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U.S. Army Toxic and Hazardous Materials Agency

Task Order 2 Enhanced Preliminary Assessment

FORT DOUGLAS
SALT LAKE CITY, UTAH

Contract Number DAAA15-88-D-0007

December 1989

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U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, Maryland 21010-5401

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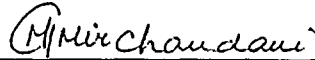


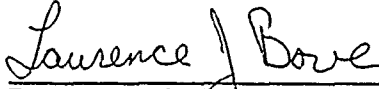
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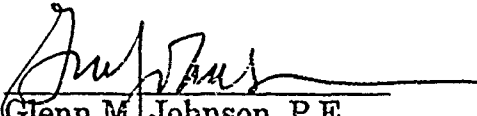
USATHAMA Task Order 2
ENHANCED PRELIMINARY ASSESSMENT REPORT

FORT DOUGLAS
SALT LAKE CITY, UTAH

Contract Number DAAA15-88-D-0007


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19. ABSTRACT (Continue on reverse if necessary and identify by block number) An enhanced preliminary assessment (PA) was conducted at Fort Douglas (FD) under the Base Closure Program. FD is an active military installation located in Salt Lake City, Utah. The Fort consists of the U.S. Army and Navy Reserve Centers, family housing units, a military museum, a chapel, clubs, swimming pool, a cemetery and various other support buildings. 50.8 acres of the 119 acres owned by FD are proposed to be excessed. Based on information obtained during the onsite visit and from available drawings and reports, three environmentally significant operations (ESOs) have been identified. These include asbestos, radon and transformers. No immediate action has been recommended for any of the ESOs. Site investigations have been recommended for asbestos and the transformers. A radon sampling program is currently underway at FD. This radon sampling program is being conducted by Fort Carson; the results should be evaluated as they become available, and the appropriate actions taken.			
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 - Base Closure Program
 - Fort Douglas (FD)
 - Environmentally Significant Operations
 - Sampling
 - Asbestos
 - Transformers
 - Radon

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE



DISCLAIMER

This Enhanced Preliminary Assessment report is based primarily on the environmental conditions observed at Fort Douglas, Salt Lake City, Utah, during the period 6 November through 8 November 1989. Past site conditions and management practices were evaluated, based on readily available records and the recollections of people interviewed. Every effort was made, within the scope of the task, to interview all identified site personnel, especially those personnel with a historical perspective of site operations.

No environmental sampling was conducted as part of the assessment. The findings and recommendations for further action are based on WESTON's experience and technical judgment, as well as current regulatory agency requirements. Future regulations as well as any modifications to current statutes may affect the compliance status of this site.

WESTON does not warrant or guarantee that the property is suitable for any particular purpose or certify any areas of the property as "clean." A more thorough investigation, including intrusive sampling and analysis for specific hazardous materials, is recommended prior to reporting this property as excess.

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Executive Summary

EXECUTIVE SUMMARY

BACKGROUND AND OBJECTIVES

This Enhanced Preliminary Assessment (PA) report has been prepared by Roy F. Weston, Inc. (WESTON) at the request of the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) pursuant to Contract DAAA15-88-D-0007, Task Order 2. The purpose of the enhanced PA report is to present WESTON's findings concerning the environmental conditions at Fort Douglas (FD), located in Salt Lake City, Utah, and to provide recommendations for further action. It should be noted that only 50.8 acres of the 119 acres owned by FD are proposed to be excessed by the Army [R-8]. This PA is, therefore, limited to those 50.8 acres.

The objectives of the enhanced PA were to:

- Identify and characterize environmentally significant operations (ESOs) associated with the current and historical use of the FD property.
- Identify and characterize possible impacts of the ESOs on the surrounding environment.
- Identify additional environmental actions, if any, that should be implemented for the ESOs identified.

Information contained in this enhanced PA report was obtained through:

- Visual inspection of the facility.
- Review of available Army documentation.
- Review of related regulatory agency files at the state and federal levels.
- Interviews with current employees at FD.

GENERAL PROPERTY DESCRIPTION

FD is an active military installation containing approximately 119 acres. The installation is situated at the mouth of Red Butte Canyon and is adjoined on the west and north by the University of Utah property. The Wasatch Mountains are located immediately east of the installation.

The portion of the property to be excessed includes:

- FD Military Museum.
- FD Cemetery (proposed).
- Thirty-nine family housing units.
- A chapel.

- An Officers Club.
- An NCO Club.
- Swimming pool with an associated water treatment building and bath house.

Most of the buildings in the area to be excessed are included in the National Register of Historical Places. The stone buildings included in the National Register were erected between 1874 and 1876 using sandstone quarried in the Red Butte Canyon [R-1].

ESOs identified on the property include:

- Asbestos - Asbestos or asbestos-containing materials (ACMs) are suspected to be present in every building in the area to be excessed.
- Radon - A radon survey is currently on-going and preliminary results have identified radon in the various buildings at FD.
- Transformers - Between one and three pole-mounted transformers are present at each of 14 locations throughout the property to be excessed. It is not known whether any of these transformers have had their fluids tested for polychlorinated biphenyls (PCBs) content.

Figure ES-1 shows a site plan of the facility with the buildings and the ESOs marked.

HUMAN AND ENVIRONMENTAL RECEPTORS

FD is located on the western slope of the Wasatch Mountains. The facility is largely paved and well maintained. The only water body near FD is Red Butte Creek, which is located less than 500 ft to the southeast. Red Butte Creek is no longer used for human consumption. However, because Red Butte Creek eventually empties into Liberty Park Lake, there is still a potential for impact on aquatic life and predators and impact to humans derived from consumption of fish which may bioaccumulate some contaminants. Use of surface water for human recreation may also provide an exposure pathway. However, the likelihood of significant contaminant concentrations reaching surface water exposure points is minimal.

All potable water to FD is supplied from Salt Lake City. The predominant source of water serving FD is the Parleys Canyon Water Treatment Plant (WTP). Some water may also be supplied from Big Cottonwood Canyon WTP and Deer Creek WTP.

Storm water runoff is currently diverted through underground storm drains toward Salt Lake City. Any past spills would have been washed into either Red Butte Creek or the city storm drains. Due to the topographical gradient, spills taking place outside the excessed area would tend to migrate further away from the excessed area. No on-going discharges of surface contaminants

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U.S. Army Toxic and Hazardous Materials Agency

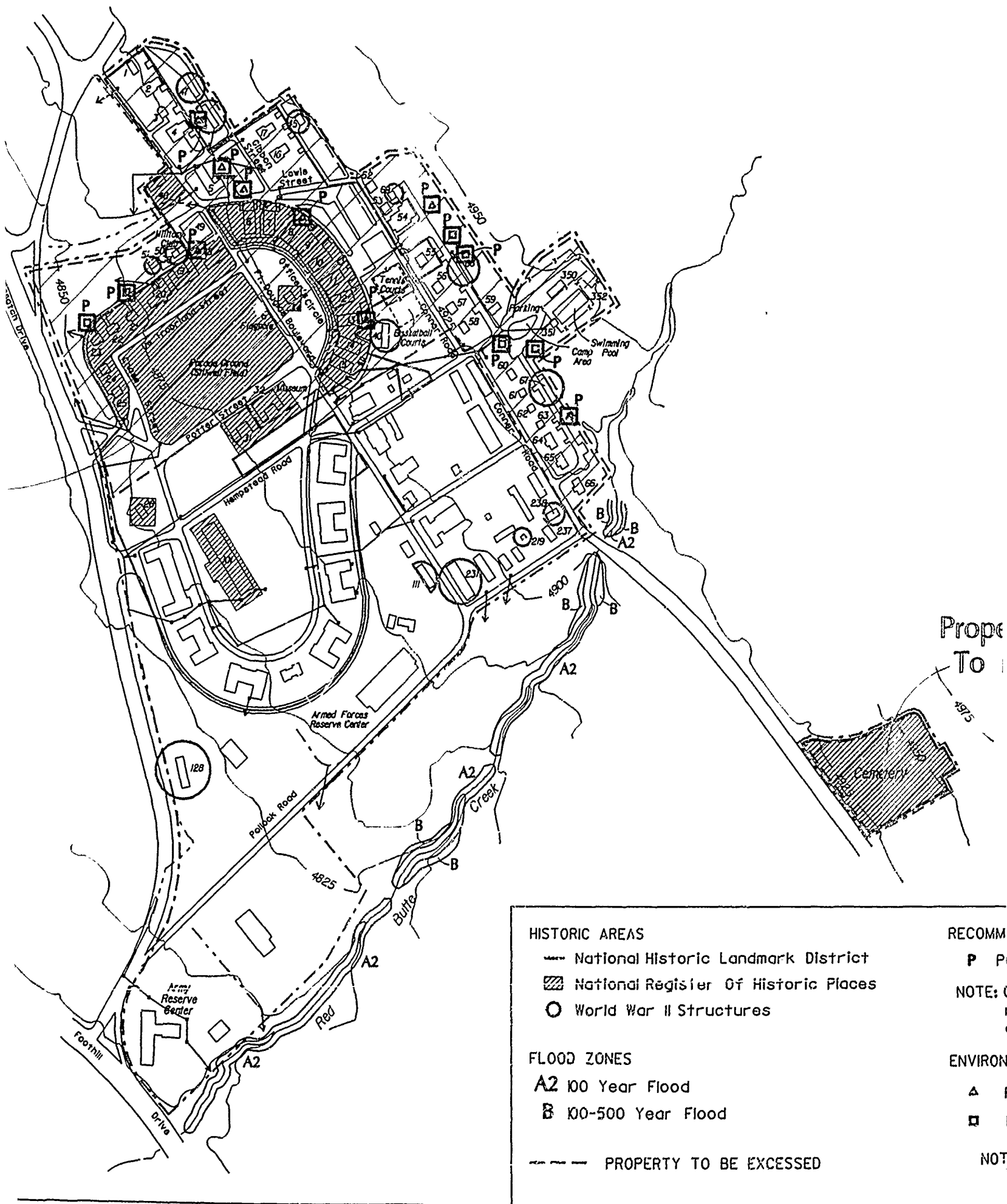
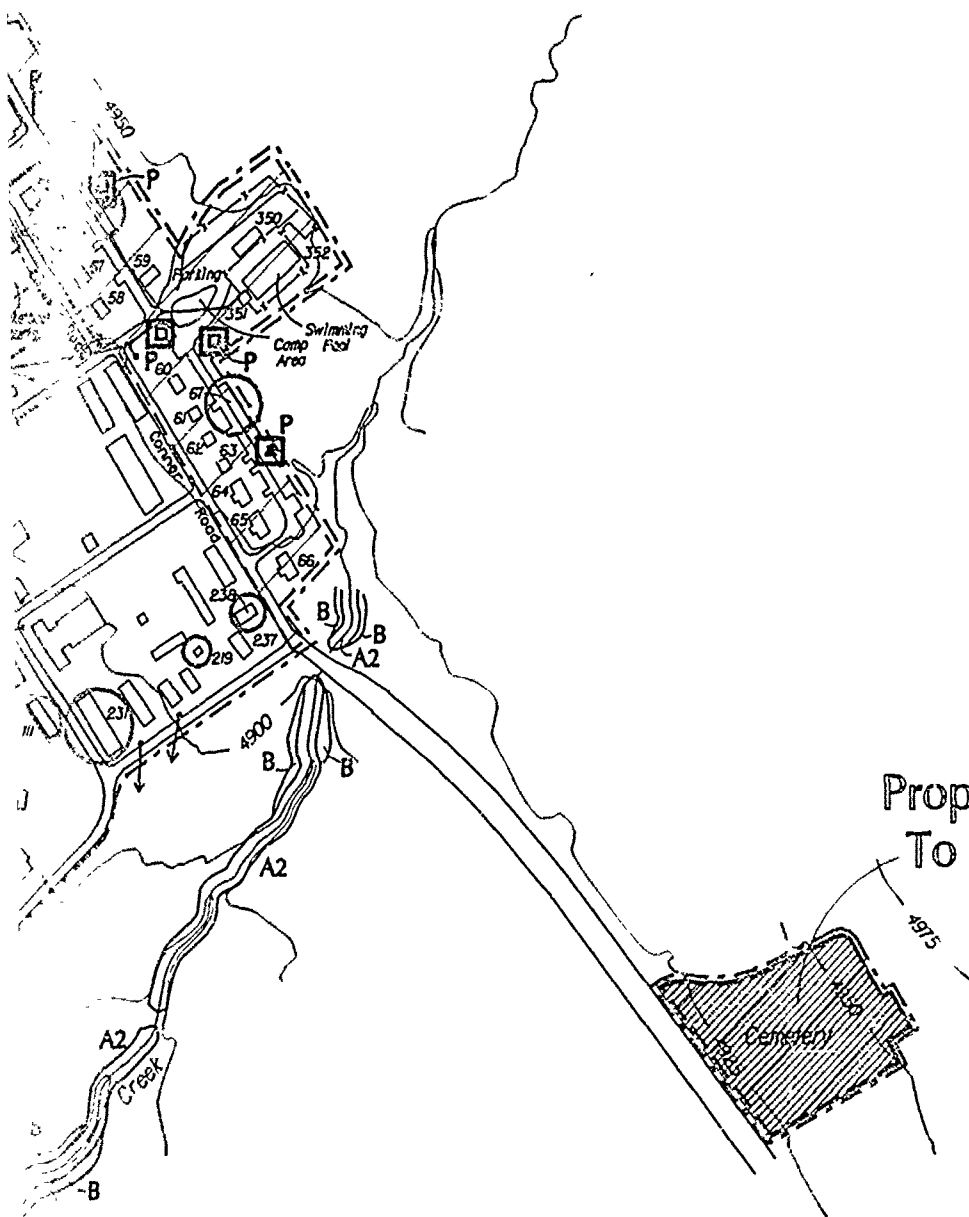
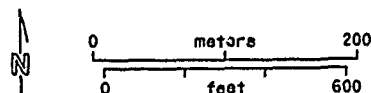


Figure ES-1 Property Information Composite

(Contour Interval 25 feet)

Compiled in 1989 from various sources
provided by the U.S. Army Toxic and
Hazardous Materials Agency



Property Proposed
To Be Excessed

HISTORIC AREAS

- National Historic Landmark District
- ▨ National Register Of Historic Places
- World War II Structures

FLOOD ZONES

- A2 100 Year Flood
- B 100-500 Year Flood

--- PROPERTY TO BE EXCESSED

RECOMMENDED SAMPLING METHODS

- P PCB Sampling

NOTE: Comprehensive asbestos sampling
recommended throughout
area to be excessed.

ENVIRONMENTALLY SIGNIFICANT OPERATIONS

- ▲ PCB-Labelled Transformer
- ▣ Unlabelled Transformer

NOTE: All buildings suspected of
containing asbestos.



were apparent during the site inspection. No significant impact on human and environmental receptors from surface water or surface runoff is expected from the excessed area.

Infiltration and percolation of water from surface sources is minimized by the extensive paving in the area to be excessed and FD as a whole. The presence of underground storage tanks (USTs) and certain maintenance operations in graveled areas in the area to be retained (as described in Section 3) may influence groundwater quality. Soil is located throughout the excessed area around the buildings and parking lots of the site. It is not known to be contaminated. The soil should not pose a risk via inhalation or direct contact exposure to personnel working in this area.

Any unwrapped asbestos insulation on the hot water pipes in the buildings of the excessed area would be a potent source of air contaminants. These contaminants would impact human and environmental receptors. Radon is a potential air contaminant for personnel in some buildings.

There are no wildlife refuges or wetlands within 5 miles of the facility. The only known endangered species is the peregrine falcon that has been observed approximately 4 miles from FD. The nearest sensitive environment is the Red Butte Canyon, located less than a mile to the northeast.

CONCLUSIONS AND RECOMMENDATIONS

No conditions were observed on the property that appear to represent an immediate threat to human health or the environment. However, the preceding ESOs have the potential to affect human health or the environment. The ESOs, associated concerns, and recommendations are summarized in Table ES-1 and the following subsections.

ASBESTOS

A comprehensive asbestos sampling program is recommended because asbestos or ACMs are suspected to be present in every building throughout the area to be excessed. All known exposed friable asbestos should be removed or encapsulated. In addition, ambient air sampling for asbestos is recommended in the various buildings known to contain friable material.

RADON

A radon sampling program is currently underway. Long-term detectors are located at 286 locations throughout FD. No immediate investigation is required. The results from these detectors should be analyzed as they become available, and the appropriate actions taken.

Table ES-1
ESOs Identified At FD And Recommendations For Further Action

ESOs	Concern	Recommended Activity	Estimated Number and Type of Samples	Analysis
Asbestos	Inhalation	Remove or encapsulate known exposed friable asbestos. Comprehensive asbestos sampling throughout site. Ambient air sampling inside all buildings.	75 - 150 Air Samples 100 - 300 Solid Samples	Asbestos
Radon	Inhalation	No immediate investigation. Wait for results of long-term radon detectors and take appropriate action.	NA	NA
Transformers	Contact	Sample transformer fluid.	30 to 40 Oil Samples	PCBs

TRANSFORMERS

Transformers at eight locations are labelled as containing PCBs. However, in the absence of analytical data, transformers at six other locations should also be considered as potentially containing PCBs. All of these transformers should have their transformer-oil sampled and tested for PCBs. Because there are between 1 and 3 transformers at each of the 14 locations, the estimated number of oil samples is between 30 and 40.

Section 1

Introduction

SECTION 1

INTRODUCTION

1.1 BACKGROUND

Roy F. Weston, Inc. (WESTON) has been retained by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) to conduct waste site characterizations of specific Department of Army properties under the authority of Contract DAAA15-88-D-0007, Task Order 2. This work is being performed within the scope of the U.S. Army Installation Restoration Program (IRP). As part of this contract, WESTON has also been asked to prepare enhanced preliminary assessment (PA) reports of selected properties destined to be included as part of the Base Closure Program. The purpose of these enhanced PA reports is to present WESTON's findings concerning the environmental conditions at the properties and to provide recommendations for further action. The recommendations will serve as a guide to the U.S. Army in prioritizing the activities required to report these properties as excess.

This report discusses the enhanced preliminary assessment of Fort Douglas (FD) located in Salt Lake City, Utah. It should be noted that only 50.8 acres of the 119 acres owned by FD are proposed to be excessed by the Army [R-8]. This assessment is, therefore, limited to those 50.8 acres. WESTON conducted a site visit to FD on 6 November to 8 November 1989.

1.2 OBJECTIVES

This enhanced PA report was prepared using existing information obtained from property records and interviews with current employees. No sampling activities were completed as part of the assessment.

The objectives of the PA were as follows:

- Identify and characterize environmentally significant operations (ESOs) associated with the current and historical use of the FD property.
- Identify and characterize possible impacts of the ESOs on the surrounding environment.
- Identify additional environmental actions, if any, that should be implemented for the ESOs identified.

Certain issues have been excluded from consideration as ESOs for the purposes of this report. First, painted surfaces will not be identified as ESOs solely because there is a potential for their containing lead. Second, drinking water will not be designated as an ESO solely because there is a potential for lead contamination due to piping solder or piping materials.

1.3 PROCEDURES

The information contained in this enhanced PA is based on the following data-gathering activities:

- Visual inspection of facility.
- Review of available Army documentation.
- Review of U.S. Environmental Protection Agency (EPA) Region VIII files.
- Contact with Utah Bureau of Water Pollution Control.
- Contact with Utah Bureau of Air Quality.
- Contact with Utah Bureau of Solid and Hazardous Waste.
- Contact with Utah Bureau of Drinking Water.
- Interviews with FD employees.

1.4 REPORT FORMAT

This enhanced PA report presents an evaluation of the relevant data for the FD property.

Section 2 describes the property and the surrounding environment and land uses. Section 3 identifies and characterizes all ESOs related to known and suspected releases to the environment. The potential impact of the ESOs on the local environment and human receptors is discussed in Section 4. Section 5 summarizes the findings and conclusions, discusses the quality and reliability of the supporting information, identifies areas requiring further action, and suggests how such actions may be accomplished. Section 6 lists the pertinent materials reviewed and the agencies that were contacted. Several photographs taken during the site visit are provided in Section 7. Supporting documentation is provided in Appendices A through E.

References are presented throughout this report, where appropriate, by means of a letter and number designation in brackets, as follows: I refers to Direct Interviews; T refers to telephone conversations; and R refers to Reports or other written documents. The number following the letter refers to the specific item in the respective lists provided in Section 6.

Section 2

Property Characterization

SECTION 2

PROPERTY CHARACTERIZATION

2.1 GENERAL PROPERTY DESCRIPTION AND HISTORY

FD is an active military installation situated on approximately 119 acres. It is located in Salt Lake City on the western slope of the Wasatch Mountains. Figure 2-1 presents a location map of the area. General information on the property is summarized in Table 2-1.

According to information obtained from the Installation Assessment Report, Camp Douglas was established on 26 October 1862, near Salt Lake City, Utah, primarily to protect the Overland Mail and Telegraph lines from Indians and Mormons [R-1]. Camp boundaries in 1862 were said to include approximately 2,560 acres. In the 1860s, off-duty soldiers were allowed to prospect in the area, and their discoveries aided the developing mining industry. Figure 2-2 shows an early hand-drawn map of FD [R-1]. In the 1870s, the hastily constructed, dilapidated wooden buildings on Camp Douglas were replaced by new stone buildings. After this rebuilding program occurred, the post was officially redesignated Fort Douglas in 1878.

Between 1904 and 1910, a second major building program occurred on post. Thousands of new recruits were trained at FD. The post also served as a prisoner-of-war (POW) facility for German prisoners. Following the end of World War I, FD was nearly abandoned. In 1921, no troops were stationed on post. However, legislation proposing abandonment of FD did not pass in the U.S. Congress, and FD was again opened on 5 June 1922. That same month the 38th "Rock of the Marne" Infantry, a famous fighting group in France during World War I, was stationed at FD and remained there until 1940.

A third building program began in 1928. Part of this program involved construction of the Red Butte Dam. A fourth extensive construction program occurred in 1941, prior to United States' involvement in World War II. The December 1941 bombing of Pearl Harbor led to the transfer of the Ninth Service Command (regional headquarters) from its more vulnerable location in San Francisco to FD. When World War II ended, all activities were curtailed, and the Ninth Service Command returned to the Presidio of San Francisco. In November 1946, FD became headquarters of the Utah, Idaho, and Montana Military District. By 1948, the U.S. Government decided that FD was too small for its needs and much of FD's property was turned over to the War Assets Administration for disposal. By October 1949, the post consisted of only 7,300 acres, including the older buildings, a 100-acre cemetery, and the Red Butte Canyon Reservoir, and had only 150 persons stationed on base.

Although FD has not served as an active military training base since World War II, it has increased in importance as a reserve and ROTC training center since the Korean Conflict. During the Korean Conflict, activity did not increase, although it served as an induction center.

U.S. Army
Base Closure Preliminary Assessment
Fort Douglas
Salt Lake City, Utah — November 1989

FIGURE 2-1
PROPERTY LOCATION

Property boundary shown in red. Base map image is from the USGS 7.5' Series quadrangles *Fort Douglas* and *Sugar House, Utah*, 1963 (PR 1969 and 1975).

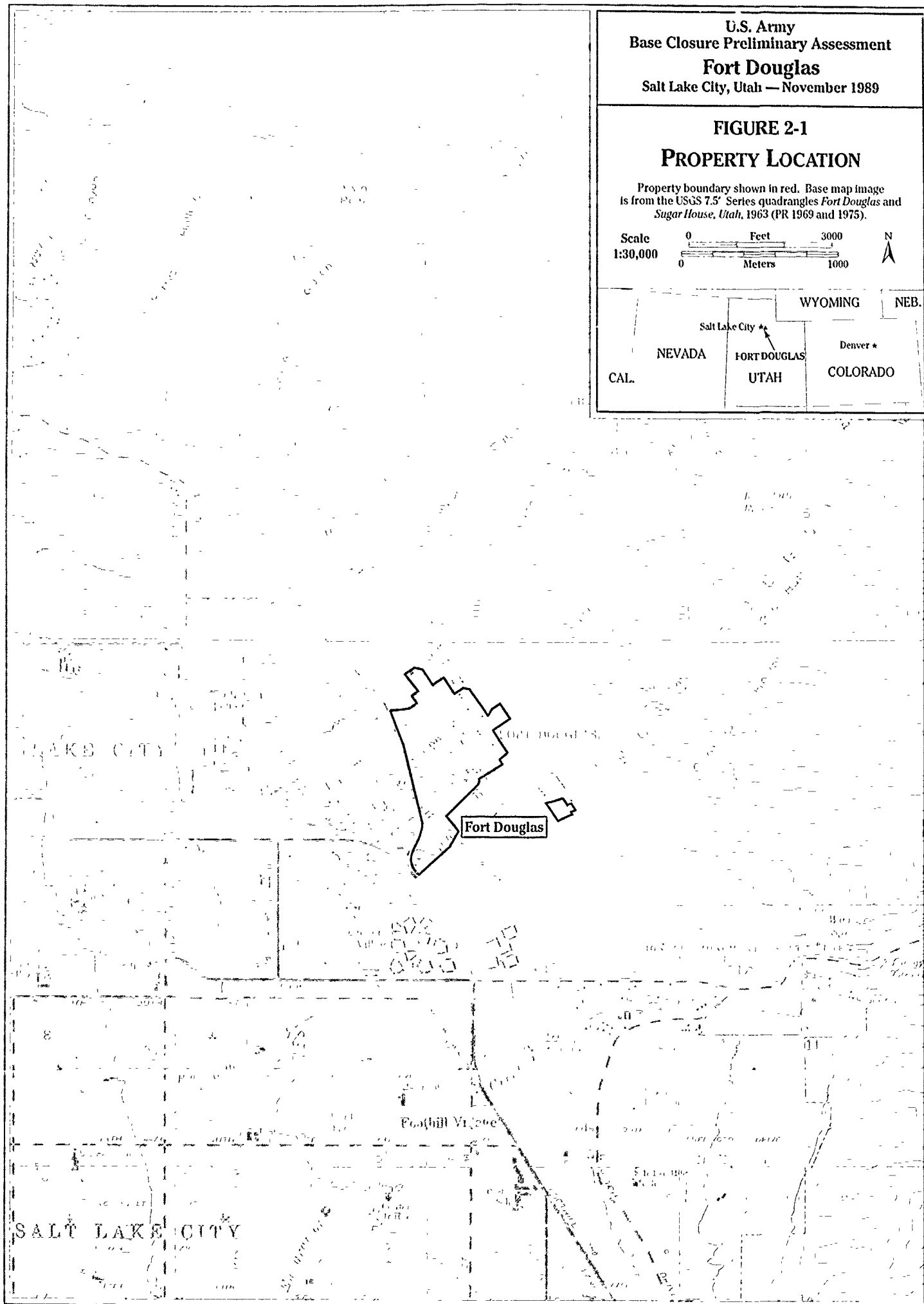
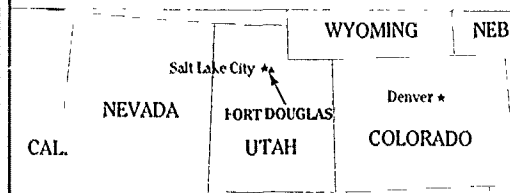




Table 2-1

Property Information Summary

Name: Fort Douglas (FD)

Property Number: 49275

FFIS: UT - 214020278

Facility Address: ATTN: AFZC - D - DEH
Fort Douglas
Salt Lake City, Utah 84113-5001

Commanding Officer: Colonel Stacy E. Reeves

Location: FD is located at the eastern end of Salt Lake City. The installation is situated at the mouth of Red Butte Canyon and is adjoined on the west and north by the University of Utah. The Wasatch Mountains are located immediately east of the installation.

Installation Coordinates: 40°46" N 111°50" W

Size: Approximately 119 acres (50.8 acres to be excessed)

Mission: As a subinstallation of Headquarters, Fort Carson and 4th Infantry Division (mechanized), FD's primary mission is to:

1. Provide support to assigned, attached, or tenant units or activities, including on post and offpost units or activities, unless such support is specifically assigned to another command.
2. Administer, operate, and maintain all installation facilities at FD and Headquarters, Fort Missoula (FM), a subcommand of FD, and provide necessary administrative and logistical support to assigned units, permanent station complement personnel, tenant activities, Army National Guard, Reserve Officer's Training Corps (ROTC), and U.S. Army Reserve (USAR) units during annual training.
3. Provide designated administrative and logistical support and services to Active Army, Reserve Components, and other Department of Defense (DOD), activities within the assigned geographical area [R-1].

Operations: Although FD has not served as an active military training base since World War II, it has increased in importance as a reserve and ROTC training center since the Korean Conflict. The Fort currently serves as a U.S. Army Support Detachment, and the National Guard and Reserves use the post extensively.

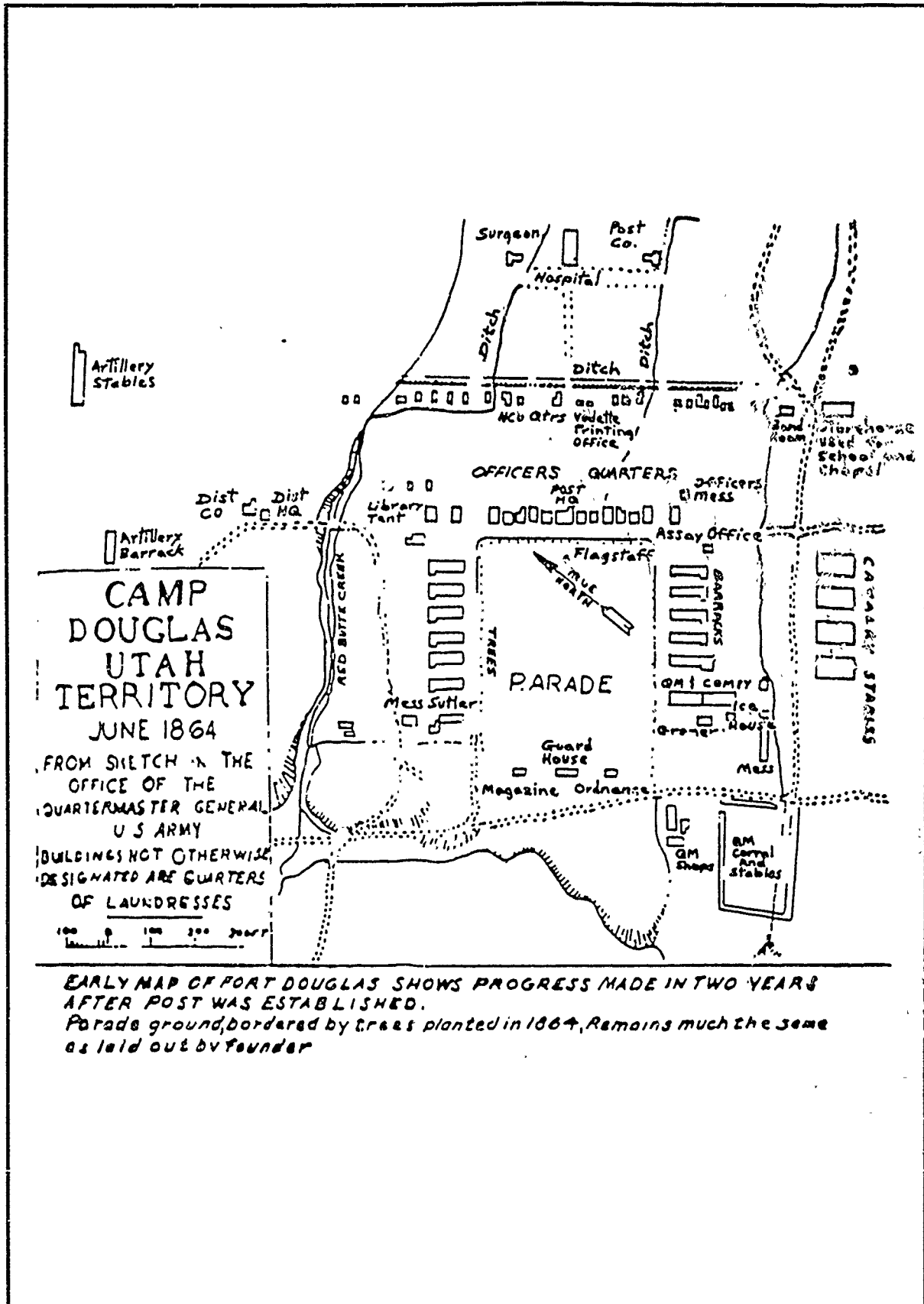


FIGURE 2-2 1864 MAP OF FORT DOUGLAS

A comparison of Figure 2-2 and the current site map (Figure 2-3) suggests that the housing area, which is the area to be excessed, has always been used for the housing of personnel.

Most of the buildings in the area to be excessed are included in the National Register of Historical Places (Figure 2-4). The stone buildings included in the National Register were erected between 1874 and 1876 using sandstone quarried in the Red Butte Canyon [R-1].

2.2 DESCRIPTION OF FACILITIES

The present size of FD is 119 acres. A partial list of land transfers is available that details the transferor, transferee, date of transfer, and the acreage involved through May 1962 (Appendix D). Since that time, slightly less than 7,000 acres have been transferred, mainly to the U.S. Forest Service and the University of Utah's Research Park [I-2], resulting in the Fort's present size. Photo 1 shows the entrance to FD. Approximately 68 acres of FD is to be retained by the Army.

