

SITE DISCHARGE POLLUTION PREVENTION PLAN

Los Alamos National Laboratory • NPDES Permit No. NM0030759
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VOLUME 3

PAJARITO WATERSHED



Receiving Waters:

Pajarito Canyon • Twomile Canyon • Threemile Canyon

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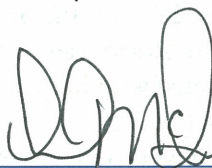
Pajarito Canyon area

SECTION 100 SDPPP

CERTIFICATIONS AND APPROVAL

Certification Statement Of Authorization

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



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Apr. 19, 2011
Date



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4/25/11
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SECTION 200

SDPPP AMENDMENTS

This Site Discharge Pollution Prevention Plan (SDPPP) is a dynamic document that requires continuous updating as elements of the Individual Permit (IP) storm water program are implemented, completed, or changed. This SDPPP will be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year. Amendments to this SDPPP are consolidated in Attachment A.

In support of the annual update, work conducted following the publication of this document will be documented in supporting records kept alongside the SDPPP to demonstrate compliance with the requirements of the IP. As required in Part I.F.4 of the IP, the SDPPP will be updated annually to fully capture this interim work and to reflect programmatic and regulatory changes that have occurred over the course of the year. Annual updates to this document will contain at a minimum the following information:

- Construction or a change in design, operation, or maintenance at the facility having a significant impact on the discharge, or potential for discharge, of pollutants from the facility;
- Findings of deficiencies in control measures during inspection or based on analytical monitoring results;
- Any change of monitoring requirement or compliance status;
- Any change of Site Monitoring Area (SMA) location;
- Summary of changes from the last year's SDPPP; and
- Summary of changes from the last year's SDPPP.

SECTION 300

INTRODUCTION AND PROJECT DESCRIPTION

Los Alamos National Security, LLC (LANS) under the direction of the National Nuclear Security Administration (NNSA) have prepared this SDPPP pursuant to the

requirements of the National Pollutant Discharge Elimination System (NPDES) Permit No. NM0030759 (Permit or IP) issued by the U.S. Environmental Protection Agency (EPA) Region 6 office, effective November 1, 2010. The IP authorizes and regulates storm water discharges from historical industrial activity areas associated with specified Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs), collectively called Sites. These Sites may have the potential to discharge storm water into seven major watersheds on the Pajarito Plateau, which are tributaries to the Rio Grande.

300.1 Objectives

The SDPPP has three primary objectives:

- Identify and summarize potential pollutant sources, including potential sediment-borne pollutants, that may affect the quality of storm water discharges associated with Sites listed in Appendix A of the IP;
- Identify and describe the control measures intended to reduce or eliminate pollutants in storm water discharges;
- Monitor the effectiveness of control measures implemented at the SMAs in accordance with the requirements and schedules provided in the IP.

This SDPPP conforms to the required elements of the IP including those stipulated in Part I, Section F. A paper copy of the SDPPP is readily available onsite for the duration of the IP. A copy of the SDPPP is also available on a public website at <http://www.lanl.gov/environment/h2o/sdppp.shtml>.

300.2 SDPPP Organization

The SDPPP is comprised of five volumes, each comprising one or more of seven major Pajarito Plateau watersheds. The SDPPP volumes are organized geographically from north to south, as shown in Table 300-1. A general vicinity map of the specific watersheds is provided in Attachment B of these volumes.

Table 300-1 SDPPP Organization

SDPPP Volume	Primary Watershed	Receiving Water(s)	Number of SMAs (Percentage)
Volume 1	Los Alamos / Pueblo	<ul style="list-style-type: none"> • Rendija Canyon • Bayo Canyon • Pueblo Canyon • DP Canyon • Los Alamos Canyon 	64 (25.6%)
Volume 2	Sandia / Mortandad	<ul style="list-style-type: none"> • Mortandad Canyon • Ten Site Canyon • Cañada del Buey • Sandia Canyon 	64 (25.6%)
Volume 3	Pajarito	<ul style="list-style-type: none"> • Pajarito Canyon • Starmers Gulch • Twomile Canyon • Threemile Canyon 	51 (20.4%)
Volume 4	Water/ Cañon de Valle	<ul style="list-style-type: none"> • Cañon de Valle • Potrillo Canyon • Water Canyon • Fence Canyon 	50 (20%)
Volume 5	Ancho / Chaquehui	<ul style="list-style-type: none"> • Ancho Canyon • Chaquehui Canyon 	21 (8.4%)

Each volume of the SDPPP contains the following information:

- **Section 300** presents watershed-specific information and an overview of precipitation characteristics and monitoring.
- **Section 400** provides a description of the pollution prevention team, the functional roles and responsibilities, and describes the associated training programs at LANL.
- **Section 500** describes the potential storm water pollutant sources at the permitted Sites.
- **Section 600** describes the various baseline control measures implemented at the permitted Sites.
- **Section 700** provides an overview of storm water monitoring for the permitted Sites, including sampling procedures and applicable Target Action Levels (TALs).
- **Section 800** discusses inspection requirements required under the IP.
- **Section 900** discusses corrective action and other permit conditions as provided in the IP.
- **Section 1000** provides SMA-specific details for each of the monitored areas within the watershed.
- **Attachment A** Amendments
- **Attachment B** Vicinity Map
- **Attachment C** Precipitation Network
- **Attachment D** Physical Characteristics
- **Attachment E** Procedural Documents
- **Attachment F** Training Log
- **Attachment G** Acronyms and References

300.3 Pajarito Watershed Overview

The Pajarito Canyon watershed is located in the central portion of the Facility and is approximately 13.6 square miles in area. A vicinity map is provided in Attachment B. The head of the watershed is located in the Sierra de los Valles at an elevation of 10,441 feet at Pajarito Mountain. The watershed is a long east-southeast trending canyon that extends across Valles Caldera National Preserve land and Santa Fe National Forest before it enters the western boundary of the Laboratory along the common boundary of TA-08 and TA-69. Two major tributary canyons, Twomile and Threemile Canyons, intersect Pajarito Canyon on the Laboratory property. The watershed reaches the Rio Grande at an elevation of approximately 5,410 feet.

Twomile Canyon heads in the Sierra de los Valles and has a length of approximately 5 miles and a drainage area of 3.1 square miles, 70% of which is on Laboratory land.

Threemile Canyon heads in TA-14 and has a length of approximately 3.7 miles and a drainage area of 1.7 square miles, entirely on Laboratory land.

Both Twomile Canyon and Threemile Canyon contain ephemeral and/or intermittent streams. Seasonal springs in Twomile Canyon and perennial springs in Threemile Canyon support short reaches of ephemeral and perennial flow respectively. East of the confluence with Threemile Canyon, Pajarito Canyon is ephemeral across Laboratory property to a point approximately 0.4 miles upstream from the confluence with the Rio Grande. In most years snowmelt run-off extends onto Laboratory property downstream to near the confluence with Three Mile Canyon. Local run-off and stream flow from seasonal rainstorms occasionally extend downstream as far as the Rio Grande.

300.3.1 Receiving Waters and Wetlands in Pajarito Watershed

Thirty wetlands occupying portions of fourteen different technical areas throughout the Laboratory have been identified and delineated by the US Army Corp of Engineers (COE 2005). The Pajarito watershed contains, or may influence, 12 wetland areas totaling approximately 15.80 acres. The approximate dimensions and areas of wetlands in proximity to the Pajarito watershed are shown in [Table 300-2](#).

Table 300-2 Wetlands in Proximity to the Pajarito Watershed

Wetland Identification	Approximate Area (acres)	Approximate Length	Approximate Width
15-1	0.30	985	13
22-1	0.31	300	45
22-2	0.06	300	10
36-1	0.26	550	25
36-2	0.09	130	30
36-3	1.58	800	85
36-4	0.12	250	20
36-5	0.30	150	85
36-6	3.52	875	175
36-7	0.87	635	60
36-8	8.32	3400	106
36-9	0.15	200	33

Wetland 15-1 is located on the canyon floor at the head of Three-Mile Canyon. The area is bounded on the north by the south-facing slope of the canyon and undeveloped land in TA-67 on the mesa top. On the south it is bounded by the north-facing canyon slope and TA-15 on the mesa top. The wetland is approximately 0.30 acres, with dimensions of 985 feet in length by an average width of 13 feet. Vegetation in this area includes baltic rush (*Juncus balticus*), and undetermined grasses.

Wetland 22-1 is located at the head of a branch of Two-Mile Canyon. It is bounded on the north by Gomez Ranch and undeveloped land of TA-06. It is bounded by the east and south by developed areas of TA-22. Wetland 22-1 is approximately 180 feet upstream (west) of wetland 22-2. Wetland 22-1 is approximately 0.31 acres, with dimensions of 300 feet in length by an average width of 45 feet. Vegetation in this area includes baltic rush (*Juncus balticus*), cattail (*Typha sp.*), and sedge grass (*Carex sp.*).

Wetland 22-2 is located approximately 180 feet downstream (east) of wetland 22-1 at the head of a branch of Two-Mile Canyon. It is bounded on the north by Gomez Ranch and undeveloped land of TA-06. It is bounded on the south by developed areas of TA-22. The wetland is approximately 0.062 acres, with approximate dimensions of 300 feet in length by an average width of 10 feet. Vegetation in this area includes baltic rush (*Juncus balticus*), cattail (*Typha sp.*), sedge grass (*Carex sp.*), and meadow fescue (*Festuca pratensis*).

Wetland 36-1 is located on the floor of Pajarito Canyon approximately 650 feet southwest of the intersection of Pajarito Road and State Route 4. It is the easternmost wetland in TA-36 and is located downstream of wetlands 36-2 thru 36-9. The area is

bounded on the north by Pajarito Road. On the south the area is bounded by undeveloped land in TA-36. The wetland is approximately 0.26 acres, with dimensions of 550 feet in length by an average width of 25 feet. Vegetation in this area includes baltic rush (*Juncus balticus*), sedge grasses (*Carex sp.*), bluegrass (*Poa sp.*), coyote willow (*Salix exigua*), and Fremont cottonwood (*Populus fremontii*).

Wetland 36-2 is located on floor of Pajarito Canyon approximately 200 feet upstream (west) of wetland 36-1 and 230 feet downstream (east) of wetland 36-4. The area is bounded on the north by Pajarito Road. On the south the area is bounded by undeveloped land in TA-36. The wetland is approximately 0.09 acres, with dimensions of 130 feet in length by an average width of 30 feet. Vegetation in this area includes foxtail barley (*Hordeum jubatum*), baltic rush (*Juncus balticus*), bluegrass (*Poa sp.*), coyote willow (*Salix exigua*), and Fremont cottonwood (*Populus fremontii*).

Wetland 36-3 is located on the floor of Pajarito Canyon approximately 200 feet downstream (east) of wetland 36-5 and 1,000 feet upstream (west) of wetland 36-4. The area is bounded on the north by Pajarito Road. On the south the area is bounded by undeveloped land in TA-36. The wetland is approximately 1.58 acres, with dimensions of 800 feet in length by an average width of 85 feet. Vegetation in this area includes common spikerush (*Eleocharis palustris*), baltic rush (*Juncus balticus*), broad-leaf cattail (*Typha latifolia*), dock (*Rumex sp.*), sedge grass (*Carex sp.*), bluegrass (*Poa sp.*), coyote willow (*Salix exigua*), and Fremont cottonwood (*Populus fremontii*).

Wetland 36-4 is located on the floor of Pajarito Canyon approximately 230 feet upstream (west) of wetland 36-2 and 1,000 feet downstream (east) of wetland 36-3. The area is bounded on the north by Pajarito Road. On the south the area is bounded by undeveloped land in TA-36. The wetland is approximately 0.12 acres, with dimensions of 250 feet in length by

20 feet in width. Vegetation in the area includes common spikerush (*Eleocharis palustris*), foxtail barley (*Hordeum jubatum*), baltic rush (*Juncus balticus*), dock (*Rumex sp.*), and blugrass (*Poa sp.*).

Wetland 36-5 is located on the floor of Pajarito Canyon approximately 200 feet upstream (west) of wetland 36-3 and 40 feet downstream (east) of wetland 36-6. The area is bounded on the north by Pajarito Road. On the south the area is bounded the north-facing canyon slope and undeveloped land in TA-36 on the mesa top. The wetland is approximately 0.3 acres, with dimensions of 150 feet in length by an average of 85 feet in width. Vegetation in the area includes dock (*Rumex sp.*), coyote willow (*Salix exigua*), and foxtail barley (*Hordeum jubatum*).

Wetland 36-6 is located on the floor of Pajarito Canyon approximately 40 feet upstream (east) of wetland 36-5. The area is bounded on the north by Pajarito Road. On the south the area is bounded the north-facing canyon slope and undeveloped land in TA-36 on the mesa top. The wetland is approximately 3.5 acres, with dimensions of 875 feet in length by an average width of 175 feet. Vegetation in the area includes of baltic rush (*Juncus balticus*), foxtail barley (*Hordeum jubatum*), sedge grass (*Carex sp.*), spikerush (*Eleocharis sp.*), American speedwell (*Veronica americana*), coyote willow (*Salix exigua*), and bentgrass (*Agrostis sp.*).

Wetland 36-7 is located on the floor of Pajarito Canyon approximately downstream of the confluence of Pajarito and Three-Mile Canyons. It is bounded on the north by Pajarito road and on the south by the north-facing slope of the canyon and undeveloped area of TA-18 on the mesa top. It is approximately 0.87 acres, with dimensions of 635 feet in length by an average of 60 feet in width. Vegetation in the area includes baltic rush (*Juncus balticus*), foxtail barley (*Hordeum jubatum*), sedge grass (*Carex sp.*), narrow-leaf cattail (*Typha angustifolia*), American speedwell (*Veronica americana*), coyote willow (*Salix exigua*), and bentgrass (*Agrostis sp.*).

Wetland 36-8 is located on the floor of Pajarito Canyon approximately 1,300 feet downstream (east) of the confluence of Pajarito and Three-Mile Canyons. The area is bounded on the north by the south-facing slope of the canyon and developed area of TA-54 on the mesa top. On the south the area is bounded by Pajarito Road. It is approximately 8.32 acres, with dimensions of 3,400 feet in length by an average width of 106 feet. Vegetation in the area includes broadleaf cattail (*Typha latifolia*), bentgrass (*Agrostis sp.*), American speedwell (*Veronica americana*), sedge grass (*Carex sp.*) and coyote willow (*Salix exigua*).

Wetland 36-9 is located on the floor of Pajarito Canyon on the north side of Pajarito Road. It is approximately 1,200 feet downstream (east) of wetland 36-8 and 3,500 feet upstream (west) of wetland 36-6. The area is bounded on the north by the south-facing slope of the canyon and undeveloped area of TA-54 on the mesa top. On the south the area is bounded by Pajarito Road. The wetland is approximately 0.15 acres, with dimensions of 200 feet in length by an average of 33 feet in width. Vegetation in the area includes curly dock (*Rumex crispus*) and other vegetation.

300.3.2 Vicinity Map

A vicinity map for the Pajarito watershed is provided in Attachment B. The map shows locations of SMAs and the wetlands in proximity to the watershed.

300.4 Precipitation Network and Monitoring

LANL maintains a network of meteorological towers that have provided local-area and national reporting of climate data since World War II. This network of towers has been augmented by a finer set of rain gages specifically used by the storm water program at LANL. The network rain gages provide additional data for SMAs located at lower elevation or in areas remote from the traditional towers. In most watersheds, a combination of traditional meteorological towers and network gages, are

used to measure, track, and report precipitation related to SMAs.

300.4.1 Regional Hydrologic Characteristics

Los Alamos, NM has a semiarid climate with an average rainfall of about 19 inches per year. Over 30% of the area is dominated by ponderosa pine-stands at higher elevations that transition to Piñon-Juniper woodlands as elevation decreases. The Pajarito plateau is separated into finger mesas by west to east oriented canyons. The canyon bottoms contain riparian vegetation and stream flows are typically ephemeral and fed by snowmelt and/or rainfall. Perennial springs are present on the flanks of the Jemez Mountains and supply base flow to the upper reaches of some canyons, but the volume of flow is insufficient to maintain surface flows across the facility mostly due to channel transmission losses.

Canyons located within the LANL boundary are tributaries to the Rio Grande and some canyons will deliver surface flow, from heavy rains or sustained snowmelt. Run-off leaving the Laboratory's eastern boundary and adjacent canyons is measured by gage stations located on each major canyon. Downstream of LANL, the Rio Grande flows southward to Cochiti Reservoir.

300.4.2 Precipitation Measurement

Precipitation monitoring for the IP is conducted to identify a "storm rain event" that could affect control measures and storm water management devices employed at SWMUs or AOCs. A "storm rain event" is defined by the IP as a 0.25-inch or more intensive rain event occurring within 30 minutes. Precipitation monitoring identifies "storm rain events", the date and time of the event, and also assists with the identification of adverse weather events. Adverse weather conditions include dangerous weather-related events (e.g., flooding, wildfires, or hail) that make inspection dangerous for worker safety.

Within the Pajarito watershed, two meteorological towers and six extended network gages are used to measure and report precipitation. These precipitation gages are shown in [Table 300-3](#). Attachment C illustrates the entire precipitation network currently employed at LANL.

Table 300-3 Rain Gages for the Pajarito Watershed

Meteorological Tower or Rain Gage	Primary Tower or Network Gage	Year Placed in Service	Location	Associated SMAs
RG-TA-06	Primary	2008	The rain gage is located on Two-Mile mesa.	21
RG-TA-54	Primary	2008	The rain gage is located near the confluence of Cañada del Buey and Three-Mile Canyon at the eastern edge of Mesita del Buey.	5
RG121.9	Network	2008	The rain gage is located in upper Sandia Canyon.	4
RG240	Network	2008	The rain gage is located near the head waters of Pajarito Canyon.	5
RG245.5	Network	2008	The rain gage is located in Pajarito Canyon near the confluence with Three-Mile Canyon.	11
RG253	Network	2009	The rain gage is located in Cañon de Valle above SR501.	1
RG257	Network	2008	The rain gage is located in the Burn Grounds Tributary of Cañon de Valle near Fish Ladder Springs.	2
RG262.4	Network	2009	The rain gage is located on the eastern side of the confluence of Cañon de Valle and Upper Water Canyon.	2

300.4.3 Procedures

Standardized precipitation data management is used at LANL in order to efficiently manage field activities and ensure accurate reporting capabilities. Standard Operating Procedure (SOP), EP-DIV-SOP-10004, “Managing Electronic Precipitation Data for Storm Water Projects” describes the processes defining this work. Electronic precipitation data are stored in the Storm Water Tracking System (SWTS) module on the LANL Water Quality Database (WQDB).

Current versions of all IP related SOPs are summarized in Attachment E. The summary table in Attachment E also provides a hyperlink to the current version of the applicable procedure that resides on the public website. These procedures apply to the work activity described in this section. Additional procedures may be added as necessary to describe and document quality-affecting activities.

SECTION 400

SITE DISCHARGE POLLUTION PREVENTION TEAM

To facilitate the implementation, maintenance, and revision of the SDPPP, a Site Discharge Pollution Prevention Team (PPT) has been established. The PPT is responsible for assisting in developing and revising the SDPPP as well as maintaining control measures and taking corrective actions for deficiencies.

400.1 Roles and Responsibilities

The PPT consists of personnel from the LANL Corrective Actions Program, ENV-RCRA, and subcontract staff whose selection is based on their familiarity with the Site location and surrounding operations. The specific responsibilities of the PPT are provided in Table 400-1. Each member of the PPT has access to either an electronic or paper copy of applicable portions of this permit and this SDPPP.

Table 400-1 PPT Roles and Responsibilities

PPT Title	Functional Responsibility
Surface Water and Canyons Investigation Project Manager	Responsible for managing implementation of Individual Permit requirements.
Storm Water Permitting/Compliance Team Leader and Delegees	Responsible for ensuring compliance is met for the Individual Permit Storm Water Program, communicating with the Surface Water and Canyons Investigation Project Manager on compliance issues, providing training and developing qualifications for personnel as specified in Section 400.2 of the SDPPP. .
Corrective Actions Project Field Lead	Responsible for implementation of Individual Permit field requirements (Sections 600 and 900) by installing, inspecting and maintaining baseline control measures, and implementation of corrective actions when TALs are exceeded.
Corrective Actions Project Monitoring Field Lead	Responsible for implementation of storm water monitoring as required in Section 700 of the SDPPP.
Corrective Actions Project Characterization and Remediation Project Managers	Responsible for helping in the implementation of remediation and characterization activities at LANL for their specific locations on LANL property as they pertain to the Individual Permit.
Inspector	Responsible for conducting Site inspections as required by the IP. Coordinates with the Lead Inspector, to resolve issues related to successful conduct of operations.
Pollution Prevention Team Members	Responsible for implementing and updating the SDPPP, assisting in maintaining control measures and implementing corrective actions for deficiencies, and completing training as specified in section 400.2 of the SDPPP.

