

TA-00

# NFA Report for Potential Release Sites

0-034(a)  
0-034(b)  
73-001(b)  
73-004(c)  
73-004(d)

Field Unit 1

Environmental  
Restoration  
Project

September 1997

A Department of Energy  
Environmental Cleanup Program

**Los Alamos**  
NATIONAL LABORATORY

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## **PURPOSE OF THIS REPORT**

This no further action (NFA) report describes five potential release sites (PRSs) included in the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Work Plan for Operable Unit (OU) 1071 at Los Alamos National Laboratory (LANL) (LANL 1992, 0781). The PRSs included in this report are PRSs 0-034(a,b), 73-001(b), and 73-004(c,d). These PRSs are recommended for NFA based on archival information obtained after the work plan was submitted or because they are contained within another PRS that is being addressed in a Phase I RFI.

PRSs 0-034(a,b) were originally identified as a trench and a pit using 1946 aerial photographs of the area. Interviews with persons familiar with operations conducted at these sites at the time of these photographs indicate that the sites were not used for land disposal of solid waste.

PRS 73-001(b) is a waste oil pit and PRSs 73-004(c,d) are two septic tanks. These PRSs are located at the airport where many associated PRSs have been investigated through the RFI process. PRS 73-001(b) is contained within PRS 73-001(d), a debris disposal area that received municipal landfill waste that was exhumed and reburied. PRS 73-004(c) was installed to serve the old airport terminal and it may have been previously removed. Attempts to locate this PRS were unsuccessful. PRS 73-004(d) was installed to serve the former office at the airport municipal landfill (PRS 73-001[a]). PRS 73-004(d) is contained within PRS 73-001(a).

These five PRSs are discussed individually in Section 1.0 through 5.0 of this report.

### **1.0 PRS 0-034(a), NAMBE PLACE TRENCH**

#### **1.1 Site Description**

PRS 0-034(a) is included in Solid Waste Management Unit (SWMU) Group 0-5 of former OU 1071 as shown in Fig. 5-62 of the RFI Work Plan for OU 1071 (LANL 1992, 1781). This PRS is located northwest of Nambe Place in the Eastern Area, a residential area west of the airport in Los Alamos, New Mexico. Although this site was not connected with Laboratory technical operations, it was included in Technical Area 0 (TA-0) when it was designated a PRS.

PRS 0-034(a) was identified from 1946 aerial photographs taken in December when the low angle of the sun exaggerates topographic relief (Fig. 1.1-1). In one photograph (Fig. 1.1-2) there appears to be a trench at the PRS location that resembles a trench image further east where the municipal landfill was later placed. The trench image to the east is part of the asphalt batch plant operation, and not a landfill trench. The trench-like image at the location of

PRS 0-034(a) does not appear to have any topographic relief on the canyon side (toward bottom of photograph), and the topographic relief on the canyon side of the trench-like image near the asphalt batch plant is likely a berm used to control stormwater that was cutting channels into the canyon. Other 1946 aerial photographs show a large mound of what appears to be earth material adjacent to the trench-like image at PRS 0-034(a) (Fig. 1.1-3). A former site worker has identified the trench image appearing on the photograph as part of the Zia Company's operation for making concrete blocks and small batches of concrete (Francis 1996, 05-0261).

### 1.2 Historical Operations

In 1946, PRS 0-034(a) was the location of a concrete block manufacturing plant and a small-scale concrete batching plant. Concrete block manufacturing includes mixing aggregate, cement, and water, and then filling molds and curing the blocks. The concrete batching plant used a one-half to three-quarter yard capacity concrete mixer, and the mix was dumped into small dump trucks for hauling to construction sites. An aerial photograph taken in October 1961 shows that the PRS 0-034(a) site, which was used to generate construction materials, was replaced by a warehouse yard (Fig. 1.1-4). Concrete plant operations were moved to East Jemez Road around 1951.

### 1.3 Site Investigations

No field investigations were conducted at PRS 0-034(a) because the site was used only for the production of cement/concrete materials, and no RCRA solid or hazardous wastes or constituents or other Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) hazardous substances were managed at the site.

### 1.4 Rationale for No Further Action Decision

PRS 0-034(a) is recommended for NFA based on NFA Criterion 2. This criterion states that the site has never been used for the management (that is, generation, treatment, storage, or disposal) or RCRA solid or hazardous wastes and/or constituents or other CERCLA hazardous substances.

~~It would be~~  
Please draw a circle around all the concrete plant buildings.

Did outfalls from other lab buildings near concrete plant discharge in the trench area or cross the trench area?

Need 2 people familiar with site operations back then to state this site was not used for disposal of waste. What was this area (trench area) used for? Was it just a borrow area to fill in the area up gradient of it? What were the years of operation? When were the houses on Nambe Loop and Nambe Place built? ~~If this was a borrow trench~~ What were the other buildings that were on up gradient side of trench-like image? Are all these buildings immediately adjacent to up grad. of trench, part of the concrete plant? Where were the closest lab buildings?