The portion of the property to be excessed includes:

- FD Military Museum.
- FD Cemetery (proposed).
- Thirty-nine family housing units.
- A chapel.
- An Officers Club.
- An NCO Club.
- Swimming pool with an associated water treatment building and bath house.

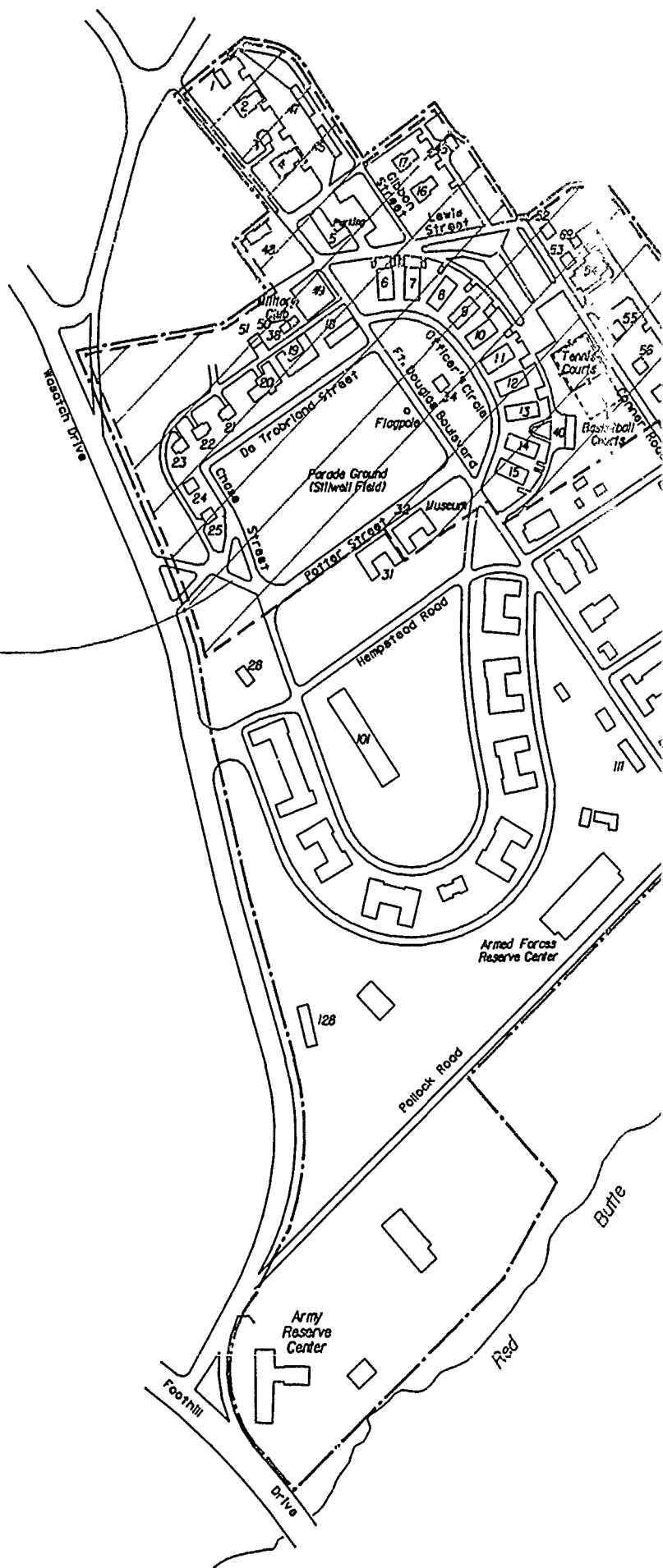
Table 2-2 lists the buildings in the area to be excessed.

2.2.1 CONTENTS OF BUILDINGS

The FD Military Museum (photo 2) houses exhibits that feature the history of the founding of FD, the history of the Army, Navy, Air Force, Marine Corps, and Coast Guard in Utah, and the history of the early Mormon military organizations. Asbestos insulation is present on the hot water pipes in the museum [T-7].

The oldest part of FD still in existence is the original cemetery that dates back to 1862 (photos 3 and 4). The remains of General Connor, the first commander of FD and the graves of soldiers, civilians, and POWs are located within the cemetery grounds. The size of the cemetery is 4.05 acres. It is non-contiguous to the main installation and is accessible by means of a reserved right-of-way along a paved access road [R-8]. No current or potential ESOs were identified in the cemetery.

Property To
Be Excessed



USATHAMA

U.S. Army Toxic and Hazardous Materials Agency

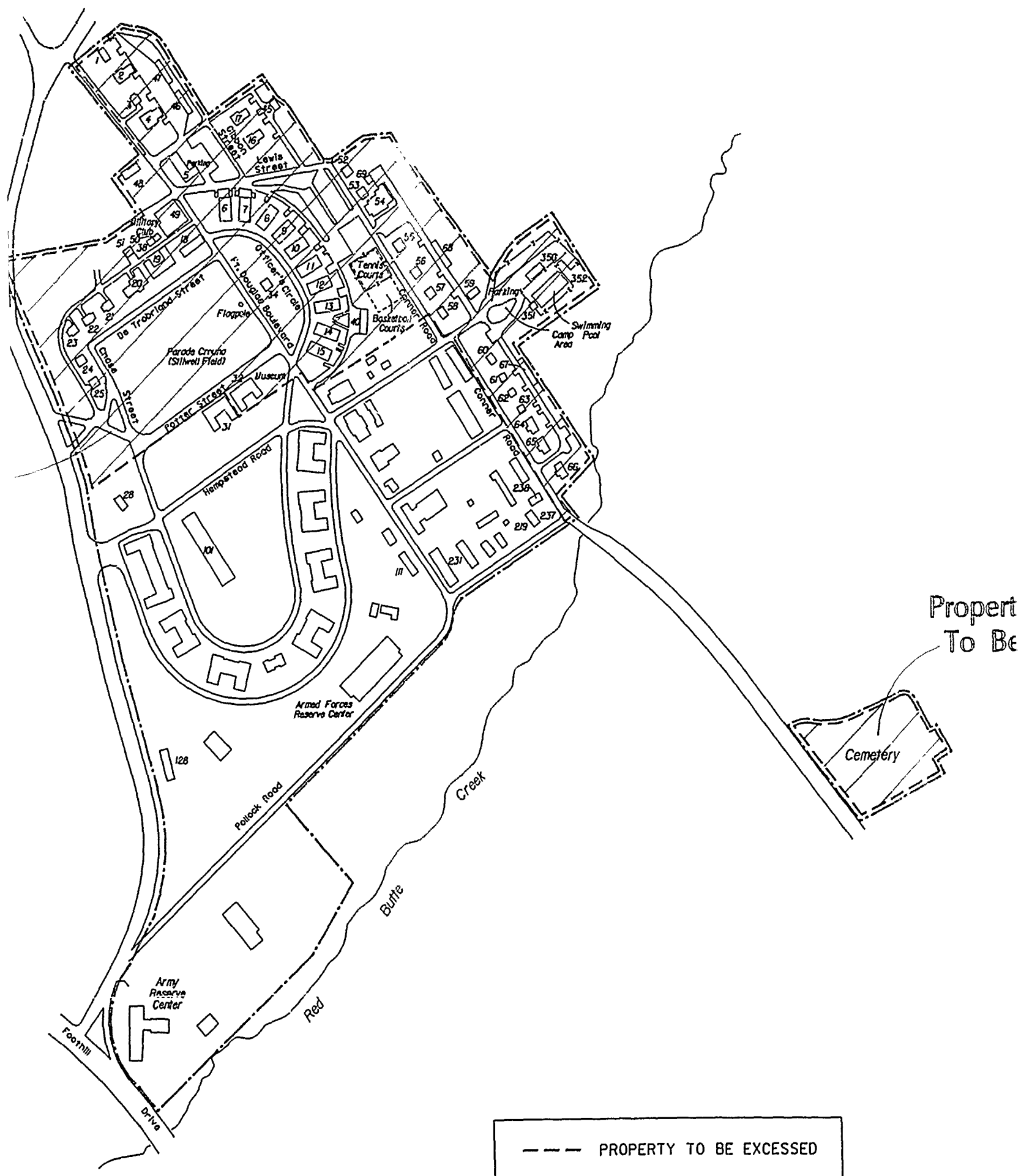
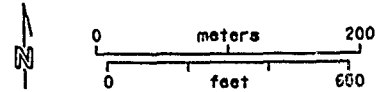


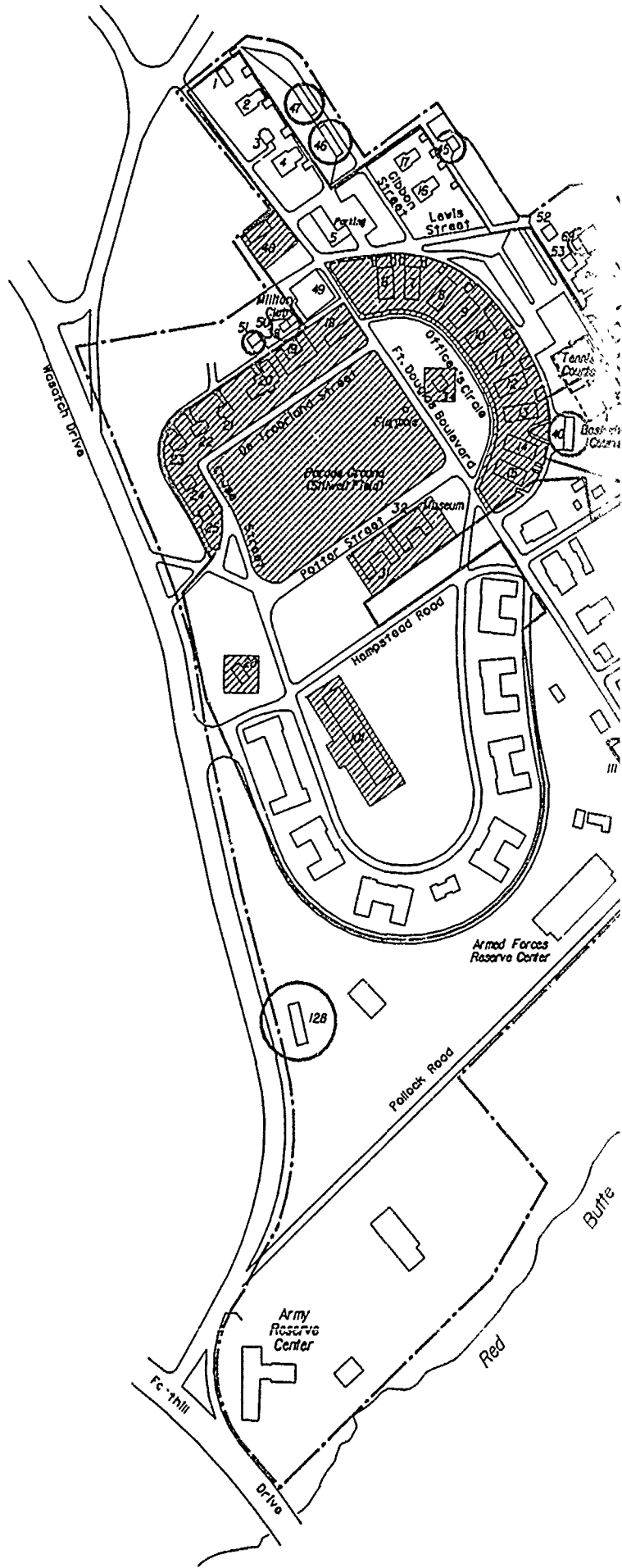
Figure 2-3
Property To Be
Excessed

Compiled in 1989 from various sources
provided by the U.S. Army Toxic and
Hazardous Materials Agency



Property Proposed
To Be Excessed

--- PROPERTY TO BE EXCESSED

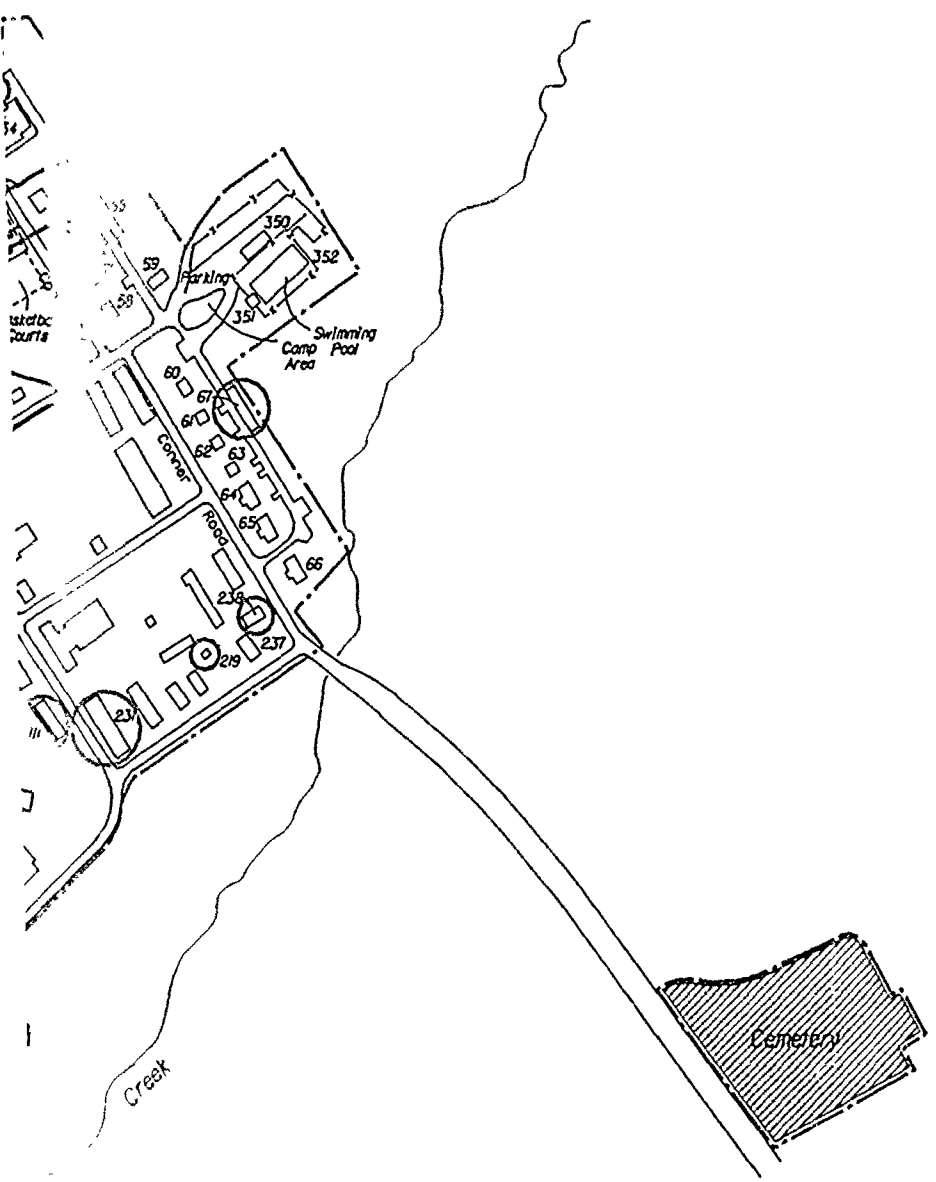
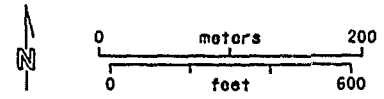


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Figure 2-4
Historic Areas

Compiled in 1989 from various sources
provided by the U.S. Army Toxic and
Hazardous Materials Agency



HISTORIC AREAS

- National Historic Landmark District
- ▨ National Register Of Historic Places
- World War II Structures



Table 2-2

Description of Buildings at TD to be Excessed

Facility Number	Function	Total Sq Ft	Date of Construction
1	Officers Quarters	5,918	1910
2	Officers Quarters	8,196	1900
3	Officers Quarters	4,052	1931
4	Officers Quarters	8,144	1875
5	Officers Quarters	17,640	1904
6	Officers Quarters	7,798	1875
7	Officers Quarters	9,456	1875
8	Officers Quarters	9,532	1875
9	Officers Quarters	9,422	1875
10	Officers Quarters	9,348	1875
11	Officers Quarters	9,422	1875
12	Officers Quarters	9,422	1875
13	Officers Quarters	9,584	1875
14	Officers Quarters	9,362	1875
15	Officers Quarters	8,172	1875
16	Officers Quarters	9,104	1884
17	Officers Quarters	9,104	1884
18	Officers Quarters	9,996	1875
19	Officers Quarters	8,223	1875
20	Officers Quarters	8,501	1875
21	Officers Quarters	4,186	1931
22	Officers Quarters	4,186	1931
23	Officers Quarters	4,186	1931
24	Officers Quarters	4,186	1931
25	Officers Quarters	4,186	1931
32	Museum	9,673	1876
38	Vehicle STR FAC	417	1917
40	Detached Garages	2,323	1942
45	Detached Garages	943	1942
46	Detached Garages	2,323	1942
47	Detached Garages	2,323	1942
48	Post Chapel	2,704	1884
49	Officers Club	10,054	1876
50	Detach Garages	590	1932
51	Detach Garages	878	1931
52	NCO Quarters	2,309	1900
53	NCO Quarters	2,260	1910
54	NCO Club	7,722	1933
55	NCO Quarters	2,181	1874
56	NCO Quarters	3,916	1916

Table 2-2

Description of Buildings at FD to be Excessed
(continued)

Facility Number	Function	Total Sq Ft	Date of Construction
57	NCO Quarters	4,028	1916
58	NCO Quarters	3,590	1930
59	NCO Quarters	1,409	1917
60	NCO Quarters	3,216	1930
61	NCO Quarters	1,859	1891
62	NCO Quarters	1,878	1891
63	NCO Quarters	1,878	1891
64	NCO Quarters	3,216	1930
65	NCO Quarters	3,216	1930
66	NCO Quarters	4,396	1900
67	Detached Garages	2,274	1931
68	Detached Garages	1,841	1930
69	Detached Garages	473	1917
70	Detached Garages	294	1972
71	Detached Garages	294	1972
72	Detached Garages	294	1972
73	Detached Garages	294	1972
74	Detached Garages	294	1972
75	Detached Garages	486	1972
76	Detached Garages	486	1972
77	Detached Garages	294	1972
350	Bath House	2,034	1937
351	Water Trmt Bldg	64	1937
352	Swimming Pool	-	Rebuilt 1988
-	Cemetery (Proposed)	-	1862

There are 39 family housing units. Each house has a flammable storage drum (approximately 30 gal) located outside, in the back yard. All flammable materials such as gasoline and paints are reportedly stored here [I-2]. In addition, each house is expected to contain typical household cleaning agents and chemicals.

The only ESOs identified inside the houses and other buildings during the site visit are asbestos and radon. These are discussed in Section 3.

2.2.2 PROPERTY AND GROUNDS

There are several pole-mounted transformers located throughout FD. Some of these contain PCB-contaminated oils as evidenced by PCB labels on the transformers. Further discussion of this ESO is presented in Section 3.

There is a concrete sump located just north of Building 41 in the area to be excessed (photo 9). One water line enters and another leaves the sump. According to the Facility Engineer, there is a valve in the system. The exact function of the sump is not known, but no ESO is expected here.

There are no known USTs in the area to be excessed. According to an engineer at FD, all buildings were originally heated by coal-fired furnaces [I-2]. Later, gas was used to heat the buildings. Reportedly, fuel oil has not been used to heat any building in the area to be excessed. There is no vehicle maintenance performed in the area to be excessed and there are no associated aboveground or underground storage tanks.

2.2.3 GENERATION AND DISPOSAL OF WASTES

Solid wastes generated at FD are collected in dumpsters and disposed through a contractor. The wastes are landfilled at the Salt Lake County Landfill in Salt Lake City, Utah. Waste oils are hauled by Indian Oil. There is reportedly an inactive landfill just outside the FD property [R-5]. The size of this landfill is not well-defined, nor are the types of waste disposed known. The landfill was originally part of FD. There is no evidence of any onsite disposal (landfilling) within the property to be excessed.

Sanitary wastewater from FD discharges to the Salt Lake City's sanitary sewer system. There are no current or known past wastewater treatment or disposal facilities on the site.

2.3 PERMITTING STATUS

The following agencies were contacted to obtain information regarding the environmental status and existing permits for FD:

- U.S. Environmental Protection Agency (EPA) Region VIII
- Bureau of Water Pollution Control, State of Utah
- Bureau of Air Quality, State of Utah
- Bureau of Solid and Hazardous Waste, State of Utah
- Bureau of Drinking Water, State of Utah

No information has been filed and no environmental permits have been identified for this site by the EPA [R-12], Bureau of Water Pollution Control, or the Bureau of Air Quality [T-1, T-2].

The Bureau of Solid and Hazardous Waste has eight USTs registered for FD [I-4]. None of these is located in the 50.8 acres to be excessed.

The Bureau of Drinking Water has a file that contains correspondence and other information related to FD through 1986, including a copy of the Water System Study Report [R-2]. Information obtained from the files of this Bureau indicates that since 1986 FD has been on the Salt Lake City Water System. No correspondence since that date exists in the files. Information found on drinking water practices prior to 1986 are summarized in Subsection 2.4.3.

2.4 SURROUNDING ENVIRONMENT AND LAND USES

The property is located on the slopes of the Wasatch Mountains. Surface topography rises gradually from 4,800 ft on the west to 4,960 ft on the east. To the east of FD, the surface rises steeply toward the Wasatch Range. To the west, the land descends gradually into the Great Basin and toward Great Salt Lake. The topography of the area is shown in Figure 2-5.

2.4.1 DEMOGRAPHICS AND ADJACENT LAND USE

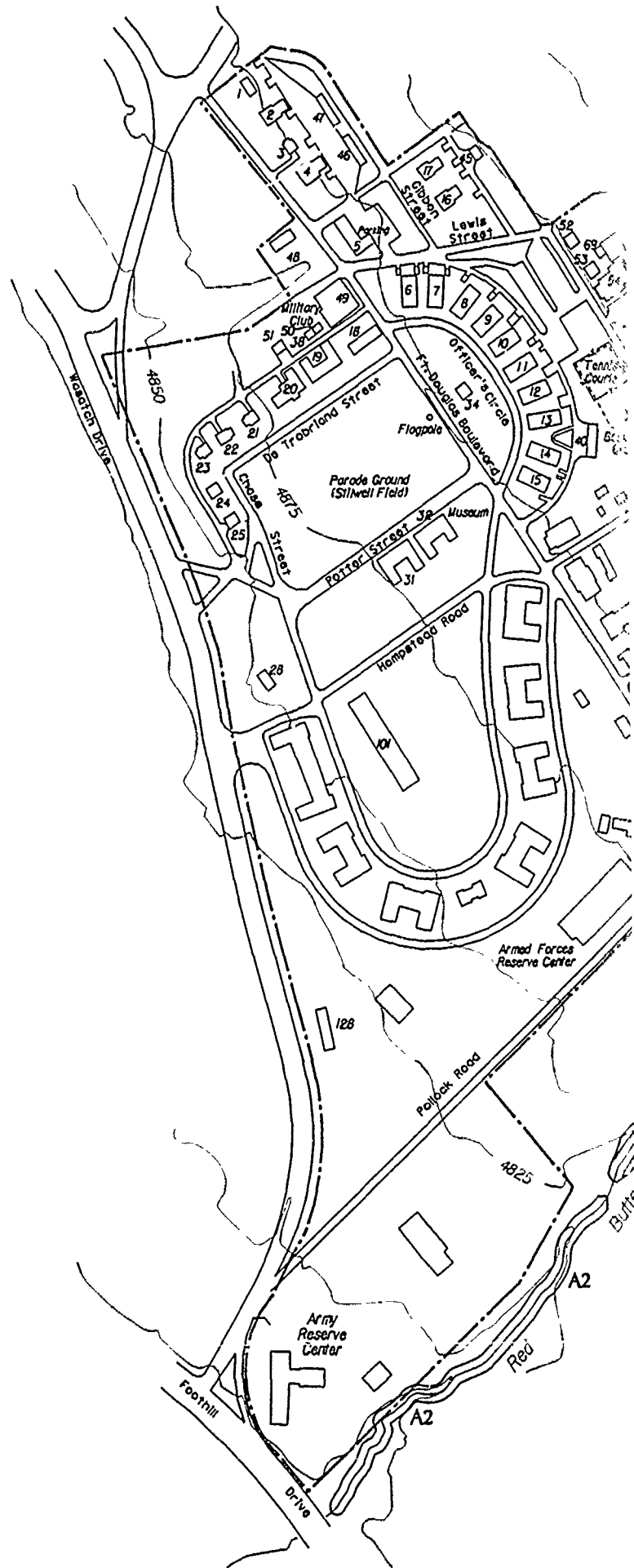
FD is located in Salt Lake City, Utah. The population of Salt Lake City in 1986 was 158,440. The major private employers in the Salt Lake City metropolitan area include Hercules Aerospace, Morton Thiokol, Mountain Bell, and Unisys. The largest public employer in the vicinity is the University of Utah, which adjoins FD on the western and northern boundaries [R-4]. Appendix A includes further information on population trends and general demographics for the area.

The portion of FD that is to be retained (Figure 2-3), which borders on the southwest portion of the area to be excessed, contains various ESOs including aboveground and underground storage tanks, an old landfill, impact areas, vehicle wash racks, and various storage areas. These are all downgradient of the 50.8 acres proposed to be excessed and are not expected to have any impact on the area to be excessed. The University of Utah is the neighbor to the north and east portions of the area to be excessed.

2.4.2 CLIMATE

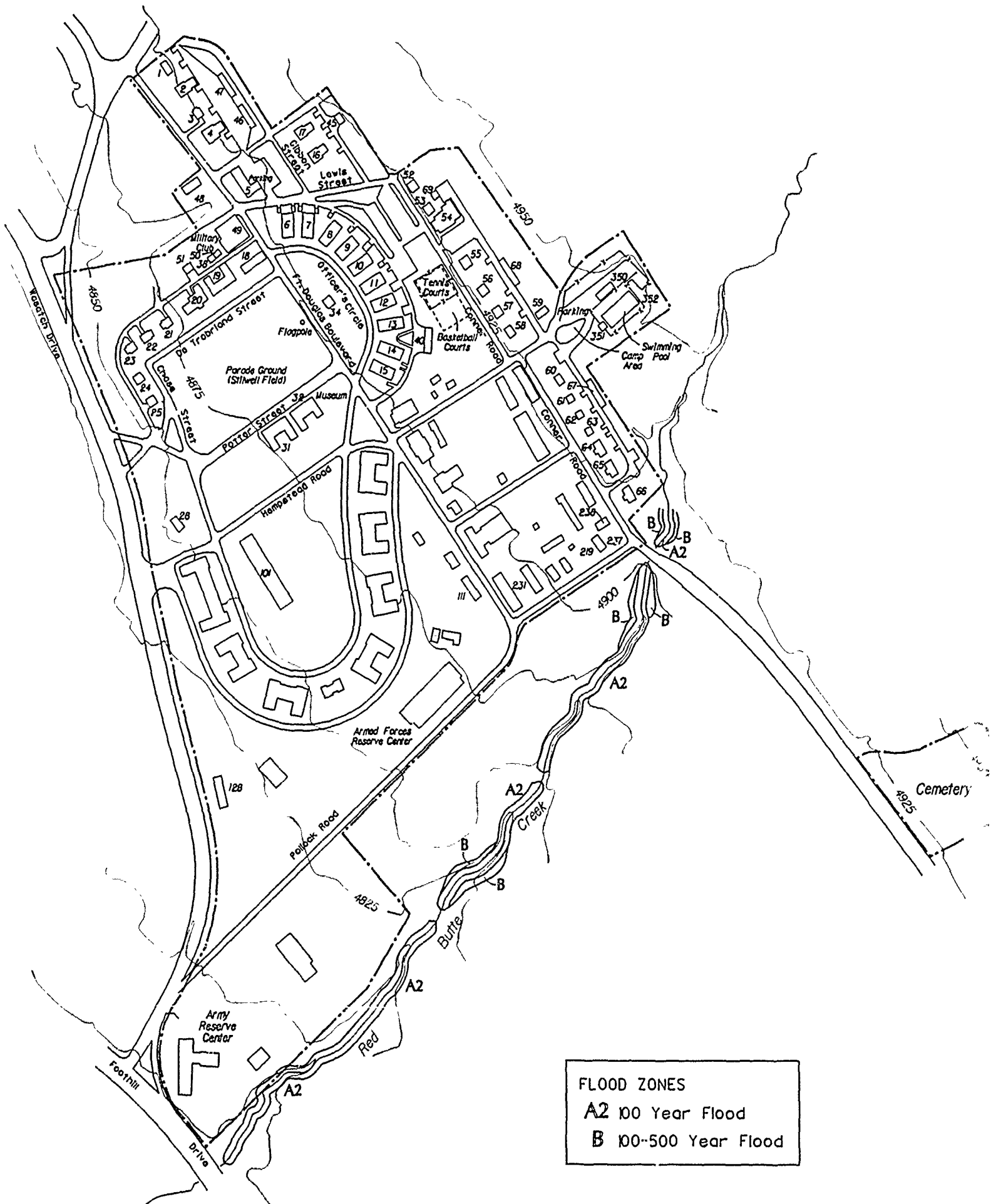
The climate of Salt Lake City is influenced by the following features:

- Altitude of City (4,200 to 5,000 ft above sea level)
- Wasatch and Oquirrh Mountains
- Great Salt Lake



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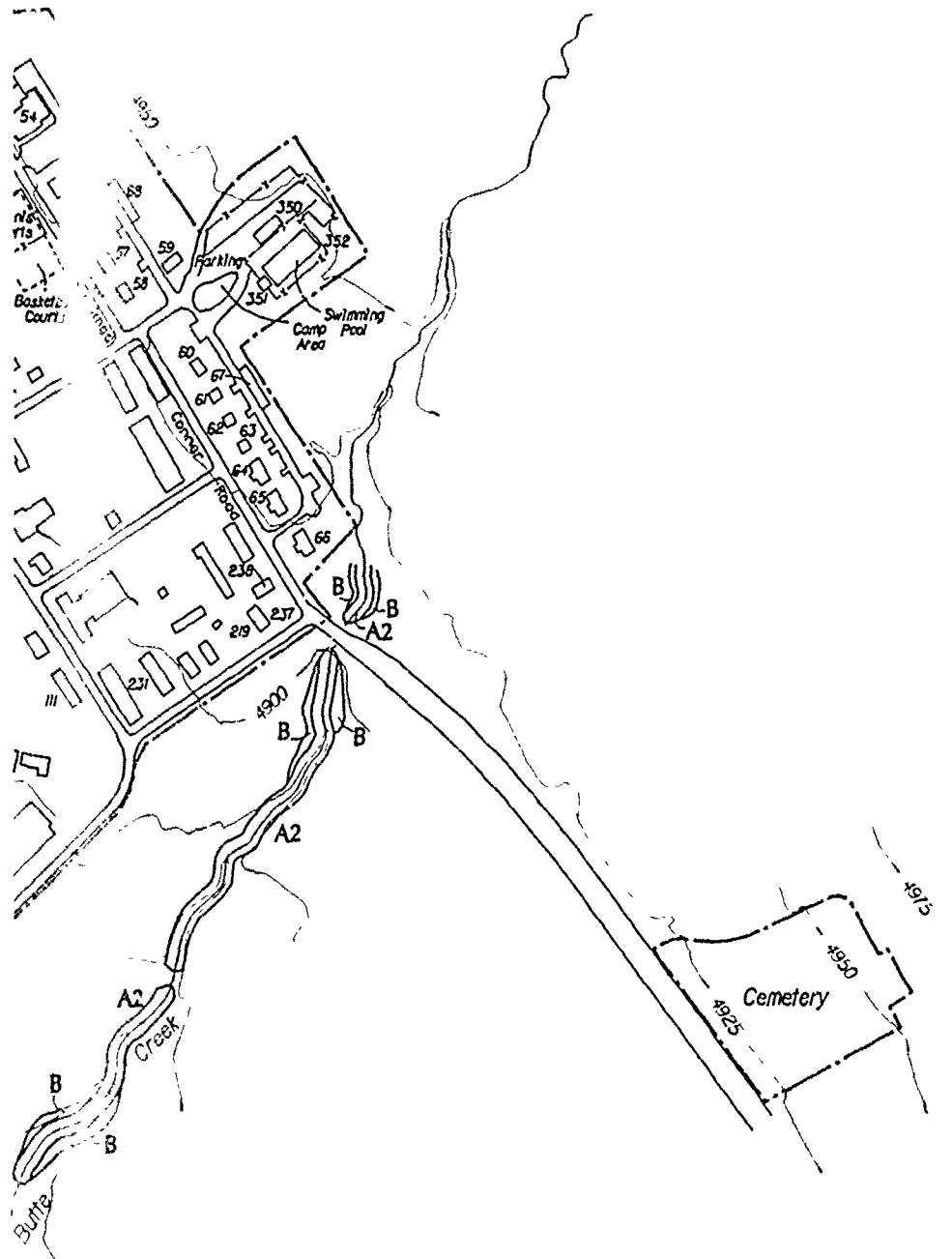
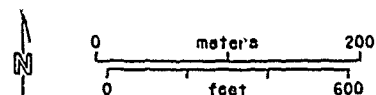


**U. S. Army
Base Closure Preliminary Assessment
Fort Douglas
Salt Lake City, UT - December 1989**

Figure 2-5
Topography With
Floodplain

(Contour interval 25 feet)

Compiled in 1989 from various sources
provided by the U.S. Army Toxic and
Hazardous Materials Agency



FLOOD ZONES

A2 100 Year Flood

B 100-500 Year Flood

Salt Lake City has a semi-arid inter-mountain climate with well-defined seasons. The fact that the Great Salt Lake never freezes over due to its high salt content, tends to moderate the cold winter winds blowing from the west northwest. The warmer lake water also contributes to increased precipitation in the valley downwind during the winter and spring.

