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Investigation Work Plan for Upper Water Canyon Aggregate Area

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EXECUTIVE SUMMARY

The Upper Water Canyon Aggregate Area includes Technical Area 11 (TA-11), TA-16, and TA-37 of Los Alamos National Laboratory and consists of 166 solid waste management units (SWMUs) and areas of concern (AOCs). Of these sites, 37 have been previously investigated and/or remediated and have been approved for no further action. They are not discussed in this work plan.

For the remaining 129 sites, this work plan describes the operational history, evaluates existing analytical data, and proposes additional sampling and analyses. Details of previous investigations and analytical results for all 129 sites are provided in the Historical Investigation Report for Upper Water Canyon Aggregate Area. Of the 129 SWMUs and AOCs in the Upper Water Canyon Aggregate Area that require some additional characterization, 3 sites are located within TA-11 and 126 sites are located within TA-16. The sites include

- a firing site;
- a dry well, a grease trap, septic tanks, sumps, drainlines, and outfalls;
- magazines;
- building footprints;
- landfill and surface disposal areas;
- underground storage tanks and aboveground tanks;
- transformers;
- oil switches;
- incinerators; and
- cooling towers.

The objective of this work plan is to evaluate the historical data and, based on that evaluation, to propose additional sampling as necessary to define the nature and extent of contamination associated with the SWMUs and AOCs within the Upper Water Canyon Aggregate Area.

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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 40 mi^2 of the Pajarito Plateau, which consists of a series of fingerlike mesas separated by deep canyons containing perennial and intermittent streams running from west to east. Mesa tops range in elevation from approximately 6200-7800 ft above mean sea level (amsl). The Upper Water Canyon Aggregate Area is shown in Figure 1.0-1.

The Laboratory's Environmental Programs (EP) Directorate, formerly the Environmental Restoration Project, is participating in a national effort by DOE to clean up sites and facilities formerly involved in weapons research and development. The goal of the EP Directorate is to ensure that past operations do not threaten human or environmental health and safety in and around Los Alamos County, New Mexico. To achieve this goal, the EP Directorate is currently investigating sites potentially contaminated by past Laboratory operations. The purpose of this investigation work plan (IWP) is to propose sampling and analyses that will define the nature and extent of contamination. The sites under investigation are designated as solid waste management units (SWMUs) and areas of concern (AOCs).

The SWMUs and AOCs (sites) addressed in this IWP are potentially contaminated with both hazardous and radioactive components. The New Mexico Environment Department (NMED), pursuant to the New Mexico Hazardous Waste Act, regulates cleanup of hazardous wastes and hazardous constituents. DOE regulates cleanup of radioactive contamination, pursuant to DOE Order 5400.5, Radiation Protection of the Public and the Environment, and DOE Order 435.1, Radioactive Waste Management. Information on radioactive materials and radionuclides, including the results of sampling and analysis of radioactive constituents, is voluntarily provided to NMED in accordance with DOE policy.

Corrective actions at the Laboratory are subject to the Compliance Order on Consent (the Consent Order). This work plan describes work activities that will be executed and completed in accordance with the Consent Order.

1.1 Work Plan Overview

The Upper Water Canyon Aggregate Area consists of 166 SWMUs and AOCs located in Technical Area 11 (TA-11), TA-16, and TA-37. TA-28 and former TA-29 are located within the boundary of TA-16. The TA-28 and former TA-29 sites have been redesignated to TA-16. TA-37 contains one SWMU, which has been approved for no further action (NFA) and will not be investigated as part of this work plan.

For the 166 sites in the Upper Water Canyon Aggregate area, 37 have been previously investigated and/or remediated and have been approved for NFA, and 129 are addressed in this work plan. Of these 129 sites, 3 are located within TA-11 and 126 are located within TA-16. Historical details of previous investigations and data for the 129 TA-11 and TA-16 sites are provided in the Historical Investigation Report (HIR) for Upper Water Canyon Aggregate Area (LANL 2010, 110410). For the 129 sites addressed in this work plan, investigation activities are proposed using information from previous field investigations to evaluate current conditions at each site.

Table 1.1-1 provides a summary of the 166 sites within the Upper Water Canyon Aggregate Area. For the 37 sites not included in this work plan, brief descriptions and summaries of their status are presented in Table 1.1-1. Plate 1 shows only the sites under investigation in the Upper Water Canyon Aggregate Area along with monitoring wells, surface-water monitoring stations, and canyon reaches.

Section 2 of this work plan presents general site information, operational history, the conceptual site model, and a data overview. General site conditions are presented in section 3. Specific site descriptions and proposed investigation activities are presented in sections 4 (TA-11) and 5 (TA-16). The investigation methods are described in section 6. Ongoing monitoring and sampling programs in the Upper Water Canyon Aggregate Area are presented in section 7, and an overview of the anticipated schedule is presented in section 8. Section 9 lists the references cited in this work plan and the map data sources. Appendix A contains the list of acronyms and abbreviations used in this IWP, a metric conversion table, and a data qualifier definition table. Appendix B describes the management of investigation-derived waste (IDW).

1.2 Work Plan Objectives

The first objective of this work plan is to propose sampling and analyses that will define the nature and extent of contamination associated with the sites. The second objective is to support decisions regarding the need to remediate or remove inactive structures related to the sites where appropriate.

To accomplish this objective, this work plan

- presents historical and background information on the sites,
- describes the rationale for proposed data collection activities, and
- identifies and proposes appropriate methods and protocols for collecting, analyzing, and evaluating data to finalize characterization at these sites.

As discussed in the individual sections for each site, the nature and extent of contamination are not currently defined for any of the sites under investigation. Additional investigation is required to define the nature and extent of contamination for each site. The proposed investigation is based on a biased sampling approach that is enabled by adequate knowledge of site operational history and current site configurations.

2.0 BACKGROUND

2.1 General Site Information

The Upper Water Canyon Aggregate Area, located in the southwestern corner of the Laboratory on a broad mesa, lies at elevations between 7100 and 7700 ft amsl. The southern boundary is south of Water Canyon at the Laboratory boundary at NM 4. The mesa slopes eastward toward branches of Water Canyon and Cañon de Valle. The Upper Water Canyon Aggregate Area includes portions of TA-11, TA-16, and TA-37 and consists of 166 SWMUs and AOCs (Table 1.1-1). TA-28 and former TA-29 are located within the boundary of TA-16. The TA-28 and former TA-29 sites have been redesignated to TA-16. The Upper Water Canyon Aggregate Area sits primarily in TA-16 and crosses through the southern half of TA-11 and TA-37. TA-11 contains one SWMU and two AOCs—all three will be investigated as part of this work plan. TA-16 contains 162 SWMUs and AOCs—36 sites have been approved for NFA and the remaining 126 sites will be investigated as part of this work plan. TA-37 contains one SWMU, which has been approved for NFA and will not be investigated as part of this work plan (Table 1.1-1).

2.2 Operational History

TA-11, also known as K-Site, was constructed in 1944 for research on implosion symmetry using x-rays and magnetic methods. When K-Site was built, it originally housed a betatron and a cloud chamber. These two fixtures were used during the Manhattan Project. K-Site has also been home to photofission experiments, an air-gun firing facility, a mortar impact area, a burning ground, laboratories, storage buildings, sumps, and Material Disposal Area (MDA) S (LANL 2007, 097687, p. 2).

TA-16, also known as S-Site, contains many of the Laboratory's high explosives (HE) facilities, the Laboratory's state-of-the-art tritium, and several administrative support buildings. HE activities conducted at TA-16 involve fabricating and testing HE, plastics, and adhesives as well as conducting research in process development for manufacturing HE, plastics, adhesives, and other materials. The research, development, and testing operations at these facilities include large-scale processing of HE; manufacturing HE powders; casting, machining, and pressing HE components; and inspection and radiography of HE components. Other operations include assembly of test devices and chemical analysis of HE. Some buildings at TA-16 are used for storing and treating HE (DOE 2007, 098130). Recently, TA-16's main steam plant was closed and replaced by smaller local plants (LANL 2007, 097687, pp. 5−6).

Tritium activities at TA-16 include repackaging tritium to user-specified pressures, chemically purifying tritium by removing contaminants, reclaiming tritium, mixing tritium with other gases, analyzing gas mixtures, and conducting applied research and development for boost systems. These activities are a critical function to the Laboratory mission (LANL 2007, 097687, pp. 5−6).

A wastewater treatment plant (WWTP) was constructed in 1953 and served all of TA-16. The WWTP was disconnected in 1992 when the sanitary sewer system was connected to a Laboratory-wide system (LANL 2007, 097687, p. 10).

In May 2000, the Cerro Grande fire swept through TA-16 and severely damaged all V-Site structures, except for the High Bay building where scientists assembled the first atomic bomb. The Cerro Grande fire created post-fire flood concerns in Los Alamos Canyon, requiring the activities at TA-41 to be moved to TA-16. This included a variety of administrative/technical activities, mechanical fabrication, assembly of prototype weapons components, and nontritium research and development activities (DOE 2007, 098130).

TA-28, also known as Magazine Area A, is located within the boundary of TA-16. This TA was used for explosives storage. All structures located in TA-28 were reassigned to TA-16 and given TA-16 structure numbers.

Former TA-29, also known as Magazine Area B, is located within the boundary of TA-16. This technical area was used for explosives storage. All structures located in TA-29 were reassigned to TA-16 and given TA-16 structure numbers.

TA-37 is an explosives storage area consisting of 27 explosives storage magazines located at the eastern perimeter of TA-11 and TA-16.

2.3 Conceptual Site Model

The sampling and analyses proposed in this work plan are based on a conceptual site model that identifies likely areas of potential contamination. A conceptual site model describes potential contaminant sources, transport mechanisms, and receptors. The conceptual site model is applied to individual sites to select sampling locations most likely to define the nature and extent of contamination. Analytical results from the samples collected may lead to changes or refinement of the conceptual site model and to a need for additional characterization sampling in a later phase of the investigation.

2.3.1 Potential Contaminant Sources

Releases at the sites may have occurred from a firing site, a dry well, a grease trap, septic tanks, sumps, drainlines, outfalls, HE magazines, building footprints, landfill and surface disposal areas, underground storage tanks (USTs), above ground tanks, transformers, oil switches, incinerators, and cooling towers.

2.3.2 Potential Contaminant Transport Mechanisms

Current potential contaminant transport mechanisms that may lead to exposure include

- dissolution and/or particulate transport of surface contaminants during precipitation and runoff events,
- airborne transport of contaminated surface soil,
- continued dissolution and advective/dispersive transport of contaminants contained in subsurface soil and tuff as a result of past operations,
- disturbance of contaminants in shallow soil and subsurface tuff by Laboratory operations, and
- disturbance and uptake of contaminants in shallow soil by plants and animals.

2.3.3 Potential Receptors

Potential receptors to possible contaminant transport include

- Laboratory workers;
- construction workers at buildings that are scheduled for demolition at sites, including but not limited to, SWMU 16-003(b) (building 16-400), Consolidated Unit 16-003(c)-99 (building 16-460), and Consolidated Unit 16-003(l)-99 (building 16-430); and
- ecological receptors in the nondeveloped areas such as hillsides.

2.3.4 Cleanup Standards

As specified in section VII.B.1 of the Consent Order, soil screening levels will be used as soil cleanup levels unless they are determined to be impractical or unless values do not exist for the current and reasonably foreseeable future land use. Soil screening levels for inorganic chemicals above background values (BVs) and organic chemicals detected during previous investigations in the Upper Water Canyon Aggregate Area are provided in analytical data tables when available for the sites under investigation.

2.4 Data Overview

Data evaluated in this IWP include historical data collected in 1995 through 1999, 2003, 2005, and 2007 as part of Resource Conservation and Recovery Act (RCRA) facility investigations (RFIs) and other investigations or corrective actions. All data presented in tables and shown in figures are decision-level data. All decision-level data are included in Appendix B of the HIR (LANL 2010, 110410).

Decision-level data for inorganic chemicals and radionuclides from previous investigations are compared with BVs and fallout values (FVs) as applicable (LANL 1998, 059730). The data tables for inorganic chemicals include only decision-level data where sample concentrations are above the BVs or detected if no BVs are available. No radionuclides were detected or detected above BVs or FVs where radionuclides were analyzed in Upper Water Canyon Aggregate Area. Data tables for organic chemicals include all detected concentrations of organic chemicals.

All decision-level data collected previously will be used to supplement sampling and analyses proposed in this work plan, unless noted otherwise in the text.

3.0 SITE CONDITIONS

3.1 Surface Conditions

3.1.1 Topography

The Upper Water Canyon Aggregate Area consists of roughly east- to southeast-trending, flat-topped mesas that drain into the Water Canyon Watershed. Source waters are predominantly from local storm and snowmelt runoff and from storm and snowmelt runoff flowing from the Sierra de Los Valles Mountains (i.e., the eastern front of the Jemez Mountains) located to the west of the Laboratory (Collins et al. 2005, 092028, pp. 2-104−2-107).

The mesa top ranges in elevation from 7600 ft amsl at the western Laboratory boundary to 7200 ft amsl at the southern tip of the mesa. Water Canyon extends from the Jemez Mountains to the Rio Grande. Cañon de Valle is a tributary canyon to Water Canyon that also heads in the Jemez Mountains. Water Canyon has steep walls—as deep as 200 ft in the TA-16 area.

3.1.2 Vegetation

The surface vegetation community at TA-16 consists of species typical of the Rocky Mountain montane conifer forest, which contains several distinct habitat types (LANL 1998, 059891, pp. B-41−B-43). The most prevalent habitat type on the mesa tops is ponderosa pine/Gambel oak. Canyon bottoms may grade into ponderosa pine/Douglas fir. Dominant trees within the mesa overstory canopy are ponderosa pine and aspen; the mesa-top shrub layer is primarily Gambel oak and New Mexico locust. Dominant forbs and grasses include bluegrass, mountain muhly, blue gramma, pine dropseed, wormwood, false tarragon, tall lupine, and cinquefoil. Additional details on the vegetation communities and habitat types at TA-16 are presented in Appendix B of the Phase II RFI report for Consolidated Unit 16-021(c)-99 (LANL 1998, 059891, pp. B-32−B-43).

3.1.3 Soil

The soil on the slopes between the mesa tops and canyon floors was mapped as mostly steep rock outcrops consisting of approximately 90% bedrock outcrop and patches of shallow, weakly developed colluvial soil. South-facing canyon walls generally are steep and usually have shallow soil in limited, isolated patches between rock outcrops. By contrast, the north-facing canyon walls generally have more extensive areas of shallow, dark-colored soil under thicker forest vegetation. The canyon floors generally contain poorly developed, deep, well-drained soil on floodplain terraces or small alluvial fans (Nyhan et al. 1978, 005702).

The soil types of the mesa top are derived from the weathering of the Tshirege Member of the Bandelier Tuff and from the El Cajete pumice (including contributions from phenocrysts and phenocryst fragments, devitrified glasses, and minor lithic fragments) and from wind-blown sources. Native soil has been disturbed by the construction of various facilities. A detailed discussion of soil types in the vicinity of the Upper Water Canyon Aggregate Area and TA-16 is provided in the Phase II RFI report for Consolidated Unit 16-021(c)-99 (LANL 1998, 059891, pp. B-12−B-15).

The soil in the Upper Water Canyon Aggregate Area belongs to the Carjo, Frijoles, Pogna, and Tocal series, the fine Typic Eutroboralfs, and the Rock Outcrop (LANL 1993, 015313, pp. 3-17–3-21; LANL 1993, 020946). Soil descriptions are summarized below (Nyhan et al. 1978, 005702):

- The Carjo series is typical of mesa tops and consists of moderately deep, well-drained, and moderately developed soil with an A-B-C horizon sequence. The parent material of the soil may range from Bandelier Tuff to sequences of alluvium/colluvium interstratified with moderately developed to well-developed buried soil. The soil textures of the Carjo series can be very fine sandy loams.
- The Frijoles series is characteristic of deep, well-drained soil formed from pumice on level to moderately sloping mesa tops. The soil is developed with an A-B-C horizon sequence, with textures grading from a brown sandy loam, through a clay layer, to a gravelly clay loam.
- The Pogna series is a shallow well-drained soil with an A-C horizon sequence. Typically, the soil is a fine sandy loam or sandy loam formed over tuff bedrock on gently to strongly sloping mesa tops.
- The Tocal series consists of very shallow to shallow, well-drained soil formed in material weathered from tuff on gently to moderately sloping mesa tops. The soil is developed with an A-B-C horizon sequence and grades from a very fine sandy loam, through a clay loam, to a silt loam.
- The fine Typic Eutroboralfs consist of moderately deep, well-drained soil that formed in colluvium and in material weathered from tuff. Textures include very fine sandy loam or sandy loam developed with an A-B horizon sequence on gentle to moderate slopes. They are usually located downgradient of fault zones.
- Rock Outcrop, Frigid is a land type found on gently sloping to steep mesa tops and edges that consists of tuff Rock Outcrop, very shallow undeveloped soil on bedrock, Tocal soil, and narrow escarpments.
- Rock Outcrop, Steep is a land type that has slopes greater than 30% on steep to very steep mesa breaks and canyon walls. It consists of very shallow undeveloped soil on tuff, mesic Rock Outcrop, and frigid Rock Outcrop.

3.1.4 Surface Water

The Water Canyon Watershed heads on the flanks of the Sierra de Los Valles on U.S. Forest Service land. Surface water in the Upper Water Canyon Aggregate Area consists of stormwater, snowmelt runoff, and spring flow in small drainages or by sheet flow into Water Canyon. Water Canyon contains flowing water during snowmelt and storm events. Most surface water in the Los Alamos area occurs as ephemeral, intermittent, or interrupted streams in canyons cut into the Pajarito Plateau. Springs on the flanks of the Jemez Mountains, west of the Laboratory’s western boundary, supply flow to the upper reaches of Cañon de Valle and to Guaje, Los Alamos, Pajarito, and Water canyons (Purtymun 1975, 011787; Stoker 1993, 056021). These springs discharge water perched in the Bandelier Tuff and

Tschicoma Formation at rates from 2–135 gal./min (Abeele et al. 1981, 006273). The volume of flow from the springs maintains natural perennial reaches of varying lengths in each of the canyons. Figure 3.1-1 shows surface-water drainages to the Rio Grande.

Surface-water runoff and associated infiltration into soil represents the dominant hydrologic transport pathways within the Upper Water Canyon Aggregate Area. Six aspects of the surface hydrology within the Upper Water Canyon Aggregate Area may be relevant to contaminant transport (LANL 1998, 059891, pp. B-16−B-17)

- location of surface-water runoff and associated sediment deposition;
- rates of soil erosion, transport, and sedimentation;
- effects of operation or fire disturbances on surface hydrology;
- relative importance of surface runoff compared with infiltration as transport pathways in different soil types;
- solubility and sorption behavior of the potential contaminants of concern; and
- ultimate fate of surface water at the Upper Water Canyon Aggregate Area.

Surface-water runoff, alluvial water flow, and associated sediment transport represent key potential migration pathways by which contaminants may be transported off-site.

3.1.5 Land Use

Currently, land use within the Upper Water Canyon Aggregate Area is industrial, with potential construction and demolition activities. It is anticipated the area will remain industrial through continued use by the Laboratory and will not change in the foreseeable future. Public access is controlled at TA-11, TA-16, and TA-37 through physical controls, including fencing and limited access.

3.2 Subsurface Conditions

Studies have shown that infiltration of natural precipitation is quite low across the mesa tops of the Pajarito Plateau. The average annual potential evapotranspiration rates far exceed precipitation rates. Under these conditions, infiltration events that propagate beneath the root zone are sporadic and occur only when the short-term infiltration rate exceeds the evapotranspiration rate such as during summer thunderstorms and spring snowmelt. However, these events more commonly produce runoff into neighboring canyons that result in infiltration rates below the root zone on the order of a few millimeters per year or less for mesa-top sites (Collins et al. 2005, 092028, pp. 2-84−2-88). This slow infiltration rate generally leads to present-day subsurface contaminant migration of only a few meters. Geochemical interactions between the contaminants and the rocks generally act to further retard migration. Therefore, groundwater transport of contaminants through the unsaturated zone to the regional aquifer does not represent a dominant pathway for contaminant transport from TA-16 mesa tops. Surface runoff from mesa tops and slopes generally flows into the adjacent canyon bottoms and may infiltrate into canyon alluvium or bedrock tuff in some canyons, resulting in shallow alluvial groundwater in some areas. Shallow alluvial groundwater may be present in portions of the Upper Water Canyon Aggregate Area but has not been documented (Collins et al. 2005, 092028, p. 2-90).

3.2.1 Stratigraphic Units

The Laboratory drilled, cored, and sampled several intermediate and deep boreholes to interpret the subsurface stratigraphy across TA-16 (these wells are within the Cañon de Valle Aggregate Area, which is located to the north of the Upper Water Canyon Aggregate Area). These include regional wells R-48 [total depth (TD) of 1405 ft below ground surface (bgs); formerly known as CdV-16-3(i)], R-25 (TD of 1942 ft bgs), R-26 (TD of 1490.5 ft bgs), CdV-R-15-3 (TD of 1722 ft bgs), and CdV-R-37-2 (TD of 1664 ft bgs). Intermediate-depth wells include R-25b (TD of 786 ft bgs); R-25c (TD of 1140 ft bgs); CdV-16-1(i) (TD of 683 ft bgs); and CdV-16-2(i)r (TD of 874.4 ft bgs) (Collins et al. 2005, 092028, Table 1-2). The stratigraphy beneath TA-16 includes Bandelier Tuff, Cerro Toledo interval, Puye Formation, and Tschicoma Formation. Descriptions of the stratigraphic units beneath TA-16 are provided in this section. Descriptions rely heavily on the stratigraphy observed in wells R-25 (Broxton et al. 2002, 072640, pp. 20−30); R-48 (Kleinfelder 2004, 087845, p. 4; LANL 2010, 108778, p. 14); CdV-16-1(i) (Kleinfelder 2004, 087844, pp. 12−13); CV-16-2(i)r (Kleinfelder 2005, 093665, p. 8); and CdV-R-15-3 (LANL 2002, 073211). More detailed descriptions of the stratigraphy, mineralogy, chemistry, and other properties of the rock units described in this section are presented in the Laboratory's hydrogeologic studies of the Pajarito Plateau (Collins et al. 2005, 092028, pp. 2-10−2-29). Figure 3.2-1 shows the stratigraphic sequences in wells R-48 and CdV-R-37-2, the regional wells nearest to the Upper Water Canyon Aggregate Area.

The Bandelier Tuff is a chemically zoned ignimbrite that exhibits complex zones of welding and crystallization subdivided into four major cooling units. The term welding is used to distinguish between tuff that is noncompacted and porous (nonwelded) from tuff that is more compacted and dense (welded). In the field or in borehole cuttings, the degree of welding is quantified by the degree of flattening of pumice fragments (a higher degree of flattening and elongation equals a higher degree of welding). Petrographically, welded tuffs show adhesion (welding) of grains and nonwelded tuff does not. The term devitrified is applied to tuffs in which volcanic glass has crystallized (LANL 2006, 091698).

The Pleistocene Tshirege Member of the Bandelier Tuff is a compound cooling unit that resulted from several successive ash-flow depositions separated by periods of inactivity that allowed partial cooling of each unit. Properties related to water flow and contaminant migration (e.g., density, porosity, degree of welding, fracture content, and mineralogy) vary both vertically and laterally because of localized variations in emplacement temperature, cooling history, thickness, gas content, and chemical composition. The Tshirege Member of the Bandelier Tuff is 383 ft thick in well R-25 (LANL 2006, 091698).

The following sections describe the stratigraphic units beginning with the youngest (topmost) and proceed to the oldest (deepest).

The Qal deposit consists of stratified, lenticular deposits of unconsolidated fluvial sands, gravels, and cobbles. Smaller canyons that have headwaters located on the Pajarito Plateau contain detritus exclusively of Bandelier Tuff. Larger canyon systems that head in the Sierra de los Valles contain Bandelier detritus mixed with dacite detritus derived from the Tschicoma Formation. Active and inactive channels and floodplains form complex, cross-cutting deposits. The fluvial sediment interfingers laterally with colluvium derived from canyon walls. Deposits of Qal are not expected at the mesa-top sites of the Upper Water Canyon Aggregate Area.

Unit 4 of the Tshirege Member of the Bandelier Tuff is composed of a series of variably welded vitric to devitrified ash-flow tuff that extends to a depth of 84 ft bgs in well R-25; to 56 ft bgs in well CdV-16-2(i)r; to 70 ft bgs in well R-48; to 25 ft bgs in well CdV-R-37-2; and to 534 ft bgs in well CdV-R-15-3. Unit 4 is characterized by local thin, discontinuous, crystal-rich, fine- to coarse-grained volcanic surge deposits. The lower, more indurated parts of unit 4 are also significantly fractured. These fractures and surge beds are potential groundwater pathways (LANL 2006, 091698; LANL 2010, 108778, p. 14).

Unit 3 of the Tshirege Member of the Bandelier Tuff is poorly to moderately welded and indurated to slightly indurated. It tends to be a cliff-forming unit of the Pajarito Plateau. In well R-25 and at TA-16 in general, it is typically divided into two subunits, Qbt 3t (t for transitional) and Qbt 3. Qbt 3t is a devitrified ignimbrite that grades from partially welded at the top to moderately welded at the base. Qbt 3 is a second devitrified ignimbrite that grades from moderately welded at the top to nonwelded at the base. Qbt 3t and upper Qbt 3 also contain localized thin, discontinuous, crystal-rich, fine- to coarse-grained surge deposits that may represent potential groundwater pathways. Unit 3 (including both subunits Qbt 3 and Qbt 3t) is 198 ft thick in well R-25, extending from 84–229 ft bgs. Unit 3 extends from 9–85 ft bgs in well CdV-16-1(i), from 56–195 ft bgs in well CdV-16-2(i)r, from 70–207 ft bgs in well R-48, and from 34–152 ft bgs in well CdV-R-15-3 (LANL 2006, 091698; LANL 2010, 108778, p. 14).

Unit 2 of the Tshirege Member of the Bandelier Tuff is a competent, resistant unit that forms cliffs where it is exposed on the sides of the mesa. It is a moderately welded, well-indurated, devitrified ignimbrite. Welding grades from moderately welded at the top of the unit to partially welded at the base. Unit 2 is 103 ft thick in well R-25, extending from 229–332 ft bgs. Qbt 2 extends from 85–195 ft bgs in well CdV-16-1(i), from 195–305 ft bgs in well CdV-16-2(i)r, from 207–310 ft bgs in well R-48, and from 152–236 ft bgs in well CdV-R-15-3 (LANL 2006, 091698; LANL 2010, 108778, p. 14).

Unit 2 of the Tshirege Member is extensively fractured in many outcrops across the Laboratory as a result of contraction during postdepositional cooling. The cooling fractures are visible on mesa edges. In general, such fractures are vertical to subvertical and dissipate near the bottom of the unit. Near the base of unit 2 is a series of thin, discontinuous, crystal-rich, fine- to coarse-grained, surge deposits. Bedding structures are often observed in these deposits. These surge beds mark the base of unit 2 (LANL 2006, 091698).

Unit 1v of the Tshirege Member is a vapor-phase-altered cooling unit that underlies unit 2. This unit forms sloping outcrops that contrast with the near-vertical cliffs of unit 2. Qbt 1v is further subdivided into units 1 v-u (u for upper) and 1 v-c (c for colonnade) in many parts of the Laboratory. Qbt 1v is 29.5 ft thick in well R-25, extending from 332–361.5 ft bgs, from 195–223 ft bgs in well CdV-16-1(i), from 305–348 ft bgs in well CdV-16-2(i)r, from 310–345 ft bgs in well R-48, and from 236–290 ft bgs in well CV-R-15-3 (LANL 2006, 091698; LANL 2010, 108778, p. 14).

Unit 1 v-u is the uppermost portion of unit 1v. It is devitrified and consists of vapor-phase-altered ash-fall and ash-flow tuff. Unit 1 v-u is unconsolidated at its base and becomes moderately welded near overlying unit 2. Only the most prominent cooling fractures that originate in unit 2 continue into the more welded upper section of unit 1 v-u; however, these end in the less consolidated lower section of the unit (LANL 2006, 091698).

Unit 1 v-c is named for the columnar jointing visible in cliffs formed from this unit. Unit 1 v-c is a poorly welded, devitrified ash-flow tuff at its base and top that becomes more welded in its interior.

Unit 1g of the Tshirege Member is a massive, poorly consolidated, vitric ash-flow tuff. Few fractures are observed in outcrops of this unit, and the weathered cliff faces have a distinct swiss-cheese appearance that reflects the variable hardness of the unit. The upper portion of Qbt 1g is resistant to erosion, which helps to preserve the vapor-phase notch in the outcrop. A distinctive pumice-poor surge bed forms the base of Qbt 1g. Qbt 1g is 20.3 ft thick in well R-25 and extends from 361.5–381.8 ft bgs. Qbt 1g extends from 223–240 ft bgs in well CdV-16-1 (i), from 348–398 ft bgs in well CdV-16-2(i)r, from 345–359 ft bgs in well R-48, and from 290–350 ft bgs in well CdV-R-15-3 (LANL 2006, 091698; LANL 2010, 108778, p. 14).

The Tsankawi Pumice Bed is the basal Plinian, air-fall deposit of the Tshirege Member of the Bandelier Tuff. It is a thin bed of gravel-sized vitric pumice. The unit is 2.2 ft thick in well R-25 and extends from

381.8–384 ft bgs. The Tsankawi Pumice Bed extends from 223–240 ft bgs in well CdV-16-1(i) and from 350–362 ft bgs in well CdV-R-15-3 (LANL 2006, 091698).

The Cerro Toledo interval separates the Tshirege and Otowi Members of the Bandelier Tuff and consists of thin beds of tuffaceous sandstones, paleosols, siltstones, ash, and pumice falls. The Cerro Toledo interval also includes localized gravel- and cobble-rich fluvial deposits predominantly derived from intermediate-composition lavas eroded from the Jemez Mountains west of the Pajarito Plateau. Numerous large lithics, including native dacites, are present in well R-25. The interval is 125 ft thick in the well R-25 borehole and extends from 384–509 ft bgs. This large thickness indicates that well R-25 is located in a paleodrainage on the surface of the underlying Otowi Member of the Bandelier Tuff. The Cerro Toledo extends from 240–457 ft bgs in well CdV-16-1(i), from 395–570 ft bgs in well CdV-16-2(i)r, from 359–430 ft bgs in well R-48, and from 362–582 ft bgs in well CdV-R-15-3 (LANL 2006, 091698; LANL 2010, 108778, p. 14).

The Otowi Member tuff is 341.5 ft thick in well R-25, extending from 509–843.8 ft bgs. The tuff is a massive, poorly consolidated, nonwelded, pumice-rich, and mostly vitric ash flow. The pumices are fully inflated and support tubular structures that have not collapsed as a result of welding. The matrix is an unsorted mix of glass shards, phenocrysts, perlite clasts, and broken pumice fragments. The Otowi Member extends from 457 ft bgs to below the TD of 683 ft bgs in well CdV-16-1(i), from 570–802 ft bgs in well CdV-16-2(i)r, from 430–894 ft bgs in well R-48, and from 582–750 ft bgs in well CdV-R-15-3 (LANL 2006, 091698; LANL 2010, 108778, p. 14).

The Guaje Pumice Bed forms the lowermost 6.7 ft of the Otowi Member in well R-25, extending from 843.8–850.5 ft bgs. It is the basal air-fall deposit of the Otowi Member of the Bandelier Tuff. The occurrence of the Guaje Pumice Bed at well R-25 is thinner than occurrences farther to the east and north, indicating either that this area was south of the main dispersal axis for this fall deposit or that this deposit was partly eroded before, or during, emplacement of the main Otowi ignimbrite. Two cycles of pumice fall were noted in well R-25. The Guaje Pumice Bed extends from 802–818 ft bgs in well CdV 16-2(i)r, from 894–900 ft bgs in well R-48, and from 750–800 ft bgs in well CdV-R-15-3 (LANL 2006, 091698; LANL 2010, 108778, p. 14).

The Puye Formation in well R-25 is an alluvial fan deposit made up primarily of coarse, clastic rocks derived from the rhyodacite units of the Tschicoma Formation that crop out in the Jemez Mountains west of the Pajarito fault. Because of the proximity of these source rocks, these fanglomerate deposits consist of poorly consolidated and poorly sorted boulders, cobble, gravels, and sands. Boulders up to 2 ft in diameter are present in well R-25 (LANL 2006, 091698).

Based on cuttings and lithologic description, the Puye Formation exists in wells R-25 from 852 ft to below the TD of 1942 ft bgs, in well CdV-16-2(i)r from 818 ft bgs to below the TD of 1063 ft bgs, and in well R-48 from 900–995 ft bgs (LANL 2006, 091698; LANL 2010, 108778, p. 14).

Lava flows of the Tschicoma Formation occur in both wells CdV-R-37-2 and R-48 to the southeast of well R-25 but were not found in well R-25. The dacite lavas are massive, apparently homogeneous, locally rubbly intermediate lavas. Minor siltstones are present in the upper 142 ft at CdV-R-37-2 (LANL 2002, 073707, p.16). The Tschicoma dacite lavas extend from a depth of 1072 ft bgs to a TD of 1664 ft bgs in well CdV-R-37-2 and from 995 ft bgs to a TD of 1705 ft bgs in well R-48 (LANL 2006, 091698; LANL 2010, 108778, p. 14).

3.2.2 Hydrogeology

The hydrogeology of the Pajarito Plateau is separable in terms of mesas and canyons forming the Plateau. Mesas are generally devoid of water, both on the surface and within the rock forming the mesa. Canyons range from wet to relatively dry; the wettest canyons contain continuous streams and contain perennial groundwater in the canyon-bottom alluvium. Dry canyons have only occasional streamflow and may lack alluvial groundwater. Intermediate perched groundwater has been found at certain locations on the Pajarito Plateau at depths ranging between 100 to 700 ft bgs. The regional aquifer is found at depths of 1197 and 1352 ft bgs in wells CdV-R-37-2 and R-48, respectively, in TA-16 within the Cañon de Valle Aggregate Area (LANL 2002, 073707, p. 16; LANL 2010, 108778, p. 14). No wells have penetrated the regional aquifer in the Upper Water Canyon Aggregate Area, but the depth to the aquifer is likely similar to those found in wells CdV-R-37-2 and R-48.

The hydrogeologic conceptual site model for the Laboratory (LANL 1998, 059599, p. 2-27) shows that under natural conditions, relatively small volumes of water move beneath mesa tops because of low rainfall, high evaporation, and efficient water use by vegetation. Atmospheric evaporation may extend into mesas, further inhibiting downward flow.

3.2.2.1 Groundwater

In the Los Alamos area, groundwater occurs as (1) water in shallow alluvium in some of the larger canyons, (2) intermediate perched groundwater (a perched groundwater body lies above a less permeable layer and is separated from the underlying aquifer by an unsaturated zone), and (3) the regional aquifer. Numerous wells have been installed at the Laboratory and in the surrounding area to investigate the presence of groundwater in these zones and to monitor groundwater quality. The locations of the existing wells within the vicinity of the Upper Water Canyon Aggregate Area, including R-25, R-25b, R-25c, and R-48 in the Cañon de Valle Aggregate Area, are shown on Plate 1.

Groundwater beneath the Laboratory occurs in the regional aquifer at a depth of approximately 1286 ft bgs (well R-25) and in perched aquifers at both shallow (less than 200 ft) and deep (up to approximately 1000 ft) depths (Collins et al. 2005, 092028, pp. 2-8-10–2-8-12). Canyon and mesa topography and the internal structures (surge beds, fracture zones, permeable units) of the Bandelier Tuff and other subsurface units control the hydrogeology of the Upper Water Canyon Aggregate Area. The hydrology (occurrence and movement of water in the surface and subsurface environments) of individual sites is controlled by the physiographic location (e.g., in canyon bottoms, on canyon edges, or on mesa tops) of each SWMU and AOC.

The Laboratory formulates an annual Interim Facility-Wide Groundwater Monitoring Plan (LANL 2009, 106115) for an enhanced set of characterization and monitoring activities. The approved hydrogeologic workplan (Collins et al. 2005, 092028) details the implementation of extensive groundwater characterization across the Pajarito Plateau within an area potentially affected by past and present Laboratory operations.

Alluvial Groundwater

Intermittent and ephemeral stream flows in the canyons of the Pajarito Plateau have deposited alluvium as much as 100 ft thick. The alluvium in canyons that head on the Jemez Mountains is generally composed of sands, gravels, pebbles, cobbles, and boulders derived from the Tschicoma Formation and Bandelier Tuff on the flank of the mountains. The alluvium in canyons that head on the Pajarito Plateau is comparatively more finely grained, consisting of clays, silts, sands, and gravels derived from the Bandelier Tuff (LANL 1998, 059599, p. 2-17).

In contrast to the underlying volcanic tuff and sediment, alluvium is relatively permeable. Ephemeral runoff in some canyons infiltrates the alluvium until downward movement is impeded by the less permeable tuff and sediment, which results in the buildup of a shallow alluvial groundwater body (Collins et al. 2005, 092028, p. 2-90). Depletion by evapotranspiration and movement into the underlying rock limit the horizontal and vertical extent of the alluvial water (Purtymun et al. 1977, 011846). The limited saturated thickness and extent of the alluvial groundwater preclude its use as a viable source of water for municipal and industrial needs. Lateral flow of the alluvial perched groundwater is in an easterly, downcanyon direction (Purtymun et al. 1977, 011846).

It is not clear that alluvial groundwater is present in the Upper Water Canyon Aggregate Area, although it is likely to be present in the headwaters of Water Canyon (west of the Laboratory). Alluvial groundwater is intermittent in Martin Canyon (a small tributary to Water Canyon), and present in middle Water Canyon, east of the Upper Water Canyon Aggregate Area (Collins et al. 2005, 092028, p. 3-A-38).

Intermediate Perched Water

The following conditions are necessary to support perched groundwater (Collins et al. 2005, 092028, pp. 2-97−2-100).

- A surface source must exist, either natural or anthropogenic, that supplies water to alluvial systems. The alluvial groundwater acts as storage for groundwater entering underlying bedrock units at high infiltration rates. A special situation exists in the mountain-front region at TA-16. In contrast to the dry mesas prevalent farther east, these mesas receive greater precipitation (e.g., 500 mm/yr) and increased runoff and infiltration. The wet mountain-front mesas contain numerous perennial and ephemeral springs.
- In addition to high local infiltration rates, low-permeability barriers to downward vertical flow are required to induce perched groundwater. Deep, perched groundwater occurs most frequently in the Puye Formation and the Cerros del Rio basalt, but some of the thickest and/or most laterally extensive zones involve units of the Bandelier Tuff. Perching horizons include a wide variety of layered geologic lithologies, including unfractured basalt flows; clay-rich interflow zones in basalt; buried soil and other fine-grained deposits in fanglomerate; clay-altered, tuffaceous sediments; and lake deposits. An alternative hypothesis is that the deepest perched water occurrences are a manifestation of complex groundwater flow within the phreatic zone at the top of the regional aquifer. An important hydrostratigraphic feature in the mountain-front region of TA-16 is that the upper tuff units are often moderately to strongly welded, but the fracture densities are relatively high. Fracturing appears to control the locations of springs along the mountain-front mesas, and fracture flow is indicated by water content and contaminant distributions in tuff near outfalls and wastewater lagoons.

Perched groundwater systems beneath the Pajarito Plateau are identified primarily from direct observation of saturation in boreholes, wells, piezometers, or from borehole geophysics (Collins et al. 2005, 092028, p. 2-96). In boreholes across the Pajarito Plateau, 33 occurrences of perched groundwater have been detected. Perched groundwater is widely distributed across the northern and central part of the Pajarito Plateau with depth to water ranging from 118–894 ft bgs. The principal occurrences of perched groundwater occur in (1) the relatively wet Los Alamos and Pueblo Canyon Watersheds, (2) the smaller watersheds of Sandia and Mortandad Canyons that receive significant volumes of treated effluent from Laboratory operations, and (3) the Cañon de Valle area in the southwestern part of the Laboratory.

Perched water is most often found in Puye fanglomerates, Cerros del Rio basalt, and in units of Bandelier Tuff.

There are few reported occurrences in the southern part of the Laboratory, but few deep boreholes are located in that area. A deep-sounding surface-based magnetotelluric survey was conducted in the Cañon de Valle/Water Canyon area. The survey results indicate that perched groundwater is discontinuous laterally, occurring instead as vertical, finger-like groundwater bodies (Collins et al. 2005, 092028, pp. 2-96−2-97). At wells R-25 and R-25c in Cañon de Valle, intermediate perched water was found at depths of 711 ft bgs and 808 ft bgs, respectively (Collins et al. 2005, 092028, p. 1-B-21; LANL 2008, 103408, p. 15). Additional perched zones probably occur beneath the adjacent wet watersheds of Pajarito and Water Canyons (Collins et al. 2005, 092028, pp. 2-96–2-97).

Regional Aquifer

The regional aquifer is the only aquifer capable of large-scale municipal water supply in the Los Alamos area (Purtymun 1984, 006513). The surface of the regional aquifer rises westward from the Rio Grande within the Santa Fe Group into the lower part of the Puye Formation beneath the central and western part of the Pajarito Plateau. The depths to groundwater below the mesa tops range between approximately 1200 ft along the western margin of the plateau and approximately 600 ft at the eastern margin. The locations of wells and generalized water-level contours on top of the regional aquifer are described in the 2009 General Facility Information report (LANL 2009, 105632). The regional aquifer is typically separated from the alluvial groundwater and intermediate perched zone groundwater by 350–620 ft of tuff, basalt, and sediment (LANL 1993, 023249).

Groundwater in the regional aquifer flows east-southeast toward the Rio Grande. The velocity of groundwater flow ranges from approximately 20–250 ft/yr (LANL 1998, 058841, p. 2-7). Details of depths to the regional aquifer, flow directions and rates, and well locations are presented in various Laboratory documents (Purtymun 1995, 045344; LANL 1997, 055622; LANL 2000, 066802). Figure 3.2-2 shows depths to the top of the regional aquifer across the Laboratory.

The depths to the regional aquifer at TA-16 that have been determined by drilling are 1197 ft bgs at well CdV-R-37-2 (LANL 2002, 073707, p. 16), 1286 ft bgs at well R-25 (LANL 2003, 077965, p. B-20), and 1352 ft bgs at regional well R-48 (LANL 2010, 108778). The nearest production well to TA-16 is PM-2 in Pajarito Canyon, 4–5 mi east of the operational areas at TA-16. While the hydrogeology within the Upper Water Canyon Aggregate Area may vary from the conditions encountered in the Cañon de Valle regional wells, the depth to the top of the regional aquifer is likely to be within the range of 1100–1400 ft bgs.

3.2.2.2 Vadose Zone

The unsaturated zone from the mesa surface to the top of the regional aquifer is referred to as the vadose zone. The source of moisture for the vadose zone is precipitation, but much of it runs off, evaporates, or is absorbed by plants. The subsurface vertical movement of water is influenced by properties and conditions of the materials that make up the vadose zone.

Although water moves slowly through the unsaturated tuff matrix, it can move rapidly through fractures if saturated conditions exist (Hollis et al. 1997, 063131). Fractures may provide conduits for fluid flow but probably only in discrete, disconnected intervals of the subsurface. Because they are open to the passage of both air and water, fractures can have both wetting and drying effects, depending on the relative abundance of water in the fractures and the tuff matrix.

The Bandelier Tuff is very dry and does not readily transmit moisture. Most of the pore spaces in the tuff are of capillary size and have a strong tendency to hold water against gravity by surface-tension forces. Vegetation is very effective at removing moisture near the surface. During the summer rainy season, when rainfall is highest, near-surface moisture content is variable because of higher rates of evaporation and of transpiration by vegetation, which flourishes during this time.

The various units of the Bandelier Tuff tend to have relatively high porosities. Porosity ranges between 30% and 60% by volume, generally decreasing for more highly welded tuff. Permeability varies for each cooling unit of the Bandelier Tuff. The moisture content of native tuff is low, generally less than 5% by volume throughout the profile (Kearl et al. 1986, 015368; Purtymun and Stoker 1990, 007508).

Several competing effects determine the moisture content, degree of saturation, and resultant likelihood of flow and contaminant transport. In the western portion of TA-16, some of the Tshirege Units of the Bandelier Tuff have densely welded intervals as a result of being closer to the volcanic source. These more welded units are less porous, with porosities ranging from 17%–40%, and have low saturated hydraulic conductivities (e.g., 10^{-6}–10^{-9} cm/s) (LANL 2006, 091698). These units are also more fractured and can support fracture flow and transport when sufficient water is present (Collins et al. 2005, 092028, p. 2-92). Because of the higher precipitation levels at TA-16, volumetric moisture levels at TA-16 tend to be higher than at technical areas east of TA-16.

Based on the hydrogeologic conceptual model for mesas (LANL 1998, 059599, p. 2-27), at the mesa-top sites in the Upper Water Canyon Aggregate Area, water is unlikely to infiltrate the several hundred vertical feet to intermediate perched groundwater or more than 1000 ft to the regional aquifer.

4.0 PROPOSED INVESTIGATION ACTIVITIES AT TA-11

TA-11, known as K-Site, is the location of the Laboratory's material testing facilities. This technical area is a remote site and can be accessed only through the HE area at TA-16. The facilities at TA-11 are arranged so that testing may be controlled and observed remotely. Components and assemblies undergo testing in various extreme physical environments including vibration, shock, and thermal testing.

The Upper Water Canyon Aggregate Area contains three sites associated with TA-11 that are addressed in this IWP. These sites are no longer physically located within the current boundaries of TA-11. In 1989, when the Laboratory redefined its technical area boundaries, portions of TA-11 were absorbed into TA-16. As a result of this boundary change, these three TA-11 sites are now located inside the current boundaries of TA-16.

A variety of resources was used to define and revise the boundaries of each site, shown on the related figures and plates. Existing structures, roads, and other features that could readily be observed in the field were of prime importance. If these conditions could still be observed in the field, site boundaries were then established relative to these landmarks. Other types of data references were used also, particularly for former site locations where significant changes have occurred over time. Historic aerial photographs have been an excellent resource, but are not available for all areas, dates of imagery are sporadic, few are georeferenced, and many are at a small scale or are oblique. Drawings and sketches were used, particularly for structures and utilities as well as engineering drawings produced for construction or record purposes. Finally, interviews with former site workers taken during earlier work plan preparations in the 1990s were very helpful. Not all of these resources were available for every site and sometimes conflicted with each other. For each site, staff reviewed the available information, resolved conflicts as satisfactorily as possible, and revised site locations and boundaries accordingly. If specific uncertainties impacted these determinations, they are described in the presentation of each site.

4.1 SWMU 11-001(c)—Firing Pit

SWMU 11-001(c) is a former firing pit located at TA-16, northwest of former building 16-370 near the edge of Water Canyon (Figure 4.1-1). According to the 1990 SWMU report (LANL 1990, 007512), the firing pit was similar in construction to Firing Pit 11-0014, which was a 37-ft semicircular wall that was 12.5 ft high and 4.5 ft thick. The SWMU 11-001(c) firing pit was first used in 1944 (LANL 1993, 020948, pp. 5-271−5-282; LANL 1996, 055016, p. 1).

4.1.1 Summary of Previous Investigations for SWMU 11-001(c)

An RFI and a voluntary corrective action (VCA) were conducted in 1995 and 1996, respectively (LANL 1996, 062677; LANL 1996, 055016). However, during preparation of this work plan, it was determined from engineering drawing R-126 (LASL 1952, 095136.28) that the RFI investigation sampled in the wrong location. The firing pit was actually located northwest of the area that was sampled (Figure 4.1-1).

4.1.2 Summary of Data for SWMU 11-001(c)

The data collected during the 1995 RFI and the 1996 VCA are not applicable for SWMU 11-001(c). Therefore, no decision-level data are available at this site.

4.1.3 Scope of Activities for SWMU 11-001(c)

Before staking the locations, a thorough field reconnaissance of the vicinity will be made to locate the most likely center of the pit. Related locations will be listed accordingly.

Thirty-eight surface and subsurface samples will be collected from 18 locations at the former firing pit, in the area surrounding and downgradient of the former firing pit, and in the drainage (Figure 4.1-2).

One location will be situated at the firing pit where samples will be collected from four depths (0–1 ft, 2–3 ft, 4–5 ft, and 9–10 ft bgs).

One location will be situated to the east of the former concrete wall. Twelve locations as illustrated in Figure 4.1-2 will be situated on the canyon slope to the west and southwest of the former concrete wall. Samples from these 12 locations will be collected from two depths (0–1 ft and 2–3 ft bgs).Four locations will be situated in the drainage. Drainage further downgradient will be characterized by sampling at SWMU 16-003(a).

All samples will be analyzed for target analyte list (TAL) metals, nitrate, perchlorate, total cyanide, explosives compounds, polychlorinated biphenyls (PCBs) (20% of the samples), semivolatile organic compounds (SVOCs), volatile organic compounds (VOCs) (except in surface samples), isotopic uranium, and pH. Table 4.1-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

4.2 AOC 11-012(a)—Potential Soil Contamination Associated with Former Magazine 11-7

AOC 11-012(a) is an area of potential soil contamination associated with a former HE storage magazine (structure 11-7) at TA-16 (Figure 4.2-1). The magazine was an 11-ft-long × 9-ft-wide wood structure with earthen berms on three sides. The magazine was built in 1944 and destroyed by intentional burning in 1960 (LANL 1993, 020948, pp. 5-271−5-282).

4.2.1 Summary of Previous Investigations for AOC 11-012(a)

An RFI was conducted at AOC 11-012(a) in 1995. Four screening samples were collected from four locations and field-screened for HE, organic vapors, and radioactivity. The sample with the highest reading for organic vapor was submitted for laboratory analysis of metals, total cyanide, HE, and SVOCs (LANL 1997, 062539, pp. 33–39)

4.2.2 Summary of Data for AOC 11-012(a)

The sample collected, the analyses requested, and decision-level analytical data from the 1995 RFI are presented in Tables 4.2-1 and 4.2-2. The sample submitted for analysis was collected from a depth interval of 1–1.5 ft bgs. The results of the analyses of this sample are as follows (LANL 1997, 062539, pp. 33−39).

- No inorganic chemicals were detected or detected above BVs.
- No explosive compounds or SVOCs were detected.

4.2.3 Scope of Activities for AOC 11-012(a)

Ten surface and subsurface samples will be collected from five locations—one within the structure footprint and four surrounding and approximately 5 ft away from the footprint (Figure 4.2-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 4.2-3 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

The existing sampling location is more than 200 ft away from the building footprint. This existing sampling location is not applicable to define the nature and extent of contamination of the footprint of AOC 11-012(a).

4.3 AOC 11-012(b)—Potential Soil Contamination Associated with Former Magazine 11-8

AOC 11-012(b) is an area of potential soil contamination associated with a former HE storage magazine (structure 11-8) at TA-16 (Figure 4.2-1). The magazine was an 11-ft-long × 9-ft-wide wood structure with earthen berms on three sides. The magazine was built in 1944 and destroyed by intentional burning in 1960 (LANL 1993, 020948, pp. 5-271−5-282).

4.3.1 Summary of Previous Investigations for AOC 11-012(b)

An RFI was conducted at AOC 11-012(b) in 1995. Samples were field-screened for HE, organic vapors, and radioactivity. The sample with the highest reading for organic vapors was submitted for laboratory analysis of metals, total cyanide, HE, and SVOCs (LANL 1997, 062539, pp. 38−39).

4.3.2 Summary of Data for AOC 11-012(b)

The sample collected, the analyses requested, and decision-level analytical data from the 1995 RFI are presented in Tables 4.3-1 to 4.3-3. The sample submitted for analysis was collected from a depth interval of 0.5–1 ft bgs. The results of the analyses of this sample are as follows (LANL 1997, 062539, pp. 38−39):

- No inorganic chemicals were detected or detected above BVs.
- SVOCs benzoic acid and di-n-butylphthalate were detected (Figure 4.3-1).
- Explosives compounds were not detected.

4.3.3 Scope of Activities for AOC 11-012(b)

Ten surface and subsurface samples will be collected from five locations—one within the structure footprint and four surrounding and approximately 5 ft away from the footprint (Figure 4.2-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 4.3-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

The existing sampling location is more than 200 ft away from the building footprint. This existing sampling location is not applicable to define the nature and extent of contamination of the footprint of AOC 11-012(b).

5.0 PROPOSED INVESTIGATION ACTIVITIES AT TA-16

TA-16, also known as S-Site, contains many of the Laboratory’s high-explosives facilities, the Laboratory’s state-of-the-art tritium facility, and several administrative support buildings. Activities involve fabricating and testing high explosives, plastics, and adhesives; conducting research in process development for manufacturing high explosives, plastics, adhesives, and other materials; repackaging tritium to user-specified pressures; chemical purification of tritium by removing contaminants; reclaiming tritium; mixing tritium with other gases; analyzing gas mixtures; and conducting applied research and development for boost systems. Recently, TA-16’s main steam plant was closed and has been replaced by smaller local plants.

The Upper Water Canyon Aggregate Area contains 162 sites that are located in TA-16. Of these, 36 have been previously investigated and/or remediated and have been approved for NFA (Table 1.1-1). The remaining 126 sites are addressed in this IWP.

In general, operations at TA-16 sites did not involve radionuclides. Therefore, in the following sections, the proposed analytical suite for radionuclides includes only isotopic uranium unless other radionuclides are specified in operational history for a particular site.

A variety of resources was used to define and revise the boundaries of each site, shown on the related figures and plates. Existing structures, roads, and other features that could readily be observed in the field were of prime importance. If these conditions could still be observed in the field, site boundaries were then established relative to these landmarks. Other types of data references were used also, particularly for former site locations where significant changes have occurred over time. Historic aerial photographs have been an excellent resource, but are not available for all areas, dates of imagery are sporadic, few are georeferenced, and many are at a small scale or are oblique. Drawings and sketches were used, particularly for structures and utilities as well as engineering drawings produced for construction or record purposes. Finally, interviews with former site workers taken during earlier work plan preparations in the 1990s were very helpful. Not all of these resources were available for every site and sometimes conflicted with each other. For each site, staff reviewed the available information, resolved conflicts as satisfactorily as possible, and revised site locations and boundaries accordingly. If specific uncertainties impacted these determinations, they are described in the presentation of each site.

5.1 SWMU 16-001(d)—Dry Well

SWMU 16-001(d) is a dry well that served the former drum storage building 16-208 at TA-16 (Figure 5.1-1). The dry well is located east of the building, and is 3 ft in diameter by 5 ft deep (LASL 1959, 024177). The dry well was connected by a 4-in.-diameter drainpipe to two sumps located within the southeast end of the drum storage building. Concrete troughs in the floor drained to the two sumps and the sumps drained to the dry well. The outlet to the dry well was plugged before 1993 (LANL 1993, 020948, p. 5-5). Building 16-208 was removed in 2003 (LANL 2003, 073838, pp. 1–2), but the dry well and corresponding drainline were never found.

5.1.1 Summary of Previous Investigations for SWMU 16-001(d)

Four samples were collected from four locations within the footprint of former building 16-208. All four samples were submitted for laboratory analyses of metals, SVOCs, total petroleum hydrocarbons - diesel range organics (TPH-DRO), total petroleum hydrocarbons - gasoline range organics (TPH-GRO), and VOCs.

5.1.2 Summary of Data for SWMU 16-001(d)

The samples collected, analyses requested, and decision-level analytical data from the 2003 building demolition are presented in Tables 5.1-1 to 5.1-3. The samples were collected from depth intervals ranging from 0.5–1.5 ft bgs. The results of the analyses of samples collected during the 2003 building demolition are as follows.

- Aluminum and calcium were detected above BVs (Figure 5.1-2).
- Polycyclic aromatic hydrocarbons (PAHs), TPH-DRO, and dibenzofuran were detected (Figure 5.1-3).
- TPH-GRO and VOCs were not detected.

5.1.3 Scope of Activities for SWMU 16-001(d)

The dry well and its associated drainline will be located by trenching and will be excavated if they are in place. After excavation, 19 surface and subsurface samples will be collected from 6 locations at and surrounding the former dry well (Figure 5.1-4).

Two sampling locations will be situated at the approximate ends (inlet and outlet) of the drainline where samples will be collected from two depths (immediately below the former drainline and 5 ft below the first sampling depth). If the drainline is not in place, samples will be collected from two depths (4–5 ft and 9–10 ft bgs).

One sampling location will be situated at the approximate center of the dry well where samples will be collected from three depths (immediately below the dry well, 5 ft below the first depth, and 10 ft below the first depth). If the dry well is not in place, samples will be collected from three depths (5–6 ft, 9–10 ft, and 14–15 ft bgs). Three sampling locations will be situated approximately 5 ft away surrounding the dry well where samples will be collected from four depths (0–1 ft, 5–6 ft, 9–10 ft, and 14–15 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, TPH-DRO, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.1-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.2 SWMU 16-003(a)—Sump and Outfall

SWMU 16-003(a) is an HE sump and outfall that served assembly building 16-410 at TA-16 (Figure 5.2-1). The concrete sump is located on the exterior southeast wall of the building and is 12 ft long x 4 ft wide x 5 ft high. The sump served floor, roof, and equipment drains and removed suspended HE solids from process water before it was discharged to the outfall, which is located approximately 320 ft southeast of the building. The sump was installed in the early 1950s and modified in 1966 to improve its effectiveness and to reduce HE handling (LANL 1993, 020948, pp. 5-19–5-20). The outfall was National Pollutant Discharge Elimination System- (NPDES) permitted (05A053) and was removed from the NPDES permit effective January 14, 1998 (EPA 1998, 109568).

5.2.1 Summary of Previous Investigations for SWMU 16-003(a)

An RFI was conducted at SWMU 16-003(a) in 1995. Ten samples were collected from seven locations in the outfall drainage and submitted for laboratory analyses of metals, total cyanide, HE, SVOCs, and VOCs; however, not all samples were analyzed for all suites.

Best management practices (BMPs) were installed at SWMU 16-003(a) in July 2000. The site was seeded and mulched, and straw wattles were installed to minimize potential contaminant migration from the site (LANL 2001, 070305, p. 8).

5.2.2 Summary of Data for SWMU 16-003(a)

The samples collected, analyses requested, and decision-level analytical data from the 1995 RFI are presented in Tables 5.2-1to 5.2-3. The samples were collected from depth intervals ranging from 0–6.5 ft bgs. The results of the analyses of samples collected during the 1995 RFI are as follows.

- Aluminum, arsenic, barium, cadmium, chromium, copper, lead, magnesium, uranium, and zinc were detected above BVS (Figure 5.2-2).
- PAHs, other SVOCs, and VOCs were detected (Figure 5.2-3).
- Explosives compounds were not detected.

5.2.3 Scope of Activities for SWMU 16-003(a)

Twenty-nine surface and subsurface samples will be collected from 14 locations at the outfall and in the drainage downgradient of the outfall (Figure 5.2-4). Four locations will be situated at the outfall—one immediately below the discharge point and three approximately 10 ft downgradient to bound the outfall. The location at the outfall will be situated adjacent to existing location 16-01587. Samples will be collected from three depths (0–1 ft, 4–5 ft, and 9–10 ft bgs) because location 16-01587 was previously sampled to 6.5 ft bgs. At the other three outfall locations, samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

Ten sampling locations will be situated in the drainage downgradient of the outfall. The location farthest downgradient (proposed sampling location 3a-14) will be situated near the edge of the main Water Canyon channel. Drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.2-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

Because building 16-410 is an active facility, characterization of the sump and its associated drainline will be delayed until the building is deactivated.

Reach WAN-2 is located downgradient of the drainage of SWMU 16-003(a) (Plate 1). There are no sites after the farthest downgradient location in the sampled drainage before WAN-2. The approved South Canyons IWP (LANL 2006, 093713; NMED 2007, 095490) addresses the sampling in this reach (LANL 2006, 093713, pp. 14−15, 47−48). The investigation report for Water Canyon and Cañon de Valle is due August 31, 2011, pursuant to the Consent Order.

5.3 SWMU 16-003(b)—Sump and Outfall

SWMU 16-003(b) is an HE sump and outfall associated with truck-washing building 16-400 at TA-16 (Figure 5.3-1). The concrete sump is located on the exterior southwest wall of the building and is 12 ft long x 4 ft wide x 5 ft high. The sump received water from truck and equipment washing. The sump removed suspended HE solids from the wash water before it was discharged to the outfall, which is located approximately 120 ft southeast of the building. The sump was installed in the early 1950s and modified in 1966 to improve its effectiveness and to reduce HE handling. Effluent from the HE sump and a steam-pit drain flowed to a common drainline that discharged to the outfall (LANL 1993, 020948, pp. 5-20–5-21). The outfall was NPDES-permitted (05A063) and was removed from the LANL NPDES permit effective December 5, 1995 (EPA 1995, 109543). The sump is currently plugged.

5.3.1 Summary of Previous Investigations for SWMU 16-003(b)

An RFI was conducted at SWMU 16-003(b) in 1995. Eleven samples were collected from seven locations and submitted for laboratory analyses of metals, total cyanide, HE, SVOCs, and VOCs; however, not all samples were analyzed for all suites.

BMPs were installed at SWMU 16-003(b) in July 2000. The site was seeded and mulched and then straw wattles were installed to minimize potential contaminant migration from the site (LANL 2001, 070305, p. 8).

5.3.2 Summary of Data for SWMU 16-003(b)

The samples collected, analyses requested, and decision-level analytical data from the 1995 RFI are presented in Tables 5.3-1 to 5.3-3. The samples were collected from depth intervals ranging from 0–6.5 ft bgs. The results of the analyses of samples collected during the 1995 RFI are as follows.

- Aluminum, barium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, silver, uranium, vanadium, and zinc were detected above BVs (Figure 5.3-2).
- Explosives compounds, PAHs, other SVOCs, and VOCs were detected (Figure 5.3-3).

5.3.3 Scope of Activities for SWMU 16-003(b)

Because building 16-400 is an inactive facility, removal is proposed for the sump and its associated drainline. Confirmation samples will be collected at the excavation.

After removal of the sump and associated drainline, 24 subsurface samples will be collected from 11 locations beneath the former sump and drainline, at the outfall, and in the drainage (Figure 5.3-4).

One sampling location will be situated at the former sump and confirmation samples will be collected from three depths (immediately below the former sump, 5 ft below the first depth, and 10 ft below the first depth). Two locations will be situated at the former drainline and confirmation samples will be collected from two depths (immediately below the former drainline and 5 ft below the first depth).

The outfall discharged to a discernable drainage. One location will be situated at the outfall, adjacent to existing locations 16-01503 and 16-01659. Outfall samples will be collected from three depths (0–1 ft, 4–5 ft, and 9–10 ft bgs) because location 16-01659 was previously sampled to 6.5 ft bgs.

Seven locations will be situated in the drainage where samples will be collected from two depths (0–1 ft and 2–3 ft bgs). Drainage further downgradient will be characterized by sampling at SWMU 16-026(c2).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, TPH-DRO, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.3-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.4 Consolidated Unit 16-003(c)-99

Consolidated Unit 16-003(c)-99 consists of an HE sump [SWMU 16-003(c)] and an outfall [SWMU 16-026(v)] that served a decommissioned analytical chemistry laboratory (building 16-460) (Figure 5.4-1). Building 16-460 was constructed in 1952 and is currently inactive.

5.4.1 SWMU 16-003(c)—Sump

SWMU 16-003(c) is an HE sump that served decommissioned analytical chemistry laboratory building 16-460 at TA-16 (Figure 5.4-1).The concrete sump is located at the exterior northwest corner of the building and is 7.5 ft long x 3.5 ft wide x 2.5 ft high. The sump handled fine grains of HE from analytical chemistry experiments. Historically, small quantities of solvents and other chemicals were discharged to the sump in addition to HE (LANL 1993, 020948, p. 5-32).

5.4.1.1 Summary of Previous Investigations for SWMU 16-003(c)

No previous investigation has been conducted at SWMU 16-003(c).

5.4.1.2 Summary of Data for SWMU 16-003(c)

No decision-level data are available at this site.

5.4.1.3 Scope of Activities for SWMU 16-003(c)

Because building 16-460 is an inactive facility, removal of the sump is proposed. Confirmation samples will be collected at the excavation.

After removal of the sump, three subsurface samples will be collected from one location beneath the former sump (Figure 5.4-2). Confirmation samples will be collected from three depths (immediately below the former sump, 5 ft below the first depth, and 10 ft below the first depth). The drainline associated with the sump is addressed by sampling at SWMU 16-026(v).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosive compounds, PCBs, SVOCs, VOCs, isotopic uranium, and pH. Table 5.4-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.4.2 SWMU 16-026(v)—Outfall

SWMU 16-026(v) is an outfall that served decommissioned analytical chemistry laboratory building 16-460 at TA-16 (Figure 5.4-1). The outfall is located approximately 60 ft southeast of the building. The outfall was NPDES-permitted (05A072) and received effluent from a sump [SWMU 16-003(c)], building floor drains, steam-cup drains, sink drains, and a drinking fountain. The outfall has been plugged and no longer receives effluent (LANL 1993, 020948, p.5-32). It was removed from the NPDES permit effective September 19, 1997 (EPA 1997, 109528).

5.4.2.1 Summary of Previous Investigations for SWMU 16-026(v)

An RFI was conducted at SWMU 16-026(v) in 1995. Two locations were sampled near the outfall: one at the outfall and one at the next downstream sediment trap. In addition, 14 other downstream locations were sampled. All samples were field-screened for HE, organic vapors, and radioactivity. Ten samples were from seven locations submitted for laboratory analyses of metals, total cyanide, HE, SVOCs, and VOCs; however, not all samples were analyzed for all suites (LANL 1997, 062539, pp. 94–105).

BMPs were installed at SWMU 16-026(v) in July 2000. A straw bale barrier was installed to minimize erosion at the site (LANL 2001, 070305, p. 8).

5.4.2.2 Summary of Data for SWMU 16-026(v)

The samples collected, analyses requested, and decision-level analytical data from the 1995 RFI are presented in Tables 5.4-2 to 5.4-4. The samples were collected from depth intervals ranging from 0–4 ft bgs. The results of the analyses of samples collected during the 1995 RFI are as follows (LANL 1997, 062539, pp. 94–105).

- Aluminum, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, mercury, nickel, silver, uranium, vanadium, and zinc were detected above BVs (Figure 5.4-3).
- Explosives compounds, PAHs, other SVOCs, and VOCs were detected (Figure 5.4-4).

5.4.2.3 Scope of Activities for SWMU 16-026(v)

Because building 16-460 is an inactive facility, removal is proposed for the drainlines associated with the outfall and the sump of SWMU 16-003(c). Confirmation samples will be collected at the excavation.

After removal of the drainlines, 45 surface and subsurface samples will be collected from 22 locations beneath the former drainlines, at the outfall, and in the drainage (Figure 5.4-2).

Ten sampling locations will be situated along the former drainline. Confirmation samples will be collected from two depths (immediately below the former drainline and 5 ft below the first depth).

The outfall discharged to a discernable drainage. One location will be situated at the outfall where samples will be collected from three depths (0–1 ft, 4–5 ft, and 9–10 ft bgs). Eleven locations will be situated in the drainage. Three locations will be situated approximately 10 ft apart in the relatively flat area at end of the drainage. All drainage samples will be collected from two depths (0–1 ft bgs and 2–3 ft bgs). Areas further downgradient will be characterized by sampling at Consolidated Unit 16-029(v)-99.

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosive compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.4-5 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.5 Consolidated Unit 16-003(l)-99

Consolidated Unit 16-003(l)-99 consists of SWMU 16-003(l), three HE sumps and associated outfalls, SWMU 16-030(h), and four building drain outfalls from the south side of HE pressing building 16-430 where plastic-bonded explosives (PBX) and mock HE powders were pressed to shape (Figure 5.5-1).

5.5.1 SWMU 16-003(l)—Sumps and Outfalls

SWMU 16-003(l) consists of three HE sumps and three outfalls located on the exterior south side of the HE pressing building 16-430 at TA-16 (Figure 5.5-1). The three concrete sumps received effluent from five HE pressing bays and are each 9.5 ft long x 3.5 ft wide. Each sump discharged to its own outfall through a 6-in.-diameter steel drainpipe. All three sump outfalls are located approximately 60 ft south of the building (LANL 1993, 020948, p. 5-31). Discharge from each sump outfall converged to a common drainage, and the combined discharge was permitted under NPDES as outfall 05A071, which emptied into Water Canyon. The outfall was removed from the NPDES permit effective March 10, 1998 (EPA 1998, 109792).

5.5.1.1 Summary of Previous Investigations for SWMU 16-003(l)

No previous investigation has been conducted at SWMU 16-003(l).

5.5.1.2 Summary of Data for SWMU 16-003(l)

No decision-level data are available for this site.

5.5.1.3 Scope of Activities for SWMU 16-003(l)

Building 16-430 is an inactive building, and the three sumps of SWMU 16-003(l) are filled with concrete. Removal is proposed only for the drainlines. Confirmation samples will be collected at the excavation.

After removal of the drainlines, 42 subsurface samples will be collected from 18 locations adjacent to the sumps, beneath the former drainlines, and at the outfalls (Figure 5.5-2).

Three sampling locations will be situated at each sump—one adjacent to the west side of the sump, one adjacent to the east side of the sump, and one at the sump/drainline connection. One location will be situated along each of the three former drainlines that run from the sumps to the outfalls. Samples from all of these locations will be collected from two depths (immediately below the level of sump bottom or the former drainline and 5 ft below the first depth).

These three outfalls converged onto a relatively flat area directly to the south of the building (the terrace), and then emptied into a discernable drainage to Water Canyon. One location each will be situated at the three outfalls and samples will be collected from two depths (0–1 ft bgs and 4–5 ft bgs).

Three sampling locations will be situated downgradient of each of the three outfalls, on the terrace, and adjacent to respective existing sampling locations downgradient of each outfall. Samples from these locations will be collected from four depths (0–1 ft, 4–5 ft, 8–9 ft, and 12–13 ft bgs) because existing sampling locations were previously sampled to 10.5 ft bgs (see Table 5.5-1). Drainage further downgradient will be characterized by sampling at SWMU 16-030(h).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs, isotopic uranium, and pH. Table 5.5-2 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.5.2 SWMU 16-030(h)—Outfalls

SWMU 16-030(h) consists of four outfalls that served the south side of HE pressing building 16-430 at TA-16 (Figure 5.5-1). Two of the four drainlines received effluent from the HE pressing and hallway/storage areas of the building. The two drainlines exit at the middle of the building's south side and discharged into the same drainage that received discharge from three sumps and their associated outfalls [SWMU 16-003(l)] (Santa Fe Engineering Ltd. 1992, 109806). This drainage discharged to a formerly NPDES-permitted outfall (05A071). Of the remaining two drainlines, one received hydraulic oil releases from the press and the other received steam condensate. These two drainlines exit the east end of the building's south side and daylight at the edge of Water Canyon. All four drainlines were plugged by 1995 (LANL 1998, 101808, p. 54).

The 1990 SWMU Report describes SWMU 16-030(h) as 10 outfalls originating from building drains located on the south side of the building (LANL 1990, 007512). The SWMU Report miscounted the number of outfalls on the south side of the building. In actuality, there are eight outfalls at the south of the building; three are the sump outfalls designated as part of SWMU 16-003(l) and one is the hydraulic press outfall designated as AOC 16-021(b). The hydraulic press outfall was also where the one-time spill of hydraulic fluid occurred (AOC C-16-071).

The RFI work plan identified SWMU 16-030(h) as three outfalls associated with three sumps [SWMU 16-003(l)] (LANL 1993, 020948, p. 5-31).

5.5.2.1 Summary of Previous Investigations for SWMU 16-030(h)

An RFI was conducted at SWMU 16-030(h) in 1995. Twenty-three samples were collected from 11 locations and submitted for laboratory analyses of metals, total cyanide, HE, SVOCs, and VOCs; however, not all samples were analyzed for all suites.

BMPs were installed at SWMU 16-030(h) in 2000 as part of the post-Cerro Grande fire recovery. The site was seeded and mulched, and straw wattles were installed to minimize erosion (LANL 2000, 067370, pp. 28–30).

5.5.2.2 Summary of Data for SWMU 16-030(h)

The samples collected, analyses requested, and decision-level analytical data from the 1995 RFI are presented in Tables 5.5-1 and 5.5-3 to 5.5-4. The samples were collected from depth intervals ranging from 0–10.5 ft bgs. The results of the analyses of samples collected during the 1995 RFI are as follows.

- Aluminum, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, total cyanide, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, vanadium, and zinc were detected above BVs (Figure 5.5-3).
- Explosives compounds, PAHs, other SVOCs, and VOCs were detected (Figure 5.5-4).

5.5.2.3 Scope of Activities for SWMU 16-030(h)

Removal of the drainlines is proposed. Confirmation samples will be collected at the excavations.

Fifty surface and subsurface samples will be collected from 25 locations beneath the former drainlines, at the outfalls, and in the drainages (Figure 5.5-2).

Two sampling locations each will be situated beneath the former drainlines of the two middle outfalls. Samples from these locations will be collected from two depths (immediately below the former drainline and 5 ft below the first depth). One location each will be situated at the two outfalls and samples will be collected from two depths (0–1 ft and 4–5 ft bgs). Three locations will be situated in the drainage downgradient of the two middle outfalls. Samples from these locations will be collected from two depths (0–1 ft and 2–3 ft bgs).

Four sampling locations each will be situated approximately 50 ft apart beneath the former drainlines of the two eastern outfalls. Samples from these locations will be collected from two depths (immediately below the former drainline and 5 ft below the first depth). One location each will be situated at the two outfalls and samples will be collected from two depths (0–1 ft and 2–3 ft bgs). Six locations will be situated in the drainage downgradient of the two eastern outfalls of SWMU 30-030(h), as well as that of AOC 16-021(b). The location farthest downgradient will be situated near the edge of the main Water Canyon channel. Drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.5-5 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.6 Consolidated Unit 16-003(m)-99

Consolidated Unit 16-003(m)-99 consists of an HE sump [SWMU 16-003(m)], a septic system [SWMU 16-006(d)], and an outfall [AOC 16-030(g)] that served building 16-380 (Figure 5.6-1). Building 16-380 was formerly used as an inspection site for raw HE powder brought to TA-16 and currently is used to store ammunition for LANL security forces.

5.6.1 SWMU 16-003(m)—Sump

SWMU 16-003(m) is a sump located near the southeast corner of the HE inspection building 16-380 at TA-16 (Figure 5.6-1). The concrete sump received wash-down water from cleaning activities (LANL 1993, 020948, pp. 5-32–5-40). The sump discharge line has been plugged (LANL 1997, 062539, p. 118).

5.6.1.1 Summary of Previous Investigations for SWMU 16-003(m)

No previous investigation has been conducted at SWMU 16-003(m).

5.6.1.2 Summary of Data for SWMU 16-003(m)

No decision-level data are available for this site.

5.6.1.3 Scope of Activities for SWMU 16-003(m)

Because building 16-380 is an active facility, characterization of the sump will be delayed until the building is deactivated. The discharge from the sump and the drainage will be characterized by sampling at AOC 16-030(g).

5.6.2 SWMU 16-006(d)—Septic System

SWMU 16-006(d) is a septic system at TA-16 that serves building 16-380 (Figure 5.6-1). The septic system is located south of the building and consists of a 540-gal. concrete septic tank, drainlines, a distribution box, and a tile drain field. The septic system was constructed in 1952 and is active. Five floor drains, two bathrooms, and one sink discharge to the septic tank (LANL 1993, 020948, pp. 5-100–5-102).

5.6.2.1 Summary of Previous Investigations for SWMU 16-006(d)

An RFI was conducted at SWMU 16-006(d) in 1995. Six samples were collected from three locations and were field-screened for metals, HE, organic vapors, and radioactivity. Samples were then submitted for laboratory analyses of metals, total cyanide, HE, SVOCs, VOCs, and gamma-emitting radionuclides (LANL 1997, 062539, pp. 54– 61).

5.6.2.2 Summary of Data for SWMU 16-006(d)

The samples collected, analyses requested, and decision-level analytical data from the 1995 RFI are presented in Tables 5.6-1 to 5.6-3. The samples were collected from depth intervals ranging from 2–7 ft bgs. The results of the analyses of samples collected during the 1995 RFI are as follows (LANL 1997, 062539, pp. 54–61):

- Chromium was detected above BVs (Figure 5.6-2).
- PAHs and diethylphthalate were detected (Figure 5.6-3).
- No radionuclides were detected or detected above BVs/FVs.

5.6.2.3 Scope of Activities for SWMU 16-006(d)

Eighteen surface and subsurface samples will be collected from 9 locations in the drainage downgradient of the drain field (Figure 5.6-4). Three locations will be situated downgradient of the drain field where samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

The drain field discharged to a discernable drainage to the south and could also drain to the east into the drainage of AOC 16-030(g). Six locations will be situated in the drainage to the south and the drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs). The drainage converges downgradient with the drainage of AOC 16-030(g), which will be characterized by sampling at AOC 16-030(g).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosive compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.6-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

Because building 16-380 is an active facility, characterization of the septic tank, associated drainlines, and drain field will be delayed until the building is deactivated.

5.6.3 AOC 16-030(g)—Outfall

AOC 16-030(g) is an outfall located south of building 16-380 at TA-16 (Figure 5.6-1). The outfall received effluent from a sump [SWMU 16-003(m)], two roof drains, a steam-heating system, and a drop inlet from a parking lot (LANL 1993, 020948, p. 5-32). The outfall was NPDES-permitted (05A052) and discharged to Water Canyon. It was removed from the NPDES permit in 1993 (LANL 1993, 109580). The sump and the steam-heating system discharge lines have been plugged, and the outfall currently receives only roof drain and parking lot runoff (LANL 1997, 062539, p. 118).

5.6.3.1 Summary of Previous Investigations for AOC 16-030(g)

RFIs were conducted at AOC 16-030(g) in 1995 and 1997. Two locations were sampled: one at the outfall and one at the next downstream sediment trap. Additional samples were collected and field-screened for HE at 10-ft intervals downgradient of the outfall. At the first negative HE screening location, samples were collected at 20-ft intervals. A total of seven locations were sampled. All 12 samples were field-screened for HE, organic vapors, and radioactivity, and submitted for laboratory analyses of metals, total cyanide, HE, SVOCs, and VOCs; however, not all samples were analyzed for all suites (LANL 1997, 062539, pp. 117–127).

BMPs were installed at AOC 16-030(g) in October 1998. A straw bale barrier and silt fencing were installed as erosion controls (LANL 1999, 063172, p. 3).

5.6.3.2 Summary of Data for AOC 16-030(g)

The samples collected, analyses requested, and decision-level analytical data from the 1995 and 1997 RFIs are presented in Tables 5.6-5 to 5.6-7. The samples were collected from depth intervals ranging from 0–12.5 ft bgs. The results of the analyses of samples collected during the 1995 and 1997 RFI are as follows (LANL 1997, 062539, pp. 117–127).

- Barium, chromium, copper, lead, vanadium, and zinc were detected above BVs (Figure 5.6-2).
- Explosive compounds, PAHs, other SVOCs, and VOCs were detected (Figure 5.6-3).

5.6.3.3 Scope of Activities for AOC 16-030(g)

Thirty surface and subsurface samples will be collected from 14 locations at the outfall and in the drainage downgradient of the outfall (Figure 5.6-4).

One sampling location will be situated at the outfall adjacent to existing locations 16-01606 and 16-01668. Samples from this location will be collected from four depths (0–1 ft, 4–5 ft, 9–10 ft, and 14–15 ft bgs) because location 16-01606 was previously sampled to 12.5 ft bgs.

The outfall discharged to a discernable drainage. Thirteen locations will be situated in the drainage and the location farthest downgradient will be situated near the edge of the main Water Canyon channel. Drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.6-8 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.7 AOC 16-003(q)—Sump

AOC 16-003(q) is a duplicate of SWMU 16-029(g) (see section 5.53.3), a sump located at TA-16 that served the materials testing facility building 16-450 (see Figure 5.53-1). In the 1990 SWMU Report, two numbers were assigned to the single HE sump that served building 16-450 (LANL1990, 007512). The sump is included on the active HE sump list as AOC 16-003(q) and also on the inactive HE sump list as SWMU 16-029(g). A 1959 engineering drawing verifies that only one sump is located at the building (LASL 1959, 024191).

5.7.1 Summary of Previous Investigations for AOC 16-003(q)

Not applicable.

5.7.2 Summary of Data for AOC 16-003(q)

Not applicable.

5.7.3 Scope of Activities for AOC 16-003(q)

Because AOC 16-003(q) is a duplicate of SWMU 16-029(g), no activities are proposed for AOC 16-003(q).

5.8 SWMU 16-005(a)—Former Septic System

SWMU 16-005(a) is a former septic system located at TA-16 approximately 510 ft southwest of building 16-460 (Plate 2). The septic system consisted of a septic tank (structure 16-161), drainlines, and a drain field. The exact location of the drain field is unknown. The septic system served former buildings 16-1 (an office building), 16-2 (an office building), 16-7 (a steam plant and machine shop), 16-10 (a storage building), 16-22 (an office building), and 16-525 (a change house and laundry), and existing building 16-16 (formerly a cafeteria, currently an office building) (LANL 1994, 039440, p. 5-439).

The septic system operated from 1945 to 1952 and was removed in 1967, and the drainline was plugged near the connection at a manhole (structure 16-776). All lines running into manhole 16-776 are connected to the TA-16 WWTP (LANL 1994, 039440, p. 5-439).

5.8.1 Summary of Previous Investigations for SWMU 16-005(a)

No previous investigation has been conducted at this site.

5.8.2 Summary of Data for SWMU 16-005(a)

No decision-level data are available for this site.

5.8.3 Scope of Activities for SWMU 16-005(a)

Fifty-five surface and subsurface samples will be collected from 19 locations beneath the former drainline and septic tank and at the estimated location of the drain field (Figure 5.8-1).

Eight locations will be situated approximately 50 ft apart along the former drainline. Samples from these locations will be collected from two depths (4–5 ft and 9–10 ft bgs).

Two locations will be situated at the tank inlet and outlet where samples will be collected from two depths (4–5 ft and 9–10 ft bgs). One location will be situated at the former tank where samples will be collected from three depths (4–5 ft, 9–10 ft, and 14–15 ft bgs).

Eight sampling locations in two rows will be situated in and downgradient of the estimated location of the drain field. Samples from these locations will be collected from four depths (0–1 ft, 4–5 ft, 9–10 ft, and 14–15 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, TPH-DRO, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.8-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.9 SWMU 16-005(h)—Former Septic System

SWMU 16-005(h) is a former septic tank (structure 16-431) and associated outlet drainline that served HE processing building 16-430 at TA-16 (Figure 5.5-1).The septic tank was located approximately 200 ft southwest of building 16-430 and the outlet drainline discharged south of the septic tank. The tank was installed in 1951 and was used for only a brief period. In 1952, construction of a sanitary sewer system for TA-16 was completed and building 16-430 was connected to the TA-16 WWTP. The sanitary sewer was connected at a manhole (structure 16-763). All lines running into manhole 16-763 are now connected to the TA-16 WWTP. The septic tank was removed in 1968 (LANL 1994, 039440, p. 5-442). It is not known if the inlet drainline to the septic tank was plugged.

5.9.1 Summary of Previous Investigations for SWMU 16-005(h)

No previous investigation has been conducted at this site.

5.9.2 Summary of Data for SWMU 16-005(h)

No decision-level data are available for this site.

5.9.3 Scope of Activities for SWMU 16-005(h)

The inlet and outlet pipes associated with SWMU 16-005(h) will be located by trenching and will be excavated if they are in place. The excavation for the inlet pipe will be performed upslope to and will stop at a secure distance away from the currently-in-service manhole (structure 16-763). After excavation, 29 surface and subsurface samples will be collected from 14 locations beneath the former drainline, at the outfall, and in the drainage (Figure 5.5-2).

Two sampling locations will be situated at the former drainline where samples will be collected from two depths (immediately below the former drainline and 5 ft below the first depth). If the drainline is not in place, samples will be collected from two depths (4–5 ft and 9–10 ft bgs).

Two sampling locations will be situated beneath the tank inlet and outlet. Samples from these locations will be collected from two depths (immediately below the inlet/outlet line and 5 ft below the first depth). If the drainlines are not in place, samples will be collected from two depths (4–5 ft and 9–10 ft bgs). One sampling location will be situated at the former tank where samples will be collected from three depths (top of native material below back fill, 5 ft into native material, and 10 ft into native material).

Four sampling locations will be situated at the outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. Five sampling locations will be situated in the drainage and the location farthest downgradient will be near the edge of the main Water Canyon channel. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.9-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.10 SWMU 16-005(k)—Former Septic System

SWMU 16-005(k) is a former septic system that was located at TA-16 near building 16-969 (Figure 5.10-1). The septic system consisted of a septic tank (structure 16-1132), a drainline, and a drain field. The septic tank served the former administration building 16-1 and a former steam plant/machine shop building 16-7. Sewer lines from buildings 16-1 and 16-7 joined at a manhole (structure 16-784), flowed to the septic tank, and then discharged to a drain field 20 ft to the west. The drainline to the septic tank was later connected to the sanitary sewer system at manhole 16-784. The drain field currently lies beneath building 16-969. The septic tank was installed in January 1944, decommissioned in 1945, and removed in 1956 (LANL 1994, 039440, pp. 5-440–5-442). In 2003, an asphalt entry road for the TA-16 Weapons Plant Support building, building 16-969, was constructed over SWMU 16-005(k) (McInroy 2003, 079571).

5.10.1 Summary of Previous Investigations for SWMU 16-005(k)

No previous investigation has been conducted at this site.

5.10.2 Summary of Data for SWMU 16-005(k)

No decision-level data are available for this site.

5.10.3 Scope of Activities for SWMU 16-005(k)

The drainlines connecting former buildings 16-1 and 16-7 to manhole 16-784 and the drainline connecting manhole 16-784 to septic tank 16-1132 will be located by trenching and will be excavated if they are in place. Because manhole 16-784 is currently in service, the disconnections will occur at a safe distance away from the manhole. After excavation, 29 subsurface samples will be collected from 14 locations beneath the former drainlines and septic tank (Figure 5.10-2).

Three sampling locations will be situated beneath the former drainline from former building 16-7 to manhole 16-784. Two sampling locations will be situated along the former drainline from former building 16-1 to manhole 16-784. Five locations will be situated approximately 50 ft apart along the former drainline from manhole 16-784 to septic tank 16-1132. Samples from these locations will be collected from two depths (immediately below the former drainline and 5 ft below). If the drainline is not in place, samples will be collected from two depths (4–5 ft and 9–10 ft bgs).

Two sampling locations will be situated at the tank inlet and outlet where samples will be collected from two depths (4–5 ft and 9–10 ft bgs). One sampling location will be situated at the former tank where samples will be collected from three depths (top of native material below back fill, 5 ft into native material, and 10 ft into native material). One location will be situated at the joint where the tank outlet line turned. Samples from this location will be collected from two depths (4–5 ft and 9–10 ft bgs).

No sampling is proposed for the former drain field because the area is completely covered by building 16-969 and the asphalt driveway.

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, TPH-DRO, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.10-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.11 SWMU 16-005(l)—Former Grease Trap

SWMU 16-005(l) is a former grease trap (structure 16-1137) that served former building 16-525 (Figure 5.11-1). The grease trap was located approximately 98 ft southeast of building 16-525. The cylindrical grease trap was 6.5 ft in diameter × 4 ft deep and constructed of concrete with a steel cover. The grease trap was partially buried 5.5 ft into the ground and the top protruded approximately 1 ft above ground surface. Building 16-525 was a women's change house with laundry facilities that was built in 1951. Wastewater from the showers, sinks, laundry room, floor drains, and roof drains discharged to the grease trap. The grease trap discharged to an outfall ditch through a 4-in.-diameter vitrified-clay pipe (VCP) that was buried approximately 3 ft bgs. The grease trap was removed at an unknown date (LANL 1994, 039440, pp. 5-439–5-445).

5.11.1 Summary of Previous Investigations for SWMU 16-005(l)

No previous investigation has been conducted at this site.

5.11.2 Summary of Data for SWMU 16-005(l)

No decision-level data are available at this site.

5.11.3 Scope of Activities for SWMU 16-005(l)

The drainlines associated with the grease trap will be located by trenching and will be excavated if they are in place. After excavation, 35 surface and subsurface samples will be collected from 17 locations beneath the former drainlines and grease trap, and in the drainage (Figure 5.11-2).

Seven sampling locations will be situated along the former drainlines—two beneath the drainline between former building 16-525 and the grease trap and five beneath the discharge line. Samples from these locations will be collected from two depths (immediately below the former drainline and 5 ft below). If the drainline is not in place, samples will be collected from two depths (4–5 ft and 9–10 ft bgs).

Two sampling locations will be situated at the grease trap inlet and outlet where samples will be collected from two depths (4–5 ft and 9–10 ft bgs). One location will be situated at the former grease trap where samples will be collected from three depths (5–6 ft, 9–10 ft, and 14–15 ft bgs).

Four sampling locations will be situated at the outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. Three locations will be situated in the relatively flat area downgradient of the outfall in the drainage. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosive compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.11-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.12 Consolidated Unit 16-006(c)-00

Consolidated unit 16-006(c)-00 consists of a septic tank [SWMU 16-006(c)] and two outfalls [SWMU 16-026(a)] that served former building 16-370 (Figure 5.12-1). Building 16-370 was built in 1953 and was used to house barium nitrate and metal-forming operations. The building was removed in 2005.

5.12.1 SWMU 16-006(c)—Septic System

SWMU 16-006(c) is a septic system located at TA-16, just west of former building 16-370. The septic system served building 16-370 and consisted of a 1200-gal. concrete septic tank (structure 16-371) and outfall drainline (Figure 5.12-1). The 1990 SWMU Report states that the septic tank discharged to a drain field. However, engineering drawings do not verify the existence of a drain field. The tank was constructed in 1953 and served floor drains and bathrooms on the third floor of building 16-370. Associated drainlines connect to a manhole (structure 16-813) which drained to the septic tank. The outlet line drained to an outfall approximately 260 ft south of the septic tank. The outfall discharged at the edge of Water Canyon (LANL 1993, 020948, pp. 5-99–5-102). After the drainline was plugged, the tank was pumped regularly during the time building 16-370 remained operational (LANL 1997, 062539, p. 44).

5.12.1.1 Summary of Previous Investigations for SWMU 16-006(c)

An RFI was conducted at SWMU 16-006(c) in 1995 and 1996. Eight samples were collected from five locations in 1995. Samples were field-screened for HE, organic vapors, and radioactivity and submitted for laboratory analyses of metals, total cyanide, SVOCs, VOCs, and gamma-emitting radionuclides; however, not all samples were analyzed for all suites (LANL 1997, 062539, pp. 44–54).

One supplemental soil sample was collected in September 1996 because the 1995 data did not bound the downgradient extent of contamination from the outfall. This sample had the highest field-screening result for barium using x-ray fluorescence (XRF) and was submitted for laboratory analyses of metals, total cyanide, HE, SVOCs, and VOCs.

BMPs were installed at SWMU 16-006(c) in January 1990. An earthen berm was installed to divert run-on below SWMU 16-006(c) (LANL 2001, 070305, p. 8)

5.12.1.2 Summary of Data for SWMU 16-006(c)

The samples collected, analyses requested, and decision-level analytical data from the 1995 and 1996 RFI are presented in Tables 5.12-1 to 5.12-3. The samples were collected from depth intervals ranging from 0–6 ft bgs. The results of the analyses of samples collected during the 1995 and 1996 RFI are as follows (LANL 1997, 062539, pp. 44–54):

- Aluminum, barium, calcium, chromium, cobalt, copper, iron, lead, mercury, nickel, thallium, vanadium, and zinc were detected above BVs (Figure 5.12-2).
- PAHs, other SVOCs, and VOCs were detected (Figure 5.12-3).
- Explosives compounds were not detected.
- No radionuclides were detected or detected above BVs/FVs.

5.12.1.3 Scope of Activities for SWMU 16-006(c)

Removal is proposed for the septic tank, the manhole, and the drainline. Confirmation samples will be collected at the excavation. After removal of the septic tank, the manhole, and the drainline, 39 surface and subsurface samples will be collected from 18 locations beneath the former septic tank, the former manhole, and the former drainline (Figure 5.12-4).

Three sampling locations will be situated at the former manhole—two locations beneath the manhole inlet and outlet and one location at the former manhole. Samples at the inlet and outlet will be collected from two depths (immediately below the former drainline and 5 ft below the first depth). Samples at the former manhole will be collected from three depths (immediately below the former manhole, 5 ft below the first depth, and 10 ft below the first depth).

Three sampling locations will be situated at the former septic tank—two locations beneath the tank inlet and outlet and one location beneath the former tank. Samples at the inlet and outlet will be collected from two depths (immediately below the former drainline and 5 ft below the first depth). Samples at the former tank will be collected from three depths (immediately below the former tank, 5 ft below the first depth, and 10 ft below the first depth).

Five sampling locations will be situated at the drainline connection from the former building and approximately 50 ft apart along the drainline. Samples from these locations will be collected from two depths (immediately below the former drainline and 5 ft below the first depth).

Four sampling locations will be situated at the outfall—one at the estimated location of the discharge point and three at approximately 20 ft downgradient to bound the outfall. Samples will be collected from three depths (0–1 ft, 2–3 ft, and 4–5 ft bgs) at the discharge point because existing location 16-01616 was previously sampled to 3.5 ft bgs. Samples will be collected from two depths (0–1 ft and 2–3 ft bgs) at the three locations that bound the outfall.

The outfall discharged to a sharp cliff. One sampling location will be situated immediately below the cliff in line with the outfall, and two more locations will be situated downgradient with the furthermost location near the edge of the main Water Canyon channel. Samples from these locations will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.12-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.12.2 SWMU 16-026(a)—Outfalls

SWMU 16-026(a) consists of two outfalls from former building 16-370 located at TA-16 (Figure 5.12-1). The east outfall received discharge from a roof drain on the east side of building 16-370. The east outfall consists of a 6-in.-diameter cast-iron pipe that daylights 29 ft southeast of the building. The south outfall received discharge from a steam pit condensate drain on the south side of building 16-370. The steam pit drain is a 4-in.-diameter cast-iron pipe that daylights 70 ft south of the building. Effluent from both outfalls drains into Water Canyon (LANL 1995, 057225, pp. 6-6–6-7).

5.12.2.1 Summary of Previous Investigations for SWMU 16-026(a)

No previous investigation has been conducted at SWMU 16-026(a).

5.12.2.2 Summary of Data for SWMU 16-026(a)

No decision-level data are available for this site.

5.12.2.3 Scope of Activities for SWMU 16-026(a)

The two drainlines associated with SWMU 16-026(a) will be located by trenching and will be excavated if they are in place. After excavation, 42 surface and subsurface samples will be collected from 21 locations beneath the former drainlines, at the outfalls, and in the drainage (Figure 5.12-4).

Two sampling locations will be situated at each former drainline where samples will be collected from two depths (immediately below the former drainline and 5 ft below the first depth). If the drainlines are not in place, samples will be collected from two depths (4–5 ft and 9–10 ft bgs).

Four sampling locations will be situated at the outfall on the east side of the building—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. The outfall discharged to a cliff and one additional location will be situated at the bottom of the cliff north of the storm drain. Four locations will be situated at the storm drain outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the storm drain outfall. Two additional sampling locations will be situated in the drainage downgradient of the storm drain outfall. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs). Drainage further downgradient converges with the drainage of the outfall on the south side of the building.

One sampling location will be situated at the outfall on the south side of the building. This outfall discharged to a discernable drainage. Five locations will be situated in the drainage with the furthermost location near the edge of the main Water Canyon channel. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.12-5 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.13 SWMU 16-015(a)—Former Building 16-15

SWMU 16-015(a) is former building 16-15, a men's locker room and laundry facility located at TA-16 (Figure 5.13-1). Building 16-15 was located in the southern part of the TA-16 administration area. The building was built in 1945 of wood-frame construction and was removed in April 1956. A washer in the building's equipment room discharged to a sump that led to a 6-in.-diameter cast-iron drainline (LANL 1994, 039440, p. 5-423).

5.13.1 Summary of Previous Investigations for SWMU 16-015(a)

No previous investigation has been conducted at this site.

5.13.2 Summary of Data for SWMU 16-015(a)

No decision-level data are available for this site.

5.13.3 Scope of Activities for SWMU 16-015(a)

No record for the locations of the sump and the drainline could be found. The entire site has been paved over and currently is the parking lot and driveway for building 16-969. The sump and the drainline associated with SWMU 16-015(a) will be excavated if they are encountered during sampling of the building footprint.

Twelve subsurface samples will be collected from six locations—two within the building footprint and four around the footprint (Figure 5.13-2). Samples will be collected from two depths (2–3 ft and 4–5 ft bgs) to avoid including any asphalt material in the sample.

If the sump and drainline are encountered during sampling the building footprint, one location will be situated at the former sump and the number of locations along the former drainline will be determined by the length of the drainline. Samples will be collected beneath the former sump from three depths (immediately below the former sump, 5 ft below the first depth, and 10 ft below the first depth). Samples will be collected at intervals of approximately 30 ft beneath the former drainline from two depths (immediately below the former drainline and 5 ft below the first depth). If the drainline is encountered, four locations will be situated at the outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. The outfall samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosive compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.13-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.14 SWMU 16-015(b)—Former Building 16-18

SWMU 16-015(b) is former steam-washing building 16-18 located at TA-16 (Figure 5.14-1). Building 16-18 was located in the southern part of the TA-16 administration area. The building was built in 1945 of wood-frame construction with a concrete foundation. The building was originally used to steam-clean machinery and was later used to store containers of motor oil. A drainline from the north side of the building discharged to a sump, and from there the drainline extended east for 188 ft and discharged to a relatively flat area. The building was destroyed by intentional burning in 1960. The drainline was removed in July 1966 (LANL 1994, 039440, pp. 5-424–5-426). In 2003, an unpaved access roadway (consisting of base course) was constructed over the surface of SWMU 16-015(b) for a fueling station (Salgado 2003, 079624).

5.14.1 Summary of Previous Investigations for SWMU 16-015(b)

Samples were collected at SWMU 16-015(b) in 2005. Eight samples were collected from four locations and submitted for laboratory analyses of TAL metals, HE, SVOCs, TPH-DRO, TPH-GRO, and VOCs.

5.14.2 Summary of Data for SWMU 16-015(b)

Decision-level analytical data collected in 2005 are presented in Tables 5.14-1 to 5.14-3. The samples were collected from depth intervals ranging from 2–6 ft bgs. The results of the analyses of samples collected in 2005 are as follows:

- Barium, cobalt, and lead were detected above BVs (Figure 5.14-2).
- Explosive compounds, SVOCs, TPH-DRO, and VOCs were detected (Figure 5.14-3).
- TPH-GRO were not detected.

5.14.3 Scope of Activities for SWMU 16-015(b)

Thirty-nine surface and subsurface samples will be collected from 19 locations within and around the building footprint, beneath the former drainlines, at the outfall, and in the drainage (Figure 5.14-4).

Five sampling locations will be situated at the building footprint—one within the footprint and four around the footprint. Samples from these locations will be collected from two depths (0–1 ft and 4–5 ft bgs).

One sampling location will be situated at the former sump where samples will be collected from three depths (4–5 ft, 9–10 ft, and 14–15 ft bgs).

Six sampling locations will be situated approximately 50 ft apart along the former drainline. Samples from these locations will be collected from two depths (4–5 ft and 9–10 ft bgs).

The outfall discharged to a relatively flat area. Four locations will be situated at the outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. One more row of three locations will be situated approximately 20 ft further downgradient. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, TPH-DRO, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.14-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.15 SWMU 16-016(a)—Landfill

SWMU 16-016(a) is a historical landfill located northeast of a former bunker (structure 16-76) at TA-16 (Figure 5.15-1). A 1965 memorandum documented that an unspecified amount of metal had been buried at SWMU 16-016(a) during World War II (LANL 1993, 020948, pp. 5-200–5-202). The debris was located in 1965 using a magnetometer, excavated, and removed to MDA P (LANL 1990, 007511, p. 16-016).

5.15.1 Summary of Previous Investigations for SWMU 16-016(a)

No previous investigation has been conducted at this site.

5.15.2 Summary of Data for SWMU 16-016(a)

No decision-level data are available at this site.

5.15.3 Scope of Activities for SWMU 16-016(a)

Forty-four surface and subsurface samples will be collected from 15 locations at the center, within, and surrounding the SWMU boundary (Figure 5.15-2).

Proposed sampling locations 16a-1 through 16a-14 will be situated at the center of the site and at radial distances of approximately 60 ft and 110 ft from the center of the site. Proposed sampling locations 16a-9, 16a-3, 16a-5, and 16a-12 will also be situated along the main drainage of TA-16 that ran through the site. Proposed sampling location 16a-15 will be approximately 60 ft downgradient of location 16a-12 in the main drainage. The nature and extent of contamination to the southwest will be characterized jointly with sampling at SWMU 16-025(w). All samples will be collected from three depths (0–1 ft, 4–5 ft, and 9–10 ft bgs) except at location 16a-15 where samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.15-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.16 SWMU 16-016(e)—Surface Disposal Area

SWMU 16-016(e) is a small surface disposal area located approximately 150 ft southeast of building 16-360 at TA-16 (Figure 5.16-1). Debris includes firebrick, fiberglass, and ash (LANL 1995, 057225, pp. 6-4–6-6).

5.16.1 Summary of Previous Investigations for SWMU 16-016(e)

A white fibrous mass was observed at the site and the 1990 SWMU Report indicated the white fibrous mass could be asbestos (LANL 1990, 007512, p. 16-016). In 1994, an HE spot test was conducted on the debris and found no HE contamination (Watanabe 1994, 052964.653). Field observation indicated the remnant was construction debris and not of a hazardous nature. The white fibrous mass was analyzed by x-ray diffraction and identified as fiberglass insulation, not asbestos. The mass was removed and disposed of (LANL 1995, 057225, p. 6-6).

5.16.2 Summary of Data for SWMU 16-016(e)

No decision-level data are available at this site.

5.16.3 Scope of Activities for SWMU 16-016(e)

Eleven surface and subsurface samples will be collected from five locations—one at the center of the disposal site and four surrounding the site (Figure 5.16-2).

The surrounding sampling locations will be approximately 10 ft from the center of the disposal site. Samples will be collected from three depths (0–1 ft, 2–3 ft, and 4–5 ft bgs) at the center and from two depths (0–1 ft and 2–3 ft bgs) at the four surrounding locations.

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.16-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.17 AOC 16-016(f)—Surface Disposal Area

AOC 16-016(f) is a former surface disposal area located at TA-16 on a hillside east of building 16-360 (Figure 5.16-1). Debris included a small amount of friable asbestos, black cellular foam glass (used as roof insulation), rusted cans, and broken drainage tile. The debris was removed during a VCA conducted in 1995 (LANL 1995, 057225, p. 6-47).

5.17.1 Summary of Previous Investigations for AOC 16-016(f)

A VCA was conducted at this AOC from June to August 1995. The VCA included sampling the asbestos and removing it with the surrounding soil in a radius of 3 ft and to a depth of 1 ft. Three samples of the visible friable asbestos were collected and sampled on February 17, 1995, by a team from the LANL Asbestos Abatement Program. The results of this analysis indicated that two of the samples were amosite and chrysotile—two kinds of asbestos. The third sample was a piece of fiberglass (LANL 1996, 053776, pp. 1–2).

Approximately two 55-gal. barrels of asbestos and soil were generated and disposed of by LANL's Asbestos Abatement Program. After the asbestos and surrounding soil were removed, the remaining debris, consisting of foam glass and construction waste, was removed. The nonasbestos debris was disposed of at the Los Alamos County Landfill. The total amount of debris was 35 yd^3. Confirmation samples were not collected. The site was regraded to minimize the effect of erosion, but was not reseeded because it is bare tuff (LANL 1996, 053776, pp. 1–2).

5.17.2 Summary of Data for AOC 16-016(f)

No decision-level data are available at this site.

5.17.3 Scope of Activities for AOC 16-016(f)

Ten surface and subsurface samples will be collected from four locations within the disposal area and outside the area (Figure 5.16-2).

Two sampling locations will be situated within the disposal area. Two locations will be situated adjacent to the disposal area on the west and north, respectively. Samples will be collected from three depths (0–1 ft, 2–3 ft, and 4–5 ft bgs) within the disposal area and from two depths (0–1 ft and 2–3 ft bgs) adjacent to the disposal area. Sampling at SWMU 16-026(h2) will characterize the nature and extent of contamination to the other directions outside the disposal area and downgradient of the disposal area.

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.17-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.18 SWMU 16-016(g)—Surface Disposal Area

SWMU 16-016(g) is a surface disposal area at TA-16 associated with former building 16-370 (Figure 5.12-1). Debris includes cans and pipes that were distributed over a 20-ft-diameter area and located in a drainage ditch approximately 60 ft south of the building (LANL 1995, 057225, p. 6-6).

5.18.1 Summary of Previous Investigations for SWMU 16-016(g)

The surface disposal area lies in the drainage ditch shared by both SWMU 16-026(a) and SWMU 16-028(b). Field observations indicated that the remnant was construction debris and not of a hazardous nature. In 1994, an HE spot test was conducted on the debris and found no HE contamination (LANL 1995, 057225, p. 6-6)

5.18.2 Summary of Data for SWMU 16-016(g)

No decision-level data are available at this site.

5.18.3 Scope of Activities for SWMU 16-016(g)

The debris in the drainage will be removed prior to sampling.

Eight surface and subsurface samples will be collected from four locations—one at the center and three approximately 10 ft downgradient of the disposal site (Figure 5.12-4).

All samples will be collected from two depths (0–1 ft and 2–3 ft bgs). Drainage farther downgradient will be characterized by sampling at SWMU 16-026(a).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosive compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.18-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.19 SWMU 16-017(j)-99—Former Magazine 16-63

SWMU 16-017(j)-99 is a former magazine (structure 16-63) at TA-16 (Figure 5.19-1). The magazine was a 24 ft × 26 ft × 9 ft wood-framed structure surrounded by an earthen berm on three sides and the top. The magazine was built in 1945 and removed in 1998 (LANL 1998, 059602). This SWMU was originally designated as part of SWMU 16-017, a group of 24 structures in central TA-16 (LANL 1994, 039440, pp. 6-31–6-33). In 1999, SWMU 16-017 was separated into 24 SWMUs, each consisting of a single structure.

5.19.1 Summary of Previous Investigations for SWMU 16-017(j)-99

No previous investigation has been conducted at this site.

5.19.2 Summary of Data for SWMU 16-017(j)-99

No decision-level data are available at this site.

5.19.3 Scope of Activities for SWMU 16-017(j)-99

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.19-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.19-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.20 SWMU 16-017(k)-99—Former Magazine 16-78

SWMU 16-017(k)-99 is a former magazine (structure 16-78) at TA-16 (Figure 5.20-1). The magazine was a 24 ft × 12 ft × 7 ft reinforced concrete structure surrounded by an earthen berm on three sides and the top. The magazine was built in 1945 and removed in 1996. This SWMU was originally designated as part of SWMU 16-017, a group of 24 structures in central TA-16 (LANL 1994, 039440, pp. 6-31–6-33). In 1999, SWMU 16-017 was separated into 24 SWMUs, each consisting of a single structure.

5.20.1 Summary of Previous Investigations for SWMU 16-017(k)-99

No previous investigation has been conducted at this site.

5.20.2 Summary of Data for SWMU 16-017(k)-99

No decision-level data are available at this site.

5.20.3 Scope of Activities for SWMU 16-017(k)-99

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.20-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.20-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.21 SWMU 16-017(l)-99—Former Magazine 16-77

SWMU 16-017(l)-99 is a former magazine (structure 16-77) at TA-16 (Figure 5.21-1). The magazine was a 24 ft × 12 ft × 7 ft reinforced concrete structure surrounded by an earthen berm on three sides and the top. The magazine was built in 1945 and removed in 1996. This SWMU was originally designated as part of SWMU 16-017, a group of 24 structures in central TA-16 (LANL 1994, 039440, pp. 6-31–6-33). In 1999, SWMU 16-017 was separated into 24 SWMUs, each consisting of a single structure.

5.21.1 Summary of Previous Investigations for SWMU 16-017(l)-99

No previous investigation has been conducted at this site.

5.21.2 Summary of Data for SWMU 16-017(l)-99

No decision-level data are available at this site.

5.21.3 Scope of Activities for SWMU 16-017(l)-99

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.21-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.21-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.22 SWMU 16-017(m)-99—Former Magazine 16-76

SWMU 16-017(m)-99 is a former magazine (structure 16-76) at TA-16 (Figure 5.22-1). The magazine was a 24 ft × 12 ft × 7 ft reinforced concrete structure surrounded by an earthen berm on three sides and the top. The magazine was built in 1945 and removed in 1996. This SWMU was originally designated as part of SWMU 16-017, a group of 24 structures in central TA-16 (LANL 1994, 039440, pp. 6-31–6-33). In 1999, SWMU 16-017 was separated into 24 SWMUs, each consisting of a single structure.

5.22.1 Summary of Previous Investigations for SWMU 16-017(m)-99

No previous investigation has been conducted at this site.

5.22.2 Summary of Data for SWMU 16-017(m)-99

No decision-level data are available at this site.

5.22.3 Scope of Activities for SWMU 16-017(m)-99

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.22-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.22-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.23 SWMU 16-017(n)-99—Former Magazine 16-75

SWMU 16-017(n)-99 is a former magazine (structure 16-75) at TA-16 (Figure 5.23-1). The magazine was a 24 ft × 12 ft × 7 ft reinforced concrete structure surrounded by an earthen berm on three sides and the top. The magazine was built in 1945 and removed in 1996. This SWMU was originally designated as part of SWMU 16-017, a group of 24 structures in central TA-16 (LANL 1994, 039440, pp. 6-31–6-33). In 1999, SWMU 16-017 was separated into 24 SWMUs, each consisting of a single structure.

5.23.1 Summary of Previous Investigations for SWMU 16-017(n)-99

No previous investigation has been conducted at this site.

5.23.2 Summary of Data for SWMU 16-017(n)-99

No decision-level data are available at this site.

5.23.3 Scope of Activities for SWMU 16-017(n)-99

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.23-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.23-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.24 SWMU 16-017(o)-99—Former Magazine 16-59

SWMU 16-017(o)-99 is a former magazine (structure 16-59) at TA-16 (Figure 5.24-1). The magazine was a 60 ft × 20 ft × 8.5 ft wood-framed structure surrounded by an earthen berm on three sides. The magazine was built in 1945 and removed in 1996. This SWMU was originally designated as part of SWMU 16-017, a group of 24 structures in central TA-16 (LANL 1994, 039440, pp. 6-31–6-33). In 1999, SWMU 16-017 was separated into 24 SWMUs, each consisting of a single structure

5.24.1 Summary of Previous Investigations for SWMU 16-017(o)-99

No previous investigation has been conducted at this site.

5.24.2 Summary of Data for SWMU 16-017(o)-99

No decision-level data are available at this site.

5.24.3 Scope of Activities for SWMU 16-017(o)-99

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.24-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.24-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.25 AOC 16-021(b)—Decommissioned Hydraulic Press and Associated Drain

AOC 16-021(b) is a decommissioned hydraulic press and an associated drain that is located in Bay 1 of building 16-430 at TA-16 (Figure 5.5-1). The hydraulic press is located in an equipment pit and is known to have leaked hydraulic fluid (LANL 1990, 007512, p. 16-021). A french drain installed around the equipment pit discharged through a drainline south of the building to the same drainage as SWMU 16-030(h). The drain was permanently plugged by 1995 (LANL 1998, 101808, p. 54) and the hydraulic press was decommissioned in 2007.

5.25.1 Summary of Previous Investigations for AOC 16-021(b)

No previous investigation has been conducted at this site.

5.25.2 Summary of Data for AOC 16-021(b)

No decision-level data are available at this site.

5.25.3 Scope of Activities for AOC 16-021(b) and AOC C-16-071

Because AOC C-16-071 is collocated with AOC 16-021(b), characterization of AOC 16-021(b) and AOC C-16-071 are presented together.

Removal is proposed for the drainline of AOC 16-021(b). Confirmation samples will be collected at the excavation. Ten surface and subsurface samples will be collected from five locations along the drainline and at the outfall (Figure 5.5-2).

Four locations will be situated beneath the former drainline approximately 50 ft apart. Samples from these locations will be collected from two depths (immediately below the former drainline and 5 ft below).

One sampling location will be situated at the outfall and samples will be collected from two depths (0–1 ft and 2–3 ft bgs). Drainage further downgradient will be characterized by sampling at SWMU 16-030(h).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.25-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.26 AOC 16-022(a)—Underground Storage Tank (removed)

AOC 16-022(a) is a former UST at TA-16, located near the northwest corner of the tritium-processing building 16-205 (Figure 5.26-1). The steel tank measured 6 ft in length × 4 ft in diameter, had a capacity of 560 gal., and stored diesel fuel (LANL 1990, 007512, p. 16-022). It was installed in 1984 and removed in September 1993 (LANL 1995, 057225, pp. 6-35–6-37) under the direction of the NMED UST Bureau in compliance with the UST regulations in effect at the time.

5.26.1 Summary of Previous Investigations for AOC 16-022(a)

When the UST was removed on September 22, 1993, no visual evidence of soil contamination was observed beneath the UST; however, a faint odor of diesel fuel was noticed in the soil. Because the UST itself showed no evidence of leaks and passed a tightness test, the odor was assumed to come from past surface spills that occurred when refilling the UST (LANL 1993, 033313). Three samples were collected from the excavation on September 22, 1993. An additional five samples were collected from the excavation on October 14, 1993 (LANL 1995, 057225, pp. 6-35–6-37).

Samples were analyzed for TPH at an on-site laboratory. The results showed elevated concentrations of TPH. The nearest utility corridor is approximately 20 ft away from the UST; however, diesel fuel and potentially explosive vapors have not been detected in this corridor or in the vicinity of this UST removal (LANL 1993, 033313). It was determined that the extent of contamination was 12 ft laterally and 20 ft vertically (LANL 1994, 042497). Both the lateral and vertical extent of TPH contamination have been defined and the site does not pose an immediate public health or environmental threat (NMED 1994, 043565).

The site was resampled on August 3, 1994. One sampling location was centered on the excavated and backfilled location. The samples collected at depths of 10, 15, 20, and 25 ft were analyzed for TPH at an on-site laboratory. The results did not show any TPH concentrations greater than 100 μg/g; TPH was not detected in the deepest sample (LANL 1994, 042497).

5.26.2 Summary of Data for AOC 16-022(a)

No decision-level data are available at this site.

5.26.3 Scope of Activities for AOC 16-022(a)

No activities are proposed for AOC 16-022(a) because the former UST was regulated, removed, and characterized under the guidelines of the NMED UST Bureau in compliance with the UST regulations in effect at the time.

5.27 AOC 16-022(b)—Underground Storage Tank (removed)

AOC 16-022(b) is a former UST that was located at TA-16, southeast of the former service station (building 16-195) (Figure 5.27-1). The tank (structure 16-197) had a 4000 gal. capacity and was used to store unleaded gasoline. UST 16-197 was installed in 1952 and placed directly adjacent to a second UST (structure 16-196) [AOC 16-033(b)], that stored leaded gasoline. When UST 16–196 was removed in 1987, it was found to have leaked, contaminating the soil surrounding UST 16-197. Contaminated soil was removed from the area surrounding UST 16-197, but the excavation had to be discontinued when soil removal threatened the integrity of UST 16-197. When UST 16-197 was removed in 1990, the tank was found to be in good shape and not leaking. However, contaminated scale and soil associated with the releases from UST 16-196 were dislodged from the bottom of the tank. The contaminated soil was removed immediately and remediated under the direction of the NMED UST Bureau in compliance with the UST regulations in effect at the time.

After UST 16-197 was removed, a 10,000-gal. tank (structure 16-1465) was installed at the same location of removed USTs 16-196 and 16-197 (LANL 1995, 057225, pp. 6-39–6-41). During UST 16-1465 tank maintenance activities in 1994, gasoline-contaminated soil associated with UST 16-1465 was found at the location of former USTs 16-196 and 16-197. The contaminated area was remediated under the direction of the NMED UST Bureau in compliance with UST regulations. In 2003, UST 16-1465 was removed under the direction of the NMED UST Bureau (Dye 2003, 095409, pp. 1–8).

5.27.1 Summary of Previous Investigations for AOC 16-022(b)

The 10,000-gal. tank (structure 16-1465) occupied the space that previously contained UST 16-197 [AOC 16-022(b)] and UST 16-196 [AOC 16-033(b)]. UST 16-1465 leaked in 1994 and the site was sampled and remediated. Six sampling locations were selected: five on the east side of the service station (building 16-195) and one on the west side. Samples were collected and analyzed at an on-site laboratory. The analytical results of the samples collected from the sampling locations between the former service station (building 16-195) and UST 16-1465 indicated benzene, toluene, ethylbenzene, xylene (BTEX) at 65 ft bgs (LANL 1995, 057225, pp. 6-40–6-43). NMED requested additional investigation to define the nature and extent of contamination for this site (NMED 1999, 073897).

Following removal of building 16-195 in February 2003, UST 16-1456 was removed. The tank removal and soil sampling were documented in the TA-16-197 Underground Storage Tank Removal report (Dye 2003, 095409, pp. 1–8). It should be noted that this report incorrectly refers to UST 16-1456 (the 10,000-gal. tank) as UST 16-197. Upon removal, the 10,000-gal. tank appeared in very good condition with no visible evidence of any gasoline release from the dispenser, fuel line, or tank. Soil samples were collected under the former locations of the dispenser, fuel line, and at the west and east ends of tank 16-1456. Five samples were collected from four locations and submitted for laboratory analyses of SVOCs, TPH-GRO, and VOCs.

5.27.2 Summary of Data for AOC 16-022(b)

The samples collected, analyses requested, and decision-level analytical data from the 2003 tank removal are presented in Tables 5.27-1 and 5.27-2. The samples were collected from depth intervals ranging from 0.5–4 ft bgs. The results of the analyses of samples collected during the 2003 tank removal are as follows (Dye 2003, 095409, pp. 1–8).

- SVOCs, TPH-GRO, and VOCs were detected (Figure 5.27-2).

5.27.3 Scope of Activities for AOC 16-022(b)

No activities are proposed for AOC 16-022(b) because the former UST was regulated, removed, and characterized under the guidelines of the NMED UST Bureau in compliance with the UST regulations in effect at the time.

5.28 AOC 16-024(i)—Potential Soil Contamination Associated with Former Magazine 16-64

AOC 16-024(i) is an area of potential soil contamination at TA-16 associated with a former HE magazine (structure 16-64) (Figure 5.28-1). The magazine was located northwest of the cafeteria (building 16-192) and was a 24 ft x 26 ft x 9 ft wood-framed structure. The magazine was built in 1944 and removed in 1951 (LANL 1995, 057225, pp. 5-26-1–5-26-3). The location of the former magazine is currently under an asphalt road and parking lot.

5.28.1 Summary of Previous Investigations for AOC 16-024(i)

No previous investigation has been conducted at this site.

5.28.2 Summary of Data for AOC 16-024(i)

No decision-level data are available at this site.

5.28.3 Scope of Activities for AOC 16-024(i)

Ten subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.28-2). Samples will be collected from two depths (2–3 ft and 4–5 ft bgs) because the site has been paved over with asphalt. Sampling will avoid including any asphalt material.

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs, and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.28-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.29 AOC 16-024(j)—Potential Soil Contamination Associated with Former Magazine 16-65

SWMU 16-024(j) is an area of potential soil contamination at TA-16 associated with a former HE magazine (structure 16-65) (Figure 5.29-1). The magazine was a 10 ft x 20 ft x 8 ft wood-framed structure. The magazine was built in 1944 and removed in 1951 (LANL 1995, 057225, pp. 5-26-1–5-26-3). Currently, administration building 16-204 partially covers the former location of the magazine.

5.29.1 Summary of Previous Investigations for AOC 16-024(j)

No previous investigation has been conducted at this site.

5.29.2 Summary of Data for AOC 16-024(j)

No decision-level data are available at this site.

5.29.3 Scope of Activities for AOC 16-024(j)

Ten subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.29-2). The footprint is partially covered by building 16-204 and an asphalt walkway. The surface of the site has been disturbed by construction of building 16-204. Samples will be collected from two depths (immediately below fill or asphalt and 4 ft below).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs, and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site.

Table 5.29-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.30 AOC 16-024(k)—Potential Soil Contamination Associated with Former Magazine 16-57

AOC 16-024(k) is an area of potential soil contamination in TA-16 associated with a former HE magazine (structure 16-57) (Figure 5.30-1). The magazine was a 6 ft x 6 ft x 7 ft wood-framed structure, surrounded on three sides and the top by an earthen berm. The magazine was built in May 1946 and destroyed by intentional burning in 1960 (LANL 1994, 039440, p. 5-388).

5.30.1 Summary of Previous Investigations for AOC 16-024(k)

An RFI was conducted at AOC 16-024(k) in 1997. Four soil screening samples were collected from four locations in and adjacent to the magazine footprint. Samples were field-screened for HE and radioactivity. All samples showed no detects for HE and background radioactivity. One sample was submitted for laboratory analyses of metals, HE, and SVOCs (LANL 1997, 056660.289, pp. 62–68).

5.30.2 Summary of Data for AOC 16-024(k)

The analyses requested and decision-level analytical data from the 1997 RFI are presented in Tables 5.30-1 and 5.30-2 for the one sample collected from a depth interval of 0–1 ft bgs. The analytical results of the sample collected during the 1997 RFI at AOC 16-024(k) are as follows (LANL 1997, 056660.289, pp. 62–68).

- No inorganic chemicals were detected or detected above BVs.
- No explosive compounds or SVOCs were detected.

5.30.3 Scope of Activities for AOC 16-024(k)

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.30-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.30-3 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.31 AOC 16-024(l)—Potential Soil Contamination Associated with Former Magazine 16-72

AOC 16-024(l) is an area of potential soil contamination at TA-16 associated with a former HE magazine (structure 16-72) (Figure 5.31-1). The magazine was a 6 ft × 6 ft × 7 ft wood-framed structure, surrounded on three sides and the top by an earthen berm. The magazine was built in 1946 and destroyed by intentional burning in 1960 (LANL 1995, 057225, pp. 5-26-1–5-26-3).

5.31.1 Summary of Previous Investigations for AOC 16-024(l)

No previous investigation has been conducted at this site.

5.31.2 Summary of Data for AOC 16-024(l)

No decision-level data are available at this site.

5.31.3 Scope of Activities for AOC 16-024(l)

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.31-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.31-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.32 AOC 16-024(o)—Potential Soil Contamination Associated with Former Magazine 16-67

AOC 16-024(o) is an area of potential soil contamination at TA-16 associated with a former HE magazine (structure 16-67) (Figure 5.32-1). The magazine was a 6 ft × 6 ft × 7 ft wood-framed structure, surrounded on three sides by an earthen berm. It was built in May 1946 and destroyed by intentional burning in 1960 (LANL 1994, 039440, p. 5-388).

5.32.1 Summary of Previous Investigations for AOC 16-024(o)

An RFI was conducted at AOC 16-024(o) in 1997. Four surface soil screening samples were collected from four locations in and adjacent to the magazine footprint. Samples were field-screened for HE and radioactivity. All samples showed only background radioactivity. HE was detected in one field-screened sample, which was submitted for laboratory analyses of metals, HE, and SVOCs (LANL 1997, 056660.289, pp. 74–80).

5.32.2 Summary of Data for AOC 16-024(o)

The sample collected, analyses requested, and decision-level analytical data from the 1997 RFI are presented in Tables 5.32-1 and 5.32-2. One sample was collected from a depth interval of 0–0.41 ft bgs. The result of the analyses of the sample collected during the 1997 RFI is as follows (LANL 1997, 056660.289, pp. 74–80).

- Lead was detected above BV (Figure 5.32-2).
- No explosives compounds or SVOCs were detected.

5.32.3 Scope of Activities for AOC 16-024(o)

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.32-3). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.32-3 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.33 AOC 16-024(p)—Potential Soil Contamination Associated with Former Magazine 16-70

AOC 16-024(p) is an area of potential soil contamination at TA-16 associated with a former HE magazine (structure 16-70) (Figure 5.33-1). The magazine was a 6 ft × 6 ft × 7 ft wood-framed structure, surrounded on three sides and the top by an earthen berm. The magazine was built in May 1946 and destroyed by intentional burning in 1960 (LANL 1994, 039440, p. 5-388).

5.33.1 Summary of Previous Investigations for AOC 16-024(p)

An RFI was conducted at AOC 16-024(p) in 1997. Four soil screening samples were collected from four locations in and adjacent to the magazine footprint. Samples were field-screened for HE and radioactivity. All samples showed no detects for HE and background radioactivity. One sample was submitted for laboratory analyses of metals, HE, and SVOCs (LANL 1997, 056660.289, pp. 80–85).

5.33.2 Summary of Data for AOC 16-024(p)

The sample collected and analyses requested from the 1997 RFI are presented in Table 5.33-1. One sample was collected from a depth interval of 0–1 ft bgs. The results of the analyses of the sample collected during the 1997 RFI at AOC 16-024(p) are as follows (LANL 1997, 056660.289, pp. 80–85).

- No inorganic chemicals were detected or detected above BVs.
- No explosives compounds or SVOCs were detected.

5.33.3 Scope of Activities for AOC 16-024(p)

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.33-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.33-2 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.34 AOC 16-024(q)—Potential Soil Contamination Associated with Former Magazine 16-71

AOC 16-024(q) is an area of potential soil contamination at TA-16 associated with a former HE magazine (structure 16-71) (Figure 5.34-1). The magazine was a 6 ft × 6 ft × 7 ft wood-framed structure, surrounded on three sides and the top by an earthen berm. The magazine was built in May 1946 and destroyed by intentional burning in 1960 (LANL 1994, 039440, p. 5-388).

5.34.1 Summary of Previous Investigations for AOC 16-024(q)

An RFI was conducted at AOC 16-024(q) in 1997. Four surface soil screening samples were collected from four locations in and adjacent to the magazine footprint. Samples were field-screened for HE and radioactivity. All samples showed no detects for HE and only background radioactivity. One sample was submitted for laboratory analyses of metals, HE, and SVOCs (LANL 1997, 056660.289, pp. 85–91).

5.34.2 Summary of Data for AOC 16-024(q)

The samples collected, analyses requested, and decision-level analytical data from the 1997 RFI are presented in Tables 5.34-1 to 5.34-3. One sample was collected from a depth interval of 0–1 ft bgs. The results of the analyses of the sample collected during the 1997 RFI are as follows (LANL 1997, 056660.289, pp. 85–91).

- Cobalt, lead, manganese, mercury, and selenium were detected above BVs (Figure 5.34-2).
- Pyrene was detected (Figure 5.34-3).
- Explosives compounds were not detected.

5.34.3 Scope of Activities for AOC 16-024(q)

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.33-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.34-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.35 AOC 16-024(r)—Potential Soil Contamination Associated with Former Magazine 16-68

AOC 16-024(r) is an area of potential soil contamination at TA-16 associated with a former HE magazine (structure 16-68) (Figure 5.35-1). The magazine was a 6 ft × 6 ft × 7 ft wood-framed structure, surrounded on three sides and the top by an earthen berm. The magazine was built in May 1946 and destroyed by intentional burning in 1960 (LANL 1994, 039440, p. 5-388).

5.35.1 Summary of Previous Investigations for AOC 16-024(r)

An RFI was conducted at AOC 16-024(r) in 1997. Four surface soil screening samples were collected from four locations in and adjacent to the magazine footprint. Samples were field-screened for HE and radioactivity. All samples showed only background radioactivity. HE was detected in three field-screened samples. The sample with the highest screening result for 2,4,6-trinitrotoluene (TNT) was submitted for laboratory analyses of metals, HE, and SVOCs (LANL 1997, 056660.289, pp. 92–97).

5.35.2 Summary of Data for AOC 16-024(r)

The sample collected, analyses requested, and decision-level analytical data from the 1997 RFI are presented in Tables 5.35-1 and 5.35-2. One sample was collected from a depth interval of 0–1 ft bgs. The results of the analyses of the sample collected during the 1997 RFI at AOC 16-024(r) are as follows (LANL 1997, 056660.289, pp. 92–97).

- No inorganic chemicals were detected or detected above BVs.
- No explosives compounds or SVOCs were detected.

5.35.3 Scope of Activities for AOC 16-024(r)

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.35-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.35-3 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.36 AOC 16-024(s)—Potential Soil Contamination Associated with Former Magazine 16-60

AOC 16-024(s) is an area of potential soil contamination at TA-16 associated with a former HE magazine (structure 16-60) (Figure 5.36-1). The magazine was a 60 ft × 20 ft × 8.5 ft wood structure with a concrete floor, and surrounded on three sides by an earthen berm. The magazine was built in 1945 to store HE between processing operations and removed in 1950 (LANL 1995, 057225, pp. 5-26-1–5-26-6).

5.36.1 Summary of Previous Investigations for AOC 16-024(s)

An RFI was conducted at AOC 16-024(s) in 1997. Eight soil screening samples were collected from five locations in and adjacent to the magazine footprint. Samples were field-screened for HE and radioactivity. All samples showed only background radioactivity. HE was detected in two field-screened samples. The sample with the highest screening results, plus one additional sample collected from a deeper depth at the same location, were submitted for laboratory analyses of metals, HE, and SVOCs (LANL 1997, 056660.289, pp. 97–104).

5.36.2 Summary of Data for AOC 16-024(s)

The samples collected, analyses requested, and decision-level analytical data from the 1997 RFI are presented in Tables 5.36-1 and 5.36-2. The samples were collected from depth intervals ranging from 0-2 ft bgs. The results of the analyses of samples collected during the 1997 RFI are as follows (LANL 1997, 056660.289, pp. 97–104).

- Copper, lead, and zinc were detected above BVs (Figure 5.36-2).
- No HE or SVOCs were detected.

5.36.3 Scope of Activities for AOC 16-024(s)

Twelve surface and subsurface samples will be collected from six locations—two within the footprint and four around the footprint (Figure 5.36-3). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.36-3 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.37 AOC 16-024(t)—Potential Soil Contamination Associated with Former Magazine 16-464

AOC 16-024(t) is an area of potential soil contamination at TA-16 associated with a former HE magazine (structure 16-464) (Figure 5.37-1). The magazine, located northeast of the decommissioned analytical chemistry laboratory (building 16-460), was used to store HE brought to building 16-460 for analysis. The magazine was built in late 1952 and removed in 1966 (LANL 1995, 057225, pp. 5-26-9–5-26-11).

5.37.1 Summary of Previous Investigations for AOC 16-024(t)

No previous investigation has been conducted at this site.

5.37.2 Summary of Data for AOC 16-024(t)

No decision-level data are available at this site.

5.37.3 Scope of Activities for AOC 16-024(t)

Ten subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.37-2). The footprint is partially covered by asphalt-paved road, and the surface of the site has been disturbed. Therefore, samples will be collected from two depths (2–3 ft and 4–5 ft bgs), beginning beneath the pavement. Sampling will avoid including any asphalt material.

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.37-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.38 SWMU 16-025(c2)—Potential Soil Contamination Associated with Former Building 16-56

SWMU 16-025(c2) is an area of potential soil contamination at TA-16 associated with a former physical testing laboratory (building 16-56) (Figure 5.35-1). Building 16-56 was a 16 ft × 16 ft × 9 ft wood-framed structure surrounded by an earthen berm on three sides. The building contained a sink that drained to a sump [SWMU 16-029(e2)] that was also associated with building 16-52. Building 16-56 was built in 1945 and destroyed by intentional burning in 1960 (LANL 1994, 039440, p. 5-416).

5.38.1 Summary of Previous Investigations for SWMU 16-025(c2)

No previous investigation has been conducted at this site.

5.38.2 Summary of Data for SWMU 16-025(c2)

No decision-level data are available at this site.

5.38.3 Scope of Activities for SWMU 16-025(c2)

Fourteen surface and subsurface samples will be collected from seven locations within and around the footprint, and beneath the former drainline (Figure 5.35-2).

One location will be situated within the footprint and three locations will be situated around the footprint. Samples from these locations will be collected from two depths (0–1 ft and 4–5 ft bgs).

Three locations will be situated along the former drainline where samples will be collected from two depths (4–5 ft and 9–10 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, dioxins/furans, explosives compounds, PCBs, SVOCs, VOCs (except surface samples), isotopic uranium, and pH. Table 5.38-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.39 SWMU 16-025(w)—Potential Soil Contamination Associated with Former Building 16-81

SWMU 16-025(w) is an area of potential soil contamination at TA-16 associated with a former nitrocellulose drying facility (building 16-81) (Figure 5.15-1). Building 16-81 was 8.5 ft × 8.5 ft × 8 ft, located northeast of the intersection of V-Site and Bunker Roads. Nitrocellulose was shipped in alcohol to avoid spontaneous combustion, and the alcohol was evaporated from the nitrocellulose in building 16-81. Building 16-81 was built in 1944 and destroyed by intentional burning in 1960 (LANL 1994, 039440, p. 5-390).

5.39.1 Summary of Previous Investigations for SWMU 16-025(w)

No previous investigation has been conducted at this site.

5.39.2 Summary of Data for SWMU 16-025(w)

No decision-level data are available at this site.

5.39.3 Scope of Activities for SWMU 16-025(w)

Fifteen surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.15-2). Samples will be collected from three depths (0–1 ft, 4–5 ft, and 9–10 ft bgs) and will be analyzed for the same suites as SWMU 16-016(a) because these samples will also be used to characterize the nature and extent of contamination on the southwest side of SWMU 16-016(a).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.39-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.40 Consolidated Unit 16-025(y)-99

Consolidated unit 16-025(y)-99 consists of potential soil contamination from the former HE grinding facility (building 16-55) [SWMU 16-025(y)] and two former sumps [SWMU 16-029(a2)] that served former building 16-55 (Figure 5.40-1). This building was built in 1944 and housed barium nitrate grinding operations.

5.40.1 SWMU 16-025(y)—Potential Soil Contamination Associated with Former HE Grinding Facility 16-55

SWMU 16-025(y) is an area of potential soil contamination at TA-16 associated with the former barium nitrate grinding facility building 16-55 (Figure 5.40-1). Building 16-55 consisted of three connected structures: a processing building (40 × 20 × 12 ft), an equipment room (11 × 7 × 8 ft), and a storage room (11 ×10 × 8 ft). Building 16-55 was a wood-frame structure with a concrete floor. Built in 1944, building 16-55 was first used as a barium nitrate grinding facility and then used for storage. The building was destroyed by intentional burning in 1960 (LANL 1994, 039440, pp. 5-382–5-392).

5.40.1.1 Summary of Previous Investigations for SWMU 16-025(y)

An RFI was conducted at SWMU 16-025(y) in 1997. Ten soil screening samples were collected from five locations in and adjacent to the building footprint. Samples were field-screened for barium, HE, and radioactivity. All samples showed only background radioactivity. HE was detected in five field-screened samples. Screening results for barium were less than two times the BVs for all samples. Three samples collected from two locations were submitted for laboratory analyses of metals, HE, and SVOCs (LANL 1997, 056660.289, pp. 169–176).

5.40.1.2 Summary of Data for SWMU 16-025(y)

The samples collected, analyses requested, and decision-level analytical data from the 1997 RFI are presented in Tables 5.40-1 and 5.40-2. The samples were collected from depth intervals ranging from 0–2 ft bgs. The results of the analyses of samples collected during the 1997 RFI are as follows (LANL 1997, 056660.289, pp. 169–176).

- Barium was detected above BVs (Figure 5.40-2).
- No explosives compounds or SVOCs were detected.

5.40.1.3 Scope of Activities for SWMU 16-025(y)

Twelve surface and subsurface samples will be collected from six locations—two within the footprint and four around the footprint (Figure 5.40-3). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.40-3 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.40.2 SWMU 16-029(a2)—Sumps (removed) and Outfall

SWMU 16-029(a2) consists of two former HE sumps and an outfall that served former HE grinding building 16-55 at TA-16 (Figure 5.40-1). The sumps were located on the exterior southeast side of building 16-55, connected in series and discharged through a drainline southeast to an outfall that flowed to an outfall in the main TA-16 drainage (LANL 1994, 039440, pp. 5-391–5-392). The sumps were removed from 1966 to 1968 with demolition of building foundations and drainlines, documented by site photos (LANL 1996, 055016). The sumps are visible in a 1965 aerial photograph (LASL 1965, 016396), but are no longer visible in a 1977 aerial photograph (LASL 1977, 017770).

5.40.2.1 Summary of Previous Investigations for SWMU 16-029(a2)

No previous investigation has been conducted at this site.

5.40.2.2 Summary of Data for SWMU 16-029(a2)

No decision-level data are available at this site.

5.40.2.3 Scope of Activities for SWMU 16-029(a2)

Thirty-four surface and subsurface samples will be collected from 16 locations beneath the former sumps and drainline, at the outfall, and in the drainage (Figure 5.40-3).

One location will be situated at each of the two former sumps where samples will be collected from three depths (4–5 ft, 9–10 ft, and 14–15 ft bgs). One location will be situated at the former drainline between the two sumps where samples will be collected from two depths (4–5 ft and 9–10 ft bgs).

The outfall drained to the main drainage of TA-16, which ran south through a former storm drain beneath Bunker Road and eventually drained into Water Canyon. Four locations will be situated at the outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. Three locations will be situated in the drainage north of Bunker Road. An additional six locations will be situated in the drainage south of Bunker Road. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs). Drainage further downgradient will be characterized by sampling at Consolidated Unit 16-029(b2)-99.

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.40-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.41 Consolidated Unit 16-026(b2)-00

Consolidated Unit 16-026(b2)-00 consists of two outfalls [SWMU 16-026(b2) and SWMU 16-028(d)] that served building 16-202 (Figure 5.41-1). Building 16-202 was used as a secure machine shop and provided electrical, mechanical, pipefitting, milling, and other machining services from 1952 to 1993. Currently, the building is used for office space and is located in the TA-16 administration area.

5.41.1 SWMU 16-026(b2)—Outfall

SWMU 16-026(b2) is an outfall that served decommissioned machine shop building 16-202 at TA-16 (Figure 5.41-1). The outfall is located approximately 135 ft southeast of building 16-202 and daylights in the drainage ditch along Anchor Ranch Road. The outfall received discharge from an oil/water separator, which consisted of a 3 × 3 × 3 ft cement pit located below-floor-level. The separator was installed in 1952, when building 16-202 was built and remains in place. Use of the separator ceased after 1977 (LANL 1995, 057225, pp. 5-28-5–5-28-9).

5.41.1.1 Summary of Previous Investigations for SWMU 16-026(b2)

No previous investigation has been conducted at this site.

5.41.1.2 Summary of Data for SWMU 16-026(b2)

No decision-level data are available at this site.

5.41.1.3 Scope of Activities for SWMU 16-026(b2)

Twelve surface and subsurface samples will be collected from six locations at the outfall and in the drainage (Figure 5.41-2). The outfall discharged to a discernable drainage. One location will be situated at the outfall and five locations will be situated in the drainage with the farthest downgradient location under the culvert across Anchor Ranch Road. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, TPH-DRO, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.41-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

Because building 16-202 is an active building, characterization of the outfall's drainline will be delayed until the building is deactivated.

5.41.2 SWMU 16-028(d)—Outfall

SWMU 16-028(d) is a formerly NPDES-permitted outfall (04A083) located at TA-16 approximately 80 ft southeast of decommissioned building 16-202 (Figure 5.41-1). The outfall formerly served decommissioned machine shop building 16-202 and connected to the building through an 8-in. diameter VCP. The outfall received noncontact cooling water and wash water from two floor drains, effluent from two non-HE sumps, discharge from two sink drains, and rainwater from 16 roof drains. In 1995, building 16-202 was converted to office space and the drainlines within the building were modified so that the outfall only receives stormwater from the building's roof drains (LANL 1995, 057225, pp. 5-28-8–5-28-9). The outfall was removed from the NPDES permit effective September 19, 1997 (LANL 1997, 109528).

5.41.2.1 Summary of Previous Investigations for SWMU 16-028(d)

No previous investigation has been conducted at this site.

5.41.2.2 Summary of Data for SWMU 16-028(d)

No decision-level data are available at this site.

5.41.2.3 Scope of Activities for SWMU 16-028(d)

Ten surface and subsurface samples will be collected from five locations at the outfall and in the drainage (Figure 5.41-2). The outfall discharged to a discernable drainage. One location will be situated at the outfall and four locations will be situated in the drainage with the farthest downgradient location under the culvert across Anchor Ranch Road. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, TPH-DRO, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.41-2 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

Because building 16-202 is an active facility, characterization of the drainline will be delayed until the building is deactivated.

5.42 SWMU 16-026(c2)—Outfalls

SWMU 16-026(c2) consists of the two outfalls that served chemical storage building 16-462 at TA-16 (Figure 5.42-1). The outfalls are located approximately 30 ft southeast of the building. Floor troughs within 16-462 drain to 6-in. diameter VCP drainlines that exit the south and southeast side of the building. Effluent flowed from the drainlines southeast to a drainage ditch. Building 16-462 was built in 1952 to store chemicals for use in the analytical chemistry laboratory (building 16-460). All drains at building 16-462 were plugged in 1991 (LANL 1995, 057225, p. 5-28-2).

5.42.1 Summary of Previous Investigations for SWMU 16-026(c2)

No previous investigation has been conducted at this site.

5.42.2 Summary of Data for SWMU 16-026(c2)

No decision-level data are available at this site.

5.42.3 Scope of Activities for SWMU 16-026(c2)

Because building 16-462 is an inactive facility, removal is proposed for the drainlines. Confirmation samples will be collected at the excavation.

After removal of the drainlines, 24 surface and subsurface samples will be collected from 11 locations beneath the former drainlines and in the drainage (Figure 5.42-2).