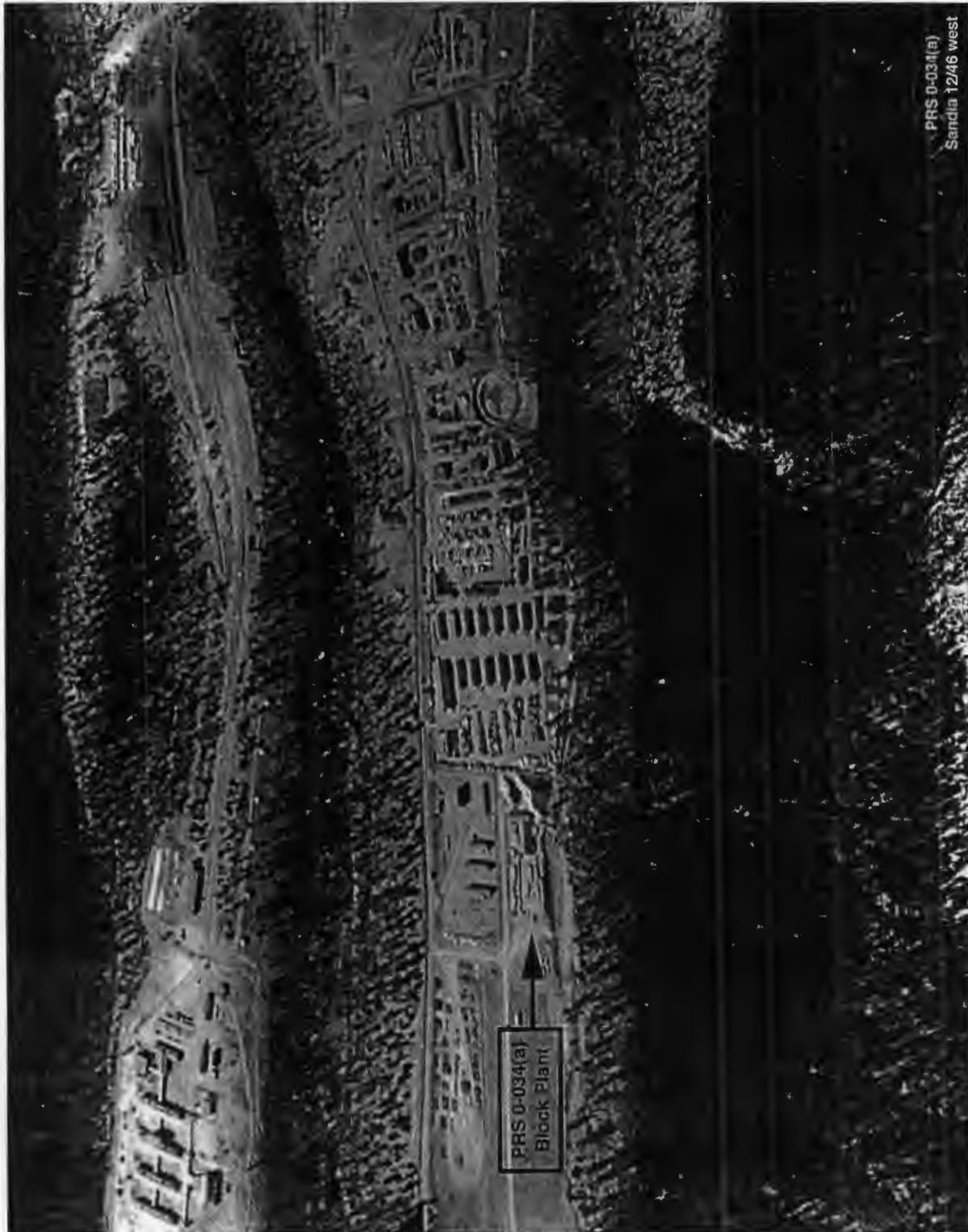


Fig. 1.1-1 Aerial photograph from December 1946 of PRS 0-034(a).

### **3.0 PRS 73-001(b), WASTE OIL PIT**

#### **3.1 Site Description**

PRS 73-001(b) was a pit used for disposal of waste oil. This pit was located just west of the bunker area (PRS 73-001[c]) and northeast of the end of the airport runway (Fig. 3.1-1). The pit is estimated to have been approximately 100 ft long by 25 ft wide with an unknown depth (Limbaugh Engineering & Aerial Services, Inc. 1963, 05-0068). Based on reviews of historic photographs and engineering drawings, the center of the pit is estimated to have been located near the center of the south trench in the debris disposal area (PRS 73-001[d]). A 1947 engineering construction drawing (Black & Veatch Consulting Engineers 1947, 05-0010) shows the dimensions of the pit as 100 ft by 15 ft, and the pit is labeled "Sludge Drying Pit." Presently, there is no visible indication of the waste oil pit at the estimated location.

#### **3.2 Historical Operations**

Used oils from the motorpool, craft shops, and vehicle shop are known contaminants at this PRS (Miller 1962, 05-0089). The Zia Company reportedly issued work orders to place clean sand in the waste oil pit to solidify its contents (LANL 1990, 0145). Based on available documentation and maps (Black & Veatch Consulting Engineers 1947, 05-0010), the period of operation of this pit is estimated to be from 1947 to 1974. No releases have been reported.