Figure 2-6 is a wind rose for Salt Lake City for the year 1988. The prevailing winds are from the south southeast. Winds from the southeast, south southeast and south occurred 50.9 percent of the time during 1988. The winds at Salt Lake City show little seasonal variation. The annual average wind speed during 1988 was 9.5 miles per hour, while the annual average wind speed at Salt Lake City is 8.8 miles per hour. Because the city is located on the western slope of the Wasatch Mountains, the winds measured at the Salt Lake City International Airport may be significantly different from those measured a few miles away. The complex terrain of the area channels the winds and can be different from location to location. Care should be used when wind direction and wind speed are of great importance for any studies.

Precipitation is generally light during the summer and early fall. Maximum normal precipitation occurs during the months of March (1.88 in.), April (2.00 in.), and May (1.79 in.). This increase in precipitation is due to storms that originated in the Pacific Ocean moving through the area. Annual normal precipitation is 15.31 in. Because of the proximity of the mountain range, 3 to 5 in. more of precipitation fall along the eastern side of the city than over the valley a few miles to the west. The average annual snowfall amounts range from 58 in. at the airport to over 70 in. in the foothills area of the eastern portion of the city. The maximum amount of snowfall that occurred in one 24-hour period was 18.4 in. in October 1984. The maximum monthly amount was 41.9 in. during March 1977.

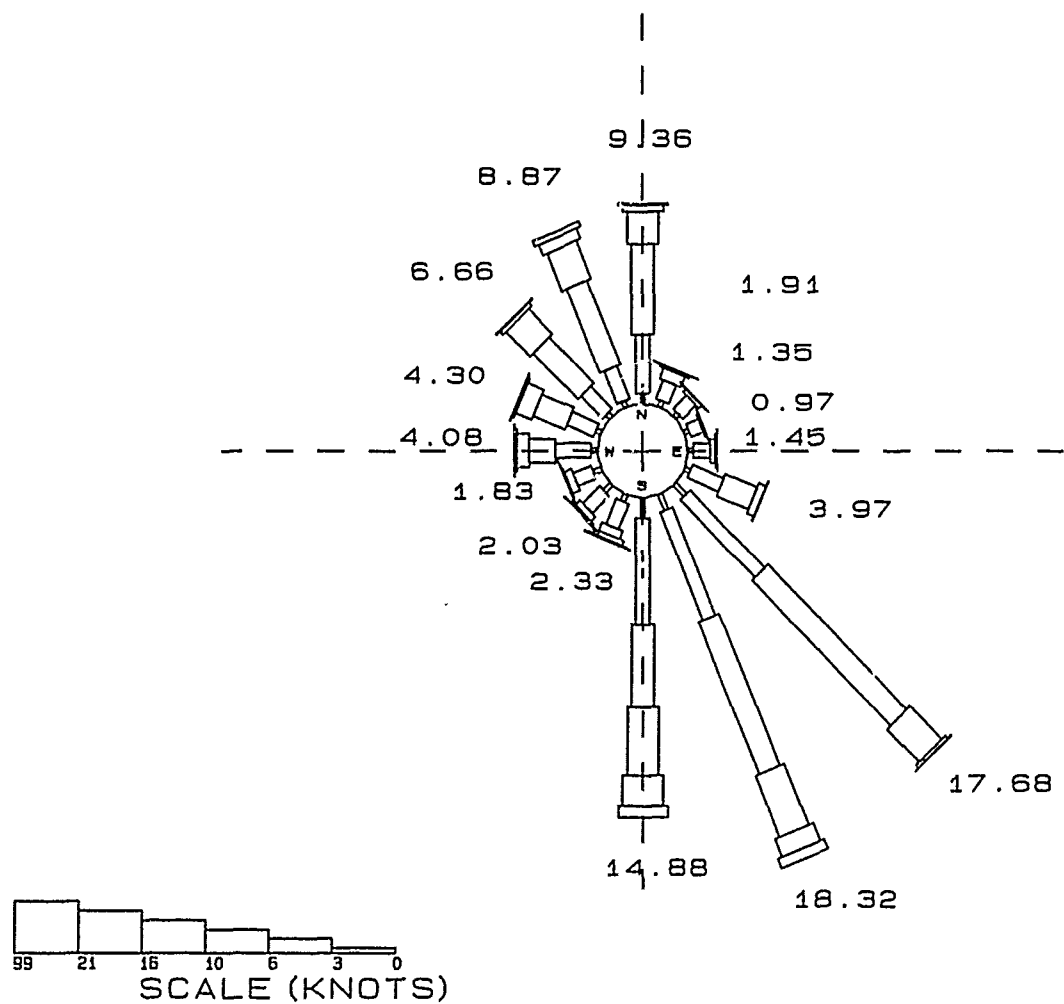
Summers in Salt Lake City are hot and dry, but not oppressive because of the low humidities. The normal average annual temperature is 51.7°F. July is the warmest month with a normal average temperature of 77.5°F, and January is the coldest month with a normal average temperature of 28.6°F. The mean diurnal temperature variation is about 30°F in the summer and 18°F during the winter. Temperatures above 100°F and below -10°F occur one year out of four.

Thunderstorms occur about 37 times per year with the maximum occurrences in July and August. Some thunderstorms do contain high winds and hail. Heavy fog can develop during the winter and persist for several days. The last freeze occurs, on the average, in late April. The first freeze occurs, on the average, in mid-October [R-9, R-10].

2.4.3 SURFACE WATER AND PHYSIOGRAPHY

The only water body near FD is Red Butte Creek, which is located near the southeastern boundary. Red Butte Creek is a perennial stream with a relatively constant baseflow of 2.5 cu ft/sec (cfs) from October to February. Peak flow occurs in late April and May as a consequence of snow melting. Between 1963 and 1980, the mean annual flow was 4.1 cfs, and maximum discharge was 60 cfs [R-1].

SALT LAKE CITY, UTAH
YEAR: 1988
CALMS INCLUDED



	WIND SPEED (KNOTS)			PERCENT OCCURRENCE				WIND SPEED (KNOTS)			PERCENT OCCURRENCE		
	0-3	3-6	6-10	10-15	15-21	>21		0-3	3-6	6-10	10-15	15-21	>21
N	0.49	2.73	4.24	1.49	0.32	0.09	N	0.95	4.94	3.81	3.22	1.41	0.54
NNE	0.29	0.93	0.52	0.11	0.03	0.01	SSW	0.36	1.26	0.42	0.22	0.05	0.02
NE	0.22	0.90	0.16	0.06	0.01	0.00	SW	0.45	1.15	0.31	0.09	0.02	0.01
ENE	0.22	0.64	0.08	0.02	0.01	0.00	WSW	0.42	0.96	0.36	0.07	0.01	0.01
E	0.29	0.82	0.22	0.11	0.01	0.00	W	0.32	1.74	1.26	0.60	0.11	0.05
ESE	0.27	1.66	1.64	0.36	0.03	0.00	WNW	0.25	1.41	1.68	0.83	0.10	0.02
SE	0.71	5.10	9.48	2.20	0.17	0.02	NW	0.24	1.48	3.05	1.65	0.19	0.05
SSE	0.79	5.43	7.65	3.07	0.90	0.48	NNW	0.29	1.68	4.20	1.91	0.82	0.26

FIGURE 2-6 WIND ROSE

Storm runoff from FD is diverted through underground storm drains toward Salt Lake City. Figure 2-7 shows the storm drainage paths for the entire facility.

Prior to 1986, FD utilized water from Red Butte Reservoir as a potable water supply. The reservoir received water from springs located along the canyon sides and runoff during spring thaw in Red Butte Canyon. From the reservoir, the water was transmitted to a chlorination station and then to an open finished water reservoir. From this reservoir, the water was supplied to the distribution system. There were two problems with this system. First, the water was not being completely treated (only chlorination was practiced). The second problem was the use of an uncovered, treated water reservoir. Both these resulted in violations of the Utah Public Drinking Water Regulations. These problems, along with the annual high turbidity problem during spring runoff, resulted in FD connecting to the Salt Lake City water source in 1986 [R-3]. The Red Butte Canyon is currently used only for irrigation and recreation. All potable water is supplied from Salt Lake City [T-3].

According to the Salt Lake City Water Department, the predominant source of water serving FD is the Parleys Canyon Water Treatment Plant (WTP). In addition, some water may also be supplied to FD from Big Cottonwood Canyon WTP and Deer Creek WTP. There are no known lakes or ponds in the area to be excessed.

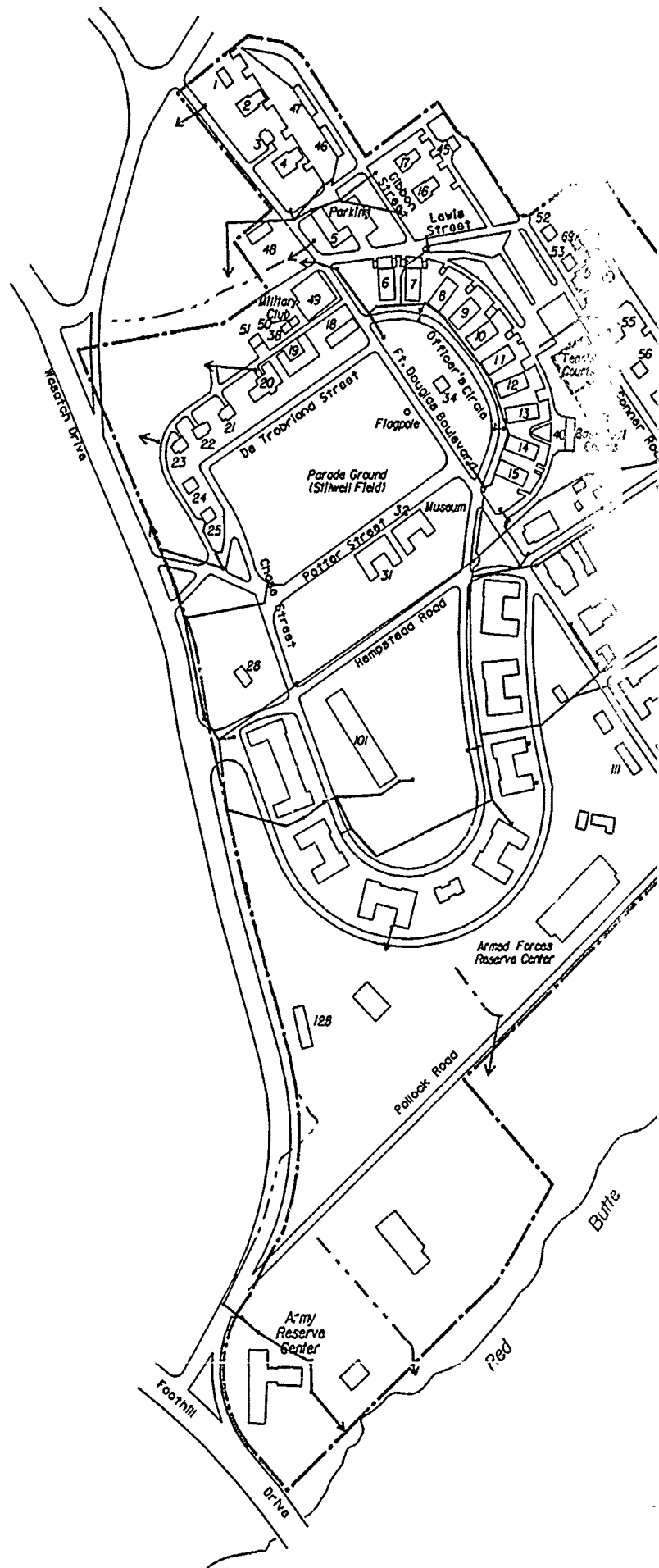
The 50.8 acres of FD to be excessed is not located within the 100- and 500-year floodplain, as can be seen in Figure 2.5.

2.4.4 SOILS

According to information obtained from the 1982 Installation Assessment Report [R-1]:

"Two major soil varieties occur on FD. The minor soil association is the Emigration-Brad-Rockland Association, which covers only the eastern quarter of the site. These soils are shallow (0.3 to 0.6 m) sand-gravel mixtures with varying amounts of silt or clay. Scattered through this association are numerous small escarpments and areas of bare rock. These soils, typically well to excessively drained and occurring often on steep slopes, have been formed from residuum and alluvium from mixed sedimentary rocks. Representative soil series within this association include Agassiz, Emigration, Brad, Deer Creek, and Lucky Star series.

The western portion of the reservation falls within the Bingham-Parley soils association. This association, the major soil association on FD, is made up of nearly level to sloping soils on lake terraces and alluvial fans. The soil depth in most of this association is greater than 1.5 m. The major series within this association include Bingham, Parleys, and Harkers soil series. Most of these soils are sands with varying amounts of silt and clays. The permeabilities of these soils can be quite low, but drainage is usually good. Bingham soils can contain considerable amounts of gravel. Typical of the Bingham and Parleys series are layers of strong lime accumulation between 0.6 and 0.9 m below ground surface.



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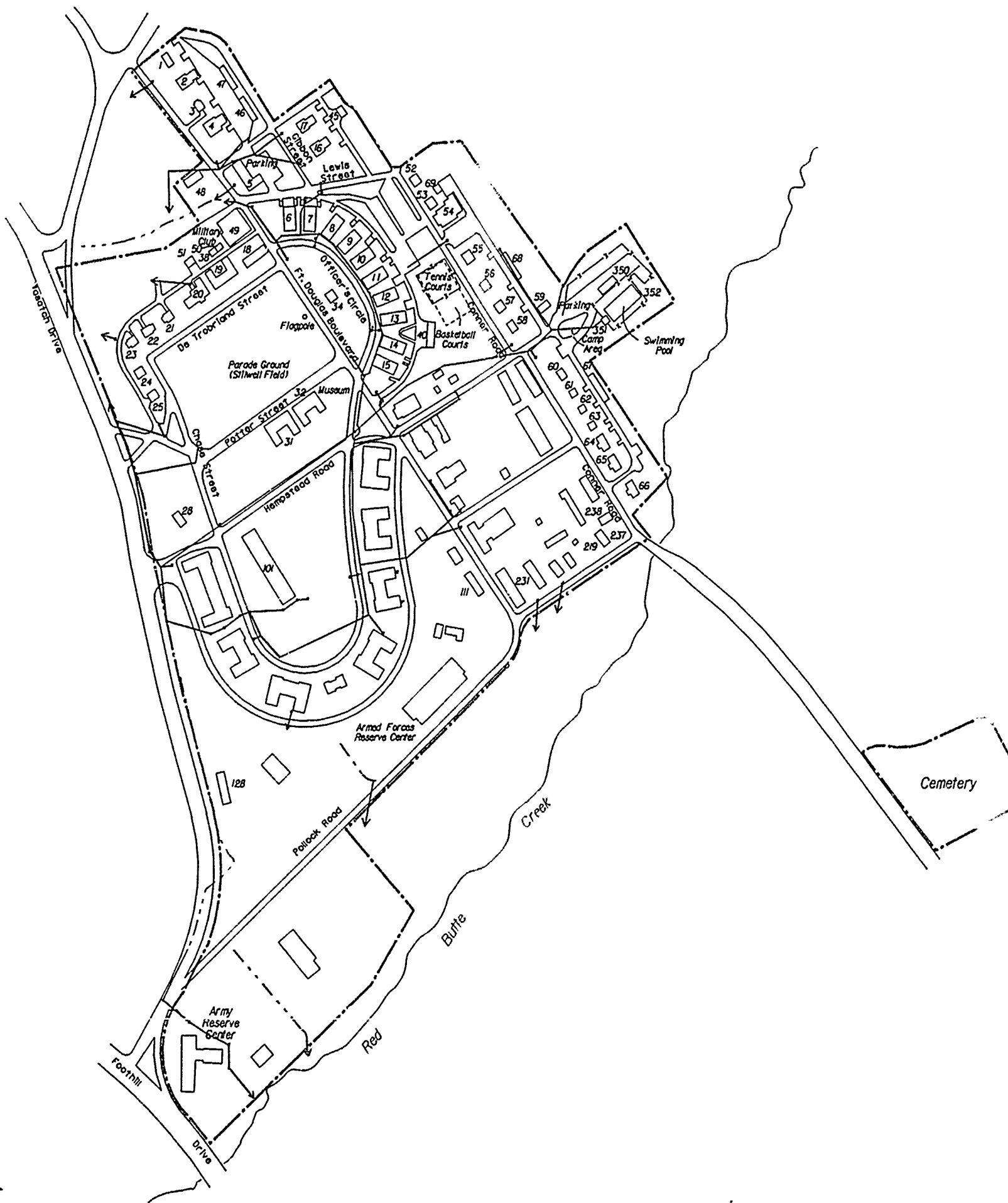
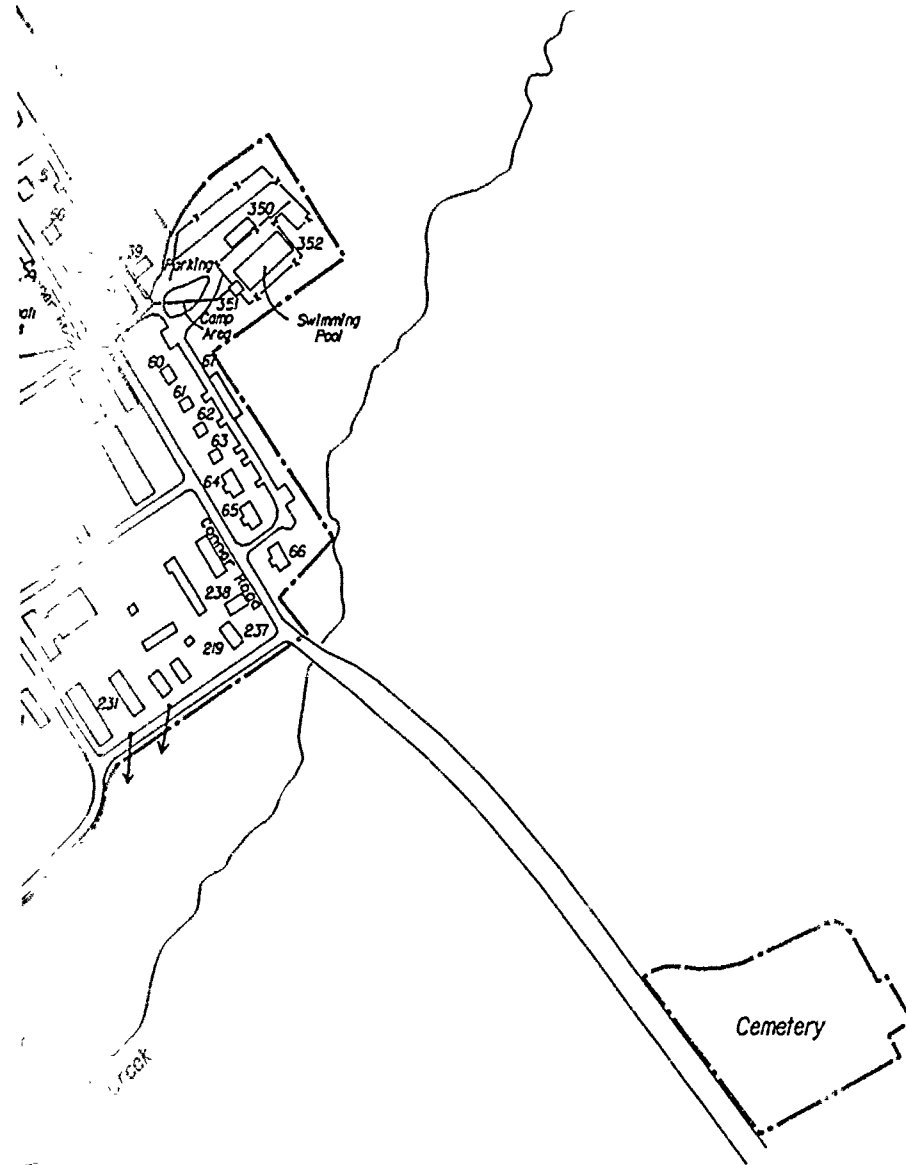
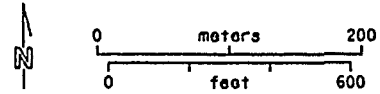


Figure 2-7
Storm Drainage

Compiled in 1989 from various sources
provided by the U.S. Army Toxic and
Hazardous Materials Agency



For both major soil varieties of FD, the water table is usually not encountered within the first several ft of the soil profile, due to the good drainage and relatively low rainfall."

2.4.5 GROUNDWATER AND HYDROLOGY

FD is reportedly underlain by a quaternary, coarse sand and gravel alluvial aquifer, which ranges in thickness from 200 ft to 1,000 ft. The recharge for this aquifer is reportedly through the alluvium, located in the intermontane Red Butte Canyon and along Red Butte Creek [R-1]. Bedrock below the quaternary alluvium are Jurassic (135 million years old) and older rocks of sandstones, conglomerates, limestones, and shales. Fracturing is common in bedrock in the FD area because of the WASATCH uplift [R-14]. No specific information is known at this time, by WESTON, concerning the depth to bedrock below FD.

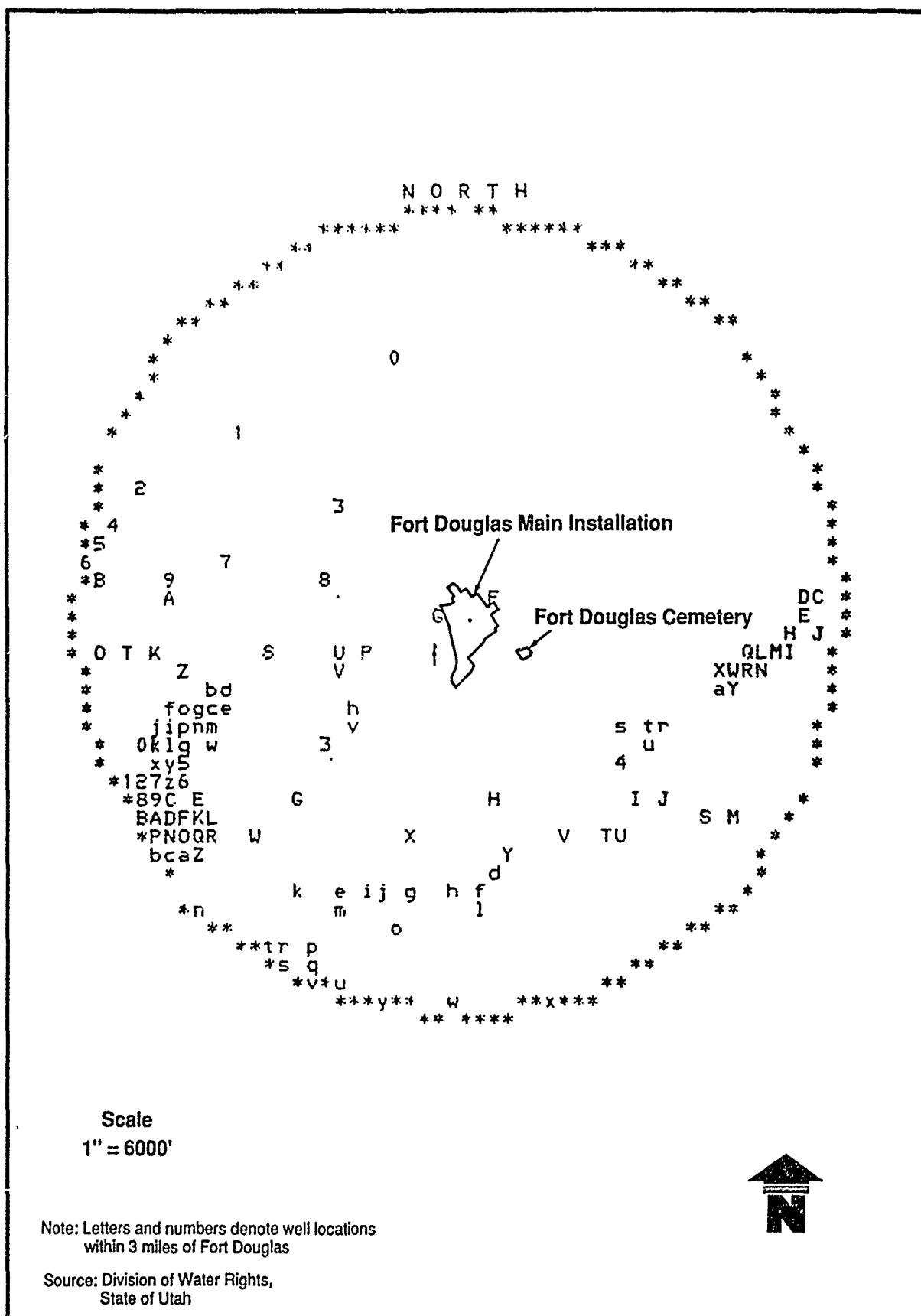
There are 284 wells located within 3 miles of FD. Most of these are private wells or wells owned by the University of Utah and other businesses that are used for irrigation. However, there are some municipal wells within 3 miles of FD that are used as a source of drinking water. There are no wells on the installation [R-6]. However, a suspected well was grouted closed in the courtyard behind Building 19. The well closest to FD is owned by the University of Utah and is used for drinking and irrigation. No information is available regarding the depth to groundwater for this well. However, the well is screened from approximately 220 ft to 445 ft [T-4].

Figure 2-8 shows the locations of the various wells that are either installed or have been approved for installation within 3 miles of the installation [R-6]. Water level data from four of these wells are listed in the Utah Hydrologic Data Report No. 44 [R-15]. Three of these wells are owned by the Salt Lake City Water Department (SLCWD). The other is owned by the University of Utah. The regional water table below the FD area ranges from 100 ft to over 160 ft below ground level [R-15, R-16]. Groundwater flow in this aquifer is generally west to southwest. Localized perched aquifers have also been encountered above the regional aquifer. Some of these perched aquifers are artesian, such as the aquifer penetrated by one of the local SLCWD wells. This well has a water level approximately 10 ft above ground level.

2.4.6 SENSITIVE ENVIRONMENTS

Information obtained from the Division of Wildlife Resources indicates that there are no wildlife refuges or wetlands within 5 miles of the facility [T-5; R-13]. The only known endangered species is the peregrine falcon that has been observed in Salt Lake City. A pair of peregrine falcons are reportedly nesting on the Old Hotel Utah, located approximately 4 miles from FD. Additional species within the 5-mile radius that are not federally listed as endangered but which are of special concern to the State of Utah's Division of Wildlife Resources are the yellow-billed cuckoo, Lewis woodpecker, and fox sparrow.

The nearest sensitive environment is the Red Butte Canyon located less than a mile to the northeast. Plant communities, particularly the riparian community, are in pristine condition.



Section 3

Environmentally Significant Operations

SECTION 3

ENVIRONMENTALLY SIGNIFICANT OPERATIONS

The objective of this section is to document areas where hazardous materials are managed and their known or potential releases into the environment. Identified ESOs for the excessed area at FD are described in the following subsections and shown in Figure 3-1.

3.1 ASBESTOS

3.1.1 DESCRIPTION

In addition to the museum, there are 39 family housing units, a chapel, two clubs, a swimming pool, bath house, water treatment building, and cemetery in the area to be excessed. In addition, there are 18 garages.

Of the 39 residential buildings, four buildings were accessible for survey purposes during the site visit. In addition, the NCO Club, Officers Club, bath house, water treatment building, swimming pool, and the cemetery were surveyed. The residential buildings represent four different models of homes, and photos 5 through 8 show their general exterior condition. These buildings are:

<u>Building</u>	<u>Total Size (Sq Ft)</u>	<u>Date of Construction</u>
8	9,532	1875
17	9,014	1884
25	4,186	1931
62	1,878	1891

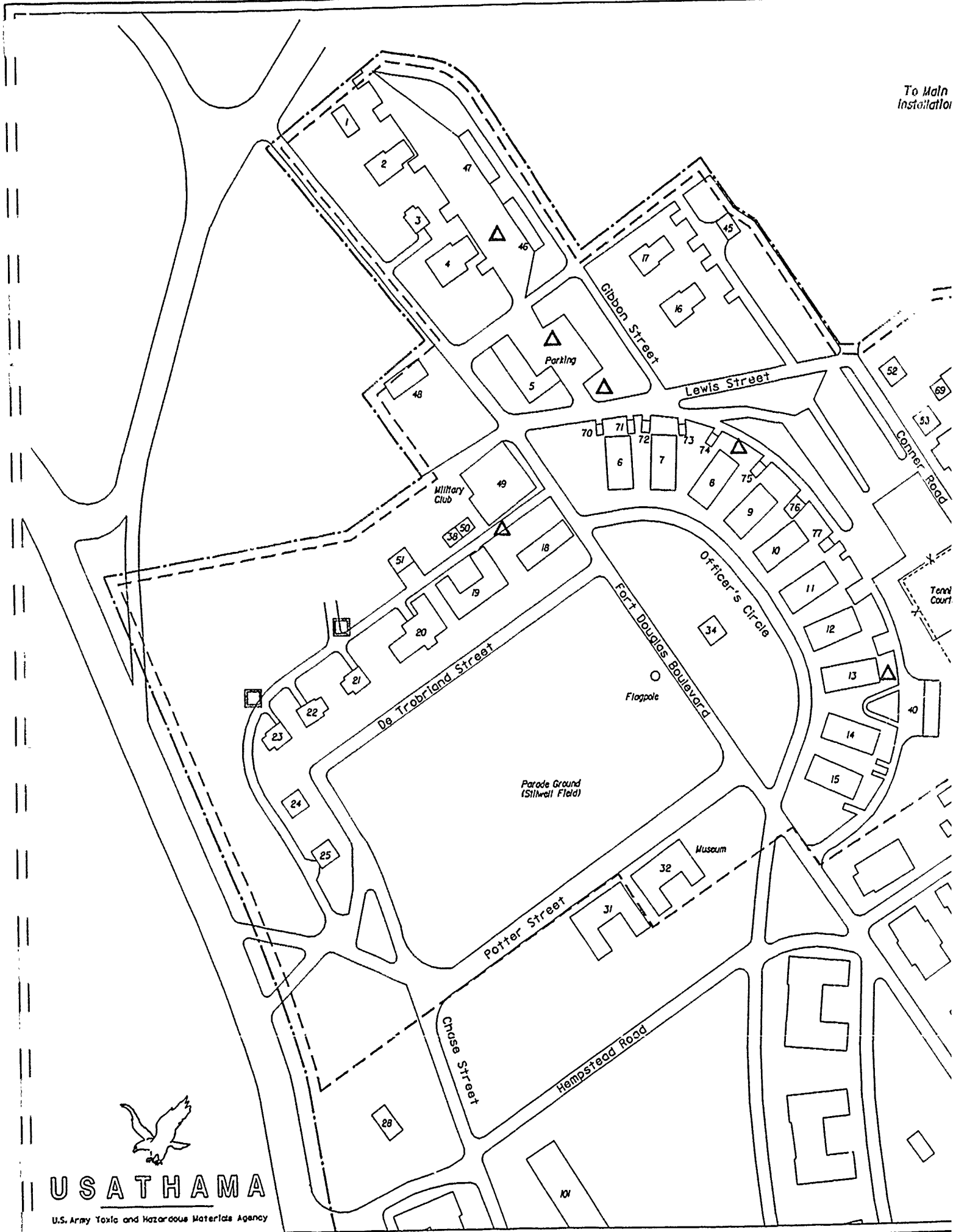
Building 8 is the oldest and was constructed during the first rebuilding program that occurred at FD in the 1870s. In this program, the earlier wooden buildings were replaced with stone buildings. This building is one of 10 similar buildings (i.e., Buildings 6 through 15) that are located in the "Officer's Circle." Each of these buildings houses 2 families. The other buildings were constructed over the next 55 to 60 years as part of other building programs at FD. The newest of the four homes surveyed is a single-family brick house constructed in 1931 and is one of the newest houses at the facility. This indicates that all buildings at FD were constructed in an era when the use of asbestos or asbestos-containing materials (ACMs) was widespread. The four homes surveyed are suspected to contain asbestos insulation around the hot water pipes located in the basement. Photos 16 through 23 show the condition of the piping in the basement of these homes. The insulation is cracked and broken at some locations. In house 17A, the insulation is broken and in close proximity to a child's playpen (photo 20).

