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2013 Biennial Asphalt Monitoring and Removal Report for Area of Concern C-00-041, Guaje/Barrancas/Rendija Canyons Aggregate Area

Prepared by the Environmental Programs Directorate

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EXECUTIVE SUMMARY

Area of Concern (AOC) C-00-041 is the site of a former asphalt batch plant located in the Rendija Canyon watershed within the Guaje/Barrancas/Rendija Canyons Aggregate Area at Technical Area 00. Asphalt was released during plant operations from the late 1940s to 1958 and could be found exposed in the ephemeral stream downgradient of the plant location. The plant was removed and the land transferred in 1969 to the U.S. Forest Service. In 2007, investigation sampling was completed, and visible asphalt and tar were removed from the surface of the main drainage channel that crosses AOC C-00-041. Because of the potential for continued exposure of additional asphalt or tar by erosion during storms or other runoff events, the New Mexico Environment Department requires biennial surveys for, and removal of, exposed asphalt and tar within the main drainage channel. The first biennial survey was conducted in October 2009, the second in November 2011, and the third in November 2013.

The 2013 activities included visual inspections of the entire site and removal and dispositioning of visible asphalt or tar. The inspections consisted of dividing the AOC into small, manageable areas, performing numerous walkovers within the areas to identify and remove any visible asphalt or tar, and disposing of the waste. Inspections focused primarily on the main drainage channel at AOC C-00-041, but the entire site was inspected.

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1.0 INTRODUCTION

Los Alamos National Laboratory (LANL or the Laboratory) is a multidisciplinary research facility owned by the U.S. Department of Energy (DOE) and managed by Los Alamos National Security, LLC. The Laboratory is located in north-central New Mexico approximately 60 mi northeast of Albuquerque and 20 mi northwest of Santa Fe. The Laboratory site covers 36 mi^2 of the Pajarito Plateau, which consists of a series of finger-like mesas separated by deep canyons containing perennial and intermittent streams running from west to east. Mesa tops range in elevation from approximately 6200 to 7800 ft above sea level (asl).

Corrective actions for solid waste management units (SWMUs) and areas of concern (AOCs) at the Laboratory are subject a Compliance Order on Consent (the Consent Order). This report describes the work activities executed and completed at AOC C-00-041 in accordance with the Consent Order.

1.1 General Site Information

The Guaje/Barrancas/Rendija Canyons Aggregate Area encompasses the Guaje, Barrancas, and Rendija Canyon watersheds within Technical Area 00 (TA-00). The Laboratory began operations at TA-00 in 1943 and had largely ceased using this area by 1986. Figure 1.1-1 shows the Guaje/Barrancas/Rendija Canyons Aggregate Area SWMUs and AOCs with respect to the Laboratory boundary and surrounding land holdings. AOC C-00-041, the site of a former asphalt batch plant, is located in the Rendija Canyon watershed (Figure 1.1-2).

1.2 Objectives

The objective of this report is to provide the results of the 2013 biennial asphalt monitoring and removal activities at AOC C-00-041, as required under the approved asphalt monitoring and removal plan (LANL 2008, 102726). Characterization sampling and hand-removal of surface asphalt were conducted at AOC C-00-041 in 2007 as part of the Guaje/Barrancas/Rendija Canyons Aggregate Area investigation. The investigation report concluded that the nature and extent of contamination have been defined and the site poses no unacceptable human-health risk for the residential scenario and no unacceptable ecological risk (LANL 2007, 099954). However, additional asphalt and tar may be unearthed by erosion during storms or other runoff events (e.g., snowmelt) within the active drainage channel at AOC C-00-041. The New Mexico Environment Department's (NMED's) approval with direction for the aggregate area investigation report requires biennial inspection and removal of asphalt exposed by storm events or erosion (NMED 2007, 099632).

2.0 SITE DESCRIPTION AND OPERATIONAL HISTORY

AOC C-00-041 is located on U.S. Forest Service (USFS) land in a portion of a side slope and ephemeral stream drainage channel that flows into Rendija Canyon. Aerial photographs indicate the asphalt plant operated from the late 1940s to 1958, and the site history suggests the plant was removed sometime between 1958 and 1965 (LANL 1996, 054925, p. 1). In 1969, after the plant had been removed, the land was transferred from the Atomic Energy Commission to USFS to manage as public land (LANL 1996, 054925, p. 1).