#### **3.3 Site Investigations**

##### **3.3.1 Site Survey**

The estimated location of the waste oil pit was established through evaluation of aerial photographs and site inspections. Presently, there is no visible indication of the waste oil pit at the estimated location or anywhere else within the Los Alamos County Airport grounds.

##### **3.3.2 Geophysical Survey**

In August and September of 1995, field investigations were conducted in the suspected area using magnetic total field and Schlumberger vertical electrical sounding geophysical survey methods. There was no indication of the waste oil pit at the estimated location. The estimated location of the pit places it in the center of the debris disposal area (PRS 73-001[d]).



Fig. 1.1-2 Aerial photograph from December 1946 showing PRR 0-034(a) and the asphalt batch plant.



Fig. 1.1-3 Aerial photograph showing the mound of materials associated with PRS 0-034(a).



Fig. 1.1-4 Aerial photograph from 1961 showing warehouse structures at the former location of the concrete plant operations at PRS 0-034(a).

## **2.0 PRS 0-034(b), WESTERN AREA PIT**

### **2.1 Site Description**

PRS 0-034(b) is included in SWMU Group 0-5 of former OU 1071 as shown in Fig. 5-63 of the RFI Work Plan for OU 1071 (LANL 1992, 0781). This PRS is located between Trinity Drive and Fairway Drive, east of 43rd Street in Los Alamos, New Mexico. Although this site was a townsite housing area and was not connected with Laboratory technical operations, it was included in TA-0 when it was designated a PRS.

PRS 0-034(b) was identified from a 1946 aerial photograph taken in November when the low angle of the sun exaggerates topographic relief (Fig. 2.1-1). Although the pit image in this photograph resembles a shallow borrow pit, the site was also apparently used for temporary storage of spoils piles used as the sources of fill material during construction of the Western Housing Area in Los Alamos. Photographs from this time period show that all of the vegetation was removed from the Western Housing Area before housing was constructed, and that cutting and filling to obtain the needed topographic contours would have been extensive (Fig. 2.1-2).

### **2.2 Historical Operations**

PRS 0-034(b) is located in the area used by the Robert E. McKee Company for construction of the Western Housing Area and the Modified Western Housing Area in Los Alamos (Francis 1996, 05-0261). Construction operations in this area included prefabrication of trusses and wall sections, and the site included a sawmill for preparing construction lumber. The pit identified in the 1946 photographs was a staging area for soil or tuff fill material needed for roads or home sites, and not a waste disposal area.

### **2.3 Site Investigations**

No field investigations were conducted at PRS 0-034(b) because the site was used only for storing and borrowing earth materials used for fill in the development of a housing area. No RCRA solid or hazardous wastes or constituents or other CERCLA hazardous substances were managed at the site.

### **2.4 Rationale for No Further Action Decision**

PRS 0-034(b) is recommended for NFA based on NFA Criterion 2. This criterion states that the site has never been used for the management (that is, generation, treatment, storage, or disposal) or RCRA solid or hazardous wastes and/or constituents or other CERCLA hazardous substances.



Fig. 2.1-1-1 Aerial photograph from November 1946 of PRS 0-034(b).



Fig. 2.1-2 Aerial photograph from approximately 1946 showing the Western Housing Area and Mesa School construction area.

### **3.0 PRS 73-001(b), WASTE OIL PIT**

#### **3.1 Site Description**

PRS 73-001(b) was a pit used for disposal of waste oil. This pit was located just west of the bunker area (PRS 73-001[c]) and northeast of the end of the airport runway (Fig. 3.1-1). The pit is estimated to have been approximately 100 ft long by 25 ft wide with an unknown depth (Limbaugh Engineering & Aerial Services, Inc. 1963, 05-0068). Based on reviews of historic photographs and engineering drawings, the center of the pit is estimated to have been located near the center of the south trench in the debris disposal area (PRS 73-001[d]). A 1947 engineering construction drawing (Black & Veatch Consulting Engineers 1947, 05-0010) shows the dimensions of the pit as 100 ft by 15 ft, and the pit is labeled "Sludge Drying Pit." Presently, there is no visible indication of the waste oil pit at the estimated location.

#### **3.2 Historical Operations**

Used oils from the motorpool, craft shops, and vehicle shop are known contaminants at this PRS (Miller 1962, 05-0089). The Zia Company reportedly issued work orders to place clean sand in the waste oil pit to solidify its contents (LANL 1990, 0145). Based on available documentation and maps (Black & Veatch Consulting Engineers 1947, 05-0010), the period of operation of this pit is estimated to be from 1947 to 1974. No releases have been reported.

#### **3.3 Site Investigations**

##### **3.3.1 Site Survey**

The estimated location of the waste oil pit was established through evaluation of aerial photographs and site inspections. Presently, there is no visible indication of the waste oil pit at the estimated location or anywhere else within the Los Alamos County Airport grounds.

##### **3.3.2 Geophysical Survey**

In August and September of 1995, field investigations were conducted in the suspected area using magnetic total field and Schlumberger vertical electrical sounding geophysical survey methods. There was no indication of the waste oil pit at the estimated location. The estimated location of the pit places it in the center of the debris disposal area (PRS 73-001[d]).

