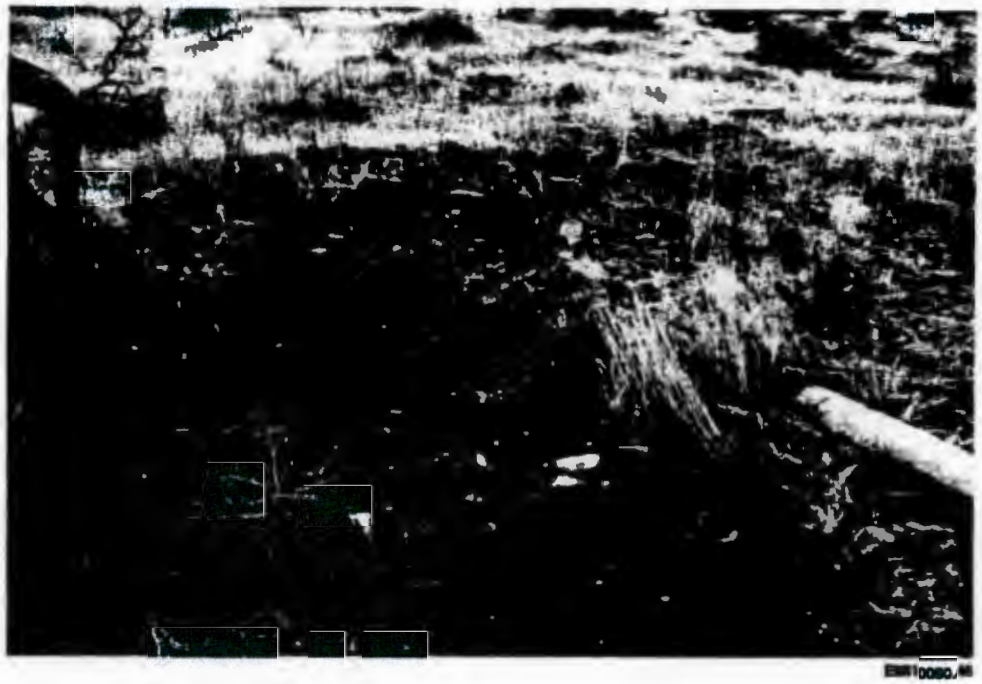
E9510080.45

Photograph 16. Community Dump Site Number 1,
Drum Labeled "Carbon Tet".

Photograph 17. Community Dump Site Number 1 Looking East.



Photograph 18. Community Dump Site Number 1,
Pot Hunting Evidence.



Photograph 19. Community Dump Site Number 2 Looking West.

E9510060.42

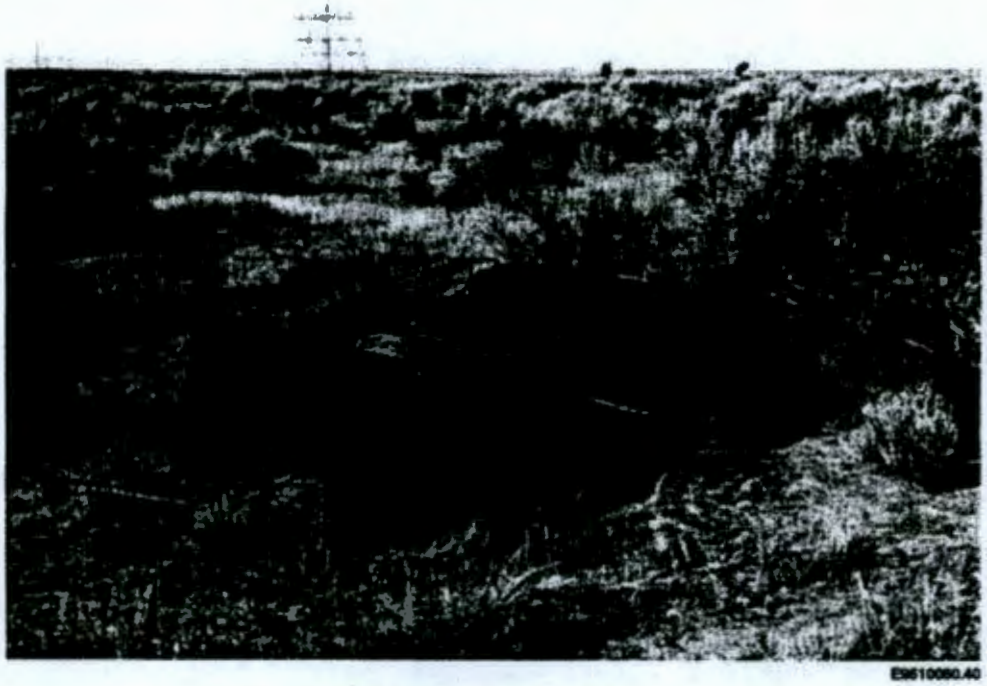
Photograph 20. Community Dump Site Number 2,
5-Gal Oil Can.

E9810080.41

Photograph 21. Community Dump Site Number 2 Looking Northeast, Farm Site at Trees in Background.

Photograph 22. Community Dump Site Number 2
Looking Northwest.

Photograph 23. Car Body at Community Dump Site Number 2 Looking Northwest.