400.2 Training

Project personnel receive both formal and informal training in the execution of storm water management at SMAs. Formal training, which covers all aspects of the developed SDPPP, is conducted each spring prior to the field season and documented in the SDPPP. During the field season, daily tailgate meetings are conducted to inform personnel of work assignments, impending changes, and issues related to work.

Each PPT member receives SDPPP training and has ready access to the IP and SDPPP documentation. The list of PPT members is revised when there are changes in PPT members or their responsibilities. The most current list is kept with the master copy of the SDPPP.

Training for the PPT is conducted at least annually as specified in Part I, Section A.3. Summaries of these trainings will be documented in Attachment F, Training Log. Employee training is essential for effective implementation of the SDPPP and success of the storm water program. The objective of the training program is to:

- instill in employees and managers an understanding of the purpose of the SDPPP Plan, Volume 1 through 5,
- give the PPT the tools and training they need to inspect, maintain, and modify control measures used at our Sites,
- satisfy reporting and documentation requirements.

SECTION 500

POTENTIAL POLLUTANT SOURCES

A baseline review has been completed for each permitted area as part of the planning process. The review evaluated the characteristics of the suspected release(s) from SWMUs and AOCs within the context of the monitored area, the placement of the sampler within the area, and recommended Site-specific controls specific for each area. This review also included an evaluation of any additional potential pollutant sources that might be present. This assessment work allows the PPT to better address the non-numeric technology-based effluent requirements specified in the IP.

The following sections discuss each of the primary categories of pollutant sources within the Pajarito watershed. The primary categories of pollutant sources discussed within the context of each SMA are historical industrial activities, urban influences, and public influences. This discussion is further detailed at the SMA-level in Section 1000.

500.1 Historical Industrial Activity

Within the Pajarito watershed, there are 51 Permitted Features comprised of 60 Sites associated with 51 SMAs. Sites associated with this watershed are primarily associated with historical Laboratory operations dating back to the establishment of the Laboratory in the

1940s. Potential pollutants of concern at related SMAs in the Pajarito watershed are generally classified as metals, organics, and radioactivity present in surface soils.

Laboratory activities in proximity to the Pajarito watershed have been varied and include criticality experiments located at the Los Alamos Critical Experiments Facility (TA-18), surface and subsurface material disposal areas, a buffer zone for mesa-top firing site activities, and to a lesser extent liquid waste disposal. These operations have been conducted in and have possibly discharged to Pajarito Canyon and its tributaries since the Laboratory began operation in 1943. These early discharges were associated with outfalls, surface run-off, and dispersion from firing sites. Additional discharges began with the continued expansion of Laboratory operations to new sites in the 1950s through the 1970s.

TAs associated with SWMUs and AOCs potentially influencing storm water discharges to Pajarito Canyon include TA-08, TA-09, TA-18, TA-22, TA-27, TA-40, and TA-54. Releases from Sites include releases from outfalls, septic systems, spills, open detonations from firing sites, and MDAs.

TAs associated with SWMUs and AOCs potentially influencing storm water discharges to Twomile Canyon include TA-03, TA-06, TA-07, TA-22, and TA-40. Twomile Canyon is heavily influenced by run-off from paved areas associated with the densely developed, active TA-03. SWMUs and AOCs located in the in TA-03 include storm drains, sumps, storage areas, outfalls, septic tanks, transformers containing polychlorinated biphenyls (PCBs), and stack emissions.

TAs associated with SWMUs and AOCs potentially influencing storm water discharges to Threemile Canyon include TA-15, TA-18, and TA-36. Releases at the Sites within the Threemile Canyon Area may have occurred as a

result of firing site activities, potential leaks from septic systems and associated drainlines, discharges from outfalls, and surface disposal areas.

Details of Site-specific historical activities, potential pollutants of concern, and the controls used in storm water management at these Sites are provided in greater detail in Section 1000.

500.2 Urban Influences

Less than 2% of SMAs within this watershed are subject to influence from urban sources. The urban designation at a specific SMA indicates a potential influence from paved parking, roads, storage areas, or other activities in proximity to the SMA. Where designated as a potential pollutant source for a SMA, these urban influences are not directly a LANL-based activity. The principal concerns posed by urban influences are an increase in storm water volume across or near the SMA, or the introduction of contaminants into the storm water that are not related to the historical activities conducted at the Site(s).

Increased volumes of storm water, if not adequately controlled, can result in a subsequent increase in sediment migration and may contribute to erosion of the managed area. Run-off from paved areas and roadways may contain increased concentrations of metals, petroleum products, and related vehicular fluids. Both the County of Los Alamos and the State of New Mexico maintain primary roadways that are adjacent to many of the SMAs monitored within this watershed. Where a Site has an unmitigated urban influence, the urban area is included in the Site inspection if the conclusion is that the interface could influence sampling results.

Run-on from urbanized areas is typically prevented from coming into contact with Site(s) by diversion. Where diversion is not possible the run-on is managed by the Site controls as it co-mingles with the SMA storm water

run-off. Selection of control measures to manage co-mingled storm water are made on a Site-specific basis. Specific storm water controls selected for the Sites with urban influences are described in detail in Section 1000 of this SDPPP.

500.3 Public Influences

Within the watershed, none of the SMAs have the potential for public influence.

Where Sites are readily accessible to the public, there is a higher potential for litter and floatable debris. There is also an increased potential for vandalism or tampering with monitoring equipment. Where a Site has an unmitigated public influence, that area is included in the Site inspection if the conclusion is that the interface could influence management or sampling at the Site. Where monitoring equipment is disturbed, the equipment will be enclosed in tamper-proof boxes. SMAs with a potential public influence have been identified in Section 1000 of this SDPPP.

SECTION 600

BASELINE CONTROL MEASURES

In the Pajarito watershed baseline control measures have been implemented at 51 SMAs. Of the 51 SMAs in this watershed, 24 had completed baseline control installations and implementation before the effective date of the Permit, November 1, 2010, as identified in Appendix E, Table E-1 of the IP.

As described in the previous section, each SMA has been evaluated for pollutant sources that may be present in addition to potential historical industrial activity associated with the Site(s). Control measures have been similarly selected and the installation is related to the specific concerns within the SMA.

This section describes the general types of storm water controls implemented at SMAs in the Pajarito watershed. Specific control types are further described for each control class. Control measures referenced in this document follow the specifications provided in Storm Water BMP Manual.

Changes to baseline control measures such as repair, modification, or replacement, will be documented in interim documentation. These changes will be kept alongside the SDPPP until they are reflected in annual updates.

600.1 Erosion and Sediment Controls

These types of controls minimize the potential for erosion occurring from precipitation-based storm water flows across an area and to retain transported sediment onsite.

Baseline control measures used for erosion control at LANL include the following major classes: established vegetation, seed and mulch, channel/swales, gabions, and caps.

- Types of established vegetation include forested needle cast, vegetation buffer strip, and grasses and shrubs.
- Types of seed and mulch include hydromulch and seed, erosion control blankets and seed, wood straw and seed, and gravel mulch.
- Types of channel/swales include earthen, concrete/asphalt, rock, culverts, water bars, vegetated swales, and rip rap.
- Caps can be composed of earth, rock, or asphalt.

Baseline control measures used for sediment control include the following major categories: established vegetation, berms, sediment traps and basins, gabions, and check dams.

- Types of berms include: earthen, base course, log, asphalt, Triangular Silt Dikes®, straw wattles, Terra Tubes®, retaining walls, curbing, and gravel bags.
- Check dams can be composed of: rock, log or juniper bales.

600.2 Management of Run-on and Run-off

The purpose of run-on/run-off control measures is to divert, infiltrate, reuse, contain or otherwise reduce storm water run-on/run-off. Baseline control measures used for managing run-on and run-off at LANL include the following control classes: established vegetation,

channel/swales, gabions, sediment traps and basins, check dams, and berms.

600.3 Non-Storm Water Discharges

Visual surveys are conducted as part of the Permit-required Site inspections to identify the potential for non-storm water discharges at each SMA. There are no identified sources of unauthorized discharges at this time, including process wastewater, spills or leaks of toxic or hazardous materials, contaminated groundwater, or any contaminated non-storm water associated with the SMAs.

Non-storm water discharges include, but are not limited to, process wastewater, spills or leaks of toxic or hazardous materials, contaminated groundwater, etc. The Multi-Sector General Permit sets a precedent of allowable non-storm water discharges under NPDES storm water permits. The following non-storm water discharges are allowable to the extent that soils within the SMA drainage area are not disturbed:

- Discharges from fire fighting activities
- Fire hydrant flushing
- Potable water sources including waterline flushing
- Uncontaminated condensate from air conditioners, coolers, and other compressors and from the outside storage of refrigerated gases or liquids;
- Irrigation drainage;
- Landscape watering provided all pesticides, herbicides, and fertilizer have been applied in accordance with the approved labeling;
- Pavement wash waters where no detergents are used and no spills or leaks of toxic or hazardous materials have occurred (unless all spilled material has been removed);
- Routine external building washdown that does not use detergents;
- Uncontaminated ground water or spring water;
- Foundation or footing drains where flows are not contaminated with process materials; and
- Incidental windblown mist from

cooling towers that collect on rooftops or adjacent portions of the facility, but not intentional discharges from the cooling tower (e.g., 'piped' cooling tower blowdown or drains).

600.4 Other Control Measures

600.4.1 Litter and Debris

Control measures have been implemented to ensure that no waste, garbage, or floatable debris are discharged to receiving waters. SMAs adjacent to or within urban areas have the greatest potential for impacts due to off-site litter sources. Sites will be inspected for litter, and visible, potentially floatable debris as part of the Permit-required Site inspections. Any litter, and visible, floatable debris will be removed and managed in appropriate containers and in accordance with LANL waste management policies. SMAs exhibiting problems with litter or other floatable debris, as identified in site inspections, will have signage or other structural controls installed to address these areas.

600.4.2 Dust Minimization

The potential for generating dust, along with off-site vehicle tracking of raw, final or waste materials, or sediments is primarily at SMAs subject to construction activity involving ongoing soil disturbance. As identified in the Permit, required Site inspections, dust generation and the tracking of materials shall be minimized with the application of water and/or an approved soil stabilizer. Water and soil stabilizer used to suppress dust generation will be applied at a rate to avoid discharge from the Site.

600.4.3 Waste Minimization

The introduction of raw, final, or waste materials to exposed areas will be minimized. Good housekeeping practices will be maintained and materials introduced or removed from the areas will be managed or disposed of properly at the

end of each workday in accordance with LANL waste management policies.

600.4.4 Flow Dissipation

Flow velocity dissipation is addressed through the implementation of baseline control measures. Virtually all control measures implemented dissipate the velocity of flow across an area. Discharges from culverts and other conveyances have controls currently installed to dissipate the resultant flow velocity.

600.5 Selection of Control Measures

The baseline review of SMAs identified any additional potential pollutant sources that may be present, evaluated the physical characteristics of the SMA, and recommended control measures appropriate to the SMA for installation. Section 1000 presents information specific to each SMA, discusses the physical area influencing the SMA, and presents controls by pollutant source, as applicable. These controls have been selected to address the specific physical characteristics of the Sites and the drainage area. Controls provided for each SMA comprise the baseline selection of controls intended to control and stabilize the drainage areas associated with Sites as provided in Appendix E, Table E-1 of the Permit.

600.6 Schedules for Baseline Control Measure Installation

Within six months of the effective date of the IP (November 1, 2010), baseline control measures must be installed at each Site. The PPT will be responsible for ensuring control measure construction, implementation, and maintenance for each Site. Following the installation of all baseline controls, the effectiveness of control measures will be determined by the monitoring results of storm water samples at the SMA. The PPT is responsible for implementing control measures beyond the baseline within the required time frame. Section

700 describes in further detail, the relationship between monitoring results and non-numeric, technology-based, effluent limitations.

SECTION 700 STORM WATER MONITORING OVERVIEW

The purpose of the storm water monitoring specified in the IP is to determine the effectiveness of the control measures implemented to meet the non-numeric technology-based effluent limitations. This determination is made in part, by the collection of storm water samples, following the initial installation of baseline control measures. Concentrations of specific pollutants in the collected sample are compared with specific Target Action Levels (TALs) listed in Section I.C of the IP.

700.1 Monitoring and Analysis Requirements

Monitoring requirements are specified by the IP and generally correspond to the pollutant concerns associated with a specific SMA. Concentrations of pollutants in excess of TALs are not necessarily violations of water quality standards. The TALs are used as a screening tool to indicate whether the baseline control measures implemented at Sites require additional corrective action as provided in Section I.E of the IP.

700.1.1 Initial Confirmation Sampling

The IP establishes an initial phase of confirmation sampling to follow the completion of the baseline control measures installation. Any sampling performed for purposes of confirmation monitoring at a particular SMA must be performed following a storm event that results in an actual discharge from the SMA in sufficient volume to perform the required analyses (referred to herein as a 'measurable storm event'). The interval between collected samples must be at least fifteen (15) days.

Within the Pajarito watershed, 24 SMAs had completed baseline control installations before the effective date of the Permit. Storm water monitoring at these 24 SMAs requires the collection of one storm water sample from two separate measurable storm events within one year after the effective date of the Permit. SMA-specific monitoring plan and requirements are presented in Section 1000.

SMAs with Baseline Control Measures Complete at the Effective Date of Permit in Pajarito Watershed

- 2M-SMA-1
- 2M-SMA-1.43
- 2M-SMA-1.5
- 2M-SMA-2.2
- 3M-SMA-0.2
- STRM-SMA-1.05
- STRM-SMA-1.5
- STRM-SMA-4.2
- STRM-SMA-5.05
- PJ-SMA-1.05
- PJ-SMA-2
- PJ-SMA-4.05
- PJ-SMA-5
- PJ-SMA-6
- PJ-SMA-7
- PJ-SMA-8
- PJ-SMA-9
- PJ-SMA-14.2
- PJ-SMA-14.3
- PJ-SMA-14.6
- PJ-SMA-16
- PJ-SMA-17
- PJ-SMA-18
- PJ-SMA-19

The remaining SMA planned baseline controls will similarly collect two storm water monitoring samples following the installation, from at least 2 separate measurable storm events occurring at least 15 days apart, within 18 months of the effective date of the IP.

For each sampling event, the date and duration (in hours) of the storm event(s) sampled, the rainfall measurements or estimates (in inches) of the storm event that generated the sampled runoff, and the duration between the storm event samples and the end of the previous measurable storm event will be recorded. Snow melt samples will not be used for purposes of confirmation monitoring.

700.1.2 Confirmation Results

Following the collection of confirmation samples, sampling results are compared against applicable TALs. Sampling results either confirm the effectiveness of

the installed baseline control measures or the results dictate further actions as described in the following sections.

700.1.2.1 Confirmation Results Below Target Action Levels

If all analytical results for a particular pollutant of concern at a particular SMA are at or below the maximum target action level (MTAL) and the average of all applicable sampling results is at or below the average target action level (ATAL), or the applicable minimum quantification level (MQL), whichever is greater, analytical monitoring of that pollutant at the same SMA is no longer required for the remaining period of the permit. The Site(s) are certified to have completed corrective action as specified in Part I.E.2 of the IP and as discussed further in Section 900, Corrective Action.

An exception is made for instances where future installation of control measures at the Site(s) being monitored involves soil disturbance. If soil disturbance is involved, the initial confirmation monitoring phase is repeated and samples are collected again for all listed pollutants of concern at that SMA.

If analytical results for all pollutants of concern at a particular SMA are at or below the MTALs and the average of all applicable sampling results is at or below the ATALs, or the applicable MQLs, whichever is greater, no further sampling is required for the Site or group of Sites within the associated SMA for the remaining period of the permit (except as provided in Section E. 5. of the IP). Inspections at all Sites in accordance with Section G. of the Permit will continue and control measures will be maintained in effective operating condition as required by Section B.2 of the IP. A minimum of two confirmation samples must be collected and analyzed before removing a Site or group of Sites from monitoring requirements, except as provided in Sections E.5.(d) and (e) of the IP.

700.1.2.2 Confirmation Results Above Target Action Levels

If, following installation of baseline control measures, any validated sample analytical result for a specific pollutant of concern at a particular SMA is greater than the applicable MTAL (or applicable MQL, whichever is greater) or the average of all applicable sampling results is greater than the applicable ATAL (or applicable MQL, whichever is greater), a visual inspection of all Sites within the SMA drainage area, a re-evaluation of the existing control measures, and an initiation of corrective action will be conducted as soon as practicable.

Such corrective action may entail the design and installation of enhanced (additional, expanded or better tailored) control measures reasonably expected to achieve compliance with target action levels identified in the Permit for all Sites within the SMA drainage area. If this type of corrective action is selected, at least two confirmation samples shall be collected (one confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart) following installation of any enhanced control. If either validated confirmation sample result for any specific pollutant of concern exceeds applicable target action levels, a visual inspection for all Sites within the SMA drainage area will be conducted, including a re-evaluation of the existing control measures, and an initiation of further measures to achieve completion of corrective action as soon as practicable.

700.2 Sampling Location Selection and Determining Substantially Identical Effluent

Sampling locations have been selected to provide a representative storm water sample of discharges from areas that are potentially impacted by Sites regulated under LANL's RCRA Permit. Coordinates of samplers used to conduct storm water monitoring required under

this Permit, estimates of the size of the SMA drainage area, and estimates of the Site(s) drainage area are provided in Attachment D, Physical Characteristics.

Within the Pajarito watershed, sampler locations at PJ-SMA-3.05 and 2M-SMA-1.5 have had minor adjustments from the locations originally provided in the Permit. These minor adjustments were made to collect more representative storm water samples from these areas. Updated location data and physical characteristics for these SMAs are provided in Attachment D.

In some cases, due to the physical characteristics of the potentially impacted drainage area or the nature of the suspected release, it is not possible to monitor or manage Sites independently of one another. In many cases, NPDES permitted Sites ceased operation several decades ago. During their operational history, surrounding units were also operational. Resultant surface concerns may be co-mingled by natural sediment migration or by remedial actions at the unit or in proximity to the unit.

Where more than one Site exists within an SMA, a discussion of substantially identical effluent is provided following the descriptions of the Sites in Section 1000. Sites can be said to have substantially identical effluents if they share one or more of the following characteristics:

Shared Drainage – The Sites have the same drainage and are discharged to the same receiving water.

- **Contaminant Similarities** – The Sites have similar potential pollutants due to historic activities at the Sites
- **Extensive Remediation** – The Sites have been subject to extensive disturbance of surface soils to the extent that they can no longer be distinguished from one another.

700.3 Procedures

Procedures governing the collection and processing of storm water samples are

detailed in the following documents:

- EP-SOP 5213, Inspecting Storm Water Run-off Samplers and Retrieving Samples
- EP-SOP 5215, Processing Storm Water Samples
- EP-DIV-SOP-10008, Installing, Setting Up, and Operating ISCO samplers
- EP-DIV-SOP-10005, Operation and Maintenance of GAGE Stations for Storm Water Projects

Current versions of all IP related SOPs are summarized in Attachment E. The summary table in Attachment E also provides a hyperlink to the current version of the applicable procedure that resides on the public website. These procedures apply to the work activity described in this section. Additional procedures may be added as necessary to describe and document quality-affecting activities.

SECTION 800 INSPECTION REQUIREMENTS OVERVIEW

Inspection of a Site, an SMA, or control measure is done when the following circumstances exist:

- A rain event at or near the Site registers 0.25 inch or more of rain within 30 minutes.
- Water sample confirmation results above TALs.
- At least annually for changes of conditions affecting erosion.
- After a significant event, such as fire, which could significantly impact the control measures and environmental conditions in the affected area(s).