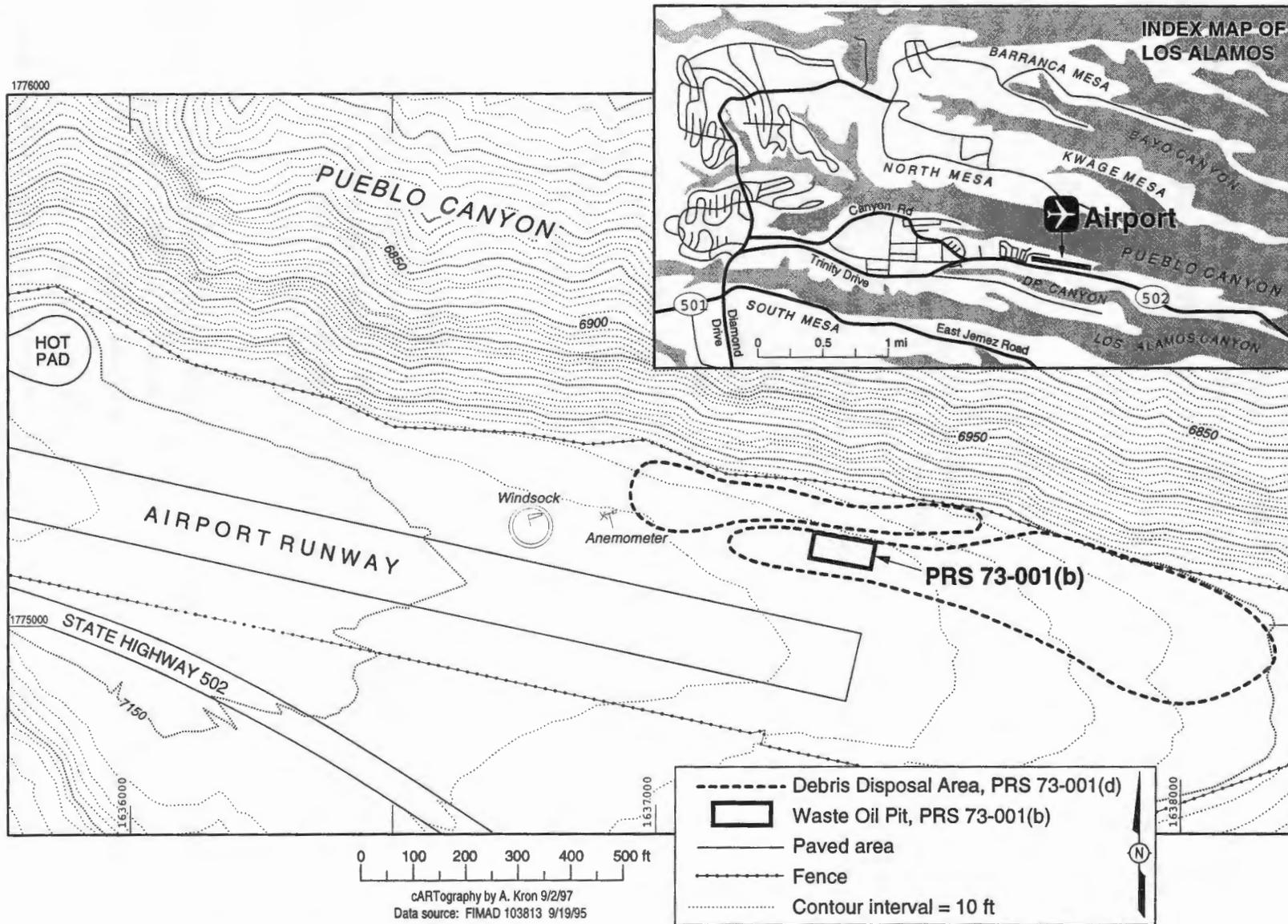


Fig. 3.1-1 Location of PRS 73-001(b), waste oil pit.

### **3.3.3 Soil Gas Survey**

In May 1995, several shallow soil vapor samples were collected from the area surrounding the estimated waste oil pit location. An effort was also made to collect soil vapor samples from within the estimated pit area; however, every attempt to push the sample rods was met with refusal because shallow debris was encountered. During this investigation, no visible oil residue was observed on any of the rods.

### **3.3.4 Cone Penetrometer Testing**

During October 1995, several cone penetrometer tests (CPTs) were conducted in the debris disposal area (PRS 73-001[d]) (Fig. 3.1-2). As part of the PRS 73-001(d) investigation, four CPTs were placed in an effort to help determine the location of and, if found, the areal and vertical extent of wastes associated with the waste oil pit. Observations noted in a field log notebook during sampling at CPT locations CP-21 and CP-22 suggest the presence of the waste oil pit or perhaps residual waste oil pit material from activities related to the construction, debris emplacement, and backfilling of the debris disposal area (PRS 73-001[d]). The observation, "strong smell of hydrocarbons upon extracting the brass sleeves," was noted upon opening the sample rod to retrieve sample 0173-95-0171 (collected from the tuff at 28.0–29.3 ft at the bottom of test hole CP-21, location 73-02051). The observation, "no appreciable petroleum smell was noted," was noted upon retrieval of sample 0173-95-0142 (collected from the tuff at 26.0–27.5 ft at the bottom of test hole CP-22, location 73-02052). No visible oil residue was observed on any of the rods during the CPT investigations. The results of this investigation will be presented in a future RFI report for PRS 73-001(d).