Photograph 24. Community Dump Site Number 2, Evidence of Pot Hunting.

Photograph 25. Suspect Asbestos Insulation Looking Northwest.

E9510060.1

Photograph 26. Suspect Asbestos Insulation and Debris and Suspect Waste Disposal Trench Looking North.

E9510060.3

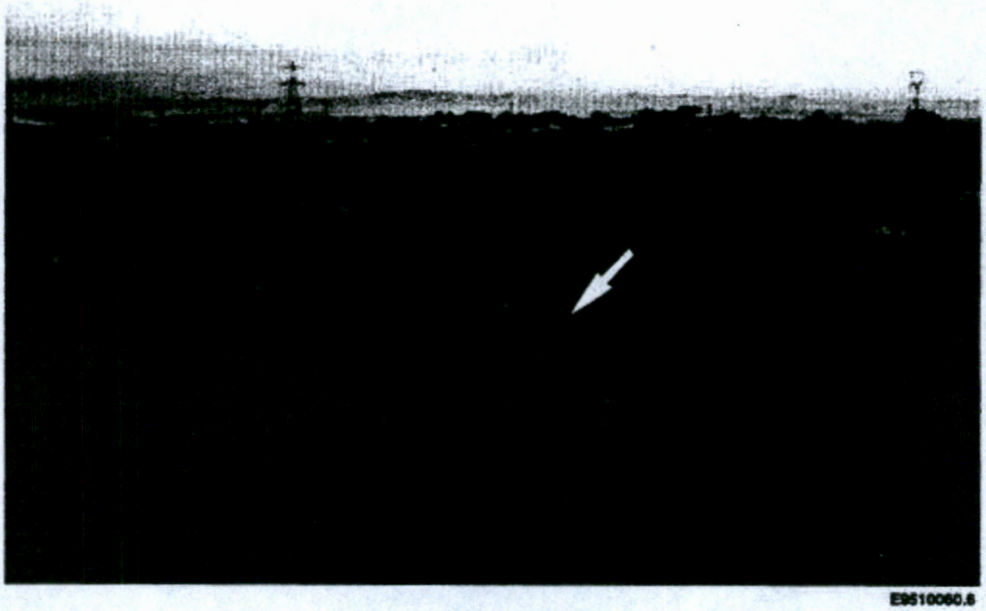
Photograph 27. Suspect Waste Disposal Trench.

E9510060.4

Photograph 28. Plumbing Debris Looking North.

E9510060.7

Photograph 29. Plumbing Debris Looking North.



Photograph 30. Bucket of Lead Site Looking East.

Photograph 31. Bucket of Lead.

Photograph 32. Loading Dock Looking West.

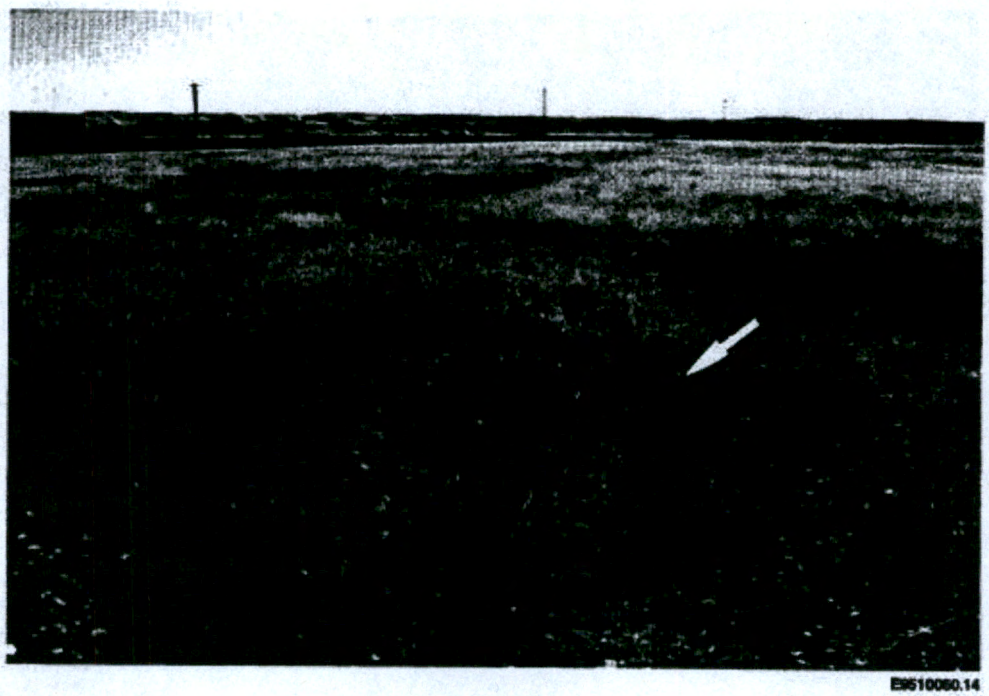
Photograph 33. Fuel Storage Area Looking Northeast.

E9510080.11

Photograph 34. Suspect Oil Contamination Spot Looking East.