If an inspection identifies erosion or a deficient control, the control will be repaired or new control measures may be recommended to reduce erosion potential. Inspection results, maintenance performed on existing control measures, and installation of new control measures will be documented in this SDPPP.

800.1 Post-Storm Inspections

If adverse weather prevents a post-storm Site inspection within the allotted 15 calendar days, then LANS will inspect the Site as soon as practicable following the adverse weather. All adverse weather events that impact the inspection of control measures are documented in this SDPPP. Adverse weather conditions may include dangerous weather-related events such as flooding, wildfires, or hail that make inspection dangerous for the worker. Interruptions in inspections due to adverse weather will be documented with information similar to post-storm inspections. These records will be maintained alongside the SDPPP until the annual update occurs. Where several storm events exceeding 0.25 inch per 30 minutes occur over a period not to exceed 15 days from the first event, then LANL may conduct a single inspection within 15 days of the first event.

800.2 Monitoring Response Inspections

If, following installation of baseline control measures, any sample analytical result for a specific pollutant of concern at a particular SMA is greater than the applicable MTAL (or applicable MQL, whichever is greater) or the average of all applicable sampling results is greater than the applicable ATAL (or applicable MQL, whichever is greater), a visual inspection for all Sites within the SMA drainage area will be conducted. Existing control measures will be re-evaluated and initiation of corrective action will be conducted as soon as practicable.

800.3 Annual Inspection and Erosion Re-evaluation

The PPT evaluates each Site annually for changes of conditions affecting erosion. Additionally, the PPT reevaluates the Site after notice of a significant event that could impact the control measures and environmental conditions of the Site. These types of inspections are done as soon as practicable. Following the

erosion evaluations, the PPT documents the inspection in an inspection report.

800.4 Construction Activity Associated with Site Remediation

Where soil disturbance associated with the installation of control measures exceed one acre, these activities will be addressed under the requirements of the Construction General Permit (CGP) program or through a separate individual NPDES Permit. Where Sites in Appendix A of the IP are undergoing remediation, weekly inspections will be conducted to ensure sediments and control measures are maintained in working order. Corrective actions shall be taken immediately if deficiencies are noted in these inspections. The SDPPP will be updated annually to reflect steps taken to minimize discharges from Sites subject to remediation activity at the Laboratory. The table provided in Attachment A will be used to document each amendment. All Amendments to the SDPPP and a summary of remediation activities will be reported in the Annual Report as specified in Part I.H of the IP. Completed remediation amendments will be retained alongside the SDPPP until the annual update occurs.

800.5 Procedures

Procedural documents are developed to methodically describe the conduct of operations for the IP program. The following procedures provide detail for activities described in this Section:

- EP-SOP-5211, Surface Water Site Assessments, describes the process of the annual Site re-evaluation.
- EP-SOP-5217, Installing, Inspecting, and Maintaining Storm Water Control Measures, describes this process and presents examples of resultant documentation.
- SOP 5219, Photograph Management
- EP-SOP- 5220, EX-ID/PR-ID Project Reviews for the FFCA Project and Individual Permit, describes the process for proactively identifying

and managing proposed construction projects that may influence SMAs.

Current versions of all IP related SOPs are summarized in Attachment E. The summary table in Attachment E also provides a hyperlink to the current version of the applicable procedure that resides on the public website. These procedures apply to the work activity described in this section. Additional procedures may be added as necessary to describe and document quality-affecting activities.

SECTION 900

CORRECTIVE ACTION AND OTHER CONDITIONS

Corrective action must be completed for all Sites permitted under the IP. Deadlines for completion of this requirement are specific to the priority attributed to the Sites by the Permit. The following sections describe the steps for meeting the corrective action requirements.

900.1 Completion of Corrective Action

Corrective action is to be completed for all Sites described in this SDPPP. Completion of corrective action is demonstrated by one of the following methods:

1. Analytical results from confirmation sampling show pollutant concentrations for all pollutants of concern at the Site to be at or below applicable target action levels; or
2. Control measures that totally retain and prevent the discharge of storm water have been installed at the Site; or
3. Control measures that totally eliminate exposure of pollutants to storm water have been installed at the Site; or
4. The Site has achieved RCRA “no further action” status or a Certificate of Completion under NMED’s Consent Order.

900.1.1 Alternative Compliance

Where certification of corrective action cannot be completed, LANS may

petition to place Site(s) into Alternative Compliance. In Alternative Compliance, the completion of corrective action will be accomplished on a case-by-case basis, and as necessary, pursuant to an individually tailored compliance schedule determined by EPA.

900.2 Deadlines

900.2.1 High Priority Sites

Within the Pajarito watershed, there are 4 Sites that are deemed high priority Sites. Corrective action is to be completed and certified within three years of the effective date of the IP. The high priority Sites for the Pajarito watershed are as follows:

54-013(b)	54-017
54-018	54-020

900.2.2 Moderate Priority Sites

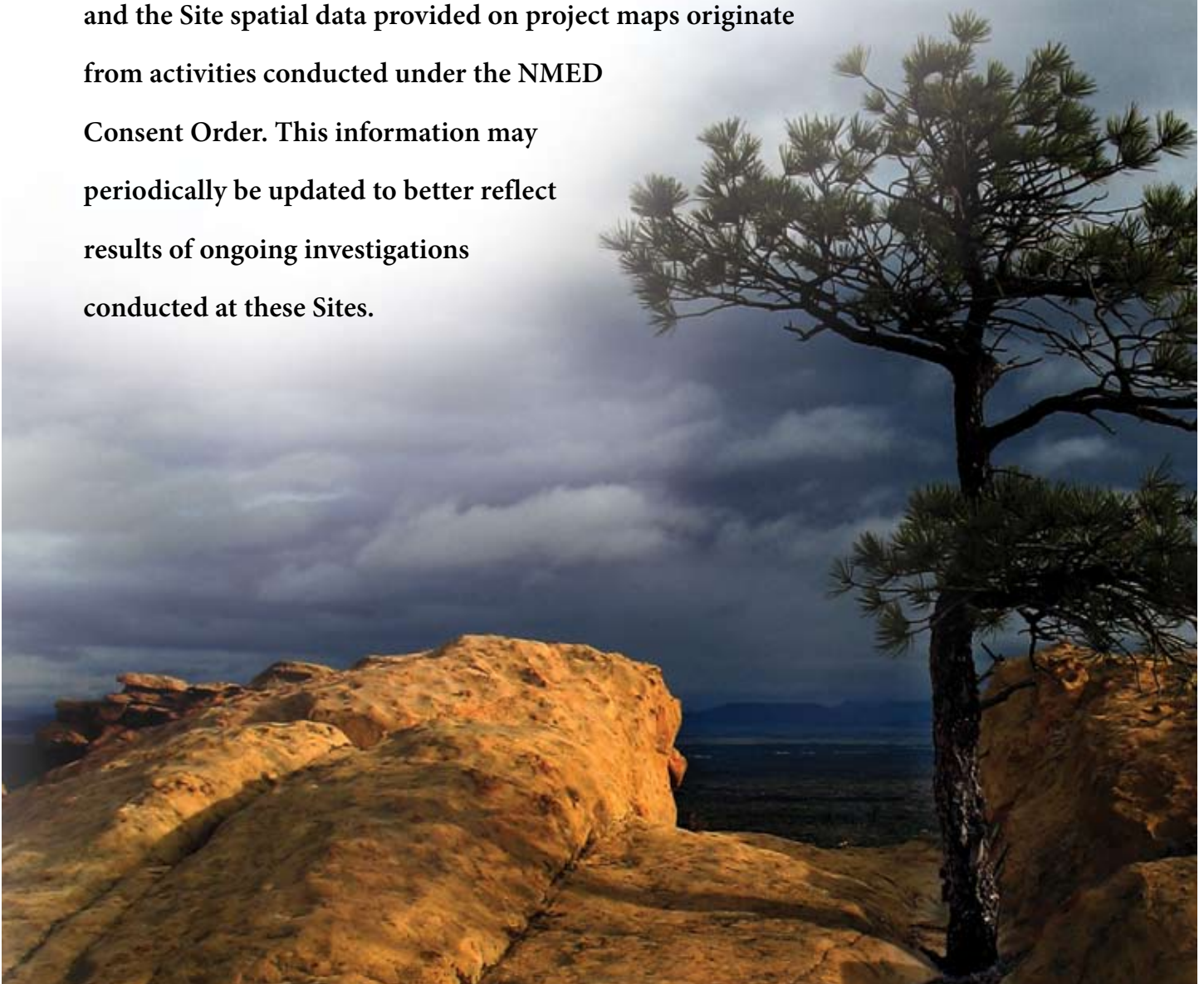
Within the Pajarito watershed, there are 56 Sites that are deemed moderate priority Sites. Corrective action is to be completed and certified, within five years of the effective date of the IP.

SECTION 1000

SITE MONITORING AREAS

The following sections provide SMA-specific details of each permitted feature monitored under the IP. Each SMA described includes an area description, details of each identified potential pollutant source including a demonstration of substantially identical effluent where appropriate, a description of control measures specific to the identified pollutant source, a project map, the storm water monitoring requirements and schedule, and a summary of the current corrective action status for the SMA.

Site information provided in this SDPPP such as Site descriptions and the Site spatial data provided on project maps originate from activities conducted under the NMED Consent Order. This information may periodically be updated to better reflect results of ongoing investigations conducted at these Sites.



1000.1 2M-SMA-1

- 1000.1.1 Area Description
- 1000.1.2 Potential Pollutant Sources
 - 1000.1.2.1 Historical Industrial Activity Areas
 - 1000.1.2.2 Urban Influences
- 1000.1.3 Control Measures
- 1000.1.4 Project Map
- 1000.1.5 Storm Water Monitoring Plan and Schedule
- 1000.1.6 Corrective Action Status



1000.1 2M-SMA-1

1000.1.1 Area Description

2M-SMA-1 is located within TA-03. The northern boundary of the SMA is influenced by paved areas and development in TA-03. SR 501 is in the northern boundary of this SMA. The southern boundary of the SMA is undeveloped and slopes towards the receiving waters. The eastern boundary of the SMA is influenced by paved areas and development in TA-03. The western boundary of the SMA is less developed and also influenced by SR 501 along the northern section of this boundary. Storm water flows from these developed areas, south and east towards the receiving waters.

1000.1.2 Potential Pollutant Sources

1000.1.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with Permitted Feature (PF) E001, 2M-SMA-1, Site 03-010(a).

SWMU 03-010(a) is surface disposal area and drainage that received waste generated from vacuum pumps repaired at the shop in building 03-0030 [AOC 03-001(e)]. The surface disposal area received discharges of waste oil and mercury between 1950 and 1957. Former site workers estimated that more than 100 lb of mercury was discharged to the area. The drainage site encompasses an area approximately 40 ft long by 15 ft wide on a moderately steep slope that drains into Twomile Canyon.

1000.1.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
03-010(a)	Former Vacuum repair shop outfall	Discrete Location, No overlap	Individual	•		•	

1000.1.2.2 Urban Influences

There is significant run-on at this Permitted Feature. The majority of run-on sources are the result of the SR 501 culvert and parking lot run-off routed to the channel next to building 03-0030.

1000.1.3 Control Measures

Rock check dams, gabions, and wattles are in place to control run-on to the SMA from the paved areas adjacent to the SMA. The majority of run-on sources are the result of the SR 501 culvert and parking lot run-off routed to the channel next to building 03-0030.

Subsections to 1000.1.3 list all control measures used to control pollutant sources identified in Section 1000.1.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.1.4.

1000.1.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
E001 02 01 0005	Established Vegetation - Grasses and Shrubs			•	
E001 02 02 0006	Established Vegetation - Forested/ Needle Cast			•	
E001 03 01 0012	Berms - Earthen	•			•
E001 03 06 0002	Berms - Straw Wattles	•			•
E001 04 06 0010	Channel/Swale - Rip Rap	•		•	
E001 04 06 0011	Channel/Swale - Rip Rap	•		•	
E001 06 01 0007	Check Dam - Rock	•			•
E001 06 01 0008	Check Dam - Rock	•			•
E001 06 01 0009	Check Dam - Rock	•			•
E001 07 01 0003	Gabions - Gabions		•		•
E001 07 01 0004	Gabions - Gabions		•		•

Established Vegetation (E001-02-01-01-0005, -02-0006)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earth Berms (E001-03-01-0012)

This berm controls run-on and sediment in the middle of the site drainage. It is adjacent to the west side of building 03-1663. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattles (E001-03-06-0002)

These wattles are located west of building 03-0030 at the top of the slope above

the drainage channel. They are in place to control run-on from the paved areas surrounding area structures. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rip Rap - Western (E001-04-06-0010)

This rip rap is located in the drainage channel near the northwest corner of building 03-0030. It is in place to mitigate run-on and prevent erosion. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rip Rap - Eastern (E001-04-06-0011)

This rip rap is located near the southeast corner of building 03-1663. It is used to control run-on and prevent erosion. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Check Dam (E001-06-01-0007, -0008, -0009)

This is a series of three rock check dams located within the channel west of building 03-0030. They are in place to mitigate run-on from the paved areas. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

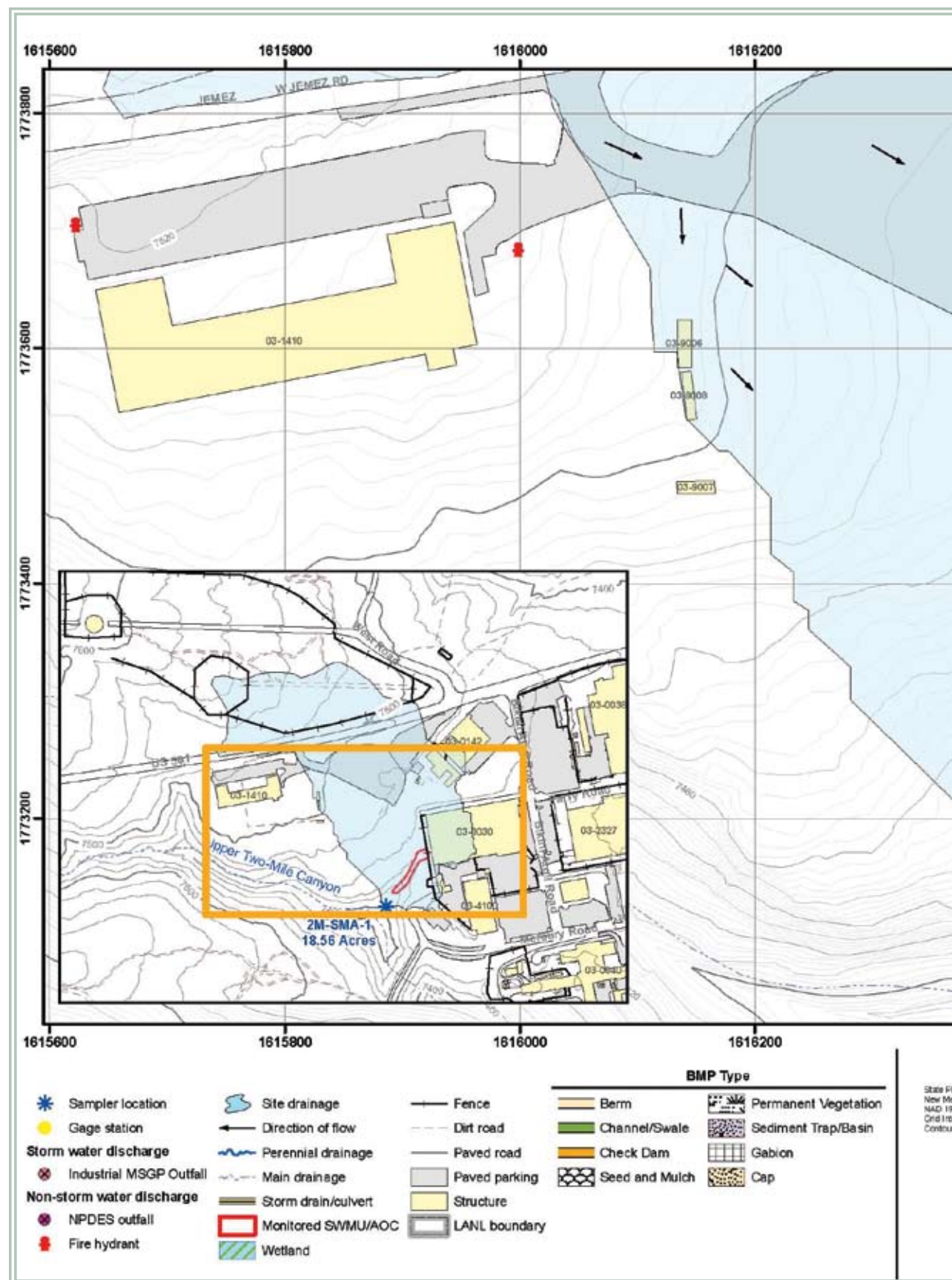
Gabions (E001-07-01-0003, -0004)

This is a series of two gabions that are located in the drainage channel west of building 03-0030. They are in place to control run-off from above. Gabions are large, multi-celled, welded wire or rectangular wire mesh boxes, used in channel revetments, retaining walls, abutments, and check dams. Gabions are used for sediment control when installed perpendicular to the storm water flow as with a check dam.

1000.1.3.2 Control Measures for Urban Influences

There are no control measures for Urban Influences at PF E001, 2M-SMA-1. Although the potential for urban influences at this SMA exists, no controls are necessary at this time.

1000.1.4 Project Map



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1000.1.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.1.6 Corrective Action Status

The Site associated with 2M-SMA-1 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.2 2M-SMA-1.42

- 1000.2.1 Area Description
- 1000.2.2 Potential Pollutant Sources
 - 1000.2.2.1 Historical Industrial Activity Areas
- 1000.2.3 Control Measures
- 1000.2.4 Project Map
- 1000.2.5 Storm Water Monitoring Plan and Schedule
- 1000.2.6 Corrective Action Status



1000.2 2M-SMA-1.42

1000.2.1 Area Description

2M-SMA-1.42 is located within TA-06 and access to the area is controlled. The northern boundary is undeveloped but may be influenced by paved and unpaved surfaces. The receiving waters are further north along this boundary. The southern boundary of the SMA is within an undeveloped area at TA-06. There is an unpaved access road that runs across the SMA. Storm water flows north and east across the area.

1000.2.2 Potential Pollutant Sources

1000.2.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF E002, 2M-SMA-1.42, Site 06-001(a).

SWMU 06-001(a) is a decommissioned septic tank (structure 06-0040) and associated outfall. The septic tank is located approximately 100 ft north of former building 06-0003. The septic system outfall drained to Tributary A of Twomile Canyon. The septic tank, which had a volume of 840 gal., serviced former buildings 06-0001 and 06-0003.

Former building 06-0001 was constructed in May 1944 and was originally used to develop analytical procedures for nonradioactive cobalt tracer shots. An engineering drawing shows the building to have two rooms, one identified as a carpenter shop and the other as a laboratory. The laboratory had an acid-resistant work bench and a lead-lined sink connected to the septic system. In the late 1950s, silver soldering may have been conducted in the carpenter shop. In the early 1980s, cable and boxed inert supplies were warehoused in former building 06-0001. The building was not used after the carpenter shop closed in the 1980s.

Former building 06-0003 contained a restroom, a darkroom, and a laboratory with a lead-lined sink. The building was first used as a control bunker for explosives shots and was surrounded on three sides by an earthen berm. It was remodeled in 1944 with explosion-proof fixtures because diethyl ether was used in the analyses performed in the building. From 1945 to 1948, the building housed offices, and from 1948 to the early 1950s, the building had a firing control panel and a bridgewire-testing laboratory to prepare cobalt tracers. In 1972, the building was remodeled into a printed circuit shop, and was later used as a silk-screen facility until the mid-1980s. After the mid-1980s, the building was used for storage.

The septic system was decommissioned in 1986, and the drainline was plugged in 1988. During a reconnaissance visit in 1992, the tank was located, its cover removed, and the tank was found to be empty. Buildings 06-0001 and 06-0003 were demolished and removed in 2004. The septic system was left in place.

1000.2.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
06-001(a)	Septic system	Discrete Location, No overlap	Individual	•		•	

1000.2.3 Control Measures

A culvert diverts storm water from Twomile Mesa Road west and away from the Permitted Feature. The rock check dam is minimizing run-on potential to the area below the outfall at this Permitted Feature. Run-on to the outfall area is minimal and potential run-on impact from the sheet flow are managed with wattles.