### **3.4 Rationale for No Further Action Decision**

Based on reviews of historic photographs and engineering drawings, the center of PRS 73-001(b) is estimated to have been located near the center of the south trench in the debris disposal area (PRS 73-001[d]). Although there is no anecdotal or photographic evidence that the waste oil pit (which was backfilled years before the south trench was excavated) was encountered when excavating the trench, it is likely that the pit was destroyed by the trench excavation.

PRS 73-001(b) is one component of the contamination within the larger surrounding area of landfill-type debris associated with the debris disposal area (PRS 73-001[d]). The area including PRS 73-001(b) will therefore be investigated as part of PRS 73-001(d).

PRS 73-001(b) is recommended for NFA based on NFA Criterion 1. This criterion states that the site cannot be located or has been found not to exist, is a duplicate PRS, or is located within and therefore investigated as part of another PRS.

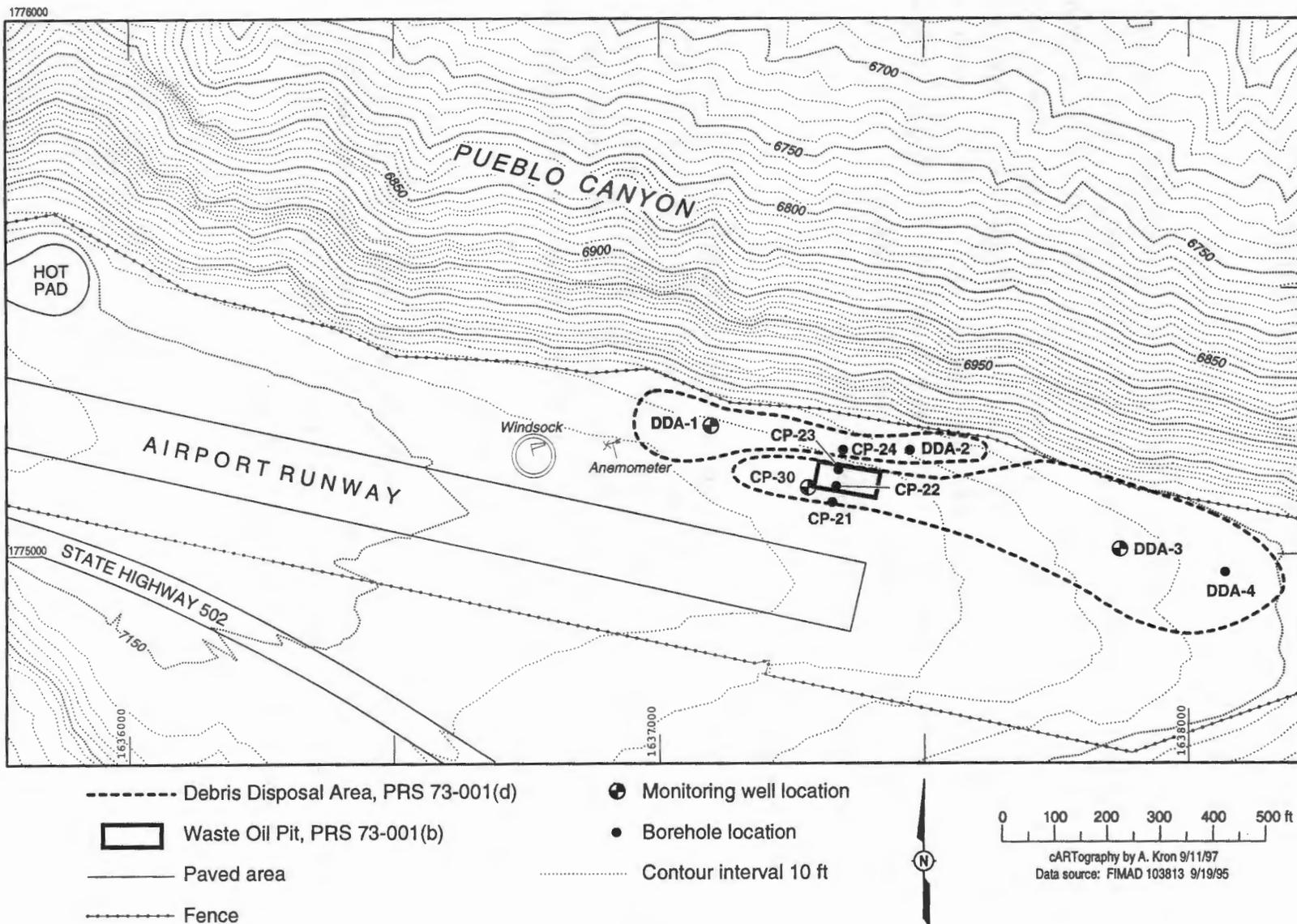


Fig. 3.1-2 Cone penetrometry testing locations near PRS 73-001(b).