The Laboratory conducted a voluntary corrective action (VCA) at AOC C-00-041 in 1995 to remove asphalt from the stream channel, the area to which the asphalt was confined, and to break up and remove concrete blocks. Six samples, including two water samples, were collected from locations upstream, beneath the asphalt, at the upstream and downstream ends of the deposit, and from

downstream of the deposit. The 300 yd^3 of excavated material was disposed of at the Los Alamos County landfill. A USFS representative inspected the site, and the VCA was declared complete to USFS's satisfaction. The VCA report requested completion concurrence from DOE (LANL 1996, 054925, p. 1).

Figure 2.0-1 is a site map of AOC C-00-041. Currently, the site is undeveloped and is located in a grassy open meadow bisected south to north by an ephemeral stream. A hiking trail, Rendija Trail, is located to the east of AOC C-00-041, and the Guaje Pines Cemetery is located to the west.

3.0 SITE CONDITIONS

3.1 Surface Conditions

Rendija Canyon is located immediately north of the Los Alamos townsite and has a drainage area of 9.5 mi^2. The canyon heads on the flanks of the Sierra de los Valles just west of the townsite at an elevation of 9826 ft asl. The channel extends approximately 9 mi east to its confluence with Guaje Canyon. The lowest elevation of the watershed is approximately 6300 ft asl (LANL 1997, 055622, p. 3-2). Rendija Canyon crosses USFS land and DOE land. Four tributaries are present in the Rendija Canyon watershed. Rendija Canyon and its tributaries contain ephemeral streams, arising from storm water runoff and snowmelt. The watershed drains portions of Los Alamos townsite, DOE land, and USFS land. As the surface water flows downstream, it infiltrates the alluvium and the underlying formations or is lost to evapotranspiration.

3.2 Subsurface Conditions

The stratigraphy in the Guaje/Barrancas/Rendija Canyons Aggregate Area consists of the Quaternary Cerro Toledo interval and the Tshirege Member of the Bandelier Tuff overlain by a thin layer of alluvium and soil. The 2007 sampling at the site did not exceed 3.0 ft below ground surface, and the only stratigraphic unit encountered at the site was surface soil. Saturated conditions were not encountered and no subsurface structures are known to exist at the site (LANL 2007, 098670).

4.0 SCOPE OF ACTIVITIES

All 2013 activities at AOC C-00-041 took place on USFS land, with access through Los Alamos County land. All the work was subject to approval by the applicable land owner(s) through access agreements and/or special-use permits.

4.1 Site Inspection

AOC C-00-041 was inspected on October 22, 2013, per the approved asphalt monitoring and removal plan (LANL 2008, 102726; NMED 2008, 102289). The inspection was conducted to identify remnants of asphalt and tar that have been exposed at the surface by runoff or erosion since the 2011 monitoring and removal activities. The inspection was performed by traversing the site on foot and visually inspecting the ground surface. The site was divided into smaller areas, and multiple sweeps (or sweeps by multiple people) were performed in each area to ensure all newly exposed asphalt and tar were identified and removed.

During the month of September 2013, the Laboratory region experienced significant storm events that resulted in substantial flooding and erosion in several regional canyons and drainages. Increased soil erosion in surface water drainages near AOC C-00-041, particularly in the main Rendija Canyon channel, was observed during the inspection on October 22, 2013.

4.2 Asphalt and Tar Collection

On November 12, 2013, exposed asphalt and tar fragments were found and removed during the site inspection of AOC C-00-41. Asphalt or tar was removed only if it was visible at the surface and involved no excavation or significant soil disturbance. The asphalt and tar pieces ranged in size from less than an inch to up to 12 in. in length and width. Asphalt and tar pieces were collected in buckets and transferred to the back of a pickup truck. A total of 660 lb of asphalt and tar was removed from AOC C-00-041. The asphalt and tar were transferred to, and recycled at, the Los Alamos County Eco-Station.