Six sampling locations will be situated beneath the former drainlines where samples will be collected from two depths (immediately below the former drainline and 5 ft below the first depth). One location each will be situated at the two outfalls where samples will be collected from three depths (0–1 ft, 2–3 ft, and 4–5 ft bgs).

Effluent flowed along the road and through a storm drain that discharged to the drainage from the outfall of SWMU 16-026(v). Three sampling locations will be situated in the drainage. The drainage farther downgradient of the storm drain will be characterized by sampling at SWMU 16-026(v). Drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosive compounds, PCBs (20% of the samples), SVOCs, TPH-DRO, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.42-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.43 Consolidated Unit 16-026(q)-99

Consolidated Unit 16-026(q)-99 consists of the following 13 SWMUs and AOCs (Plate 3):

- potential soil contamination from former septic tank [SWMU 16-005(d)],
- potential soil contamination from former HE-casting building 16-27 [SWMU 16-017(h)-99],
- potential soil contamination from former storage magazine structure 16-79 [SWMU 16-017(x)-99],

- potential soil contamination from former HE powder inspection building 16-25 [SWMU 16-025(k)],
- potential soil contamination from former HE-casting building 16-26 [SWMU 16-025(l)],
- outfalls [SWMU 16-026(q)] from former building 16-27,
- potential soil contamination from former sump and outfall from former building 16-24 [SWMU 16-029(f2)],
- outfall [SWMU 16-029(r)] from former building 16-25,
- outfall [SWMU 16-031(d)] from former building 16-28,
- sumps, drainlines, and outfalls from former building 16-26 [SWMU 16-032(c)],
- potential soil contamination from former laboratory 16-24 [SWMU 16-034(a)],
- potential soil contamination from former solvent storage building 16-148 [AOC C-16-006], and
- storage area [AOC C-16-065].

These SWMUs and AOCs represent past operations associated with the 20s-line (former buildings 16-24, 16-25, 16-26, 6-27, and 16-28) (LANL 1994, 039440, p. 5-314).

5.43.1 SWMU 16-005(d)—Former Septic System

SWMU 16-005(d) is a former septic system located at TA-16 approximately 400 ft northeast of building 16-332 (Plate 3). The septic system consisted of a septic tank (structure 16-177) and outfall drainline that served lavatories in the southwest wing of former building 16-27. The septic tank was constructed of reinforced concrete and measured 10 × 6 × 4.5 ft. The septic tank drainline was a 6-in. VCP that discharged southeast into a ditch that runs along V-Site Road (LASL 1959, 024179). The septic tank was removed in 1968 (LANL 1990, 007512) and the drainlines were removed in 1998 (LANL 1999, 063973, p. 61).

5.43.1.1 Summary of Previous Investigations for SWMU 16-005(d)

A voluntary corrective measure (VCM) was conducted at SWMU 16-005(d) in 1998 and 1999, and results were documented in the VCM completion report (LANL 1999, 063973, pp. 58–87). The purpose of the VCM was to characterize the site and to implement an accelerated cleanup in conjunction with removal activities at the site. Because the septic tank had been removed prior to the VCM, removal activities were limited to removal of the drainline. After the drainline was removed, 27 screening samples were collected from eight locations, with biased samples taken from locations beneath joints or breaks in the drainline.

Samples were field-screened for metals, HE, VOCs, and radioactivity. Based on the screening results, five samples collected from five locations were submitted for laboratory analyses of metals, HE, SVOCs, and VOCs. After receiving analytical results, two additional samples were collected—one upgradient of the former septic tank (new location) and the other at the discharge from the former septic tank (sampled deeper at an existing location). The sample upgradient was analyzed for antimony, total uranium, and HE; the sample at the discharge was analyzed for antimony and thallium (LANL 1999, 063973, p. 87).

NMED requested additional investigation to define the nature and extent of contamination for this site (NMED 2002, 073818).

5.43.1.2 Summary of Data for SWMU 16-005(d)

The samples collected, analyses requested, and decision-level analytical data from the 1998 and 1999 VCM are presented in Tables 5.43-1–5.43-3. The samples were collected from depth intervals ranging from 2–9.5 ft bgs. The results of the analyses of samples collected during the 1998 and 1999 VCM are as follows (LANL 1999, 063973, pp. 58–87).

- Barium, calcium, and uranium were detected above BVs (Plate 4).
- Explosive compounds, methylene chloride, and PAHs were detected (Plate 5).

5.43.1.3 Scope of Activities for SWMU 16-005(d)

Thirty-five surface subsurface samples will be collected from 17 locations beneath the former septic tank and drainline and in the drainage (Plate 6).

Two sampling locations will be situated at the tank inlet and outlet where samples will be collected from two depths (4–5 ft and 9–10 ft bgs). One location will be situated at the former tank where samples will be collected from three depths (4–5 ft, 9–10 ft, and 14–15 ft bgs).

Seven sampling locations will be situated approximately 50 ft apart along the former drainline. Samples from these locations will be collected from two depths (4–5 ft and 9–10 ft bgs).

The drainline discharged through a storm drain and eventually drained into the main drainage of TA-16 to the east of V-Site Road. One location will be situated at the estimated discharge point, and six locations will be situated in the drainage east of V-Site Road. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs). Drainage further downgradient will be characterized by sampling at SWMU 16-016(a).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosive compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.43-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.43.2 SWMU 16-017(h)-99—Former HE Casting Building 16-27

SWMU 16-017(h)-99 is former HE-casting building 16-27 located at TA-16 approximately 450 ft northeast of building 16-332 (Plate 3). Building 16-27 was a 150 × 50 ft wood-frame structure with a concrete foundation, concrete floor, and a basement that housed vacuum pumps and other equipment. The building consisted of a central casting room and several smaller rooms that were used as laboratories and offices. An associated equipment room south of the main building also was considered part of building 16-27. Building 16-27 was constructed in 1945 and operated until 1970. After casting operations were moved in the early 1950s, the building was used as a warehouse (LANL 1994, 039440, p. 5-317). The 1998, building 16-27 was removed and all building structural components, piping, sumps, and discharge piping to outfalls were disposed of (LANL 1998, 059602, p. 1-3). This SWMU was originally designated as part of SWMU 16-017, a group of 24 structures in central TA-16 (LANL 1994, 039440, pp. 6-31–6-33). In 1999, SWMU 16-017 was separated into 24 SWMUs, each consisting of a single structure.

5.43.2.1 Summary of Previous Investigations for SWMU 16-017(h)-99

Two samples were collected from two locations during 1998 removal activities (LANL 1998, 059602, p. 1-3). Two samples were submitted for laboratory analyses of metals, HE, PCBs, SVOCs, and VOCs.

5.43.2.2 Summary of Data for SWMU 16-017(h)-99

The samples collected, analyses requested, and decision-level analytical data from 1998 are presented in Tables 5.43-5–5.43-7. The samples were collected from depth intervals ranging from 0–2.5 ft bgs. The results of the analyses of samples collected in 1998 are as follows.

- Arsenic, boron, copper, lead, and uranium were detected above BVs (Plate 4).
- Aroclor-1260, acetone, and explosives compounds were detected (Plate 5).
- SVOCs were not detected.

5.43.2.3 Scope of Activities for SWMU 16-017(h)-99

Twenty surface and subsurface samples will be collected from ten locations—three within the building footprint and seven around the building footprint (Plate 6). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.43-8 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.43.3 SWMU 16-017(x)-99—Former Magazine 16-79

SWMU 16-017(x)-99 is a former magazine (structure 16-79) at TA-16 located southeast of former building 16-27 and adjacent to V-Site Road (Plate 3). The magazine was a 12 x 24 x 7 ft reinforced concrete structure with earth berms on three sides and the top. The magazine was built in 1945 and ceased use by 1951. The date the magazine was removed is not known. This SWMU was originally designated as part of SWMU 16-017, a group of 24 structures in central TA-16 (LANL 1994, 039440, pp. 6-31–6-33). In 1999, SWMU 16-017 was separated into 24 SWMUs, each consisting of a single structure.

5.43.3.1 Summary of Previous Investigations for SWMU 16-017(x)-99

No previous investigation has been conducted at this site.

5.43.3.2 Summary of Data for SWMU 16-017(x)-99

No previous investigation has been conducted at this site.

5.43.3.3 Scope of Activities for SWMU 16-017(x)-99

Ten surface and subsurface samples will be collected from five locations—one within the footprint and five around the footprint (Plate 6). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except in surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.43-9 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.43.4 SWMU 16-025(k)—Potential Soil Contamination Associated with Former HE Powder Inspection Building 16-25

SWMU 16-025(k) is an area of potential soil contamination at TA-16 associated with former HE powder inspection building 16-25 (Plate 3). Building 16-25 was located approximately 270 ft northwest of building 16-332. The building was a 30 × 20 × 15 ft wood-frame structure with a concrete foundation and concrete floor, plus an addition that was 10 × 6 × 15 ft. The building operated from 1945 to 1959 and was destroyed by intentional burning in 1968 (LANL 1994, 039440, pp. 5-314–5-315).

5.43.4.1 Summary of Previous Investigations for SWMU 16-025(k)

An RFI was conducted at SWMU 16-025(k) in 1997. Twelve soil screening samples were collected from four locations at the corners of building's footprint and two locations adjacent to the doors. Samples were field-screened for HE and radioactivity. All samples showed only background radioactivity. HE was detected in four field-screened samples. Three samples collected from three locations with elevated screening results were submitted for laboratory analysis of metals, HE, and SVOCs (LANL 1997, 062539, pp. 140–147).

5.43.4.2 Summary of Data for SWMU 16-025(k)

The samples collected, analyses requested, and decision-level analytical data from the 1997 RFI are presented in Tables 5.43-10 to 5.43-12. The samples were collected from depth intervals ranging from 0-1 ft bgs. The results of the analyses of samples collected during the 1997 RFI are as follows (LANL 1997, 062539, pp. 140–147).

- Cadmium, copper, lead, silver, and zinc were detected above BVs (Plate 4).
- 2-Chloronaphthalene was detected (Plate 5).
- Explosives compounds were not detected.

5.43.4.3 Scope of Activities for SWMU 16-025(k)

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Plate 6). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.43-13 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.43.5 SWMU 16-025(l)—Potential Soil Contamination Associated with Former HE Casting Building 16-26

SWMU 16-025(l) is an area of potential soil contamination at TA-16 associated with former HE-casting building 16-26 (Plate 3). Building 16-26 was located approximately 200 ft north of building 16-332. The building was 45 × 40 × 18 ft wood-frame structure with concrete foundation and a basement (40 × 12 ft) that served as a utility room. The building contained a lead-lined floor trough that drained to a sump

[SWMU 16-032(c)] located on the exterior of the building. Building 16-26 was built in 1944 and was first used for production casting of HE. After 1945, the building was used for inspection of raw HE until it was destroyed by intentional burning in 1968 (LANL 1994, 039440, pp. 5-315–5-316).

5.43.5.1 Summary of Previous Investigations for SWMU 16-025(l)

No previous investigation has been conducted at this site.

5.43.5.2 Summary of Data for SWMU 16-025(l)

No decision-level data are available at this site.

5.43.5.3 Scope of Activities for SWMU 16-025(l)

Nine surface and subsurface samples will be collected from four locations—one within the footprint and three around the footprint (Plate 6). Proposed sampling location at the west corner of the footprint will also be used to characterize the drainline that connected to SWMU 16-029(r). Samples from this location will be collected from three depths (0–1 ft, 4–5 ft, and 9–10 ft bgs). Samples from the other three locations will be collected from two depths (0–1 ft and 4–5 ft bgs). The nature and extent of contamination northeast of the building footprint will be characterized by proposed sampling location 32c-1 for SWMU 16-032(c).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.43-14 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.43.6 SWMU 16-026(q)—Outfalls

SWMU 16-026(q) consists of two outfalls that served former HE casting building 16-27 at TA-16 (Plate 3). The outfalls were located east and southeast of the building and daylighted to the ditch along V-Site Road. Each outfall received discharge from a set of sumps located on the northeast and southwest sides of the building. Each set of sumps was interconnected by means of concrete troughs that drained southeast and terminated at the outfall location. The sumps received discharges from the floor troughs in the building. The sumps, drainlines, and outfalls operated from 1945, when building 16-27 was constructed, until the early 1950’s when casting operations were moved to building 16-302. After the early 1950s, building 16-27 was used as a warehouse until it ceased use in 1970. Building 16-27 was removed in 1998 (LANL 1998, 059602). The sumps and drainlines were removed in the late 1960s.

5.43.6.1 Summary of Previous Investigations for SWMU 16-026(q)

An RFI was conducted at SWMU 16-026(q) in 1997 and 1998. Field screening was conducted to select samples for laboratory analyses. A total of 30 samples from 23 locations were submitted for laboratory analyses of metals, total uranium, HE, SVOCs, and VOCs; however, not all samples were analyzed for all suites.

5.43.6.2 Summary of Data for SWMU 16-026(q)

The samples collected, analyses requested, and decision-level analytical data from the 1997 and 1998 RFI are presented in Tables 5.43-15 to 5.43-17. The samples were collected from depth intervals ranging from 0–10 ft bgs. The results of the analyses of samples collected during the 1997 and 1998 RFI are as follows.

- Aluminum, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, lead, magnesium, manganese, nickel, thallium, uranium, and vanadium were detected above BVs (Plate 4).
- Explosives compounds, PAHs, other SVOCs, and VOCs were detected (Plate 5).

5.43.6.3 Scope of Activities for SWMU 16-026(q)

Fifty-three surface and subsurface samples will be collected from 22 locations beneath the former sumps and drainlines and in the drainage (Plate 6).

One location will be situated at each of the nine former sumps where samples will be collected from three depths (4–5 ft, 9–10 ft, and 14–15 ft bgs).

Nine locations will be situated along the former drainline. Samples from these locations will be collected from two depths (4–5 ft and 9–10 ft bgs).

The drainlines discharged to the drainage along V-Site Road that also received the discharge from SWMU 16-005(d). Two sampling locations will be situated at the estimated discharge points from the drainlines, and two sampling locations will be situated in the drainage along V-Site Road. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs). After crossing under V-Site Road, the drainage will be characterized by sampling at SWMU 16-005(d).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.43-18 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.43.7 SWMU 16-029(f2)—Sump (former) and Outfall

SWMU 16-029(f2) consists of a former HE sump and outfall that served former building 16-24 at TA-16 (Plate 3). The sump was a 4 x 11 ft reinforced-concrete structure located approximately 15 ft north of the building. The sump inlet was a 4-in. VCP drainline that exited at the north corner of building 16-24. The sump discharged through a drainline southeast to the outfall (LASL 1945, 109725). The sump and outfall operated from 1946 when building 16-24 was constructed until it was destroyed by intentional burning in 1968. The sump and drainline were removed in 1968 (LANL 1993, 039440, p. 5-318).

5.43.7.1 Summary of Previous Investigations for SWMU 16-029(f2)

No previous investigation has been conducted at this site.

5.43.7.2 Summary of Data for SWMU 16-029(f2)

No decision-level data are available at this site.

5.43.7.3 Scope of Activities for SWMU 16-029(f2)

Twenty-eight surface and subsurface samples will be collected from 13 locations beneath the former sump and drainline and in the drainage (Plate 6).

Because currently a security fence runs through the center of the sump footprint, two sampling locations will be situated at the inlet and outlet of the former sump where samples will be collected from three depths (4–5 ft, 9–10 ft, and 14–15 ft bgs).

Three sampling locations will be situated along the former drainline. Samples from these locations will be collected from two depths (4–5 ft and 9–10 ft bgs). Additionally, a surface sample (0–1 ft bgs) will be collected at proposed sampling location 29f2-1 to characterize the nature and extent of contamination on the northwest side of building footprint [SWMU 16-034(a)].

Four sampling locations will be situated at the outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. Four sampling locations will be situated in the drainage downgradient of the outfall. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs). After crossing under V-Site Road, the drainage will be characterized by sampling at SWMU 16-005(d).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.43-19 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.43.8 SWMU 16-029(r)—Outfall

SWMU 16-029(r) is a former outfall that served the former HE process building 16-25 at TA-16 (Plate 3). The 1990 SWMU Report originally identified SWMU 16-029(r) as an HE sump and outfall associated with building 16-25 (LANL 1990, 007512). However, extensive archival research found no record of the existence of a sump at this building. An as-built engineering drawing for building 16-25 shows a drainline that exited building 16-25 from the southeast corner, tied into a drainline from 16-26, and daylighted near a former pond located southeast of building 16-26 (LASL 1940s, 109937). No sump is shown in the drawing.

5.43.8.1 Summary of Previous Investigations for SWMU 16-029(r)

No previous investigation has been conducted at this site.

5.43.8.2 Summary of Data for SWMU 16-029(r)

No decision-level data are available at this site.

5.43.8.3 Scope of Activities for SWMU 16-029(r)

Sixty-two surface and subsurface samples will be collected from 21 locations beneath the former drainline, at the outfall, at the historical location of the pond, and in the drainage (Plate 6).

Five locations will be situated approximately 50 ft apart along the former drainline. Samples from these locations will be collected from two depths (4–5 ft and 9–10 ft bgs).

Four locations will be situated at the outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. Six locations in two rows approximately 20 ft apart will be situated in the area of the former pond. The outfall and pond samples will be collected from four depths (0–1 ft, 4–5 ft, 9–10 ft, and 14–15 bgs).

Six locations will be situated in the drainage to the east of the pond. Drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs). After crossing under V-Site Road, the drainage will be characterized by sampling at SWMU 16-005(d).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.43-20 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.43.9 SWMU 16-031(d)—Sumps (former) and Outfalls

SWMU 16-031(d) consists of two former sumps and associated outfalls at TA-16 that served a former cooling tower building (structure 16-28) (Plate 3). The exact locations of the outfalls are not known. Engineering drawings for building 16-28 show two cooling towers, a sump associated with each tower, and drainlines exiting each sump (LASL 1945, 109713). The cooling towers, sumps, and drainlines were removed in 1968 (LANL 1994, 039440, p. 5-359).

5.43.9.1 Summary of Previous Investigations for SWMU 16-031(d)

A VCM was conducted at SWMU 16-031(d) in April 1997 and results were documented in the VCM completion report (LANL 1997, 056569, pp. 17–20). Five screening samples were collected from five locations in the footprint of cooling tower structure 16-28. No samples were taken at the location of the outfall. Samples were field-screened for metals and HE. One sample was submitted for laboratory analysis of metals (LANL 1997, 056569, pp. 17–20).

5.43.9.2 Summary of Data for SWMU 16-031(d)

The sample collected, analyses requested, and decision-level analytical data from the 1997 VCM are presented in Tables 5.43-21 and 5.43-22. One sample was collected from a depth interval of 0–1 ft bgs. The result of the analyses of the sample collected during the 1997 VCM is as follows (LANL 1997, 056569, pp. 17–20).

- Copper was detected above BVs (Plate 4).

5.43.9.3 Scope of Activities for SWMU 16-031(d)

Twelve surface and subsurface samples will be collected from four locations beneath the former sumps and drainlines and at the outfalls (Plate 6).

Two locations will be situated beneath the former sumps where samples will be collected from three depths (4–5 ft, 9–10 ft, and 14–15 ft bgs).

Two locations will be situated at the outfalls where samples will be collected from three depths (0–1 ft, 4–5 ft, and 9–10 ft bgs). The area downgradient of the outfalls will be characterized by sampling at SWMU 16-005(d).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.43-23 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.43.10 SWMU 16-032(c)—Sump (former) and Outfall

SWMU 16-032(c) consists of a former sump and outfall at TA-16 that served former HE process building 16-26 (Plate 3). The sump was located on the exterior northeast side of the building and discharged to a 6-in.-diameter VCP. The outfall was located near the southeast corner of building 16-105. The drainlines and sumps were removed in 1968 (LANL 1994, 039440, p. 5-316).

5.43.10.1 Summary of Previous Investigations for SWMU 16-032(c)

No previous investigation has been conducted at this site.

5.43.10.2 Summary of Data for SWMU 16-032(c)

No decision-level data are available at this site.

5.43.10.3 Scope of Activities for SWMU 16-032(c)

Twenty-four surface and subsurface samples will be collected from 11 locations beneath the former sump and drainline and in the drainage (Plate 6).

One sampling location will be situated at the former sump where samples will be collected from four depths (0–1 ft, 4–5 ft, 9–10 ft, and 14–15 ft bgs).

Two sampling locations will be situated beneath the former drainline where samples will be collected from two depths (4–5 ft and 9–10 ft bgs).

Four sampling locations will be situated at the outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. Four sampling locations will be situated in the drainage downgradient of the outfall. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs). After crossing under V-Site Road, the drainage will be characterized by sampling at SWMU 16-005(d).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.43-24 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.43.11 SWMU 16-034(a)—Potential Soil Contamination from Former Laboratory 16-24

SWMU 16-034(a) is an area of potential soil contamination at TA-16 associated with from former HE analytical laboratory building 16-24 (Plate 3). Building 16-24, located approximately 340 ft north of building 16-332, was a 20 × 36 × 11 ft wood-frame structure with a concrete floor. The building had lead-lined floor troughs that drained to a drainline that discharged to a sump and outfall [SWMU 16-029(f2)]. Building 16-24 was built in 1946 and operated until it was destroyed by intentional burning in 1968 (LANL 1994, 039440, p. 5-318).

5.43.11.1 Summary of Previous Investigations for SWMU 16-034(a)

No previous investigation has been conducted at this site.

5.43.11.2 Summary of Data for SWMU 16-034(a)

No decision-level data are available at this site.

5.43.11.3 Scope of Activities for SWMU 16-034(a)

Eight surface and subsurface samples will be collected from four locations—one within the footprint and three around the footprint (Plate 6). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs). The nature and extent of contamination to the northwest will be characterized by proposed sampling location 29f2-1 for SWMU 16-029(f2).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.43-25 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.43.12 AOC C-16-006—Former Storage Building 16-148

AOC C-16-006 is a former storage building 16-148 that was located at TA-16 approximately 10 ft northwest of former building 16-24 (Plate 3). The storage building was a 6 x 12 x 6 ft wood-frame structure constructed in 1950 and removed in 1968 (LANL 1990, 007514). There is a discrepancy as to whether the building was used to store equipment or solvents.

Building 15-148 has in the past been shown on drawings as two locations. The northern location was identified as AOC 16-032(b) and approved asNFA.

5.43.12.1 Summary of Previous Investigations for AOC C-16-006

No previous investigation has been conducted at this site.

5.43.12.2 Summary of Data for AOC C-16-006

No decision-level data are available at this site.

5.43.12.3 Scope of Activities for AOC C-16-006

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Plate 6). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.43-26 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.43.13 AOC C-16-065—Storage Area

AOC C-16-065 is a former storage area (structure 16-185), located approximately 50 ft east of former building 16-27 at TA-16 (Plate 3). The storage area consists of a concrete platform with dimensions of 14 ft long × 9 ft wide × 5 ft high. The area was used to store containers of HE-contaminated waste from nearby HE-processing buildings. The platform was built in 1948 and used until 1960. The platform was removed in 1968 during the removal of nearby buildings (LANL 1994, 039440, pp. 5-362–5-363).

5.43.13.1 Summary of Previous Investigations for AOC C-16-065

A VCM was conducted at AOC C-16-065 in May 1997 and results were documented in the VCM completion report (LANL 1997, 056569, pp. 20–24). Five screening samples were collected from the footprint of the former container storage platform. Samples were field-screened for metals, BTEX, and HE. One sample was submitted for laboratory analyses of metals, HE, SVOCs, and VOCs (LANL 1997, 056569, p. 24).

5.43.13.2 Summary of Data for AOC C-16-065

The samples collected, analyses requested, and decision-level analytical data from the 1997 VCM are presented in Tables 5.43-27 to 5.43-29. One sample was collected from a depth interval of 0–1 ft bgs. The results of the analyses of the sample collected during the 1997 VCM are as follows (LANL 1997, 056569, pp. 20–24):

- PAHs were detected (Plate 5).
- No inorganic chemicals were detected.
- No explosives compounds or VOCs were detected.

5.43.13.3 Scope of Activities for AOC C-16-065

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Plate 6). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.43-30 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.44 SWMU 16-026(s)—Outfall

SWMU 16-026(s) is an outfall at TA-16 that served a former instrument shop (building 16-5) (Figure 5.44-1). The outfall is located approximately 100 ft southeast of the former shop. The outfall drainline is a 4-in.-diameter VCP that originated from the north side of the building. Oils and solvents were used in the instrument shop, which operated from 1945 to 1956. Building 16-5 was removed in 1956 but the drainline was left in place (LANL 1994, 039440, p. 5-424).

5.44.1 Summary of Previous Investigations for SWMU 16-026(s)

No previous investigation has been conducted at this site.

5.44.2 Summary of Data for SWMU 16-026(s)

No decision-level data are available at this site.

5.44.3 Scope of Activities for SWMU 16-026(s)

The drainline associated with SWMU 16-026(s) will be located by trenching and will be excavated if it is in place. After excavation, 23 surface and subsurface samples will be collected from 11 locations beneath the former drainline, at the outfall, and in the drainage (Figure 5.44-2).

Four sampling locations will be situated along the former drainline where samples will be collected from two depths (immediately below the former drainline and 5 ft below the first depth). If the drainline is not in place, samples will be collected from two depths (4–5 ft and 9–10 ft bgs). Additionally, a surface sample (0–1 ft bgs) will be collected at proposed sampling location 26s-1 to characterize the nature and extent of the east side of building footprint (AOC C-16-028).

Four sampling locations will be situated at the outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. Three sampling locations in one row will be situated in the relatively flat area downgradient of the outfall. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, TPH-DRO, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.44-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.45 SWMU 16-026(u)—Outfall

SWMU 16-026(u) is an outfall that served an oil-water separator in the former service station (building 16-195) at TA-16 (Figure 5.45-1). The outfall was located approximately 90 ft southeast of the service station. The oil/water separator consisted of a 3 × 3 × 3 ft below-floor-level cement pit with a 2-in.-diameter cast-iron overflow drainline that discharged to the outfall. The oil-water separator received floor washings from the service station's oil and grease room, wash area, ambulance room, and grease and repair room. The oil-water separator and its associated drainlines were removed in 2003 when building 16-195 was removed (LANL 2003, 073838, p.1).

5.45.1 Summary of Previous Investigations for SWMU 16-026(u)

When building 16-195 was removed in 2003 (LANL 2003, 073838, p. 1), confirmation samples were collected beneath the former location of the oil/water separator and beneath the removed portions of the drainline from the oil/water separator. Six samples collected from six locations were submitted for laboratory analyses of metals, SVOCs, TPH-DRO, TPH-GRO, and VOCs.

5.45.2 Summary of Data for SWMU 16-026(u)

The samples collected, analyses requested, and decision-level analytical data from 2003 are presented in Tables 5.45-1 to 5.45-3. The samples were collected from depth intervals ranging from 0.5–1.5 ft bgs. The results of the analyses of samples collected in 2003 are as follows.

- Cadmium, calcium, and zinc were detected above BVs (Figure 5.45-2).
- PAHs, SVOCs, and TPH-DRO were detected (Figure 5.45-3).
- No TPH-GRO or VOCs were detected.

5.45.3 Scope of Activities for SWMU 16-026(u)

Twelve surface and subsurface samples will be collected from six locations beneath the former drainline and at the outfall (Figure 5.45-4).

Two sampling locations will be situated beneath the former drainline where samples will be collected from two depths (4–5 ft and 9–10 ft bgs).

Four sampling locations will be situated at the outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. Currently, there is no visible drainage present at the site and farther away from the outfall is the paved parking lot of building 16-207. The outfall samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, TPH-DRO, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.45-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

Existing sampling locations are within the building footprint where confirmation samples were collected after removal of the building. These existing samples are not applicable to define the nature and extent of contamination of the drainline and outfall of SWMU 16-026(u).

5.46 SWMU 16-026(y)—Outfall

SWMU 16-026(y) is an outfall at TA-16 that serves building 16-411 (Figure 5.46-1). The drainline to the outfall is a 4-in.-diameter VCP that exits building 16-411 on its west side and turns south to terminate at its discharge point on the hill slope of Water Canyon. The discharge point is located south of a double security fence at the edge of Water Canyon (Santa Fe Engineering Ltd. 1992, 015328). Building 16-411 was built in 1951 and used for the assembly of finished HE components. The outfall received discharges from an equipment room floor drain, a sink, roof drains, a water fountain, and an eyewash station. In the 1990’s, the roof drains were rerouted to a separate outfall and the other drains were either plugged or rerouted to a holding tank (Santa Fe Engineering Ltd. 1992, 015328).

5.46.1 Summary of Previous Investigations for SWMU 16-026(y)

No previous investigation has been conducted at this site.

5.46.2 Summary of Data for SWMU 16-026(y)

No decision-level data are available at this site.

5.46.3 Scope of Activities for SWMU 16-026(y)

Ten surface and subsurface samples will be collected from five locations at the outfall and in the drainage (Figure 5.46-2). One location will be situated at the estimated location of the discharge point. Two locations will be situated in the drainage downgradient of the outfall. The location farthest downgradient will be situated near the edge of the main Water Canyon channel. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.46-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

Because building 16-411 is an active facility, characterization of the drainline will be delayed until the building is deactivated.

5.47 AOC 16-027(c)—Former Transformer

AOC 16-027(c) is a former PCB transformer (structure 16-563) located at TA-16 approximately 100 ft north of building 16-430 in an outdoor fenced area (Figure 5.47-1). The transformer was placed at this site in 1952 and contained 100–500 gal. of dielectric oil with a PCB concentration of 25,000 ppm (LANL 1990, 007512). A leak from the transformer was first reported in 1987. In 1992, the transformer was removed along with its pad and PCB-contaminated soil around and under the pad (Bailey 1993, 052964.489). In 1993, a new transformer was placed in the southern portion of the fenced area and remains in place.

5.47.1 Summary of Previous Investigations for AOC 16-027(c)

The 1995 Addendum 2 to the 1993 RFI work plan reported that a leak of 0.5–1 gal. was detected on July 28, 1987. The concrete pad on which the transformer was mounted and the surrounding soil underwent immediate cleanup. The concrete was cleaned using the double-wash/double-rinse method in accordance with Toxic Substances Control Act (TSCA) PCB spill-cleanup requirements, and the soil was removed to a depth of approximately 2.5 ft, drummed, and taken to MDA G at TA-54 (LANL 1995, 057225, pp. 6-45–6-46).

In 1989, inspection and sampling revealed a need for additional cleanup. Several sampling and cleanup efforts followed, including removal of the transformer and concrete pad, excavation and removal of the contaminated soil under the pad, and replacement of the transformer and pad with a non-PCB transformer and a new pad. A total of 691 ft^3 of soil was removed from the location of the transformer (structure 16-563). The site cleanup was completed November 12, 1992, when samples revealed PCB levels below the 25 ppm TSCA-mandated cleanup levels (LANL 1995, 057225, pp. 6-45–6-46).

5.47.2 Summary of Data for AOC 16-027(c)

No decision-level data are available at this site.

5.47.3 Scope of Activities for AOC 16-027(c)

Fifteen surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.47-2). Samples will be collected from two depths (0–1 ft, 4–5 ft, and 9–10 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), and pH. Samples will not be analyzed for radionuclides because the AOC is the location of a former transformer with no record or indication of radionuclide use at the site. Table 5.47-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.48 AOC 16-027(d)—Former Transformer

AOC 16-027(d) is a former pad-mounted transformer (structure 16-569) located at TA-16, approximately 100 ft north of building 16-430 (Figure 5.47-1). The transformer contained non-PCB dielectric mineral oil (LANL 1993, 057225, p. 6-32). There are no documented releases from the transformer. The transformer and pad were removed at an unknown date.

5.48.1 Summary of Previous Investigations for AOC 16-027(d)

The 1995 Addendum 2 to the 1993 RFI work plan reported that results from a soil sample, collected from the area around the transformer on April 28, 1994, showed a PCB concentration of 7.3 ppm (not decision-level data). This is below the 25 ppm TSCA-mandated cleanup level for low-contact outdoor electrical substations (LANL 1995, 057225, p. 6-32).

5.48.2 Summary of Data for AOC 16-027(d)

No decision-level data are available at this site.

5.48.3 Scope of Activities for AOC 16-027(d)

Fifteen surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Figure 5.47-2). Samples will be collected from three depths (0–1 ft, 4–5 ft, and 9–10 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), and pH. Samples will not be analyzed for radionuclides because the AOC is the location of a former transformer with no record or indication of radionuclide use at the site. Table 5.48-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.49 SWMU 16-028(b)—Outfall

SWMU 16-028(b) is a formerly NPDES-permitted outfall (04A092) at TA-16 that served building 16-370 (Figure 5.49-1). The outfall is located approximately 50 ft south of building 16-370. The outfall drainline consists of a 6-in. VCP that exits building 16-370 from its west side and daylights in Water Canyon. The outfall formerly received effluent from 29 floor drains, an eyewash station, a drinking fountain, and a sink. Building 16-370 was built in 1953 as a barium nitrate grinding facility. In the late 1950s, it was converted to a metal-forming shop for steel and aluminum. All drains that discharged to the outfall were plugged in the 1990s (LANL 1995, 057225, pp. 5-28-13–5-28-15). The outfall was removed from the NPDES permit effective January 14, 1998 (EPA 1998, 109568).

5.49.1 Summary of Previous Investigations for SWMU 16-028(b)

The 1995 Addendum 2 to the 1993 RFI work plan reported two studies conducted at the outfall. During a study of barium and HE in water and soil at various outfalls throughout TA-16 in 1971, barium contamination was found 150 ft south of building 16-370 in the drainage channel. A 1994 study of soil around building 16-370 used laser-induced breakdown spectroscopy and XRF to determine the barium content. The result showed barium concentrations above LANL BVs in some places between the outfall and 168 ft downgradient in the drainage channel (LANL 1995, 057225, pp. 5-28-21–5-28-22).

Sampling was conducted at SWMU 16-028(b) in 1998. One soil sample was collected from the outfall and submitted for laboratory analyses of metals, HE, and SVOCs.

In July 2000, as part of the post-Cerro Grande fire recovery, debris removal, mulching, and permanent seeding were conducted at this site as BMPs. Straw wattles were also installed to stabilize the site and to prevent potential contaminant migration (LANL 2001, 070305, p. 10).

5.49.2 Summary of Data for SWMU 16-028(b)

The sample collected, analyses requested, and decision-level analytical data from the 1998 investigation are presented in Tables 5.49-1 to 5.49-3. One sample was collected from a depth interval of 0–0.5 ft bgs. The results of the analyses of the sample collected during the 1998 investigation are as follows.

- Cadmium, chromium, cobalt, copper, lead, mercury, nickel, uranium, and zinc were detected above BVs (Figure 5.49-2).
- Explosives compounds and PAHs were detected (Figure 5.49-3).

5.49.3 Scope of Activities for SWMU 16-028(b)

The drainline associated with SWMU 16-028(b) will be located by trenching and will be excavated if it is in place. After excavation, 16 surface and subsurface samples will be collected from eight locations beneath the former drainline, at the outfall, and in the drainage (Figure 5.12-4).

Five sampling locations will be situated at the former drainline where samples will be collected from two depths (immediately below the former drainline and 5 ft below). If the drainline is not in place, samples will be collected from two depths (4–5 ft and 9–10 ft bgs).

One sampling location will be situated at the outfall, one at the estimated location of the discharge point, and two in the drainage downgradient of the outfall. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, TPH-DRO, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.49-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.50 Consolidated Unit 16-029(b2)-99

Consolidated unit 16-029(b2)-99 consists of two former HE sumps and an outfall [SWMU 16-029(b2)] and an area of potential soil contamination associated with former HE processing building 16-53 [AOC C-16-005] (Figure 5.50-1). Building 16-53 housed a hydraulic press for HE processing and was used for explosives compounds machining/casting and optical equipment storage.

5.50.1 SWMU 16-029(b2)—Sumps (former) and Outfall

SWMU 16-029(b2) consists of two former HE sumps and an outfall that served former HE processing building 16-53 at TA-16 (Figure 5.50-1). The sumps were located on the exterior southwest side of the berm that surrounded building 16-53. The sumps were connected in series and discharged through a drainline to an outfall approximately 250 ft south of building 16-53 (LASL 1959, 024186).The sumps were removed from 1966 to 1968 with demolition of building foundations and drainlines, documented by site photos (LANL 1996, 055016). The sumps are visible in a 1965 aerial photograph (LASL 1965, 016396), but are no longer visible in a 1977 aerial photograph (LASL 1977, 017770).

5.50.1.1 Summary of Previous Investigations for SWMU 16-029(b2)

No previous investigation has been conducted at this site.

5.50.1.2 Summary of Data for SWMU 16-029(b2)

No decision-level data are available at this site.

5.50.1.3 Scope of Activities for SWMU 16-029(b2)

Twenty-three surface and subsurface samples will be collected from 10 locations beneath the former sumps and drainlines, at the outfall, and in the drainage (Figure 5.50-2).

One sampling location will be situated at each of the two former sumps where samples will be collected from three depths (4–5 ft, 9–10 ft, and 14–15 ft bgs).

Three sampling locations will be situated approximately 50 ft apart along the former drainlines. Samples from these locations will be collected from two depths (4–5 ft and 9–10 ft bgs). Additionally, a surface sample (0–1 ft bgs) will be collected at proposed sampling location 29b2-1 to characterize the nature and extent of contamination to the east side of building footprint (AOC C-16-005).

The outfall drained to a discernable drainage that was part of the main drainage of TA-16. One sampling location will be situated at the outfall. Four sampling locations will be situated in the drainage. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs). The farthest downgradient location in the drainage will be before to the contribution of Consolidated Unit 16-029(v)-99.

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.50-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.50.2 AOC C-16-005—Potential Soil Contamination Associated with Former HE Processing Building 16-53

AOC C-16-005 is an area of potential soil contamination at TA-16 associated with former HE processing building 16-53 (Figure 5.50-1). Building 16-53, located approximately 50 ft southwest of Bunker Road, was a 39 × 16 × 14 ft structure with a 17 × 6 × 8 ft addition. The building was of wood-frame construction with a concrete foundation and surrounded on three sides by an earthen berm (LANL 1994, 039440, p. 5-395). Building 16-53 was built in 1945 and operated until it was destroyed by intentional burning in 1960.

5.50.2.1 Summary of Previous Investigations for AOC C-16-005

An RFI was conducted at AOC C-16-005 in August 1997. Twelve soil screening samples were collected from six locations in the building footprint. Samples were field-screened for HE and radioactivity. All samples showed only background radioactivity. HE was detected in five field-screened samples. Two samples from two locations with elevated screening results of TNT were submitted for laboratory analyses of metals, HE, and SVOCs (LANL 1997, 056660.289, pp. 214–220).

5.50.2.2 Summary of Data for AOC C-16-005

The samples collected, analyses requested, and decision-level analytical data from the 1997 RFI are presented in Tables 5.50-2 and 5.50-3. The samples were collected from depth intervals of 0–1 ft bgs. The results of the analyses of samples collected during the 1997 RFI are as follows (LANL 1997, 056660.289, pp. 214–220).

- Mercury was detected above BVs (Figure 5.50-3).
- HE and SVOCs were not detected.

5.50.2.3 Scope of Activities for AOC C-16-005

Eight surface and subsurface samples will be collected from four locations—one within the footprint and three around the footprint (Figure 5.50-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs). The nature and extent of contamination to the southwest will be characterized by proposed sampling location 29b2-1 for SWMU 16-029(b2).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.50-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.51 Consolidated Unit 16-029(c2)-99

Consolidated Unit 16-029(c2)-99 consists of a former septic system [SWMU 16-005(e)], former HE steam-cleaning building 16-36 [AOC 16-015(c)], an area of potential soil contamination associated with former HE testing building 16-37 [SWMU 16-025(z)], and three former sumps and an outfall [SWMU 16-029(c2)] that served former building 16-37 (Figure 5.51-1).

5.51.1 SWMU 16-005(e)—Former Septic System

SWMU 16-005(e) is a former septic system located at TA-16 approximately 70 ft northwest of former explosives testing building 16-37 (Figure 5.51-1). The septic system served the lavatories and darkrooms in building 16-37 and consisted of a 7 ft long x 3.5 ft wide x 5 ft deep reinforced concrete septic tank (structure 16-179) and a drain field. A 6-in.-diameter VCP drainline exited building 16-37 on the northwest corner and connected to the septic tank inlet (LANL 1994, 039440, pp. 5-387–5-388). The septic tank drainline discharged west to a drain field (LASL 1948, 109945). The septic tank was installed in 1948 and was removed at an unknown date.

5.51.1.1 Summary of Previous Investigations for SWMU 16-005(e)

No previous investigation has been conducted at this site.

5.51.1.2 Summary of Data for SWMU 16-005(e)

No decision-level data are available at this site.

5.51.1.3 Scope of Activities for SWMU 16-005(e)

Thirty-three surface and subsurface samples will be collected from 10 locations beneath the former drainline and septic tank, at the discharge points, and in the drain field (Figure 5.51-2).

Three sampling locations will be situated at the former drainline where samples will be collected from two depths (4–5 ft and 9–10 ft bgs). Additionally, a surface sample (0–1 ft bgs) will be collected at proposed sampling location 5e-1 to characterize the nature and extent of contamination to the north side of the building footprint [SWMU 16-025(z)].

One sampling location will be situated at the former tank where samples will be collected from three depths (4–5 ft, 9–10 ft, and 14–15 ft bgs).

Three sampling locations will be situated at the three discharge points of the outlet pipes. Three sampling locations in one row will be situated approximately 30 ft downgradient in the drain field. Samples from these locations will be collected from four depths (0–1 ft, 4–5 ft, 9–10 ft, and 14–15 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.51-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.51.2 AOC 16-015(c)—Former Building 16-36

AOC 16-015(c) is a former HE steam-cleaning building 16-36 located at TA-16 approximately 10 ft southeast of former building 16-37 (Figure 5.51-1). Building 16-36 was an 8 ft long × 8 ft wide × 10 ft high wood-frame structure with a concrete foundation. Effluent from the building drained to a sump located on the southeast corner of building 16-37 [SWMU 16-029(c2)]. The steam-cleaning building was constructed in 1944 and was destroyed by intentional burning in 1960 (LANL 1994, 039440, p. 5-388).

5.51.2.1 Summary of Previous Investigations for AOC 16-015(c)

An RFI was conducted at AOC 16-015(c) in 1997. Field screening was conducted to select samples for laboratory analyses. Two samples from two locations were submitted for laboratory analyses of metals, HE, and SVOCs.

5.51.2.2 Summary of Data for AOC 16-015(c)

The samples collected, analyses requested, and decision-level analytical data from the 1997 RFI are presented in Tables 5.51-2 to 5.51-4. The samples were collected from depth intervals ranging from 0–1 ft bgs. The results of the analyses of samples collected during the 1997 RFI are as follows.

- Copper, lead, and zinc were detected above BVs (Figure 5.51-3).
- Benzoic acid and research department explosive (RDX), or hexahydro-1,3,5-trinitro-1,3,5-triazocyclohexane, were detected (Figure 5.51-4).

5.51.2.3 Scope of Activities for AOC 16-015(c)

Eight surface and subsurface samples will be collected from four locations—one within the footprint and three around the footprint (Figure 5.51-2). The nature and extent of contamination to the north will be characterized by sampling at SWMU 16-029(c2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.51-5 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.51.3 SWMU 16-025(z)—Potential Soil Contamination Associated with Former HE Testing Building 16-37

SWMU 16-025(z) is an area of potential soil contamination at TA-16 associated with former HE testing building 16-37 (Figure 5.51-1). Building 16-37 was located approximately 40 ft north of Bunker Road. The building was a 75 × 20 × 13 ft wood-frame structure with concrete floors. Building 16-37 was constructed in 1944 and destroyed by intentional burning in 1960 (LANL 1994, 039440, pp. 5-391–5-392).

5.51.3.1 Summary of Previous Investigations for SWMU 16-025(z)

No previous investigation has been conducted at this site.

5.51.3.2 Summary of Data for SWMU 16-025(z)

No decision-level data are available at this site.

5.51.3.3 Scope of Activities for SWMU 16-025(z)

Eight surface and subsurface samples will be collected from four locations—two within the footprint and two around the footprint (Figure 5.51-2). The nature and extent of contamination to the north and to the east will be characterized by sampling at SWMU 16-005(e) and SWMU 16-029(c2), respectively. Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.51-6 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.51.4 SWMU 16-029(c2)—Sumps (former) and Outfall

SWMU 16-029(c2) consists of three former sumps and an outfall that served former building 16-37 at TA-16 (Figure 5.51-1). Two of the sumps, located on the exterior east side of building 16-37, discharged through a drainline east to a secondary sump. The drainline from the secondary sump discharged to an outfall located approximately 250 ft southeast of building 16-37 (LASL 1959, 024187). Building 16-37 was constructed in 1944 and destroyed by intentional burning in 1960. The sumps were removed from 1966 to 1968 with demolition of building foundations and drainlines, documented by site photos (LANL 1996, 055016). The sumps are visible in a 1965 aerial photograph (LASL 1965, 016396), but are no longer visible in a 1977 photograph (LASL 1977, 017770).

5.51.4.1 Summary of Previous Investigations for SWMU 16-029(c2)

No previous investigation has been conducted at this site.

5.51.4.2 Summary of Data for SWMU 16-029(c2)

No decision-level data are available at this site.

5.51.4.3 Scope of Activities for SWMU 16-029(c2)

Thirty-five surface and subsurface samples will be collected from 16 locations beneath the former sumps and drainlines, at the outfall, and in the drainage (Figure 5.51-2).

One sampling location will be situated at each of the three former sumps where samples will be collected from three depths (4–5 ft, 9–10 ft, and 14–15 ft bgs). Additionally, one surface sample (0–1 ft bgs) each will be collected at proposed sampling locations 29c2-1 and 29c2-2 to characterize the nature and extent of contamination to the east of building footprint 16-37 [SWMU 16-025(z)] and to the north of building footprint 16-36 [AOC 16-015(c)].

Five sampling locations will be situated along the former drainline. Samples from these locations will be collected from two depths (4–5 ft and 9–10 ft bgs).

Four sampling locations will be situated at the outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. Four sampling locations will be situated in the drainage. The farthest downgradient drainage location is before the Pressing Road drainage. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.51-7 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.52 Consolidated Unit 16-029(e)-99

Consolidated unit 16-029(e)-99 consists of four outfalls [SWMU 16-026(h2)] and an HE sump and outfall [SWMU 16-029(e)] associated with assembly building 16-360 (Figure 5.52-1).

5.52.1 SWMU 16-026(h2)—Outfalls

SWMU 16-026(h2) consists of four outfalls at TA-16 that served HE equipment assembly building 16-360 (Figure 5.52-1). The western outfall received discharge from a steam pit drain. The southern outfall received condensate from three floor drains. The remaining two outfalls are located to the east of the building and discharge stormwater from roof drains. In the 1990s, the steam pit drain and floor drains were rerouted to the sanitary sewer system (Santa Fe Engineering Ltd. 1992, 020973).

5.52.1.1 Summary of Previous Investigations for SWMU 16-026(h2)

No previous investigation has been conducted at this site.

5.52.1.2 Summary of Data for SWMU 16-026(h2)

No decision-level data are available at this site.

5.52.1.3 Scope of Activities for SWMU 16-026(h2)

Sixty-three samples will be collected from 31 locations at the outfalls and in the drainage (Figure 5.52-2).

One location each will be situated at the western and southern outfalls. One location will be situated approximately 10 ft downgradient of the western outfall. Both outfalls drained through a storm drain to a relatively flat area. Four locations will be situated at the storm drain outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the storm drain outfall. Additional three locations in one row will be approximately 20 ft further downgradient. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

Four locations each will be situated at the two outfalls on the east side of the building—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. The outfalls eventually drain to a discernable drainage. Thirteen locations will be situated in the drainage. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs), except at proposed sampling location 26h2-24. Samples at location 26h2-24 will be collected from three depths (0–1 ft, 4–5 ft, and 8–9 ft bgs) because adjacent existing location 16-01667 was previously sampled to 4.5 ft bgs.

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.52-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

Reach WANE-1 is located downgradient of the drainage of SWMU 16-026(h2) (Plate 1). There are no sampling sites between the farthest downgradient location in the sampled drainage before WANE-1. The approved South Canyons IWP (LANL 2006, 093713; NMED 2007, 095490) addresses the sampling in this reach (LANL 2006, 093713, pp. 14–15 and 47–48). The investigation report for Water Canyon and Cañon de Valle is due August 31, 2011, pursuant to the Consent Order.

5.52.2 SWMU 16-029(e)—Sump and Outfall

SWMU 16-029(e) consists of an HE sump and formerly NPDES-permitted outfall (05A159) at TA-16 that served HE equipment assembly building 16-360 (Figure 5.52-1). The sump is a 12 × 4 × 5 ft reinforced concrete structure located on the exterior southeast side of the building. The sump received wash water from historical cleaning activities (LANL 1993, 020948, p. 5-32) and discharged southeast to the outfall through a 6-in.-diameter drainline. In the 1990s, the sump outlet was plugged (Santa Fe Engineering Ltd. 1992, 020973). The outfall was removed from the NPDES permit effective August 16, 1995 (EPA 1995, 109574).

5.52.2.1 Summary of Previous Investigations for SWMU 16-029(e)

An RFI was conducted at SWMU 16-029(e) in 1995. Eleven samples collected from seven locations were submitted for laboratory analyses of metals, total cyanide, HE, SVOCs, and VOCs; however, not all samples were analyzed for all suites.

BMPs were installed at SWMU 16-029(e) in June 2000 as part of the post-Cerro Grande fire recovery. Permanent seeding, mulching, and straw wattles were installed as BMPs (LANL 2001, 070305, p. 10).

5.52.2.2 Summary of Data for SWMU 16-029(e)

The samples collected, analyses requested, and decision-level analytical data from the 1995 RFI are presented in Tables 5.52-2 to 5.52-4. The samples were collected from depth intervals ranging from 0–9.5 ft bgs. The results of the analyses of samples collected during the 1995 RFI are as follows

- Aluminum, arsenic, barium, cadmium, calcium, chromium, copper, iron, lead, magnesium, nickel, and zinc were detected above BVs (Figure 5.52-3).
- Explosives compounds, PAHs, other SVOCs, and VOCs were detected (Figure 5.52-4).

5.52.2.3 Scope of Activities for SWMU 16-029(e)

Twelve samples will be collected from five locations at the outfall and in the drainage (Figure 5.52-2).

The outfall drained to a discernable drainage. One location will be situated at the outfall and samples will be collected from four depths (0–1 ft, 4–5 ft, 8–9 ft, and 12–13 ft bgs) because adjacent existing location 16-01598 was previously sampled to 9.5 ft bgs.

Four sampling locations will be situated in the drainage and samples will be collected from two depths (0–1 ft and 2–3 ft bgs). Drainage further downgradient will be characterized by sampling at SWMU 16-026(h2).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.52-5 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

Because building 16-360 is an active facility, characterization of the sump and its associated drainline will be delayed until the building is deactivated.

5.53 Consolidated Unit 16-029(g)-99

Consolidated Unit 16-029(g)-99 consists of an area of potential soil contamination associated with materials testing facility building 16-450 [SWMU 16-021(a)], an outfall [SWMU 16-028(e)], and former sumps and an outfall [SWMU 16-029(g)] (Figure 5.53-1). Building 16-450 was constructed in 1953 and commissioned to house electroplating operations. However, the building was redesigned before construction and instead operated as a materials-testing laboratory. Currently, building 16-450 is part of the Laboratory’s Weapons Engineering Tritium Facility.

5.53.1 SWMU 16-021(a)—Plating Operation in Building 16-450

SWMU 16-021(a) is identified in the 1990 SWMU Report as an operational release of liquids- from plating operations at building 16-450 at TA-16 to an outfall (LANL 1990, 007512, p. 16-021) (Figure 5.53-1). Spent liquids were believed to have been discharged to a drainage east of the building. However, archival research demonstrates that electroplating operations were never conducted at this building. Originally, in 1950, the building was intended to house electroplating operations. However, in 1951 the design criteria for the building were revised and the building was reassigned to function as a materials testing laboratory. From the time of its construction, building 16-450 has always functioned as a materials testing laboratory and has never been used for electroplating operations (Griffin 1992, 109748; LANL 1993, 020948, pp. 5-111–5-112). Therefore, such a release could not have occurred.

In 1995, the investigation field team mistakenly identified SWMU 16-021(a) as the outfall that received effluent from floor drains of building 16-450 and the RFI was conducted at the outfall.

5.53.1.1 Summary of Previous Investigations for SWMU 16-021(a)

An RFI was conducted at SWMU 16-021(a) in 1995. The purpose of the RFI was to confirm the location of the outfall and to determine if a release had occurred from the drainline. However, the RFI investigated the outfall that received effluent from floor drains of building 16-450 rather than the operational release from the plating operation. The location of the outfall was confirmed by the presence of broken pieces of VCP. Two sampling locations were selected near the outfall: one at the mouth of the outfall and one 5 ft downgradient of the outfall. A total of five samples were collected. All samples were field-screened for organic vapors and submitted for laboratory analyses of metals, total cyanide, SVOCs, and VOCs (LANL 1997, 062539, pp. 70–76).

Additional investigation is required to define the nature and extent of contamination for the floor drain outfall.

5.53.1.2 Summary of Data for SWMU 16-021(a)

The samples collected, analyses requested, and decision-level analytical data from the 1995 RFI are presented in Tables 5.53-1 to 5.53-3. The samples were collected from depth intervals ranging from 0.75–5.5 ft bgs. The results of the analyses of samples collected during the 1995 RFI are as follows (LANL 1997, 062539, pp. 70–76):

- Copper, mercury, and zinc were detected above BVs (Figure 5.53-2).
- Benzoic acid and VOCs were detected (Figure 5.53-3).

5.53.1.3 Scope of Activities for SWMU 16-021(a)

Eleven surface and subsurface samples will be collected from five locations at the outfall and in the drainage (Figure 5.53-4).

Four sampling locations will be situated at the outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. Samples at the discharge point will be collected from three depths (0–1 ft, 4–5 ft, and 8–9 ft bgs) because nearby existing location 16-01526 was previously sampled to 5.5 ft bgs. At the other three outfall locations, samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

One sampling location will be approximately 30 ft to the east of the outfall, situated in the discernable drainage that converges with the drainage of SWMU 16-028(e). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs). The drainage farther downgradient will be characterized by sampling at SWMU 16-028(e).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, tritium, moisture, and pH. Samples will be analyzed for tritium because the site is near the tritium-processing building (building 16-205). Table 5.53-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

Because building 16-450 is an active facility, characterization of the drainline will be delayed until the building is deactivated.

5.53.2 SWMU 16-028(e)—Outfall

SWMU 16-028(e) is a formerly NPDES-permitted outfall (04A091) that served materials testing laboratory building 16-450 at TA-16 (Figure 5.53-1).The outfall was located southeast of building 16-450 and received discharges through a drainline from an HE sump [SWMU 16-029(g)]. The outfall discharged outside the security fence at the edge of Water Canyon. The sump was removed in 1997 (LANL 1997, 055837) and the outfall drainline was plugged, but left in place. The outfall was removed from the NPDES permit effective September 19, 1997 (EPA 1997, 109528).

5.53.2.1 Summary of Previous Investigations for SWMU 16-028(e)

An RFI was conducted at SWMU 16-028(e) in 1995. Eleven samples collected from seven locations were submitted for laboratory analyses of metals, total cyanide, HE, SVOCs, and VOCs; however, not all samples were analyzed for all suites.

5.53.2.2 Summary of Data for SWMU 16-028(e)

The samples collected, analyses requested, and decision-level analytical data from the 1995 RFI are presented in Tables 5.53-5 to 5.53-7. The samples were collected from depth intervals ranging from 0–3.25 ft bgs. The results of the analyses of samples collected during the 1995 RFI are as follows.

- Aluminum, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, mercury, nickel, uranium, and vanadium were detected above BVs (Figure 5.53-2).
- Explosives compounds, PAHs, other SVOCs, and VOCs were detected (Figure 5.53-3).

5.53.2.3 Scope of Activities for SWMU 16-028(e)

Thirty-nine surface and subsurface samples will be collected from 19 locations at the outfall and in the drainage (Figure 5.53-4).

Four sampling locations will be situated at the outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. Samples at the discharge point will be collected from three depths (0–1 ft, 4–5 ft, and 8–9 ft bgs) because nearby existing location 16-01519 was previously sampled to 3.25 ft bgs. At the other three outfall locations, samples will be collected from two depths (0–1 ft and 4–5 bgs) because nearby existing location 16-01661 was previously sampled to 3 ft bgs.

Fifteen sampling locations will be situated in the drainage and the location farthest downgradient will be situated near the edge of the main Water Canyon channel. Drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, tritium, moisture, and pH. Samples will be analyzed for tritium because the site is near the tritium-processing facility (building 16-205). Table 5.53-8 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.53.3 SWMU 16-029(g)—Former Sump

SWMU 16-029(g) consists of a former HE sump located at TA-16 on the exterior southeast side of materials testing laboratory building 16-450 (Figure 5.53-1). The sump received wash water from floor trenches and drains within 16-450 and discharged to an outfall [SWMU 16-028(e)]. The sump was removed in 1997 (LANL 1997, 055837).

5.53.3.1 Summary of Previous Investigations for SWMU 16-029(g)

An interim measure was performed at SWMU 16-029(g) in 1997. The sump was removed and confirmation sampling (excavated samples and not decision-level data) was conducted around and below the sump in association with construction at building 16-450 (LANL 1997, 055837).

BMPs were installed at SWMU 16-029(g) in 2000 as part of the post-Cerro Grande fire recovery. The site was seeded, mulched, and straw wattles were installed (LANL 2001, 070305, p. 10).

5.53.3.2 Summary of Data for SWMU 16-029(g)

Sample results are the same as those at AOC 16-028(e), presented in section 5.53.2.2.

5.53.3.3 Scope of Activities for SWMU 16-029(g)

Because building 16-450 is active, characterization of the sump and its associated drainline will be delayed until the building is deactivated. The outfall and the drainage will be characterized by sampling at SWMU 16-028(e).

5.54 Consolidated Unit 16-029(v)-99

Consolidated Unit 16-029(v)-99 consists of the following seven SWMUs and AOCs (Plate 7):

- AOC 16-015(d), former steam-cleaning building 16-51;
- SWMU 16-025(a2), an area of potential soil contamination associated with former HE casting building 16-50;
- SWMU 16-025(b2), an area if potential soil contamination associated with former HE casting building 16-52;
- SWMU 16-029(d2), two sumps and an outfall that served former building 16-50;
- SWMU 16-029(e2), three sumps and an outfall that served former building 16-52;
- SWMU 16-029(v), a sump and outfall that served former building 16-49; and
- SWMU 16-034(o), an area of potential soil contamination associated with former laboratory building 16-49.

These SWMUs/AOCs are associated with past HE casting operations at former buildings 16-49, 16-50, 16-51, and 16-52.

5.54.1 AOC 16-015(d)—Former Steam-Cleaning Building 16-51

AOC 16-015(d) is former HE steam-cleaning building 16-51 located at TA-16, approximately 25 ft east of former building 16-50 (Plate 7). The steam cleaning building was a 7 x 7 ft wood-frame structure on a concrete foundation. The building was constructed in 1944 and destroyed by intentional burning in 1960 (LANL 1994, 039440, p. 5-388).

5.54.1.1 Summary of Previous Investigations for AOC 16-015(d)

An RFI was conducted at AOC 16-015(d) in 1997. Field screening was conducted to select samples for laboratory analyses. Two samples from two locations were submitted for laboratory analyses of metals, HE, and SVOCs.

5.54.1.2 Summary of Data for AOC 16-015(d)

The samples collected, analyses requested, and decision-level analytical data from the 1997 RFI are presented in Tables 5.54-1 to 5.54-3. The samples were collected from depth intervals of 0–1 ft bgs. The results of the analyses of samples collected during the 1997 RFI are as follows.

- Barium, copper, and silver were detected above BVs (Plate 8).
- PAHs and phenol were detected (Plate 9).
- Explosives compounds were not detected.

5.54.1.3 Scope of Activities for AOC 16-015(d)

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Plate 10). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.54-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.54.2 SWMU 16-025(a2)—Potential Soil Contamination Associated with Former HE Casting Building 16-50

SWMU 16-025(a2) is an area of potential soil contamination at TA-16 associated with former HE casting building 16-50 (Plate 7). Building 16-50, located approximately 40 ft southeast of former building 16-49, was a wood-frame structure consisting of two rooms, each 21 × 13 × 9 ft with a concrete floor and earthen berms on the west, north, and south sides. The rooms were also separated by an earthen berm. Building 16-50 was constructed in 1944 and destroyed by intentional burning in 1960 (LANL 1994, 039440, pp. 5-392–5-393).

5.54.2.1 Summary of Previous Investigations for SWMU 16-025(a2)

An RFI was conducted at SWMU 16-025(a2) in 1997. Field screening was conducted to select samples for laboratory analyses. Two samples from two locations were submitted for laboratory analyses of metals, HE, and SVOCs.

5.54.2.2 Summary of Data for SWMU 16-025(a2)

The samples collected, analyses requested, and decision-level analytical data from the 1997 RFI are presented in Tables 5.54-5 to 5.54-7. The samples were collected from depth intervals of 0–1 ft bgs. The results of the analyses of samples collected during the 1997 RFI are as follows.

- Antimony and silver were detected above BVs (Plate 8).
- High-melting explosive (HMX), or octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine, RDX, and 2-methylnaphthalene were detected (Plate 9).

5.54.2.3 Scope of Activities for SWMU 16-025(a2)

Twelve surface and subsurface samples will be collected from six locations—two within the footprint and four around the footprint, except to the southeast (Plate 10). The nature and extent of contamination to the southeast of the building footprint will be characterized by sampling at SWMU 16-029(d2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.54-8 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.54.3 SWMU 16-025(b2)—Potential Soil Contamination Associated with Former HE Casting Building 16-52

SWMU 16-025(b2) is an area of potential soil contamination at TA-16 associated with former HE casting building 16-52 (Plate 7). Building 16-52, located 60 ft south of former building 16-49, was a wood-frame structure with a concrete floor and had three sections that measured 15 × 15 × 9 ft, 15 × 11 × 9 ft, and 23 ×15 × 9 ft. The southern portion of the building was separated from the rest of the structure by an earthen berm. The entire building had earthen berms and reinforced concrete dividers on the west, north, and south sides. Building 16-52 was constructed in 1944 and destroyed by intentional burning in 1960 (LANL 1994, 039440, p. 5-393).

5.54.3.1 Summary of Previous Investigations for SWMU 16-025(b2)

An RFI was conducted at SWMU 16-025(b2) in 1997. Twelve soil screening samples were collected from six locations in and adjacent to the building footprint. Samples were field-screened for HE and radioactivity. All samples showed background radioactivity. HE was detected in three field-screened samples. Two samples from two locations were submitted for laboratory analyses of metals, HE, and SVOCs (LANL 1997, 056660.289, pp. 104–112).

5.54.3.2 Summary of Data for SWMU 16-025(b2)

The samples collected, analyses requested, and decision-level analytical data from the 1997 RFI are presented in Tables 5.54-9 to 5.54-11. The samples were collected from depth intervals of 0–1 ft bgs. The results of the analyses of samples collected during the 1997 RFI are as follows (LANL 1997, 056660.289, pp. 104–112).

- Lead, mercury, silver, and zinc were detected above BVs (Plate 8).
- PAHs and chlorophenol[2-] were detected (Plate 9).
- Explosives compounds were not detected.

5.54.3.3 Scope of Activities for SWMU 16-025(b2)

Ten surface and subsurface samples will be collected from five locations—two within the footprint and three around the footprint, except to the southeast (Plate 10). The nature and extent of contamination to the southeast of the building footprint will be characterized by sampling at SWMU 16-029(e2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.54-12 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.54.4 SWMU 16-029(d2)—Sumps (former) and Outfalls

SWMU 16-029(d2) consists of two former sumps and their associated outfalls that served former experimental casting building 16-50 at TA-16 (Plate 7). The drainlines to the sumps consisted of 4-in. cast-iron pipe that exited the southeast side of the building (LASL 1959, 024192). The sumps, located approximately 75 ft southeast of the building, drained to discharge points southeast of the sumps. Building 16-50 was routinely cleaned using high-pressure steam cleaning and wash water was discharged to the sumps. The sumps were used from 1944 to 1960 (LANL 1994, 039440, pp. 5-392–5-393). The sumps were removed from 1966 to 1968 with demolition of building foundations and drainlines, documented by site photos (LANL 1996, 055016). The sumps are visible in a 1965 aerial photograph (LASL 1965, 016396) and are no longer visible in a 1977 aerial photograph (LASL 1977, 017770).

5.54.4.1 Summary of Previous Investigations for SWMU 16-029(d2)

No previous investigation has been conducted at this site.

5.54.4.2 Summary of Data for SWMU 16-029(d2)

No decision-level data are available at this site.

5.54.4.3 Scope of Activities for SWMU 16-029(d2)

Twenty-two surface and subsurface samples will be collected from 10 locations beneath the former sumps and drainlines, at the outfalls, and in the drainage (Plate 10).

One sampling location will be situated at each of the two former sumps where samples will be collected from three depths (4–5 ft, 9–10 ft, and 14–15 ft bgs).

Three sampling locations per drainline—a total of six locations—will be situated approximately 50 ft apart along the former drainlines. Samples from these locations will be collected from two depths (4–5 ft and 9–10 ft bgs).

The drainlines discharged into the main drainage of TA-16. One sampling location will be situated at each of the two estimated discharge points. Outfall samples will be collected from two depths (0–1 ft and 2–3 ft bgs). Drainage further downgradient will be characterized by sampling at SWMU 16-029(v) and SWMU 16-029(e2).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH.

Table 5.54-13 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.54.5 SWMU 16-029(e2)—Sumps (former) and Outfalls

SWMU 16-029(e2) consists of three former sumps and outfalls at TA-16 that served former HE processing building 16-52 (Plate 7). Drainlines associated with the sumps discharged to outfalls located southeast of the sumps. The exact discharge points are not known. The sumps were used from 1944 to 1960 (LANL 1994, 039440, p. 5-393). The date that the sumps and drainlines were removed is not known. However, the sumps are visible in a 1965 aerial photograph (LASL 1965, 016396) and are no longer visible in a 1977 aerial photograph (LASL 1977, 017770).

5.54.5.1 Summary of Previous Investigations for SWMU 16-029(e2)

No previous investigation has been conducted at this site.

5.54.5.2 Summary of Data for SWMU 16-029(e2)

No decision-level data are available at this site.

5.54.5.3 Scope of Activities for SWMU 16-029(e2)

Forty-seven surface and subsurface samples will be collected from 22 locations beneath the former sumps and drainlines, at the outfalls, and in the drainage (Plate 10).

One sampling location will be situated at each of the three former sumps where samples will be collected from three depths (4–5 ft, 9–10 ft, and 14–15 ft bgs).

A total of 11 sampling locations will be situated approximately 50 ft apart along the three former drainlines. Samples from these locations will be collected from two depths (4–5 ft and 9–10 ft bgs).

The drainlines discharged into the main drainage of TA-16 that historically ran beneath HE Road and drained into Water Canyon. One sampling location will be situated at each of the three estimated discharge points. Two sampling locations will be situated in the drainage north of HE Road, and three locations will be situated in the drainage south of HE Road. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.54-14 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

Reach WAN-1 is located downgradient of the drainage to the south of HE Road (Plate 1). There are no sampling sites between the farthest downgradient location in the sampled drainage before WAN-1. The approved South Canyons IWP (LANL 2006, 093713; NMED 2007, 095490) addresses the sampling in this reach (LANL 2006, 093713, pp. 14–15 and 47–48). The investigation report for Water Canyon and Cañon de Valle is due August 31, 2011, pursuant to the Consent Order.

5.54.6 SWMU 16-029(v)—Sump (former) and Outfall

SWMU 16-029(v) is a former sump and outfall at TA-16 approximately 120 ft southeast of former building 16-49 (Plate 7). Lead-lined floor troughs within the building drained to a 4-in.-diameter cast-iron pipe that discharged to the sump. The sump discharged to an outfall located southeast of the building. The sump was used from approximately 1944 to 1960 (LANL 1994, 039440, pp. 5-394–5-395). The sumps were removed from 1966 to 1968 with demolition of building foundations and drainlines, documented by site photos (LANL 1996, 055016). The sumps are visible in a 1965 aerial photograph (LASL 1965, 016396) and are no longer visible in a 1977 aerial photograph (LASL 1977, 017770).

5.54.6.1 Summary of Previous Investigations for SWMU 16-029(v)

No previous investigation has been conducted at this site.

5.54.6.2 Summary of Data for SWMU 16-029(v)

No decision-level data are available at this site.

5.54.6.3 Scope of Activities for SWMU 16-029(v)

Fifteen surface and subsurface samples will be collected from seven locations beneath the former sump and drainline, at the outfall, and in the drainage (Plate 10).

One sampling location will be situated at the former sump where samples will be collected from three depths (4–5 ft, 9–10 ft, and 14–15 ft bgs).

Four sampling locations will be situated approximately 50 ft apart along the former drainline. Samples from these locations will be collected from two depths (4–5 ft and 9–10 ft bgs).

The drainline discharged into the main drainage of TA-16. One location will be situated at the estimated discharge point and one location will be situated in the drainage downgradient of the outfall. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs). Drainage further downgradient will be characterized by sampling at SWMU 16-029(e2).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.54-15 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.54.7 SWMU 16-034(o)—Potential Soil Contamination Associated with Former Laboratory 16-49

SWMU 16-034(o) is an area of potential soil contamination at TA-16 associated with former HE laboratory building 16-49 (Plate 7). The building was a wood-frame structure with a concrete floor. A wide range of chemicals were used in the laboratory. Building 16-49 was constructed in 1944 and destroyed by intentional burning in 1960 (LANL 1994, 039440, p. 5-394).

5.54.7.1 Summary of Previous Investigations for SWMU 16-034(o)

No previous investigation has been conducted at this site.

5.54.7.2 Summary of Data for SWMU 16-034(o)

No decision-level data are available at this site.

5.54.7.3 Scope of Activities for SWMU 16-034(o)

Fourteen surface and subsurface samples will be collected from seven locations—two within the footprint and five around the footprint (Plate 10). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.54-16 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.55 Consolidated Unit 16-029(y)-99

Consolidated Unit 16-029(y)-99 consists of an area of potential soil contamination associated with former HE casting building 16-38 [SWMU 16-025(t)] and the building's associated sumps [SWMU 16-029(y)] (Figure 5.55-1). Building 16-38 was an HE milling, machining, and casting facility.

5.55.1 SWMU 16-025(t)—Potential Soil Contamination Associated with Former HE Equipment Casting Building 16-38

SWMU 16-025(t) is an area of potential soil contamination at TA-16 associated with former HE casting building 16-38 (Figure 5.55-1). Building 16-38, located approximately 430 ft northeast of building 16-460, was a large rectangular building, divided into four sections with dimensions of 32 × 30 × 12 ft, 24 × 10 × 9 ft, 15 ×10 × 10 ft, and 15 × 10 × 12 ft. The building was a wood-frame structure with a concrete foundation and concrete floor. The building was constructed in 1944 and was destroyed by intentional burning in 1960 (LANL 1994, 039440, p. 4-12).

5.55.1.1 Summary of Previous Investigations for SWMU 16-025(t)

No previous investigation has been conducted at this site.

5.55.1.2 Summary of Data for SWMU 16-025(t)

No decision-level data are available at this site.

5.55.1.3 Scope of Activities for SWMU 16-025(t)

Eight surface and subsurface samples will be collected from four locations—one within the footprint and three around the footprint (Figure 5.55-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs). The nature and extent of contamination to the southwest will be characterized by proposed sampling location 29y-1 and 29y-2 for SWMU 16-029(y).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.55-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.55.2 SWMU 16-029(y)—Sumps (former) and Outfall

SWMU 16-029(y) consists of three former sumps and an outfall at TA-16 that served former HE equipment casting building 16-38 (Figure 5.55-1). Two of the sumps were located on the exterior southeast side of the building. Each of these sumps received effluent from its own drainline. The drainlines exited building 16-38 on its southwest side. The sumps discharged to a secondary sump located approximately 50 ft south of building 16-38. The secondary sump drainline discharged northwest of building 16-69. All three sumps were removed in 1966 (LANL 1994, 039440, pp. 5-389–5-390).

5.55.2.1 Summary of Previous Investigations for SWMU 16-029(y)

No previous investigation has been conducted at this site.

5.55.2.2 Summary of Data for SWMU 16-029(y)

No decision-level data are available at this site.

5.55.2.3 Scope of Activities for SWMU 16-029(y)

Thirty-six surface and subsurface samples will be collected from 15 locations beneath the former sump and drainlines, at the outfall, and in the drainage (Figure 5.55-2).

One location will be situated at each of the three former sumps. Samples at the two primary sumps will be collected from four depths (0–1 ft, 4–5 ft, 9–10 ft, and 14–15 ft bgs). Surface samples are collected to characterize the nature and extent of contamination to the southwest side of the building footprint [SWMU 16-025(t)]. Samples at the secondary sump will be collected from four depths (4–5 ft, 9–10 ft, 14–15 ft, 19-20 bgs) because the secondary sump was over 15 ft in depth (LANL 1994, 039440, p. 5-389).

Two sampling locations will be situated approximately 50 ft apart along the drainline where samples will be collected from two depths (4–5 ft and 9–10 ft bgs).

Four sampling locations will be situated at the outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. Six sampling locations will be situated in the drainage. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.55-2 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.56 Consolidated Unit 16-029(z)-99

Consolidated Unit 16-029(z)-99 consists of the following 14 SWMUs and AOCs (Plate 11).

- former septic system [SWMU 16-005(c)] that served former building 16-41,
- former incinerator [AOC 16-011],
- former incinerator [AOC 16-023(b)],

- potential soil contamination associated with former HE processing building 16-44 [SWMU 16-025(p)],
- potential soil contamination associated with former HE processing building 16-45 [SWMU 16-025(q)],
- potential soil contamination associated with former rest house 16-46 [SWMU 16-025(r)],
- potential soil contamination associated with former radium source building 16-48 [SWMU 16-025(s)],
- potential soil contamination associated with former HE processing building 16-42 [SWMU 16-025(u)],
- potential soil contamination associated with former HE processing building 16-81 [SWMU 16-025(v)],
- outfall [SWMU 16-026(w)] from former building 16-45,
- former sumps [SWMU 16-029(z)] that served former buildings 16-42, 16-43, 16-44, and 16-45,
- former sumps and outfall [SWMU 16-032(a)] that served former buildings 16-42, 16-43, 16-44, and 16-45,
- potential soil contamination associated with former equipment and control building 16-47 [SWMU 16-034(l)], and
- potential soil contamination associated with former building 16-41 [SWMU 16-034(p)].

These facilities compose part of the 40s-Line in the south-central portion of TA-16. They were connected by enclosed walkways in a single line of buildings. These SWMUs/AOCs are associated with past operations at former buildings 16-42, 16-43, 16-44, and 16-45.

5.56.1 SWMU 16-005(c)—Former Septic System

SWMU 16-005(c) is a former septic system located at TA-16 southeast of former building 16-41 (Plate 11). The septic system served lavatories in building 16-41 and consisted of a septic tank (structure 16-176) and a drainline. The septic tank was constructed of reinforced concrete and measured 8 × 6 × 4 ft (LANL 1990, 007512). The drainline was a 4-in. cast-iron pipe that discharged on the southwest side of the septic tank. The exact location of the discharge point is not known. The RFI work plan stated that the septic tank discharged to a 4-in.-diameter VCP drainline leading to a drainfield (LANL 1994, 039440, pp. 5-313–5-314). However, archival research did not identify a drain field associated with the septic system. The septic system operated from approximately 1944 to the early 1950s (LANL 1994, 039440, pp. 5-313–5-314).

5.56.1.1 Summary of Previous Investigations for SWMU 16-005(c)

No previous investigation has been conducted at this site.

5.56.1.2 Summary of Data for SWMU 16-005(c)

No decision-level data are available at this site.

5.56.1.3 Scope of Activities for SWMU 16-005(c)

Forty-seven surface and subsurface samples will be collected from 14 locations beneath the former septic tank and drainline and at the leach field (Plate 12).

Two sampling locations will be situated beneath the former drainline where samples will be collected from two depths (4–5 ft and 9–10 ft bgs).

Two sampling locations will be situated at the tank inlet and outlet where samples will be collected from two depths (4–5 ft and 9–10 ft bgs). One location will be situated at the former tank where samples will be collected from three depths (4–5 ft, 9–10 ft, and 14–15 ft bgs).

Three sampling locations will be situated at the estimated discharge point. Six sampling locations in two rows approximately 15 ft apart will be situated in the possible location of the drain field. Samples from these locations will be collected from four depths (0–1 ft, 4–5 ft, 9–10 ft, and 14–15 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.56-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.56.2 AOC 16-011—Former Incinerator

AOC 16-011 is a former incinerator (structure 16-412) at TA-16 that was built on the concrete foundation above the basement of former building 16-41 (Plate 11). The incinerator measured 18 × 14.5 × 18 ft and was covered with a heavy mesh cage. It was used for burning paper and cloth that may have been contaminated with HE. The incinerator was built in 1962. The incinerator and its steel cage, as well as metal debris, ash, and soil, were removed in 1995 (LANL 1996, 054400).

5.56.2.1 Summary of Previous Investigations for AOC 16-011

A VCA was conducted at AOC 16-011 in 1995 and results were documented in the VCA completion report (LANL 1995, 049989, pp. 1–4). The purpose of the VCA was to dismantle and dispose of the metal incinerator cage and remaining ash and soil debris. Two composite samples were collected from five locations at cracks and holes in the floor. Samples were field-screened for HE and radioactivity. Neither sample showed any detects for HE or background radioactivity. Composite samples were analyzed for TAL metals, SVOCs, and VOCs. Results show that lead was detected above the RCRA land-disposal restriction limit for lead. Organic chemicals were not detected. Confirmation samples were not collected because all the soil, ash, and metal debris were removed from the basement foundation and the basement floor was intact (LANL 1995, 049989, p. 2).

5.56.2.2 Summary of Data for AOC 16-011

No decision-level data are available at this site.

5.56.2.3 Scope of Activities for AOC 16-011

During the 1995 VCA at AOC 16-011, the incinerator cage and debris were removed. The foundation on which the incinerator sat was also removed in the 1998 VCM at SWMU 16-034(p). The location of the former foundation is designated as SWMU 16-034(p) and encompasses the AOC 16-011 site. Therefore, the two sites are proposed to be investigated jointly. The scope of activities for AOC 16-011 is presented along with SWMU 16-034(p) in section 5.56.14.3.

5.56.3 AOC 16-023(b)—Former Incinerator

AOC 16-023(b) is a former incinerator (structure 16-403) at TA-16 located on the exterior west side of former building 16-43 (Plate 11). The incinerator measured 10 × 9 × 17 ft and was used to burn paper and cloth that may have been contaminated with HE. The incinerator was built in 1961 and was used for approximately 1 yr, at which time another incinerator (AOC 16-011) was built as its replacement. The incinerator was removed in 1966 or 1967 (LANL 1994, 039440, p. 5-354).

5.56.3.1 Summary of Previous Investigations for AOC 16-023(b)

No previous investigation has been conducted at this site.

5.56.3.2 Summary of Data for AOC 16-023(b)

No decision-level data are available at this site.

5.56.3.3 Scope of Activities for AOC 16-023(b)

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Plate 12). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, dioxins, furans, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH.
Table 5.56-2 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.56.4 SWMU 16-025(p)—Potential Soil Contamination Associated with Former HE Processing Building 16-44

SWMU 16-025(p) is an area of potential soil contamination at TA-16 associated with former HE processing building 16-44 (Plate 11). Building 16-44, located approximately 200 ft south of building 16-332, was a 60 × 20 ft wood-frame structure with a wood floor supported by pillars. Floor troughs within the building discharged HE-contaminated liquid wastes to sumps [SWMU 16-029(z)]. Building 16-44 was used to physically inspect completed charges and sift raw HE materials to remove metallic contaminants. The building operated from approximately 1944 to the early 1950s and was destroyed by intentional burning in 1960 (LANL 1994, 039440, pp. 5-320–5-322).

5.56.4.1 Summary of Previous Investigations for SWMU 16-025(p)

An RFI was conducted at 16-025(p) in 1997. Field screening was conducted to select samples for laboratory analyses. Four samples from three locations were submitted for laboratory analyses of metals, HE, and SVOCs.

5.56.4.2 Summary of Data for SWMU 16-025(p)

The samples collected, analyses requested, and decision-level analytical data from the 1997 RFI are presented in Tables 5.56-3 to 5.56-5. The samples were collected from depth intervals ranging from 0–2 ft bgs. The results of the analyses of samples collected during the 1997 RFI are as follows.

- Copper, lead, and zinc were detected above BVs (Plate 13).
- PAHs were detected (Plate 14).
- Explosives compounds were not detected.

5.56.4.3 Scope of Activities for SWMU 16-025(p)

Twelve surface and subsurface samples will be collected from six locations—two within the footprint and four around the footprint (Plate 12). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs). The nature and extent of contamination to the southwest will be characterized by sampling the two former sumps of SWMU 16-029(z).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.56-6 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.56.5 SWMU 16-025(q)—Potential Soil Contamination Associated with Former HE Processing Building 16-45

SWMU 16-025(q) is an area of potential soil contamination at TA-16 associated with former HE processing building 16-45 (Plate 11). Building 16-45, located approximately 300 ft southeast of building 16-332, was a 60 × 20 ft wood-frame structure with a wood floor supported by pillars. Floor troughs within the building discharged HE-contaminated liquid wastes to sumps [SWMU 16-029(z)]. Building 16-45 was used for x-ray examination of HE lenses and it contained lead shielding and a darkroom. The darkroom had two sinks and one floor drain. Building 16-45 operated from approximately 1944 to the early 1950s and was destroyed by intentional burning in 1960 (LANL 1994, 039440, pp. 5-320–5-322).

5.56.5.1 Summary of Previous Investigations for SWMU 16-025(q)

An RFI was conducted at 16-025(q) in 1997. Field screening was conducted to select samples for laboratory analyses. Three samples from three locations were submitted for laboratory analyses of metals, total cyanide, HE, and SVOCs; however, not all samples were analyzed for all suites.

5.56.5.2 Summary of Data for SWMU 16-025(q)

The samples collected, analyses requested, and decision-level analytical data from the 1997 RFI are presented in Tables 5.56-7 to 5.56-9. The samples were collected from depth intervals ranging from 0–1 ft bgs. The results of the analyses of samples collected during the 1997 RFI are as follows.

- Copper, lead, silver, and zinc were detected above BVs (Plate 13).
- PAHs were detected (Plate 14).
- Explosives compounds were not detected.

5.56.5.3 Scope of Activities for SWMU 16-025(q)

Twelve surface and subsurface samples will be collected from six locations—two within the footprint and four around the footprint (Plate 12). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs). Additionally, a third depth (9–10 ft bgs) will be sampled at proposed sampling location 25q-4 to characterize the drainline of SWMU 16-026(w). The nature and extent of contamination to the southwest will be characterized by sampling the two former sumps of SWMU 16-029(z).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.56-10 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.56.6 SWMU 16-025(r)—Potential Soil Contamination Associated with Former Rest House 16-46

SWMU 16-025(r) is an area of potential soil contamination at TA-16 associated with a former rest house (building 16-46) (Plate 11). Building 16-46, located approximately 200 ft southeast of building 16-332, was a 60 × 20 ft wood-frame structure with a wood floor supported by pillars. Floor troughs within the building discharged HE-contaminated liquid wastes to two sumps located on the exterior southwest side of the building. Building 16-46 was used to temporarily store HE products awaiting radiography in building 16-45. The rest house operated from 1944 to the early 1950s and was destroyed by intentional burning in 1960 (LANL 1994, 039440, pp. 5-320–5-322).

5.56.6.1 Summary of Previous Investigations for SWMU 16-025(r)

No previous investigation has been conducted at this site.

5.56.6.2 Summary of Data for SWMU 16-025(r)

No decision-level data are available at this site.

5.56.6.3 Scope of Activities for SWMU 16-025(r)

No record for the locations of the sumps could be found. Fourteen surface and subsurface samples will be collected from six locations—one within the footprint and five around the footprint (Plate 12). Two locations will be situated on the southwest side of the building footprint where the sumps could be located. Samples from these two locations will be collected from three depths (0–1 ft, 4–5 ft, and 12–13 ft) because each sump was 10 ft in depth (LANL 1994, 039440, p. 5-306). Samples from the other four locations will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.56-11 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.56.7 SWMU 16-025(s)—Potential Soil Contamination Associated with Former Radium Source Building 16-48

SWMU 16-025(s) is an area of potential soil contamination at TA-16 associated with former radium source building 16-48 (Plate 11). Building 16-48, located approximately 370 ft south of building 16-332, was a 20 × 20 ×14 ft wood-frame structure with a concrete floor. A radium source pit was contained in the floor. Building 16-48 operated from approximately 1944 to the early 1950s and was destroyed by intentional burning in 1960 (LANL 1994, 039440, p. 5-359).

5.56.7.1 Summary of Previous Investigations for SWMU 16-025(s)

An RFI was conducted at 16-025(s) in 1997. Field screening was conducted to select samples for laboratory analyses. One sample was submitted for laboratory analyses of metals, HE, SVOCs, gamma-emitting radionuclides, isotopic radium, and strontium-90.

5.56.7.2 Summary of Data for SWMU 16-025(s)

The sample collected, analyses requested, and decision-level analytical data from the 1997 RFI are presented in Tables 5.56-12 and 5.56-13. The samples were collected from a depth interval of 0–1 ft bgs. The results of the analyses of the sample collected during the 1997 RFI are as follows.

- Cobalt and uranium were detected above BVs (Plate 13).
- Explosives compounds and SVOCs were not detected.
- No radionuclides were detected or detected above BVs/FVs.

5.56.7.3 Scope of Activities for SWMU 16-025(s)

Ten surface and subsurface samples will be collected from five locations—one within the footprint and four around the footprint (Plate 12). Samples will be collected from three depths (0–1 ft, 4–5 ft, and 9–10 ft bgs). A third depth is sampled at this footprint because the radium source pit was contained in the floor.

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), gamma-emitting radionuclides, isotopic radium, isotopic uranium, strontium-90, and pH. Table 5.56-14 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.56.8 SWMU 16-025(u)—Potential Soil Contamination Associated with Former HE Processing Building 16-42

SWMU 16-25(u) is an area of potential soil contamination at TA-16 associated with former HE processing building 16-42 (Plate 11). Building 16-42, located approximately 120 ft southwest of building 16-332, was a 90 x 40 ft wood-frame structure with a concrete floor. Floor troughs within the building discharged HE-contaminated liquid wastes to sumps [SWMU 16-029(z)]. Building 16-42 also contained a partial basement for utility service. In 1949, a control room was added on the east side and a new HE casting kettle room was added on the west side. Building 16-42 operated from 1944 to the early 1950s and was destroyed by intentional burning in 1960 (LANL 1994, 039440, pp. 5-345–5-346).

5.56.8.1 Summary of Previous Investigations for SWMU 16-025(u)

No previous investigation has been conducted at this site.

5.56.8.2 Summary of Data for SWMU 16-025(u)

No decision-level data are available at this site.

5.56.8.3 Scope of Activities for SWMU 16-025(u)

Fourteen surface and subsurface samples will be collected from seven locations—three within the footprint and four around the footprint (Plate 12). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs). Sampling at the three former sumps of SWMU 16-029(z) will be also used to characterize the nature and extent of contamination around the building footprint.

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.56-15 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.56.9 SWMU 16-025(v)—Potential Soil Contamination Associated with Former HE Processing Building 16-43

SWMU 16-025(v) is an area of potential soil contamination at TA-16 associated with former HE processing building 16-43 (Plate 11). Building 16-43, located approximately 100 ft south of building 16-332, was a 20 x 60 x 14 ft structure with two additions that measured 5 x 20 ft and 5 x 16 ft. Building 16-43 was a wood-frame structure with a wood floor. The building had a cement partition in its north corner that was used as a blast shield for the building's machine tools. Floor troughs within the building discharged HE-contaminated liquid wastes to a sump [SWMU 16-029(z)]. Building 16-43 operated from 1944 to the early 1950s and was destroyed by intentional burning in 1960 (LANL 1994, 039440, p. 5-321).

5.56.9.1 Summary of Previous Investigations for SWMU 16-025(v)

No previous investigation has been conducted at this site.

5.56.9.2 Summary of Data for SWMU 16-025(v)

No decision-level data are available at this site.

5.56.9.3 Scope of Activities for SWMU 16-025(v)

Eight surface and subsurface samples will be collected from four locations—one within the footprint and three around the footprint (Plate 12). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs). Sampling at AOC 16-023(b) and at the one former sump of SWMU 16-029(z) will be also used to characterize the nature and extent of contamination around the building footprint.

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.56-16 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.56.10 SWMU 16-026(w)—Outfall

SWMU 16-026(w) is an outfall at TA-16 that served the darkroom in former building 16-45 (Plate 11). Engineering drawing ENG C-5645 shows a drainline from the darkroom exiting the building from its southeast side and shows that the drainline discharges to ground at a screened outfall (LASL 1953, 109943). However, the exact discharge point is not known. Building 16-45 operated from 1944 to the early 1950s and was destroyed by intentional burning in 1960 (LANL 1994, 039440, p. 5-347).

5.56.10.1 Summary of Previous Investigations for SWMU 16-026(w)

No previous investigation has been conducted at this site.

5.56.10.2 Summary of Data for SWMU 16-026(w)

No decision-level data are available at this site.

5.56.10.3 Scope of Activities for SWMU 16-026(w)

Six surface and subsurface samples will be collected from three locations at the outfall and in the drainage (Plate 12). The drainline will be characterized by proposed sampling location 25q-4 by sampling at SWMU 16-025(q).

One sampling location will be situated at the outfall and two locations will be situated in the drainage along V-Site Road. The drainage eventually discharged into the main drainage of TA-16. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosive compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.56-17 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.56.11 SWMU 16-029(z)—Sumps (former)

SWMU 16-029(z) consists of 11 former primary sumps at TA-16 that served former buildings 16-42, 16-43, 16-44, and 16-45 (Plate 11). Building 16-42 discharged to three primary sumps on the exterior northwest, southwest and southeast sides of the building, which discharged to a secondary sump. Building 16-43 discharged to a single primary sump on its exterior southwest side, which discharged to a secondary sump. Building 16-44 discharged to two primary sumps on its exterior southwest side, which discharged to a secondary sump. Building 16-45 discharged to two primary sumps on its exterior southwest side, which discharged to a secondary sump [SWMU 16-032(a)]. Each of the four secondary sumps at all four buildings discharged to a common drainline and outfall [SWMU 16-032(a)]. The sumps operated from approximately 1944 to the early 1950s (LANL 1994, 039440, p. 5-349). The sumps were removed from 1966 to 1968 with demolition of building foundations and drainlines, documented by site photos (LANL 1996, 055016). The sumps are visible in a 1965 aerial photograph (LASL 1965, 016396), but are no longer visible in a 1977 aerial photograph (LASL 1977, 017770).

5.56.11.1 Summary of Previous Investigations for SWMU 16-029(z)

No previous investigation has been conducted at this site.

5.56.11.2 Summary of Data for SWMU 16-029(z)

No decision-level data are available at this site.

5.56.11.3 Scope of Activities for SWMU 16-029(z)

Sixty-five surface and subsurface samples will be collected from 23 locations beneath the former sumps and drainlines (Plate 12).

One sampling location will be situated at each of the 11 former sumps. Eight former sumps were located next to former buildings. Samples from these locations (proposed sampling locations 29z-1, 29z-2, 29z-3, 29z-5, 29z-7, 29z-8, 29z-10, and 29z-11) will also be used to characterize the nature and extent of the building footprints and will be collected from four depths (0–1 ft, 4–5 ft, 9–10 ft, and 14–15 ft bgs). Samples from the locations at the other three former sumps will be collected from three depths (4–5 ft, 9–10 ft, and 14–15 ft bgs).

Twelve sampling locations will be situated between the buildings and secondary sumps, at the intersections, and approximately 50 ft apart along the former drainline to the southwest of the buildings. Samples from these locations will be collected from two depths (4–5 ft and 9–10 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.56-18 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.56.12 SWMU 16-032(a)—Sumps (former) and Outfall

SWMU 16-032(a) consists of one former secondary sump and an outfall at TA-16 that served former buildings 16-42, 16-43, 16-44, and 16-45 (Plate 11). The sump was located approximately 60 ft southwest of building 16-45 and discharged to a common drainline that discharged in the ditch along V-Site Road. The sump operated from 1944 to the early 1950s (LANL 1994, 039440, pp. 5-320–5-321). The date the sump and drainline were removed is not known. However, the sump is visible in a 1965 aerial photograph (LASL 1965, 016396), but is no longer visible in a 1977 aerial photograph (LASL 1977, 017770).

5.56.12.1 Summary of Previous Investigations for SWMU 16-032(a)

No previous investigation has been conducted at this site.

5.56.12.2 Summary of Data for SWMU 16-032(a)

No decision-level data are available at this site.

5.56.12.3 Scope of Activities for SWMU 16-032(a)

Nineteen surface and subsurface samples will be collected from nine locations beneath the former sumps and drainlines (Plate 12).

One location will be situated at the former sumps and samples will be collected from three depths (4–5 ft, 9–10 ft, and 14–15 ft bgs).

One location will be situated at the joint of the drainline and samples will be collected from two depths (4–5 ft and 9–10 ft bgs).

One location will be situated at the outfall and three locations will be situated in the drainage along V-Site Road. After crossing under V-Site Road, the drainage eventually discharged into the main drainage of TA-16. Three additional locations will be situated in the drainage along Bunker Road. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH.

Table 5.56-19 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.56.13 SWMU 16-034(l)—Potential Soil Contamination Associated with Former Equipment and Control Building 16-47

SWMU 16-034(l) is an area of potential soil contamination at TA-16 associated with former HE equipment and control building 16-47 (Plate 11). Building 16-47 was located approximately 10 ft south of former building 16-46. The building was a 11 × 11 × 8.5 ft wood-frame structure with a concrete foundation and floor. Building 16-47 operated from 1944 to the early 1950s and was destroyed by intentional burning in 1960 (LANL 1994. 039440, p. 5-362).

5.56.13.1 Summary of Previous Investigations for SWMU 16-034(l)

An RFI was conducted at SWMU 16-034(l) in 1997. Eight soil screening samples were collected from four locations in the building footprint and field-screened for HE and radioactivity. All samples showed background radioactivity. HE was detected in three field-screened samples. The sample with highest screening results of HE was submitted for laboratory analyses of metals, HE, and SVOCs (LANL 1997, 056660.289, pp. 202–207).

5.56.13.2 Summary of Data for SWMU 16-034(l)

The samples collected, analyses requested, and decision-level analytical data from the 1997 RFI are presented in Tables 5.56-20 and 5.56-21. The samples were collected from a depth interval of 0–1 ft bgs. The results of the analyses of samples collected during the 1997 RFI are as follows (LANL 1997, 056660.289, pp. 202–207).

- Copper, lead, and zinc were detected above BVs (Plate 13).
- Explosives compounds and SVOCs were not detected.

5.56.13.3 Scope of Activities for SWMU 16-034(l)

Ten surface and subsurface samples will be collected from five locations—one within and four around the building footprint (Plate 12). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.56-22 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.56.14 SWMU 16-034(p)—Potential Soil Contamination Associated with Former Building 16-41

SWMU 16-034(p) is an area of potential soil contamination at TA-16 associated with former process laboratory building 16-41 (Plate 11). The building was a 30 × 17 × 14 ft wood-frame structure with a full basement and concrete foundation and floor. Building 16-41 was built in 1945 and destroyed by intentional burning in 1960; the building's concrete foundation and basement remained in place. In 1962, a trash incinerator [AOC 16-011] was built on the concrete foundation that overlaid the basement (LANL 1994, 039440, p. 5-373). In 1995, the trash incinerator was removed.

5.56.14.1 Summary of Previous Investigations for SWMU 16-034(p)

A VCM was conducted at SWMU 16-034(p) in 1998 and 1999. The purpose of the VCM was to characterize the site and to implement an accelerated cleanup in conjunction with removal activities at the site. These activities consisted of removing and disposing of the concrete foundation of former building 16-41. Approximately 70 yd^3 of concrete was broken up and disposed of. Because of the anticipated difficulty of removing the foundation footings, which appeared to have been poured into trenches within the tuff, the footings were left in place. Reinforcing metal and other metal items encountered during removal were placed in a roll-off container for recycling (LANL 1999, 063973, pp. 88–116).

In addition, approximately 20 yd^3 of asphalt paving were removed. An exploratory trench was dug perpendicular to the foundation to investigate the extent of fill material used as part of the construction of the basement structure. After the removal of the basement structure, the average depth from the surrounding grade to the bottom of the excavation was 10 ft. The excavation was backfilled with clean fill material (LANL 1999, 063973, pp. 88–116).

After the basement floor was removed, 23 screening samples were collected from 22 locations. Samples were field-screened for metals, HE, PAHs, VOCs, and radioactivity. Based on the screening results, a total of 18 samples from 11 locations were submitted for laboratory analyses. Fourteen of the samples were selected based on screening results and were submitted for laboratory analyses of metals, total cyanide, HE, and SVOCs; however, not all samples were analyzed for all suites. After receiving analytical results, three additional samples were collected from deeper depths at previously sampled locations; two were submitted for laboratory analyses of metals and one was analyzed for SVOCs. To confirm that the fill material was clean, a sample of the fill was collected and submitted for laboratory analyses of metals, total cyanide, HE, SVOCs, VOCs, and gamma-emitting radionuclides (LANL 1999, 063973, pp. 88–116).

NMED requested additional investigation to define the nature and extent of contamination for this site (NMED 2002, 073818).

5.56.14.2 Summary of Data for SWMU 16-034(p)

The samples collected, analyses requested, and decision-level analytical data from the 1998 and 1999 VCM are presented in Tables 5.56-23 to 5.56-25. The samples were collected from depth intervals ranging from 0–12.95 ft bgs. The results of the analyses of samples collected during the 1998 and 1999 VCM are as follows (LANL 1999, 063973, pp. 88–116).

- Antimony, arsenic, barium, cadmium, calcium, cobalt, copper, total cyanide, lead, manganese, mercury, silver, and zinc were detected above BVs (Plate 13).
- Pyrene was detected (Plate 14).
- Explosive compounds and VOCs were not detected.
- Radionuclides were not detected or detected above BVs/FVs.

5.56.14.3 Scope of Activities for SWMU 16-034(p) and AOC 16-011

Twenty surface and subsurface samples will be collected from six locations—two within and four around the building footprint (Plate 12).

Because the site was backfilled with landfill material to approximately 11 ft bgs and existing locations were sampled to approximately 13 ft bgs, samples from the two locations within the footprint will be situated adjacent to existing locations and will be collected from two depths (12–13 ft and 17–18 ft bgs). Samples around the footprint will be collected from four depths (0–1 ft, 4–5 ft, 12–13 ft, and 17–18 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, dioxins, furans, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.56-26 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.57 SWMU 16-031(a)—Outfall

SWMU 16-031(a) is an outfall that served a former cooling tower (building 16-372) at TA-16 (Figure 5.57-1). The outfall discharged approximately 150 ft south of the cooling tower at the edge of Water Canyon. The outfall drainline was a 6-in.-diameter VCP that originated from a drain inside the southeast corner of the cooling tower. The cooling tower served building 16-370, a barium nitrate grinding facility and metal-forming shop (LANL 1995, 057225. p. 5-28-15). The cooling tower was built in 1953 and was burned during the Cerro Grande fire in 2000. The concrete foundation remains in place.

5.57.1 Summary of Previous Investigations for SWMU 16-031(a)

Sampling was conducted at SWMU 16-031(a) in 1998. One sample was collected and submitted for laboratory analyses of metals, HE, and SVOCs as recommended by the Surface Water Assessment Team. The purpose was to determine if contamination was present at the site and to determine if BMPs were necessary (LANL 1999, 062685).

5.57.2 Summary of Data for SWMU 16-031(a)

Decision-level analytical data, sample collected, and analytes requested from the 1998 investigation are presented in Tables 5.57-1 to 5.57-3. The sample was collected from a depth interval of 0–0.5 ft bgs. The results of the analyses of samples collected in 1998 are as follows.

- Cadmium, calcium, copper, lead, uranium, and zinc were detected above BVs (Figure 5.57-2).
- PAHs were detected (Figure 5.57-3).
- Explosives compounds were not detected.

5.57.3 Scope of Activities for SWMU 16-031(a)

The drainline associated with SWMU 16-031(a) will be located by trenching and will be excavated if it is in place. After excavation, 24 surface and subsurface samples will be collected from 12 locations beneath the former drainline, at the outfall, and in the drainage (Figure 5.12-4).

Two locations will be situated at the former drainline where samples will be collected from two depths (immediately below the former drainline and 5 ft below). If the drainline is not in place, samples will be collected from two depths (4–5 ft and 9–10 ft bgs).

Four locations will be situated at the outfall—one at the estimated location of the discharge point and three approximately 10 ft downgradient to bound the outfall. Six locations will be situated in the drainage downgradient of the outfall and the furthermost location near the edge of the main Water Canyon channel. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, hexavalent chromium, nitrate, perchlorate, total cyanide, explosives compounds, PCBs (20% of the samples), SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.57-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.58 SWMU 16-031(e)—Outfall

SWMU 16-031(e) is an outfall that serves the chlorination station (structure 16-560) at TA-16 (Figure 5.58-1). The outfall is located approximately 40 ft southwest of the chlorination station. The outfall received effluent from a concrete trench, floor drain, and a bench-scale sump within the building. The chlorination station was built in Water Canyon in 1957 and was moved in 1962 to its current site on West Jemez Road near the entrance to TA-16 (LANL 1995, 057225, 6-11–6-12).

5.58.1 Summary of Previous Investigations for SWMU 16-031(e)

No previous investigation has been conducted at this site.

5.58.2 Summary of Data for SWMU 16-031(e)

No decision-level data are available at this site.

5.58.3 Scope of Activities for SWMU 16-031(e)

Eight surface and subsurface samples will be collected from four locations at the outfall and in the drainage (Figure 5.58-2).

One location will be situated at the outfall and three locations will be situated in the drainage. All outfall and drainage samples will be collected from two depths (0–1 ft and 2–3 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, SVOCs, VOCs (except in surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the SWMU is the outfall from a chlorination station with no record or indication of PCB or radionuclide use at the site. Table 5.58-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

Because building 16-560 is an active facility, characterization of the drainlines will be delayed until the building is deactivated.

5.59 AOC 16-033(a)—Underground Tank (removed)

AOC 16-033(a) is a former 1000-gal. underground diesel fuel tank (structure number unknown) at TA-16, located northeast of building 16-16 (Figure 5.59-1). The tank was rectangular and attached to a larger cylindrical tank. The tank had a documented release that contaminated the soil around the tank. Approximately 15 yd^3 of contaminated soil was removed from the site and replaced with clean fill (LANL 1990, 007512, p. 16-033). The excavated soil was taken to TA-54 and the excavation was backfilled with clean soil (LANL 1995, 057225, p. 6-38).

5.59.1 Summary of Previous Investigations for AOC 16-033(a)

No previous investigation has been conducted at this site.

5.59.2 Summary of Data for AOC 16-033(a)

No decision-level data are available at this site.

5.59.3 Scope of Activities for AOC 16-033(a)

No activities are proposed for AOC 16-033(a) because the former UST was regulated, removed, and characterized under the guidelines of the NMED UST Bureau. The NMED UST Bureau currently has the administrative authority of the site.

5.60 AOC 16-033(b)—Underground Tank (removed)

AOC 16-033(b) is a former UST (structure 16-196) that was located at TA-16, southeast of the former service station (building 16-195) (Figure 5.27-1). The tank had a 4000-gal. capacity and was used to store leaded gasoline. UST 16-196 was installed in 1951. In 1952, a second UST (structure 16-197) was installed directly adjacent to UST 16-196. When UST 16–196 was removed in 1987, it was found to have leaked, contaminating the soil surrounding UST 16-197. Contaminated soil was removed from the area surrounding UST 16-197, but the excavation had to be discontinued when soil removal threatened the integrity of UST 16-197. When UST 16-197 was removed in 1990, contaminated scale and soil associated with the releases from UST 16-196 were dislodged from the bottom of the tank. The contaminated soil was removed immediately and remediated under the direction of the NMED UST Bureau in compliance with the UST regulations in effect at the time.

After UST 16-197 was removed, a 10,000-gal. capacity tank (structure 16-1465) was installed at the same location of removed USTs 16-196 and 16-197 (LANL 1995, 057225, pp. 6-39–6-41). During UST 16-1465 tank maintenance activities in 1994, gasoline-contaminated soil associated with UST 16-1465 was found at the location of former USTs 16-196 and 16-197. The contaminated area was remediated under the direction of the NMED UST Bureau in compliance with UST regulations. In 2003, UST 16-1465 was removed under the direction of the NMED UST Bureau.

5.60.1 Summary of Previous Investigations for AOC 16-033(b)

The 10,000-gal. tank (structure 16-1465) occupied the space that previously contained UST 16-197 [AOC 16-022(b)] and UST 16-196 [AOC 16-033(b)]. UST 16-1465 leaked in 1994 and the site was sampled and remediated. Six locations were sampled—five on the east side of the service station (building 16-195) and one on the west side. Samples were collected and analyzed at an on-site laboratory. The analytical results of the samples collected from the locations between building 16-195 and UST 16-1465 showed elevated levels of BTEX at 65 ft bgs (LANL 1995, 057225, pp. 6-40–6-43). NMED requested additional investigation to define the nature and extent of contamination for this site (NMED 1999, 073897).

Following the removal of building 16-195 in February 2003, UST 16-1456 was removed. The tank removal and soil sampling were documented in “TA-16-197 Underground Storage Tank Removal 2/12/2003” (Dye 2003, 095409, pp. 1–8). It should be noted that this report incorrectly refers to UST 16-1456 (the 10,000-gal. tank) as UST 16-197. Upon removal, the 10,000-gal. tank appeared in very good condition with no visible evidence of any gasoline release from the dispenser, fuel line, or tank. Soil samples were collected under the former locations of the dispenser and fuel line, and at the west and east ends of UST 16-1456 (Dye 2003, 095409, pp. 1–8).

5.60.2 Summary of Data for AOC 16-033(b)

Sample results are the same as those at AOC 16-022(b), presented in section 5.27.2.

5.60.3 Scope of Activities for AOC 16-033(b)

No activities are proposed for AOC 16-033(b) because the former UST was regulated, removed, and characterized under the guidelines of the NMED UST Bureau in compliance with the UST regulations in effect at the time.

5.61 AOC 16-033(c)—Aboveground Tank (removed)

AOC 16-033(c) is a former 52,000-gal. aboveground fuel oil storage tank (structure 16-29) located at TA-16 (Figure 5.61-1). The 62-ft-long × 12-ftdiameter tank was located approximately 50 ft northeast of cafeteria building 16-16. The tank was installed in 1945 and mounted on concrete saddles. Piping went directly from the tank to a pump house (structure 16-19) and then to the steam plant (building 16-7). The tank was removed in 1956. The 1990 SWMU Report incorrectly identifies structure 16-29 as a UST (LANL 1990, 007512, p. 16-033). The aboveground tank is clearly visible in 1946 aerial photographs (SNL 1946, 015402; SNL 1946, 015403).

5.61.1 Summary of Previous Investigations for AOC 16-033(c)

No previous investigation has been conducted at this site.

5.61.2 Summary of Data for AOC 16-033(c)

No decision-level data are available at this site.

5.61.3 Scope of Activities for AOC 16-033(c)

Twelve surface and subsurface samples will be collected from six locations—two within and four around the tank boundary (Figure 5.61-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, SVOCs, TPH-DRO, VOCs (except in surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the AOC is the location of a former aboveground fuel oil storage tank with no record or indication of PCB or radionuclide use at the site. Table 5.61-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.62 AOC 16-033(d)—Aboveground Tank (removed)

AOC 16-033(d) is a former aboveground propane tank (structure 16-1140) located at TA-16 (Figure 5.62-1).The tank was located approximately 60 ft west of cafeteria building 16-16. The tank was installed in 1946 and served the cafeteria. The tank was removed in 1956. The 1990 SWMU Report incorrectly identifies the structure as a UST (LANL 1990, 007512, p. 16-033).

5.62.1 Summary of Previous Investigations for AOC 16-033(d)

No previous investigation has been conducted at this site.

5.62.2 Summary of Data for AOC 16-033(d)

No decision-level data are available at this site.

5.62.3 Scope of Activities for AOC 16-033(d)

No investigation or sampling is proposed for AOC 16-033(d) because there is no evidence or history of any release of hazardous constituents at this site.

5.63 AOC 16-033(i)—Underground Storage Tank (removed)

AOC 16-033(i) is a former UST at TA-16, located northwest of the former service station (building 16-195) (Figure 5.63-1). The tank (structure 16-1341) had a 5,000-gal. capacity and was used to store leaded gasoline. The tank was installed in the early 1950s and removed in 1980 (LANL 1990, 007512, p. 16-033).

5.63.1 Summary of Previous Investigations for AOC 16-033(i)

No previous investigation has been conducted at this site.

5.63.2 Summary of Data for AOC 16-033(i)

No decision-level data are available at this site.

5.63.3 Scope of Activities for AOC 16-033(i)

Twenty subsurface samples will be collected from five locations—one within and four around the footprint of the former UST (Figure 5.63-2). Samples will be collected from four depths (4–5 ft, 9–10 ft, 14–15 ft, and 24–25 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, SVOCs, TPH-GRO, VOCs, and pH. Samples will not be analyzed for PCBs and radionuclides because the AOC is the location of a former UST with no record or indication of PCB or radionuclide use at the site. Table 5.63-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.64 AOC 16-033(j)—Underground Storage Tank (removed)

AOC 16-033(j) is a former UST at TA-16, located northwest of the former service station (building 16-195) (Figure 5.63-1). The tank (structure 16-1342) had a 5,000-gal. capacity and was used to store leaded gasoline. The tank was installed in the early 1950s and was removed in 1980 (LANL 1990, 007512, p. 16-033).

5.64.1 Summary of Previous Investigations for AOC 16-033(j)

No previous investigation has been conducted at this site.

5.64.2 Summary of Data for AOC 16-033(j)

No decision-level data are available at this site.

5.64.3 Scope of Activities for AOC 16-033(j)

Sixteen subsurface samples will be collected from four locations—one within and three around the footprint of the former UST (Figure 5.63-2). Proposed sampling location 33i-3 will be used to characterize both AOC 16-033(i) and AOC 16-033(j). Samples will be collected from four depths (4–5 ft, 9–10 ft, 14–15 ft, and 24–25 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, SVOCs, TPH-GRO, VOCs, and pH. Samples will not be analyzed for PCBs and radionuclides because the AOC is the location of a former UST with no record or indication of PCB or radionuclide use at the site. Table 5.64-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.65 AOC 16-033(k)—Underground Storage Tank

AOC 16-033(k) is an inactive UST at TA-16, located immediately south of the chlorination station 16-560 (Figure 5.58-1). The steel tank had a 200-gal. capacity and was used to store gasoline. The tank was installed in 1952 and served an emergency generator system. It is not known when the tank taken out of service (LANL 1996, 055066). The tank was discovered during construction activities in 1996 and was given the SWMU number 16-033(k) (LANL 1996, 055066).

5.65.1 Summary of Previous Investigations for AOC 16-033(k)

No previous investigation has been conducted at this site.

5.65.2 Summary of Data for AOC 16-033(k)

No decision-level data are available at this site.

5.65.3 Scope of Activities for AOC 16-033(k)

The site will be surveyed to specify the exact location of the tank. The AOC boundary will be updated based on the survey results if the tank is in place. Characterization of the site is proposed to be delayed because this is the central area providing water supply to various locations and in order to avoid utility lines, the number of locations that could be sampled is inadequate to define nature and extent of contamination at the site.

5.66 AOC C-16-019—Former Building 16-19

AOC C-16-019 is former pump house (building 16-19) at TA-16 located approximately 50 ft northeast of cafeteria building 16-16 (Figure 5.61-1). The pump house was a 10 x 10 ft wooden structure. The pump house was built in 1945 and housed a pump that pumped fuel oil from an aboveground storage tank 16-29 [AOC 16-033(c)] to the steam plant building 16-7. The pump house was removed in 1956 (LANL 1995, 057225, pp. 6-33–6-34).

5.66.1 Summary of Previous Investigations for AOC C-16-019

No previous investigation has been conducted at this site.

5.66.2 Summary of Data for AOC C-16-019

No decision-level data are available at this site.

5.66.3 Scope of Activities for AOC C-16-019

Ten surface and subsurface samples will be collected from five locations—one within and four around the footprint (Figure 5.61-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, TPH-DRO, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.66-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.67 AOC C-16-020—Former Building 16-22

AOC C-16-020 is a former office building 16-22 located at TA-16 approximately 50 ft south of cafeteria building 16-16 (Figure 5.67-1). The building was a 70 ft x 20 ft x 9 ft wooden structure. It was constructed in 1944 and moved to the Los Alamos ice rink in 1961 (LANL 1995, 057225, p. 6-23).

5.67.1 Summary of Previous Investigations for AOC C-16-020

No previous investigation has been conducted at this site.

5.67.2 Summary of Data for AOC C-16-020

No decision-level data are available at this site.

5.67.3 Scope of Activities for AOC C-16-020

No investigation or sampling is proposed for AOC C-16-020 because there is no evidence or history of any release of hazardous constituents at this site.

5.68 AOC C-16-028—Former Building 16-5

AOC C-16-028 is former instrument shop (building 16-5) located at TA-16 approximately 50 ft south of a former storage building 16-10 (Figure 5.44-1). The shop was a 40 × 25 × 9 ft. wooden structure where instruments and gauges were repaired. It was constructed in 1945 and removed in 1956 (LANL 1994, 039440, p. 5-425).

5.68.1 Summary of Previous Investigations for AOC C-16-028

No previous investigation has been conducted at this site.

5.68.2 Summary of Data for AOC C-16-028

No decision-level data are available at this site.

5.68.3 Scope of Activities for AOC C-16-028

Ten surface and subsurface samples will be collected from five locations—two within and three around the footprint (Figure 5.44-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs). The nature and extent of contamination to the east will be characterized by proposed sampling location 26s-1 for SWMU 16-026(s).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.68-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.69 AOC C-16-030—Former Building 16-181

AOC C-16-030 is a former tank housing (structure 16-181) located at TA-16 approximately 60 ft northeast of building 16-7 (Figure 5.69-1). The tank housing was a 9 ft long × 5 ft wide concrete structure that was buried 1.5 ft in the soil. The structure was constructed in 1948 and removed in 1956 (LANL 1994, 039440, p. 5-425).

5.69.1 Summary of Previous Investigations for AOC C-16-030

In September 2003, diesel contaminated soil was discovered near building 16-7 while utilities to the building were being disconnected before removal activities began. Initial and secondary characterization work was completed in October 2003 and May 2007, respectively. In 2003, two samples were collected and submitted for laboratory analysis of metals, HE, SVOCs, VOCs, and TPH-DRO. In 2007, 15 samples were collected and submitted for laboratory analysis of TAL metals and TPH-DRO. One of these samples was also analyzed for PCBs. Based on the results, the diesel contaminated soil is associated with AOC C-16-030 and AOC C-16-031 (LANL 2007, 109805).

5.69.2 Summary of Data for AOC C-16-030

The samples collected, analyses requested, and decision-level analytical data from the 2003 and 2007 investigations are presented in Tables 5.69-1 to 5.69-3. The samples were collected from depth intervals ranging from 6–31.5 ft bgs. The results of the analyses of samples collected in 2003 and 2007 are as follows.

- Aluminum, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, lead, magnesium, mercury, nickel, selenium, vanadium, and zinc were detected above BVs (Figure 5.69-2).
- SVOCs and TPH-DRO were detected (Figure 5.69-3).
- Explosives compounds, PCBs, and VOCs were not detected.

5.69.3 Scope of Activities for AOC C-16-030

Twenty surface and subsurface samples will be collected from five locations—one within and four around the footprint (Figure 5.69-4). Samples will be collected from four depths (0–1 ft, 4–5 ft, 9–10 ft, and 14–15 ft bgs). Characterization of the diesel-contaminated soil southwest of AOC C-16-031 within the footprint of former building 16-7 is presented along with sampling at AOC C-16-031 (section 5.70.3).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, PCBs, SVOCs, TPH-DRO, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.69-4 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.70 AOC C-16-031—Former Building 16-182

AOC C-16-031 is a former diesel unit (building 16-182) located at TA-16 approximately 40 ft northeast of former building 16-7 (Figure 5.69-1). The building was a 14 ft long × 13 ft wide wooden structure. The building was constructed in 1944 and removed in 1956 (LANL 1994, 039440, p. 5-425).

5.70.1 Summary of Previous Investigations for AOC C-16-031

In September 2003, diesel-contaminated soil was discovered near building 16-7 while utilities to the building were being disconnected prior to initiation of removal activities. Initial and secondary characterization work was completed in October 2003 and May 2007, respectively (LANL 2007, 109805). The investigation activities are described in section 5.69.1.

5.70.2 Summary of Data for AOC C-16-031

Sample results are the same as those at AOC C-16-030, presented in section 5.69.2.

5.70.3 Scope of Activities for AOC C-16-031

Characterization of the footprint of former building 16-182 and the diesel-contaminated soil southwest of the former building are presented separately as follows.

Twenty surface and subsurface samples will be collected from five locations—one within and four around the footprint of former building 16-182 (Figure 5.69-4). Samples will be collected from four depths (0–1 ft, 4–5 ft, 9–10 ft, and 14–15 ft bgs).

Fifty-four subsurface samples will be collected from nine locations in the area where diesel odor was discovered (Figure 5.69-4). Five locations will be situated adjacent to existing locations and four locations will be surrounding existing locations in four directions. Samples will be collected from six depths (0–1 ft, 4–5 ft, 9–10 ft, 25–26 ft, 40–41 ft, and 50–51 bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, PCBs (20% of the samples), SVOCs, TPH-DRO, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.70-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.71 AOC C-16-034—Aboveground Tank (removed)

AOC C-16-034 is a former 50,000-gal. aboveground water tank (structure 16-1130) located near the main entrance to TA-16 (Figure 5.71-1). The 15-ft high × 23-ft-diameter tank was located along Jemez Road near the current location of a 1,000,000-gal. water tank (structure 16-171). Tank 16-1130 was connected to the TA-16 water supply via pump station 16-20. The water tank was constructed in 1944 and removed in 1949 (LANL 1998, 059685, p. 6-20).

5.71.1 Summary of Previous Investigations for AOC C-16-034

No previous investigation has been conducted at this site.

5.71.2 Summary of Data for AOC C-16-034

No decision-level data are available at this site.

5.71.3 Scope of Activities for AOC C-16-034

Ten surface and subsurface samples will be collected from five locations—one at the center and four around the footprint (Figure 5.71-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, SVOCs, VOCs (except in surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the AOC is the location of a former aboveground water tank with no record or indication of PCB or radionuclide use at the site. Table 5.71-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.72 AOC C-16-035—Aboveground Tank (removed)

AOC C-16-035 is a former 50,000-gal. water tank (structure 16-1131), located near the main entrance to TA-16 (Figure 5.71-1). The 15-ft high × 23.3-ft-diameter tank was located along Jemez Road near the current location of a 1,000,000-gal. water tank (structure 16-171). Tank 16-1131 was connected to the TA-16 water supply via pump station 16-20. The water tank was constructed in 1944 and removed in 1949 (LANL 1998, 059685, p. 6-20).

5.72.1 Summary of Previous Investigations for AOC C-16-035

No previous investigation has been conducted at this site.

5.72.2 Summary of Data for AOC C-16-035

No decision-level data are available at this site.

5.72.3 Scope of Activities for AOC C-16-035

Ten surface and subsurface samples will be collected from five locations— one at the center and four around the footprint (Figure 5.71-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, SVOCs, VOCs (except in surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the AOC is the location of a former aboveground water tank with no record or indication of PCB or radionuclide use at the site. Table 5.72-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.73 AOC C-16-046—Former Manhole

AOC C-16-046 is a former steam manhole (structure 16-1090) located near building 16-460 at TA-16 (Figure 5.4-1). The manhole was installed in 1965. It was constructed of 5-ft-diameter corrugated metal pipe and was 9 ft deep with a gravel bottom. The manhole contained pipes that carried distilled stream vapor and cool condensate water to and from the steam plant (LANL 1994, 039440, p. 6-25). The exact location of the manhole is not known. The manhole was removed in 1970.

5.73.1 Summary of Previous Investigations for AOC C-16-046

No previous investigation has been conducted at this site.

5.73.2 Summary of Data for AOC C-16-046

No decision-level data are available at this site.

5.73.3 Scope of Activities for AOC C-16-046

No investigation or sampling is proposed for AOC C-16-046 because there is no evidence or history of any release of hazardous constituents at this site.

5.74 AOC C-16-047—Former Oil Switch

AOC C-16-047 is a former oil switch (structure 16-1101) located at TA-16 (Figure 5.74-1), southeast of the intersection of K-Site and HE roads. The switch, installed in 1952, was mounted on a 7 × 7 ft concrete pad surrounded by a metal fence. The oil switch was one of three decommissioned 200- to 400-gal. capacity oil switches used to control electrical power for several buildings at TA-16. Mineral oil was the common lubricant used in oil switches. The switch was removed in 1967 (LANL 1995, 057225, p. 6-31).

5.74.1 Summary of Previous Investigations for AOC C-16-047

No previous investigation has been conducted at this site.

5.74.2 Summary of Data for AOC C-16-047

No decision-level data are available at this site.

5.74.3 Scope of Activities for AOC C-16-047

Ten surface and subsurface samples will be collected from five locations—one within and four around the footprint (Figure 5.74-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, total cyanide, perchlorate, explosives compounds, PCBs, SVOCs, TPH-DRO, VOCs (except in surface samples), and pH. Samples will not be analyzed for radionuclides because the AOC is the location of a former oil switch with no record or indication of radionuclide use at the site. Table 5.74-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.75 AOC C-16-058—Former Oil Switch

AOC C-16-058 is a former oil switch (structure 16-1102) located at TA-16 (Figure 5.74-1). The switch, installed in 1952, was mounted on an 8 × 6 ft concrete pad surrounded by a metal fence. The oil switch was one of a group of three decommissioned 200- to 400-gal. capacity oil switches used to control electrical power for several buildings at TA-16. Mineral oil was the common lubricant used in oil switches. The switch was removed in 1967 (LANL 1995, 057225, p. 6-31).

5.75.1 Summary of Previous Investigations for AOC C-16-058

No previous investigation has been conducted at this site.

5.75.2 Summary of Data for AOC C-16-058

No decision-level data are available at this site.

5.75.3 Scope of Activities for AOC C-16-058

Ten surface and subsurface samples will be collected from five locations—one within and four around the footprint (Figure 5.74-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosive compounds, PCBs, SVOCs, TPH-DRO, VOCs (except in surface samples), and pH. Samples will not be analyzed for radionuclides because the AOC is the location of a former oil switch with no record or indication of radionuclide use at the site. Table 5.75-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.76 AOC C-16-069—Former Trailer 16-87

AOC C-16-069 is a former trailer (structure 16-87) that was located at TA-16 approximately 100 ft northeast of former building 16-50 (Figure 5.76-1). The 8 × 7 ft trailer was installed in 1945 and removed in 1957 (LANL 1994, 067368, p. 15).

5.76.1 Summary of Previous Investigations for AOC C-16-069

An RFI was conducted at AOC C-16-069 in 1997. Field screening was conducted to select samples for laboratory analyses. One sample was submitted for laboratory analyses of HE and SVOCs.

5.76.2 Summary of Data for AOC C-16-069

The sample collected, analyses requested, and decision-level analytical data from the 1997 RFI are presented in Tables 5.76-1 and 5.76-2. The sample was collected from a depth interval of 0–1 ft bgs. The results of the analyses of the sample collected during the 1997 RFI are as follows:

- Pyrene was detected (Figure 5.76-2).
- Explosive compounds were not detected.

5.76.3 Scope of Activities for AOC C-16-069

Ten surface and subsurface samples will be collected from five locations—one within and four around the footprint (Figure 5.76-3). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, PCBs, SVOCs, VOCs (except in surface samples), isotopic uranium, and pH. Table 5.76-3 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.77 AOC C-16-071—One-Time Spill

AOC C-16-071 is the location of a one time-spill of hydraulic fluid that occurred in an equipment pit located in Bay 1 of building 16-430 (Figure 5.5-1). A release of approximately 500 gal. of hydraulic fluid occurred on June 6, 1986. The spill occurred when the hydraulic system was turned on and malfunctioned. The malfunction caused a large amount of fluid to drain from the hydraulic press. The hydraulic fluid flowed along the floor of the pit into the pit's drain for approximately one and one-half hours until the drain could be temporarily plugged to contain the spill. The drain outlet pipe discharged onto a hillside above Water Canyon. The hillside was bermed and trenched to prevent the hydraulic fluid from reaching the canyon. The incident was reported immediately after the release occurred. After the spill was contained, the pit floor was cleaned. The hydraulic fluid used in the press was water-based Texaco Safety Oil, #46, an ethylene glycol/water mixture. Analysis of the fluid demonstrated that no (PCBs or HE were present in the fluid (Nylander 1986, 052964.602). A site visit in 1994 showed the rock surface at the outfall had been chipped off, presumably to remove residual oil (LANL 1995, 057225, pp. 6-46–6-47).

The AOC C-16-071 spill discharged through the same drain and to the same area as did the operational release of hydraulic fluid associated with AOC 16-021(b). Because the discharge points of AOC 16-021(b) and AOC C-16-071 are identical, a single investigation will characterize both AOCs. Therefore, AOC C-16-071 is a duplicate of AOC 16-021(b).

5.77.1 Summary of Previous Investigations for AOC C-16-071

Not applicable.

5.77.2 Summary of Data for AOC C-16-071

Not applicable.

5.77.3 Scope of Activities for AOC C-16-071

Because AOC C-16-071 is collocated with AOC 16-021(b), no activities are proposed for AOC C-16-071.

5.78 AOC C-16-073—Underground Storage Tank

AOC C-16-073 is a UST (structure number unknown) at TA-16, located 6 ft west of building 16-200 (Figure 5.78-1). The tank was installed in 1952 and stored gasoline to serve an emergency generator located inside the basement equipment room of building 16-200. The emergency generator power source was subsequently changed to natural gas, and it is likely that the tank was decommissioned when the conversion occurred. It is not known if the tank has been removed or if it remains in place (LANL 1998, 057225, p. 5-27-3).

5.78.1 Summary of Previous Investigations for AOC C-16-073

No previous investigation has been conducted at this site.

5.78.2 Summary of Data for AOC C-16-073

No decision-level data are available at this site.

5.78.3 Scope of Activities for AOC C-16-073

The site will be surveyed to specify the exact location of the tank. The AOC boundary will be updated based on the survey results if the tank is in place.

If the tank is not in place, 20 subsurface samples will be collected from five locations—one within and four around the footprint of the former UST (Figure 5.78-2). Samples will be collected from four depths (4–5 ft, 9–10 ft, 14–15 ft, and 24–25 ft bgs). If the tank is in place, samples will be collected only from the four locations around the tank.

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, SVOCs, TPH-GRO, VOCs, and pH. Samples will not be analyzed for PCBs and radionuclides because the AOC is the location of a former UST with no record or indication of PCB or radionuclide use at the site. Table 5.78-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.79 AOC C-16-076—HE Magazine Area A

AOC C-16-076 consists of HE Magazine Area A (TA-28), which currently lies within the boundary of TA-16 (Figure 5.79-1). Area A contained five former HE magazines (structures 28-1 through 28-5) surrounded by earthen berms. The magazines, constructed sometime between 1944 and 1947, were used to store explosives (LANL 1988, 035580). The magazines have been removed, but the berms that surrounded the structures remain. This is a new AOC, designated in 2010 (NMED 2010, 109033).

5.79.1 Summary of Previous Investigations for AOC C-16-076

No previous investigation has been conducted at this site.

5.79.2 Summary of Data for AOC C-16-076

No decision-level data are available at this site.

5.79.3 Scope of Activities for AOC C-16-076

Fifty-five surface and subsurface samples will be collected from 25 locations at the center and around the perimeter of the five earthen berms (Figure 5.79-2). One location will be situated at the center of each of the five berms where samples will be collected from three depths (2–3 ft below the top surface of the berm, 4–5 ft below the top surface of the berm, and 9–10 ft below the top surface of the berm). Four locations will be situated around the perimeter of each of the five berms where samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.79-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

5.80 AOC C-16-077—HE Magazine Area B

AOC C-16-077 consists of HE Magazine Area B (former TA-29), which currently lies within the boundary of TA-16 (Figure 5.80-1). Area B contained two former HE magazines (structures 29-1 and 29-2) used to store explosives. The date the magazines were constructed is unknown; however, they were decommissioned by 1959 (LANL 1994, 039440, pp. 2-4–2-7). This is a new AOC, designated in 2010 (NMED 2010, 109033).

5.80.1 Summary of Previous Investigations for AOC C-16-077

No previous investigation has been conducted at this site.

5.80.2 Summary of Data for AOC C-16-077

No decision-level data are available at this site.

5.80.3 Scope of Activities for AOC C-16-077

Twenty surface and subsurface samples will be collected from 10 locations within and around the two footprints of former structures 29-1 and 29-2—one within each of the two footprints and four around each of the two footprints (Figure 5.80-2). Samples will be collected from two depths (0–1 ft and 4–5 ft bgs).

All samples will be analyzed for TAL metals, nitrate, perchlorate, total cyanide, explosives compounds, SVOCs, VOCs (except surface samples), and pH. Samples will not be analyzed for PCBs and radionuclides because the site was used only for storage of HE with no record or indication of PCB or radionuclide use at the site. Table 5.80-1 provides a summary of the proposed sampling strategy, locations, depths, and analytical suites.

6.0 INVESTIGATION METHODS

A summary of investigation methods to be implemented is presented in Table 6.0-1. The standard operating procedures (SOPs) used to implement these methods are available at http://www.lanl.gov/environment/all/qa/adep.shtml.

Descriptions of the field-investigation methods are provided below. Additional procedures may be added as necessary to describe and document quality-affecting activities.

Chemical analyses will be performed in accordance with the analytical statement of work (LANL 2000, 071233). Accredited contract analytical laboratories will use the most recent U.S. Environmental Protection Agency- (EPA) and industry-accepted extraction and analytical methods for chemical analyses of analytical suites.

6.1 Establish Sampling Locations

Proposed sampling locations are identified for each site based on engineering drawings, surveyed locations of existing structures, previous sampling locations, and topography or other features identified in the field (e.g., gravel driveways, drainage channels, and sediment accumulation areas). The coordinates of proposed locations will be obtained by georeferencing the points from the proposed sampling maps. Site knowledge, such as possible depressions where sumps were located, will guide the sampling locations. These coordinates will be flagged or otherwise marked in the field using a differential global positioning system (GPS) unit. If any proposed sampling locations are moved because of field conditions, utilities, or other unexpected reasons, the new locations will be surveyed immediately following sample collection as described in section 6.3.

6.2 Geophysical Surveys

Geophysical surveys may be performed at selected sites to verify the location, dimensions, TD, base profile, topography, low-elevation point, and downslope end using as-built construction drawings and boring logs. The surveys will verify locations determined from engineering drawings, site reconnaissance, and geodetic surveys and refine assessments of the subsurface structures. Geophysical methods employed may include electromagnetic, gravity, and ground-penetrating radar as appropriate to effectively delineate the materials or features being surveyed.

6.3 Geodetic Surveys

Geodetic surveys will be conducted in accordance with the latest version of standard operating procedure- (SOP) 5028, Coordinating and Evaluating Geodetic Surveys, to locate historical structures and previous sampling locations, and to document field activities such as sample collection. The surveyors will use a Trimble GeoXT hand-held GPS or equivalent for the surveys. The coordinate values will be expressed in the New Mexico State Plane Coordinate System (transverse Mercator), Central Zone, North American Datum 1983. Elevations will be reported as per the National Geodetic Vertical Datum of 1929. All GPS equipment used will meet the accuracy requirements specified in the SOP.

6.4 Surface Sampling

Soil, fill, sediment, and rock samples will be collected by the most efficient and least invasive method practicable. The methods will be determined by the field team based on site conditions such as topography, the nature of the material to be sampled, the depth intervals required, accessibility, and level of disruption to laboratory activities. Typically, samples will be collected using spade and scoop, hand auger, or drill rig.

6.4.1 Spade and Scoop Method

Surface and shallow subsurface soil and sediment samples will be collected in accordance with SOP-06.09, Spade and Scoop Method for the Collection of Soil Samples. Stainless-steel shovels, spades, scoops, and bowls will be used for ease of decontamination. If the surface location is at bedrock, an axe or hammer and chisel may be used to collect samples. Samples collected for analyses will be placed in the appropriate sample containers, depending on the analytical method requirement.

6.4.2 Sediment Samples

Sediment samples will be collected from areas of sediment accumulation that include sediments judged to be representative of the historical period of Laboratory operations (i.e., post-1943). The proposed sediment sampling locations will be selected based on geomorphic relationships in areas likely to have been affected by discharges from Laboratory operations. Proposed sediment sampling locations have been selected and are shown in the figures that show the proposed sampling locations. However, because sediment is dynamic and subject to redistribution by runoff events, some locations may need to be adjusted when this work plan is implemented. In the course of collecting sediment samples, it may be determined, based on field conditions, that the selected location is not appropriate (e.g., the sediment is much shallower than anticipated, the sediment is predominantly coarse-grained, or the sediment shows evidence of being older than the target age). Sediment sampling locations will be adjusted as appropriate, any revised locations will be surveyed and the updated coordinates will be submitted to the Laboratory for inclusion in the appropriate database.

6.5 Subsurface Sampling

Subsurface sampling is proposed to include soil, fill, sediment, and tuff. Any adjustments will be noted on sample collection logs and recorded in the subsequent investigation report as deviations from this IWP. Subsurface samples will be collected following the current version of SOP-06.24, Sample Collection from Split-Spoon Samplers and Shelby Tube Samplers, and SOP-06.26, Core Barrel Sampling for Subsurface Earth Materials. If encountered, alluvial groundwater will be sealed off before advancing the borehole to the desired sampling depths.

6.5.1 Hollow-Stem Auger

A hollow-stem auger will be used to bore holes deeper than 15 ft or at shallower depths where hand-auger refusal is encountered. The hollow-stem auger consists of a hollow-steel shaft with a continuous, spiraled steel flight welded onto the exterior of the stem. The stem is connected to an auger bit; when it is rotated, it transports cuttings to the surface. The hollow stem of the auger allows insertion of drill rods, split-spoon core barrels, Shelby tubes, and other samplers through the center of the auger so that samples may be retrieved during drilling operations. The hollow stem also acts to case the borehole core temporarily so that a well casing (riser) may be inserted down through the center of the auger once the desired depth is reached, thus minimizing the risk of possible collapse of the borehole. A bottom plug or pilot bit can be fastened onto the bottom of the auger to keep out most of the soil and/or water that tends to clog the bottom of the augers during drilling. Drilling without a center plug is acceptable if the soil plug, formed in the bottom of the auger, is removed before sampling or installing a well casing. The soil plug can be removed by washing out the plug using a side-discharge rotary bit or auguring out the plug with a solid-stem auger bit sized to fit inside the hollow-stem auger.

During sampling, the auger will be advanced to just above the desired sampling interval. The sample will be collected by driving a split-spoon sampler into undisturbed soil/tuff to the desired depth. Samples will be collected in accordance with SOP-06.26.

6.5.2 Hand Auger

Hand augers may be used to drill shallow holes. The hand auger is advanced by turning the auger into the soil or tuff until the barrel is filled. The auger is removed and the sample is placed in a stainless-steel bowl. Hand-auger samples will be collected in accordance with SOP-06.10, Hand Auger and Thin-Wall Tube Sampler.

6.5.3 Split-Spoon Sampling

Subsurface samples will be collected from core extracted in a split-spoon core barrel following the current version of SOP-06.24. Samples collected for analyses will be placed in the appropriate sample containers, depending on the analytical method requirement. The analytical suites for the samples from each borehole will vary according to the data requirements as described in sections 4 and 5 and in the proposed sampling tables.

Field documentation will include detailed borehole logs to document the matrix material in detail; fractures and matrix samples will be assigned unique identifiers.

6.5.4 Borehole Abandonment

All boreholes will be properly abandoned according to the most recent version of SOP-5.03, Monitoring Well and RFI Borehole Abandonment.

Shallow boreholes, with a total depth of 20 ft or less, will be abandoned by filling the borehole with bentonite chips, which are subsequently hydrated. Chips will be hydrated in 1–2-ft lifts. The borehole will be visually inspected while the bentonite chips are being added to ensure that bridging does not occur.

Boreholes greater than 20 ft in depth will be pressure-grouted from the bottom of the borehole to the surface using the tremie method. Acceptable grout materials include cement or bentonite grout, neat cement, or concrete.

The use of backfill materials such as bentonite and grout will be documented in a field logbook with regard to volume (calculated and actual), intervals of placement, and additives used to enhance backfilling. All borehole abandonment information will be provided in the investigation report.

6.5.5 Excavation

Excavations will be completed using a track excavator or backhoe at selected site(s). Excavated soil will be staged a minimum of 3 ft from the edge of the excavation, and excavations deeper than 4 ft bgs will be properly benched to allow access and egress, if necessary. After confirmatory sampling and any necessary over-excavation work are completed, the excavations and/or trenches will be backfilled with clean fill material or overburden (if it is not contaminated). Excavators may also be used to collect grab samples.

6.6 Chain of Custody for Samples

The collection, screening, and transport of samples will be documented on standard forms generated by the Sample Management Office (SMO). These include sample collection logs, chain-of-custody forms, and sample container labels. Sample collection logs will be completed at the time of sample collection and signed by the sampler and a reviewer who will verify the logs for completeness and accuracy. Corresponding labels will be initialed and applied to each sample container, and custody seals will be placed around container lids or openings. Chain-of-custody forms will be completed and signed to verify that the samples are not left unattended.

6.7 Field Screening Methods

The primary field-screening methods to be used on samples include radiological screening and vapor screening for VOCs using a photoionization detector (PID).

6.7.1 Radiological Screening

Radiological field-screening will be conducted to meet of U.S. Department of Transportation requirements for shipping samples. Each sample will be field-screened by a radiological control technician for gross-alpha, -beta, and -gamma radioactivity before transporting the samples to the SMO for processing as determined by the Laboratory’s Health Physics Operations Group. Instruments used for field screening will be calibrated in accordance with the Health Physics Operations Group procedures or equivalent procedures. All instrument calibration activities and field-screening results will be documented daily in the field logbooks in accordance with SOP-5181, Notebook Documentation for Waste and Environmental Services Technical Field Activities.

6.7.2 Organic Vapor Field Screening

Organic vapor screening of surface and subsurface samples will be conducted for health and safety purposes only, using a PID with an 11.7-eV lamp. Before each day's fieldwork begins, the PID will be calibrated to the manufacturer's standard for instrument operation. All daily calibration results will be documented and PID results for each sample will be recorded on sample collection logs in accordance with SOP-5181.

6.7.3 HE Screening

HE screening will be conducted for health and safety purposes per site-specific requirements.

6.7.4 Quality Assurance/Quality Control Samples

QA/QC samples will include field duplicate, equipment rinsate, and field trip blank samples. These samples will be collected following the current version of SOP-5059, Field Quality Control Samples. Field duplicate samples will be collected at an overall frequency of at least 1 for every 10 regular samples as directed by Section IX.C.3.b of the Consent Order.

6.8 Laboratory Analytical Methods

The analytical suites for laboratory analyses are summarized in Table 6.8-1. All analytical methods are presented in the statement of work for analytical laboratories (LANL 2008, 109962). Sample collection and analysis will be coordinated with the SMO.

6.9 Health and Safety

The field investigations described in this IWP will comply with all applicable requirements pertaining to worker health and safety. An integrated work document and a site-specific health and safety plan will be in place before conducting fieldwork.

6.10 Equipment Decontamination

Equipment for drilling and sampling will be decontaminated before and after sampling activities to minimize the potential for cross-contamination. Dry decontamination methods will be used to avoid the generation of liquid waste and to minimize the IDW. Dry decontamination uses disposable paper towels and over-the-counter cleaner, such as Fantastik or equivalent. All sampling and measuring equipment will be decontaminated in accordance with SOP-01.08, Field Decontamination of Drilling and Sampling Equipment.

Dry decontamination may be followed by wet decontamination if necessary. Wet decontamination may include washing with a nonphosphate detergent and water, followed by a water rinse and a second rinse with deionized water. Alternatively, drilling/exploration equipment that may come in contact with the borehole will be decontaminated by steam cleaning, by hot water pressure washing, or by another method before each new borehole is drilled. The equipment will be pressure-washed with a high-density polyethylene liner on a temporary decontamination pad. Cleaning solutions and wash water will be collected and contained for proper disposal. Decontamination solutions will be sampled and analyzed to determine the final disposition of the wastewater and the effectiveness of the decontamination procedures.

6.11 Removal Activities

Removal of the following structures is proposed in this IWP:

- sump and drainline associated with SWMU 16-003(b);
- sump associated with SWMU 16-003(c), part of Consolidated Unit 16-003(c)-99;
- drainline associated with SWMU 16-026(v), part of Consolidated Unit 16-003(c)-99;
- drainline associated with SWMU 16-003(l), part of Consolidated Unit 16-003(l)-99;
- septic tank, manhole, and drainline associated with SWMU 16-006(c), part of Consolidated Unit 16-006(c)-00; and
- drainlines associated with SWMU 16-026(c2).

The debris of SWMU 16-16(g) will also be removed.