To Main
Installation



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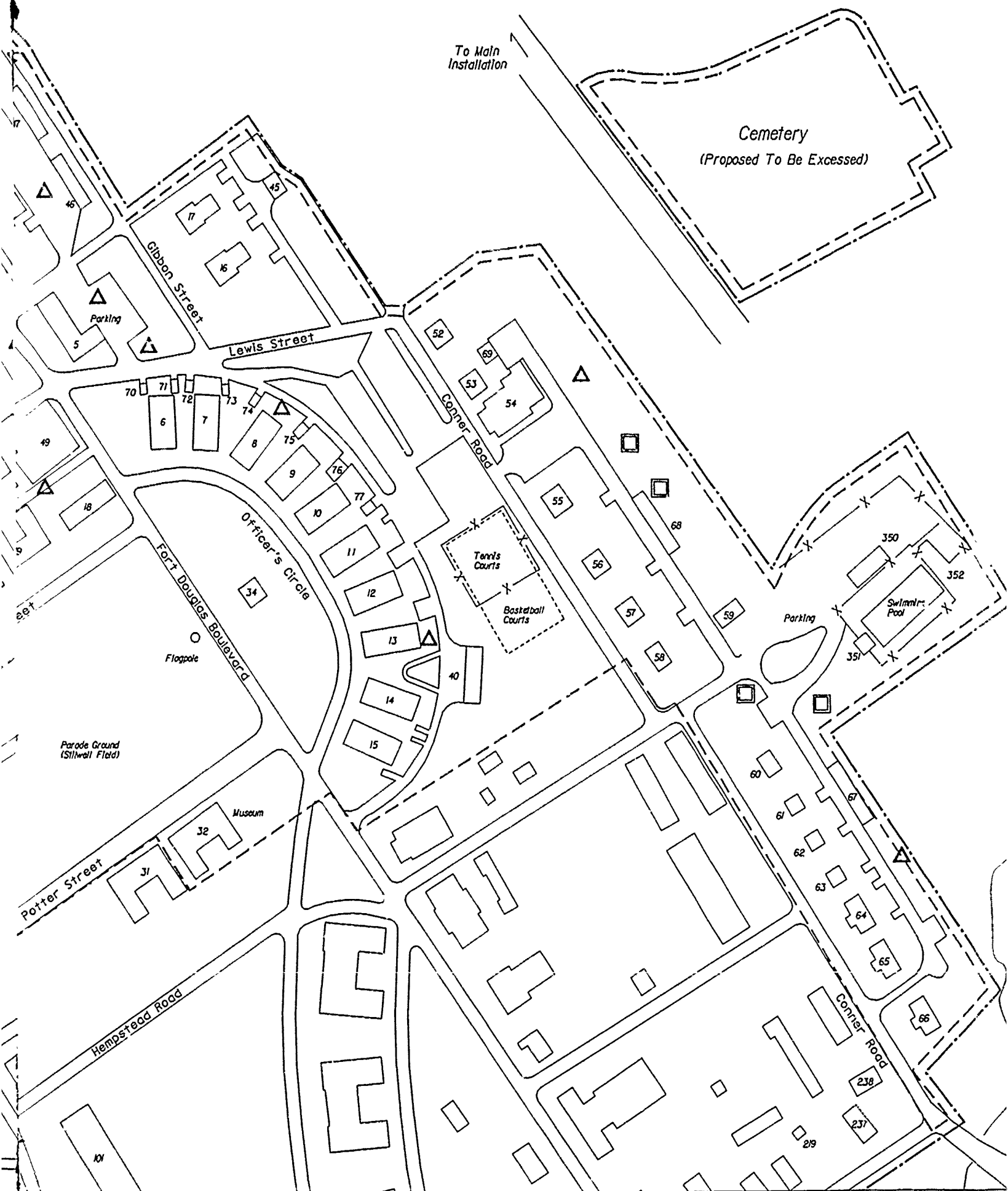
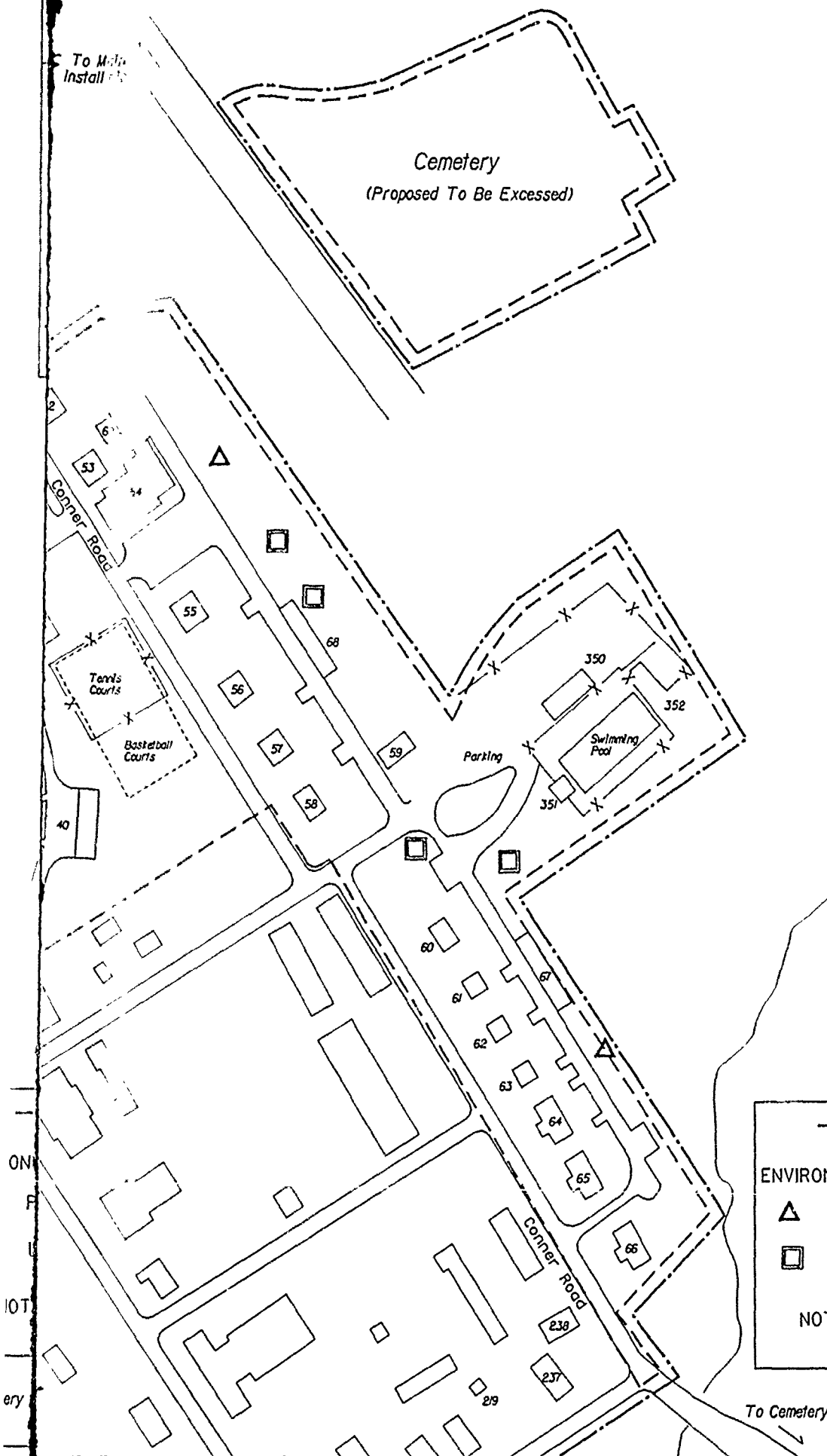
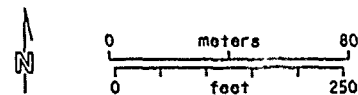


Figure 3-1 Environmentally Significant Operations

Compiled in 1989 from various sources
provided by the U.S. Army and
Hazardous Materials Agency



- PROPERTY TO BE EXCESSED
- ENVIRONMENTALLY SIGNIFICANT OPERATIONS
- △ PCB-Labelled Transformer
 - Unlabelled Transformer
- NOTE: All buildings suspected of containing asbestos.

According to a representative from the Tooele Army Depot, Utah, asbestos sampling has been performed in seven buildings located throughout FD. Four of the seven buildings (i.e., Buildings 8, 15A, 18C, and 32) are located in the area to be excessed. Asbestos has been found in the lagging material of pipes in all of the four buildings [T-7].

In addition, asbestos insulation is suspected on the hot water pipes in:

- Building 54 - NCO Club (constructed in 1933)
- Building 49 - Officers Club (constructed in 1876)
- Building 350 - Swimming Pool Bath House (constructed in 1937)

As an on-going program, the pipe insulation in certain buildings has been wrapped [I-1]. Asbestos siding may be present in the Chapel [I-2]. ACMs are suspected in shingles of some buildings, including Building 20, and in a storage area near Building 234.

3.1.2 KNOWN AND SUSPECTED RELEASES

There is no documentation available substantiating asbestos release to the environment. However, the suspected asbestos insulation on the hot water pipes in three of the four homes inspected was poorly wrapped or encapsulated. The potential exists for exposure to asbestos from damaged materials, not only in the homes, but in all buildings through FD. If such a problem exists, it is of primary concern inside the buildings where contact with this material is maximized.

3.2 RADON

3.2.1 DESCRIPTION

Radon is a naturally occurring radioactive gas that is produced through the normal decay of uranium and thorium found in rocks and soil.

A radon sampling program is currently underway at FD. Radon detectors have been placed in operation: 286 long term detectors and 25 short term detectors. The long-term detectors are still in place, and have a typical test period of 6 to 12 months. The short-term detectors have a 4-day testing period and their results are discussed below.

3.2.2 KNOWN OR SUSPECTED RELEASES

Preliminary radon sampling results from the short-term detectors have been obtained from the Environmental Section at Fort Carson, Colorado [T-6]. The highest short term detector reading was 4 picocuries/liter, and the average reading of the short-term detectors was 1 picocurie/liter. Long-term detector results will be available next year.

The EPA has established guidelines for year-round exposure to radon in homes [R-11]. The EPA-suggested average long-term exposure limit is 4 picocuries/liter. Retesting is suggested for levels obtained between 4 and 20 picocuries/liter. If retesting confirms a level above 4 picocuries/liter, remedial measures are recommended.

3.3 TRANSFORMERS

3.3.1 DESCRIPTION

Pole-mounted transformers are present at 14 locations throughout the area to be excessed. At each location there are between one and three transformers of various ages. All these transformers are Army owned. A ground level inspection of these transformers was conducted. Some were rusted, while others appeared to be in good condition (photos 14 and 15). Figure 3-1 shows the locations of the transformers.

The 1982 Installation Assessment Report recommended sampling all the transformers [R-1]. Reportedly, three transformers at FD have been tested and PCB levels of 2 ppm have been found in the transformer oil. The exact location of these transformers is not available. Transformers at eight of the 14 locations were labeled in 1985 as PCB-containing based on their age. No testing was performed to confirm this assumption. Transformers at the remaining six locations have been installed more recently. The installation date of the newer transformers and availability of PCB sampling and analysis for these transformers is not available at this time.

3.3.2 KNOWN AND SUSPECTED RELEASES

During the site visit, no staining was observed in the immediate area of any of the 14 transformer locations. In addition, there is no documented evidence of any past releases from these pole-mounted transformers, although there is a possibility of past releases from the rusted transformers.

Section 4

Human and Environmental Receptors



SECTION 4

HUMAN AND ENVIRONMENTAL RECEPTORS

In this section, the pathways by which human and environmental receptors may be exposed to site-related contaminants are discussed.

4.1 GROUNDWATER

The City of Salt Lake provides potable water to FD and surrounding areas with the exception of the University of Utah well noted in Subsection 2.4.5. Infiltration and percolation of water from surface sources is minimized by the extensive paving in the area to be excessed and FD as a whole. The presence of USTs and certain maintenance operations in graveled areas in the property to be retained may influence groundwater quality. If contaminants from these tanks or other sources originating from within or outside the excessed area were to penetrate the grassy and/or graveled areas of the property, they could reach the groundwater. The contaminants would then flow west to southwest with the groundwater. Wells used for irrigation and for public and private water supply are located downgradient of FD. If contaminants from the site reached the groundwater and migrated to those wells, crops and humans could be potential receptors.

4.2 SURFACE WATERS

The only water body near FD is Red Butte Creek which is located less than 500 ft to the southeast. Surface water runoff from FD may discharge into the creek. In addition, groundwater discharge may also enter the creek. However, the concentration of groundwater and surface water contaminants discharging to the creek would be diluted by the creek water. Red Butte Creek is no longer used for human consumption. However, because Red Butte Creek eventually empties into Liberty Park Lake, there is still a potential for impact on aquatic life and predators and impact to humans derived from consumption of fish which may have bioaccumulated contaminants. Use of surface water for human recreation may also provide an exposure pathway. However, the likelihood of significant contaminant concentrations reaching surface water exposure points is minimal.

Storm water runoff is currently diverted through underground storm drains toward Salt Lake City. Any past spills would have been washed into either Red Butte Creek or the city storm drains. Due to the topographical gradient, spills taking place outside the excessed area would tend to migrate farther away from the excessed area. No on-going discharges of surface contaminants were apparent during the site inspection. No significant impact on human and environmental receptors from surface water or surface runoff is expected from the excessed area.

4.3 SOILS

Soil is located throughout the excessed area around the buildings and parking lots of the site. Surface soil is not known to be contaminated. The soil should not pose a risk via inhalation or direct contact exposure to personnel working in this area.

4.4 AIR

Any unwrapped asbestos insulation on the hot water pipes in the buildings of the excessed area would be a potent source of air contaminants. These contaminants would impact human and environmental receptors. Radon is a potential air contaminant for personnel in some buildings.

Section 5

Conclusions and Recommendations



SECTION 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY OF CONCLUSIONS

FD is an active military installation located in Salt Lake City. Of the existing 119 acres of the property, 50.8 acres is proposed to be excessed and the conclusions and recommendations in this section are limited to those 50.8 acres. The area to be excessed includes 39 family housing units, 18 garages, a museum, a chapel, an Officers Club, an NCO Club, a cemetery (proposed to be excessed), a swimming pool with an adjacent bath house, and an associated water treatment building. Most of the buildings were built in the late 1800s or the early 1900s. Many have been rebuilt over the years using updated construction methods and materials.

The facility is located on the western slope of the Wasatch Mountains. Prior to 1986, FD obtained its potable water supply from the Red Butte Reservoir. Continuing problems with this water resulted in FD connecting to the Salt Lake City water source in 1986. Groundwater in the area is used by the University of Utah for drinking and irrigation. The University of Utah is FD's neighbor to the north and west. The portion of FD to be retained borders the area to be excessed to the south and east. The facility is largely paved and well maintained. There are few operations that would adversely impact local human and environmental receptors. These operations are summarized in the following subsections.

5.1.1 ASBESTOS

Asbestos or ACMs are suspected to be present in all the buildings in the area to be excessed. No comprehensive asbestos survey has been done, although the limited asbestos sampling that has been conducted at FD confirms the presence of asbestos in the following buildings: 8, 15A, 18C, and 32 [T-7].

5.1.2 RADON

A radon sampling program is currently underway at FD. Results obtained from 25 short-term detectors located throughout the site indicate that at least one detector recorded a radon level of 4 picocuries/liter, which is the EPA recommended long-term exposure limit.

5.1.3 TRANSFORMERS

Between one and three pole-mounted transformers are present at each of the 14 locations throughout the property to be excessed. Transformers at eight of the locations were labeled in 1985 as containing PCBs based on their age. No testing was performed to confirm this assumption. Transformers at the remaining six locations have been installed more recently. The installation date of the newer transformers and availability of PCB sampling and analysis for these transformers is not available at this time.

5.2 RECOMMENDATIONS FOR FURTHER ACTION

No conditions were observed on the property that appear to represent an immediate threat to human health or the environment. However, the ESOs discussed in Section 3 have the potential to affect human health or the environment. These recommendations are summarized in Table 5-1 and shown in Figure 5-1. The recommended sampling of the property is presented in the following subsections.

5.2.1 ASBESTOS

A comprehensive asbestos sampling program is recommended because asbestos or ACMs is suspected to be present in all the buildings throughout the area to be excessed. All known exposed friable asbestos should be removed or encapsulated. In addition, ambient air sampling for asbestos is recommended in all buildings. The exact number of air and solid samples needed would be determined in a work plan. The estimated range for the number of samples is shown in Table 5-1.

5.2.2 RADON

A radon sampling program is currently underway. Long-term detectors are located at 286 locations throughout FD. No immediate investigation is required. The results from these detectors should be analyzed as they become available, and the appropriate actions taken.

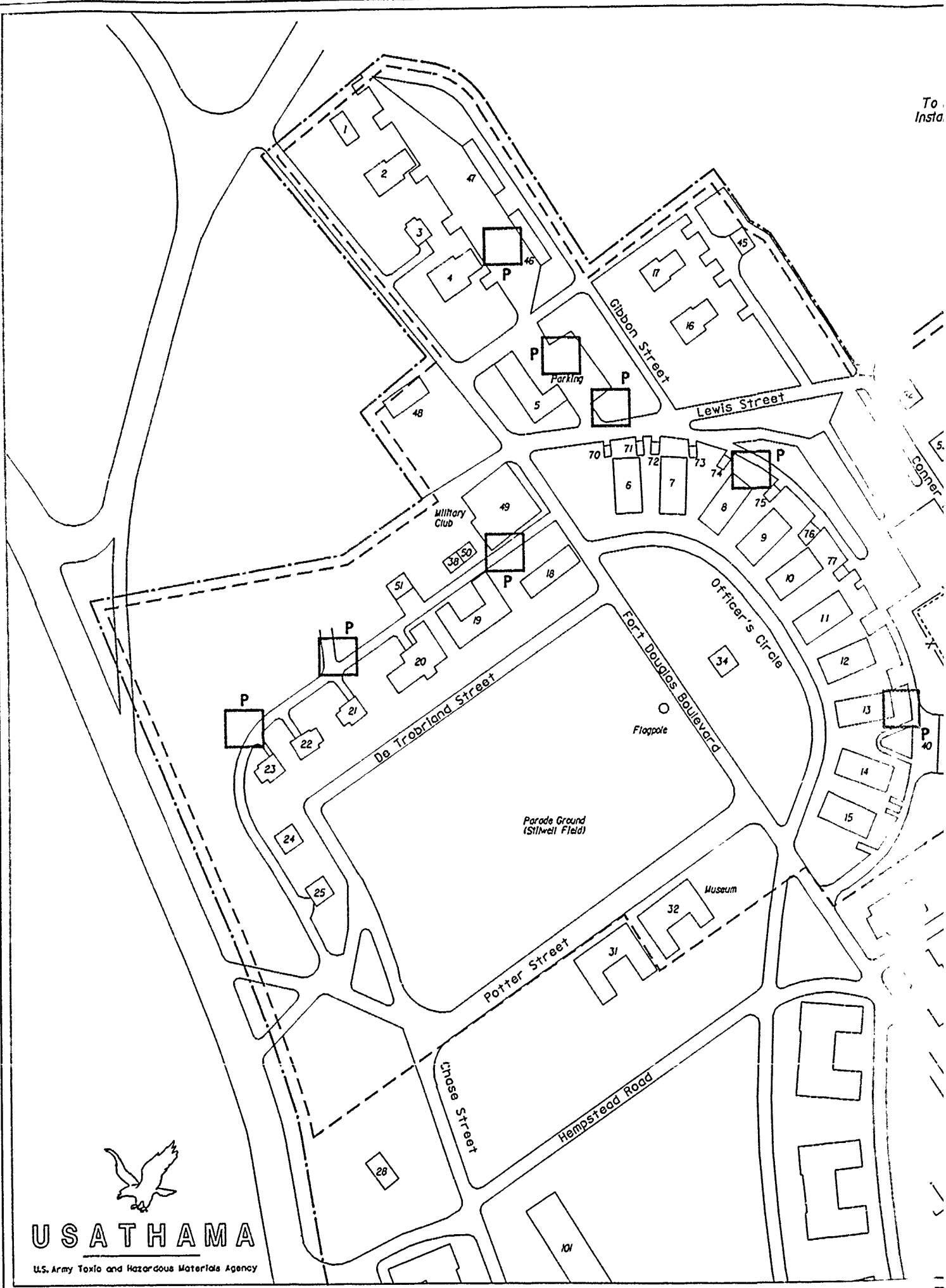
5.2.3 TRANSFORMERS

Transformers at eight locations are labelled as containing PCBs. However, in the absence of analytical data, transformers at the remaining six locations are also suspected of containing PCBs. All of these transformers should be sampled for transformer oil and tested for PCBs. Because there are between one and three transformers at each of the 14 locations, the estimated number of oil samples needed is between 30 and 40.

Table 5-1
ESOs Identified At FD And Recommendations For Further Action

ESOs	Concern	Recommended Activity	Estimated Number and Type of Samples	Analysis
Asbestos	Inhalation	Remove or encapsulate known exposed friable asbestos. Comprehensive asbestos sampling throughout site. Ambient air sampling inside all buildings.	75 - 100 Air Samples 100 - 300 Solid Samples	Asbestos
Radon	Inhalation	No immediate investigation. Wait for results of long-term radon detectors and take appropriate action.	NA	NA
Transformers	Contact	Sample transformer fluid.	30 to 40 Oil Samples	PCBs

To
Insta



USATHAMA

U.S. Army Toxic and Hazardous Materials Agency

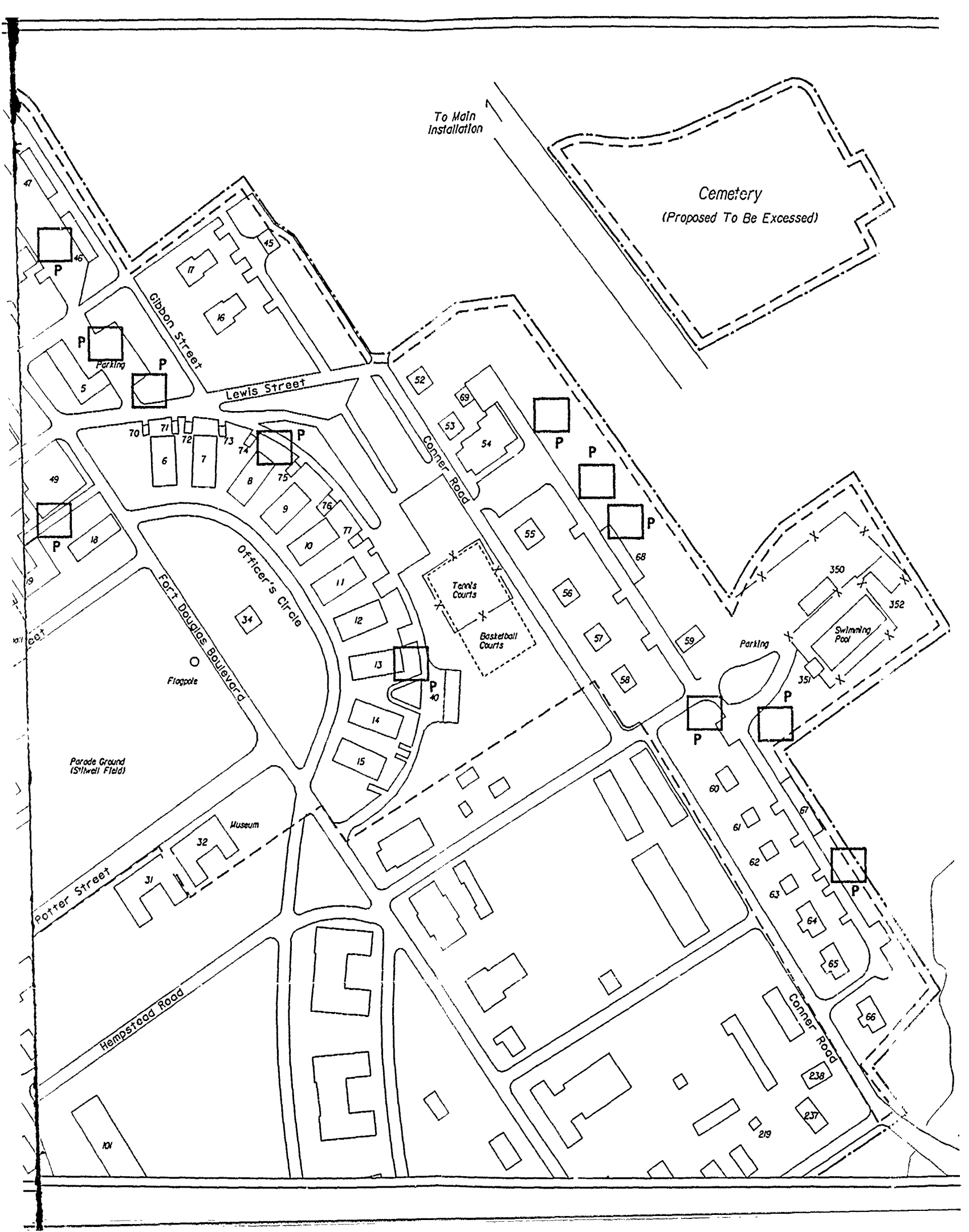
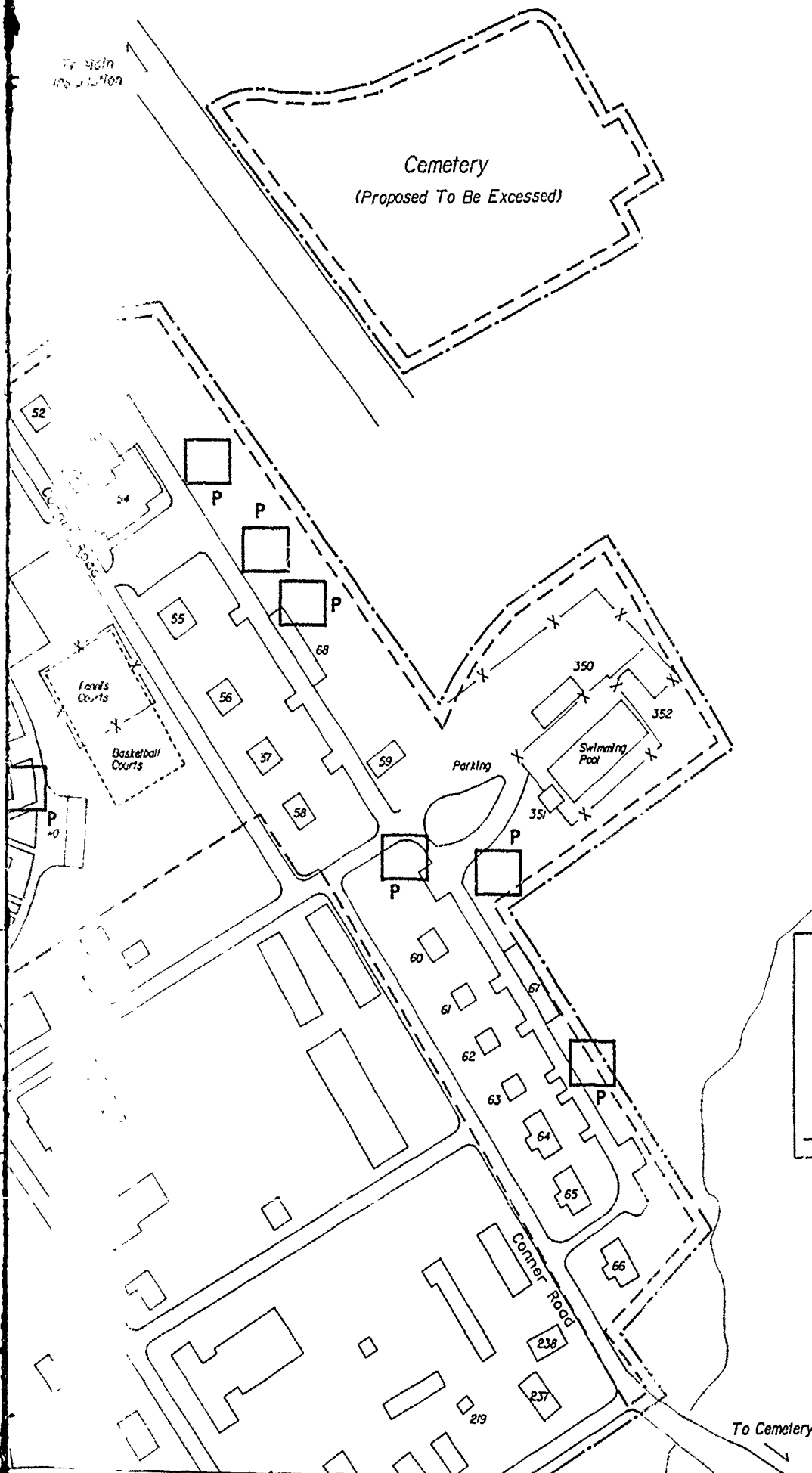
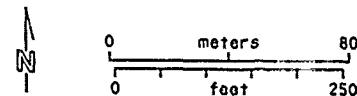


Figure 5-1
Recommended Sampling
Locations

Compiled in 1989 from various sources
provided by the U.S. Army Toxic and
Hazardous Materials Agency



RECOMMENDED SAMPLING METHODS

P PCB Sampling

NOTE: Comprehensive asbestos
sampling recommended
throughout area to
be exceeded.

--- **PROPERTY TO BE EXCEEDED**

Section 6

References

SECTION 6

REFERENCES

6.1 DIRECT INTERVIEWS

- I-1 Facility Engineer
Fort Douglas, Utah
6-8 November 1989
- I-2 Engineer-Technician
Fort Douglas, Utah
6-8 November 1989
- I-3 Bureau of Drinking Water
Salt Lake City, Utah
7 November 1989
- I-4 Bureau of Solid and Hazardous Waste
Salt Lake City, Utah
7 November 1989

6.2 TELEPHONE INTERVIEWS

- T-1 Bureau of Water Pollution
Salt Lake City, Utah
29 September 1989
- T-2 Bureau of Air Quality
Salt Lake City, Utah
6 October 1989
- T-3 Water Department
Salt Lake City, Utah
27 September 1989
- T-4 Division of Water Rights
Salt Lake City, Utah
5 October 1989
- T-5 DNR - Division of Wildlife Resources
Salt Lake City, Utah
8 November 1989
- T-6 Environmental Section
Fort Carson, Colorado
13 November 1989
- T-7 Environmental Section
Tooele Army Depot, Utah
15 November 1989



6.3 REPORTS AND OTHER DOCUMENT SOURCES

- R-1 Installation Assessment Report - FD, Utah, Report No. 330, December 1982.
- R-2 Water System Study, Templeton, Linke and Associates, Salt Lake City, Utah, October 1985.
- R-3 Correspondence from FD file made available by the Utah Bureau of Drinking Water.
- R-4 Economic Information Packet, Salt Lake Area Chamber of Commerce (included in Appendix A).
- R-5 Waste Site Characterization Study Report, Roy F. Weston, Inc., November 1988 (included in Appendix B).
- R-6 Well Survey Information, Utah Division of Water Rights (included in Appendix C).
- R-7 Information available on FD from the University of Utah Library (portions included in Appendix D).
- R-8 Preliminary Report of Excess for FD, Utah, Directorate of Engineering and Housing, Fort Carson, Colorado, April 1989.
- R-9 Climate of the States 2, Western States, Water Information Center, Inc, Port Washington, New York, 1974.
- R-10 1988 Local Climatological Data, Annual Summary with Comparative Data, Salt Lake City, Utah, National Oceanic and Atmospheric Administration, Asheville, North Carolina.
- R-11 Citizen's Guide to Radon, EPA Publication OPA-86-004, Washington, DC, August 1986.
- R-12 Hazardous Waste Management Division, U.S. Environmental Protection Agency Region VIII, 19 October 1989. Letter to Roy F. Weston, Inc.
- R-13 Utah DNR - Division of Natural Resources, 21 November 1989. Letter to Roy F. Weston, Inc. (included in Appendix E).
- R-14 Crittenden, Jr., Max D. Geology of Salt Lake County, Bulletin 69, Utah Geological and Mineralogical Survey, November 1964.
- R-15 Seiler, R.L. Selected Hydrologic Data for Salt Lake Valley, Utah, October 1968 to October 1985, Utah Hydrologic Data Report No. 44, U.S. Geological Survey, Open-File Report 86-249, 1986.
- R-16 Waddell, K.M., Seiler, R.L., Santini, Melissa and Solamon, D.K. Ground-water Conditions in Salt Lake Valley, Utah, 1969-83 and Predicted Effects of Increased Withdrawals from Wells, Technical Publication No. 87, Utah Department of Natural Resources, 1987.