Subsections to 1000.2.3 list all control measures used to control pollutant sources identified in Section 1000.2.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.2.4.

1000.2.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
E002 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
E002 02 02 0002	Established Vegetation - Forested/ Needle Cast			•	
E002 03 01 0009	Berms - Earthen	•			•
E002 03 01 0010	Berms - Earthen		•		•
E002 03 12 0003	Berms - Rock	•			•
E002 06 01 0006	Check Dam - Rock	•			•
E002 06 01 0007	Check Dam - Rock	•			•
E002 06 01 0008	Check Dam - Rock	•			•

Established Vegetation (E002-02-01-0001, -02-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm (E002-03-01-0009)

This berm is located southwest of the SMA, extending around the southwest perimeter. It is used to help control storm water run-on from the slope above. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm - North (E002-03-01-0010)

This berm is located northeast of the sampler and is used to help manage run-off from the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

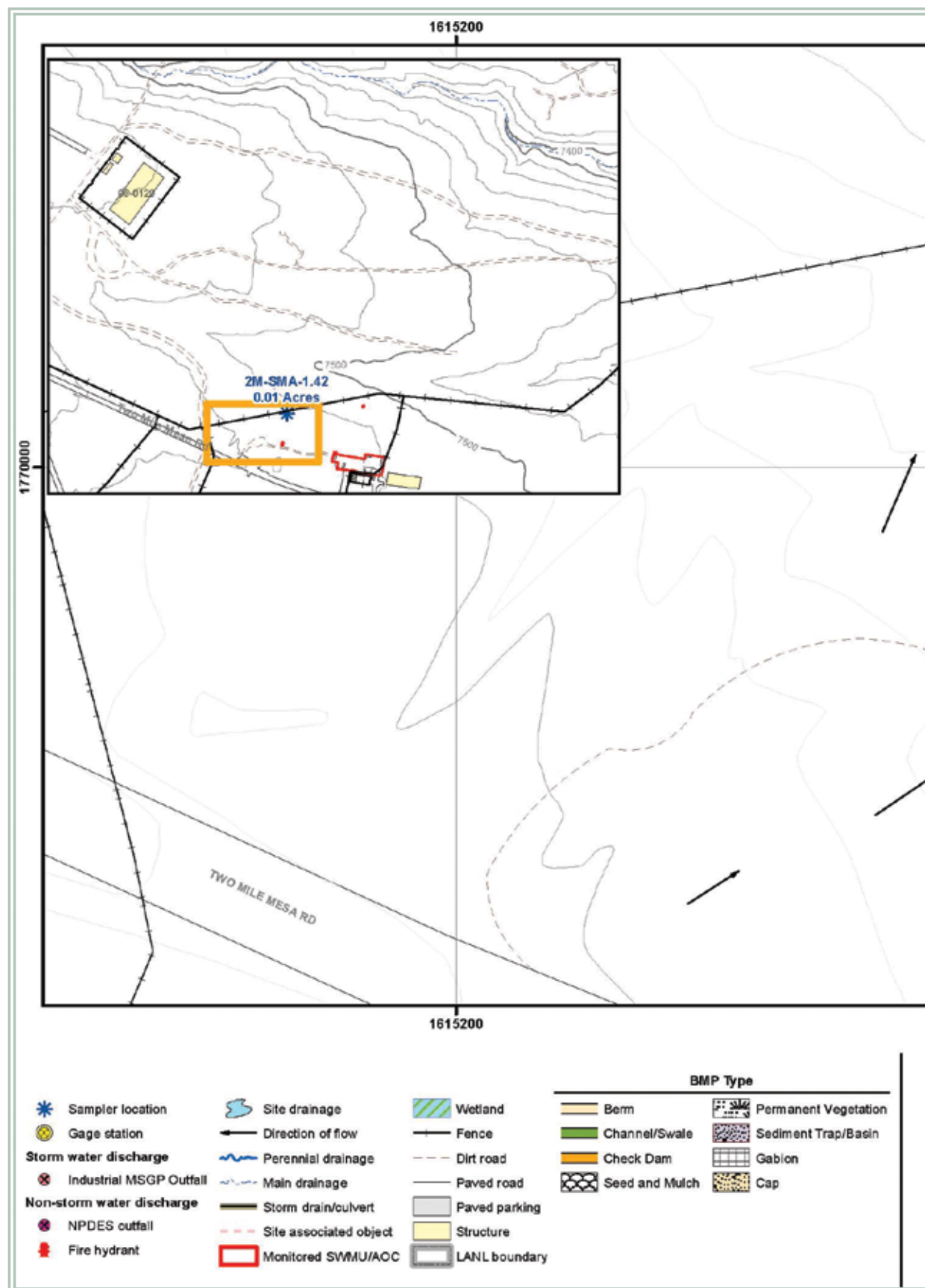
Rock Berm (E002-03-12-0003)

This rock check dam is located on the northwest boundary of the SMA, adjacent to the fence. It is used to control run-on from the surrounding area. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rock Check Dams (E002-06-01-0006, -0007, -0008)

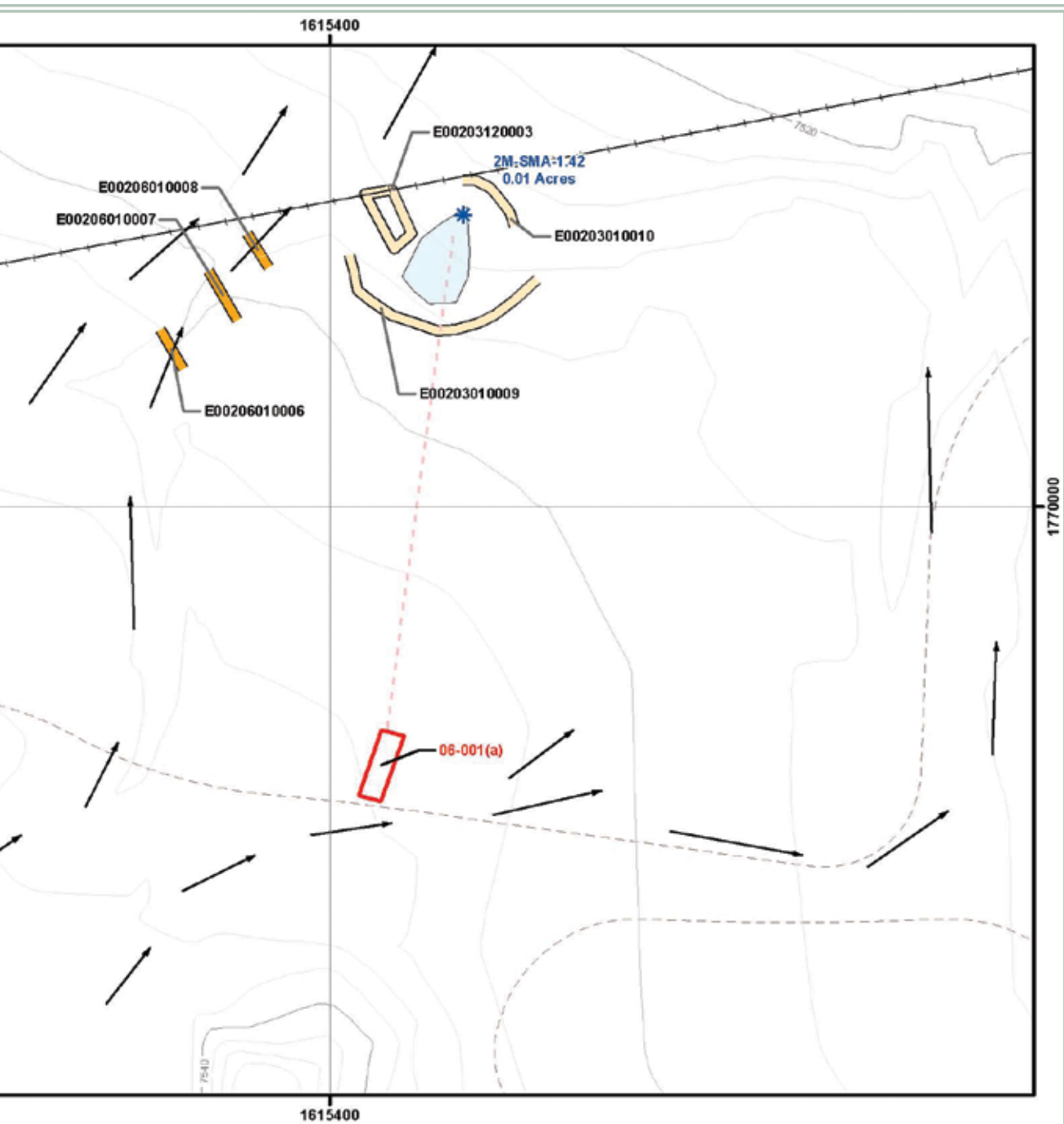
This is a series of three check dams located in the drainage west of the SMA. They are used to help control storm water run-off. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.2.4 Project Map

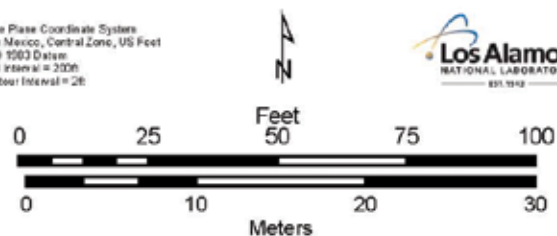


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State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 20'



This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WCS staff.

NPDES Individual Permit NM0030759

**Storm Water Permitted Feature
E002:2M-SMA-1.42**

Twomile Canyon

Water Pollution Control Drawing

Map Created By: Brad McKown, EP-ET-ER GIS Team, March 18, 2011,
Map #E002-10-0017-172-2M1.42-R5

1000.2.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.2.6 Corrective Action Status

The Site associated with 2M-SMA-1.42 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.3 2M-SMA-1.43

- 1000.3.1 Area Description
- 1000.3.2 Potential Pollutant Sources
 - 1000.3.2.1 Historical Industrial Activity Areas
- 1000.3.3 Control Measures
- 1000.3.4 Project Map
- 1000.3.5 Storm Water Monitoring Plan and Schedule
- 1000.3.6 Corrective Action Status



1000.3 2M-SMA-1.43

1000.3.1 Area Description

2M-SMA-1.43 is located within TA-22 and access to the area is controlled. The northern boundary of the SMA is influenced by paved areas and structures within TA-22. The receiving waters are along the northeastern boundary of the SMA. Storm water flows through these developed areas and discharges to a vegetated area along the northeastern boundary.

1000.3.2 Potential Pollutant Sources

1000.3.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF E003, 2M-SMA-1.43, Sites 22-014(a) and 22-015(a).

SWMU 22-014(a) consists of an active HE sump system and associated inactive drainline and seepage pit. The sump system is located immediately south of building 22-0093. The sump is constructed of concrete containing an inset aluminum tank and is approximately 4 ft deep × 9 ft long × 3 ft wide. The sump system has been operating since 1985 and receives rinse water from a washing facility for parts and clothing from explosives compacting operations in rooms C112 and C114 in building 22-0093. Before 1995, the sump discharged approximately 100 gal. of wastewater each week through a drainline to a seepage pit located 150 ft south of the sump in the upper part of Tributary B of Twomile Canyon. The seepage pit is 4 ft in diameter and 40 ft deep. In 1995, the outflow from the sump was capped leaving the sump drainlines and seepage pit inactive. Operations in building 22-0093 continue to discharge wastewater to the sump, where the effluent is retained and suspended solids settle out as sludge. The sump contents are periodically removed for disposal at approved facilities at TA-16. The sump is equipped with a level monitor and an alarm that are monitored remotely in a manager's office.

SWMU 22-015(a) consists of two inactive seepage pits (Pits A and B), located in an open grass-covered area east of building 22-0091. Each pit has an outside diameter of 4 ft and is filled with crushed gravel with a central 4-in. polypropylene perforated pipe vented to the surface. Pit A is 26 ft deep, and Pit B is 20 ft deep. The seepage pits were operated in series and served rooms B102, B107, B121, B123, B145, and B160 in building 22-0091, which housed printed circuit board etching operations. The seepage pits began operation shortly after building 22-0091 was occupied in 1985. From 1985 to 1987, treated waste from the etching operations was discharged through a 6-in.-diameter polyvinyl chloride drainpipe to the seepage pits. As the effluent production rate exceeded the infiltration rate of liquid into the tuff causing the seepage pits to overflow, the drainline was disconnected from the seepage pits in 1987 and the pits became inactive. After the pits were disconnected, effluent was allowed to daylight for only a few months before the drainlines were tied into the TA-16 WWTF.

1000.3.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
22-014(a)	Sump System	Co-located, Overlapping	Shared	•		•	
22-015(a)	Drainlines and dry wells	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped in this SMA are inactive systems used to filter solid materials prior to discharging. These systems were physically situated in close proximity to one another and discharged to a common drainage. Because of the similarity in contaminants and a shared common drainage, these Sites will discharge substantially identical effluent.

1000.3.3 Control Measures

The majority of potential run-on to this Permitted Feature is controlled by the drop inlets and the culvert that discharges to the north of the SMA. This potential run-on source is completely diverted around the SMA.

Subsections to 1000.3.3 list all control measures used to control pollutant sources identified in Section 1000.3.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.3.4.

1000.3.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
E003 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
E003 02 03 0002	Established Vegetation - Vegetative Buffer Strip	•		•	
E003 06 01 0003	Check Dam - Rock		•		•

Established Vegetation (E003-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

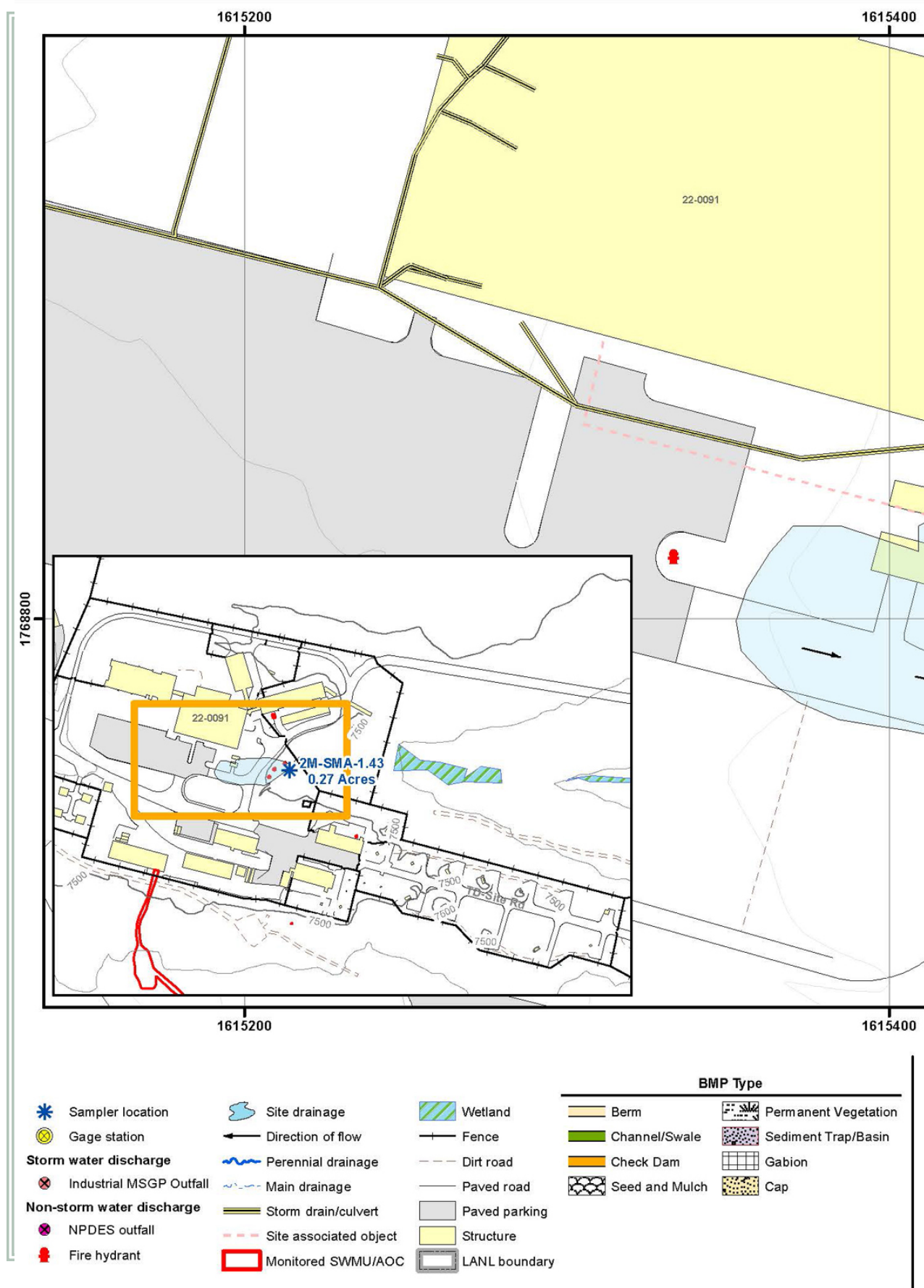
Permanent Vegetation - Vegetative Buffer Strip (E003-02-03-0002)

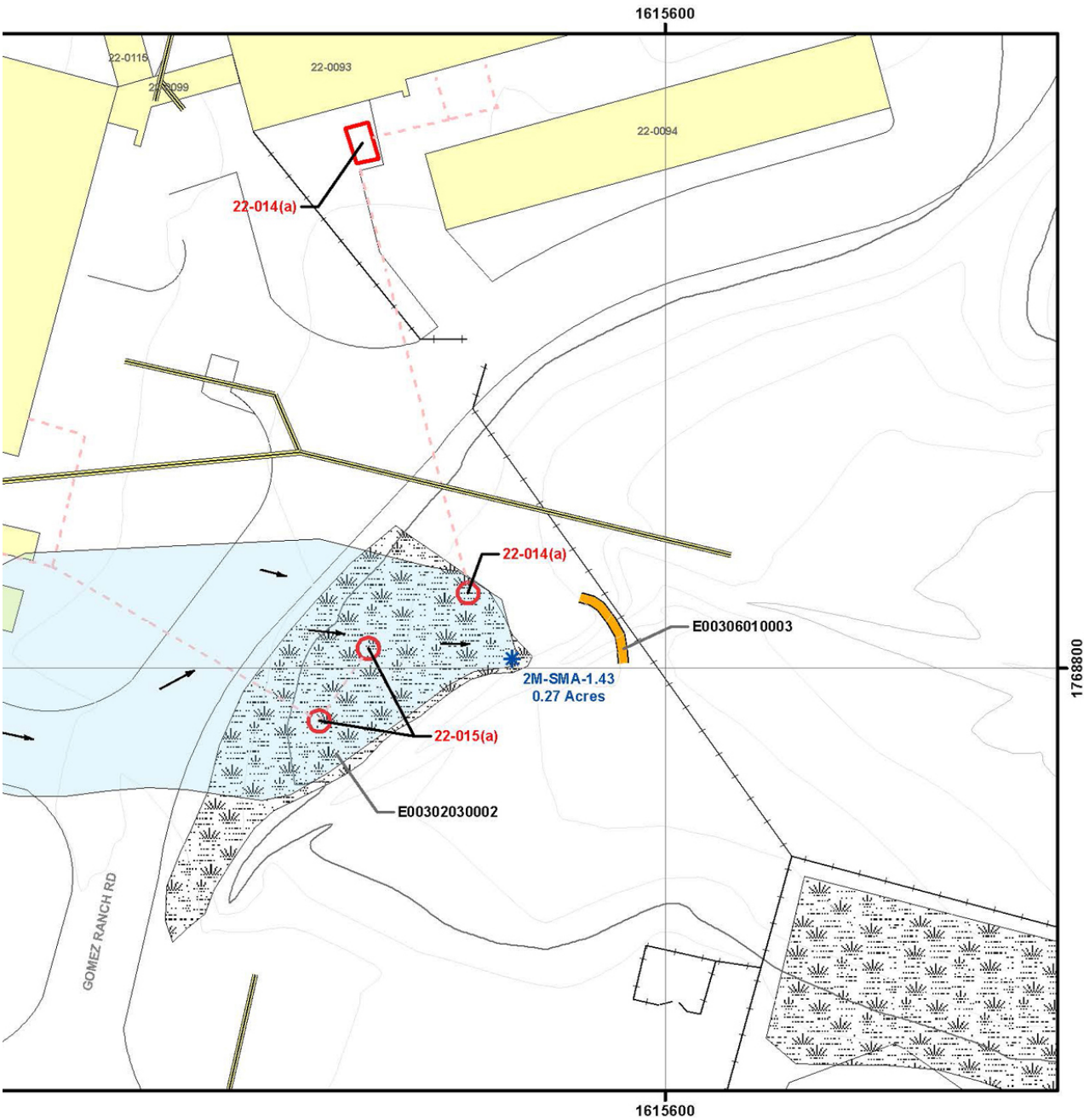
The buffer strip is located to the east of the paved access road and is in place to control erosion and run-on from the road. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion.