E9510060.12

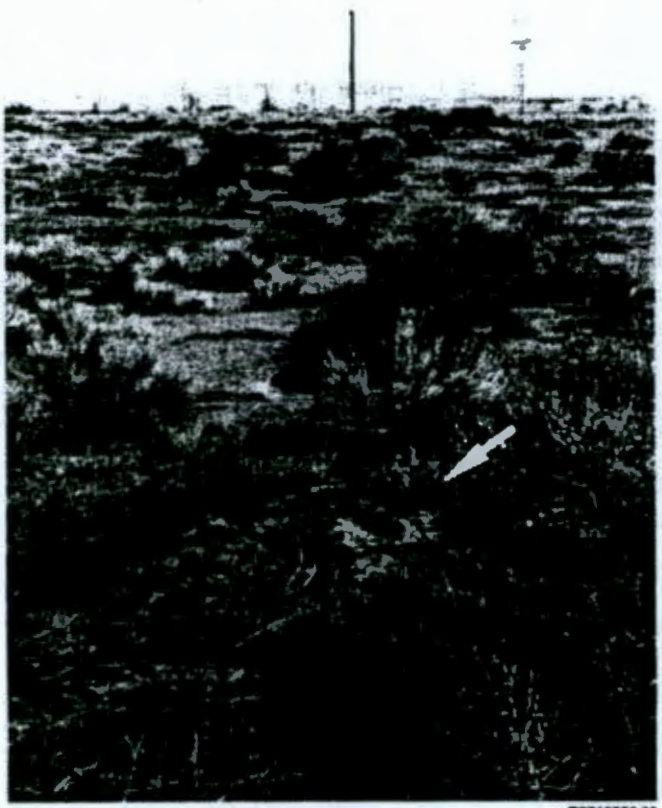
Photograph 35. Cistern Looking Southeast.



Photograph 36. Pipe Bender and Equipment Dumping Area Looking Northeast.

E9610060.9

Photograph 37. Oil and Oil Filter Dump Site Looking North.



E9810080.13

Photograph 38. Oil Dump Looking Northeast.

E9610080.15

Photograph 39. Burn Pile and Debris Looking Northeast.

EM510060.35

Photograph 40. Surface Basin and Pickling Acid Crib (arrow) in the Background Looking Northeast.

E9610060.36

Photograph 41. Burn Site and Paint Disposal Area Looking East.

E9610060.16

Photograph 42. Suspect Automotive Repair Shop Looking North.

Photograph 43. Original Priest Rapids Ice House Drain Field Looking Northeast.

E9610060.17

Photograph 44. Spare Parts Burning Pit Looking East.

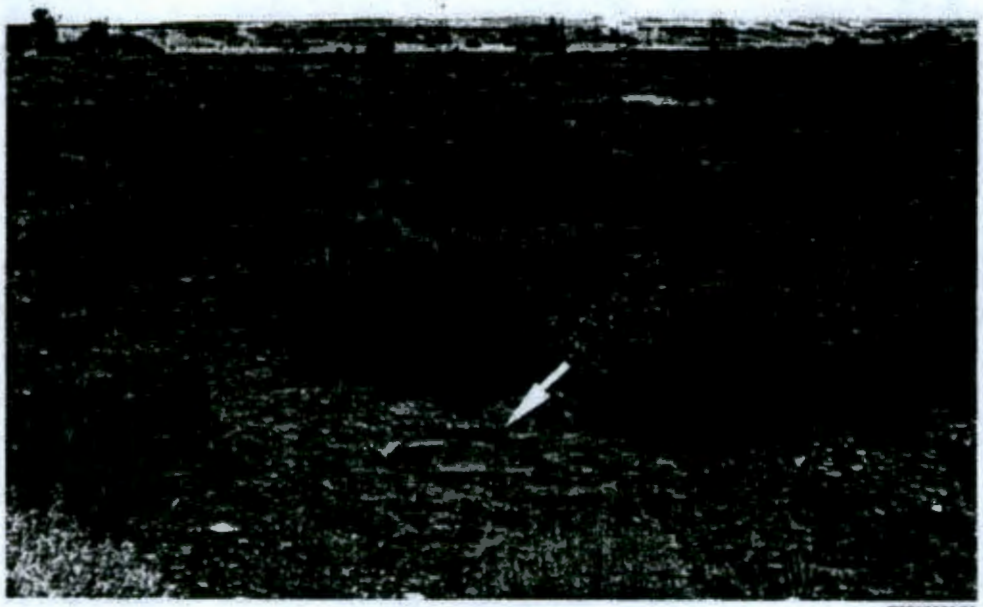
Photograph 45. Septic Tank - Ice House Looking Northeast (between posts).

E9810060.19

Photograph 46. Priest Rapids Ice House Looking Southeast.

E9610060.47

Photograph 47. French Drain or Dry Well Looking East.