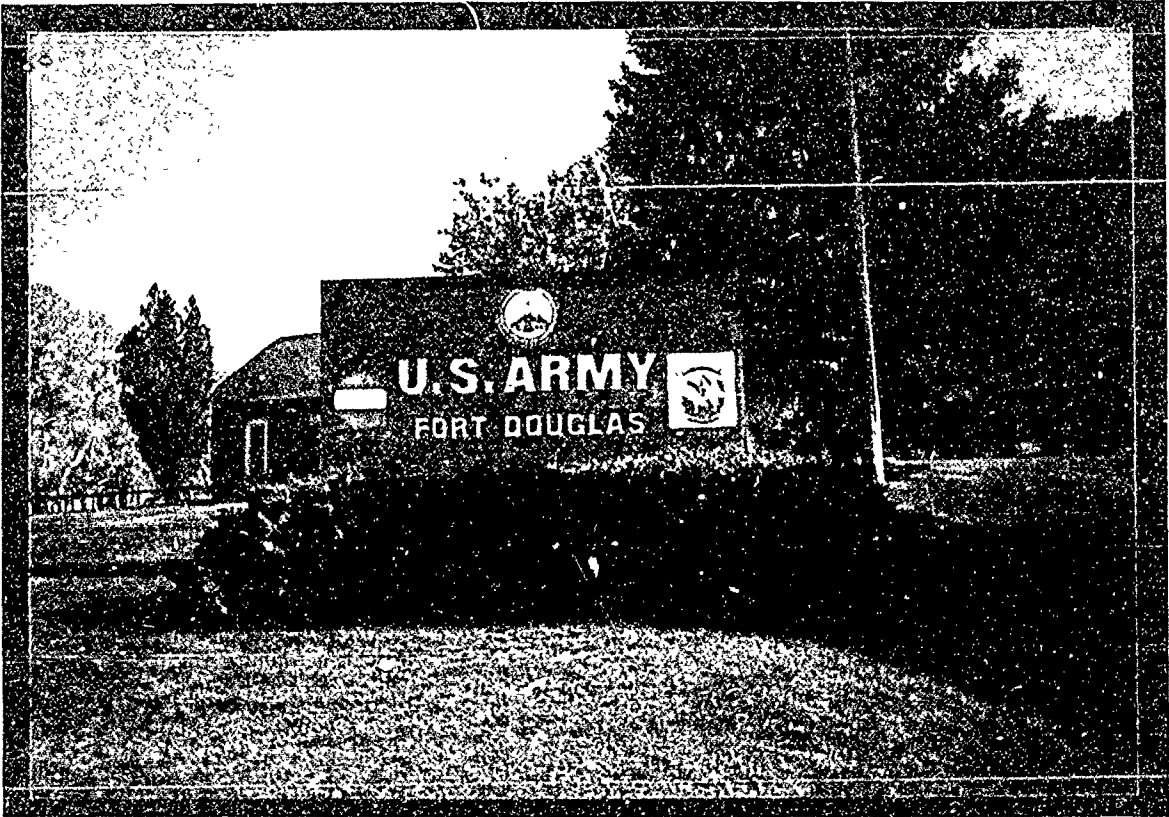
Section 7 Photographs



SECTION 7

PHOTOGRAPHS

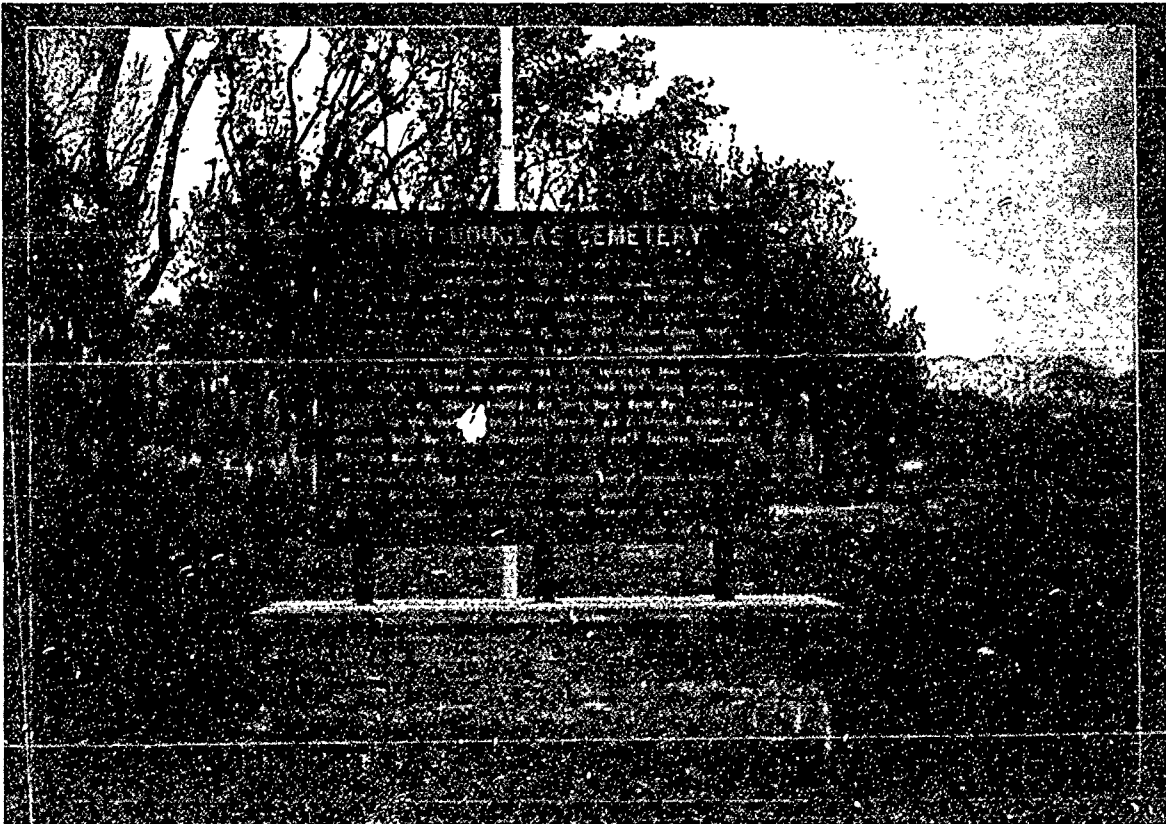
Photographs of the ESOs investigated for the Fort Douglas Enhanced Preliminary Assessment report are provided on the following pages.



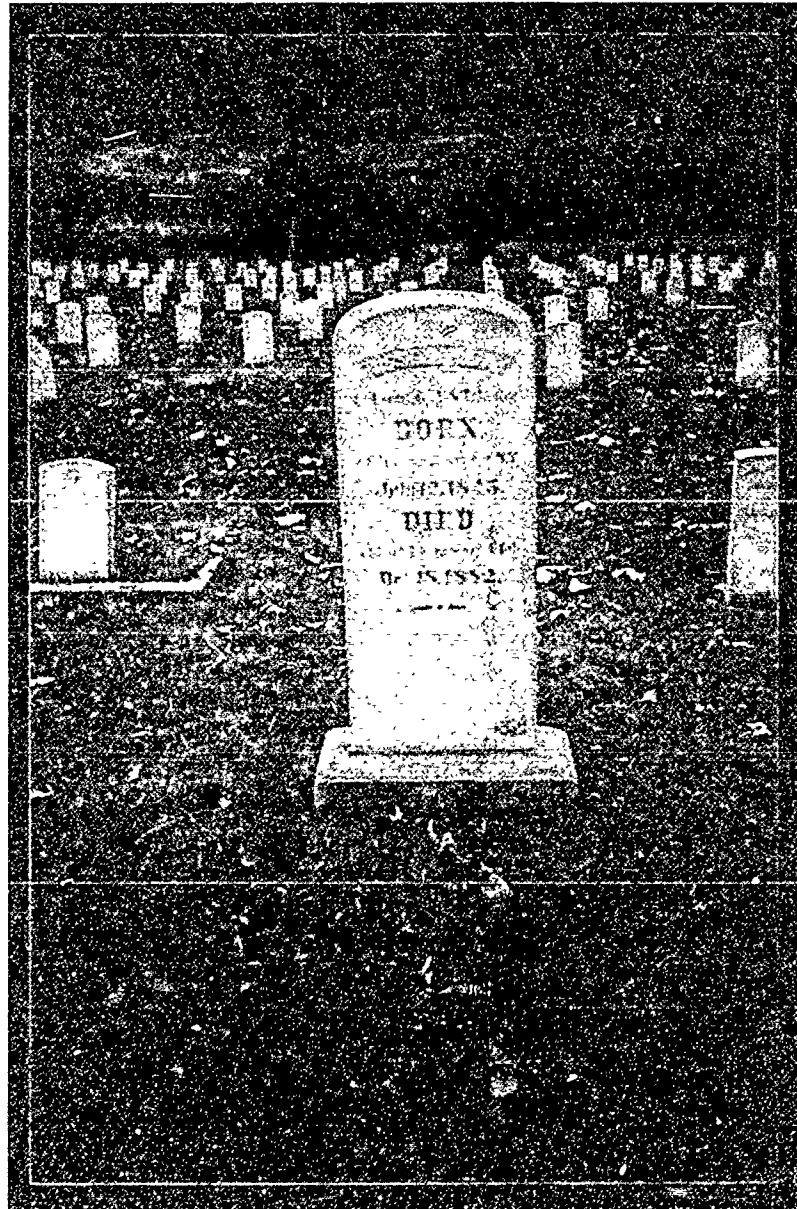
1. ENTRANCE TO FORT DOUGLAS



2. FORT DOUGLAS MUSEUM



3. ENTRANCE TO FORT DOUGLAS CEMETERY



4. TYPICAL GRAVESTONE INSIDE
FORT DOUGLAS CEMETERY



5. GENERAL CONDITIONS OUTSIDE OF FAMILY HOUSING UNITS:
BUILDING 8A AND 8B



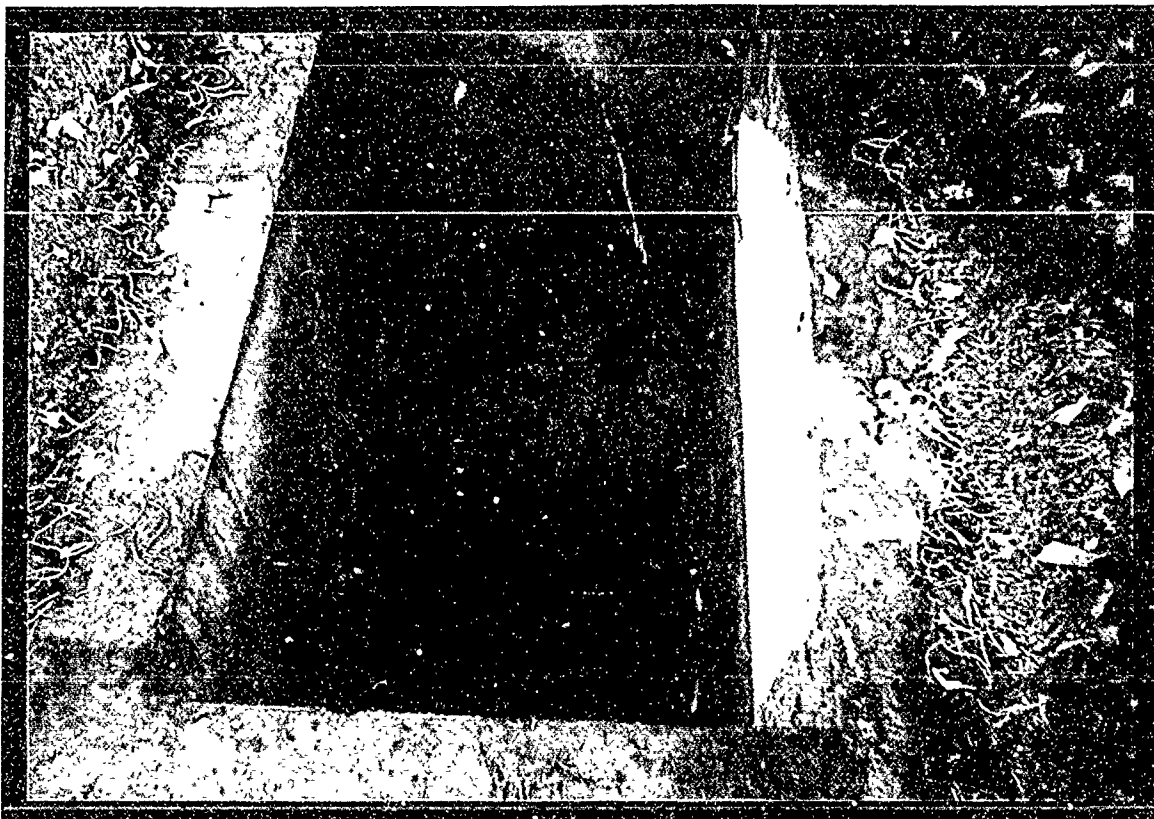
6. GENERAL CONDITIONS OUTSIDE OF FAMILY HOUSING UNITS:
BUILDING 17A



7. GENERAL CONDITIONS OUTSIDE OF FAMILY HOUSING UNITS: BUILDING 25



8. GENERAL CONDITIONS OUTSIDE OF FAMILY HOUSING UNITS: BUILDING 62



9. GENERAL CONDITIONS INSIDE CONCRETE SUMP



10. FD ESO IN THE AREA TO BE RETAINED:
SUBSTATION WITH TRANSFORMER STORAGE

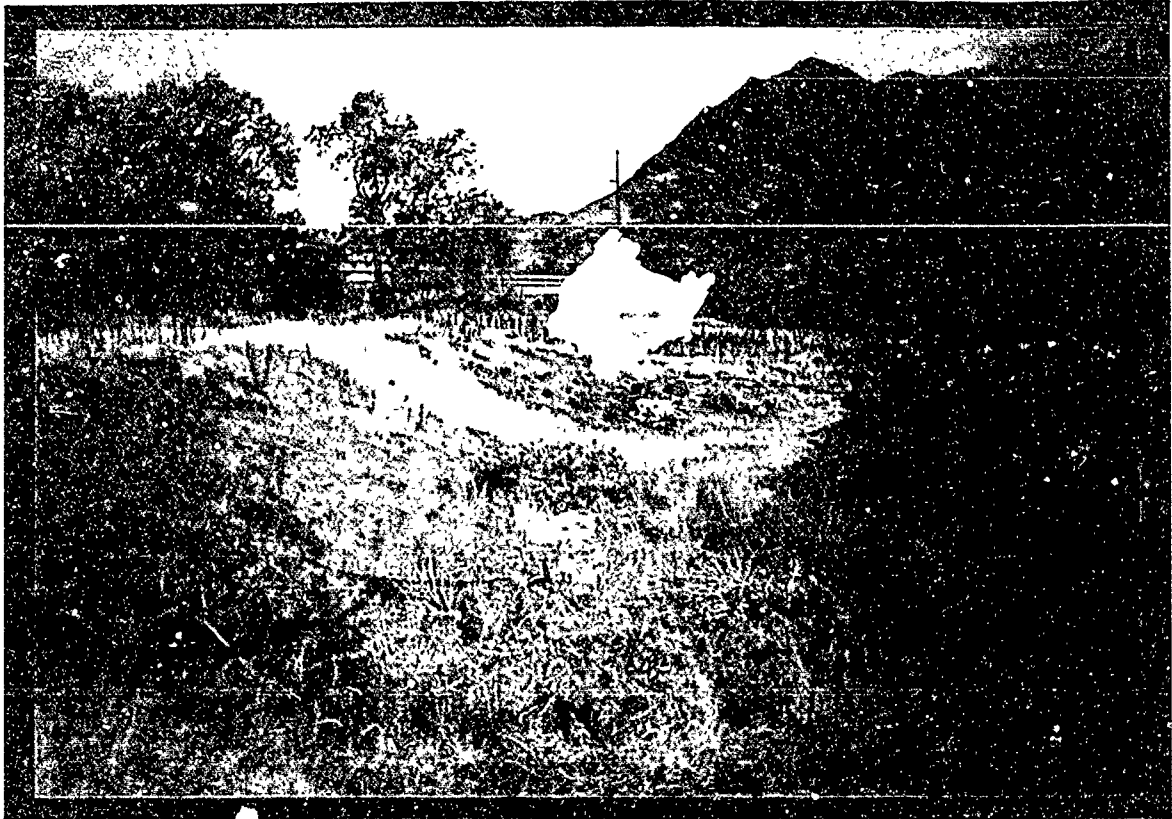


11. POL STORAGE AREA SOUTHEAST OF EXCESSED AREA

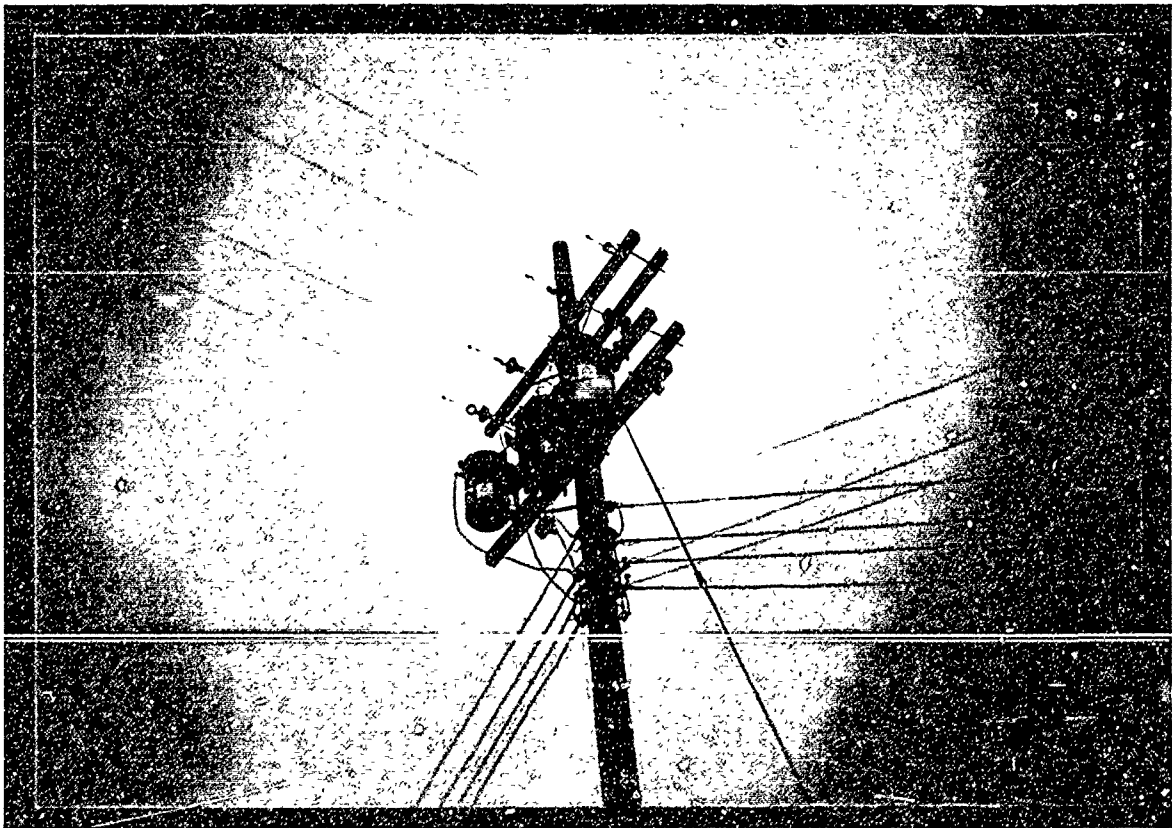


12. UNIVERSITY OF UTAH STORAGE AREA NORTH OF SWIMMING POOL

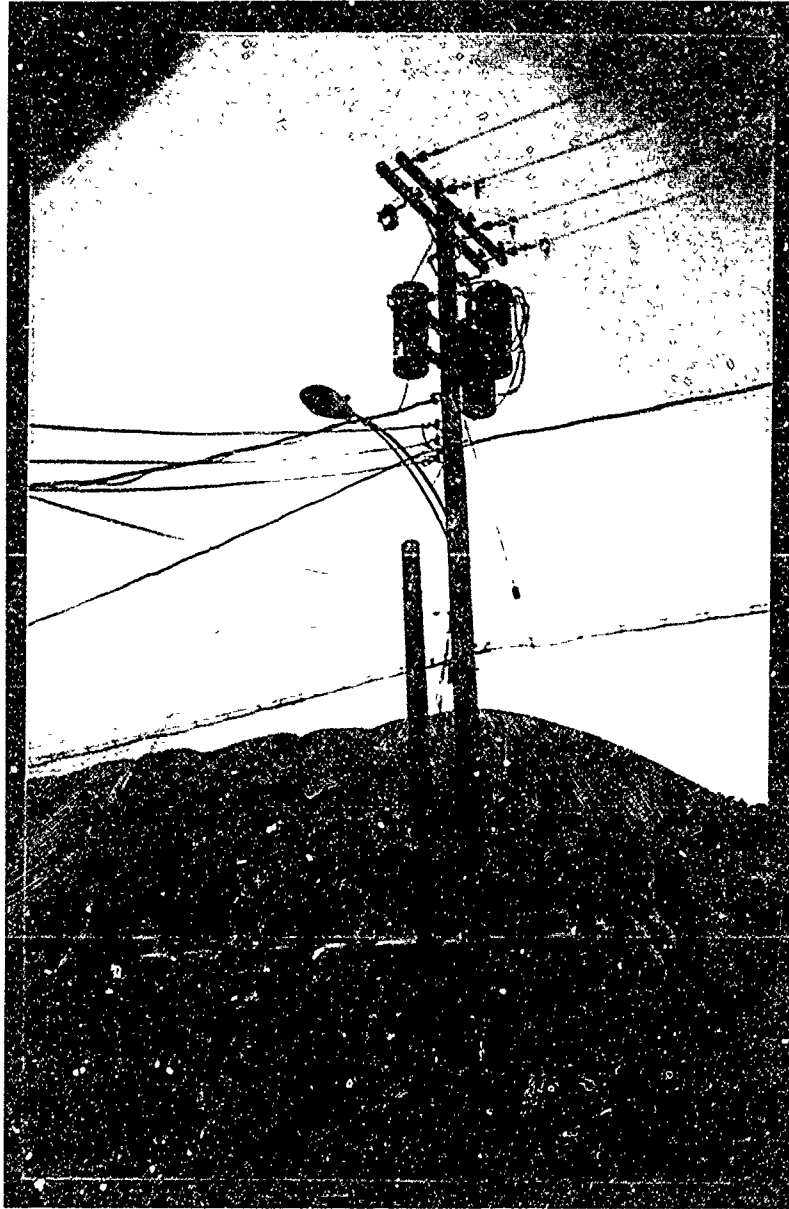
THESE FD ESOs ARE IN THE AREA TO BE RETAINED



13. LANDFILL EAST OF FORT DOUGLAS



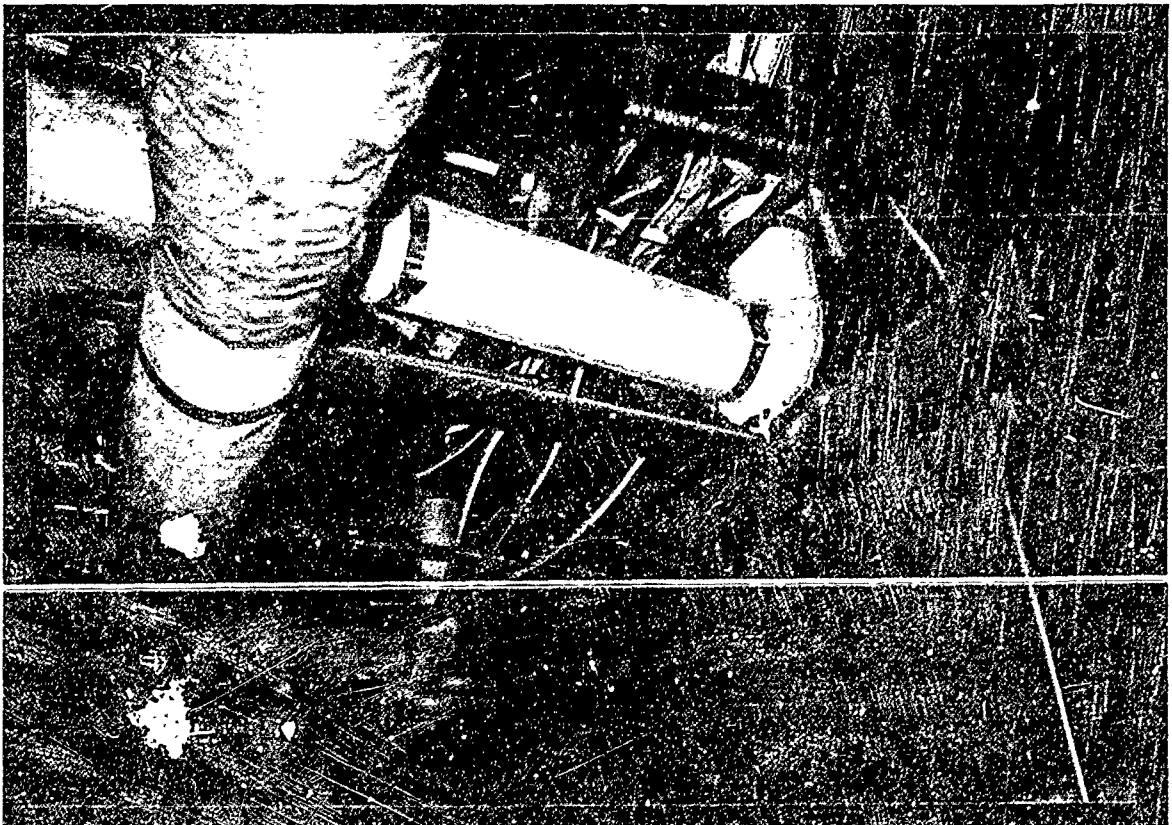
14. PCB-LABELLED TRANSFORMERS



15. PCB-LABELLED TRANSFORMERS



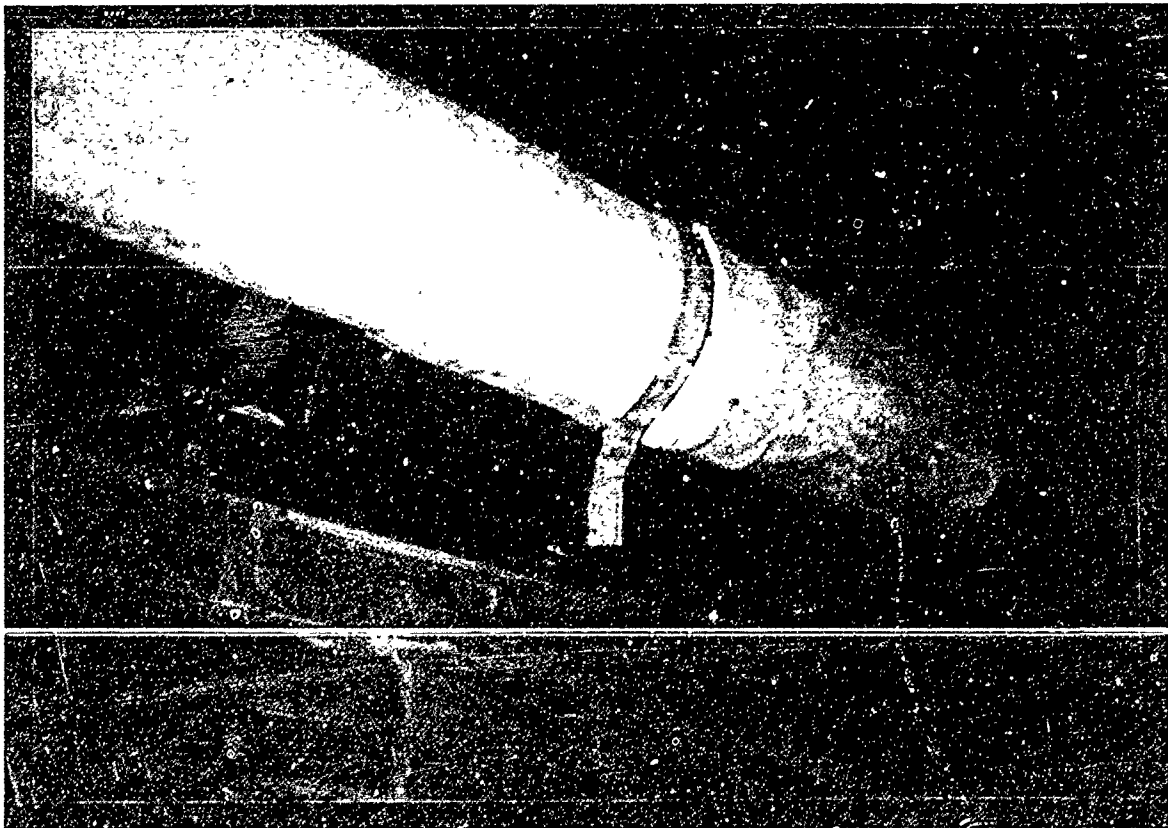
16. BUILDING 8A



17. BUILDING 8A

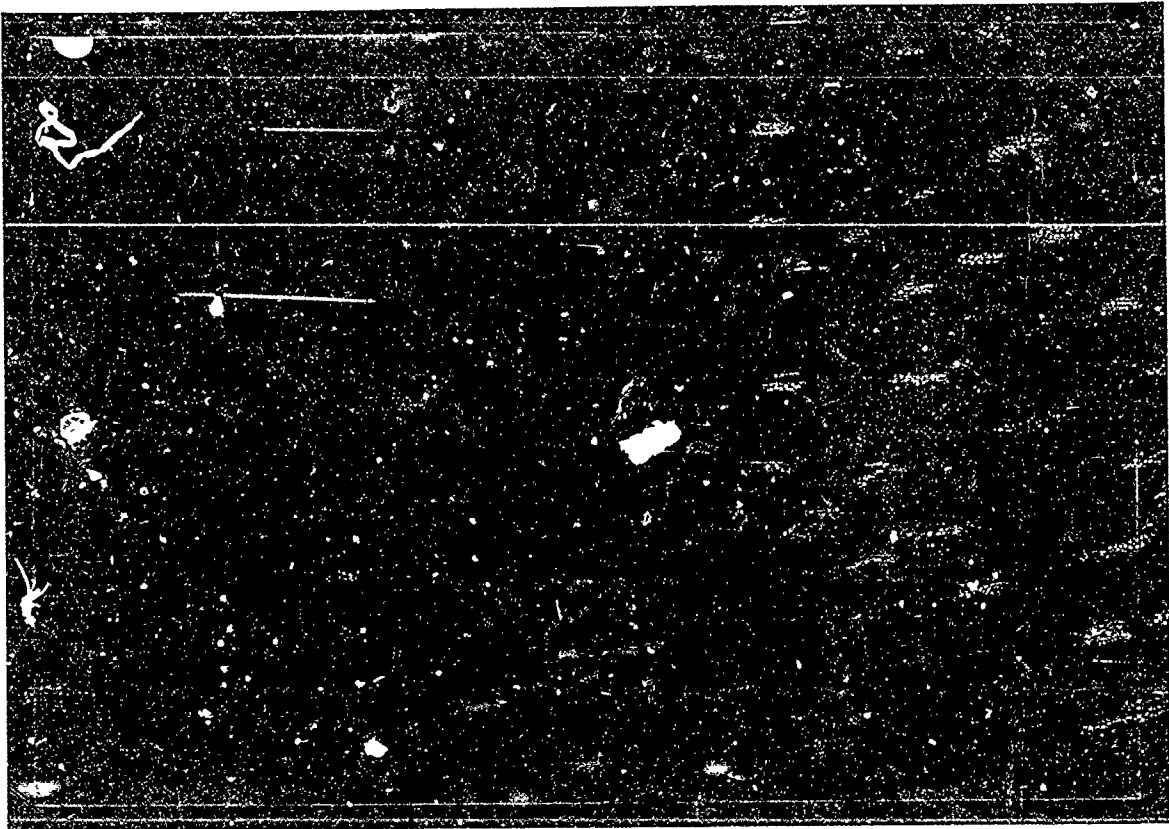


18. BUILDING 8A

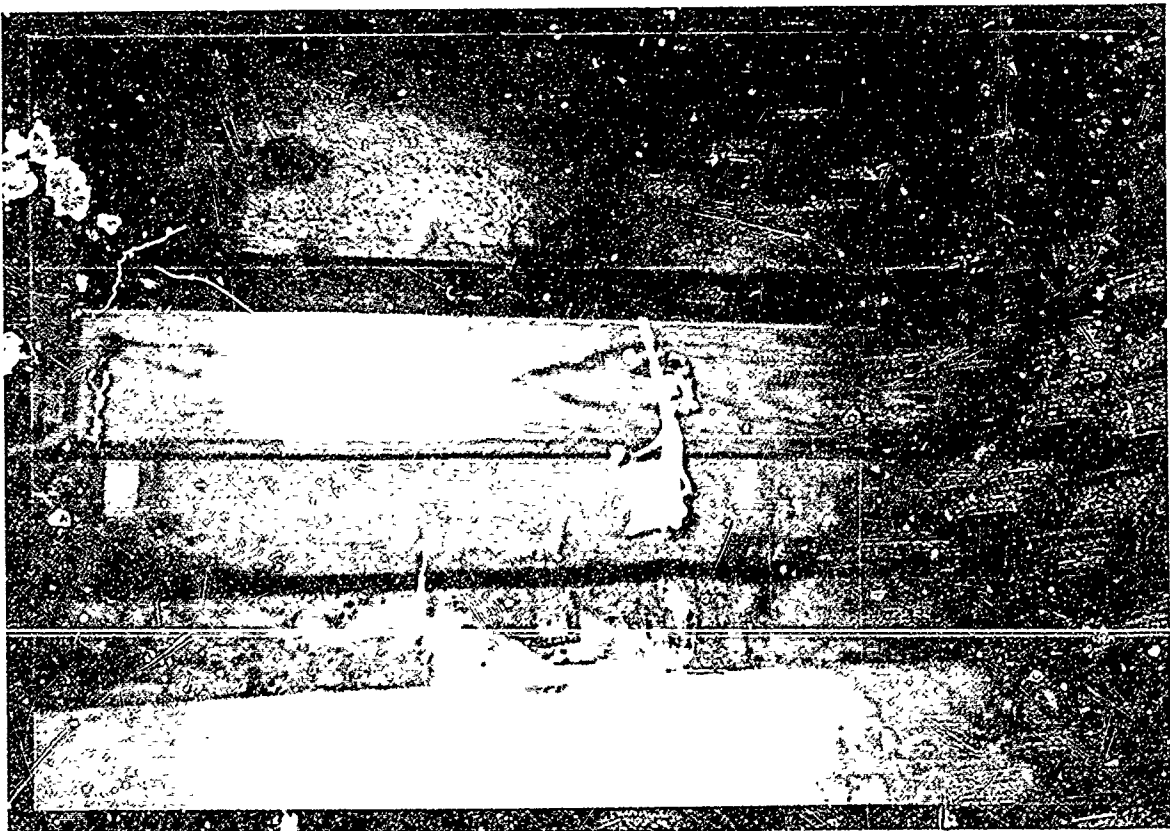


19. BUILDING 17A

GENERAL CONDITION OF SUSPECTED ASBESTOS INSULATED PIPING INSIDE BASEMENTS OF HOUSES

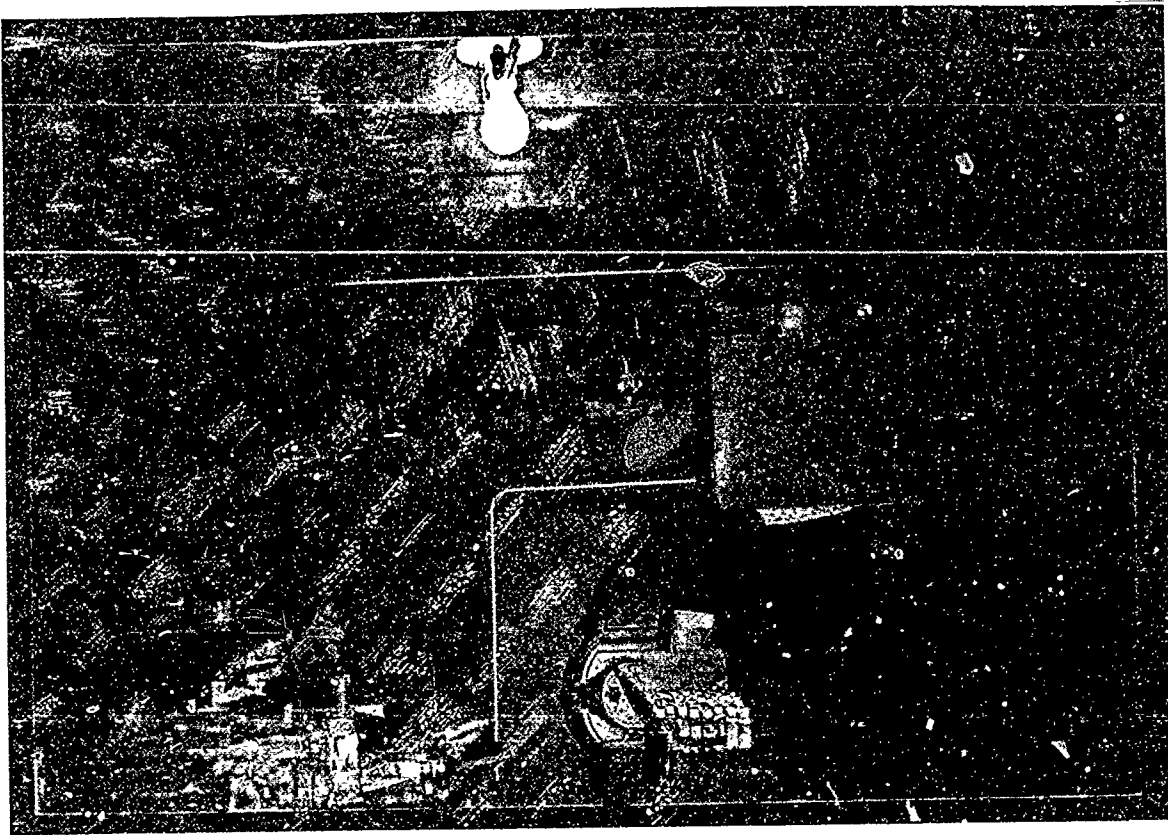


20. BUILDING 17A



21. BUILDING 25

GENERAL CONDITION OF SUSPECTED ASBESTOS INSULATED PIPE INSIDE BASEMENTS OF HOUSES



22. BUILDING 25



23. BUILDING 62

GENERAL CONDITION OF SUSPECTED ASBESTOS INSULATED PIPING INSIDE BASEMENTS OF HOUSES

Appendices



APPENDIX A
ECONOMIC INFORMATION ON SALT LAKE CITY, UTAH

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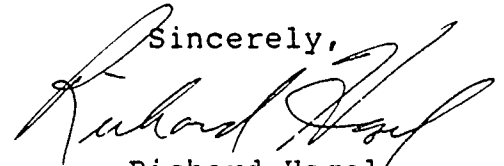
Dear Mr. Michandani

Thank you for your interest in Salt Lake City, "America's Choice!"