Rock Check Dams (E003-06-01-0003)

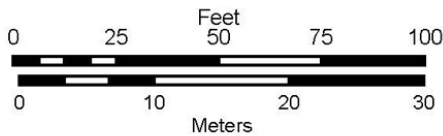
This rock check dam is located east of the sampler adjacent to the fence. It is in place to control run-off from the SMA. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.3.4 Project Map





State Plane Coordinate System
 New Mexico, Central Zone, US Feet
 NAD 1983 Datum
 Grid Interval = 200ft
 Contour Interval = 2ft



This map was created for work processes associated with the NPDES Individual Permit.
 All other uses for this map should be confirmed with LANL EP-WES staff.

NPDES Individual Permit NM0030759

Storm Water Permitted Feature E003:2M-SMA-1.43

Twomile Canyon

Water Pollution Control Drawing

Map Created By: Brad McKown, EP-ET-ER GIS Team, March 21, 2011,
 Map #E003-10-0017-229-2M1.43-R3

1000.3.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.3.6 Corrective Action Status

The Site associated with 2M-SMA-1.42 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.4 2M-SMA-1.44

- 1000.4.1 Area Description
- 1000.4.2 Potential Pollutant Sources
 - 1000.4.2.1 Historical Industrial Activity Areas
- 1000.4.3 Control Measures
- 1000.4.4 Project Map
- 1000.4.5 Storm Water Monitoring Plan and Schedule
- 1000.4.6 Corrective Action Status



1000.4 2M-SMA-1.44

1000.4.1 Area Description

2M-SMA-1.44 is located within TA-06 and access to the area is controlled. The northern boundary is undeveloped but may be influenced by paved and unpaved surfaces. The receiving waters are further north along this boundary. Like the northern boundary, the southern boundary is undeveloped. Storm water flows north and east across the area.

1000.4.2 Potential Pollutant Sources

1000.4.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF E004, 2M-SMA-1.44, Site 06-001(b).

SWMU 06-001(b) consists of a 960-gal.-capacity septic tank (structure 06-0043) and associated drainlines, distribution box, filter trench, and outfall located approximately 200 ft north of former building 06-0006. The septic system served former building 06-0006 and operated from 1945 to the 1980s. The tank's dimensions are 5 ft × 9 ft × 5 ft 9 in. deep. Effluent from the septic tank discharged north to a distribution box and then to a filter trench consisting of two parallel trenches with perforated pipe surrounded by sand and covered with gravel. Overflow from the filter trench went north to an outfall that drained into Tributary A of Twomile Canyon. In 1989, the drainline was cut and capped. Building 06-0006 was demolished and removed in 2004; however, the septic tank, drainlines, distribution box, and filter trenches were left in place.

Former building 06-0006 originally housed laboratory operations related to detonator assembly, an electronics work room, a chemistry laboratory, two darkrooms, restrooms, and a sink. The sink drain received rinsate containing copper, brass, and steel parts dipped in nitric acid to remove silver solder flux and oxidized metals. Solvents were also used to degrease metal. Tin and lead soldering using paste and aqueous zinc/aluminum chloride fluxes was performed on electrical circuits. Manometric apparatuses containing liquid mercury were serviced. Ionizing radiation, in the form of electrically generated x-rays, was used through the 1950s to about 1965. By 1961, the darkrooms, assembly room, and a storage area had been converted to offices. In the 1970s, former building 06-0006 was used as a cable shop, where acetone, alcohol, and dilute acids may have been used. In the early 1980s, former building 06-0006 was used for printed circuit production.

The RFI work plan for Operable Unit (OU) 1111 and the 1997 RFI report state that plumbing in buildings 06-0005 and 06-0008 also drained to SWMU 06-001(b). However, engineering drawings for these two buildings show no drains or points of discharge. In addition, an engineering drawing of the sanitary sewer system at TA-06 shows no waste lines coming from either building. Thus, engineering records indicate the information in the RFI work plan and report concerning discharges from these buildings to SWMU 06-001(b) is incorrect.

1000.4.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
06-001(b)	Septic system	Discrete Location, No overlap	Individual	•		•	

1000.4.3 Control Measures

Run-on from bare areas above the SMA is evident. There is no evidence of run-on to the outfall and outfall discharge area.

Subsections to 1000.4.3 list all control measures used to control pollutant sources identified in Section 1000.4.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.4.4.

1000.4.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
E004 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
E004 02 02 0002	Established Vegetation - Grasses and Shrubs			•	
E004 03 06 0003	Berms - Straw Wattles	•			•
E004 03 06 0004	Berms - Straw Wattles	•			•
E004 03 06 0005	Berms - Straw Wattles		•		•

Established Vegetation (E004-02-01-0001, -02-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles (E004-03-06-0003, -0004)

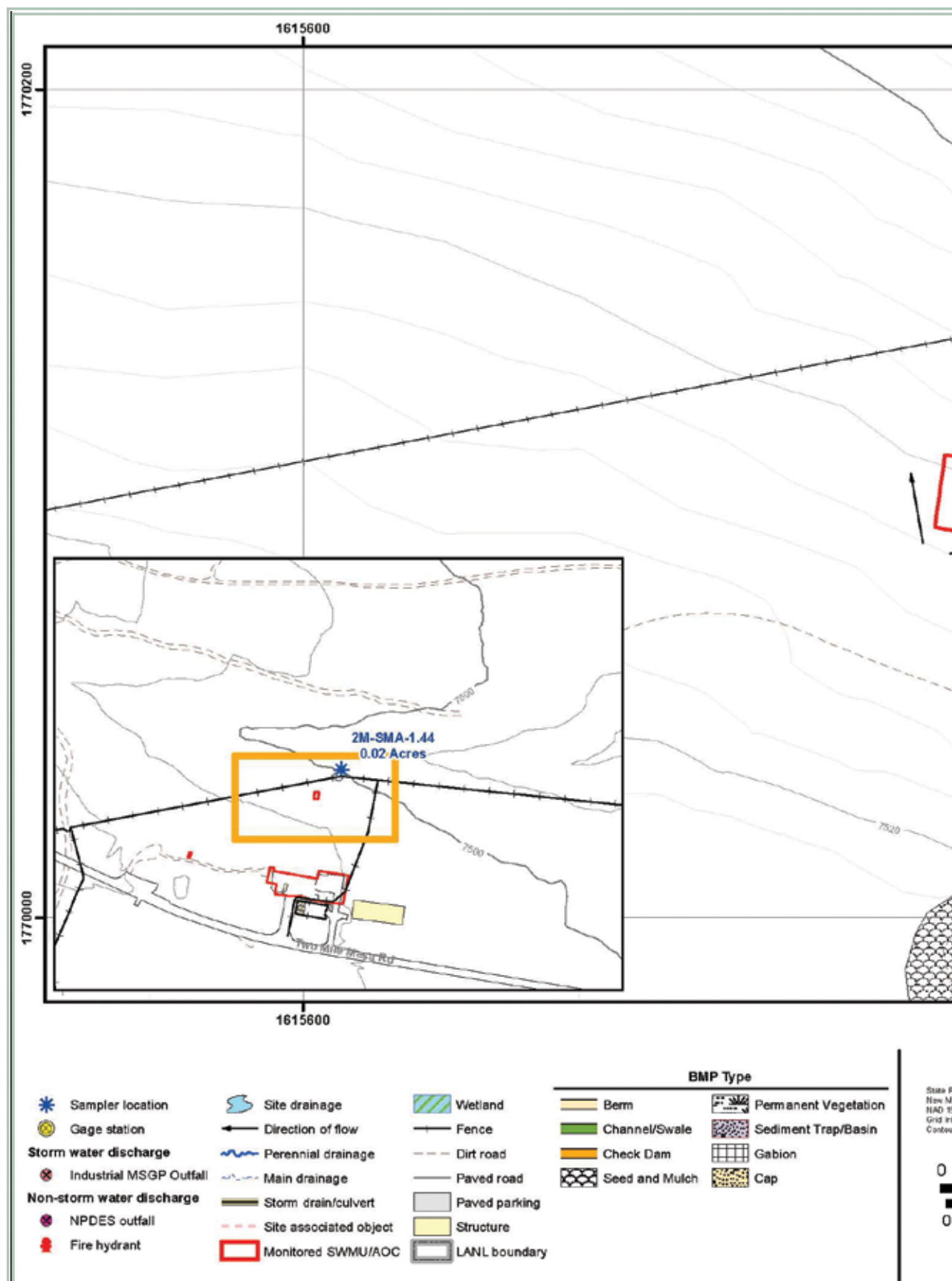
This is a series of two straw wattles that are located southwest of the SMA. They are in

place to control run-on from the slope above the SMA. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Berms- Straw Wattles (E004-03-06-0005)

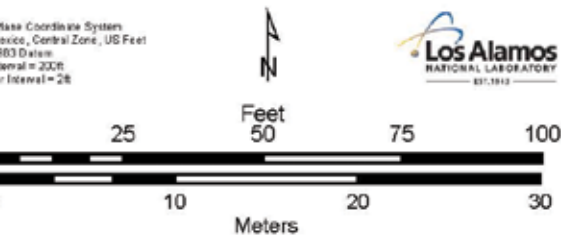
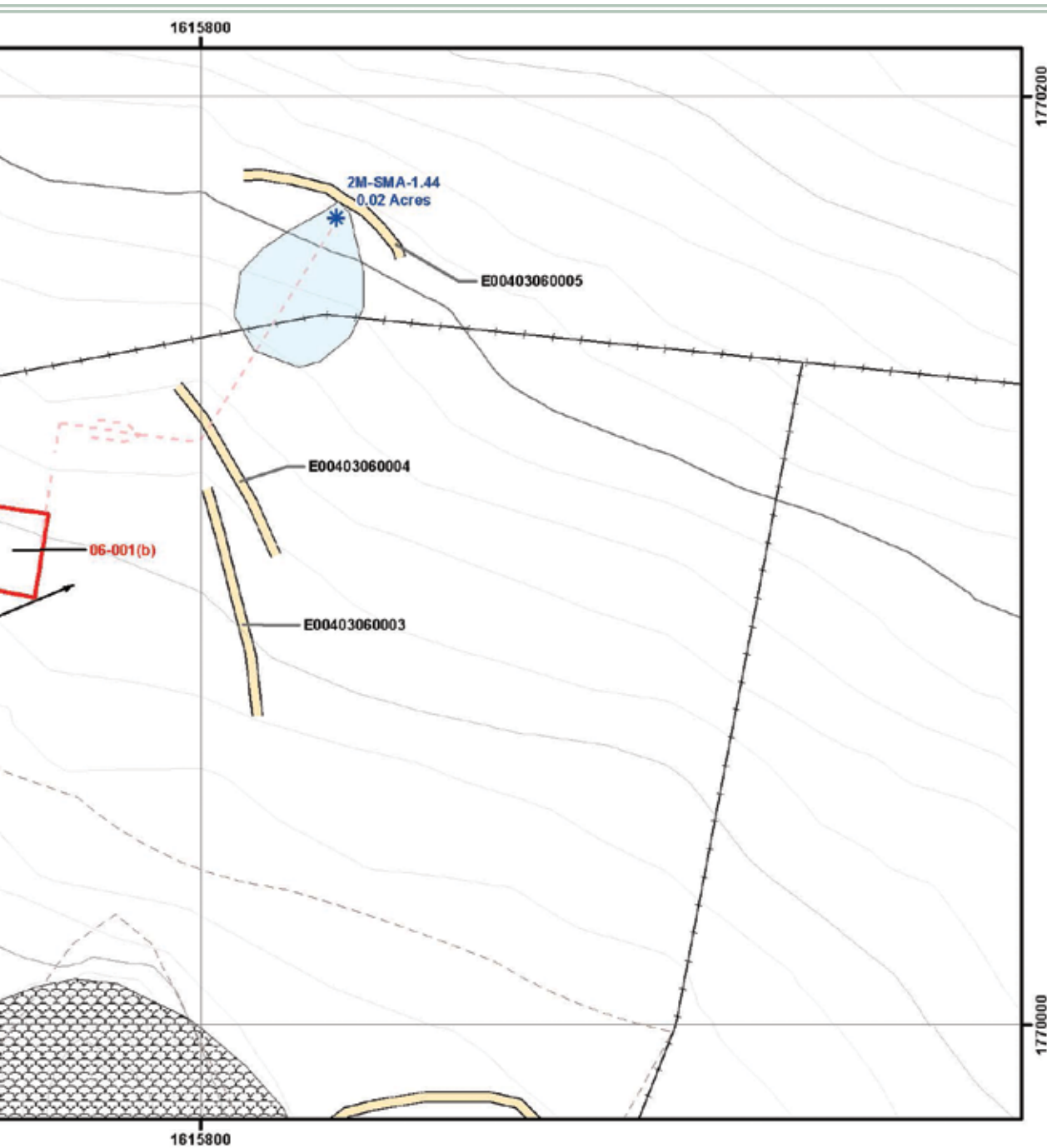
Installed below the sampler. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.4.4 Project Map



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Los Alamos National Laboratory, NPDES Permit No. NM0030759
EP-DIR-PLAN-10005, R.0 • April 5, 2011



NPDES Individual Permit NM0030759

**Storm Water Permitted Feature
E004:2M-SMA-1.44**

Twomile Canyon

Water Pollution Control Drawing

Map Created By: Brad McKown, EP-ET-ER GIS Team, March 18, 2011,
Map #E004-10-0017-101-2M1.44-R4

1000.4.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.4.6 Corrective Action Status

The Site associated with 2M-SMA-1.44 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.5 2M-SMA-1.45

- 1000.5.1 Area Description
- 1000.5.2 Potential Pollutant Sources
 - 1000.5.2.1 Historical Industrial Activity Areas
- 1000.5.3 Control Measures
- 1000.5.4 Project Map
- 1000.5.5 Storm Water Monitoring Plan and Schedule
- 1000.5.6 Corrective Action Status



1000.5 2M-SMA-1.45

1000.5.1 Area Description

2M-SMA-1.45 is located within TA-06 and access to the area is controlled. The area is flat and only the southern boundary is developed and paved. Storm water flows from the developed areas, east across a flat and vegetated area.

1000.5.2 Potential Pollutant Sources

1000.5.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF E005, 2M-SMA-1.45, Site 06-006.

SWMU 06-006 is a former container and equipment storage area located near the south and east sides of the former location of building 06-0006. The storage area consisted of a concrete pad and asphalt parking lot, approximately 300 ft × 20 ft, and was partially surrounded by a 4-ft berm. Waste containers and electrical equipment, including capacitors, were stored in this area from the late 1970s to the late 1980s.

1000.5.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
06-006	Storage area	Discrete Location, No overlap	Individual	•		•	

1000.5.3 Control Measures

The majority of run-on from the paved areas south of the Permitted Feature is diverted away from the area by a system of culverts. There is some run-on from the parking area flowing across the eastern end of the SMA near the sampler.

Subsections to 1000.5.3 list all control measures used to control pollutant sources identified in Section 1000.5.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.5.4.

1000.5.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
E005 01 03 0011	Seed and Mulch - Hydromulch			•	
E005 01 06 0009	Seed and Mulch - Erosion Control Blankets			•	
E005 01 06 0010	Seed and Mulch - Erosion Control Blankets			•	
E005 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
E005 03 01 0007	Berms - Earthen		•		•
E005 03 01 0008	Berms - Earthen		•		•
E005 03 06 0002	Berms - Straw Wattles		•		•
E005 03 06 0003	Berms - Straw Wattles		•		•
E005 03 06 0005	Berms - Straw Wattles		•		•
E005 03 06 0006	Berms - Straw Wattles		•		•
E005 03 06 0012	Berms - Straw Wattles	•			•

Hydromulch (E005-01-03-0011)

The hydromulch was applied throughout the SMA in order to help control erosion in the area. Hydraulic mulch consists of applying a mixture of shredded wood fiber or a hydraulic matrix and a stabilizing emulsion or tackifier with hydroseeding equipment, which temporarily protects exposed soil from erosion by raindrop impact or wind.

Erosion Control Blankets - East (E005-01-06-0009)

These erosion control blankets were installed on the eastern earthen berm. They are used to control erosion of the berm. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Erosion Control Blankets (E005-01-06-0010)

These erosion control blankets were applied to the slopes of the earthen berm. They are in place primarily to prevent erosion of the berm. Used to temporarily stabilize

and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Established Vegetation (E005-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm - East (E005-03-01-0007)

This berm is located to the southeast of the SMA, north of building 06-0124. It is in place to control run-off in the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm (E005-03-01-0008)

This berm is located immediately to the southwest of the sampler. It is in place to mitigate run-off from the SMA. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

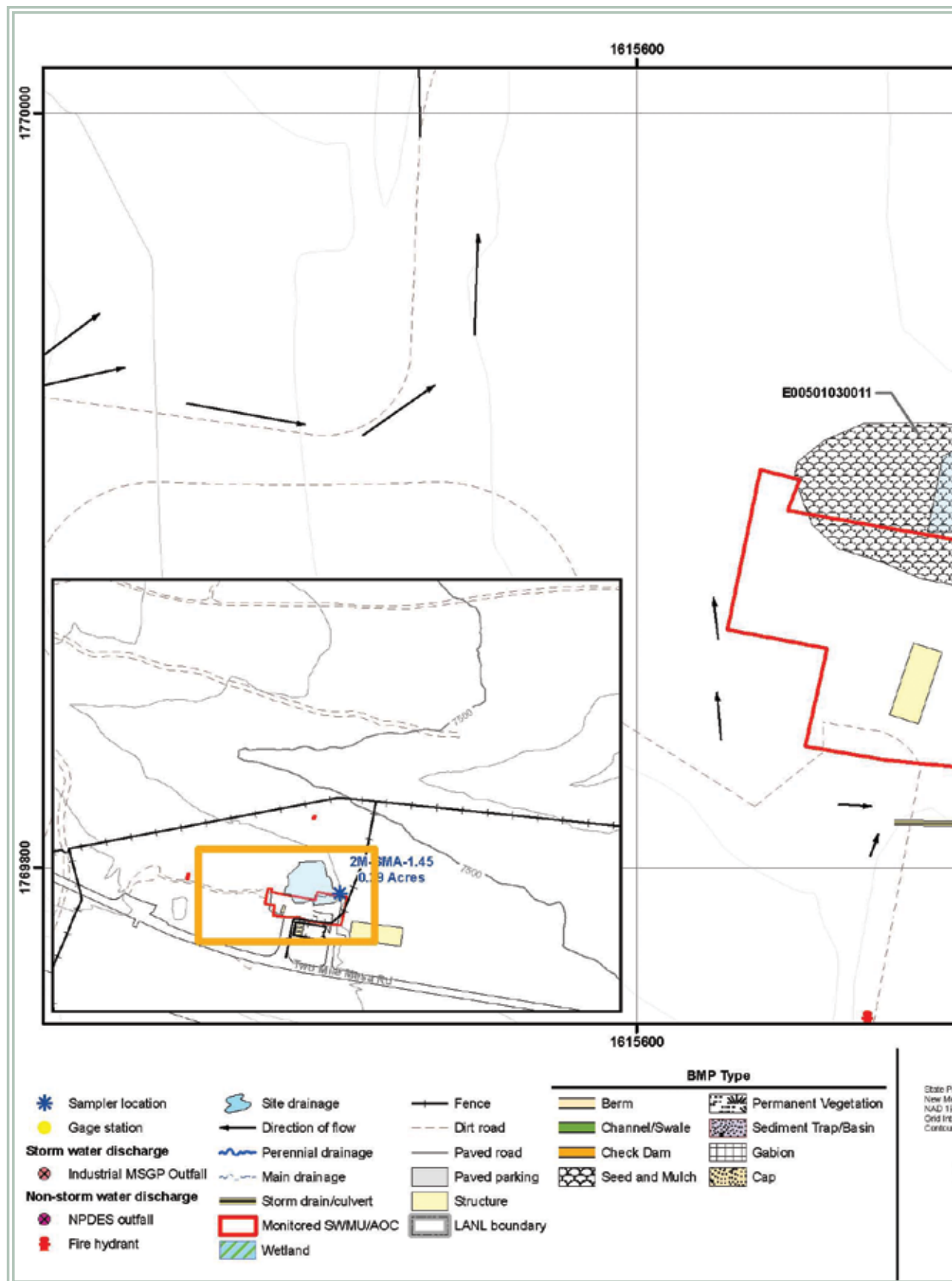
Southwest Straw Wattles (E005-03-06-0002, -0003, -0012)