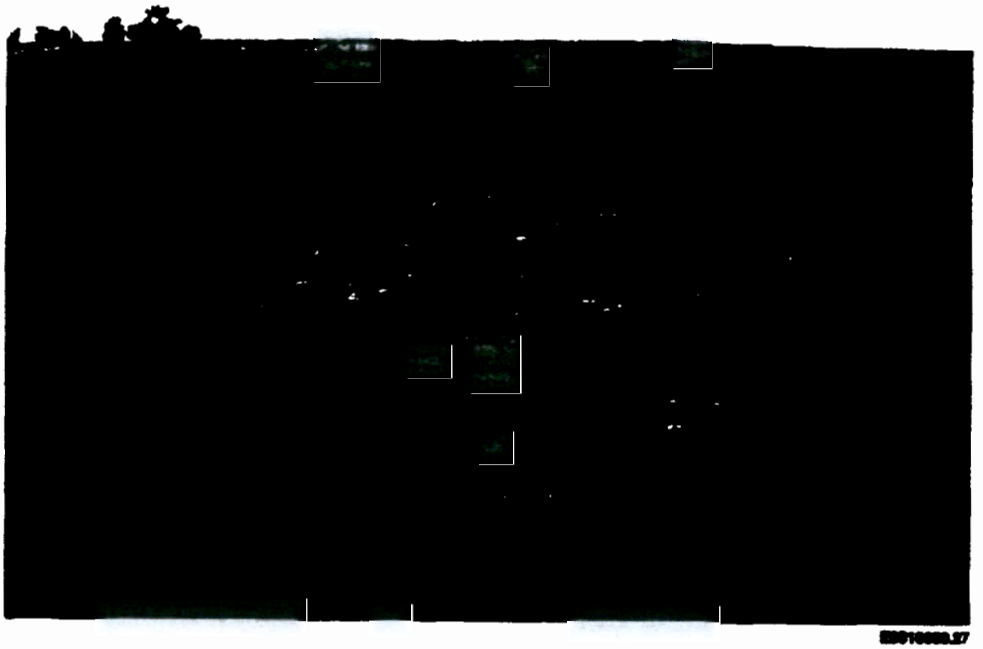
Photograph 48. TC-1.6 Typical Fumigation Chamber Looking Northeast.

Photograph 49. Spare Parts Machine Shop Landfill and Pit Looking Southwest.

Photograph 50. Spare Parts Machine Shop Landfill and Pit Looking West.

Photograph 51. Construction Contractor Shop Landfill Looking Southeast.

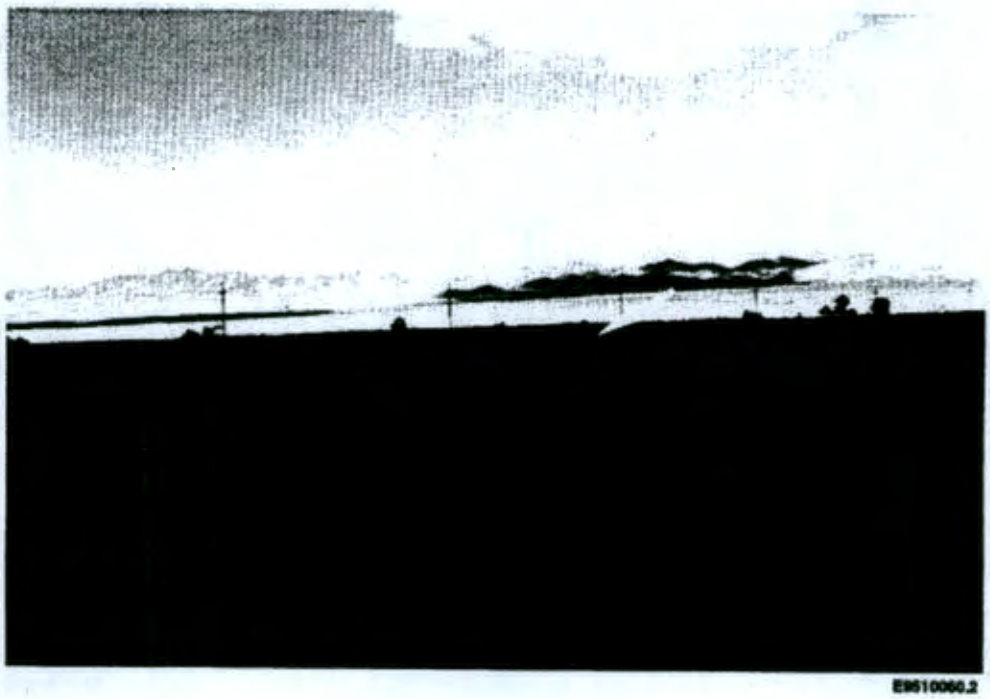
Photograph 52. Concrete Foundation Pad Looking West.



Photograph 53. Temporary Building Site Looking Southeast.

Photograph 54. French Drain Looking South.