The enclosed information includes population trends, employment statistics, general demographics and real estate figures. I hope you find this information useful.

If you need additional information, please contact the Chamber's Research Department at 175 East 400 South, Suite 600, Salt Lake City, Utah 84111 (801) 364-3631.

Sincerely,



Richard Hazel
Research Assistant

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SALT LAKE AREA CHAMBER OF COMMERCE ECONOMIC INFORMATION PACKET

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UTAH CITIES WITH POPULATION OF 2,500 OR MORE
1986 ESTIMATES

CITY	COUNTY	RANK	POPULATION	CITY	COUNTY	RANK	POPULATION
Salt Lake City	Salt Lake	1	158,440	North Salt Lake	Davis	38	6,800
West Valley City	Salt Lake	2	90,770	Smithfield	Cache	39	6,060
Provo	Utah	3	77,480	Draper	Salt Lake	40	6,040
Ogden	Weber	4	67,490	Richfield	Sevier	41	5,700
Sandy City	Salt Lake	5	67,430	Sunset	Davis	42	5,610
Orem	Utah	6	61,590	Woods Cross	Davis	43	5,420
West Jordan	Salt Lake	7	44,440	Grantsville	Tooele	44	5,130
Layton	Davis	8	35,280	Hyrum	Cache	45	4,980
Bountiful	Davis	9	34,510	Roosevelt	Duchesne	46	4,850
Logan	Cache	10	28,880	Syracuse	Davis	47	4,780
Murray	Salt Lake	11	23,730	Heber City	Wasatch	48	4,770
Roy	Weber	12	23,500	Pleasant View	Weber	49	4,760
Clearfield	Davis	13	22,670	West Bountiful	Davis	50	4,690
St. George	Washington	14	19,800	Washington	Washington	51	4,540
Brigham City	Box Elder	15	16,150	Tremonton	Box Elder	52	4,410
Tooele	Tooele	16	15,760	Moab	Grand	53	4,410
American Fork	Utah	17	15,270	Park City	Summit	54	4,250
Springville	Utah	18	13,300	Fruit Heights	Davis	55	4,140
Pleasant Grove	Utah	19	13,200	Highland	Utah	56	4,080
Cedar City	Iron	20	12,380	Lindon	Utah	57	3,850
Kaysville	Davis	21	12,370	Nephi	Juab	58	3,560
South Salt Lake	Salt Lake	22	12,340	Delta	Millard	59	3,530
South Ogden	Weber	23	12,240	Alpine	Utah	60	3,380
Midvale	Salt Lake	24	11,390	West Point	Davis	61	3,320
South Jordan	Salt Lake	25	11,030	Mapleton	Utah	62	3,230
Spanish Fork	Utah	26	10,910	Hurricane	Washington	63	3,210
Centerville	Davis	27	10,740	Providence	Cache	64	3,110
North Ogden	Weber	28	10,660	Blanding	San Juan	65	3,070
Payson	Utah	29	9,530	Ephraim	Sanpete	66	2,990
Riverton	Salt Lake	30	9,470	Plain City	Weber	67	2,840
Price	Carbon	31	8,980	Fillmore	Millard	68	2,800
Vernal	Uintah	32	8,180	Kanab	Kane	69	2,770
Lehi	Utah	33	8,100	North Logan	Cache	70	2,700
Washington Terrace	Weber	34	7,990	Helper	Carbon	71	2,700
Clinton	Davis	35	7,870	Salem	Utah	72	2,630
Farmington	Davis	36	7,530	Santaquin	Utah	73	2,610
Rivendale	Weber	37	7,130	Wellsville	Cache	74	2,500

Source: U.S. Bureau of the Census, Current Population Reports, Series P-26, No. 86-W-SC, U.S. Government Printing Office Washington D.C., 1988. Table prepared by Utah Department of Employment Security, Labor Market Information Services.

Table
Utah Population Estimates
By County, Multi-County District, and Metro Area
July 1, 1980 and July 1, 1988

COUNTY	1980	1981*	1982*	1983	1984*	1985	1986*	1987*	1988**	1980-88 Percent Change	1987-1988 Percent Change
Beaver	4,400	4,600	4,650	5,000	5,150	5,050	4,950	4,900	4,800	9.1%	-2.0%
Box Elder	23,500	34,000	34,700	35,300	35,800	36,600	37,300	37,800	38,000	13.4%	0.5%
Cache	57,700	59,800	62,000	64,500	65,600	66,700	67,800	69,200	70,600	22.4%	2.0%
Carbon	22,400	23,100	24,700	24,500	23,700	23,400	23,000	22,500	22,000	-1.8%	-2.2%
Daggett	750	850	850	750	750	700	700	700	700	-6.7%	0.0%
Davis	148,000	153,000	158,000	162,000	166,000	170,000	175,000	179,000	184,000	24.3%	2.8%
Duchesne	12,700	13,100	13,700	14,400	14,800	14,700	14,300	13,700	13,100	3.1%	-4.4%
Emery	11,600	12,100	13,000	13,100	12,400	11,800	11,800	11,600	11,300	-2.6%	-2.6%
Garfield	3,700	3,700	3,750	3,950	3,950	4,050	4,050	4,050	4,050	9.5%	0.0%
Grand	8,250	8,400	8,100	7,950	7,650	7,050	6,850	6,700	6,550	-20.6%	-2.2%
Iron	17,500	17,900	18,300	18,900	19,300	19,400	19,500	19,500	19,200	9.7%	-1.5%
Juab	5,550	5,600	5,700	5,900	6,150	6,250	5,800	5,700	5,700	2.7%	0.0%
Kane	9,050	9,600	10,400	11,400	13,500	14,200	13,600	13,000	12,900	42.5%	-0.8%
Millard	4,950	5,050	5,200	5,250	5,350	5,450	5,500	5,650	5,700	15.2%	0.9%
Morgan	1,350	1,400	1,350	1,450	1,500	1,550	1,550	1,550	1,550	14.8%	0.0%
Piute	2,150	2,250	2,400	2,300	2,150	2,100	2,050	1,950	1,950	-14.0%	-5.1%
Rich	625,000	640,000	655,000	667,000	679,000	689,000	697,000	701,000	705,000	12.8%	0.6%
Salt Lake	12,400	12,400	12,600	13,000	12,800	12,500	12,700	12,900	12,900	4.0%	0.0%
San Juan	14,800	15,400	16,100	16,900	17,000	16,900	16,500	16,600	16,700	12.8%	0.6%
Sanpete	14,900	15,200	15,500	15,800	16,100	16,200	15,800	15,900	15,900	6.7%	0.0%
Sedgwick	10,400	10,900	11,300	11,800	12,200	12,400	12,700	13,300	13,400	28.8%	6.1%
Summit	26,200	26,800	27,100	27,300	28,200	28,300	28,100	28,100	27,800	3.9%	-1.1%
Tooele	20,700	21,900	23,000	24,300	24,500	24,000	23,000	21,800	21,500	19.1%	-1.4%
Utah	220,000	228,000	235,000	242,000	247,000	250,000	253,000	258,000	262,000	13.3%	1.0%
Wasatch	8,650	8,900	8,750	9,050	9,200	9,200	9,450	9,700	9,800	62.9%	4.1%
Washington	26,400	27,700	29,400	30,700	32,600	35,700	39,100	41,300	43,000	7.7%	2.4%
Wayne	1,950	2,000	2,000	2,150	2,150	2,100	2,100	2,050	2,100	9.0%	0.6%
Weber	145,000	148,000	151,000	154,000	155,000	155,000	157,000	157,000	158,000	18.1%	1.4%
MULT-COUNTY DISTRICTS											
Beaver River	93,350	96,050	99,100	102,100	103,550	105,400	107,150	108,950	110,450	13.8%	0.9%
Wasatch Front	949,150	972,850	996,300	1,015,550	1,033,550	1,047,750	1,062,600	1,070,750	1,080,500	19.3%	1.5%
Mountainland	239,050	247,800	255,050	262,950	268,400	271,600	275,150	281,000	285,200	15.2%	0.1%
Central	47,600	49,200	51,050	53,600	56,400	57,200	55,350	54,800	54,850	35.5%	1.8%
Southwest	56,050	57,950	60,250	62,900	65,900	68,900	72,400	74,600	75,950	3.4%	-2.5%
Utah Basin	34,150	35,850	33,850	40,450	40,050	39,400	38,000	36,200	35,300	53.700	-3.5%
Southeast	54,650	56,300	58,400	59,550	56,550	54,750	54,350	53,700	52,750	14.1%	1.0%
METROPOLITAN STATISTICAL AREAS											
Salt Lake-Ogden	918,000	941,000	964,000	983,000	1,000,000	1,014,000	1,029,000	1,037,000	1,047,000	15.1%	1.6%
Provo-Orem	222,600	228,000	235,000	242,000	247,000	250,000	253,000	258,000	262,000	15.0%	0.9%
STATE OF UTAH	1,474,000	1,516,000	1,559,000	1,598,000	1,624,000	1,645,000	1,665,000	1,680,000	1,695,000	15.0%	0.9%

* Revised

** Preliminary

Source: Utah Population Estimates Committee



APPENDIX B
WASTE SITE CHARACTERIZATION
STUDY REPORT

108EM2-1

USATHAMA Property Report

Date of Printing: 11/21/88
Last Update: 11/20/88

Property Number: 49275
FFIS Number : UT-214020278

Name : FORT DOUGLAS
Address: ATTN: AFZC-D-DEH

FORT DOUGLAS
UT 84113-5001

Coord.: 40DEG 46MIN N 111DEG 50MIN W

Base Population : 500
Command : FORSCOM

Support Facility: N/A

Nearest Town : SALT LAKE CITY
Population : 1000000

EPA Region : 8

Environmental Coordinator Name : EDWARD RICHARDSON
Environmental Coordinator Address: H.O. USA SUPPORT DETACH
ATTN: AFZC-D-DEH

SALT LAKE CITY
UT 84113-5001

Environmental Coordinator Phone : (801)524-4207

Date of Form Response : 10/26/88

Name of Respondee : GARALD SILVER
Title : ENGINEERING TECHNICIAN
Time Associated : 13 YEARS

Surface Water Uses: DRINKING, INDUSTRIAL, COMMERCIAL

Ground Water Uses : DRINKING, INDUSTRIAL, COMMERCIAL

Comments : INACTIVE UNDERGROUND STORAGE TANKS AND
LANDFILLS HAVE NOT BEEN CHARACTERIZED.

Number of Waste Sites: 23

Maximum Score : 16.6

Confidence Factor : B

USKITHAMA Waste Site Report

Date of Printing: 11/21/88
Last Update: 11/20/88

Property Number: 49275 Property Name: FORT DOUGLAS

<u>Site Number</u>	<u>Site Name</u>	<u>Waste Site Characterization</u>	<u>ISH Scores</u>	<u>Comments</u>	<u>IRP Status</u>
1	ABOVEGROUND DIESEL TANK	Type: DIESEL FUEL	Surface Water: 5.1 Ground Water : 2.9 Air Quality : 0.0 Total Score : 3.4	CURRENTLY USED FOR MILITARY VEHICLES. NO NO PAD AND NO CONTAINMENT CURB. NO VISIBLE EVIDENCE OF LEAKS.	PA : I SI : M RI : M FS : M RD : M
		Qty: 1200 GALLON TANK			
		Permit: NONE			
2	UNDERGROUND GASOLINE TANK	Type: GASOLINE	Surface Water: 10.2 Ground Water : 5.7 Air Quality : 0.0 Total Score : 6.8	CURRENTLY IN OPERATION. NO KNOWN LINER. NO EVIDENCE OF LEAKS, BUT NO LEAK TESTING.	PA : I SI : M RI : M FS : M RD : M
		Qty: 5000 GALLON TANK			
		Permit: NONE			
3	ABANDONED GASOLINE UST	Type: GASOLINE SLUDGE	Surface Water: 10.2 Ground Water : 5.7 Air Quality : 0.0 Total Score : 6.8	OLD GASOLINE STATION NO LONGER USED. THE TWO UNDERGROUND TANKS HAVE NOT BEEN REMOVED. NO MONITORING WELLS INSTALLED TO DETERMINE LEAKAGE. NO INTEGRITY TESTS PERFORMED TO DATE. UNKNOWN TANK SIZE, ASSUMED 10000 GAL IN SCORING.	PA : I SI : M RI : M FS : M RD : M
		Qty: UNKNOWN			
		Permit: NONE			

USALIAMA Mobile Site Manual

Date of Printing: 11/21/88
Last Update: 11/20/88

Property Number: 49275 Property Name: FORT DOUGLAS

4 ABOVEGROUND DIESEL TANK

Type: DIESEL FUEL

Surface Water: 9.4
Ground Water: 4.9
Air Quality: 0.0
Total Score: 6.1

ABOVE GROUND TANK WITHOUT A PAD OR CURB.
HYDRY USED UNDER TANK TO ABSORB ANY
SPILLS AND/OR LEAKS. NO VISIBLE LEAKS.

PA : I
SI : N
RI : N
FS : N
RD : N

Qty: 500 GALLON TANK

Permit: NONE

5 ABANDONED GASOLINE UST

Type: GASOLINE SLUDGE

Surface Water: 10.2
Ground Water: 5.7
Air Quality: 0.0
Total Score: 6.8

ORIGINAL GASOLINE STATION INACTIVE FOR
20 OR MORE YEARS. EXISTING VENT PIPE
INDICATES AN UNDERGROUND STORAGE TANK
WHICH HAS NOT BEEN REMOVED. EXTENT OF
CONTAMINATION UNKNOWN. NO LEAK TESTING
PERFORMED. TANK SIZE UNKNOWN, ASSUMED
10000 GAL IN SCORING.

PA : I
SI : N
RI : N
FS : N
RD : N

Qty: UNKNOWN

Permit: NONE

6 GASOLINE - UST

Type: GASOLINE-UNLEADED

Surface Water: 10.2
Ground Water: 5.7
Air Quality: 0.0
Total Score: 6.8

EXISTING GAS PUMP WITH TANK USED FOR
MOTOR POOL. INTEGRITY UNKNOWN.
(NOTE: SMALL MOBILE GAS TANKS FOR
MANEUVER USE STORED HERE).

PA : I
SI : N
RI : N
FS : N
RD : N

Qty: 3000 GALLON TANK

Permit: NONE

USATHAMA Waste Site Report

Date of Printing: 11/21/88
Last Update: 11/20/88

Property Number: 49275 Property Name: FORT DOUGLAS

7	PESTICIDES STORAGE TRAILER	Type: WEED CONTROL WEEDONE	<p>Surface Water: 11.6</p> <p>Ground Water : 6.5</p> <p>Air Quality : 0.0</p> <p>Total Score : 7.7</p> <p>Qty: 120 GALLONS</p> <p>Permit: NONE</p>	<p>STORAGE AREA FOR HERBICIDES AND PEST- ICIDES. SHALL WOODEN FLOOR TRAILER USED TO HOUSE THEM. NO OTHER FORM OF CONTAINMENT USED. CONTENTS INCLUDED TWO 55 GALLON DRUMS, TWO 5 GALLON CANS, AND A SPRAYER. OUTSIDE CONTRACTOR MIXES AND APPLIES THE HERBICIDE/PESTI-^{CI}DES.</p>	<p>PA : I</p> <p>SI : M</p> <p>RI : M</p> <p>FS : M</p> <p>RD : M</p>
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8	OLD LANDFILL	Type: DOMESTIC TRASH UNKNOWN	<p>Surface Water:</p> <p>Ground Water :</p> <p>Air Quality :</p> <p>Total Score :</p> <p>Qty: UNKNOWN</p> <p>Permit: NONE</p>	<p>INACTIVE LANDFILL SINCE MID 40'S. SIZE NOT CLEARLY DEFINED NOR THE TYPES OF WASTE DISPOSED WITHIN. NO MONITORING WELLS TO DETERMINE EXTENT OF CONTAMIN- ATION. NO ISM SCORING PERFORMED, INSUF- FICIENT INFORMATION.</p>	<p>PA : I</p> <p>SI : M</p> <p>RI : M</p> <p>FS : M</p> <p>RD : M</p>
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9	PHOTOGRAPHIC LAB	Type: DEVELOPER HARDNER TONER	<p>Surface Water: 0.0</p> <p>Ground Water : 22.1</p> <p>Air Quality : 0.0</p> <p>Total Score : 12.8</p> <p>Qty: 19 GALLONS/MONTH</p> <p>Permit: NONE</p>	<p>SMALL PHOTO LAB WITHOUT PRECIOUS METAL RECOVERY SYSTEM. ALL CHEMICALS CHANGED PERIODICALLY AND DUMPED INTO SINK FOR DISPOSAL. SCORE ASSUMES LEAKING PIPES DUE TO AGE OF PIPES AND HARSHNESS OF CHEMICALS.</p>	<p>PA : I</p> <p>SI : M</p> <p>RI : M</p> <p>FS : M</p> <p>RD : M</p>
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USAIHAWA Waste Site Report

Date of Printing: 11/21/81
Last Update: 11/20/81

Property Number: 49275 Property Name: FORT DOUGLAS

10 FRESH SOLVENTS, OIL STORAGE Type: SOLVENTS
ALCOHOL
LUBE OIL

STORAGE AREA FOR NEW SOLVENTS AND OILS.
NO SPILL CONTROL UTILIZED. SOLVENTS
AND OIL STORED IN DRUMS OUTDOORS ON
PALLETES.

Surface Water: 9.5
Ground Water : 5.3
Air Quality : 0.0
Total Score : 6.3

PA : I
SI : M
RI : M
FS : M
RD : M

Qty: 300-400 GALLONS

Permit: NONE

11 - 12 PCB TRANSFORMER STORAGE

Type: PCB

TRANSFORMERS STILL USABLE BUT NOT IN
SERVICE AT THIS TIME. TRANSFORMERS IN
SOUND CONDITION, LABELED AND ON PALLETES.
OILS NOT KNOWN TO BE PCB'S, ONLY SUS-
PECTED.

Surface Water: 13.8
Ground Water : 7.8
Air Quality : 0.0
Total Score : 9.2

PA : I
SI : M
RI : M
FS : M
RD : M

Qty: NONE

Permit: NONE

13 - 14 TARGET IMPACT AREAS

Type: EXPLOSIVES/ORDNANCE
METAL FRAGMENTS

IMPACT AND TARGET AREAS USED UNTIL THE
LATE 1940'S, EARLY 1950'S. UNKNOWN
WASTE QUANTITY.

Surface Water: 26.0
Ground Water : 12.4
Air Quality : 0.0
Total Score : 16.6

PA : I
SI : M
RI : M
FS : M
RD : M

Qty: UNKNOWN

Permit: NONE

USAIHAMA Waste Site Report

Date of Printing: 11/21/88
Last Update: 11/20/88

Property Number: 49275 Property Name: FORT DOUGLAS

15 - 16	FRESH OIL STORAGE	Type: LUBE OILS MOTOR OILS	Surface Water: 9.4 Ground Water : 5.3 Air Quality : 0.0 Total Score : 6.3	NO SPILL CONTROLS. NO EVIDENCE OF MAJOR SPILLS OR LEAKS. DRUMS APPEARED IN SOUND CONDITION, STORED OUTDOORS IN PALLETES.	PA : 1 SI : M RI : M FS : M RD : M
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Qty: 6 DRUMS

Permit: NONE

17 - 19	WASTE OIL STORAGE	Type: WASTE ENGINE OIL WASTE LUBE OIL	Surface Water: 9.4 Ground Water : 5.3 Air Quality : 0.0 Total Score : 6.3	2 WASTE OIL TRAILERS AND 1 WASTE OIL DRUM USED TO COLLECT WASTE OILS FROM COMPLEX. TRAILERS ARE 500 GALLON CAPACITY AND WHEN FULL, A CONTRACTOR IS HIRED TO PUMP OUT AND DISPOSE OF THE OILS. NO EVIDENCE OF LEAKS.	PA : 1 SI : M RI : M FS : M RD : M
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Qty: 1050 GALLONS

Permit: NONE

20	CONTAMINATED OILS STORAGE	Type: ENGINE OILS LUBE OILS JP-4 ANTIFREEZE	Surface Water: 9.4 Ground Water : 5.3 Air Quality : 0.0 Total Score : 6.3	STORAGE SITE FOR CONTAMINATED OILS, FUEL, AND ANTIFREEZE. CONTAMINANT UNKNOWN. NO SPILL CONTROL MEASURES, ONLY A SMALL AMOUNT OF HYDRO PILED AROUND DRUMS WHICH SIT ON PALLETES.	PA : 1 SI : M RI : M FS : M RD : M
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Qty: 12 DRUMS

Permit: NONE

USATHANA Waste Site Report

Date of Printing: 11/21/88
Last Update: 11/20/88

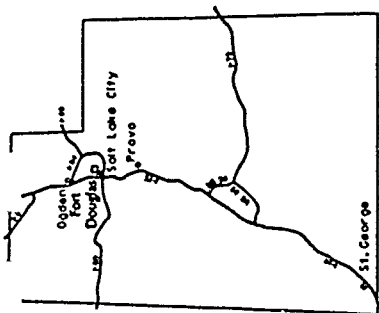
Property Number: 49275 Property Name: FORT DOUGLAS

21 - 23	WASH RICKS	Type: WASTE OILS OILY WATER	Surface Water: Ground Water : Air Quality :	THREE WASH RACKS ON BASE TO SERVICE MILITARY VEHICLES. ALL THREE ARE CONCRETE WITH CURBING, WHICH DRAIN TO AN OIL/WATER SEPARATOR. SEDIMENT TANK AND OIL PUMPED OUT BY LOCAL CONTRACTORS. THE SEPARATED WATER DRAINS INTO THE STORM DRAIN. NO ISM SCORING PERFORMED.	PA : I SI : N RI : N FS : N RD : N
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Total Score :

Qty: UNKNOWN

Permit: NONE

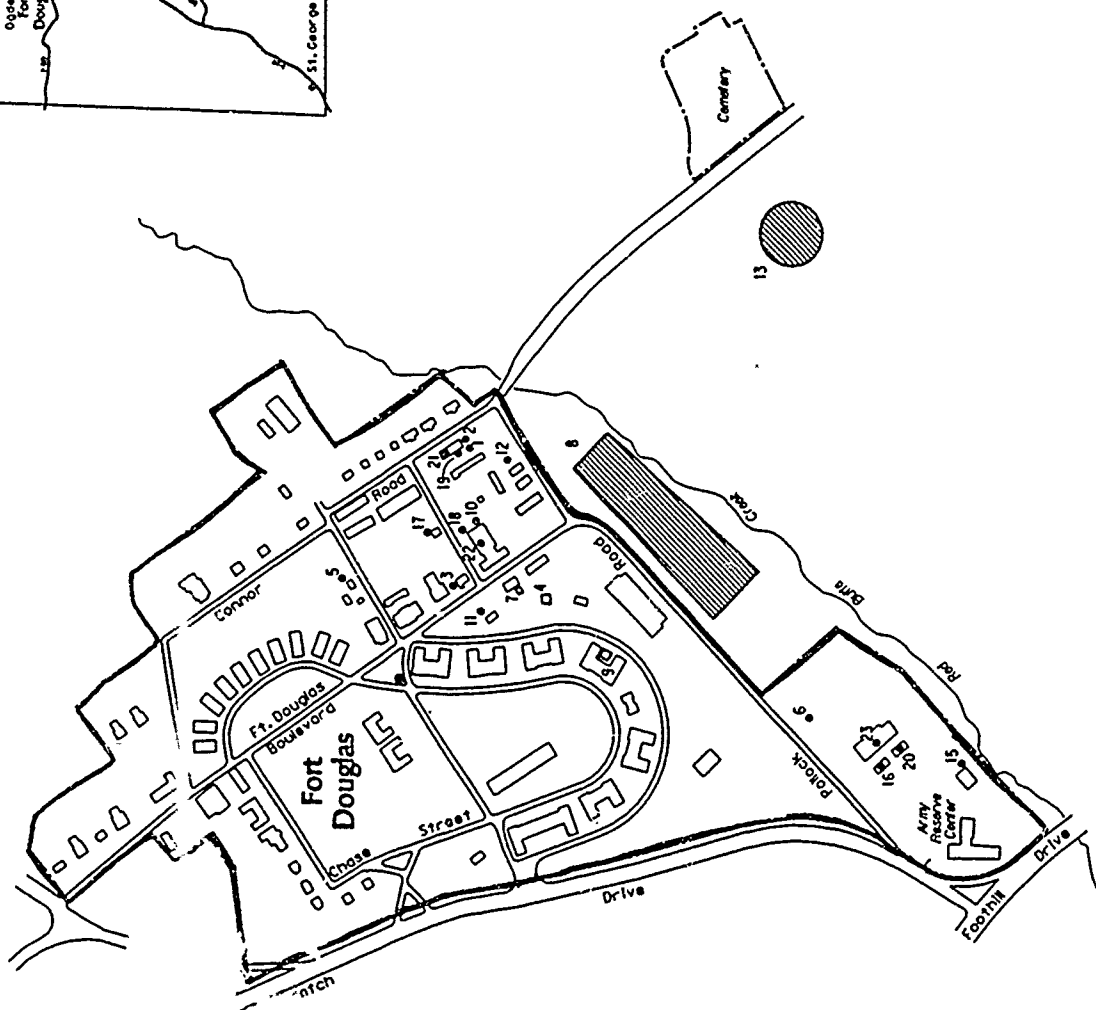


UTAH



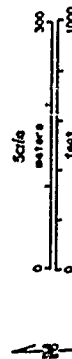
US ARMY

U.S. Army Tank and Materiel Support Agency



- 1 - Above-ground diesel tank
- 2 - Underground gasoline tank
- 3 - Abandoned gasoline underground storage tank
- 4 - Above-ground diesel tank
- 5 - Abandoned gasoline underground storage tank
- 6 - Gasoline underground storage tank
- 7 - Pesticide storage trailer
- 8 - Old landfill
- 9 - Photographic laboratory
- 10 - Storage area: fresh solvents, alcohols, and kerosene
- 11 - PCB transformer storage area
- 12 - PCB transformer storage area
- 13, 14 - Target impact areas
- 15, 16 - Fresh oil storage
- 17 to 19 - Waste oil storage
- 20 - Storage area: contaminated waste oil, antifreeze, P-4
- 21 to 23 - Wash racks

Fort Douglas Salt Lake City, UT Waste Site Locations



15-November-1988



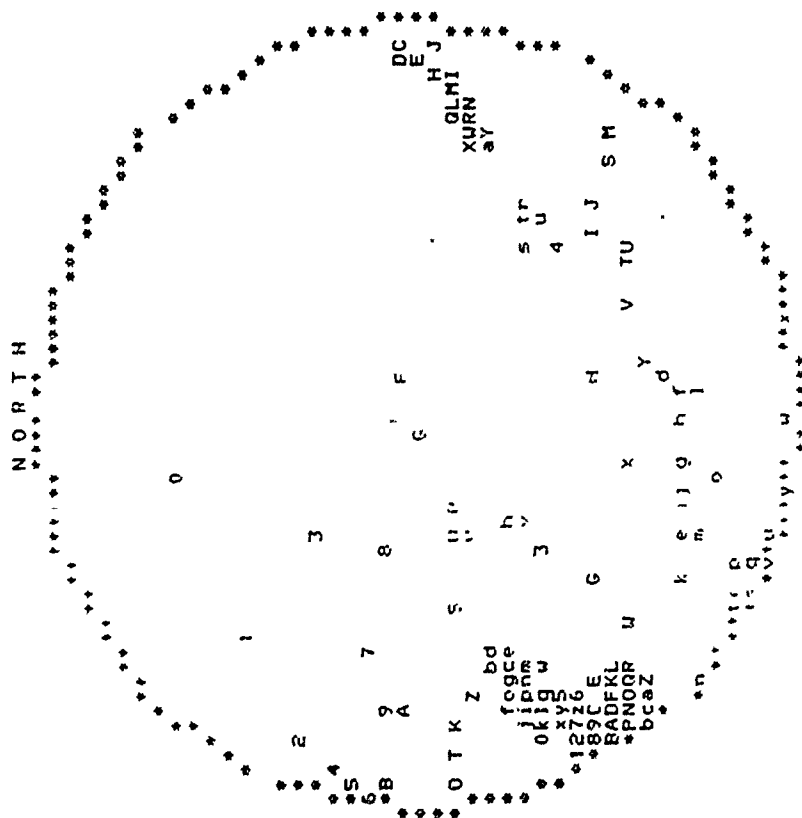
APPENDIX C
WELL SURVEY INFORMATION

1088M2-1

UTAH DIVISION OF WATER RIGHTS
 WATER RIGHT POINT OF DIVERSION PLOT CREATED FRI, OCT 6, 1989, 10 30 AM
 PLOT SHOWS LOCATION OF 284 POINTS OF DIVERSION