The following structures will be located and, if encountered, will be removed:

- dry well and drainline associated with SWMU 16-001(d);
- drainlines associated with SWMU 16-005(h);
- drainlines associated with SWMU 16-005(k);
- drainlines associated with SWMU 16-005(l);
- drainlines associated with SWMU 16-026(a), part of Consolidated Unit 16-006(c)-00;
- sump and drainline associated with SWMU 16-015(a);
- drainline associated with SWMU 16-026(s);
- drainlines associated with SWMU 16-028(b); and
- drainline associated with SWMU 16-031(a).

6.11.1 Removal of Sumps, Septic Tank, and Manhole

The approach for removing sumps, the septic tank, and the manhole will generally follow the same approach in this work plan.

Each sump, the septic tank, and the manhole will be located and the soil, fill, or other material covering the structure will be excavated. The excavated material will be field screened during the excavation process and will remain within the SWMU boundary from which it was excavated. If the field screening does not indicate contamination is present, the excavated material will be stored on the ground surface with appropriate BMPs. If field screening indicates the presence of contamination, the excavated material will be placed in rolloff containers and disposed of accordingly.

Once exposed, the location of the structure and its dimensions will be surveyed. The content of each sump, the septic tank, and the manhole will be sampled and characterized for waste management purposes. The contents and the structure will be removed and disposed of at an appropriate waste disposal facility. The inlet and outlet pipelines to the structure will be plugged.

Visual observations and field screening will be used to guide the sampling to determine the extent of contamination and to guide collecting confirmatory samples. If visual observations or field screening indicate contamination, the excavation will be extended (either vertically or laterally) as necessary. Excavation will continue until visual observations and field screening indicate that contamination is no longer present.

Once excavation has been completed, confirmation samples will be collected from beneath the inlet and outlet to the sump, septic tank, and manhole, and from 5 ft below the inlet and outlet. Samples will also be collected at the base of the structure, 5 ft below the base, and 10 ft below the base. Samples will be submitted for laboratory analyses to verify contamination has been removed. Additional confirmation samples will be collected if field screening results are elevated or if staining, odors, and/or leaking are observed or encountered in the field. The excavated area will then be backfilled with clean fill and/or the material excavated from the surface of the structure if field screening does not indicate the presence of contamination and direct-sampling results do not show concentrations above the residential SSLs.

Management of the excavated environmental media, the excavated man-made debris, and any liquid from sumps, septic tank, and manhole are described in detail in sections B-2.2, B-2.3, and B-2.4, respectively, in Appendix B.

6.11.2 Removal of Drainlines

The approach for removing each drainline will generally follow the same approach.

Each drainline will be located by trenching and the soil, fill, or other material covering the drainline will be excavated. The excavated material will be field screened during the excavation process and will remain within the SWMU boundary from which it was excavated. If the field screening does not indicate contamination is present, the excavated material will be stored on the ground surface with appropriate BMPs. If field screening indicates the presence of contamination, the excavated material will be placed in rolloff containers and disposed of accordingly.

Once exposed, the location of the drainline will be surveyed. The inlet or outlet drainline will be plugged near its connection to a building or other structure. The drainline will be removed and disposed of at an appropriate waste disposal facility.

Visual observations and field screening will be used to guide the sampling to determine the extent of contamination and to guide collection of confirmatory samples. If visual observations or field screening indicate contamination, the excavation will be extended (either vertically or laterally), as necessary. Excavation will continue until visual observations and field screening indicate that contamination is no longer present.

Once excavation has been completed, confirmation samples will be collected at the base of the drainline and 5 ft below the base of the drainline. Samples will be submitted for laboratory analyses to verify contamination has been removed. Additional confirmation samples will be collected if field screening results are elevated or if staining, odors, and/or broken pipes are observed or encountered in the field. The excavated area will then be backfilled with clean fill and/or the material excavated from the surface of the drainline if field screening does not indicate the presence of contamination.

Management of the excavated environmental media and the excavated man-made debris are described in detail in sections B-2.2 and B-2.3, respectively, in Appendix B.

6.12 Investigation-Derived Waste

IDW generated by the proposed investigation activities may include, but is not limited to, drill cuttings, excavated soil or other environmental media, excavated man-made debris, contact waste such as personal protective equipment, decontamination fluids, and all other waste that has potentially come into contact with contaminants.

All IDW generated during field-investigation activities will be managed in accordance with applicable EPA and NMED regulations, DOE orders, and Laboratory requirements. Appendix B presents the IDW management plan.

7.0 MONITORING PROGRAMS

7.1 Groundwater

Section IV.B.2.a.ii of the Consent Order, as implemented under the Laboratory's annual Interim Facility-Wide Groundwater Monitoring Plan, requires monitoring and sampling of all wells that contain alluvial, intermediate, and regional groundwater located in the Upper Water Canyon Aggregate Area. There are no alluvial and intermediate wells located in the Upper Water Canyon Aggregate Area. No regional monitoring is located in the vicinity of any site under investigation in this work plan.

7.2 Surface Water

Six surface monitoring areas (SMAs) W-SMA-1, W-SMA-2, W-SMA-6, W-SMA-7, W-SMA-8, and W-SMA-9 are located within the Upper Water Canyon Aggregate Area. These SMAs are used to monitor storm water discharges from 15 SWMUs and AOCs that are included in the Laboratory's NPDES individual permit for storm water discharges from SWMUs and AOCs. Plate 1 shows the locations of these SMAs in the Upper Water Canyon Aggregate Area. There is no stormwater monitoring gage station within the Upper Water Canyon Aggregate Area.

8.0 SCHEDULE

The scheduled notice date for NMED to approve this IWP is December 29, 2010. Preparation for investigation activities is anticipated to begin in June 2011. Fieldwork is expected to begin in September 2011 and be completed in May 2012. A submittal date of no later than December 31, 2012, is proposed for the investigation report.

9.0 REFERENCES AND MAP DATA SOURCES

9.1 References

The following list includes all documents cited in this plan. Parenthetical information following each reference provides the author(s), publication date, and Environmental Remediation and Surveillance Program identification numbers (ER IDs). This information is also included in text citations. ER ID numbers 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; the U.S. Department of Energy—Los Alamos Site Office; the U.S. Environmental Protection Agency, Region 6;

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9.2 Map Data Sources

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Fence: ksl_fences_arc; Security and Industrial Fences and Gates; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.

Paved road: ksl_paved_rds_arc; Paved Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.

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Storm drain: ksl_stormdrn_arc; Storm Drain Line Distribution System; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.

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Steam: ksl_steam_arc; Steam Line Distribution System; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.

Water: ksl_water_arc; Water Lines; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.

(inset)LANL Boundary: plan_ownerclip_reg; Ownership Boundaries around LANL Area; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; 19 September 2007; as published 04 December 2008.

(Inset)ROADS: lac_streets_arc; Streets; County of Los Alamos, Information Services; as published 16 May 2006.

Landscape: ksl_landscape_arc; Primary Landscape Features; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 28 May 2009.

Former structures: frmr_structures_ply; Former Structures of the Los Alamos Site; Los Alamos National Laboratory, Waste and Environmental Services Division, EP2008-0441; 1:2,500 Scale Data; 08 August 2008.

Technical area boundary: plan_tecareas_ply; Technical Area Boundaries; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Office; September 2007; as published 04 December 2008.

Inactive Outfall: wqh_inact_outfalls_pnt; WQH Inactive Outfalls; Los Alamos National Laboratory, ENV Water Quality and Hydrology Group; Edition 2002.01; 01 September 2003.

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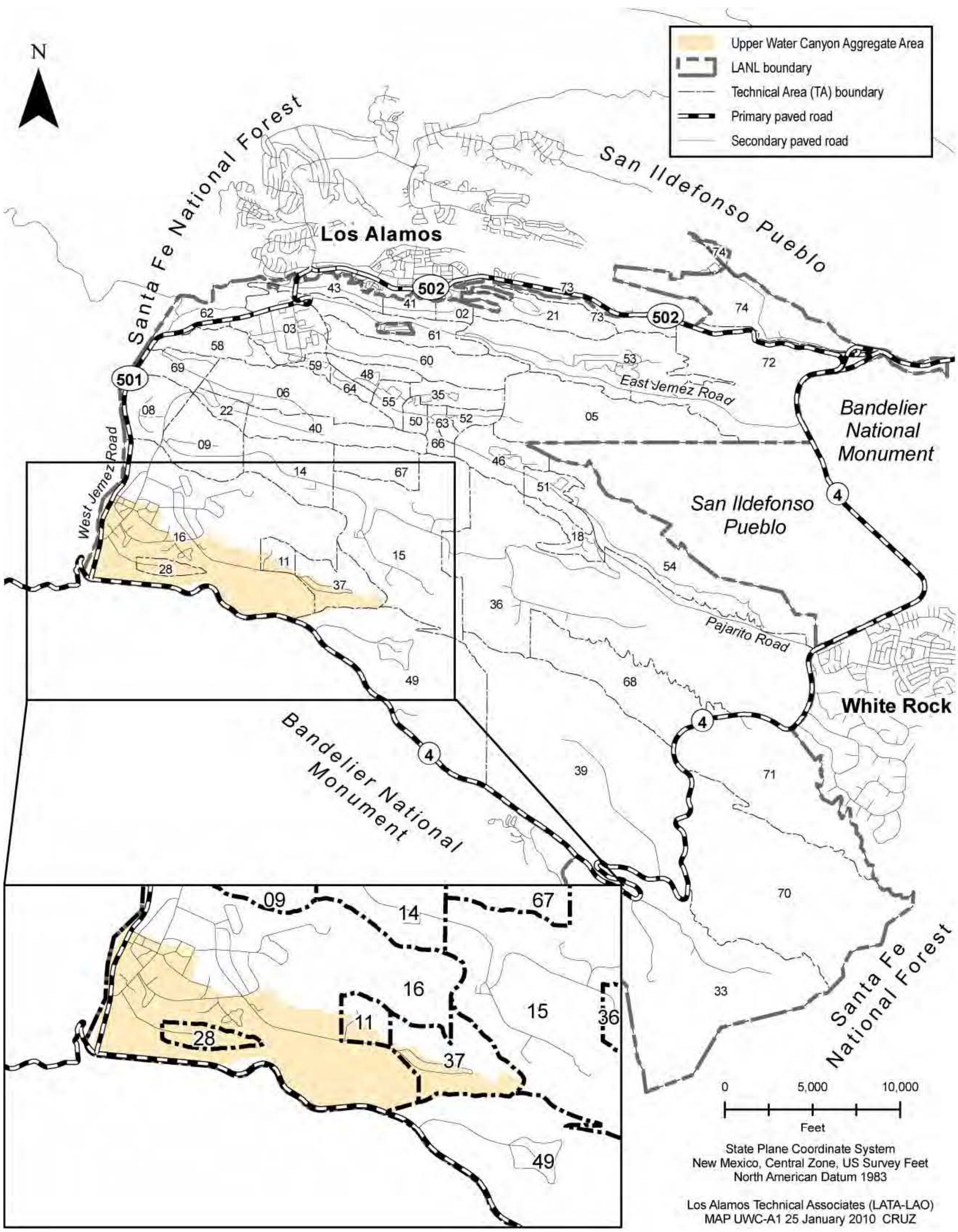


Figure 1.0-1 Location of Upper Water Canyon Aggregate Area with respect to Laboratory technical areas

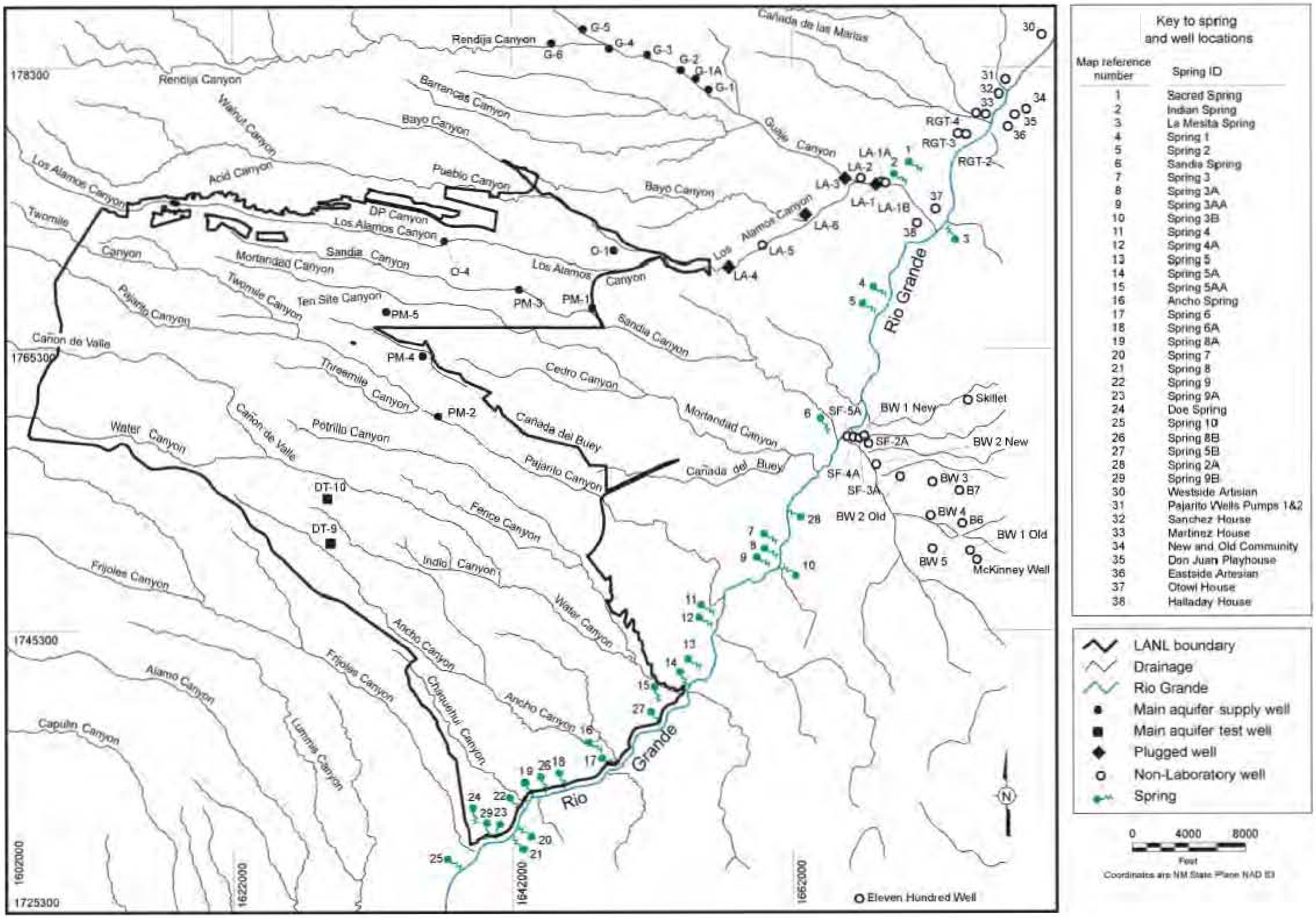
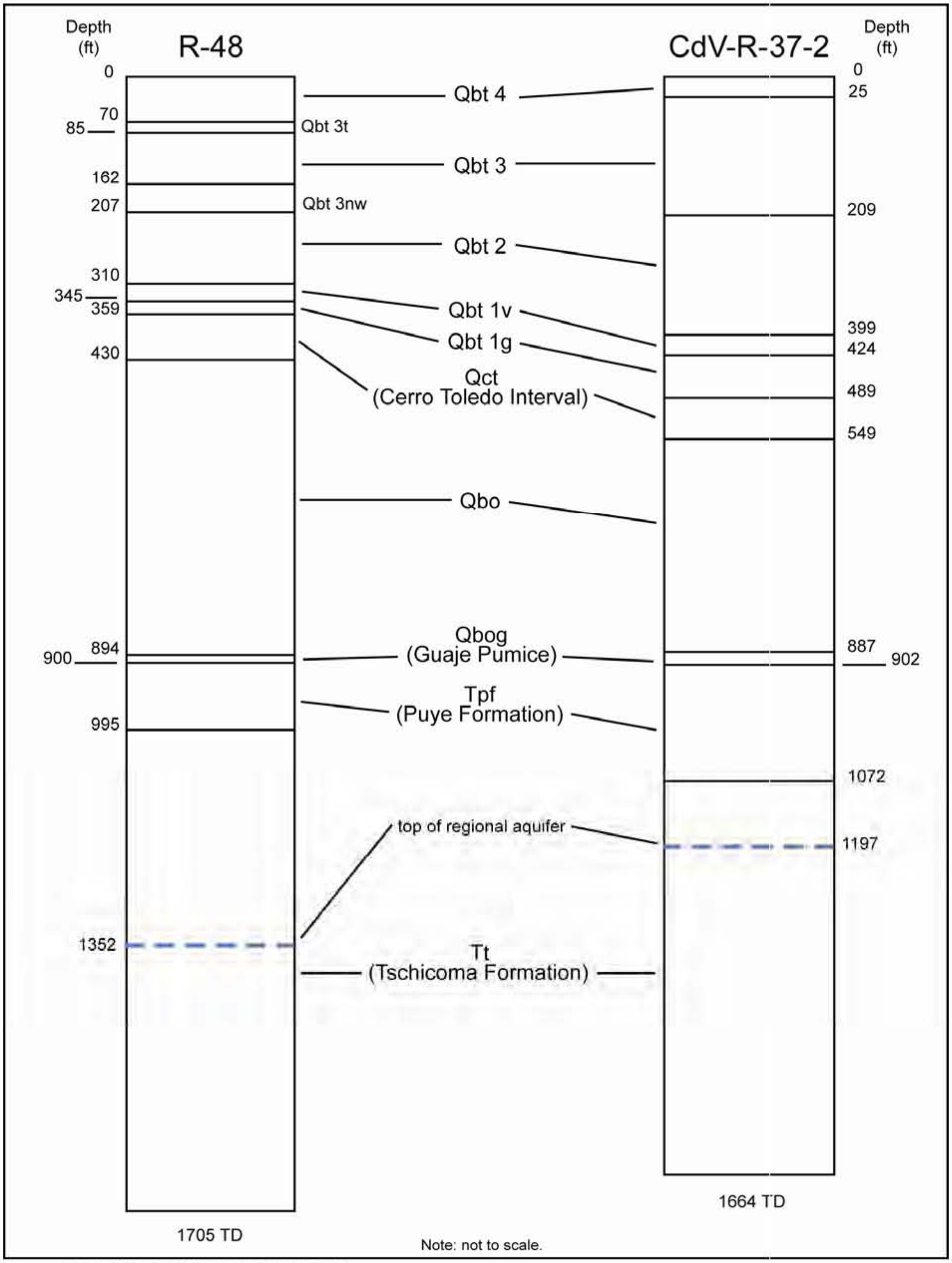


Figure 3.1-1 Surface-water drainage to the Rio Grande



Source: LANL 2002, 073707; LANL 2010, 108778.

Figure 3.2-1 Stratigraphy of geologic units in regional wells R-48 and CdV-R-37-2 (located in TA-16, Cañon de Valle Aggregate Area)

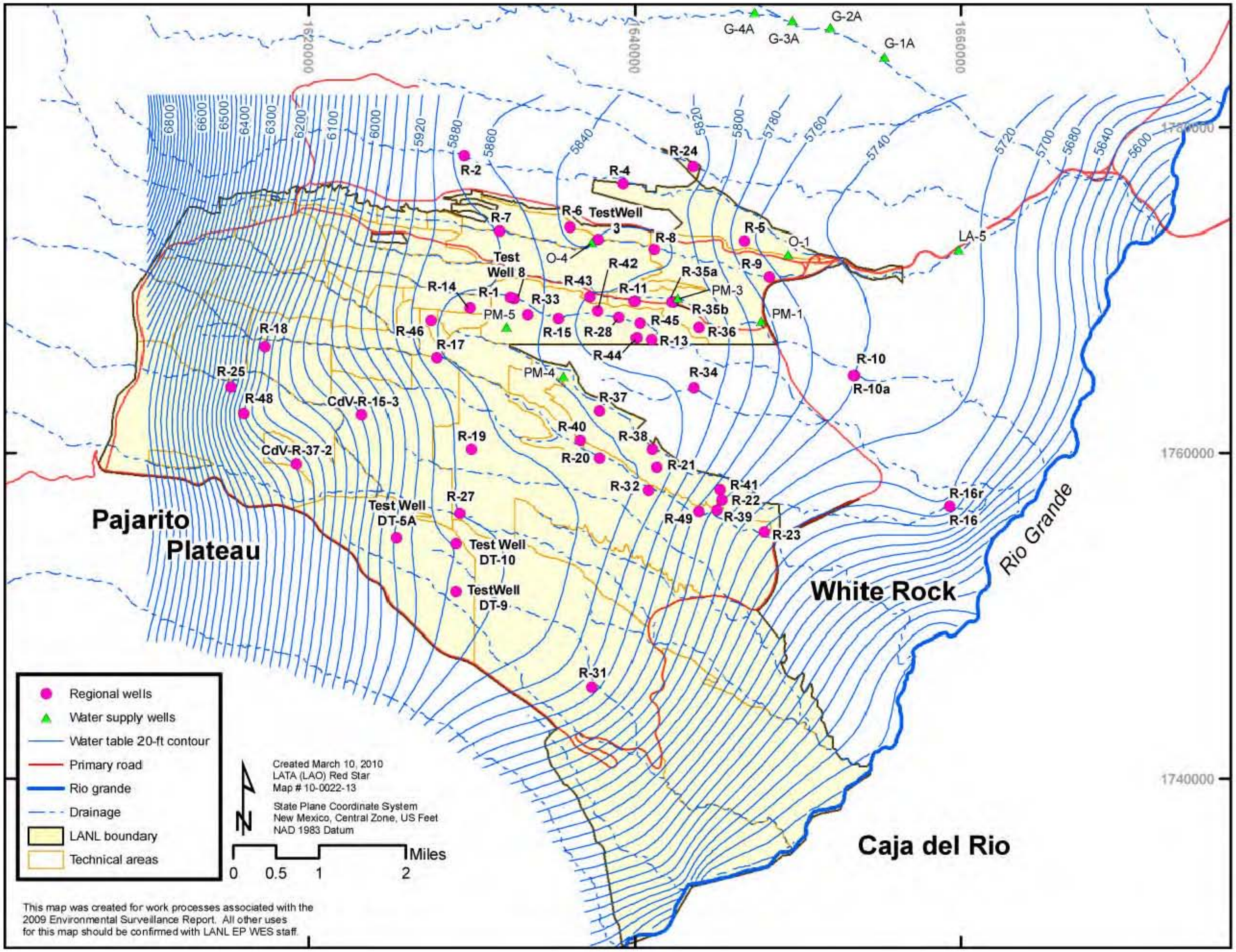


Figure 3.2-2 Elevations of top of regional aquifer across the Laboratory

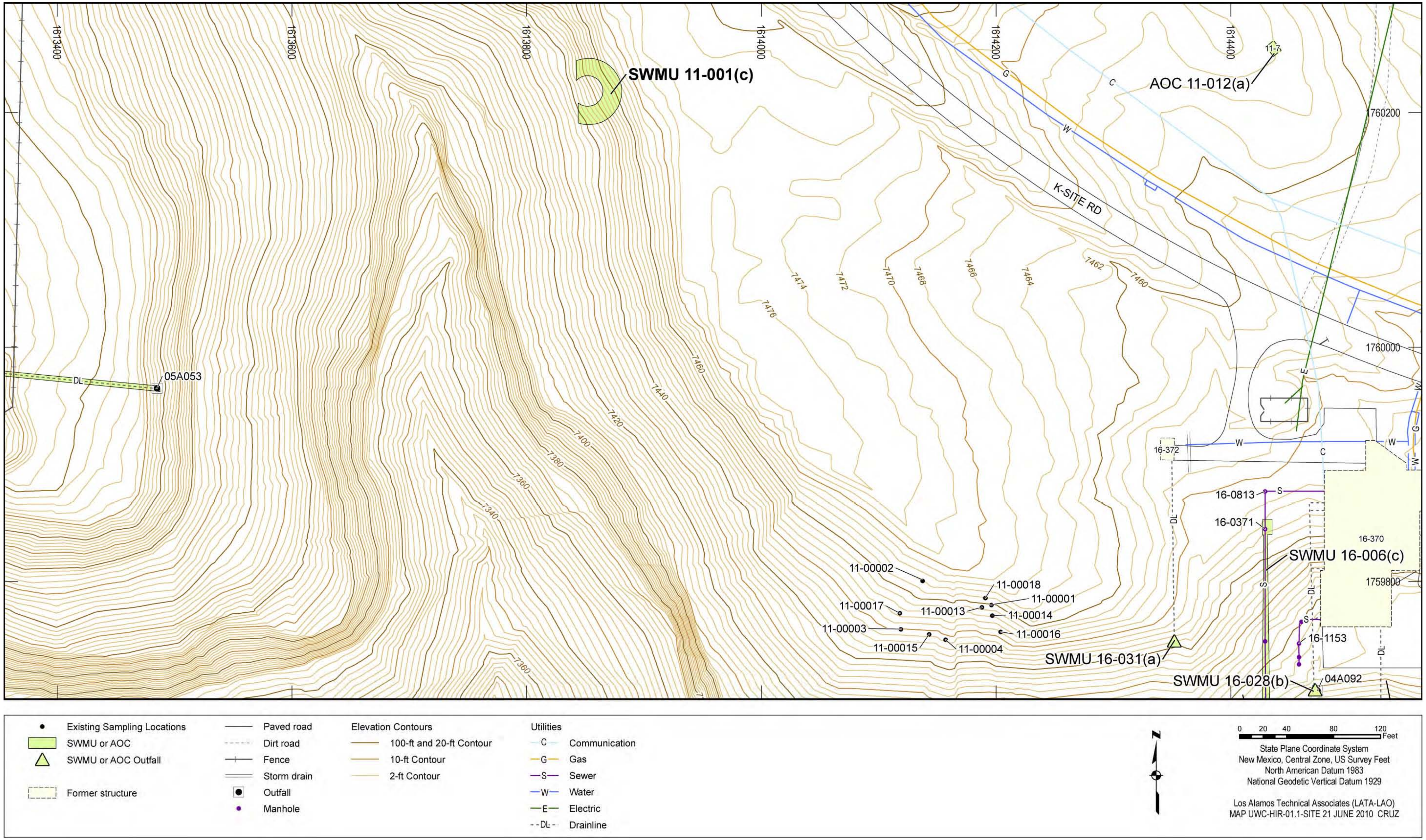


Figure 4.1-1 Site features of SWMU 11-001(c)

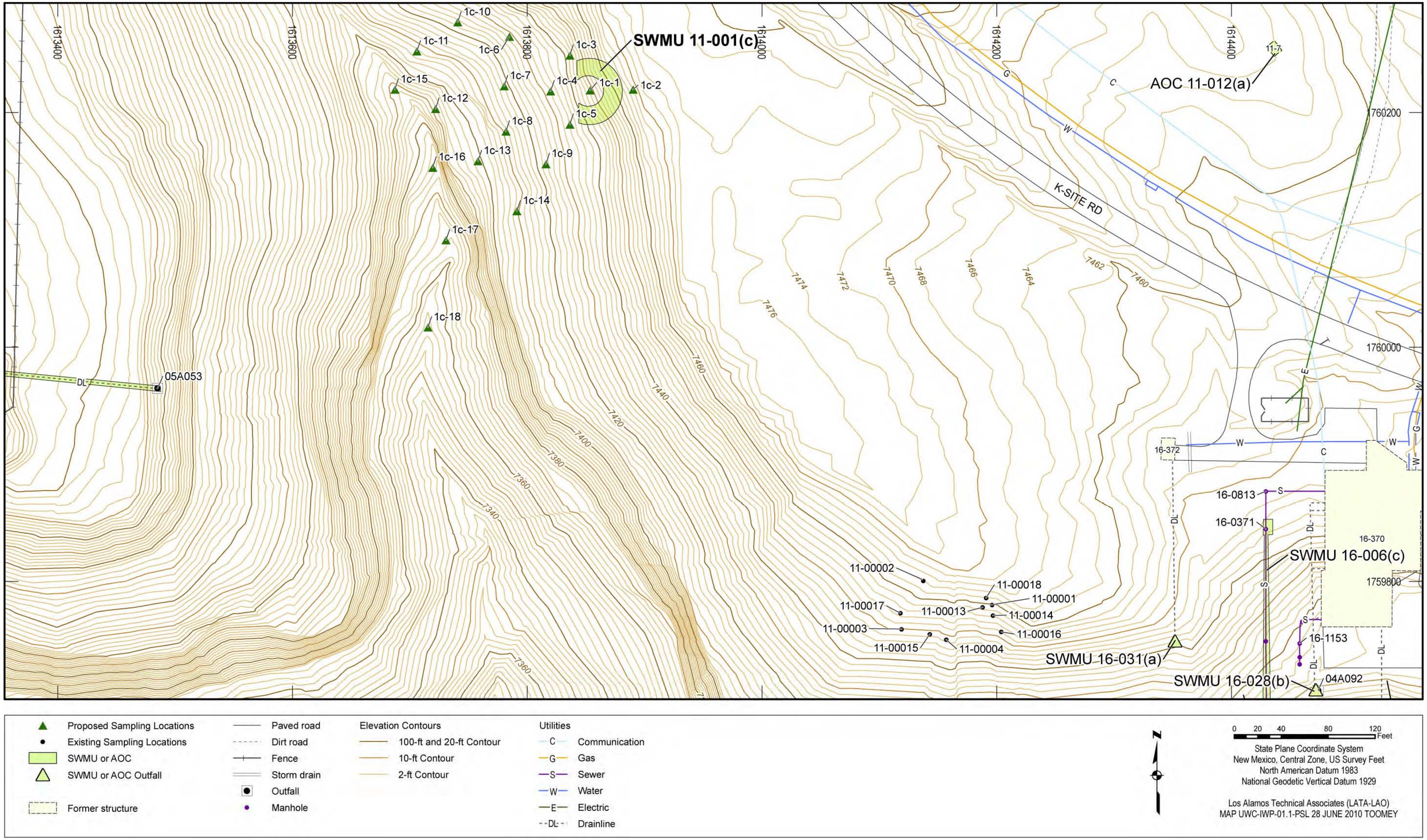


Figure 4.1-2 Proposed sampling locations for SWMU 11-001(c)

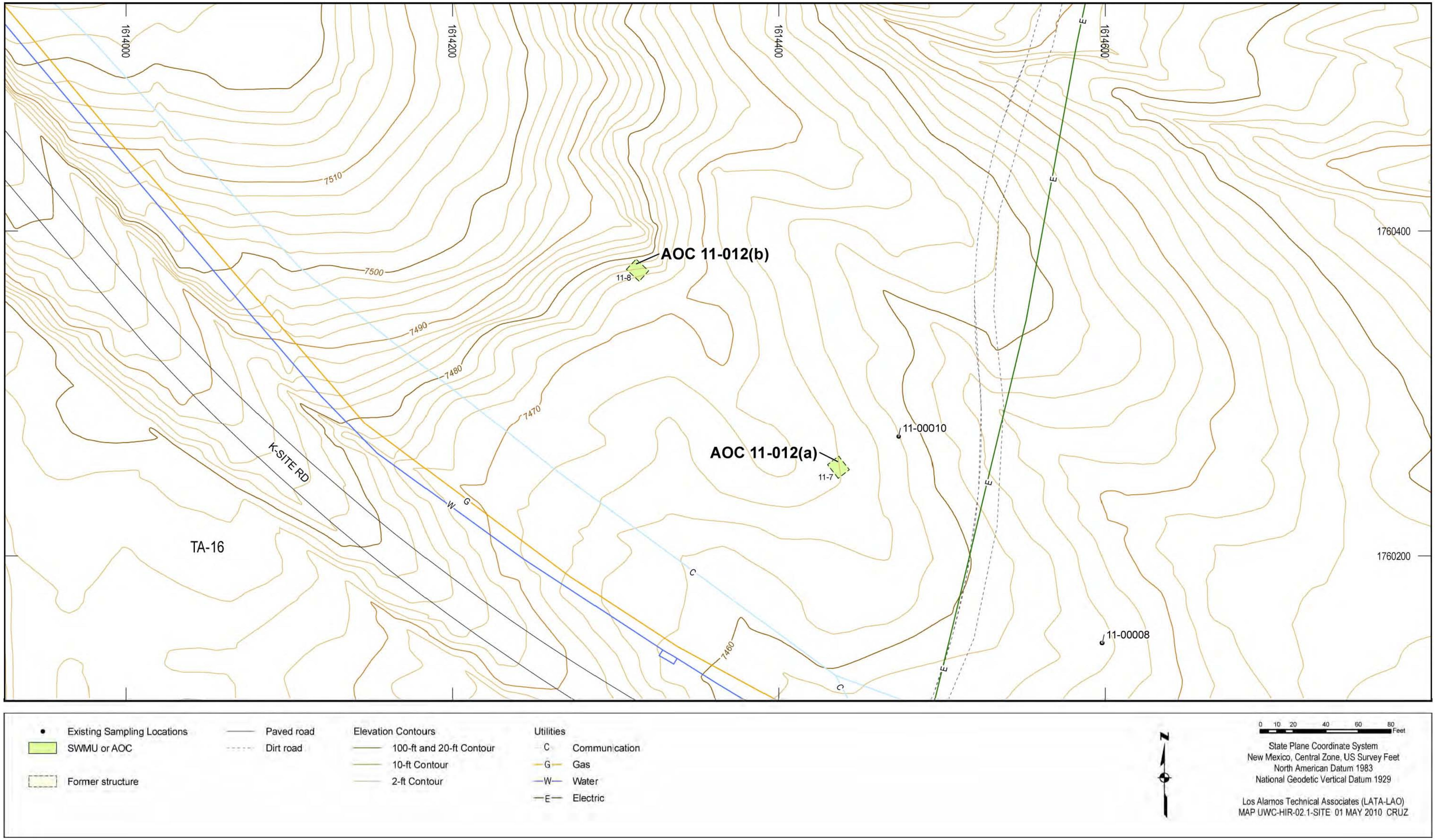


Figure 4.2-1 Site features of AOC 11-012(a) and AOC 11-012(b)

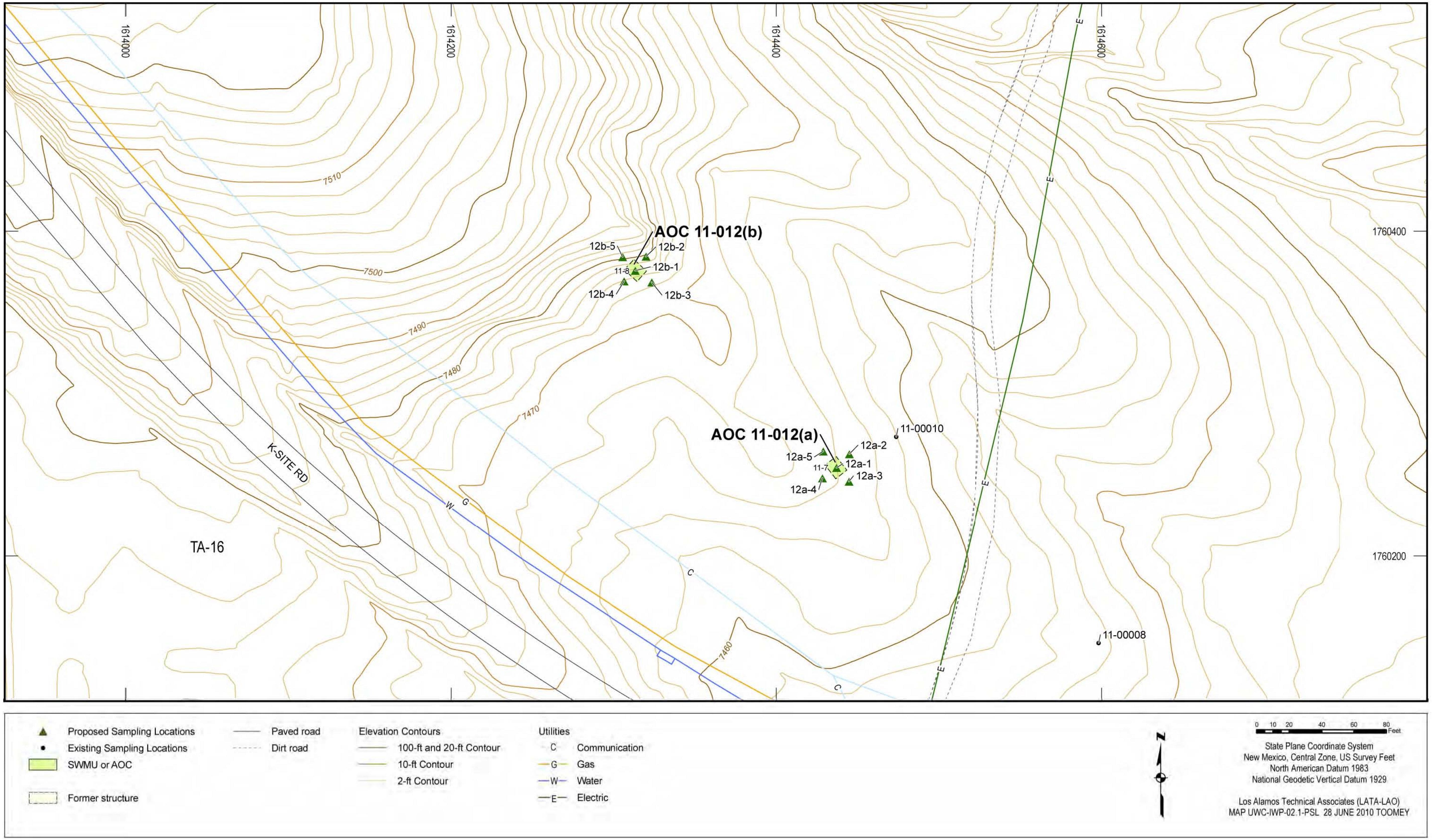


Figure 4.2-2 **Proposed sampling locations for AOC 11-012(a) and AOC 11-012(b)**

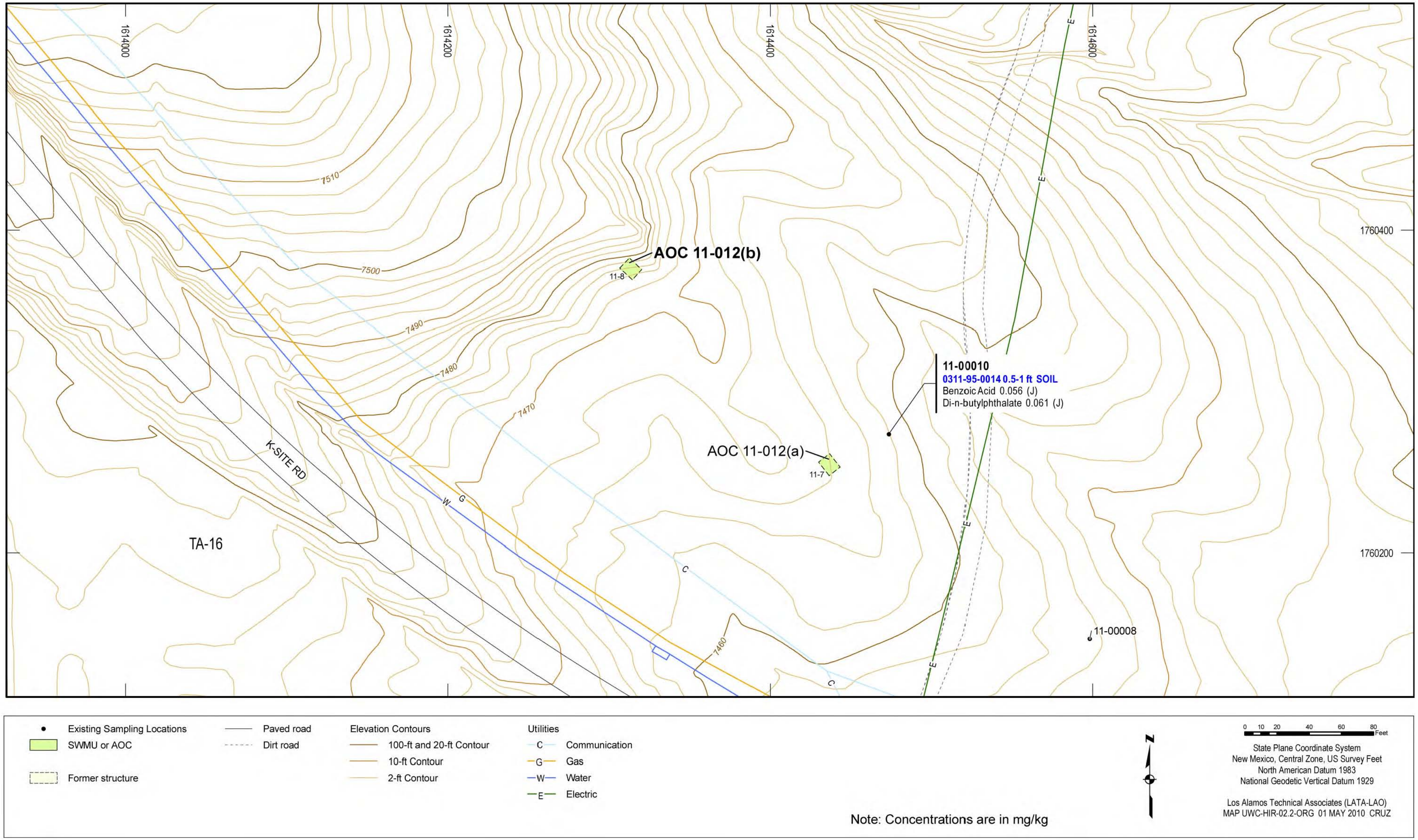


Figure 4.3-1 Organic chemicals detected at AOC 11-012(b)

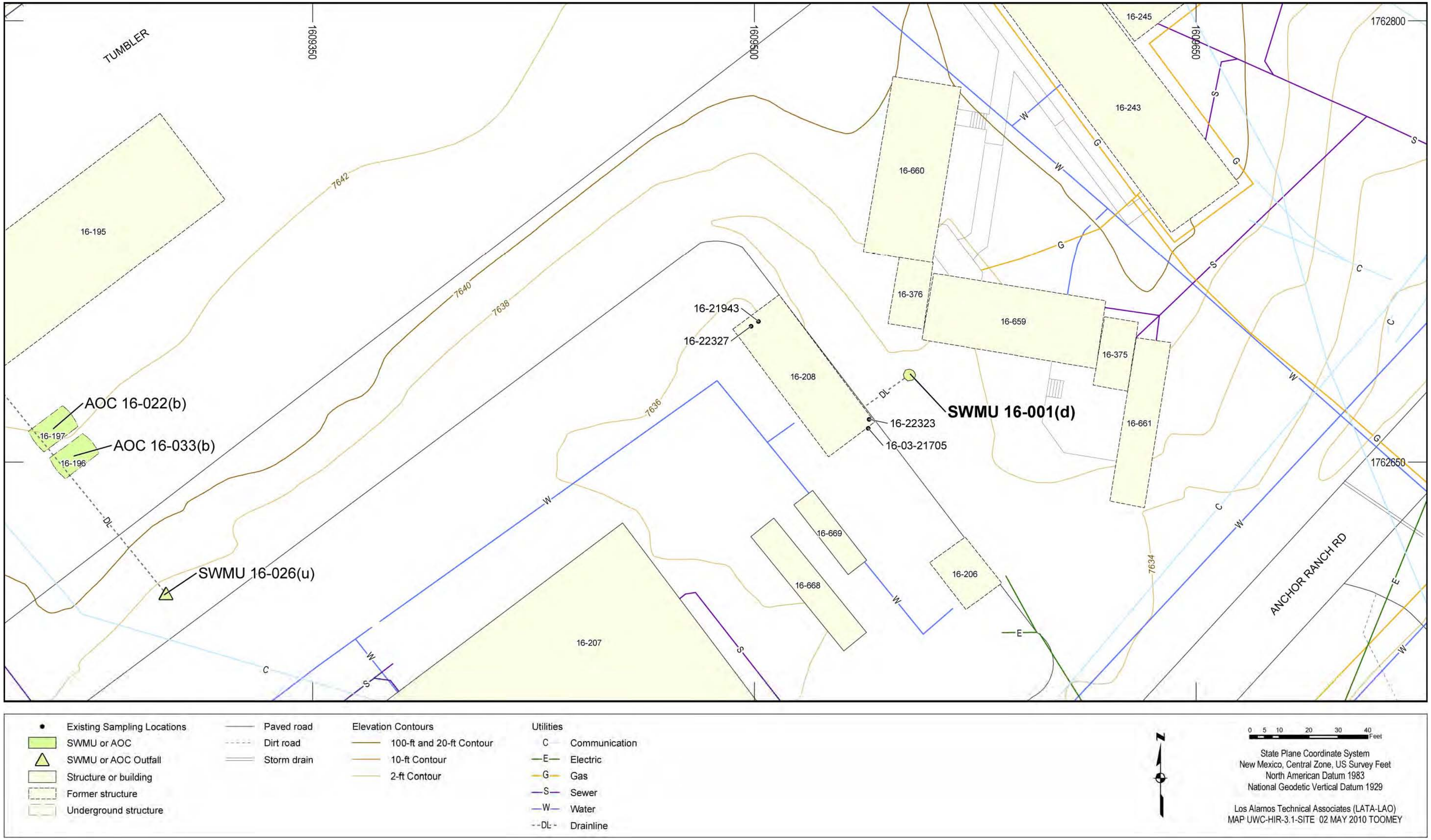


Figure 5.1-1 Site features of SWMU 16-001(d)

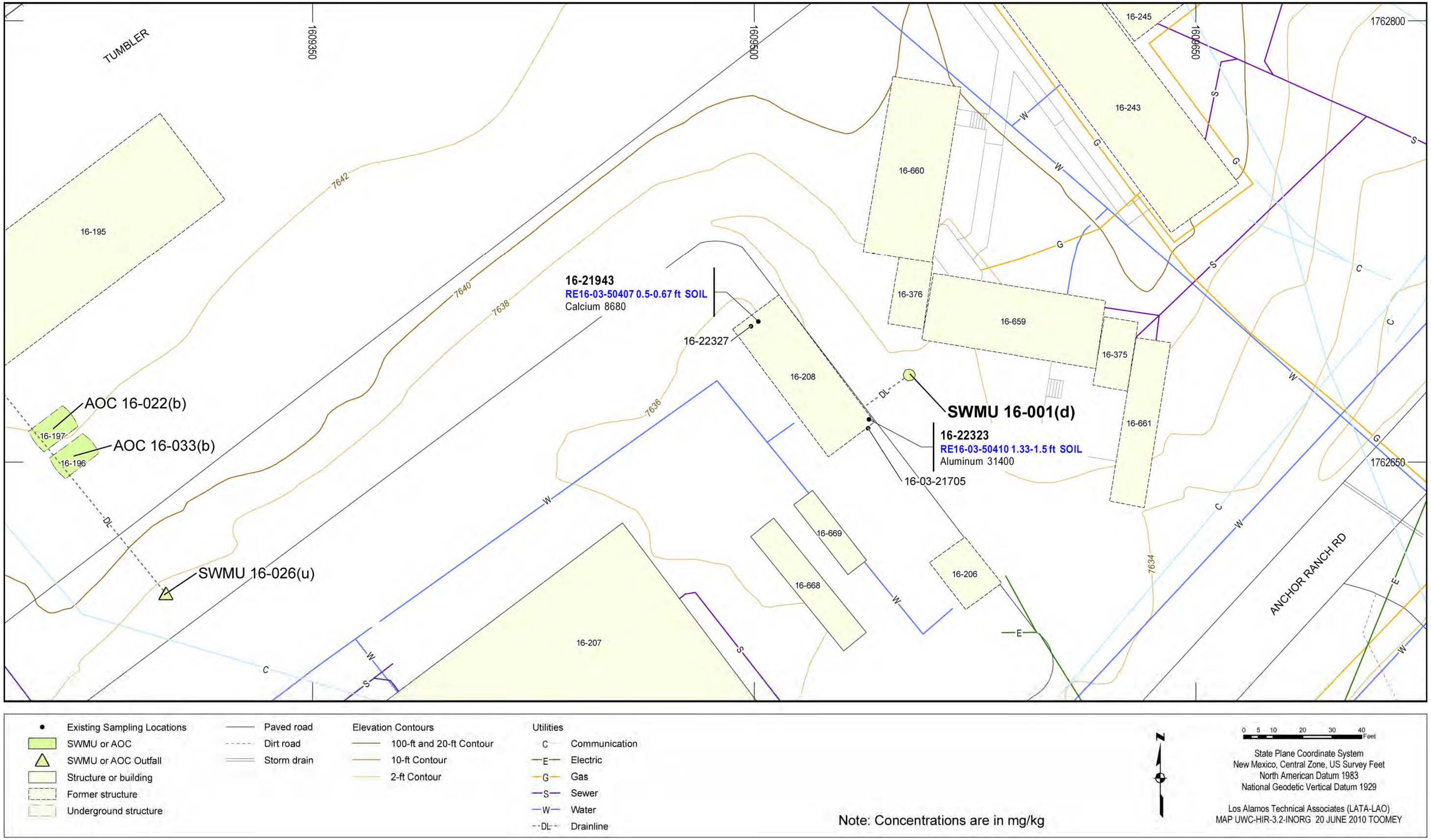


Figure 5.1-2 Inorganic chemicals detected above BVs at SWMU 16-001(d)

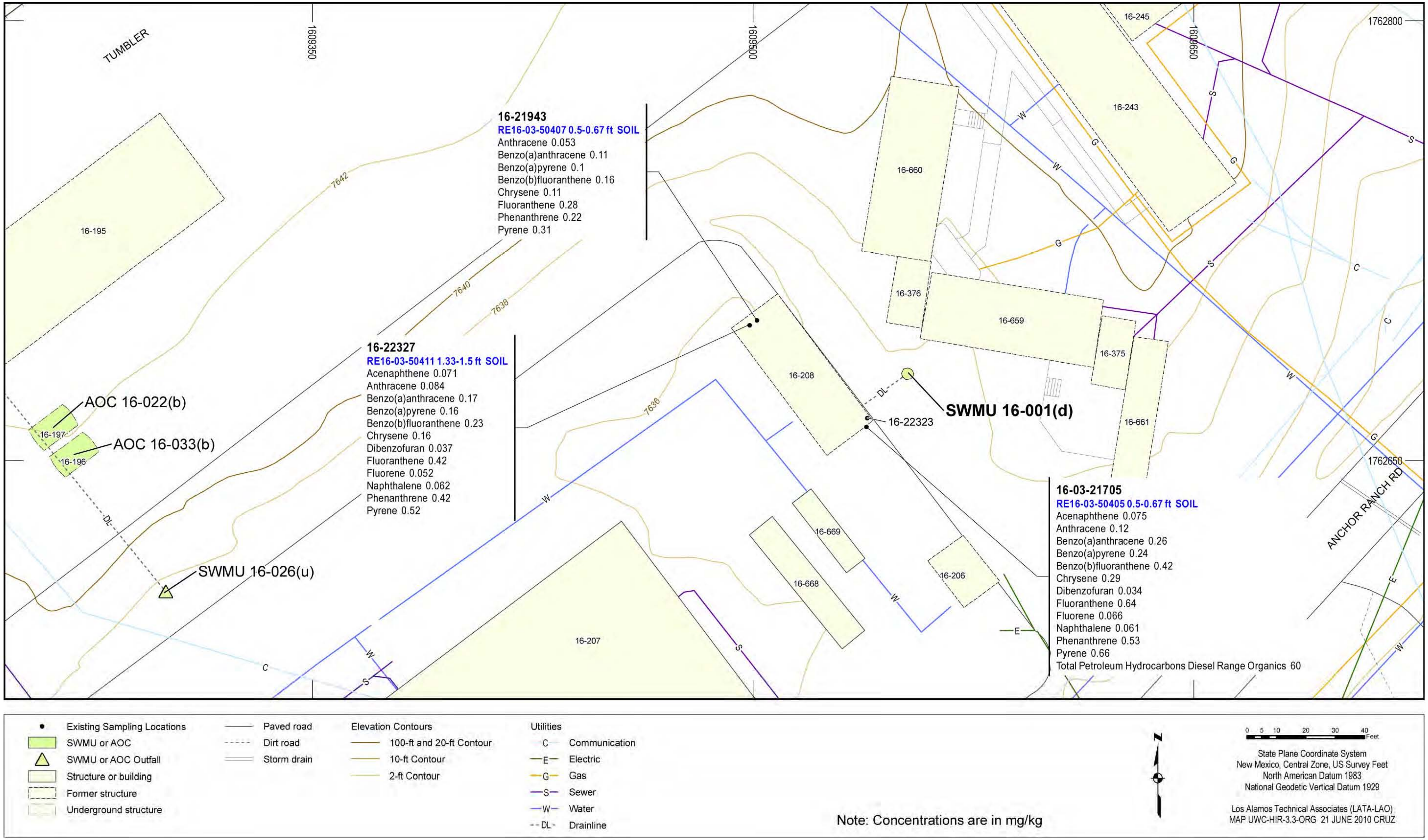


Figure 5.1-3 Organic chemicals detected at SWMU 16-001(d)

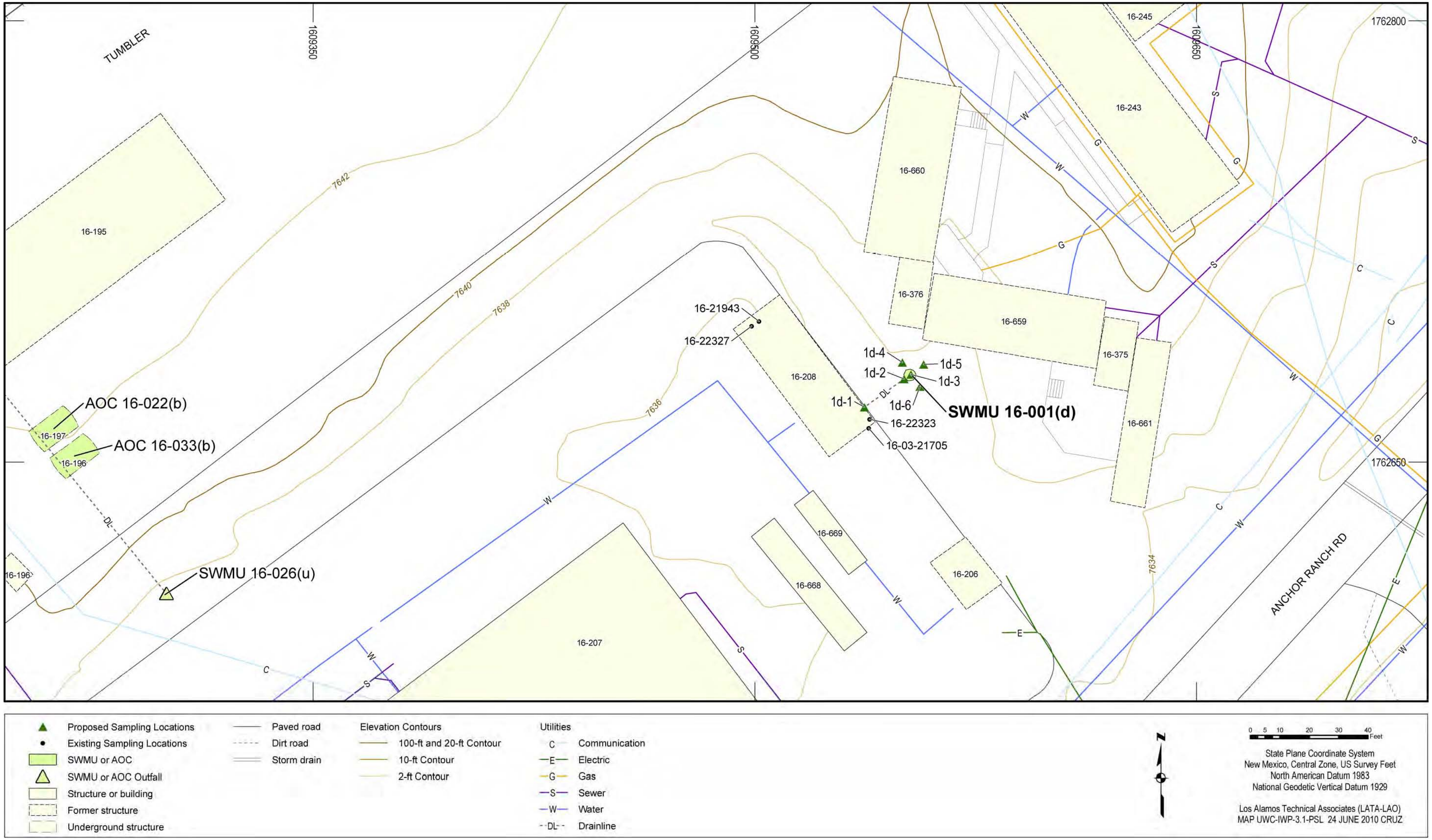


Figure 5.1-4 Proposed sampling locations for SWMU 16-001(d)

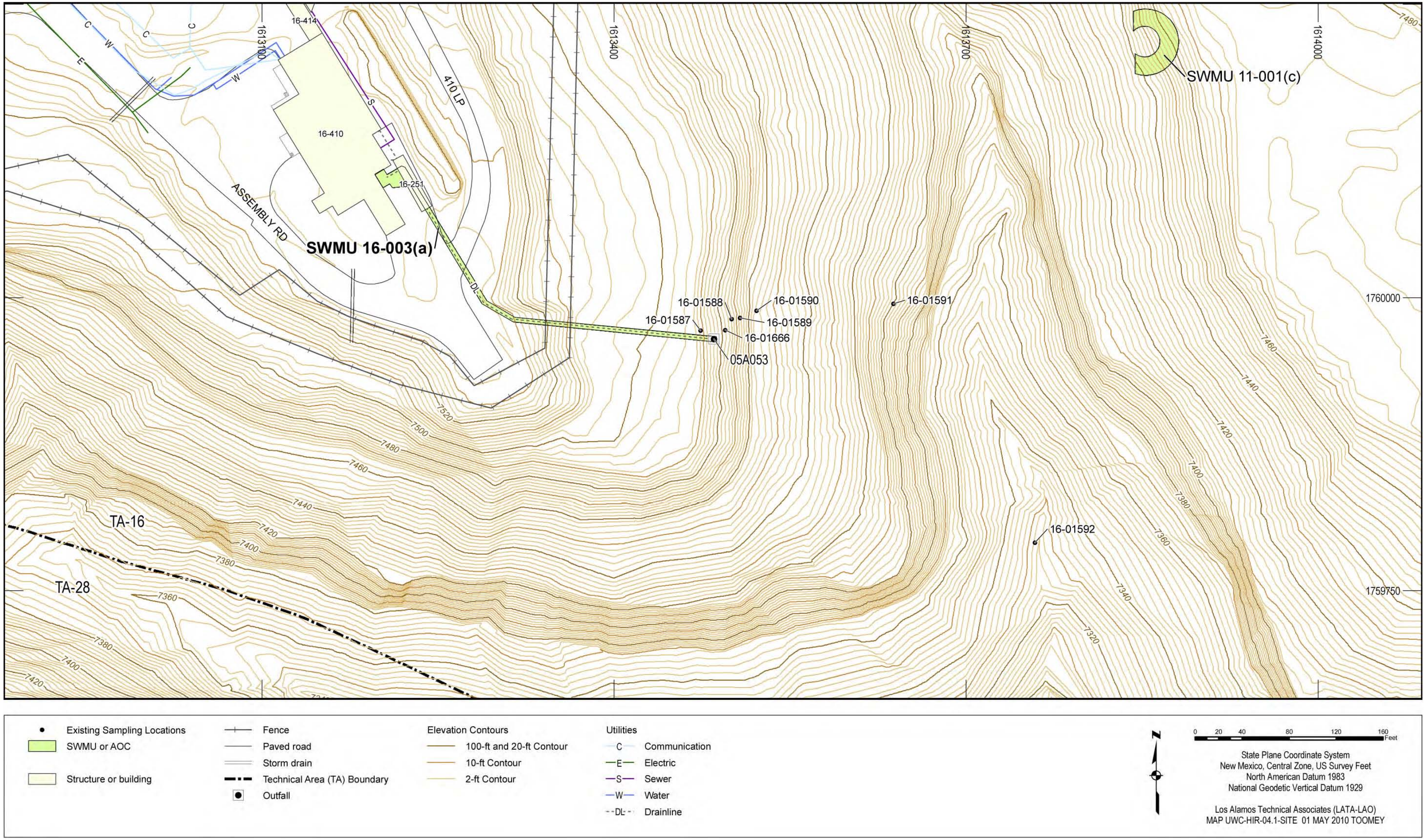


Figure 5.2-1 Site features of SWMU 16-003(a)

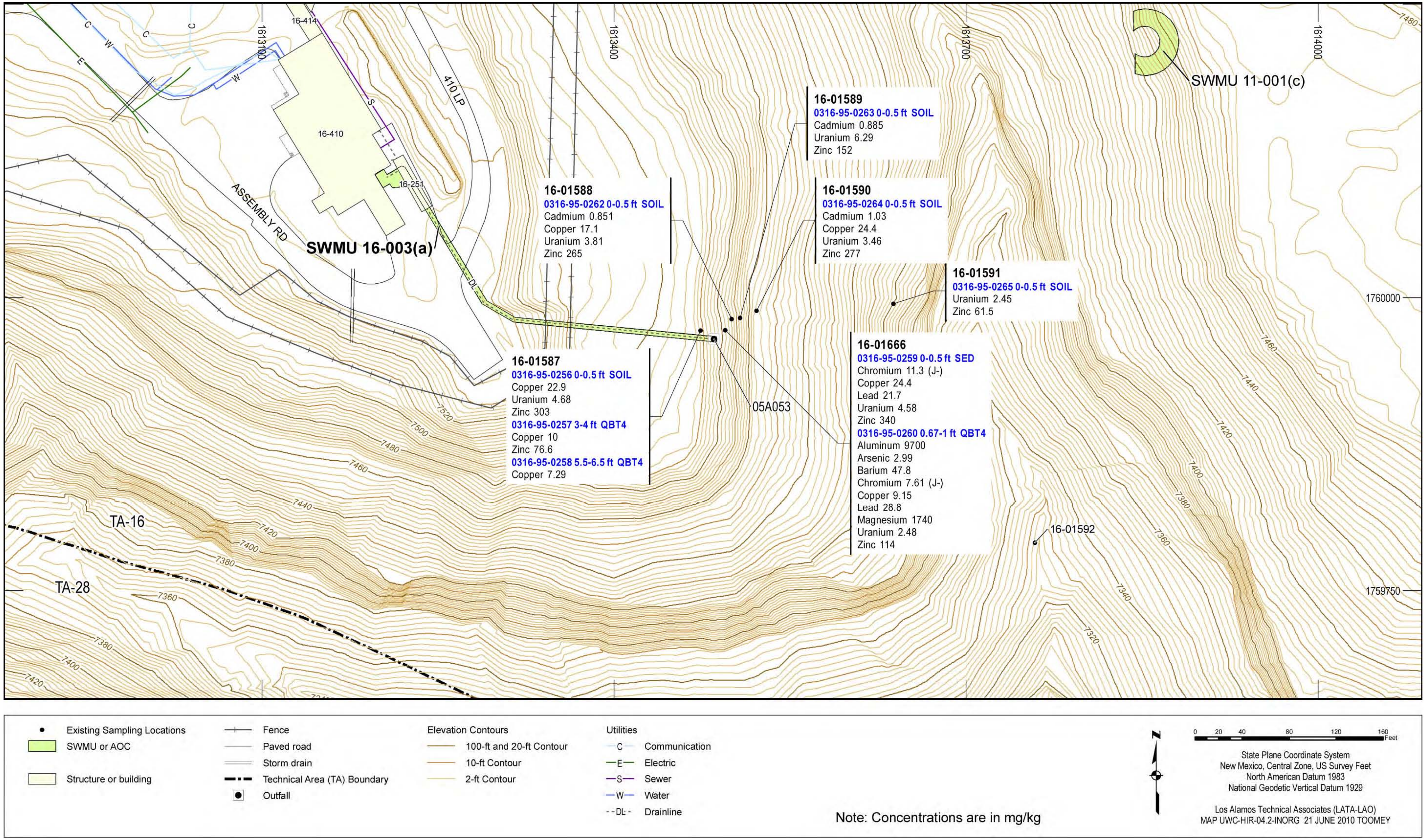


Figure 5.2-2 Inorganic chemicals detected above BVs at SWMU 16-003(a)

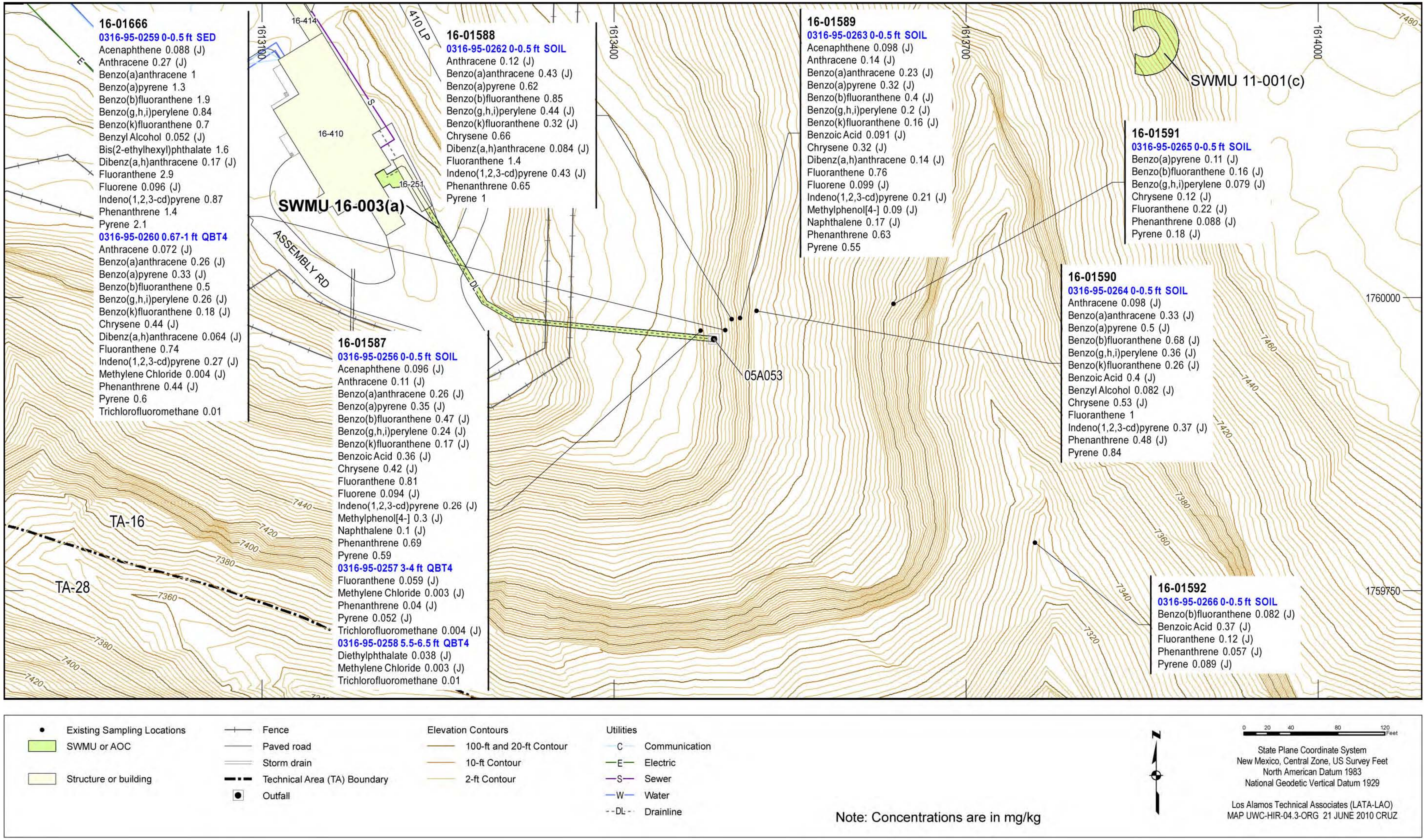


Figure 5.2-3 Organic chemicals detected at SWMU 16-003(a)

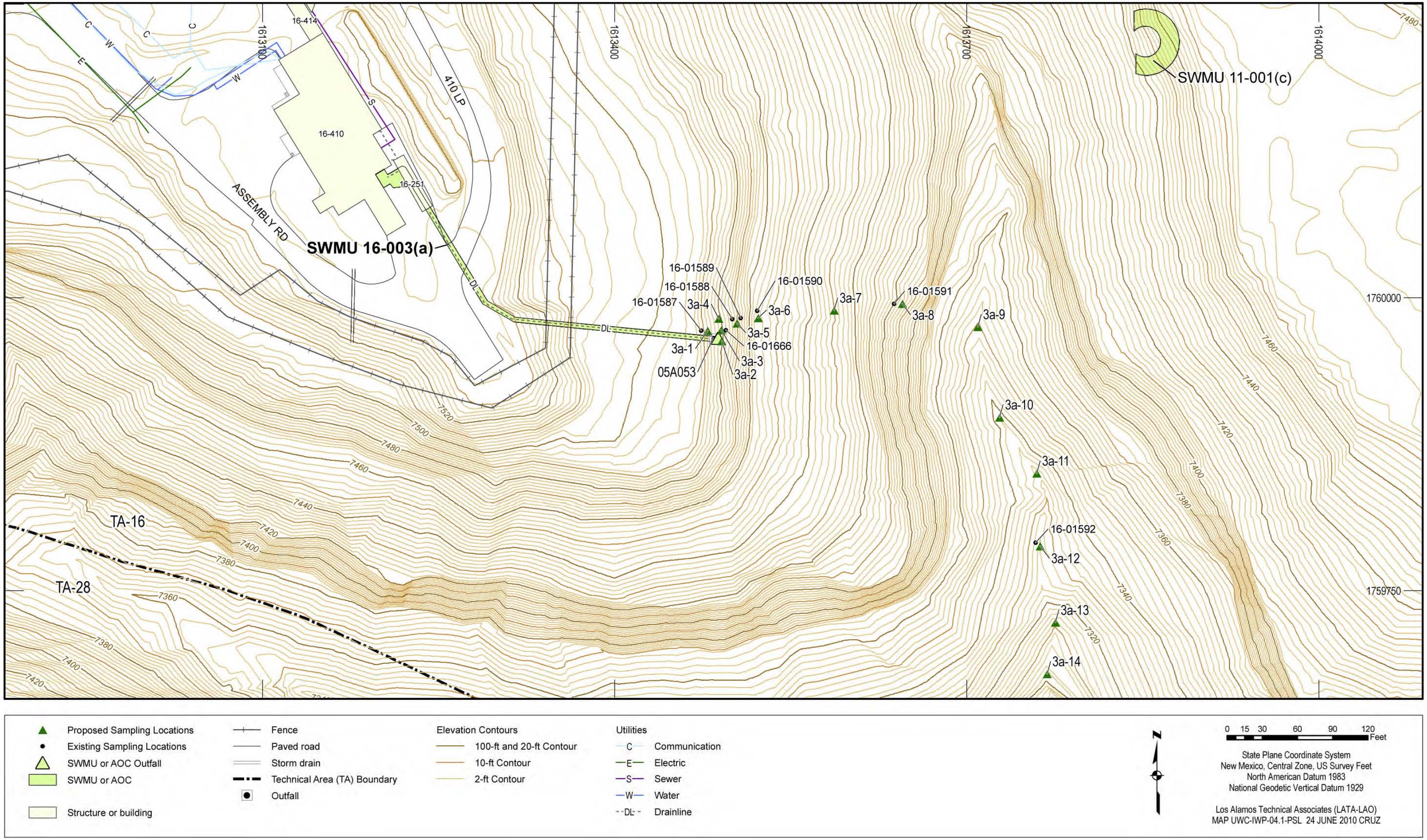


Figure 5.2-4 Proposed sampling locations for SWMU 16-003(a)

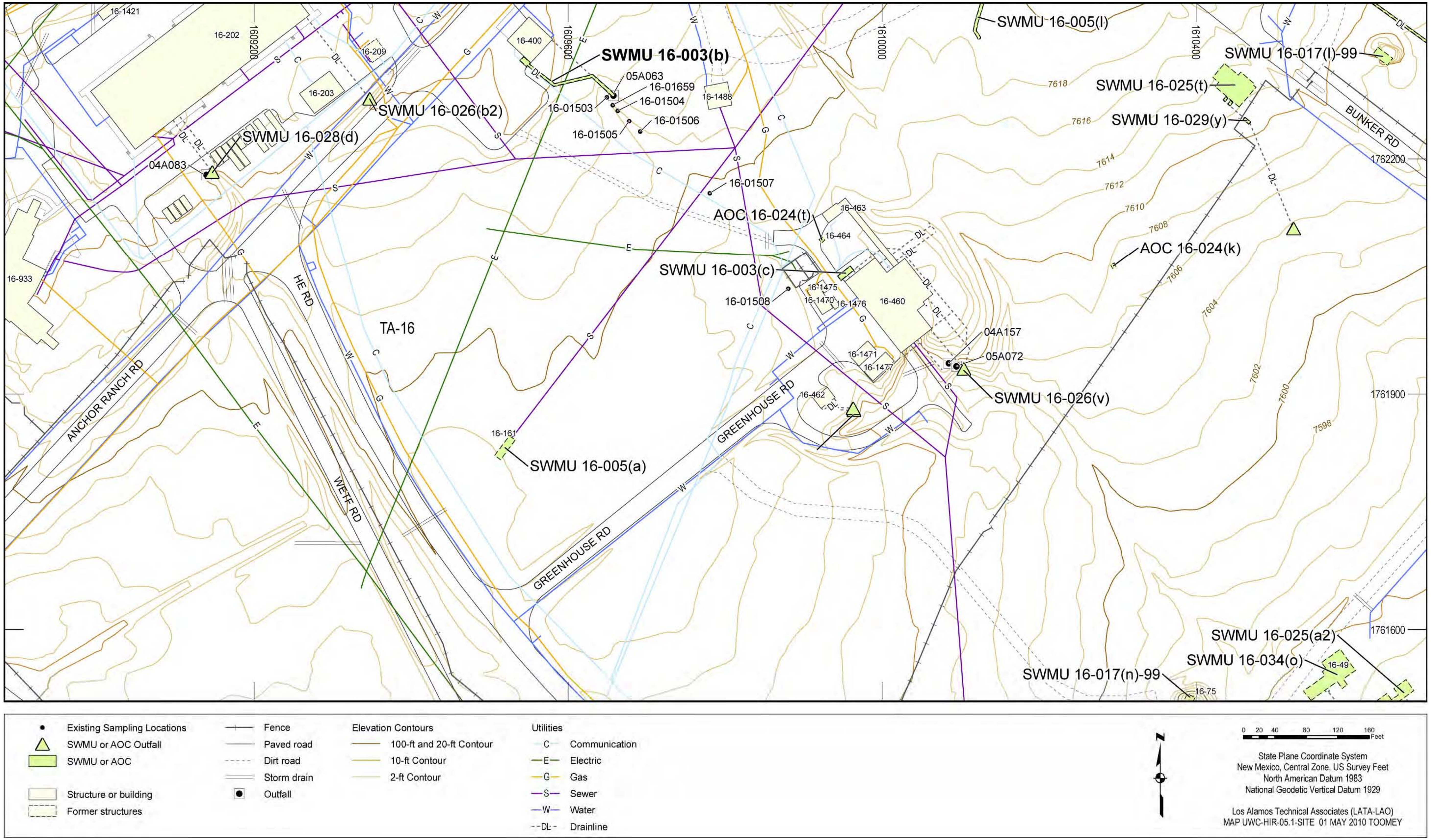


Figure 5.3-1 Site features of SWMU 16-003(b)

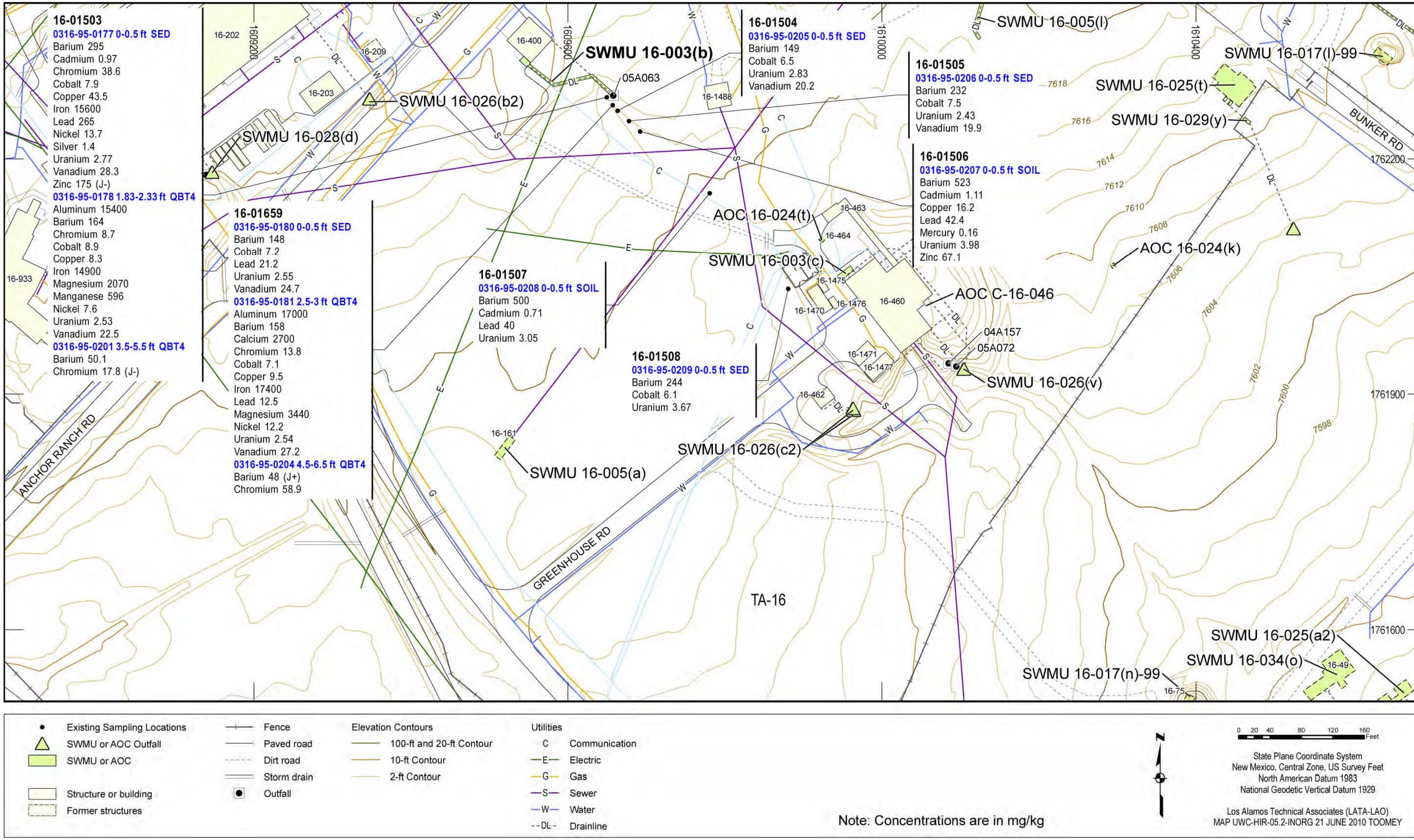


Figure 5.3-2 Inorganic chemicals detected above BVs at SWMU 16-003(b)

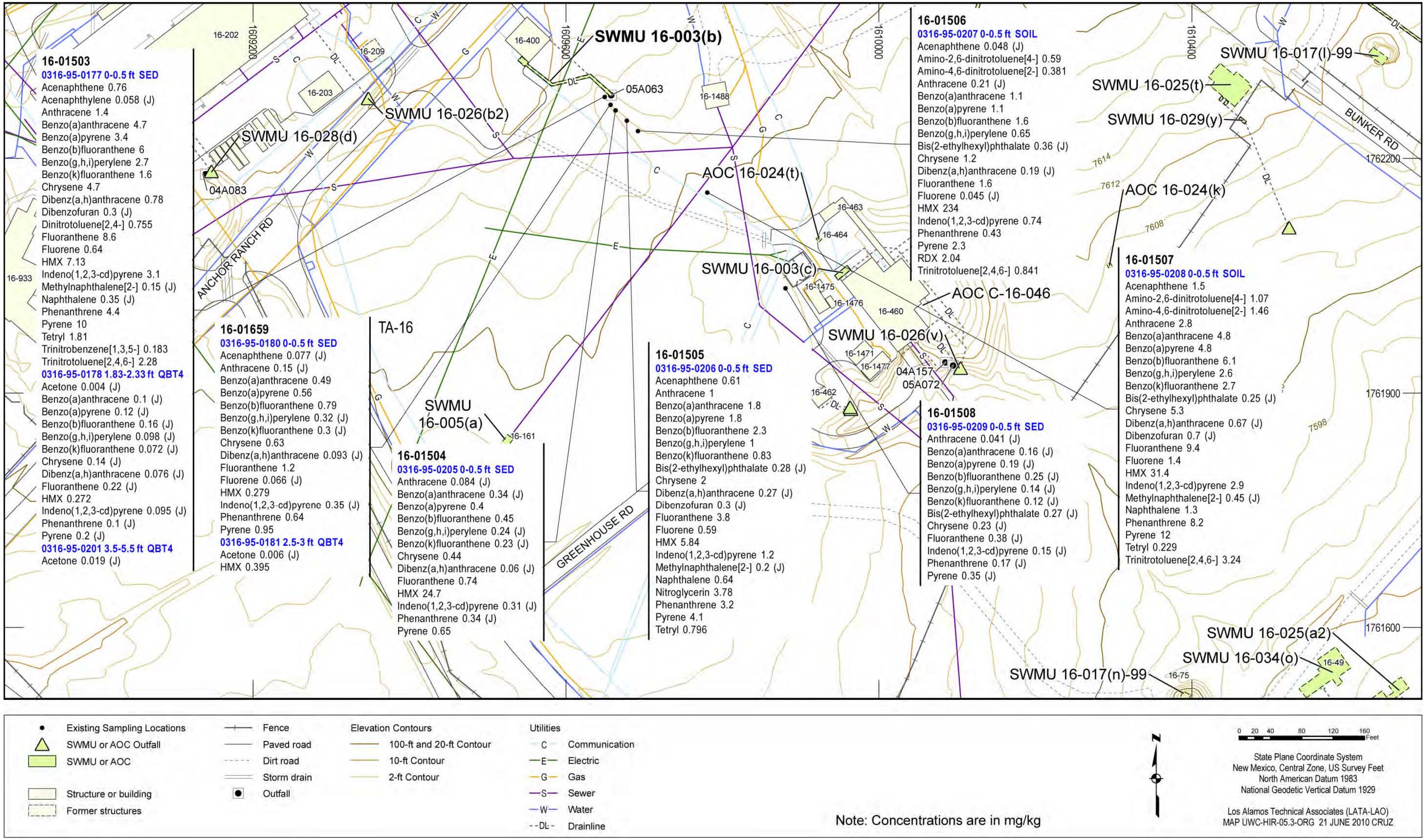


Figure 5.3-3 Organic chemicals detected at SWMU 16-003(b)

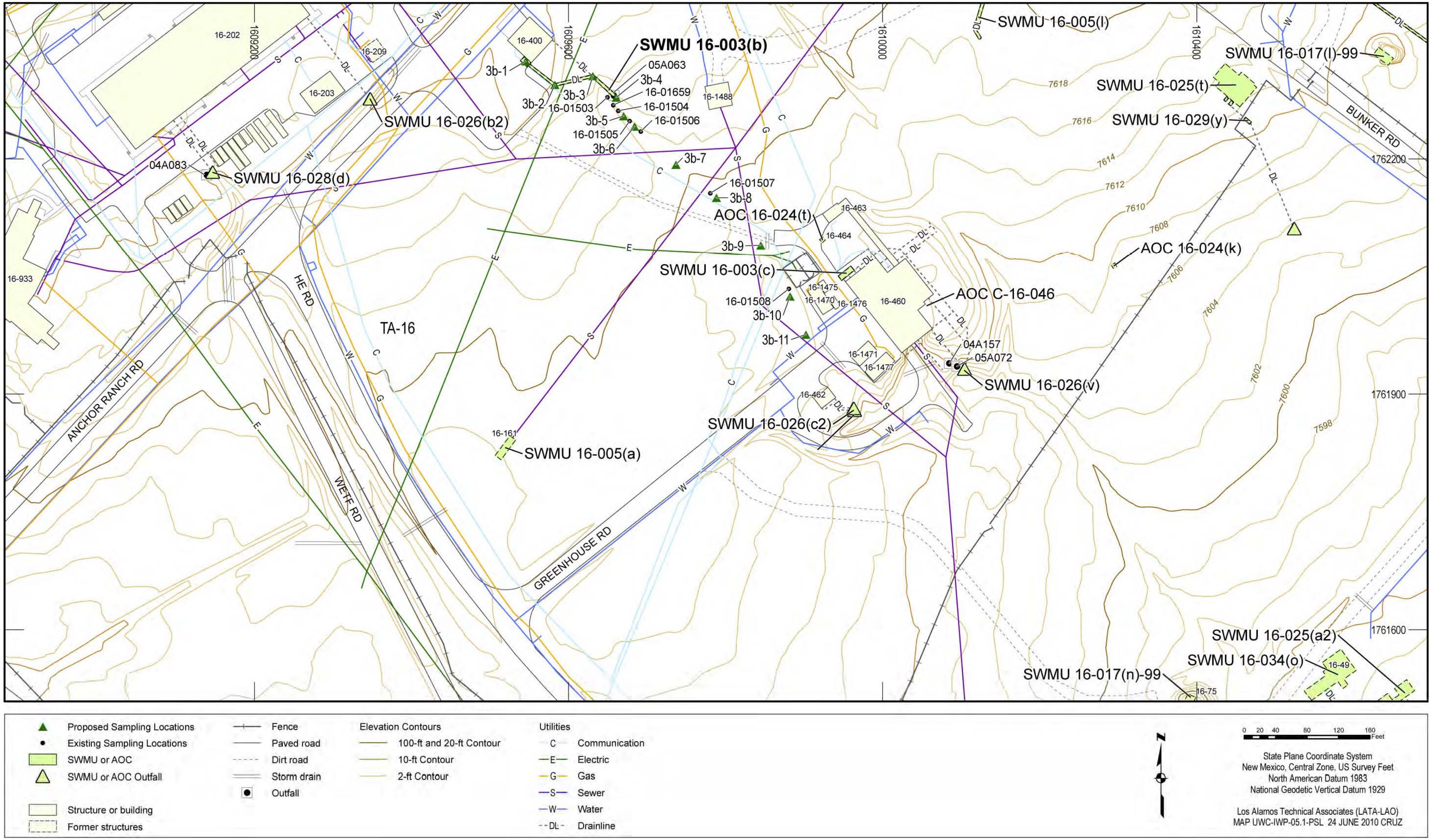


Figure 5.3-4 Proposed sampling locations for SWMU 16-003(b)

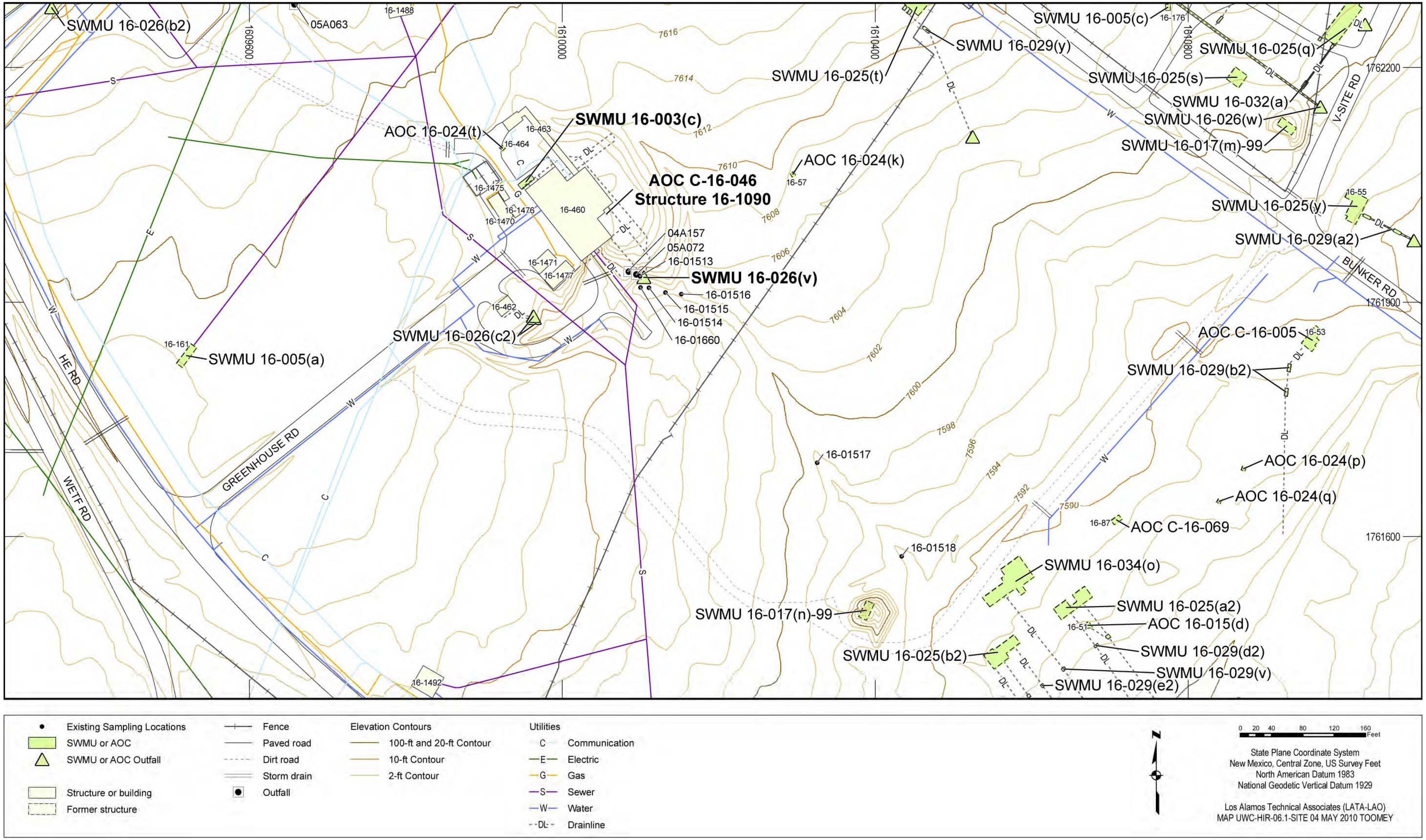


Figure 5.4-1 Site features of Consolidated Unit 16-003(c)-99 [SWMU 16-003(c) and SWMU 16-026(v)] and AOC C-16-046

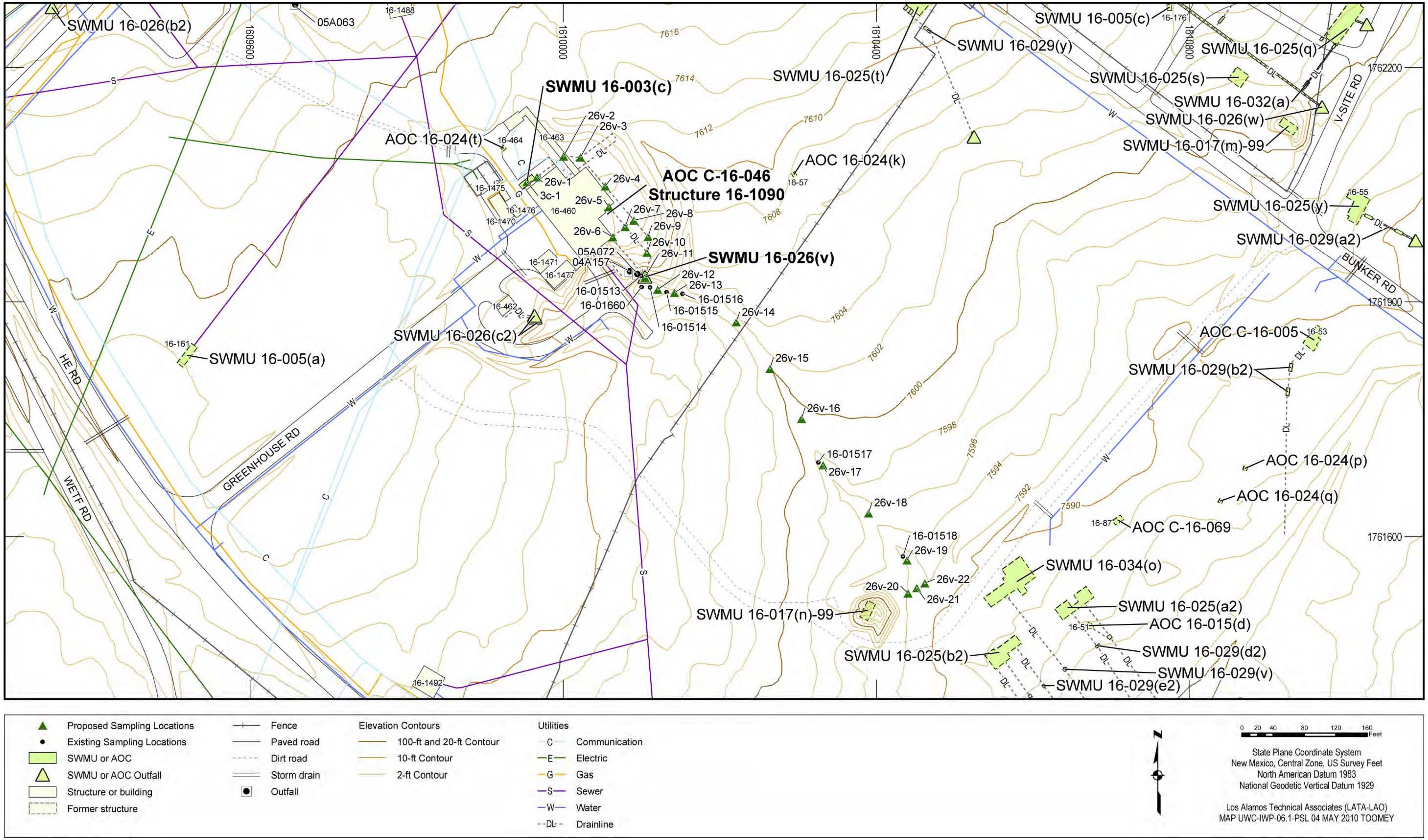


Figure 5.4-2 Proposed sampling locations for Consolidated Unit 16-003(c)-99 [SWMU 16-003(c) and SWMU 16-026(v)]

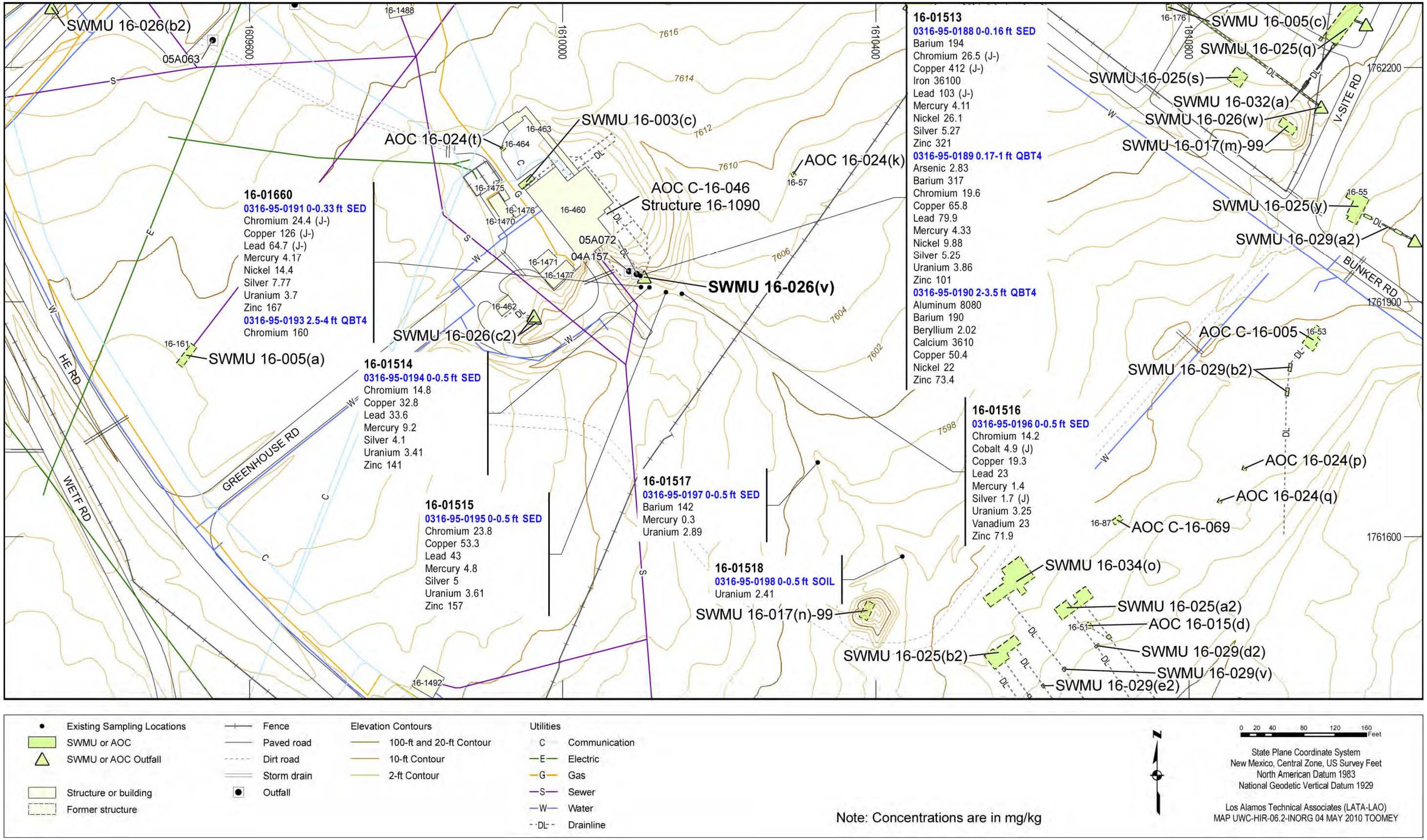


Figure 5.4-3 Inorganic chemicals detected above BVs at SWMU 16-026(v)

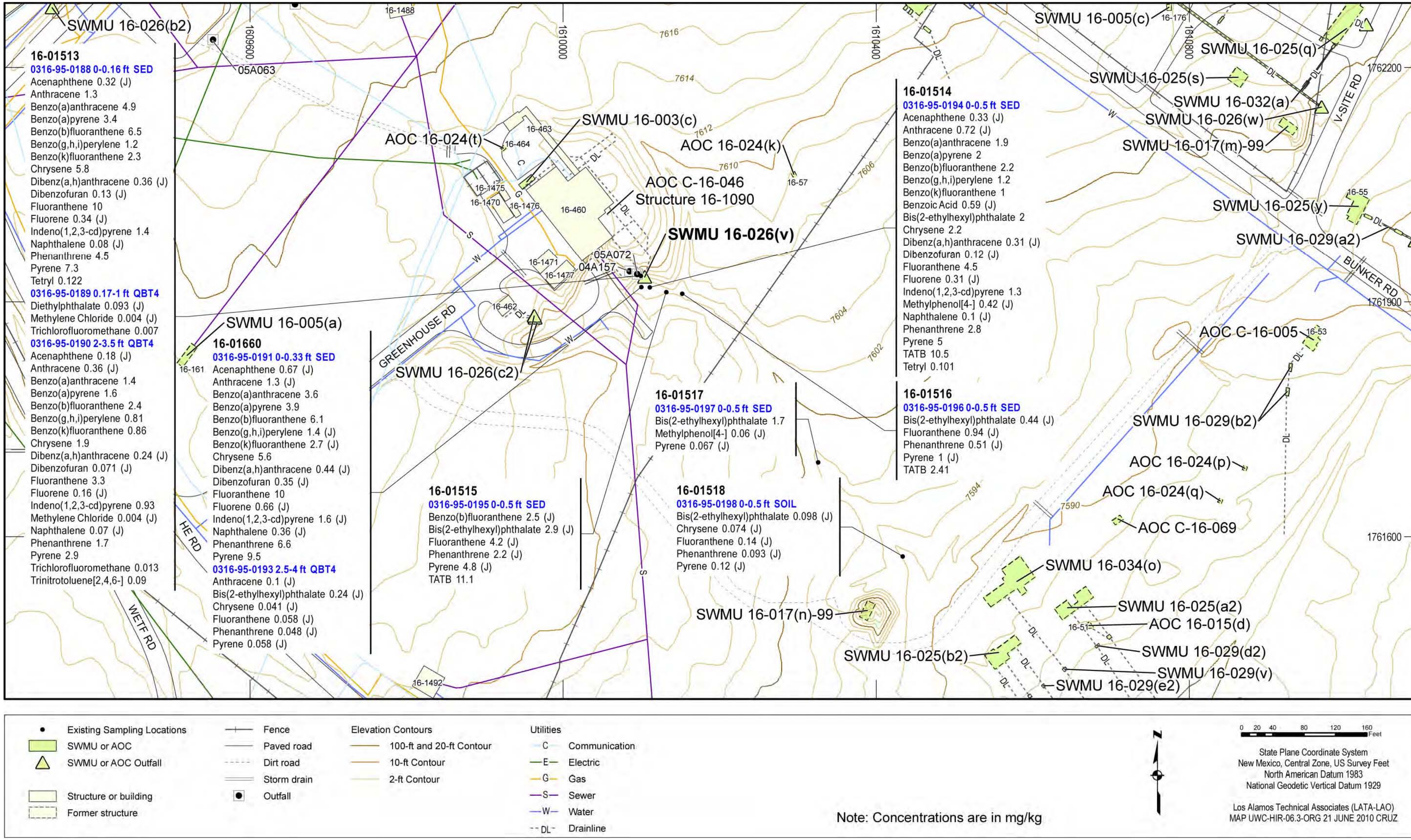


Figure 5.4-4 Organic chemicals detected at SWMU 16-026(v)

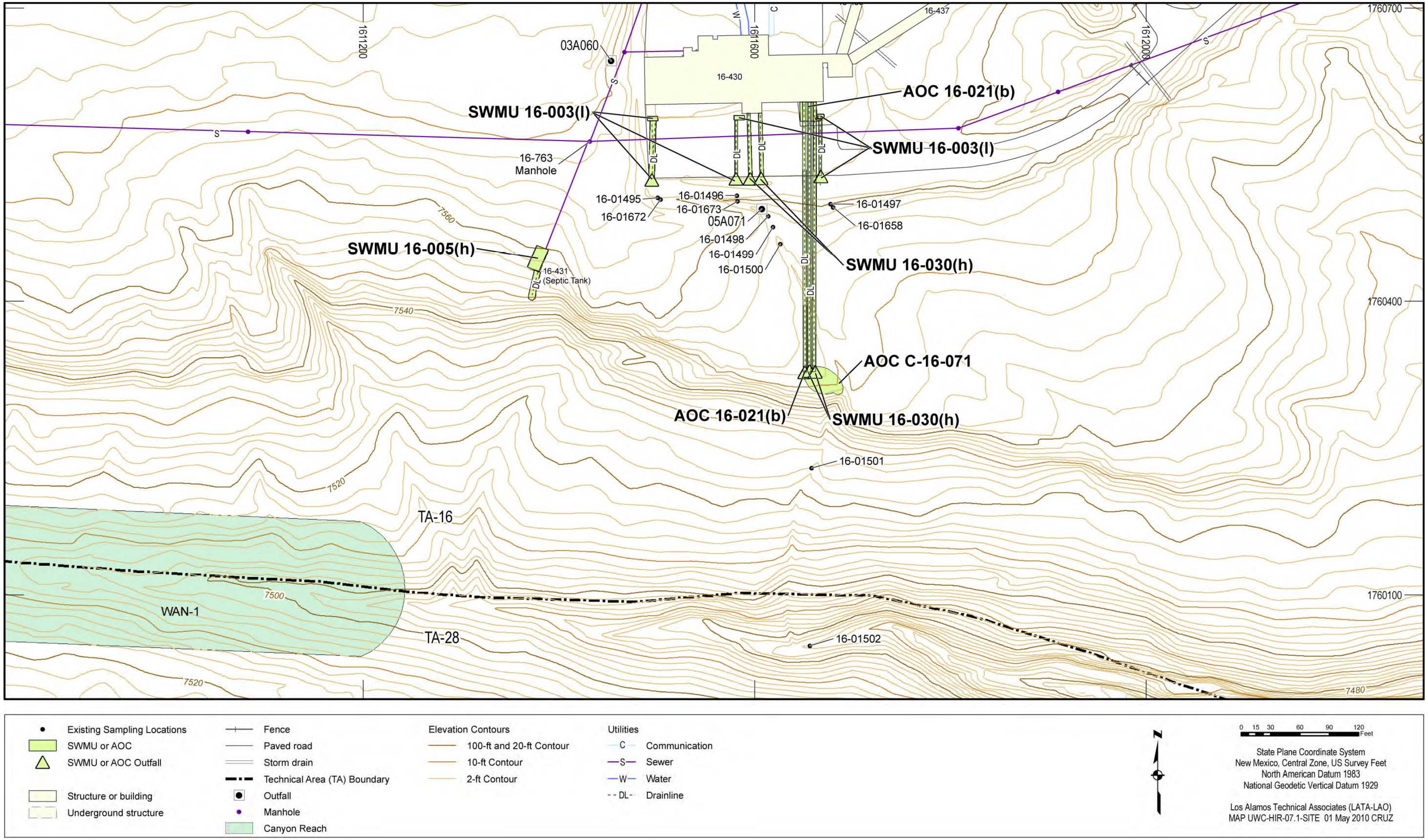


Figure 5.5-1 Site features of Consolidated Unit 16-003(l)-99 [SWMU 16-003(l) and SWMU 16-030(h)], SWMU 16-005(h), AOC 16-021(b), and AOC C-16-071

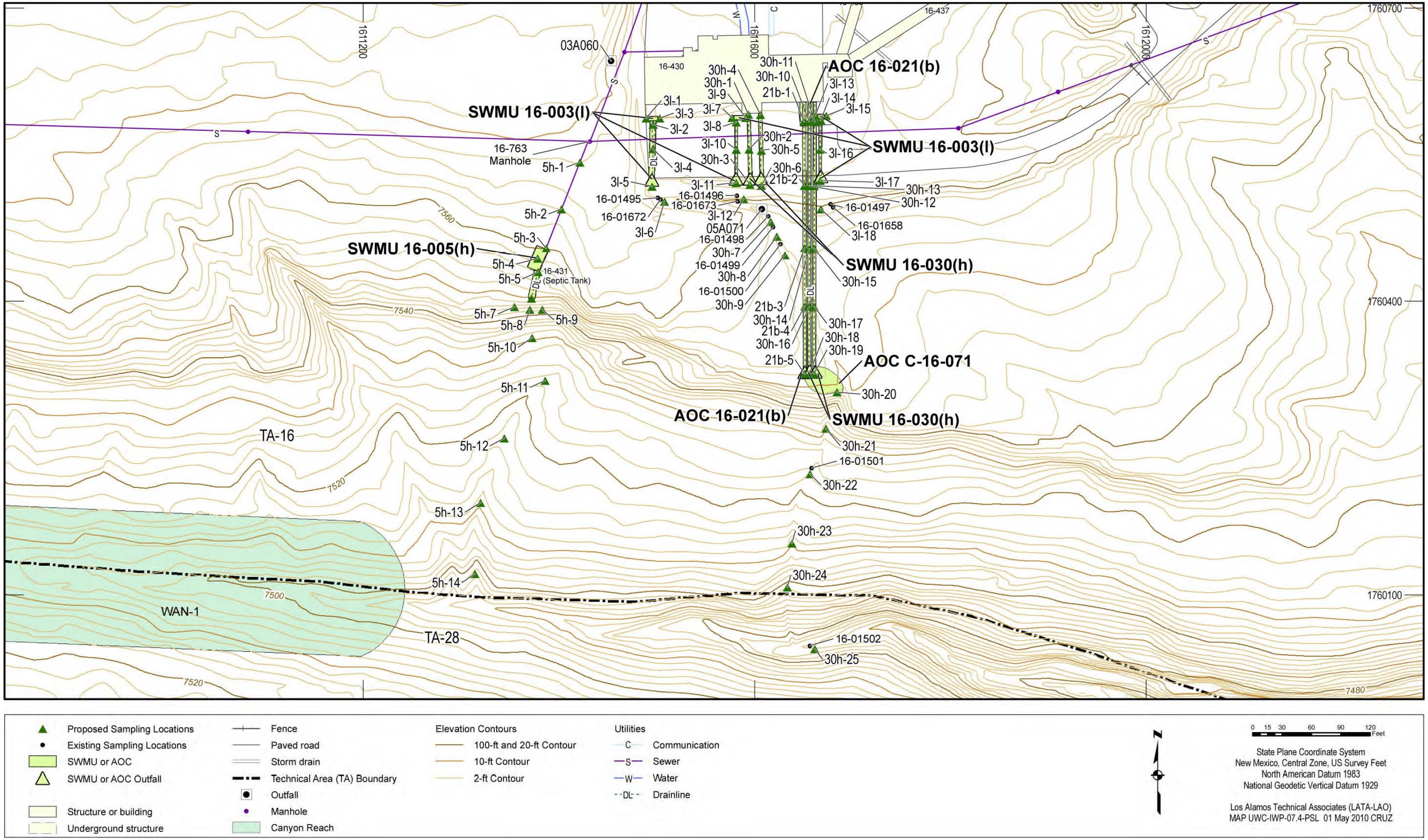


Figure 5.5-2 Proposed sampling locations for Consolidated Unit 16-003(l)-99 [SWMU 16-003(l) and SWMU 16-030(h)], SWMU 16-005(h), AOC 16-021(b), and AOC C-16-071

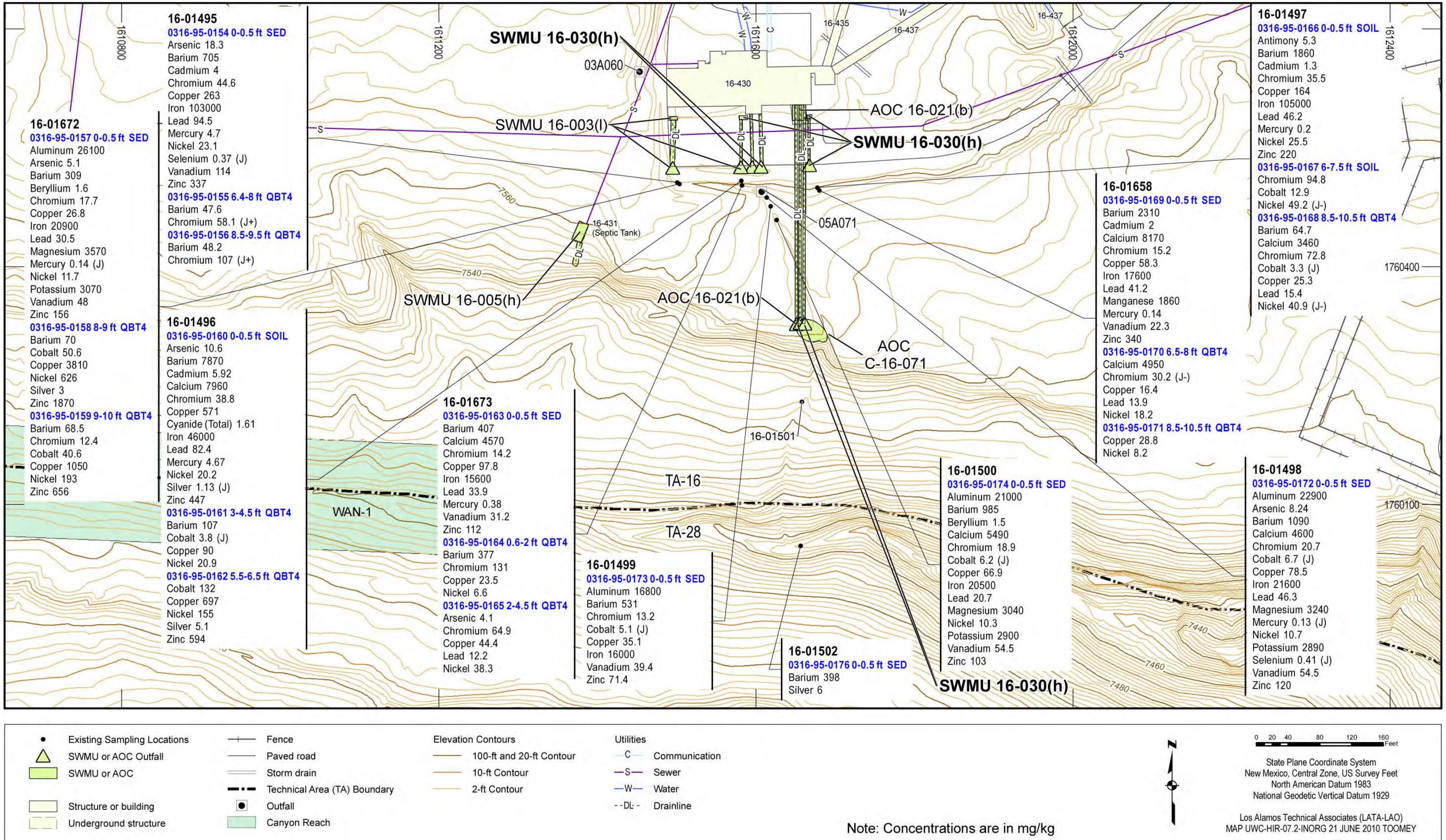


Figure 5.5-3 Inorganic chemicals detected above BVs at SWMU 16-030(h)

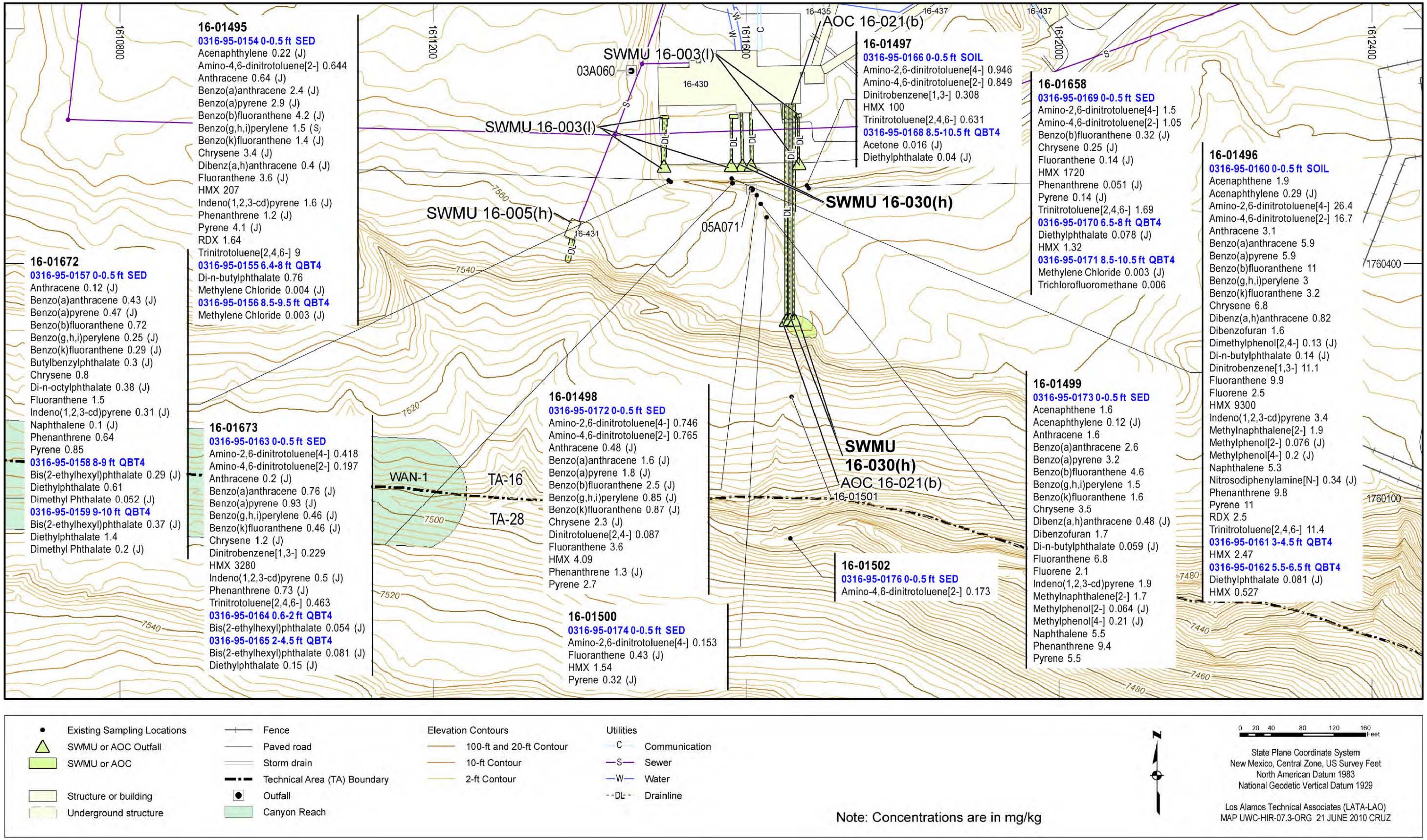


Figure 5.5-4 Organic chemicals detected at SWMU 16-030(h)

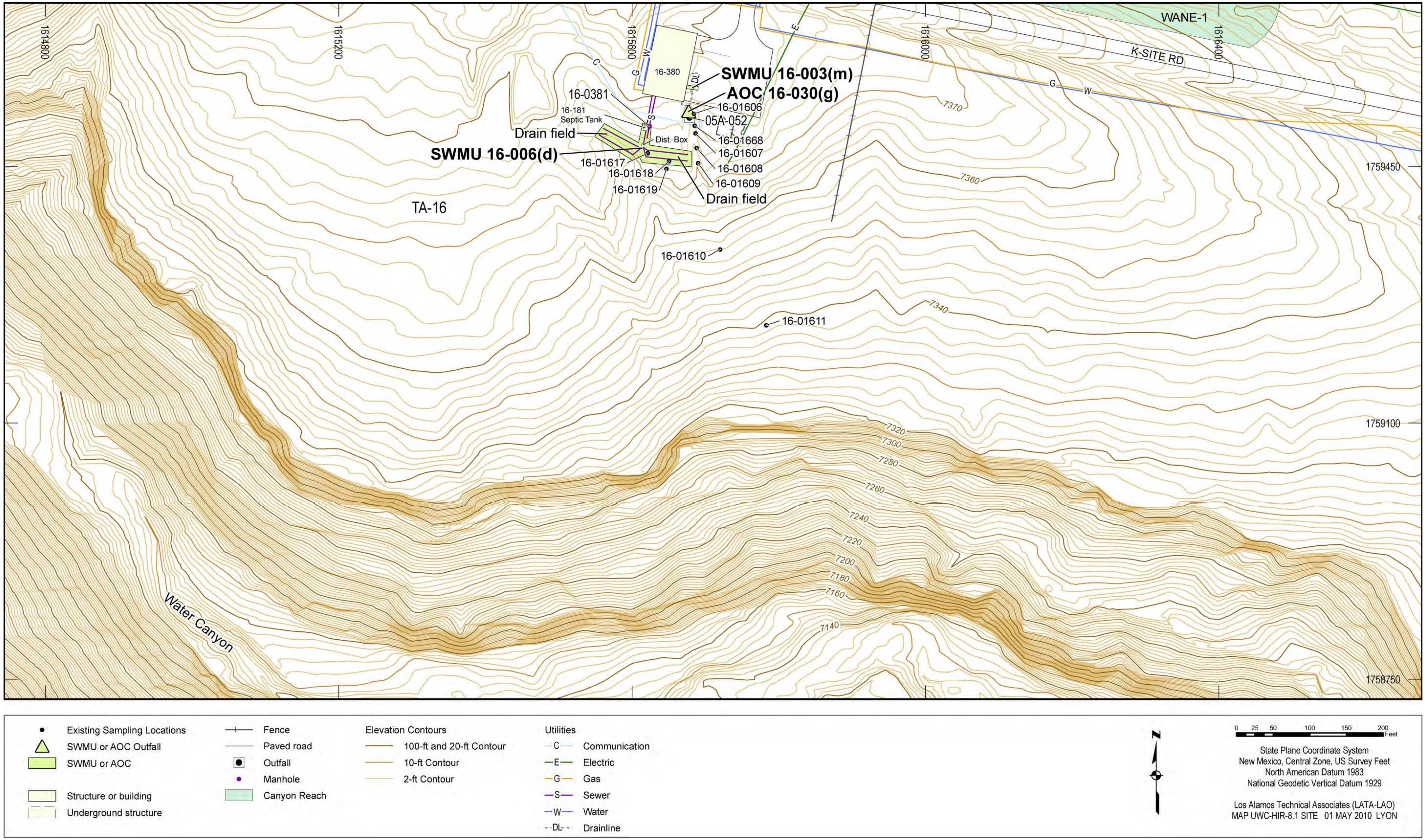


Figure 5.6-1 Site features of Consolidated Unit 16-003(m)-99 [SWMU 16-003(m), SWMU 16-006(d), and AOC 16-030(g)]

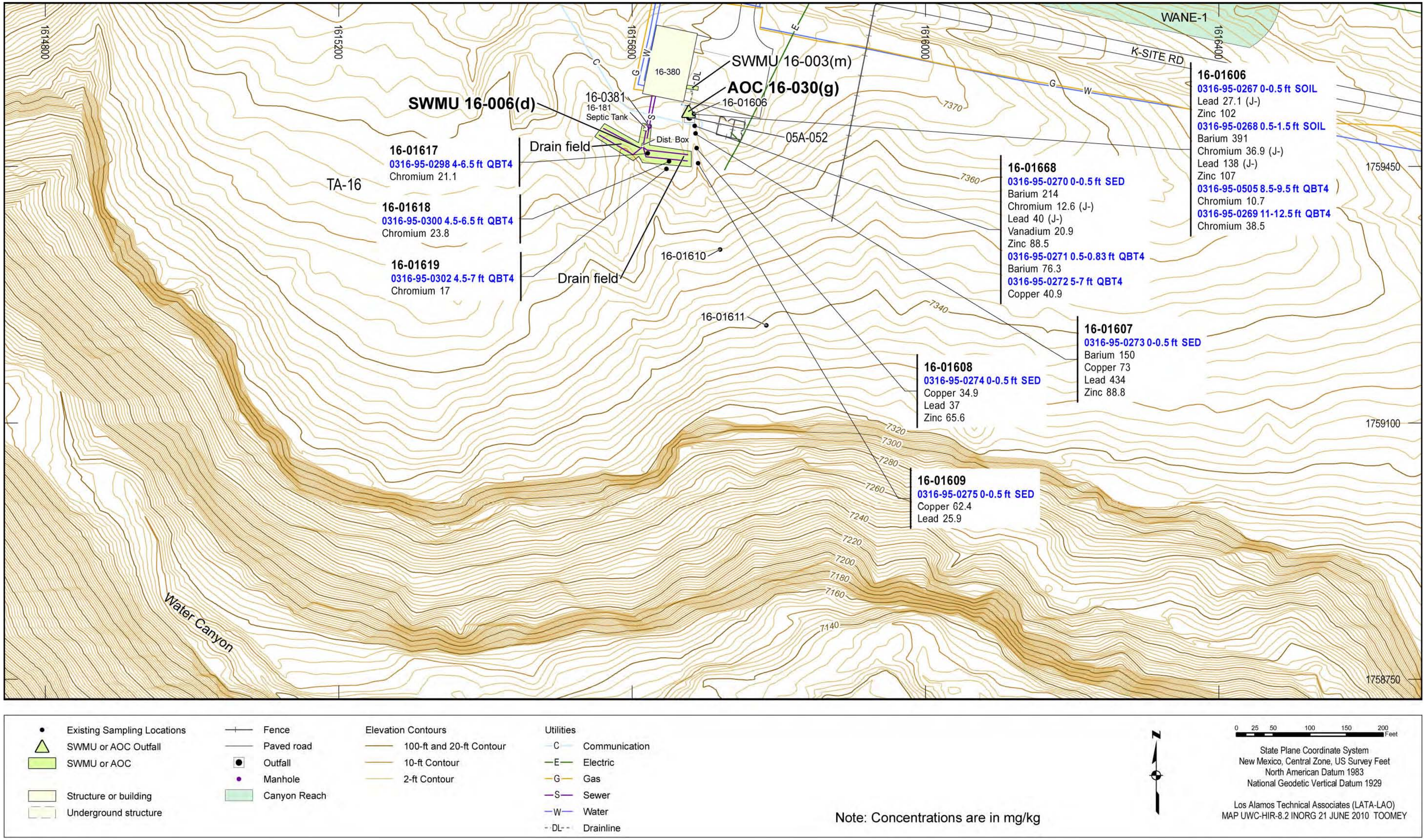


Figure 5.6-2 Inorganic chemicals detected above BVs at SWMU 16-006(d) and AOC 16-030(g)

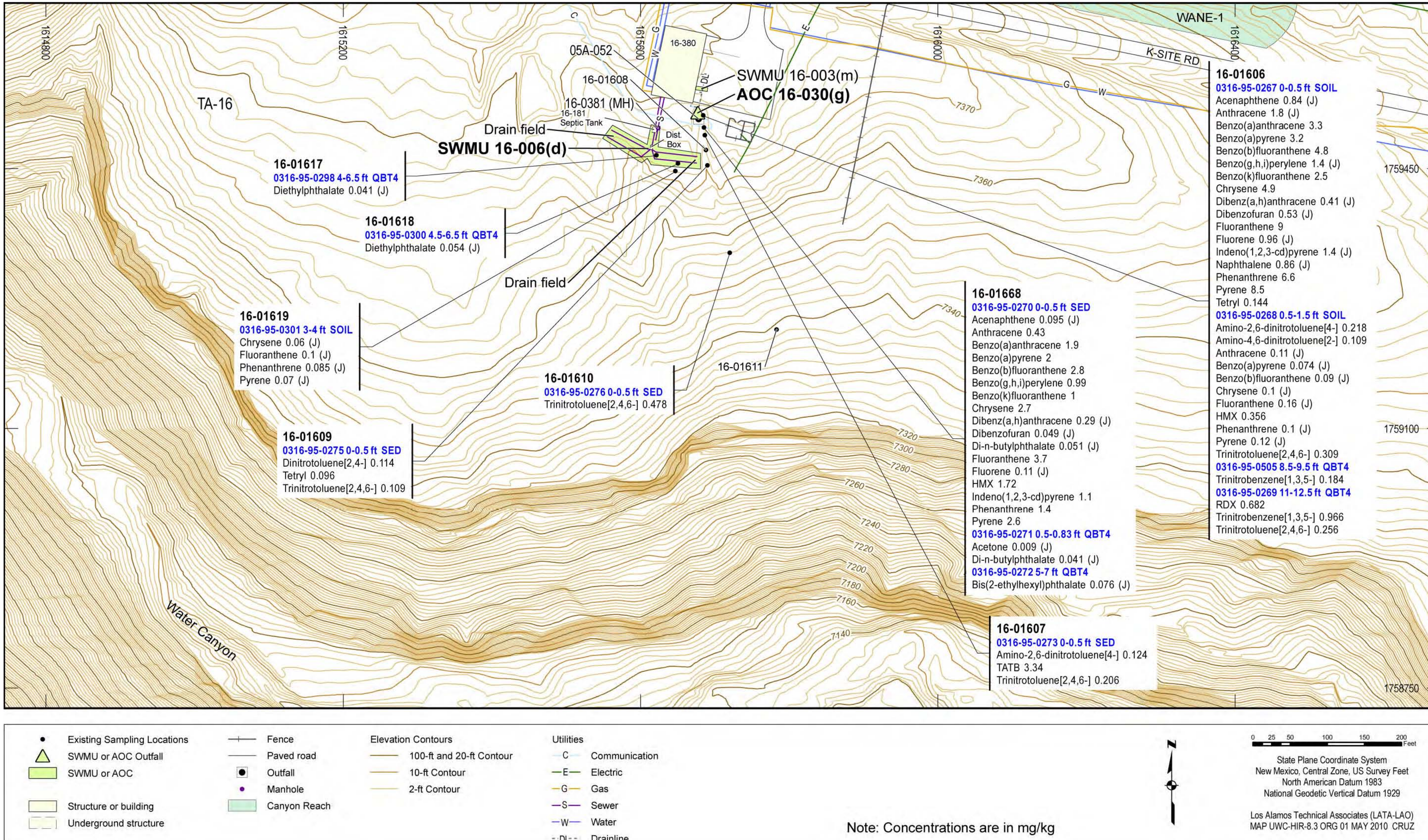


Figure 5.6-3 Organic chemicals detected at SWMU 16-006(d) and AOC 16-030(g)

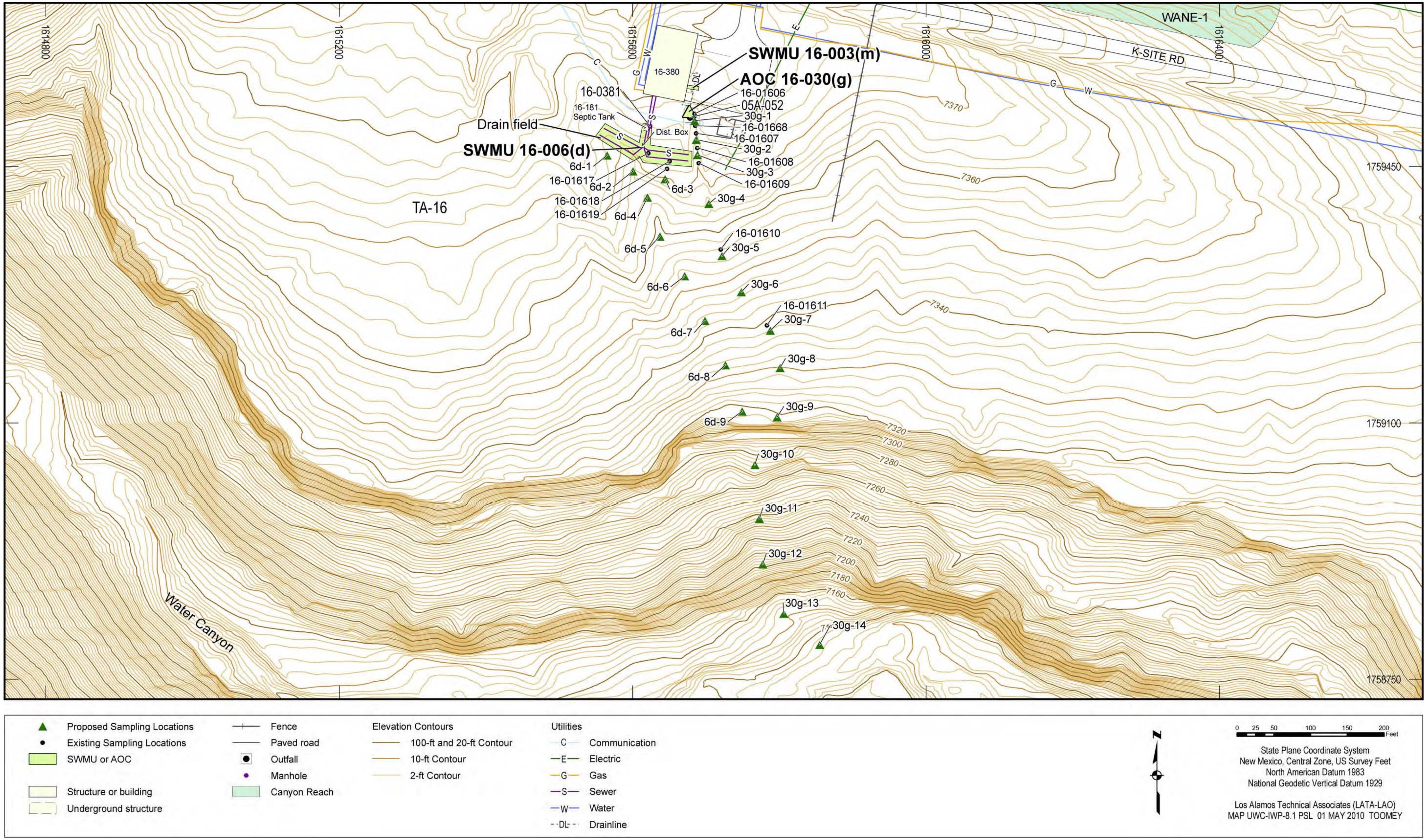


Figure 5.6-4 Proposed sampling locations for SWMU 16-006(d) and AOC 16-030(g)

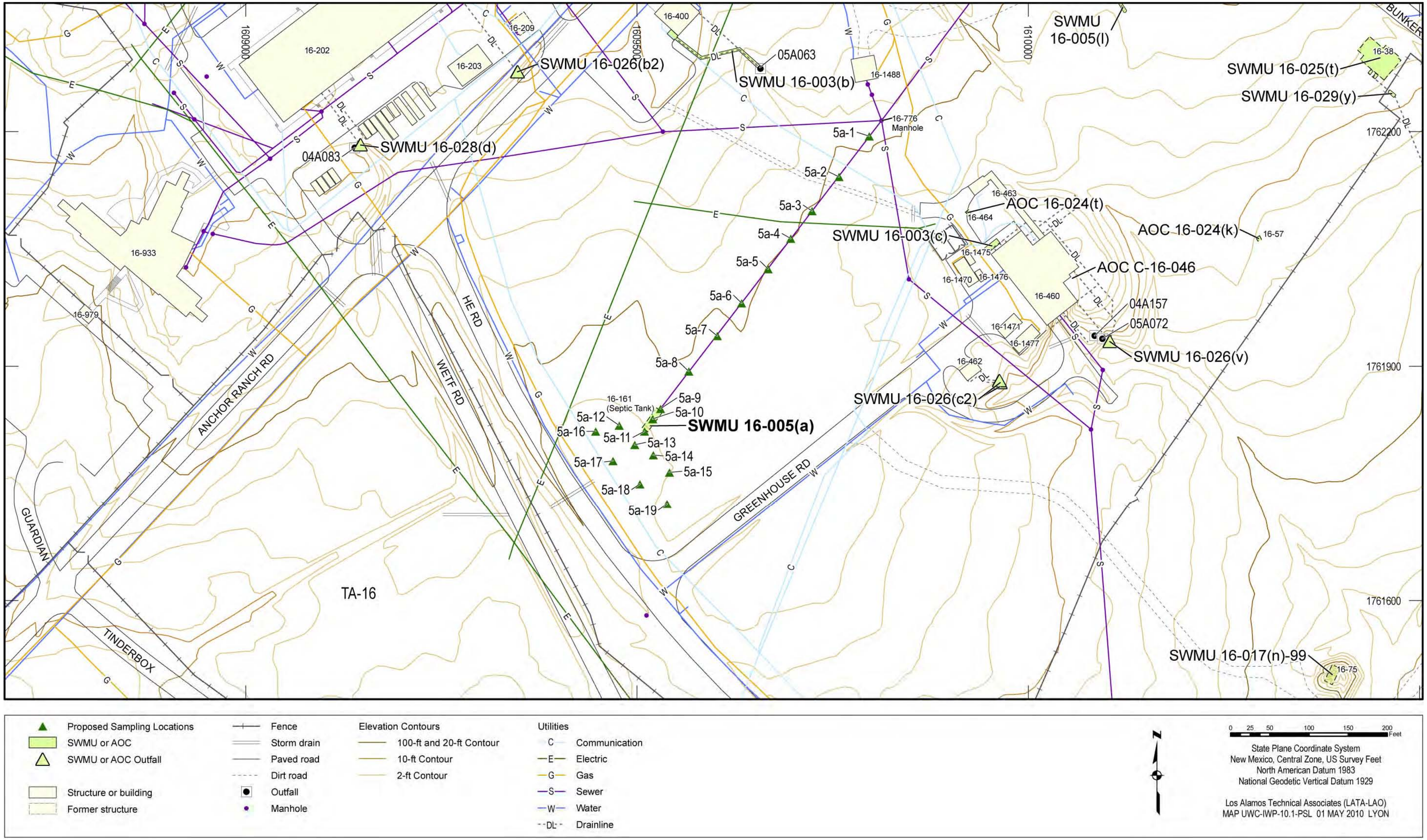


Figure 5.8-1 Proposed sampling locations for SWMU 16-005(a)

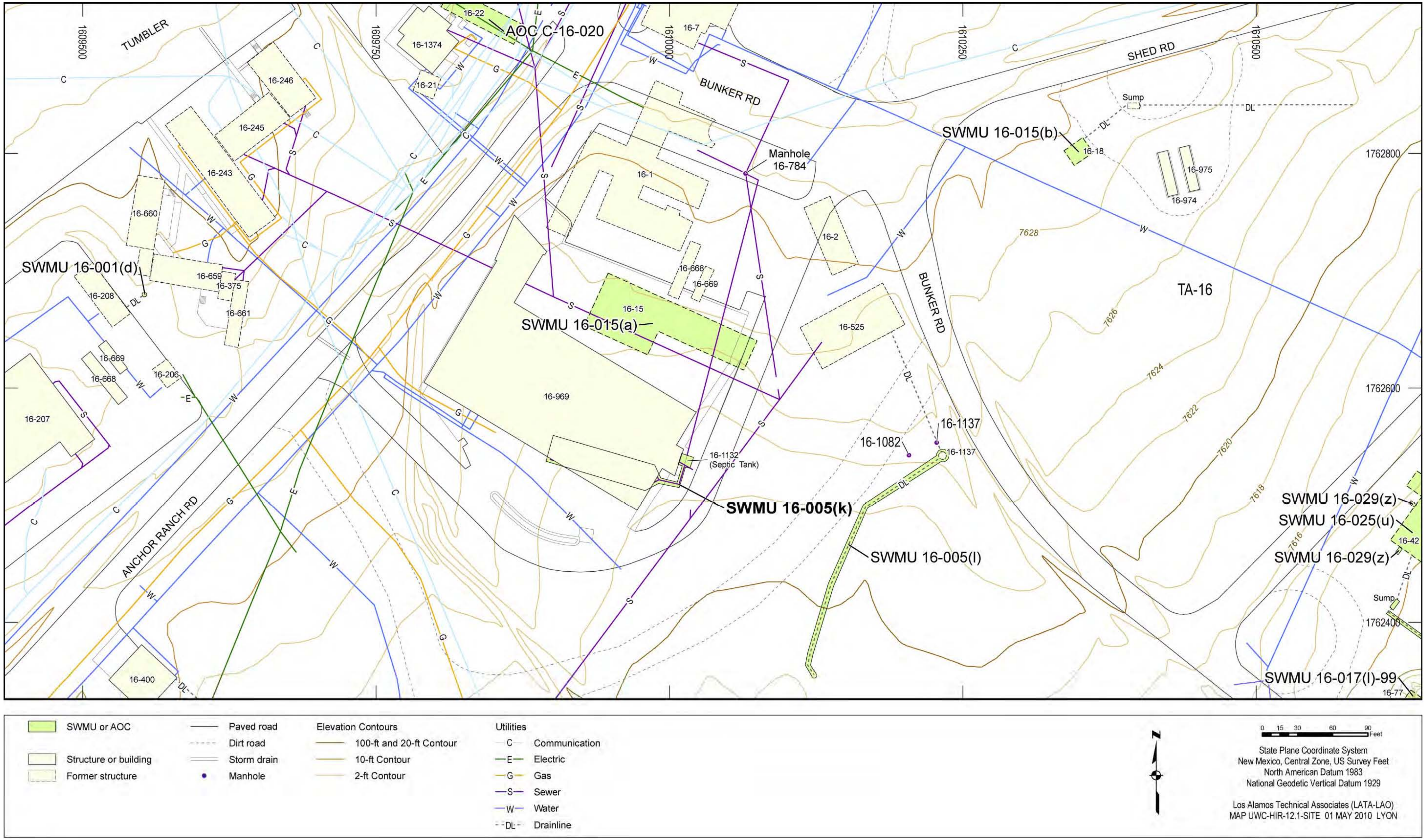


Figure 5.10-1 Site features of SWMU 16-005(k)