#### **4.0 PRS 73-004(c), FORMER AIRPORT TERMINAL SEPTIC SYSTEM**

##### **4.1 Site Description**

PRS 73-004(c) is a septic tank and outfall system that served the former Los Alamos Airport terminal building, which was located approximately 75 ft directly east of the existing terminal building (Fig. 4.1-1). There were two restrooms in the northeast corner of the building that were connected by a 4-in. diameter vitrified clay pipe (VCP) to the septic tank (Francis 1996, 05-0262). The septic tank, probably constructed of concrete, discharged to the south edge of Pueblo Canyon through a 4-in. diameter VCP. Conflicting information places the septic tank from immediately northeast of the building to as far as 80 ft north of the building. The area of the former terminal building and associated septic system was capped with 9-in. thick concrete pavement as part of the 1984 Los Alamos Airport Improvement Project.

##### **4.2 Historical Operations**

The former airport terminal building was constructed from 1946 to 1947. The septic tank discharged through a 4-in. diameter VCP directly to Pueblo Canyon. In 1964, the terminal building was connected to a gravity flow sewer main leading to the Bayo Sewage Treatment Plant, and the Pueblo Canyon outfall was abandoned. Based on the known activities that took place in the terminal building (i.e., ticketing, waiting area), PRS 73-004(c) apparently received only sanitary waste. There were no known releases.

##### **4.3 Site Investigations**

No previous investigations were conducted at PRS 73-004(c). The current investigation was conducted in June 1996 in accordance with Chapter 5.17 of the approved RFI Work Plan for OU 1071 (LANL 1992, 0781). All applicable LANL Environmental Restoration (ER) standard operating procedures (SOPs) were followed (LANL, 0875).

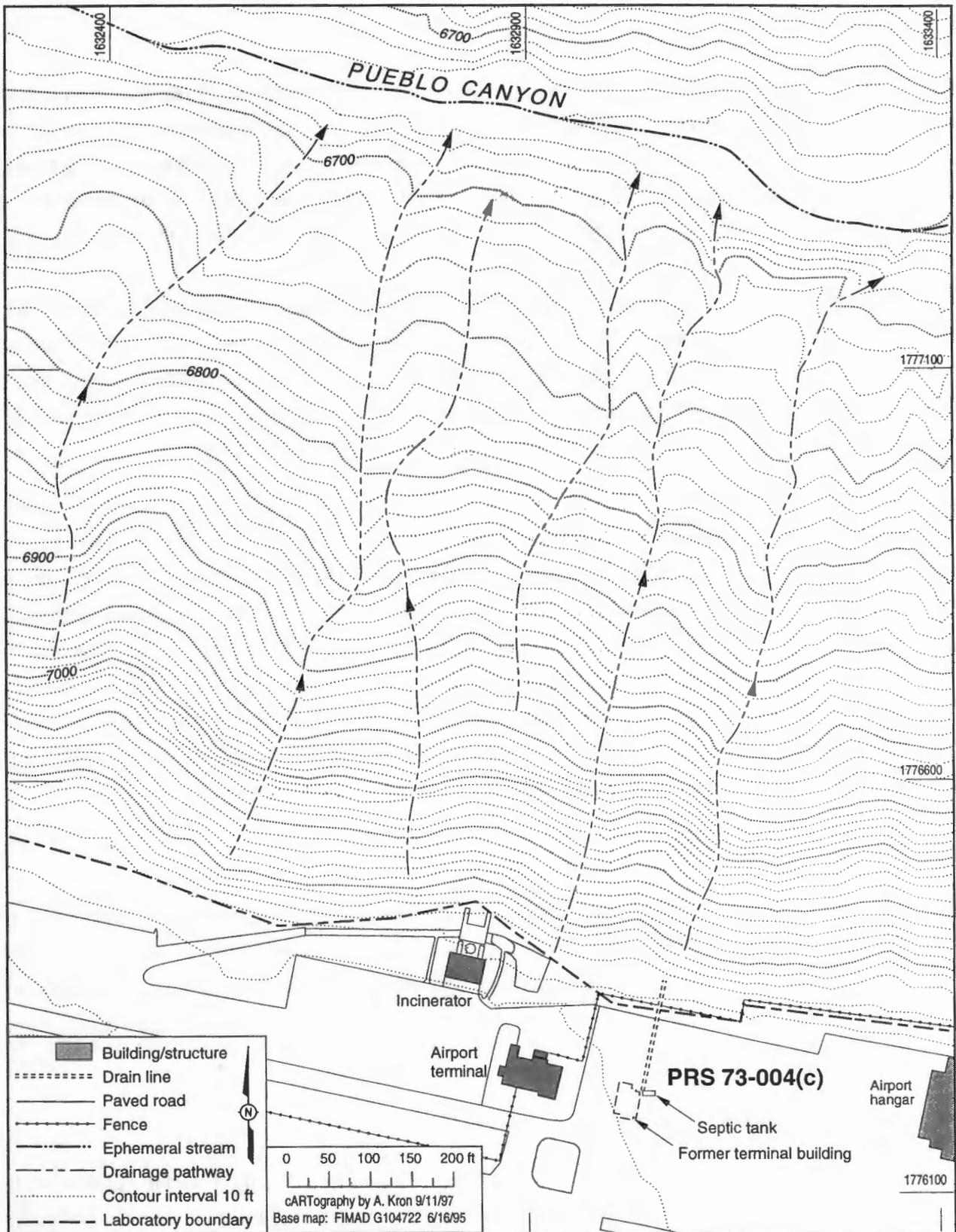


Fig. 4.1-1 Location of PRS 73-004(c), the former airport terminal septic system.