This is a series of three straw wattles located in the southern portion of the SMA west of the sampler. They are in place to control run-off from the slope above the sampler. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Northeast Straw Wattles (E005-03-06-0005, -0006)

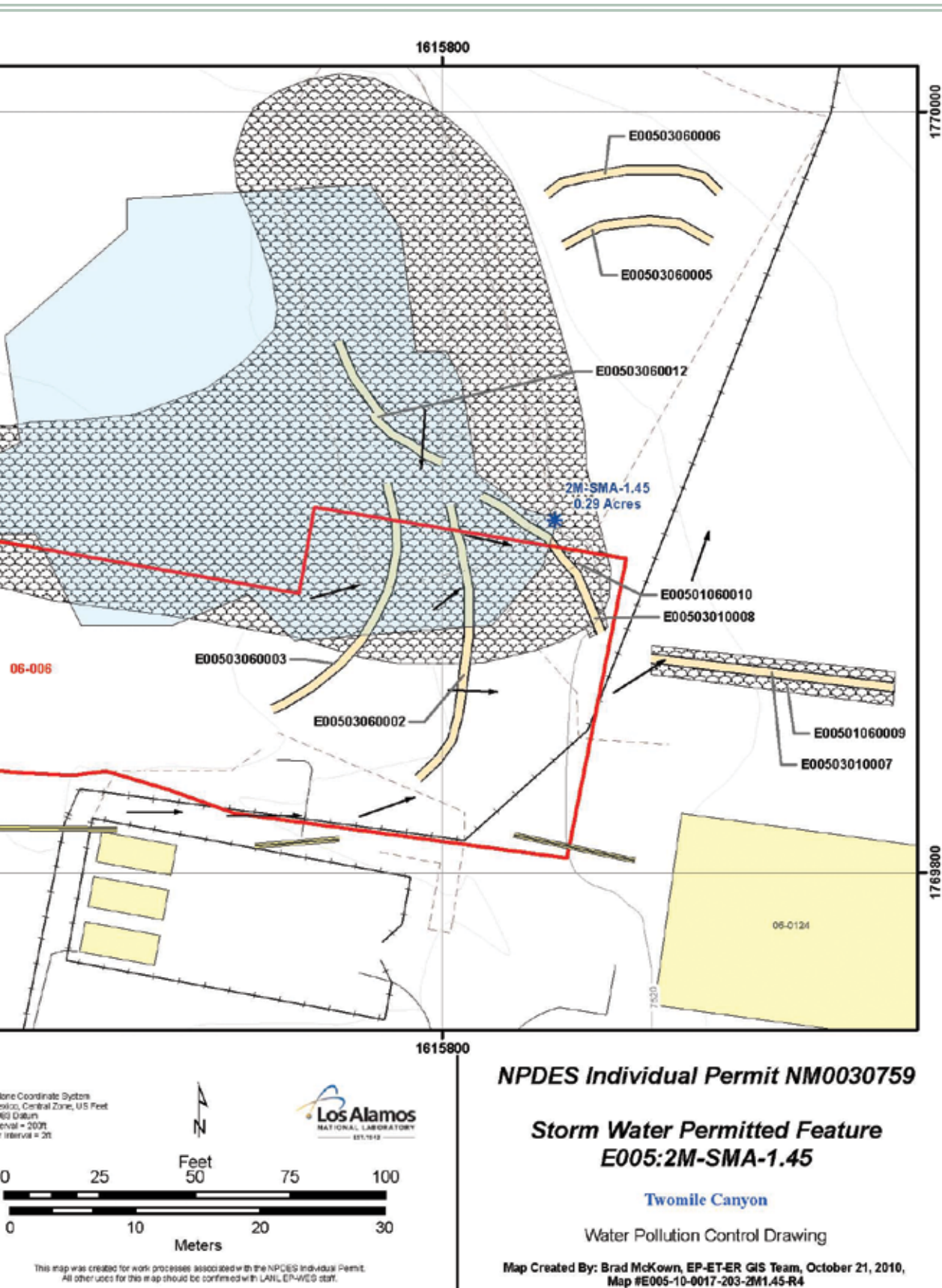
This is a series of two straw wattles that are located east of the SMA boundary. They are used to mitigate run-off from bare areas north of the sampler. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.5.4 Project Map



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1000.5.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.5.6 Corrective Action Status

The Site associated with 2M-SMA-1.45 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.6 2M-SMA-1.5

- 1000.6.1 Area Description
- 1000.6.2 Potential Pollutant Sources
 - 1000.6.2.1 Historical Industrial Activity Areas
- 1000.6.3 Control Measures
- 1000.6.4 Project Map
- 1000.6.5 Storm Water Monitoring Plan and Schedule
- 1000.6.6 Corrective Action Status



1000.6 2M-SMA-1.5

1000.6.1 Area Description

2M-SMA-1.5 is located within TA-22 and access to the area is controlled. The southern boundary of this SMA contains paved areas and Building 22-0034. Storm water flows north and east towards the receiving waters.

1000.6.2 Potential Pollutant Sources

1000.6.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF E006, 2M-SMA-1.5, Site 22-014(b).

SWMU 22-014(b) consists of an inactive explosives sump and a former outfall area that serves rooms 101 through 113 in building 22-0034. The sump is located on the northeast corner of building 22-0034, is constructed of concrete, and is 4 ft × 2 ft × 3 ft deep with an inset aluminum tank. The sump probably began to be used shortly after building 22-0034 was completed in 1953. Building 22-0034, currently used as a laser laboratory, previously housed a chemistry laboratory, an explosives laboratory, and a photographic laboratory. The sump effluent drained to the north via a drainline to an outfall located in a marshy area in the upper part of Tributary B of Twomile Canyon until 1994, when the sump outlet was plugged. The sump has not been used since 1994 when building 22-0034 became a laser laboratory.

1000.6.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
22-014(b)	Sump System	Discrete Location, No overlap	Individual	•	•	•	SVC HE

1000.6.3 Control Measures

A culvert on the eastern side of building 22-0034 diverts run-on from the paved areas, east and away from the monitored area. Run-off is controlled with a vegetative buffer strip.

Subsections to 1000.6.3 list all control measures used to control pollutant sources identified in Section 1000.6.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.6.4.

1000.6.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
E006 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
E006 02 03 0003	Established Vegetation - Vegetative Buffer Strip		•	•	•
E006 04 04 0002	Channel/Swale - Culvert	•		•	

Established Vegetation (E006-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

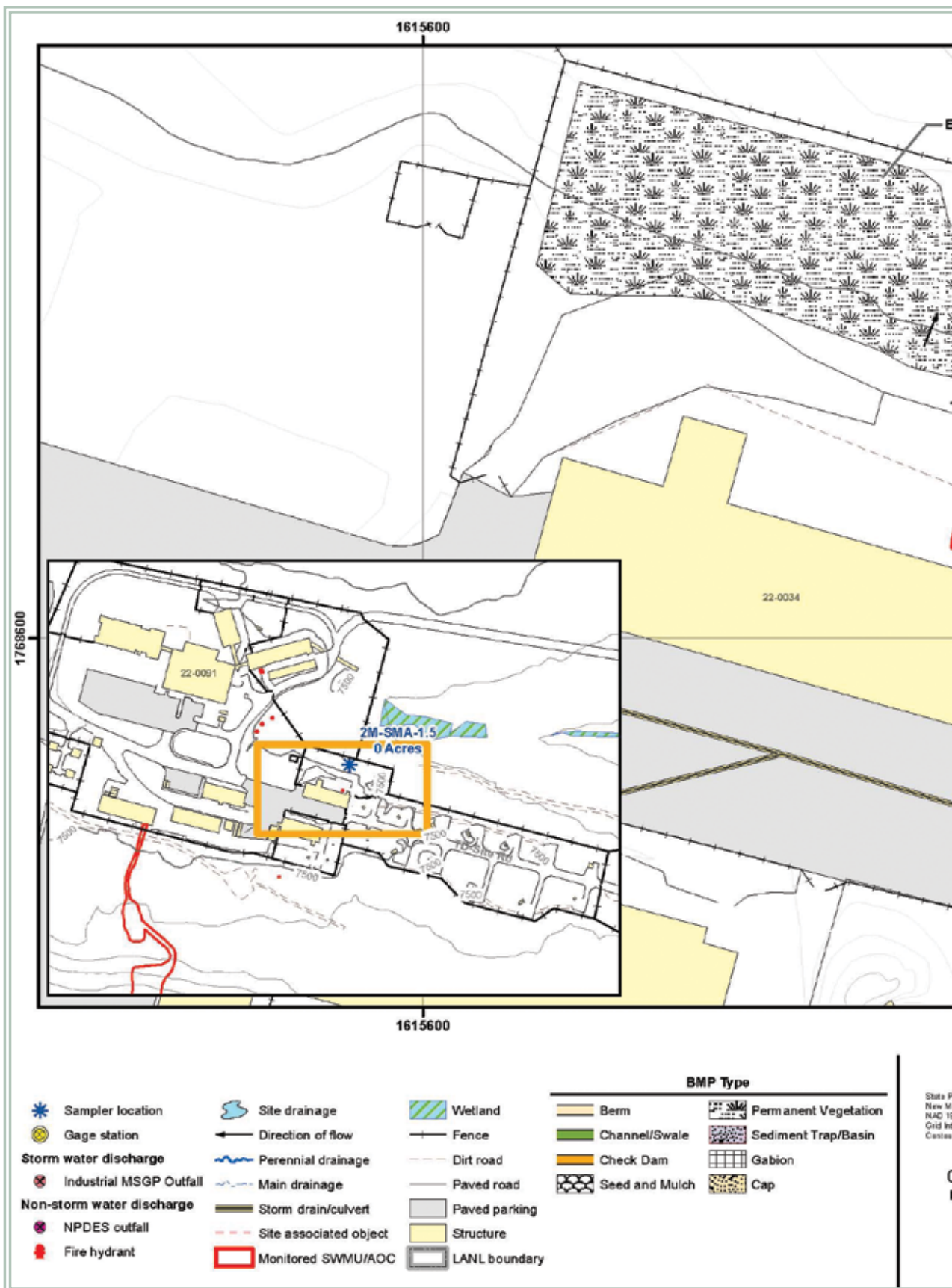
Permanent Vegetation - Vegetative Buffer Strip (E006-02-03-0003)

The buffer strip is located inside the northwest corner of the fenced area around building 22-0034. It is in place to control run-off and erosion in the vicinity of the sampler. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion.

Culvert (E006-04-04-0002)

This culvert is located to the east of building 22-0034. It is in place to divert run-on away from the SMA. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

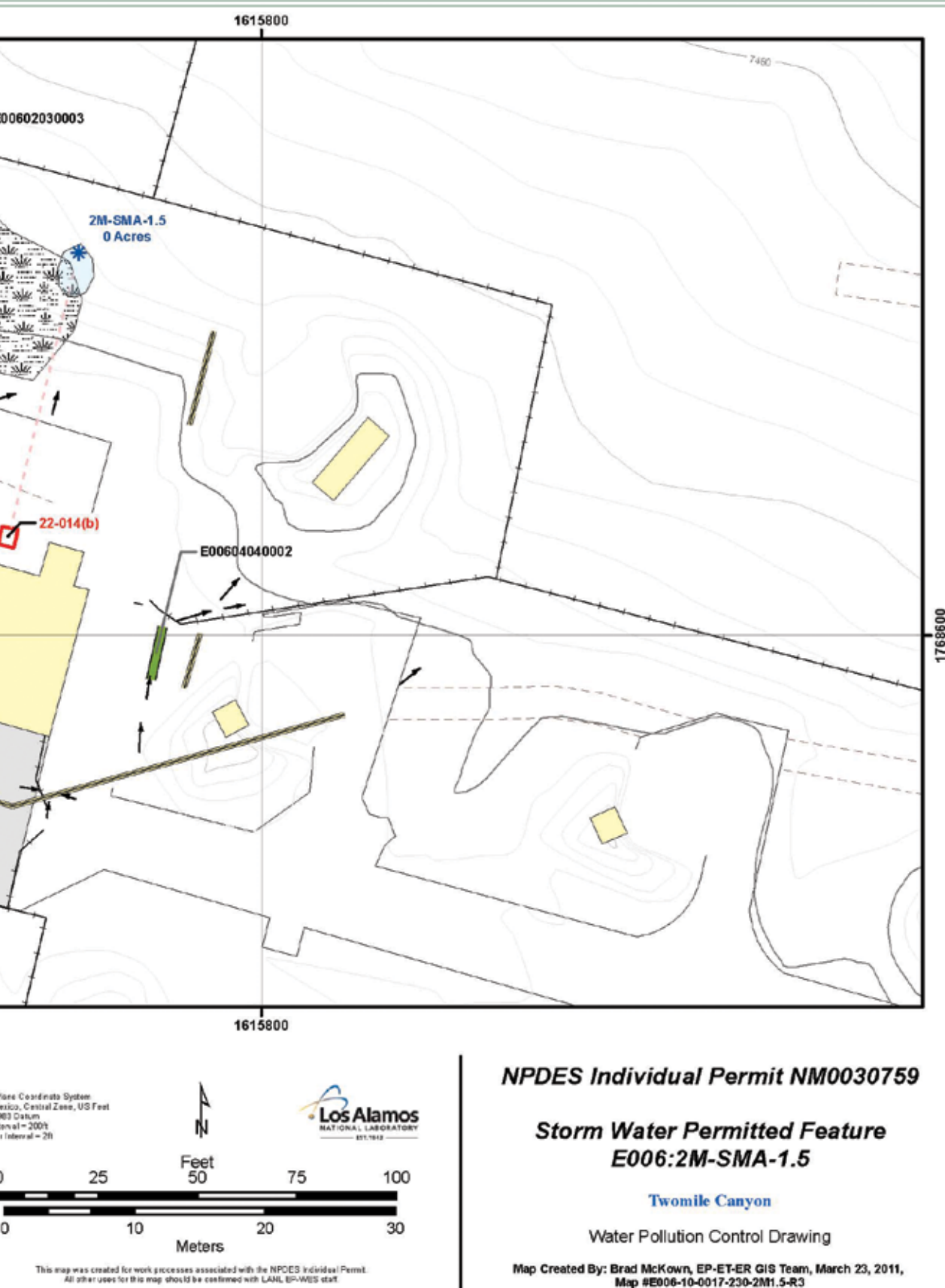
1000.6.4 Project Map



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1000.6.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2) SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.6.6 Corrective Action Status

The Site associated with 2M-SMA-1.5 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.7 2M-SMA-1.65

- 1000.7.1 Area Description
- 1000.7.2 Potential Pollutant Sources
 - 1000.7.2.1 Historical Industrial Activity Areas
- 1000.7.3 Control Measures
- 1000.7.4 Project Map
- 1000.7.5 Storm Water Monitoring Plan and Schedule
- 1000.7.6 Corrective Action Status



1000.7 2M-SMA-1.65

1000.7.1 Area Description

2M-SMA-1.65 is located within TA-40 and access to the area is controlled. The northern boundary of the SMA is gently sloping and undeveloped. An unpaved access road crosses through the SMA. Storm water flows north and west across the area.

1000.7.2 Potential Pollutant Sources

1000.7.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF E007, 2M-SMA-1.65, Site 40-005.

SWMU 40-005 is an decommissioned sump (structure 22-0075) located at the northwest corner of building 40-0041 (formerly building 22-0041). Constructed in 1952, building 40-0041 is a small structure (approximately 1000 ft²) where explosive grinding operations were previously conducted. Before it was incorporated into TA-40, building 40-0041 and the sump were part of TA-22. Currently, the building is used to prepare for explosive tests conducted at TA-40. The sump, built in 1961, is constructed of concrete with an inset aluminum baffle tank). The sump is 4 ft 6 in. × 6 ft 4 in. × 5 ft deep. Wastewater from a single sink drain discharged to the sump. Originally, the sump discharged via a drainline to a former NPDES-permitted outfall (EPA 05A-154) that flowed into Tributary B of Twomile Canyon. In 1994, the sump outlet port was capped, and in December 1995 the outfall was deleted from the NPDES permit). The sump has been removed from service and filled with concrete.

1000.7.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
40-005	Sump	Discrete Location, No overlap	Individual	•		•	

1000.7.3 Control Measures

Run-on from the paved access road and old parking areas are diverted away from the SMA, to the north and west. There is minor run-on from the paved area to the Permitted Feature. An existing culvert would direct storm water across the SMA. Currently, this culvert is blocked.

Subsections to 1000.7.3 list all control measures used to control pollutant sources identified in Section 1000.7.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.7.4.