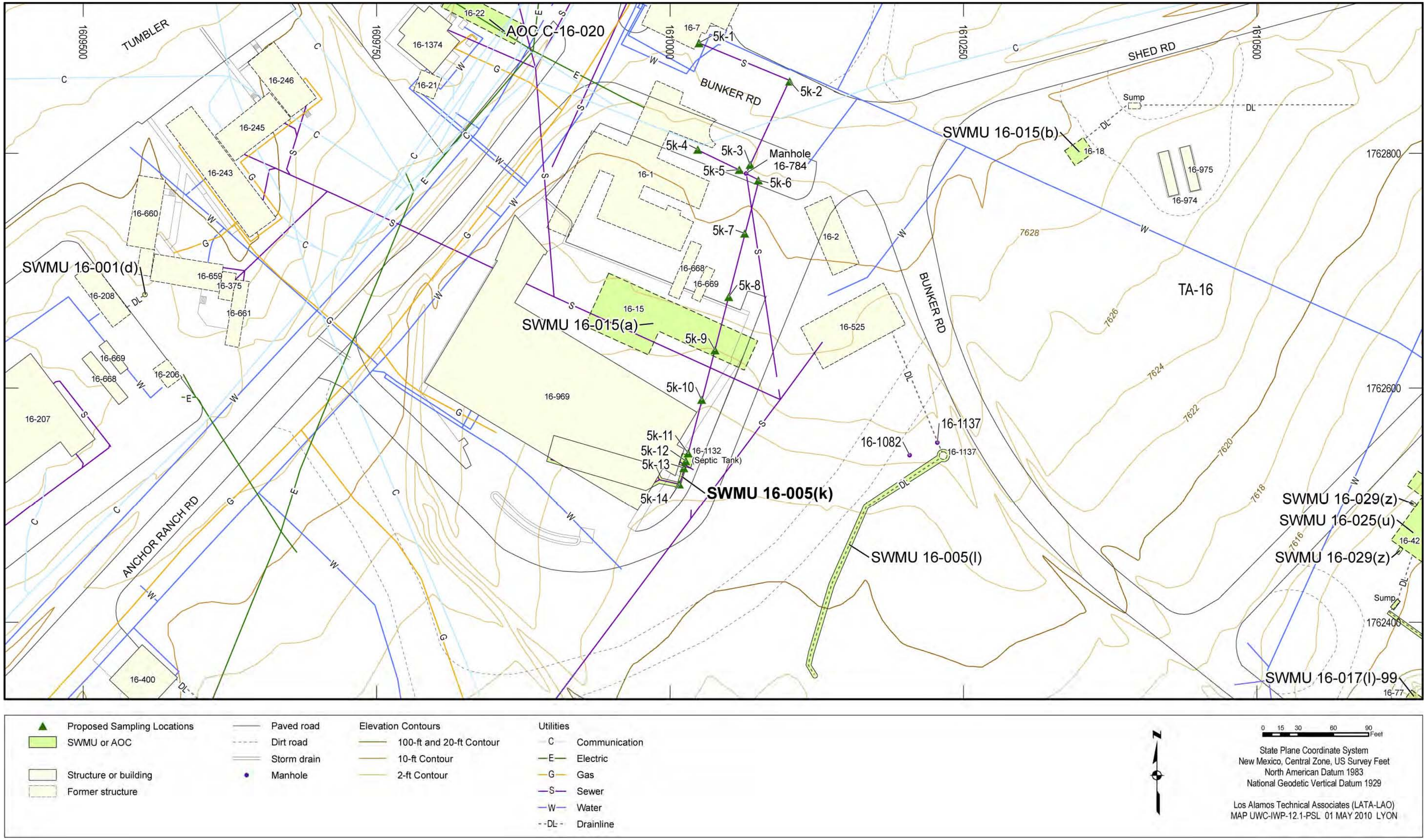


Figure 5.10-2 Proposed Sampling Locations for SWMU 16-005(k)

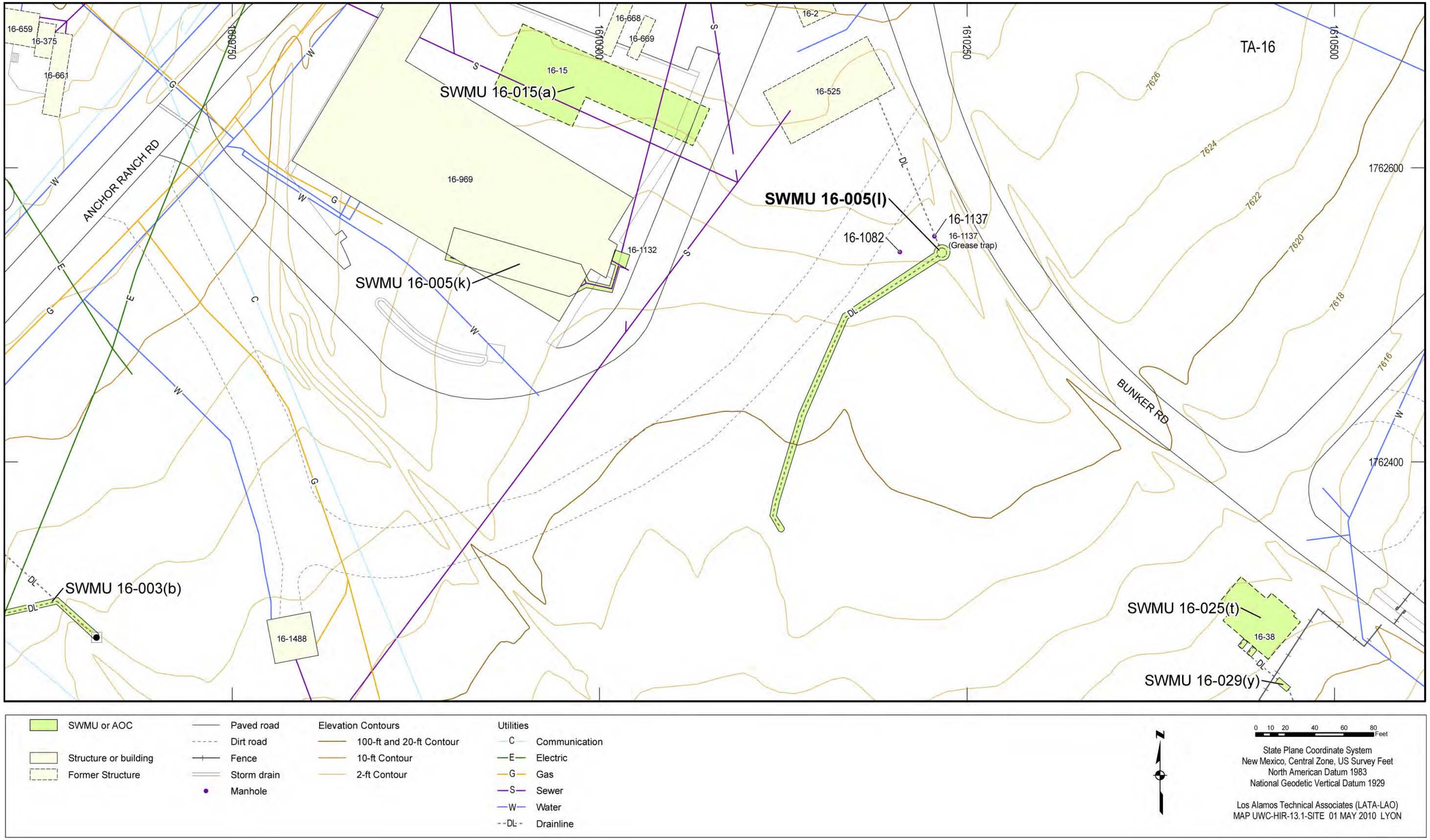


Figure 5.11-1 Site features of SWMU 16-005(l)

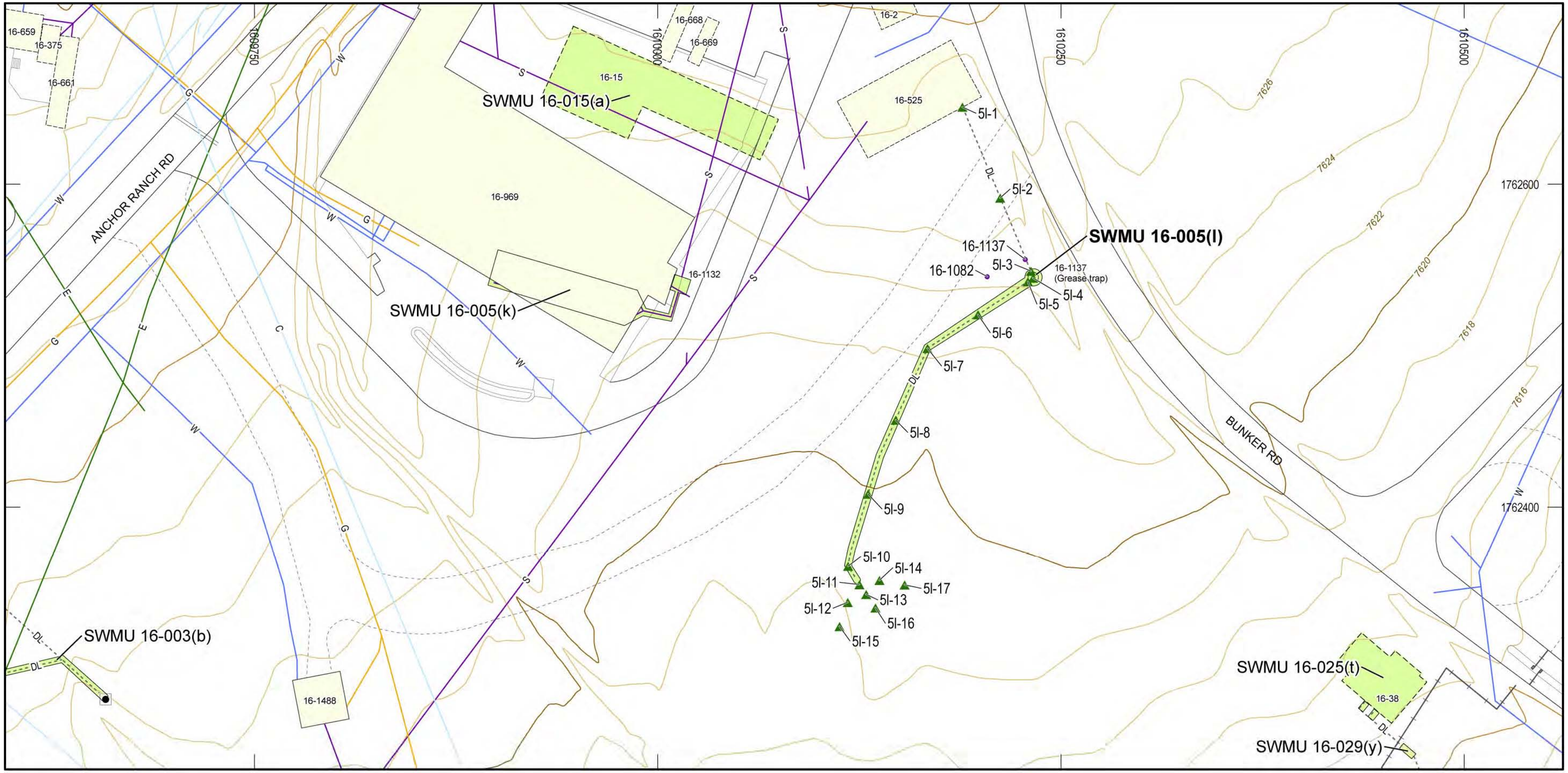


Figure 5.11-2 Proposed sampling locations for SWMU 16-005(l)

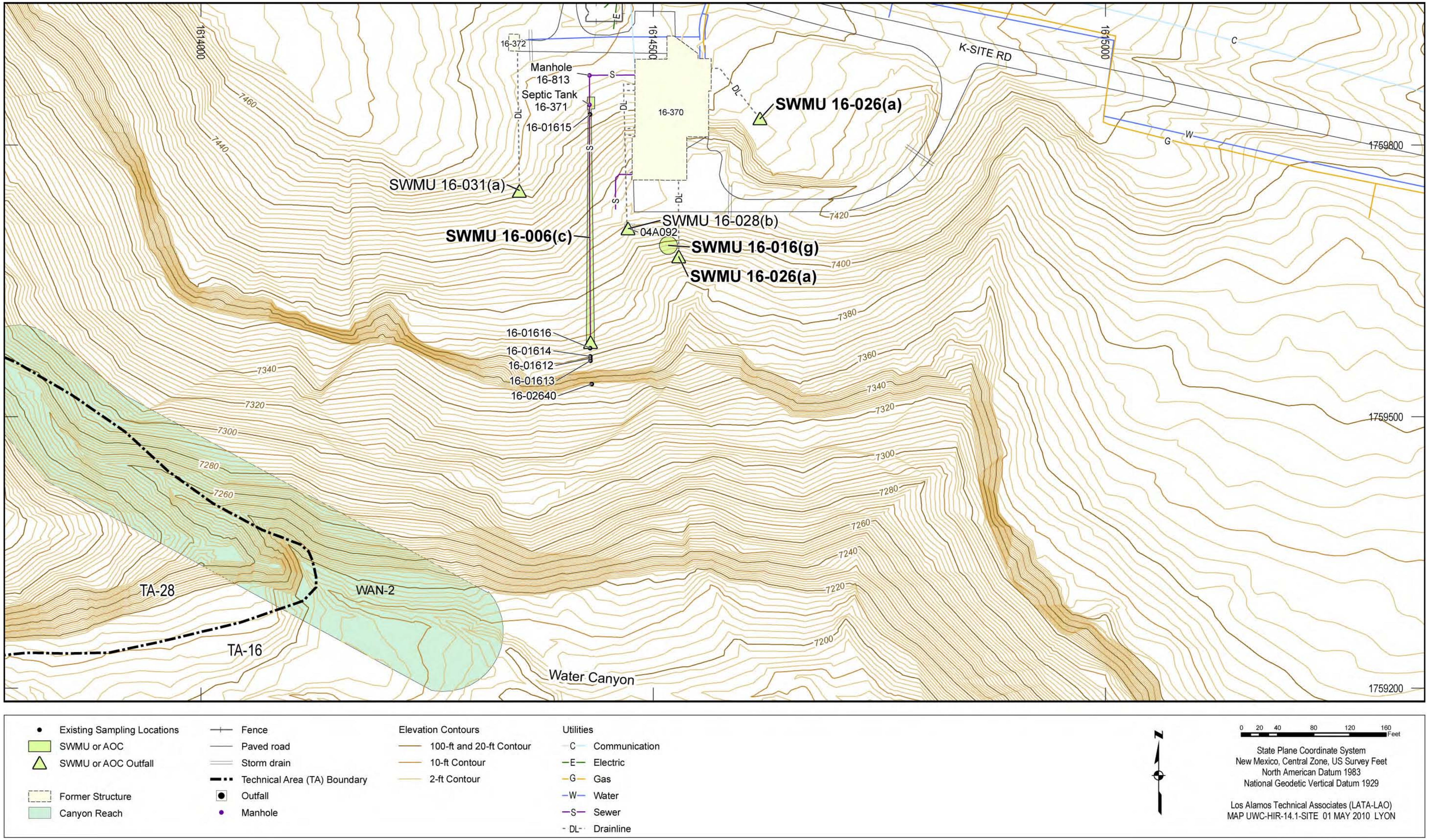


Figure 5.12-1 Site features of Consolidated Unit 16-006(c)-00 [SWMU 16-006(c) and SWMU 16-026(a)] and SWMU 16-016(g)

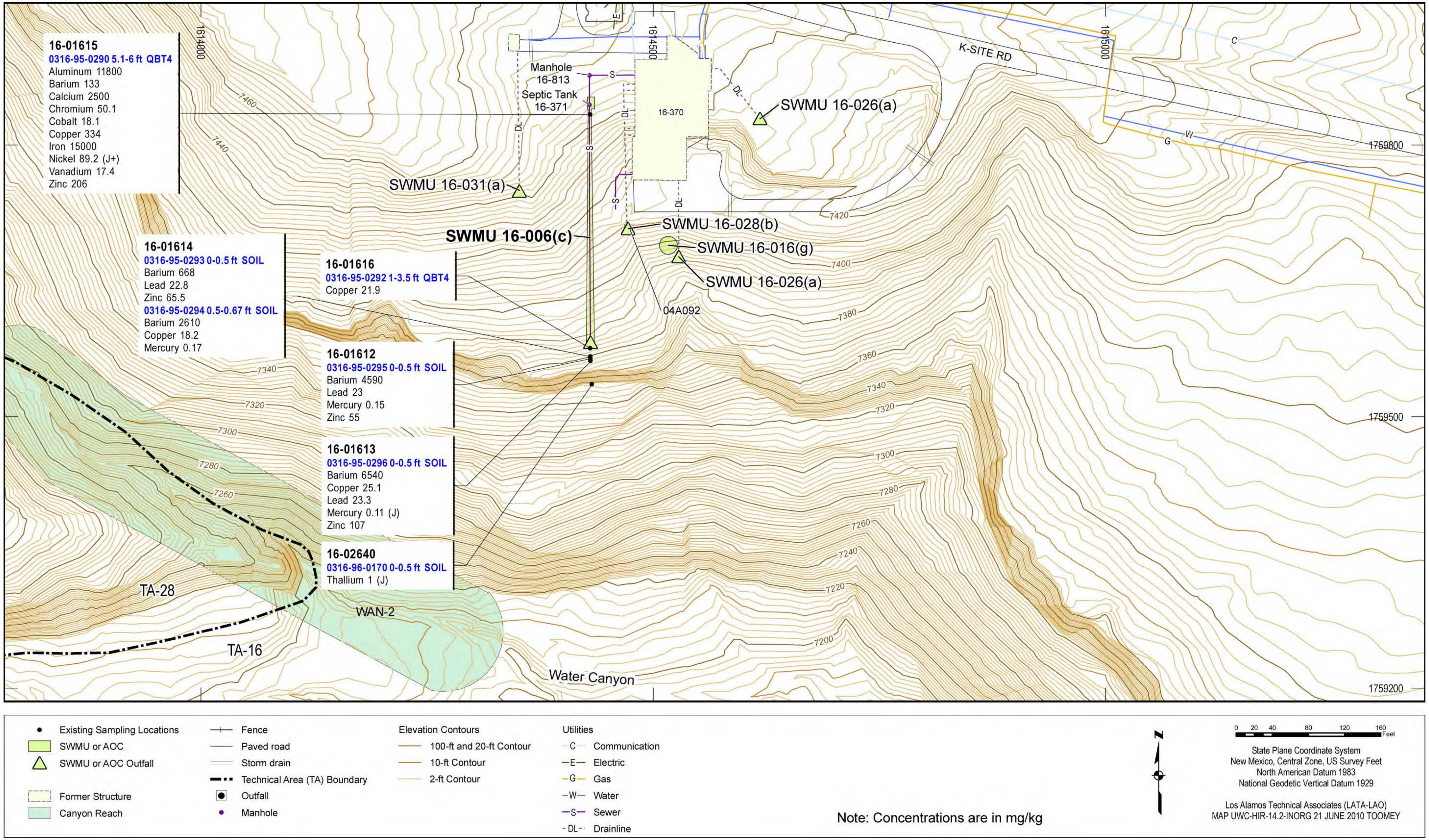


Figure 5.12-2 Inorganic chemicals detected above BVs at SWMU 16-006(c)

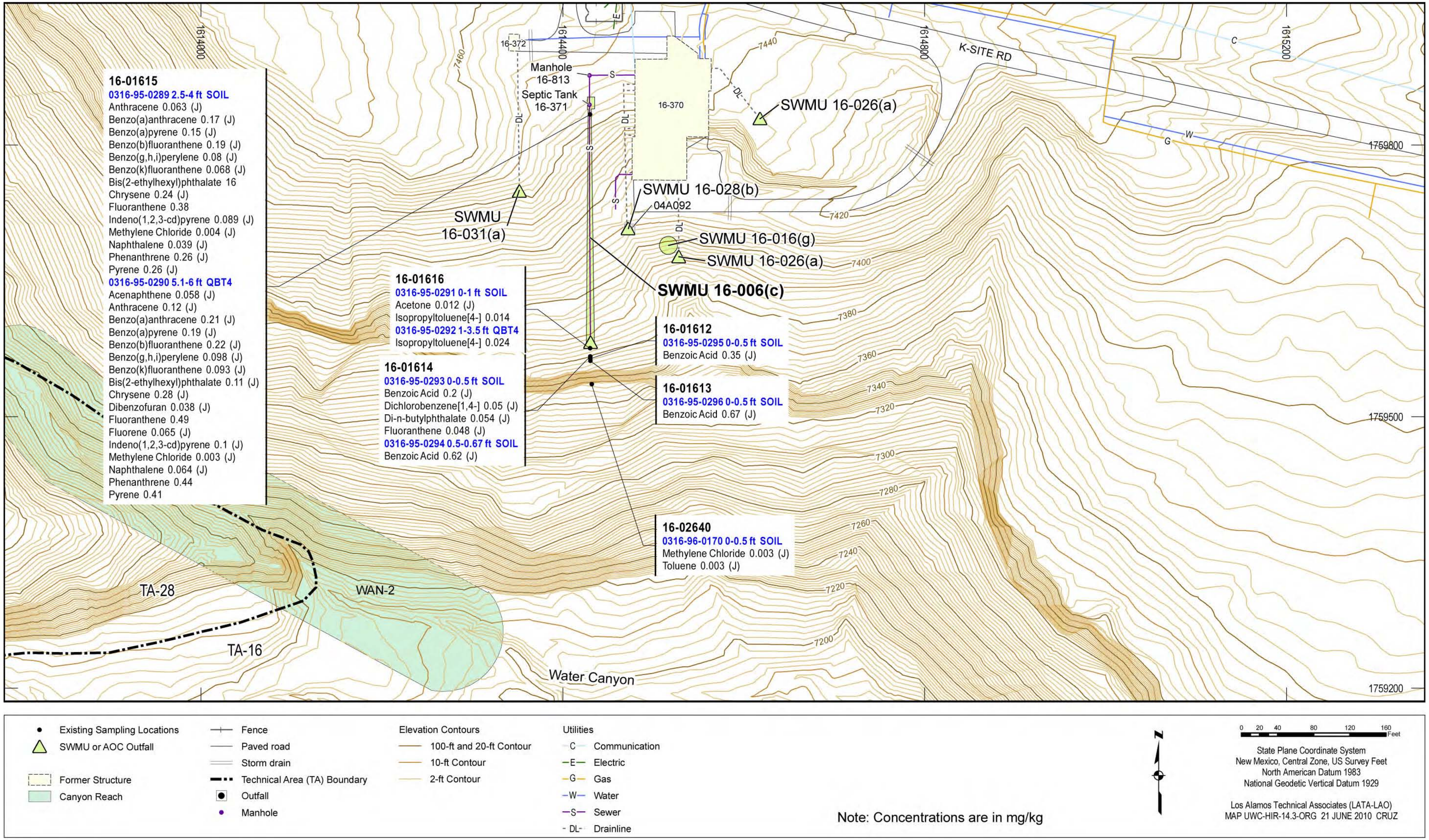


Figure 5.12-3 Organic chemicals detected at SWMU 16-006(c)

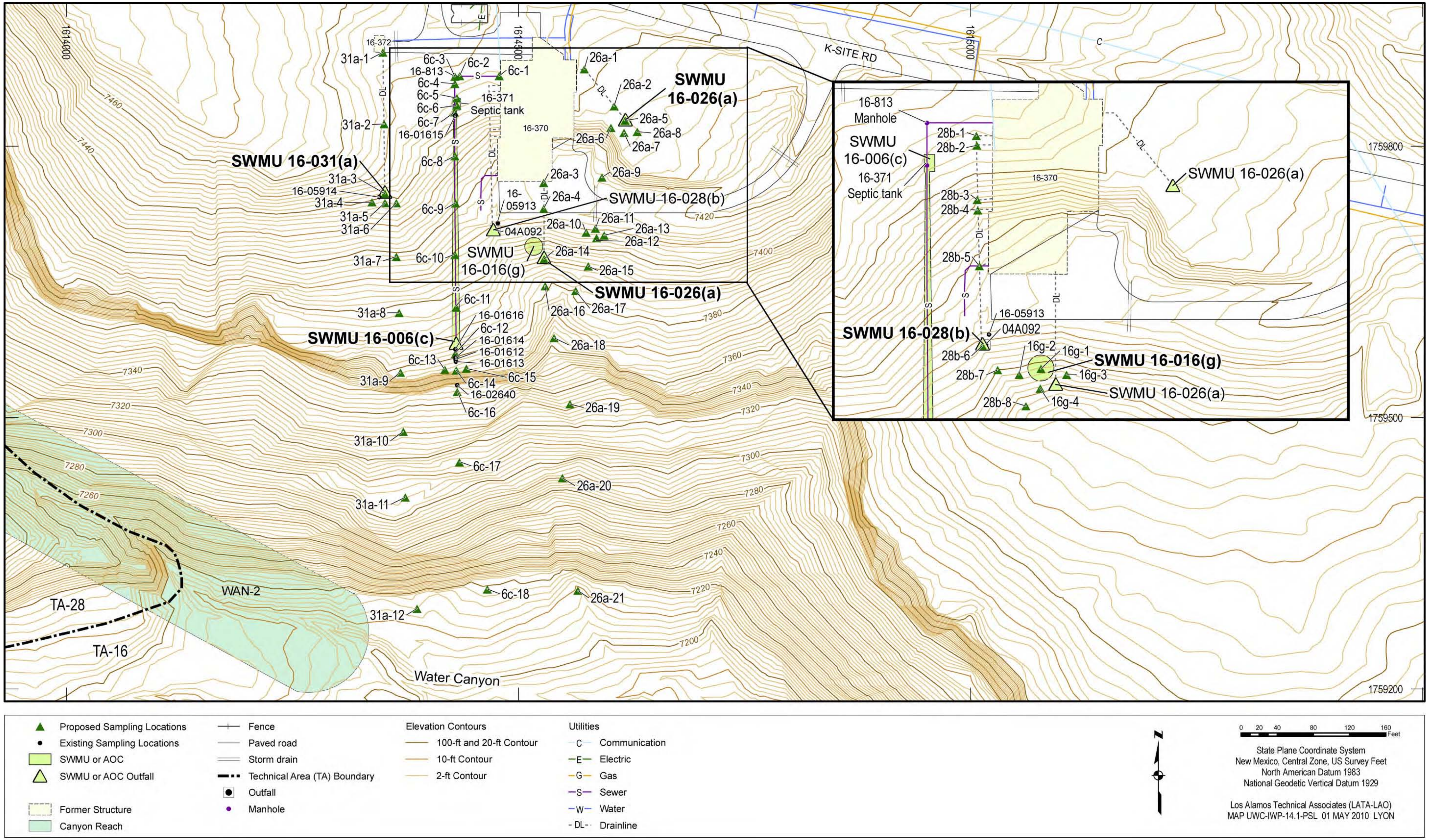


Figure 5.12-4 Proposed sampling locations for Consolidated Unit 16-006(c)-00 [SWMU 16-006(c) and SWMU 16-026(a)], SWMU 16-016(g), SWMU 16-028(b), and SWMU 16-031(a)

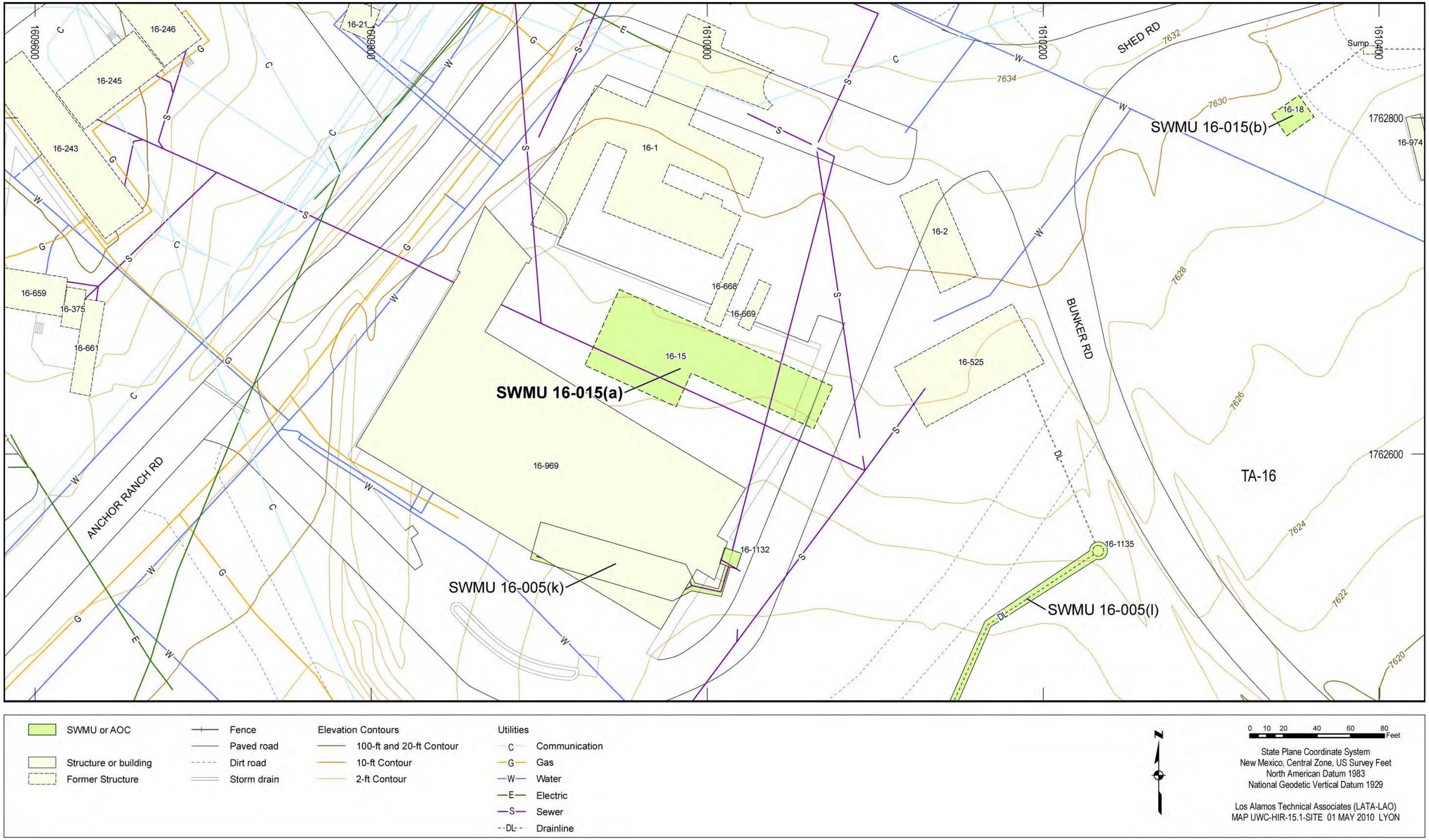


Figure 5.13-1 Site features of SWMU 16-015(a)

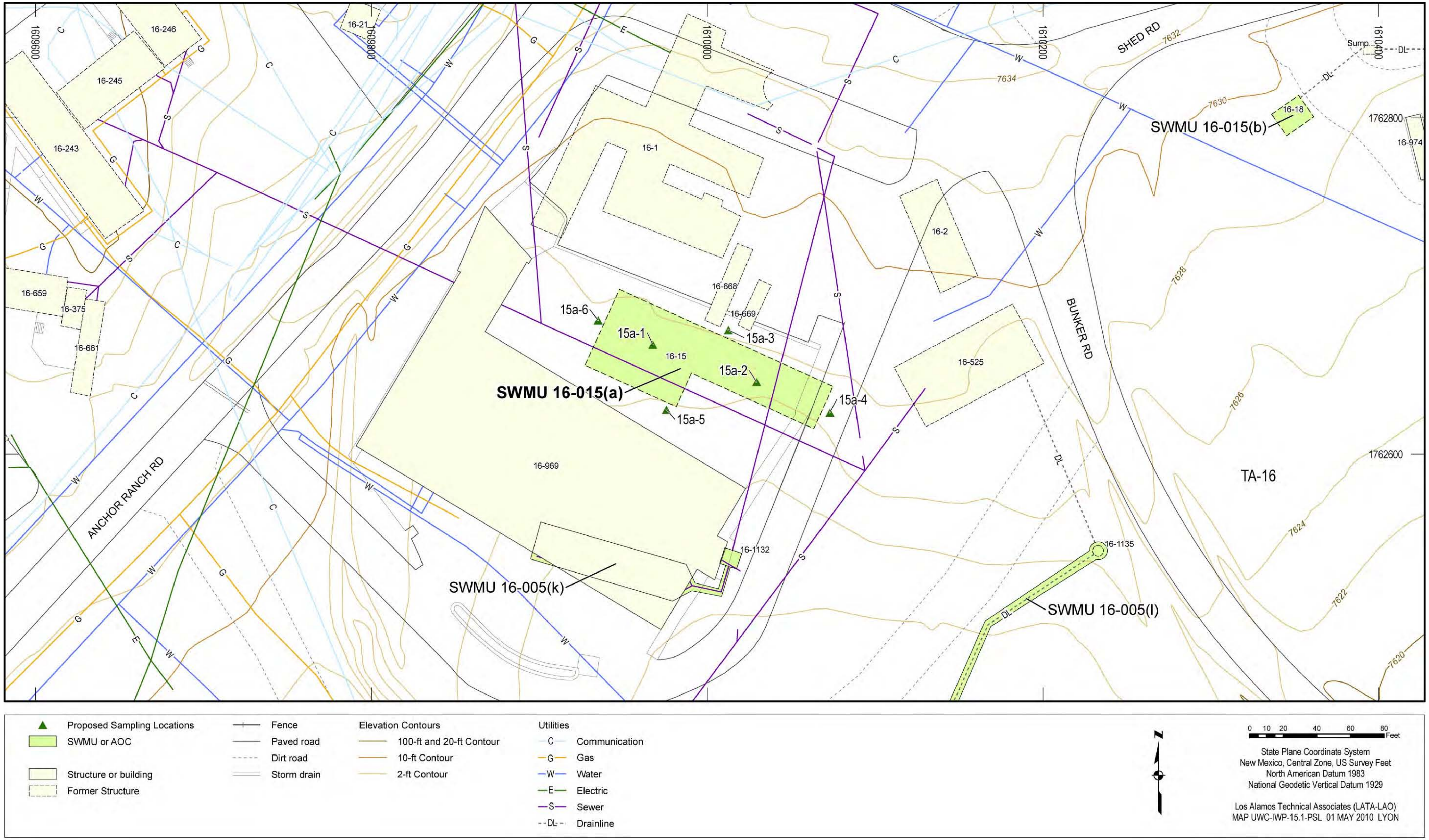


Figure 5.13-2 Proposed sampling locations for SWMU 16-015(a)

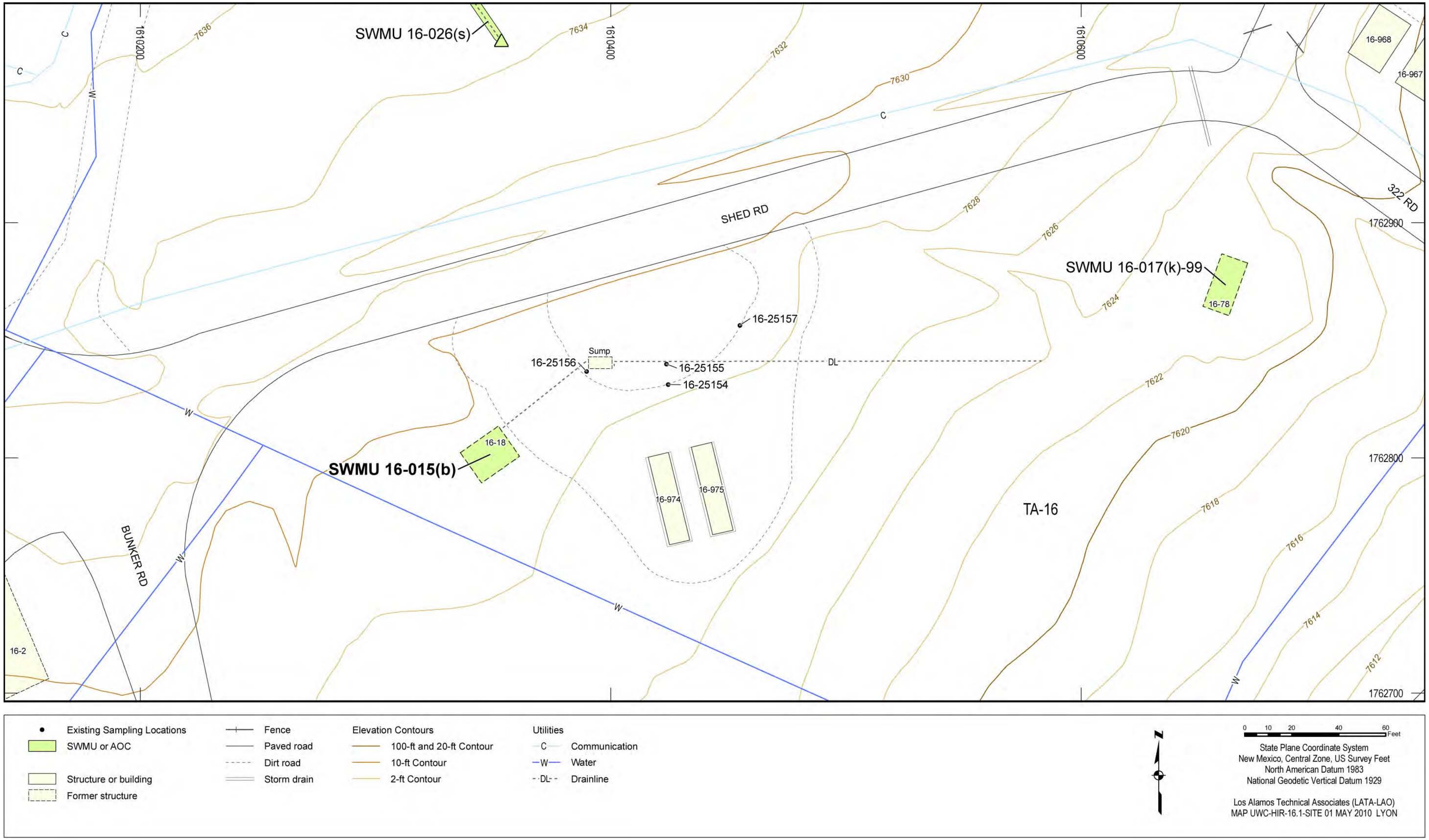


Figure 5.14-1 Site features of SWMU 16-015(b)

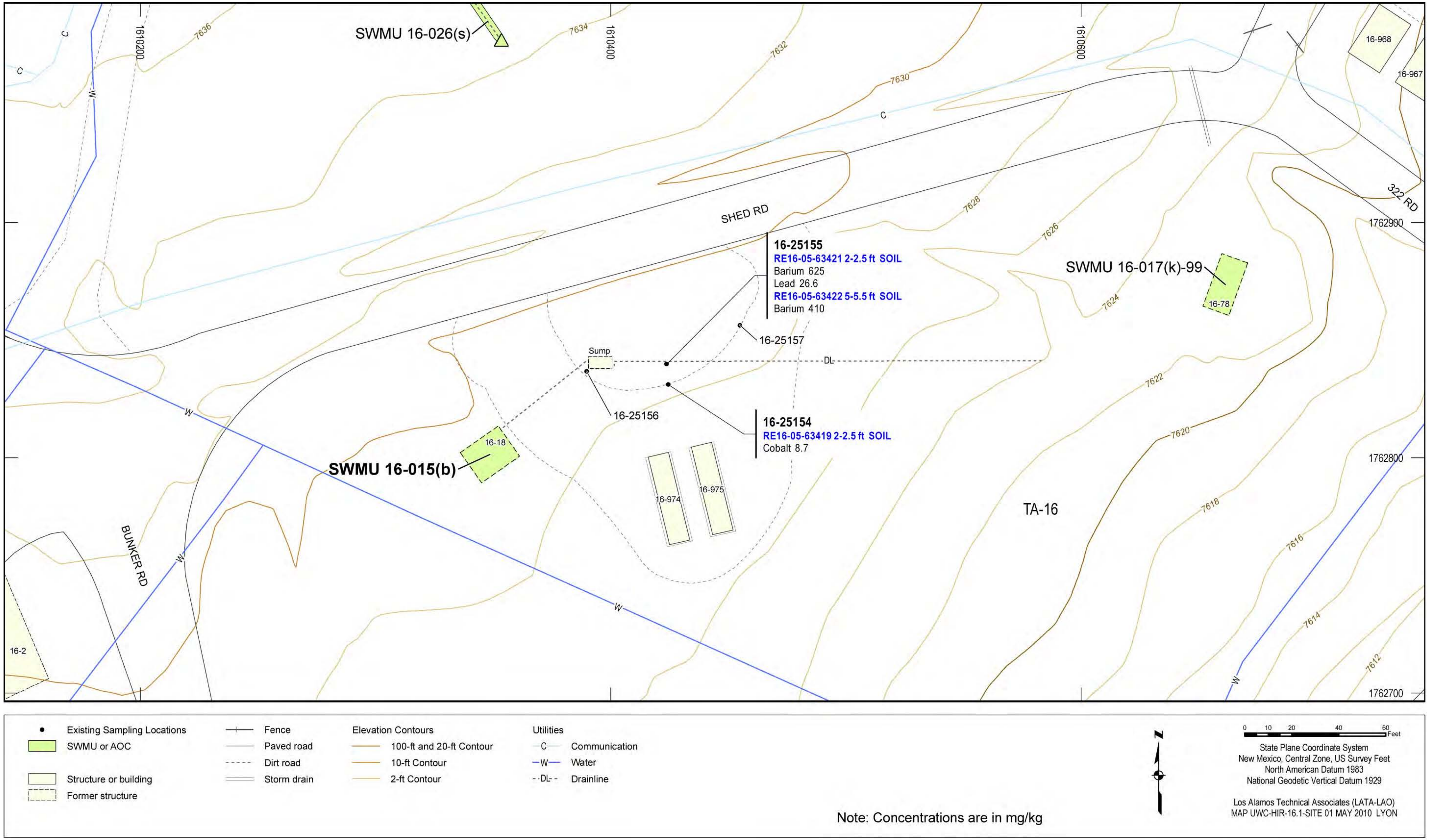


Figure 5.14-2 Inorganic chemicals detected above BVs at SWMU 16-015(b)

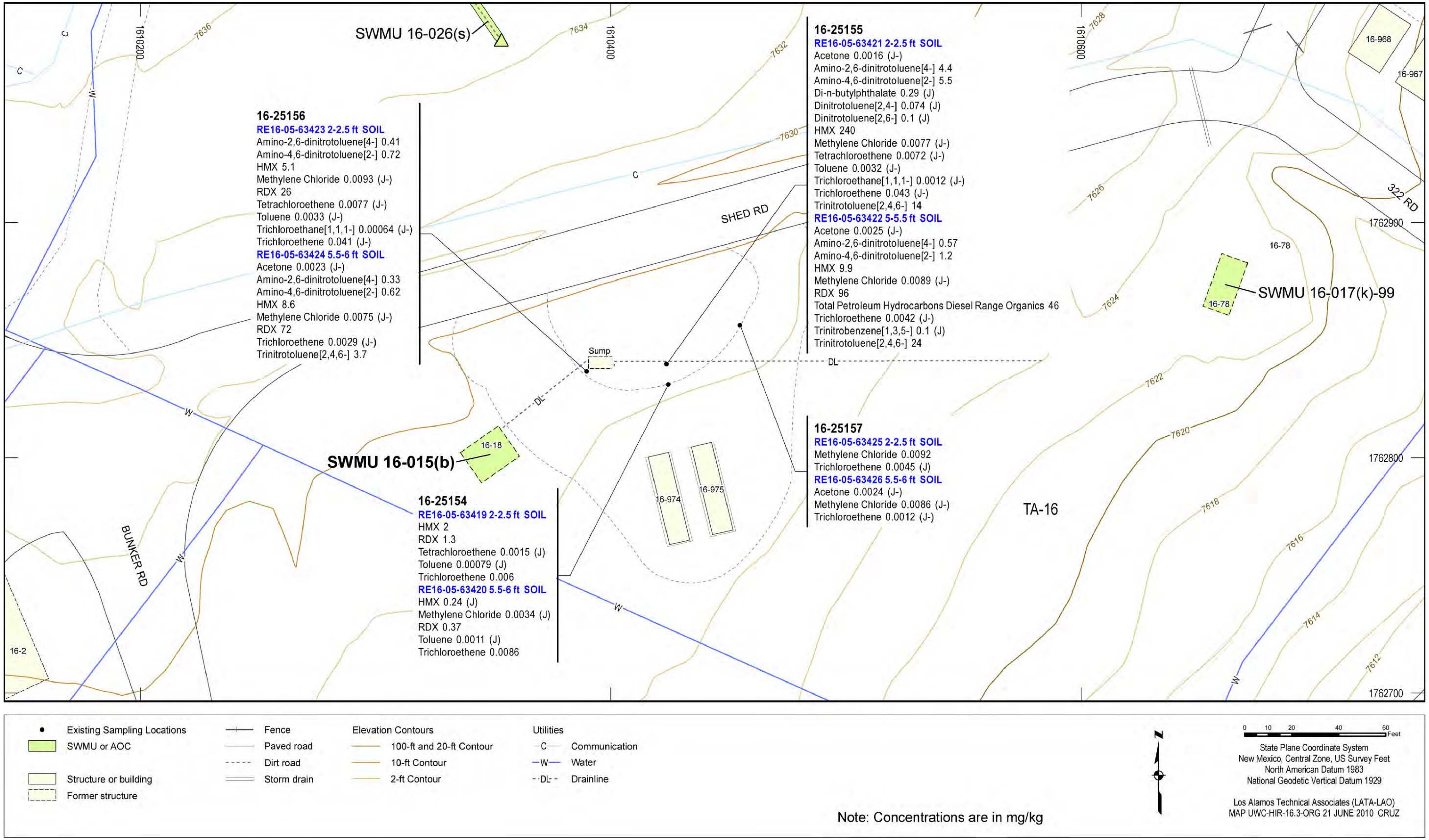


Figure 5.14-3 Organic chemicals detected at SWMU 16-015(b)

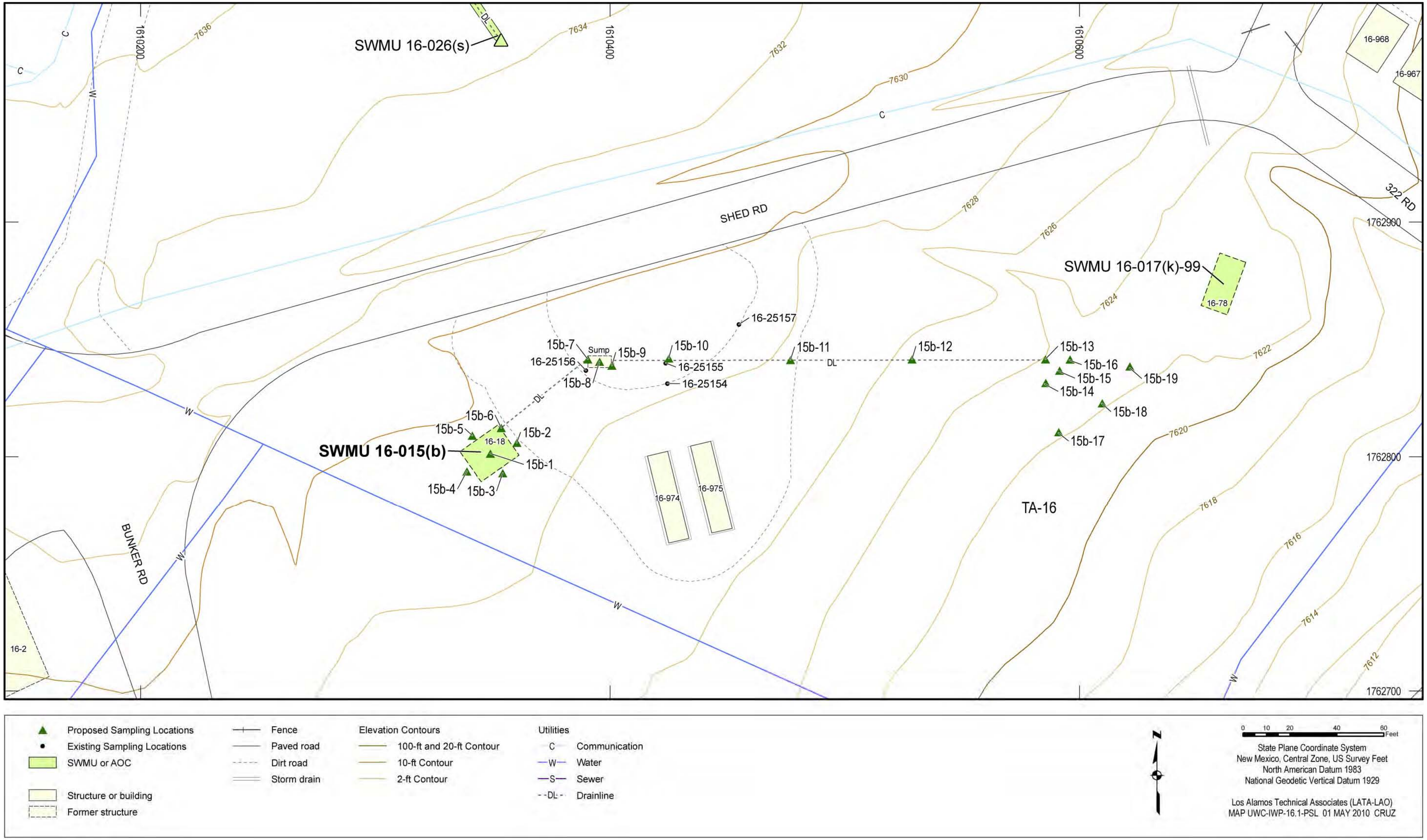


Figure 5.14-4 Proposed sampling locations for SWMU 16-015(b)

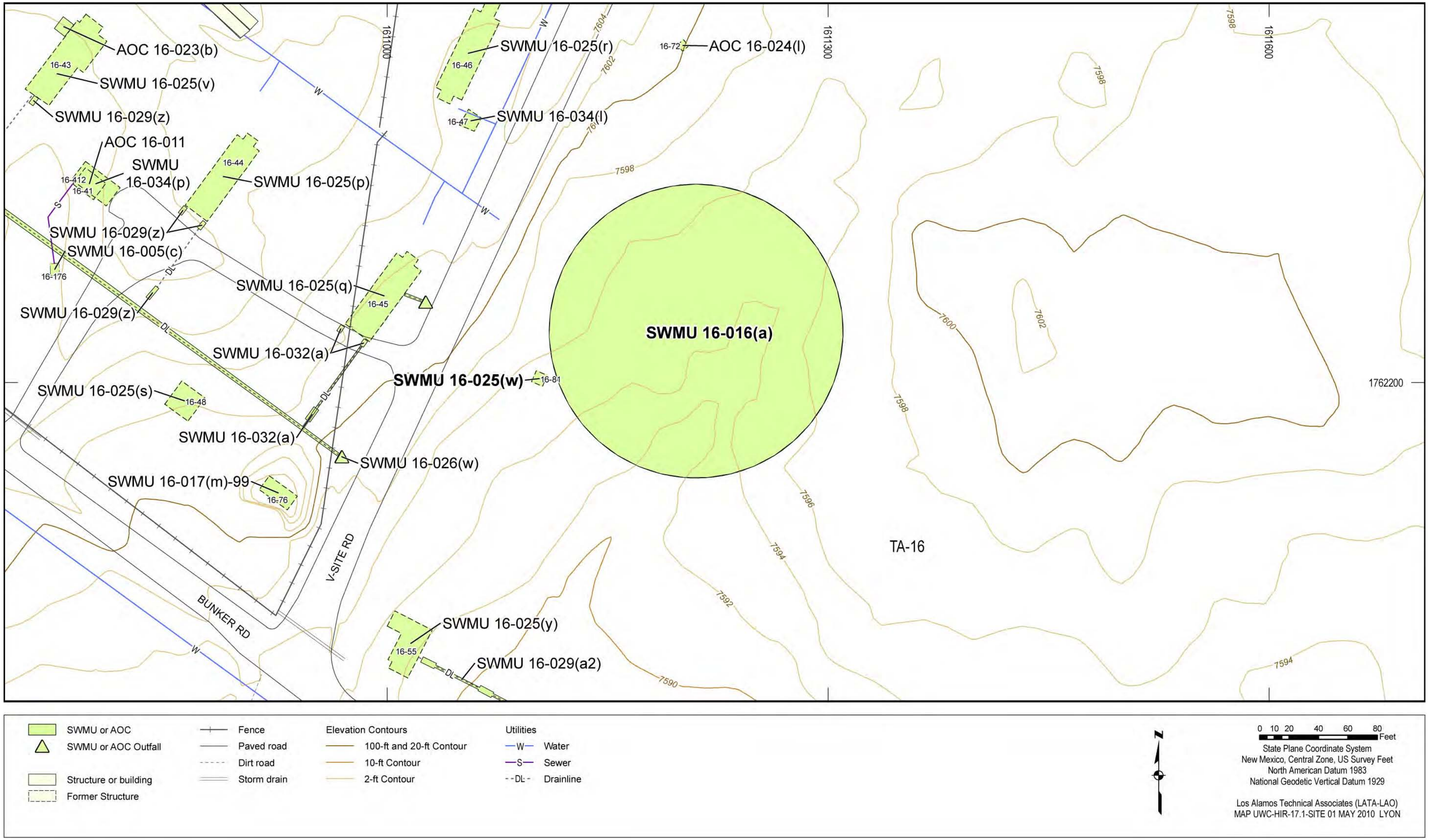


Figure 5.15-1 Site features of SWMU 16-016(a) and SWMU 16-025(w)

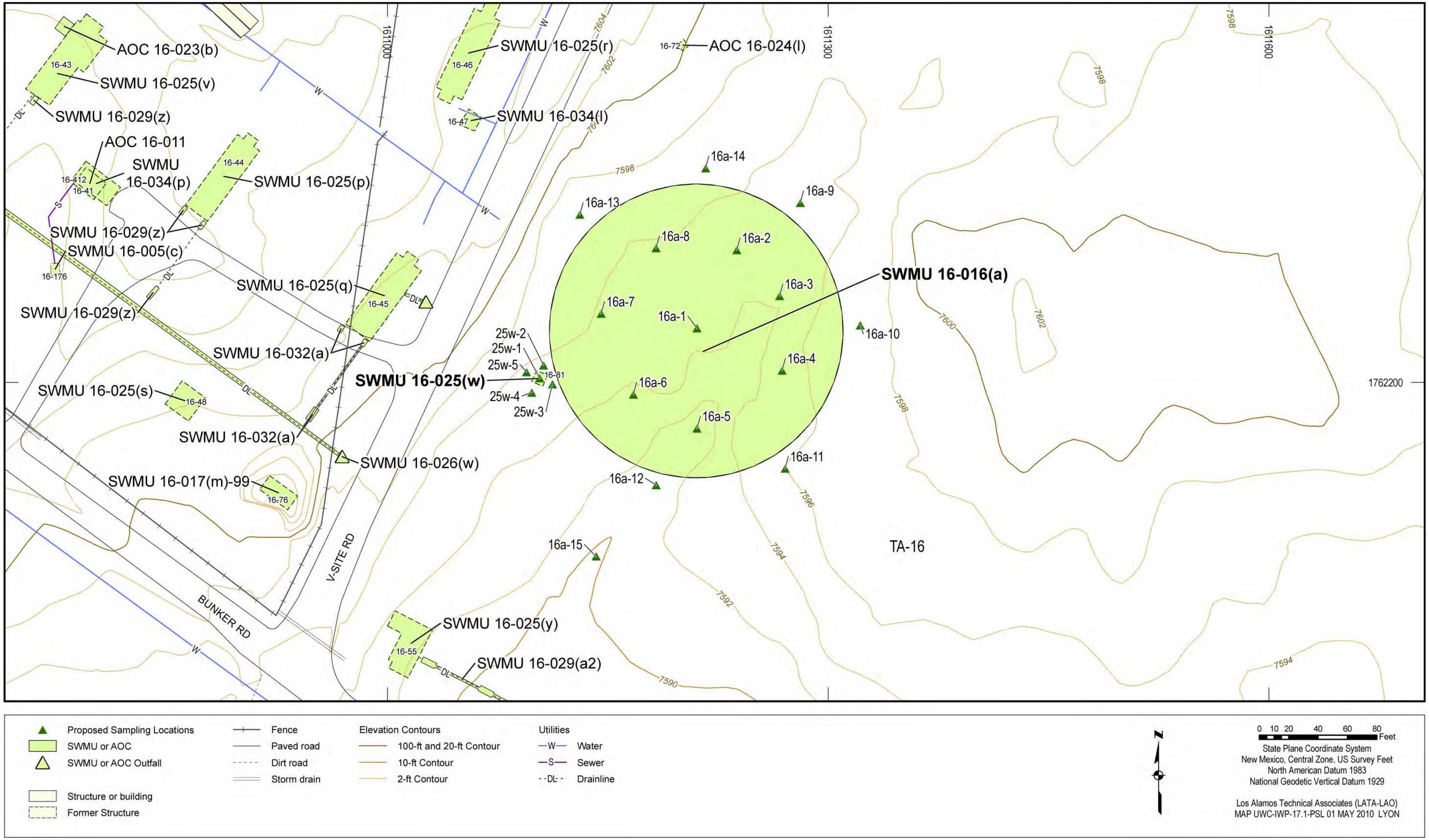


Figure 5.15-2 Proposed sampling locations for SWMU 16-016(a) and SWMU 16-025(w)

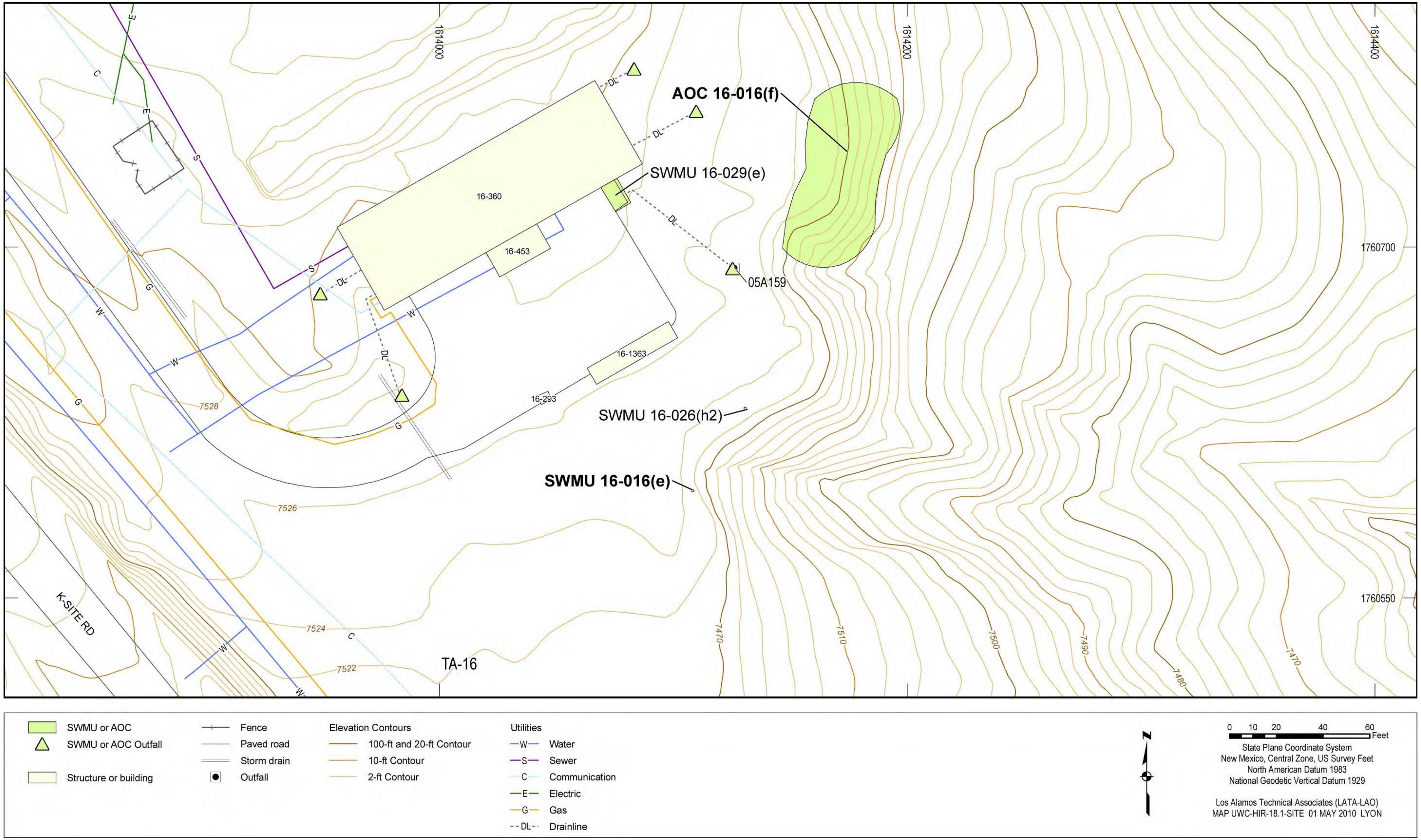


Figure 5.16-1 Site features of SWMU 16-016(e) and AOC 16-016(f)

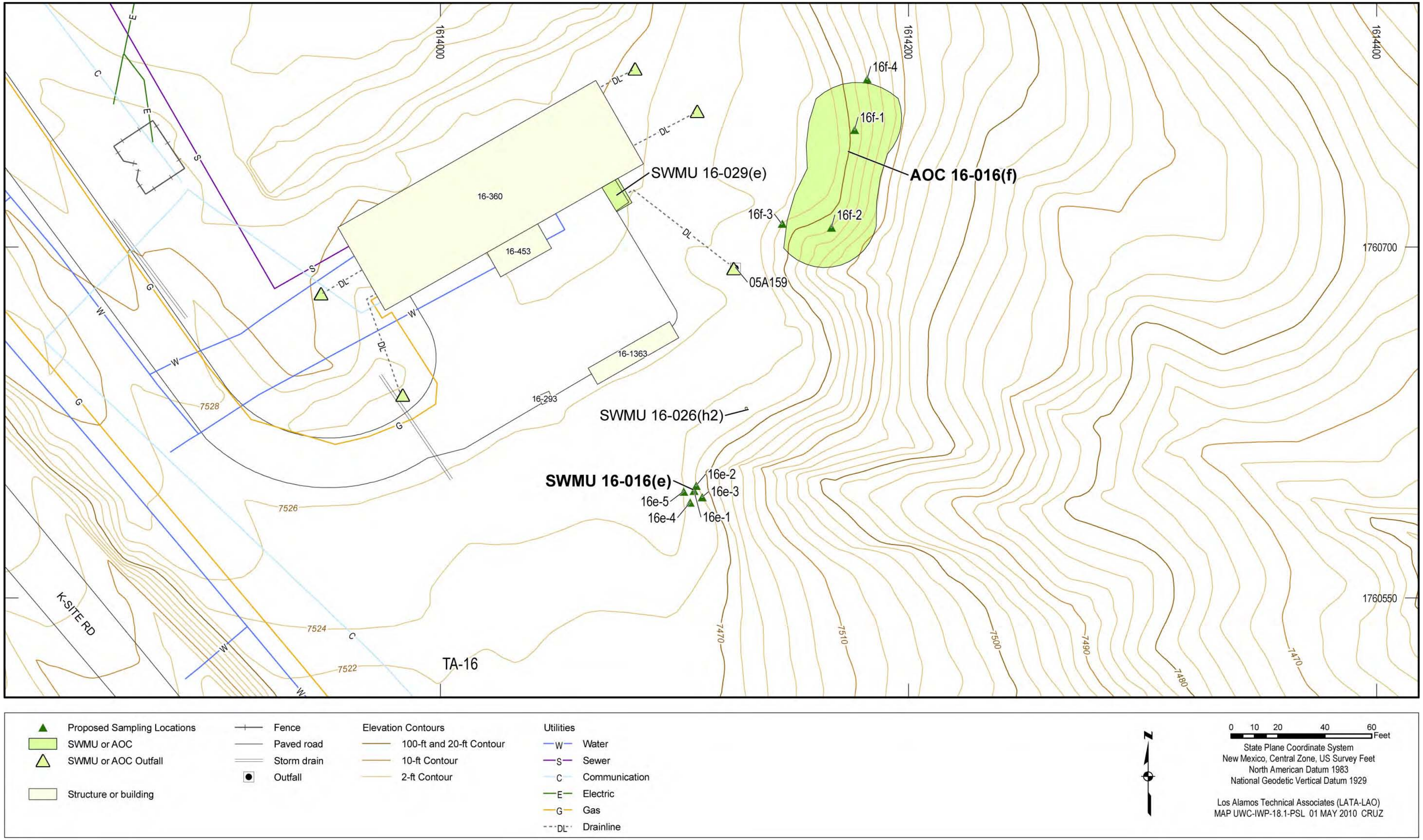


Figure 5.16-2 Proposed sampling locations for SWMU 16-016(e) and AOC 16-016(f)

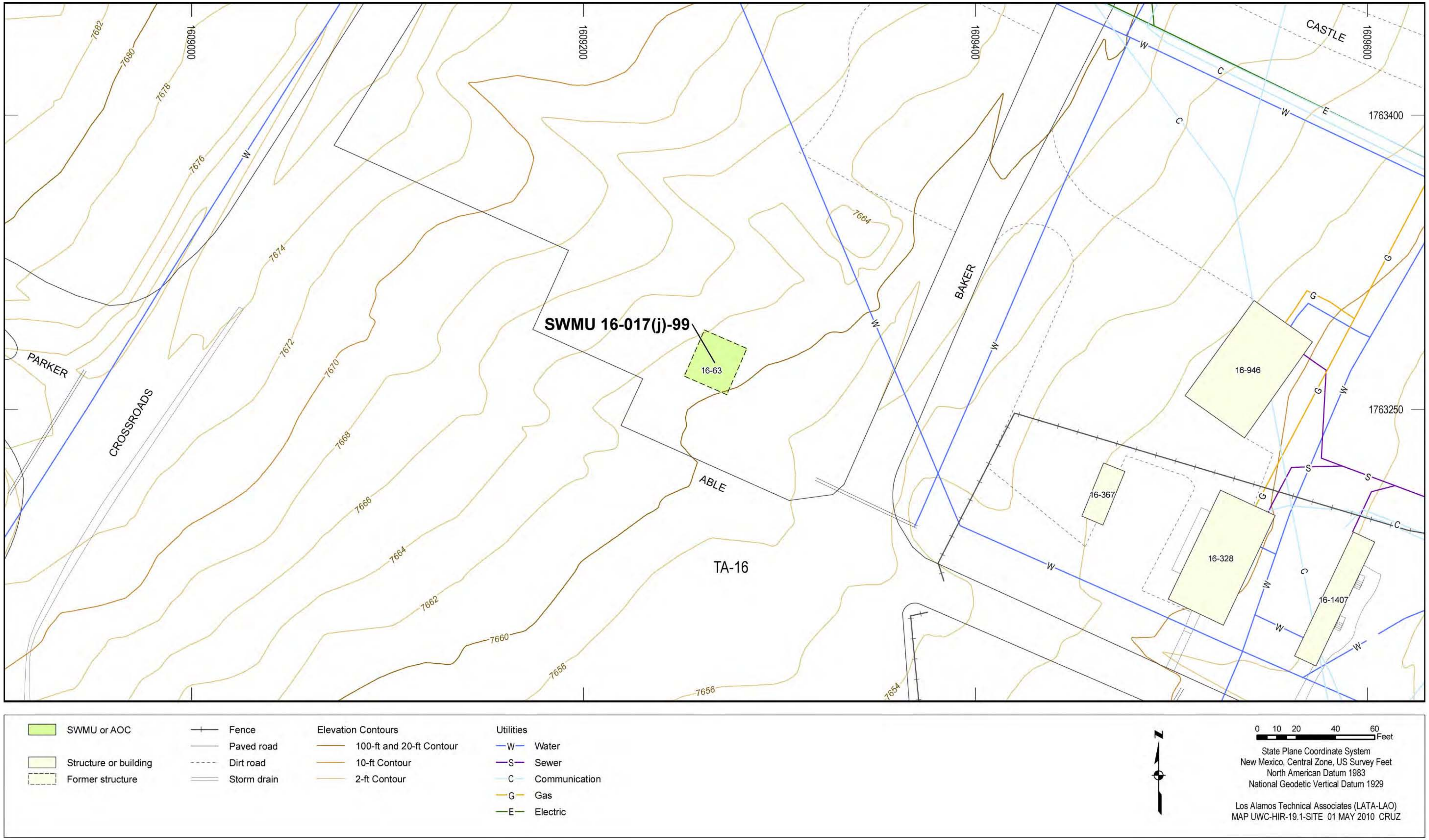


Figure 5.19-1 Site features of SWMU 16-017(j)-99

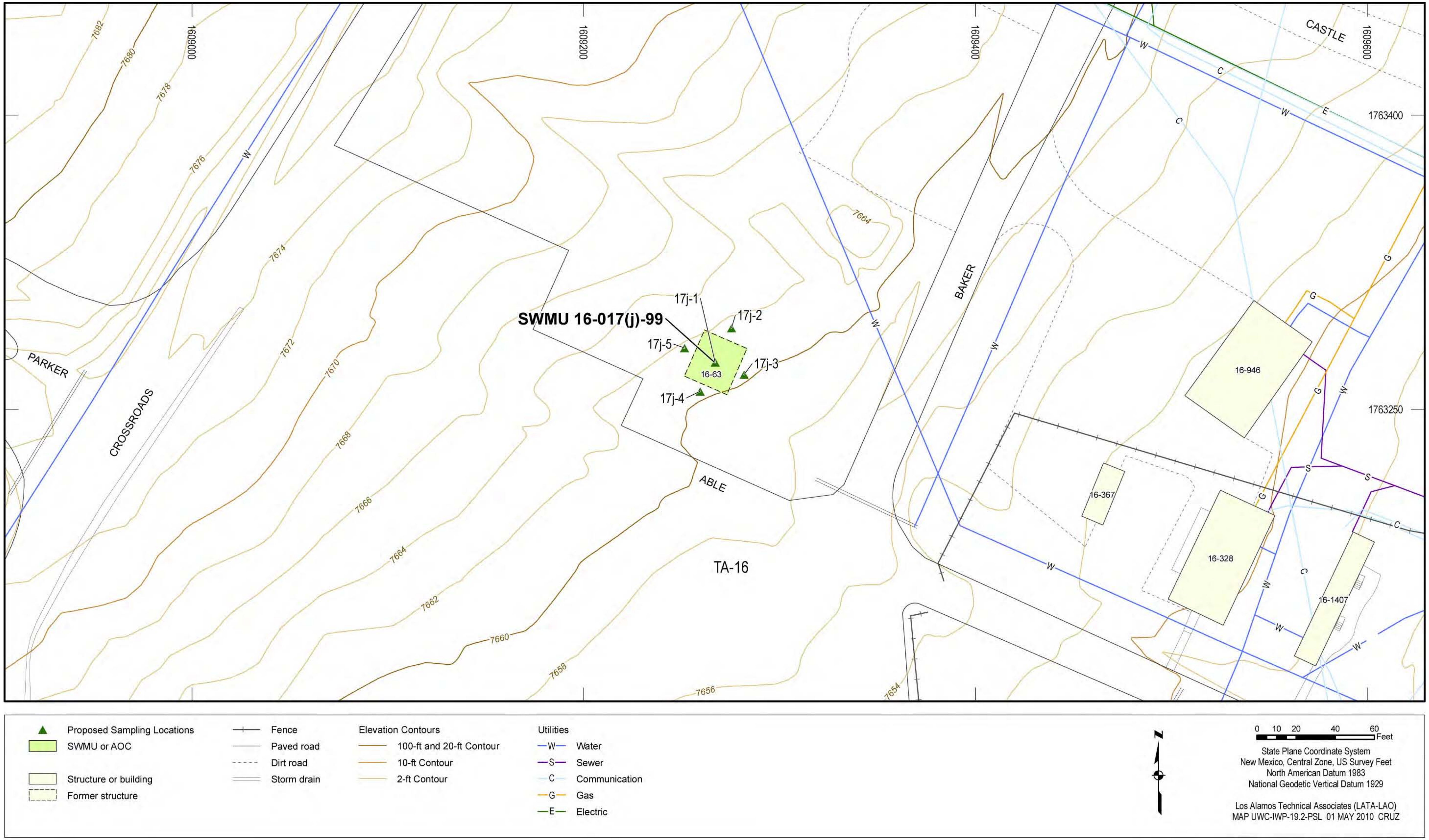


Figure 5.19-2 Proposed sampling locations for SWMU 16-017(j)-99

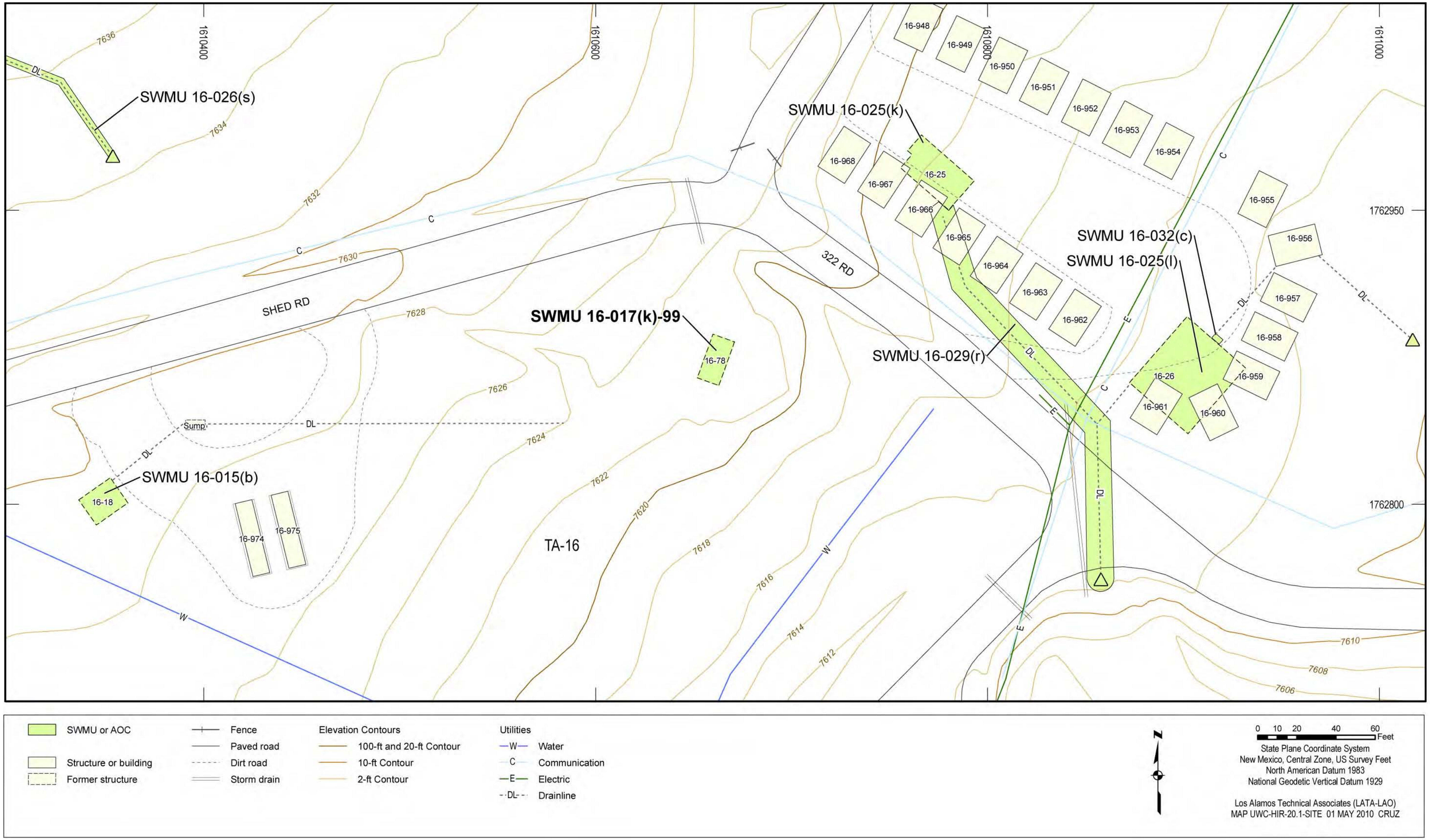


Figure 5.20-1 Site features of SWMU 16-017(k)-99

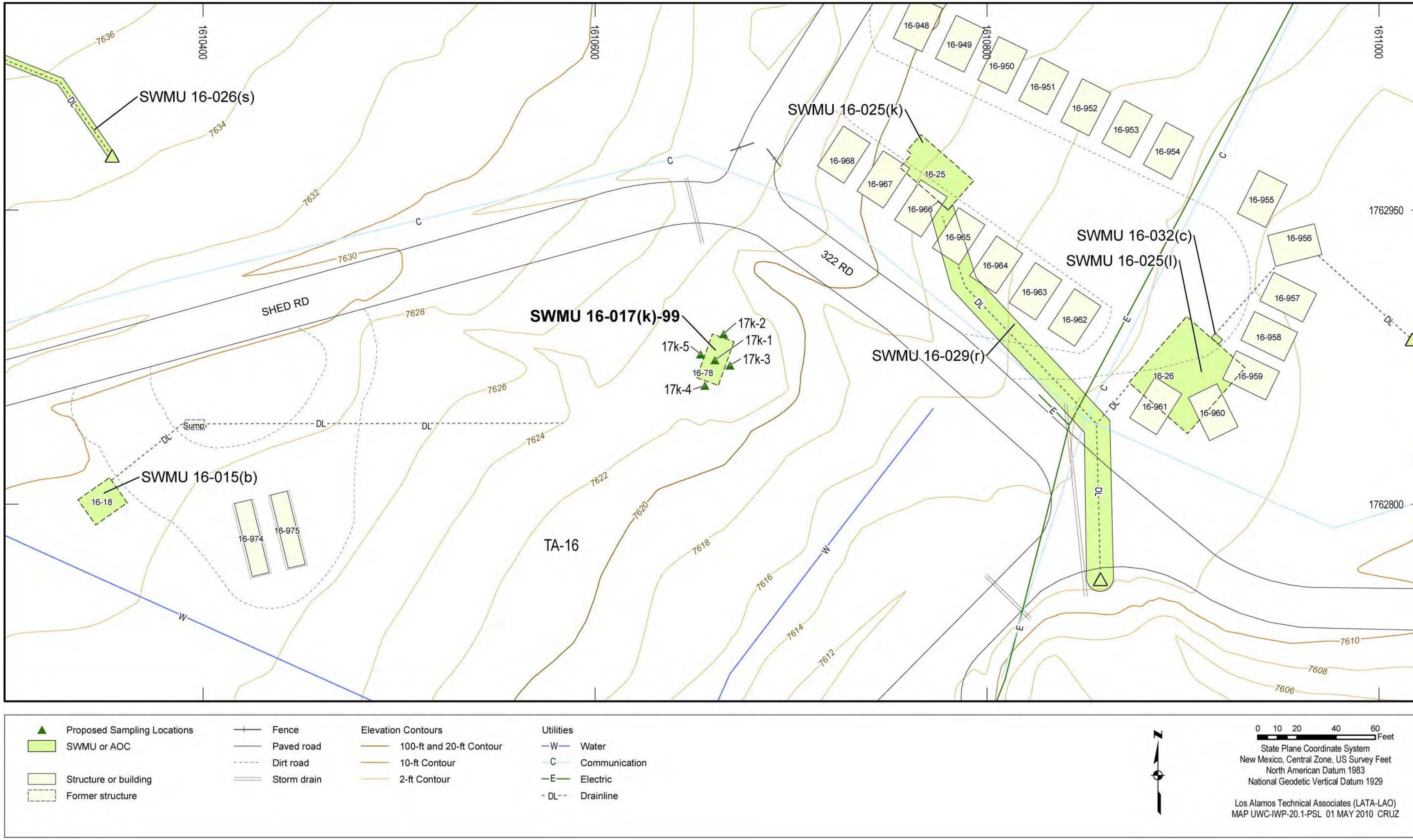


Figure 5.20-2 Proposed sampling locations for SWMU 16-017(k)-99

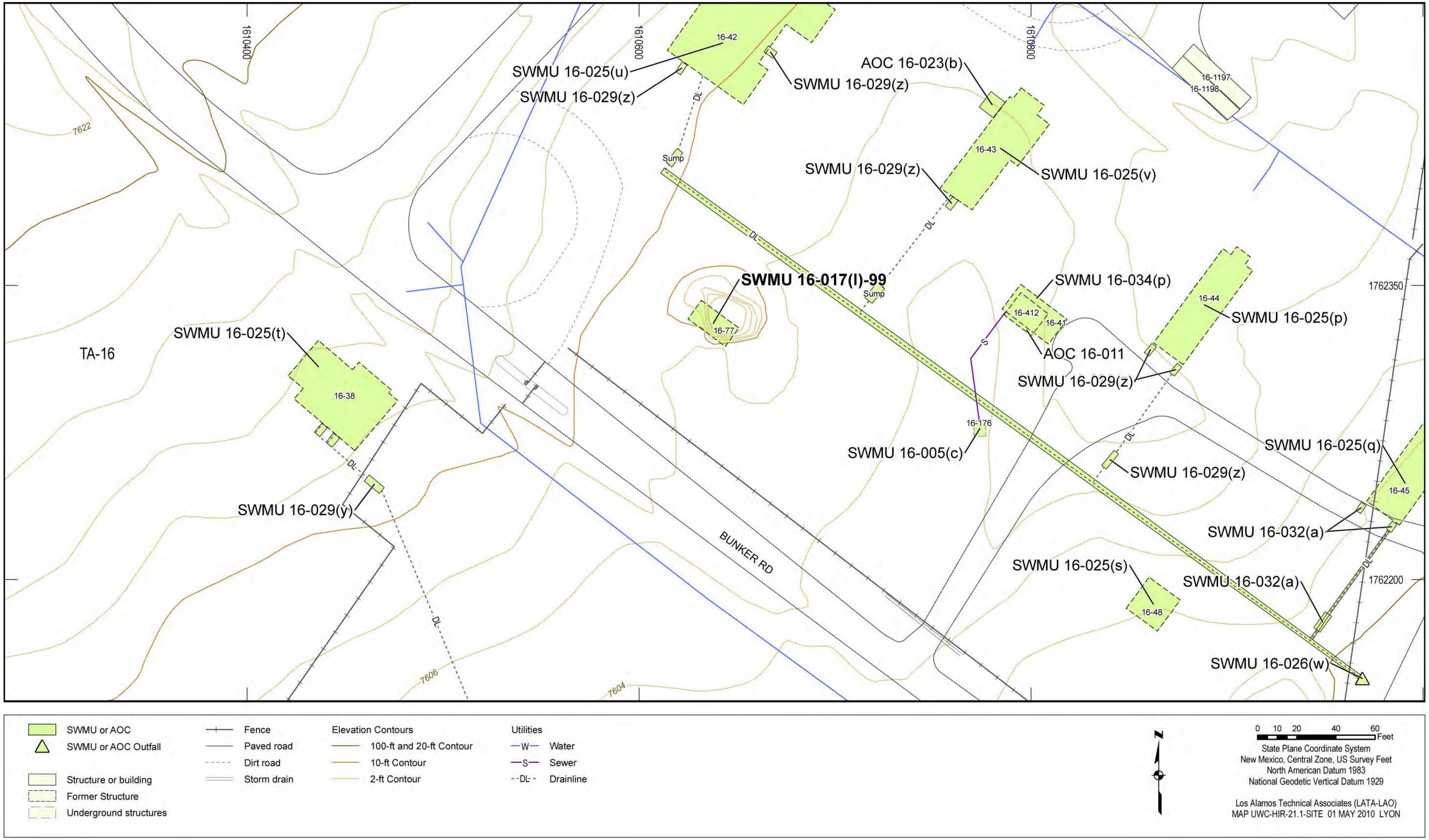


Figure 5.21-1 Site features of SWMU 16-017(l)-99

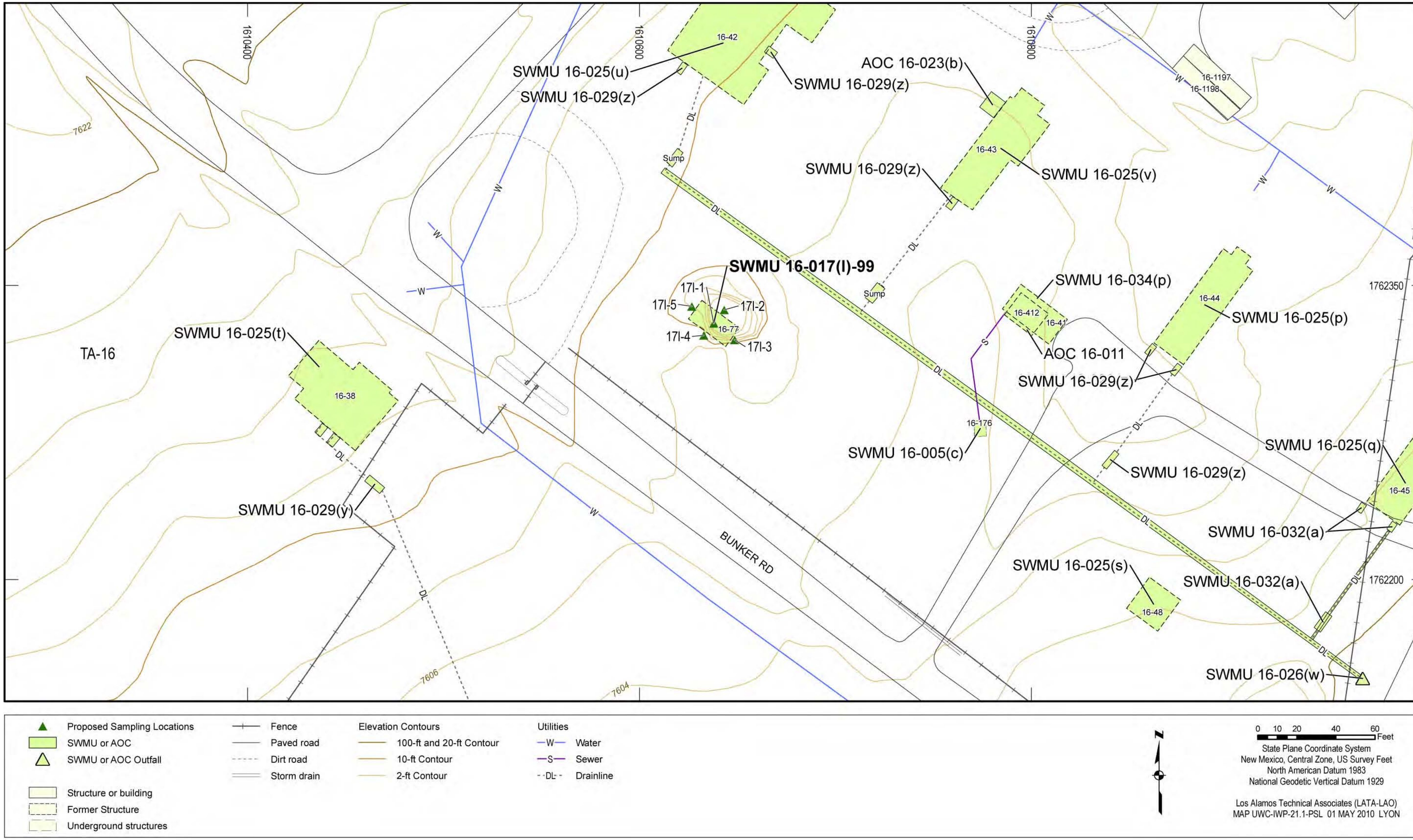


Figure 5.21-2 Proposed sampling locations for SWMU 16-017(l)-99

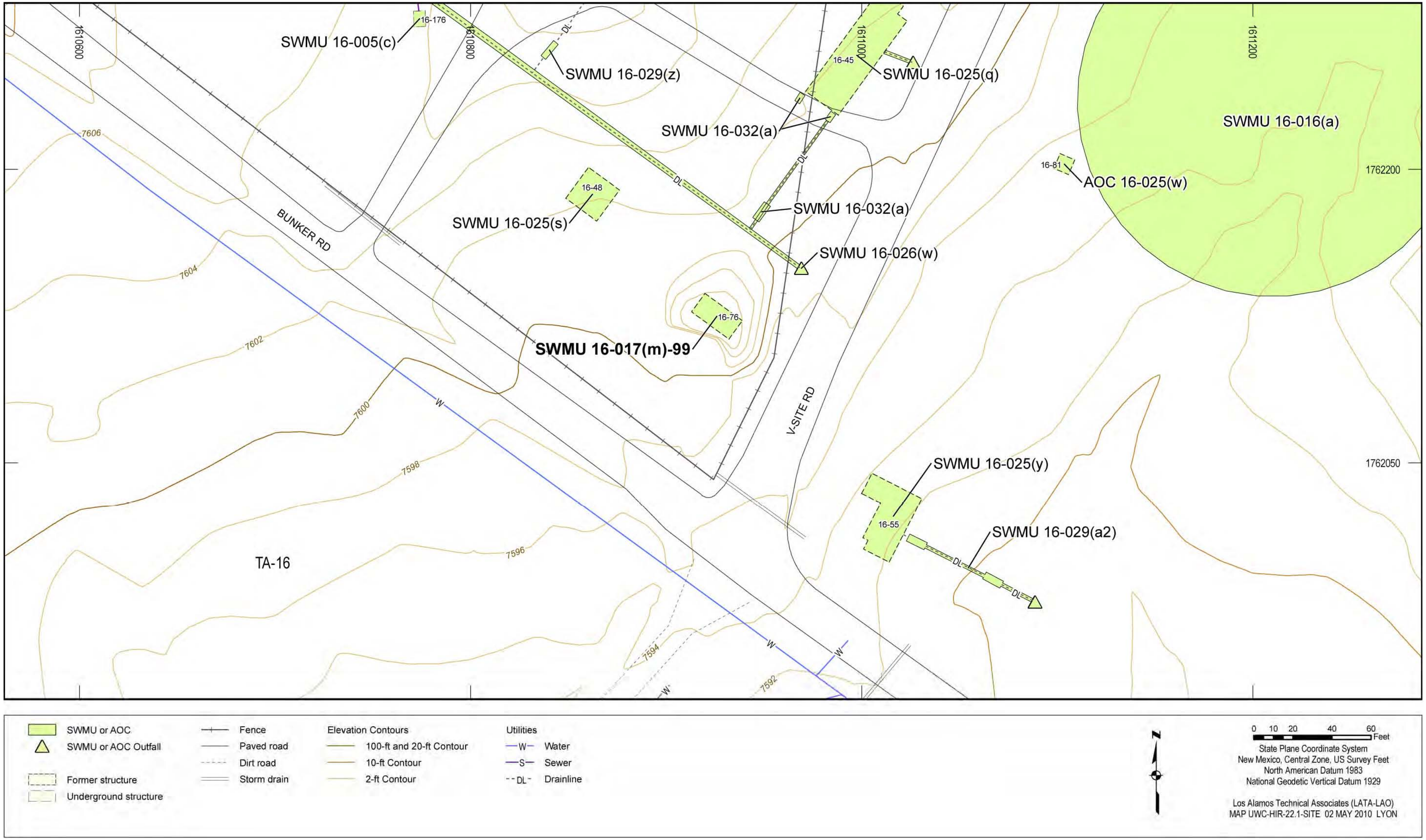


Figure 5.22-1 Site features of SWMU 16-017(m)-99

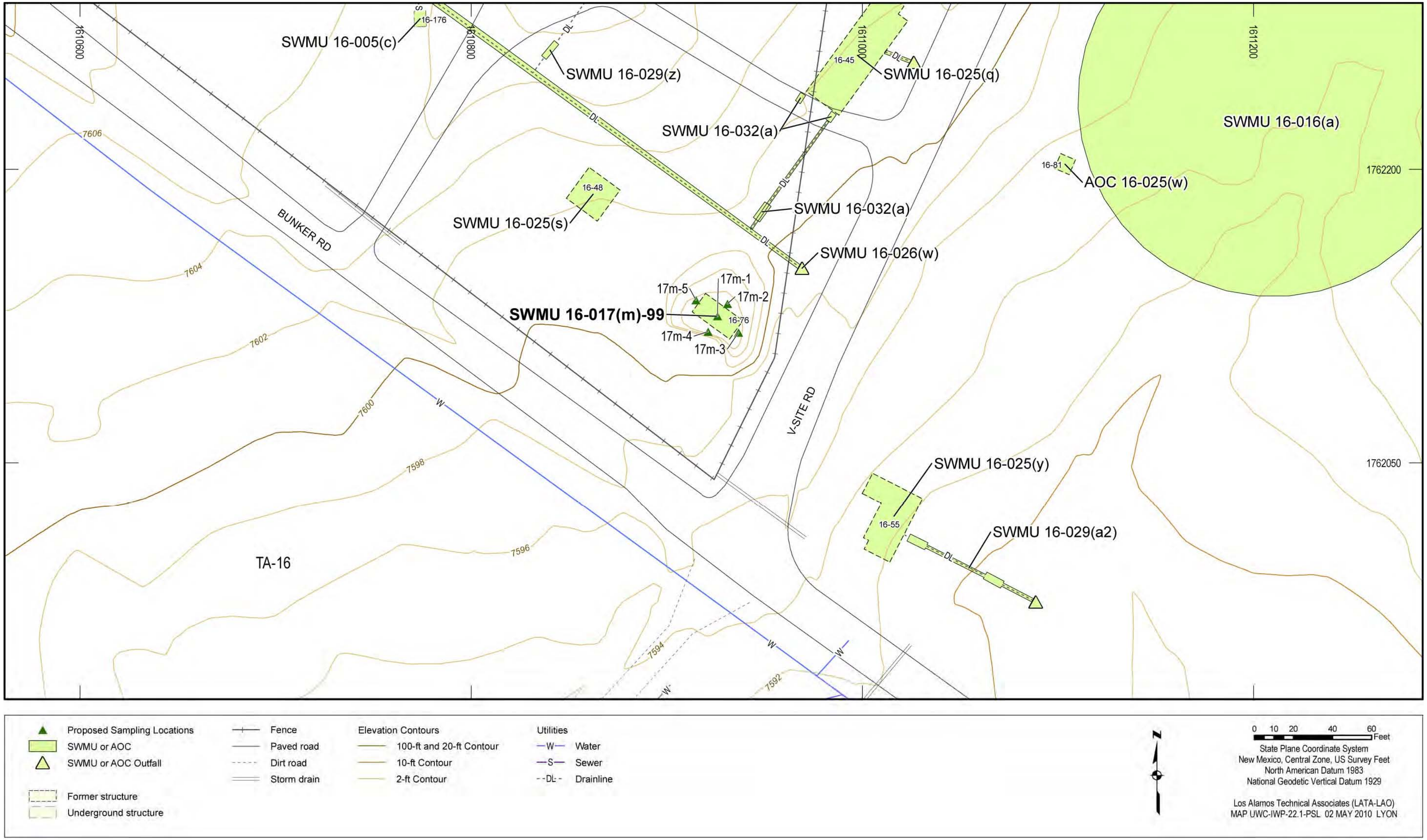


Figure 5.22-2 Proposed sampling locations for SWMU 16-017(m)-99

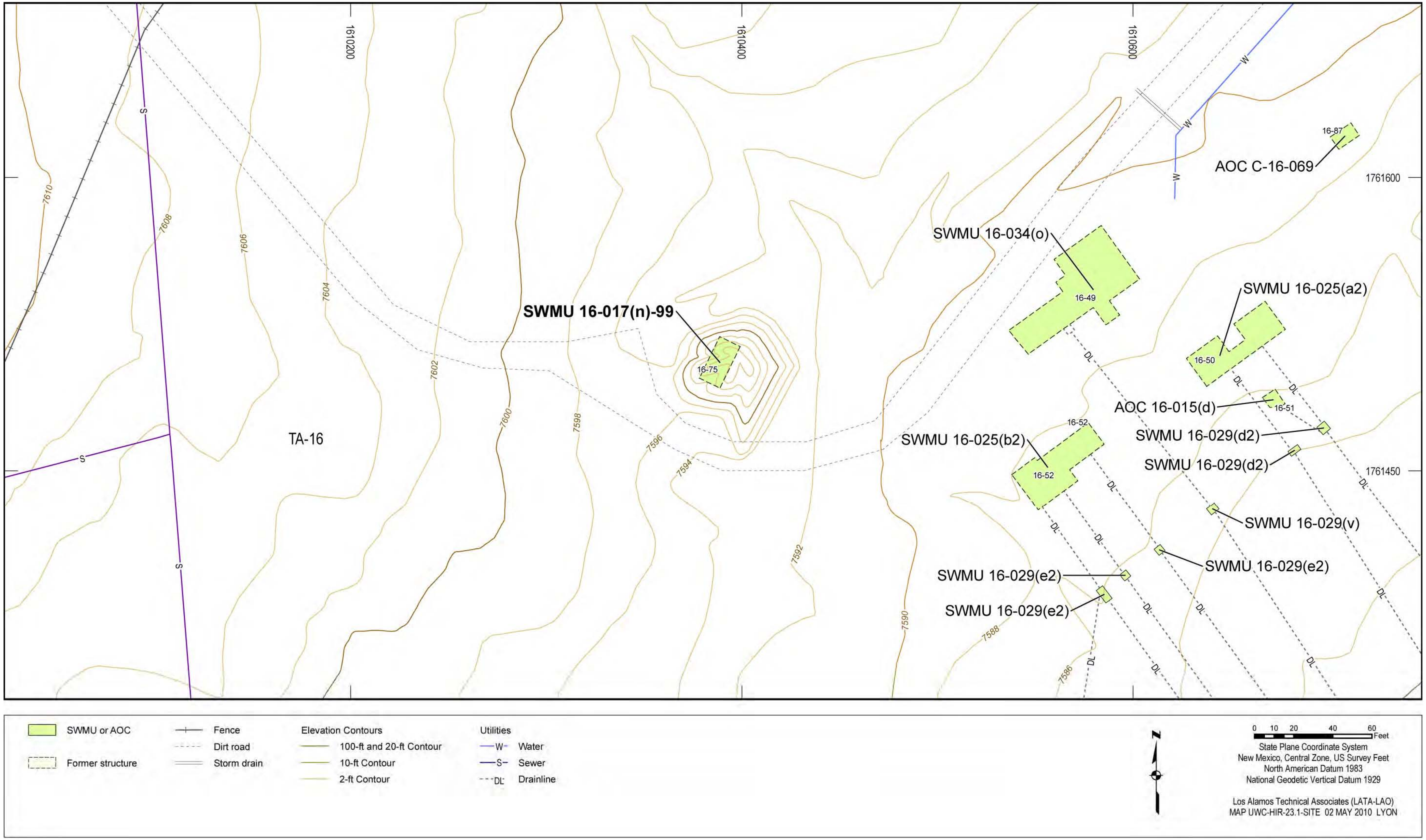


Figure 5.23-1 Site features of SWMU 16-017(n)-99

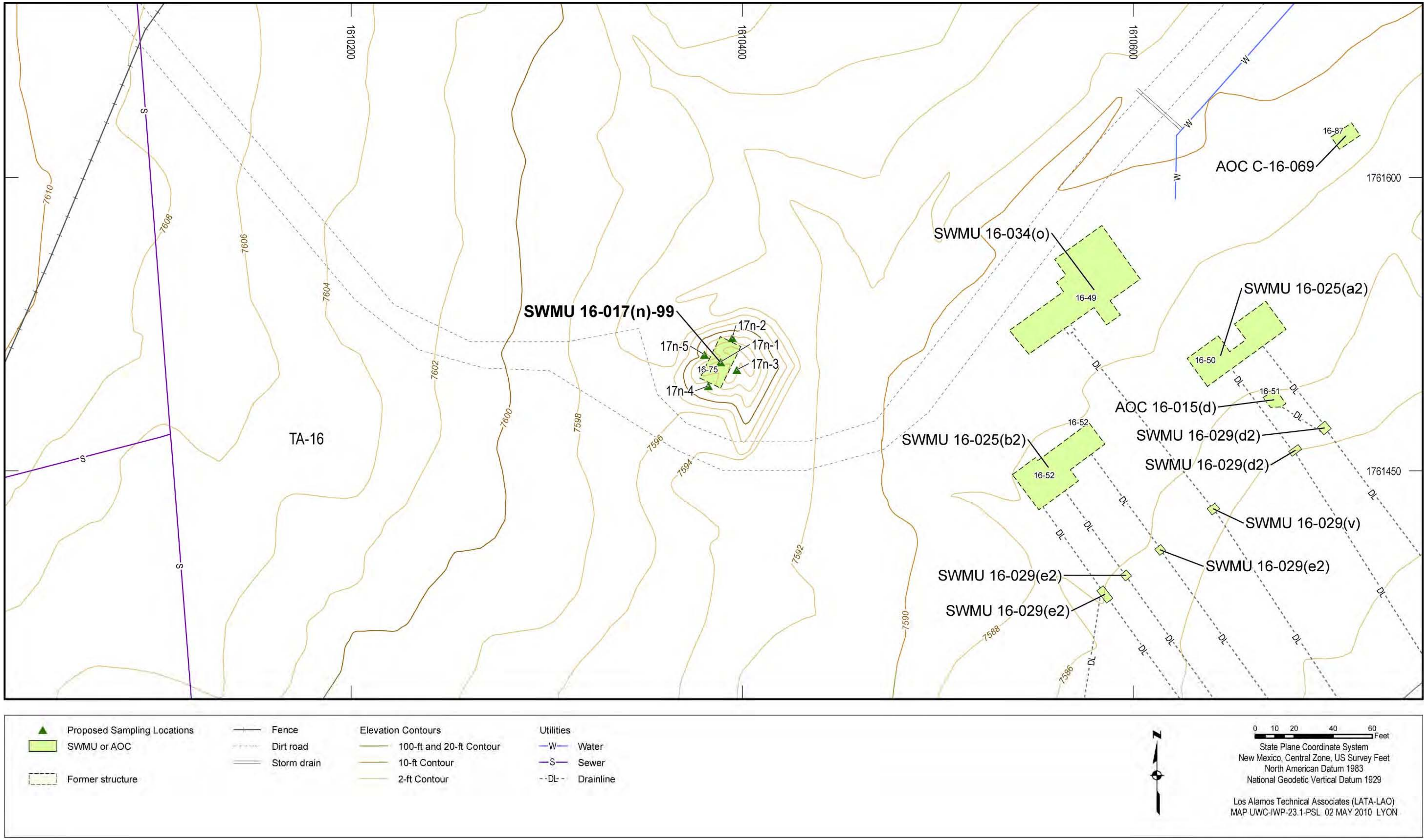


Figure 5.23-2 Proposed sampling locations for SWMU 16-017(n)-99

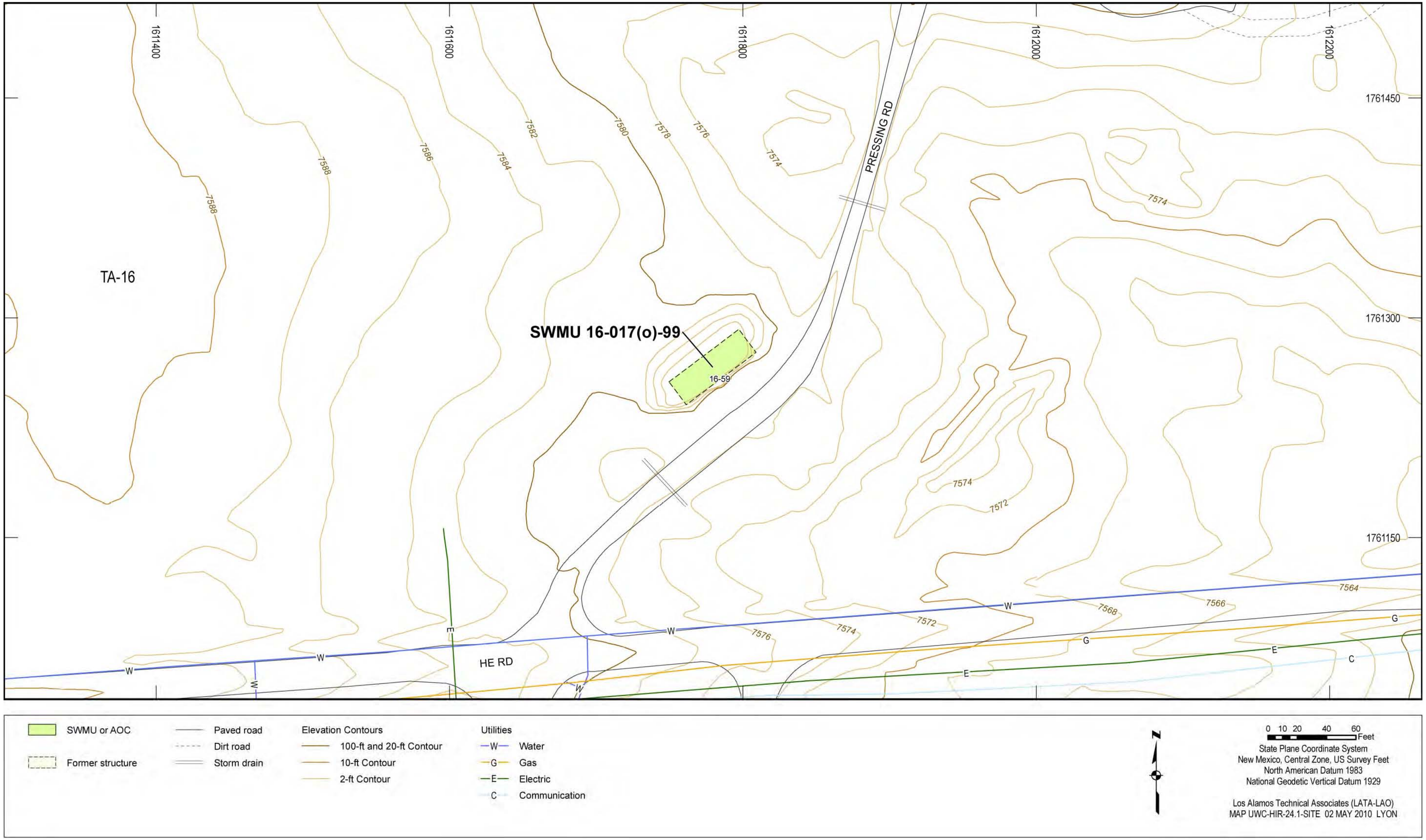


Figure 5.24-1 Site features of SWMU 16-017(o)-99

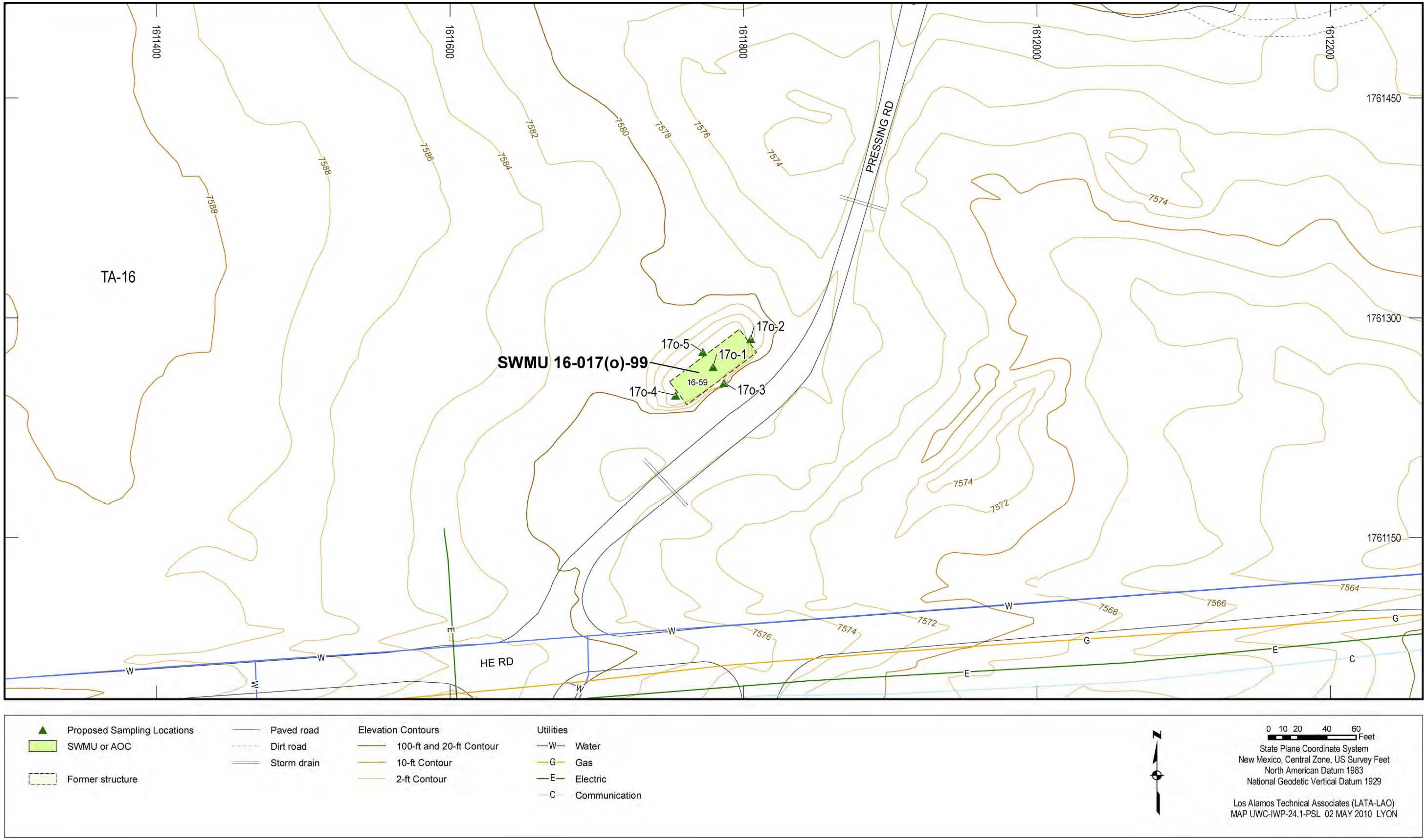


Figure 5.24-2 Proposed sampling locations for SWMU 16-017(o)-99

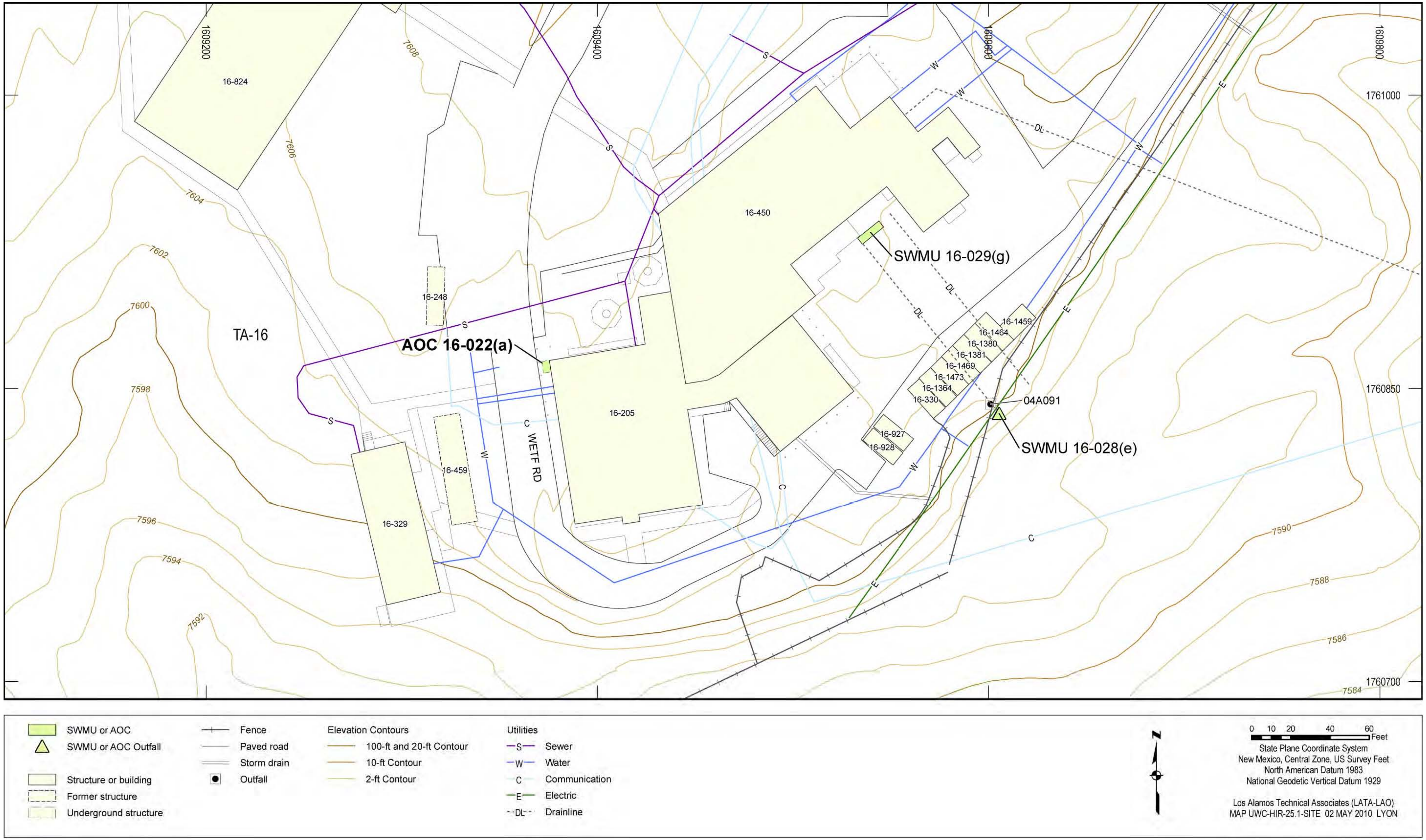


Figure 5.26-1 Site features of AOC 16-022(a)

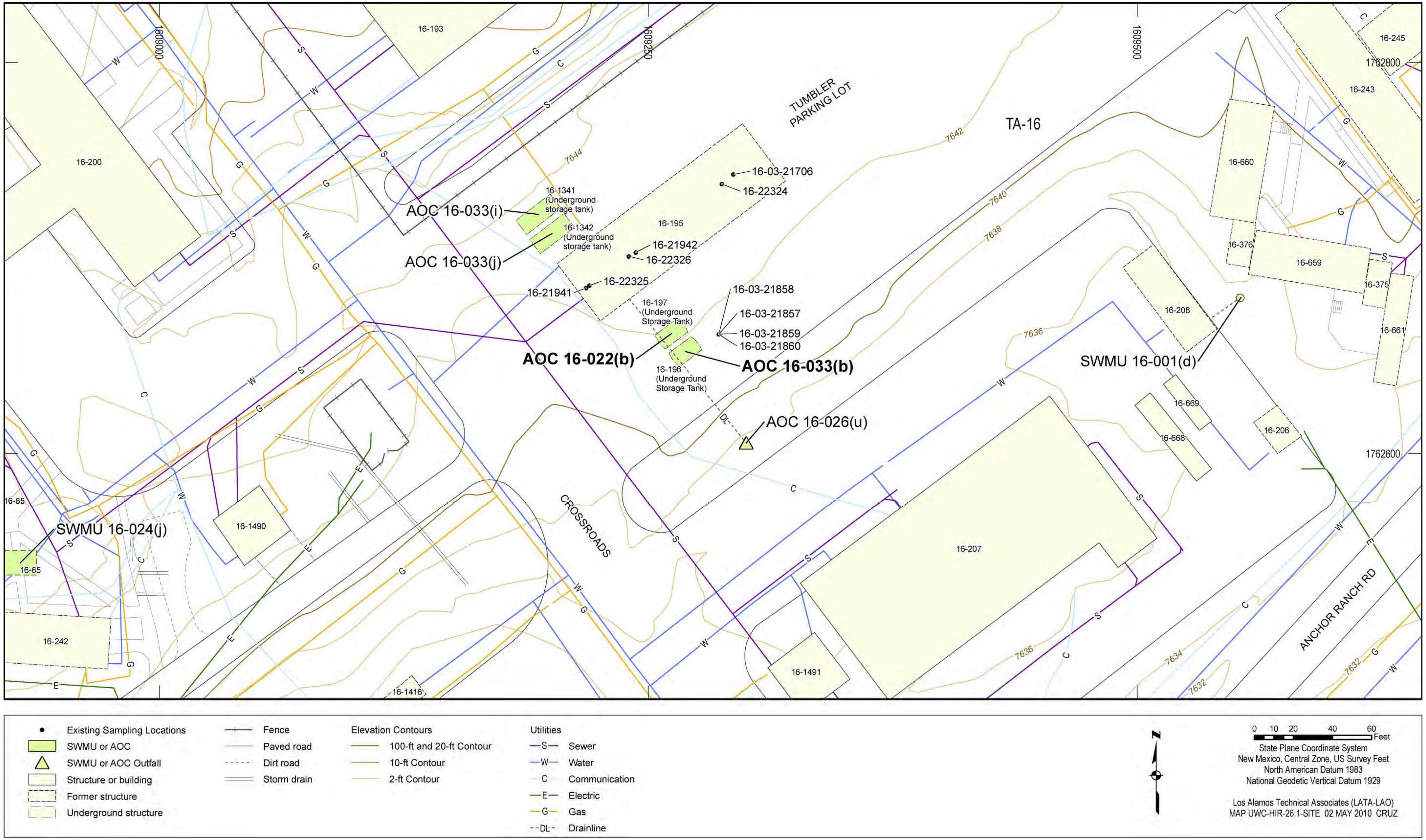


Figure 5.27-1 Site features of AOC 16-022(b) and AOC 16-033(b)

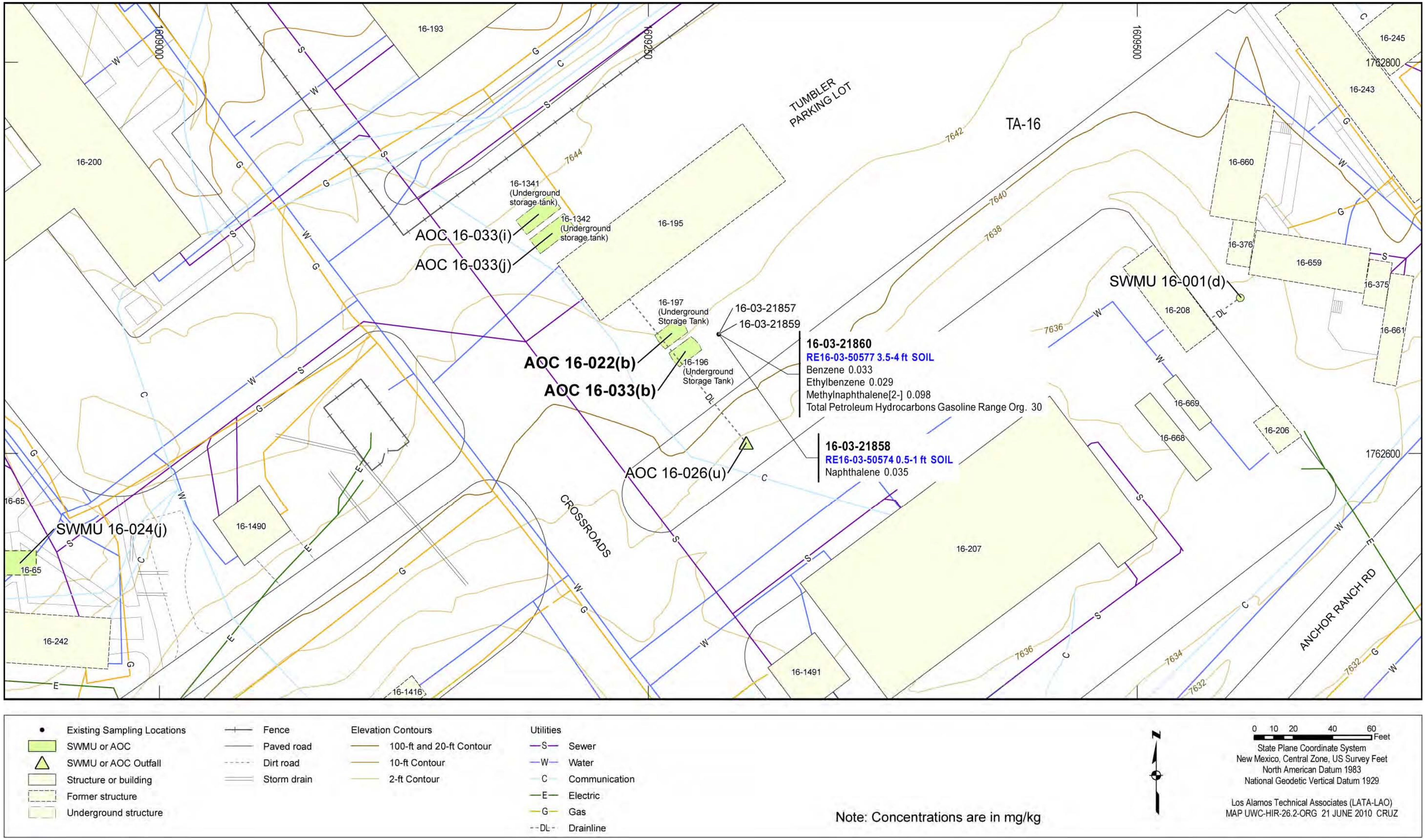


Figure 5.27-2 Organic chemicals detected at AOC 16-022(b) and AOC 16-033(b)

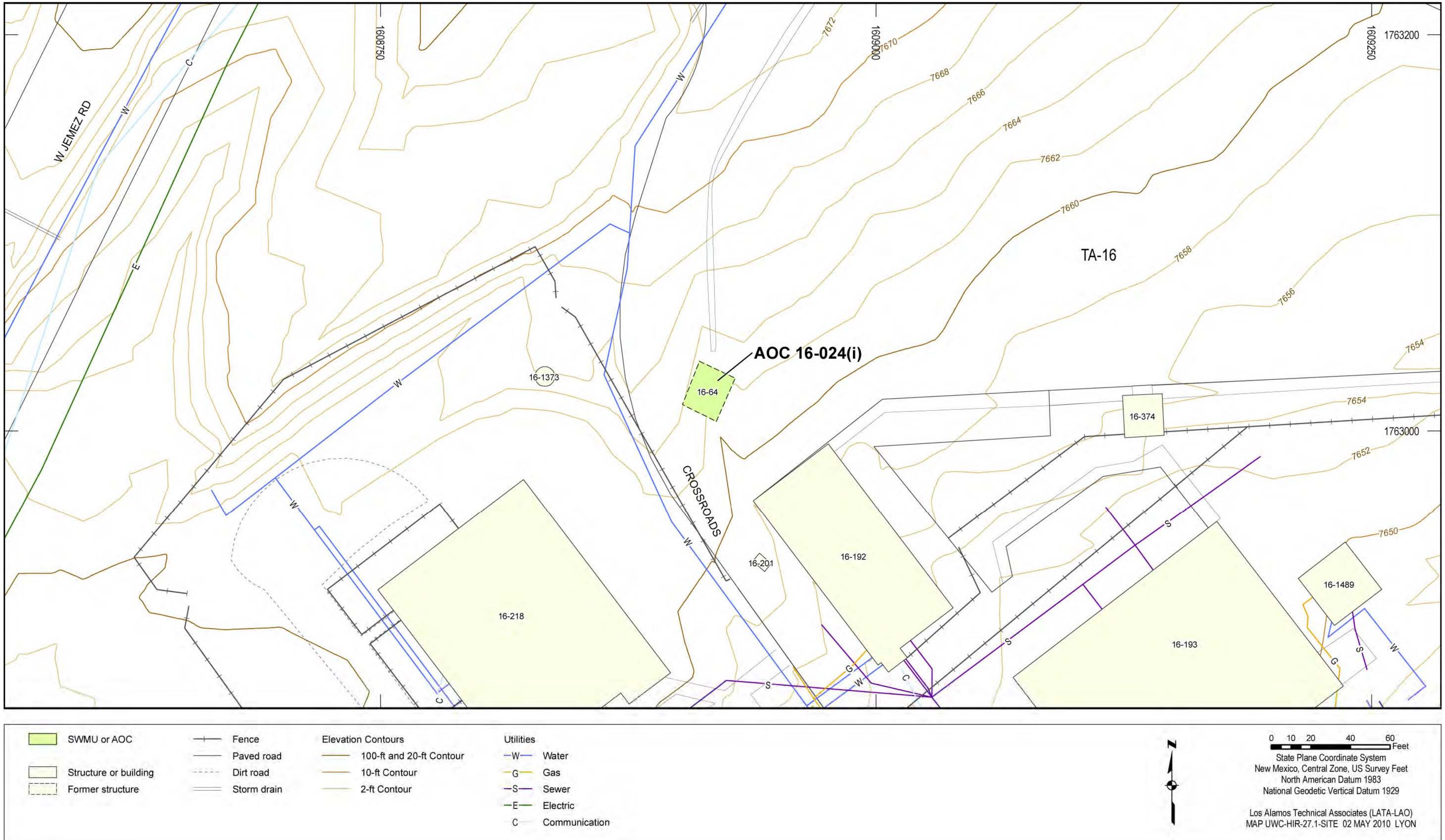


Figure 5.28-1 Site features of AOC 16-024(i)

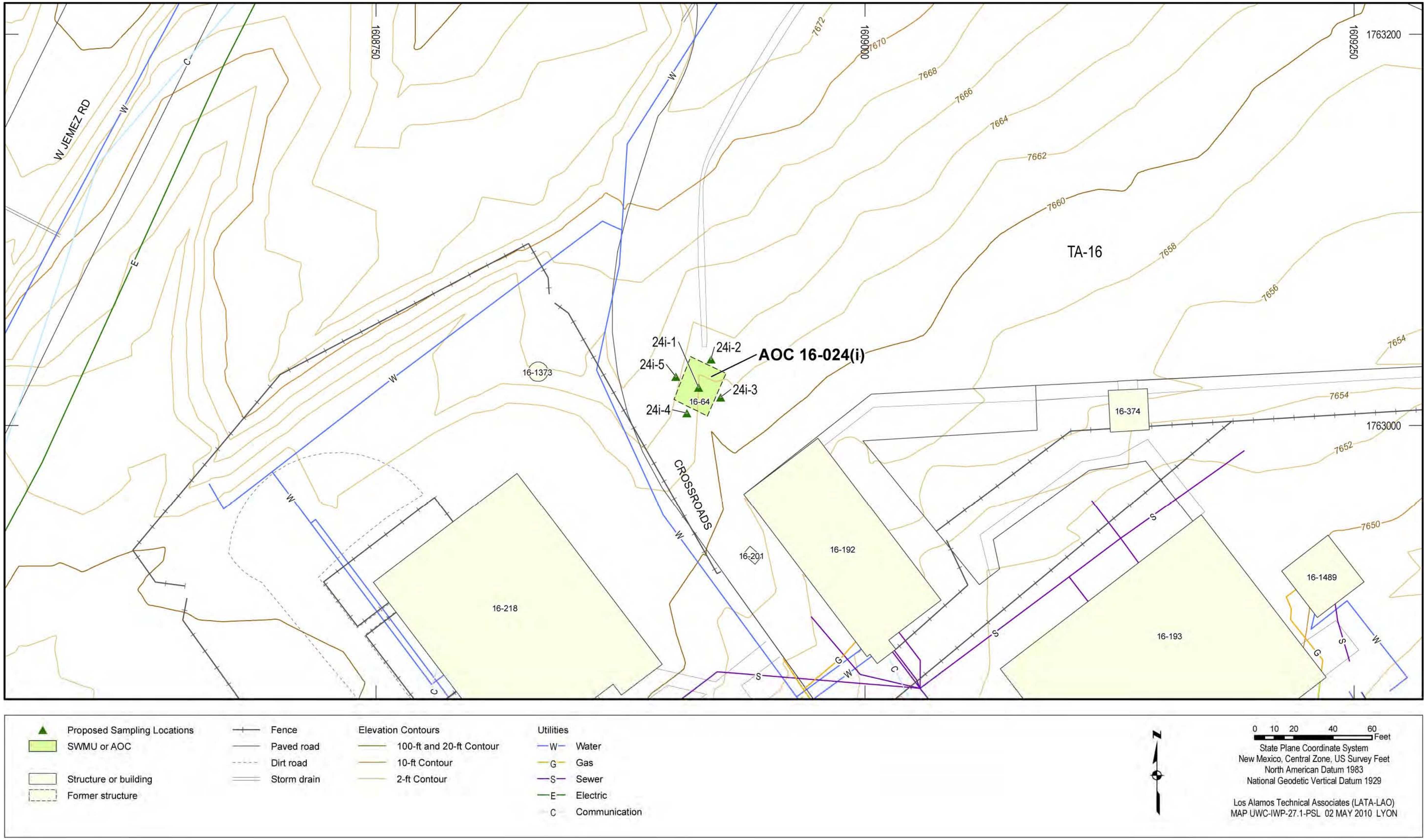


Figure 5.28-2 Proposed sampling locations for AOC 16-024(i)

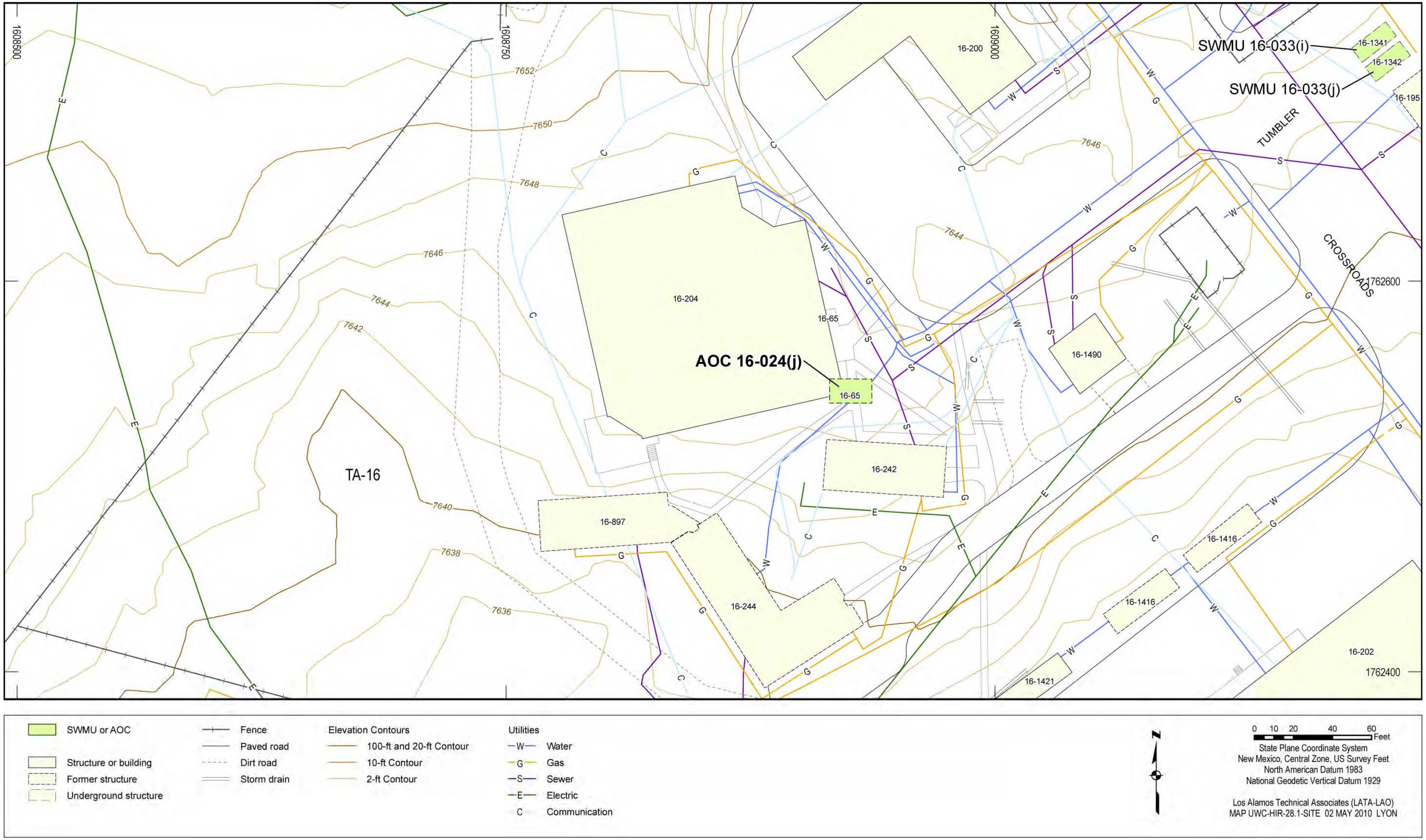


Figure 5.29-1 Site features of AOC 16-024(j)

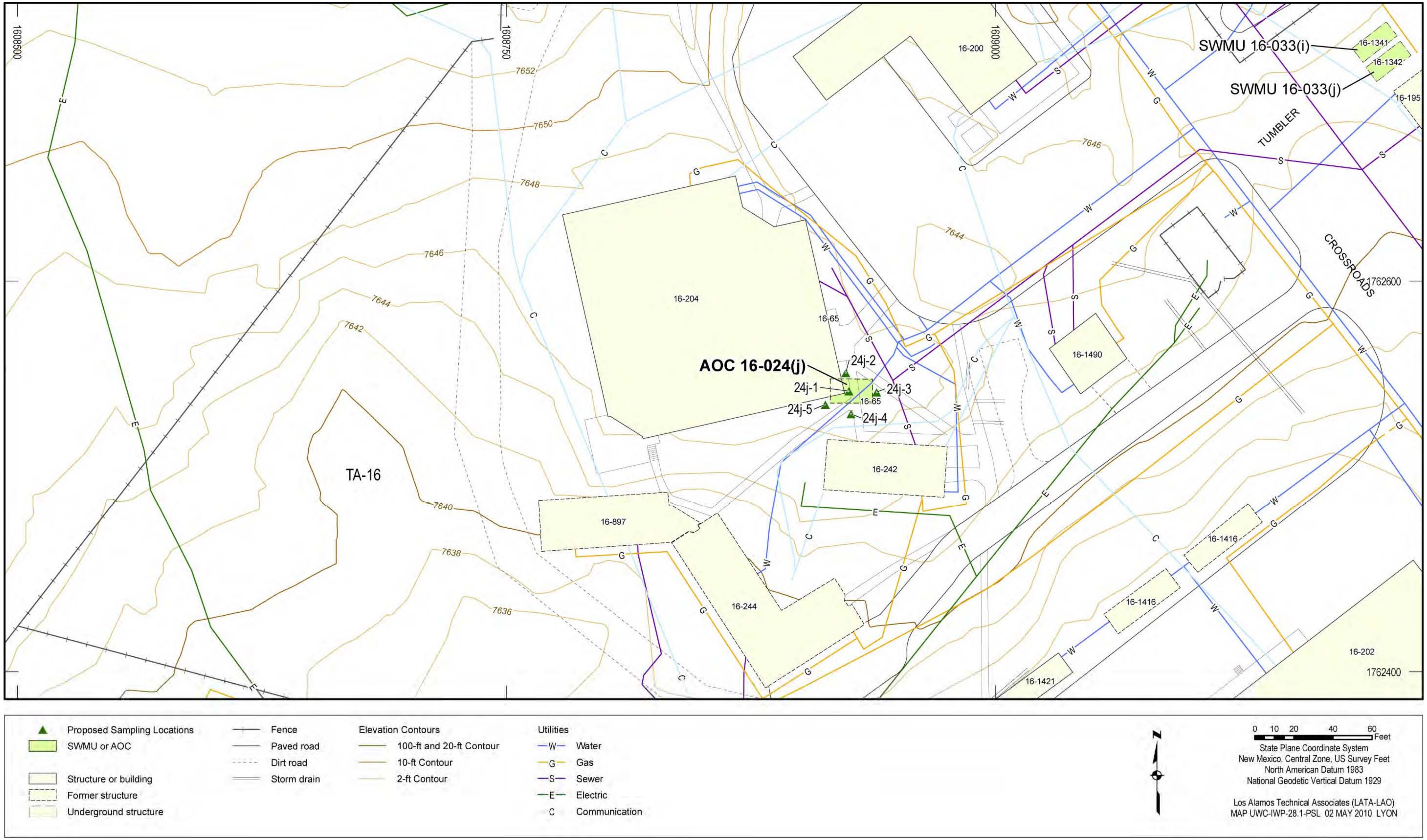


Figure 5.29-2 Proposed sampling locations for AOC 16-024(j)

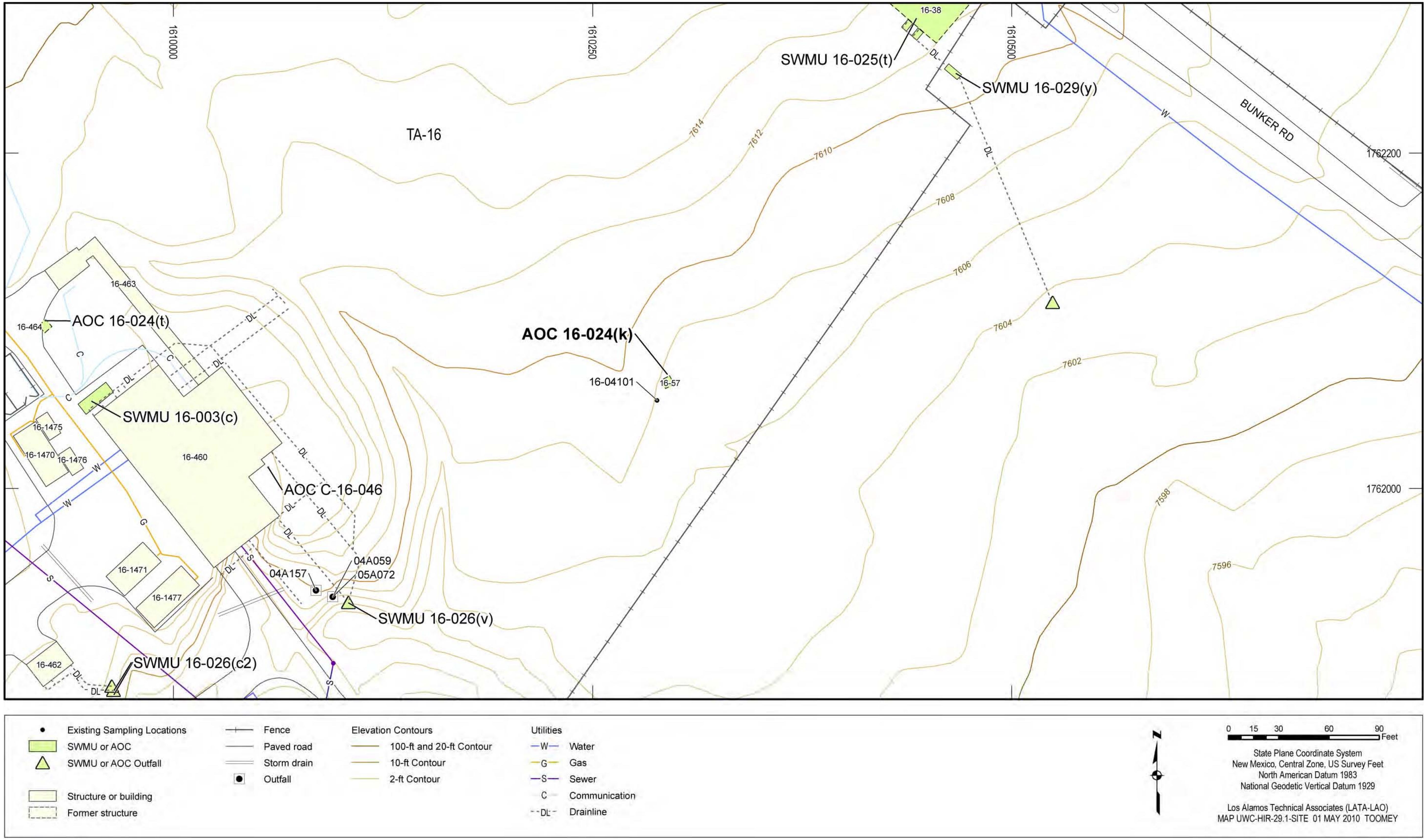


Figure 5.30-1 Site features of AOC 16-024(k)

Figure 5.30-2 Proposed sampling locations for AOC 16-024(k)

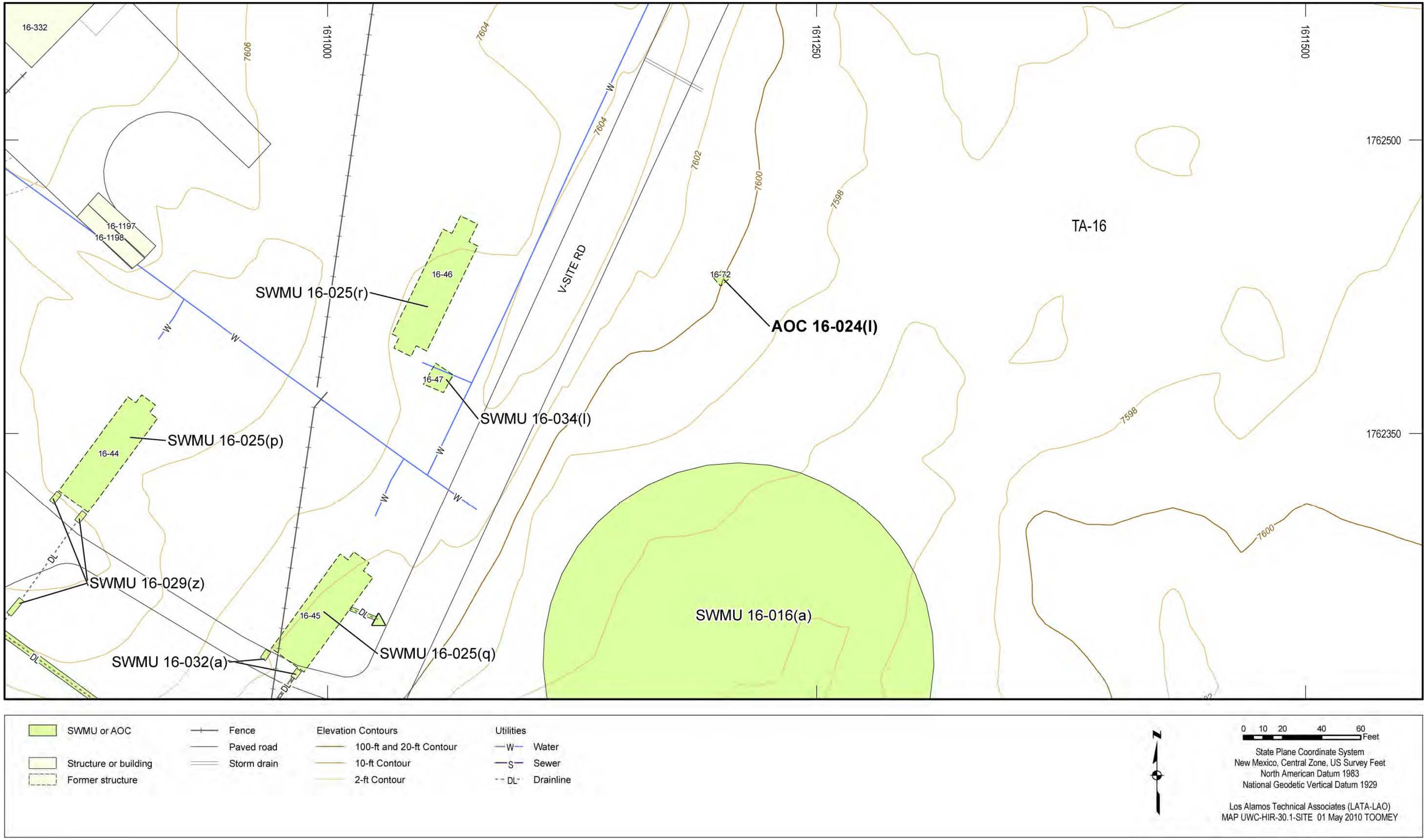


Figure 5.31-1 Site features of AOC 16-024(l)