5.0 CONCLUSIONS

Since 2009, the quality of asphalt debris and tar removed has decreased. In 2009, seven 55-gal. drums' worth of asphalt and tar were removed from AOC C-00-041. In 2011, four 55-gal. drums' worth of asphalt and tar were removed from AOC C-00-041. In 2013, one-half 55-gal. drum's worth of asphalt and tar was removed from AOC C-00-041. The next biennial survey and report will be completed in December 2015.

6.0 REFERENCES AND MAP DATA SOURCES

6.1 References

The following list includes all documents cited in this report. Parenthetical information following each reference provides the author(s), publication date, and ER ID. This information is also included in text citations. ER IDs are assigned by the Environmental Programs Directorate's Records Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set.

Copies of the master reference set are maintained at the NMED Hazardous Waste Bureau and the Directorate. The set was developed to ensure that the administrative authority has all material needed to review this document, and it is updated with every document submitted to the administrative authority. Documents previously submitted to the administrative authority are not included.

LANL (Los Alamos National Laboratory), March 1996. "Voluntary Corrective Action Completion Report for Potential Release Site C-0-041, Former Asphalt Batch Plant Site," Los Alamos National Laboratory document LA-UR-96-434, Los Alamos, New Mexico. (LANL 1996, 054925)

LANL (Los Alamos National Laboratory), April 1997. "Core Document for Canyons Investigations," Los Alamos National Laboratory document LA-UR-96-2083, Los Alamos, New Mexico. (LANL 1997, 055622)

LANL (Los Alamos National Laboratory), August 2007. "Investigation Report for Guaje/Barrancas/ Rendija Canyons Aggregate Area at Technical Area 00," Los Alamos National Laboratory document LA-UR-07-5326, Los Alamos, New Mexico. (LANL 2007, 098670)

LANL (Los Alamos National Laboratory), November 2007. "Investigation Report for Guaje/Barrancas/Rendija Canyons Aggregate Area at Technical Area 00, Revision 1," Los Alamos National Laboratory document LA-UR-07-7820, Los Alamos, New Mexico. (LANL 2007, 099954)

LANL (Los Alamos National Laboratory), April 2008. "Asphalt Monitoring and Removal Plan for Area of Concern C-00-041, Guaje/Barrancas/Rendija Canyons Aggregate," Los Alamos National Laboratory document LA-UR-08-2666, Los Alamos, New Mexico. (LANL 2008, 102726)

NMED (New Mexico Environment Department), December 20, 2007. "Approval with Direction, Investigation Report for Guaje/Barrancas/Rendija Canyons, Revision 1," New Mexico Environment Department letter to D. Gregory (DOE-LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2007, 099632)

NMED (New Mexico Environment Department), July 2, 2008. "Notice of Approval, Asphalt Monitoring and Removal Plan for Area of Concern C-00-041, Guaje/Barrancas/Rendija Canyons Aggregate," New Mexico Environment Department letter to D. Gregory (DOE-LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Santa Fe, New Mexico. (NMED 2008, 102289)

6.2 Map Data Sources

Drainage. Modeled Surface Drainage, 1991; Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program, ER2002-0591; 1:24,000 Scale Data; Unknown publication date. NHD Route Drainage; National Hydrography Dataset Program, United States Geological Survey; Quadrangle 13020101; 08 October 2004.

Hypsography. Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; 1991.

Los Alamos National Laboratory Boundaries. LANL Areas Used and Occupied; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Division; 19 September 2007. Technical Area Boundaries; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Division; 19 September 2007.

Point Feature Locations of the Environmental Restoration Project Database. Los Alamos National Laboratory, Waste and Environmental Services Division, EP2008-0189; 11 April 2008.

Potential Release Sites. Los Alamos National Laboratory, Waste and Environmental Services Division, Geotechnical Services Group, EP2008-0095; 1:2,500 Scale Data; 04 April 2008.

Roads and Trails. Forest Roads; County of Los Alamos, Information Services; as published 16 May 2006. Los Alamos County Land Parcels; County of Los Alamos, Information Services, as published 17 January 2008. Road Centerlines for the County of Los Alamos; County of Los Alamos, Information Services; as published 03 December 2007. Streets; County of Los Alamos, Information Services; as published 16 May 2006. Trails; County of Los Alamos, Information Services; as published 16 May 2006.