PLOT OF AN AREA WITH A RADIUS OF 16840 FEET FROM A POINT
 S 2000 FEET E 600 FEET OF THE NW CORNER, BASE AND MERIDIAN
 SECTION 3 TOWNSHIP 1S RANGE 1E

PLOT SCALE IS APPROXIMATELY 1 INCH = 6000 FEET



NUPI AT
UTAH DIVISION OF WATER RIGHTS
POINT OF DIVERSION LOCATION PROGRAM

HAP CHAR	WATER RIGHT	CFS	QUANTITY AND OR	SOURCE DESCRIPTION	NORTH	EAST	DIVERSION CNR SEC TUN RNC B&H	PURPOSE
G	57 8821	1000	IRRI GATION DOMESTIC STOCKWATERING	Van Wagener, Robert	S	1780 E	460 N4 28 1N	1E SL X
1	57 8274	1000	IRRI GATION DOMESTIC	Livsey, Herbert C	N	140 E	1665 SU 29 1N	1E 9L X
2	57 3611	3120	IRRI GATION DOMESTIC OTHER	Latter Day Saints Hospital	N	3622 W	2651 SE 31 1N	1E 8L X
2	57 7868	6000	IRRI GATION DOMESTIC OTHER	Latter Day Saints Hospital	N	3622 W	2651 SE 31 1N	1E 9L X
2	57 1670	9330	IRRI GATION OTHER	Latter Day Saints Hospital	N	3509 W	2542 SE 31 1N	1E 9L X
3	57 7919	1000	DOMESTIC	LDS Church, Emigration Stake	S	140 E	735 W4 33 1N	1E 8L X
4	57 116	7 0000	MUNICIPAL	Salt Lake City Corporation	N	1655 E	1510 SW 31 1N	1E 9L X
4	57 785	2 5000	MUNICIPAL	Salt Lake City Corporation	N	1655 E	1510 SW 31 1N	1E 9L X
5	57 102	3 4500	MUNICIPAL	Salt Lake City Corporation	N	996 E	1130 SW 31 1N	1E 9L X
6	57 2931	14 0000	IRRI GATION DOMESTIC OTHER	LDS Church, Corporation of the Presiding Elders	N	476 E	150 SW 31 1N	1E 8L X
7	57 7916	0150	IRRI GATION DOMESTIC	Davis, Jeffery N	N	165 E	990 SW 32 1N	1E 9L X
8	57 106	2 5900	MUNICIPAL	Salt Lake City Corporation	S	140 E	5155 NW 5 1S	1E 8L X
9	57 4563	1540	DOMESTIC	Kennedy, Brown, Berger and Winterose	S	168 W	1669 NE 6 1S	1E 9L X
9	57 1746	4350	OTHER	Medical Dental Building Inc	S	257 W	1153 NE 6 1S	1E 9L X
A	57 1931	5400	OTHER	Davis, Ben H	S	1171 E	3808 NW 6 1S	1E 9L X
B	57 927	5090	OTHER	LDS Church, Deseret Title Holding Corpor	S	175 E	569 NW 6 1S	1E 9L X

UTAH DIVISION OF WATER RIGHTS
POINT OF DIVERSION LOCATION PROGRAM

NUPLAT

MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR	AC-FT	SOURCE DESCRIPTION	NORTH	EAST	POINT OF DIVERSION CNR SEC	DESCRIPTION TWN RNC B&M	U A B E I S U P P E R
B	57 168	3000	WATER USE(S): MUNICIPAL Zions Cooperative Mercantile Institution	.00	Underground Water Well	S	398 E	546 NW 6	1S 1E SL	X
B	57 206	6000	WATER USE(S): OTHER The Mtn State Tele. & Tele Co. (c/o Ch 141 East 1st South - Suite #300)	.00	Underground Water Well	S	703 E	705 NW 6	1S 1E SL	X
C	a14474	1422 OR	WATER USE(S): IRRIGATION DOMESTIC MSI Inc.	40.00	Underground Water Wells	S	1210 E	370 NW 6	1S 2E SL	X
C	a14474	1422 OR	WATER USE(S): IRRIGATION DOMESTIC MSI Inc.	40.00	Underground Water Wells	N	1130 E	100 W4 6	1S 2E SL	X
D	57 8165	0150	WATER USE(S): OTHER Williamson, Leonard	.00	Underground Water Well	S	1280 W	360 NE 1	1S 1E SL	X
E	57 3307	0000	WATER USE(S): OTHER Salt Lake City Corporation	.00	Underground Water Well	S	2080 W	412 NE 1	1S 1E SL	X
F	57 8521	6 0000	WATER USE(S): MUNICIPAL Salt Lake City Corporation	.00	Underground Water Well	N	3950 W	3050 SE 3	1S 1E SL	X
G	57 112	6 0000	WATER USE(S): IRRIGATION DOMESTIC University of Utah	.00	Underground Water Well	S	2380 E	4664 NW 4	1S 1E SL	X
H	57 3663	0150	WATER USE(S): OTHER Warburton Robert L	.00	Underground Water Well	S	100 W	760 E4 1	1S 1E SL	X
H	57 3376	0320	WATER USE(S): OTHER Oberhansley, Curtis K.	.00	Underground Water Well	S	174 W	861 E4 1	1S 1E SL	X
H	57 2020	0150	WATER USE(S): IRRIGATION DOMESTIC OTHER Oberhansley, Curtis K.	.00	Underground Water Well	S	220 W	875 E4 1	1S 1E SL	X
H	57 3746	0150	WATER USE(S): IRRIGATION DOMESTIC Oberhansley, Curtis K.	.00	Underground Water Well	S	283 W	730 E4 1	1S 1E SL	X
H	57 7539	0300	WATER USE(S): IRRIGATION DOMESTIC Grundmann, Keith	.00	Underground Water Well	S	301 W	827 E4 1	1S 1E SL	X
I	57 7850	0150	WATER USE(S): IRRIGATION DOMESTIC Zwick, W Craig	.00	Existing Well	S	745 W	950 E4 1	1S 1E SL	X
I	57 7731	0075	WATER USE(S): IRRIGATION DOMESTIC Bailey, William L	.00	Underground Water Well	S	762 W	1053 E4 1	1S 1E SL	X
I	57 2923	0150	WATER USE(S): IRRIGATION DOMESTIC Rasmussen, Clair F.	.00	Underground Water Well	S	775 W	1100 E4 1	1S 1E SL	X
					1125 East 200 South					UT 84102

UTAH DIVISION OF WATER RIGHTS
POINT OF DIVERSION LOCATION PROGRAM

NUPLAT

MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR	AC-FT	SOURCE DESCRIPTION	NORTH	EAST	POINT OF DIVERSION CNR SEC	DESCRIPTION TUN	RNG	B&M	U N P R R	A P T S U G T E	P R R W P D	
J	al4474	1422	OR	+0.00	Underground Water Wells	S	190	E	550	W4	6	1S	2E	SL	X
					MSI Inc.										
					2511 South West Temple										
K	57 7894	5000			00 Underground Water Well	S	770	W	1935	E4	6	1S	1E	SL	X
					WATER USE(S): IRRIGATION DOMESTIC OTHER										
					Kitchens, George W.										
L	57 2207	2000			00 Underground Water Well	S	815	W	2012	E4	1	1S	1E	SL	X
					WATER USE(S): IRRIGATION DOMESTIC										
					Davidson, Amber Charles										
L	57 2905	0150			00 Underground Water Well	S	1020	W	1850	E4	1	1S	1E	SL	X
					WATER USE(S): IRRIGATION DOMESTIC										
					Sargent, Joseph T & Janice K										
L	57 2903	0150			00 Underground Water Well	S	1055	W	1910	E4	1	1S	1E	SL	X
					WATER USE(S): IRRIGATION DOMESTIC										
					Heaton, Bruce J										
					Wyman-Heaton, Carol										
L	57 2680	0150			00 Underground Water Well	S	1113	W	2117	E4	1	1S	1E	SL	X
					WATER USE(S): IRRIGATION DOMESTIC										
					Bunnell, James B										
L	57 3037	0150			00 Underground Water Well	S	1136	W	1968	E4	1	1S	1E	SL	X
					WATER USE(S): IRRIGATION DOMESTIC										
					Andersen, Steven B and Michelle D.										
L	57 2549	0150			00 Underground Water Well	S	1045	W	2335	E4	1	1S	1E	SL	X
					WATER USE(S): IRRIGATION DOMESTIC										
					Woods, Kenneth L.										
M	57 3334	0150			00 Underground Water Well	S	969	W	1752	E4	1	1S	1E	SL	X
					WATER USE(S): IRRIGATION DOMESTIC										
					Penman, Carl E										
M	57 2991	0150			00 Underground Water Well	S	960	W	1630	E4	1	1S	1E	SL	X
					WATER USE(S): IRRIGATION DOMESTIC										
					Penman, Carl E.										
M	57 2042	0150			00 Underground Water Well	S	990	W	1525	E4	1	1S	1E	SL	X
					WATER USE(S): IRRIGATION DOMESTIC										
					Despain, John & Eileen										
N	57 7534	0150			00 Underground Water Well	S	1392	W	2075	E4	1	1S	1E	SL	X
					WATER USE(S): IRRIGATION DOMESTIC										
					Sackas, James A and/or Emaline										
N	57 7803	0150			00 Underground Water Well	N	1237	W	2300	SE	1	1S	1E	SL	X
					WATER USE(S): IRRIGATION DOMESTIC										
					Wood, James A & Colleen										
N	57 7785	0075			00 Underground Water Well	S	1428	W	2025	E4	1	1S	1E	SL	X
					WATER USE(S): IRRIGATION DOMESTIC										
					Allen, Bruce and Nadine F.										
N	57 7566	0150			00 Underground Water Well	S	1570	W	2185	E4	1	1S	1E	SL	X
					WATER USE(S): IRRIGATION DOMESTIC STOCKWATERING										
					1700 Sunnydale Lane										
					Ehlers, John										
N	57 7815	0150			00 Underground Water Well	S	1520	W	2309	E4	1	1S	1E	SL	X
					WATER USE(S): IRRIGATION DOMESTIC										
					Michelsen, Gerald E & Norma Joyce										
					1266 Knollwood Drive										
					Newbury Park										
					CA 91320										

NUPLAT UTAH DIVISION OF WATER RIGHTS
POINT OF DIVERSION LOCATION PROGRAM

MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR	AC-FT	SOURCE DESCRIPTION	NORTH	EAST	POINT OF DIVERSION CNR SEC T1N R1E B&M	U A P T N P E E R P R R U P R U P D
N	57 7786	.0150	WATER USE(S): Gutke, Robert C. & Lynne D.	00	Underground Water Well	S	1698	U 1738 E4 1 1S 1E SL	UT 84108
N	57 7743	.0150	WATER USE(S): Bowler, Donald L.	00	Underground Water Well	S	1705	U 2090 E4 1 1S 1E SL	UT 84108
N	57 7781	.0075	WATER USE(S): Hopkinson, B. Todd & Lana H.	00	Underground Water Well	S	1730	U 1985 E4 1 1S 1E SL	UT 84108
N	57 7816	.0075	WATER USE(S): Bowler, Donald L. & Meriam H.	00	UNDERGROUND WATER WELL	N	893	U 2120 SE 1 1S 1E SL	OK 74137
N	57 7797	.0075	WATER USE(S): Murphy, Phyllis	00	Underground Water Well	S	1773	U 1806 E4 1 1S 1E SL	UT 84108
N	57 7992	.0075	WATER USE(S): Rager, Ronald E.	00	Underground Water Well	N	830	U 2045 SE 1 1S 1E SL	UT 84108
N	57 7757	.0075	WATER USE(S): Pierce, Mary Lee	00	Underground Water Well	N	830	U 2045 SE 1 1S 1E SL	UT 84108
0	57 7135	.0000	WATER USE(S): Brown Ferry and Woodruff Company	00	Underground Water Well	N	1784	E 721 SW 6 1S 1E SL	UT
P	57 101	1.2000	WATER USE(S): SLC Corp Dept of Water	00	Underground Water Well	S	880	E 1825 U4 4 1S 1E SL	UT 84115
P	57 101	1.2000	WATER USE(S): SLC Corp Dept. of Water	00	Underground Water Well	N	1745	U 3510 SE 4 1S 1E SL	UT 84115
P	57 2697	4.6040	WATER USE(S): Salt Lake City Corp	00	Underground Water Well	N	1452	U 3380 SE 4 1S 1E SL	UT
Q	57 7837	.0134	WATER USE(S): Young, Gordon W	00	Underground Water Well	S	1060	U 2620 E4 1 1S 1E SL	UT 84108
Q	57 2844	.0150	WATER USE(S): Hold, Gordon & Carolyn	00	Underground Water Well	S	1150	U 2430 E4 1 1S 1E SL	UT 84108
Q	57 4600	.0150	WATER USE(S): Wilkins, F. R.	00	Underground Water Well	S	1266	U 2424 E4 1 1S 1E SL	UT 84108
R	57 2043	.0150	WATER USE(S): Bingham, Vernon L.	00	Underground Water Well	N	1310	U 25 S4 1 1S 1E SL	UT 84106
R	a10070	.0026 OR	WATER USE(S): Olsen, M R	85	Underground Water Well	N	1030	E 40 S4 1 1S 1E SL	UT 84103

NUPLAT

UT 34108

NUPLAT UTAH DIVISION OF WATER RIGHTS
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MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR AC-FT	SOURCE DESCRIPTION	NORTH	POINT OF DIVERSION EAST	DESCRIPTION TUN	RNG	B&M	U A P T S U P P R E N P E E U G T P D N P P R R U N G P D
W	57 2045	.0150 WATER USE(S): Palmer, John R. & Mary Lynn	.00 IRRIGATION DOMESTIC	1530 Emigration Canyon	N	580 W	640 S4 1	1S	1E SL	X
W	57 3357	.0090 WATER USE(S): McCoy, Mark Elton & Gretchen	.00 IRRIGATION DOMESTIC	1565 Emigration Canyon	N	846 E	1824 SW 1	1S	1E SL	X
W	57 2047	.0150 WATER USE(S): Pack, Lynn A.	.00 IRRIGATION DOMESTIC	1600 Emigration Canyon	N	755 W	455 S4 1	1S	1E SL	X
W	57 2197	.0150 WATER USE(S): Jones, Christopher R. and Kirty P.	.00 IRRIGATION DOMESTIC	1580 Sunnydale Lane	N	700 W	540 S4 1	1S	1E SL	X
W	57 2914	.0150 WATER USE(S): Hill, John C. & Maxine C.	.00 IRRIGATION DOMESTIC	1531 Emigration Canyon	S	2030 W	3450 E4 1	1S	1E SL	X
W	57 2446	.0150 WATER USE(S): Craig, Stuart H. and Ursula	.00 IRRIGATION DOMESTIC	1522 Emigration Canyon	N	635 W	905 S4 1	1S	1E SL	X
X	57 1819	.0150 WATER USE(S): Sohm, Rex	.00 IRRIGATION DOMESTIC	1170 Gilmore Drive	N	1090 E	1070 SW 1	1S	1E SL	X
X	at1859	.0150 WATER USE(S): Sohm, Rex	.00 IRRIGATION DOMESTIC	1170 Gilmore Drive	N	1090 E	1070 SW 1	1S	1E SL	X
X	57 2771	.0150 WATER USE(S): Wolfe, James H.	.00 IRRIGATION DOMESTIC	1525 Emigration Canyon	N	900 E	1550 SW 1	1S	1E SL	X
X	57 3295	.0150 WATER USE(S): Crockard, Nyles C. and Nina B.	.00 IRRIGATION DOMESTIC	1511 Emigration Canyon	N	771 E	1398 SW 1	1S	1E SL	X
X	57 2055	.0075 OR WATER USE(S): Fitzgerald, Hazel	.70 IRRIGATION DOMESTIC	1510 Emigration Canyon	S	2035 W	3753 E4 1	1S	1E SL	X
X	57 8827	.0075 OR WATER USE(S): Fitzgerald, Glen	.93 IRRIGATION DOMESTIC	1490 Emigration Canyon	S	2035 W	3753 E4 1	1S	1E SL	X
Y	57 2966	.0150 WATER USE(S): Purdue, Beth	.00 IRRIGATION DOMESTIC	1518 Emigration Canyon	N	565 W	775 S4 1	1S	1E SL	X
Y	57 2041	.0150 WATER USE(S): Saar, Stephen	.00 IRRIGATION DOMESTIC	1520 Emigration Canyon	N	575 W	880 S4 1	1S	1E SL	X
Y	57 2833	.0150 WATER USE(S): Thorstrom, Gary L.	.00 IRRIGATION DOMESTIC	1516 Sunnydale Lane	N	455 W	905 S4 1	1S	1E SL	X
Z	57 1302	.0630 WATER USE(S): Porter Walton Company	.00 IRRIGATION	1516 Sunnydale Lane	N	915 W	571 SE 6	1S	1E SL	X
				P.O. Box 1619			Salt Lake City			UT

UTAH DIVISION OF WATER RIGHTS
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MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR	AC-FT	SOURCE DESCRIPTION	NORTH	POINT OF DIVERSION EAST	CNR	SEC	TWN	RNG	B&M	UT N	AP P	TS R	UP P
a	57 2447	.0150	WATER USE(S): IRRIGATION DOMESTIC		00 Underground Water Well	N	575 W	995	S4	1	13	1E SL	UT 84108	X		X
			Knigh-ton, Edward Wayne and LeeAnn		1514 Emigration Canyon											
a	a14055	.0075 OR .0075	WATER USE(S): IRRIGATION DOMESTIC		93 Underground Water Well	N	430 E	1410	SW	1	1S	1E SL	UT 84108	X		X
			Fitzgerald, Glen		1490 Emigration Canyon											
a	57 2134	.0150	WATER USE(S): IRRIGATION DOMESTIC		00 Underground Water Well	N	405 W	1030	S4	1	1S	1E SL	UT 84108	X		X
			Bieg, Daniel E.		1500 Sunnydale Lane											
b	57 5225	.0160	WATER USE(S): DOMESTIC		00 Underground Water, Well	N	10 E	600	SW	5	1S	1E SL	UT 84108	X		X
			Warburton, W. H.		657 South 7th East											
c	57 621	.0020	WATER USE(S): IRRIGATION DOMESTIC		00 Underground Water Well	S	400 E	310	NW	8	1S	1E SL	UT 84108	X		X
			Price Brooks Investment Company		726 South 7th East											
c	57 5989	.0560	WATER USE(S): IRRIGATION DOMESTIC		00 Underground Water, Well	S	460 E	650	NW	8	1S	1E SL	UT 84108	X		X
			Edwards, William H.		724 East 7th South											
d	57 7050	.0220	WATER USE(S): IRRIGATION DOMESTIC		00 Underground Water Well	S	162 E	756	NW	8	1S	1E SL	UT 84108	X		X
			Thorup, Eva B.		737 East 7th South											
e	57 7003	.0220	WATER USE(S): DOMESTIC STOCKWATERING		00 Underground Water Well	S	191 E	867	NW	8	1S	1E SL	UT 84108	X		X
			Musser, R.S.		747 East 7th South											
f	57 5891	.0090	WATER USE(S): DOMESTIC		00 Underground Water Well	S	180 W	1625	NE	7	1S	1E SL	UT 84108	X		X
			Trowbridge, James E.		439 East 7th South											
f	57 2491	.0850	WATER USE(S): IRRIGATION DOMESTIC OTHER		00 Underground Water Well	S	543 E	3612	NW	7	1S	1E SL	UT 84108	X		X
			LDS Church, Liberty Stake & Wells Stake		707 South 4th East											
f	57 730	.0090	WATER USE(S): IRRIGATION DOMESTIC		00 Underground Water Well	S	563 E	3612	NW	7	1S	1E SL	UT 84108	X		X
			LDS Church, Liberty Stake		707 South 4th East											
f	57 730	.0090	WATER USE(S): IRRIGATION DOMESTIC		00 Underground Water Well	S	569 E	3612	NW	7	1S	1E SL	UT 84108	X		X
			LDS Church, Liberty Stake		707 South 4th East											
f	57 5987	.0450	WATER USE(S): IRRIGATION DOMESTIC		00 Underground Water, Well	S	907 W	1538	NE	7	1S	1E SL	UT 84108	X		X
			Monson, John F.		447 East 8th South											
g	57 6911	.0780	WATER USE(S): DOMESTIC		00 Underground Water Well	S	179 W	140	NE	7	1S	1E SL	UT 84108	X		X
			McKean, Ross Jacklin & C. L.		629 East 7th South											
g	57 2075	.0150	WATER USE(S): DOMESTIC		00 Underground Water Well	S	792 E	99	NW	8	1S	1E SL	UT 84108	X		X
			Gatrell, Cyrus G.		749 Green Street											
g	57 7300	.0220	WATER USE(S): IRRIGATION DOMESTIC		00 Underground Water Well	S	795 W	350	NE	7	1S	1E SL	UT 84108	X		X
			Crane, Helen K.		759 South 6th East											

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MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR	AC-FT	SOURCE DESCRIPTION	NORTH	POINT OF DIVERSION EAST	CUR SEC	DESCRIPTION TWN	RNC	B&M	U A P T S U P R	N P E E U G T E	R R R U P D
h	57 2526	1.2000	WATER USE(S): IRRIGATION Mount Olivet Cemetery Association Boyer Company	.00	Underground Water Well 1342 East 5th South 515 S. 700 E.	N 2366	W 3708	E4 9	IS 1S	1E SL	UT	X	X	X
i	57 4945	.0110	WATER USE(S): DOMESTIC Lindsay, B	.00	Underground Water Well 780 South 5th East	S 1045	W 1401	NE 7	IS 1S	1E SL	UT	X	X	X
i	57 2803	.0150	WATER USE(S): DOMESTIC Layton, Don	.00	Underground Water Well 220 Banks Ct.	S 1060	W 1310	NE 7	IS 1S	1E SL	UT	X	X	X
i	57 4951	.0450	WATER USE(S): MUNICIPAL Salt Lake City Corporation	.00	Underground Water Well 1530 South West Temple	S 1168	W 1340	NE 7	IS 1S	1E SL	UT	X	X	X
i	57 4694	.0906	WATER USE(S): IRRIGATION DOMESTIC Hansen, Anna M.	.00	Underground Water Well 267 South 7th East	S 1215	W 1495	NE 7	IS 1S	1E SL	UT	X	X	X
i	57 4145	.0040	WATER USE(S): DOMESTIC Vincent, J M.	.00	Underground Water Well 438 East 8th South	S 1225	W 1635	NE 7	IS 1S	1E SL	UT	X	X	X
i	57 3832	.0130	WATER USE(S): IRRIGATION DOMESTIC Jensen, Albert L.	.00	Underground Water Well 460 East 8th South	S 1230	W 1490	NE 7	IS 1S	1E SL	UT	X	X	X
i	57 3565	.0220	WATER USE(S): DOMESTIC Boden, Charles J.	.00	Underground Water Well 457 Debs Place	S 1300	W 1495	NE 7	IS 1S	1E SL	UT	X	X	X
i	57 6973	.0450	WATER USE(S): DOMESTIC Blowers, Mrs. Martha Ellen	.00	Underground Water Well 449 - 451 Debs Place	S 1300	W 1495	NE 7	IS 1S	1E SL	UT	X	X	X
i	57 6890	.0330	WATER USE(S): DOMESTIC Schultz, Annie	.00	Underground Water Well 443 Debs Place	S 1379	W 1602	NE 7	IS 1S	1E SL	UT	X	X	X
i	57 7248	.1340	WATER USE(S): IRRIGATION DOMESTIC Grass, Harry	.00	Underground Water Well 836 South 5th East	S 1422	W 1357	NE 7	IS 1S	1E SL	UT	X	X	X
i	57 5794	.1230	WATER USE(S): IRRIGATION DOMESTIC Haynes, Minnie	.00	Underground Water Well RFD #6 Box 61	S 1445	W 1630	NE 7	IS 1S	1E SL	UT	X	X	X
i	57 5833	.0450	WATER USE(S): DOMESTIC Webb, Flora	.00	Underground Water Well 431 Debs Place	S 1490	W 1665	NE 7	IS 1S	1E SL	UT	X	X	X
i	57 4232	.0070	WATER USE(S): DOMESTIC Hall, John	.00	Underground Water, Well 444 Debs Pl.	S 1515	W 1585	NE 7	IS 1S	1E SL	UT	X	X	X
i	57 3566	.0220	WATER USE(S): IRRIGATION DOMESTIC Glazier Inv. Company	.00	Underground Water Well 454 Debs Place	S 1520	W 1510	NE 7	IS 1S	1E SL	UT	X	X	X
i	57 5049	.0090	WATER USE(S): IRRIGATION DOMESTIC Billis, Lester	.00	Underground Water Well 2510 Hyland Drive	S 1540	W 1110	NE 7	IS 1S	1E SL	UT	X	X	X

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MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR	AC-FT	SOURCE DESCRIPTION	NORTH	EAST	POINT OF DIVERSION CNR SEC TUN	RNG B&M	U N	A P	T S	S U	P T	R E
						S 1225	W 1750	NE 7 1S 1E	SL						
J	57 5138	0802	WATER USE(S): IRRIGATION DOMESTIC		Wharton, U. Paul & Ethel H.										
					436 East 8th South										
J	57 5068	0090	WATER USE(S): IRRIGATION DOMESTIC		Walker, Joseph J.	S 1365	W 1750	NE 7 1S 1E	SL						
					823 South 4th East										
J	57 5834	0450	WATER USE(S): DOMESTIC		Nielsen, Franklin Charles	S 1440	W 1720	NE 7 1S 1E	SL						
					425 Debs Place										
J	57 7029	0220	WATER USE(S): IRRIGATION DOMESTIC		Berg, A. T.	S 1215	W 1791	NE 7 1S 1E	SL						
					430 East 8th South										
J	57 6827	0330	WATER USE(S): DOMESTIC		Davis, Ray S.	S 1253	W 1831	NE 7 1S 1E	SL						
					418 East 8th South										
J	57 4146	0040	WATER USE(S): DOMESTIC		Vincent, J.M.	S 1330	W 1890	NE 7 1S 1E	SL						
					819 South 4th East										
J	57 5446	0220	WATER USE(S): DOMESTIC		Holsclaw, Louise	S 1350	W 2165	NE 7 1S 1E	SL						
					825 South 4th East										
J	57 5069	0070	WATER USE(S): IRRIGATION DOMESTIC		Watson, Magna	S 1400	W 1885	NE 7 1S 1E	SL						
					853 South 4th East										
J	57 4984	0220	WATER USE(S): IRRIGATION		Sawyer, Norma D.	S 1695	W 1880	NE 7 1S 1E	SL						
					427 East 9th South										
K	57 4555	0110	WATER USE(S): IRRIGATION		Barker, Ardith J.	N 3540	W 1750	SE 7 1S 1E	SL						
					649 South 8th East										
K	57 5124	0110	WATER USE(S): DOMESTIC		Featherstone, Almira W.	N 3520	W 1850	SE 7 1S 1E	SL						
					425 East 9th South										
K	57 4556	0180	WATER USE(S): IRRIGATION DOMESTIC		Smith, Wm. H. W. & Cora	N 3515	W 1780	SE 7 1S 1E	SL						
					367 Hubbard Avenue										
K	57 6771	0110	WATER USE(S): DOMESTIC		Sandberg, George L.	N 3073	W 2253	SE 7 1S 1E	SL						
					431 East 9th South										
1	57 6090	0220	WATER USE(S): DOMESTIC		Zaharris, Peter and Olive	N 3530	W 1680	SE 7 1S 1E	SL						
					441 East 9th South										
1	57 6952	0330	WATER USE(S): DOMESTIC		Parker, Frank	N 3510	W 1583	SE 7 1S 1E	SL						
					932 South 5th East										
1	57 7086	0110	WATER USE(S): IRRIGATION		Olsen, Pauline Heinz	N 3060	W 1320	SE 7 1S 1E	SL						

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MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR AC-FT	SOURCE DESCRIPTION	NORTH	POINT OF DIVERSION EAST	DESCRIPTION CNR SEC TWN	RNC	B&M	U N	A P	T S	U P	R R	P P	D
1	57 6326	0000	.00	Underground Water Well	N 2865	W 1550	SE 7 1S 1E	SL	UT							X
		0000	.00	Paramount Baking Company												
m	57 5462	0110	.00	Underground Water Well	S 1040	E 620	NW 8 1S 1E	SL	UT							X
		0110	.00	Underground Water Well												
n	57 6118	0890	.00	Underground Water Well	S 990	W 290	NE 7 1S 1E	SL	UT							X
		0890	.00	Underground Water Well												
o	57 5310	0890	.00	Underground Water Well	S 800	W 990	NE 7 1S 1E	SL	UT							X
		0890	.00	Underground Water Well												
o	57 5337	0670	.00	Underground Water Well	S 890	W 1055	NE 7 1S 1E	SL	UT							X
		0670	.00	Underground Water Well												
p	57 4031	0110	.00	Underground Water Well	S 1252	W 982	NE 7 1S 1E	SL	UT							X
		0110	.00	Underground Water Well												
p	57 6530	0110	.00	Underground Water Well	S 1260	W 760	NE 7 1S 1E	SL	UT							X
		0110	.00	Underground Water Well												
p	57 5775	3000	.00	Underground Water Well	S 1315	W 735	NE 7 1S 1E	SL	UT							X
		3000	.00	Underground Water Well												
p	57 3644	0730	.00	Underground Water Well	S 1610	W 575	NE 7 1S 1E	SL	UT							X
		0730	.00	Underground Water Well												
p	57 7381	0090	.00	Underground Water Well	S 1636	W 1007	NE 7 1S 1E	SL	UT							X
		0090	.00	Underground Water Well												
p	57 5827	0400	.00	Underground Water Well	S 1660	W 990	NE 7 1S 1E	SL	UT							X
		0400	.00	Underground Water Well												
q	57 6859	0110	.00	Underground Water Well	S 1747	W 756	NE 7 1S 1E	SL	UT							X
		0110	.00	Underground Water Well												
r	57 3568	4.3800	.00	Emigration Tunnel	S 1182	W 1032	NE 11 1S 1E	SL	UT							X
		4.3800	.00	Emigration Tunnel												
s	57 5214	5000	.00	Underground Water, Well	S 1320	W 437	N4 11 1S 1E	SL	UT							X
		5000	.00	Underground Water, Well												
t	57 8493	0150	.00	Underground Water Well	S 1410	W 1690	NE 11 1S 1E	SL	UT							X
		0150	.00	Underground Water Well												
u	57 3392	0220	.00	Underground Water Well	N 872	W 1548	E4 11 1S 1E	SL	UT							X
		0220	.00	Underground Water Well												

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MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR	AC-FT	SOURCE DESCRIPTION	NORTH	EAST	CNR	SEC	TWN	RNG	BAH	U N P R	A P T	S U P R
V	57 7549	8000	WATER USE(S): IRRIGATION	.00	Underground Water Well 1342 East 5th South S15 S. 700 E. Mount Olivet Cemetery Association Boyer Company	N	1220	W	3708	E4	9	1S	1E	SL	X
V	27854	8000	WATER USE(S): IRRIGATION	.00	Underground Water Well 1342 East 5th South S15 S. 700 E. Mount Olivet Cemetery Association Boyer Company (The)	N	1220	W	3708	E4	9	1S	1E	SL	X
W	57 6741	2230	WATER USE(S): DOMESTIC STOCKWATERING	.00	Underground Water Well 919 7th East Sudberry, George W.	N	3140	E	450	SW	8	1S	1E	SL	X
W	57 6169	0040	WATER USE(S): IRRIGATION DOMESTIC	.00	Underground Water Well P.O. Box 720 Ruthford, Mollie	N	2990	E	455	SW	8	1S	1E	SL	X
X	57 7073	0560	WATER USE(S): IRRIGATION DOMESTIC	.00	Underground Water Well 366 Hubbard Avenue Oborn, Rulon	N	2800	W	2270	SE	7	1S	1E	SL	X
X	57 6228	1340	WATER USE(S): DOMESTIC	.00	Underground Water Well 962 South 4th East Lashway, Anna	N	2790	W	2120	SE	7	1S	1E	SL	X
Y	57 7120	0330	WATER USE(S): IRRIGATION DOMESTIC	.00	Underground Water Well 370 H. Street Cameron, R. E.	N	2547	W	1392	SE	7	1S	1E	SL	X
Z	57 6210	1110	WATER USE(S): IRRIGATION DOMESTIC	.00	Underground Water Well 1097 Denver Street Kesler, Mrs. Janna Andrea	N	1680	W	1540	SE	7	1S	1E	SL	X
00	57 6904	0110	WATER USE(S): DOMESTIC	.00	Underground Water Well 341 Hubbard Avenue Hogge, C. W.	N	3050	W	2500	SE	7	1S	1E	SL	X
01	57 857	0150	WATER USE(S): DOMESTIC	.00	Underground Water Well 1064 South 3rd East Green, Earl H.	N	1963	E	2320	SW	7	1S	1E	SL	X
01	57 7225	0330	WATER USE(S): IRRIGATION DOMESTIC	.00	Underground Water Well 1064 South 3rd East Green, Earl H.	N	1963	E	2330	SW	7	1S	1E	SL	X
02	57 5640	1110	WATER USE(S): IRRIGATION DOMESTIC STOCKWATERING	.00	Underground Water Well 1072 Blair Street Kartchner, Mark and Rachel	N	1950	W	2590	SE	7	1S	1E	SL	X
02	57 4680	0450	WATER USE(S): IRRIGATION	.00	Underground Water Well 356 Harvard Avenue Pasquale, Bill L. & Suzanne N.	N	1525	W	2340	SE	7	1S	1E	SL	X
02	57 4875	0670	WATER USE(S): DOMESTIC	.00	Underground Water Well 353 Hampton Avenue Roos, William	N	1425	W	2350	SE	7	1S	1E	SL	X
02	57 6722	0220	WATER USE(S): IRRIGATION DOMESTIC	.00	Underground Water Well 2256 Lake Street Reichert, Elizabeth	N	1520	W	2540	SE	7	1S	1E	SL	X