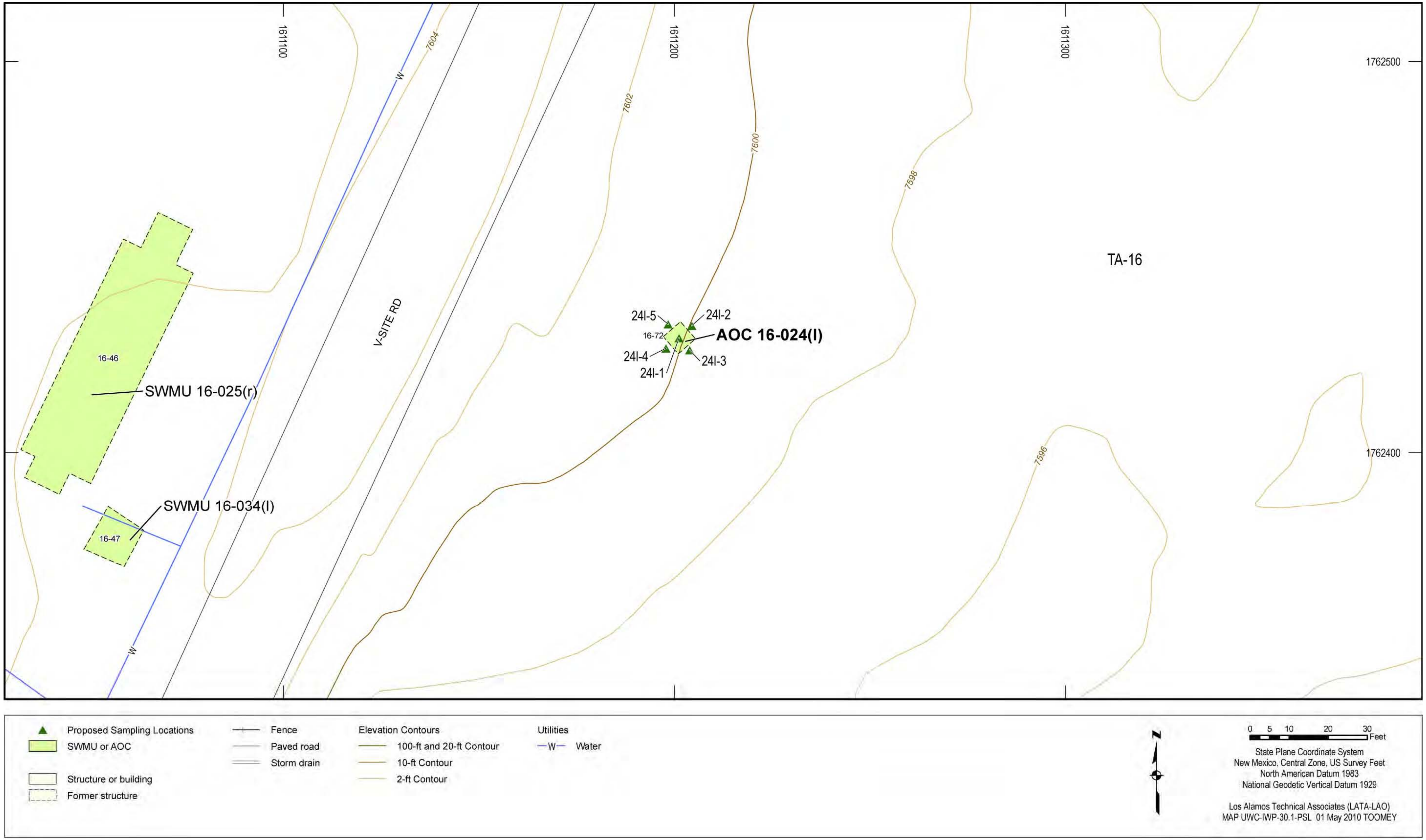


Figure 5.31-2 Proposed sampling locations for AOC 16-024(l)

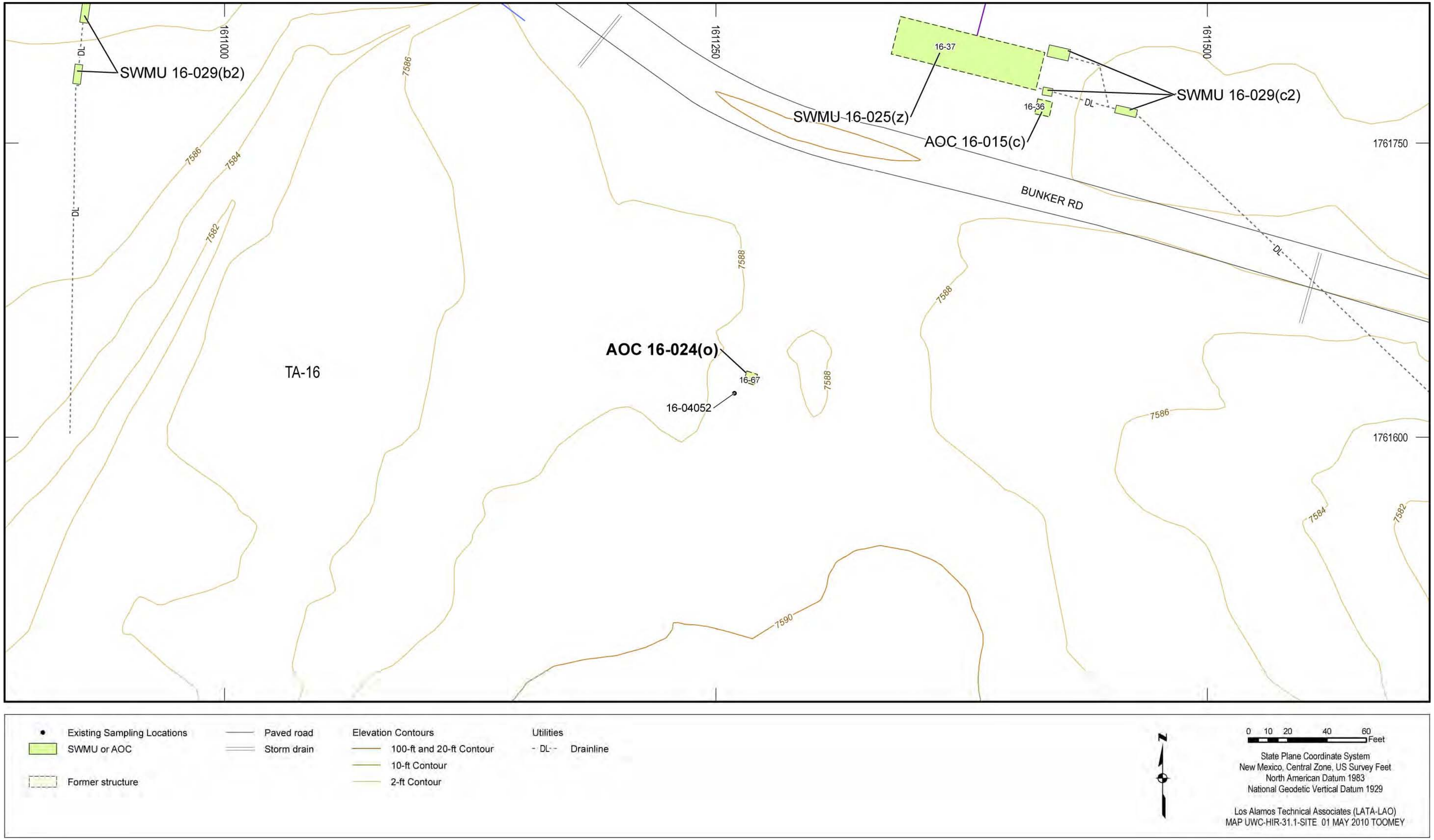


Figure 5.32-1 Site features of AOC 16-024(o)

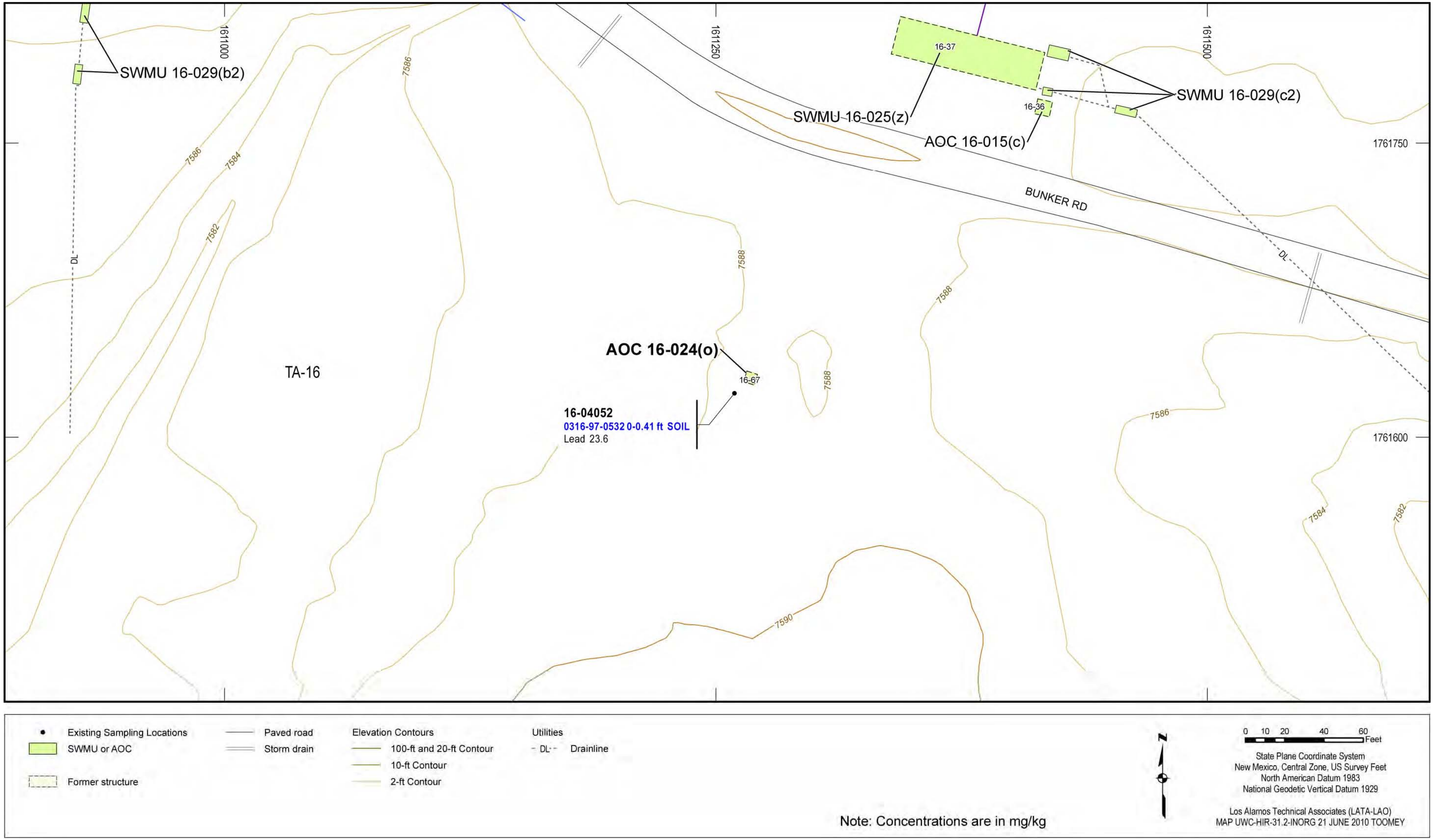


Figure 5.32-2 Inorganic chemicals detected above BVs at AOC 16-024(o)

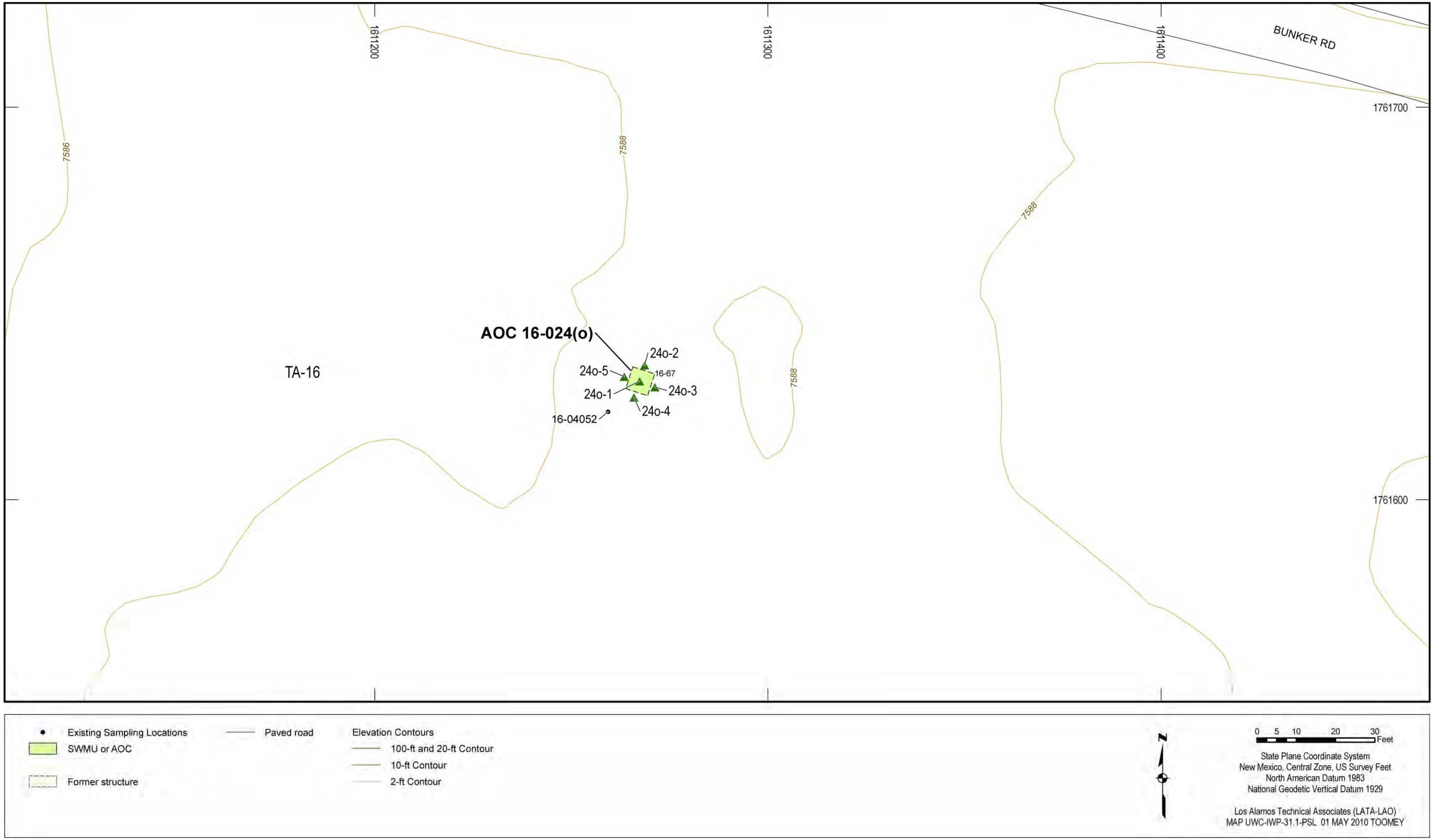


Figure 5.32-3 Proposed sampling locations for AOC 16-024(o)

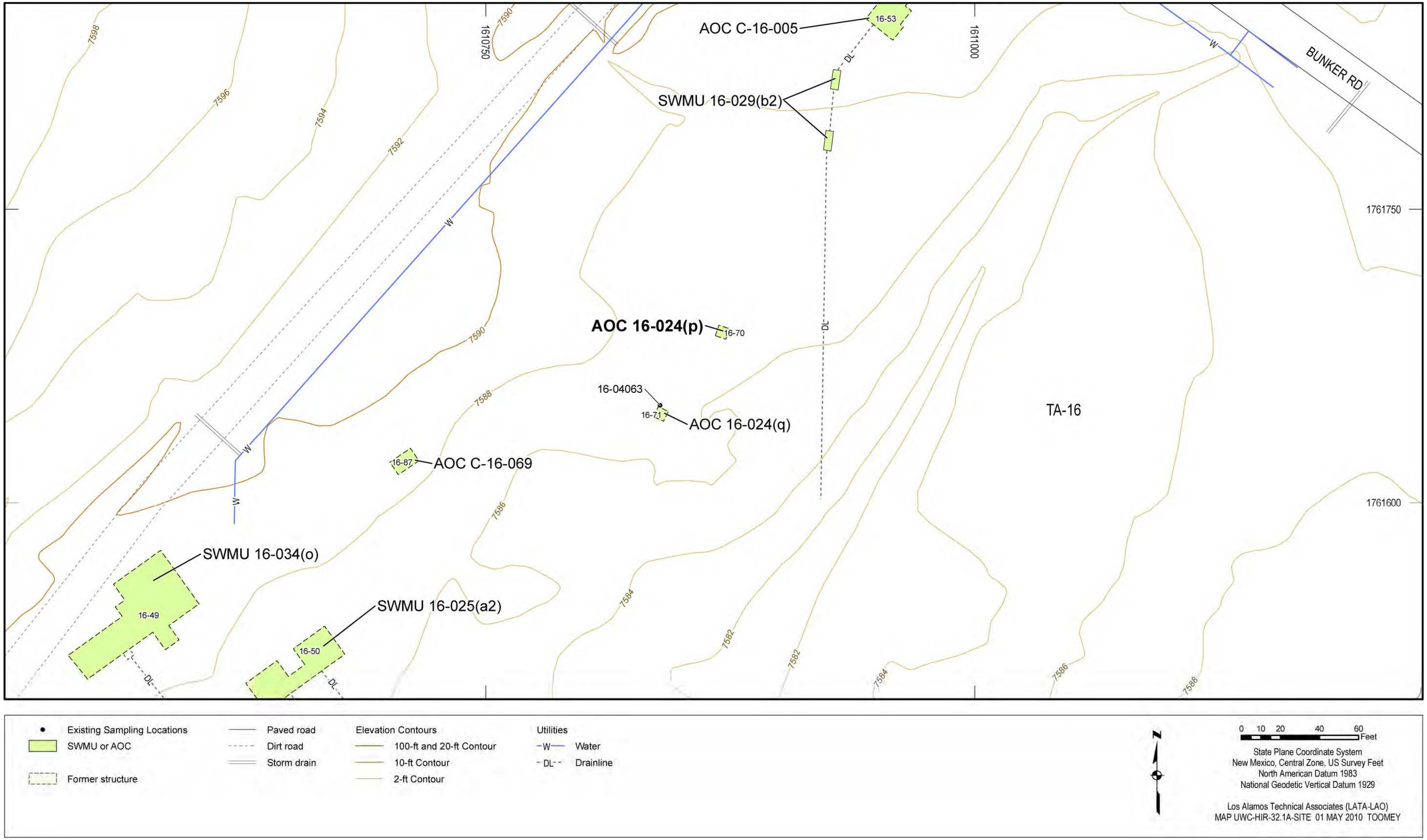


Figure 5.33-1 Site features of AOC 16-024(p)

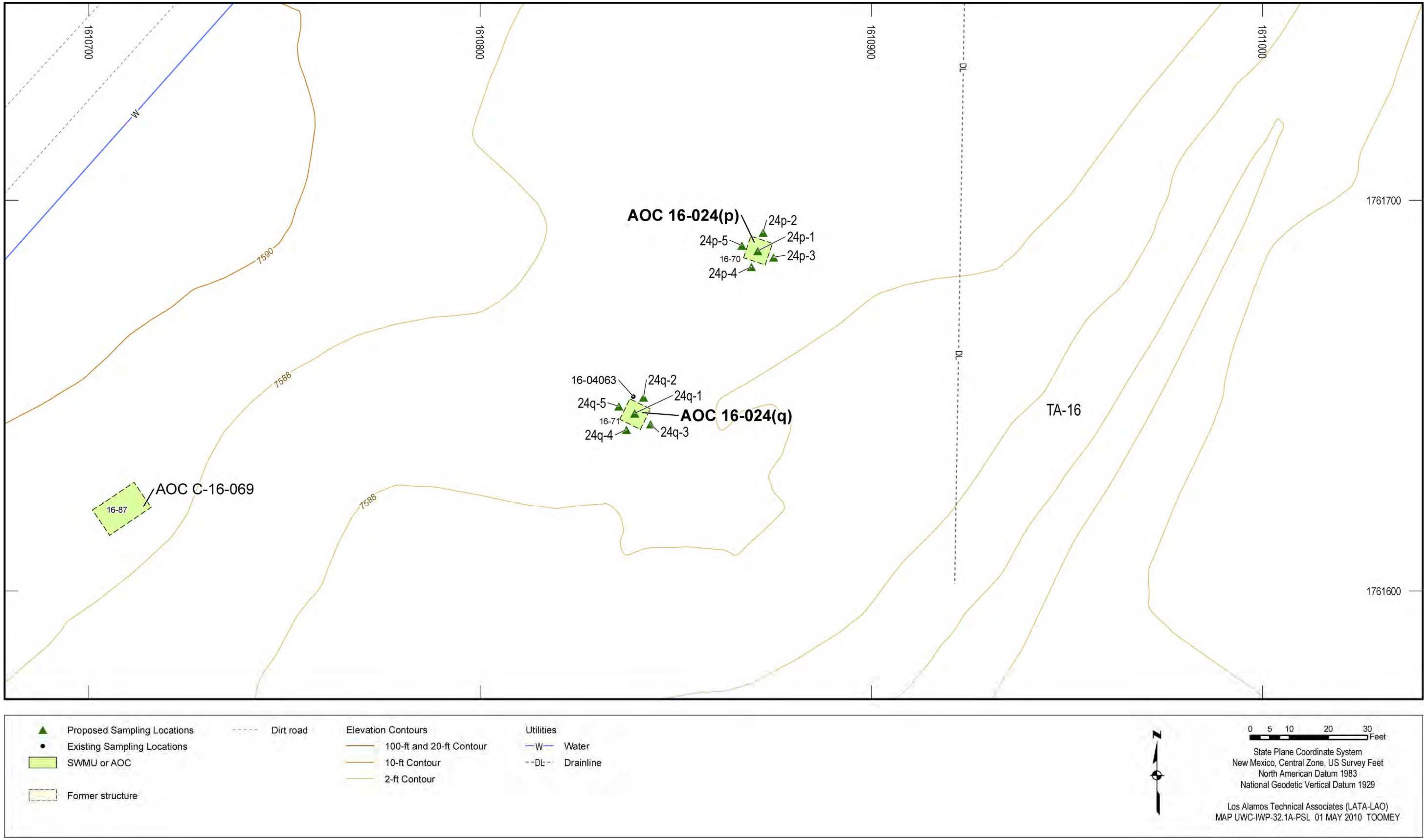


Figure 5.33-2 Proposed sampling locations for AOC 16-024(p) and AOC 16-024(q)

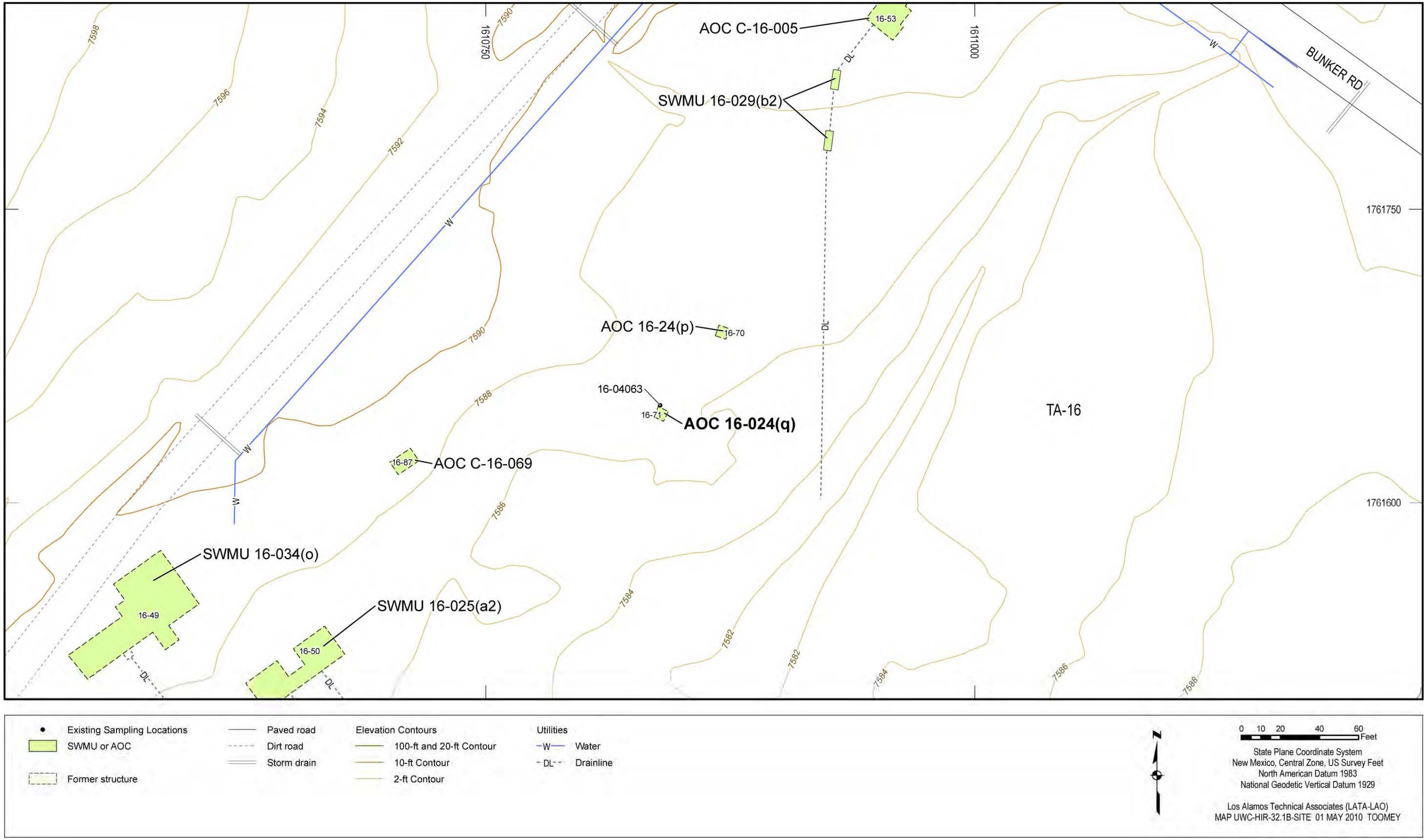


Figure 5.34-1 Site features of AOC 16-024(q)

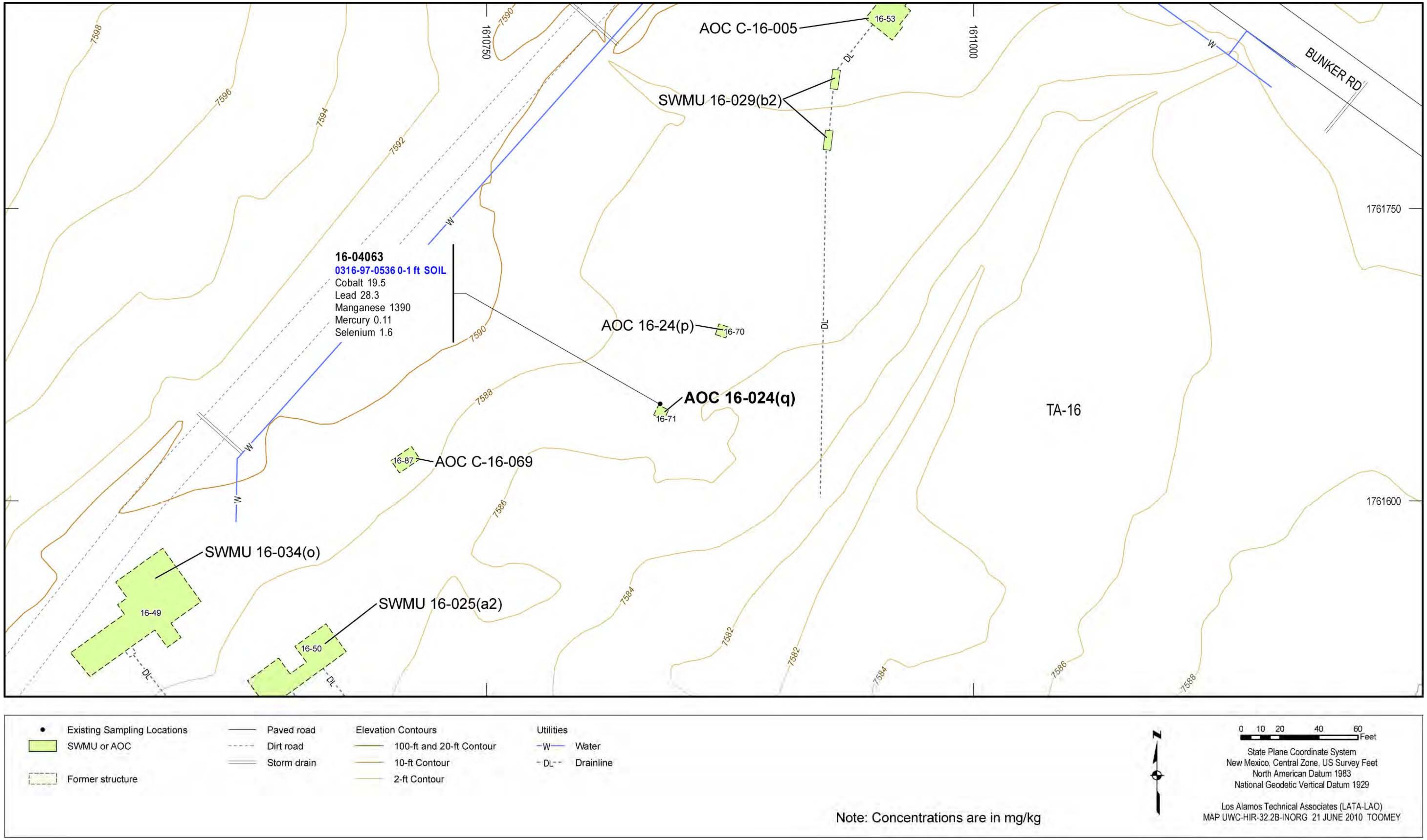


Figure 5.34-2 Inorganic chemicals detected above BVs at AOC 16-024(q)

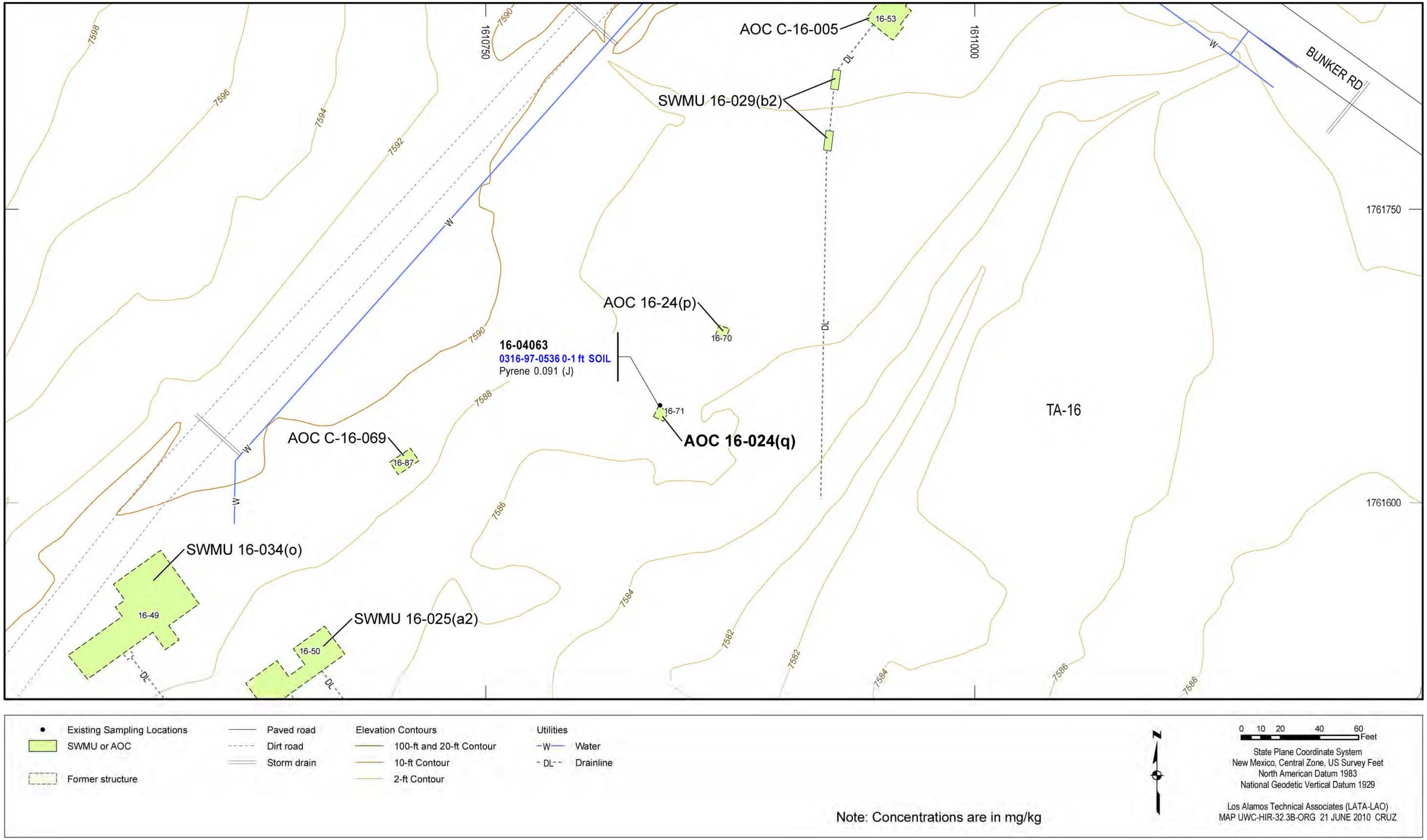


Figure 5.34-3 Organic chemicals detected at AOC 16-024(q)

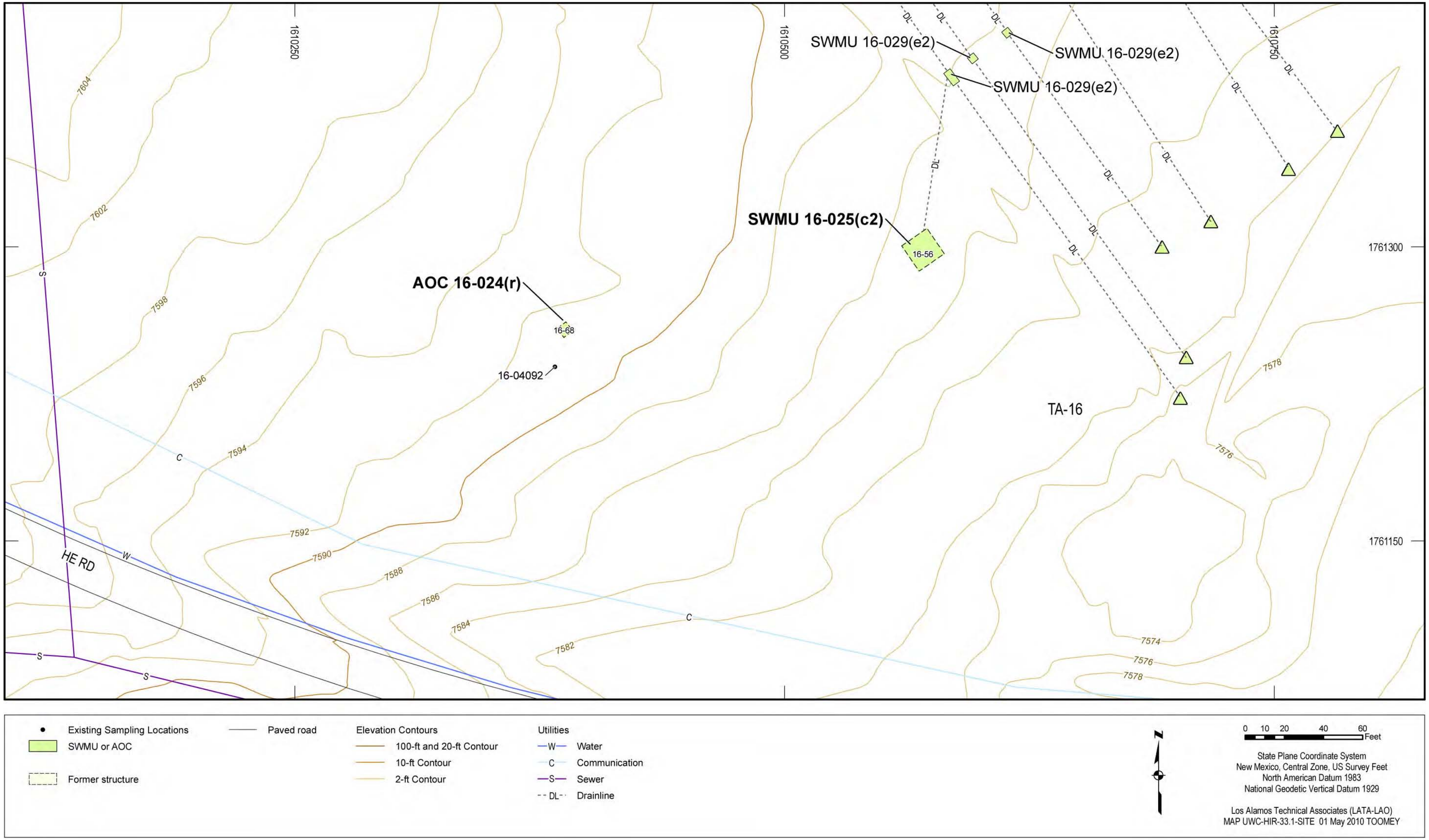


Figure 5.35-1 Site features of AOC 16-024(r) and SWMU 16-025(c2)

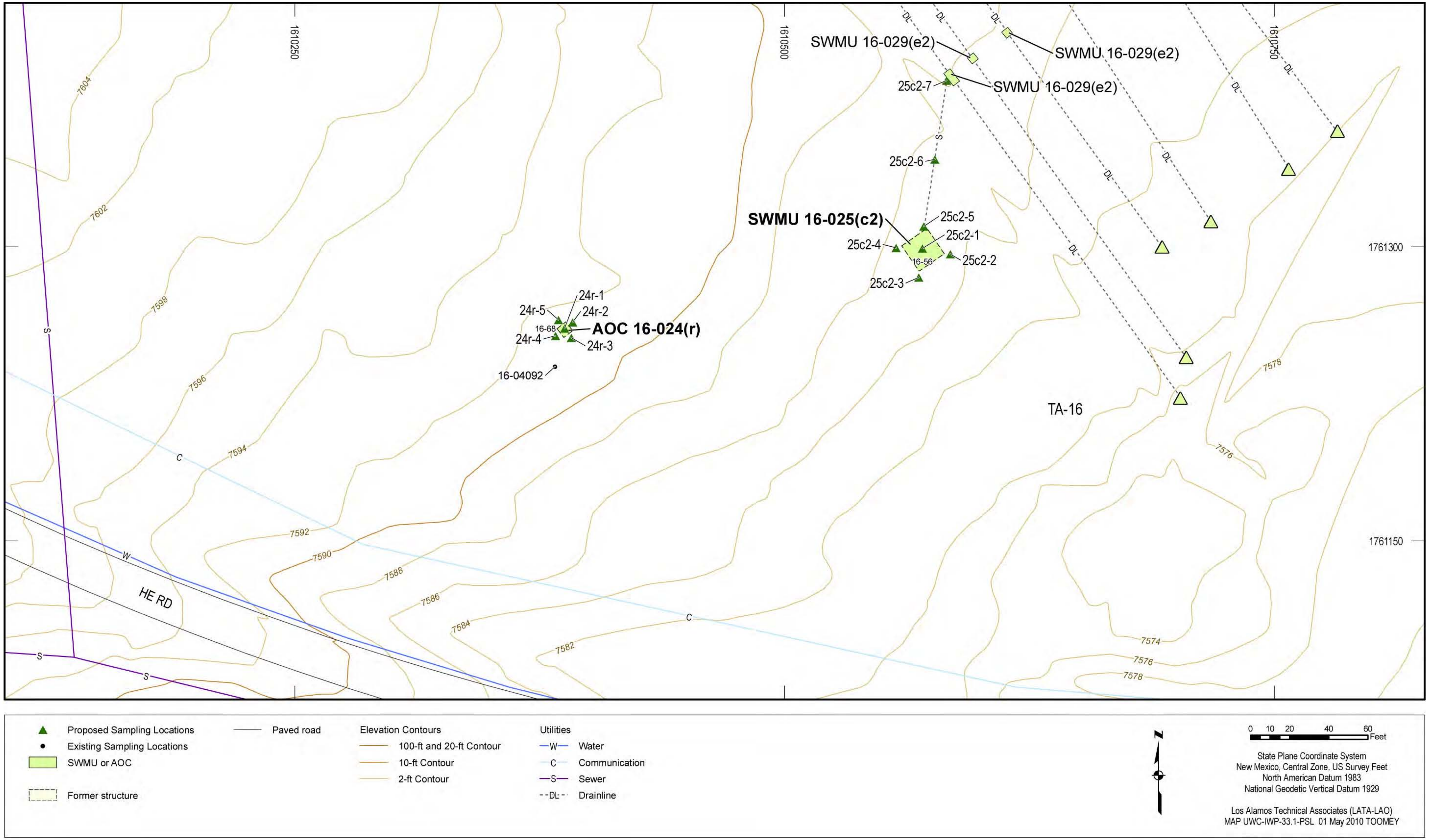


Figure 5.35-2 Proposed sampling locations for AOC 16-024(r) and SWMU 16-025(c2)

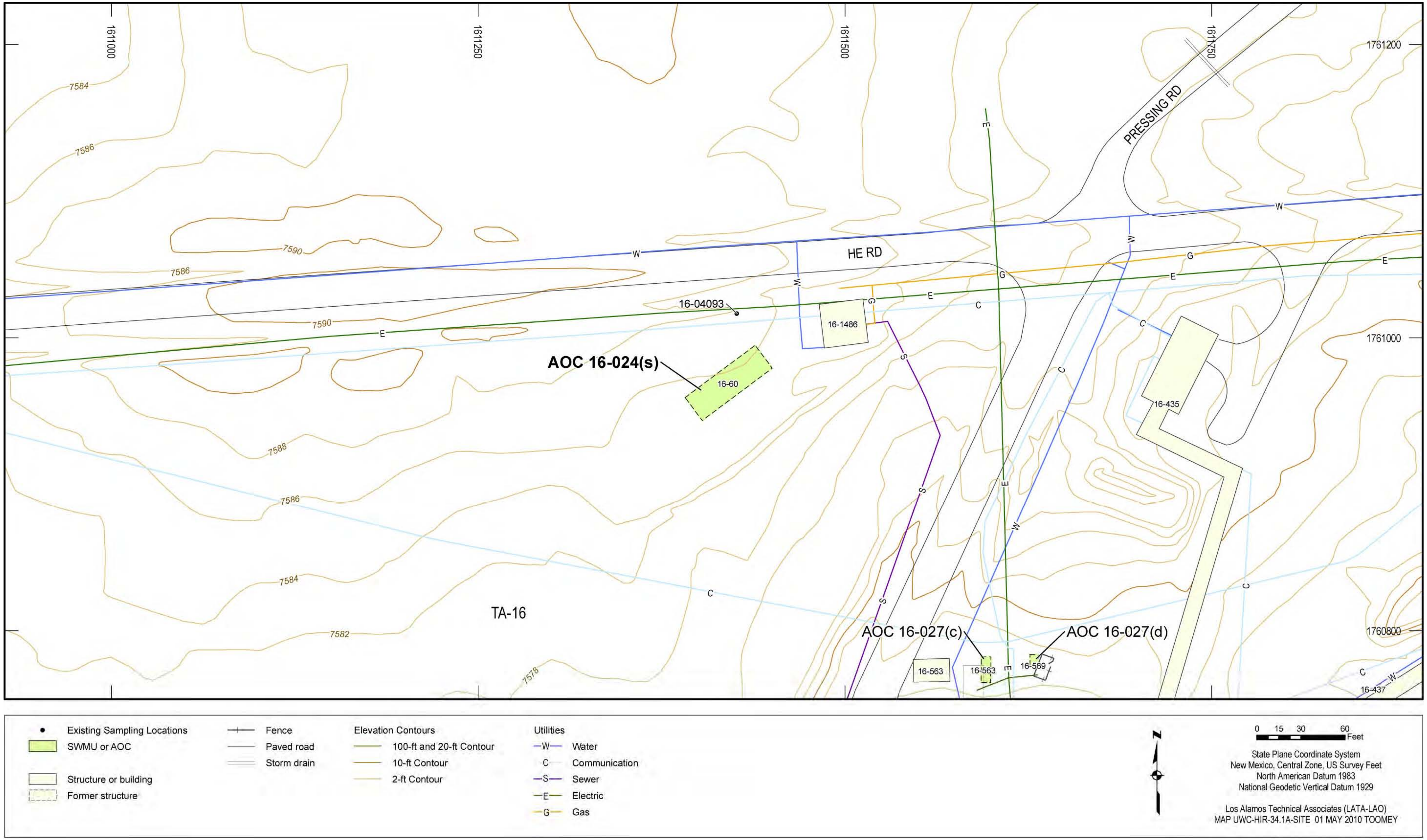


Figure 5.36-1 Site features of AOC 16-024(s)

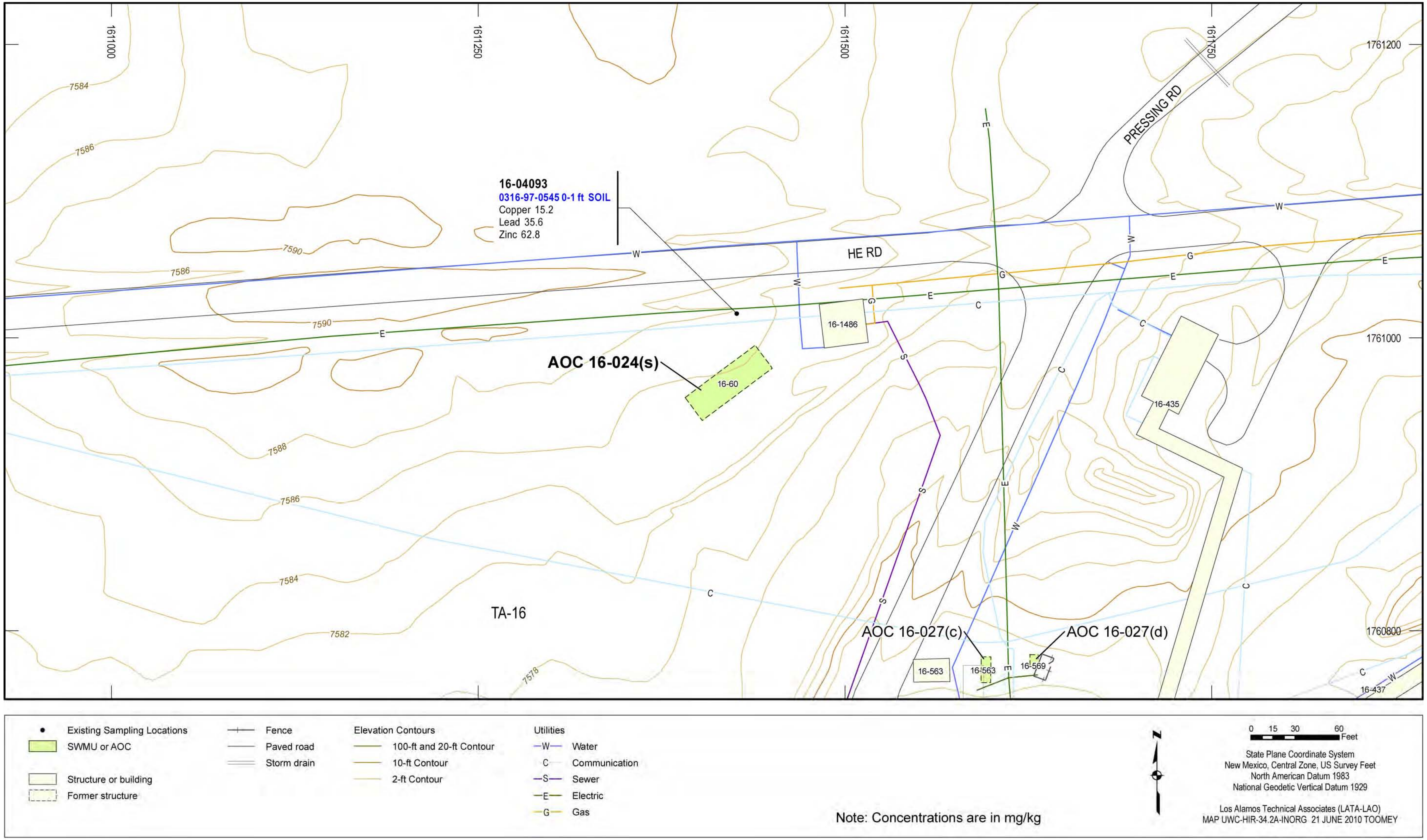


Figure 5.36-2 Inorganic chemicals detected above BVs at AOC 16-024(s)

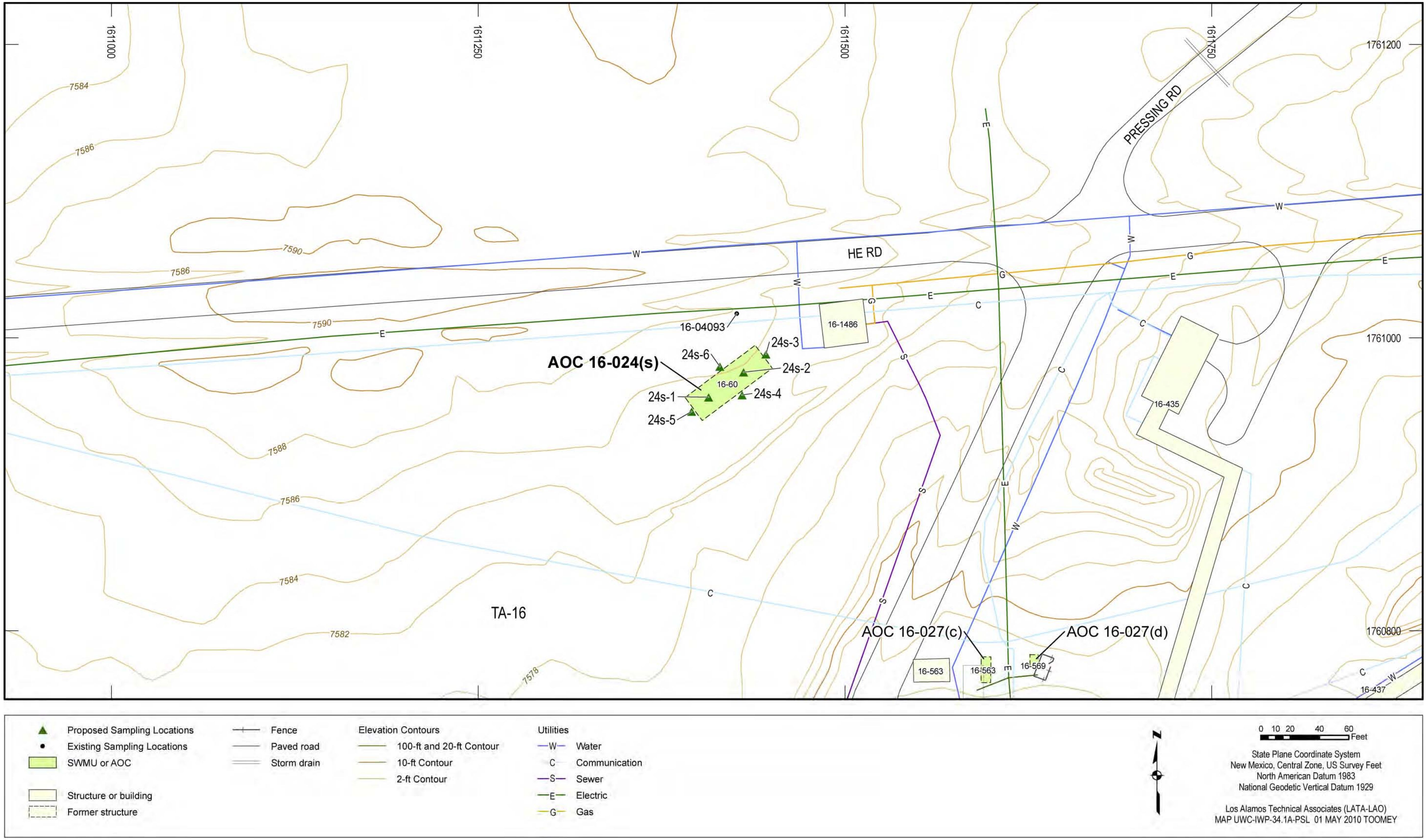


Figure 5.36-3 Proposed sampling locations for AOC 16-024(s)

Figure 5.37-1 Site features of AOC 16-024(t)

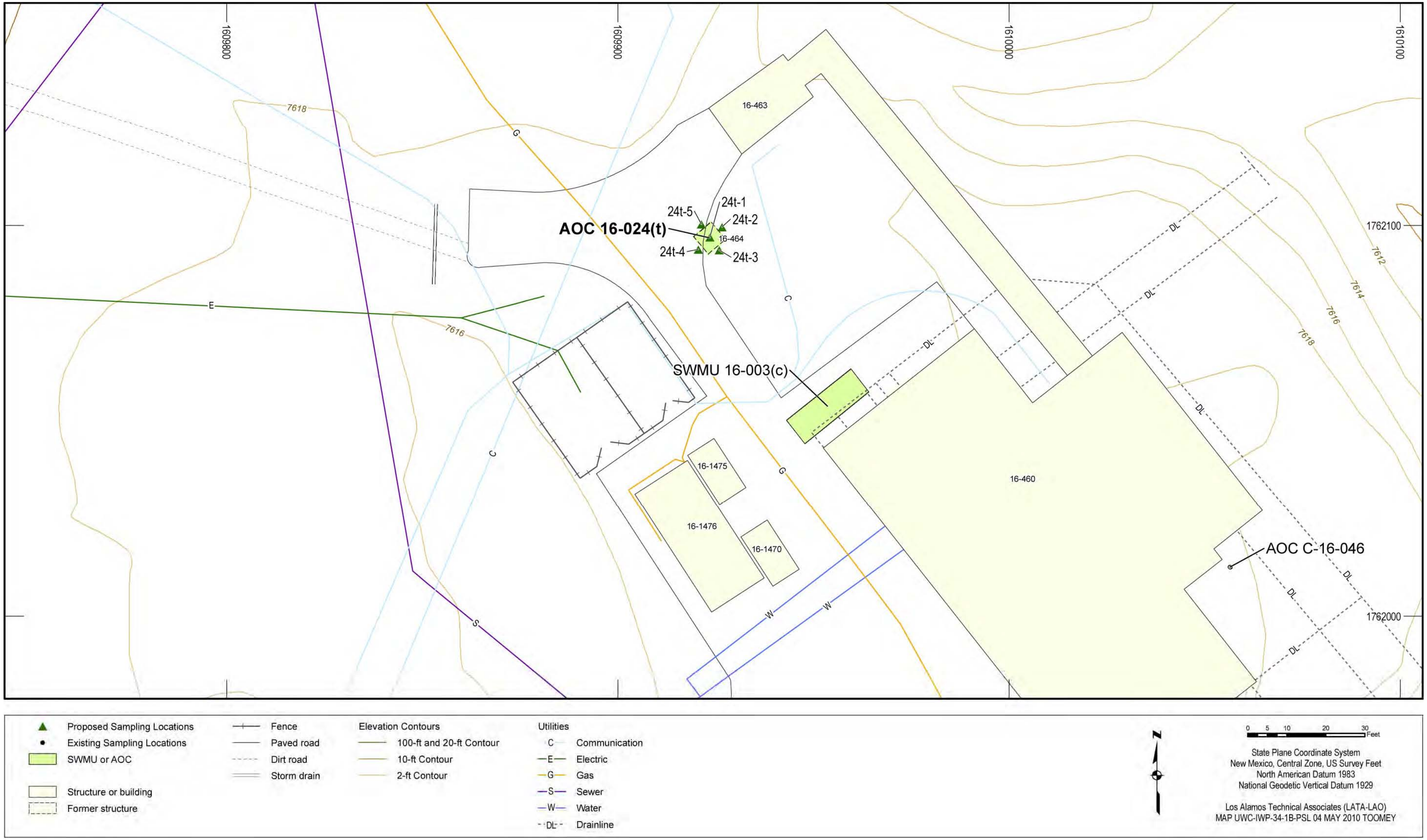


Figure 5.37-2 Proposed sampling locations for AOC 16-024(t)

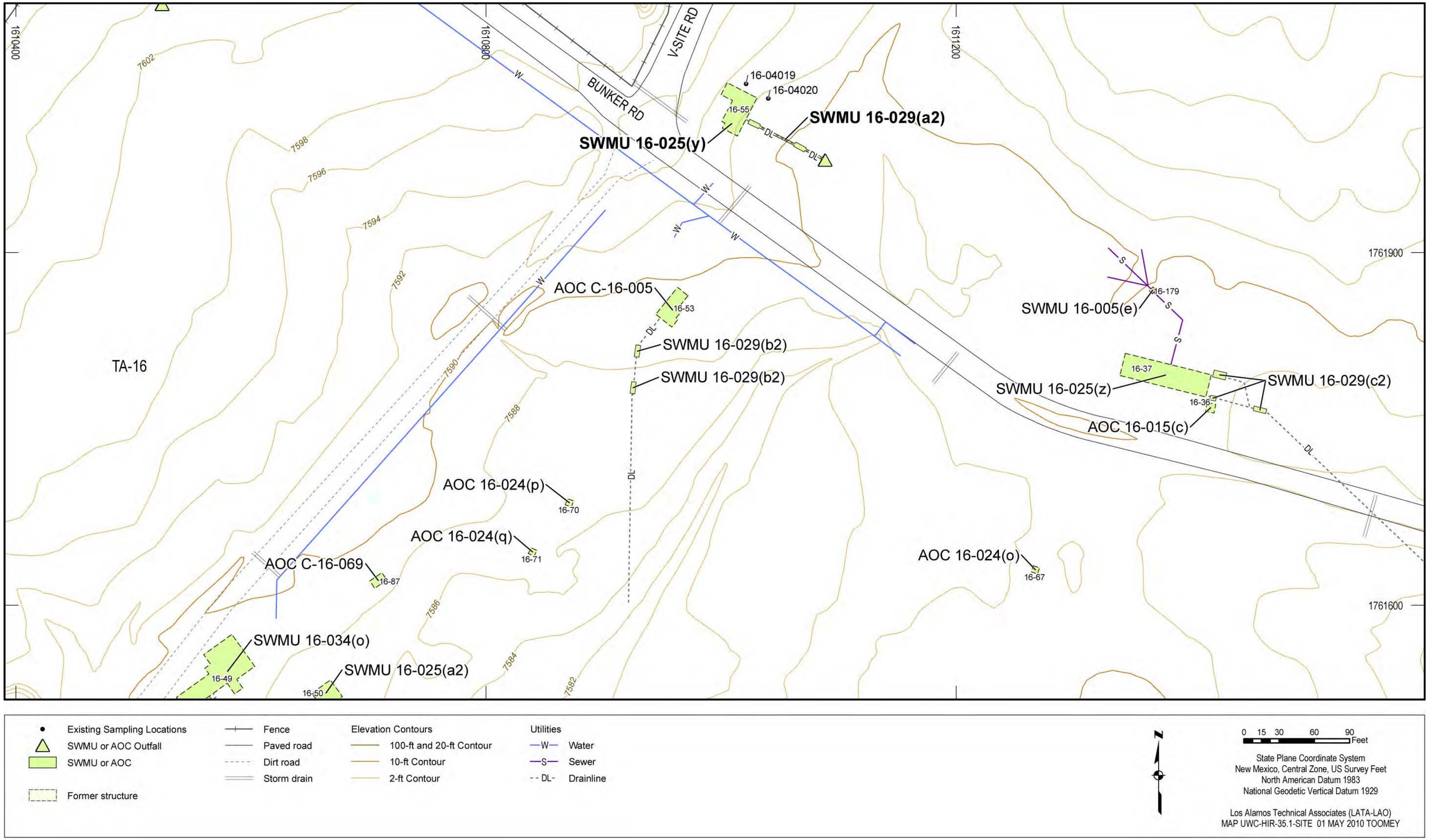


Figure 5.40-1 Site features of Consolidated Unit 16-025(y)-99 [SWMU 16-025(y) and SWMU 16-029(a2)]

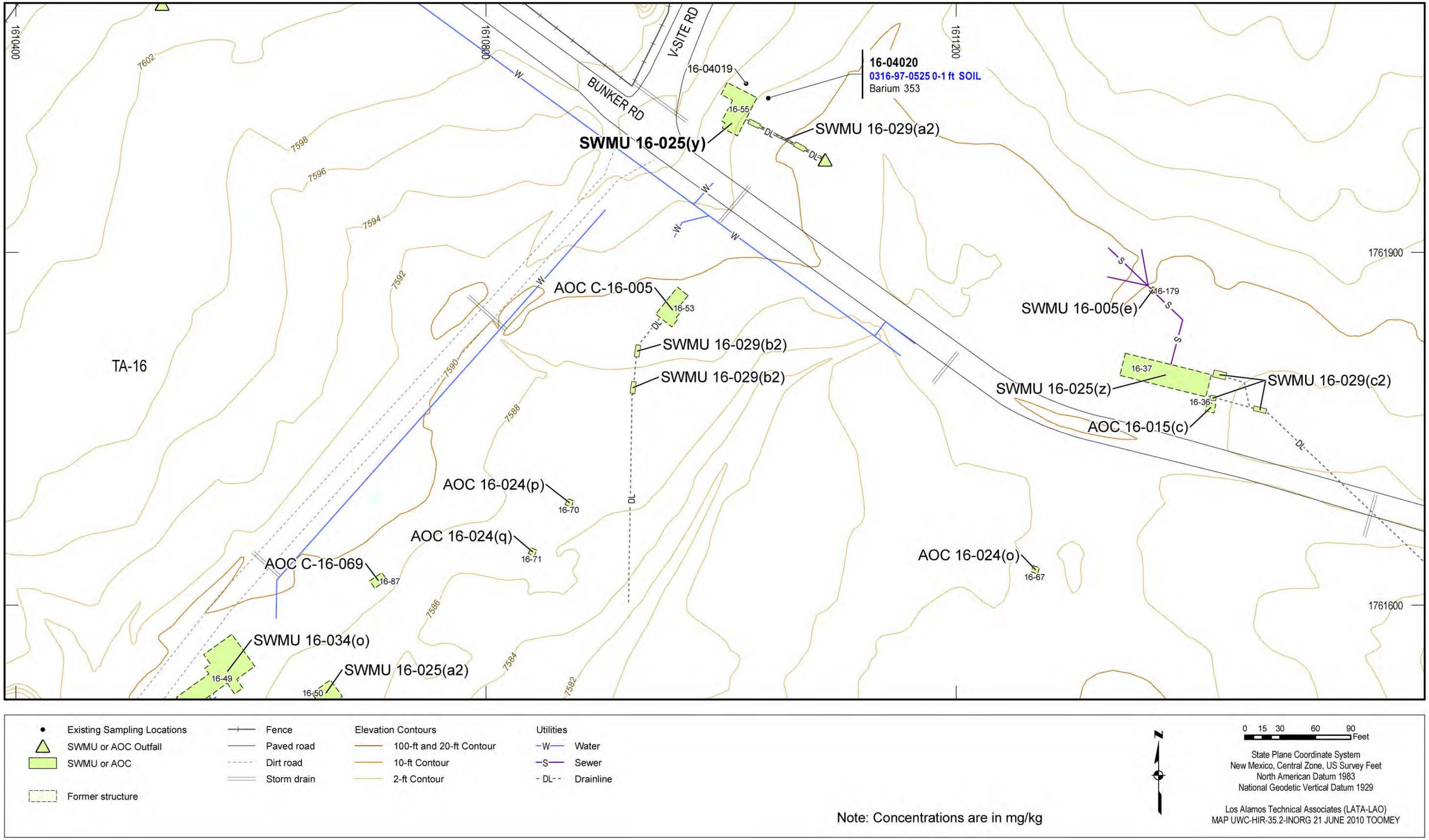


Figure 5.40-2 Inorganic chemicals detected above BVs at SWMU 16-025(y)

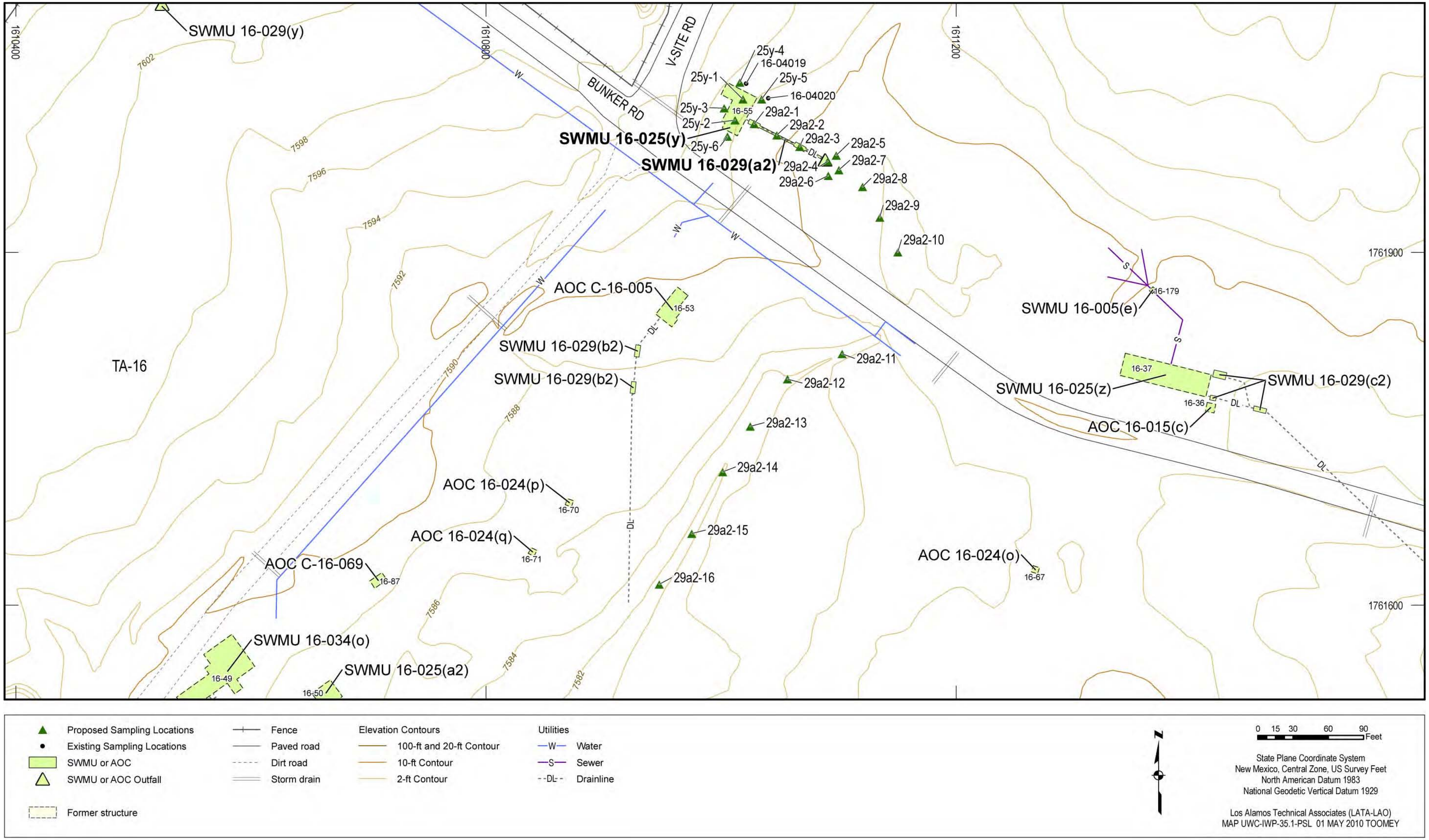


Figure 5.40-3 Proposed sampling locations for Consolidated Unit 16-025(y)-99 [SWMU 16-025(y) and SWMU 16-029(a2)]

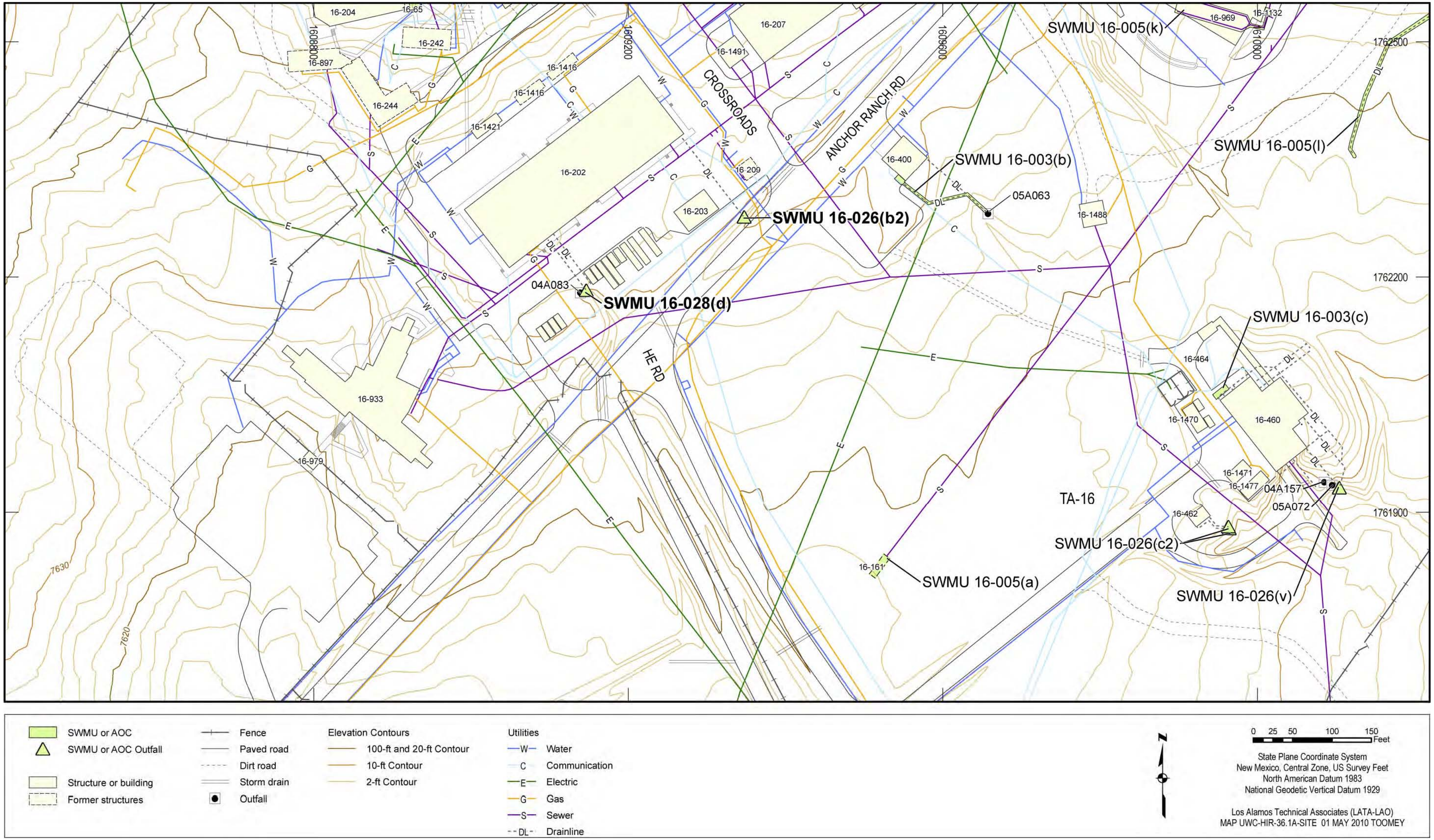


Figure 5.41-1 Site features of Consolidated Unit 16-026(b2)-00 [SWMU 16-026(b2) and SWMU 16-028(d)]

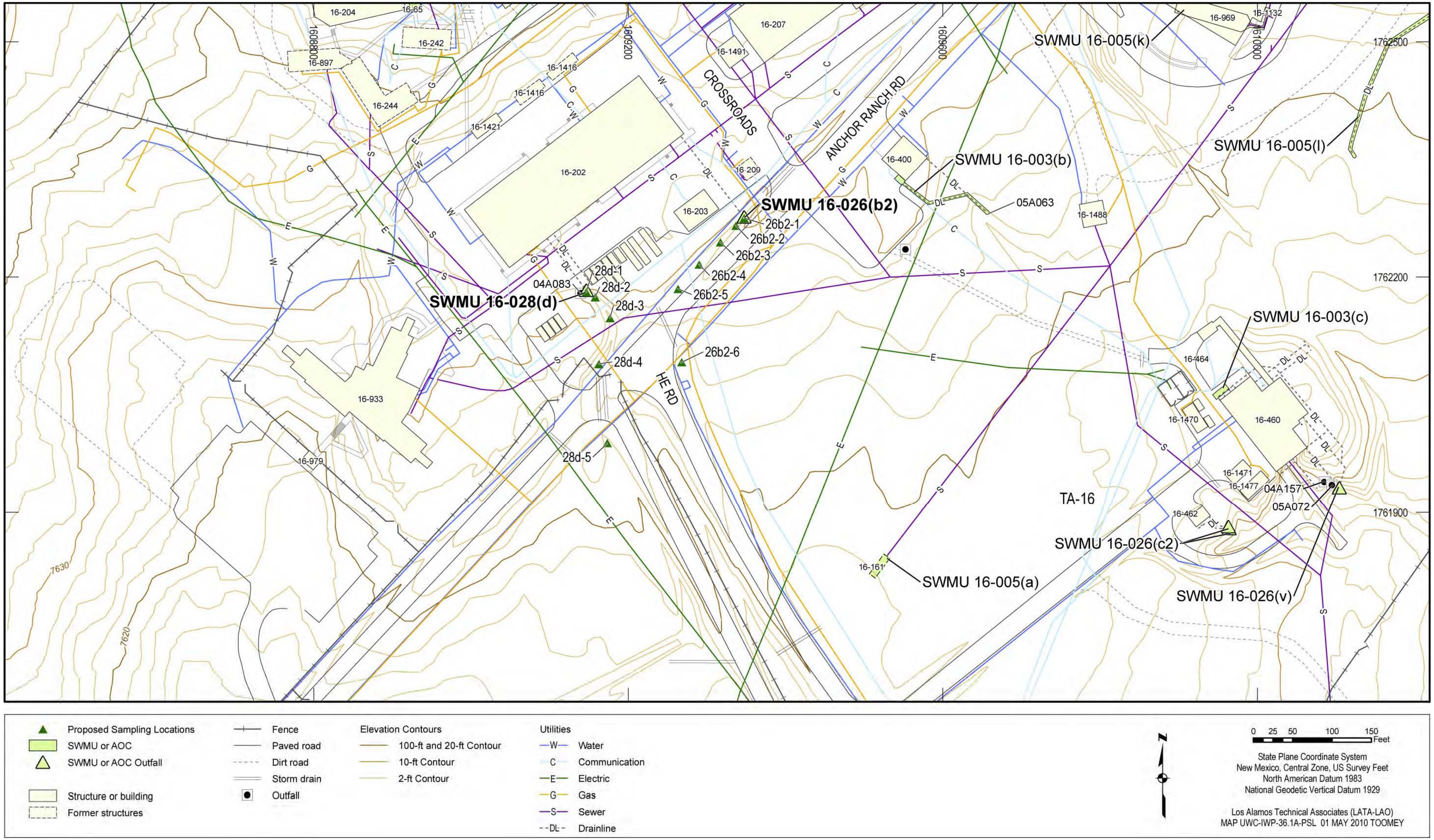


Figure 5.41-2 Proposed sampling locations for Consolidated Unit 16-026(b2)-00 [SWMU 16-026(b2) and SWMU 16-028(d)]

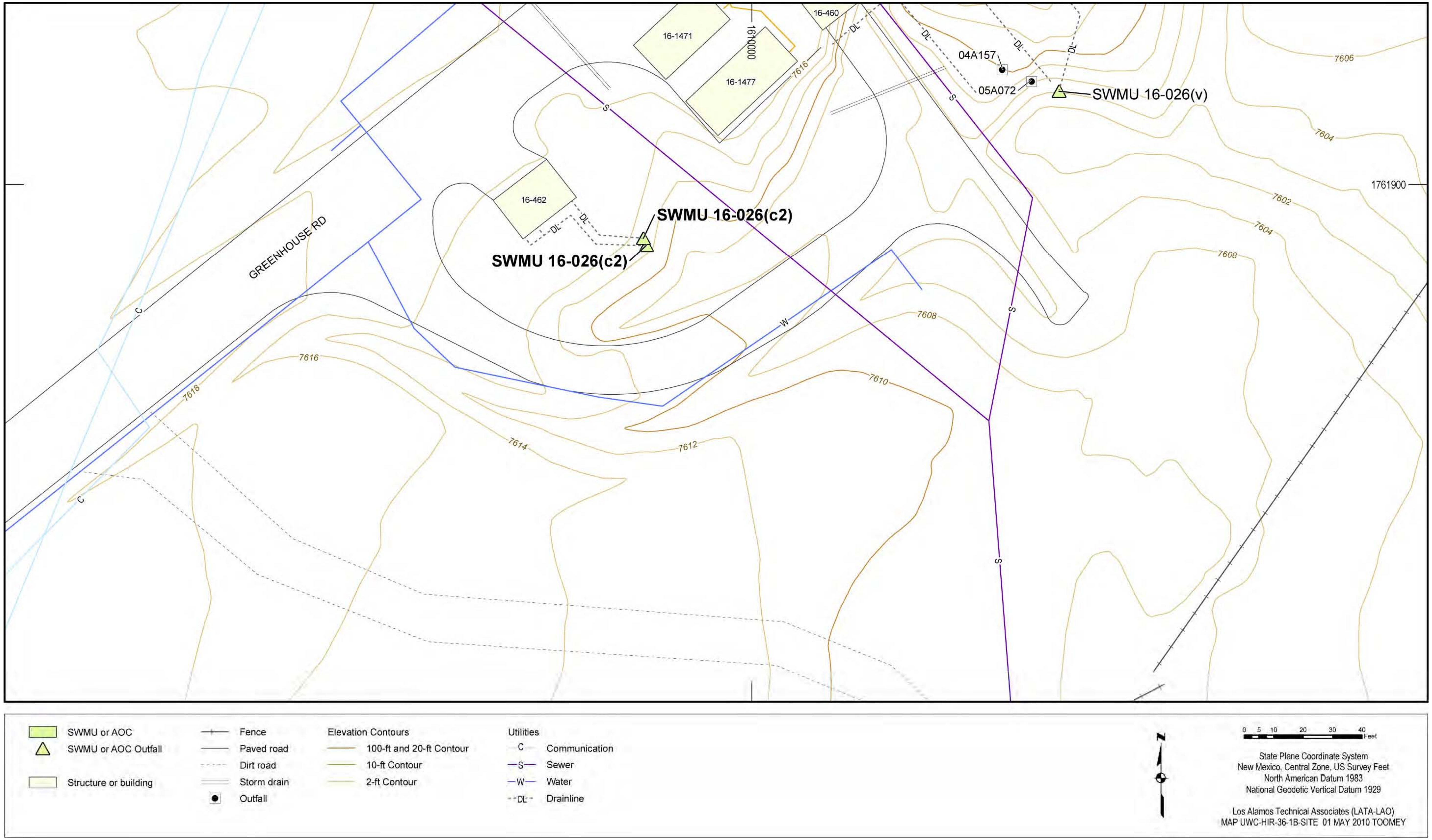


Figure 5.42-1 Site features of SWMU 16-026(c2)

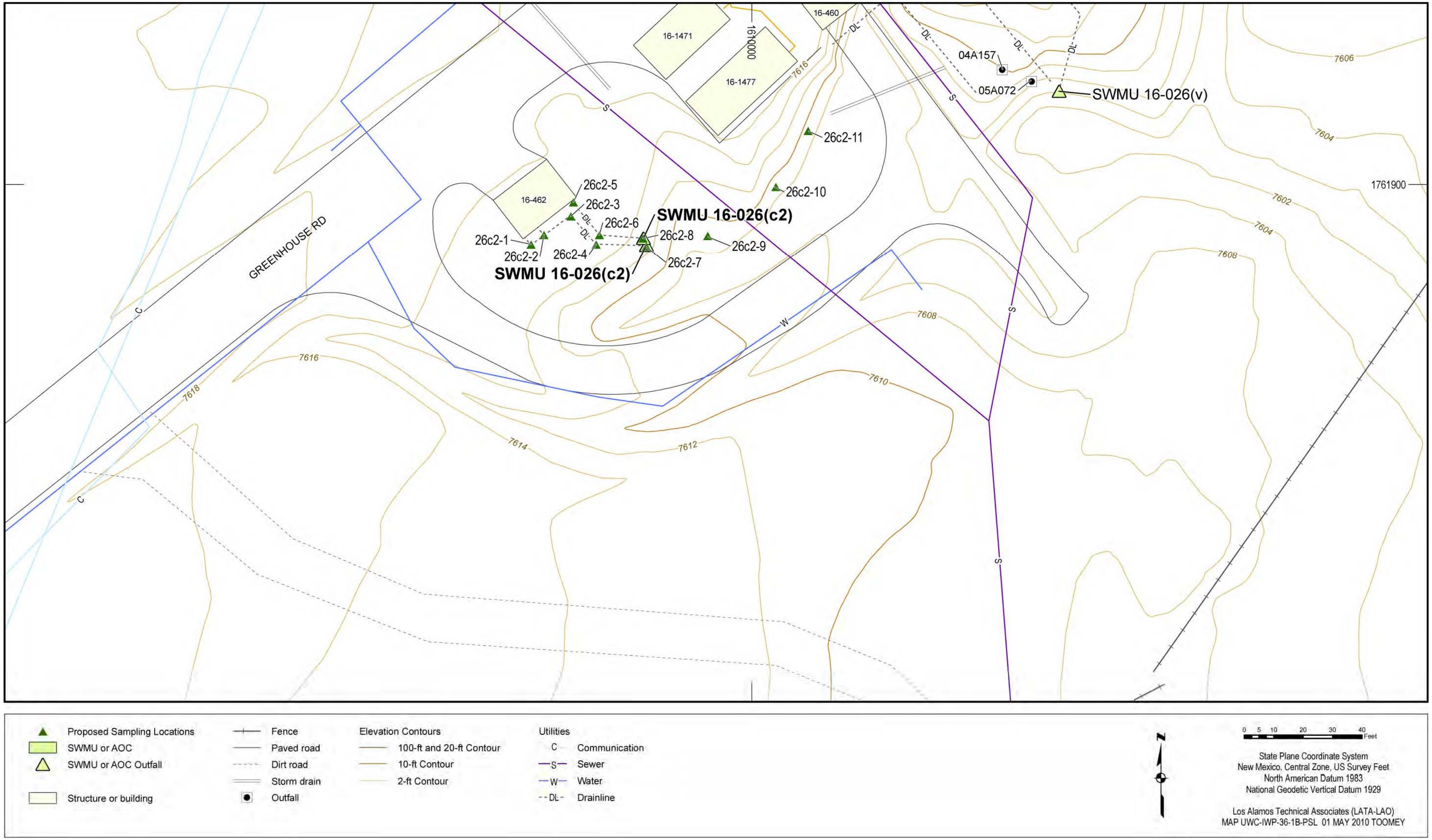


Figure 5.42-2 Proposed sampling locations for SWMU 16-026(c2)

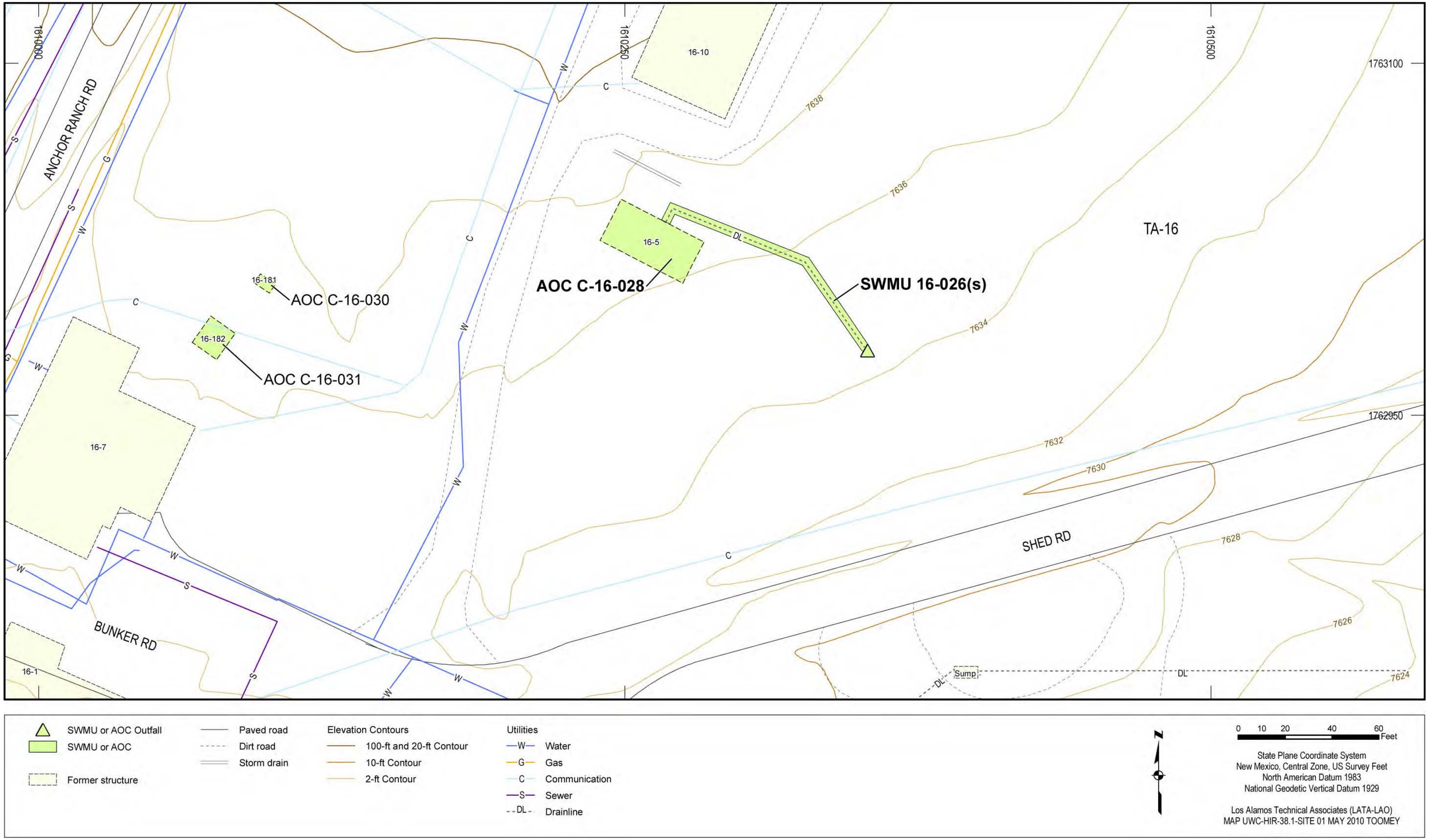


Figure 5.44-1 Site features of SWMU 16-026(s) and AOC C-16-028

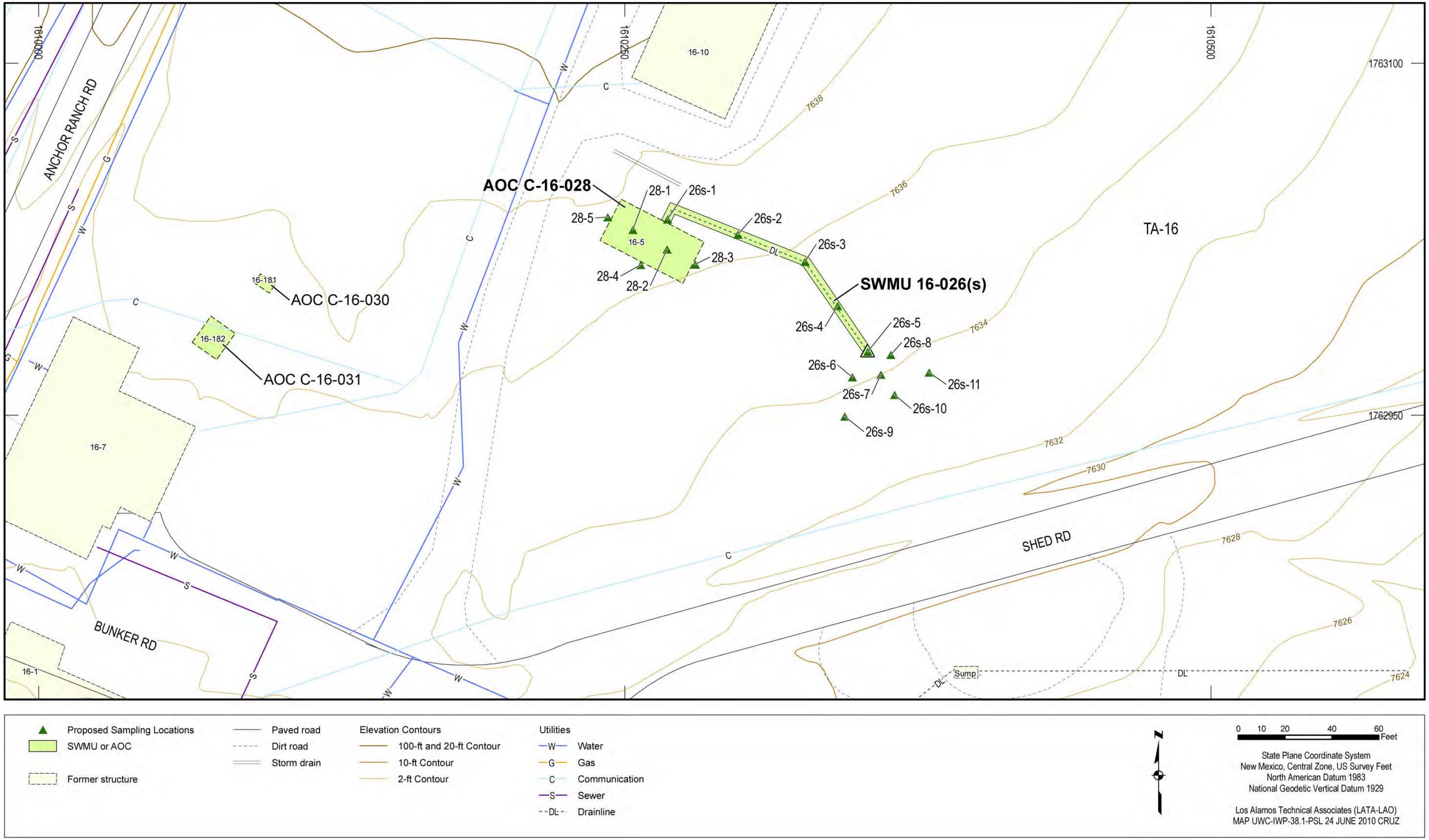


Figure 5.44-2 Proposed sampling locations for SWMU 16-026(s) and AOC C-16-028

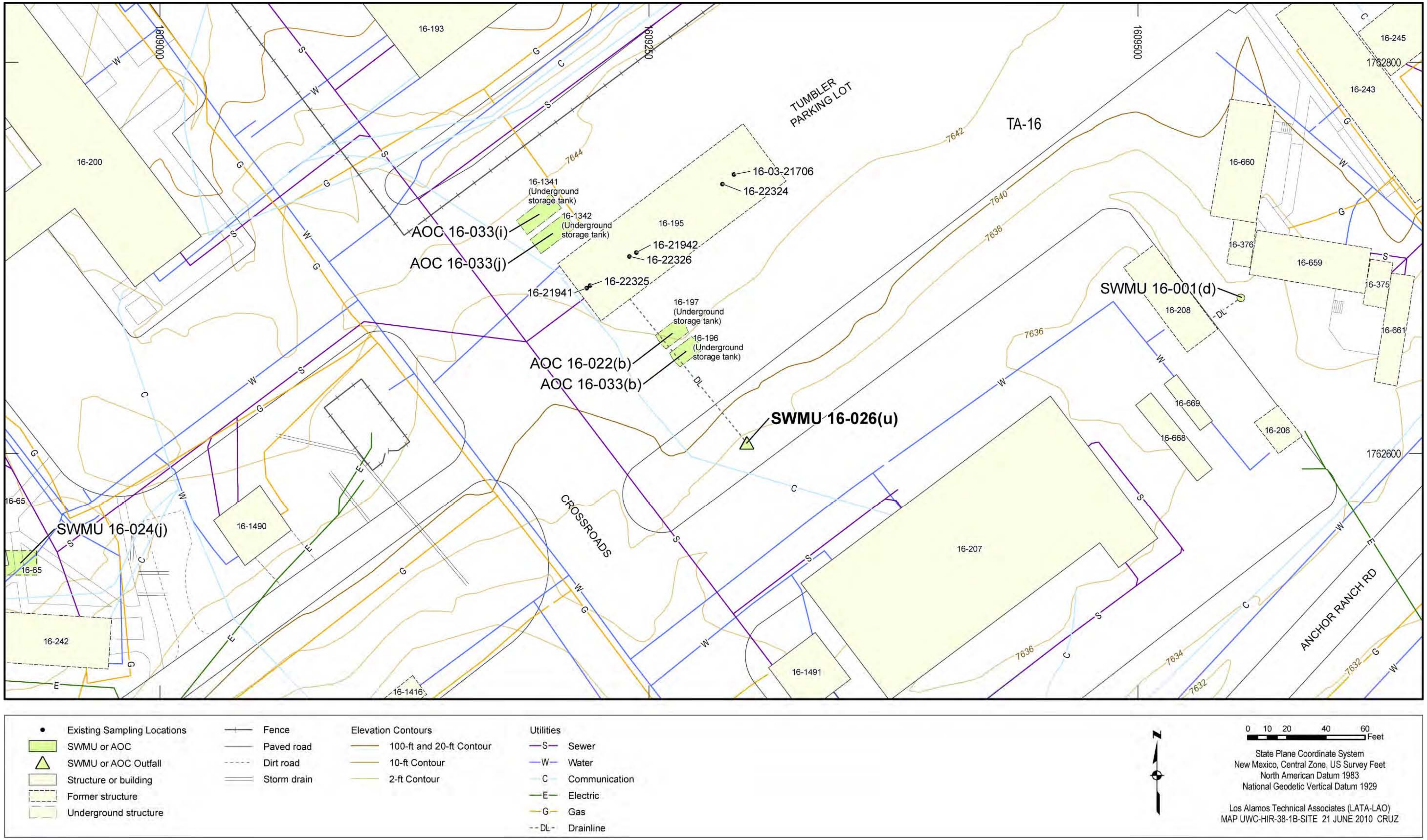


Figure 5.45-1 Site features of SWMU 16-026(u)

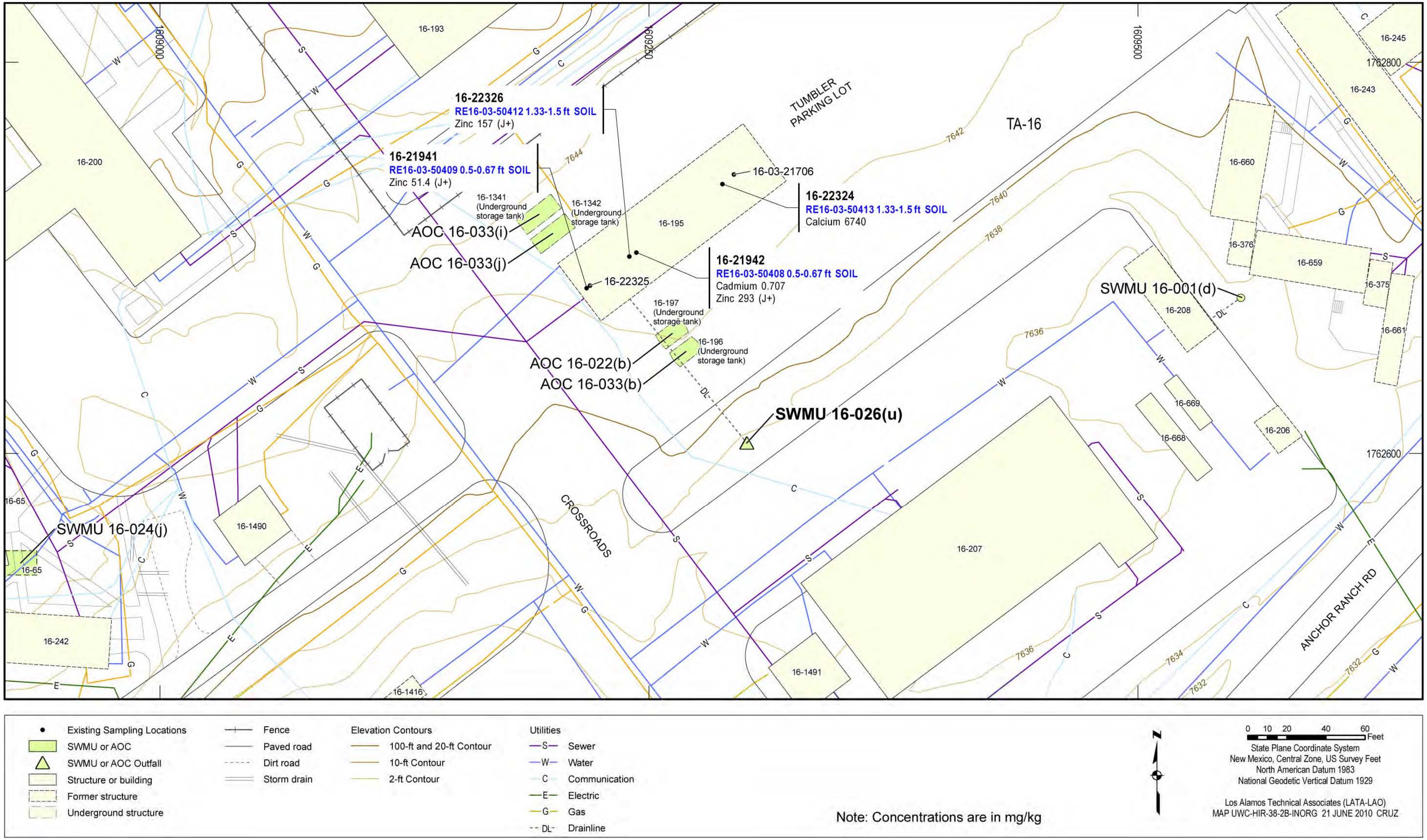


Figure 5.45-2 Inorganic chemicals detected above BVs at SWMU 16-026(u)

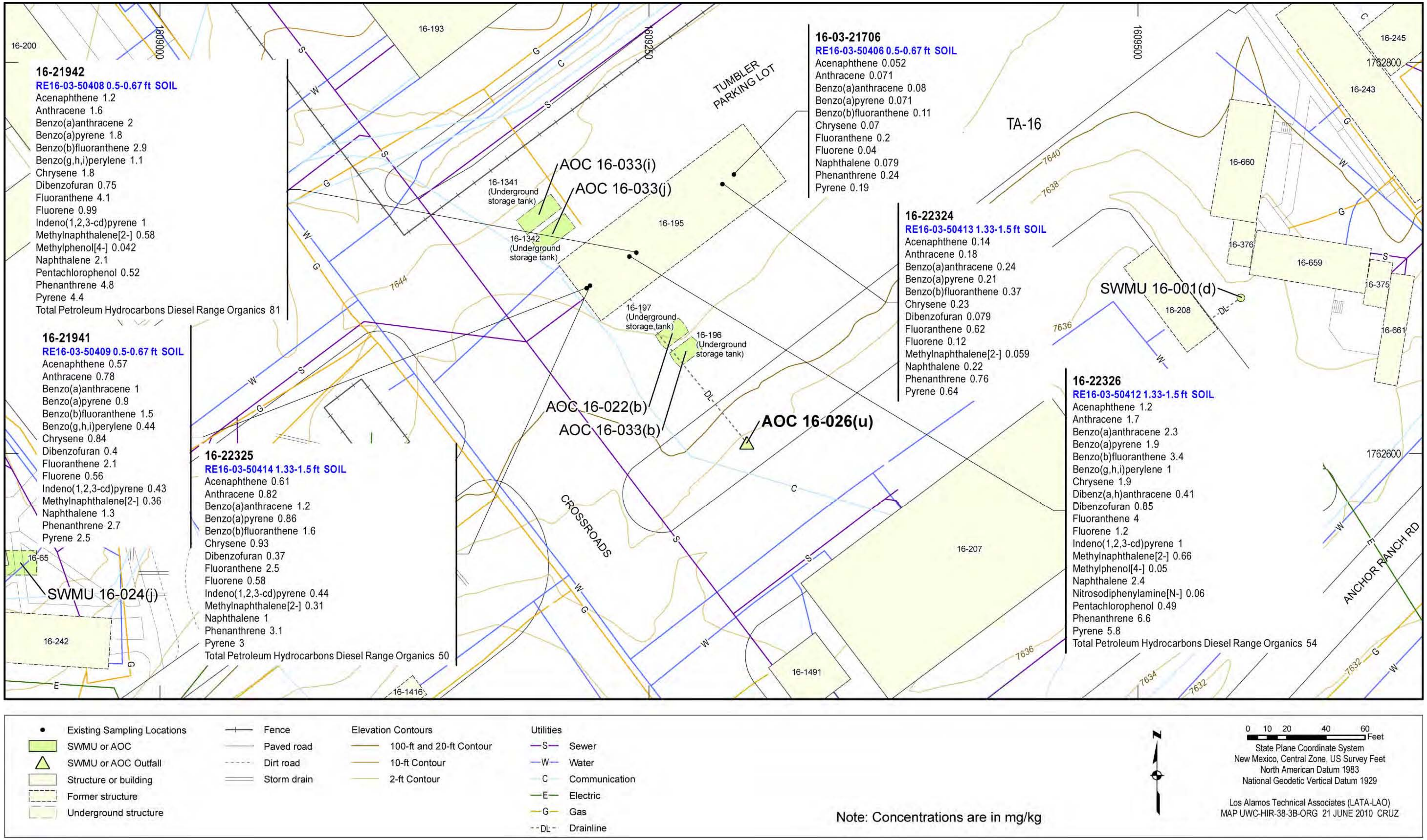


Figure 5.45-3 Organic chemicals detected at SWMU 16-026(u)

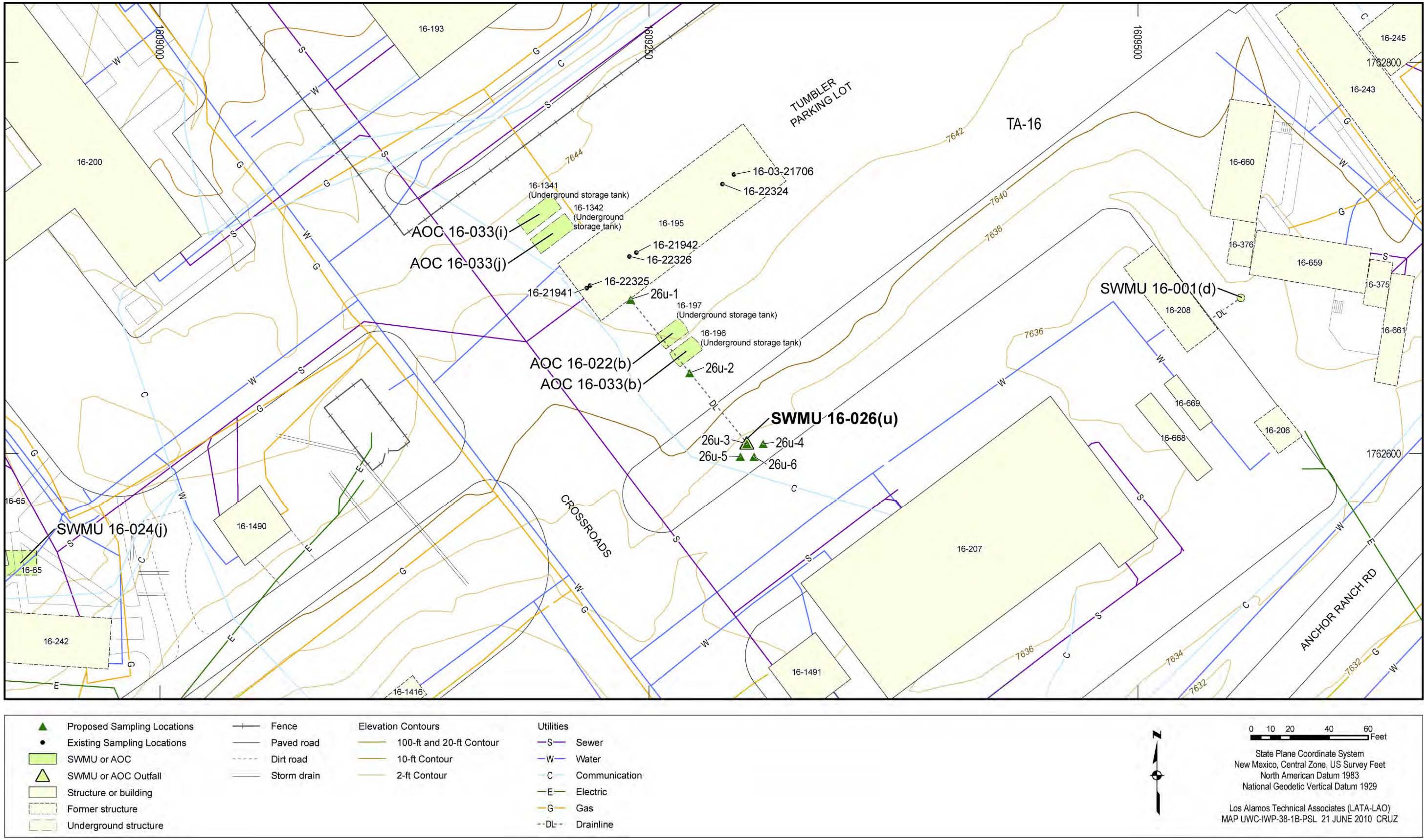


Figure 5.45-4 Proposed sampling locations for SWMU 16-026(u)

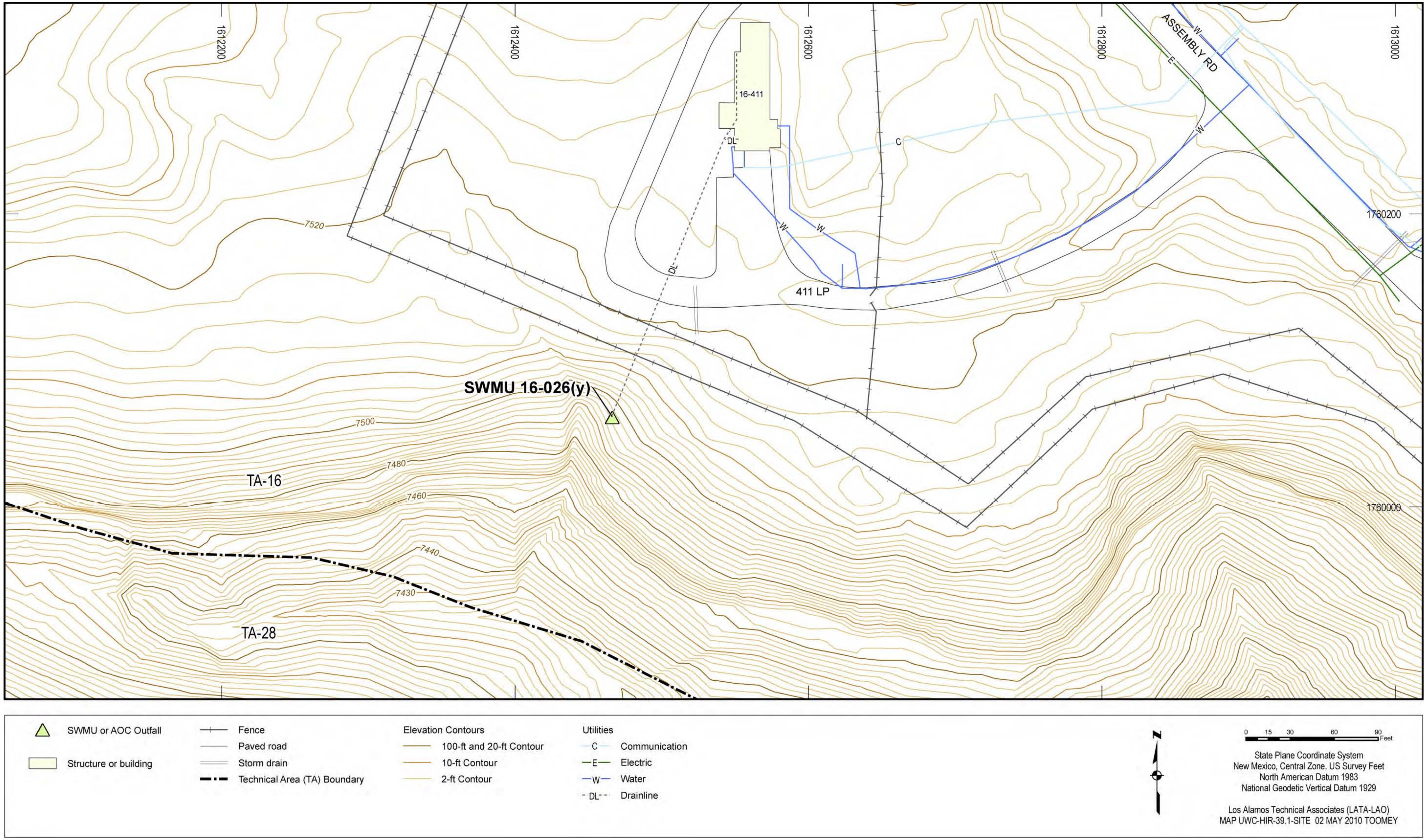


Figure 5.46-1 Site features of SWMU 16-026(y)

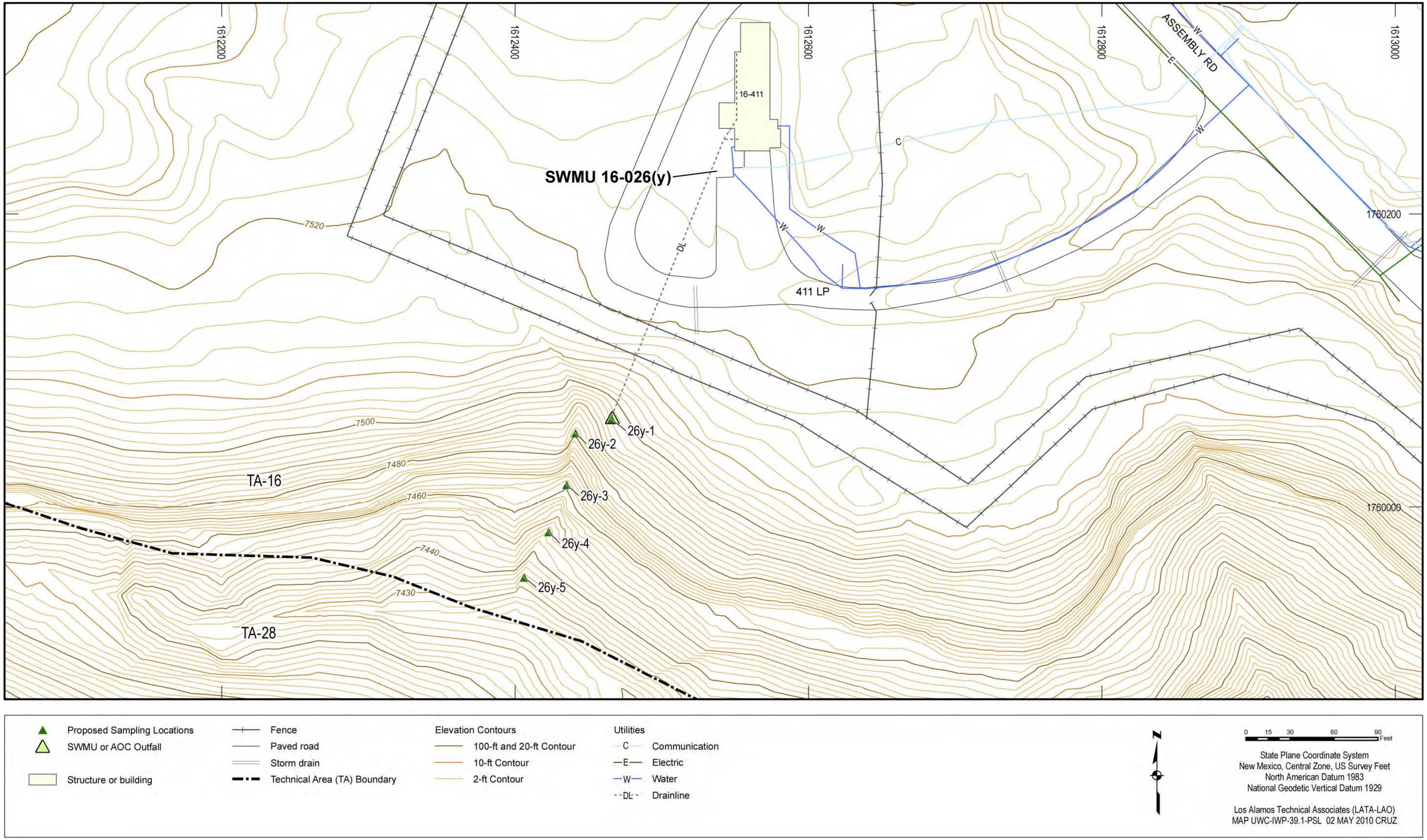


Figure 5.46-2 Proposed sampling locations for SWMU 16-026(y)

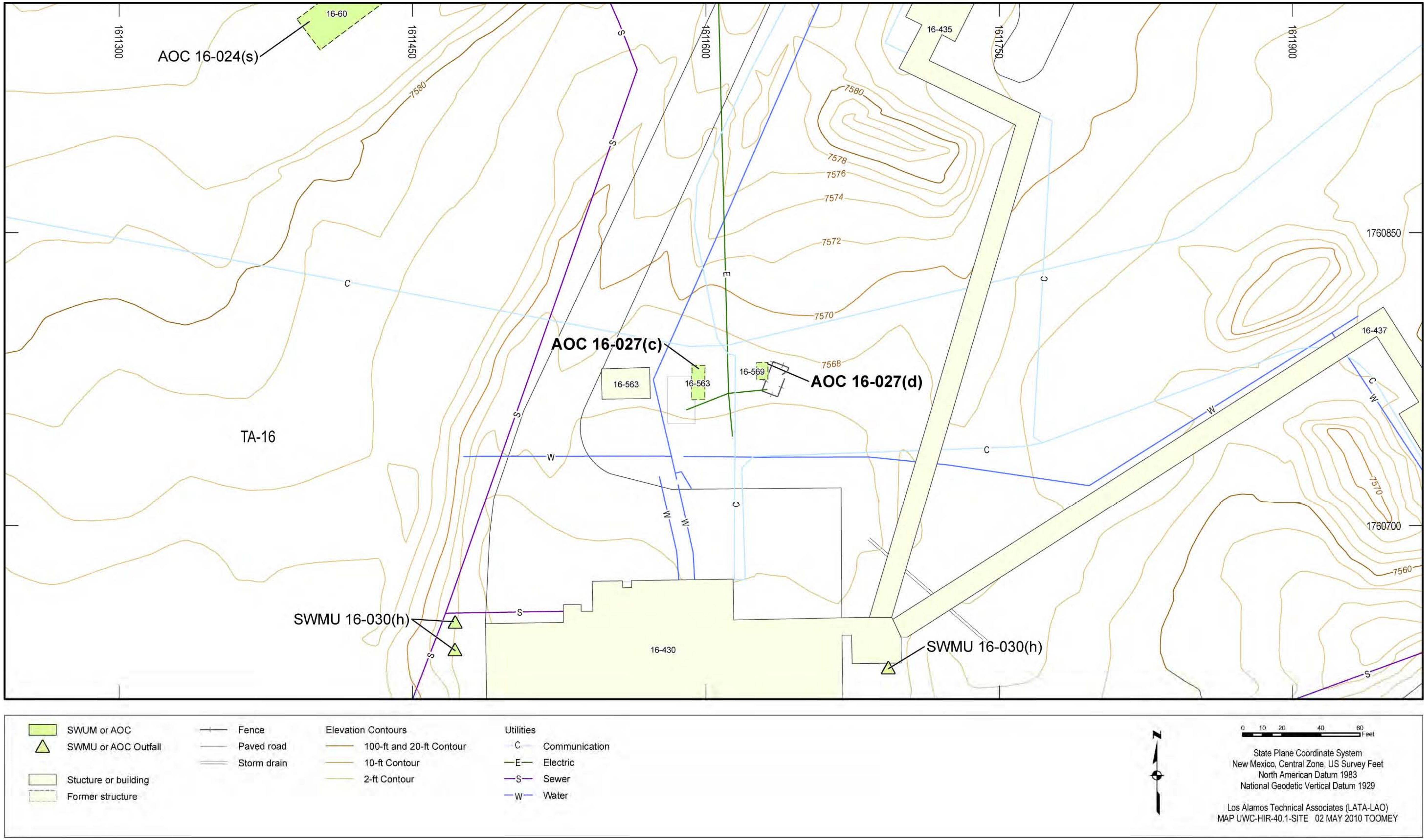


Figure 5.47-1 Site features of AOC 16-027(c) and AOC 16-027(d)

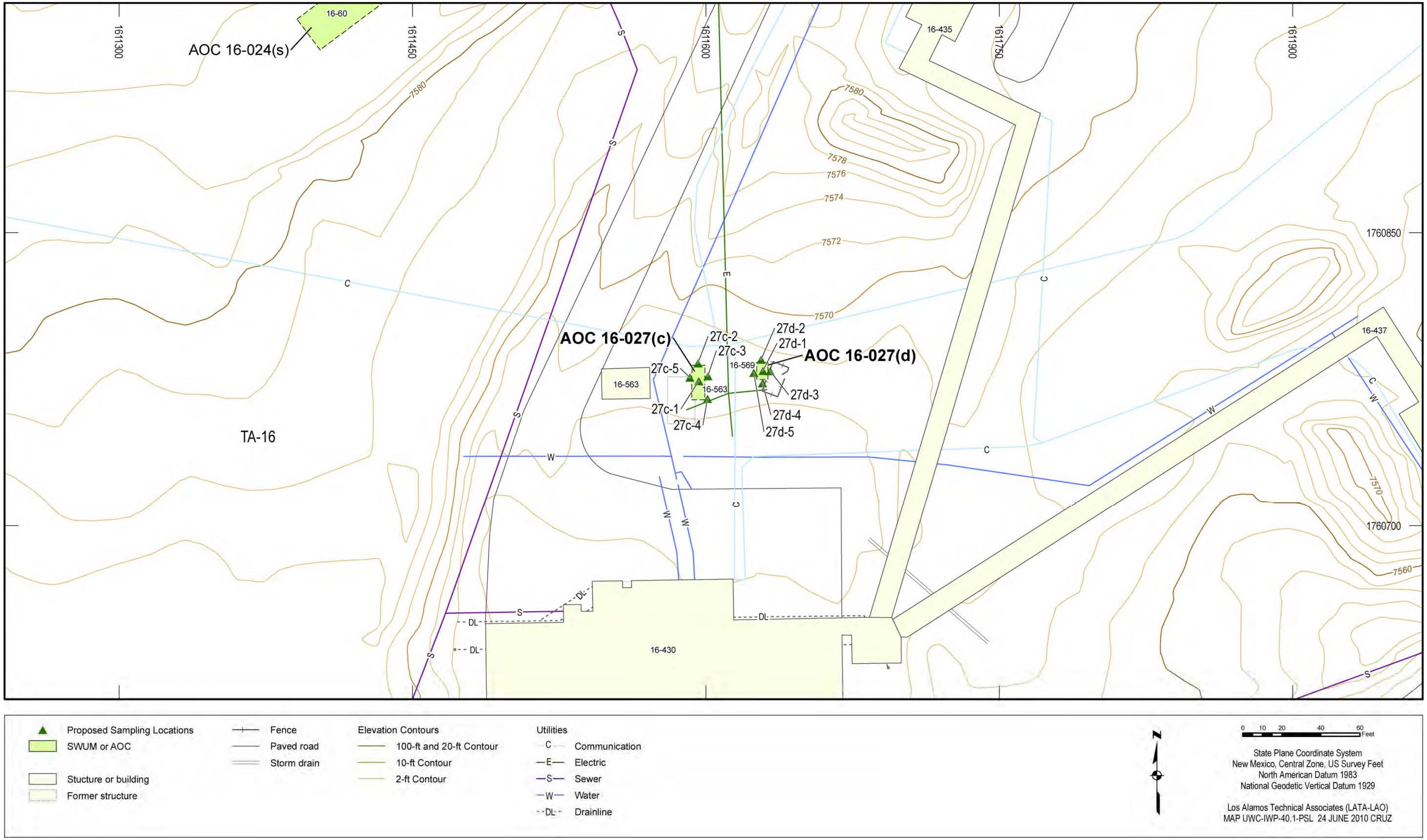


Figure 5.47-2 Proposed sampling locations for AOC 16-027(c) and AOC 16-027(d)

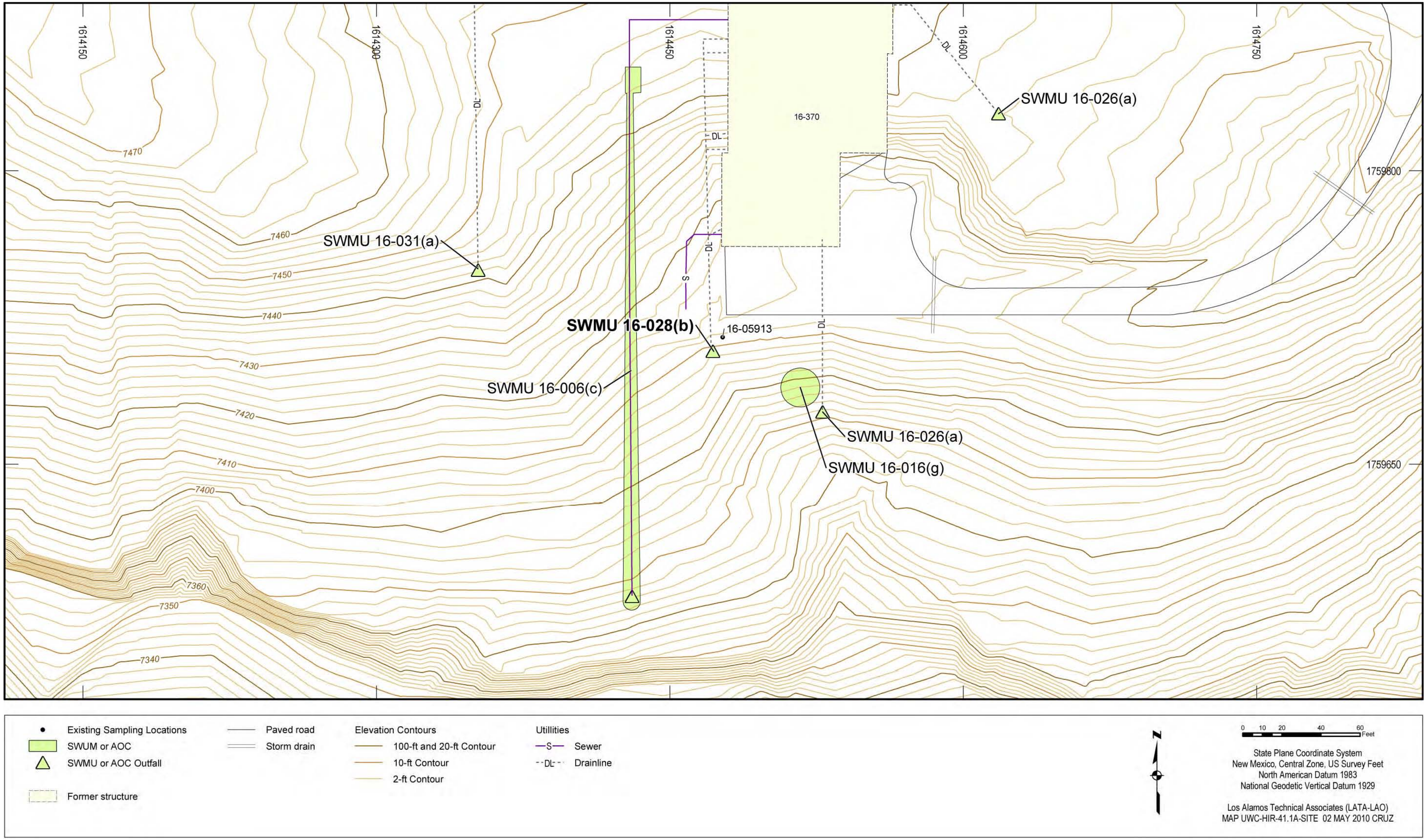


Figure 5.49-1 Site features of SWMU 16-028(b)

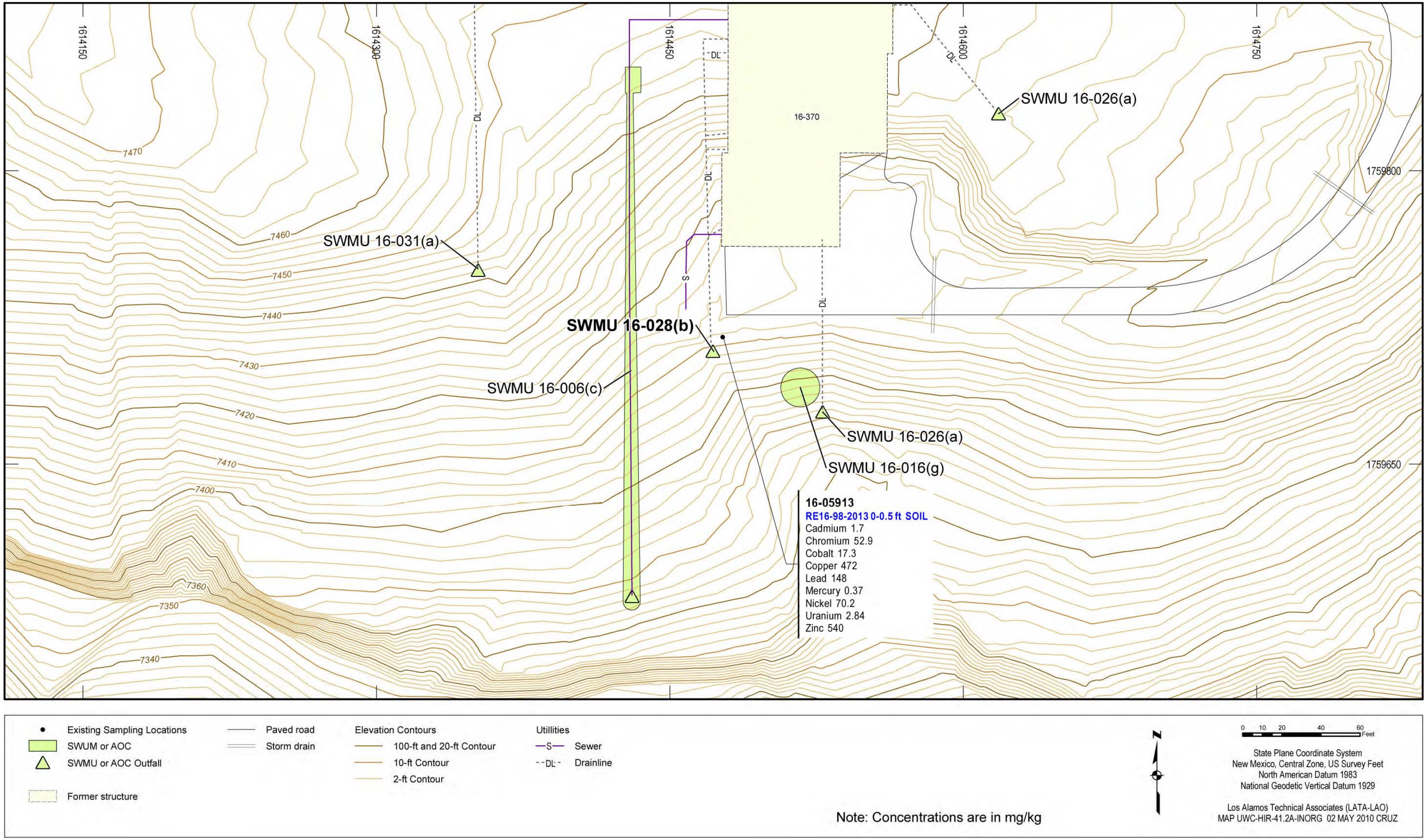


Figure 5.49-2 Inorganic chemicals detected above BVs at SWMU 16-028(b)

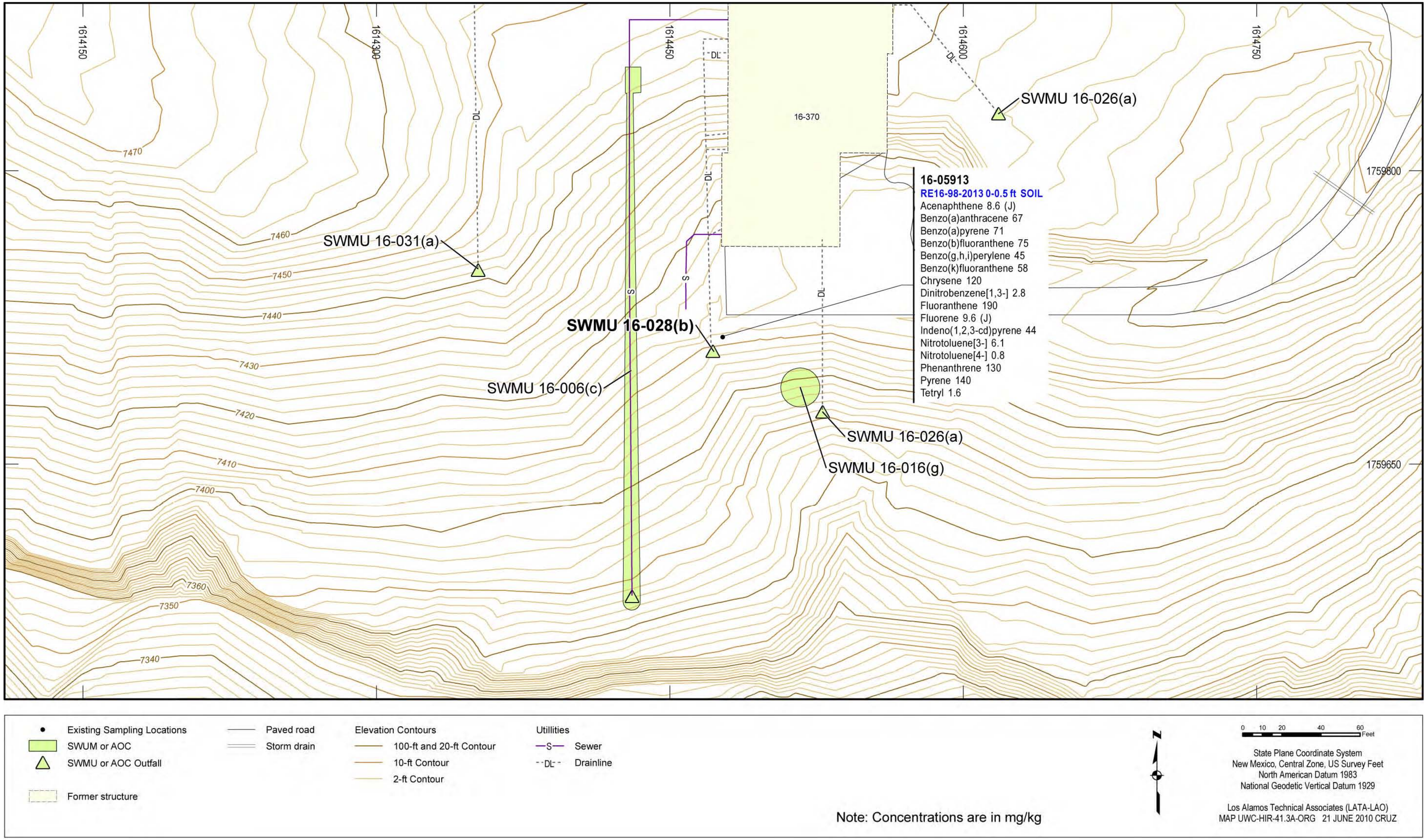


Figure 5.49-3 Organic chemicals detected at SWMU 16-028(b)

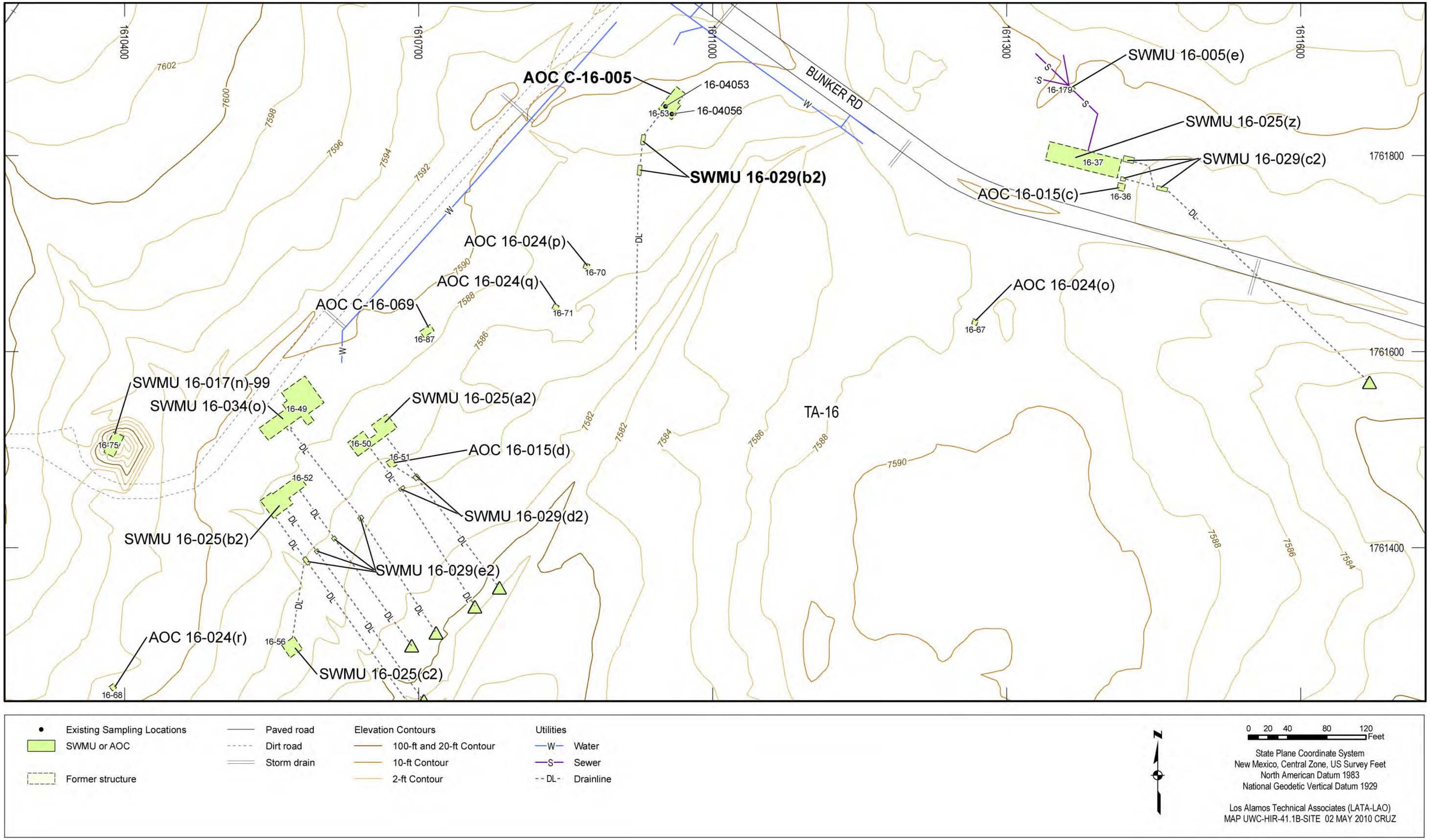


Figure 5.50-1 Site features of Consolidated Unit 16-029(b2)-99 [SWMU 16-029(b2) and AOC C-16-005]

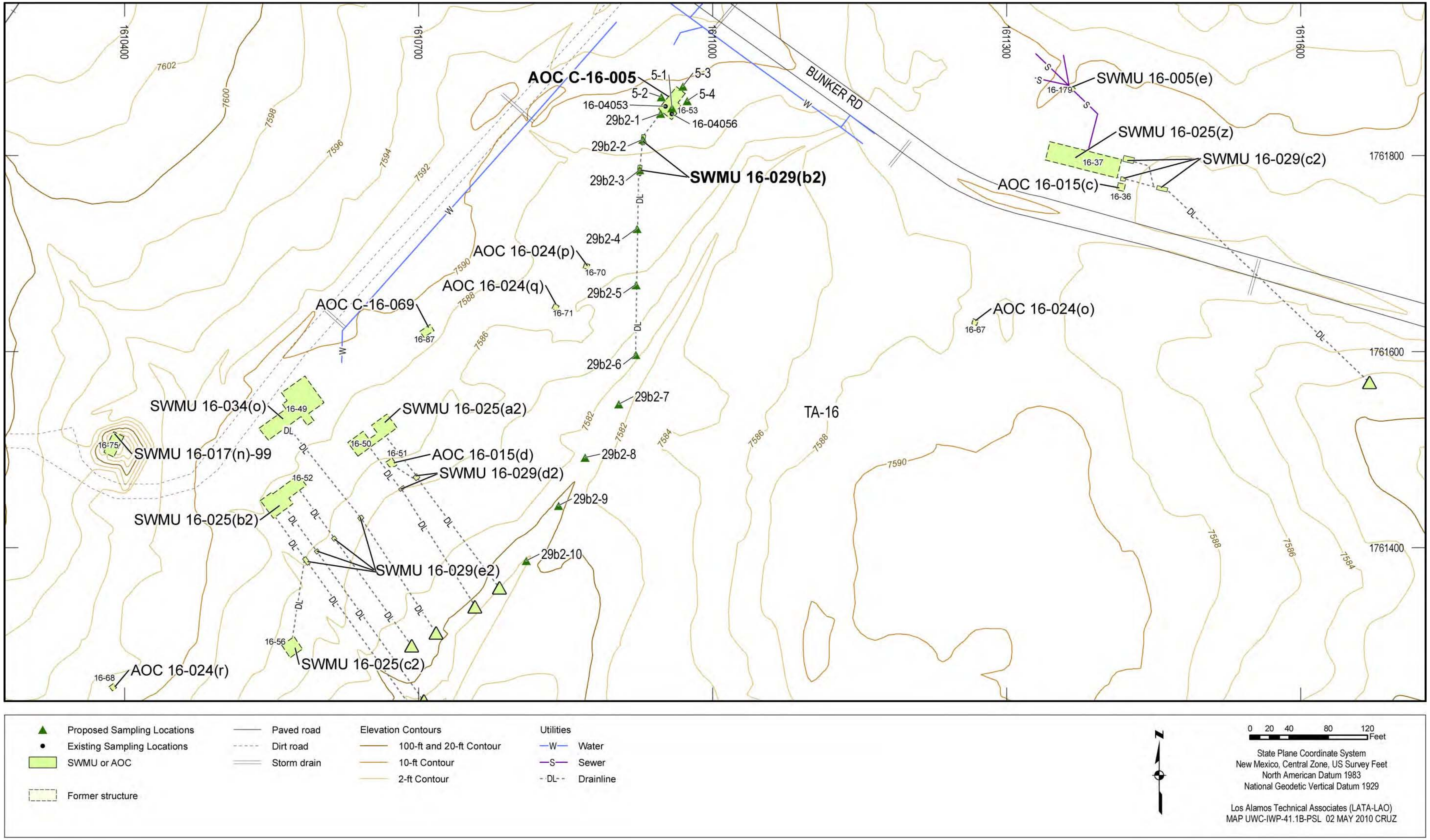


Figure 5.50-2 Proposed sampling locations for Consolidated Unit 16-029(b2)-99 [SWMU 16-029(b2) and AOC C-16-005]