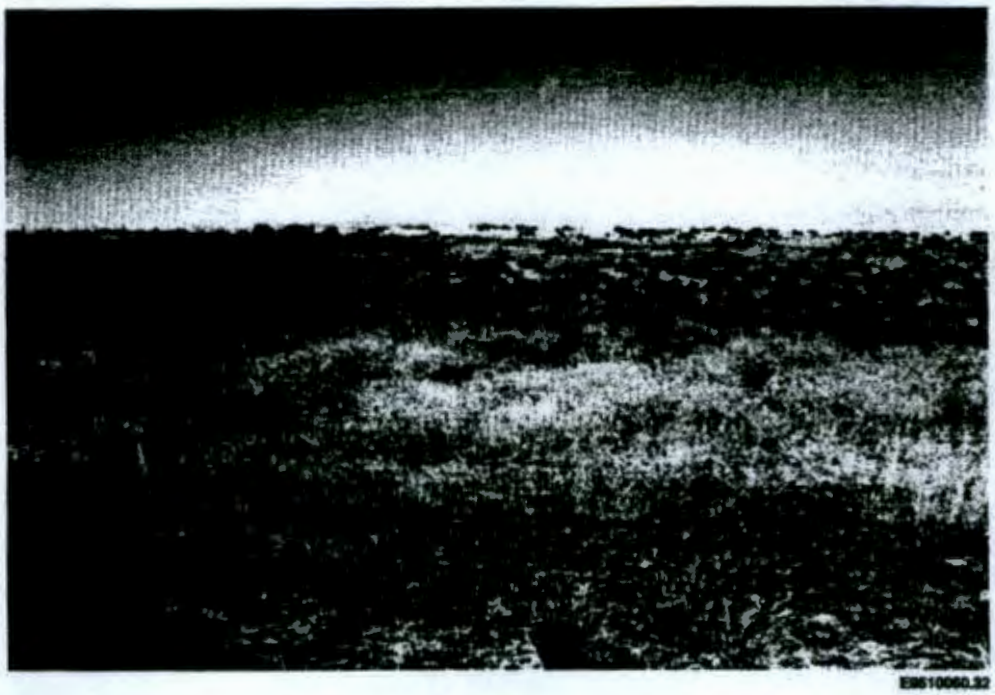
Photograph 55. Loading Dock and Well Looking North.



E9510060.2

Photograph 56. Water Station Tank Truck Loadout Looking East.

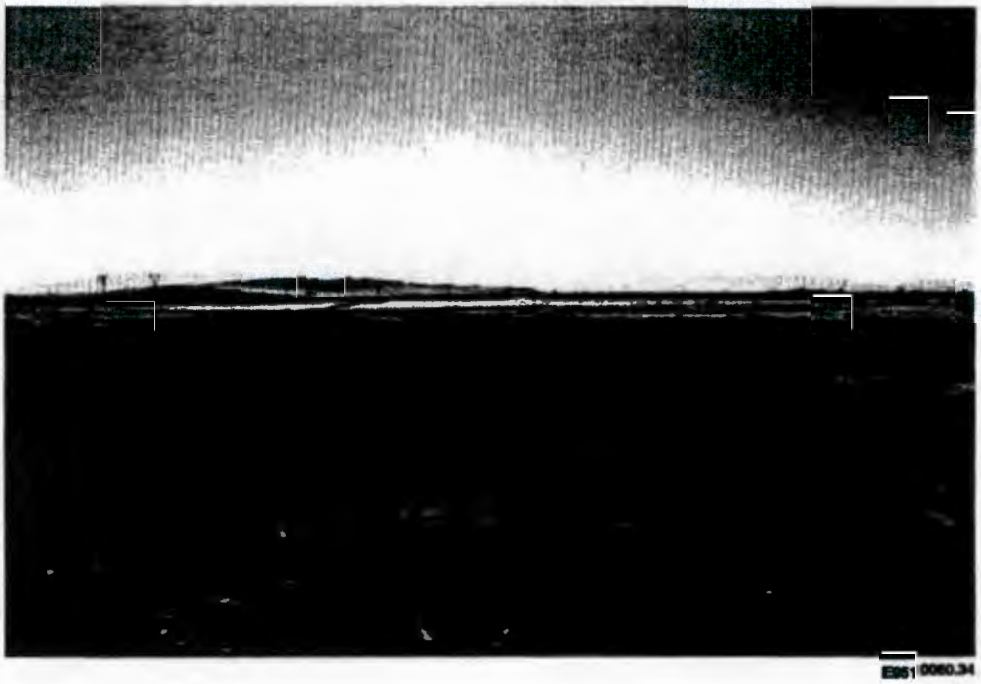
Photograph 57. Farm Dump Site Looking West.



Photograph 58. Farm Dump Site Looking West.
Closeup, Car Fender (see arrow).

Photograph 59. Partially Backfilled Pit Looking South.

Photograph 60. East White Bluffs City Landfill West of the Boat Landing Looking Southwest.



# APPENDIX C

## 3004 HISTORICAL REVIEW

NOTE: Names deleted, Privacy Act protection.

The history of Hanford can be divided into four parts: (1) Construction Period 1943 - 1946; (2) Expansion Period 1947 - 1959; (3) Diversification Period 1965 - 1967; and (4) Multiprogram Period 1967 - Present.

My assignment was to fulfill a DOE requirement to contact early project employees to discuss any known practices or spills concerning hazardous wastes or materials that could affect the environment. Interviews and investigations were conducted during the months of October, November and December, 1986.

The basis of our investigation was the CERCLA document and the BNW Phase I document. We were to note any items discovered that were not included in these documents. The areas included in our search are from Cold Creek Road (Route 11) from Hanford to Midway.

In the early stages of this endeavor, was brought on board to assist. His connections got us in touch with DOE's Real Estate people and some other DOE retired officials. Through these people we were able to obtain drawings. We then went to the Records Center and obtained additional drawings, pictures and prints.

acquaintance with old time Hanford-White Bluffs residents helped us obtain information about dumping practices before the Manhattan Project. Information obtained from these old timers indicated that waste from the old farm sites, as well as the communities of White Bluffs and Hanford, was either burned, or the unburnable material was either dumped over the riverbanks so that later floods washed the refuse down river, or dumped out in the sagebrush a fairly common practice in those days.