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MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR	AC-FT	SOURCE DESCRIPTION	NORTH	POINT OF DIVERSION EAST	DESCRIPTION	TUN	RNC	B&H	U A P T S U P R N P E E R R U P D
02	57 5843	0780	WATER USE(S): IRRIGATION DOMESTIC	00	Underground Water Well	N 1465	W 2420	Salt Lake City	7	1S	1E SL	X
			Anderson, C. C.		348 Harvard Avenue							
02	57 6561	0070	WATER USE(S): IRRIGATION DOMESTIC	00	Underground Water Well	N 1465	W 2420	Salt Lake City	7	1S	1E SL	X
			Salter, Mrs. Alice		338 Harvard Avenue							
02	57 7045	0220	WATER USE(S): IRRIGATION DOMESTIC	00	Underground Water Well	N 1410	W 2560	Salt Lake City	7	1S	1E SL	X
			Frankland, Heber		327 Hampton Avenue							
03	57 8576	0150	WATER USE(S): IRRIGATION	00	Underground Water Well	N 350	E 290	Salt Lake City	9	1S	1E SL	X
			Simmons, Robert C		1347 Michigan Avenue							
04	57 7233	0890	WATER USE(S): IRRIGATION DOMESTIC STOCKWATERING	00	Underground Water Well	S 125	E 2380	Salt Lake City	11	1S	1E SL	X
			Webb, William (Jr.)		2540 Michigan Avenue							
04	57 7954	1000	WATER USE(S): IRRIGATION DOMESTIC STOCKWATERING	00	Underground Water Well	N 2500	W 150	Salt Lake City	11	1S	1E SL	X
			Hansen, Lewis C		2589 Cecil Drive							
05	7 4954	0670	WATER USE(S): MUNICIPAL	00	Underground Water Well	S 3164	W 580	Salt Lake City	7	1S	1E SL	X
			Salt Lake City Corporation, Dpt. of Water		1530 South West Temple							
06	57 4953	0670	WATER USE(S): MUNICIPAL	00	Underground Water Well	S 3452	W 646	Salt Lake City	7	1S	1E SL	X
			Salt Lake City Corporation, Dpt. of Water		1530 South West Temple							
07	57 6975	0320	WATER USE(S): IRRIGATION DOMESTIC STOCKWATERING	00	Underground Water Well	N 1423	W 2150	Salt Lake City	7	1S	1E SL	X
			Johnson, Mrs. Gottfried		1134 South 4th East							
07	57 3928	0220	WATER USE(S): IRRIGATION	00	Underground Water, Well	N 1410	W 2280	Salt Lake City	7	1S	1E SL	X
			Walker, Grant W.		369 Hampton Avenue							
08	57 6640	0220	WATER USE(S): DOMESTIC	00	Underground Water Well	N 640	W 2330	Salt Lake City	7	1S	1E SL	X
			Hanson, Ernest E		1446 Westminister Avenue							
08	57 5041	0330	WATER USE(S): IRRIGATION DOMESTIC STOCKWATERING	00	Underground Water Well	N 1110	W 2695	Salt Lake City	7	1S	1E SL	X
			Hanks, D. J.		1169 South 3rd East							
08	57 6623	0330	WATER USE(S): DOMESTIC STOCKWATERING	00	Underground Water Well	N 975	W 2485	Salt Lake City	7	1S	1E SL	X
			Roberts, H L.		1174 Blair Street							
08	57 3861	0220	WATER USE(S): DOMESTIC	00	Underground Water Well	N 899	W 2571	Salt Lake City	7	1S	1E SL	X
			Stoker, Michael		325 Edith Avenue							
08	57 6867	0220	WATER USE(S): DOMESTIC STOCKWATERING	00	Underground Water Well	N 895	W 2570	Salt Lake City	7	1S	1E SL	X
			Stoker, Michael		325 Edith Avenue							
08	57 7230	0110	WATER USE(S): IRRIGATION DOMESTIC STOCKWATERING	00	Underground Water Well	N 895	W 2445	Salt Lake City	7	1S	1E SL	X
			Luther, Mrs. Myrtle		341 Edith Avenue							

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MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR	AC-FT	SOURCE DESCRIPTION	POINT OF DIVERSION				DESCRIPTION				U A P T S U P P L			
						NORTH	EAST	CNR	SEC	TUN	RNG	B&M	N	P	R	R	W
08	57 5788	0320	DOMESTIC	.00	Underground Water Well	N	640 W	2425 SE	7	1S	1E	SL	X	X	X		
		WATER USE(S):	ROSS, ARTHUR L		344 Edith Avenue					Salt Lake City			UT				
08	57 3561	0110	DOMESTIC	.00	Underground Water Well	N	630 W	2580 SE	7	1S	1E	SL	X	X	X		
		WATER USE(S):	LOVENDALE, EDWARD M.		326 Edith Avenue					Salt Lake City			UT	84111			
08	57 5924	1110	DOMESTIC	.00	Underground Water Well	N	540 W	2490 SE	7	1S	1E	SL	X	X	X		
		WATER USE(S):	Home and Garden Company		40 Main Street					Salt Lake			UT	84111			
09	57 5771	0330	DOMESTIC	.00	Underground Water Well	N	640 W	2220 SE	7	1S	1E	SL	X	X	X		
		WATER USE(S):	Purner, J. L		370 Edith Avenue					Salt Lake City			UT				
0A	57 6954	0110	DOMESTIC	.00	Underground Water Well	N	300 W	2300 SE	7	1S	1E	SL	X	X	X		
		WATER USE(S):	Birch, Ruby		366 East 13th South					Salt Lake City			UT				
0A	57 5801	0330	IRRIGATION DOMESTIC	.00	Underground Water Well	N	194 W	2220 SE	7	1S	1E	SL	X	X	X		
		WATER USE(S):	STEPHENSON, DAVID C		359 Sherman Avenue					Salt Lake City			UT				
			BROCKETT, JOE		367 Sherman Avenue					Salt Lake City			UT				
0A	57 6933	0450	DOMESTIC	.00	Underground Water Well	N	7 W	2300 SE	7	1S	1E	SL	X	X	X		
		WATER USE(S):	Trejo, Clara E		362 Sherman Avenue					Salt Lake			UT	84115			
0A	57 5144	1340	IRRIGATION DOMESTIC	.00	Underground Water Well	S	30 W	2210 NE	18	1S	1E	SL	X	X	X		
		WATER USE(S):	Tripp, Enoch W. Jr							Callac			UT				
0B	57 7349	0670	IRRIGATION DOMESTIC	.00	Underground Water Well	N	426 E	11 S4	7	1S	1E	SL	X	X	X		
		WATER USE(S):	Houtz, George L		316 East 13th South					Salt Lake			UT	84102			
0B	57 4780	0110	IRRIGATION	.00	Underground Water Well	S	125 W	2750 NE	18	1S	1E	SL	X	X	X		
		WATER USE(S):	Friedel, G. A.		1365 South 3rd East					Salt Lake City			UT				
0C	57 5800	0110	IRRIGATION	.00	Underground Water Well	N	1250 W	1370 SE	7	1S	1E	SL	X	X	X		
		WATER USE(S):	Women's Childrens Hospital		C/O Etta M. 1152 South 5th East					Salt Lake City			UT				
0C	57 6818	0560	DOMESTIC	.00	Underground Water Well	N	1195 W	1395 SE	7	1S	1E	SL	X	X	X		
		WATER USE(S):	Mayo, Rose		324 South Fourth West					Salt Lake City			UT				
0C	57 6938	0780	DOMESTIC	.00	Underground Water Well	N	760 W	1380 SE	7	1S	1E	SL	X	X	X		
		WATER USE(S):	Horton, Leona S		1210 South 5th East					Salt Lake			UT	84105			
0C	57 5932	0040	DOMESTIC	.00	Underground Water, Well	N	680 W	1480 SE	7	1S	1E	SL	X	X	X		
		WATER USE(S):	Stewart, G. L. and Vera M		464 Edith Avenue					Salt Lake City			UT				
0D	57 6856	0220	DOMESTIC	.00	Underground Water Well	N	461 W	1380 SE	7	1S	1E	SL	X	X	X		
		WATER USE(S):	Thomson, D. L		1246 South 4th East					Salt Lake City			UT				
0D	57 4755	0670	IRRIGATION DOMESTIC	.00	Underground Water Well	N	360 W	1140 SE	7	1S	1E	SL	X	X	X		
		WATER USE(S):	VAN COTT, ELLA S		520 East 13 South					Salt Lake City			UT				

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MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR	AC-FT	SOURCE DESCRIPTION	NORTH	POINT OF DIVERSION EAST	DIVERSION CNR	DESCRIPTION SEC	TUN	RNG	B&M	U A P T S U P R	
													N P R	N P R
0D	57 3820	0220	WATER USE(S): IRRIGATION DOMESTIC		000 Underground Water Well	N	40 W	1320	SE 7	IS	1E	SL	X	X
		Call, Ira							Bancroft			ID		
0E	57 6206	2780	WATER USE(S): IRRIGATION DOMESTIC		000 Underground Water Well	N	1100 W	215	SE 7	IS	1E	SL	X	X
		Phillips, Edward C & Ruth B.			1166 South 4th East				Salt Lake City			UT		
0F	57 3801	0040	WATER USE(S): IRRIGATION		000 Underground Water Well	N	260 W	485	SE 7	IS	1E	SL	X	X
		Wood, Eliza W.			588 East 13th South				Salt Lake City			UT		
0F	57 5763	0110	WATER USE(S): IRRIGATION DOMESTIC		000 Underground Water Well	N	230 W	1085	SE 7	IS	1E	SL	X	X
		Jensen, Ansel E.			1321 South 5th East				Salt Lake City			UT		
0F	57 7030	0130	WATER USE(S): IRRIGATION		000 Underground Water Well	N	140 W	860	SE 7	IS	1E	SL	X	X
		Cozza, N.			547 Sherman Avenue				Salt Lake City			UT		
0F	57 7031	0130	WATER USE(S): IRRIGATION DOMESTIC		000 Underground Water Well	N	140 W	876	SE 7	IS	1E	SL	X	X
		Cozza, N.			547 Sherman Avenue				Salt Lake City			UT		
0F	57 5897	0330	WATER USE(S): DOMESTIC		000 Underground Water Well	N	35 W	750	SE 7	IS	1E	SL	X	X
		Wood, D. C.			1345 Park Street				Salt Lake City			UT		
0F	57 5942	0180	WATER USE(S): IRRIGATION DOMESTIC		000 Underground Water Well	S	50 W	770	NE 18	IS	1E	SL	X	X
		Black, P. T.							Delta			UT 84624		
0F	57 5799	0180	WATER USE(S): IRRIGATION DOMESTIC		000 Underground Water Well	S	230 W	760	NE 18	IS	1E	SL	X	X
		Smith, Barbara			1371 Park Street				Salt Lake City			UT		
0F	57 6285	0220	WATER USE(S): IRRIGATION DOMESTIC		000 Underground Water Well	S	200 W	563	NE 18	IS	1E	SL	X	X
		LDS Church, Zions Securities Corporation			552 Union Pacific Building				Salt Lake City			UT		
0G	57 8540	2500	WATER USE(S): IRRIGATION DOMESTIC		000 Underground Water Well	N	1035 W	860	SE 8	IS	1E	SL	X	X
		Marsden, Rodger J. P.			121 Laird Avenue				Salt Lake City			UT 84105		
0G	57 8540	2500	WATER USE(S): IRRIGATION DOMESTIC		000 Underground Water Well	N	1010 W	860	SE 8	IS	1E	SL	X	X
		Marsden, Rodger J. P.			1211 Laird Avenue				Salt Lake City			UT 84105		
0G	57 8540	2500	WATER USE(S): IRRIGATION DOMESTIC		000 Underground Water Well	N	985 W	860	SE 8	IS	1E	SL	X	X
		Marsden, Rodger J. P.			1211 Laird Avenue				Salt Lake City			UT 84105		
0H	57 8714	1000	WATER USE(S): IRRIGATION DOMESTIC		000 Underground water well	N	800 E	2300	SW 10	IS	1E	SL	X	X
		Horne, David H.			2229 Laird Way				Salt Lake City			UT 84108		
0I	57 6008	0130	WATER USE(S): IRRIGATION DOMESTIC		000 Underground Water Well	N	660 E	2696	SW 11	IS	1E	SL	X	X
		Bernolfo, David W.			0750 Oak Springs Drive				Salt Lake			UT 84108		
0J	57 6006	0600	WATER USE(S): IRRIGATION DOMESTIC		000 Underground Water Tunnel	N	542 E	4286	SW 11	IS	1E	SL	X	X
		Bernolfo, David W.			163 South Main				Salt Lake			UT 84111		

UTAH DIVISION OF WATER RIGHTS
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MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR	AC-FT	SOURCE DESCRIPTION	NORTH	POINT OF DIVERSION EAST	DESCRIPTION	UTAH DIVISION OF WATER RIGHTS	UTAH DIVISION OF WATER RIGHTS	UTAH DIVISION OF WATER RIGHTS
0J	a11422	0940	WATER USE(S): IRRIGATION DOMESTIC	00	1 Tunnel and 1 Spring	N	542 E	4286 SW 11	1S	1E	SL
			Bernolfo, David W.		163 South Main			Salt Lake			UT 84111
OK	57 4952	0220	WATER USE(S): MUNICIPAL	00	Underground Water Well	S	4787 E	101 NW 8	1S	1E	SL
			Salt Lake City Corporation					Salt Lake City			UT
OL	57 4948	3120	WATER USE(S): MUNICIPAL	.00	Underground Water Well	S	4937 E	393 NW 8	1S	1E	SL
			Salt Lake City Corporation					Salt Lake			UT
OL	57 4946	3640	WATER USE(S): MUNICIPAL	.00	Underground Water Well	S	4945 E	448 NW 8	1S	1E	SL
			Salt Lake City Corporation					Salt Lake			UT
OL	57 4949	2780	WATER USE(S): OTHER	.00	Underground Water Well	S	4991 E	390 NW 8	1S	1E	SL
			Salt Lake City Corporation					Salt Lake			UT
OL	57 4947	0220	WATER USE(S): MUNICIPAL	.00	Underground Water Well	S	110 E	435 NW 17	1S	1E	SL
			Salt Lake City Corporation					Salt Lake			UT
OM	a8524	0940	WATER USE(S): IRRIGATION DOMESTIC	.00	Underground Water Wells	N	350 W	480 S4 12	1S	1E	SL
			Bernolfo, David W.		163 South Main Street			Salt Lake			UT 84111
OM	a8524	0940	WATER USE(S): IRRIGATION DOMESTIC	.00	Underground Water Wells	N	190 W	940 S4 12	1S	1E	SL
			Bernolfo, David W.		163 South Main Street			Salt Lake			UT 84111
ON	57 5190	0110	WATER USE(S): DOMESTIC	.00	Underground Water Well	S	430 W	1400 NE 18	1S	1E	SL
			Young, L. A.		1398 South 5th East			Salt Lake City			UT
ON	57 6713	0110	WATER USE(S): DOMESTIC	.00	Underground Water Well	S	520 W	1580 NE 18	1S	1E	SL
			Paate, George E. & Margaret		1417 Denver			Salt Lake City			UT
ON	57 6659	0110	WATER USE(S): IRRIGATION DOMESTIC	.00	Underground Water Well	S	910 W	1685 NE 18	1S	1E	SL
			Lindsay, Lionel A.		435 East Emerson Avenue			Salt Lake City			UT
OO	57 5832	0360	WATER USE(S): IRRIGATION DOMESTIC	.00	Underground Water Well	S	270 W	590 NE 18	1S	1E	SL
			Keiser, Samuel		1378 South 6th East			Salt Lake City			UT
OO	57 5831	0330	WATER USE(S): IRRIGATION DOMESTIC	.00	Underground Water Well	S	425 W	560 NE 18	1S	1E	SL
			Keiser, Herman L.		1378 South 6th East			Salt Lake City			UT
OP	57 7063	0220	WATER USE(S): IRRIGATION DOMESTIC	.00	Underground Water Well	S	320 W	1925 NE 18	1S	1E	SL
			Sutton, Ada		1381 South 4th East			Salt Lake City			UT
OP	57 5751	0220	WATER USE(S): IRRIGATION DOMESTIC	.00	Underground Water Well	S	550 W	2190 NE 18	1S	1E	SL
			Stout, E.H.		1408 South 4th East			Salt Lake City			UT
OP	57 6170	0020	WATER USE(S): IRRIGATION DOMESTIC	.00	Underground Water Well	S	860 E	3000 NW 18	1S	1E	SL
			Prudential Insurance Co. of America		P.O. Box #720			Salt Lake City			UT

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MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR	AC-FT	SOURCE DESCRIPTION	NORTH	EAST	POINT OF DIVERSION CNR SEC	DESCRIPTION TUN	RNG	B&M	U N	A P	P T	S U	P R	P R	P R	P D
0Q	57 228	0570	WATER USE(S): IRRIGATION		00 Undergrround Water Well	N	4910 E	130 SW	17 1S	1E	SL								X
			Biesinger, Herbert W.		3175 South 6th East				Salt Lake City			UT	84115						
0Q	57 228	0570	WATER USE(S): IRRIGATION		00 Undergrround Water Well	N	4565 E	125 SW	17 1S	1E	SL								X
			Biesinger, Herbert W.		3175 South 6th East				Salt Lake City			UT	84115						
0Q	57 228	0570	WATER USE(S): IRRIGATION		00 Undergrround Water Well	N	4798 E	2170 S4	18 1S	1E	SL								X
			Biesinger, Herbert W.		3175 South 6th East				Salt Lake City			UT	84115						
0R	57 6807	0730	WATER USE(S): DOMESTIC		00 Undergrround Water Well	S	851 E	552 NW	17 1S	1E	SL								X
			Eastin, G. V.		719 Roosevelt Avenue				Salt Lake			UT	84106						
0S	57 6182	0670	WATER USE(S): OTHER		00 Undergrround Water Well	S	230 E	572 NW	13 1S	1E	SL								X
			Hamilton, Cora B.		367 North 300 East				American Fork			UT	84003						
0T	57 7745	0085	WATER USE(S): IRRIGATION		00 Undergrround Water Well	S	730 E	2035 NW	14 1S	1E	SL								X
			Hurd, Jeannette E.		1463 Wilton Way				Salt Lake City			UT	84108						
0U	57 6007	0200	WATER USE(S): DOMESTIC STOCKWATERING		00 Undergrround Water tunnel	S	922 E	2135 NW	14 1S	1E	SL								X
			Bernolfo, David W.		1750 Oak Springs Drive				Salt Lake			UT	84108						
0V	57 2044	0150	WATER USE(S): DOMESTIC		00 Undergrround Water, Well	S	769 W	111 NE	15 1S	1E	SL								X
			Petty, Neuman C.		909 East 21st South				Salt Lake City			UT	84105						
0W	57 7984	0150	WATER USE(S): IRRIGATION		00 Undergrround Water Well	S	915 W	655 N4	17 1S	1E	SL								X
			Chapman, Stephen K.		1457 S. 900 E.				Salt Lake City			UT	84105						
0X	57 6779	0910	WATER USE(S):		00 Undergrround Water Well	N	4345 E	990 S4	16 1S	1E	SL								X
			Colson, F-ankie M		1480 South 18th East				Salt Lake City			UT							
0Y	57 3637	0450	WATER USE(S): IRRIGATION		00 Undergrround Water Well	S	1331 W	165 N4	15 1S	1E	SL								X
			Calobee, Charles J.		1500 South 23rd East				Salt Lake City			UT							
0Z	57 545	0150	WATER USE(S): DOMESTIC		00 Undergrround Water Well	S	1480 E	40 NW	17 1S	1E	SL								X
			Hansen, Hans M.		720 Arapahoe Avenue				Salt Lake City			UT							
0Z	57 6315	0070	WATER USE(S): DOMESTIC		00 Undergrround Water Well	S	1580 W	160 NE	18 1S	1E	SL								X
			O'Terris, Fred M.		1542 Green Avenue				Salt Lake City			UT							
0a	57 6211	0560	WATER USE(S): IRRIGATION		00 Undergrround Water Well	S	1530 W	835 NE	18 1S	1E	SL								X
			Denter, Amel		1535 South Park Street				Salt Lake City			UT							
0b	57 6855	0780	WATER USE(S): IRRIGATION		00 Undergrround Water Well	S	1710 W	1740 NE	18 1S	1E	SL								X
			Leonard, James		437 Bryan Avenue				Salt Lake City			UT							
0b	57 7105	0130	WATER USE(S): IRRIGATION		00 Undergrround Water Well	S	1715 W	1820 NE	18 1S	1E	SL								X
			Smith, S.		425 Bryan Avenue				Salt Lake City			UT							

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MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR	AC-FT	SOURCE DESCRIPTION	NORTH	EAST	POINT OF DIVERSION CNR SEC	DESCRIPTION TWN	RNG	B&M	U N	A P	P R	R R	R R	P P	R P	P D
0c	57 6862	0220	WATER USE(S): DOMESTIC Vilart, Harry N & Maud	.00	Underground Water Well	S	1715	W	1620	NE	18	1S	1E	SL					X
					449 Bryan Avenue				Salt Lake City			UT							
0d	57 5630	0450	WATER USE(S): DOMESTIC STOCKWATERING Nelson, Ernest	.00	Underground Water Well	S	1966	W	245	N4	15	1S	1E	SL					X
					1596 South 23th East				Salt Lake City			UT							
0d	57 2575	0150	WATER USE(S): DOMESTIC Reuben M Flynn	.00	Underground Water Well	N	3015	E	2390	SW	15	1S	1E	SL					X
					1626 South 23rd East				Salt Lake City			UT							
0d	57 8676	0560	WATER USE(S): IRRIGATION Snow, Gregory T	.00	Underground Water Well	N	3015	E	2390	SW	15	1S	1E	SL					X
					2270 Logan Avenue				Salt Lake City			UT							
0e	57 6803	0040	WATER USE(S): IRRIGATION DOMESTIC STOCKWATERING Bertagnole, Mrs. Modesta	.00	Underground Water Well	S	2543	E	529	NW	16	1S	1E	SL					X
					1978 East 1700 South				Salt Lake			UT							
0f	57 6833	0320	WATER USE(S): IRRIGATION David, Harry	.00	Underground Water Well	N	22	E	1788	W4	15	1S	1E	SL					X
					P.O. Box 1018				Salt Lake City			UT							
0g	57 5726	0270	WATER USE(S): IRRIGATION DOMESTIC Jorgensen, Joseph W and Luisa B.	.00	Underground Water Well	N	2625	E	1320	S4	16	1S	1E	SL					X
												UT							
0h	57 2925	0150	WATER USE(S): IRRIGATION DOMESTIC Skola, Lucilla A Herd, Mary Kidman	.00	Underground Water Well	S	40	E	246	W4	15	1S	1E	SL					X
					2020 East 17th South 2036 East 1700 South				Salt Lake City			UT							
0i	57 6702	0040	WATER USE(S): IRRIGATION DOMESTIC Screbante, John	.00	Underground Water Well	N	2542	W	570	S4	16	1S	1E	SL					X
					1215 Lincoln				Alameda			CA							
0j	57 4421	3 0200	WATER USE(S): MUNICIPAL Salt Lake City Corp Dpt	.00	Underground Water Well	N	2385	E	2245	SW	16	1S	1E	SL					X
					of Water Suppl 1530 South West Temple				Salt Lake City			UT							
0k	57 7369	0220	WATER USE(S): IRRIGATION Hedden, J W	.00	Underground Water Well	S	310	W	1364	E4	17	1S	1E	SL					X
					1124 Blaine Avenue				Salt Lake City			UT							
0l	57 6736	0220	WATER USE(S): IRRIGATION Hurd, Mrs Annie G.	.00	Underground Water Well	S	749	E	1540	W4	15	1S	1E	SL					X
					1809 South 17th East				Salt Lake City			UT							
0m	57 6730	0110	WATER USE(S): DOMESTIC STOCKWATERING Hurd, Annie G.	.00	Underground Water Well	S	750	W	4755	E4	16	1S	1E	SL					X
					1809 South 17 East				Salt Lake City			UT							
0m	57 6127	1110	WATER USE(S): IRRIGATION Allen, George A.	.00	Underground Water Well	N	1525	E	405	SW	16	1S	1E	SL					X
					1865 South 13th East				Salt Lake City			UT							
0n	57 6321	0560	WATER USE(S): IRRIGATION DOMESTIC STOCKWATERING Scott, Ernest E.	.00	Underground Water Well	N	1840	W	325	SE	18	1S	1E	SL					X
					1795 South 6th East				Salt Lake City			UT							
0n	57 7338	0560	WATER USE(S): DOMESTIC STOCKWATERING Pyper, Dean R	.00	Underground Water Well	N	1840	W	325	SE	18	1S	1E	SL					X
					1795 South 6th East				Salt Lake City			UT							

UTAH DIVISION OF WATER RIGHTS
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MAP CHAR	WATER RIGHT	CFS	QUANTITY AND/OR	AC-FT	SOURCE DESCRIPTION	NORTH	POINT OF DIVERSION DESCRIPTION	EAST	CNR	SEC	TWN	RNG	B&M	U N	A P	T S	U P	R E
00	57 4965	0220	WATER USE(S): IRRIGATION DOMESTIC STOCKWATERING Hartmann, John F & Ethel M		00 Undergound Water Well 1960 South 17th East	N	692 E	226	S4	16	1S	1E	SL	UT				X
0p	57 4500	5550	WATER USE(S): IRRIGATION OTHER Hygeia Ice Company		00 Undergound Water Well 1208 East 21st South	S	120 W	545	NE	20	1S	1E	SL					X
0q	57 6927	2230	WATER USE(S): OTHER Carbo Chemical Company		00 Undergound Water Well 1246 East 2100 South	S	403 W	478	NE	20	1S	1E	SL					X
0q	57 2769	1 0500	WATER USE(S): OTHER Free, Ray D.		00 Undergound Water Well 1246 East 2100 South	S	514 W	629	NE	20	1S	1E	SL					X
0r	57 2975	7500	WATER USE(S): OTHER William H McIntyre Company		00 Undergound Water Well #1 204 Phillips Petroleum Bldg	S	231 W	1493	NE	20	1S	1E	SL					X
0s	57 2074	7500	WATER USE(S): DOMESTIC William H McIntyre Company		00 Undergound Water Well 200 Wasatch Oil Building	S	321 W	1493	NE	20	1S	1E	SL					X
0s	57 2074	7500	WATER USE(S): DOMESTIC William H McIntyre Company		00 Undergound Water Well 200 Wasatch Oil Building	S	528 W	1521	NE	20	1S	1E	SL					X
0t	57 4686	0040	WATER USE(S): DOMESTIC STOCKWATERING OTHER Sterling Investment Company		00 Undergound Water Well 316 Templeton Building	S	305 E	2648	NW	20	1S	1E	SL					X
0u	57 7021	0560	WATER USE(S): STOCKWATERING Jensen, James C		00 Undergound Water Well 1273 Stringham Avenue	S	1258 E	495	NW	21	1S	1E	SL					X
0v	57 7021	0560	WATER USE(S): STOCKWATERING Jensen, James C		00 Undergound Water Well 1273 Stringham Avenue	S	1603 W	375	NE	20	1S	1E	SL					X
0w	57 2753	0270	WATER USE(S): IRRIGATION DOMESTIC Toronto, Lamont F		00 Undergound Water Well 2328 Country Club Circle	S	2007 E	110	NW	22	1S	1E	SL					X
0x	57 1698	0150	WATER USE(S): DOMESTIC Hayes, Grant E.		00 Undergound Water, Well 468 South Main Street	N	525 W	765	E4	22	1S	1E	SL					X
0y	57 2615	8 5100	WATER USE(S): MUNICIPAL Salt Lake City Corporation		00 Undergound Water Well Room 114 City & County Building	S	2315 E	58	N4	21	1S	1E	SL					X



APPENDIX D
ACQUISITION - DISPOSAL ACTIONS



DEPARTMENT OF THE ARMY
OFFICE OF THE SECRETARY OF THE ARMY
WASHINGTON 25, D. C.

15 May 1962

Honorable Frank E. Moss

United States Senate

RECEIVED 15 MAY 1962

Dear Senator Moss:

This is in reply to your inquiry in behalf of Mrs. J. H. Hance, 1666 Harvard Avenue, Salt Lake City, who is interested in obtaining information relating to land transfers at Fort Douglas, Utah.

A list of the various transfers showing the transferor, the transferee, date of transfer and the acreage involved, is inclosed.

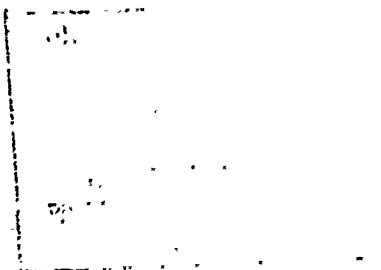
I trust this information will be of assistance to you in your reply concerning the matter.

Sincerely yours,

A handwritten signature in cursive script, reading "R. E. VOLLENDORFF".

R. E. VOLLENDORFF
Colonel, GS
Office, Chief of
Legislative Liaison

1 Incl
List of Transfers
(in dupe)



FORT DOUGLAS, UTAH

Acquisition - Disposal Actions
As of 9 May 1962

GENERAL: Established as Camp Douglas on 26 October 1862; name changed to Fort Douglas on 30 December 1878.

ACQUISITIONS:

Acreage

Public Lands, reserved by Executive Orders dated 3 September 1867, 13 March 1890 and 8 June 1896, and Act of Congress approved 3 March 1887

5,000.33

Purchased Lands:

<u>From</u>	<u>Date</u>	
LeGrand Young	23 April 1888	1,920.00
Peter Van Houten	8 Jan. 1904	80.00
James Duoll	14 March 1904	80.00
LeGrand Young	14 July 1906	748.75
L. H. Young and J. A. Young	16 Jan. 1909	150.92
Hilda Fosness	26 May 1909	360.00

Reconveyed by the Univ. of Utah (thru Dept. of Health, Education and Welfare) by deed 27 April 1954. HEW transferred to Dept. of Army 3 January 1955.

0.58

Added due to resurvey

3.64
3,343.89

Easement:

<u>From</u>	<u>Date</u>	
University of Utah	9 Feb. 1953	1.44

GROSS ACQUISITION:

8,345.66

FORT DOUGLAS, UTAH

DISPOSALS:

<u>Transferee</u>	<u>Transfer Date</u>	<u>Acreage</u>
Salt Lake City	16 May 1874	20.00
Department of the Interior	1 Jan. 1885	151.81
State of Utah and University of Utah	23 July 1894	60.00
University of Utah	16 May 1906	32.00
LeGrand Young	8 Oct. 1909	66.30
Mt. Olivet Cemetery	10 Feb. 1909	50.00
Salt Lake City	28 March 1929	3.97
University of Utah	22 June 1934	61.44
Shriners Hospital for Crippled Children	12 July 1946	7.89
Veterans Administration	19 Jan. 1948	253.51
War Assets Administration *	16 June 1948	344.71
Department of the Navy	22 Oct. 1948	7.41
Department of the Navy	13 Sep. 1949	1.00
Department of the Interior	27 April 1950	10.07
Board of Education of Salt Lake City	8 Aug. 1961	49.94
Department of the Interior	21 Nov. 1961	<u>158.00</u>
<u>GROSS DISPOSAL:</u>		<u>1,278.05</u>
<u>NET REMAINING AREA:</u>		7,067.61

* Who conveyed 298.59 acres to the University of Utah by deed dated
1 November 1948.



APPENDIX E
ADDITIONAL INFORMATION



Norman H. Bangerter
Governor

Dee C. Hansen
Executive Director

Timothy H. Provan
Division Director

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE RESOURCES

1596 West North Temple
Salt Lake City, Utah 84116-3195
801-533-9333

November 21, 1989

Mr. Mukesh G. Mirchandani, P.E.
Senior Project Engineer
Weston Designers/Consultants
Weston Way
West Chester, PA 19380

Dear Mr. Mirchandani:

You requested information regarding threatened or endangered species, wetlands, wildlife refuges or other sensitive environments within five miles of Fort Douglas.

For the last four years we have had peregrine falcons nesting on the Hotel Utah in downtown Salt Lake City. This nest site is within five miles of Fort Douglas. Peregrines generally have about a ten-mile hunting radius from the nest. Additional species within the five-mile radius, although not federally listed but of special concern to our Division, are yellow-billed cuckoo, Lewis woodpecker, and fox sparrow.

We are not aware of any wetlands within this five-mile zone nor are there any wildlife refuges in the vicinity. With respect to other sensitive environments, Red Butte Canyon, immediately east of Fort Douglas should be considered. Plant communities, particularly the riparian community, are in a very pristine condition. Other important riparian communities are also located in City Creek to the north and Emigration Canyon to the south.

Please contact me if I can be of further assistance.

Sincerely,

Michael A. Schwinn
Terrestrial Resource Analyst