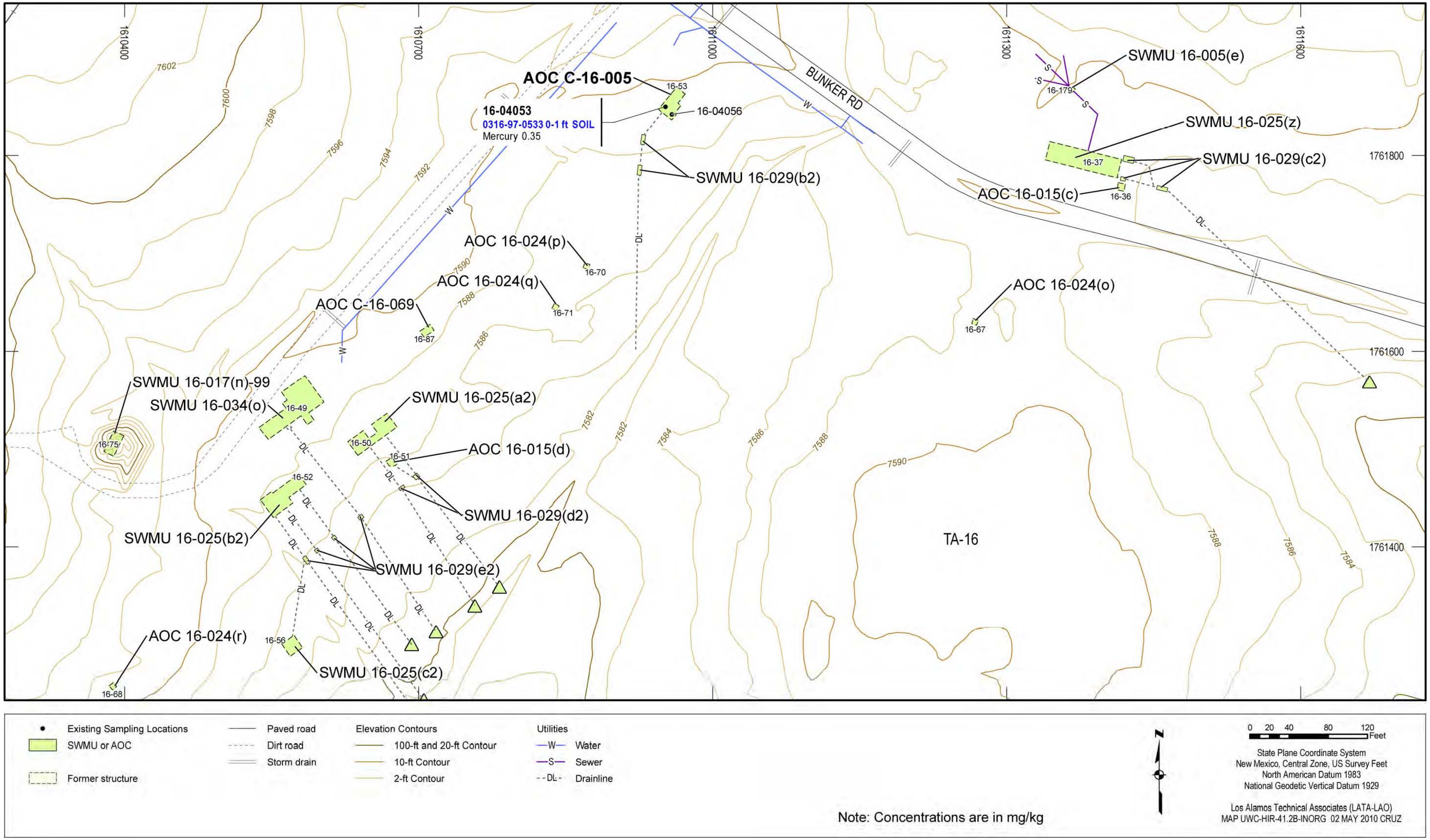


Figure 5.50-3 Inorganic chemicals detected above BVs at AOC C-16-005

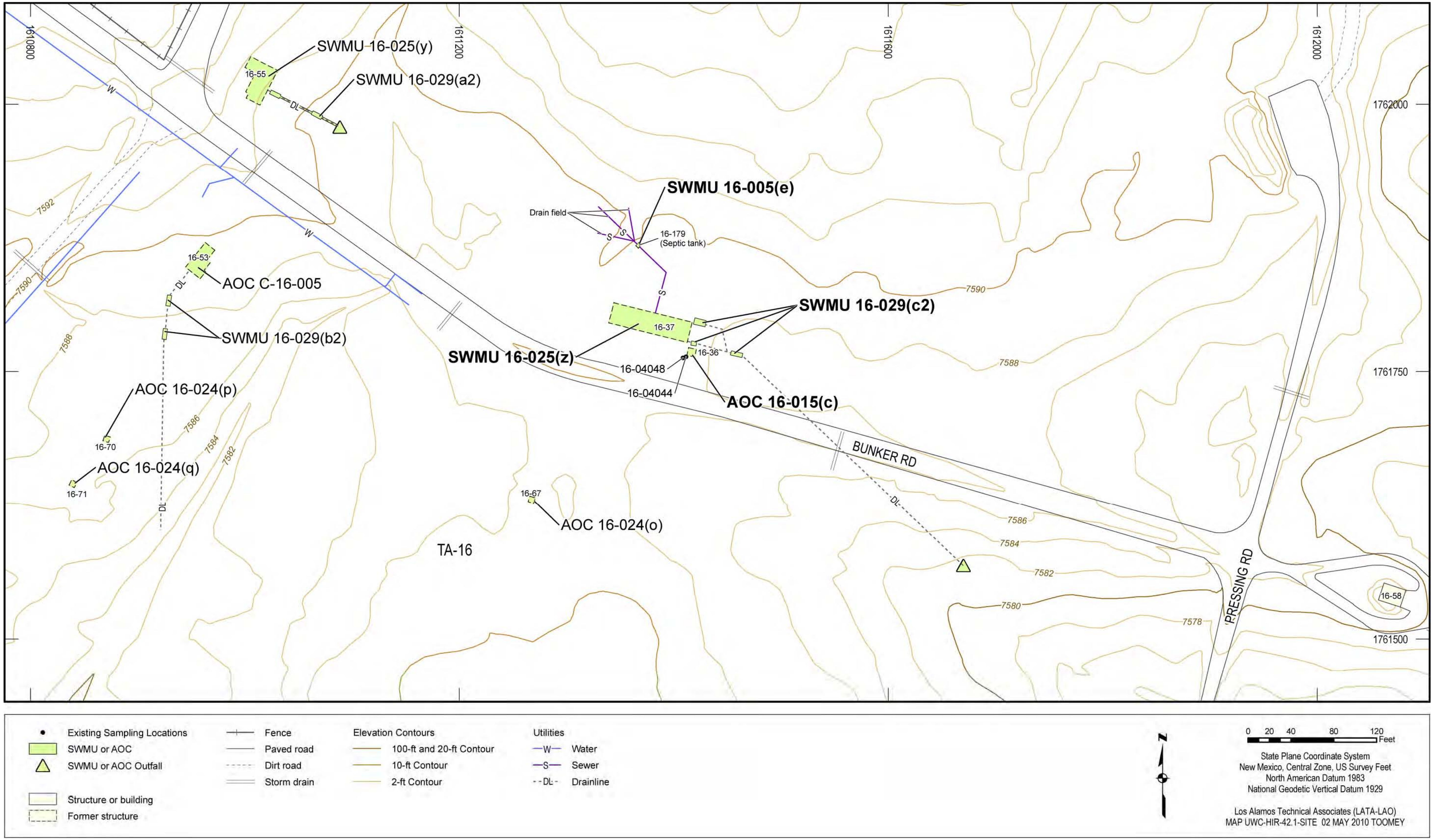


Figure 5.51-1 Site features of Consolidated Unit 16-029(c2)-99 [SWMU 16-005(e), AOC 16-015(c), SWMU 16-025(z), and SWMU 16-029(c2)]

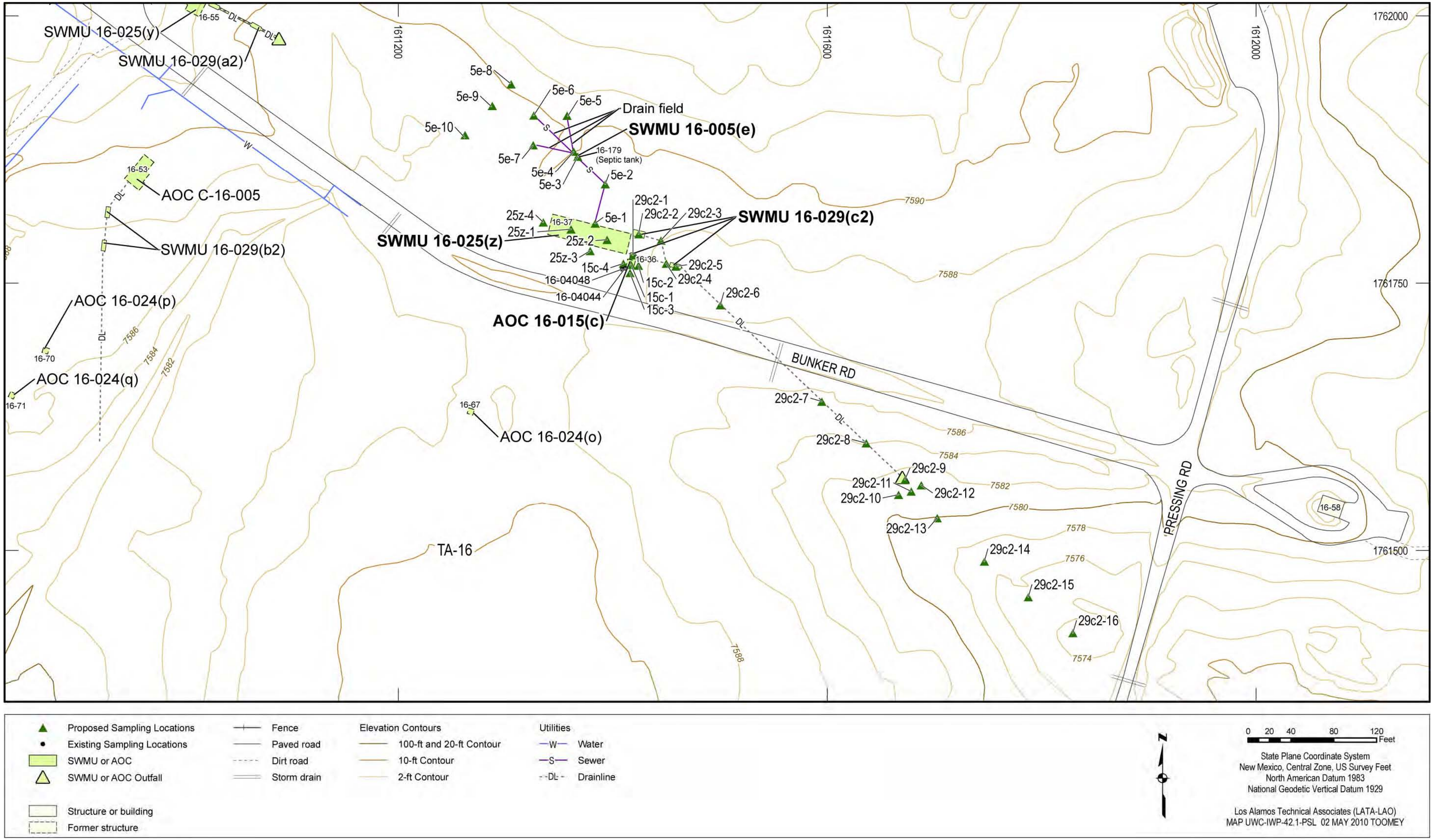


Figure 5.51-2 Proposed sampling locations for Consolidated Unit 16-029(c2)-99 [SWMU 16-005(e), AOC 16-015(c), SWMU 16-025(z), and SWMU 16-029(c2)]

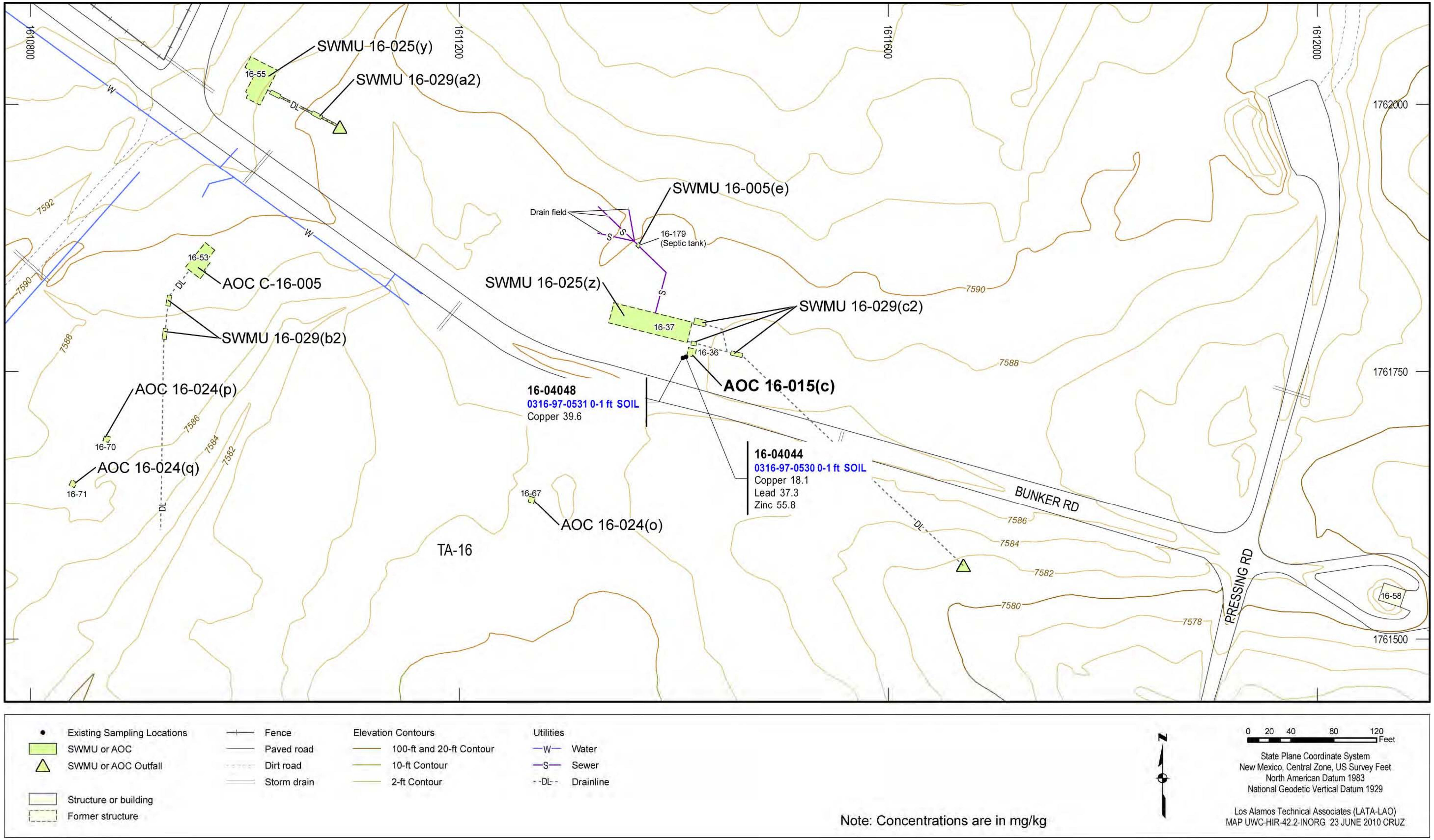


Figure 5.51-3 Inorganic chemicals detected above BVs at AOC 16-015(c)

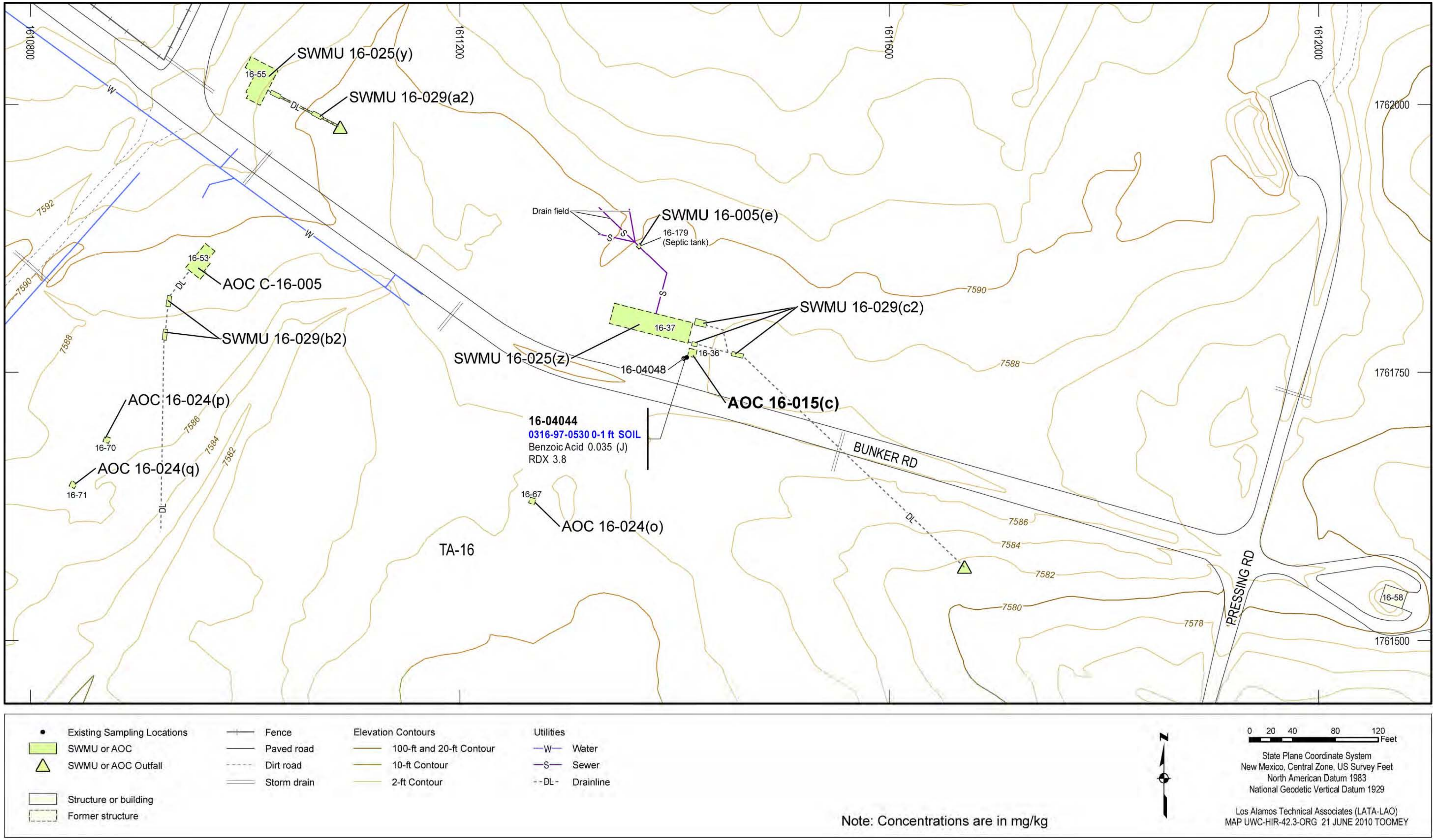


Figure 5.51-4 Organic chemicals detected at AOC 16-015(c)

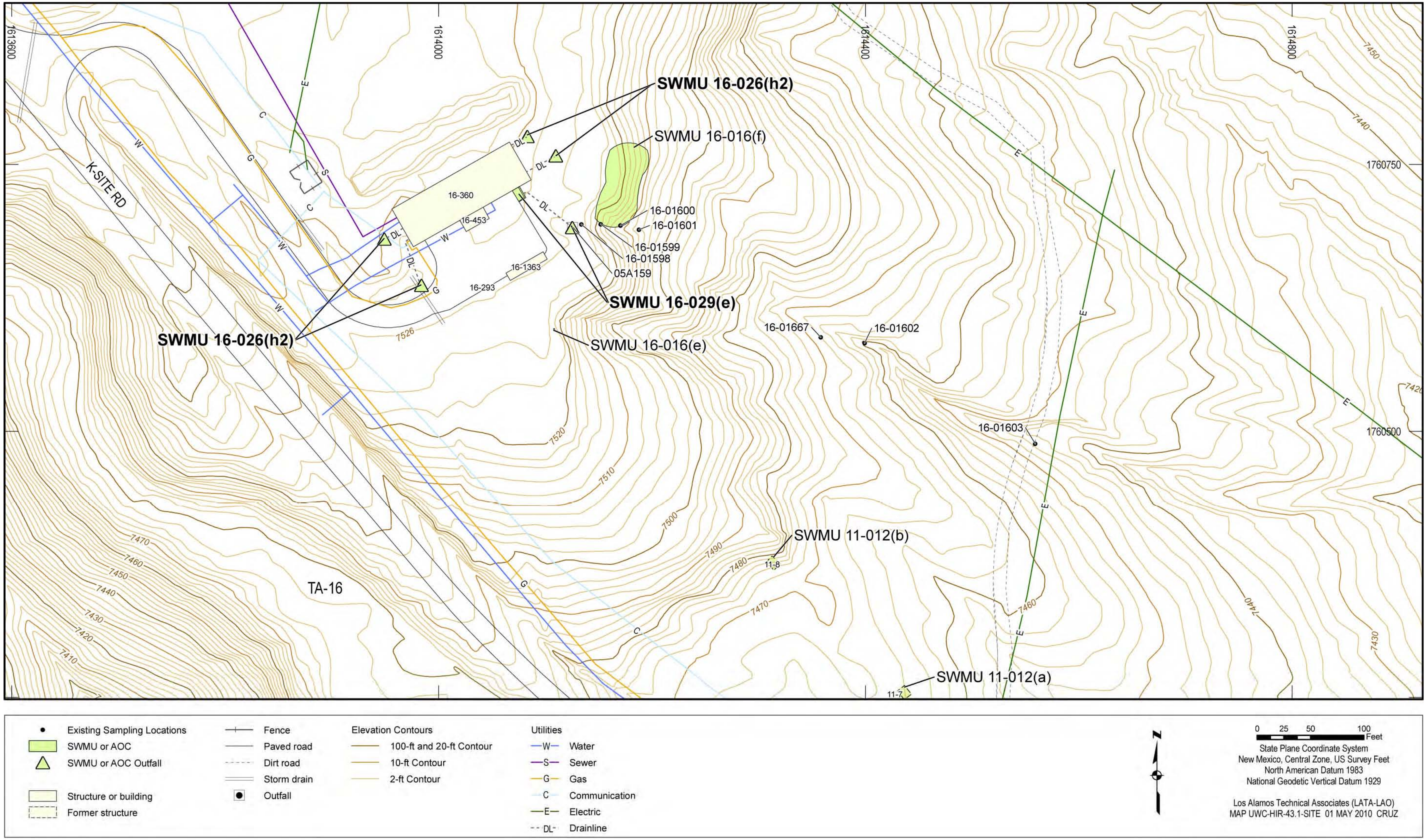


Figure 5.52-1 Site features of Consolidated Unit 16-029(e)-99 [SWMU 16-026(h2) and SWMU 16-029(e)]

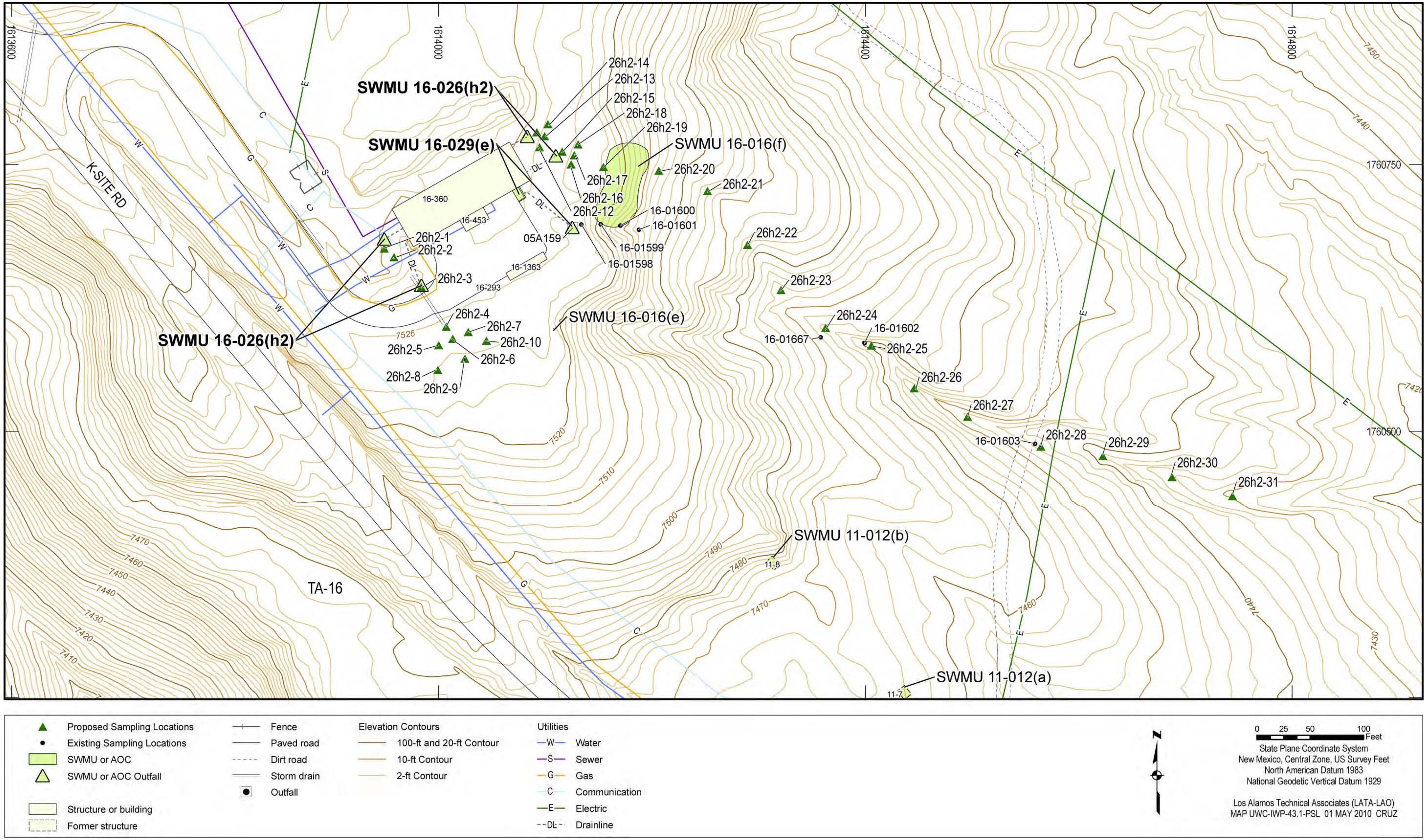


Figure 5.52-2 Proposed sampling locations for SWMU 16-026(h2)

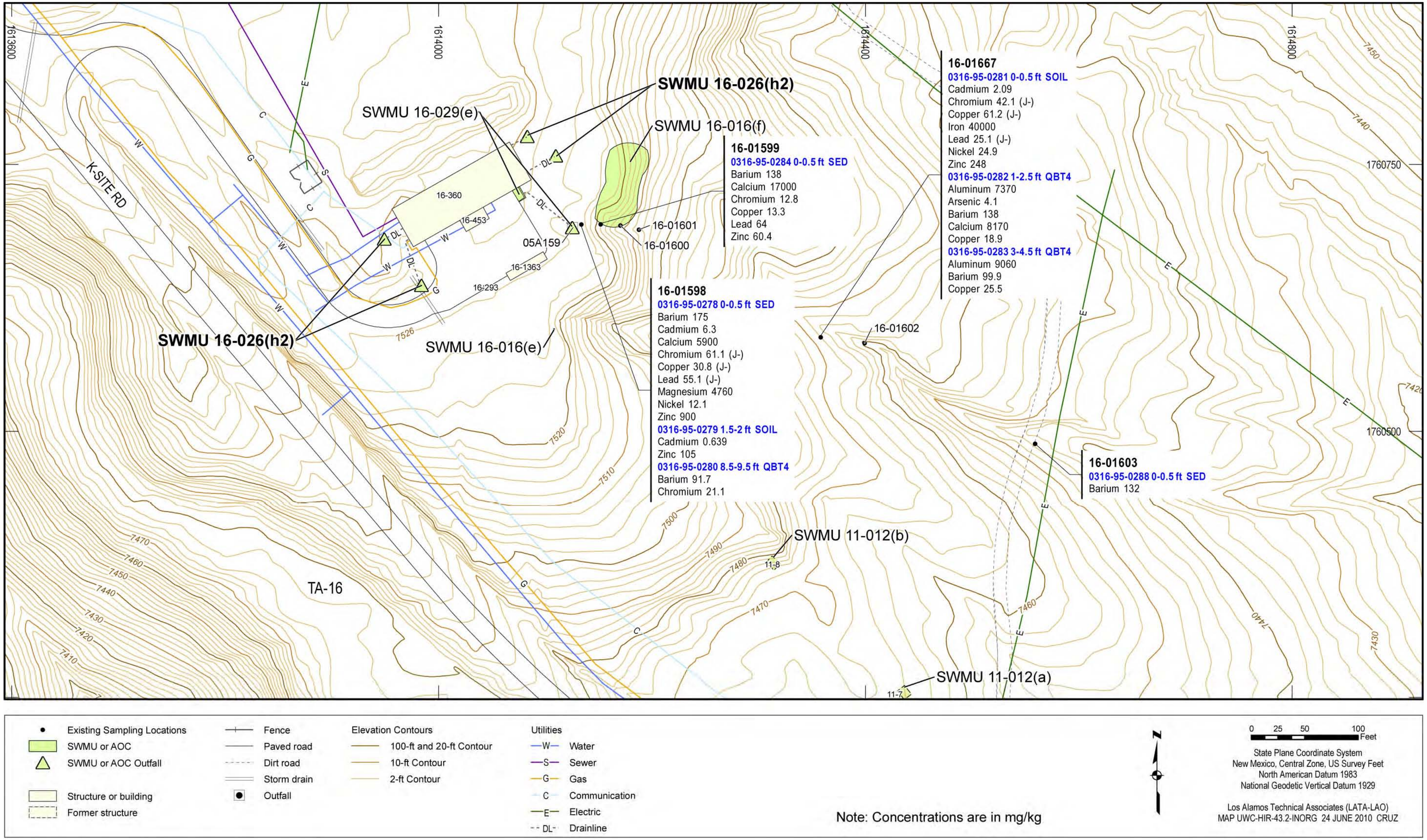


Figure 5.52-3 Inorganic chemicals detected above BVs at SWMU 16-026(h2)

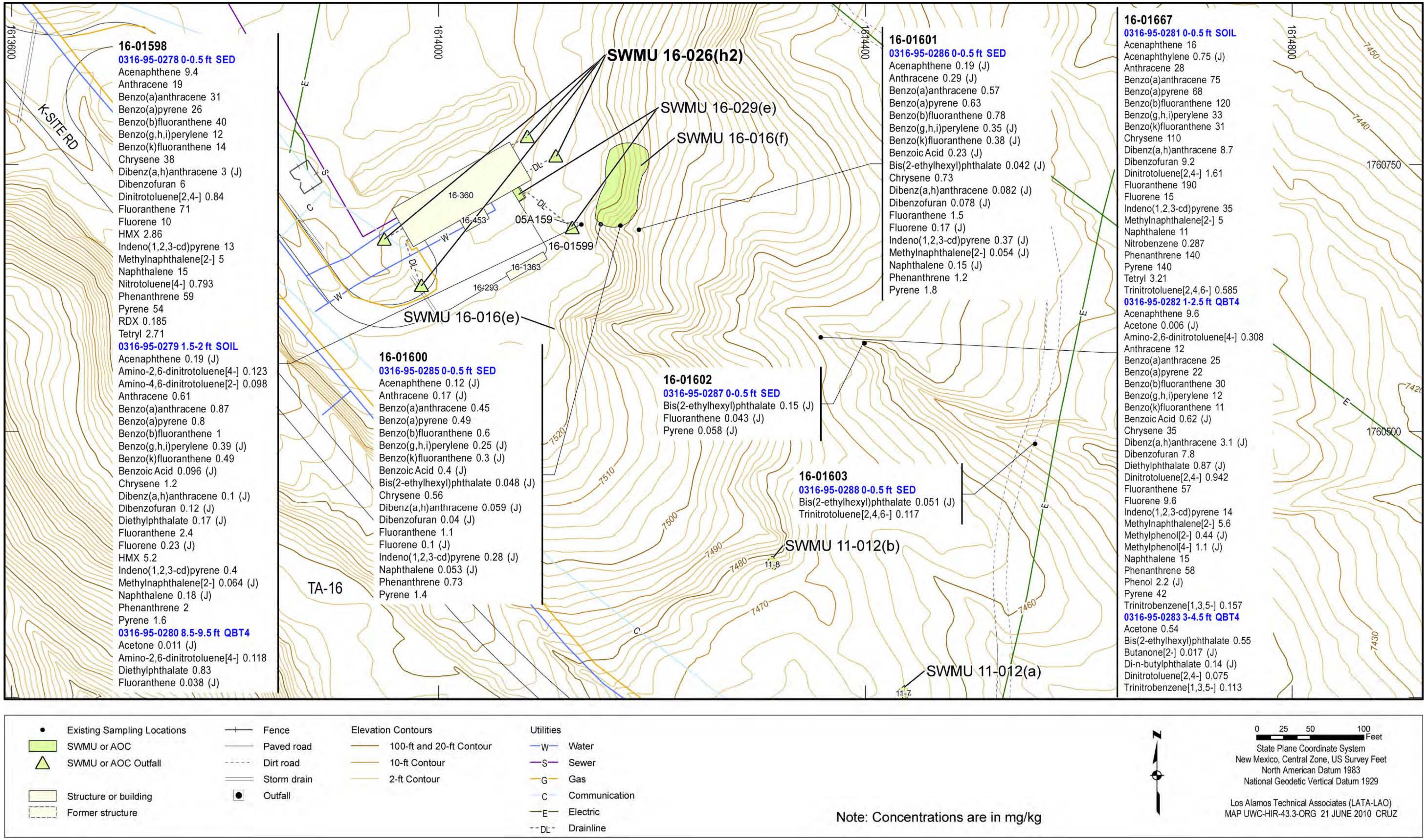


Figure 5.52-4 Organic chemicals detected at SWMU 16-026(h2)

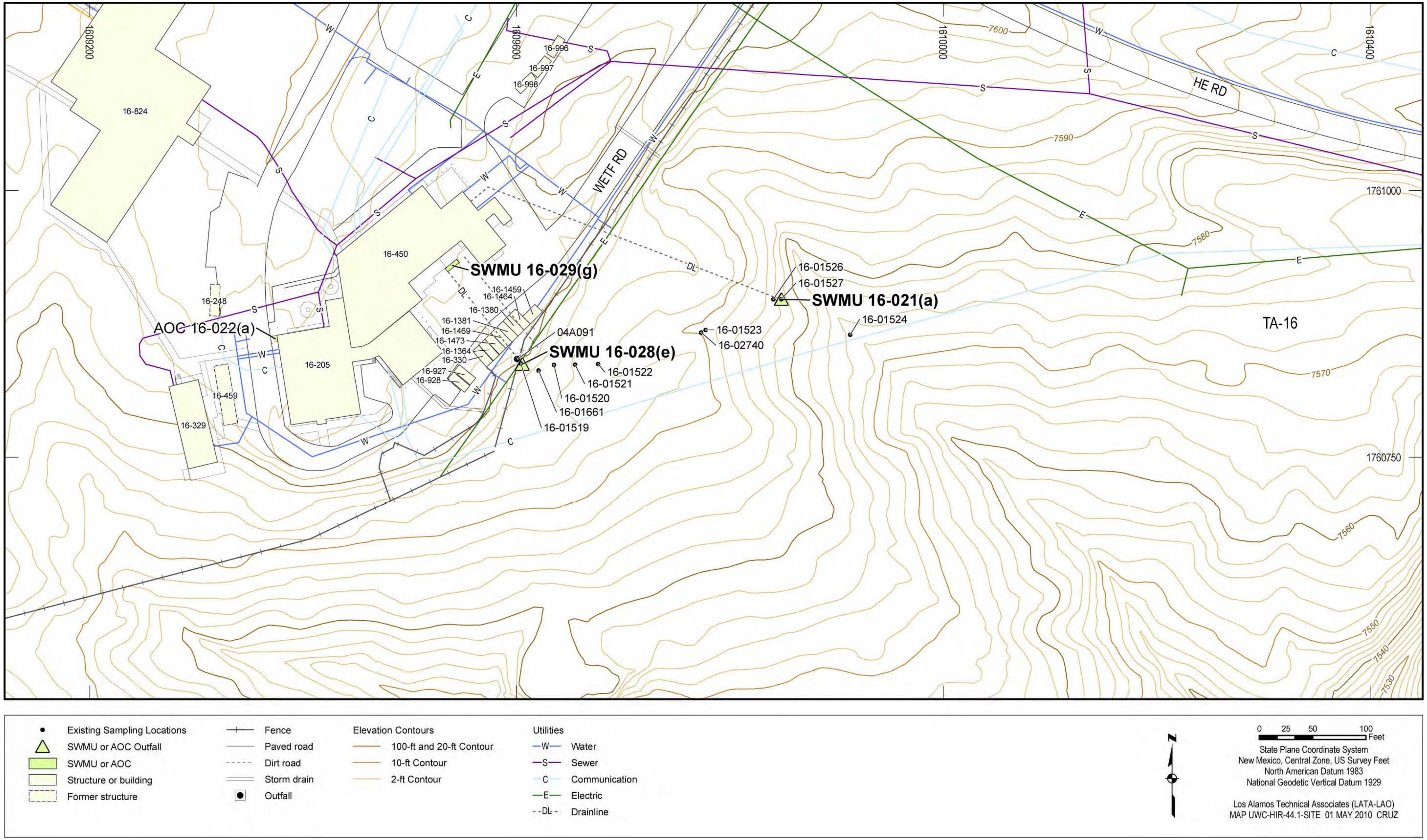


Figure 5.53-1 Site features of Consolidated Unit 16-029(g)-99 [SWMU 16-021(a), SWMU 16-028(e), and SWMU 16-029(g)]

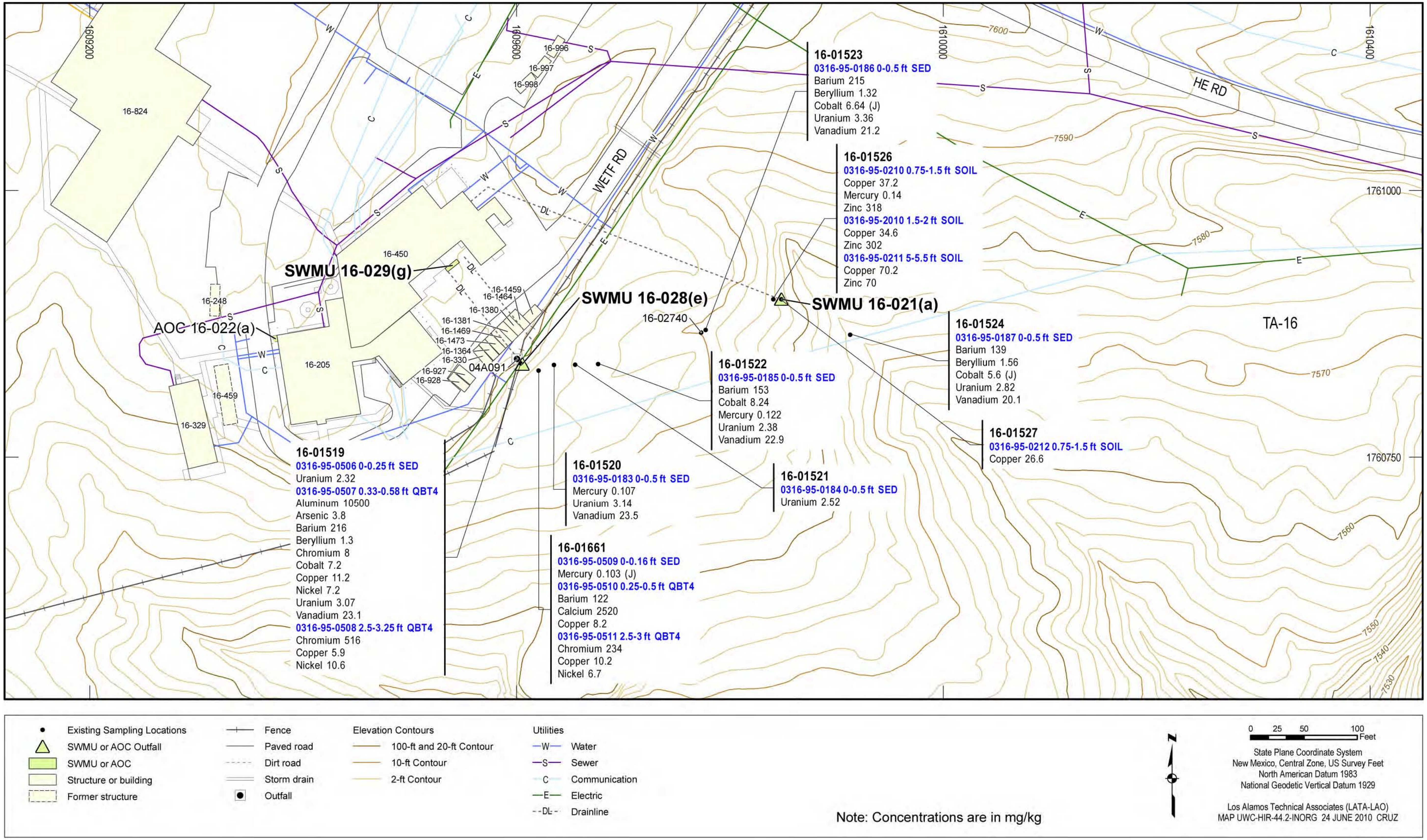


Figure 5.53-2 Inorganic chemicals detected above BVs at SWMU 16-021(a), SWMU 16-028(e), and SWMU 16-029(g)

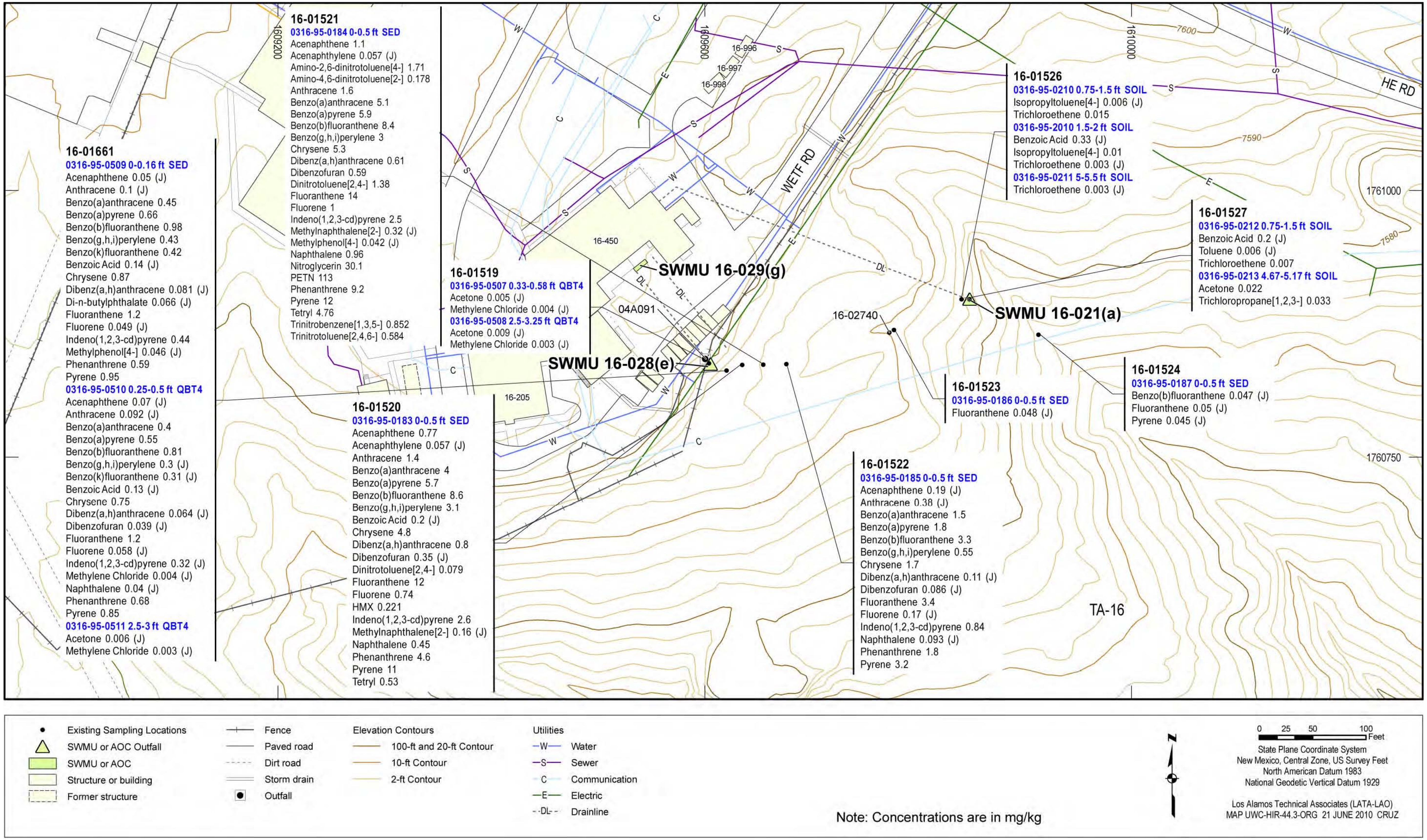


Figure 5.53-3 Organic chemicals detected at SWMU 16-021(a), SWMU 16-028(e), and SWMU 16-029(g)

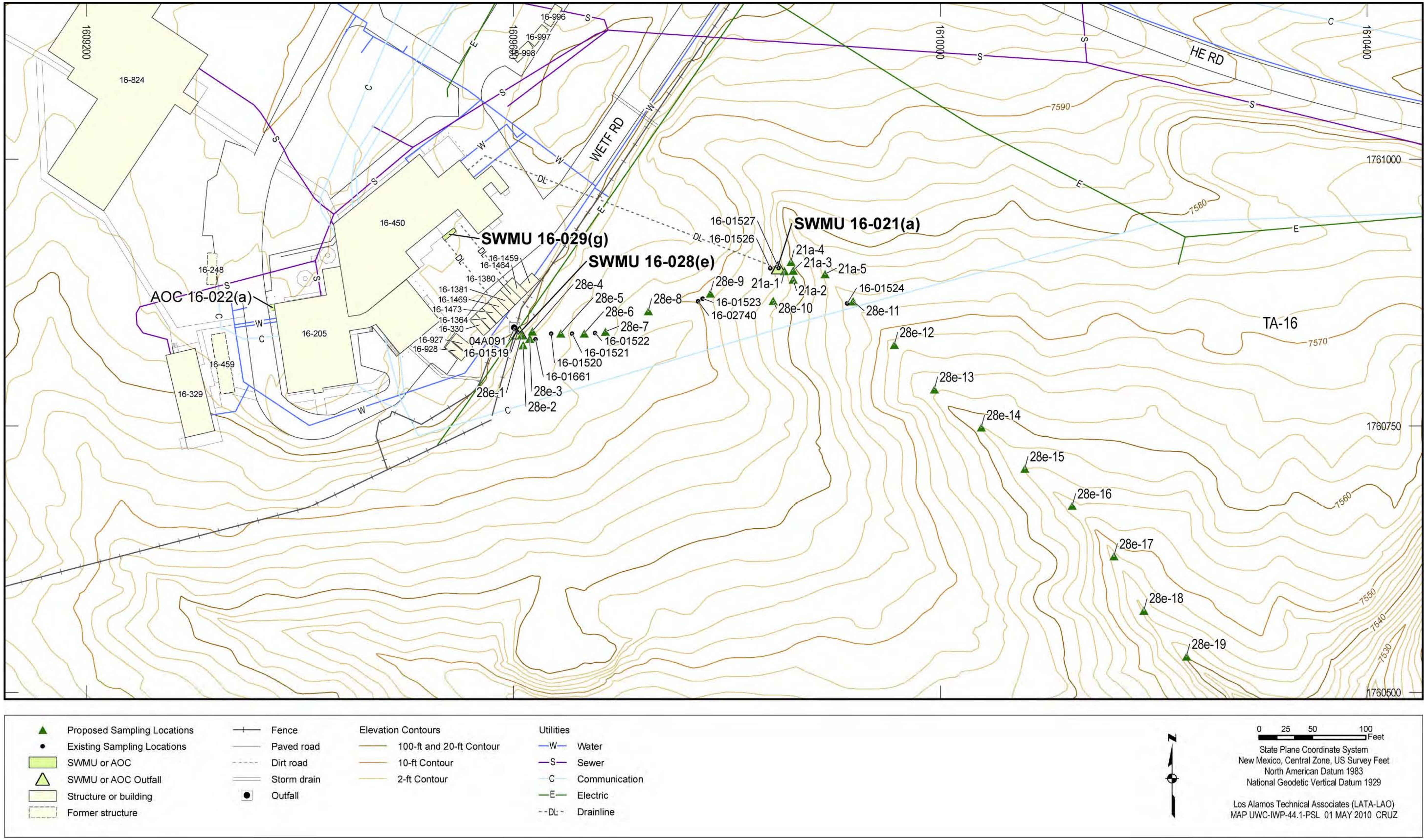


Figure 5.53-4 Proposed sampling locations for SWMU 16-021(a) and SWMU 16-028(e)

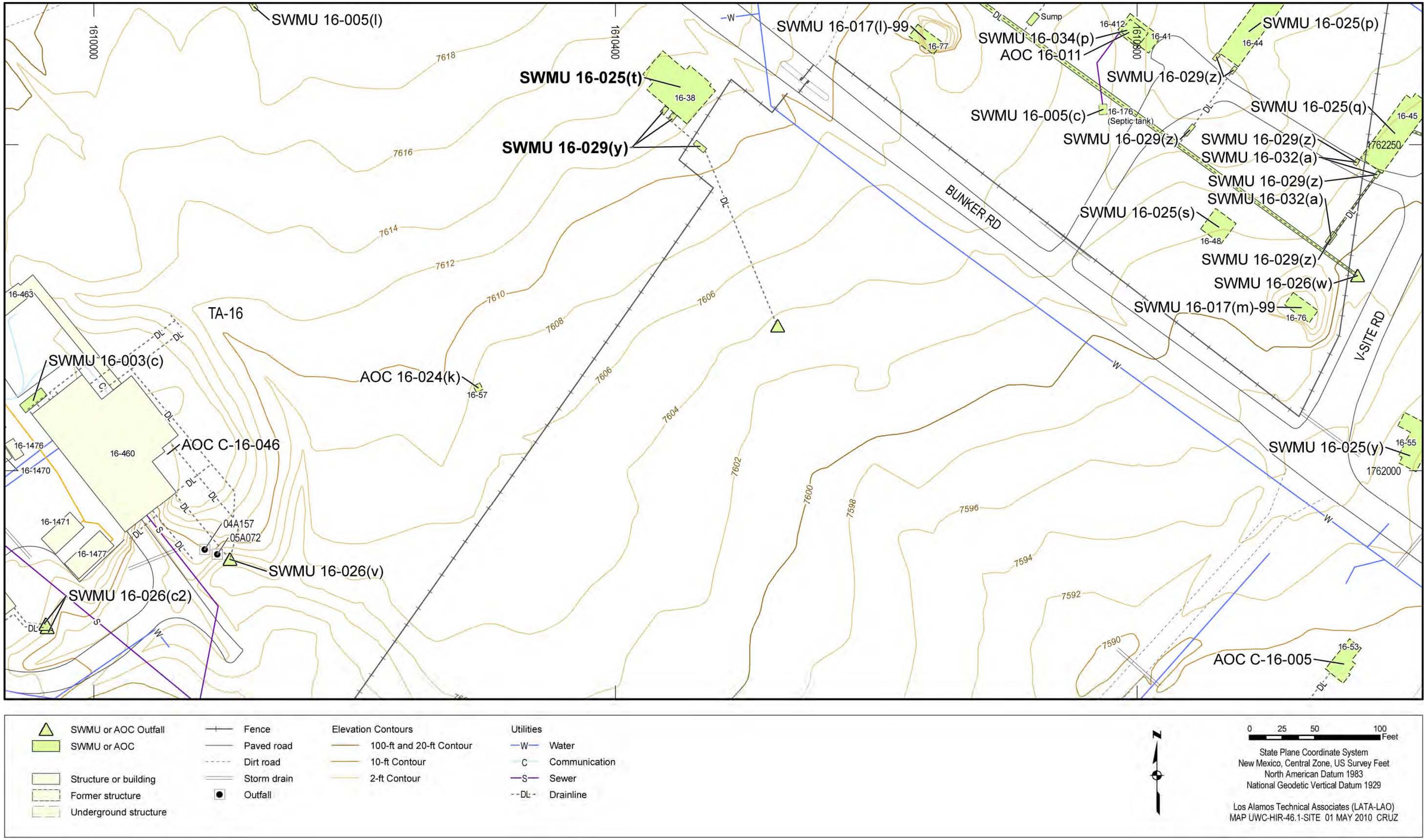


Figure 5.55-1 Site features of Consolidated Unit 16-029(y)-99 [SWMU 16-025(t) and SWMU 16-029(y)]

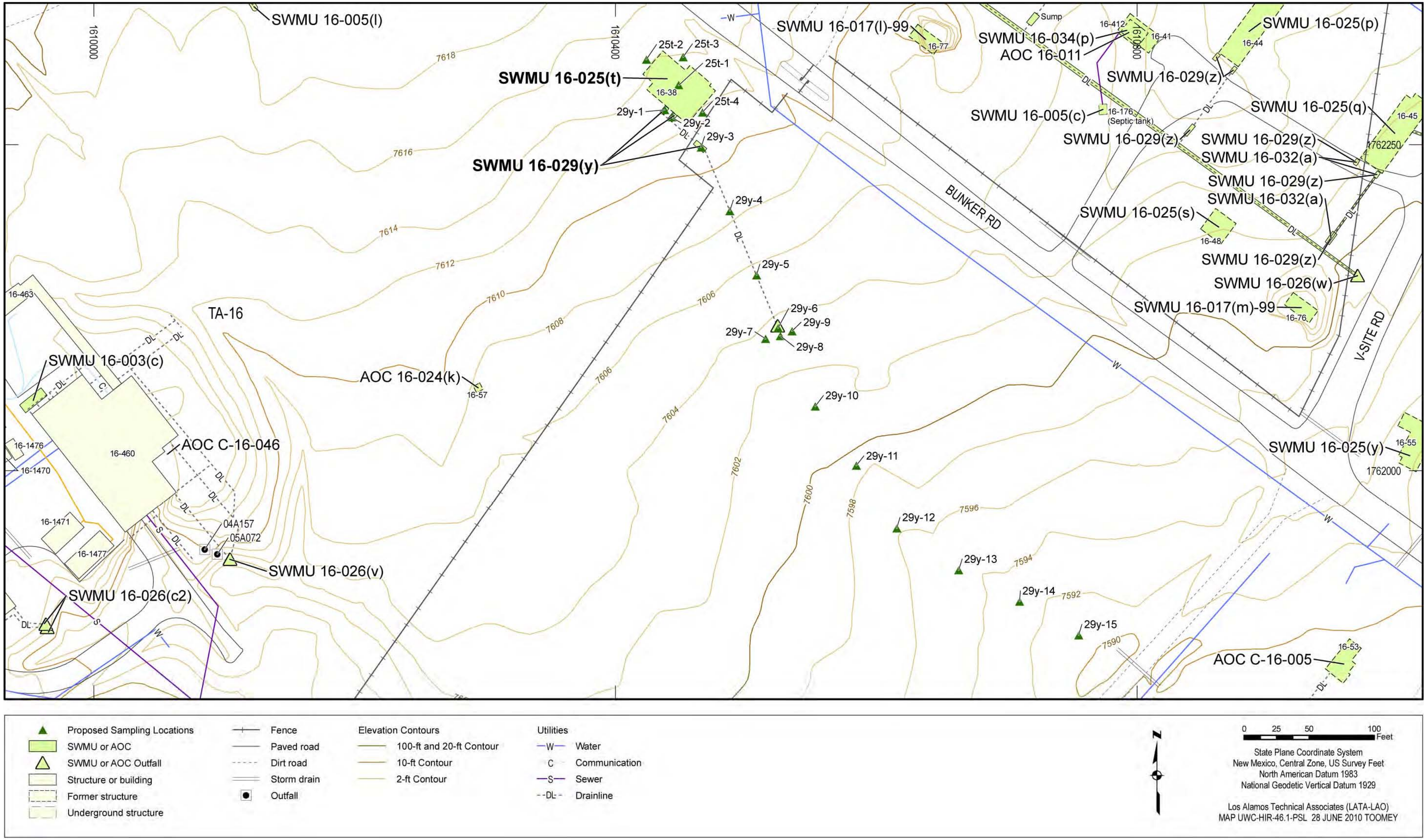


Figure 5.55-2 Proposed sampling locations for Consolidated Unit 16-029(y)-99 [SWMU 16-025(t) and SWMU 16-029(y)]

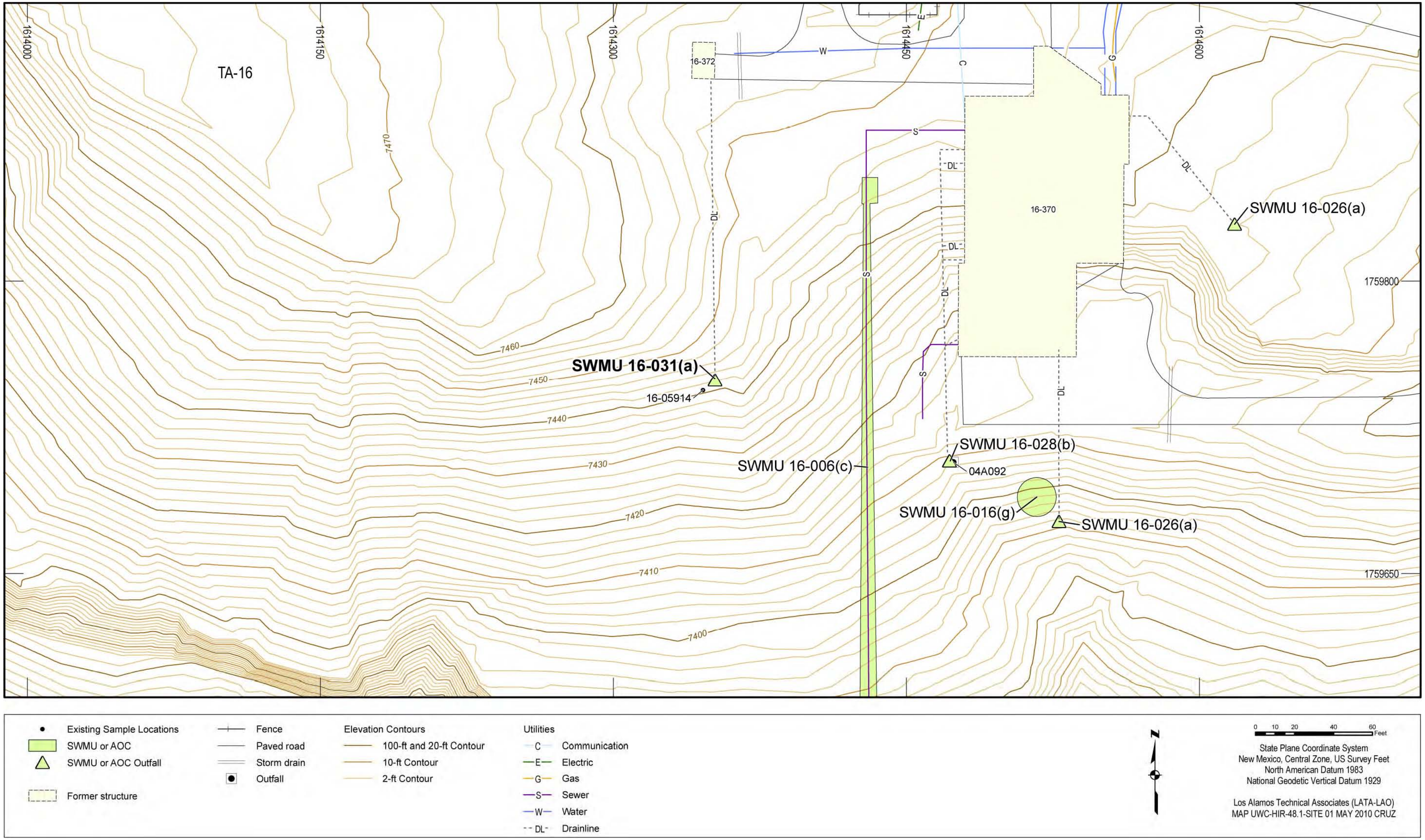


Figure 5.57-1 Site features of SWMU 16-031(a)

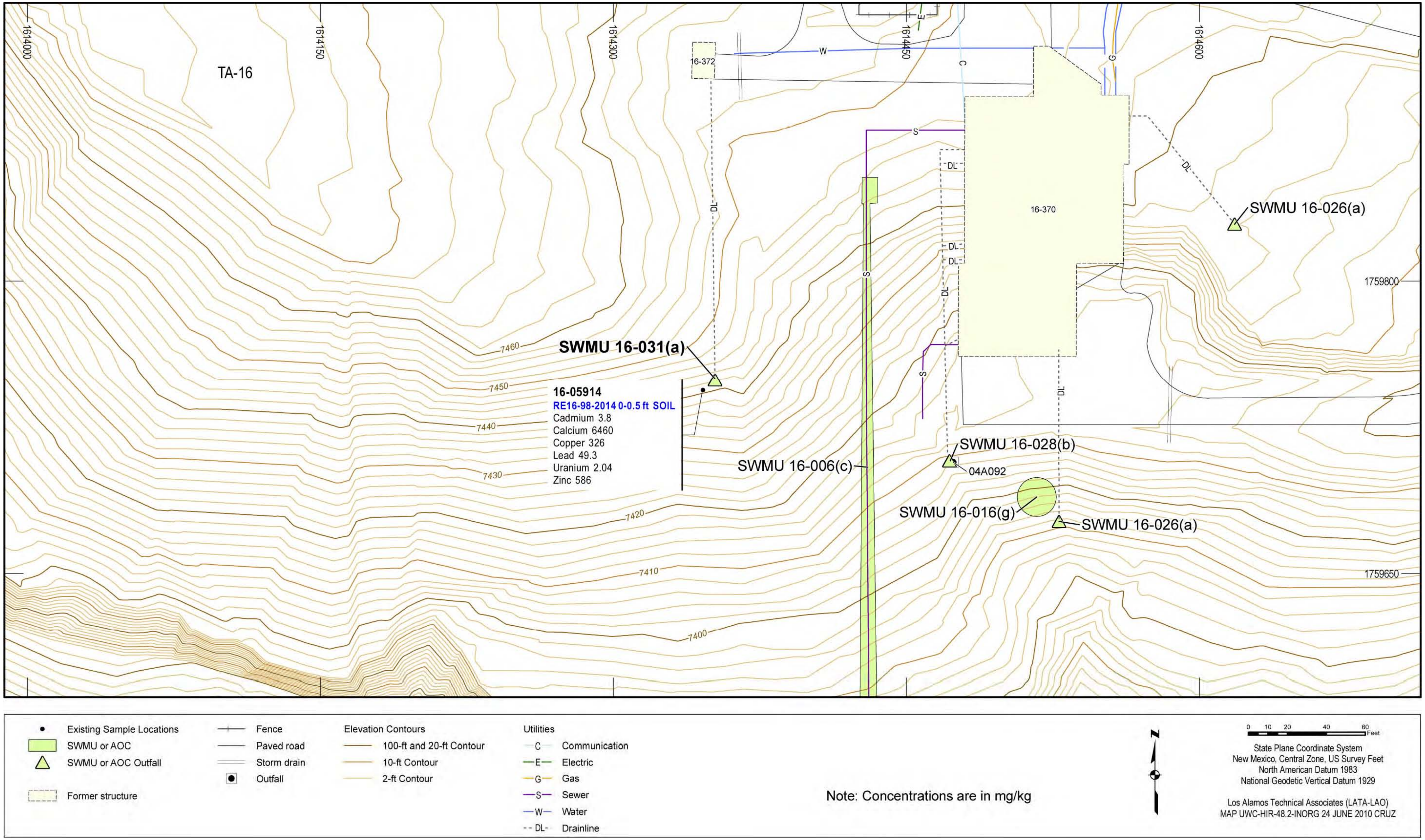


Figure 5.57-2 Inorganic chemicals detected above BVs at SWMU 16-031(a)

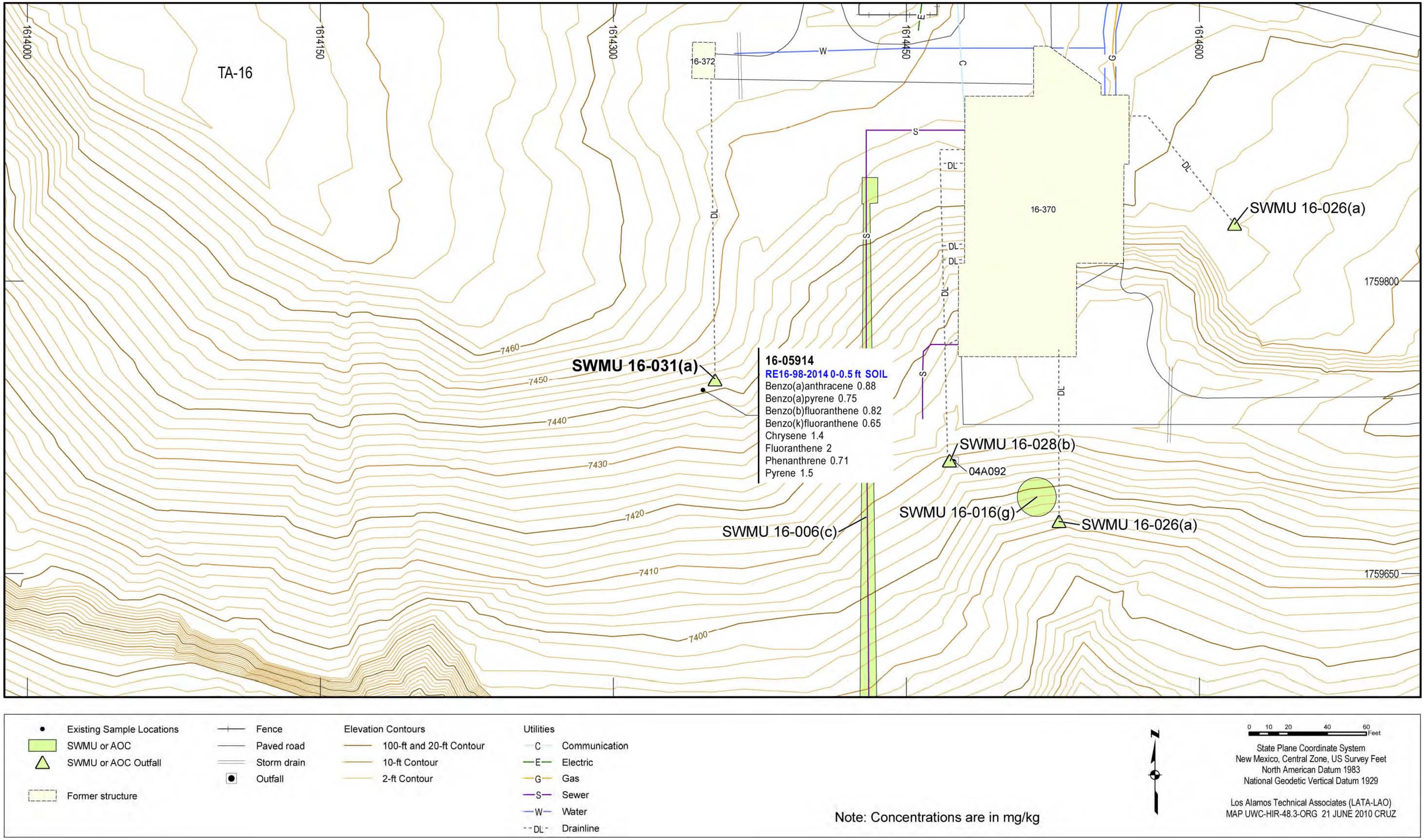


Figure 5.57-3 Organic chemicals detected at SWMU 16-031(a)

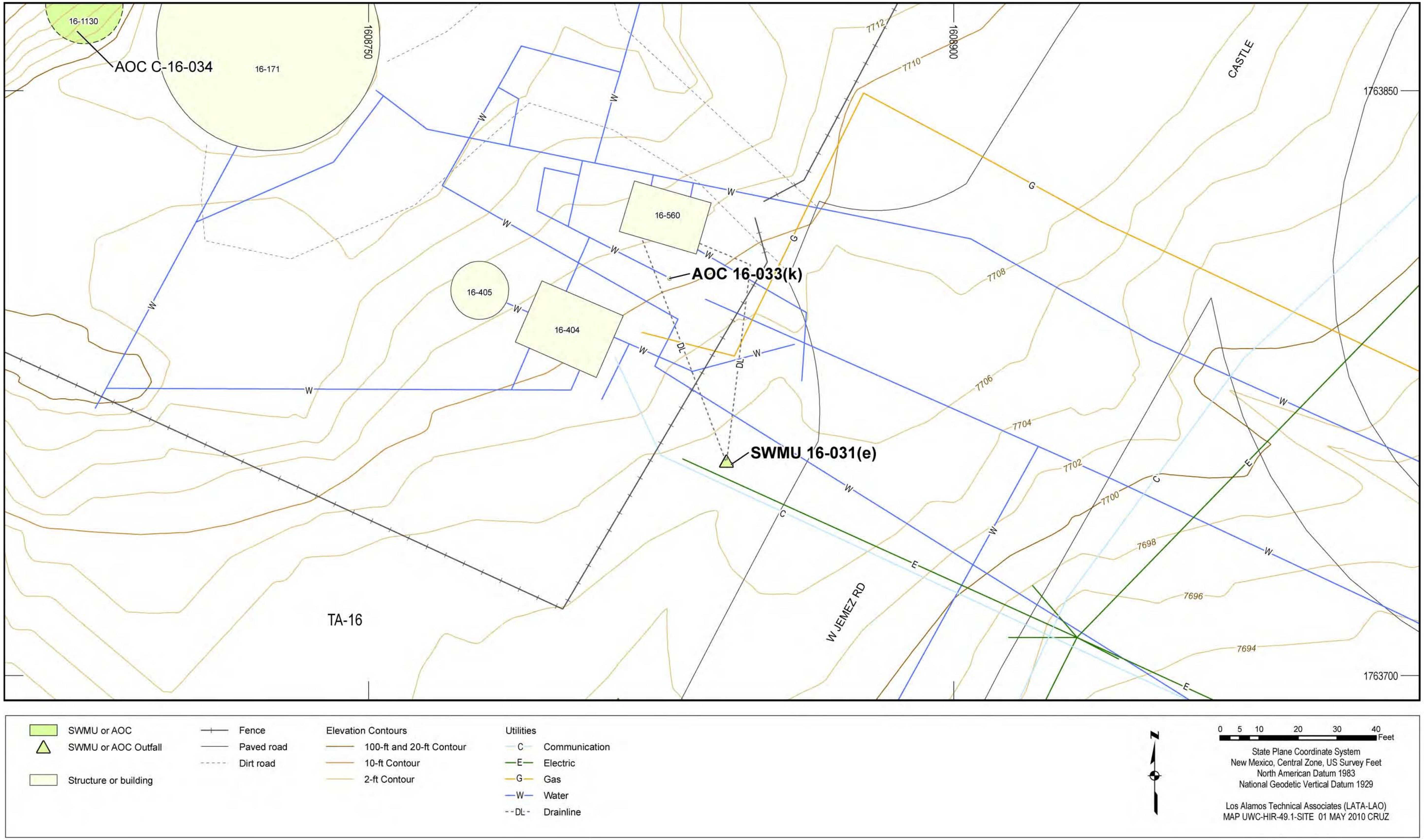


Figure 5.58-1 Site features of SWMU 16-031(e) and AOC 16-033(k)

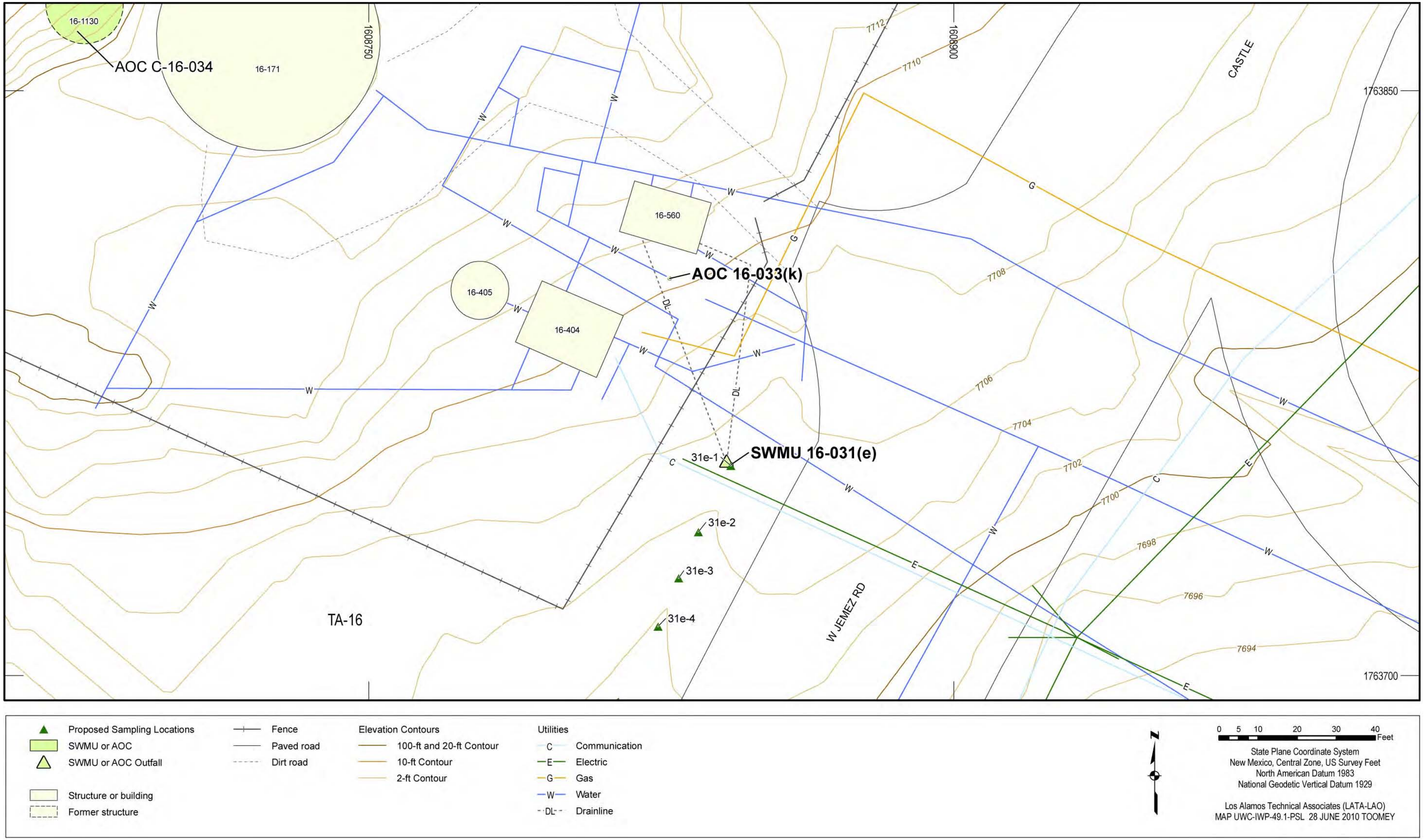


Figure 5.58-2 Proposed sampling locations for SWMU 16-031(e)

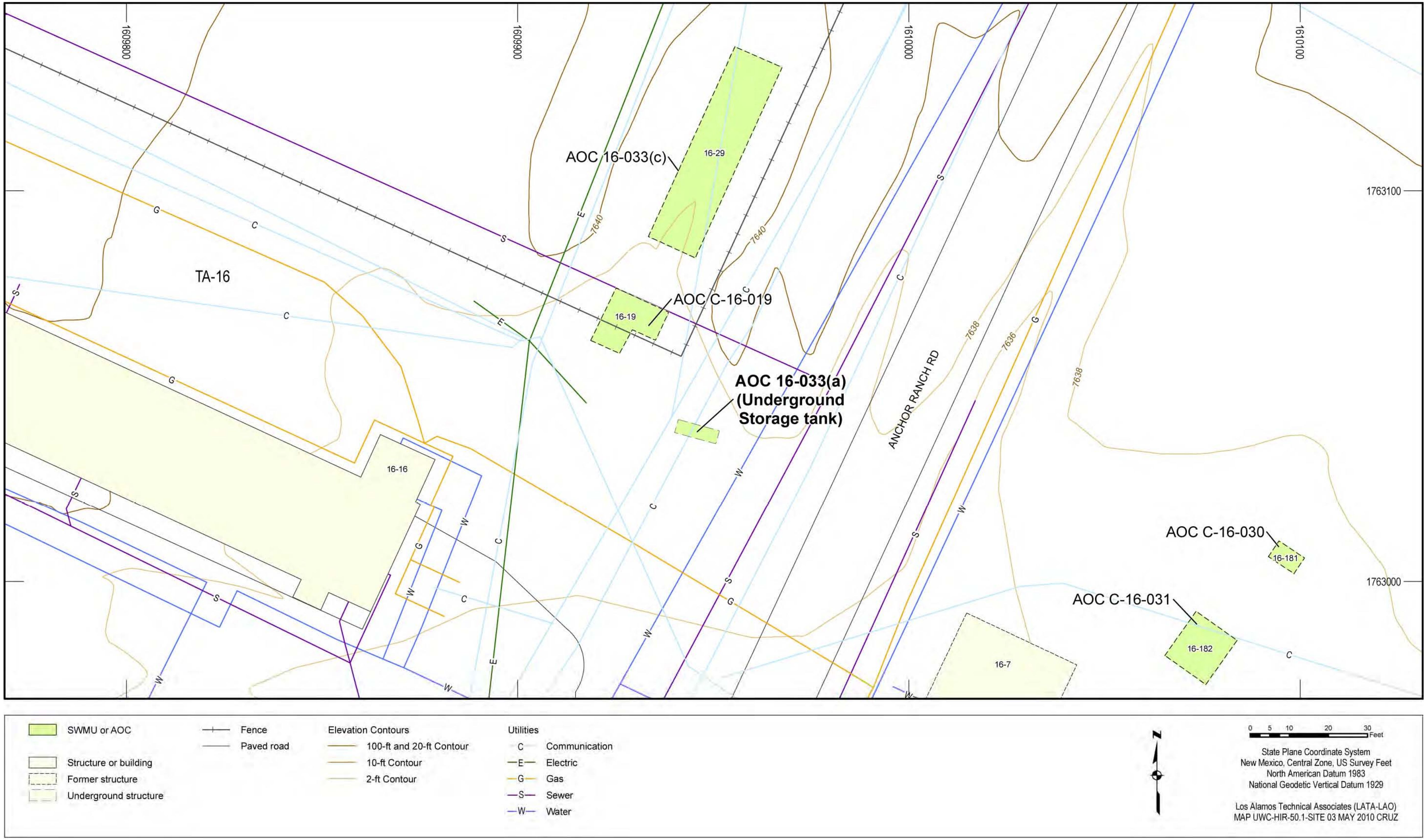


Figure 5.59-1 Site features of AOC 16-033(a)

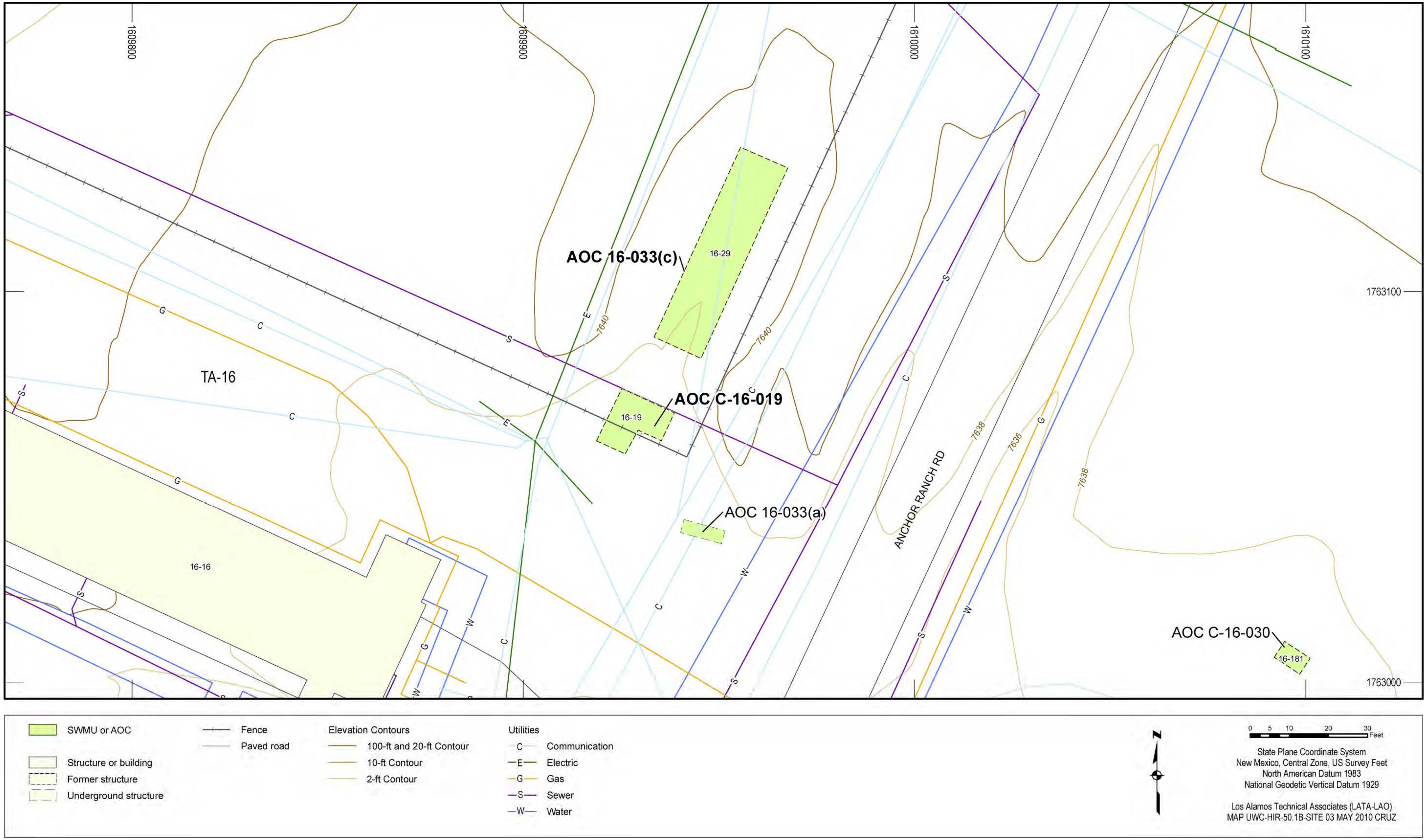


Figure 5.61-1 Site features of AOC 16-033(c) and AOC C-16-019

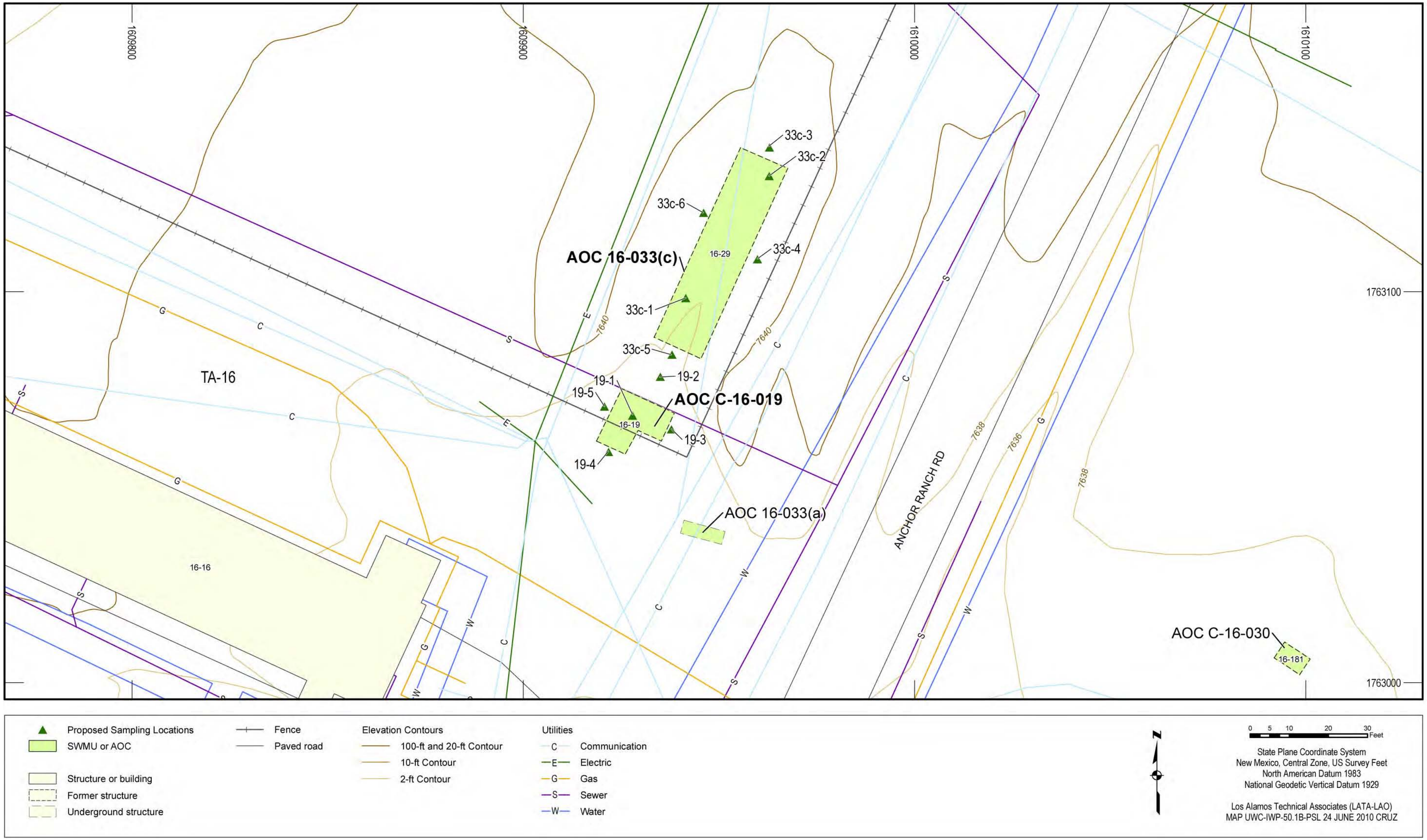


Figure 5.61-2 Proposed sampling locations for AOC 16-033(c) and AOC C-16-019

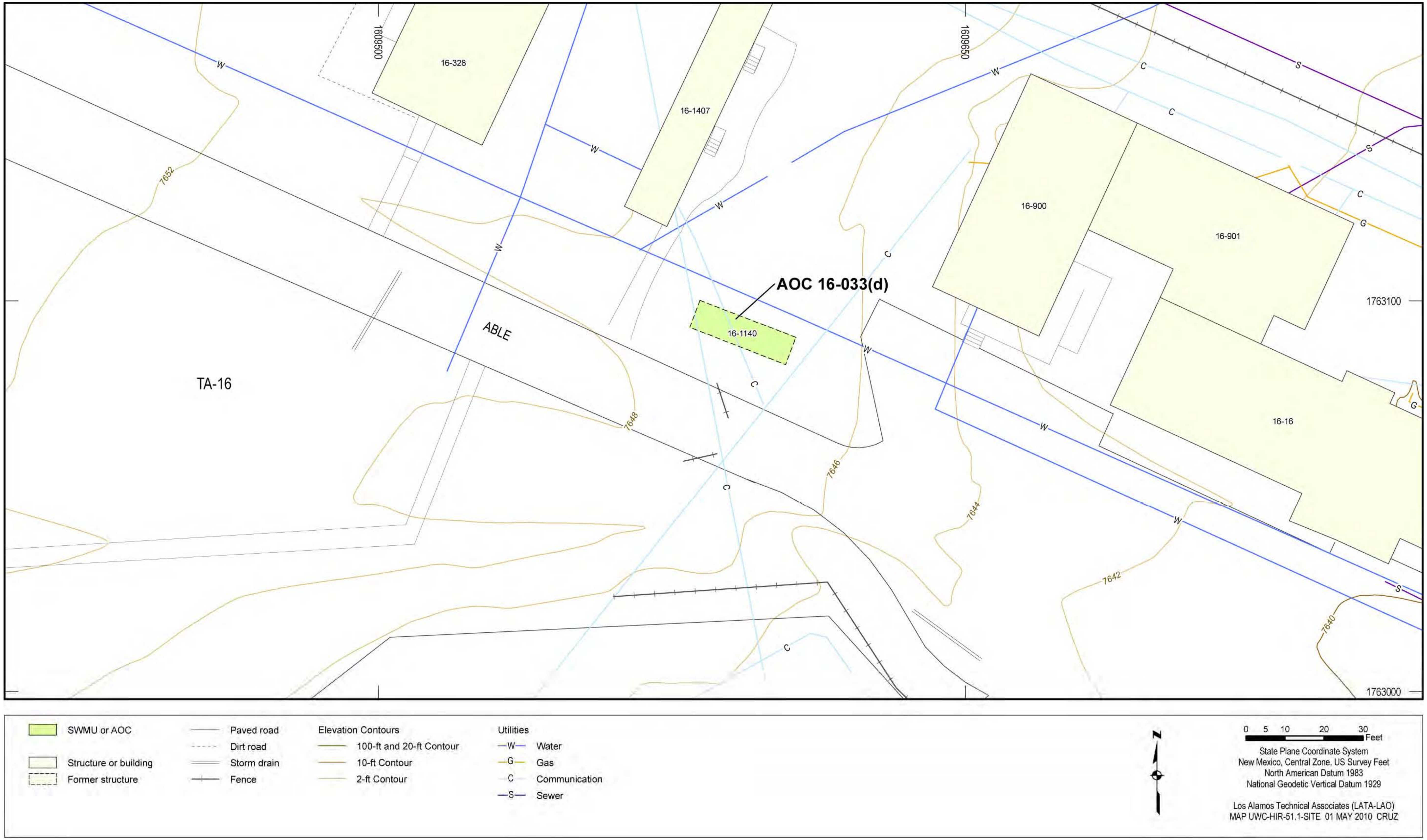


Figure 5.62-1 Site features of AOC 16-033(d)

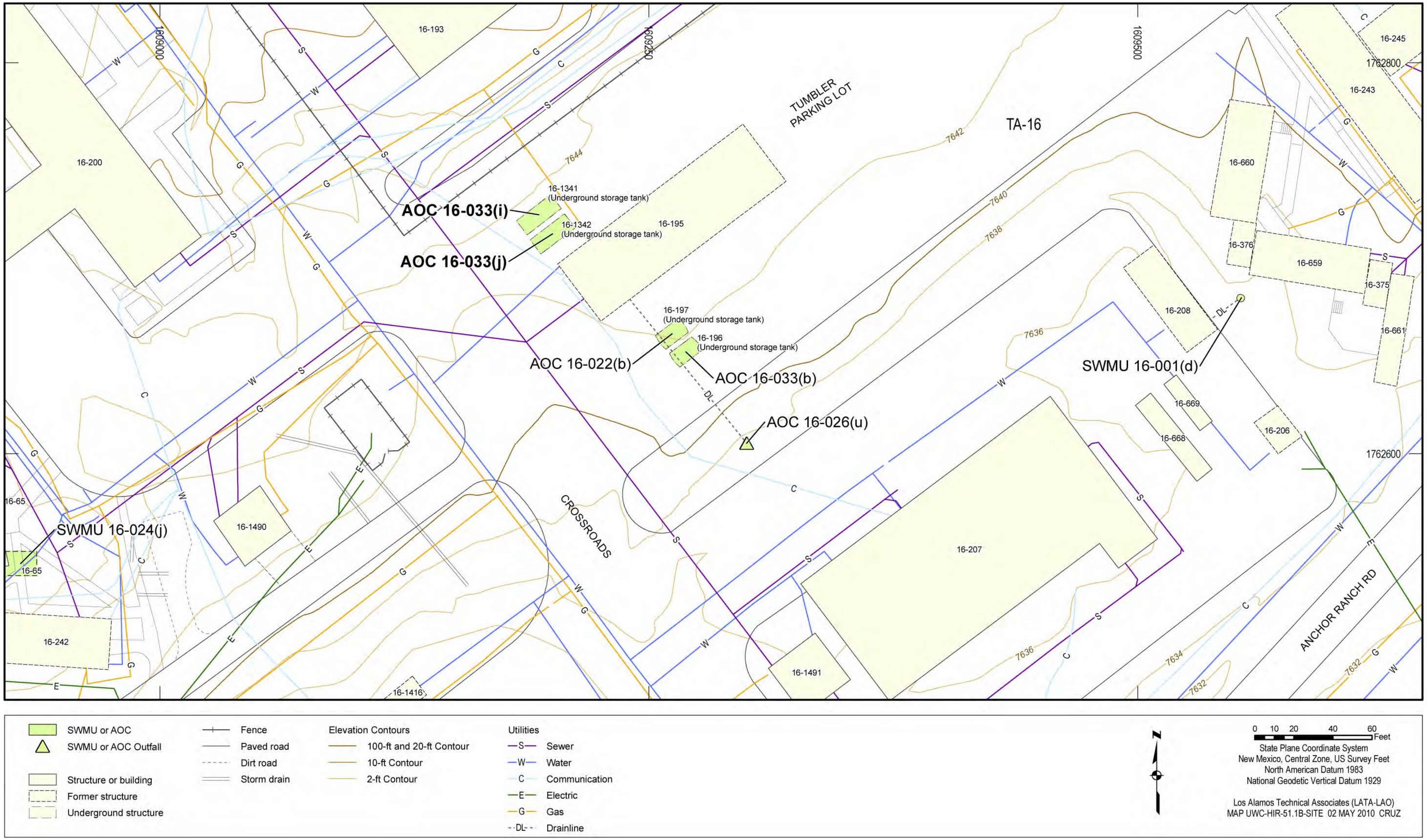


Figure 5.63-1 Site features of AOC 16-033(i) and AOC 16-033(j)

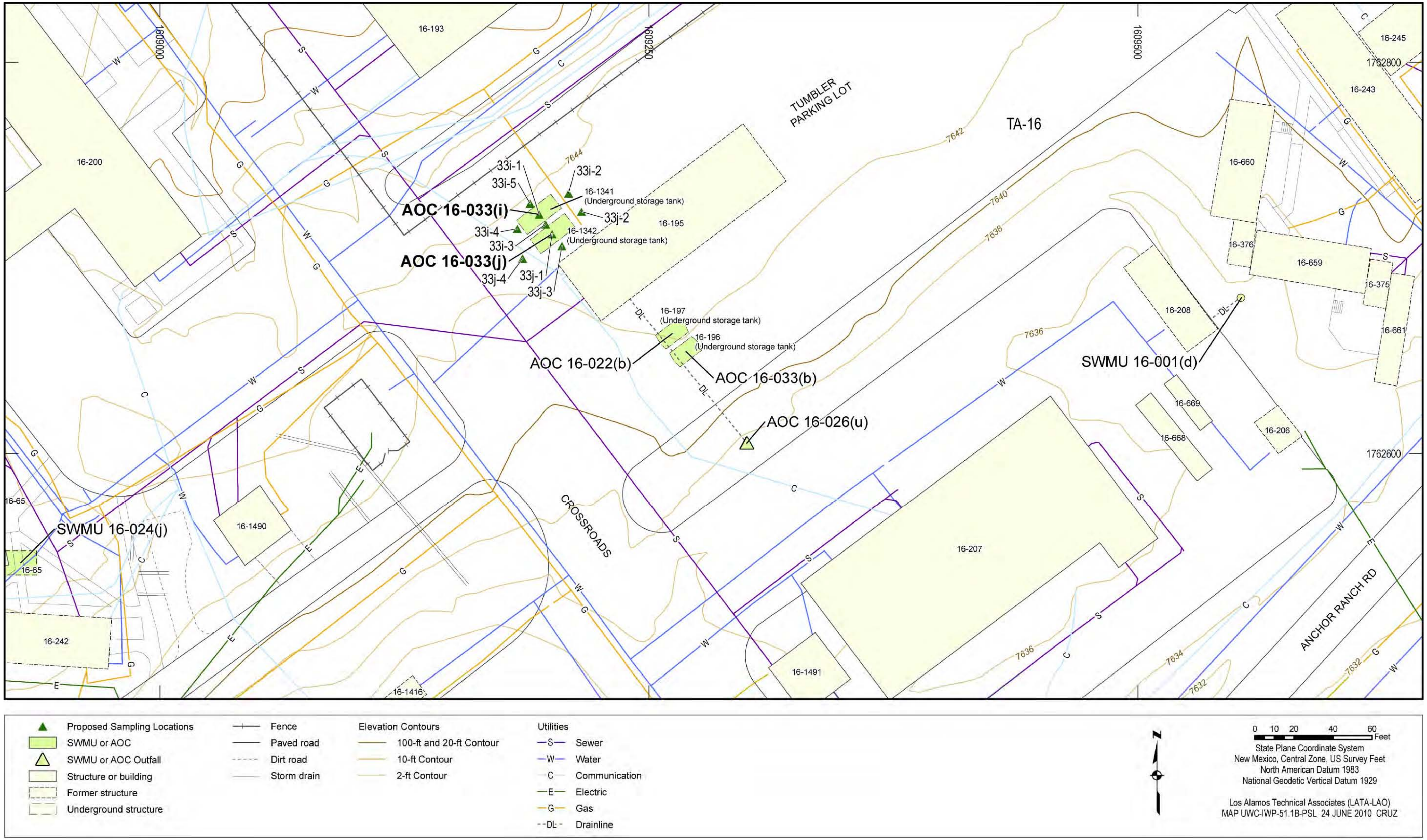


Figure 5.63-2 Proposed sampling locations for AOC 16-033(i) and AOC 16-033(j)

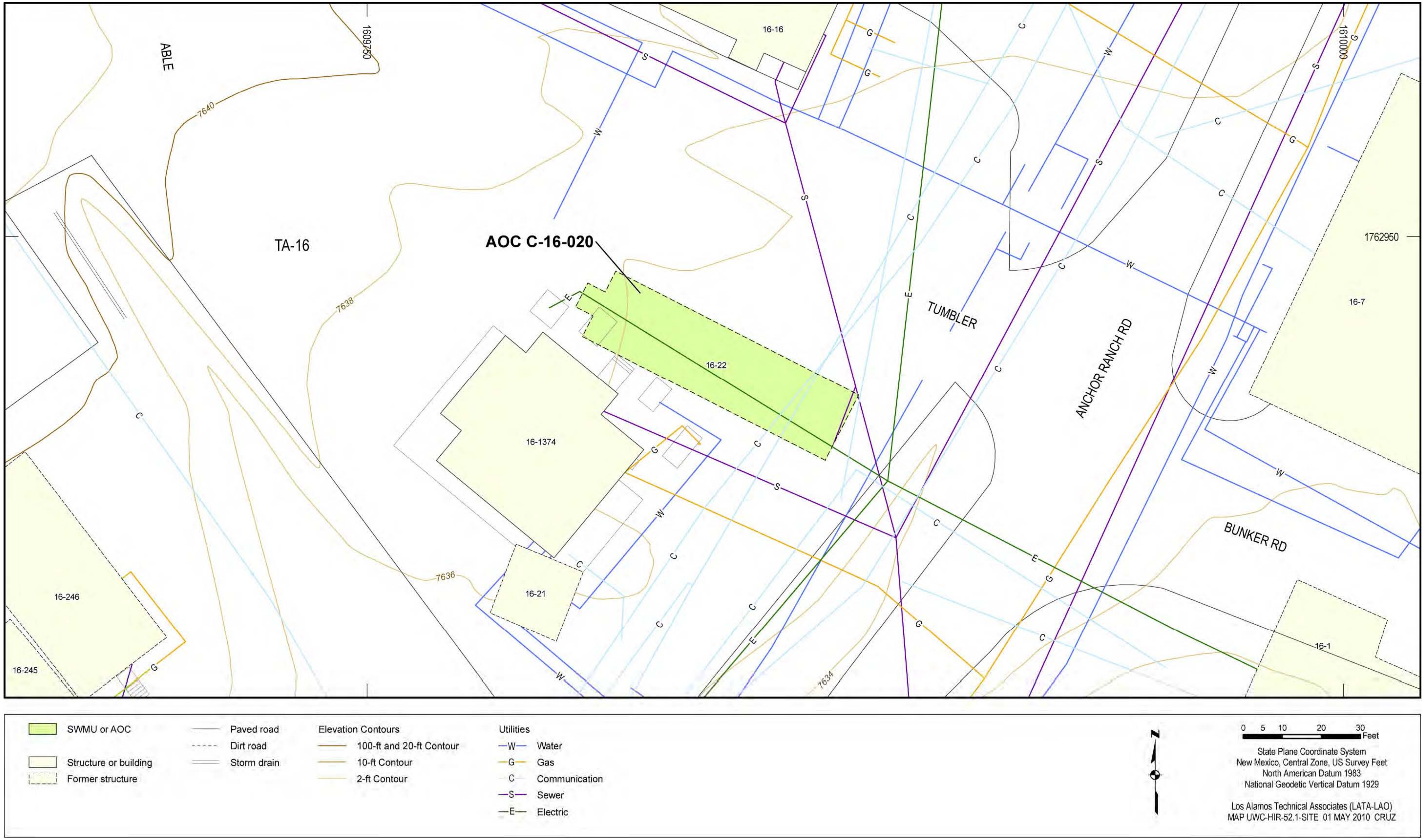


Figure 5.67-1 Site features of AOC C-16-020

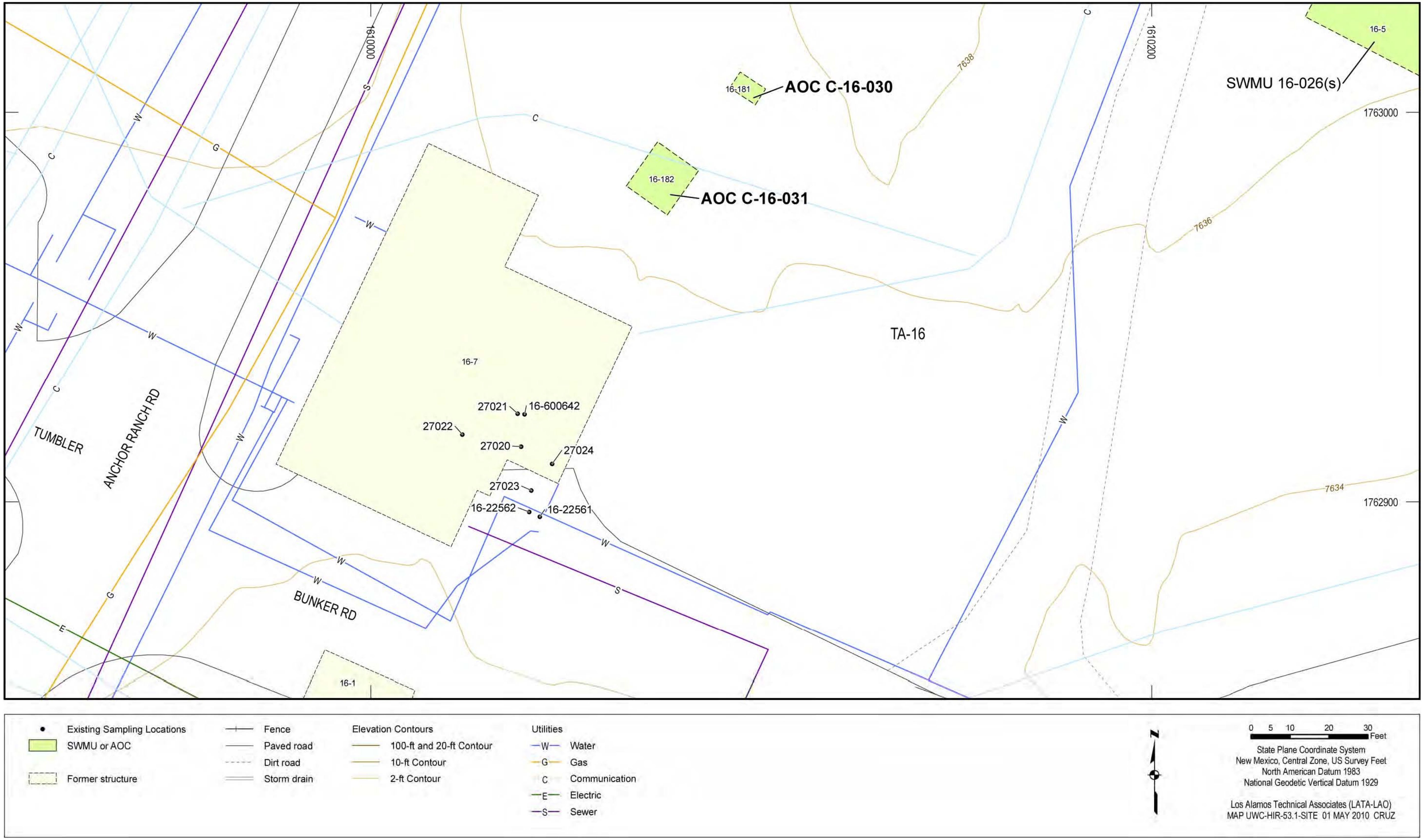


Figure 5.69-1 Site features of AOC C-16-030 and AOC C-16-031

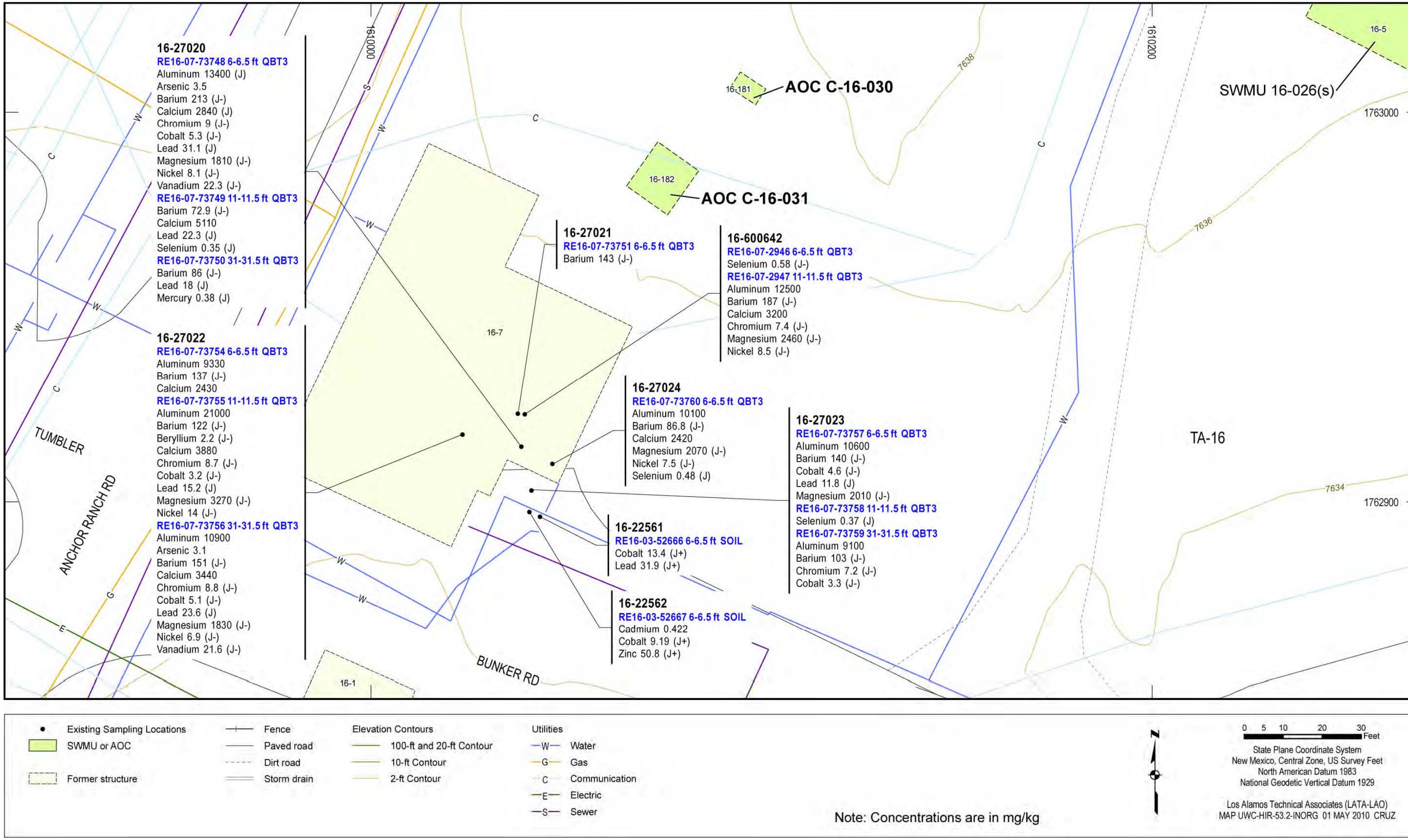


Figure 5.69-2 Inorganic chemicals detected above BVs at AOC C-16-030 and AOC C-16-031