Structures. Approximate Location of Former Batch Plant; Investigation Work Plan for Guaje/Barrancas/Rendija Canyons Aggregate Area at Technical Area 00; Los Alamos National Laboratory Report LA-UR-05-3869; Figure 2.1-14 AOC C-00-041 site map; Map m201440; July 2005. Structures; County of Los Alamos, Information Services; as published 29 October 2007.

Watersheds. Los Alamos National Laboratory, ENV Environmental Remediation and Surveillance Program; EP2006-0942; 1:2,500 Scale Data; 27 October 2006.

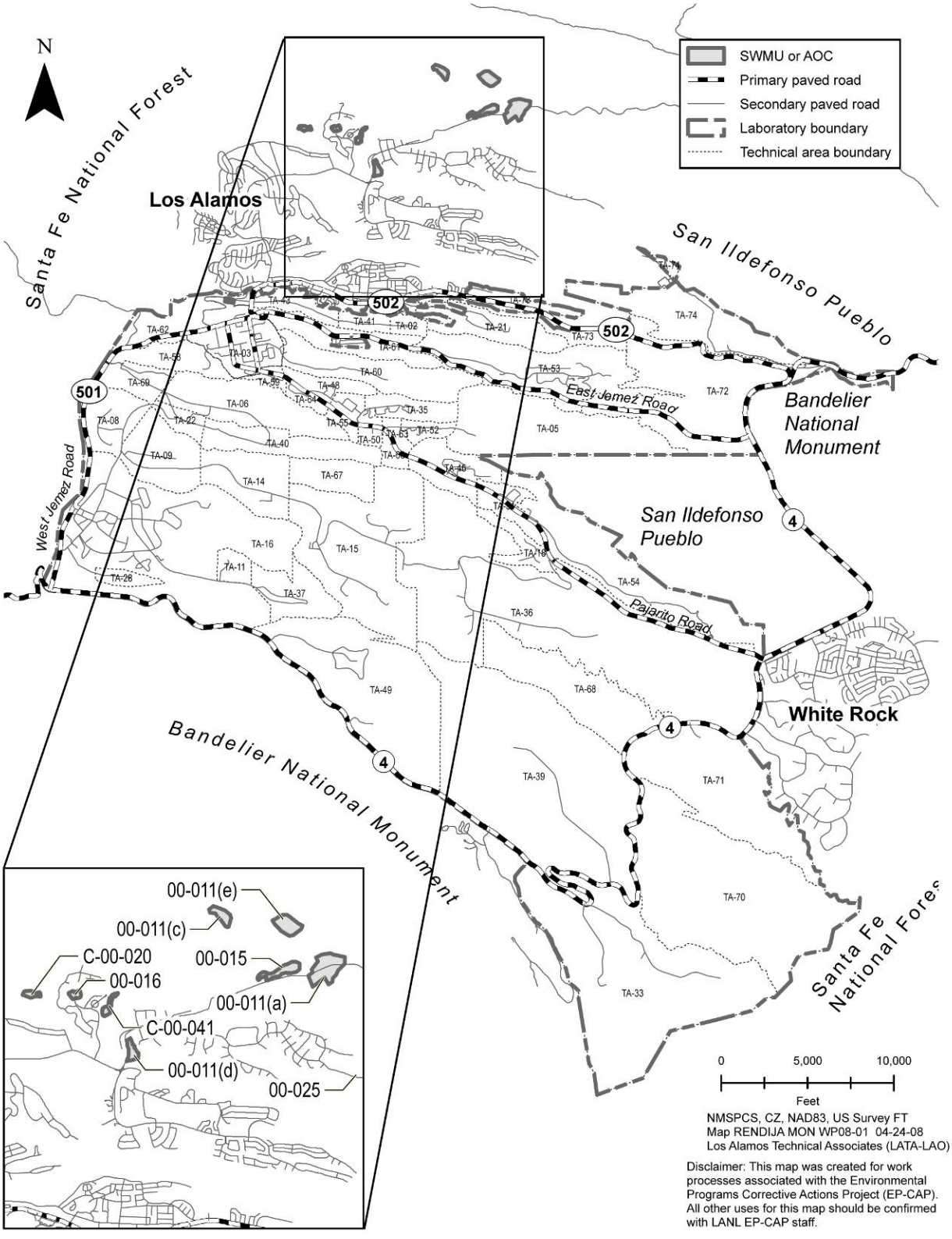