1000.7.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
E007 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
E007 03 01 0004	Berms - Earthen	•			•
E007 03 01 0005	Berms - Earthen		•		•

Established Vegetation (E007-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

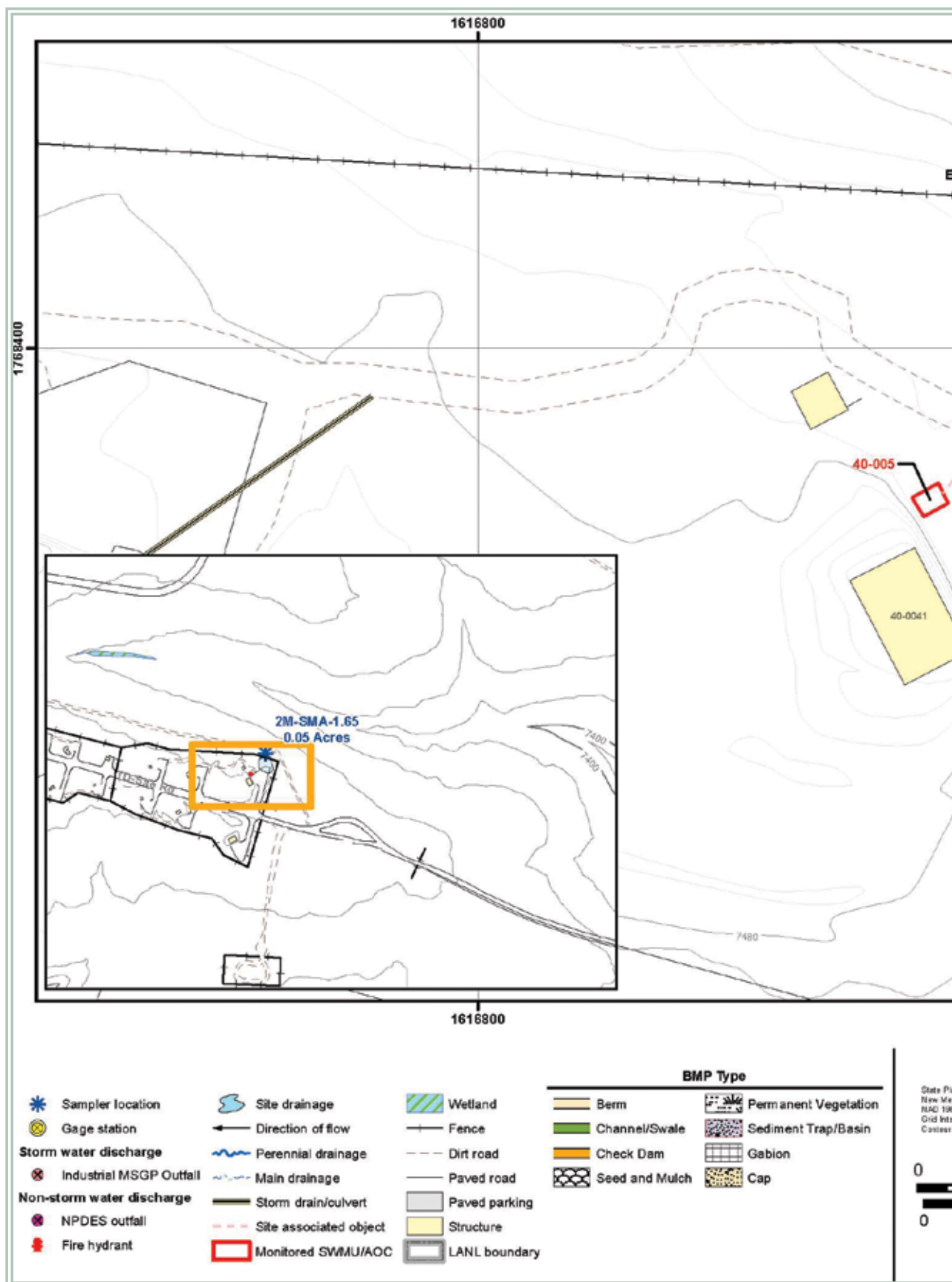
Earthen Berm - South (E007-03-01-0004)

This berm is placed above the sampler to control run-on and sediment. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earth Berm (E007-03-01-0005)

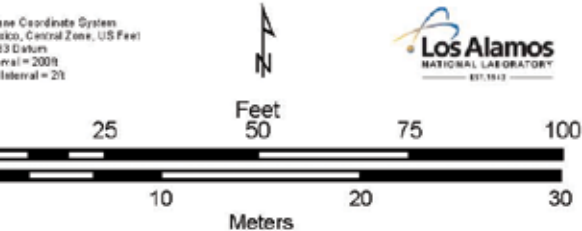
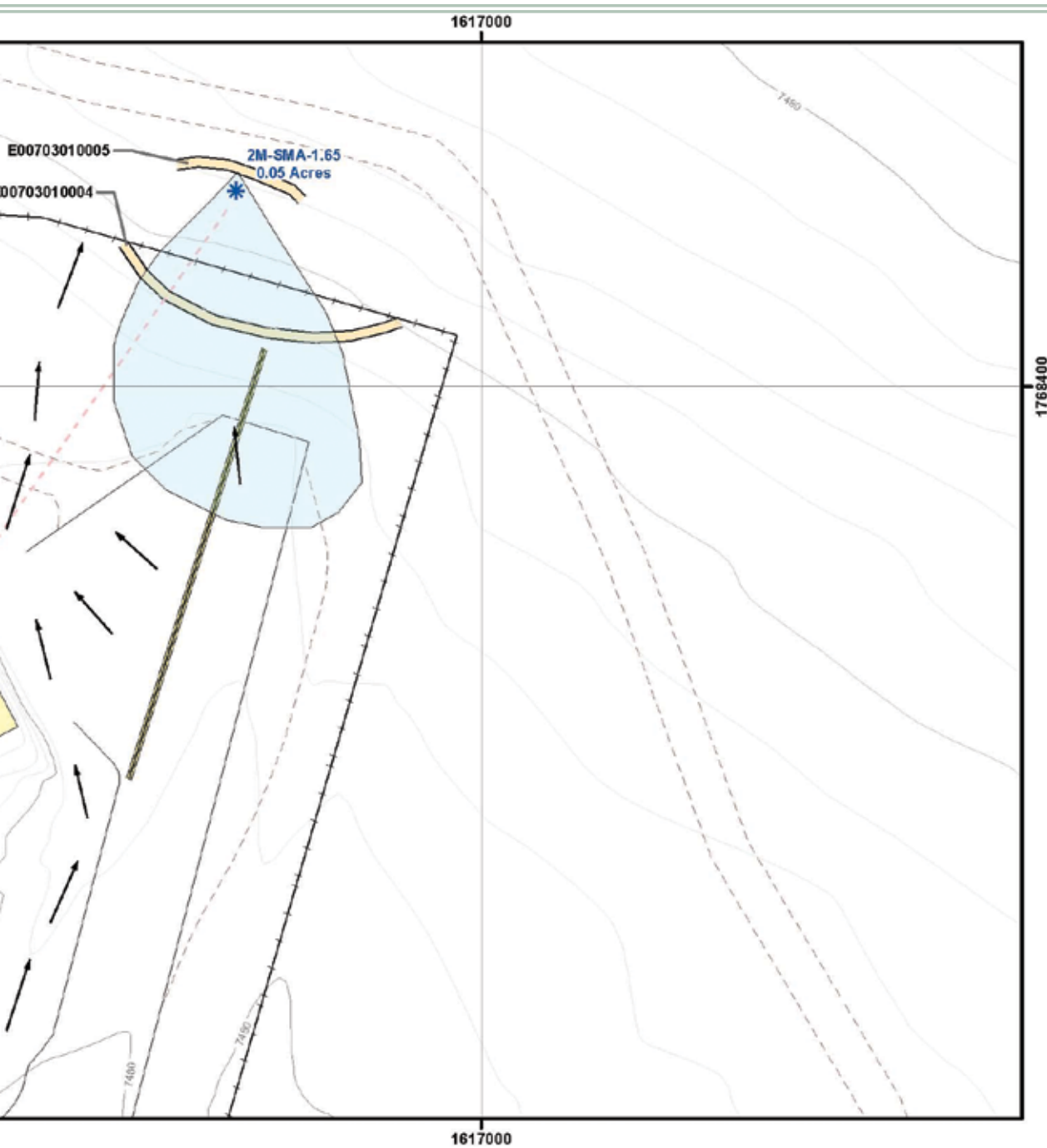
This berm is placed directly north of the sampler to control run-off and sediment. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

1000.7.4 Project Map



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**Storm Water Permitted Feature
E007:2M-SMA-1.65**

Twomile Canyon

Water Pollution Control Drawing

Map Created By: Brad McKown, EP-ET-ER GIS Team, March 18, 2011,
Map #E007-10-0017-191-2M1.65-R3

1000.7.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.7.6 Corrective Action Status

The Site associated with 2M-SMA-1.65 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.8 2M-SMA-1.67

- 1000.8.1 Area Description
- 1000.8.2 Potential Pollutant Sources
 - 1000.8.2.1 Historical Industrial Activity Areas
- 1000.8.3 Control Measures
- 1000.8.4 Project Map
- 1000.8.5 Storm Water Monitoring Plan and Schedule
- 1000.8.6 Corrective Action Status



1000.8 2M-SMA-1.67

1000.8.1 Area Description

2M-SMA-1.67 is located within TA-06 and access to the area is controlled. All boundaries of the SMA are gently sloping and undeveloped. Storm water flows north and east across the area.

1000.8.2 Potential Pollutant Sources

1000.8.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF E008, 2M-SMA-1.67, Site 06-003(h).

SWMU 06-003(h) is a formerly used firing site located north of Twomile Mesa Road. This site was not identified in the 1990 SWMU report. It was first discussed in the OU 1111 RFI work plan as part of MDA F. In describing MDA F, the RFI work plan states that defective explosive lenses manufactured for use in the Fat Man implosion weapon were destroyed in this area by detonation in 1945. Some of the lenses were described as consisting of the explosive Baratol which contains barium and TNT. A former employee involved with the detonations described this firing site as being located in the general area between the larger MDA F disposal pit [SWMU 06-007(a)] and Twomile Mesa Road.

1000.8.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
06-003(h)	Firing site	Discrete Location, No overlap	Individual	•	•	•	HE

1000.8.3 Control Measures

There is minimal run-on to the Permitted Feature from Twomile Mesa Road. Run-on from the road is diverted by a roadside channel. Run-on from the west of the SMA is diverted to the north and east by a natural channel away from the SMA.

Subsections to 1000.8.3 list all control measures used to control pollutant sources identified in Section 1000.8.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.8.4.

1000.8.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
E008 01 01 0006	Seed and Mulch - Seed and Wood Mulch			•	
E008 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
E008 02 02 0002	Established Vegetation - Forested/Needle Cast			•	
E008 03 06 0003	Berms - Straw Wattles	•			•
E008 03 06 0004	Berms - Straw Wattles		•		•
E008 03 06 0005	Berms - Straw Wattles	•			•
E008 03 06 0009	Berms - Straw Wattles	•			•
E008 03 06 0010	Berms - Straw Wattles	•			•
E008 03 06 0011	Berms - Straw Wattles	•			•

Seed and Wood Mulch (E008-01-01-0006)

Seed and mulch has been applied throughout the area to help control erosion. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (E008-02-01-01-0001, -02-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

South Straw Wattles (E008-03-06-0003, -0005)

This is a grouping of two straw wattles that is located near the center section of the southern boundary of the SMA. They are in place to control run-on to the SMA. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well

as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

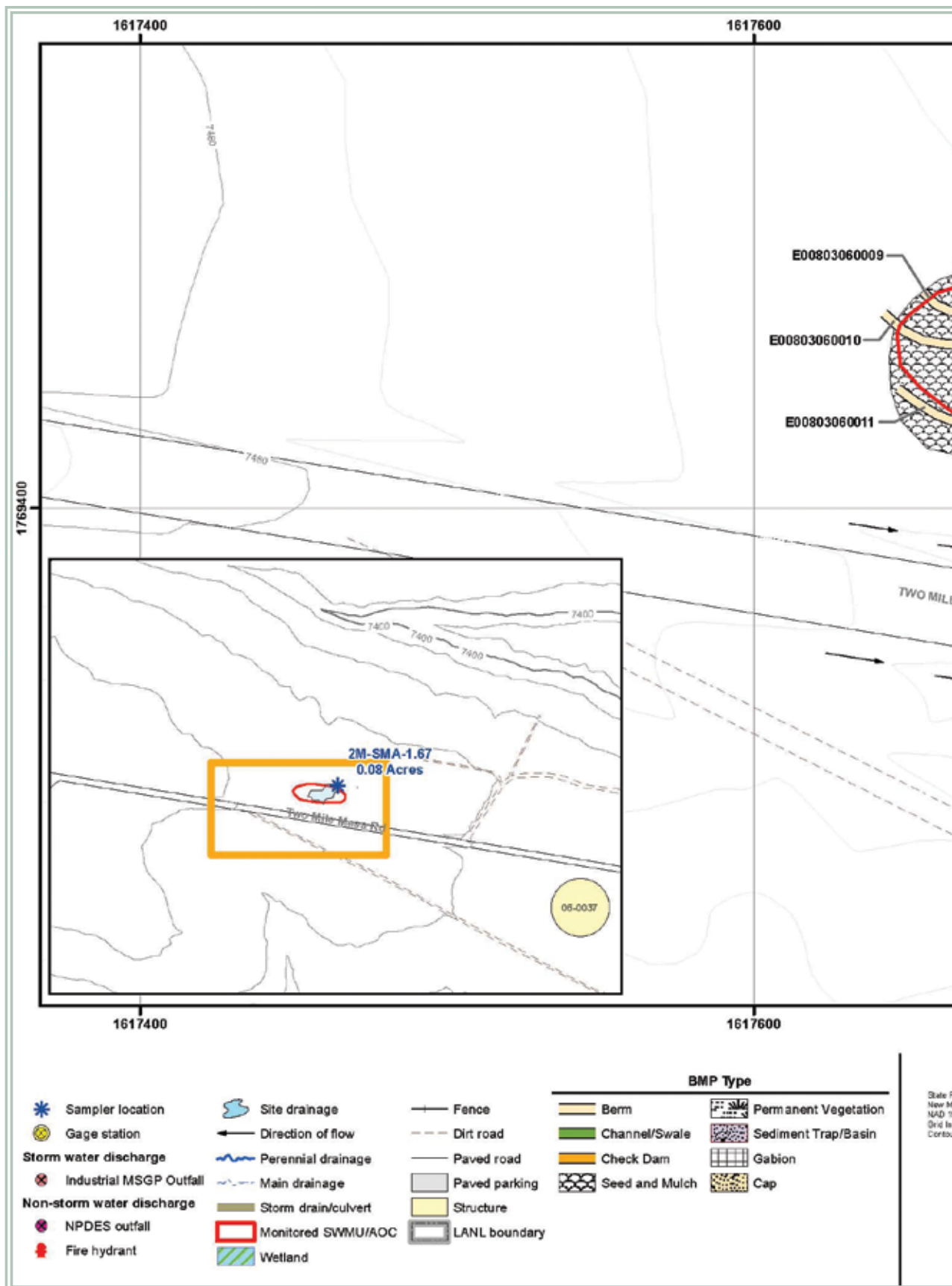
Straw Wattles - East (E008-03-06-0004)

This straw wattle is located immediately south of the sampler extending to the east along the Site boundary. It is in place to control run-off from the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - West (E008-03-06-0009, -0010, -0011)

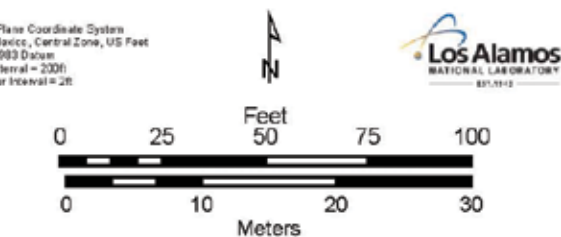
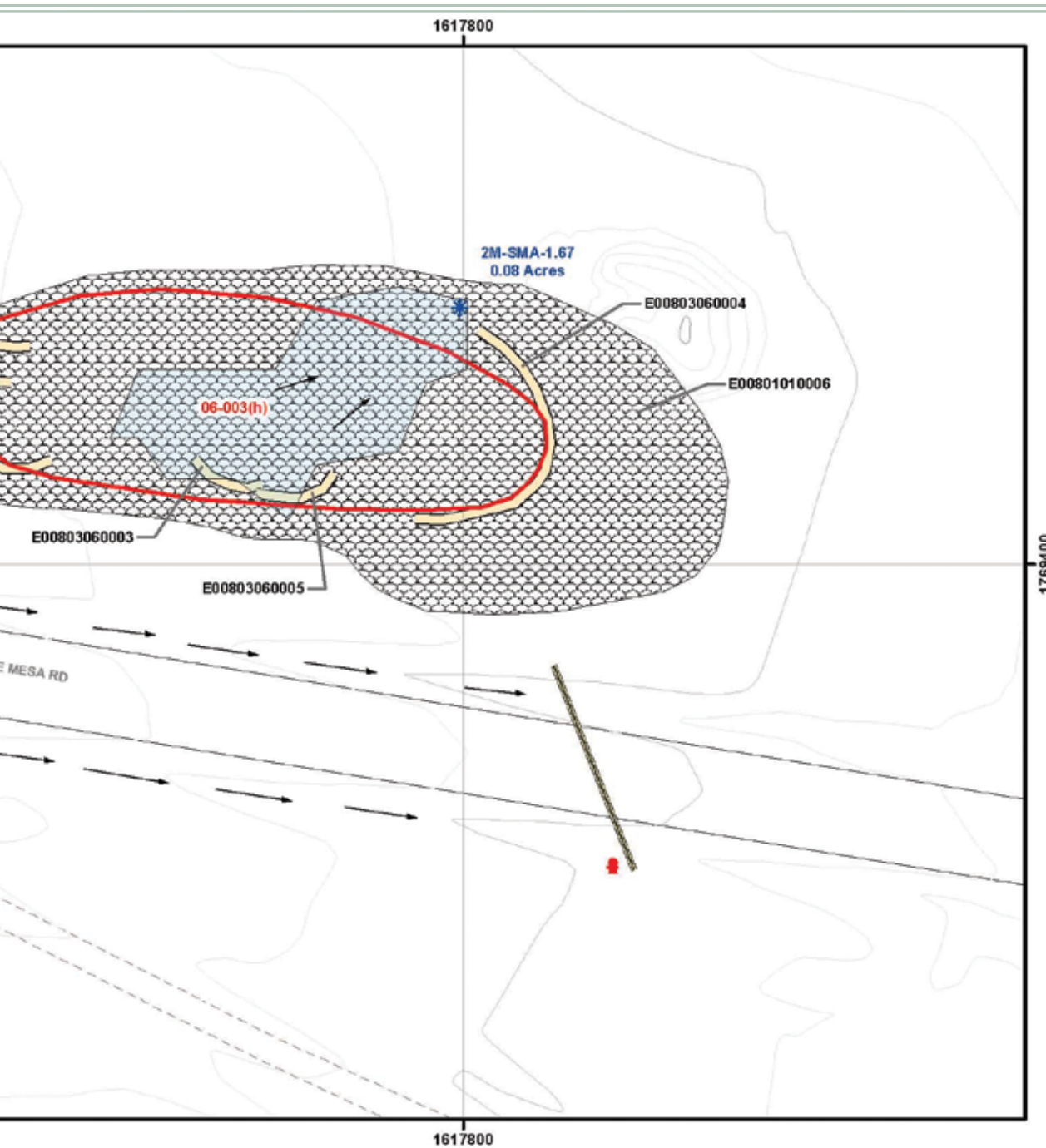
This is a series of three straw wattles that are located west of the SMA. They are in place to control run-on from the west. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.8.4 Project Map



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This map was created for work processes associated with the NPDES Individual Permit. All other uses for this map should be confirmed with LANS, EP-WES staff.

NPDES Individual Permit NM0030759

Storm Water Permitted Feature E008:2M-SMA-1.67

Twomile Canyon

Water Pollution Control Drawing

Map Created By: Brad McKown, EP-ET-ER GIS Team, February, 2011,
Map #E008-10-0017-216-2M1.67-R3

1000.8.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.8.6 Corrective Action Status

The Site associated with 2M-SMA-1.67 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.9 2M-SMA-1.7

- 1000.9.1 Area Description
- 1000.9.2 Potential Pollutant Sources
 - 1000.9.2.1 Historical Industrial Activity Areas
- 1000.9.3 Control Measures
- 1000.9.4 Project Map
- 1000.9.5 Storm Water Monitoring Plan and Schedule
- 1000.9.6 Corrective Action Status



1000.9 2M-SMA-1.7

1000.9.1 Area Description

2M-SMA-1.7 is located within TA-03 and access to the area is controlled. The northern boundary of the SMA is influenced by paving associated with building 3-0016. The southern boundary of the SMA is undeveloped and rugged terrain. The receiving waters are along this boundary. Storm water flows from the developed areas, southwest towards the receiving waters.

1000.9.2 Potential Pollutant Sources

1000.9.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF E009, 2M-SMA-1.7, Site 03-055(a).

SWMU 03-055(a) is an outfall located approximately 50 ft south of the Van de Graaff facility (building 03-0016). Roof drains and one floor drain in generator room 68 discharged to the outfall at the edge of the mesa into Twomile Canyon. The outfall currently receives only stormwater from Van de Graaff building roof drains. The Van de Graaff facility was constructed in 1952. The facility has been inactive since the late 1990s; radiological decontamination and decommissioning activities began in 2005.

1000.9.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
03-055(a)	Outfall from Building 3-16	Discrete Location, No overlap	Individual	•		•	

1000.9.3 Control Measures

There is minimal run-on to the Permitted Feature from Twomile Mesa Road. Run-on from the road is diverted by a roadside channel. Run-on from the west of the SMA is diverted to the north and east by a natural channel away from the SMA.

Subsections to 1000.9.3 list all control measures used to control pollutant sources identified in Section 1000.9.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.9.4.