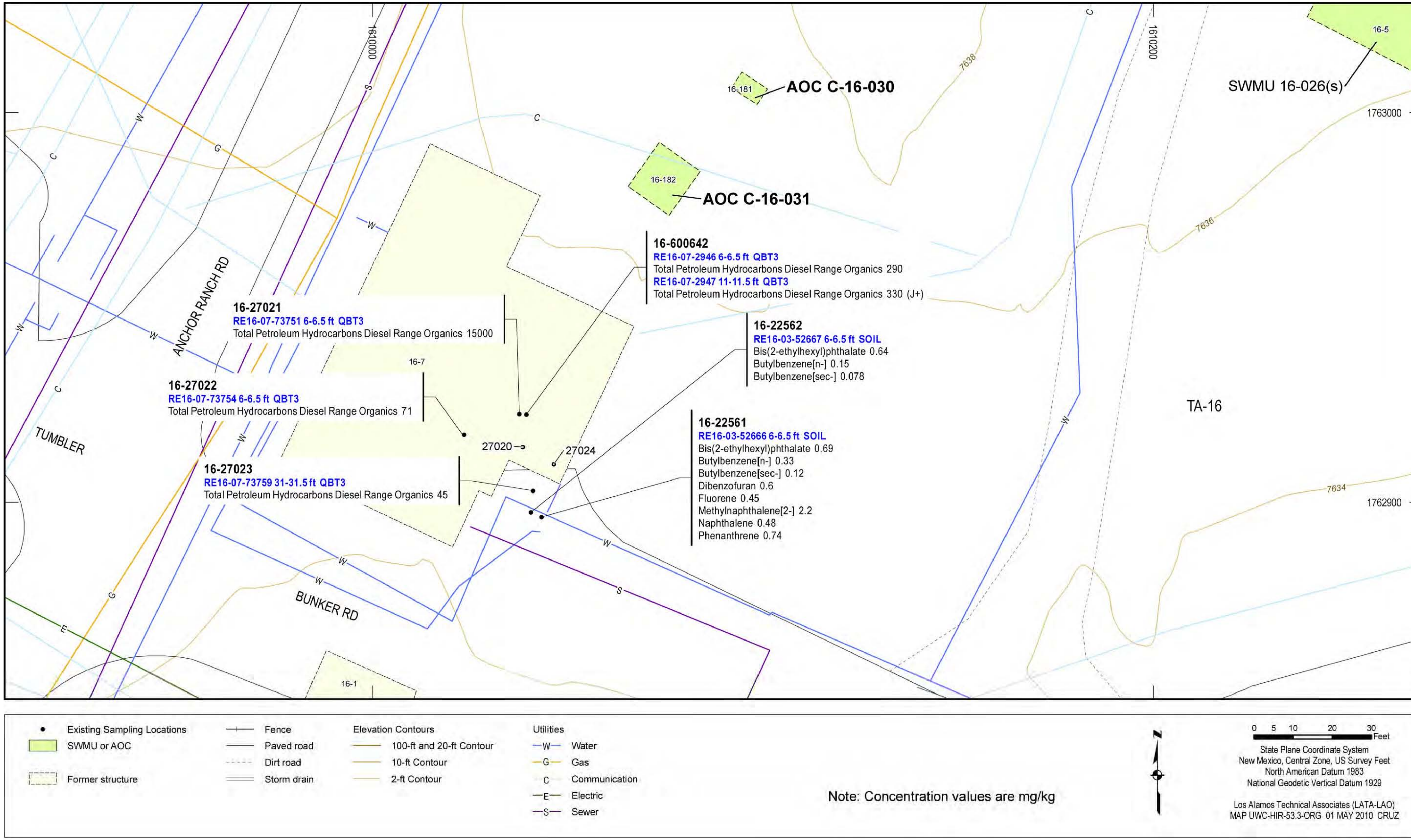


Figure 5.69-3 Organic chemicals detected at AOC C-16-030 and AOC C-16-031

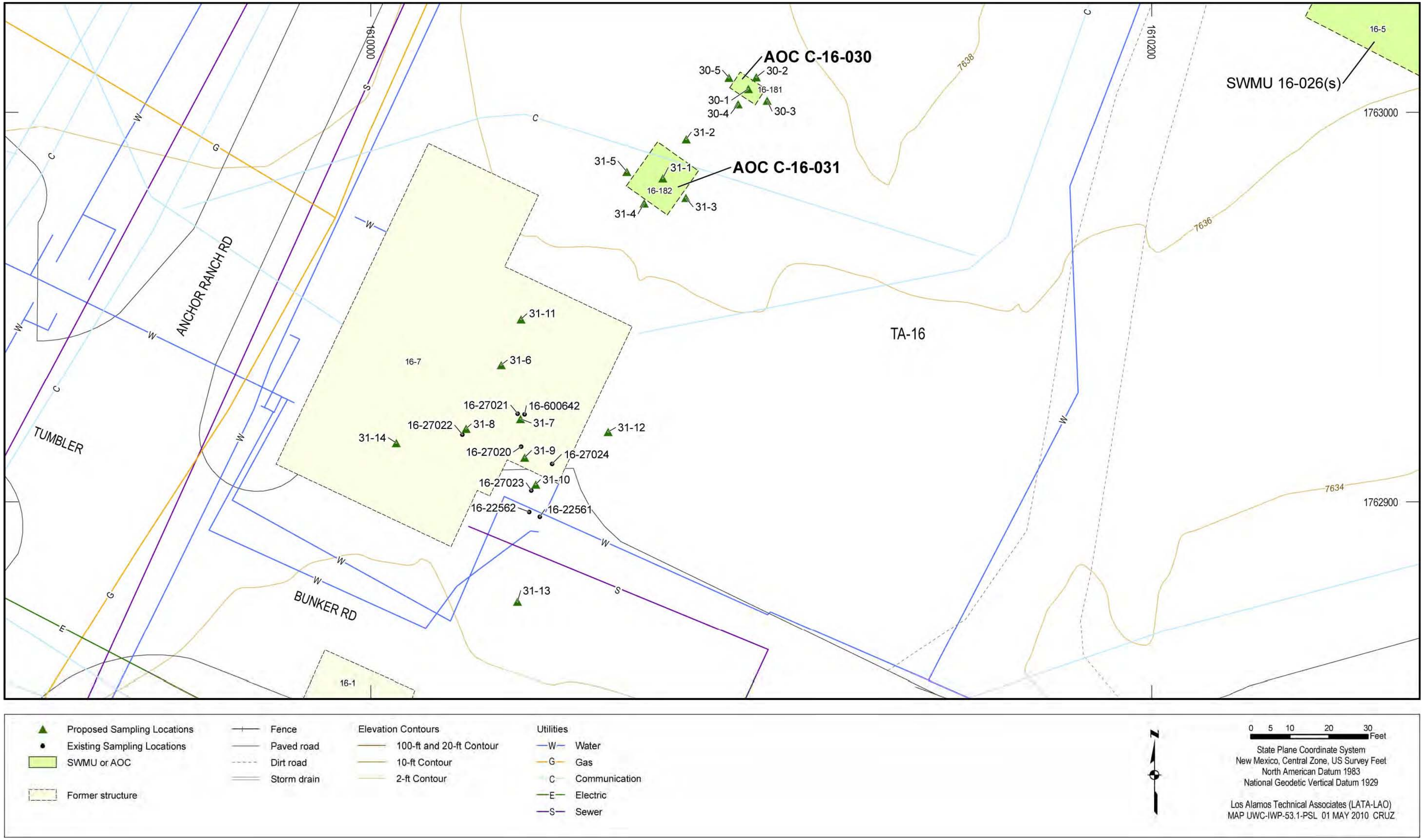


Figure 5.69-4 Proposed sampling locations for AOC C-16-030 and AOC C-16-031

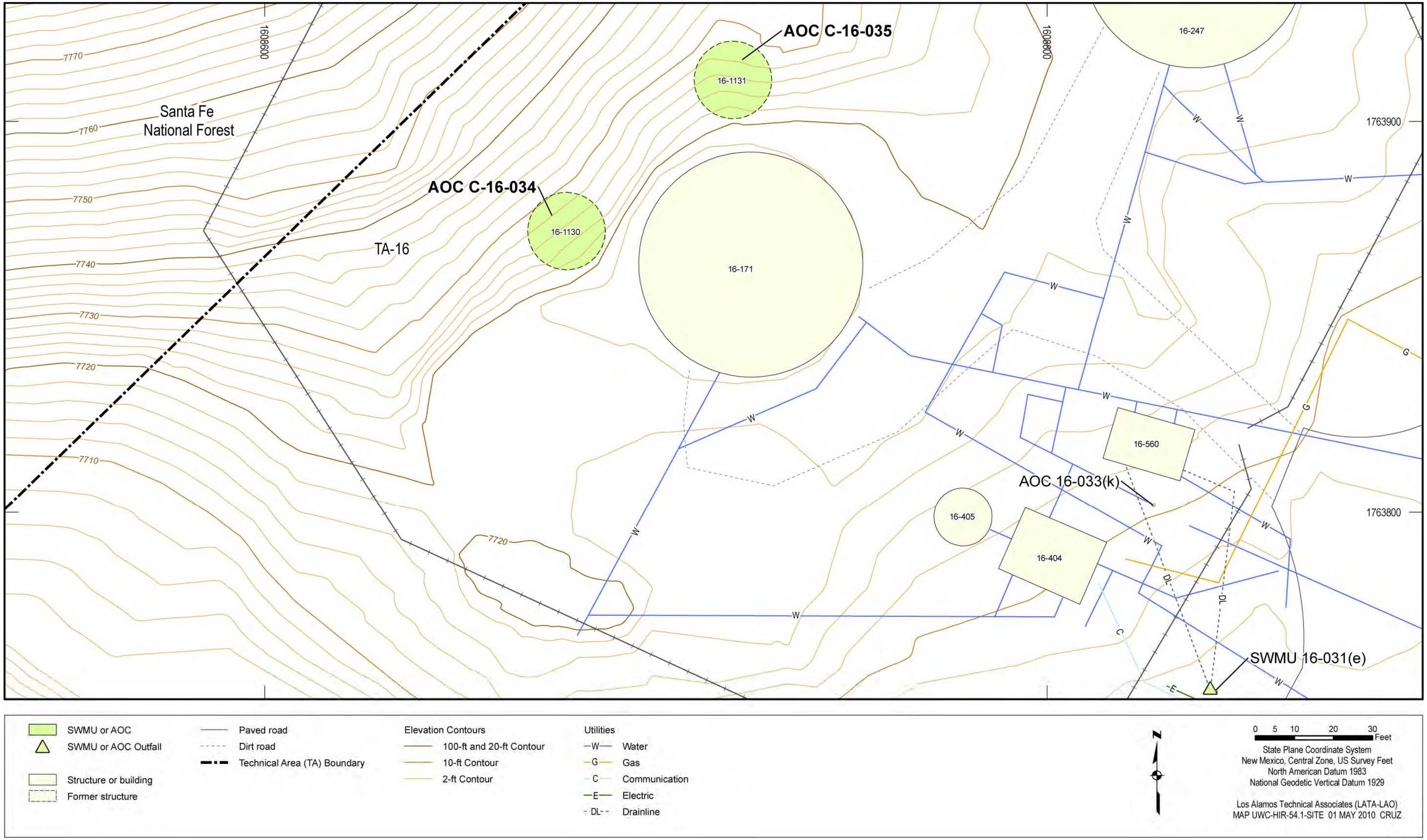


Figure 5.71-1 Site features of AOC C-16-034 and AOC C-16-035

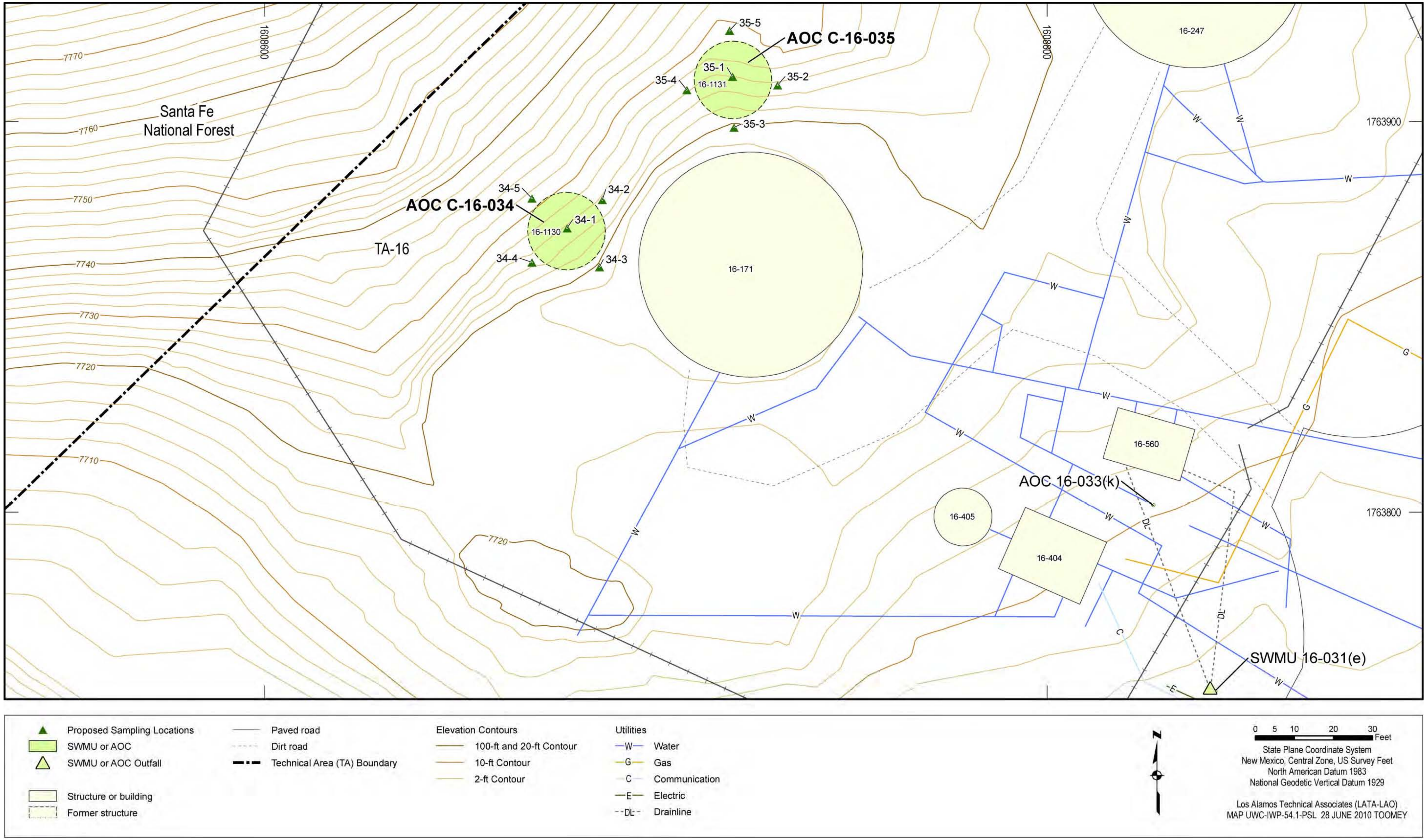


Figure 5.71-2 Proposed sampling locations for AOC C-16-034 and AOC C-16-035

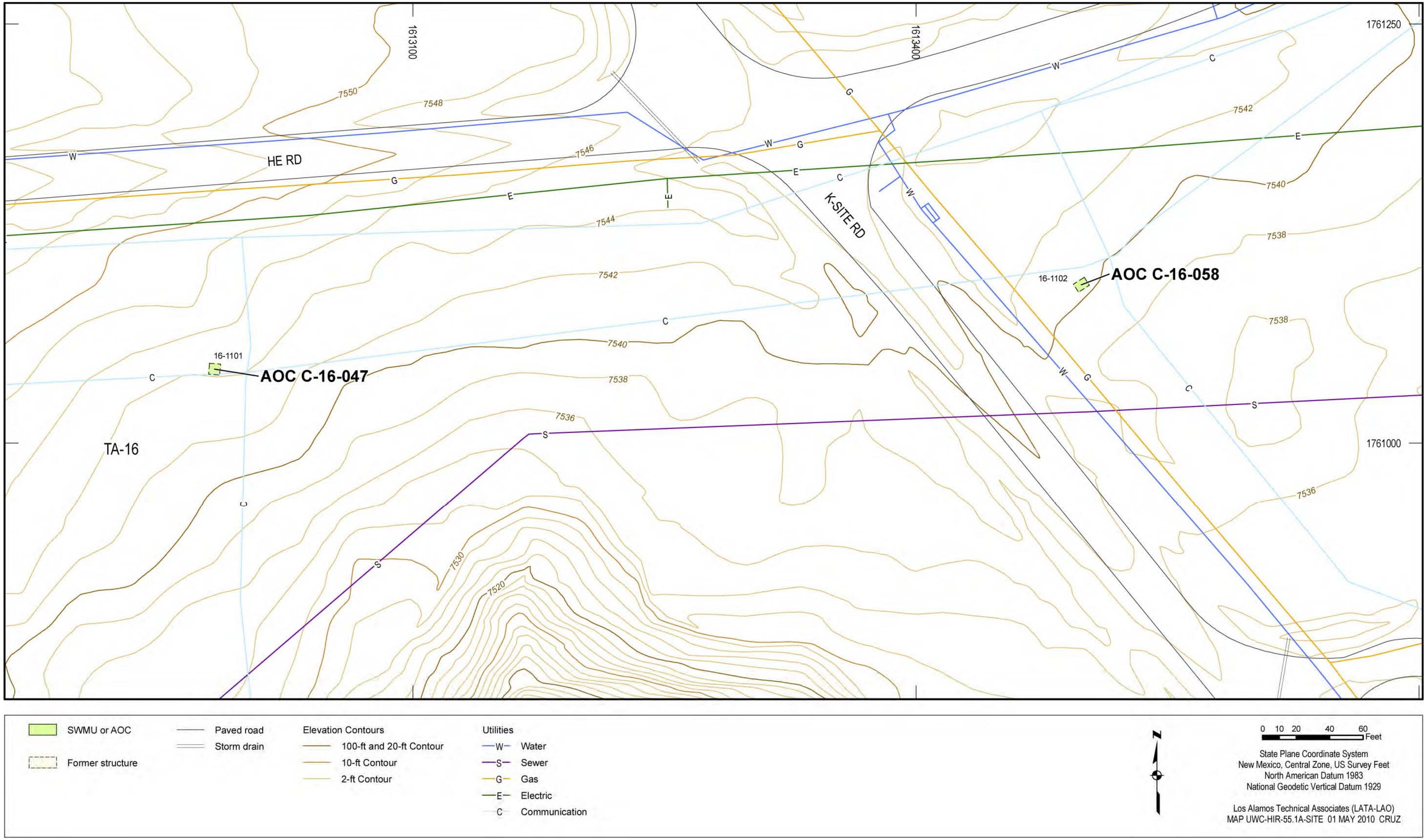


Figure 5.74-1 Site features of AOC C-16-047 and AOC C-16-058

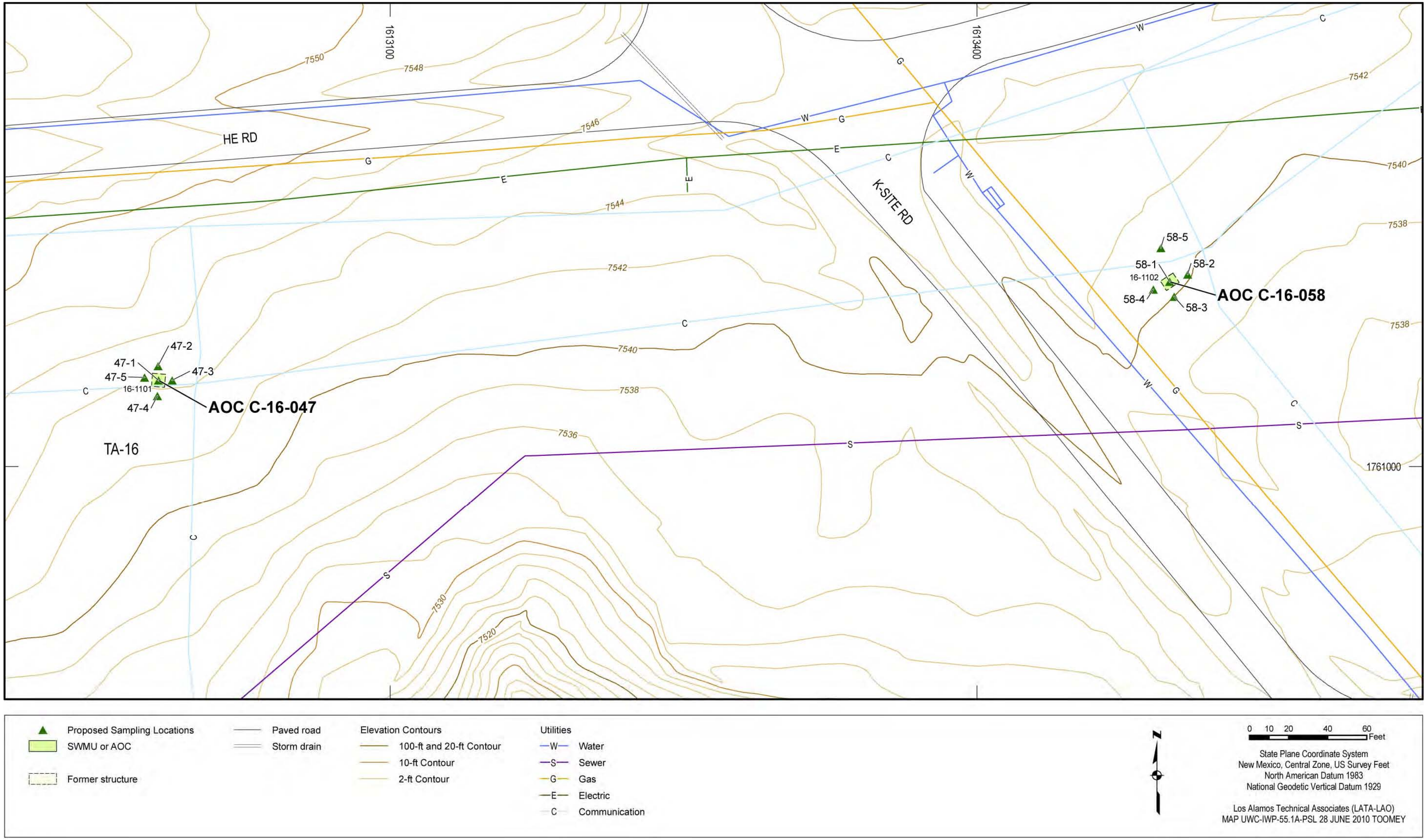


Figure 5.74-2 Proposed sampling locations for AOC C-16-047 and AOC C-16-058

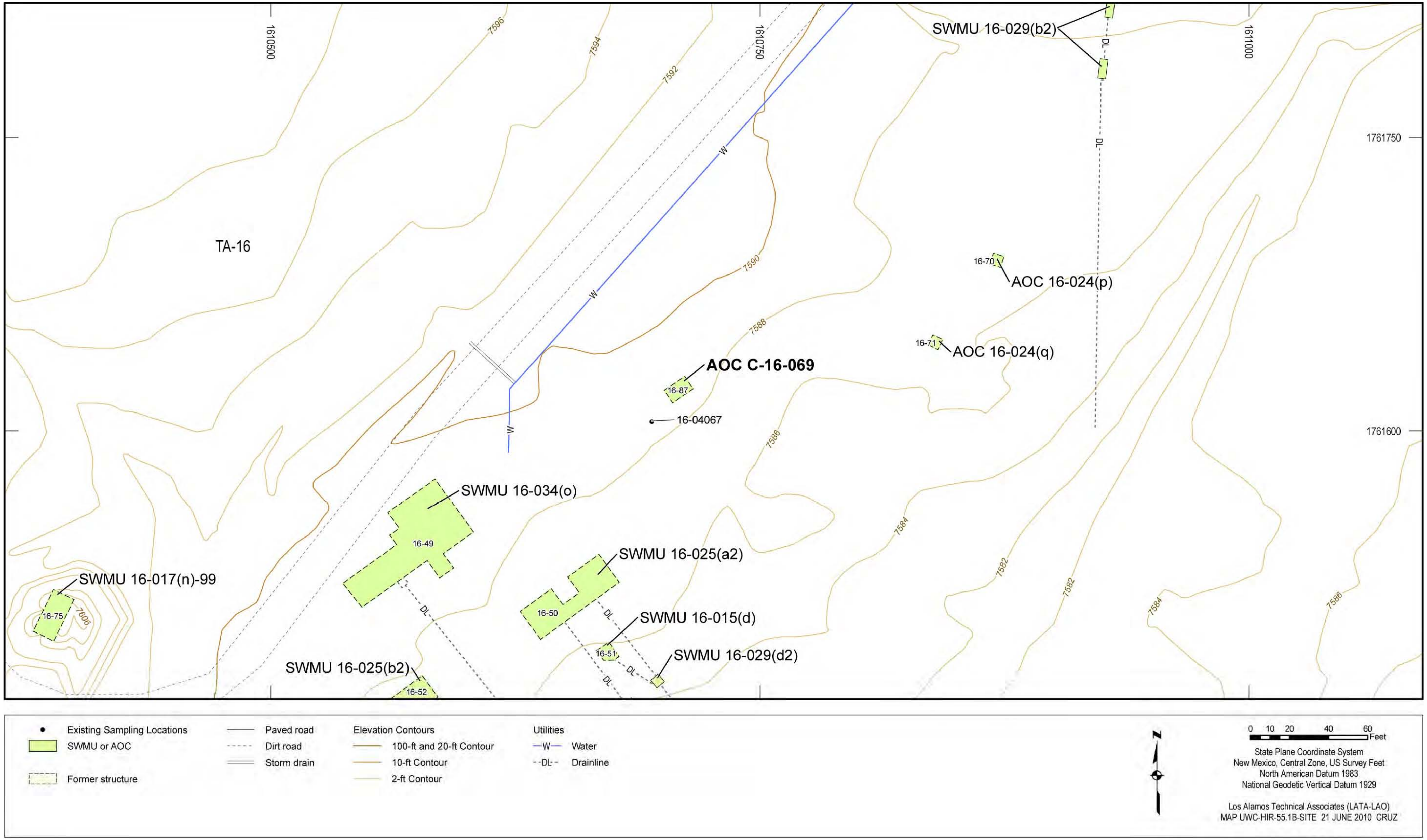


Figure 5.76-1 Site features of AOC C-16-069

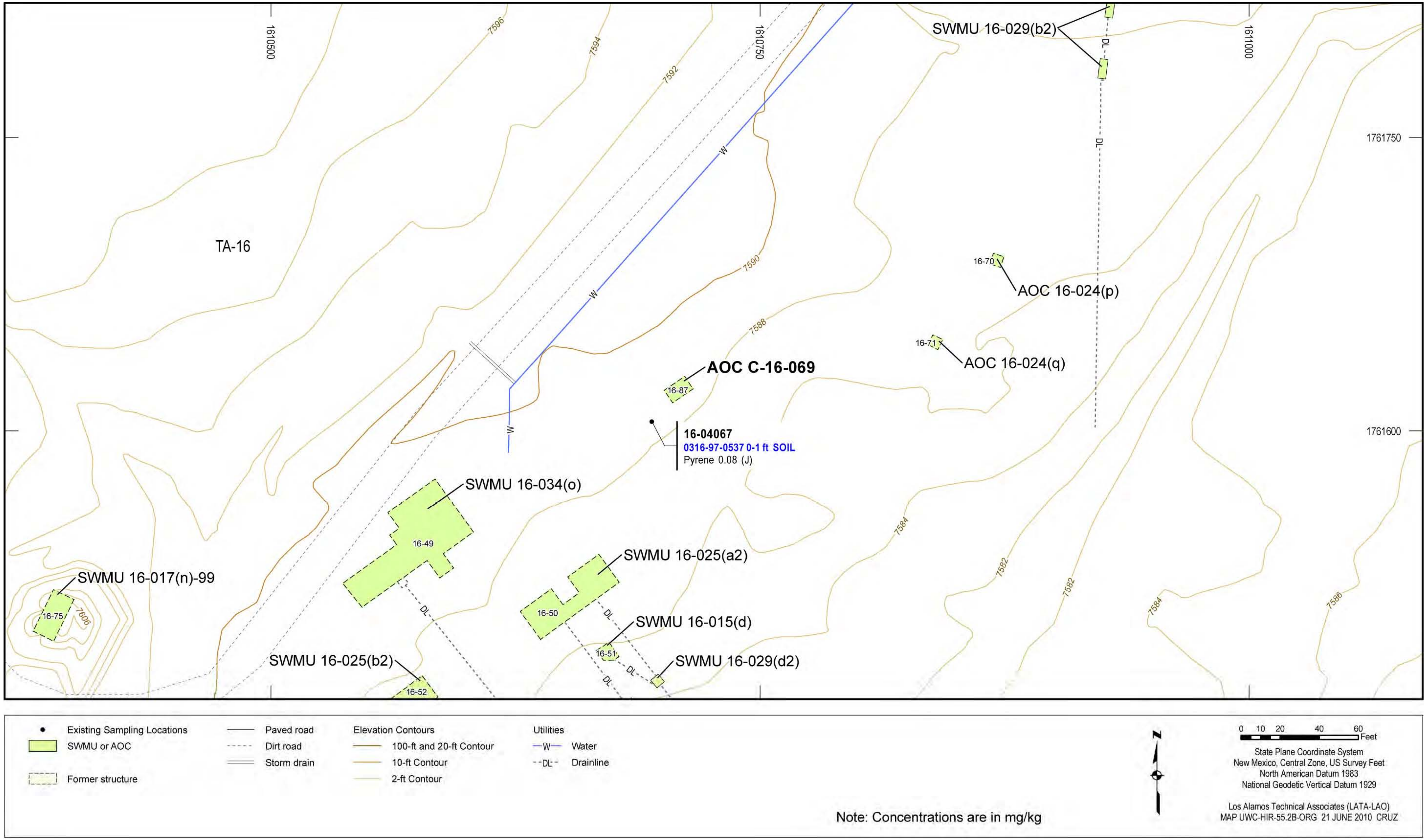


Figure 5.76-2 Organic chemicals detected at AOC C-16-069

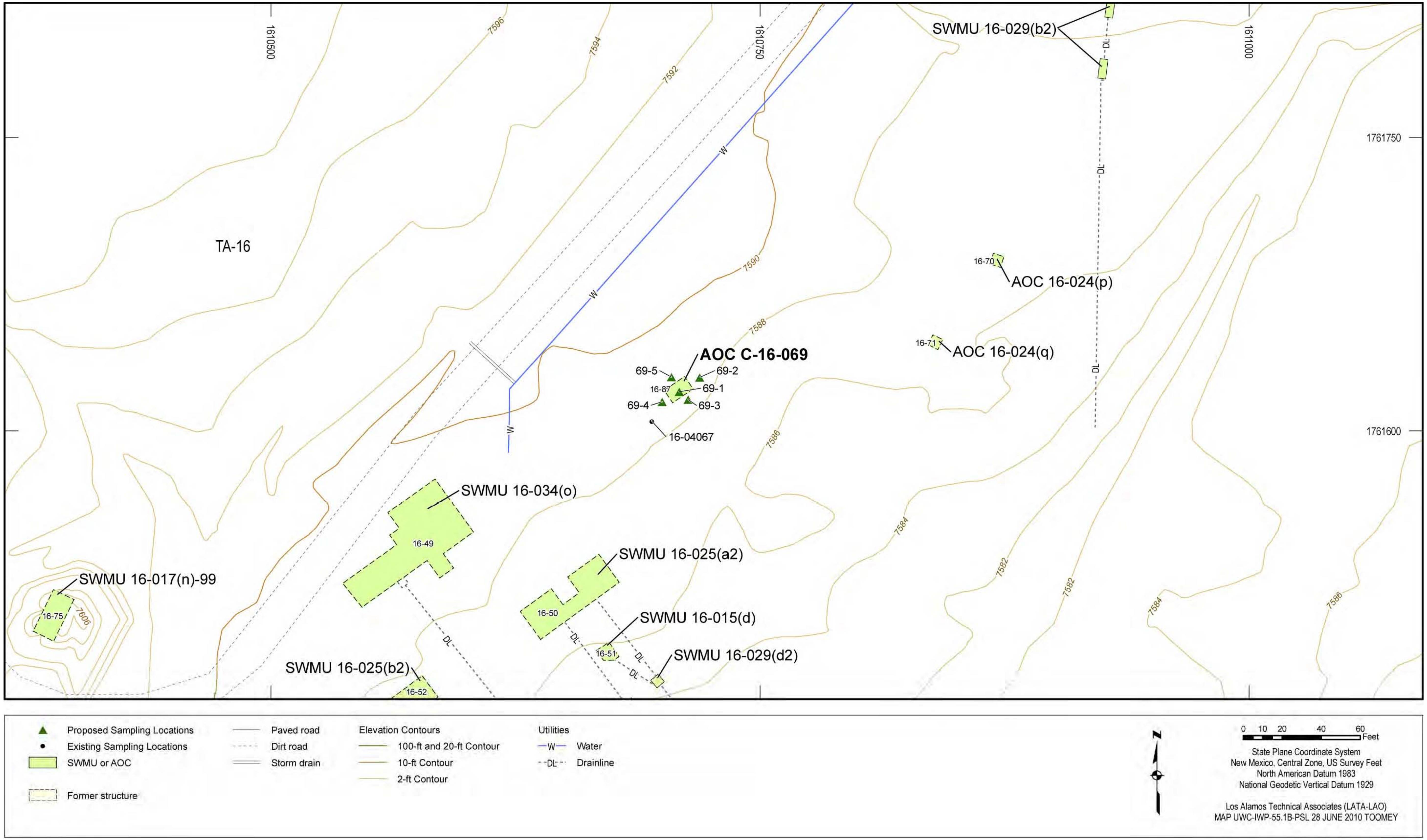


Figure 5.76-3 Proposed sampling locations for AOC C-16-069

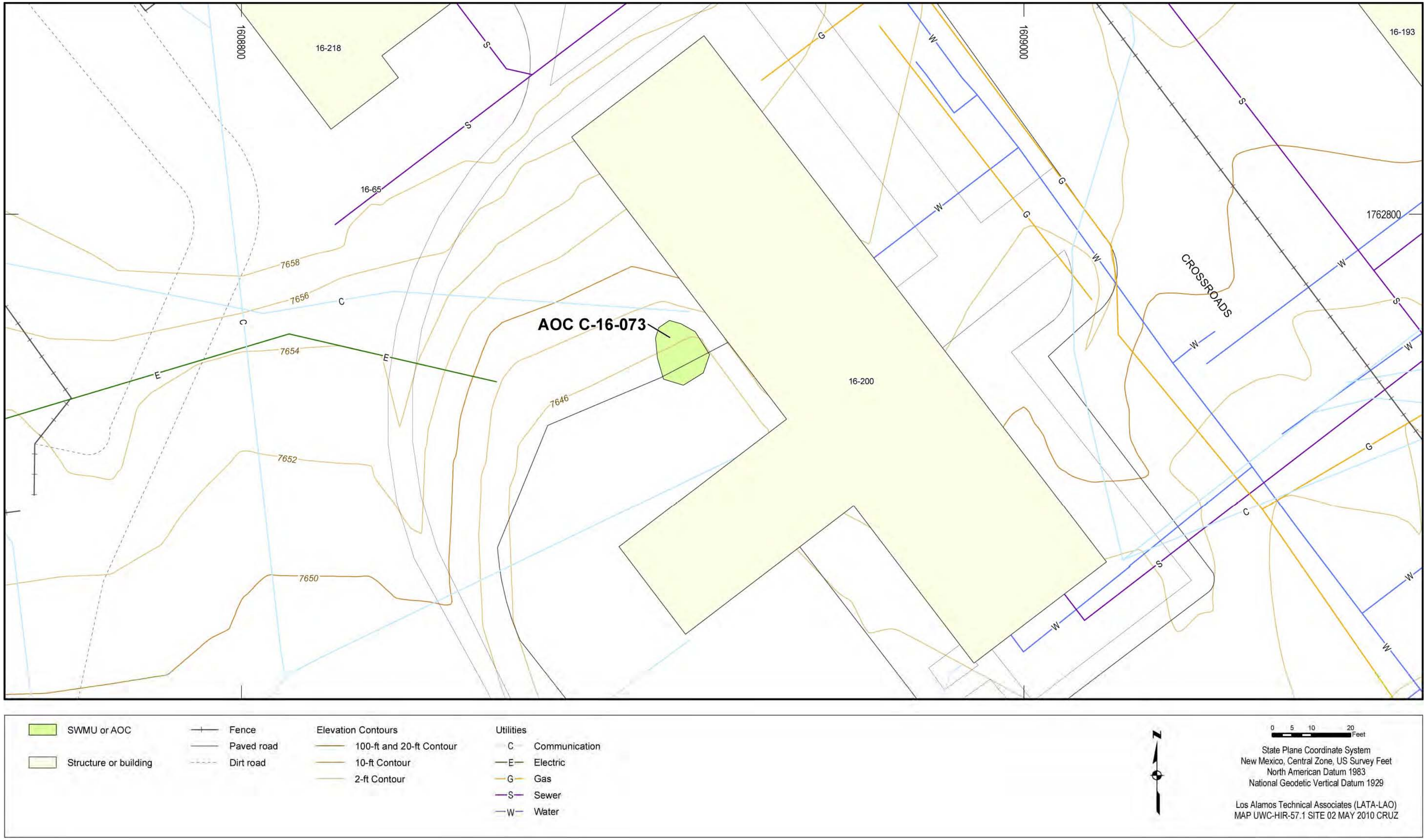


Figure 5.78-1 Site features of AOC C-16-073

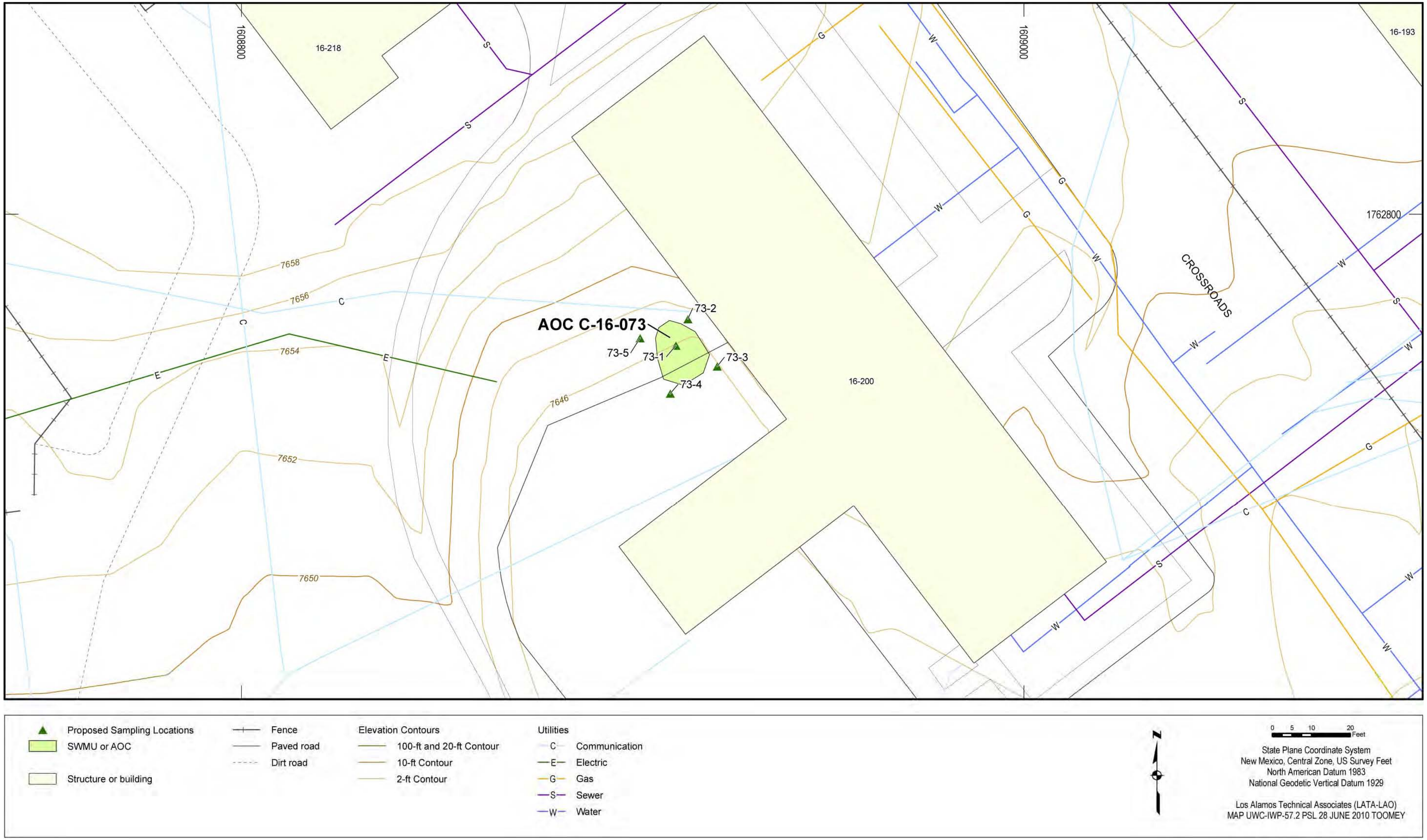


Figure 5.78-2 Proposed sampling locations for AOC C-16-073

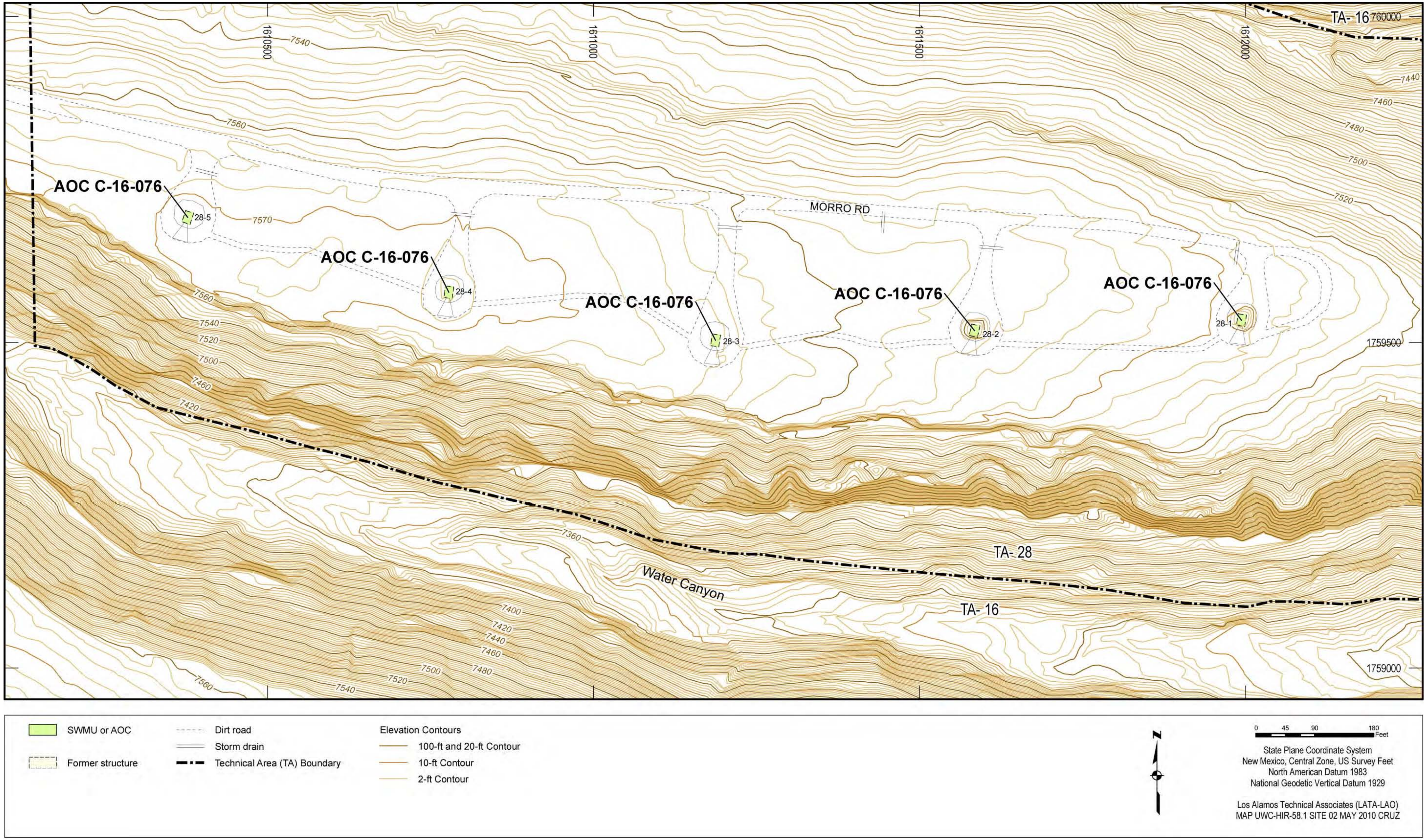


Figure 5.79-1 Site features of AOC C-16-076

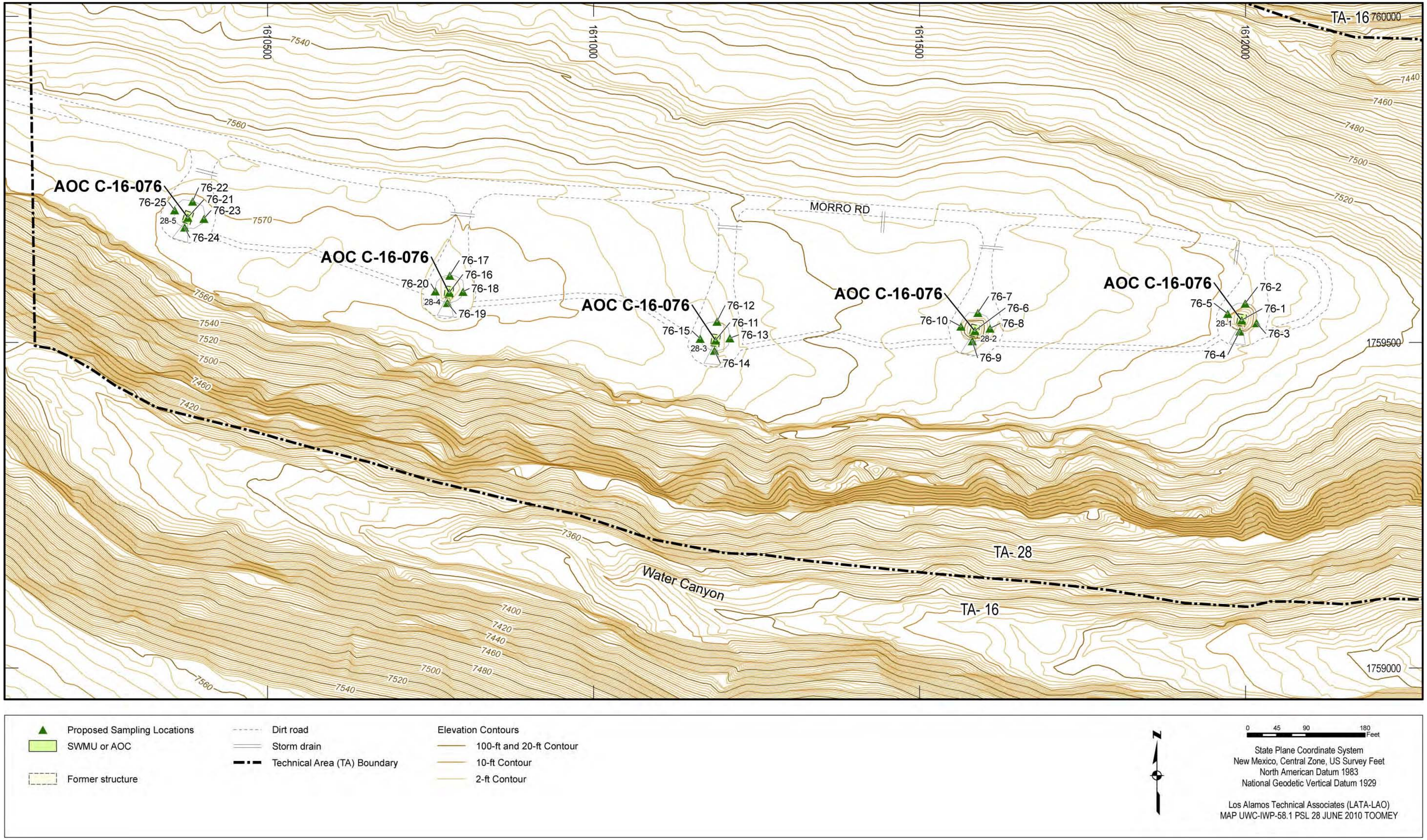


Figure 5.79-2 Proposed sampling locations for AOC C-16-076

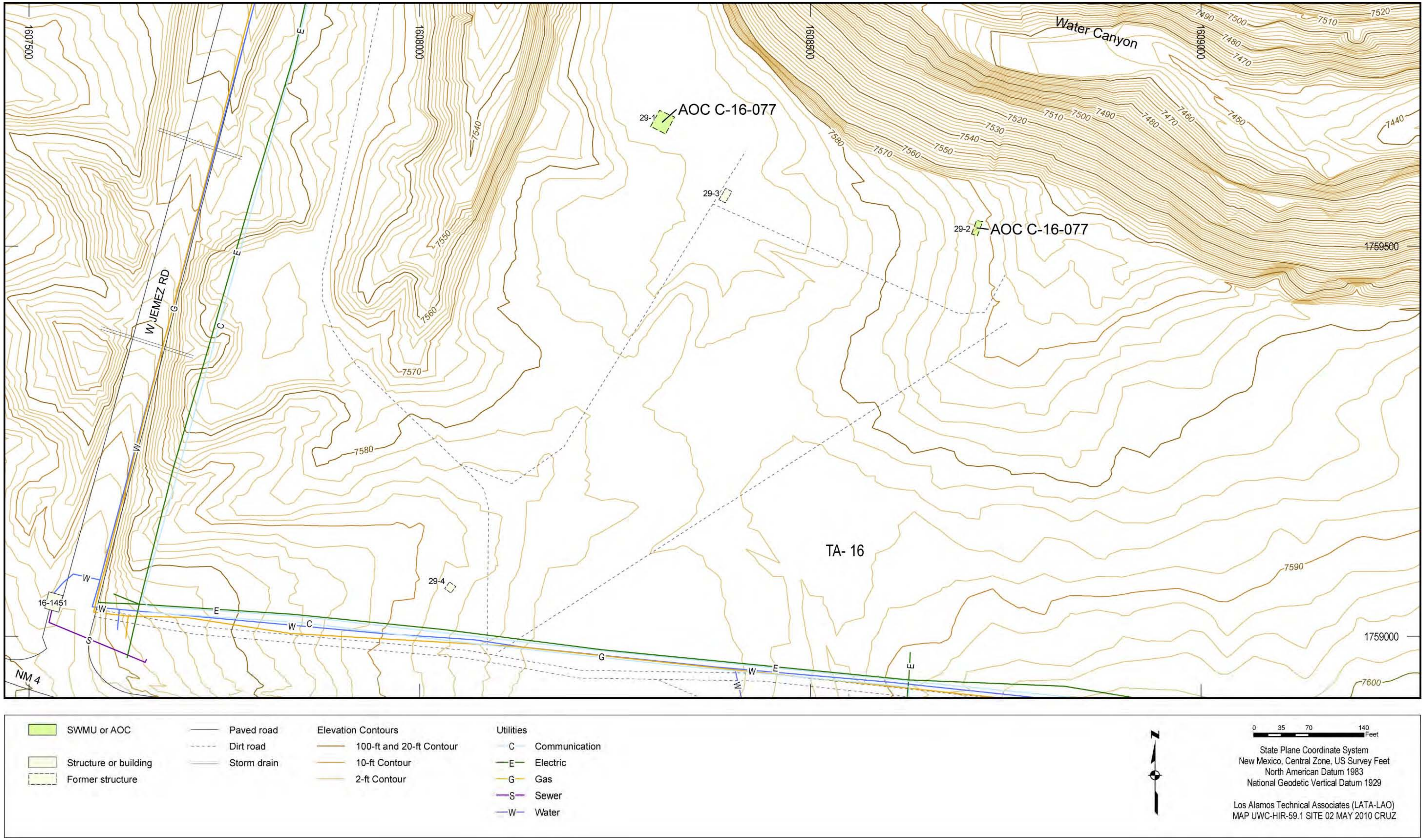


Figure 5.80-1 Site features of AOC C-16-077

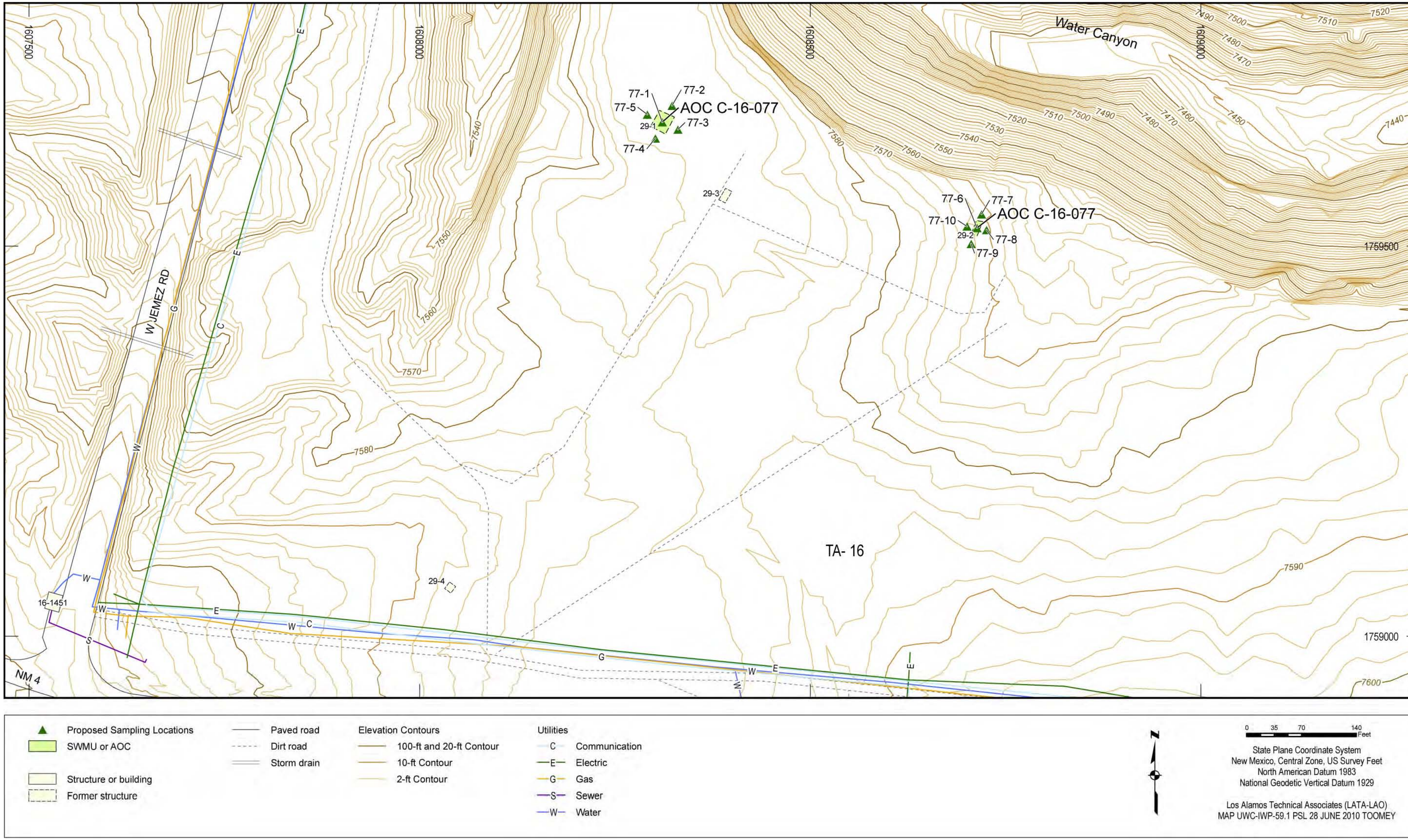


Figure 5.80-2 Proposed sampling locations for AOC C-16-077

Table 1.1-1
SWMUs and AOCs within the Upper Water Canyon Aggregate Area

Consolidated Unit	Site ID	Brief Description	Site Status	Work Plan Section / Reference
TA-11				
	SWMU 11-001(c)	Firing Pit	In progress	Work plan section 4.1
	AOC 11-012(a)	Potential Soil Contamination Associated with Former Magazine 11-7	In progress	Work plan section 4.2
	AOC 11-012(b)	Potential Soil Contamination Associated with Former Magazine 11-8	In progress	Work plan section 4.3
TA-16				
	SWMU 16-001(d)	Dry Well	In progress	Work plan section 5.1
	SWMU 16-003(a)	Sump and Outfall	In progress	Work plan section 5.2
	SWMU 16-003(b)	Sump and Outfall	In progress	Work plan section 5.3
16-003(c)-99	SWMU 16-003(c)	Sump	In progress	Work plan section 5.4.1
	SWMU 16-026(v)	Outfall	In progress	Work plan section 5.4.2
16-003(l)-99	SWMU 16-003(l)	Sumps and Outfalls	In progress	Work plan section 5.5.1
	SWMU 16-030(h)	Outfalls	In progress	Work plan section 5.5.2
16-003(m)-99	SWMU 16-003(m)	Sump	In progress	Work plan section 5.6.1
	SWMU 16-006(d)	Septic System	In progress	Work plan section 5.6.2
	AOC 16-030(g)	Outfall	In progress	Work plan section 5.6.3
	AOC 16-003(q)	Sump	In progress	Work plan section 5.7
	SWMU 16-005(a)	Former Septic System	In progress	Work plan section 5.8
	SWMU 16-005(h)	Former Septic System	In progress	Work plan section 5.9
	SWMU 16-005(k)	Former Septic System	In progress	Work plan section 5.10
	SWMU 16-005(l)	Former Grease Trap	In progress	Work plan section 5.11
	SWMU 16-005(o)	Septic Tank	Removed from the Laboratory’s Hazardous Waste Facility Permit, 12/23/98	NMED 1998, 063042
16-006(c)-00	SWMU 16-006(c)	Septic System	In progress	Work plan section 5.12.1
	SWMU 16-026(a)	Outfalls	In progress	Work plan section 5.12.2
	SWMU 16-006(f)	Septic System	Removed from the Laboratory’s Hazardous Waste Facility Permit, 12/23/98	NMED 1998, 063042
	SWMU 16-006(i)	Septic tank	Removed from the Laboratory’s Hazardous Waste Facility Permit, 12/23/98	NMED 1998, 063042
	SWMU 16-012(s)	Storage Area/Rest house	Removed from the Laboratory’s Hazardous Waste Facility Permit, 12/23/98	NMED 1998, 063042

Table 1.1-1 (continued)

Consolidated Unit	Site ID	Brief Description	Site Status	Work Plan Section / Reference
	SWMU 16-012(t)	Satellite Accumulation Area	Removed from the Laboratory's Hazardous Waste Facility Permit, 12/23/98	NMED 1998, 063042
	SWMU 16-012(u)	Satellite Accumulation Area	Removed from the Laboratory's Hazardous Waste Facility Permit, 12/23/98	NMED 1998, 063042
	SWMU 16-012(v)	Storage Area/Rest house	Removed from the Laboratory's Hazardous Waste Facility Permit, 12/23/98	NMED 1998, 063042
	SWMU 16-012(w)	Storage Area/Rest house	Removed from the Laboratory's Hazardous Waste Facility Permit, 12/23/98	NMED 1998, 063042
	SWMU 16-012(x)	Satellite Accumulation Area	Removed from the Laboratory's Hazardous Waste Facility Permit, 12/23/98	NMED 1998, 063042
	SWMU 16-012(y)	Storage Area/Rest house	Removed from the Laboratory's Hazardous Waste Facility Permit, 12/23/98	NMED 1998, 063042
	SWMU 16-015(a)	Former Building 16-15	In progress	Work plan section 5.13
	SWMU 16-015(b)	Former Building 16-18	In progress	Work plan section 5.14
	SWMU 16-016(a)	Landfill	In progress	Work plan section 5.15
	SWMU 16-016(e)	Surface Disposal Area	In progress	Work plan section 5.16
	AOC 16-016(f)	Surface Disposal Area	In progress	Work plan section 5.17
	SWMU 16-016(g)	Surface Disposal Area	In progress	Work plan section 5.18
	SWMU 16-017(j)-99	Former Magazine 16-63	In progress	Work plan section 5.19
	SWMU 16-017(k)-99	Former Magazine 16-78	In progress	Work plan section 5.20
	SWMU 16-017(l)-99	Former Magazine 16-77	In progress	Work plan section 5.21
	SWMU 16-017(m)-99	Former Magazine 16-76	In progress	Work plan section 5.22
	SWMU 16-017(n)-99	Former Magazine 16-75	In progress	Work plan section 5.23
	SWMU 16-017(o)-99	Former Magazine 16-59	In progress	Work plan section 5.24
	AOC 16-021(b)	Decommissioned Hydraulic Press and Associated Drain	In progress	Work plan section 5.25
	AOC 16-022(a)	Underground Storage Tank (removed)	In progress	Work plan section 5.26
	AOC 16-022(b)	Underground Storage Tank (removed)	In progress	Work plan section 5.27
	AOC 16-024(i)	Potential Soil Contamination Associated with Former Magazine 16-64	In progress	Work plan section 5.28

Table 1.1-1 (continued)

Consolidated Unit	Site ID	Brief Description	Site Status	Work Plan Section / Reference
	AOC 16-024(j)	Potential Soil Contamination Associated with Former Magazine 16-65	In progress	Work plan section 5.29
	AOC 16-024(k)	Potential Soil Contamination Associated with Former Magazine 16-57	In progress	Work plan section 5.30
	AOC 16-024(l)	Potential Soil Contamination Associated with Former Magazine 16-72	In progress	Work plan section 5.31
	AOC 16-024(o)	Potential Soil Contamination Associated with Former Magazine 16-67	In progress	Work plan section 5.32
	AOC 16-024(p)	Potential Soil Contamination Associated with Former Magazine 16-70	In progress	Work plan section 5.33
	AOC 16-024(q)	Potential Soil Contamination Associated with Former Magazine 16-71	In progress	Work plan section 5.34
	AOC 16-024(r)	Potential Soil Contamination Associated with Former Magazine 16-68	In progress	Work plan section 5.35
	AOC 16-024(s)	Potential Soil Contamination Associated with Former Magazine 16-60	In progress	Work plan section 5.36
	AOC 16-024(t)	Potential Soil Contamination Associated with Former Magazine 16-464	In progress	Work plan section 5.37
	SWMU 16-025(c2)	Potential Soil Contamination Associated with Former Building 16-56	In progress	Work plan section 5.38
	SWMU 16-025(g2)	Magazine	Removed from the Laboratory’s Hazardous Waste Facility Permit, 12/23/98	NMED 1998, 063042
	SWMU 16-025(h2)	Potential Soil Contamination Associated with Former Magazine 16-109	Removed from the Laboratory’s Hazardous Waste Facility Permit, 4/22/07	NMED 2007, 095495
	SWMU 16-025(w)	Potential Soil Contamination Associated with Former Building 16-81	In progress	Work plan section 5.39
16-025(y)-99	SWMU 16-025(y)	Potential Soil Contamination Associated with Former HE Grinding Facility 16-55	In progress	Work plan section 5.40.1
	SWMU 16-029(a2)	Sumps (removed) and Outfall	In progress	Work plan section 5.40.2
16-026(b2)-00	SWMU 16-026(b2)	Outfall	In progress	Work plan section 5.41.1
	SWMU 16-028(d)	Outfall	In progress	Work plan section 5.41.2

Table 1.1-1 (continued)

Consolidated Unit	Site ID	Brief Description	Site Status	Work Plan Section / Reference
	SWMU 16-026(a2)	Outfall	Removed from the Laboratory's Hazardous Waste Facility Permit, 4/22/07	NMED 2007, 095495
	SWMU 16-026(c2)	Outfalls	In progress	Work plan section 5.42
	SWMU 16-026(d2)	Outfall	Removed from the Laboratory's Hazardous Waste Facility Permit, 4/22/07	NMED 2007, 095495
	SWMU 16-026(e2)	Outfall	Removed from the Laboratory's Hazardous Waste Facility Permit, 4/22/07	NMED 2007, 095495
	SWMU 16-026(f2)	Outfall	Removed from the Laboratory's Hazardous Waste Facility Permit, 4/22/07	NMED 2007, 095495
16-026(q)-99	SWMU 16-005(d)	Former Septic System	In progress	Work plan section 5.43.1
	SWMU 16-017(h)-99	Former HE Casting Building 16-27	In progress	Work plan section 5.43.2
	SWMU 16-017(x)-99	Former Magazine 16-79	In progress	Work plan section 5.43.3
	SWMU 16-025(k)	Potential Soil Contamination Associated with Former HE Powder Inspection Building 16-25	In progress	Work plan section 5.43.4
	SWMU 16-025(l)	Potential Soil Contamination Associated with Former HE Casting Building 16-26	In progress	Work plan section 5.43.5
	SWMU 16-026(q)	Outfalls	In progress	Work plan section 5.43.6
	SWMU 16-029(f2)	Sump (former) and Outfall	In progress	Work plan section 5.43.7
	SWMU 16-029(r)	Outfall	In progress	Work plan section 5.43.8
	SWMU 16-031(d)	Sumps (former) and Outfall	In progress	Work plan section 5.43.9
	SWMU 16-032(c)	Sump (former) and Outfall	In progress	Work plan section 5.43.10
	SWMU 16-034(a)	Potential Soil Contamination Associated with Former Laboratory 16-24	In progress	Work plan section 5.43.11
	AOC C-16-006	Former Storage Building 16-148	In progress	Work plan section 5.43.12
	AOC C-16-065	Storage Area	In progress	Work plan section 5.43.13
	SWMU 16-026(s)	Outfall	In progress	Work plan section 5.44
	SWMU 16-026(t)	Outfall	Removed from the Laboratory's Hazardous Waste Facility Permit, 4/22/07	NMED 2007, 095495

Table 1.1-1 (continued)

Consolidated Unit	Site ID	Brief Description	Site Status	Work Plan Section / Reference
	SWMU 16-026(u)	Outfall	In progress	Work plan section 5.45
	SWMU 16-026(x)	Outfall	Removed from the Laboratory's Hazardous Waste Facility Permit, 4/22/07	NMED 2007, 095495
	SWMU 16-026(y)	Outfall	In progress	Work plan section 5.46
	AOC 16-027(c)	Former Transformer	In progress	Work plan section 5.47
	AOC 16-027(d)	Former Transformer	In progress	Work plan section 5.48
	SWMU 16-028(b)	Outfall	In progress	Work plan section 5.49
16-029(b2)-99	SWMU 16-029(b2)	Sumps (former) and Outfall	In progress	Work plan section 5.50.1
	AOC C-16-005	Potential Soil Contamination Associated with Former HE Processing Building 16-53	In progress	Work plan section 5.50.2
16-029(c2)-99	SWMU 16-005(e)	Former Septic System	In progress	Work plan section 5.51.1
	AOC 16-015(c)	Former Building 16-36	In progress	Work plan section 5.51.2
	SWMU 16-025(z)	Potential Soil Contamination Associated with Former HE Testing Building 16-37	In progress	Work plan section 5.51.3
	SWMU 16-029(c2)	Sumps (former) and Outfall	In progress	Work plan section 5.51.4
16-029(e)-99	SWMU 16-026(h2)	Outfalls	In progress	Work plan section 5.52.1
	SWMU 16-029(e)	Sump and Outfall	In progress	Work plan section 5.52.2
16-029(g)-99	SWMU 16-021(a)	Plating Operation in Building 16-450	In progress	Work plan section 5.53.1
	SWMU 16-028(e)	Outfall	In progress	Work plan section 5.53.2
	SWMU 16-029(g)	Former Sump	In progress	Work plan section 5.53.3
16-029(v)-99	AOC 16-015(d)	Former Steam Cleaning Building 16-51	In progress	Work plan section 5.54.1
	SWMU 16-025(a2)	Potential Soil Contamination Associated with Former HE Casting Building 16-50	In progress	Work plan section 5.54.2
	SWMU 16-025(b2)	Potential Soil Contamination Associated with Former HE Casting Building 16-52	In progress	Work plan section 5.54.3
	SWMU 16-029(d2)	Sumps (former) and Outfalls	In progress	Work plan section 5.54.4
	SWMU 16-029(e2)	Sumps (former) and Outfalls	In progress	Work plan section 5.54.5
	SWMU 16-029(v)	Sump (former) and Outfall	In progress	Work plan section 5.54.6
	SWMU 16-034(o)	Potential Soil Contamination Associated with Former Laboratory 16-49	In progress	Work plan section 5.54.7
16-029(y)-99	SWMU 16-025(t)	Potential Soil Contamination Associated with Former HE Equipment Casting Building 16-38	In progress	Work plan section 5.55.1

Table 1.1-1 (continued)

Consolidated Unit	Site ID	Brief Description	Site Status	Work Plan Section / Reference
	SWMU 16-029(y)	Sumps (former) and Outfall	In progress	Work plan section 5.55.2
16-029(z)-99	SWMU 16-005(c)	Former Septic System	In progress	Work plan section 5.56.1
	AOC 16-011	Former Incinerator	In progress	Work plan section 5.56.2
	AOC 16-023(b)	Former Incinerator	In progress	Work plan section 5.56.3
	SWMU 16-025(p)	Potential Soil Contamination Associated with Former HE Processing Building 16-44	In progress	Work plan section 5.56.4
	SWMU 16-025(q)	Potential Soil Contamination Associated with Former HE Processing Building 16-45	In progress	Work plan section 5.56.5
	SWMU 16-025(r)	Potential Soil Contamination Associated with Former Rest House 16-46	In progress	Work plan section 5.56.6
	SWMU 16-025(s)	Potential Soil Contamination Associated with Former Radium Source Building 16-48	In progress	Work plan section 5.56.7
	SWMU 16-025(u)	Potential Soil Contamination Associated with Former HE Processing Building 16-42	In progress	Work plan section 5.56.8
	SWMU 16-025(v)	Potential Soil Contamination Associated with Former HE Processing Building 16-43	In progress	Work plan section 5.56.9
	SWMU 16-026(w)	Outfall	In progress	Work plan section 5.56.10
	SWMU 16-029(z)	Sumps (former)	In progress	Work plan section 5.56.11
	SWMU 16-032(a)	Sump (former) and Outfall	In progress	Work plan section 5.56.12
	SWMU 16-034(l)	Potential Soil Contamination Associated with Former Equipment and Control Building 16-47	In progress	Work plan section 5.56.13
	SWMU 16-034(p)	Potential Soil Contamination Associated with Former Building 16-41	In progress	Work plan section 5.56.14
	SWMU 16-031(a)	Outfall	In progress	Work plan section 5.57
	SWMU 16-031(e)	Outfall	In progress	Work plan section 5.58
	SWMU 16-031(f)	Outfall	Certificate of Completion without Controls	NMED 2007, 098419
	SWMU 16-031(g)	Outfall	Removed from the Laboratory's Hazardous Waste Facility Permit, 12/23/98	NMED 1998, 063042
	AOC 16-032(b)	Sump	NFA approved	EPA 2005, 088464

Table 1.1-1 (continued)

Consolidated Unit	Site ID	Brief Description	Site Status	Work Plan Section / Reference
	SWMU 16-032(d)	Sump	Removed from the Laboratory's Hazardous Waste Facility Permit, 12/23/98	NMED 1998, 063042
	SWMU 16-032(e)	Sump	Removed from the Laboratory's Hazardous Waste Facility Permit, 12/23/98	NMED 1998, 063042
	AOC 16-033(a)	Underground Tank (removed)	In progress	Work plan section 5.59
	AOC 16-033(b)	Underground Tank (removed)	In progress	Work plan section 5.60
	AOC 16-033(c)	Aboveground Tank (removed)	In progress	Work plan section 5.61
	AOC 16-033(d)	Aboveground Tank (removed)	In progress	Work plan section 5.62
	AOC 16-033(i)	Underground Storage Tank (removed)	In progress	Work plan section 5.63
	AOC 16-033(j)	Underground Storage Tank (removed)	In progress	Work plan section 5.64
	AOC 16-033(k)	Underground Storage Tank	In progress	Work plan section 5.65
	AOC C-16-004	Building 16-150	NFA approved	EPA 2005, 088464
	AOC C-16-019	Former Building 16-19	In progress	Work plan section 5.66
	AOC C-16-020	Former Building 16-22	In progress	Work plan section 5.67
	AOC C-16-021	Former Building 16-001	NFA approved	EPA 2005, 088464
	AOC C-16-022	Former Building 16-002	NFA approved	EPA 2005, 088464
	AOC C-16-024	Former Building 16-009	NFA approved	EPA 2005, 088464
	AOC C-16-027	Former Building 16-017	NFA approved	EPA 2005, 088464
	AOC C-16-028	Former Building 16-5	In progress	Work plan section 5.68
	AOC C-16-029	Former Building 16-003	NFA approved	EPA 2005, 088464
	AOC C-16-030	Former Building 16-181	In progress	Work plan section 5.69
	AOC C-16-031	Former Building 16-182	In progress	Work plan section 5.70
	AOC C-16-032	Former Building 16-167	NFA approved	EPA 2005, 088464
	AOC C-16-033	Former Building 16-085	NFA approved	EPA 2005, 088464
	AOC C-16-034	Aboveground Tank (removed)	In progress	Work plan section 5.71
	AOC C-16-035	Aboveground Tank (removed)	In progress	Work plan section 5.72
	AOC C-16-037	Storage area	NFA approved	EPA 2005, 088464
	AOC C-16-039	Former Building 16-151	NFA approved	EPA 2005, 088464
	AOC C-16-040	Former Building	NFA approved	EPA 2005, 088464
	AOC C-16-045	Former Manhole	NFA approved	EPA 2005, 088464
	AOC C-16-046	Former Manhole	In progress	Work plan section 5.73
	AOC C-16-047	Former Oil Switch	In progress	Work plan section 5.74
	AOC C-16-048	Former Steam manhole	NFA approved	EPA 2005, 088464
	AOC C-16-058	Former Oil Switch	In progress	Work plan section 5.75

Table 1.1-1 (continued)

Consolidated Unit	Site ID	Brief Description	Site Status	Work Plan Section / Reference
	AOC C-16-069	Former Trailer 16-87	In progress	Work plan section 5.76
	AOC C-16-071	One-Time Spill	In progress	Work plan section 5.77
	AOC C-16-073	Underground Storage Tank	In progress	Work plan section 5.78
	AOC C-16-076	HE Magazine Area A	In progress	Work plan section 5.79
	AOC C-16-077	HE Magazine Area B	In progress	Work plan section 5.80
TA-37				
	AOC 37-001	Septic system	NFA approved	EPA 2005, 088464

Note: Shading denotes NFA approved.

Table 4.1-1
Proposed Sampling at SWMU 11-001(c)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	1c-1	At firing pit	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	1c-2 through 1c-7 1c-9 through 1c-14	Area surrounding and downgradient of former firing pit	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	1c-8	Downgradient of former firing pit	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	1c-15 1c-16 1c-17	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	1c-18	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 4.2-1
Sample Submitted for Analysis and Analyses Requested at AOC 11-012(a)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC	Cyanide (Total)
0311-95-0012	11-00008	1–1.5	SOIL	1251	1252	1251	1252

Note: Numbers in analyte columns are request numbers.

Table 4.2-2
Inorganic Chemicals above BVs at AOC 11-012(a)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Cyanide (Total)
Soil BV[a]				**0.83**	**0.4**	**0.5**
Construction Worker SSL[b]				**124**	**309**	**6190**
Industrial SSL[c]				**454**	**1120**	**227000**
Residential SSL[c]				**31.3**	**77.9**	**1560**
0311-95-0012	11-00008	1–1.5	SOIL	5.5 (U)	0.55 (U)	1.12 (U)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070).

Table 4.2-3
Proposed Sampling at AOC 11-012(a)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	12a-1 through 12a-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 4.3-1
Sample Submitted for Analysis and Analyses Requested at AOC 11-012(b)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC	Cyanide (Total)
0311-95-0014	11-00010	0.5–1	SOIL	328	329	328	329

Note: Numbers in analyte columns are request numbers.

Table 4.3-2
Inorganic Chemicals above BVs at AOC 11-012(b)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Cyanide (Total)
Soil BV[a]				**0.83**	**0.4**	**0.5**
Construction Worker SSL[b]				**124**	**309**	**6190**
Industrial SSL[c]				**454**	**1120**	**227000**
Residential SSL[c]				**31.3**	**77.9**	**1560**
0311-95-0014	11-00010	0.5–1	SOIL	5.9 (U)	0.592 (U)	1.2 (U)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070).

Table 4.3-3
Organic Chemicals Detected at AOC 11-012(b)

Sample ID	Location ID	Depth (ft)	Media	Benzoic Acid	Di-n-butylphthalate
Construction Worker SSL[a]				**952000**	**23800**
Industrial SSL[b]				**2500000**[c]	**68400**
Residential SSL[b]				**245000**[c]	**6110**
0311-95-0014	11-00010	0.5–1	SOIL	0.056 (J)	0.061 (J)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] SSLs are from NMED (2009, 108070), unless otherwise noted.

[c] EPA regional screening level (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

Table 4.3-4
Proposed Sampling at AOC 11-012(b)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	12b-1 through 12b-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.1-1
Samples Collected and Analyses Requested at SWMU 16-001(d)

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOC	TPH-DRO	TPH-GRO	VOC
RE16-03-50405	16-03-21705	0.5–0.67	SOIL	1508S	1508S	1508S	1508S	1508S
RE16-03-50407	16-21943	0.5–0.67	SOIL	1508S	1508S	1508S	1508S	1508S
RE16-03-50410	16-22323	1.33–1.5	SOIL	1508S	1508S	1508S	1508S	1508S
RE16-03-50411	16-22327	1.33–1.5	SOIL	1508S	1508S	1508S	1508S	1508S

Note: Numbers in analyte columns are request numbers.

Table 5.1-2
Inorganic Chemicals above BVs at SWMU 16-001(d)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Calcium
Soil BV[a]				**29200**	**6120**
Construction Worker SSL[b]				**40700**	**na**[c]
Industrial SSL[d]				**1130000**	**na**
Residential SSL[d]				**78100**	**na**
RE16-03-50407	16-21943	0.5–0.67	SOIL	—[e]	8680
RE16-03-50410	16-22323	1.33–1.5	SOIL	31400	—

Notes: Results are in mg/kg.
[a] BVs are from LANL (1998, 059730).
[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).
[c] na = Not available.
[d] SSLs are from NMED (2009, 108070).
[e] — = Not detected or not above BV.

Table 5.1-3
Organic Chemicals Detected at SWMU 16-001(d)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Chrysene	Dibenzofuran	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	TPH-DRO
Construction Worker SSL[a]				**18600**	**66800**	**213**	**21.3**	**213**	**20600**	**552**	**8910**	**8910**	**702**	**7150**	**6680**	**na[b]**
Industrial SSL[c]				**36700**	**183000**	**23.4**	**2.34**	**23.4**	**2340**	**1000[d]**	**24400**	**24400**	**252**	**20500**	**18300**	**200[e]**
Residential SSL[c]				**3440**	**17200**	**6.21**	**0.621**	**6.21**	**621**	**78d**	**2290**	**2290**	**45**	**1830**	**1720**	**200[e]**
RE16-03-50405	16-03-21705	0.5–0.67	SOIL	0.075	0.12	0.26	0.24	0.42	0.29	0.034	0.64	0.066	0.061	0.53	0.66	60
RE16-03-50407	16-21943	0.5–0.67	SOIL	—[f]	0.053	0.11	0.1	0.16	0.11	—	0.28	—	—	0.22	0.31	—
RE16-03-50411	16-22327	1.33–1.5	SOIL	0.071	0.084	0.17	0.16	0.23	0.16	0.037	0.42	0.052	0.062	0.42	0.52	—

Notes: Results are in mg/kg.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[e] SSLs are from NMED (2006, 094614).

[f] — = Not detected.

Table 5.1-4
Proposed Sampling at SWMU 16-001(d)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	TPH-DRO	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	1d-1	Drainline	Immediately below line (4-5 ft bgs if line not in place)	X[a]	X	X	X	X	X	X	X	X	X	X
			5 ft below line (9–10 ft bgs if line not in place)	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	1d-2	Drainline	Immediately below line (4-5 ft bgs if line not in place)	X	X	X	X	X	—[b]	X	X	X	X	X
			5 ft below line (9–10 ft bgs if line not in place)	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	1d-3	Dry well	5–6 ft bgs	Xa	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	1d-4 1d-5 1d-6	Surrounding dry well	0–1 ft bgs	X	X	X	X	X	—	X	X	—	X	X
			5–6 ft bgs	X	X	X	X	X	—	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.2-1
Samples Collected and Analyses Requested at SWMU 16-003(a)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC	VOC	Cyanide (Total)
0316-95-0256	16-01587	0–0.5	SOIL	1391	1392, 1393	1391	—*	1392
0316-95-0257	16-01587	3–4	QBT4	1391	1392, 1393	1391	1391	1392
0316-95-0258	16-01587	5.5–6.5	QBT4	1391	1392, 1393	1391	1391	1392
0316-95-0262	16-01588	0–0.5	SOIL	306	307, 308	306	—	307
0316-95-0263	16-01589	0–0.5	SOIL	306	307, 308	306	—	307
0316-95-0264	16-01590	0–0.5	SOIL	306	307, 308	306	—	307
0316-95-0265	16-01591	0–0.5	SOIL	306	307, 308	306	—	307
0316-95-0266	16-01592	0–0.5	SOIL	306	307, 308	306	—	307
0316-95-0259	16-01666	0–0.5	SED	1391	1392, 1393	1391	—	1392
0316-95-0260	16-01666	0.67–1	QBT4	1391	1392, 1393	1391	1391	1392

Note: Numbers in analyte columns are request numbers.

* — =Analyses not requested.

Table 5.2-2
Inorganic Chemicals above BVs at SWMU 16-003(a)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Chromium	Copper	Cyanide (Total)	Lead	Magnesium	Selenium	Silver	Uranium	Zinc
Qbt2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**7.14**	**4.66**	**0.5**	**11.2**	**1690**	**0.3**	**1**	**2.4**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**10.5**	**11.2**	**0.82**	**19.7**	**2370**	**0.3**	**1**	**2.22**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**19.3**	**14.7**	**0.5**	**22.3**	**4610**	**1.52**	**1**	**1.82**	**48.8**
Construction Worker SSL[b]				**40700**	**124**	**65.4**	**4350**	**309**	**449**[c]	**12400**	**6190**	**800**	**na**[d]	**1550**	**1550**	**929**	**92900**
Industrial SSL[e]				**1130000**	**454**	**17.7**	**224000**	**1120**	**2920**[c]	**45400**	**227000**	**800**	**na**	**5680**	**5680**	**3410**	**341000**
Residential SSL[e]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**219**[c]	**3130**	**1560**	**400**	**na**	**391**	**391**	**235**	**23500**
0316-95-0256	16-01587	0–0.5	SOIL	—[f]	7.7 (U)	—	—	0.77 (U)	—	22.9	1.63 (U)	—	—	—	—	4.68	303
0316-95-0257	16-01587	3–4	QBT4	—	5.76 (U)	—	—	—	—	10	1.18 (U)	—	—	—	—	—	76.6
0316-95-0258	16-01587	5.5–6.5	QBT4	—	4.7 (U)	—	—	—	—	7.29	1.01 (U)	—	—	—	—	—	—
0316-95-0262	16-01588	0–0.5	SOIL	—	8.1 (U)	—	—	0.851	—	17.1	0.817 (U)	—	—	—	—	3.81	265
0316-95-0263	16-01589	0–0.5	SOIL	—	7.83 (U)	—	—	0.885	—	—	0.794 (U)	—	—	—	—	6.29	152
0316-95-0264	16-01590	0–0.5	SOIL	—	10.1 (U)	—	—	1.03	—	24.4	1.04 (U)	—	—	—	1.01 (U)	3.46	277
0316-95-0265	16-01591	0–0.5	SOIL	—	7.55 (U)	—	—	0.755 (U)	—	—	1.6 (U)	—	—	—	—	2.45	61.5
0316-95-0266	16-01592	0–0.5	SOIL	—	6.21 (U)	—	—	0.621 (U)	—	—	0.649 (U)	—	—	—	—	—	—
0316-95-0259	16-01666	0–0.5	SED	—	7.46 (U)	—	—	0.746 (U)	11.3 (J-)	24.4	1.5 (U)	21.7	—	0.363 (UJ)	—	4.58	340
0316-95-0260	16-01666	0.67–1	QBT4	9700	6.53 (U)	2.99	47.8	—	7.61 (J-)	9.15	1.38 (U)	28.8	1740	0.335 (UJ)	—	2.48	114

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are for hexavalent chromium.

[d] na = Not available.

[e] SSLs are from NMED (2009, 108070).

[f] — = Not detected or not above BV.

Table 5.2-3
Organic Chemicals Detected at SWMU 16-003(a)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Benzyl Alcohol	Bis(2-ethylhexyl)phthalate	Chrysene	Dibenzo(a,h)anthracene	Diethylphthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Methylphenol[4-]	Naphthalene	Phenanthrene	Pyrene	Trichlorofluoromethane
Construction Worker SSL[a]				**18600**	**66800**	**213**	**21.3**	**213**	**6680**[b]	**2060**	**952000**	**na**[c]	**4760**	**20600**	**21.3**	**191000**	**8910**	**8910**	**213**	**10600**	**na**	**702**	**7150**	**6680**	**5820**
Industrial SSL[d]				**36700**	**183000**	**23.4**	**2.34**	**23.4**	**18300**[b]	**234**	**2500000**[e]	**62000**[e]	**1370**	**2340**	**2.34**	**547000**	**24400**	**24400**	**23.4**	**1090**	**3400**[f]	**252**	**20500**	**18300**	**6760**
Residential SSL[d]				**3440**	**17200**	**6.21**	**0.621**	**6.21**	**1720**[b]	**62.1**	**245000**[e]	**6100**[e]	**347**	**621**	**0.621**	**48900**	**2290**	**2290**	**6.21**	**199**	**310**[f]	**45**	**1830**	**1720**	**2010**
0316-95-0256	16-01587	0–0.5	SOIL	0.096 (J)	0.11 (J)	0.26 (J)	0.35 (J)	0.47 (J)	0.24 (J)	0.17 (J)	0.36 (J)	—[g]	—	0.42 (J)	—	—	0.81	0.094 (J)	0.26 (J)	NA[h]	0.3 (J)	0.1 (J)	0.69	0.59	NA
0316-95-0257	16-01587	3–4	QBT4	—	—	—	—	—	—	—	—	—	—	—	—	—	0.059 (J)	—	—	0.003 (J)	—	—	0.04 (J)	0.052 (J)	0.004 (J)
0316-95-0258	16-01587	5.5–6.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	—	0.038 (J)	—	—	—	0.003 (J)	—	—	—	—	0.01
0316-95-0262	16-01588	0–0.5	SOIL	—	0.12 (J)	0.43 (J)	0.62	0.85	0.44 (J)	0.32 (J)	—	—	—	0.66	0.084 (J)	—	1.4	—	0.43 (J)	NA	—	—	0.65	1	NA
0316-95-0263	16-01589	0–0.5	SOIL	0.098 (J)	0.14 (J)	0.23 (J)	0.32 (J)	0.4 (J)	0.2 (J)	0.16 (J)	0.091 (J)	—	—	0.32 (J)	0.14 (J)	—	0.76	0.099 (J)	0.21 (J)	NA	0.09 (J)	0.17 (J)	0.63	0.55	NA
0316-95-0264	16-01590	0–0.5	SOIL	—	0.098 (J)	0.33 (J)	0.5 (J)	0.68 (J)	0.36 (J)	0.26 (J)	0.4 (J)	0.082 (J)	—	0.53 (J)	—	—	1	—	0.37 (J)	NA	—	—	0.48 (J)	0.84	NA
0316-95-0265	16-01591	0–0.5	SOIL	—	—	—	0.11 (J)	0.16 (J)	0.079 (J)	—	—	—	—	0.12 (J)	—	—	0.22 (J)	—	—	NA	—	—	0.088 (J)	0.18 (J)	NA
0316-95-0266	16-01592	0–0.5	SOIL	—	—	—	—	0.082 (J)	—	—	0.37 (J)	—	—	—	—	—	0.12 (J)	—	—	NA	—	—	0.057 (J)	0.089 (J)	NA
0316-95-0259	16-01666	0–0.5	SED	0.088 (J)	0.27 (J)	1	1.3	1.9	0.84	0.7	—	0.052 (J)	1.6	—	0.17 (J)	—	2.9	0.096 (J)	0.87	NA	—	—	1.4	2.1	NA
0316-95-0260	16-01666	0.67–1	QBT4	—	0.072 (J)	0.26 (J)	0.33 (J)	0.5	0.26 (J)	0.18 (J)	—	—	—	0.44 (J)	0.064 (J)	—	0.74	—	0.27 (J)	0.004 (J)	—	—	0.44 (J)	0.6	0.01

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] Pyrene used as a surrogate based on structural similarity.

[c] na = Not available.

[d] SSLs are from NMED (2009, 108070), unless otherwise noted.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from EPA (2007, 099314).

[g] — = Not detected.

[h] NA = Not analyzed.

Table 5.2-4
Proposed Sampling at SWMU 16-003(a)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	3a-1	Outfall, adjacent to existing location 16-01587	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	3a-2 3a-3 3a-4	10 ft downgradient of outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	3a-5 3a-6 3a-8 through 3a-13	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	3a-7 3a-14	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.3-1
Samples Collected and Analyses Requested at SWMU 16-003(b)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC	VOC	Cyanide (Total)
0316-95-0177	16-01503	0–0.5	SED	621	622, 623	621	—*	622
0316-95-0178	16-01503	1.83–2.33	QBT4	621	622, 623	621	621	622
0316-95-0201	16-01503	3.5–5.5	QBT4	923	924, 925	923	923	924
0316-95-0205	16-01504	0–0.5	SED	140	141, 142	140	—	141
0316-95-0206	16-01505	0–0.5	SED	140	141, 142	140	—	141
0316-95-0207	16-01506	0–0.5	SOIL	140	141, 142	140	—	141
0316-95-0208	16-01507	0–0.5	SOIL	140	141, 142	140	—	141
0316-95-0209	16-01508	0–0.5	SED	140	141, 142	140	—	141
0316-95-0180	16-01659	0–0.5	SED	621	622, 623	621	—	622
0316-95-0181	16-01659	2.5–3	QBT4	621	622, 623	621	621	622
0316-95-0204	16-01659	4.5–6.5	QBT4	972	978, 979	972	972	978

Note: Numbers in analyte columns are request numbers.

* — = Analyses not requested.

Table 5.3-2
Inorganic Chemicals above BVs at SWMU 16-003(b)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Selenium	Silver	Uranium	Vanadium	Zinc
Qbt2, 3, 4 BV[a]				**7340**	**0.5**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**	**1690**	**482**	**0.1**	**6.58**	**0.3**	**1**	**2.4**	**17**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**127**	**0.4**	**4420**	**10.5**	**4.73**	**11.2**	**0.82**	**13800**	**19.7**	**2370**	**543**	**0.1**	**9.38**	**0.3**	**1**	**2.22**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**295**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**1.52**	**1**	**1.82**	**39.6**	**48.8**
Construction Worker SSL[b]				**40700**	**124**	**4350**	**309**	**na[c]**	**449[d]**	**34.6**	**12400**	**6190**	**217000**	**800**	**na**	**463**	**92.9**	**6190**	**1550**	**1550**	**929**	**1550**	**92900**
Industrial SSL[e]				**1130000**	**454**	**224000**	**1120**	**na**	**2920[d]**	**300[f]**	**45400**	**227000**	**795000**	**800**	**na**	**145000**	**310[f]**	**22700**	**5680**	**5680**	**3410**	**5680**	**341000**
Residential SSL[e]				**78100**	**31.3**	**15600**	**77.9**	**na**	**219[d]**	**23[f]**	**3130**	**1560**	**54800**	**400**	**na**	**10700**	**23[f]**	**1560**	**391**	**391**	**235**	**391**	**23500**
0316-95-0177	16-01503	0–0.5	SED	—[g]	6.1 (U)	295	0.97	—	38.6	7.9	43.5	1.3 (U)	15600	265	—	—	0.23 (U)	13.7	0.31 (UJ)	1.4	2.77	28.3	175 (J-)
0316-95-0178	16-01503	1.83–2.33	QBT4	15400	5.9 (U)	164	—	—	8.7	8.9	8.3	1.2 (U)	14900	—	2070	596	—	7.6	—	—	2.53	22.5	—
0316-95-0201	16-01503	3.5–5.5	QBT4	—	5.79 (U)	50.1	—	—	17.8 (J-)	—	—	1.2 (U)	—	—	—	—	—	—	—	—	—	—	—
0316-95-0205	16-01504	0–0.5	SED	—	6 (U)	149	0.6 (U)	—	—	6.5	—	1.2 (U)	—	—	—	—	—	—	—	—	2.83	20.2	—
0316-95-0206	16-01505	0–0.5	SED	—	6 (U)	232	0.6 (U)	—	—	7.5	—	1.2 (U)	—	—	—	—	—	—	0.302 (UJ)	—	2.43	19.9	—
0316-95-0207	16-01506	0–0.5	SOIL	—	5.6 (U)	523	1.11	—	—	—	16.2	1.2 (U)	—	42.4	—	—	0.16	—	—	—	3.98	—	67.1
0316-95-0208	16-01507	0–0.5	SOIL	—	6.5 (U)	500	0.71	—	—	—	—	1.3 (U)	—	40	—	—	—	—	—	—	3.05	—	—
0316-95-0209	16-01508	0–0.5	SED	—	5.8 (U)	244	0.58 (U)	—	—	6.1	—	1.2 (U)	—	—	—	—	—	—	—	—	3.67	—	—
0316-95-0180	16-01659	0–0.5	SED	—	5.8 (U)	148	0.58 (U)	—	—	7.2	—	1.2 (U)	—	21.2	—	—	—	—	—	—	2.55	24.7	—
0316-95-0181	16-01659	2.5–3	QBT4	17000	5.8 (U)	158	—	2700	13.8	7.1	9.5	1.2 (U)	17400	12.5	3440	—	—	12.2	—	—	2.54	27.2	—
0316-95-0204	16-01659	4.5–6.5	QBT4	—	5.4 (U)	48 (J+)	—	—	58.9	—	—	1.1 (U)	—	—	—	—	—	—	—	—	—	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] na = Not available.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from NMED (2009, 108070), unless otherwise noted.

[f] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[g] — = Not detected or not above BV.

Table 5.3-3
Organic Chemicals Detected at SWMU 16-003(b)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Amino-2,6-dinitrotoluene[4-]	Amino-4,6-dinitrotoluene[2-]	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chrysene	Dibenz(a,h)anthracene
Construction Worker SSL[a]				**18600**	**6680[b]**	**263000**	**601**	**601**	**66800**	**213**	**21.3**	**213**	**6680[b]**	**2060**	**4760**	**20600**	**21.3**
Industrial SSL[c]				**36700**	**18300[b]**	**851000**	**1900[d]**	**2000[d]**	**183000**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**2340**	**2.34**
Residential SSL[c]				**3440**	**1720[b]**	**67500**	**150[d]**	**150[d]**	**17200**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**621**	**0.621**
0316-95-0177	16-01503	0–0.5	SED	0.76	0.058 (J)	NA[e]	—[f]	—	1.4	4.7	3.4	6	2.7	1.6	—	4.7	0.78
0316-95-0178	16-01503	1.83–2.33	QBT4	—	—	0.004 (J)	—	—	—	0.1 (J)	0.12 (J)	0.16 (J)	0.098 (J)	0.072 (J)	—	0.14 (J)	0.076 (J)
0316-95-0201	16-01503	3.5–5.5	QBT4	—	—	0.019 (J)	—	—	—	—	—	—	—	—	—	—	—
0316-95-0205	16-01504	0–0.5	SED	—	—	NA	—	—	0.084 (J)	0.34 (J)	0.4	0.45	0.24 (J)	0.23 (J)	—	0.44	0.06 (J)
0316-95-0206	16-01505	0–0.5	SED	0.61	—	NA	—	—	1	1.8	1.8	2.3	1	0.83	0.28 (J)	2	0.27 (J)
0316-95-0207	16-01506	0–0.5	SOIL	0.048 (J)	—	NA	0.59	0.381	0.21 (J)	1.1	1.1	1.6	0.65	—	0.36 (J)	1.2	0.19 (J)
0316-95-0208	16-01507	0–0.5	SOIL	1.5	—	NA	1.07	1.46	2.8	4.8	4.8	6.1	2.6	2.7	0.25 (J)	5.3	0.67 (J)
0316-95-0209	16-01508	0–0.5	SED	—	—	NA	—	—	0.041 (J)	0.16 (J)	0.19 (J)	0.25 (J)	0.14 (J)	0.12 (J)	0.27 (J)	0.23 (J)	—
0316-95-0180	16-01659	0–0.5	SED	0.077 (J)	—	NA	—	—	0.15 (J)	0.49	0.56	0.79	0.32 (J)	0.3 (J)	—	0.63	0.093 (J)
0316-95-0181	16-01659	2.5–3	QBT4	—	—	0.006 (J)	—	—	—	—	—	—	—	—	—	—	—

Table 5.3-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dibenzofuran	Dinitrotoluene[2,4-]	Fluoranthene	Fluorene	HMX	Indeno(1,2,3-cd)pyrene	Methylnaphthalene[2-]	Naphthalene	Nitroglycerin	Phenanthrene	Pyrene	RDX	Tetryl	Trinitrobenzene[1,3,5-]	Trinitrotoluene[2,4,6-]
Construction Worker SSL[a]				**552**	**476**	**8910**	**8910**	**11900**	**213**	**1240**	**702**	**23.8**	**7150**	**6680**	**715**	**953**	**8760**	**141**
Industrial SSL[c]				**1000[d]**	**103**	**24400**	**24400**	**34200**	**23.4**	**4100[d]**	**252**	**68.4**	**20500**	**18300**	**174**	**2740**	**27000[d]**	**469**
Residential SSL[c]				**78[d]**	**15.7**	**2290**	**2290**	**3060**	**6.21**	**310[d]**	**45**	**6.11**	**1830**	**1720**	**44.2**	**244**	**2200[d]**	**35.9**
0316-95-0177	16-01503	0–0.5	SED	0.3 (J)	0.755	8.6	0.64	7.13	3.1	0.15 (J)	0.35 (J)	NA	4.4	10	—	1.81	0.183	2.28
0316-95-0178	16-01503	1.83–2.33	QBT4	—	—	0.22 (J)	—	0.272	0.095 (J)	—	—	NA	0.1 (J)	0.2 (J)	—	—	—	—
0316-95-0201	16-01503	3.5–5.5	QBT4	—	—	—	—	—	—	—	—	NA	—	—	—	—	—	—
0316-95-0205	16-01504	0–0.5	SED	—	—	0.74	—	24.7	0.31 (J)	—	—	—	0.34 (J)	0.65	—	—	—	—
0316-95-0206	16-01505	0–0.5	SED	0.3 (J)	—	3.8	0.59	5.84	1.2	0.2 (J)	0.64	3.78	3.2	4.1	—	0.796	—	—
0316-95-0207	16-01506	0–0.5	SOIL	—	—	1.6	0.045 (J)	234	0.74	—	—	—	0.43	2.3	2.04	—	—	0.841
0316-95-0208	16-01507	0–0.5	SOIL	0.7 (J)	—	9.4	1.4	31.4	2.9	0.45 (J)	1.3	—	8.2	12	—	0.229	—	3.24
0316-95-0209	16-01508	0–0.5	SED	—	—	0.38 (J)	—	—	0.15 (J)	—	—	—	0.17 (J)	0.35 (J)	—	—	—	—
0316-95-0180	16-01659	0–0.5	SED	—	—	1.2	0.066 (J)	0.279	0.35 (J)	—	—	NA	0.64	0.95	—	—	—	—
0316-95-0181	16-01659	2.5–3	QBT4	—	—	—	—	0.395	—	—	—	NA	—	—	—	—	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] Pyrene used as a surrogate based on structural similarity.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[e] NA = Not analyzed.

[f] — = Not detected.

Table 5.3-4
Proposed Sampling at SWMU 16-003(b)

Objective Addressed	Location Number	Location	Beginning Depth of Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	TPH-DRO	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	3b-1	Sump	Immediately below sump	X[a]	X	X	X	X	—[b]	X	X	X	X	X
			5 ft below sump	X	X	X	X	X	—	X	X	X	X	X
			10 ft below sump	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	3b-2	Drainline	Immediately below line	X	X	X	X	X	X	X	X	X	X	X
			5 ft below line	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	3b-3	Drainline	Immediately below line	X	X	X	X	X	—	X	X	X	X	X
			5 ft below line	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	3b-4	Outfall, adjacent to existing locations 16-01503 and 16-01659	0–1 ft bgs	X	X	X	X	X	X	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	3b-5 through 3b-10	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	3b-11	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.4-1
Proposed Sampling at SWMU 16-003(c)

Objective Addressed	Location Number	Location	Beginning Depth of Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	3c-1	Sump	Immediately below sump	X*	X	X	X	X	X	X	X	X	X
			5 ft below sump	X	X	X	X	X	X	X	X	X	X
			10 ft below sump	X	X	X	X	X	X	X	X	X	X

* X = Analysis will be performed.

Table 5.4-2
Samples Collected and Analyses Requested at SWMU 16-026(v)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC	VOC	Cyanide (Total)
0316-95-0188	16-01513	0–0.16	SED	923	924, 925	923	—*	924
0316-95-0189	16-01513	0.17–1	QBT4	1391	1392, 1393	1391	1391	1392
0316-95-0190	16-01513	2–3.5	QBT4	1391	1392, 1393	1391	1391	1392
0316-95-0194	16-01514	0–0.5	SED	140	141, 142	140	—	141
0316-95-0195	16-01515	0–0.5	SED	140	141, 142	140	—	141
0316-95-0196	16-01516	0–0.5	SED	140	141, 142	140	—	141
0316-95-0197	16-01517	0–0.5	SED	140	141, 142	140	—	141
0316-95-0198	16-01518	0–0.5	SOIL	140	141, 142	140	—	141
0316-95-0191	16-01660	0–0.33	SED	923	924, 925	923	—	924
0316-95-0193	16-01660	2.5–4	QBT4	980	981, 982	980	980	981

Note: Numbers in analyte columns are request numbers.
* — = Analyses not requested.

Table 5.4-3
Inorganic Chemicals above BVs at SWMU 16-026(v)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Mercury	Nickel	Selenium	Silver	Uranium	Vanadium	Zinc
Qbt2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**	**0.1**	**6.58**	**0.3**	**1**	**2.4**	**17**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**1.31**	**0.4**	**4420**	**10.5**	**4.73**	**11.2**	**0.82**	**13800**	**19.7**	**0.1**	**9.38**	**0.3**	**1**	**2.22**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**	**0.1**	**15.4**	**1.52**	**1**	**1.82**	**39.6**	**48.8**
Construction Worker SSL[b]				**40700**	**124**	**65.4**	**4350**	**144**	**309**	**na[c]**	**449[d]**	**34.6**	**12400**	**6190**	**217000**	**800**	**92.[9]**	**6190**	**1550**	**1550**	**929**	**1550**	**92900**
Industrial SSL[e]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**300[f]**	**45400**	**227000**	**795000**	**800**	**310[f]**	**22700**	**5680**	**5680**	**3410**	**5680**	**341000**
Residential SSL[e]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**23[f]**	**3130**	**1560**	**54800**	**400**	**23[f]**	**1560**	**391**	**391**	**235**	**391**	**23500**
0316-95-0188	16-01513	0–0.16	SED	—[g]	7.13 (U)	—	194	—	0.713 (U)	—	26.5 (J-)	—	412 (J-)	1.45 (U)	36100	103 (J-)	4.11	26.1	0.352 (U)	5.27	—	—	321
0316-95-0189	16-01513	0.17–1	QBT4	—	5.45 (U)	2.83	317	—	—	—	19.6	—	65.8	1.12 (U)	—	79.9	4.33	9.88	—	5.25	3.86	—	101
0316-95-0190	16-01513	2–3.5	QBT4	8080	5.71 (U)	—	190	2.02	—	3610	—	—	50.4	1.17 (U)	—	—	—	22	—	—	—	—	73.4
0316-95-0194	16-01514	0–0.5	SED	—	12 (U)	—	—	—	1.2 (U)	—	14.8	—	32.8	2.5 (U)	—	33.6	9.2	—	0.604 (UJ)	4.1	3.41	—	141
0316-95-0195	16-01515	0–0.5	SED	—	11.9 (U)	—	—	—	1.2 (U)	—	23.8	—	53.3	2.5 (U)	—	43	4.8	—	3.03 (UJ)	5	3.61	—	157
0316-95-0196	16-01516	0–0.5	SED	—	10.7 (U)	—	—	—	1.1 (U)	—	14.2	4.9 (J)	19.3	2.2 (U)	—	23	1.4	—	2.77 (UJ)	1.7 (J)	3.25	23	71.9
0316-95-0197	16-01517	0–0.5	SED	—	8.6 (U)	—	142	—	0.86 (U)	—	—	—	—	1.7 (U)	—	—	0.3	—	2.1 (UJ)	—	2.89	—	—
0316-95-0198	16-01518	0–0.5	SOIL	—	6.5 (U)	—	—	—	0.65 (U)	—	—	—	—	1.3 (U)	—	—	—	—	1.67 (UJ)	—	2.41	—	—
0316-95-0191	16-01660	0–0.33	SED	—	8.76 (U)	—	—	—	0.876 (U)	—	24.4 (J-)	—	126 (J-)	1.82 (U)	—	64.7 (J-)	4.17	14.4	0.438 (U)	7.77	3.7	—	167
0316-95-0193	16-01660	2.5–4	QBT4	—	5.5 (U)	—	—	—	—	—	160	—	—	1.1 (U)	—	—	—	—	—	—	—	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] na = Not available.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from NMED (2009, 108070), unless otherwise noted.

[f] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[g] — = Not detected or not above BV.

Table 5.4-4
Organic Chemicals Detected at SWMU 16-026(v)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate
Construction Worker SSL[a]				**18600**	**66800**	**213**	**21.3**	**213**	**6680[b]**	**2060**	**952000**	**4760**	**20600**	**21.3**	**552**	**191000**
Industrial SSL[c]				**36700**	**183000**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**2500000[d]**	**1370**	**2340**	**2.34**	**1000[d]**	**547000**
Residential SSL[c]				**3440**	**17200**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**245000[d]**	**347**	**621**	**0.621**	**78[d]**	**48900**
0316-95-0188	16-01513	0–0.16	SED	0.32 (J)	1.3	4.9	3.4	6.5	1.2	2.3	—[e]	—	5.8	0.36 (J)	0.13 (J)	—
0316-95-0189	16-01513	0.17–1	QBT4	—	—	—	—	—	—	—	—	—	—	—	—	0.093 (J)
0316-95-0190	16-01513	2–3.5	QBT4	0.18 (J)	0.36 (J)	1.4	1.6	2.4	0.81	0.86	—	—	1.9	0.24 (J)	0.071 (J)	—
0316-95-0194	16-01514	0–0.5	SED	0.33 (J)	0.72 (J)	1.9	2	2.2	1.2	1	0.59 (J)	2	2.2	0.31 (J)	0.12 (J)	—
0316-95-0195	16-01515	0–0.5	SED	—	—	—	—	2.5 (J)	—	—	—	2.9 (J)	—	—	—	—
0316-95-0196	16-01516	0–0.5	SED	—	—	—	—	—	—	—	—	0.44 (J)	—	—	—	—
0316-95-0197	16-01517	0–0.5	SED	—	—	—	—	—	—	—	—	1.7	—	—	—	—
0316-95-0198	16-01518	0–0.5	SOIL	—	—	—	—	—	—	—	—	0.098 (J)	0.074 (J)	—	—	—
0316-95-0191	16-01660	0–0.33	SED	0.67 (J)	1.3 (J)	3.6	3.9	6.1	1.4 (J)	2.7 (J)	—	—	5.6	0.44 (J)	0.35 (J)	—
0316-95-0193	16-01660	2.5–4	QBT4	—	0.1 (J)	—	—	—	—	—	—	0.24 (J)	0.041 (J)	—	—	—

Table 5.4-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Methylphenol[4-]	Naphthalene	Phenanthrene	Pyrene	TATB	Tetryl	Trichlorofluoromethane	Trinitrotoluene[2,4,6-]
Construction Worker SSL[a]				**8910**	**8910**	**213**	**10600**	**na[f]**	**702**	**7150**	**6680**	**na**	**953**	**5820**	**141**
Industrial SSL[c]				**24400**	**24400**	**23.4**	**1090**	**3400[g]**	**252**	**20500**	**18300**	**na**	**2740**	**6760**	**469**
Residential SSL[c]				**2290**	**2290**	**6.21**	**199**	**310[g]**	**45**	**1830**	**1720**	**na**	**244**	**2010**	**35.9**
0316-95-0188	16-01513	0–0.16	SED	10	0.34 (J)	1.4	NAh	—	0.08 (J)	4.5	7.3	NA	0.122	NA	—
0316-95-0189	16-01513	0.17–1	QBT4	—	—	—	0.004 (J)	—	—	—	—	NA	—	0.007	—
0316-95-0190	16-01513	2–3.5	QBT4	3.3	0.16 (J)	0.93	0.004 (J)	—	0.07 (J)	1.7	2.9	NA	—	0.013	0.09
0316-95-0194	16-01514	0–0.5	SED	4.5	0.31 (J)	1.3	NA	0.42 (J)	0.1 (J)	2.8	5	10.5	0.101	NA	—
0316-95-0195	16-01515	0–0.5	SED	4.2 (J)	—	—	NA	—	—	2.2 (J)	4.8 (J)	11.1	—	NA	—
0316-95-0196	16-01516	0–0.5	SED	0.94 (J)	—	—	NA	—	—	0.51 (J)	1 (J)	2.41	—	NA	—
0316-95-0197	16-01517	0–0.5	SED	—	—	—	NA	0.06 (J)	—	—	0.067 (J)	—	—	NA	—
0316-95-0198	16-01518	0–0.5	SOIL	0.14 (J)	—	—	NA	—	—	0.093 (J)	0.12 (J)	—	—	NA	—
0316-95-0191	16-01660	0–0.33	SED	10	0.66 (J)	1.6 (J)	NA	—	0.36 (J)	6.6	9.5	NA	—	NA	—
0316-95-0193	16-01660	2.5–4	QBT4	0.058 (J)	—	—	—	—	—	0.048 (J)	0.058 (J)	NA	—	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] Pyrene used as a surrogate based on structural similarity.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070)

[e] — = Not detected.

[f] na = Not available.

[g] SSLs are from EPA (2007, 099314).

[h] NA = Not analyzed.

Table 5.4-5
Proposed Sampling at SWMU 16-026(v)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	26v-1 through 26v-7 26v-9 26v-10	Drainlines	Immediately below line	X[a]	X	X	X	X	—[b]	X	X	X	X
			5 ft below line	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26v-8	Drainline	Immediately below line	X	X	X	X	X	X	X	X	X	X
			5 ft below line	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	26v-11	Outfall	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	26v-12 26v-13 26v-15 through 26v-20 26v-22	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26v-14 26v-21	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.5-1
Samples Collected and Analyses Requested at SWMU 16-030(h)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC	VOC	Cyanide (Total)
0316-95-0154	16-01495	0–0.5	SED	874	875	874	—*	875
0316-95-0155	16-01495	6.4–8	QBT4	1183	1184	1183	1183	1184
0316-95-0156	16-01495	8.5–9.5	QBT4	1183	1184	1183	1183	1184
0316-95-0160	16-01496	0–0.5	SOIL	903	904	903	—	904
0316-95-0161	16-01496	3–4.5	QBT4	1251	1252	1251	1251	1252
0316-95-0162	16-01496	5.5–6.5	QBT4	1251	1252	1251	1251	1252
0316-95-0166	16-01497	0–0.5	SOIL	903	904	903	—	904
0316-95-0167	16-01497	6–7.5	SOIL	1297	1298	1297	1297	1298
0316-95-0168	16-01497	8.5–10.5	QBT4	1297	1298	1297	1297	1298
0316-95-0172	16-01498	0–0.5	SED	874	875	874	—	875
0316-95-0173	16-01499	0–0.5	SED	874	875	874	—	875
0316-95-0174	16-01500	0–0.5	SED	874	875	874	—	875
0316-95-0175	16-01501	0–0.5	SED	874	875	874	—	875
0316-95-0176	16-01502	0–0.5	SED	874	875	874	—	875
0316-95-0169	16-01658	0–0.5	SED	903	904	903	—	904
0316-95-0170	16-01658	6.5–8	QBT4	1391	1392	1391	1391	1392
0316-95-0171	16-01658	8.5–10.5	QBT4	1391	1392	1391	1391	1392
0316-95-0157	16-01672	0–0.5	SED	874	875	874	—	875
0316-95-0158	16-01672	8–9	QBT4	1268	1269	1268	1268	1269
0316-95-0159	16-01672	9–10	QBT4	1268	1269	1268	1268	1269
0316-95-0163	16-01673	0–0.5	SED	874	875	874	—	875
0316-95-0164	16-01673	0.6–2	QBT4	1268	1269	1268	1268	1269
0316-95-0165	16-01673	2–4.5	QBT4	1268	1269	1268	1268	1269

Note: Numbers in analyte columns are request numbers.

* — =Analyses not requested.

Table 5.5-2
Proposed Sampling at SWMU 16-003(l)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	3l-1 3l-2 3l-3 3l-7 3l-9 3l-13 3l-14 3l-15	Adjacent to sumps and sump/drainline connections	Immediately below the level of sump bottom	X[a]	X	X	X	X	—[b]	X	X	X	X
			5 ft below the level of sump bottom	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	3l-8	Sump/drainline connection	Immediately below line	X	X	X	X	X	X	X	X	X	X
			5 ft below line	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	3l-4 3l-10 3l-16	Drainlines	Immediately below line	X	X	X	X	X	—	X	X	X	X
			5 ft below line	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	3l-5 3l-11 3l-17	Outfalls	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	3l-6	On terrace	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			8–9 ft bgs	X	X	X	X	X	—	X	X	X	X
			12–13 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	3l-12 3l-18	On terrace	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			8–9 ft bgs	X	X	X	X	X	X	X	X	X	X
			12–13 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.5-3
Inorganic Chemicals above BVs at SWMU 16-030(h)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Thallium	Vanadium	Zinc
Qbt2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**	**1690**	**482**	**0.1**	**6.58**	**3500**	**0.3**	**1**	**1.1**	**17**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**1.31**	**0.4**	**4420**	**10.5**	**4.73**	**11.2**	**0.82**	**13800**	**19.7**	**2370**	**543**	**0.1**	**9.38**	**2690**	**0.3**	**1**	**0.73**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**3460**	**1.52**	**1**	**0.73**	**39.6**	**48.8**
Construction Worker SSL[b]				**40700**	**124**	**65.4**	**4350**	**144**	**309**	**na[c]**	**449[d]**	**34.6**	**12400**	**6190**	**217000**	**800**	**na**	**463**	**92.9**	**6190**	**na**	**1550**	**1550**	**20.4**	**1550**	**92900**
Industrial SSL[e]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**300[f]**	**45400**	**227000**	**795000**	**800**	**na**	**145000**	**310f**	**22700**	**na**	**5680**	**5680**	**74.9**	**5680**	**341000**
Residential SSL[e]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**23[f]**	**3130**	**1560**	**54800**	**400**	**na**	**10700**	**23[f]**	**1560**	**na**	**391**	**391**	**5.16**	**391**	**23500**
0316-95-0154	16-01495	0–0.5	SED	—[g]	6.4 (U)	18.3	705	—	4	—	44.6	—	263	1.3 (U)	103000	94.5	—	—	4.7	23.1	—	0.37 (J)	—	—	114	337
0316-95-0155	16-01495	6.4–8	QBT4	—	6.1 (U)	—	47.6	—	—	—	58.1 (J+)	—	—	1.3 (U)	—	—	—	—	—	—	—	0.31 (U)	—	—	—	—
0316-95-0156	16-01495	8.5–9.5	QBT4	—	5.8 (U)	—	48.2	—	—	—	107 (J+)	—	—	1.2 (U)	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0160	16-01496	0–0.5	SOIL	—	6.31 (U)	10.6	7870	—	5.92	7960	38.8	—	571	1.61	46000	82.4	—	—	4.67	20.2	—	—	1.13 (J)	—	—	447
0316-95-0161	16-01496	3–4.5	QBT4	—	6.7 (U)	—	107	—	—	—	—	3.8 (J)	90	1.3 (U)	—	—	—	—	—	20.9	—	0.33 (UJ)	—	—	—	—
0316-95-0162	16-01496	5.5–6.5	QBT4	—	5.6 (U)	—	—	—	—	—	—	132	697	1.2 (U)	—	—	—	—	—	155	—	—	5.1	—	—	594
0316-95-0166	16-01497	0–0.5	SOIL	—	5.3	—	1860	—	1.3	—	35.5	—	164	1.1 (U)	105000	46.2	—	—	0.2	25.5	—	—	—	—	—	220
0316-95-0167	16-01497	6–7.5	SOIL	—	5.74 (U)	—	—	—	0.574 (U)	—	94.8	12.9	—	1.2 (U)	—	—	—	—	—	49.2 (J-)	—	—	—	—	—	—
0316-95-0168	16-01497	8.5–10.5	QBT4	—	5.6 (U)	—	64.7	—	—	3460	72.8	3.3 (J)	25.3	1.2 (U)	—	15.4	—	—	—	40.9 (J-)	—	—	—	—	—	—
0316-95-0172	16-01498	0–0.5	SED	22900	8 (U)	8.24	1090	—	0.8 (U)	4600	20.7	6.7 (J)	78.5	1.6 (U)	21600	46.3	3240	—	0.13 (J)	10.7	2890	0.41 (J)	—	—	54.5	120
0316-95-0173	16-01499	0–0.5	SED	16800	7.2 (U)	—	531	—	0.72 (U)	—	13.2	5.1 (J)	35.1	1.5 (U)	16000	—	—	—	—	—	—	0.35 (U)	—	—	39.4	71.4
0316-95-0174	16-01500	0–0.5	SED	21000	9.3 (U)	—	985	1.5	0.93 (U)	5490	18.9	6.2 (J)	66.9	1.9 (U)	20500	20.7	3040	—	—	10.3	2900	0.46 (U)	—	—	54.5	103
0316-95-0175	16-01501	0–0.5	SED	—	4.9 (U)	—	—	—	0.49 (U)	—	—	—	—	1 (U)	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0176	16-01502	0–0.5	SED	—	5.2 (U)	—	398	—	0.52 (U)	—	—	—	—	1.1 (U)	—	—	—	—	—	—	—	—	6	—	—	—
0316-95-0169	16-01658	0–0.5	SED	—	5.4 (U)	—	2310	—	2	8170	15.2	—	58.3	1.1 (U)	17600	41.2	—	1860	0.14	—	—	—	—	26 (U)	22.3	340
0316-95-0170	16-01658	6.5–8	QBT4	—	5.3 (U)	—	—	—	—	4950	30.2 (J-)	—	16.4	1.13 (U)	—	13.9	—	—	—	18.2	—	—	—	—	—	—
0316-95-0171	16-01658	8.5–10.5	QBT4	—	5.81 (U)	—	—	—	—	—	—	—	28.8	1.17 (U)	—	—	—	—	—	8.2	—	—	—	—	—	—
0316-95-0157	16-01672	0–0.5	SED	26100	8.2 (U)	5.1	309	1.6	0.82 (U)	—	17.7	—	26.8	1.7 (U)	20900	30.5	3570	—	0.14 (J)	11.7	3070	0.41 (U)	—	—	48	156
0316-95-0158	16-01672	8–9	QBT4	—	5.5 (U)	—	70	—	—	—	—	50.6	3810	1.2 (U)	—	—	—	—	—	626	—	—	3	—	—	1870
0316-95-0159	16-01672	9–10	QBT4	—	5.3 (U)	—	68.5	—	—	—	12.4	40.6	1050	1.1 (U)	—	—	—	—	—	193	—	—	—	—	—	656
0316-95-0163	16-01673	0–0.5	SED	—	5.8 (U)	—	407	—	0.58 (U)	4570	14.2	—	97.8	1.2 (U)	15600	33.9	—	—	0.38	—	—	—	—	—	31.2	112

Table 5.5-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Thallium	Vanadium	Zinc
Qbt2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**	**1690**	**482**	**0.1**	**6.58**	**3500**	**0.3**	**1**	**1.1**	**17**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**1.31**	**0.4**	**4420**	**10.5**	**4.73**	**11.2**	**0.82**	**13800**	**19.7**	**2370**	**543**	**0.1**	**9.38**	**2690**	**0.3**	**1**	**0.73**	**19.7**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**3460**	**1.52**	**1**	**0.73**	**39.6**	**48.8**
Construction Worker SSL[b]				**40700**	**124**	**65.4**	**4350**	**144**	**309**	**na[c]**	**449[d]**	**34.6**	**12400**	**6190**	**217000**	**800**	**na**	**463**	**92.9**	**6190**	**na**	**1550**	**1550**	**20.4**	**1550**	**92900**
Industrial SSL[e]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**300[f]**	**45400**	**227000**	**795000**	**800**	**na**	**145000**	**310f**	**22700**	**na**	**5680**	**5680**	**74.9**	**5680**	**341000**
Residential SSL[e]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**23[f]**	**3130**	**1560**	**54800**	**400**	**na**	**10700**	**23[f]**	**1560**	**na**	**391**	**391**	**5.16**	**391**	**23500**
0316-95-0164	16-01673	0.6–2	QBT4	—	6.3 (U)	—	377	—	—	—	131	—	23.5	1.3 (U)	—	—	—	—	—	6.6	—	0.31 (U)	—	—	—	—
0316-95-0165	16-01673	2–4.5	QBT4	—	6 (U)	4.1	—	—	—	—	64.9	—	44.4	1.2 (U)	—	12.2	—	—	—	38.3	—	—	—	—	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] na = Not available.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from NMED (2009, 108070), unless otherwise noted .

[f] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[g] — = Not detected or not above BV.

Table 5.5-4
Organic Chemicals Detected at SWMU 16-030(h)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Amino-2,6-dinitrotoluene[4-]	Amino-4,6-dinitrotoluene[2-]	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Butylbenzylphthalate
Construction Worker SSL[a]				**18600**	**6680[b]**	**263000**	**601**	**601**	**66800**	**213**	**21.3**	**213**	**6680[b]**	**2060**	**4760**	**47600**
Industrial SSL[c]				**36700**	**18300[b]**	**851000**	**1900[d]**	**2000[d]**	**183000**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**1370**	**9100[d]**
Residential SSL[c]				**3440**	**1720[b]**	**67500**	**150[d]**	**150[d]**	**17200**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**347**	**2600[d]**
0316-95-0154	16-01495	0–0.5	SED	—[e]	0.22 (J)	NA[f]	—	0.644	0.64 (J)	2.4 (J)	2.9 (J)	4.2 (J)	1.5 (J)	1.4 (J)	—	—
0316-95-0155	16-01495	6.4–8	QBT4	—	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0156	16-01495	8.5–9.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0160	16-01496	0–0.5	SOIL	1.9	0.29 (J)	NA	26.4	16.7	3.1	5.9	5.9	11	3	3.2	—	—
0316-95-0161	16-01496	3–4.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0162	16-01496	5.5–6.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0166	16-01497	0–0.5	SOIL	—	—	NA	0.946	0.849	—	—	—	—	—	—	—	—
0316-95-0168	16-01497	8.5–10.5	QBT4	—	—	0.016 (J)	—	—	—	—	—	—	—	—	—	—
0316-95-0172	16-01498	0–0.5	SED	—	—	NA	0.746	0.765	0.48 (J)	1.6 (J)	1.8 (J)	2.5 (J)	0.85 (J)	0.87 (J)	—	—
0316-95-0173	16-01499	0–0.5	SED	1.6	0.12 (J)	NA	—	—	1.6	2.6	3.2	4.6	1.5	1.6	—	—
0316-95-0174	16-01500	0–0.5	SED	—	—	NA	0.153	—	—	—	—	—	—	—	—	—
0316-95-0176	16-01502	0–0.5	SED	—	—	NA	—	0.173	—	—	—	—	—	—	—	—
0316-95-0169	16-01658	0–0.5	SED	—	—	NA	1.5	1.05	—	—	—	0.32 (J)	—	—	—	—
0316-95-0170	16-01658	6.5–8	QBT4	—	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0171	16-01658	8.5–10.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0157	16-01672	0–0.5	SED	—	—	NA	—	—	0.12 (J)	0.43 (J)	0.47 (J)	0.72	0.25 (J)	0.29 (J)	—	0.3 (J)
0316-95-0158	16-01672	8–9	QBT4	—	—	—	—	—	—	—	—	—	—	—	0.29 (J)	—
0316-95-0159	16-01672	9–10	QBT4	—	—	—	—	—	—	—	—	—	—	—	0.37 (J)	—
0316-95-0163	16-01673	0–0.5	SED	—	—	NA	0.418	0.197	0.2 (J)	0.76 (J)	0.93 (J)	—	0.46 (J)	0.46 (J)	—	—
0316-95-0164	16-01673	0.6–2	QBT4	—	—	—	—	—	—	—	—	—	—	—	0.054 (J)	—
0316-95-0165	16-01673	2–4.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	0.081 (J)	—

Table 5.5-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Dimethyl Phthalate	Dimethylphenol[2,4-]	Di-n-butylphthalate	Dinitrobenzene[1,3-]	Dinitrotoluene[2,4-]	Di-n-octylphthalate	Fluoranthene	Fluorene
Construction Worker SSL[a]				**20600**	**21.3**	**552**	**191000**	**2380000**	**4760**	**23800**	**23.8**	**476**	**4760**	**8910**	**8910**
Industrial SSL[c]				**2340**	**2.34**	**1000[d]**	**547000**	**6840000**	**13700**	**68400**	**62[d]**	**103**	**25000[g]**	**24400**	**24400**
Residential SSL[c]				**621**	**0.621**	**78[d]**	**48900**	**611000**	**1220**	**6110**	**6.1[d]**	**15.7**	**2400[g]**	**2290**	**2290**
0316-95-0154	16-01495	0–0.5	SED	3.4 (J)	0.4 (J)	—	—	—	—	—	—	—	—	3.6 (J)	—
0316-95-0155	16-01495	6.4–8	QBT4	—	—	—	—	—	—	0.76	—	—	—	—	—
0316-95-0156	16-01495	8.5–9.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0160	16-01496	0–0.5	SOIL	6.8	0.82	1.6	—	—	0.13 (J)	0.14 (J)	11.1	—	—	9.9	2.5
0316-95-0161	16-01496	3–4.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0162	16-01496	5.5–6.5	QBT4	—	—	—	0.081 (J)	—	—	—	—	—	—	—	—
0316-95-0166	16-01497	0–0.5	SOIL	—	—	—	—	—	—	—	0.308	—	—	—	—
0316-95-0168	16-01497	8.5–10.5	QBT4	—	—	—	0.04 (J)	—	—	—	—	—	—	—	—
0316-95-0172	16-01498	0–0.5	SED	2.3 (J)	—	—	—	—	—	—	—	0.087	—	3.6	—
0316-95-0173	16-01499	0–0.5	SED	3.5	0.48 (J)	1.7	—	—	—	0.059 (J)	—	—	—	6.8	2.1
0316-95-0174	16-01500	0–0.5	SED	—	—	—	—	—	—	—	—	—	—	0.43 (J)	—
0316-95-0176	16-01502	0–0.5	SED	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0169	16-01658	0–0.5	SED	0.25 (J)	—	—	—	—	—	—	—	—	—	0.14 (J)	—
0316-95-0170	16-01658	6.5–8	QBT4	—	—	—	0.078 (J)	—	—	—	—	—	—	—	—
0316-95-0171	16-01658	8.5–10.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0157	16-01672	0–0.5	SED	0.8	—	—	—	—	—	—	—	—	0.38 (J)	1.5	—
0316-95-0158	16-01672	8–9	QBT4	—	—	—	0.61	0.052 (J)	—	—	—	—	—	—	—
0316-95-0159	16-01672	9–10	QBT4	—	—	—	1.4	0.2 (J)	—	—	—	—	—	—	—
0316-95-0163	16-01673	0–0.5	SED	1.2 (J)	—	—	—	—	—	—	0.229	—	—	—	—
0316-95-0164	16-01673	0.6–2	QBT4	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0165	16-01673	2–4.5	QBT4	—	—	—	0.15 (J)	—	—	—	—	—	—	—	—

Table 5.5-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	HMX	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Methylnaphthalene[2-]	Methylphenol[2-]	Methylphenol[4-]	Naphthalene	Nitrosodiphenylamine[N-]	Phenanthrene	Pyrene	RDX	Trichlorofluoromethane	Trinitrotoluene[2,4,6-]
Construction Worker SSL[a]				**11900**	**213**	**10600**	**1240**	**na[h]**	**na**	**702**	**34000**	**7150**	**6680**	**715**	**5820**	**141**
Industrial SSL[c]				**34200**	**23.4**	**1090**	**4100[d]**	**34000[g]**	**3400[g]**	**252**	**3910**	**20500**	**18300**	**174**	**6760**	**469**
Residential SSL[c]				**3060**	**6.21**	**199**	**310[d]**	**3100[g]**	**310[g]**	**45**	**993**	**1830**	**1720**	**44.2**	**2010**	**35.9**
0316-95-0154	16-01495	0–0.5	SED	207	1.6 (J)	NA	—	—	—	—	—	1.2 (J)	4.1 (J)	1.64	NA	9
0316-95-0155	16-01495	6.4–8	QBT4	—	—	0.004 (J)	—	—	—	—	—	—	—	—	—	—
0316-95-0156	16-01495	8.5–9.5	QBT4	—	—	0.003 (J)	—	—	—	—	—	—	—	—	—	—
0316-95-0160	16-01496	0–0.5	SOIL	9300	3.4	NA	1.9	0.076 (J)	0.2 (J)	5.3	0.34 (J)	9.8	11	2.5	NA	11.4
0316-95-0161	16-01496	3–4.5	QBT4	2.47	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0162	16-01496	5.5–6.5	QBT4	0.527	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0166	16-01497	0–0.5	SOIL	100	—	NA	—	—	—	—	—	—	—	—	NA	0.631
0316-95-0168	16-01497	8.5–10.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0172	16-01498	0–0.5	SED	4.09	—	NA	—	—	—	—	—	1.3 (J)	2.7	—	NA	—
0316-95-0173	16-01499	0–0.5	SED	—	1.9	NA	1.7	0.064 (J)	0.21 (J)	5.5	—	9.4	5.5	—	NA	—
0316-95-0174	16-01500	0–0.5	SED	1.54	—	NA	—	—	—	—	—	—	0.32 (J)	—	NA	—
0316-95-0176	16-01502	0–0.5	SED	—	—	NA	—	—	—	—	—	—	—	—	NA	—
0316-95-0169	16-01658	0–0.5	SED	1720	—	NA	—	—	—	—	—	0.051 (J)	0.14 (J)	—	NA	1.69
0316-95-0170	16-01658	6.5–8	QBT4	1.32	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0171	16-01658	8.5–10.5	QBT4	—	—	0.003 (J)	—	—	—	—	—	—	—	—	0.006	—
0316-95-0157	16-01672	0–0.5	SED	—	0.31 (J)	NA	—	—	—	0.1 (J)	—	0.64	0.85	—	NA	—
0316-95-0158	16-01672	8–9	QBT4	—	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0159	16-01672	9–10	QBT4	—	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0163	16-01673	0–0.5	SED	3280	0.5 (J)	NA	—	—	—	—	—	0.73 (J)	—	—	NA	0.463
0316-95-0164	16-01673	0.6–2	QBT4	—	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0165	16-01673	2–4.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] Pyrene used as a surrogate based on structural similarity.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[e] — = Not detected.

[f] NA = Not analyzed.

[g] SSLs are from EPA (2007, 099314).

[h] na = Not available.

Table 5.5-5
Proposed Sampling at SWMU 16-030(h)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	30h-1 30h-2 30h-4 30h-5	Drainlines in the middle	Immediately below line	X[a]	X	X	X	X	—[b]	X	X	X	X
			5 ft below line	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	30h-3 30h-6	Outfalls in the middle	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	30h-7 30h-8 30h-9	Drainage downgradient of outfalls in the middle	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	30h-10 through 30h-17	Drainlines on the east end	Immediately below line	Xa	X	X	X	X	—	X	X	X	X
			5 ft below line	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	30h-18 30h-19	Outfalls on east end	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	30h-20 through 30h-24	Drainage downgradient of outfalls on east end	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	30h-25	Drainage downgradient of outfalls on east end	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.6-1
Samples Collected and Analyses Requested at SWMU 16-006(d)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	High Explosives	Metals	SVOC	VOC	Cyanide (Total)
0316-95-0297	16-01617	2–4	SOIL	1108	1102	1106	1102	1102	1106
0316-95-0298	16-01617	4–6.5	QBT4	1108	1102	1106	1102	1102	1106
0316-95-0299	16-01618	2–2.5	SOIL	1108	1102	1106	1102	1102	1106
0316-95-0300	16-01618	4.5–6.5	QBT4	1108	1102	1106	1102	1102	1106
0316-95-0301	16-01619	3–4	SOIL	1108	1102	1106	1102	1102	1106
0316-95-0302	16-01619	4.5–7	QBT4	1108	1102	1106	1102	1102	1106

Note: Numbers in analyte columns are request numbers.

Table 5.6-2
Inorganic Chemicals above BVs at SWMU 16-006(d)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Chromium	Cyanide (Total)
Qbt2, 3, 4 BV[a]				**0.5**	**1.63**	**7.14**	**0.5**
Soil BV[a]				**0.83**	**0.4**	**19.3**	**0.5**
Construction Worker SSL[b]				**124**	**309**	**449**[c]	**6190**
Industrial SSL[d]				**454**	**1120**	**2920**[c]	**227000**
Residential SSL[d]				**31.3**	**77.9**	**219**[c]	**1560**
0316-95-0297	16-01617	2–4	SOIL	5.98 (U)	0.598 (U)	—[e]	1.22 (UJ)
0316-95-0298	16-01617	4–6.5	QBT4	5.07 (U)	—	21.1	1.06 (UJ)
0316-95-0299	16-01618	2–2.5	SOIL	6.08 (U)	0.608 (U)	—	1.27 (UJ)
0316-95-0300	16-01618	4.5–6.5	QBT4	5.18 (U)	—	23.8	1.05 (UJ)
0316-95-0301	16-01619	3–4	SOIL	5.55 (U)	0.555 (U)	—	1.14 (UJ)
0316-95-0302	16-01619	4.5–7	QBT4	5.23 (U)	—	17	1.07 (UJ)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] BVs are from LANL (1998, 059730).
[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).
[c] SSLs are for hexavalent chromium.
[d] SSLs are from NMED (2009, 108070).
[e] — = Not detected or not above BV.

Table 5.6-3
Organic Chemicals Detected at SWMU 16-006(d)

Sample ID	Location ID	Depth (ft)	Media	Chrysene	Diethylphthalate	Fluoranthene	Phenanthrene	Pyrene
Construction Worker SSL[a]				**20600**	**191000**	**8910**	**7150**	**6680**
Industrial SSL[b]				**2340**	**547000**	**24400**	**20500**	**18300**
Residential SSL[b]				**621**	**48900**	**2290**	**1830**	**1720**
0316-95-0298	16-01617	4–6.5	QBT4	—[c]	0.041 (J)	—	—	—
0316-95-0300	16-01618	4.5–6.5	QBT4	—	0.054 (J)	—	—	—
0316-95-0301	16-01619	3–4	SOIL	0.06 (J)	—	0.1 (J)	0.085 (J)	0.07 (J)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).
[b] SSLs are from NMED (2009, 108070).
[c] — = Not detected.

Table 5.6-4
Proposed Sampling at SWMU 16-006(d)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	6d-1 6d-3	Downgradient of drain field	0–1 ft bgs	X[a]	X	X	X	X	—[b]	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	6d-2	Downgradient of drain field	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	6d-4 through 6d-8	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	6d-9	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.6-5
Samples Collected and Analyses Requested at AOC 16-030(g)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC	VOC	Cyanide (Total)
0316-95-0267	16-01606	0–0.5	SOIL	923	924	923	—*	924
0316-95-0268	16-01606	0.5–1.5	SOIL	923	924	923	923	924
0316-95-0505	16-01606	8.5–9.5	QBT4	972	978	972	972	978
0316-95-0269	16-01606	11–12.5	QBT4	972	978	972	972	978
0316-95-0273	16-01607	0–0.5	SED	215	206	—	—	206
0316-95-0274	16-01608	0–0.5	SED	215	206	—	—	206
0316-95-0275	16-01609	0–0.5	SED	215	206	—	—	206
0316-95-0276	16-01610	0–0.5	SED	215	206	—	—	206
0316-95-0277	16-01611	0–0.5	SED	215	206	—	—	206
0316-95-0270	16-01668	0–0.5	SED	923	924	923	—	924
0316-95-0271	16-01668	0.5–0.83	QBT4	923	924	923	923	924
0316-95-0272	16-01668	5–7	QBT4	1242	1243	1242	1242	1243

Note: Numbers in analyte columns are request numbers.
* — = Analyses not requested.

Table 5.6-6
Inorganic Chemicals above BVs at AOC 16-030(g)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Barium	Cadmium	Chromium	Copper	Cyanide (Total)	Lead	Selenium	Vanadium	Zinc
Qbt2, 3, 4 BV[a]				**0.5**	**46**	**1.63**	**7.14**	**4.66**	**0.5**	**11.2**	**0.3**	**17**	**63.5**
Sediment BV[a]				**0.83**	**127**	**0.4**	**10.5**	**11.2**	**0.82**	**19.7**	**0.3**	**19.7**	**60.2**
Soil BV[a]				**0.83**	**295**	**0.4**	**19.3**	**14.7**	**0.5**	**22.3**	**1.52**	**39.6**	**48.8**
Construction Worker SSL[b]				**124**	**4350**	**309**	**449[c]**	**12400**	**6190**	**800**	**1550**	**1550**	**92900**
Industrial SSL[d]				**454**	**224000**	**1120**	**2920[c]**	**45400**	**227000**	**800**	**5680**	**5680**	**341000**
Residential SSL[d]				**31.3**	**15600**	**77.9**	**219[c]**	**3130**	**1560**	**400**	**391**	**391**	**23500**
0316-95-0267	16-01606	0–0.5	SOIL	6.45 (U)	—[e]	0.645 (U)	—	—	1.35 (U)	27.1 (J-)	—	—	102
0316-95-0268	16-01606	0.5–1.5	SOIL	6.4 (U)	391	0.64 (U)	36.9 (J-)	—	1.33 (U)	138 (J-)	—	—	107
0316-95-0505	16-01606	8.5–9.5	QBT4	5.7 (U)	—	—	10.7	—	1.2 (U)	—	—	—	—
0316-95-0269	16-01606	11–12.5	QBT4	5.6 (U)	—	—	38.5	—	1.1 (U)	—	—	—	—
0316-95-0273	16-01607	0–0.5	SED	6.7 (U)	150	0.67 (U)	—	73	1.4 (U)	434	0.34 (U)	—	88.8
0316-95-0274	16-01608	0–0.5	SED	7.3 (U)	—	0.73 (U)	—	34.9	1.5 (U)	37	0.38 (U)	—	65.6
0316-95-0275	16-01609	0–0.5	SED	8.6 (U)	—	0.86 (U)	—	62.4	1.7 (U)	25.9	0.42 (U)	—	—
0316-95-0276	16-01610	0–0.5	SED	5.8 (U)	—	0.58 (U)	—	—	1.2 (U)	—	—	—	—
0316-95-0277	16-01611	0–0.5	SED	5.8 (U)	—	0.58 (U)	—	—	1.2 (U)	—	—	—	—
0316-95-0270	16-01668	0–0.5	SED	6.12 (U)	214	0.612 (U)	12.6 (J-)	—	1.28 (U)	40 (J-)	0.315 (U)	20.9	88.5
0316-95-0271	16-01668	0.5–0.83	QBT4	5.74 (U)	76.3	—	—	—	1.22 (U)	—	0.303 (U)	—	—
0316-95-0272	16-01668	5–7	QBT4	5.3 (U)	—	—	—	40.9	1.1 (U)	—	—	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are for hexavalent chromium.

[d] SSLs are from NMED (2009, 108070).

[e] — = Not detected or not above BV.

Table 5.6-7
Organic Chemicals Detected at AOC 16-030(g)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Amino-2,6-dinitrotoluene[4-]	Amino-4,6-dinitrotoluene[2-]	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Bis(2-ethylhexyl)phthalate	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran
Construction Worker SSL[a]				**18600**	**263000**	**601**	**601**	**66800**	**213**	**21.3**	**213**	**6680**[b]	**2060**	**4760**	**20600**	**21.3**	**552**
Industrial SSL[c]				**36700**	**851000**	**1900**[d]	**2000**[d]	**183000**	**23.4**	**2.34**	**23.4**	**18300**[b]	**234**	**1370**	**2340**	**2.34**	**1000**[d]
Residential SSL[c]				**3440**	**67500**	**150**[d]	**150**[d]	**17200**	**6.21**	**0.621**	**6.21**	**1720**[b]	**62.1**	**347**	**621**	**0.621**	**78**[d]
0316-95-0267	16-01606	0–0.5	SOIL	0.84 (J)	NA[e]	—[f]	—	1.8 (J)	3.3	3.2	4.8	1.4 (J)	2.5	—	4.9	0.41 (J)	0.53 (J)
0316-95-0268	16-01606	0.5–1.5	SOIL	—	—	0.218	0.109	0.11 (J)	—	0.074 (J)	0.09 (J)	—	—	—	0.1 (J)	—	—
0316-95-0505	16-01606	8.5–9.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0269	16-01606	11–12.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0273	16-01607	0–0.5	SED	NA	NA	0.124	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0316-95-0275	16-01609	0–0.5	SED	NA	NA	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0316-95-0276	16-01610	0–0.5	SED	NA	NA	—	—	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0316-95-0270	16-01668	0–0.5	SED	0.095 (J)	NA	—	—	0.43	1.9	2	2.8	0.99	1	—	2.7	0.29 (J)	0.049 (J)
0316-95-0271	16-01668	0.5–0.83	QBT4	—	0.009 (J)	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0272	16-01668	5–7	QBT4	—	—	—	—	—	—	—	—	—	—	0.076 (J)	—	—	—

Table 5.6-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Di-n-butylphthalate	Dinitrotoluene[2,4-]	Fluoranthene	Fluorene	HMX	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	RDX	TATB	Tetryl	Trinitrobenzene[1,3,5-]	Trinitrotoluene[2,4,6-]
Construction Worker SSL[a]				**23800**	**476**	**8910**	**8910**	**11900**	**213**	**702**	**7150**	**6680**	**715**	**na[g]**	**953**	**8760[d]**	**141**
Industrial SSL[c]				**68400**	**103**	**24400**	**24400**	**34200**	**23.4**	**252**	**20500**	**18300**	**174**	**na**	**2740**	**27000[d]**	**469**
Residential SSL[c]				**6110**	**15.7**	**2290**	**2290**	**3060**	**6.21**	**45**	**1830**	**1720**	**44.2**	**na**	**244**	**2200[d]**	**35.9**
0316-95-0267	16-01606	0–0.5	SOIL	—	—	9	0.96 (J)	—	1.4 (J)	0.86 (J)	6.6	8.5	—	NA	0.144	—	—
0316-95-0268	16-01606	0.5–1.5	SOIL	—	—	0.16 (J)	—	0.356	—	—	0.1 (J)	0.12 (J)	—	NA	—	—	0.309
0316-95-0505	16-01606	8.5–9.5	QBT4	—	—	—	—	—	—	—	—	—	—	NA	—	0.184	—
0316-95-0269	16-01606	11–12.5	QBT4	—	—	—	—	—	—	—	—	—	0.682	NA	—	0.966	0.256
0316-95-0273	16-01607	0–0.5	SED	NA	—	NA	NA	—	NA	NA	NA	NA	—	3.34	—	—	0.206
0316-95-0275	16-01609	0–0.5	SED	NA	0.114	NA	NA	—	NA	NA	NA	NA	—	—	0.096	—	0.109
0316-95-0276	16-01610	0–0.5	SED	NA	—	NA	NA	—	NA	NA	NA	NA	—	—	—	—	0.478
0316-95-0270	16-01668	0–0.5	SED	0.051 (J)	—	3.7	0.11 (J)	1.72	1.1	—	1.4	2.6	—	NA	—	—	—
0316-95-0271	16-01668	0.5–0.83	QBT4	0.041 (J)	—	—	—	—	—	—	—	—	—	NA	—	—	—
0316-95-0272	16-01668	5–7	QBT4	—	—	—	—	—	—	—	—	—	—	NA	—	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] Pyrene used as a surrogate based on structural similarity.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[e] NA = Not analyzed.

[f] — = Not detected.

[g] na = Not available.

Table 5.6-8
Proposed Sampling at AOC 16-030(g)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	30g-1	Outfall, adjacent to existing locations 16-01606 and 16-01668	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	30g-2 through 30g-9 30g-11 30g-12 30g-13	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	30g-10 30g-14	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.8-1
Proposed Sampling at SWMU 16-005(a)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	TPH-DRO	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	5a-1 5a-2 5a-3 5a-5 5a-6 5a-7	Drainline	4–5 ft bgs	X[a]	X	X	X	X	—[b]	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	5a-4 5a-8	Drainline	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	5a-9 5a-11	Septic tank inlet and outlet	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	5a-10	Septic tank	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	5a-12 through 5a-16 5a-18 5a-19	Drain field	0–1 ft bgs	X	X	X	X	X	—	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	5a-17	Drain field	0–1 ft bgs	X	X	X	X	X	X	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.9-1
Proposed Sampling at SWMU 16-005(h)

Objective Addressed	Location Number	Location	Beginning Depth of Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	5h-1 5h-2	Drainline	Immediately below line (4–5 ft bgs if line not in place)	X[a]	X	X	X	X	—[b]	X	X	X	X
			5 ft below line (9–10 ft bgs if line not in place)	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5h-3 5h-5	Septic tank inlet and outlet	Immediately below line (4–5 ft bgs if line not in place)	X	X	X	X	X	—	X	X	X	X
			5 ft below line (9–10 ft bgs if line not in place)	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5h-4	Septic tank	Top of native material below back fill	X	X	X	X	X	X	X	X	X	X
			5 ft below	X	X	X	X	X	X	X	X	X	X
			10 ft below	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	5h-6	Outfall	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	5h-7 5h-8 5h-9	10 ft downgradient of outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5h-10 through 5h-13	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5h-14	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.10-1
Proposed Sampling at SWMU 16-005(k)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	TPH-DRO	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	5k-1 5k-3 through 5k-6 5k-8 5k-9 5k-10 5k-14	Drainlines	Immediately below line (4–5 ft bgs if line not in place)	X[a]	X	X	X	X	—[b]	X	X	X	X	X
			5 ft below line (9–10 ft bgs if line not in place)	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	5k-2 5k-7	Drainline	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	5k-11 5k-13	Septic tank inlet and outlet	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	5k-12	Septic tank	Top of native material below back fill	X	X	X	X	X	X	X	X	X	X	X
			5 ft below	X	X	X	X	X	X	X	X	X	X	X
			10 ft below	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.11-1
Proposed Sampling at SWMU 16-005(l)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	5l-1 5l-2 5l-6 through 5l-10	Drainlines	4–5 ft bgs	X[a]	X	X	X	X	—[b]	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5l-3 5l-5	Grease trap inlet and outlet	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5l-4	Grease trap	5–6 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	5l-11	Outfall	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	5l-12 5l-13 5l-14	10 ft downgradient of outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5l-15 5l-17	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5l-16	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.12-1
Samples Collected and Analyses Requested at SWMU 16-006(c)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	High Explosives	Metals	SVOC	VOC	Cyanide (Total)
0316-95-0295	16-01612	0–0.5	SOIL	330	—*	329	328	—	329
0316-95-0296	16-01613	0–0.5	SOIL	330	—	329	328	—	329
0316-95-0293	16-01614	0–0.5	SOIL	330	—	329	328	—	329
0316-95-0294	16-01614	0.5–0.67	SOIL	330	—	329	328	328	329
0316-95-0289	16-01615	2.5–4	SOIL	1194	—	1193	1192	1192	1193
0316-95-0290	16-01615	5.1–6	QBT4	1194	—	1193	1192	1192	1193
0316-95-0291	16-01616	0–1	SOIL	1253	—	1252	1251	1251	1252
0316-95-0292	16-01616	1–3.5	QBT4	1253	—	1252	1251	1251	1252
0316-96-0170	16-02640	0–0.5	SOIL	—	2635	2636	2634	2634	2636

Note: Numbers in analyte columns are request numbers.
* — =Analyses not requested.

Table 5.12-2
Inorganic Chemicals above BVs at SWMU 16-006(c)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Iron	Lead	Mercury	Nickel	Thallium	Vanadium	Zinc
Qbt2, 3, 4 BV[a]				**7340**	**0.5**	**46**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**14500**	**11.2**	**0.1**	**6.58**	**1.1**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**295**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**0.5**	**21500**	**22.3**	**0.1**	**15.4**	**0.73**	**39.6**	**48.8**
Construction Worker SSL[b]				**40700**	**124**	**4350**	**309**	**na[c]**	**449[d]**	**34.6**	**12400**	**6190**	**217000**	**800**	**92.9**	**6190**	**20.4**	**1550**	**92900**
Industrial SSL[e]				**1130000**	**454**	**224000**	**1120**	**na**	**2920[d]**	**300[f]**	**45400**	**227000**	**795000**	**800**	**310[f]**	**22700**	**74.9**	**5680**	**341000**
Residential SSL[e]				**78100**	**31.3**	**15600**	**77.9**	**na**	**219[d]**	**23[f]**	**3130**	**1560**	**54800**	**400**	**23[f]**	**1560**	**5.16**	**391**	**23500**
0316-95-0295	16-01612	0–0.5	SOIL	—[g]	6.4 (U)	4590	0.64 (U)	—	—	—	—	1.3 (U)	—	23	0.15	—	—	—	55
0316-95-0296	16-01613	0–0.5	SOIL	—	7.2 (U)	6540	0.72 (U)	—	—	—	25.1	1.5 (U)	—	23.3	0.11 (J)	—	—	—	107
0316-95-0293	16-01614	0–0.5	SOIL	—	6.5 (U)	668	0.65 (U)	—	—	—	—	1.3 (U)	—	22.8	—	—	—	—	65.5
0316-95-0294	16-01614	0.5–0.67	SOIL	—	7 (U)	2610	0.7 (U)	—	—	—	18.2	1.4 (U)	—	—	0.17	—	—	—	—
0316-95-0289	16-01615	2.5–4	SOIL	—	5.3 (U)	—	0.53 (U)	—	—	—	—	1.1 (U)	—	—	—	—	—	—	—
0316-95-0290	16-01615	5.1–6	QBT4	11800	5.2 (U)	133	—	2500	50.1	18.1	334	1.1 (U)	15000	—	—	89.2 (J+)	—	17.4	206
0316-95-0291	16-01616	0–1	SOIL	—	5.2 (U)	—	0.52 (U)	—	—	—	—	1 (U)	—	—	—	—	—	—	—
0316-95-0292	16-01616	1–3.5	QBT4	—	4.9 (U)	—	—	—	—	—	21.9	1 (U)	—	—	—	—	—	—	—
0316-96-0170	16-02640	0–0.5	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	1 (J)	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] na = Not available.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from NMED (2009, 108070), unless otherwise noted.

[f] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[g] — = Not detected or not above BV.

Table 5.12-3
Organic Chemicals Detected at SWMU 16-006(c)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acetone	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate	Chrysene	Dibenzofuran
Construction Worker SSL[a]				**18600**	**263000**	**66800**	**213**	**21.3**	**213**	**6680**[b]	**2060**	**952000**	**4760**	**20600**	**552**
Industrial SSL[c]				**36700**	**851000**	**183000**	**23.4**	**2.34**	**23.4**	**18300**[b]	**234**	**2500000**[d]	**1370**	**2340**	**1000**[d]
Residential SSL[c]				**3440**	**67500**	**17200**	**6.21**	**0.621**	**6.21**	**1720**[b]	**62.1**	**245000**[d]	**347**	**621**	**78**[d]
0316-95-0295	16-01612	0–0.5	SOIL	—[e]	NA[f]	—	—	—	—	—	—	0.35 (J)	—	—	—
0316-95-0296	16-01613	0–0.5	SOIL	—	NA	—	—	—	—	—	—	0.67 (J)	—	—	—
0316-95-0293	16-01614	0–0.5	SOIL	—	NA	—	—	—	—	—	—	0.2 (J)	—	—	—
0316-95-0294	16-01614	0.5–0.67	SOIL	—	—	—	—	—	—	—	—	0.62 (J)	—	—	—
0316-95-0289	16-01615	2.5–4	SOIL	—	—	0.063 (J)	0.17 (J)	0.15 (J)	0.19 (J)	0.08 (J)	0.068 (J)	—	16	0.24 (J)	—
0316-95-0290	16-01615	5.1–6	QBT4	0.058 (J)	—	0.12 (J)	0.21 (J)	0.19 (J)	0.22 (J)	0.098 (J)	0.093 (J)	—	0.11 (J)	0.28 (J)	0.038 (J)
0316-95-0291	16-01616	0–1	SOIL	—	0.012 (J)	—	—	—	—	—	—	—	—	—	—
0316-95-0292	16-01616	1–3.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	—
0316-96-0170	16-02640	0–0.5	SOIL	—	—	—	—	—	—	—	NA	—	—	—	—

Table 5.12-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Dichlorobenzene[1,4-]	Di-n-butylphthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Isopropyltoluene[4-]	Methylene Chloride	Naphthalene	Phenanthrene	Pyrene	Toluene
Construction Worker SSL[a]				**3780**	**23800**	**8910**	**8910**	**213**	**10300[g]**	**10600**	**702**	**7150**	**6680**	**21100**
Industrial SSL[c]				**180**	**68400**	**24400**	**24400**	**23.4**	**14900[g]**	**1090**	**252**	**20500**	**18300**	**57900**
Residential SSL[c]				**32.2**	**6110**	**2290**	**2290**	**6.21**	**3210[g]**	**199**	**45**	**1830**	**1720**	**5570**
0316-95-0295	16-01612	0–0.5	SOIL	—	—	—	—	—	NA	NA	—	—	—	NA
0316-95-0296	16-01613	0–0.5	SOIL	—	—	—	—	—	NA	NA	—	—	—	NA
0316-95-0293	16-01614	0–0.5	SOIL	0.05 (J)	0.054 (J)	0.048 (J)	—	—	NA	NA	—	—	—	NA
0316-95-0294	16-01614	0.5–0.67	SOIL	—	—	—	—	—	—	—	—	—	—	—
0316-95-0289	16-01615	2.5–4	SOIL	—	—	0.38	—	0.089 (J)	—	0.004 (J)	0.039 (J)	0.26 (J)	0.26 (J)	—
0316-95-0290	16-01615	5.1–6	QBT4	—	—	0.49	0.065 (J)	0.1 (J)	—	0.003 (J)	0.064 (J)	0.44	0.41	—
0316-95-0291	16-01616	0–1	SOIL	—	—	—	—	—	0.014	—	—	—	—	—
0316-95-0292	16-01616	1–3.5	QBT4	—	—	—	—	—	0.024	—	—	—	—	—
0316-96-0170	16-02640	0–0.5	SOIL	—	—	—	—	—	—	0.003 (J)	—	—	—	0.003 (J)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSL are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[e] — = Not detected.

[f] NA = Not analyzed.

[g] Isopropylbenzene used as surrogate.

Table 5.12-4
Proposed Sampling at SWMU 16-006(c)

Objective Addressed	Location Number	Location	Beginning Depth of Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	6c-1 6c-8 through 6c-11	Drainline	Immediately below line	X[a]	X	X	X	X	—[b]	X	X	X	X
			5 ft below line	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	6c-2 6c-4	Manhole inlet and outlet	Immediately below line	X	X	X	X	X	—	X	X	X	X
			5 ft below line	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	6c-3	Manhole	Immediately below manhole	X	X	X	X	X	X	X	X	X	X
			5 ft below manhole	X	X	X	X	X	X	X	X	X	X
			10 ft below manhole	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	6c-5 6c-7	Tank inlet and outlet	Immediately below the level of line	X	X	X	X	X	—	X	X	X	X
			5 ft below the level of line	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	6c-6	Septic tank	Immediately below tank	X	X	X	X	X	X	X	X	X	X
			5 ft below tank	X	X	X	X	X	X	X	X	X	X
			10 ft below tank	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	6c-12	Outfall	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	6c-13 6c-14 6c-15	20 ft downgradient of outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	6c-16 6c-17	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	6c-18	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.12-5
Proposed Sampling at SWMU 16-026(a)

Objective Addressed	Location Number	Location	Beginning Depth of Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	26a-1 26a-2	East drainline	Immediately below line (4–5 ft bgs if line not in place)	X[a]	X	X	X	X	—[b]	X	X	X	X
			5 ft below line (9–10 ft bgs if line not in place)	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26a-3	South drainline	Immediately below line (4–5 ft bgs if line not in place)	X	X	X	X	X	X	X	X	X	X
			5 ft below line (9–10 ft bgs if line not in place)	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	26a-4	South drainline	Immediately below line (4–5 ft bgs if line not in place)	X	X	X	X	X	—	X	X	X	X
			5 ft below line (9–10 ft bgs if line not in place)	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26a-5	East outfall	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	26a-6 26a-7 26a-8	10 ft downgradient of east outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26a-9	Downgradient of east outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26a-10 through 26a-13	Storm drain outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26a-15 26a-17	Drainage downgradient of storm drain	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26a-14	South outfall	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	26a-16 26a-19 26a-20	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26a-18 26a-21	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.13-1
Proposed Sampling at SWMU 16-015(a)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	15a-1 through 15a-6	Within and around footprint	2–3 ft bgs	X[a]	X	X	X	X	X	X	X	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
If located, determine nature and extent of potential contamination	1 location (if located)	Sump	Immediately below sump	X	X	X	X	X	X	X	X	X	X
			5 ft below sump	X	X	X	X	X	X	X	X	X	X
			10 ft below sump	X	X	X	X	X	X	X	X	X	X
If located, determine nature and extent of potential contamination	At joints and intervals of 30 ft (if located)	Drainline	Immediately below line	X	X	X	X	X	X	X	X	X	X
			5 ft below line	X	X	X	X	X	X	X	X	X	X
If drainline located, determine nature and extent of potential contamination	1 location (if drainline located)	Outfall	0–1 ft bgs	X	X	X	X	X	X	X	—[b]	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
If drainline located, determine nature and extent of potential contamination	3 locations (if drainline located)	10 ft downgradient of outfall	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.14-1
Samples Collected and Analyses Requested at SWMU 16-015(b)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC	TPH-DRO	TPH-GRO	VOC
RE16-05-63419	16-25154	2–2.5	SOIL	3799S	3800S	3799S	3799S	3799S	3799S
RE16-05-63420	16-25154	5.5–6	SOIL	3799S	3800S	3799S	3799S	3799S	3799S
RE16-05-63421	16-25155	2–2.5	SOIL	3799S	3800S	3799S	3799S	3799S	3799S
RE16-05-63422	16-25155	5–5.5	SOIL	3799S	3800S	3799S	3799S	3799S	3799S
RE16-05-63423	16-25156	2–2.5	SOIL	3799S	3800S	3799S	3799S	3799S	3799S
RE16-05-63424	16-25156	5.5–6	SOIL	3799S	3800S	3799S	3799S	3799S	3799S
RE16-05-63425	16-25157	2–2.5	SOIL	3799S	3800S	3799S	3799S	3799S	3799S
RE16-05-63426	16-25157	5.5–6	SOIL	3799S	3800S	3799S	3799S	3799S	3799S

Note: Numbers in analyte columns are request numbers.

Table 5.14-2
Inorganic Chemicals above BVs at SWMU 16-015(b)

Sample ID	Location ID	Depth (ft)	Media	Barium	Cobalt	Lead
Soil BV[a]				**295**	**8.64**	**22.3**
Construction Worker SSL[b]				**4350**	**34.6**	**800**
Industrial SSL[c]				**224000**	**300**[d]	**800**
Residential SSL[c]				**15600**	**23**[d]	**400**
RE16-05-63419	16-25154	2–2.5	SOIL	—[e]	8.7	—
RE16-05-63421	16-25155	2–2.5	SOIL	625	—	26.6
RE16-05-63422	16-25155	5–5.5	SOIL	410	—	—

Notes: Results are in mg/kg.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[e] — = Not detected or not above BV.

Table 5.14-3
Organic Chemicals Detected at SWMU 16-015(b)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Amino-2,6-dinitrotoluene[4-]	Amino-4,6-dinitrotoluene[2-]	Di-n-butylphthalate	Dinitrotoluene[2,4-]	Dinitrotoluene[2,6-]	HMX	Methylene Chloride	RDX	Tetrachloroethene	Toluene	TPH-DRO	Trichloroethane[1,1,1-]	Trichloroethene	Trinitrobenzene[1,3,5-]	Trinitrotoluene[2,4,6-]
Construction Worker SSL[a]				**263000**	**601**	**601**	**23800**	**476**	**239**	**11900**	**10600**	**715**	**338**	**21100**	**na[b]**	**64300**	**4600**	**8760**	**141**
Industrial SSL[c]				**851000**	**1900[d]**	**2000[d]**	**68400**	**103**	**687**	**34200**	**1090**	**174**	**36.4**	**57900**	**200[e]**	**77100**	**253**	**27000[d]**	**469**
Residential SSL[c]				**67500**	**150[d]**	**150[d]**	**6110**	**15.7**	**61.2**	**3060**	**199**	**44.2**	**6.99**	**5570**	**200[e]**	**21800**	**45.7**	**2200[d]**	**35.9**
RE16-05-63419	16-25154	2–2.5	SOIL	—[f]	—	—	—	—	—	2	—	1.3	0.0015 (J)	0.00079 (J)	—	—	0.006	—	—
RE16-05-63420	16-25154	5.5–6	SOIL	—	—	—	—	—	—	0.24 (J)	0.0034 (J)	0.37	—	0.0011 (J)	—	—	0.0086	—	—
RE16-05-63421	16-25155	2–2.5	SOIL	0.0016 (J-)	4.4	5.5	0.29 (J)	0.074 (J)	0.1 (J)	240	0.0077 (J-)	—	0.0072 (J-)	0.0032 (J-)	—	0.0012 (J-)	0.043 (J-)	—	14
RE16-05-63422	16-25155	5–5.5	SOIL	0.0025 (J-)	0.57	1.2	—	—	—	9.9	0.0089 (J-)	96	—	—	46	—	0.0042 (J-)	0.1 (J)	24
RE16-05-63423	16-25156	2–2.5	SOIL	—	0.41	0.72	—	—	—	5.1	0.0093 (J-)	26	0.0077 (J-)	0.0033 (J-)	—	0.00064 (J-)	0.041 (J-)	—	—
RE16-05-63424	16-25156	5.5–6	SOIL	0.0023 (J-)	0.33	0.62	—	—	—	8.6	0.0075 (J-)	72	—	—	—	—	0.0029 (J-)	—	3.7
RE16-05-63425	16-25157	2–2.5	SOIL	—	—	—	—	—	—	—	0.0092	—	—	—	—	—	0.0045 (J)	—	—
RE16-05-63426	16-25157	5.5–6	SOIL	0.0024 (J-)	—	—	—	—	—	—	0.0086 (J-)	—	—	—	—	—	0.0012 (J-)	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[e] SSLs are from NMED (2006, 094614).

[f] — = Not detected.

Table 5.14-4
Proposed Sampling at SWMU 16-015(b)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	TPH-DRO	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	15b-1	Within footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	15b-2 through 15b-5	Around footprint	0–1 ft bgs	X	X	X	X	X	—	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	15b-6 15b-7 15b-9 15b-10 15b-12	Drainline	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	15b-11	Drainline	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	15b-8	Sump	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	15b-13 through 15b-16	Outfall	0–1 ft bgs	X	X	X	X	X	—	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	15b-17 15b-19	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	15b-18	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.15-1
Proposed Sampling at SWMU 16-016(a)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	16a-1 16a-9 16a-11	Center and 110 ft radius from the center	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	16a-2 through 16a-8	60 ft radius from the center	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	16a-10 16a-12 16a-13 16a-14	110 ft radius from the center	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	16a-15	60 ft downgradient of 16a-12 in the main drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.16-1
Proposed Sampling at SWMU 16-016(e)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	16e-1	Center of the disposal site	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	16e-2 through 16e-5	10 ft radius from the center	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.17-1
Proposed Sampling at AOC 16-016(f)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	16f-1 16f-2	Within disposal area	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	16f-3 16f-4	Adjacent to disposal area on the west and north	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.18-1
Proposed Sampling at SWMU 16-016(g)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	16g-1	Center of disposal	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	16g-2 16g-3 16g-4	10 ft downgradient of disposal site	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.19-1
Proposed Sampling at SWMU 16-017(j)-99

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	17j-1 through 17j-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.20-1
Proposed Sampling at SWMU 16-017(k)-99

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	17k-1 through 17k-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.21-1
Proposed Sampling at SWMU 16-017(l)-99

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	17l-1 through 17l-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.22-1
Proposed Sampling at SWMU 16-017(m)-99

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	17m-1 through 17m-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.23-1
Proposed Sampling at SWMU 16-017(n)-99

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	17n-1 through 17n-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.24-1
Proposed Sampling at SWMU 16-017(o)-99

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	17o-1 through 17o-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.25-1
Proposed Sampling at AOC 16-021(b) and AOC C-16-071

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	21b-1 through 21b-4	Drainline	Immediately below line	X[a]	X	X	X	X	—[b]	X	X	X	X
			5 ft below line	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	21b-5	Outfall	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.27-1
Samples Collected and Analyses Requested at AOC 16-022(b) and AOC 16-033(b)

Sample ID	Location ID	Depth (ft)	Media	SVOC	TPH-GRO	VOC
RE16-03-50573	16-03-21857	0.5–1	SOIL	1576S	1576S	1576S
RE16-03-50574	16-03-21858	0.5–1	SOIL	1576S	1576S	1576S
RE16-03-50575	16-03-21859	1–1.5	SOIL	1576S	1576S	1576S
RE16-03-50576	16-03-21860	1–1.5	SOIL	1576S	1576S	1576S
RE16-03-50577	16-03-21860	3.5–4	SOIL	1576S	1576S	1576S

Note: Numbers in analyte columns are request numbers.

Table 5.27-2
Organic Chemicals Detected at AOC 16-022(b) and AOC 16-033(b)

Sample ID	Location ID	Depth (ft)	Media	Benzene	Ethylbenzene	Methylnaphthalene[2-]	Naphthalene	TPH-GRO
Construction Worker SSL[a]				**471**	**6630**	**1240**	**702**	**na**[b]
Industrial SSL[c]				**85.4**	**385**	**4100**[d]	**252**	**na**
Residential SSL[c]				**15.5**	**69.7**	**310**[d]	**45**	**na**
RE16-03-50574	16-03-21858	0.5–1	SOIL	—[e]	—	—	0.035	—
RE16-03-50577	16-03-21860	3.5–4	SOIL	0.033	0.029	0.098	—	30

Notes: Results are in mg/kg.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[e] — = Not detected.

Table 5.28-1
Proposed Sampling at AOC 16-024(i)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	24i-1 through 24i-5	Within and around footprint	2–3 ft bgs	X*	X	X	X	X	X	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

* X = Analysis will be performed.

Table 5.29-1
Proposed Sampling at AOC 16-024(j)

Objective Addressed	Location Number	Location	Beginning Depth of Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	24j-1 through 24j-5	Within and around footprint	Immediately below fill or asphalt	X*	X	X	X	X	X	X	X
			4 ft below fill or asphalt	X	X	X	X	X	X	X	X

* X = Analysis will be performed.

Table 5.30-1
Samples Collected and Analyses Requested at AOC 16-024(k)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
0316-97-0547	16-04101	0–1	SOIL	3418R	3419R	3417R

Note: Numbers in analyte columns are request numbers.

Table 5.30-2
Inorganic Chemicals above BVs at AOC 16-024(k)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium
Soil BV[a]				**0.83**	**0.4**
Construction Worker SSL[b]				**124**	**309**
Industrial SSL[c]				**454**	**1120**
Residential SSL[c]				**31.3**	**77.9**
0316-97-0547	16-04101	0–1	SOIL	6.7 (UJ)	0.58 (U)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070).

Table 5.30-3
Proposed Sampling at AOC 16-024(k)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	24k-1 through 24k-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.31-1
Proposed Sampling at AOC 16-024(l)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	24l-1 through 24l-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.32-1
Samples Collected and Analyses Requested at AOC 16-024(o)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
0316-97-0532	16-04052	0–0.41	SOIL	3353R	3352R	3351R

Note: Numbers in analyte columns are request numbers.

Table 5.32-2
Inorganic Chemicals above BVs at AOC 16-024(o)

Sample ID	Location ID	Depth (ft)	Media	Lead
Soil BV[a]				**22.3**
Construction Worker SSL[b]				**800**
Industrial SSL[c]				**800**
Residential SSL[c]				**400**
0316-97-0532	16-04052	0–0.41	SOIL	23.6

Notes: Results are in mg/kg.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070).

Table 5.32-3
Proposed Sampling at AOC 16-024(o)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	24o-1 through 24o-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.33-1
Samples Collected and Analyses Requested at AOC 16-024(p)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
0316-97-0535	16-04061	0–1	SOIL	3353R	3352R	3351R

Note: Numbers in analyte columns are request numbers.

Table 5.33-2
Proposed Sampling at AOC 16-024(p)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	24p-1 through 24p-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.34-1
Samples Collected and Analyses Requested at AOC 16-024(q)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
0316-97-0536	16-04063	0–1	SOIL	3353R	3352R	3351R

Note: Numbers in analyte columns are request numbers.

Table 5.34-2
Inorganic Chemicals above BVs at AOC 16-024(q)

Sample ID	Location ID	Depth (ft)	Media	Cobalt	Lead	Manganese	Mercury	Selenium
Soil BV[a]				**8.64**	**22.3**	**671**	**0.1**	**1.52**
Construction Worker SSL[b]				**34.6**	**800**	**463**	**92.9**	**1550**
Industrial SSL[c]				**300d**	**800**	**145000**	**310d**	**5680**
Residential SSL[c]				**23d**	**400**	**10700**	**23d**	**391**
0316-97-0536	16-04063	0–1	SOIL	19.5	28.3	1390	0.11	1.6

Notes: Results are in mg/kg.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

Table 5.34-3
Organic Chemicals Detected at AOC 16-024(q)

Sample ID	Location ID	Depth (ft)	Media	Pyrene
Construction Worker SSL[a]				**6680**
Industrial SSL[b]				**18300**
Residential SSL[b]				**1720**
0316-97-0536	16-04063	0–1	SOIL	0.091 (J)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] SSLs are from NMED (2009, 108070).

Table 5.34-4
Proposed Sampling at AOC 16-024(q)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	24q-1 through 24q-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.35-1
Samples Collected and Analyses Requested at AOC 16-024(r)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
0316-97-0544	16-04092	0–1	FILL	3439R	3440R	3438R

Note: Numbers in analyte columns are request numbers.

Table 5.35-2
Inorganic Chemicals above BVs at AOC 16-024(r)

Sample ID	Location ID	Depth (ft)	Media	Thallium
Soil BV[a]				**0.73**
Construction Worker SSL[b]				**20.4**
Industrial SSL[c]				**74.9**
Residential SSL[c]				**5.16**
0316-97-0544	16-04092	0–1	FILL	0.97 (U)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070).

Table 5.35-3
Proposed Sampling at AOC 16-024(r)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	24r-1 through 24r-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.36-1
Samples Collected and Analyses Requested at AOC 16-024(s)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
0316-97-0545	16-04093	0–1	SOIL	3418R	3419R	3417R
0316-97-0598	16-04093	1–2	SOIL	3527R	3528R	3526R

Note: Numbers in analyte columns are request numbers.

Table 5.36-2
Inorganic Chemicals above BVs at AOC 16-024(s)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Copper	Lead	Zinc
Soil BV[a]				**0.83**	**0.4**	**14.7**	**22.3**	**48.8**
Construction Worker SSL[b]				**124**	**309**	**12400**	**800**	**92900**
Industrial SSL[c]				**454**	**1120**	**45400**	**800**	**341000**
Residential SSL[c]				**31.3**	**77.9**	**3130**	**400**	**23500**
0316-97-0545	16-04093	0–1	SOIL	7.3 (UJ)	0.63 (U)	15.2	35.6	62.8

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070).

Table 5.36-3
Proposed Sampling at AOC 16-024(s)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	24s-1 through 24s-6	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.37-1
Proposed Sampling at AOC 16-024(t)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	24t-1 through 24t-5	Within and around footprint	2–3 ft bgs	X*	X	X	X	X	X	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

* X = Analysis will be performed.

Table 5.38-1
Proposed Sampling at SWMU 16-025(c2)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Dioxins/Furans	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	25c2-1 through 25c2-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	25c2-6 25c2-7	Drainline	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.39-1
Proposed Sampling at SWMU 16-025(w)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	25w-1 through 25w-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.40-1
Samples Collected and Analyses Requested at SWMU 16-025(y)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
0316-97-0524	16-04019	0–1	SOIL	3335R	3334R	3333R
0316-97-0525	16-04020	0–1	SOIL	3335R	3334R	3333R
0316-97-0596	16-04020	1–2	SOIL	3527R	3528R	3526R

Note: Numbers in analyte columns are request numbers.