#### **4.3.1 Site Survey**

A 1970 construction site plan of the present airport terminal building (Engineering Drawing ENG-C39948) instructs the building contractor to remove the old terminal building and 14 ft of the 4-in. VCP between the north wall of the old terminal building and south edge of a formerly existing parking lot. It also instructs the contractor to cap the VCP at the south edge of the parking lot. However, Fig. 5-86 of the RFI Work Plan for OU 1071 shows the septic tank to be within 14 ft of the old terminal building (LANL 1992, 0781). Therefore, it is possible that the septic tank was removed when the old terminal building was demolished. It is also possible that the septic tank was removed as landfill trenches were dug to the east of the existing terminal building (Crowder 1995, 05-0260). A third possibility is that the septic tank was removed during landfill relocation activities conducted in 1984 for the purpose of providing a firm foundation for the new airport apron area to the east of the existing terminal building.

A site survey was conducted in June 1996 to determine the location of the septic tank drainline and outfall along the rim of Pueblo Canyon. A review of historic aerial photographs provided no information regarding the septic tank, drainline, or outfall locations. As an alternative, distances from existing site features to the outfall were determined from engineering drawings. During two site visits, these distances were measured in the field and the resulting locations were visually inspected and investigated using shovels and a steel rod to dig and probe the areas. The outfall pipe could not be located. As a last resort, the rim of the canyon was visually inspected for a distance of approximately 50 ft on either side of the estimated former outfall pipe location. Again, the drainline and outfall could not be located.

#### **4.3.2 Geophysical Survey**

An electromagnetic geophysical survey was completed on a 20 ft grid over the entire 250 ft by 270 ft concrete apron immediately east of the existing terminal building (Newton 1997, 0264). The concrete apron covers the entire area where the former terminal building and septic tank were located. However, no anomalies were noted that potentially represent the septic tank or its drainlines.

#### **4.4 Rationale for No Further Action Decision**

The lack of evidence with which to locate the septic tank and its outfall, and the possibility that the tank was removed during landfill trenching, demolition of the former terminal building, or subsequent relocation of the landfill debris, prompted the decision to abandon the investigation of this PRS. If the septic tank does still exist, it is now covered by several inches of concrete,

and cutting and trenching through the concrete without some guarantee of finding the tank is not practical. The rationale for designating this septic system as a PRS in the first place was dubious given the historical knowledge that it received only sanitary waste from the former terminal building restrooms.

PRS 73-004(c) is recommended for NFA based on NFA Criteria 1 and 2. Criterion 1 states that the site cannot be located or has been found not to exist, is a duplicate PRS, or is located within and therefore investigated as part of another PRS. Criterion 2 states that the site has never been used for the management (that is, generation, treatment, storage, or disposal) or RCRA solid or hazardous wastes and/or constituents or other CERCLA hazardous substances.

## **5.0 PRS 73-004(d), LANDFILL OFFICE SEPTIC SYSTEM**

### **5.1 Site Description**

PRS 73-004(d) is a septic system that served the Los Alamos Airport landfill office, which was located east of the airport terminal building and hangars (Limbaugh Engineering & Aerial Services, Inc. 1963, 05-0067) (Fig. 5.1-1). The landfill office was a flat-roofed building with floor dimensions of approximately 16 ft by 24 ft. The building was anchored at the landfill site to a 4-in. thick reinforced concrete slab of the same dimensions. A 4-in. diameter VCP connected the building's toilet facilities to the septic tank, which was located about 20 ft northeast of the building. The composition and dimensions of the septic tank are not known. It was planned that discharge from the septic tank would enter a distribution box and feed two parallel 62-ft long, 4-in. diameter perforated Orangeberg leach lines, spaced about 7.5 ft apart (The Zia Company 1960, 05-0266). However, the actual septic system may not have included a leach field (Williams 1997, 05-0265). The office building and its concrete slab have been removed from the site. The septic tank was also removed as part of the early 1970s decommissioning operation (Williams 1997, 05-0265).

### **5.2 Historical Operations**

It appears from available drawings and information on landfill operations that the landfill office septic system was used between about 1960 and 1973. The Laboratory operated the facility until 1965, at which time operations were turned over to Los Alamos County. The county continued to operate the disposal area until June 30, 1973 (IT Corporation 1991, 05-0045). The septic tank at PRS 73-004(d) was probably used only for sanitary wastes, and there is no evidence to indicate that it contained any hazardous materials.

### **5.3 Site Investigations**

#### **5.3.1 Site Survey**

The location of the former landfill office septic system was estimated based on a review of engineering drawings and aerial photographs. Presently, there is no visible indication of the septic system or former landfill office at the estimated location.