Figure 1.1-1 Guaje/Barrancas/Rendija Canyons Aggregate Area SWMUs and AOC

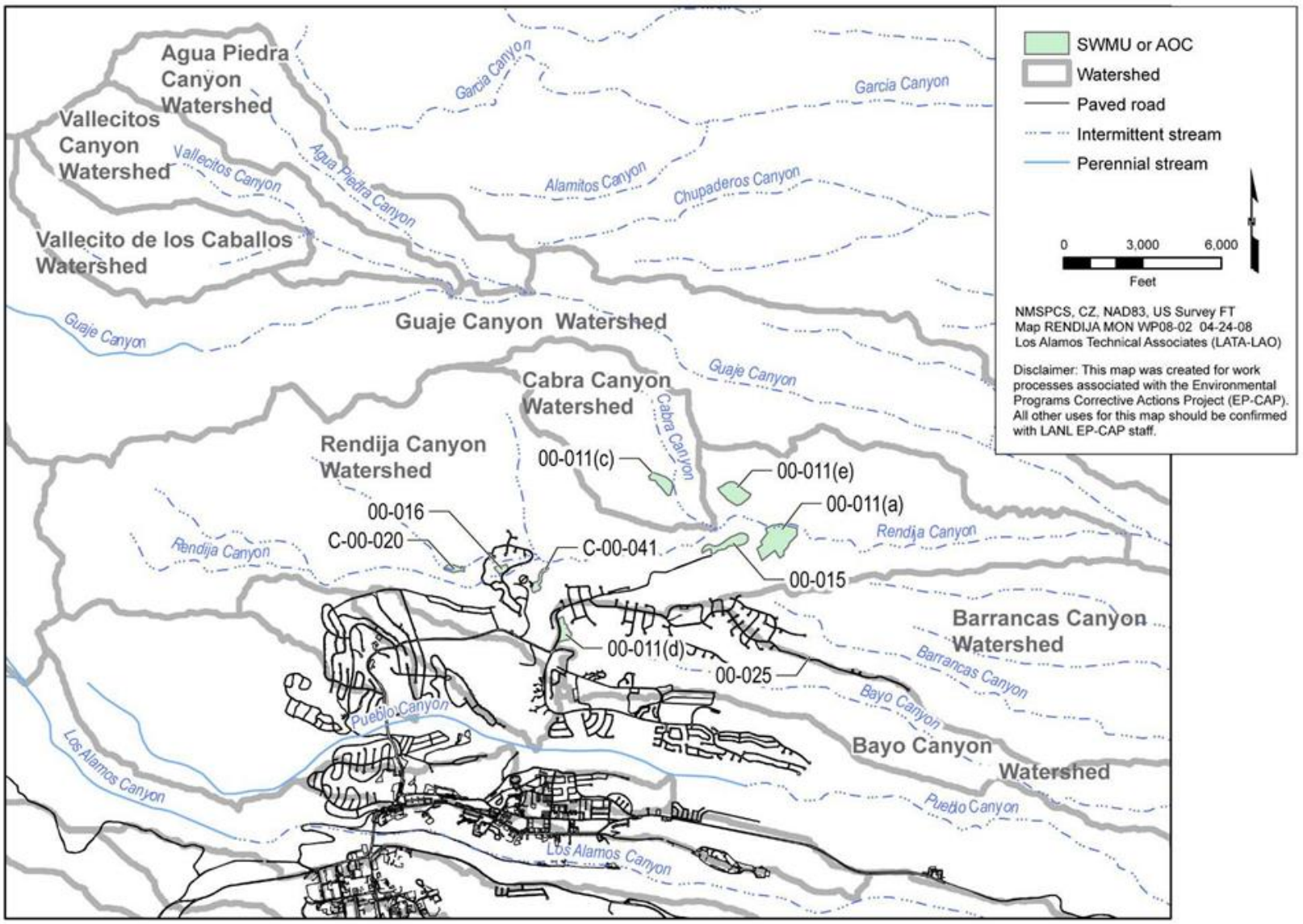

Figure 1.1-2 Location of AOC C-00-041 within the Rendija Canyon watershed

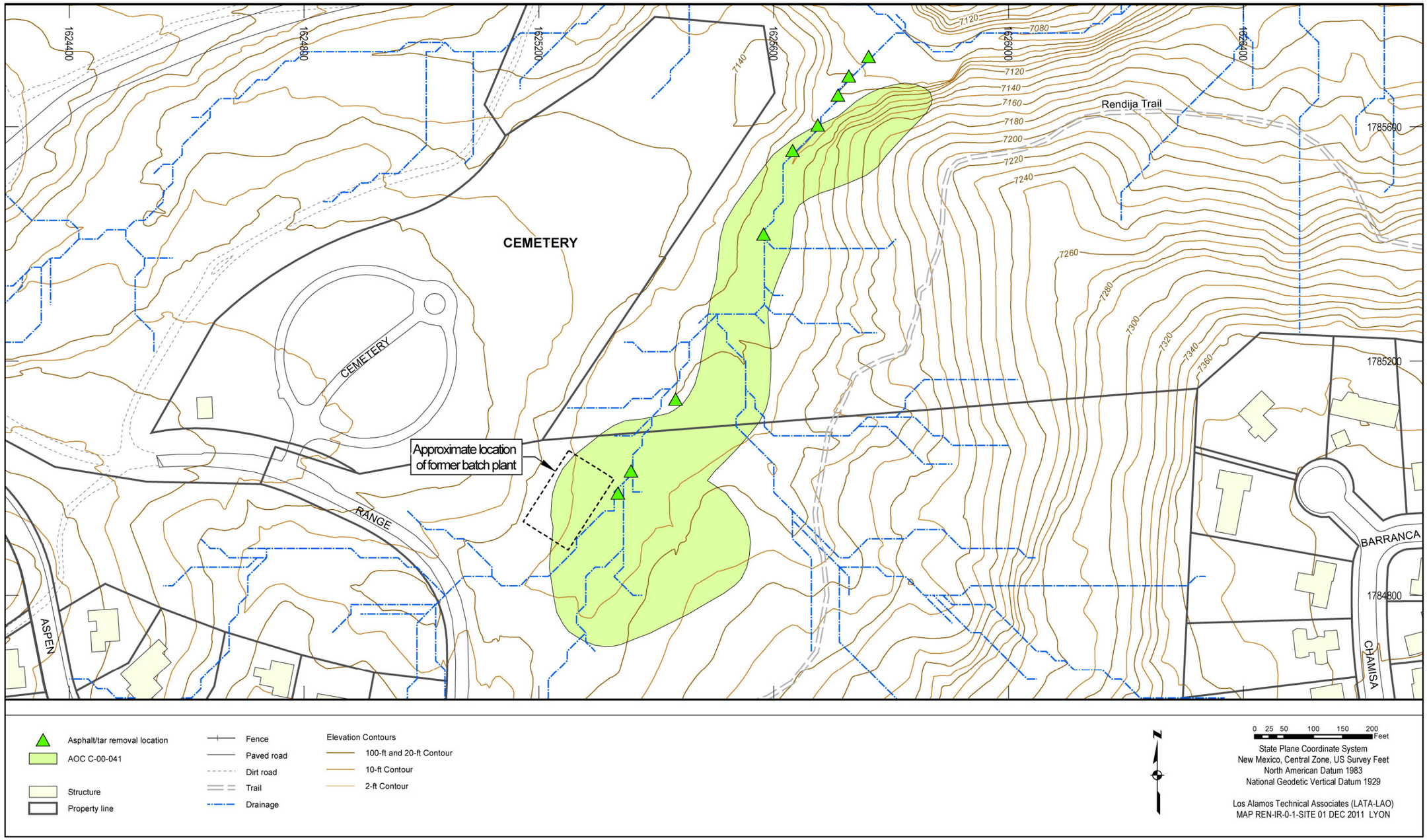

Figure 2.0-1 AOC C-00-041 site map and asphalt and tar removal location