Information indicated that used oils were poured on the unpaved roads to eliminate dust and sand. 100-H Area had a used oil tank that was removed by a salvage contractor. 100-K Area has underground used oil storage with an opening (on the north side) near 1717-K .

We contacted the following old time employees for any information they could provide on any dump sites, spills or burial sites where hazardous materials could have been placed that are not included in the CERCLA or Phase I documents:

NAMES OF OLD TIME EMPLOYEES

Employed from 1943 - 1973 as an ironworker, Superintendent of the Hot Semi-Works, and as a General Superintendent of Riggers. Worked in all the 100 Areas. Interviewed on November 12, 1986.

Employed from 1943 - 1982 as a Principal Engineer. Worked in all the 100 Areas and 300 Area. Interviewed on October 27, 1986.

1/20/87 SKK

Authors: Larry Denton, Paul Buslach, WHC.
Document was input to CERCLA 300-4 U Report
"Hanford Site Waste Management Units Report" DOE/RL 88

NAMES OF OLD TIME EMPLOYEES - Continued

Employed from 1948 - Present as a Security Patrol Officer, Reactor Operator and Fuels Supervisor. Worked Plant wide. Interviewed on December 16, 1986.

Employed from 1947 - 1982 as a fireman for the Richland Fire Department. He was raised on the Benson Ranch at the base of Rattlesnake Mountain, then in later years owned the tavern at Hanford, left in 1941. Worked in the ship yards on the coast and returned in 1947 and worked in Richland for the Richland Fire Department. Interviewed on November 26, 1986.

Employed from 1947 - 1983 as a Property Control Specialist. Worked in all the 100 Areas. Interviewed on November 6, 1986. Then hired to work with to find and document all the waste sites on the Project.

Employed from 1944 - 1975 as a Process Supervisor. Worked in all the 100 Areas and 300 Area. Interviewed on October 30, 1986.

Currently employed with the Department of Energy as a Realty Specialist. He is responsible for overseeing all archeological sites on the Project. We are showing him different sites on the project that have archeological significance at the request of the Department of Energy. First interviewed on December 2, 1986.

Employed from 1946 - Present with Kaiser Engineering as a surveyor. He works plant wide. Loaned us the use of a compass and gave us the number for the newest maps. Interviewed on November 20, 1986.

Employed from 1947 - Present as an engineer. Worked in all the 100 Areas. Interviewed on December 18, 1986.

Employed from 1943 - 1981 as a Safety Engineer and in Fire Protection. Worked all over the whole project. Interviewed on December 9, 1986.

NAMES OF OLD TIME EMPLOYEES - Continued

Currently employed with Rockwell Hanford Operations as a 600 Area Landlord. Works plant wide. Interviewed on December 15, 1986.

Employed from 1952 - 1979 as an AEC/DOE Electrical Engineer. Mainly worked in the Federal Building. Interviewed on December 16, 1986.

Employed from 1943 - 1984 as a Millwright Maintenance Supervisor, and Maintenance Planner. Work in all the 100 Areas. Interviewed on December 16, 1986.

Employed from 1947 - 1980 as a Project Manager, Senior Engineer, Chief QI Inspector, and the Manager of Energy Conservation. Worked most 100 areas and at White Bluffs. Interviewed on December 8, 1986.

Employed from 1974 to present with J. A. Jones as a Field Manager. Worked in the 100 Areas and 200 Areas. Interviewed on November 5, 1986.

Currently employed with Rockwell Hanford Operations as a 600 Area Landlord. Works plant wide. Interviewed on December 15, 1986.

Employed from 1943 - 1956 as the Official Photographer for both Dupont and AEC. Worked plant wide. Interviewed on December 1, 1986.

Currently employed with the Department of Energy as a Realty Specialist. She is in charge of DOE real estate. Interviewed on November 5, 1986.

Employed from 1943 - 1982 as an AEC/DOE Public Relations person. Worked plant wide. Interviewed on November 3, 1986.

NAMES OF OLD TIME EMPLOYEES - Continued

Currently employed with Rockwell Hanford Operations as a 600 Area Landlord. Works plant wide. Interviewed on December 15, 1986.

Employed from 1946 - 1983 as the Manager, Rockwell Utilities. Worked plant wide. Interviewed on November 14, 1986.

Employed from 1943 - 1986 as the Manager, Spare Parts Control. Worked in all the 100 Areas. Interviewed on November 17, 1986.

Employed from 1943 - 1974 as an Automobile Maintenance Foreman. Worked plant wide. Interviewed on November 27, 1986.

Employed from 1943 - 1976 as a Reactor Operator. Worked in the 100 Areas and 300 Area. Interviewed on October 30, 1986.

Employed from 1943 - 1969 as a Maintenance Supervisor. Worked in all the 100 Areas. Interviewed on October 30, 1986.

Employed from 1946 - 1984 as an Assistant Fire Chief. Worked in all the 100, 200 and 300 Area Fire Stations. Interviewed on January 9, 1987.