Table 5.40-2
Inorganic Chemicals above BVs at SWMU 16-025(y)

Sample ID	Location ID	Depth (ft)	Media	Barium
Soil BV[a]				**295**
Construction Worker SSL[b]				**4350**
Industrial SSL[c]				**224000**
Residential SSL[c]				**15600**
0316-97-0525	16-04020	0–1	SOIL	353

Notes: Results are in mg/kg.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070).

Table 5.40-3
Proposed Sampling at SWMU 16-025(y)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	25y-1 through 25y-6	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.40-4
Proposed Sampling at SWMU 16-029(a2)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	29a2-1	Primary sump	4–5 ft bgs	X[a]	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29a2-2	Drainline	4–5 ft bgs	X	X	X	X	X	—[b]	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29a2-3	Secondary sump	4–5 ft bgs	Xa	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29a2-4	Outfall	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29a2-5 29a2-6 29a2-7	10 ft downgradient of outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29a2-8 29a2-10 29a2-11 29a2-13 29a2-14 29a2-15	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29a2-9 29a2-12 29a2-16	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.41-1
Proposed Sampling at SWMU 16-026(b2)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	TPH-DRO	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	26b2-1	Outfall	0–1 ft bgs	X[a]	X	X	X	X	X	X	X	—[b]	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	26b2-2 through 26b2-6	Drainage	0–1 ft bgs	Xa	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.41-2
Proposed Sampling at SWMU 16-028(d)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	TPH-DRO	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	28d-1	Outfall	0–1 ft bgs	X[a]	X	X	X	X	X	X	X	—[b]	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	28d-2 through 28d-5	Drainage	0–1 ft bgs	Xa	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.42-1
Proposed Sampling at SWMU 16-026(c2)

Objective Addressed	Location Number	Location	Beginning Depth of Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	TPH-DRO	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	26c2-1 through 26c2-6	Drainlines	Immediately below line	X[a]	X	X	X	X	—[b]	X	X	X	X	X
			5 ft below line	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	26c2-7	Outfall	0–1 ft bgs	X	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	26c2-8	Outfall	0–1 ft bgs	X	X	X	X	X	—	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	26c2-9 26c2-10		0–1 ft bgs	X	X	X	X	X	—	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	26c2-11	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.43-1
Samples Collected and Analyses Requested at SWMU 16-005(d)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC	VOC
RE16-98-0003	16-03341	3.6–4.6	SOIL	4216R	4215R, 4217R	4214R	4214R
RE16-99-0001	16-03341	5.5–6.5	QBT4	—*	5198R–1	—	—
RE16-98-0004	16-03343	3–4	SOIL	4216R	4215R, 4217R	4214R	4214R
RE16-99-0002	16-03345	5–5.5	QBT4	5199R	5198R, 5200R	—	—
RE16-98-0001	16-05791	2–3	FILL	4216R	4215R, 4217R	4214R	4214R
RE16-98-0002	16-05792	2–3	FILL	4216R	4215R, 4217R	4214R	4214R
RE16-98-0005	16-05793	9–9.5	SOIL	4236R	4235R, 4237R	4234R	4234R

Note: Numbers in analyte columns are request numbers.

* — =Analyses not requested.

Table 5.43-2
Inorganic Chemicals above BVs at SWMU 16-005(d)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Barium	Cadmium	Calcium	Mercury	Silver	Thallium	Uranium
Soil BV[a]				**0.83**	**295**	**0.4**	**6120**	**0.1**	**1**	**0.73**	**1.82**
Construction Worker SSL[b]				**124**	**4350**	**309**	**na**[c]	**92.9**	**1550**	**20.4**	**929**
Industrial SSL[d]				**454**	**224000**	**1120**	**na**	**310**[e]	**5680**	**74.9**	**3410**
Residential SSL[d]				**31.3**	**15600**	**77.9**	**na**	**23**[e]	**391**	**5.16**	**235**
RE16-98-0003	16-03341	3.6–4.6	SOIL	13 (UJ)	—[f]	0.64 (U)	—	0.13 (U)	2.6 (U)	—	1.98
RE16-98-0004	16-03343	3–4	SOIL	12 (UJ)	1200	0.6 (U)	—	0.12 (U)	2.4 (U)	—	2.65
RE16-98-0001	16-05791	2–3	FILL	11 (UJ)	—	0.57 (U)	—	0.11 (U)	2.3 (U)	—	1.85
RE16-98-0002	16-05792	2–3	FILL	11 (UJ)	—	0.57 (U)	—	0.11 (U)	2.3 (U)	—	1.89
RE16-98-0005	16-05793	9–9.5	SOIL	1.2 (U)	—	—	12000	—	—	1.2 (U)	28.5 (U)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] na = Not available.

[d] SSLs are from NMED (2009, 108070), unless otherwise noted.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] — = Not detected or not above BV.

Table 5.43-3
Organic Chemicals Detected at SWMU 16-005(d)

Sample ID	Location ID	Depth (ft)	Media	Amino-2,6-dinitrotoluene[4-]	Amino-4,6-dinitrotoluene[2-]	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Dibenz(a,h)anthracene	HMX	Indeno(1,2,3-cd)pyrene	Methylene Chloride	RDX	Trinitrotoluene[2,4,6-]
Construction Worker SSL[a]				**601**	**601**	**213**	**6680**[b]	**21.3**	**11900**	**213**	**10600**	**715**	**141**
Industrial SSL[c]				**1900**[d]	**2000**[d]	**23.4**	**18300**[b]	**2.34**	**34200**	**23.4**	**1090**	**174**	**469**
Residential SSL[c]				**150**[d]	**150**[d]	**6.21**	**1720**[b]	**0.621**	**3060**	**6.21**	**199**	**44.2**	**35.9**
RE16-98-0004	16-03343	3–4	SOIL	0.433	0.299	—[e]	—	—	0.164 (J)	—	—	0.373	5.18
RE16-98-0005	16-05793	9–9.5	SOIL	—	—	0.099 (J)	0.15 (J)	0.15 (J)	—	0.14 (J)	0.0048 (J)	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] Pyrene used as a surrogate based on structural similarity.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[e] — = Not detected.

Table 5.43-4
Proposed Sampling at SWMU 16-005(d)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	5d-1 5d-2 5d-3 5d-7 5d-8 5d-10	Drainline	4–5 ft bgs	X[a]	X	X	X	X	—[b]	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5d-9	Drainline	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	5d-4 5d-6	Septic tank inlet and outlet	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5d-5	Septic tank	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	5d-11	Outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5d-12 through 5d-16	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5d-17	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.43-5
Samples Collected and Analyses Requested at SWMU 16-017(h)-99

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	PCB	SVOC	VOC
0316-98-0151	16-03424	0–0.5	QBT4	4168R	4169R, 4170R	4167R	4167R	4167R
0316-98-0140	16-03462	2–2.5	SOIL	4110R	4111R, 4112R	4109R	4109R	4109R

Note: Numbers in analyte columns are request numbers.

Table 5.43-6
Inorganic Chemicals above BVs at SWMU 16-017(h)-99

Sample ID	Location ID	Depth (ft)	Media	Antimony	Arsenic	Boron	Copper	Lead	Mercury	Selenium	Silver	Uranium
Qbt2, 3, 4 BV[a]				**0.5**	**2.79**	**na[b]**	**4.66**	**11.2**	**0.1**	**0.3**	**1**	**2.4**
Soil BV[a]				**0.83**	**8.17**	**na[b]**	**14.7**	**22.3**	**0.1**	**1.52**	**1**	**1.82**
Construction Worker SSL[c]				**124**	**65.4**	**46500**	**12400**	**800**	**92.9**	**1550**	**1550**	**929**
Industrial SSL[d]				**454**	**17.7**	**227000**	**45400**	**800**	**310[e]**	**5680**	**5680**	**3410**
Residential SSL[d]				**31.3**	**3.9**	**15600**	**3130**	**400**	**23[e]**	**391**	**391**	**235**
0316-98-0151	16-03424	0–0.5	QBT4	12 (UJ)	3.2	—[f]	—	—	0.12 (U)	0.6 (U)	2.4 (U)	3.1
0316-98-0140	16-03462	2–2.5	SOIL	—	—	4.2	20.3 (J+)	32.2	—	—	—	2.36 (J)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] na = Not available.

[c] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[d] SSLs are from NMED (2009, 108070), unless otherwise noted.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] — = Not detected or not above BV.

Table 5.43-7

Organic Chemicals Detected at SWMU 16-017(h)-99

Sample ID	Location ID	Depth (ft)	Media	Acetone	Amino-2,6-dinitrotoluene[4-]	Amino-4,6-dinitrotoluene[2-]	Aroclor-1260	HMX	RDX	Trinitrotoluene[2,4,6-]
Construction Worker SSL[a]				**263000**	**601**	**601**	**7.58**	**11900**	**715**	**141**
Industrial SSL[b]				**851000**	**1900**[c]	**2000**[c]	**8.26**	**34200**	**174**	**469**
Residential SSL[b]				**67500**	**150**[c]	**150**[c]	**2.22**	**3060**	**44.2**	**35.9**
0316-98-0151	16-03424	0–0.5	QBT4	0.11	—[d]	—	—	—	0.407	—
0316-98-0140	16-03462	2–2.5	SOIL	—	0.154	0.081 (J)	0.0427	0.127 (J)	3.28	0.119

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] SSLs are from NMED (2009, 108070), unless otherwise noted.

[c] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[d] — = Not detected.

Table 5.43-8
Proposed Sampling at SWMU 16-017(h)-99

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	17h-1 17h-3 17h-4 17h-6 through 17h-10	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	17h-2 17h-5	Within footprint	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.43-9
Proposed Sampling at SWMU 16-017(x)-99

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	17x-1 through 17x-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.43-10
Samples Collected and Analyses Requested at SWMU 16-025(k)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
0316-97-0548	16-04102	0–1	FILL	3458R	3459R	3457R
0316-97-0580	16-04104	0–1	SOIL	3458R	3459R	3457R
0316-97-0581	16-04105	0–1	SOIL	3458R	3459R	3457R

Note: Numbers in analyte columns are request numbers.

Table 5.43-11
Inorganic Chemicals above BVs at SWMU 16-025(k)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Copper	Lead	Silver	Zinc
Soil BV[a]				**0.83**	**0.4**	**14.7**	**22.3**	**1**	**48.8**
Construction Worker SSL[b]				**124**	**309**	**12400**	**800**	**1550**	**92900**
Industrial SSL[c]				**454**	**1120**	**45400**	**800**	**5680**	**341000**
Residential SSL[c]				**31.3**	**77.9**	**3130**	**400**	**391**	**23500**
0316-97-0548	16-04102	0–1	FILL	7.3 (UJ)	0.66 (J)	96.8	43.1	1.1 (J)	91.3
0316-97-0580	16-04104	0–1	SOIL	7.3 (UJ)	0.63 (U)	150	33.1	—[d]	61.4
0316-97-0581	16-04105	0–1	SOIL	6.7 (UJ)	0.58 (U)	18.6	—	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070).

[d] — = Not detected or not above BV.

Table 5.43-12
Organic Chemicals Detected at SWMU 16-025(k)

Sample ID	Location ID	Depth (ft)	Media	Chloronaphthalene[2-]
Construction Worker SSL[a]				**24800**
Industrial SSL[b]				**90800**
Residential SSL[b]				**6260**
0316-97-0580	16-04104	0–1	SOIL	0.36

Notes: Results are in mg/kg.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] SSLs are from NMED (2009, 108070).

Table 5.43-13
Proposed Sampling at SWMU 16-025(k)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	25k-1 through 25k-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.43-14
Proposed Sampling at SWMU 16-025(l)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	25l-1 25l-2 25l-4	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	25l-3	Drainline	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.43-15
Samples Collected and Analyses Requested at SWMU 16-026(q)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC	Uranium	VOC
0316-97-0057	16-03173	3.75–4	FILL	3149R	3150R, 3151R	3148R	—*	3148R
0316-97-0061	16-03173	9.75–10	QBT4	3162R	3163R, 3164R	3161R	—	3161R
0316-97-0064	16-03181	0–2	SOIL	3233R	3234R, 3235R	3232R	—	3232R
0316-97-0065	16-03181	5–6	SOIL	3233R	3234R, 3235R	3232R	—	3232R
0316-97-0066	16-03181	6–8	QBT4	3233R	3234R, 3235R	3232R	—	3232R
0316-97-0058	16-03197	3–5	SOIL	3153R	3154R, 3155R	3152R	—	3152R
0316-97-0059	16-03197	8–9	QBT4	3153R	3154R, 3155R	3152R	—	3152R
0316-97-0060	16-03205	5.5–6	SOIL	3162R	3163R, 3164R	3161R	—	3161R
0316-97-0056	16-03205	6–6.5	QBT4	3138R	3139R, 3140R	3137R	—	3137R
0316-97-0062	16-03213	4–5	QBT4	3175R	3176R	3174R	3177R	3174R
0316-97-0063	16-03213	7–8	QBT4	3175R	3176R	3174R	3177R	3174R
0316-97-0067	16-03221	0–2	SOIL	3199R	3200R, 3201R	3198R	—	3198R
0316-97-0068	16-03221	5–6	SOIL	3199R	3200R, 3201R	3198R	—	3198R
0316-97-0086	16-03221	8–10	QBT4	3199R	3200R, 3201R	3198R	—	3198R
0316-97-0071	16-03237	2–4	SOIL	3225R	3226R	3224R	3227R	3224R
0316-97-0072	16-03237	7–9	QBT4	3225R	3226R	3224R	3227R	3224R
0316-97-0073	16-03245	4–5	SOIL	3208R	3209R, 3210R	3207R	—	3207R
0316-97-0074	16-03245	8–9	QBT4	3208R	3209R, 3210R	3207R	—	3207R
0316-97-0083	16-03253	5–5.25	SOIL	3171R	3172R, 3173R	3170R	—	3170R
0316-97-0081	16-03258	5.5–6.5	QBT4	3162R	3163R, 3164R	3161R	—	3161R
0316-97-0082	16-03263	5–5.5	SOIL	3162R	3163R, 3164R	3161R	—	3161R
0316-97-0079	16-03268	4–5	SOIL	3199R	3200R, 3201R	3198R	—	3198R
0316-97-0084	16-03273	1–2	FILL	3191R	3192R, 3193R	3190R	—	3190R
0316-97-0085	16-03273	4.5–5.5	SOIL	3191R	3192R, 3193R	3190R	—	3190R
0316-97-0075	16-03278	5–5.25	SOIL	3091R	3092R, 3093R	3090R	—	3090R
0316-97-0080	16-03288	3.5–4	FILL	3145R	3146R, 3147R	3144R	—	3144R
0316-97-0055	16-03293	5–5.25	SOIL	3132R	3133R	3135R	3134R	3135R
0316-97-0076	16-03298	4–4.5	FILL	3099R	3100R, 3101R	3098R	—	3098R
0316-97-0077	16-03303	3.5–4	SOIL	3127R	3128R	3126R	3129R	3126R
0316-98-0094	16-03318	6–7	SOIL	4186R	4187R, 4188R	4185R	—	4185R

Note: Numbers in analyte columns are request numbers.

* — =Analyses not requested.

Table 5.43-16
Inorganic Chemicals above BVs at SWMU 16-026(q)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Magnesium	Manganese	Mercury	Nickel	Selenium	Silver	Thallium	Uranium	Vanadium
Qbt2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**11.2**	**1690**	**482**	**0.1**	**6.58**	**0.3**	**1**	**1.1**	**2.4**	**17**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**1.31**	**0.4**	**4420**	**10.5**	**4.73**	**11.2**	**19.7**	**2370**	**543**	**0.1**	**9.38**	**0.3**	**1**	**0.73**	**2.22**	**19.7**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**1.52**	**1**	**0.73**	**1.82**	**39.6**
Construction Worker SSL[b]				**40700**	**124**	**65.4**	**4350**	**144**	**309**	**na[c]**	**449[d]**	**34.6**	**12400**	**800**	**na**	**463**	**92.9**	**6190**	**1550**	**1550**	**20.4**	**929**	**1550**
Industrial SSL[e]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**300[f]**	**45400**	**800**	**na**	**145000**	**310[f]**	**22700**	**5680**	**5680**	**74.9**	**3410**	**5680**
Residential SSL[e]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**23[f]**	**3130**	**400**	**na**	**10700**	**23[f]**	**1560**	**391**	**391**	**5.16**	**235**	**391**
0316-97-0057	16-03173	3.75–4	FILL	—[g]	1.3 (UJ)	8.5	—	—	0.63 (U)	—	—	—	—	—	—	—	0.13 (U)	—	—	2.5 (U)	—	2.93	—
0316-97-0061	16-03173	9.75–10	QBT4	—	7.4 (UJ)	—	129	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.45	—
0316-97-0064	16-03181	0–2	SOIL	—	—	—	910	—	0.61 (U)	18000	—	—	18	48	—	—	0.12 (UJ)	—	—	2.4 (U)	—	—	—
0316-97-0065	16-03181	5–6	SOIL	—	—	—	—	2.1	0.62 (U)	—	—	—	—	—	—	—	0.12 (UJ)	—	—	2.5 (U)	—	2.74	—
0316-97-0066	16-03181	6–8	QBT4	7700	—	—	110	—	—	2300	—	—	4.9	13	—	—	0.13 (UJ)	—	0.38 (U)	2.6 (U)	—	11.2	—
0316-97-0058	16-03197	3–5	SOIL	—	1.3 (U)	—	—	—	0.64 (U)	—	—	—	—	—	—	—	0.13 (U)	—	—	2.6 (U)	—	3.51	—
0316-97-0059	16-03197	8–9	QBT4	13000	1.3 (U)	4.7	97	—	—	2500	—	—	6.2	—	1800	—	0.13 (U)	—	0.53 (U)	2.6 (U)	—	2.6	—
0316-97-0060	16-03205	5.5–6	SOIL	—	7.8 (UJ)	—	—	—	0.75 (U)	—	—	—	—	—	—	—	—	—	—	—	—	2.65	—
0316-97-0056	16-03205	6–6.5	QBT4	—	5.6 (U)	—	384	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
0316-97-0062	16-03213	4–5	QBT4	11000	—	3 (J-)	160	—	—	2500	8.9	8.5	8.3	—	1800	—	—	7	—	2.3 (U)	—	—	24
0316-97-0063	16-03213	7–8	QBT4	16000	—	—	210	1.9	—	4000	8.6	4.3	8.4	14 (J-)	2700	—	—	9.4	—	2.6 (U)	—	2.45	—
0316-97-0067	16-03221	0–2	SOIL	—	12 (U)	—	—	—	0.61 (U)	—	—	8.8	—	—	—	—	0.12 (U)	—	—	2.4 (U)	—	3.32	—
0316-97-0068	16-03221	5–6	SOIL	—	12 (U)	—	—	—	0.6 (U)	—	—	—	—	—	—	—	0.12 (U)	—	—	2.4 (U)	0.8	2.37	—
0316-97-0086	16-03221	8–10	QBT4	12000	14 (U)	—	69	—	—	2600	—	—	—	13	1700	—	0.14 (U)	—	1.4 (U)	2.9 (U)	—	—	—
0316-97-0071	16-03237	2–4	SOIL	—	12 (UJ)	—	3400	—	0.61 (U)	—	—	—	—	—	—	—	0.12 (U)	—	—	2.4 (U)	—	2.63	—
0316-97-0072	16-03237	7–9	QBT4	16000	14 (UJ)	—	420	1.4	—	3500	7.3	—	8	—	2600	—	0.14 (U)	8.9	—	2.7 (U)	—	2.79	—
0316-97-0073	16-03245	4–5	SOIL	—	—	—	—	2.8	0.91 (U)	7130	—	—	—	—	—	—	—	16.1	—	1.2 (U)	—	2.62	—
0316-97-0074	16-03245	8–9	QBT4	7430	—	—	142	—	—	3070	—	4.5 (J)	6.5	—	—	—	—	9.3	—	—	—	3.76	—
0316-97-0083	16-03253	5–5.25	SOIL	—	16 (U)	—	1000	—	0.82 (U)	—	—	—	—	—	—	—	0.41 (U)	—	1.6 (U)	3.3 (U)	—	4.02	—
0316-97-0081	16-03258	5.5–6.5	QBT4	7580	7.1 (UJ)	—	177	—	—	2960	—	16.6	7.4	17.2	1700	815	—	9.1	—	—	—	2.55	—
0316-97-0082	16-03263	5–5.5	SOIL	—	5.8 (UJ)	—	—	—	0.55 (U)	—	—	—	—	—	—	—	—	—	—	—	—	2.53	—
0316-97-0079	16-03268	4–5	SOIL	—	13 (U)	—	—	—	0.63 (U)	—	—	—	—	—	—	—	0.13 (U)	—	—	2.5 (U)	—	3.29	—
0316-97-0084	16-03273	1–2	FILL	—	12 (U)	—	—	—	0.61 (U)	—	—	—	—	—	—	—	0.12 (U)	—	—	2.4 (U)	—	3.89	—
0316-97-0085	16-03273	4.5–5.5	SOIL	—	12 (U)	—	—	2.3	0.62 (U)	—	—	—	—	—	—	—	0.12 (U)	—	—	2.5 (U)	1.4	2.39	—
0316-97-0075	16-03278	5–5.25	SOIL	—	6.2 (U)	—	—	—	0.62 (U)	—	—	—	—	22.4	—	—	—	—	—	—	—	3.01	—
0316-97-0080	16-03288	3.5–4	FILL	—	5.3 (U)	—	—	—	0.53 (U)	—	—	—	—	—	—	—	—	—	—	—	—	3.01	—
0316-97-0055	16-03293	5–5.25	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.4 (U)	—	—

Table 5.43-16 (continued)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Magnesium	Manganese	Mercury	Nickel	Selenium	Silver	Thallium	Uranium	Vanadium
Qbt2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**11.2**	**1690**	**482**	**0.1**	**6.58**	**0.3**	**1**	**1.1**	**2.4**	**17**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**1.31**	**0.4**	**4420**	**10.5**	**4.73**	**11.2**	**19.7**	**2370**	**543**	**0.1**	**9.38**	**0.3**	**1**	**0.73**	**2.22**	**19.7**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**22.3**	**4610**	**671**	**0.1**	**15.4**	**1.52**	**1**	**0.73**	**1.82**	**39.6**
Construction Worker SSL[b]				**40700**	**124**	**65.4**	**4350**	**144**	**309**	**na**	**449[d]**	**34.6**	**12400**	**800**	**na**	**463**	**92.9**	**6190**	**1550**	**1550**	**20.4**	**929**	**1550**
Industrial SSL[e]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**300[f]**	**45400**	**800**	**na**	**145000**	**310[f]**	**22700**	**5680**	**5680**	**74.9**	**3410**	**5680**
Residential SSL[e]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**23[f]**	**3130**	**400**	**na**	**10700**	**23[f]**	**1560**	**391**	**391**	**5.16**	**235**	**391**
0316-97-0076	16-03298	4–4.5	FILL	—	5.6 (U)	—	—	—	0.56 (U)	—	—	—	—	—	—	—	—	—	—	—	—	2.84	—
0316-97-0077	16-03303	3.5–4	SOIL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.87 (U)	2.93	—
0316-98-0094	16-03318	6–7	SOIL	—	13 (UJ)	—	—	—	0.67 (U)	—	—	—	—	—	—	—	0.13 (U)	—	—	2.7 (U)	1	5.08	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] na = Not available.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from NMED (2009, 108070), unless otherwise noted.

[f] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[g] — = Not detected or not above BV.

Table 5.43-17
Organic Chemicals Detected at SWMU 16-026(q)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Amino-2,6-dinitrotoluene[4-]	Amino-4,6-dinitrotoluene[2-]	Amino-DNTs	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Chloromethane	Dibenz(a,h)anthracene	Dibenzofuran	Dinitrotoluene[2,4-]
Construction Worker SSL[a]				**263000**	**601**	**601**	**na[b]**	**66800**	**213**	**21.3**	**213**	**6680[c]**	**1130**	**21.3**	**552**	**476**
Industrial SSL[d]				**851000**	**1900[e]**	**2000[e]**	**150[e]**	**183000**	**23.4**	**2.34**	**23.4**	**18300[c]**	**198**	**2.34**	**1000[e]**	**103**
Residential SSL[d]				**67500**	**150[e]**	**150[e]**	**2000[e]**	**17200**	**6.21**	**0.621**	**6.21**	**1720[c]**	**35.6**	**0.621**	**78[e]**	**15.7**
0316-97-0061	16-03173	9.75–10	QBT4	—[f]	NA[g]	NA	—	—	—	—	—	—	—	—	—	—
0316-97-0064	16-03181	0–2	SOIL	—	1.22	1.62	NA	8.1	—	—	—	—	—	—	1	—
0316-97-0065	16-03181	5–6	SOIL	—	—	—	NA	—	—	—	—	—	—	—	—	—
0316-97-0066	16-03181	6–8	QBT4	—	—	—	NA	—	—	—	—	—	—	—	—	—
0316-97-0056	16-03205	6–6.5	QBT4	—	0.086	—	NA	—	—	—	—	—	—	—	—	—
0316-97-0068	16-03221	5–6	SOIL	—	—	—	NA	—	—	—	—	—	—	—	—	—
0316-97-0086	16-03221	8–10	QBT4	—	—	0.097	NA	—	—	—	—	—	—	—	—	0.09
0316-97-0071	16-03237	2–4	SOIL	0.045	—	—	NA	—	—	—	—	—	—	—	—	—
0316-97-0072	16-03237	7–9	QBT4	—	—	—	NA	—	—	—	—	—	—	—	—	—
0316-97-0073	16-03245	4–5	SOIL	—	—	—	NA	—	—	—	—	—	—	—	—	—
0316-97-0074	16-03245	8–9	QBT4	—	—	—	NA	—	—	—	—	—	—	—	—	—
0316-97-0083	16-03253	5–5.25	SOIL	—	—	0.087	NA	—	—	—	—	—	—	—	—	—
0316-97-0081	16-03258	5.5–6.5	QBT4	—	NA	NA	—	—	—	—	—	—	0.016	—	—	—
0316-97-0082	16-03263	5–5.5	SOIL	—	NA	NA	0.59	—	—	—	—	—	—	—	—	—
0316-97-0079	16-03268	4–5	SOIL	—	—	—	NA	—	—	—	—	—	—	—	—	—
0316-97-0085	16-03273	4.5–5.5	SOIL	—	—	—	NA	—	—	—	—	—	—	—	—	—
0316-97-0075	16-03278	5–5.25	SOIL	—	—	—	NA	—	—	—	—	—	—	—	—	—
0316-97-0080	16-03288	3.5–4	FILL	—	—	—	NA	—	—	0.2 (J)	0.18 (J)	0.14 (J)	—	—	—	—
0316-97-0055	16-03293	5–5.25	SOIL	—	—	—	NA	—	—	—	—	—	—	—	—	—
0316-97-0076	16-03298	4–4.5	FILL	—	—	0.214	NA	—	—	—	—	—	—	—	—	—
0316-97-0077	16-03303	3.5–4	SOIL	0.006 (J)	—	—	NA	0.17 (J)	0.14 (J)	0.38 (J)	0.4 (J)	0.45	—	0.14 (J)	—	—
0316-98-0094	16-03318	6–7	SOIL	0.039	—	—	NA	—	—	—	—	—	—	—	—	—

Table 5.43-17 (continued)

Sample ID	Location ID	Depth (ft)	Media	Fluoranthene	Fluorene	HMX	Indeno(1,2,3-cd)pyrene	Methylene Chloride	Naphthalene	Nitroaniline[4-]	Pentachlorophenol	Phenanthrene	RDX	Trinitrobenzene[1,3,5-]	Trinitrotoluene[2,4,6-]
Construction Worker SSL[a]				**8910**	**8910**	**11900**	**213**	**10600**	**702**	**na**	**1030**	**7150**	**715**	**8760**	**141**
Industrial SSL[d]				**24400**	**24400**	**34200**	**23.4**	**1090**	**252**	**860[e]**	**100**	**20500**	**174**	**27000[e]**	**469**
Residential SSL[d]				**2290**	**2290**	**3060**	**6.21**	**199**	**45**	**240[e]**	**29.8**	**1830**	**44.2**	**2200[e]**	**35.9**
0316-97-0061	16-03173	9.75–10	QBT4	—	—	—	—	—	—	—	—	—	—	—	0.25
0316-97-0064	16-03181	0–2	SOIL	0.43	2.7	5.43	—	—	—	—	—	3.9	14	—	6.4
0316-97-0065	16-03181	5–6	SOIL	0.61	0.4	—	—	—	—	0.8	—	1	0.323	—	0.239
0316-97-0066	16-03181	6–8	QBT4	—	—	—	—	—	1.4	—	—	—	0.248	—	0.147
0316-97-0056	16-03205	6–6.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	0.1
0316-97-0068	16-03221	5–6	SOIL	—	—	1.84	—	—	—	—	—	—	—	—	—
0316-97-0086	16-03221	8–10	QBT4	—	—	0.302	—	—	—	—	—	—	0.424	—	—
0316-97-0071	16-03237	2–4	SOIL	—	—	—	—	—	—	—	—	—	—	—	0.77
0316-97-0072	16-03237	7–9	QBT4	—	—	—	—	—	—	—	—	—	—	4.1	—
0316-97-0073	16-03245	4–5	SOIL	—	—	0.174	—	—	—	—	—	—	—	—	—
0316-97-0074	16-03245	8–9	QBT4	—	—	—	—	—	—	—	—	—	0.311	—	—
0316-97-0083	16-03253	5–5.25	SOIL	—	—	—	—	—	—	—	—	—	—	—	—
0316-97-0081	16-03258	5.5–6.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	—
0316-97-0082	16-03263	5–5.5	SOIL	—	—	—	—	—	—	—	—	—	5.4	1.5	0.52
0316-97-0079	16-03268	4–5	SOIL	—	—	0.54	—	—	—	—	—	—	—	—	—
0316-97-0085	16-03273	4.5–5.5	SOIL	—	—	0.352	—	—	—	—	—	—	0.933	—	—
0316-97-0075	16-03278	5–5.25	SOIL	—	—	—	—	—	—	—	—	—	0.179	—	—
0316-97-0080	16-03288	3.5–4	FILL	—	—	—	0.17 (J)	—	—	—	—	—	—	—	—
0316-97-0055	16-03293	5–5.25	SOIL	—	—	—	—	0.006 (J)	—	—	—	—	—	—	—
0316-97-0076	16-03298	4–4.5	FILL	—	—	0.407	—	—	—	—	—	—	0.995	—	0.213
0316-97-0077	16-03303	3.5–4	SOIL	—	—	—	0.4 (J)	—	—	—	0.095 (J)	—	—	—	—
0316-98-0094	16-03318	6–7	SOIL	—	—	0.309	—	—	—	—	—	—	1.27	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] na = Not available.

[c] Pyrene used as a surrogate based on structural similarity.

[d] SSLs are from NMED (2009, 108070), unless otherwise noted.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] — = Not detected.

[g] NA = Not analyzed.

Table 5.43-18
Proposed Sampling at SWMU 16-026(q)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	26q-1 through 26q-8	Sumps	4–5 ft bgs	X[a]	X	X	X	X	—[b]	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26q-9	Sumps	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29q-10 26q-11 26q-15 through 26q-19	Drainlines	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26q-12 26q-13	Drainlines	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	26q-14 26q-20	Outfalls	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26q-21 26q-22	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.43-19
Proposed Sampling at SWMU 16-029(f2)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	29f2-1	Drainline	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29f2-2 29f2-5	Drainline	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29f2-3	Sump inlet	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29f2-4	Sump outlet	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29f2-6 through 29f2-9	Outfall	0–1 ft bgs	X	X	X	X	X	—	X	—[b]	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29f2-10 29f2-11 29f2-12	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29f2-13	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.43-20
Proposed Sampling at SWMU 16-029(r)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	29r-1 29r-3 29r-5	Drainline	4–5 ft bgs	X[a]	X	X	X	X	—[b]	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29r-2 29r-4	Drainline	4–5 ft bgs	X[a]	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29r-6 through 29r-9	Outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29r-10 29r-12 through 29r-15	Pond	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29r-11	Pond	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29r-16 through 29r-20	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29r-21	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.43-21
Samples Collected and Analyses Requested at SWMU 16-031(d)

Sample ID	Location ID	Depth (ft)	Media	Metals
0316-97-0141	16-03003	0–1	SOIL	3064R

Note: Numbers in analyte columns are request numbers.

Table 5.43-22
Inorganic Chemicals above BVs at SWMU 16-031(d)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Copper	Mercury	Silver	Thallium
Soil BV[a]				**0.83**	**0.4**	**14.7**	**0.1**	**1**	**0.73**
Construction Worker SSL[b]				**124**	**309**	**12400**	**92.9**	**1550**	**20.4**
Industrial SSL[c]				**454**	**1120**	**45400**	**310**[d]	**5680**	**74.9**
Residential SSL[c]				**31.3**	**77.9**	**3130**	**23**[d]	**391**	**5.16**
0316-97-0141	16-03003	0–1	SOIL	1.1 (UJ)	0.57 (U)	17	0.11 (U)	2.3 (U)	2.3 (U)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

Table 5.43-23
Proposed Sampling at SWMU 16-031(d)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	31d-1 31d-2	Sumps	4–5 ft bgs	X[a]	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	31d-3 31d-4	Outfalls	0–1 ft bgs	X	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.43-24
Proposed Sampling at SWMU 16-032(c)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	32c-1	Sump	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	32c-2 32c-3	Drainline	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	32c-4 through 32c-7	Outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	32c-8 32c-9 32c-10	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	32c-11	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.43-25
Proposed Sampling at SWMU 16-034(a)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	34a-1 through 34a-4	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.43-26
Proposed Sampling at AOC C-16-006

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	6-1 through 6-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.43-27
Samples Collected and Analyses Requested at AOC C-16-065

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC	VOC
0316-97-0006	16-03026	0–1	SOIL	3088R	3086R	3085R	3085R

Note: Numbers in analyte columns are request numbers.

Table 5.43-28
Inorganic Chemicals above BVs at AOC C-16-065

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium
Soil BV[a]				**0.83**	**0.4**
Construction Worker SSL[b]				**124**	**309**
Industrial SSL[c]				**454**	**1120**
Residential SSL[c]				**31.3**	**77.9**
0316-97-0006	16-03026	0–1	SOIL	5.82 (U)	0.582 (U)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] BVs are from LANL (1998, 059730).
[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).
[c] SSLs are from NMED (2009, 108070).

Table 5.43-29
Organic Chemicals Detected at AOC C-16-065

Sample ID	Location ID	Depth (ft)	Media	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Chrysene	Fluoranthene	Phenanthrene	Pyrene
Construction Worker SSL[a]				**213**	**21.3**	**213**	**20600**	**8910**	**7150**	**6680**
Industrial SSL[b]				**23.4**	**2.34**	**23.4**	**2340**	**24400**	**20500**	**18300**
Residential SSL[b]				**6.21**	**0.621**	**6.21**	**621**	**2290**	**1830**	**1720**
0316-97-0006	16-03026	0–1	SOIL	0.12 (J)	0.14 (J)	0.19 (J)	0.17 (J)	0.25 (J)	0.2 (J)	0.24 (J)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).
[b] SSLs are from NMED (2009, 108070).

Table 5.43-30
Proposed Sampling at AOC C-16-065

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	65-1 through 65-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.44-1
Proposed Sampling at SWMU 16-026(s)

Objective Addressed	Location Number	Location	Beginning Depth of Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	TPH-DRO	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	26s-1	Drainline	0–1 ft bgs	X[a]	X	X	X	X	X	X	X	—[b]	X	X
			Immediately below line (4–5 ft bgs if line not in place)	X	X	X	X	X	X	X	X	X	X	X
			5 ft below line (9–10 ft bgs if line not in place)	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	26s-2 26s-3 26s-4	Drainline	Immediately below line (4–5 ft bgs if line not in place)	X	X	X	X	X	—	X	X	X	X	X
			5 ft below line (9–10 ft bgs if line not in place)	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	26s-5	Outfall	0–1 ft bgs	X	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	26s-6 26s-7 26s-8	10 ft downgradient of outfall	0–1 ft bgs	X	X	X	X	X	—	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	26s-9 26s-11	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	26s-10	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.45-1
Samples Collected and Analyses Requested at SWMU 16-026(u)

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOC	TPH-DRO	TPH-GRO	VOC
RE16-03-50406	16-03-21706	0.5–0.67	SOIL	1508S	1508S	1508S	1508S	1508S
RE16-03-50409	16-21941	0.5–0.67	SOIL	1508S	1508S	1508S	1508S	1508S
RE16-03-50408	16-21942	0.5–0.67	SOIL	1508S	1508S	1508S	1508S	1508S
RE16-03-50413	16-22324	1.33–1.5	SOIL	1508S	1508S	1508S	1508S	1508S
RE16-03-50414	16-22325	1.33–1.5	SOIL	1508S	1508S	1508S	1508S	1508S
RE16-03-50412	16-22326	1.33–1.5	SOIL	1508S	1508S	1508S	1508S	1508S

Note: Numbers in analyte columns are request numbers.

Table 5.45-2
Inorganic Chemicals above BVs at SWMU 16-026(u)

Sample ID	Location ID	Depth (ft)	Media	Cadmium	Calcium	Zinc
Soil BV[a]				**0.4**	**6120**	**48.8**
Construction Worker SSL[b]				**309**	**na[c]**	**92900**
Industrial SSL[d]				**1120**	**na**	**341000**
Residential SSL[d]				**77.9**	**na**	**23500**
RE16-03-50409	16-21941	0.5–0.67	SOIL	—[e]	—	51.4 (J+)
RE16-03-50408	16-21942	0.5–0.67	SOIL	0.707	—	293 (J+)
RE16-03-50413	16-22324	1.33–1.5	SOIL	—	6740	—
RE16-03-50412	16-22326	1.33–1.5	SOIL	—	—	157 (J+)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] na = Not available.

[d] SSLs are from NMED (2009, 108070).

[e] — = Not detected or not above BV.

Table 5.45-3
Organic Chemicals Detected at SWMU 16-026(u)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene
Construction Worker SSL[a]				**18600**	**66800**	**213**	**21.3**	**213**	**6680[b]**	**20600**	**21.3**	**552**	**8910**
Industrial SSL[c]				**36700**	**183000**	**23.4**	**2.34**	**23.4**	**18300[b]**	**2340**	**2.34**	**1000[d]**	**24400**
Residential SSL[c]				**3440**	**17200**	**6.21**	**0.621**	**6.21**	**1720[b]**	**621**	**0.621**	**78[d]**	**2290**
RE16-03-50406	16-03-21706	0.5–0.67	SOIL	0.052	0.071	0.08	0.071	0.11	—[e]	0.07	—	—	0.2
RE16-03-50409	16-21941	0.5–0.67	SOIL	0.57	0.78	1	0.9	1.5	0.44	0.84	—	0.4	2.1
RE16-03-50408	16-21942	0.5–0.67	SOIL	1.2	1.6	2	1.8	2.9	1.1	1.8	—	0.75	4.1
RE16-03-50413	16-22324	1.33–1.5	SOIL	0.14	0.18	0.24	0.21	0.37	—	0.23	—	0.079	0.62
RE16-03-50414	16-22325	1.33–1.5	SOIL	0.61	0.82	1.2	0.86	1.6	—	0.93	—	0.37	2.5
RE16-03-50412	16-22326	1.33–1.5	SOIL	1.2	1.7	2.3	1.9	3.4	1	1.9	0.41	0.85	4

Table 5.45-3 (continued)

Sample ID	Location ID	Depth (ft)	Media	Fluorene	Indeno(1,2,3-cd)pyrene	Methylnaphthalene[2-]	Methylphenol[4-]	Naphthalene	Nitrosodiphenylamine[N-]	Pentachlorophenol	Phenanthrene	Pyrene	TPH-DRO
Construction Worker SSL[a]				**8910**	**213**	**1240**	**na[f]**	**702**	**34000**	**1030**	**7150**	**6680**	**na**
Industrial SSL[c]				**24400**	**23.4**	**4100[d]**	**3400[g]**	**252**	**3910**	**100**	**20500**	**18300**	**200[h]**
Residential SSL[c]				**2290**	**6.21**	**310[d]**	**310[g]**	**45**	**993**	**29.8**	**1830**	**1720**	**200[h]**
RE16-03-50406	16-03-21706	0.5–0.67	SOIL	0.04	—	—	—	0.079	—	—	0.24	0.19	—
RE16-03-50409	16-21941	0.5–0.67	SOIL	0.56	0.43	0.36	—	1.3	—	—	2.7	2.5	—
RE16-03-50408	16-21942	0.5–0.67	SOIL	0.99	1	0.58	0.042	2.1	—	0.52	4.8	4.4	81
RE16-03-50413	16-22324	1.33–1.5	SOIL	0.12	—	0.059	—	0.22	—	—	0.76	0.64	—
RE16-03-50414	16-22325	1.33–1.5	SOIL	0.58	0.44	0.31	—	1	—	—	3.1	3	50
RE16-03-50412	16-22326	1.33–1.5	SOIL	1.2	1	0.66	0.05	2.4	0.06	0.49	6.6	5.8	54

Notes: Results are in mg/kg.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] Pyrene used as a surrogate based on structural similarity.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[e] — = Not detected.

[f] na = Not available.

[g] SSLs are from EPA (2007, 099314).

[h] SSLs are from NMED (2006, 094614).

Table 5.45-4
Proposed Sampling at SWMU 16-026(u)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	TPH-DRO	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	26u-1 26u-2	Drainline	4–5 ft bgs	X[a]	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	26u-3 through 26u-6	Outfall	0–1 ft bgs	X	X	X	X	X	X	X	X	—[b]	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.46-1
Proposed Sampling at SWMU 16-026(y)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	26y-1	Outfall	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	26y-2 through 26y-5	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.47-1
Proposed Sampling at AOC 16-027(c)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	27c-1 through 27c-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.48-1
Proposed Sampling at AOC 16-027(d)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	27d-1 through 27d-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.49-1
Samples Collected and Analyses Requested at SWMU 16-028(b)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
RE16-98-2013	16-05913	0–0.5	SOIL	5042R	5041R, 5043R	5040R

Note: Numbers in analyte columns are request numbers.

Table 5.49-2
Inorganic Chemicals above BVs at SWMU 16-028(b)

Sample ID	Location ID	Depth (ft)	Media	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Uranium	Zinc
Soil BV[a]				**0.4**	**19.3**	**8.64**	**14.7**	**22.3**	**0.1**	**15.4**	**1.82**	**48.8**
Construction Worker SSL[b]				**309**	**449**[c]	**34.6**	**12400**	**800**	**92.9**	**6190**	**929**	**92900**
Industrial SSL[d]				**1120**	**2920**[c]	**300**[e]	**45400**	**800**	**310**[e]	**22700**	**3410**	**341000**
Residential SSL[d]				**77.9**	**219**[c]	**23**[e]	**3130**	**400**	**23**[e]	**1560**	**235**	**23500**
RE16-98-2013	16-05913	0–0.5	SOIL	1.7	52.9	17.3	472	148	0.37	70.2	2.84	540

Notes: Results are in mg/kg.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are for hexavalent chromium.

[d] SSLs are from NMED (2009, 108070), unless otherwise noted.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

Table 5.49-3
Organic Chemicals Detected at SWMU 16-028(b)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dinitrobenzene[1,3-]	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Nitrotoluene[3-]	Nitrotoluene[4-]	Phenanthrene	Pyrene	Tetryl
Construction Worker SSL[a]				**18600**	**213**	**21.3**	**213**	**6680**[b]	**2060**	**20600**	**23.8**	**8910**	**8910**	**213**	**6190**	**953**	**7150**	**6680**	**953**
Industrial SSL[c]				**36700**	**23.4**	**2.34**	**23.4**	**18300**[b]	**234**	**2340**	**62**	**24400**	**24400**	**23.4**	**22700**	**1200**	**20500**	**18300**	**2740**
Residential SSL[c]				**3440**	**6.21**	**0.621**	**6.21**	**1720**[b]	**62.1**	**621**	**6.1**	**2290**	**2290**	**6.21**	**1560**	**244**	**1830**	**1720**	**244**
RE16-98-2013	16-05913	0-0.5	SOIL	8.6 (J)	67	71	75	45	58	120	2.8	190	9.6 (J)	44	6.1	0.8	130	140	1.6

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] Pyrene used as a surrogate based on structural similarity.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

Table 5.49-4
Proposed Sampling at SWMU 16-028(b)

Objective Addressed	Location Number	Location	Beginning Depth of Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	TPH-DRO	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	28b-1 through 28b-5	Drainline	Immediately below line (4–5 ft bgs if line not in place)	X[a]	X	X	X	X	—[b]	X	X	X	X	X
			5 ft below line (9–10 ft bgs if line not in place)	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	28b-6	Outfall	0–1 ft bgs	X	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	28b-7	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	28b-8	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.50-1
Proposed Sampling at SWMU 16-029(b2)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	29b2-1	Drainline	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29b2-4 29b2-5	Drainline	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29b2-2	Primary sump	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29b2-3	Secondary sump	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29b2-6	Outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29b2-7 29b2-8 29b2-9	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29b2-10	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.50-2
Samples Collected and Analyses Requested at AOC C-16-005

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
0316-97-0533	16-04053	0–1	SOIL	3353R	3352R	3351R
0316-97-0534	16-04056	0–1	SOIL	3353R	3352R	3351R

Note: Numbers in analyte columns are request numbers.

Table 5.50-3
Inorganic Chemicals above BVs at AOC C-16-005

Sample ID	Location ID	Depth (ft)	Media	Mercury
Soil BV[a]				**0.1**
Construction Worker SSL[b]				**92.9**
Industrial SSL[c]				**310**
Residential SSL[c]				**23**
0316-97-0533	16-04053	0–1	SOIL	0.35

Notes: Results are in mg/kg.
[a] BVs are from LANL (1998, 059730).
[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).
[c] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

Table 5.50-4
Proposed Sampling at AOC C-16-005

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	5-1 through 5-4	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.51-1
Proposed Sampling at SWMU 16-005(e)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	5e-1	Drainline	0–1 ft bgs	X[a]	X	X	X	X	—[b]	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5e-2 5e-4	Drainline	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5e-3	Septic tank	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	5e-5 5e-6 5e-7	Discharge points	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5e-8 5e-10	Drain field	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5e-9	Drain field	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.51-2
Samples Collected and Analyses Requested at AOC 16-015(c)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
0316-97-0530	16-04044	0–1	SOIL	3353R	3352R	3351R
0316-97-0531	16-04048	0–1	SOIL	3353R	3352R	3351R

Note: Numbers in analyte columns are request numbers.

Table 5.51-3
Inorganic Chemicals above BVs at AOC 16-015(c)

Sample ID	Location ID	Depth (ft)	Media	Copper	Lead	Zinc
Soil BV[a]				**14.7**	**22.3**	**48.8**
Construction Worker SSL[b]				**12400**	**800**	**92900**
Industrial SSL[c]				**45400**	**800**	**341000**
Residential SSL[c]				**3130**	**400**	**23500**
0316-97-0530	16-04044	0–1	SOIL	18.1	37.3	55.8
0316-97-0531	16-04048	0–1	SOIL	39.6	—[d]	—

Notes: Results are in mg/kg.
[a] BVs are from LANL (1998, 059730).
[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).
[c] SSLs are from NMED (2009, 108070).
[d] — = Not detected or not above BV.

Table 5.51-4
Organic Chemicals Detected at AOC 16-015(c)

Sample ID	Location ID	Depth (ft)	Media	Benzoic Acid	RDX
Construction Worker SSL[a]				**952000**	**715**
Industrial SSL[b]				**2500000[c]**	**174**
Residential SSL[b]				**245000[c]**	**44.2**
0316-97-0530	16-04044	0–1	SOIL	0.035 (J)	3.8

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).
[b] SSLs are from NMED (2009, 108070), unless otherwise noted.
[c] EPA regional screening level (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

Table 5.51-5
Proposed Sampling at AOC 16-015(c)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	15c-1 through 15c-4	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.51-6
Proposed Sampling at SWMU 16-025(z)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	25z-1 through 25z-4	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.51-7
Proposed Sampling at SWMU 16-029(c2)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	29c2-1 29c2-2	Primary sumps	0–1 ft bgs	X[a]	X	X	X	X	—[b]	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29c2-5	Secondary sump	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29c2-3 29c2-4 29c2-6 29c2-8	Drainline	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29c2-7	Drainline	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29c2-9 through 29c2-12	Outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29c2-13 29c2-14 29c2-15	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29c2-16	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.52-1
Proposed Sampling at SWMU 16-026(h2)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	26h2-1 26h2-3 26h2-11 26h2-15	Outfalls	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	26h2-2	10 ft downgradient of western outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26h2-4 through 26h2-7	Storm drain outfall and 10 ft downgradient	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26h2-8 26h2-10	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26h2-9	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26h2-12 26h2-13 26h2-14	10 ft downgradient of eastern outfall (north corner)	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26h2-16 26h2-17 26h2-18	10 ft downgradient of eastern outfall (south corner)	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	26h2-19 through 26h2-23 26h2-25 through 26h2-30	10 ft downgradient of eastern outfall (south corner)	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X

Table 5.52-1 (continued)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	26h2-24, adjacent to 16-01667	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			8–9 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	26h2-31	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.52-2
Samples Collected and Analyses Requested at SWMU 16-029(e)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC	VOC	Cyanide (Total)
0316-95-0278	16-01598	0–0.5	SED	923	924	923	—*	924
0316-95-0279	16-01598	1.5–2	SOIL	1102	1106	1102	1102	1106
0316-95-0280	16-01598	8.5–9.5	QBT4	1052	1053	1052	1052	1053
0316-95-0284	16-01599	0–0.5	SED	140	141	140	—	141
0316-95-0285	16-01600	0–0.5	SED	140	141	140	—	141
0316-95-0286	16-01601	0–0.5	SED	140	141	140	—	141
0316-95-0287	16-01602	0–0.5	SED	140	141	140	—	141
0316-95-0288	16-01603	0–0.5	SED	140	141	140	—	141
0316-95-0281	16-01667	0–0.5	SOIL	923	924	923	—	924
0316-95-0282	16-01667	1–2.5	QBT4	1242	1243	1242	1242	1243
0316-95-0283	16-01667	3–4.5	QBT4	1242	1243	1242	1242	1243

Note: Numbers in analyte columns are request numbers.

* — =Analyses not requested.

Table 5.52-3
Inorganic Chemicals above BVs at SWMU 16-029(e)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Cadmium	Calcium	Chromium	Copper	Cyanide (Total)	Iron	Lead	Magnesium	Mercury	Nickel	Selenium	Silver	Zinc
Qbt2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.63**	**2200**	**7.14**	**4.66**	**0.5**	**14500**	**11.2**	**1690**	**0.1**	**6.58**	**0.3**	**1**	**63.5**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**0.4**	**4420**	**10.5**	**11.2**	**0.82**	**13800**	**19.7**	**2370**	**0.1**	**9.38**	**0.3**	**1**	**60.2**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**0.4**	**6120**	**19.3**	**14.7**	**0.5**	**21500**	**22.3**	**4610**	**0.1**	**15.4**	**1.52**	**1**	**48.8**
Construction Worker SSL[b]				**40700**	**124**	**65.4**	**4350**	**309**	**na[c]**	**449[d]**	**12400**	**6190**	**217000**	**800**	**na**	**92.9**	**6190**	**1550**	**1550**	**92900**
Industrial SSL[e]				**1130000**	**454**	**17.7**	**224000**	**1120**	**na**	**2920[d]**	**45400**	**227000**	**795000**	**800**	**na**	**310[f]**	**22700**	**5680**	**5680**	**341000**
Residential SSL[e]				**78100**	**31.3**	**3.9**	**15600**	**77.9**	**na**	**219[d]**	**3130**	**1560**	**54800**	**400**	**na**	**23[f]**	**1560**	**391**	**391**	**23500**
0316-95-0278	16-01598	0–0.5	SED	—[g]	6.75 (U)	—	175	6.3	5900	61.1 (J-)	30.8 (J-)	1.43 (U)	—	55.1 (J-)	4760	0.114 (U)	12.1	0.351 (U)	—	900
0316-95-0279	16-01598	1.5–2	SOIL	—	5.88 (U)	—	—	0.639	—	—	—	1.18 (UJ)	—	—	—	—	—	—	—	105
0316-95-0280	16-01598	8.5–9.5	QBT4	—	5.3 (U)	—	91.7	—	—	21.1	—	1.1 (U)	—	—	—	NA[h]	—	—	—	—
0316-95-0284	16-01599	0–0.5	SED	—	12.3 (U)	—	138	1.2 (U)	17000	12.8	13.3	2.6 (U)	—	64	—	0.13 (U)	—	0.62 (UJ)	1.2 (U)	60.4
0316-95-0285	16-01600	0–0.5	SED	—	5.5 (U)	—	—	0.55 (U)	—	—	—	1.1 (U)	—	—	—	—	—	—	—	—
0316-95-0286	16-01601	0–0.5	SED	—	5.7 (U)	—	—	0.57 (U)	—	—	—	1.2 (U)	—	—	—	—	—	—	—	—
0316-95-0287	16-01602	0–0.5	SED	—	6 (U)	—	—	0.603 (U)	—	—	—	1.2 (U)	—	—	—	—	—	—	—	—
0316-95-0288	16-01603	0–0.5	SED	—	6.2 (U)	—	132	0.62 (U)	—	—	—	1.3 (U)	—	—	—	—	—	0.32 (UJ)	—	—
0316-95-0281	16-01667	0–0.5	SOIL	—	6.39 (U)	—	—	2.09	—	42.1 (J-)	61.2 (J-)	1.29 (U)	40000	25.1 (J-)	—	0.104 (U)	24.9	—	—	248
0316-95-0282	16-01667	1–2.5	QBT4	7370	5.4 (U)	4.1	138	—	8170	—	18.9	1.1 (U)	—	—	—	—	—	—	—	—
0316-95-0283	16-01667	3–4.5	QBT4	9060	5.3 (U)	—	99.9	—	—	—	25.5	1.1 (U)	—	—	—	—	—	—	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] na = Not available.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from NMED (2009, 108070), unless otherwise noted.

[f] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[g] — = Not detected or not above BV.

[h] NA = Not analyzed.

Table 5.52-4
Organic Chemicals Detected at SWMU 16-029(e)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Amino-2,6-dinitrotoluene[4-]	Amino-4,6-dinitrotoluene[2-]	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Benzoic Acid	Bis(2-ethylhexyl)phthalate
Construction Worker SSL[a]				**18600**	**6680[b]**	**263000**	**601**	**601**	**66800**	**213**	**21.3**	**213**	**6680[b]**	**2060**	**952000**	**4760**
Industrial SSL[c]				**36700**	**18300[b]**	**851000**	**1900[d]**	**2000[d]**	**183000**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**	**2500000[d]**	**1370**
Residential SSL[c]				**3440**	**1720[b]**	**67500**	**150[d]**	**150[d]**	**17200**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**	**245000[d]**	**347**
0316-95-0278	16-01598	0–0.5	SED	9.4	—[e]	NA[f]	—	—	19	31	26	40	12	14	—	—
0316-95-0279	16-01598	1.5–2	SOIL	0.19 (J)	—	—	0.123	0.098	0.61	0.87	0.8	1	0.39 (J)	0.49	0.096 (J)	—
0316-95-0280	16-01598	8.5–9.5	QBT4	—	—	0.011 (J)	0.118	—	—	—	—	—	—	—	—	—
0316-95-0284	16-01599	0–0.5	SED	—	—	NA	—	—	—	—	—	—	—	—	—	—
0316-95-0285	16-01600	0–0.5	SED	0.12 (J)	—	NA	—	—	0.17 (J)	0.45	0.49	0.6	0.25 (J)	0.3 (J)	0.4 (J)	0.048 (J)
0316-95-0286	16-01601	0–0.5	SED	0.19 (J)	—	NA	—	—	0.29 (J)	0.57	0.63	0.78	0.35 (J)	0.38 (J)	0.23 (J)	0.042 (J)
0316-95-0287	16-01602	0–0.5	SED	—	—	NA	—	—	—	—	—	—	—	—	—	0.15 (J)
0316-95-0288	16-01603	0–0.5	SED	—	—	NA	—	—	—	—	—	—	—	—	—	0.051 (J)
0316-95-0281	16-01667	0–0.5	SOIL	16	0.75 (J)	NA	—	—	28	75	68	120	33	31	—	—
0316-95-0282	16-01667	1–2.5	QBT4	9.6	—	0.006 (J)	0.308	—	12	25	22	30	12	11	0.62 (J)	—
0316-95-0283	16-01667	3–4.5	QBT4	—	—	0.54	—	—	—	—	—	—	—	—	—	0.55

Table 5.52-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Butanone[2-]	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Diethylphthalate	Di-n-butylphthalate	Dinitrotoluene[2,4-]	Fluoranthene	Fluorene	HMX	Indeno(1,2,3-cd)pyrene	Methylnaphthalene[2-]
Construction Worker SSL[a]				**148000**	**20600**	**21.3**	**552**	**191000**	**23800**	**476**	**8910**	**8910**	**11900**	**213**	**1240**
Industrial SSL[c]				**369000**	**2340**	**2.34**	**1000[d]**	**547000**	**68400**	**103**	**24400**	**24400**	**34200**	**23.4**	**4100[d]**
Residential SSL[c]				**39600**	**621**	**0.621**	**78[d]**	**48900**	**6110**	**15.7**	**2290**	**2290**	**3060**	**6.21**	**310[d]**
0316-95-0278	16-01598	0–0.5	SED	NA	38	3 (J)	6	—	—	0.84	71	10	2.86	13	5
0316-95-0279	16-01598	1.5–2	SOIL	—	1.2	0.1 (J)	0.12 (J)	0.17 (J)	—	—	2.4	0.23 (J)	5.2	0.4	0.064 (J)
0316-95-0280	16-01598	8.5–9.5	QBT4	—	—	—	—	0.83	—	—	0.038 (J)	—	—	—	—
0316-95-0284	16-01599	0–0.5	SED	NA	—	—	—	—	—	—	—	—	—	—	—
0316-95-0285	16-01600	0–0.5	SED	NA	0.56	0.059 (J)	0.04 (J)	—	—	—	1.1	0.1 (J)	—	0.28 (J)	—
0316-95-0286	16-01601	0–0.5	SED	NA	0.73	0.082 (J)	0.078 (J)	—	—	—	1.5	0.17 (J)	—	0.37 (J)	0.054 (J)
0316-95-0287	16-01602	0–0.5	SED	NA	—	—	—	—	—	—	0.043 (J)	—	—	—	—
0316-95-0288	16-01603	0–0.5	SED	NA	—	—	—	—	—	—	—	—	—	—	—
0316-95-0281	16-01667	0–0.5	SOIL	NA	110	8.7	9.2	—	—	1.61	190	15	—	35	5
0316-95-0282	16-01667	1–2.5	QBT4	—	35	3.1 (J)	7.8	0.87 (J)	—	0.942	57	9.6	—	14	5.6
0316-95-0283	16-01667	3–4.5	QBT4	0.017 (J)	—	—	—	—	0.14 (J)	0.075	—	—	—	—	—

Table 5.52-4 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylphenol[2-]	Methylphenol[4-]	Naphthalene	Nitrobenzene	Nitrotoluene[4-]	Phenanthrene	Phenol	Pyrene	RDX	Tetryl	Trinitrobenzene[1,3,5-]	Trinitrotoluene[2,4,6-]
Construction Worker SSL[a]				**na[g]**	**na**	**702**	**520**	**953**	**7150**	**68800**	**6680**	**715**	**953**	**8760**	**141**
Industrial SSL[c]				**34000[h]**	**3400[h]**	**252**	**277**	**1200**	**20500**	**205000**	**18300**	**174**	**2740**	**27000[d]**	**469**
Residential SSL[c]				**3100[h]**	**310[h]**	**45**	**49.4**	**244**	**1830**	**18300**	**1720**	**44.2**	**244**	**2200[d]**	**35.9**
0316-95-0278	16-01598	0–0.5	SED	—	—	15	—	0.793	59	—	54	0.185	2.71	—	—
0316-95-0279	16-01598	1.5–2	SOIL	—	—	0.18 (J)	—	—	2	—	1.6	—	—	—	—
0316-95-0280	16-01598	8.5–9.5	QBT4	—	—	—	—	—	—	—	—	—	—	—	—
0316-95-0284	16-01599	0–0.5	SED	—	—	—	20.5	—	—	—	—	—	—	—	—
0316-95-0285	16-01600	0–0.5	SED	—	—	0.053 (J)	—	—	0.73	—	1.4	—	—	—	—
0316-95-0286	16-01601	0–0.5	SED	—	—	0.15 (J)	—	—	1.2	—	1.8	—	—	—	—
0316-95-0287	16-01602	0–0.5	SED	—	—	—	—	—	—	—	0.058 (J)	—	—	—	—
0316-95-0288	16-01603	0–0.5	SED	—	—	—	—	—	—	—	—	—	—	—	0.117
0316-95-0281	16-01667	0–0.5	SOIL	—	—	11	0.287	—	140	—	140	—	3.21	—	0.585
0316-95-0282	16-01667	1–2.5	QBT4	0.44 (J)	1.1 (J)	15	—	—	58	2.2 (J)	42	—	—	0.157	—
0316-95-0283	16-01667	3–4.5	QBT4	—	—	—	—	—	—	—	—	—	—	0.113	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] Pyrene used as a surrogate based on structural similarity.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[e] — = Not detected.

[f] NA = Not analyzed.

[g] na = Not available.

[h] SSLs are from EPA (2007, 099314).

Table 5.52-5
Proposed Sampling at SWMU 16-029(e)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	29e-1	Outfall	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			8–9 ft bgs	X	X	X	X	X	X	X	X	X	X
			12–13 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29e-2 through 29e-5	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.53-1
Samples Collected and Analyses Requested at SWMU 16-021(a)

Sample ID	Location ID	Depth (ft)	Media	Metals	SVOC	VOC	Cyanide (Total)
0316-95-0210	16-01526	0.75–1.5	SOIL	252	249	249	252
0316-95-2010	16-01526	1.5–2	SOIL	252	249	249	252
0316-95-0211	16-01526	5–5.5	SOIL	252	249	249	252
0316-95-0212	16-01527	0.75–1.5	SOIL	252	249	249	252
0316-95-0213	16-01527	4.67–5.17	SOIL	252	249	249	252

Note: Numbers in analyte columns are request numbers.

Table 5.53-2
Inorganic Chemicals above BVs at SWMU 16-021(a)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Copper	Cyanide (Total)	Mercury	Zinc
Soil BV[a]				**0.83**	**0.4**	**14.7**	**0.5**	**0.1**	**48.8**
Construction Worker SSL[b]				**124**	**309**	**12400**	**6190**	**92.9**	**92900**
Industrial SSL[c]				**454**	**1120**	**45400**	**227000**	**310**[d]	**341000**
Residential SSL[c]				**31.3**	**77.9**	**3130**	**1560**	**23**[d]	**23500**
0316-95-0210	16-01526	0.75–1.5	SOIL	6.1 (U)	0.61 (U)	37.2	1.2 (U)	0.14	318
0316-95-2010	16-01526	1.5–2	SOIL	6.2 (U)	0.62 (U)	34.6	1.2 (U)	—[e]	302
0316-95-0211	16-01526	5–5.5	SOIL	5.8 (U)	0.58 (U)	70.2	1.2 (U)	—	70
0316-95-0212	16-01527	0.75–1.5	SOIL	6.2 (U)	0.62 (U)	26.6	1.3 (U)	—	—
0316-95-0213	16-01527	4.67–5.17	SOIL	5.4 (U)	0.54 (U)	—	1.1 (U)	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[e] — = Not detected or not above BV.

Table 5.53-3
Organic Chemicals Detected at SWMU 16-021(a)

Sample ID	Location ID	Depth (ft)	Media	Acetone	Benzoic Acid	Isopropyltoluene[4-]	Toluene	Trichloroethene	Trichloropropane[1,2,3-]
Construction Worker SSL[a]				**263000**	**952000**	**10300**[b]	**21100**	**4600**	**31**
Industrial SSL[c]				**851000**	**2500000**[d]	**14900**[b]	**57900**	**253**	**4.54**
Residential SSL[c]				**67500**	**245000**[d]	**3210**[b]	**5570**	**45.7**	**0.915**
0316-95-0210	16-01526	0.75–1.5	SOIL	—[e]	—	0.006 (J)	—	0.015	—
0316-95-2010	16-01526	1.5–2	SOIL	—	0.33 (J)	0.01	—	0.003 (J)	—
0316-95-0211	16-01526	5–5.5	SOIL	—	—	—	—	0.003 (J)	—
0316-95-0212	16-01527	0.75–1.5	SOIL	—	0.2 (J)	—	0.006 (J)	0.007	—
0316-95-0213	16-01527	4.67–5.17	SOIL	0.022	—	—	—	—	0.033

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] Isopropylbenzene used as a surrogate.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[e] — = Not detected.

Table 5.53-4
Proposed Sampling at SWMU 16-021(a)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	Tritium	Moisture	pH
Determine nature and extent of potential contamination	21a-1	Outfall	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X	X
			8–9 ft bgs	X	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	21a-2 21a-3 21a-4	10 ft downgradient of outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X	X	X
Determine nature and extent of potential contamination	21a-5	In the drainage, 30 ft east of outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.53-5
Samples Collected and Analyses Requested at SWMU 16-028(e) and SWMU 16-029(g)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC	VOC	Cyanide (Total)
0316-95-0506	16-01519	0–0.25	SED	1004	1005, 1006	1004	—*	1005
0316-95-0507	16-01519	0.33–0.58	QBT4	1004	1005, 1006	1004	1004	1005
0316-95-0508	16-01519	2.5–3.25	QBT4	1004	1005, 1006	1004	1004	1005
0316-95-0183	16-01520	0–0.5	SED	133	134, 135	133	—	134
0316-95-0184	16-01521	0–0.5	SED	133	134, 135	133	—	134
0316-95-0185	16-01522	0–0.5	SED	133	134, 135	133	—	134
0316-95-0186	16-01523	0–0.5	SED	133	134, 135	133	—	134
0316-95-0187	16-01524	0–0.5	SED	133	134, 135	133	—	134
0316-95-0509	16-01661	0–0.16	SED	1007	1008, 1009	1007	—	1008
0316-95-0510	16-01661	0.25–0.5	QBT4	1007	1008, 1009	1007	1007	1008
0316-95-0511	16-01661	2.5–3	QBT4	1007	1008, 1009	1007	1007	1008

Note: Numbers in analyte columns are request numbers.
* — =Analyses not requested.

Table 5.53-6
Inorganic Chemicals above BVs at SWMU 16-028(e) and SWMU 16-029(g)

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Cyanide (Total)	Mercury	Nickel	Selenium	Uranium	Vanadium
Qbt2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**0.5**	**0.1**	**6.58**	**0.3**	**2.4**	**17**
Sediment BV[a]				**15400**	**0.83**	**3.98**	**127**	**1.31**	**0.4**	**4420**	**10.5**	**4.73**	**11.2**	**0.82**	**0.1**	**9.38**	**0.3**	**2.22**	**19.7**
Construction Worker SSL[b]				**40700**	**124**	**65.4**	**4350**	**144**	**309**	**na[c]**	**449[d]**	**34.6**	**12400**	**6190**	**92.9**	**6190**	**1550**	**929**	**1550**
Industrial SSL[e]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920[d]**	**300[f]**	**45400**	**227000**	**310[f]**	**22700**	**5680**	**3410**	**5680**
Residential SSL[e]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219[d]**	**23[f]**	**3130**	**1560**	**23[f]**	**1560**	**391**	**235**	**391**
0316-95-0506	16-01519	0–0.25	SED	—[g]	5.6 (U)	—	—	—	0.56 (U)	—	—	—	—	1.2 (U)	—	—	—	2.32	—
0316-95-0507	16-01519	0.33–0.58	QBT4	10500	6.4 (U)	3.8	216	1.3	—	—	8	7.2	11.2	1.4 (U)	0.18 (U)	7.2	0.32 (U)	3.07	23.1
0316-95-0508	16-01519	2.5–3.25	QBT4	—	5.4 (U)	—	—	—	—	—	516	—	5.9	1.1 (U)	—	10.6	—	—	—
0316-95-0183	16-01520	0–0.5	SED	—	5.46 (U)	—	—	—	0.546 (U)	—	—	—	—	1.1 (U)	0.107	—	1.37 (U)	3.14	23.5
0316-95-0184	16-01521	0–0.5	SED	—	5.74 (U)	—	—	—	0.574 (U)	—	—	—	—	1.16 (U)	—	—	—	2.52	—
0316-95-0185	16-01522	0–0.5	SED	—	6.18 (U)	—	153	—	0.618 (U)	—	—	8.24	—	1.2 (U)	0.122	—	0.307 (U)	2.38	22.9
0316-95-0186	16-01523	0–0.5	SED	—	6.96 (U)	—	215	1.32	0.696 (U)	—	—	6.64 (J)	—	1.41 (U)	—	—	1.74 (U)	3.36	21.2
0316-95-0187	16-01524	0–0.5	SED	—	5.92 (U)	—	139	1.56	0.592 (U)	—	—	5.6 (J)	—	1.19 (U)	—	—	—	2.82	20.1
0316-95-0509	16-01661	0–0.16	SED	—	8.3 (U)	—	—	—	0.83 (U)	—	—	—	—	1.7 (U)	0.103 (J)	—	0.42 (U)	—	—
0316-95-0510	16-01661	0.25–0.5	QBT4	—	7.8 (U)	—	122	—	—	2520	—	—	8.2	1.6 (U)	—	—	0.38 (U)	—	—
0316-95-0511	16-01661	2.5–3	QBT4	—	5.5 (U)	—	—	—	—	—	234	—	10.2	1.1 (U)	—	6.7	—	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] na = Not available.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from NMED (2009, 108070), unless otherwise noted.

[f] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[g] — = Not detected or not above BV.

Table 5.53-7
Organic Chemicals Detected at SWMU 16-028(e) and SWMU 16-029(g)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthene	Acenaphthylene	Acetone	Amino-2,6-dinitrotoluene[4-]	Amino-4,6-dinitrotoluene[2-]	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
Construction Worker SSL[a]				**18600**	**6680[b]**	**263000**	**601**	**601**	**66800**	**213**	**21.3**	**213**	**6680[b]**	**2060**
Industrial SSL[c]				**36700**	**18300[b]**	**851000**	**1900[d]**	**2000[d]**	**183000**	**23.4**	**2.34**	**23.4**	**18300[b]**	**234**
Residential SSL[c]				**3440**	**1720[b]**	**67500**	**150[d]**	**150[d]**	**17200**	**6.21**	**0.621**	**6.21**	**1720[b]**	**62.1**
0316-95-0507	16-01519	0.33–0.58	QBT4	—[e]	—	0.005 (J)	—	—	—	—	—	—	—	—
0316-95-0508	16-01519	2.5–3.25	QBT4	—	—	0.009 (J)	—	—	—	—	—	—	—	—
0316-95-0183	16-01520	0–0.5	SED	0.77	0.057 (J)	NA[f]	—	—	1.4	4	5.7	8.6	3.1	—
0316-95-0184	16-01521	0–0.5	SED	1.1	0.057 (J)	NA	1.71	0.178	1.6	5.1	5.9	8.4	3	—
0316-95-0185	16-01522	0–0.5	SED	0.19 (J)	—	NA	—	—	0.38 (J)	1.5	1.8	3.3	0.55	—
0316-95-0186	16-01523	0–0.5	SED	—	—	NA	—	—	—	—	—	—	—	—
0316-95-0187	16-01524	0–0.5	SED	—	—	NA	—	—	—	—	—	0.047 (J)	—	—
0316-95-0509	16-01661	0–0.16	SED	0.05 (J)	—	NA	—	—	0.1 (J)	0.45	0.66	0.98	0.43	0.42
0316-95-0510	16-01661	0.25–0.5	QBT4	0.07 (J)	—	—	—	—	0.092 (J)	0.4	0.55	0.81	0.3 (J)	0.31 (J)
0316-95-0511	16-01661	2.5–3	QBT4	—	—	0.006 (J)	—	—	—	—	—	—	—	—

Table 5.53-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Benzoic Acid	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Di-n-butylphthalate	Dinitrotoluene[2,4-]	Fluoranthene	Fluorene	HMX	Indeno(1,2,3-cd)pyrene
Construction Worker SSL[a]				**952000**	**20600**	**21.3**	**552**	**23800**	**476**	**8910**	**8910**	**11900**	**213**
Industrial SSL[c]				**2500000[d]**	**2340**	**2.34**	**1000[d]**	**68400**	**103**	**24400**	**24400**	**34200**	**23.4**
Residential SSL[c]				**245000[d]**	**621**	**0.621**	**78[d]**	**6110**	**15.7**	**2290**	**2290**	**3060**	**6.21**
0316-95-0507	16-01519	0.33–0.58	QBT4	—	—	—	—	—	—	—	—	—	—
0316-95-0508	16-01519	2.5–3.25	QBT4	—	—	—	—	—	—	—	—	—	—
0316-95-0183	16-01520	0–0.5	SED	0.2 (J)	4.8	0.8	0.35 (J)	—	0.079	12	0.74	0.221	2.6
0316-95-0184	16-01521	0–0.5	SED	—	5.3	0.61	0.59	—	1.38	14	1	—	2.5
0316-95-0185	16-01522	0–0.5	SED	—	1.7	0.11 (J)	0.086 (J)	—	—	3.4	0.17 (J)	—	0.84
0316-95-0186	16-01523	0–0.5	SED	—	—	—	—	—	—	0.048 (J)	—	—	—
0316-95-0187	16-01524	0–0.5	SED	—	—	—	—	—	—	0.05 (J)	—	—	—
0316-95-0509	16-01661	0–0.16	SED	0.14 (J)	0.87	0.081 (J)	—	0.066 (J)	—	1.2	0.049 (J)	—	0.44
0316-95-0510	16-01661	0.25–0.5	QBT4	0.13 (J)	0.75	0.064 (J)	0.039 (J)	—	—	1.2	0.058 (J)	—	0.32 (J)
0316-95-0511	16-01661	2.5–3	QBT4	—	—	—	—	—	—	—	—	—	—

Table 5.53-7 (continued)

Sample ID	Location ID	Depth (ft)	Media	Methylene Chloride	Methylnaphthalene[2-]	Methylphenol[4-]	Naphthalene	Nitroglycerin	PETN	Phenanthrene	Pyrene	Tetryl	Trinitrobenzene[1,3,5-]	Trinitrotoluene[2,4,6-]
Construction Worker SSL[a]				**10600**	**1240**	**na[g]**	**702**	**23.8**	**na**	**7150**	**6680**	**953**	**8760**	**141**
Industrial SSL[c]				**1090**	**4100[d]**	**3400[h]**	**252**	**68.4**	**na**	**20500**	**18300**	**2740**	**27000[d]**	**469**
Residential SSL[c]				**199**	**310[d]**	**310[h]**	**45**	**6.11**	**na**	**1830**	**1720**	**244**	**2200[d]**	**35.9**
0316-95-0507	16-01519	0.33–0.58	QBT4	0.004 (J)	—	—	—	NA	NA	—	—	—	—	—
0316-95-0508	16-01519	2.5–3.25	QBT4	0.003 (J)	—	—	—	NA	NA	—	—	—	—	—
0316-95-0183	16-01520	0–0.5	SED	NA	0.16 (J)	—	0.45	—	—	4.6	11	0.53	—	—
0316-95-0184	16-01521	0–0.5	SED	NA	0.32 (J)	0.042 (J)	0.96	30.1	113	9.2	12	4.76	0.852	0.584
0316-95-0185	16-01522	0–0.5	SED	NA	—	—	0.093 (J)	—	—	1.8	3.2	—	—	—
0316-95-0186	16-01523	0–0.5	SED	NA	—	—	—	—	—	—	—	—	—	—
0316-95-0187	16-01524	0–0.5	SED	NA	—	—	—	—	—	—	0.045 (J)	—	—	—
0316-95-0509	16-01661	0–0.16	SED	NA	—	0.046 (J)	—	NA	NA	0.59	0.95	—	—	—
0316-95-0510	16-01661	0.25–0.5	QBT4	0.004 (J)	—	—	0.04 (J)	NA	NA	0.68	0.85	—	—	—
0316-95-0511	16-01661	2.5–3	QBT4	0.003 (J)	—	—	—	NA	NA	—	—	—	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] Pyrene used as a surrogate based on structural similarity.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[e] — = Not detected.

[f] NA = Not analyzed.

[g] na = Not available.

[h] SSLs are from NMED 2007, 099314.

Table 5.53-8
Proposed Sampling at SWMU 16-028(e)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	Tritium	Moisture	pH
Determine nature and extent of potential contamination	28e-1	Outfall	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X	X
			8–9 ft bgs	X	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	28e-2 28e-3 28e-4	10 ft downgradient of outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X	X	X
Determine nature and extent of potential contamination	28e-5 28e-6 28e-7 28e-9 28e-10 28e-11 28e-13 through 28e-18	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X	X	X
Determine nature and extent of potential contamination	28e-8 28e-12 28e-19	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.54-1
Samples Collected and Analyses Requested at AOC 16-015(d)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
0316-97-0540	16-04077	0–1	SOIL	3458R	3459R	3457R
0316-97-0541	16-04078	0–1	FILL	3458R	3459R	3457R

Note: Numbers in analyte columns are request numbers.

Table 5.54-2
Inorganic Chemicals above BVs at AOC 16-015(d)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Barium	Cadmium	Copper	Silver
Soil BV[a]				**0.83**	**295**	**0.4**	**14.7**	**1**
Construction Worker SSL[b]				**124**	**4350**	**309**	**12400**	**1550**
Industrial SSL[c]				**454**	**224000**	**1120**	**45400**	**5680**
Residential SSL[c]				**31.3**	**15600**	**77.9**	**3130**	**391**
0316-97-0540	16-04077	0–1	SOIL	5.9 (UJ)	—[d]	0.51 (U)	—	—
0316-97-0541	16-04078	0–1	FILL	7 (UJ)	330	0.61 (U)	18.1	1.2 (J)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070).

[d] — = Not detected or not above BV.

Table 5.54-3
Organic Chemicals Detected at AOC 16-015(d)

Sample ID	Location ID	Depth (ft)	Media	Benzo(g,h,i)perylene	Chrysene	Fluoranthene	Phenol	Pyrene
Construction Worker SSL[a]				**6680[b]**	**20600**	**8910**	**68800**	**6680**
Industrial SSL[c]				**18300[b]**	**2340**	**24400**	**205000**	**18300**
Residential SSL[c]				**1720[b]**	**621**	**2290**	**18300**	**1720**
0316-97-0540	16-04077	0–1	SOIL	0.054 (J)	—[d]	—	—	—
0316-97-0541	16-04078	0–1	FILL	0.056 (J)	0.038 (J)	0.034 (J)	0.16 (J)	0.052 (J)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] Pyrene used as a surrogate based on structural similarity.

[c] SSLs are from NMED (2009, 108070).

[d] — = Not detected.

Table 5.54-4
Proposed Sampling at AOC 16-015(d)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	15d-1 through 15d-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.54-5
Samples Collected and Analyses Requested at SWMU 16-025(a2)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
0316-97-0538	16-04074	0–1	SOIL	3418R	3419R	3417R
0316-97-0539	16-04205	0–1	SOIL	3458R	3459R	3457R

Note: Numbers in analyte columns are request numbers.

Table 5.54-6
Inorganic Chemicals above BVs at SWMU 16-025(a2)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Silver
Soil BV[a]				**0.83**	**0.4**	**1**
Construction Worker SSL[b]				**124**	**309**	**1550**
Industrial SSL[c]				**454**	**1120**	**5680**
Residential SSL[c]				**31.3**	**77.9**	**391**
0316-97-0538	16-04074	0–1	SOIL	8.4 (J-)	0.66 (U)	5.3
0316-97-0539	16-04205	0–1	SOIL	6.9 (UJ)	0.6 (U)	1.1 (J)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] BVs are from LANL (1998, 059730).
[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).
[c] SSLs are from NMED (2009, 108070).

Table 5.54-7
Organic Chemicals Detected at SWMU 16-025(a2)

Sample ID	Location ID	Depth (ft)	Media	HMX	Methylnaphthalene[2-]	RDX
Construction Worker SSL[a]				**11900**	**1240**	**715**
Industrial SSL[b]				**34200**	**4100[c]**	**174**
Residential SSL[b]				**3060**	**310[c]**	**44.2**
0316-97-0538	16-04074	0–1	SOIL	1.15	—[d]	5.79
0316-97-0539	16-04205	0–1	SOIL	—	0.35	—

Notes: Results are in mg/kg.
[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).
[b] SSLs are from NMED (2009, 108070), unless otherwise noted.
[c] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).
[d] — = Not detected.

Table 5.54-8
Proposed Sampling at SWMU 16-025(a2)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	25a2-1 through 25a2-6	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.54-9
Samples Collected and Analyses Requested at SWMU 16-025(b2)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
0316-97-0542	16-04085	0–1	SOIL	3458R	3459R	3457R
0316-97-0543	16-04087	0–1	FILL	3458R	3459R	3457R

Note: Numbers in analyte columns are request numbers.

Table 5.54-10
Inorganic Chemicals above BVs at SWMU 16-025(b2)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Lead	Mercury	Silver	Zinc
Soil BV[a]				**0.83**	**0.4**	**22.3**	**0.1**	**1**	**48.8**
Construction Worker SSL[b]				**124**	**309**	**800**	**92.9**	**1550**	**92900**
Industrial SSL[c]				**454**	**1120**	**800**	**310[d]**	**5680**	**341000**
Residential SSL[c]				**31.3**	**77.9**	**400**	**23[d]**	**391**	**23500**
0316-97-0542	16-04085	0–1	SOIL	6.7 (UJ)	0.58 (U)	27.9	0.17	1.5 (J)	—[e]
0316-97-0543	16-04087	0–1	FILL	7.5 (UJ)	0.65 (U)	23.3	0.6	1.5 (J)	49.9

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[e] — = Not detected or not above BV.

Table 5.54-11
Organic Chemicals Detected at SWMU 16-025(b2)

Sample ID	Location ID	Depth (ft)	Media	Benzo(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chlorophenol[2-]	Chrysene	Fluoranthene	Pyrene
Construction Worker SSL[a]				**213**	**213**	**2060**	**1550**	**20600**	**8910**	**6680**
Industrial SSL[b]				**23.4**	**23.4**	**234**	**5680**	**2340**	**24400**	**18300**
Residential SSL[b]				**6.21**	**6.21**	**62.1**	**391**	**621**	**2290**	**1720**
0316-97-0542	16-04085	0–1	SOIL	—[c]	—	—	—	—	0.034 (J)	0.055 (J)
0316-97-0543	16-04087	0–1	FILL	0.036 (J)	0.05 (J)	0.042 (J)	0.35	0.047 (J)	0.054 (J)	0.053 (J)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070)

[b] SSLs are from NMED (2009, 108070).

[c] — = Not detected.

Table 5.54-12
Proposed Sampling at SWMU 16-025(b2)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	25b2-1 through 25b2-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.54-13
Proposed Sampling at SWMU 16-029(d2)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	29d2-1 29d2-2 29d2-5 29d2-7 29d2-8	Drainlines	4–5 ft bgs	X[a]	X	X	X	X	—[b]	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29d2-6	Drainline	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29d2-3	Sump	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29d2-4	Sump	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29d2-9	Outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29d2-10	Outfall	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.54-14
Proposed Sampling at SWMU 16-029(e2)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	29e2-1 29e2-2 29e2-3 29e2-8 through 29e2-11 29e2-13 29e2-14	Drainlines	4–5 ft bgs	X[a]	X	X	X	X	—[b]	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29e2-7 29e2-12	Drainlines	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29e2-4 29e2-6	Sumps	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29e2-5	Sump	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29e2-15 29e2-16 29e2-17	Outfalls	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29e2-18 29e2-22	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29e2-19 29e2-20 29e2-21	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.54-15
Proposed Sampling at SWMU 16-029(v)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	29v-1 29v-2 29v-4 29v-5	Drainline	4–5 ft bgs	X[a]	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29v-3	Sump	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29v-6	Outfall	0–1 ft bgs	X	X	X	X	X	X	X	—[b]	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29v-7	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.54-16
Proposed Sampling at SWMU 16-034(o)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	34o-1 through 34o-7	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.55-1
Proposed Sampling at SWMU 16-025(t)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	25t-1 through 25t-4	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.55-2
Proposed Sampling at SWMU 16-029(y)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	29y-1 29y-2	Primary sumps	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29y-3	Secondary sump	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X
			19–20 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29y-4 29y-5	Drainline	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29y-6 through 29y-9	Outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29y-10 through 29y-14	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29y-15	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.56-1
Proposed Sampling at SWMU 16-005(c)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	5c-1	Drainline	4–5 ft bgs	X[a]	X	X	X	X	—[b]	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5c-2	Drainline	4–5 ft bgs	X[*]	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	5c-3 5c-5	Septic tank inlet and outlet	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5c-4	Septic tank	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	5c-6 5c-7 5c-8	Outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5c-9 through 5c-12 5c-14	Leach field	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	5c-13	Leach field	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.56-2
Proposed Sampling at AOC 16-023(b)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Dioxins & Furans	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	23b-1 through 23b-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.56-3
Samples Collected and Analyses Requested at SWMU 16-025(p)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
0316-97-0522	16-04009	0–1	SOIL	3319R	3320R	3318R
0316-97-0575	16-04011	0–1	SOIL	3319R	3320R	3318R
0316-97-0576	16-04012	0–1	SOIL	3319R	3320R	3318R
0316-97-0594	16-04012	1–2	SOIL	3527R	3528R	3526R

Note: Numbers in analyte columns are request numbers.

Table 5.56-4
Inorganic Chemicals above BVs at SWMU 16-025(p)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Copper	Lead	Zinc
Soil BV[a]				**0.83**	**0.4**	**14.7**	**22.3**	**48.8**
Construction Worker SSL[b]				**124**	**309**	**12400**	**800**	**92900**
Industrial SSL[c]				**454**	**1120**	**45400**	**800**	**341000**
Residential SSL[c]				**31.3**	**77.9**	**3130**	**400**	**23500**
0316-97-0522	16-04009	0–1	SOIL	5.1 (U)	0.51 (U)	17.9	42	71.6
0316-97-0575	16-04011	0–1	SOIL	4.4 (U)	0.44 (U)	19.2	57.8	—[d]
0316-97-0576	16-04012	0–1	SOIL	4.9 (U)	0.49 (U)	15.5	493	—
0316-97-0594	16-04012	1–2	SOIL	—	—	—	66.2	57.6

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070).

[d] — = Not detected or not above BV.

Table 5.56-5
Organic Chemicals Detected at SWMU 16-025(p)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Fluoranthene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene
Construction Worker SSL[a]				**6680[b]**	**66800**	**213**	**21.3**	**213**	**6680[b]**	**20600**	**8910**	**213**	**7150**	**6680**
Industrial SSL[c]				**18300[b]**	**183000**	**23.4**	**2.34**	**23.4**	**18300[b]**	**2340**	**24400**	**23.4**	**20500**	**18300**
Residential SSL[c]				**1720[b]**	**17200**	**6.21**	**0.621**	**6.21**	**1720[b]**	**621**	**2290**	**6.21**	**1830**	**1720**
0316-97-0522	16-04009	0–1	SOIL	0.12 (J)	0.081 (J)	0.84 (J)	0.75 (J)	1 (J)	0.53 (J)	0.59 (J)	0.83 (J)	0.36 (J)	0.2 (J)	1.9 (J)
0316-97-0575	16-04011	0–1	SOIL	—[d]	—	0.35 (J)	0.39 (J)	0.49 (J)	0.27 (J)	0.25 (J)	0.31 (J)	0.2 (J)	0.12 (J)	0.89 (J)
0316-97-0576	16-04012	0–1	SOIL	—	—	0.28 (J)	0.32 (J)	0.39 (J)	0.21 (J)	0.23 (J)	0.24 (J)	0.15 (J)	0.14 (J)	0.73 (J)
0316-97-0594	16-04012	1–2	SOIL	—	—	0.39 (J)	0.36 (J)	0.5 (J)	—	0.38 (J)	0.39 (J)	—	0.28 (J)	0.99

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] Pyrene used as a surrogate based on structural similarity.

[c] SSLs are from NMED (2009, 108070).

[d] — = Not detected.

Table 5.56-6
Proposed Sampling at SWMU 16-025(p)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	25p-1 through 25p-6	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.56-7
Samples Collected and Analyses Requested at SWMU 16-025(q)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC	Cyanide (Total)
0316-97-0591	16-04005	0–1	SOIL	3340R	3339R	3338R	—*
0316-97-0521	16-04006	0–1	SOIL	3319R	3320R	3318R	3320R
0316-97-0574	16-04008	0–1	SOIL	3319R	3320R	3318R	3320R

Note: Numbers in analyte columns are request numbers.

* — =Analyses not requested.

Table 5.56-8
Inorganic Chemicals above BVs at SWMU 16-025(q)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Copper	Cyanide (Total)	Lead	Silver	Zinc
Soil BV[a]				**0.83**	**0.4**	**14.7**	**0.5**	**22.3**	**1**	**48.8**
Construction Worker SSL[b]				**124**	**309**	**12400**	**6190**	**800**	**1550**	**92900**
Industrial SSL[c]				**454**	**1120**	**45400**	**227000**	**800**	**5680**	**341000**
Residential SSL[c]				**31.3**	**77.9**	**3130**	**1560**	**400**	**391**	**23500**
0316-97-0591	16-04005	0–1	SOIL	—[d]	—	52	NA[e]	167	2 (J)	74.1
0316-97-0521	16-04006	0–1	SOIL	5.1 (U)	0.51 (U)	128	1 (U)	467	—	—
0316-97-0574	16-04008	0–1	SOIL	4.3 (U)	0.43 (U)	33.5	1.1 (U)	129	—	49.1

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070).

[d] — = Not detected or not above BV.

[e] NA = Not analyzed.

Table 5.56-9
Organic Chemicals Detected at SWMU 16-025(q)

Sample ID	Location ID	Depth (ft)	Media	Acenaphthylene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Fluoranthene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene
Construction Worker SSL[a]				**6680**[b]	**213**	**21.3**	**213**	**6680**[b]	**20600**	**8910**	**213**	**7150**	**6680**
Industrial SSL[c]				**18300**[b]	**23.4**	**2.34**	**23.4**	**18300**[b]	**2340**	**24400**	**23.4**	**20500**	**18300**
Residential SSL[c]				**1720**[b]	**6.21**	**0.621**	**6.21**	**1720**[b]	**621**	**2290**	**6.21**	**1830**	**1720**
0316-97-0591	16-04005	0–1	SOIL	0.085 (J)	0.75	0.76	1	0.47	0.62	0.89	0.36 (J)	0.42	1.7
0316-97-0521	16-04006	0–1	SOIL	—[d]	0.38 (J)	0.37 (J)	0.56 (J)	0.24 (J)	0.28 (J)	0.34 (J)	0.17 (J)	0.14 (J)	0.61 (J)
0316-97-0574	16-04008	0–1	SOIL	—	0.154 (J)	0.15 (J)	0.21 (J)	—	0.11 (J)	0.14 (J)	0.078 (J)	—	0.36 (J)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] Pyrene used as a surrogate based on structural similarity.

[c] SSLs are from NMED 2009, 10807.

[d] — = Not detected.

Table 5.56-10
Proposed Sampling at SWMU 16-025(q)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	25q-1 25q-2 25q-3 25q-5 25q-6	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	25q-4	East of footprint and at the drainline of SWMU 16-026(w)	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.56-11
Proposed Sampling at SWMU 16-025(r)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	25r-1 through 25r-4	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	25r-5 25r-6	Southwest of footprint	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			12–13 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.56-12
Samples Collected and Analyses Requested at SWMU 16-025(s)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	High Explosives	Isotopic Radium	Metals	Strontium-90	SVOC
0316-97-0523	16-04015	0–1	SOIL	3460R	3335R	3460R	3334R, 3336R	3460R	3333R

Note: Numbers in analyte columns are request numbers.

Table 5.56-13
Inorganic Chemicals above BVs at SWMU 16-025(s)

Sample ID	Location ID	Depth (ft)	Media	Cobalt	Uranium
Soil BV[a]				**8.64**	**1.82**
Construction Worker SSL[b]				**34.6**	**929**
Industrial SSL[c]				**300**[d]	**3410**
Residential SSL[c]				**23**[d]	**235**
0316-97-0523	16-04015	0–1	SOIL	9.5 (J)	2.8

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

Table 5.56-14
Proposed Sampling at SWMU 16-025(s)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Gamma Spectroscopy	Isotopic Radium	Isotopic Uranium	Strontium-90	pH
Determine nature and extent of potential contamination	25s-1 through 25s-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X	X	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.56-15
Proposed Sampling at SWMU 16-025(u)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	25u-1 through 25u-7	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.56-16
Proposed Sampling at SWMU 16-025(v)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	25v-1 through 25v-4	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.56-17
Proposed Sampling at SWMU 16-026(w)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	26w-1	Outfall	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	26w-2 26w-3	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.56-18
Proposed Sampling at SWMU 16-029(z)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	29z-1 29z-2 29z-3 29z-5 29z-7 29z-8 29z-10 29z-11	Sumps	0–1 ft bgs	X[a]	X	X	X	X	—[b]	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29z-4 29z-6 29z-9	Sumps	4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	29z-12 29z-14 29z-15 29z-17 29z-18 29z-19 29z-21 29z-22 29z-23	Drainlines	4–5 ft bgs	X	X	X	X	X	—	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	29z-13 29z-16 29z-20	Drainlines	4–5 ft bgs	X[a]	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.56-19
Proposed Sampling at SWMU 16-032(a)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	32a-1	Sump	4–5 ft bgs	X[a]	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	32a-2	Drainline	4–5 ft bgs	X	X	X	X	X	—[b]	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	32a-3	Outfall	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	32a-4 through 32a-8	Drainage	0–1 ft bgs	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	32a-9	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.56-20
Samples Collected and Analyses Requested at SWMU 16-034(l)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
0316-97-0520	16-04002	0–1	SOIL	3319R	3320R	3318R

Note: Numbers in analyte columns are request numbers.

Table 5.56-21
Inorganic Chemicals above BVs at SWMU 16-034(l)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Cadmium	Copper	Lead	Zinc
Soil BV[a]				**0.83**	**0.4**	**14.7**	**22.3**	**48.8**
Construction Worker SSL[b]				**124**	**309**	**12400**	**800**	**92900**
Industrial SSL[c]				**454**	**1120**	**45400**	**800**	**341000**
Residential SSL[c]				**31.3**	**77.9**	**3130**	**400**	**23500**
0316-97-0520	16-04002	0–1	SOIL	4.1 (U)	0.41 (U)	14.9	60.5	81.7

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] SSLs are from NMED (2009, 108070).

Table 5.56-22
Proposed Sampling at SWMU 16-034(l)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	34l-1 through 34l-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.56-23
Samples Collected and Analyses Requested at SWMU 16-034(p)

Sample ID	Location ID	Depth (ft)	Media	Gamma Spectroscopy	High Explosives	Metals	SVOC	VOC	Cyanide (Total)
RE16-98-0065	16-05940	8.65–9.15	FILL	—*	4722R	4721R	4720R	—	4721R
RE16-98-0077	16-05940	9.65–10.15	QBT4	—	—	5088R	—	—	5088R
RE16-98-0066	16-05941	8.75–9.25	SOIL	—	4722R	4721R	4720R	—	4721R
RE16-98-0072	16-05941	9.25–9.75	QBT4	—	5046R	5045R	5044R	—	5045R
RE16-98-0084	16-05941	10.95–11.45	QBT4	—	—	5088R	—	—	5088R
RE16-98-0067	16-05942	8.75–9.25	FILL	—	4722R	4721R	4720R	—	4721R
RE16-98-0083	16-05942	9.25–9.75	QBT4	—	—	5088R	—	—	5088R
RE16-98-0085	16-05942	11.05–11.55	QBT4	—	—	5088R	—	—	5088R
RE16-98-0068	16-05947	0–0.5	FILL	—	4722R	4721R	4720R	—	4721R
RE16-98-0071	16-05962 CRACK	12.45–12.95	SOIL	—	5046R	5045R	5044R	—	5045R
RE16-98-0073	16-05963	0–0.5	FILL	—	5046R	5045R	5044R	—	5045R
RE16-99-0018	16-05963	10.5–11	QBT4	—	—	5229R	—	—	—
RE16-98-0074	16-05964	0–0.5	FILL	—	5046R	5045R	5044R	—	5045R
RE16-99-0019	16-05964	11.5–12	QBT4	—	—	—	5228R	—	—
RE16-98-0075	16-05965	10.35–10.85	FILL	—	5046R	5045R	5044R	—	5045R
RE16-98-0076	16-05966	8.65–9.15	FILL	—	5046R	5045R	5044R	—	5045R
RE16-99-0020	16-05986	10.5–11	QBT4	—	—	5229R	—	—	—
RE16-98-0069	XX-16-604063	0–0.5	FILL	4925R	4924R	4923R	4922R	4922R	4923R

Note: Numbers in analyte columns are request numbers.

* — =Analyses not requested.

Table 5.56-24
Inorganic Chemicals above BVs at SWMU 16-034(p)

Sample ID	Location ID	Depth (ft)	Media	Antimony	Arsenic	Barium	Cadmium	Calcium	Cobalt	Copper	Cyanide (Total)	Lead	Manganese	Mercury	Selenium	Silver	Thallium	Zinc
Qbt2, 3, 4 BV[a]				**0.5**	**2.79**	**46**	**1.63**	**2200**	**3.14**	**4.66**	**0.5**	**11.2**	**482**	**0.1**	**0.3**	**1**	**1.1**	**63.5**
Soil BV[a]				**0.83**	**8.17**	**295**	**0.4**	**6120**	**8.64**	**14.7**	**0.5**	**22.3**	**671**	**0.1**	**1.52**	**1**	**0.73**	**48.8**
Construction Worker SSL[b]				**124**	**65.4**	**4350**	**309**	**na[c]**	**34.6**	**12400**	**6190**	**800**	**463**	**92.9**	**1550**	**1550**	**20.4**	**92900**
Industrial SSL[d]				**454**	**17.7**	**224000**	**1120**	**na**	**300[e]**	**45400**	**227000**	**800**	**145000**	**310[e]**	**5680**	**5680**	**74.9**	**341000**
Residential SSL[d]				**31.3**	**3.9**	**15600**	**77.9**	**na**	**23[e]**	**3130**	**1560**	**400**	**10700**	**23[e]**	**391**	**391**	**5.16**	**23500**
RE16-98-0065	16-05940	8.65–9.15	FILL	—[f]	—	—	0.56 (U)	15000	—	1000	0.56 (U)	370	—	0.14	—	2.2 (U)	—	140
RE16-98-0077	16-05940	9.65–10.15	QBT4	0.57 (J)	—	—	—	—	—	12.7	0.53 (U)	15.6	—	—	0.55 (U)	—	—	—
RE16-98-0066	16-05941	8.75–9.25	SOIL	—	8.6	—	0.55 (U)	24000	—	230	0.55 (U)	1600	—	0.24	—	2.2 (U)	—	210
RE16-98-0072	16-05941	9.25–9.75	QBT4	—	2.8	—	—	—	—	—	—	—	—	—	0.64 (U)	—	—	—
RE16-98-0084	16-05941	10.95–11.45	QBT4	0.61 (UJ)	—	—	—	—	—	—	0.56 (U)	—	—	—	0.59 (U)	—	—	—
RE16-98-0067	16-05942	8.75–9.25	FILL	—	—	—	1.9	20000	—	120	0.54 (U)	40000	—	0.27	—	2.2	—	290
RE16-98-0083	16-05942	9.25–9.75	QBT4	0.6 (UJ)	—	—	—	—	—	—	0.55 (U)	—	—	—	0.58 (U)	—	—	—
RE16-98-0085	16-05942	11.05–11.55	QBT4	0.75 (J)	—	—	—	—	—	—	0.57 (U)	—	—	—	0.66 (J)	—	—	—
RE16-98-0068	16-05947	0–0.5	FILL	—	—	320	3.5	17000	—	43	0.57 (U)	51	—	0.11 (U)	—	2.3 (U)	—	170
RE16-98-0071	16-05962 CRACK	12.45–12.95	SOIL	—	—	—	1.3	—	14.9	—	0.6 (J)	—	1450	—	—	—	—	—
RE16-98-0073	16-05963	0–0.5	FILL	—	13.2	—	—	—	—	157	—	219	—	—	—	1.6	—	197
RE16-99-0018	16-05963	10.5–11	QBT4	—	—	—	—	—	—	—	NA[g]	—	—	0.11 (U)	1.1 (U)	—	—	—
RE16-98-0074	16-05964	0–0.5	FILL	—	—	—	—	—	—	—	—	23	—	—	—	—	—	58.7
RE16-98-0076	16-05966	8.65–9.15	FILL	—	—	312	0.48	7900	—	33.6	—	36.7	—	—	—	—	—	257
RE16-99-0020	16-05986	10.5–11	QBT4	0.86 (UJ)	—	—	—	—	—	—	NA	25	—	—	1.1 (U)	—	—	—
RE16-98-0069	XX-16-604063	0–0.5	FILL	—	—	—	0.6 (U)	—	—	—	0.6 (U)	—	—	0.12 (U)	—	2.4 (U)	2.4 (U)	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] BVs are from LANL (1998, 059730).
[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).
[c] na = Not available.
[d] SSLs are from NMED (2009, 108070), unless otherwise noted
[e] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).
[f] — = Not detected or not above BV.
[g] NA = Not analyzed.

Table 5.56-25
Organic Chemicals Detected at SWMU 16-034(p)

Sample ID	Location ID	Depth (ft)	Media	Pyrene
Construction Worker SSL[a]				**6680**
Industrial SSL[b]				**18300**
Residential SSL[b]				**1720**
RE16-98-0074	16-05964	0–0.5	FILL	0.41

Notes: Results are in mg/kg.

[a] Construction worker SSL calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] SSLs are from NMED (2009, 108070).

Table 5.56-26
Proposed Sampling at SWMU 16-034(p) and AOC 16-011

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Dioxins & Furans	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	34p-1 34p-2	Within footprint	12–13 ft bgs	X[a]	X	X	X	X	X	X	X	X	X	X
			17–18 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	34p-3 through 34p-6	Around footprint	0–1 ft bgs	X	X	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X
			12–13 ft bgs	X	X	X	X	X	X	X	X	X	X	X
			17–18 ft bgs	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.57-1
Samples Collected and Analyses Requested at SWMU 16-031(a)

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	SVOC
RE16-98-2014	16-05914	0–0.5	SOIL	5042R	5041R, 5043R	5040R

Note: Numbers in analyte columns are request numbers.

Table 5.57-2
Inorganic Chemicals above BVs at SWMU 16-031(a)

Sample ID	Location ID	Depth (ft)	Media	Cadmium	Calcium	Copper	Lead	Uranium	Zinc
Soil BV[a]				**0.4**	**6120**	**14.7**	**22.3**	**1.82**	**48.8**
Construction Worker SSL[b]				**309**	**na[c]**	**12400**	**800**	**929**	**92900**
Industrial SSL[d]				**1120**	**na**	**45400**	**800**	**3410**	**341000**
Residential SSL[d]				**77.9**	**na**	**3130**	**400**	**235**	**23500**
RE16-98-2014	16-05914	0–0.5	SOIL	3.8	6460	326	49.3	2.04	586

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] na = Not available.

[d] SSLs are from NMED (2009, 108070).

Table 5.57-3
Organic Chemicals Detected at SWMU 16-031(a)

Sample ID	Location ID	Depth (ft)	Media	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Fluoranthene	Phenanthrene	Pyrene
Construction Worker SSL[a]				**213**	**21.3**	**213**	**2060**	**20600**	**8910**	**7150**	**6680**
Industrial SSL[b]				**23.4**	**2.34**	**23.4**	**234**	**2340**	**24400**	**20500**	**18300**
Residential SSL[b]				**6.21**	**0.621**	**6.21**	**62.1**	**621**	**2290**	**1830**	**1720**
RE16-98-2014	16-05914	0–0.5	SOIL	0.88	0.75	0.82	0.65	1.4	2	0.71	1.5

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] SSLs are from NMED (2009, 108070).

Table 5.57-4
Proposed Sampling at SWMU 16-031(a)

Objective Addressed	Location Number	Location	Beginning Depth of Sample Interval	TAL Metals	Hexavalent Chromium	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	31a-1	Drainline	Immediately below line (4–5 ft bgs if line not in place)	X[a]	X	X	X	X	X	X	X	X	X	X
			5 ft below line (9–10 ft bgs if line not in place)	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	31a-2	Drainline	Immediately below line (4–5 ft bgs if line not in place)	X	X	X	X	X	X	—[b]	X	X	X	X
			5 ft below line (9–10 ft bgs if line not in place)	X	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	31a-3	Outfall	0–1 ft bgs	X	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	31a-4 31a-5 31a-6	10 ft downgradient of outfall	0–1 ft bgs	X	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	31a-7 through 31a-11	Drainage	0–1 ft bgs	X	X	X	X	X	X	—	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	—	X	X	X	X
Determine nature and extent of potential contamination	31a-12	Drainage	0–1 ft bgs	X	X	X	X	X	X	X	X	—	X	X
			2–3 ft bgs	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 5.58-1
Proposed Sampling at SWMU 16-031(e)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	31e-1	Outfall	0–1 ft bgs	X[a]	X	X	X	X	—[b]	X
			2–3 ft bgs	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	31e-2 31e-3 31e-4	Drainage	0–1 ft bgs	X	X	X	X	X	—	X
			2–3 ft bgs	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.61-1
Proposed Sampling at AOC 16-033(c)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	SVOCs	TPH-DRO	VOCs	pH
Determine nature and extent of potential contamination	33c-1 through 33c-6	Within and around SWMU boundary	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.63-1
Proposed Sampling at AOC 16-033(i)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	SVOCs	TPH-GRO	VOCs	pH
Determine nature and extent of potential contamination	33i-1 through 33i-5	Within and around footprint	4–5 ft bgs	X*	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X
			24–25 ft bgs	X	X	X	X	X	X	X	X

* X = Analysis will be performed.

Table 5.64-1
Proposed Sampling at AOC 16-033(j)

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	SVOCs	TPH-GRO	VOCs	pH
Determine nature and extent of potential contamination	33j-1 through 33j-4	Within and around footprint	4–5 ft bgs	X*	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X
			24–25 ft bgs	X	X	X	X	X	X	X	X

* X = Analysis will be performed.

Table 5.66-1
Proposed Sampling at AOC C-16-019

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	TPH-DRO	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	19-1 through 19-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.68-1
Proposed Sampling at AOC C-16-028

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	28-1 through 28-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.69-1
Samples Collected and Analyses Requested at AOC C-16-030 and AOC C-16-031

Sample ID	Location ID	Depth (ft)	Media	High Explosives	Metals	PCB	SVOC	TPH-DRO	VOC
RE16-03-52666	16-22561	6-6.5	SOIL	1923S	1923S	—*	1923S	1923S	1923S
RE16-03-52667	16-22562	6-6.5	SOIL	1923S	1923S	—	1923S	1923S	1923S
RE16-07-73748	16-27020	6–6.5	QBT3	—	7022S	7022S	—	7022S	—
RE16-07-73749	16-27020	11–11.5	QBT3	—	7022S	—	—	7022S	—
RE16-07-73750	16-27020	31–31.5	QBT3	—	7022S	—	—	7022S	—
RE16-07-73751	16-27021	6–6.5	QBT3	—	7022S	—	—	7022S	—
RE16-07-73754	16-27022	6–6.5	QBT3	—	7022S	—	—	7022S	—
RE16-07-73755	16-27022	11–11.5	QBT3	—	7022S	—	—	7022S	—
RE16-07-73756	16-27022	31–31.5	QBT3	—	7022S	—	—	7022S	—
RE16-07-73757	16-27023	6–6.5	QBT3	—	7022S	—	—	7022S	—
RE16-07-73758	16-27023	11–11.5	QBT3	—	7022S	—	—	7022S	—
RE16-07-73759	16-27023	31–31.5	QBT3	—	7022S	—	—	7022S	—
RE16-07-73760	16-27024	6–6.5	QBT3	—	7022S	—	—	7022S	—
RE16-07-73761	16-27024	11–11.5	QBT3	—	7022S	—	—	7022S	—
RE16-07-73762	16-27024	31–31.5	QBT3	—	7022S	—	—	7022S	—
RE16-07-2946	16-600642	6–6.5	QBT3	—	07-115	—	—	07-115	—
RE16-07-2947	16-600642	11–11.5	QBT3	—	07-115	—	—	07-115	—

Note: Numbers in analyte columns are request numbers.
* — = Analysis will not be performed.

Table 5.69-2
Inorganic Chemicals above BVs at AOC C-16-030 and AOC C-16-031

Sample ID	Location ID	Depth (ft)	Media	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Lead	Magnesium	Mercury	Nickel	Selenium	Vanadium	Zinc
Qbt2, 3, 4 BV[a]				**7340**	**0.5**	**2.79**	**46**	**1.21**	**1.63**	**2200**	**7.14**	**3.14**	**4.66**	**11.2**	**1690**	**0.1**	**6.58**	**0.3**	**17**	**63.5**
Soil BV[a]				**29200**	**0.83**	**8.17**	**295**	**1.83**	**0.4**	**6120**	**19.3**	**8.64**	**14.7**	**22.3**	**4610**	**0.1**	**15.4**	**1.52**	**39.6**	**48.8**
Construction Worker SSL[b]				**40700**	**124**	**65.4**	**4350**	**144**	**309**	**na**[c]	**449**[d]	**34.6**	**12400**	**800**	**na**	**92.9**	**6190**	**1550**	**1550**	**92900**
Industrial SSL[e]				**1130000**	**454**	**17.7**	**224000**	**2260**	**1120**	**na**	**2920**[d]	**300**[f]	**45400**	**800**	**na**	**310**[f]	**22700**	**5680**	**5680**	**341000**
Residential SSL[e]				**78100**	**31.3**	**3.9**	**15600**	**156**	**77.9**	**na**	**219**[d]	**23**[f]	**3130**	**400**	**na**	**23**[f]	**1560**	**391**	**391**	**23500**
RE16-03-52666	16-22561	6–6.5	SOIL	—[g]	—	—	—	—	—	—	—	13.4 (J+)	16.5 (U)	31.9 (J+)	—	—	—	—	—	—
RE16-03-52667	16-22562	6–6.5	SOIL	—	—	—	—	—	0.422	—	—	9.19 (J+)	20.9 (U)	—	—	—	—	—	—	50.8 (J+)
RE16-07-73748	16-27020	6–6.5	QBT3	13400 (J)	—	3.5	213 (J-)	—	—	2840 (J)	9 (J-)	5.3 (J-)	—	31.1 (J)	1810 (J-)	—	8.1 (J-)	0.58 (U)	22.3 (J-)	—
RE16-07-73749	16-27020	11–11.5	QBT3	—	—	—	72.9 (J-)	—	—	5110	—	—	—	22.3 (J)	—	—	—	0.35 (J)	—	—
RE16-07-73750	16-27020	31–31.5	QBT3	—	—	—	86 (J-)	—	—	—	—	—	—	18 (J)	—	0.38 (J)	—	0.55 (U)	—	—
RE16-07-73751	16-27021	6–6.5	QBT3	—	—	—	143 (J-)	—	—	—	—	—	—	—	—	—	—	—	—	—
RE16-07-73754	16-27022	6–6.5	QBT3	9330	—	—	137 (J-)	—	—	2430	—	—	—	—	—	—	—	—	—	—
RE16-07-73755	16-27022	11–11.5	QBT3	21000	—	—	122 (J-)	2.2 (J-)	—	3880	8.7 (J-)	3.2 (J-)	—	15.2 (J)	3270 (J-)	—	14 (J-)	—	—	—
RE16-07-73756	16-27022	31–31.5	QBT3	10900	—	3.1	151 (J-)	—	—	3440	8.8 (J-)	5.1 (J-)	—	23.6 (J)	1830 (J-)	—	6.9 (J-)	0.62 (U)	21.6 (J-)	—
RE16-07-73757	16-27023	6–6.5	QBT3	10600	—	—	140 (J-)	—	—	—	—	4.6 (J-)	—	11.8 (J)	2010 (J-)	—	—	0.61 (U)	—	—
RE16-07-73758	16-27023	11–11.5	QBT3	—	0.58 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	0.37 (J)	—	—
RE16-07-73759	16-27023	31–31.5	QBT3	9100	—	—	103 (J-)	—	—	—	7.2 (J-)	3.3 (J-)	—	—	—	—	—	—	—	—
RE16-07-73760	16-27024	6–6.5	QBT3	10100	—	—	86.8 (J-)	—	—	2420	—	—	—	—	2070 (J-)	—	7.5 (J-)	0.48 (J)	—	—
RE16-07-73761	16-27024	11–11.5	QBT3	—	0.56 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE16-07-73762	16-27024	31–31.5	QBT3	—	0.56 (UJ)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
RE16-07-2946	16-600642	6–6.5	QBT3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.58 (J-)	—	—
RE16-07-2947	16-600642	11–11.5	QBT3	12500	—	—	187 (J-)	—	—	3200	7.4 (J-)	—	—	—	2460 (J-)	—	8.5 (J-)	—	—	—

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] BVs are from LANL (1998, 059730).

[b] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[c] na = Not available.

[d] SSLs are for hexavalent chromium.

[e] SSLs are from NMED (2009, 108070), unless otherwise noted.

[f] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[g] — = Not detected or not above BV.

Table 5.69-3
Organic Chemicals Detected at AOC C-16-030 and AOC C-16-031

Sample ID	Location ID	Depth (ft)	Media	Bis(2-ethylhexyl)phthalate	Butylbenzene[n-]	Butylbenzene[sec-]	Dibenzofuran	Fluorene	Methylnaphthalene[2-]	Naphthalene	Phenanthrene	Total Petroleum Hydrocarbons Diesel Range Organics
Construction Worker SSL[a]				**4760**	**20100**	**18000**	**552**	**8910**	**1240**	**702**	**7150**	**na**[b]
Industrial SSL[c]				**1370**	**560**[d]	**420**[d]	**1000**[e]	**24400**	**4100**[e]	**252**	**20500**	**200**[f]
Residential SSL[c]				**347**	**140**[d]	**110**[d]	**78**[e]	**2290**	**310**[e]	**45**	**1830**	**200**[f]
RE16-03-52666	16-22561	6–6.5	SOIL	0.69	0.33	0.12	0.6	0.45	2.2	0.48	0.74	—[g]
RE16-03-52667	16-22562	6–6.5	SOIL	0.64	0.15	0.078	—	—	—	—	—	—
RE16-07-73751	16-27021	6–6.5	QBT3	NA[h]	NA	NA	NA	NA	NA	NA	NA	15000
RE16-07-73754	16-27022	6–6.5	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	71
RE16-07-73759	16-27023	31–31.5	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	45
RE16-07-2946	16-600642	6–6.5	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	290
RE16-07-2947	16-600642	11–11.5	QBT3	NA	NA	NA	NA	NA	NA	NA	NA	330 (J+)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.

[a] Construction worker SSLs calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).

[b] na = Not available.

[c] SSLs are from NMED (2009, 108070), unless otherwise noted.

[d] SSLs are from EPA 2007, 099314.

[e] SSLs are from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm).

[f] SSLs are from NMED 2006. 094614.

[g] — = Not detected.

[h] NA = Not analyzed.

Table 5.69-4
Proposed Sampling at AOC C-16-030

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	PCBs	SVOCs	TPH-DRO	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	30-1 through 30-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.70-1
Proposed Sampling at AOC C-16-031

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	PCBs	SVOCs	TPH-DRO	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	31-1 through 31-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	31-6 31-7	Adjacent to existing locations 16-600642 and 16-027021, respectively	0–1 ft bgs	X	X	X	X	X	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X	X	X
			25–26 ft bgs	X	X	X	X	X	X	X	X	X	X
			40–41 ft bgs	X	X	X	X	X	X	X	X	X	X
			50–51 ft bgs	X	X	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	31-8 31-9 31-10	Adjacent to existing locations 16-27022, 16-27020, and 16-27023, respectively	0–1 ft bgs	X	X	X	X	—	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	—	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	—	X	X	X	X	X
			25–26 ft bgs	X	X	X	X	—	X	X	X	X	X
			40–41 ft bgs	X	X	X	X	—	X	X	X	X	X
			50–51 ft bgs	X	X	X	X	—	X	X	X	X	X
Determine nature and extent of potential contamination	31-11 through 31-14	Step out in four directions	0–1 ft bgs	X	X	X	X	—	X	X	—	X	X
			4–5 ft bgs	X	X	X	X	—	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	—	X	X	X	X	X
			25–26 ft bgs	X	X	X	X	—	X	X	X	X	X
			40–41 ft bgs	X	X	X	X	—	X	X	X	X	X
			50–51 ft bgs	X	X	X	X	—	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.71-1
Proposed Sampling at AOC C-16-034

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	34-1 through 34-5	Center and around footprint	0–1 ft bgs	X[a]	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.72-1
Proposed Sampling at AOC C-16-035

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	35-1 through 35-5	Center and around footprint	0–1 ft bgs	X[a]	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.74-1
Proposed Sampling at AOC C-16-047

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compunds	PCBs	SVOCs	TPH-DRO	VOCs		pH
Determine nature and extent of potential contamination	47-1 through 47-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	X	—[b]		X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X		X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.75-1
Proposed Sampling at AOC C-16-058

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	TPH-DRO	VOCs	pH
Determine nature and extent of potential contamination	58-1 through 58-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.76-1
Samples Collected and Analyses Requested at AOC C-16-069

Sample ID	Location ID	Depth (ft)	Media	High Explosives	SVOC
0316-97-0537	16-04067	0–1	SOIL	3353R	3351R

Note: Numbers in analyte columns are request numbers.

Table 5.76-2
Organic Chemicals Detected at AOC C-16-069

Sample ID	Location ID	Depth (ft)	Media	Pyrene
Construction Worker SSL[a]				**6680**
Industrial SSL[b]				**18300**
Residential SSL[b]				**1720**
0316-97-0537	16-04067	0–1	SOIL	0.08 (J)

Notes: Results are in mg/kg. Data qualifiers are defined in Appendix A.
[a] Construction worker SSL calculated using toxicity value from EPA regional screening tables (http://www.epa.gov/earth1r6/6pd/rcra_c/pd-n/screen.htm) and equation and parameters from NMED (2009, 108070).
[b] SSLs are from NMED (2009, 108070).

Table 5.76-3
Proposed Sampling at AOC C-16-069

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	PCBs	SVOCs	VOCs	Isotopic Uranium	pH
Determine nature and extent of potential contamination	69-1 through 69-5	Within and around footprint	0–1 ft bgs	X[a]	X	X	X	X	X	X	—[b]	X	X
			4–5 ft bgs	X	X	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.78-1
Proposed Sampling at AOC C-16-073

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	SVOCs	TPH-GRO	VOCs	pH
Determine nature and extent of potential contamination	73-1 through 73-5	Within (if tank not in place) and around footprint	4–5 ft bgs	X*	X	X	X	X	X	X	X
			9–10 ft bgs	X	X	X	X	X	X	X	X
			14–15 ft bgs	X	X	X	X	X	X	X	X
			24–25 ft bgs	X	X	X	X	X	X	X	X

* X = Analysis will be performed.

Table 5.79-1
Proposed Sampling at AOC C-16-076

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	76-1	At the center of the berm of former structure 28-1	2–3 ft below top surface of berm	X[a]	X	X	X	X	X	X	X
			4–5 ft below top surface of berm	X	X	X	X	X	X	X	X
			9–10 ft below top surface of berm	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	76-2 through 76-5	Around perimeter of the berm of former structure 28-1	0–1 ft bgs	X	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	76-6	At the center of the berm of former structure 28-2	2–3 ft below top surface of berm	X	X	X	X	X	X	X	X
			4–5 ft below top surface of berm	X	X	X	X	X	X	X	X
			9–10 ft below top surface of berm	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	76-7 through 76-10	Around perimeter of the berm of former structure 28-2	0–1 ft bgs	X	X	X	X	X	X	—	X
			4–5 ft bgs	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	76-11	At the center of the berm of former structure 28-3	2–3 ft below top surface of berm	X	X	X	X	X	X	X	X
			4–5 ft below top surface of berm	X	X	X	X	X	X	X	X
			9–10 ft below top surface of berm	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	76-12 through 76-15	Around perimeter of the berm of former structure 28-3	0–1 ft bgs	X	X	X	X	X	X	—	X
			4–5 ft bgs	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	76-16	At the center of the berm of former structure 28-4	2–3 ft below top surface of berm	X	X	X	X	X	X	X	X
			4–5 ft below top surface of berm	X	X	X	X	X	X	X	X
			9–10 ft below top surface of berm	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	76-17 through 76-20	Around perimeter of the berm of former structure 28-4	0–1 ft bgs	X	X	X	X	X	X	—	X
			4–5 ft bgs	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	76-21	At the center of the berm of former structure 28-5	2–3 ft below top surface of berm	X	X	X	X	X	X	X	X
			4–5 ft below top surface of berm	X	X	X	X	X	X	X	X
			9–10 ft below top surface of berm	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	76-22 through 76-25	Around perimeter of the berm of former structure 28-5	0–1 ft bgs	X	X	X	X	X	X	—	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.
[b] — = Analysis will not be performed.

Table 5.80-1
Proposed Sampling at AOC C-16-077

Objective Addressed	Location Number	Location	Sample Interval	TAL Metals	Nitrate	Perchlorate	Total Cyanide	Explosive Compounds	SVOCs	VOCs	pH
Determine nature and extent of potential contamination	77-1 through 77-5	Within and around footprint of former structure 29-1	0–1 ft bgs	X[a]	X	X	X	X	X	—[b]	X
			4–5 ft bgs	X	X	X	X	X	X	X	X
Determine nature and extent of potential contamination	77-6 through 77-10	Within and around footprint of former structure 29-2	0–1 ft bgs	X	X	X	X	X	X	—	X
			4–5 ft bgs	X	X	X	X	X	X	X	X

[a] X = Analysis will be performed.

[b] — = Analysis will not be performed.

Table 6.0-1
Summary of Investigation Methods

Method	Summary
Geodetic Surveys	This method describes the methodology for coordinating and evaluating geodetic surveys and establishing QA and QC for geodetic survey data. The procedure covers evaluating geodetic survey requirements, preparing to perform a geodetic survey, performing geodetic survey field activities, preparing geodetic survey data for QA review, performing QA review of geodetic survey data, and submitting geodetic survey data.
Spade and Scoop Collection of Soil Samples	This method is typically used to collect shallow (e.g., approximately 0-12 in.) soil or sediment samples. The "spade-and-scoop" method involves digging a hole to the desired depth, as prescribed in the sampling and analysis plan, and collecting a discrete grab sample. The sample is typically placed in a clean, stainless-steel bowl for transfer into various sample containers.
Hand Auger Sampling	This method is typically used for sampling soil or sediment at depths of less than 10–15 ft but may in some cases be used for collecting samples of weathered or nonwelded tuff. The method involves hand-turning a stainless-steel bucket auger (typically 3–4-in. inner diameter), creating a vertical hole which can be advanced to the desired sample depth. When the desired depth is reached, the auger is decontaminated before advancing the hole through the sample depth. The sample material is transferred from the auger bucket to a stainless-steel sampling bowl before filling the various required sample containers.
Hollow Stem Auger Drilling Methods	In this method, hollow-stem augers (sections of seamless pipe with auger flights welded to the pipe) act as a screw conveyor to bring cuttings of sediment, soil, and/or rock to the surface. Auger sections are typically 5 ft in length and have outside diameters of 4.25 to 14 in. Drill rods, split-spoon core barrels, Shelby tubes, and other samplers can pass through the center of the hollow-stem auger sections for collection of discrete samples from desired depths. Hollow-stem augers are used as temporary casings when setting wells to prevent cave-ins of the borehole walls.
Handling, Packaging, and Shipping of Samples	Field team member seal and label samples before packing and ensure that the sample containers and the containers used for transport are free of external contamination. Field team members package all samples so as to minimize the possibility of breakage during transportation. After all environmental samples are collected, packaged, and preserved; a field team member transports the samples to either the SMO or an SMO-approved radiation screening laboratory under chain of custody. The SMO arranges for shipping of samples to analytical laboratories. The field team member must inform the SMO and/or the radiation screening laboratory coordinator when levels of radioactivity are in the action-level or limited-quantity ranges.
Containers and Preservation of Samples	Specific requirements/processes for sample containers, preservation techniques, and holding times are based on EPA guidance for environmental sampling, preservation, and quality assurance. Specific requirements for each sample are printed on the sample collection logs provided by the sample management office (size and type of container (glass, amber glass, polyethylene, preservative, etc.). All samples are preserved by placing in insulated containers with ice to maintain a temperature of 4˚C. Other requirements such as nitric acid or other preservatives may apply to different media or analytical requests.

Table 6.0-1 (continued)

Method	Summary
Sample Control and Field Documentation	The collection, screening, and transport of samples are documented on standard forms generated by the SMO. These include sample collection logs, chain-of-custody forms, and sample container labels. Collection logs are completed at the time of sample collection and are signed by the sampler and a reviewer who verifies the logs for completeness and accuracy. Corresponding labels are initialed and applied to each sample container, and custody seals are placed around container lids or openings. Chain-of-custody forms are completed and assigned to verify that the samples are not left unattended. Site attributes (e.g., former and proposed soil sampling locations, sediment sampling locations) are located by using a global positioning system. Horizontal locations will be measured to the nearest 0.5 ft. The survey results for this field event will be presented as part of the investigation report. Sample coordinates will be uploaded into the Sample Management Database.
Field Quality Control Samples	Field quality control samples are collected as follows: Field Duplicate: At a frequency 10%; collected at the same time as a regular sample and submitted for the same analyses. Equipment Rinsate Blank: At a frequency of 10%; collected by rinsing sampling equipment with deionized water, which is collected in a sample container and submitted for laboratory analysis. Trip Blanks: Required for all field events that include the collection of samples for VOC analysis. Trip blanks containers of certified clean sand that are opened and kept with the other sample containers during the sampling process.
Field Decontamination of Drilling and Sampling Equipment	Dry decontamination is the preferred method to minimize generating liquid waste. Dry decontamination may include the use of a wire brush or other tool to remove soil or other material adhering to the sampling equipment, followed by use of a commercial cleaning agent (nonacid, waxless cleaners) and paper wipes. Dry decontamination may be followed by wet decontamination if necessary. Wet decontamination may include washing with a nonphosphate detergent and water, followed by a water rinse and a second rinse with deionized water. Alternatively, steam cleaning may be used.
Management, Characterization, and Storage of IDW	IDW is managed, characterized, and stored in accordance with an approved waste characterization strategy form that documents site history, field activities, and the characterization approach for each waste stream managed. Waste characterization shall be adequate to comply with on-site or off-site waste acceptance criteria. All stored IDW will be marked with appropriate signage and labels, as appropriate. Drummed IDW will be stored on pallets to prevent the containers from deterioration. Generators are required to reduce the volume of waste generated as much as technically and economically feasible. Means to store, control, and transport each potential waste type and classification shall be determined before field operations that generate waste begin A waste storage area shall be established before generating waste. Waste storage areas located in controlled areas of the laboratory shall be controlled as needed to prevent inadvertent addition or management of wastes by unauthorized personnel. Each container of waste generated shall be individually labeled as to waste classification, item identification number, and radioactivity (if applicable), immediately following containerization. All waste shall be segregated by classification and compatibility to prevent cross-contamination. See Appendix B for additional information.

Table 6.8-1
Summary of Analytical Methods

Analyte	Analytical Method
TAL Metals	SW-846:6010B; SW-846:6020
Nitrate	EPA:300.0
Perchlorate	SW-846:6850
Total Cyanide	SW-846:9012A
Dioxins/Furans	SW-846:8280A; SW-846:8290
Explosive Compounds	SW-846:8321A_MOD
PCBs	SW-846:8082
SVOCs	SW-846:8270C
VOCs	SW-846:8260B
Isotopic Radium	HASL-300:ISORA
Isotopic Uranium	HASL-300:ISOU
Stronitum-90	EPA 90.5.0
TPH-DRO & TPH-GRO	SW-846:8015M
Tritium	Liquid Scintillation
pH	SW-846:9045C

Appendix A

Acronyms and Abbreviations,
Metric Conversion Table, and Data Qualifier Definitions

A-1.0 ACRONYMS AND ABBREVIATIONS

amsl	above mean sea level
AOC	area of concern
bgs	below ground surface
BMP	best management practice
BTEX	benzene, toluene, ethylbenzene, xylene
BV	background value
Consent Order	Compliance Order on Consent
DOE	Department of Energy (U.S.)
DRO	diesel-range organic
EP	Environmental Programs (Directorate)
EPA	Environmental Protection Agency (U.S.)
FV	fallout value
GPS	global positioning system
GRO	gasoline-range organics
HE	high explosives
HIR	historical investigation report
HMX	high-melting explosive (also octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)
IDW	investigation-derived waste
IWP	Investigation work plan
LANL	Los Alamos National Laboratory
MDA	material disposal area
NFA	no further action
NMED	New Mexico Environment Department
NPDES	National Pollutant Discharge Elimination System
PAH	polycyclic aromatic hydrocarbon
PBX	plastic-bonded explosives
PCB	polychlorinated biphenyl
PID	photoionization detector
RCRA	Resource Conservation and Recovery Act
RDX	research department explosive (or hexahydro-1,3,5-trinitro-1,3,5-triazocyclohexane)
RFI	Resource Conservation and Recovery Act facility investigation
SMA	surface monitoring area

SMO	Sample Management Office
SOP	standard operating procedure
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TA	technical area
TAL	target analyte list
TD	total depth
TNT	2,4,6-trinitrotoluene
TPH	total petroleum hydrocarbons
TSCA	Toxic Substances Control Act
UST	underground storage tank
VCA	voluntary corrective action
VCM	voluntary corrective measure
VCP	vitrified-clay pipe
VOC	volatile organic compound
WWTP	wastewater treatment plant
XRF	x-ray fluorescence

A-2.0 METRIC CONVERSION TABLE

Multiply SI (Metric) Unit	By	To Obtain U.S. Customary Unit
kilometers (km)	0.622	miles (mi)
kilometers (km)	3281	feet (ft)
meters (m)	3.281	feet (ft)
meters (m)	39.37	inches (in.)
centimeters (cm)	0.03281	feet (ft)
centimeters (cm)	0.394	inches (in.)
millimeters (mm)	0.0394	inches (in.)
micrometers or microns (µm)	0.0000394	inches (in.)
square kilometers (km^2)	0.3861	square miles (mi^2)
hectares (ha)	2.5	acres
square meters (m^2)	10.764	square feet (ft^2)
cubic meters (m^3)	35.31	cubic feet (ft^3)
kilograms (kg)	2.2046	pounds (lb)
grams (g)	0.0353	ounces (oz)
grams per cubic centimeter (g/cm^3)	62.422	pounds per cubic foot (lb/ft^3)
milligrams per kilogram (mg/kg)	1	parts per million (ppm)
micrograms per gram (µg/g)	1	parts per million (ppm)
liters (L)	0.26	gallons (gal.)
milligrams per liter (mg/L)	1	parts per million (ppm)
degrees Celsius (°C)	9/5 + 32	degrees Fahrenheit (°F)

A-3.0 DATA QUALIFIER DEFINITIONS

Data Qualifier	Definition
U	The analyte was analyzed for but not detected.
J	The analyte was positively identified, and the associated numerical value is estimated to be more uncertain than would normally be expected for that analysis.
J+	The analyte was positively identified, and the result is likely to be biased high.
J-	The analyte was positively identified, and the result is likely to be biased low.
UJ	The analyte was not positively identified in the sample, and the associated value is an estimate of the sample-specific detection or quantitation limit.
R	The data are rejected as a result of major problems with quality assurance/quality control (QA/QC) parameters.

Appendix B

Management Plan for Investigation-Derived Waste

B-1.0 INTRODUCTION

This appendix describes how investigation-derived waste (IDW) generated during the Upper Water Canyon Aggregate Area investigation will be managed. IDW may include, but is not limited to, drill cuttings, excavated media, excavated man-made debris, contact waste, decontamination fluids, and all other waste that has potentially come into contact with contaminants.

B-2.0 IDW

Area(s) of contamination request(s) will be submitted for approval to the New Mexico Environment Department (NMED) for remediation sites in which excavation is planned.

All IDW generated during investigation activities will be managed in accordance with applicable standard operating procedures (SOPs). These SOPs incorporate the requirements of all applicable U.S. Environmental Protection Agency and NMED regulations, U.S. Department of Energy Orders, and Laboratory requirements. The SOP applicable to the characterization and management of IDW is SOP-5238, Characterization and Management of Environmental Program Waste, (http://www.lanl.gov/environment/all/qa.shtml).

The most recent version of the Los Alamos National Laboratory's (the Laboratory's or LANL's) Hazardous Waste Minimization Report will be implemented during the investigation to minimize waste generation. The report is updated annually as a requirement of Module VIII of the Laboratory's Hazardous Waste Facility Permit.

A waste characterization strategy form (WCSF) will be prepared and approved per requirements of SOP-5238. The WCSF will provide detailed information on IDW characterization methods, management, containerization, and potential volumes. IDW characterization is completed through review of sampling data and/or documentation or by direct sampling of the IDW or the media being investigated (e.g., surface soil or subsurface soil). Waste characterization may include a review of historical information and process knowledge to identify whether listed hazardous waste may be present (i.e., due diligence reviews). If low levels of listed hazardous waste are identified, a "contained in" determination may be submitted for approval to NMED.

Wastes will be containerized and placed in clearly marked and appropriately constructed waste accumulation areas. Waste accumulation area postings, regulated storage duration, and inspection requirements will be based on the type of IDW and its classification. Container and storage requirements, as well as transportation and disposal requirements, will be detailed in the WCSF and approved before waste is generated. Table B-2.0-1 summarizes the estimated IDW waste streams, waste types, waste volumes, and other data.

The waste streams that are anticipated to be generated during work plan implementation are described below.

B-2.1 Drill Cuttings

This waste stream consists of soil and rock chips generated by drilling boreholes to collect samples. Drill cuttings include excess core sample not submitted for analyses, and any returned samples sent for analyses. Drill cuttings will be stored in accordance with the approved WCSF.

This waste stream will be characterized based either on direct sampling of the waste in each container or on the results from core samples collected during drilling. The WCSF specifies the sampling suites for direct sampling of the waste stream. Constituents may be analyzed as necessary to meet the waste acceptance criteria (WAC) for a receiving facility, or if visual observations indicate that additional contaminants may be present.

Cuttings will be land applied if they meet the criteria in the NMED-approved Notice of Intent Decision Tree for Land Application of Investigation-Derived Waste Solids from Construction of Wells and Boreholes. The Laboratory expects that cuttings will be land applied or disposed of in accordance with the approved WCSF.

B-2.2 Excavated Environmental Media

Layback and overburden spoils will consist of soil and rock removed from within or next to areas to be excavated. Overburden soil and rock will be excavated above sumps, the septic tank, the manhole, and drainlines. The excavated material will be field screened and examined for visible evidence of contamination during the excavation process. The excavated material will remain within the boundary of the site from which it was excavated. If the field screening or observation indicates that contamination is not present, the excavated material will be stored on the ground surface with appropriate best management practice. If field screening or visual evidence indicates contamination is present, the excavated material will be placed in appropriate containers in accordance with the approved WCSF.

A minimum of one direct sample will be collected from each 50 yd^3 or each container of material excavated and will be submitted for laboratory analyses for the analytical suites specified in WCSF. The analytical results will be compared with residential soil screening levels (SSLs). If the concentrations are less than the residential SSLs, the material will be used as backfill for the excavation. If the concentrations exceed the residential SSLs, the material will be containerized and disposed of in accordance with the approved WCSF. The Laboratory expects most of the excavated environmental media to be designated as nonhazardous, nonradioactive waste that will be disposed of in accordance with the approved WCSF.

B-2.3 Excavated Man-Made Debris

Waste from the demolition and removal of sumps, septic tanks, manholes, and drainlines will consist of concrete reinforced with steel rebar and vitrified-clay pipe or steel pipe. To the extent practical, the excavated materials will be segregated as they are excavated, and stored in containers (e.g., rolloff bins) in accordance with the approved WCSF.

A minimum of one direct sample will be collected from each container of potentially contaminated debris. Where practicable, this waste stream will be characterized by direct sampling of the waste (e.g., concrete and vitrified-clay pipe). The WCSF specifies the sampling suites for direct sampling of the waste stream. For debris that is difficult to characterize, acceptable knowledge will be used whenever possible, supplemented by sampling as needed. Sampling methods will be identified on a case-by-case basis by qualified sampling personnel. Constituents may be analyzed as necessary to meet the WAC for a receiving facility or if visual observations indicate that additional contaminants may be present. The Laboratory expects most of this waste to be designated as nonhazardous, nonradioactive waste that will be disposed of in accordance with the approved WCSF.

Waste minimization will be implemented where practicable. For example, cast-iron pipe and vitrified-clay pipe may contain lead collars. Lead collars that are nonradioactive when generated will be managed as hazardous waste or recycled. Radioactively contaminated lead collars may be decontaminated to below free-release criteria for radionuclides so that they do not have to be managed as mixed waste. Materials, such as metal pipes that meet release criteria, will be recycled if practicable.

B-2.4 Liquids from Sumps, Septic Tanks, and Manholes

Liquids in sumps, septic tanks, and the manholes, if present, will be removed before the structures are excavated. The liquids will be stored in containers and characterized by direct sampling of the containerized waste for the suites specified in the approved WCSF. Constituents may be analyzed as necessary to meet the WAC for a receiving facility or if visual observations indicate that additional contaminants may be present. The Laboratory expects most of these wastes to be nonhazardous liquid waste that will be sent to one of the Laboratory's wastewater treatment facilities in accordance with the approved WCSF.

B-2.5 Contact Waste

The contact waste stream consists of potentially contaminated materials that contacted waste during sampling and excavation. This waste stream consists primarily of, but is not limited, to personal protective equipment such as gloves; decontamination wastes such as paper wipes; and disposable sampling supplies. Contact waste will be stored in containers and characterized in accordance with the approved WCSF.

Characterization of this waste stream will use acceptable knowledge based on data from the media with which it came into contact (e.g., drill cuttings, soil, or sumps). The Laboratory expects most of the contact waste to be designated as nonhazardous, nonradioactive waste that will be disposed of in accordance with the approved WCSF.

B-2.6 Decontamination Fluids

Decontamination fluids consist of liquid wastes generated from decontamination of excavation, sampling, and drilling equipment. For waste minimization, dry decontamination methods will be used to avoid the generation of liquid waste and to minimize the IDW. Dry decontamination uses disposable paper towels and over-the-counter cleaner such as Fantastik or its equivalent. All sampling and measuring equipment, including, but not limited to, stainless-steel sampling tools and split-barrel or core samplers, will be decontaminated in accordance with SOP-01.08, Field Decontamination of Drilling and Sampling Equipment.

Dry decontamination may be followed by wet decontamination, if necessary. Wet decontamination may include washing with a nonphosphate detergent and water, followed by a water rinse and a second rinse with deionized water. Alternatively, steam cleaning may be used. The decontamination fluids will be characterized by direct sampling of the containerized waste for the suites specified in the approved WCSF. The Laboratory expects most of these wastes to be nonhazardous liquid waste that will be sent to one of the Laboratory's wastewater treatment facilities in accordance with the approved WCSF.

Table B-2.0-1
Summary of Estimated IDW Generation and Management

Waste Stream	Expected Waste Type	Estimated Volume	Characterization Method	On-Site Management	Expected Disposition
Drill cuttings	Industrial waste, nonhazardous, nonradioactive	20 yd^3	Analytical results from direct sampling of waste or core samples	Accumulation in 55-gal. drums, covered rolloff containers, or other appropriate containers	Land application or permitted off-site facility for which waste meets acceptance criteria; or TA-54, Area G
Excavated environmental media	Industrial waste, nonhazardous, nonradioactive	30 yd^3	Field screening and analytical results from direct sampling of waste	On ground within site boundary; or accumulation in 55-gal. drums, covered rolloff containers, or other appropriate containers	Permitted off-site facility for which waste meets acceptance criteria; or TA-54, Area G
Excavated man-made debris	Sump, septic tank, and manhole: industrial waste, nonhazardous, nonradioactive	30 yd^3	Analytical results from direct sampling of waste	Accumulation in covered rolloff bins or other appropriate containers	Permitted off-site facility for which waste meets acceptance criteria; or TA-54, Area G
	Drainlines: industrial waste, nonhazardous, nonradioactive	20 yd^3	Analytical results from direct sampling of waste	Accumulation in 55-gal. drums or covered rolloff containers	Permitted off-site facility for which waste meets acceptance criteria; or TA-54, Area G
	Soil, fill, sediment: industrial waste, nonhazardous, nonradioactive	30 yd^3	Analytical results from direct sampling of waste	Accumulation in 55-gal. drums or covered rolloff containers	Permitted off-site facility for which waste meets acceptance criteria; or TA-54, Area G
	Contents in structure: liquid waste, nonhazardous	< 1000 gal.	Analytical results from direct sampling of waste	Accumulation in 55-gal. drums or other appropriate containers	Treatment at an on-site facility for which waste meets acceptance criteria
Contact waste	Industrial waste, nonhazardous, nonradioactive	0.5 yd^3	Acceptable knowledge	Accumulation in 55-gal. drums	Permitted off-site facility for which waste meets acceptance criteria; or TA-54, Area G
Decontamination fluids	Industrial waste, nonhazardous, nonradioactive	10 gal.	Acceptable knowledge; analytical results from direct sampling of waste	Accumulation in 30-gal. plastic drums	Treatment at an on-site facility for which waste meets acceptance criteria