#### **5.3.2 Geophysical Survey**

During the summer of 1994, field investigations were conducted in the suspected area of PRS 73-004(d) using magnetic total field, gravimetric, seismic refraction, ground-penetrating radar, and Schlumberger vertical electrical sounding geophysical survey methods. No geophysical anomalies were encountered that appear to correspond to the former landfill office septic system. The original location of the septic system lies in an area of the main airport landfill (PRS 73-001[a]) where the geophysical results indicate a landfill waste thickness of 20 to 30 ft.

### **5.4 Rationale for No Further Action Decision**

The estimated location of the former landfill office building and associated septic system lies in an area of the main airport landfill (PRS 73-001[a]) where the geophysical results indicate a landfill waste thickness of 20 to 30 ft. The RFI Work Plan for OU 1071 states that PRS 73-004(d) will be investigated as part of PRS 73-001(a). Therefore, PRS 73-004(d) should never have been designated as a separate PRS.

PRS 73-004(d) is recommended for NFA based on NFA Criterion 1. This criterion states that the site cannot be located or has been found not to exist, is a duplicate PRS, or is located within and therefore investigated as part of another PRS.

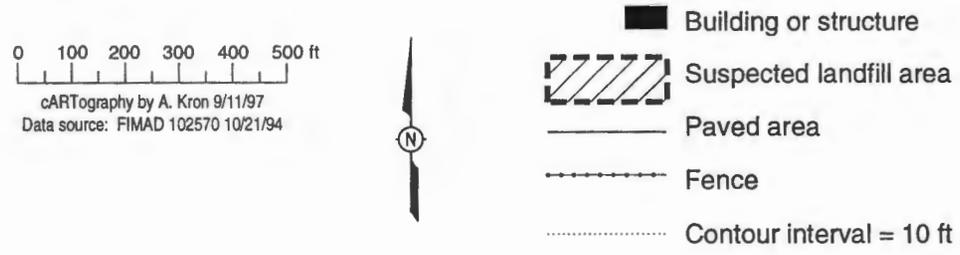
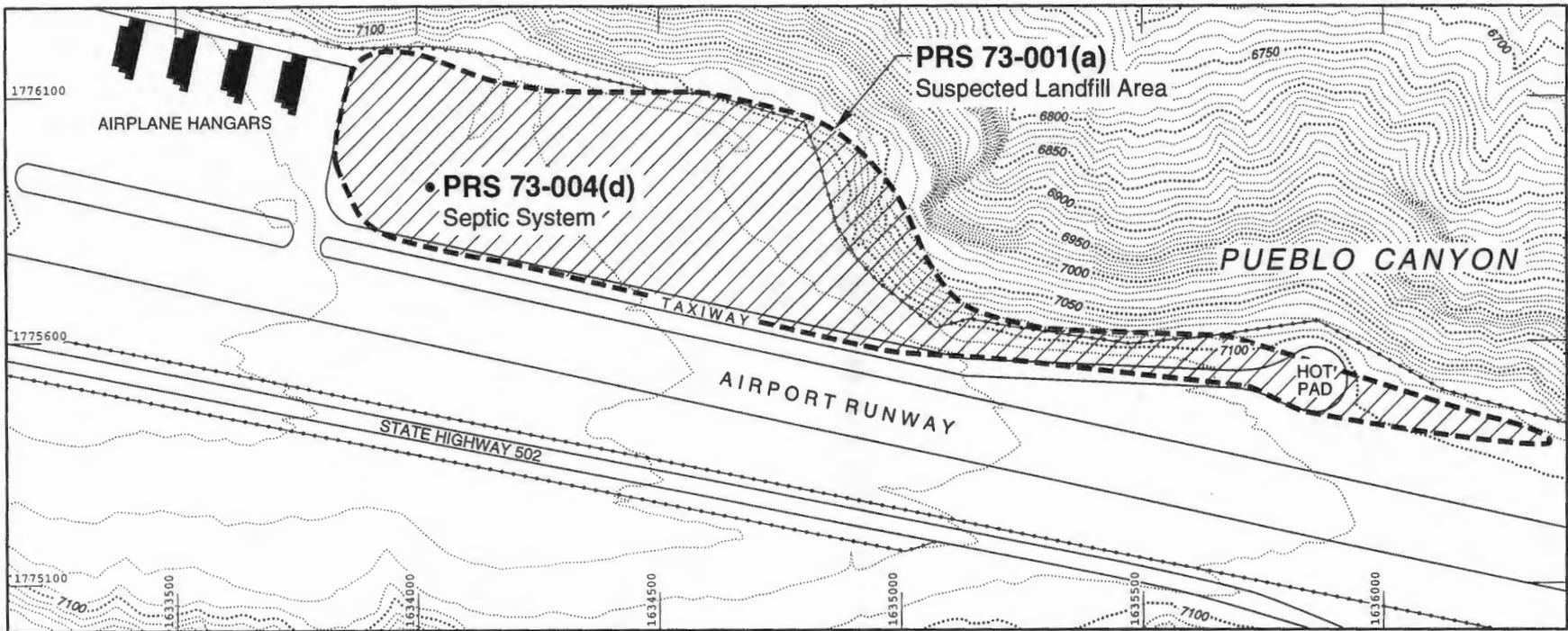


Fig. 5.1-1 Location of PRS 73-004(d), the landfill office septic system.

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