Employed from 1943 - 1976 as a Maintenance Supervisor. Worked in all the 100 Areas. Interviewed on December 5, 1986.

Employed from 1944 - 1979 as an engineer and process supervisor. Worked in the 300 Area and all the 100 Areas. Interviewed on December 9, 1986.

NAMES OF OLD TIME EMPLOYEES - Continued

Employed from 1948 - 1983 as a Process Supervisor and a Maintenance Foreman. Worked in all the 100 Areas and 300 Area. Interviewed on October 30, 1986.

Employed from 1945 - 1978 as a Senior Engineer. Worked in all the 100 Areas. Interviewed on November 3, 1986.

Employed from 1964 - 1986 as a B.P.A. Substation Operation. Worked at Midway substation and other substations like 100-N, Ash Substation. Interviewed December 15, 1986.

From our memories and through interviews with the above employees and the information we were able to obtain from the drawings, photographs and prints obtained from the records center, the following sites were identified:

SITE NAME/DESIGNATION

**K Construction and Operational Dump**

Dump. Backfilled and uncovered miscellaneous scrap and transite. Take gravel road south of Allard Pump Building (road Patrol used to reach 100-K west railroad gate) head east 1/4 mile. Backfilled area between gravel road and old irrigation ditch. Uncovered scrap and transite is dumped in old ditch. In operation from 1950 to an undetermined time and the later users are unknown.

**Central Shops (DuPont) (Historical - 1)**

All purpose construction shop. Located south of present day 251 substation above present road site and before railroad was made to 200 East. See photos P-1899, P-1900 and P-1901 (notice the 200 North buildings in the background). In operation from 1943 - 1946. No waste site has been identified.

**Leisure Spur (Pierce Siding) (Historical - 2)**

Consisted of warehouses, riggers loft, staging area. Located south of Route 1, west of Route 2 North on all four corners of railroad track. Asmuth Marker N-71500 W-3200, Elev. 407.70. See Hanford Site Map 600 General H-6-951. In operation from 1943 to 1945. No waste site has been identified.

SITE NAME/DESIGNATION - Continued

Honey Dumps - Toilet Waste Dumps (Historical - 3)

Dumping and cleaning stations. Located one at the north end of West Lake; and one southeast of Hanford Construction Camp. Used for dumping and cleaning the tanks from portable toilets. In operation from 1943 to 1945. Received portable toilet chemicals and waste.

Riverland (Historical - 4)

First Hanford/White Bluffs Train Station. Located west of present highway 240, south of Vernita Bridge. The site had been exhumed at around 1970. In operation approximately 1943 to 1948. No waste site was located.

White Bluffs Central Shops Major Construction (Historical - 5)

Typical construction shops and warehouses. Located on both sides of Federal Avenue, south west of railroad tracks and Route 2 North. Blacktop streets among the industrial building structures. Waste oils were either dumped in pits or distributed on the streets to fix the dust and sand. Refuse from the garage was disposed of at the site. In operation from 1943 to 1952. Received spent acid from pipe shop pickle line, solvents from pipe and machine shop. Grease, oil, and solvents from garage, sewage from building complex.

White Bluffs Central Shops Minor Construction (Historical - 6)

Typical construction shops and offices. Located north of Route 2 North, adjacent to the H Area road (east). Blacktop streets remain. In operation from 1943 to 1952. Received industrial wastes. Some radioactive waste had been accumulated, but to the best of memory, it had been removed. All signs and/or barriers have been removed. Only clean waste is assumed to have been left in the pit and covered.

Archeological Digs at 100-N Area (Historical - 7)

Located upstream adjacent to WPPSS outfall. In June, 1973 the University of Idaho conducted an archeological dig upstream of the WPPSS outfall near 100-N Area.

Liquid Seep Ponds (L-600-1)

Waste Water Seepage. Located at original Camp Hanford. One pond for each fixed boiler house. In operation from 1943 to 1945. Received industrial and commerical waste common for the period.

SITE NAME/DESIGNATION - Continued

**White Bluffs Pipe Shop Pickle Solution Dump (L-600-2)**

Constructed by Atkins and Jones. Located directly south of where the White Bluffs ice plant was (about 500 yards) and east of Federal Avenue (about 300 yards). Many thousand gallons of sulfuric and nitric acid from the pickle process were pumped to trenches east of the shop and the old town dump, that is east of the current BPA transmission lines. This acid may not have always been completely neutralized. In operation from 1943 to 1955. The acid may or may not have gone through the septic tanks for the sewage (location is thought to be across road from old ice plant, inside old 4 x 4 posts.)

**White Bluffs City Dump (S-WB-1)**

Landfill. Located east of Bonneville main grid at White Bluffs, between Federal Avenue and Route 2 North, 100 yards east of power line. In operation from an unknown date to 1944. Received normal industrial, commercial, and domestic wastes common for the period. (Located adjacent to L-600-2).

**East White Bluffs Dumps (S-EWB-1)**

City Dumps. One located west of PNL boat sheds at White Bluffs Ferry Landing, 100 yards up riverbank from buildings to trees, and the other 100 yards east of the ferry slip. There is a Bonneville survey marker across river under the first galvanized tower that reads: 2660+750 Elev. 401. There are no apparent dumps on the north side of the river in the vicinity of the ferry landing. In operation from approximately 1900 to 1943. Received normal industrial, commerical, and domestic wastes common for the period.

**City Dump, Hanford (S-Hanford-1)**

Landfill, located south of Hanford Construction Camp between Route 2 South and east of Camp Hanford swim pond. In operation from an unknown date until 1943. Received normal industrial, commercial and domestic wastes common for the period.

**Hanford Trailer Camp Dump (S-600-1)**

Solid waste. Located northwest corner of the trailer camp, south of the 101 Building location. Pit remains. Trash has been covered at north edge of pit. In operation from 1943 to 1945. Received normal domestic wastes common for the period. (See Building 101 photos.)

SITE NAME/DESIGNATION - continued

101 Building Graphite Dump (S-600-2)

Plowed into ground when building was demolished. Remnants of site remain on surface. The 101 Building was used during the 1943-1944 construction program for machining graphite for the 100 Area. It was then declared surplus and partially dismantled. It was reconstructed for machining graphite in 1948. It was located on east road to 100 areas in 'v' caused by Hanford transmission line and road. West of Hanford High School. In operation from 1943 to 1945. Received graphite and building refuse.

Firing Range (S-600-3)

Patrol practice range. Located northeast end of Gable Mountain, approximately W2,265,000 and N462,000. Drawing 600 Gen H-6-951 Sheet 1 of 1. Shooting stand pads remain. In operation from 1943 until 1945. Received lead shell shot.

Construction Camp Landfill (S-600-4)

Trenches, backfilled. Approximately 115,000 square yards. (325 yards x 478 yards x 324 yards.) Various types of scrap appear on surface through out. (W2,263,000 by N425,000) Drawing 600 Gen H-6-951 Sheet 1 of 1. Railroad on west, pit on southwest corner, trees on southwest corner, gravel road on west, gravel road on north. In operation from 1943 to 1948. Received commerical and industrial wastes common for the period.

Spare Parts Burn Pit (S-600-5)

Dug out pit. Located under present Bonneville line 100 yards southeast of Federal Avenue. 300 yards southwest of Route 2 North. It is hard to locate. Ashes remain on surface. In operation from 1943 until 1948. Received normal industrial and commercial wastes (oils, solvents, etc.).

Spare Parts Machine Shop Landfill (S-600-6)

Gravel pit. Located between White Bluffs and East White Bluffs, west of Federal Avenue, south of export line. The telephone line goes through the center of the pit. It is horseshoe shaped. Burial traces appear at edges. Received industrial wastes, mostly metallic.

Midway Landfill (S-600-7)

Buried open pit dump. Located south of main Midway road, one dump is located on the east side of Midway Village, and the other is located on the west side of the Midway Substation. Normal domestic waste is disposed of in these dumps. In operation from 1943 to 1984. Received normal domestic wastes.

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SITE NAME/DESIGNATION - Continued

Sodium Dichromate Drum Dump (S-600-8)

Landfill. Located between D&H Areas. Take old road from D east badgehouse to H badgehouse, at export line turn left 200 yards. It is 100 yards over hill to the west. It is backfilled, some drums and debris are exposed. In operation from 1945 to present. Received steel drums with sodium dichromate residue.

Construction Contractor Shop Landfill (S-600-9)

Open pit. Located north of shops, south of water station. Pit was filled to mound. Approximately 75' x 90'. It was contaminated and cleaned out. Solidly responds to metal detector search. White Bluffs. In operation from 1943 to 1948. Received shop waste. Was contaminated and cleaned out. But CHECK IT OUT.

100-B/C Southeast Burn Pit (S-600-10)

Spark-proof cage over open pit. Located east of 105-C, north of C railroad track. Yellow posts mark entry. Pit was backfilled, although some debris remains scattered on the surface. In operation from 1943 to 1948.

P-11 Test Site (S-600-11)

Laboratory - Contaminated. P-11 test site was located between 100-F and old Hanford (W24791.25, N63194.06 Elev. 394.4). It was a 200 Area experiment using Plutonium. They had a criticality problem which resulted in a contamination spread. The area was fenced off for a long time, then in 1974 everything was dug up and buried in 200 West Area and the area cleaned and backfilled. In operation from 1943 to 1974.

White Bluffs Historical Area Dump (S-600-12)

Dump. Located south shore of river adjacent to Locke Island. Residential and industrial materials on surface and protruding from the ground. Received general and typical wastes (i.e. transite siding, iron, glass, and wood.)

Archeological and Historical

There are areas of a very sensitive nature on the Project. It is very important that all excavations and/or construction be approved by responsible landlords who in turn will act consistant with DOE guidelines.

Another site identified is the Allard Pump Plant, a Hanford Irrigation District old pumphouse, located on the riverbank between 100-K and 100-B Areas. DOE has indicated it is on the historical register, and before any work can be done to these facilities, DOE's concurrence must be obtained.

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General Synopsis of Persons Interviewed

Radiological records are very accurate, one exception could be that the 105-DR gas loop site does not extend far enough.

All disposal practices were ahead of their times and for the most part well documented.

Some documents that could benefit this endeavor have been disposed of by the document center. An in depth search of all records could possibly verify extrapolated figures.

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