1000.9.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
E009 02 02 0004	Established Vegetation - Forested/Needle Cast			•	
E009 03 06 0006	Berms - Straw Wattles	•			•
E009 03 06 0007	Berms - Straw Wattles	•		•	
E009 03 12 0005	Berms - Rock		•		•

Established Vegetation (E009-02-02-0004)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

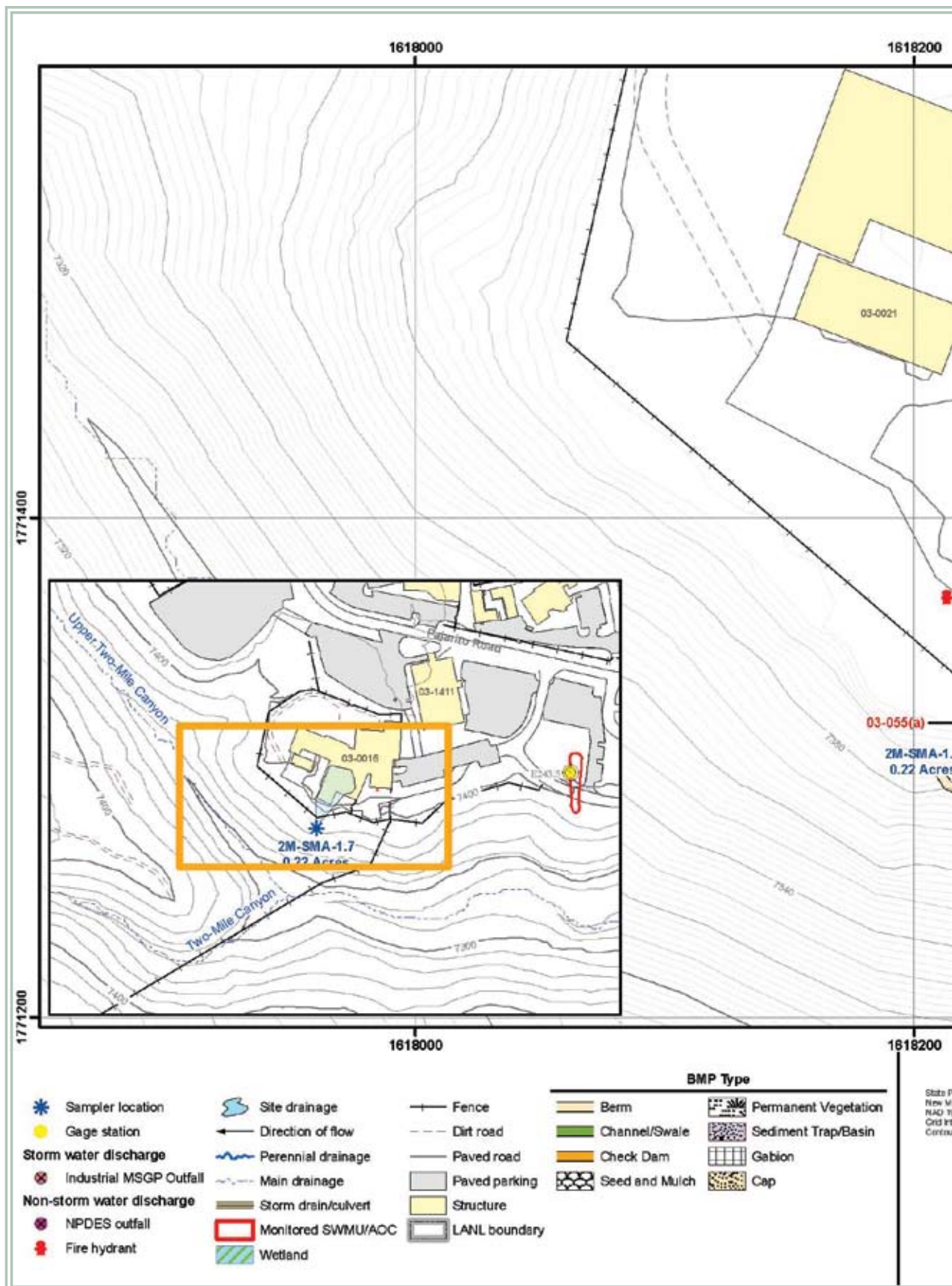
Straw Wattles (E009-03-06-0006, -0007)

These wattles are installed inside the fence line. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Southern Rock Berms (E009-03-12-0005)

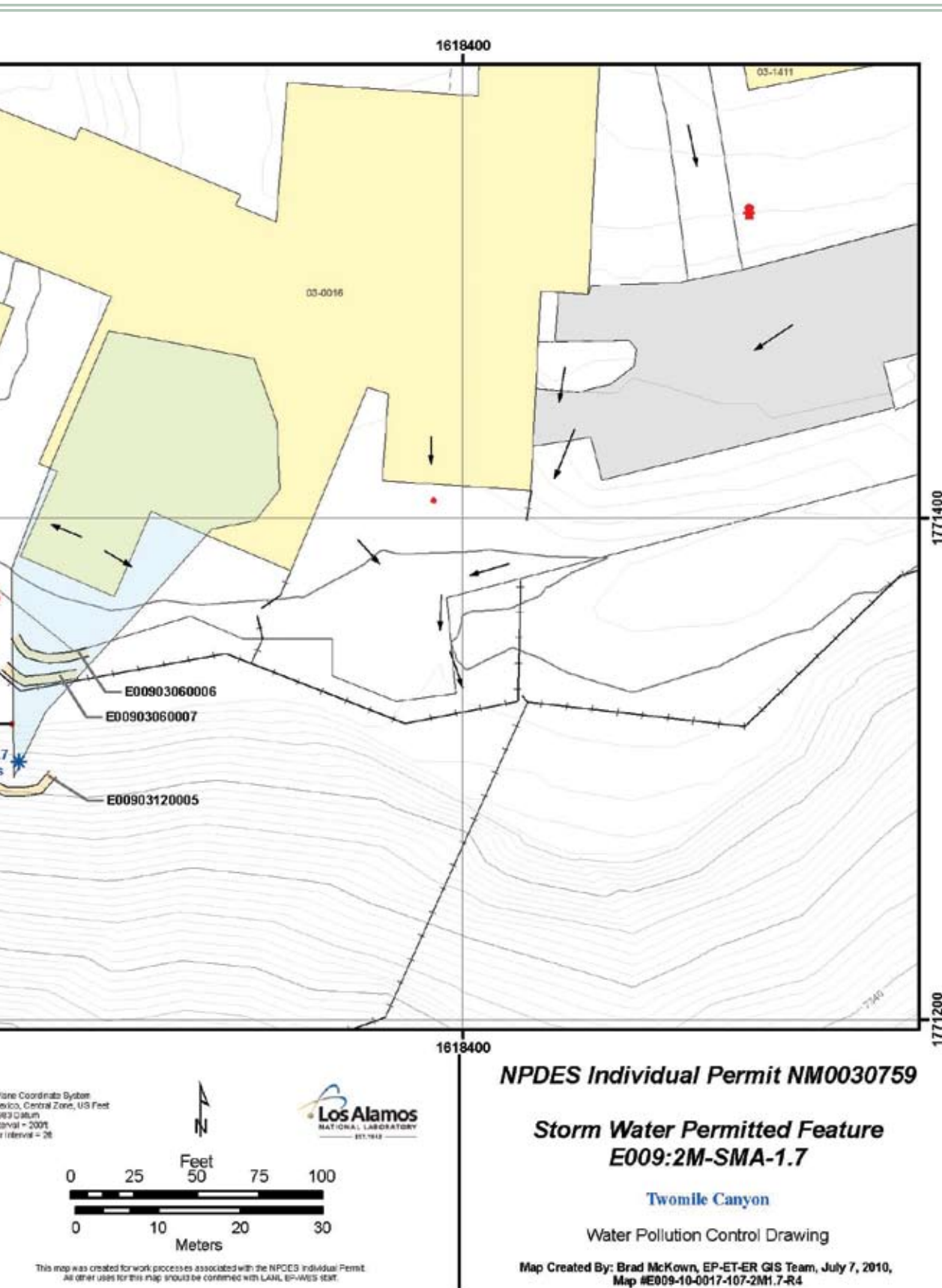
This rock berm is installed at the southern tip of the SMA. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

1000.9.4 Project Map



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1000.9.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.9.6 Corrective Action Status

The Site associated with 2M-SMA-1.7 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.10 2M-SMA-1.8

1000.10.1 Area Description

1000.10.2 Potential Pollutant Sources

1000.10.2.1 Historical Industrial Activity Areas

1000.10.3 Control Measures

1000.10.4 Project Map

1000.10.5 Storm Water Monitoring Plan and Schedule

1000.10.6 Corrective Action Status



1000.10 2M-SMA-1.8

1000.10.1 Area Description

2M-SMA-1.8 is located within TA-03 and access to the area is controlled. The northern boundary of the SMA is influenced by paving associated with building 3-0016. The southern boundary of the SMA is undeveloped and rugged terrain. The receiving waters are along this boundary. Storm water flows from the developed areas, south towards the receiving waters.

1000.10.2 Potential Pollutant Sources

1000.10.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF E010, 2M-SMA-1.8, Site 03-001(k).

SWMU 03-001(k) is the former location of a less-than-90-day hazardous waste accumulation area located on the south side of building 03-0016, the inactive Van de Graaff Accelerator and Ion Beam Facility. SWMU 03-001(k) consists of two level asphalt areas each measuring approximately 20 ft × 30 ft. The areas are located next to doors on the south side of the building. Concrete pads located in front of each doorway are bounded by asphalt paving on three sides. SWMU 03-001(k) was used primarily as a storage yard for electrical equipment destined for salvage. A 1986 field inspection of SWMU 03-001(k) noted oily unmarked drums where fresh vacuum oil for experiments was stored. Asphalt chip samples collected in 1989 indicated the presence of Aroclors. A 1993 inspection found the asphalt and concrete pad devoid of stains.

1000.10.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
03-001(k)	Storage Area	Discrete Location, No overlap	Individual	•		•	

1000.10.3 Control Measures

There is a significant run-on contribution from the paved surrounding areas and from the eastern portion of the building 03-0016 roof.

Subsections to 1000.10.3 list all control measures used to control pollutant sources identified in Section 1000.10.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.10.4.

1000.10.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
E0010 02 02 0002	Established Vegetation - Forested/Needle Cast			•	
E010 03 04 0003	Berms - Asphalt	•			•
E010 06 01 0004	Check Dam - Rock		•		•
E010 06 01 0005	Check Dam - Rock		•		•
E010 06 01 0006	Check Dam - Rock		•		•
E010 06 01 0007	Check Dam - Rock		•		•

Established Vegetation (E010-02-02-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

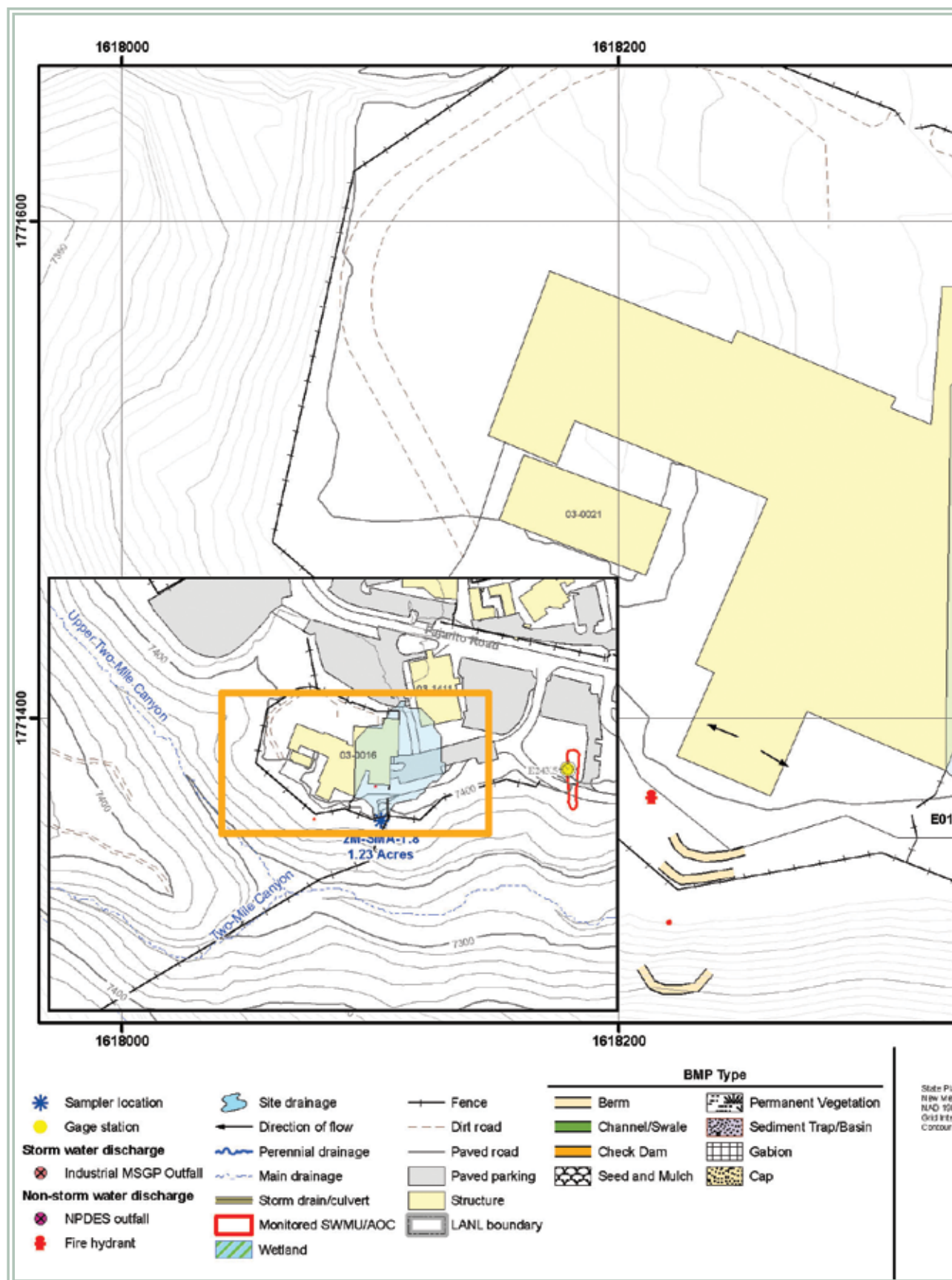
Asphalt Berm (E010-03-04-0003)

This berm is located at the southeast corner of building 03-0016. It is in place to help re-direct storm water run-on. An asphalt berm is a temporary containment control constructed of asphalt.

Rock Check Dams (E010-06-01-0004, -0005, -0006, -0007)

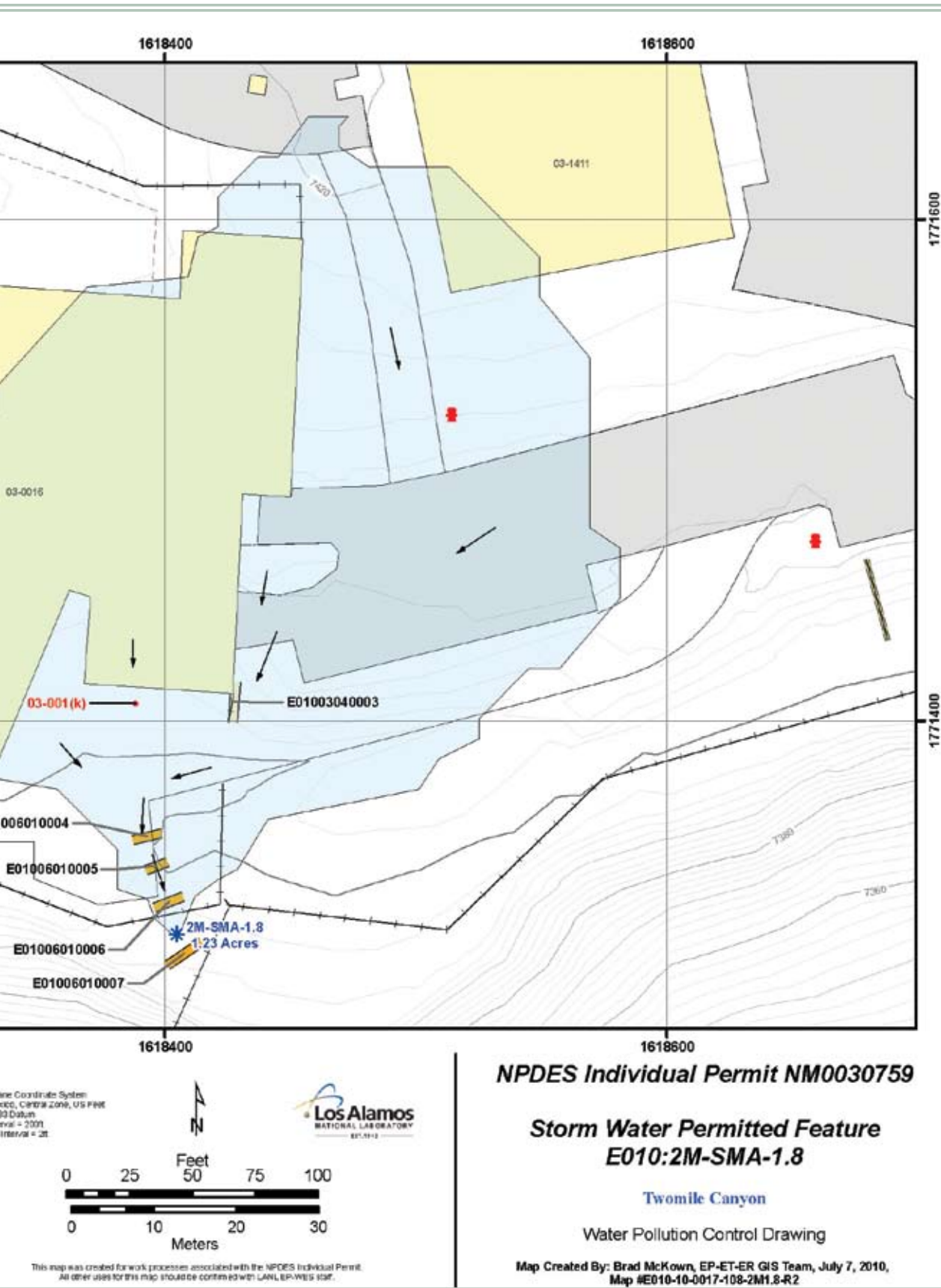
This is a series of four rock check that have been located along southern-most drainage path above the sampler. They are in place to mitigate storm water run-off from the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.10.4 Project Map



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1000.10.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.10.6 Corrective Action Status

The Site associated with 2M-SMA-1.8 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.11 2M-SMA-1.9

1000.11.1 Area Description

1000.11.2 Potential Pollutant Sources

1000.11.2.1 Historical Industrial Activity Areas

1000.11.3 Control Measures

1000.11.4 Project Map

1000.11.5 Storm Water Monitoring Plan and Schedule

1000.11.6 Corrective Action Status



1000.11 2M-SMA-1.9

1000.11.1 Area Description

2M-SMA-1.9 is located within TA-03 and access to the area is controlled. All boundaries of the SMA are influenced by structures and paved areas. Storm water flows from the developed areas south to the receiving waters.

1000.11.2 Potential Pollutant Sources

1000.11.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF E011, 2M-SMA-1.9, Site 03-003(a).

SWMU 03-003(a) is a former outdoor storage area used for temporary storage of electrical equipment destined for salvage, some of which contained oil. The storage area was located on the north and west sides of building 03-0218. The northern portion of the storage area consisted of the asphalt paving next to the north side of building 03-0218. The western portion of the storage area consisted of a 44 ft long × 27 ft wide concrete pad surrounded by an 18 in. to 20 in. high concrete curb. The concrete pad and curb are bounded by on three sides soil covered with gravel. A 30 ft wide × 60 ft long area of asphalt paving abuts the south end of the concrete curb. During the 1986 CEARP survey, six 55-gal. drums were observed stored next to capacitors on asphalt in the storage area on the north side of building 03-0218; staining was visible on the asphalt beneath the drums. Capacitors and transformers labeled as containing less than 50 ppm PCBs were stored in the west portion of the former storage area. During a 1989 inspection, leaking capacitors, drums of epoxy, one or two batteries, and vacuum pumps were observed in the western portion of the storage area. In the early 1990s, a small area of oil stained asphalt was excavated to a depth of 3 in. around the storm drain located in the western portion of SWMU 03-003(a). Use of the SWMU 03-003(a) storage area ceased in the early 1990s.

1000.11.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
03-003(a)	Storage Area	Discrete Location, No overlap	Individual	•		•	

1000.11.3 Control Measures

The major source of run-on for this Permitted Feature is the roof drain from building 03-0040. This run-on is captured by a drop inlet that is the outfall for the SMA. Curbing acts to control flow not captured by the drop inlet.

Subsections to 1000.11.3 list all control measures used to control pollutant sources identified in Section 1000.11.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.11.4.

1000.11.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
E011 03 09 0001	Berms - Curbing	•			•
E011 03 10 0002	Berms - Gravel Bags	•			•
E011 03 10 0003	Berms - Gravel Bags		•		•

Curbing (E011-03-09-0001)

This curbing is located near the southwest corner of building 03-0218, running perpendicular to the structure. It is in place to divert run-on away from the SMA. Curbing is an engineered device used to direct, convey, or divert storm water flow and prevent erosion.

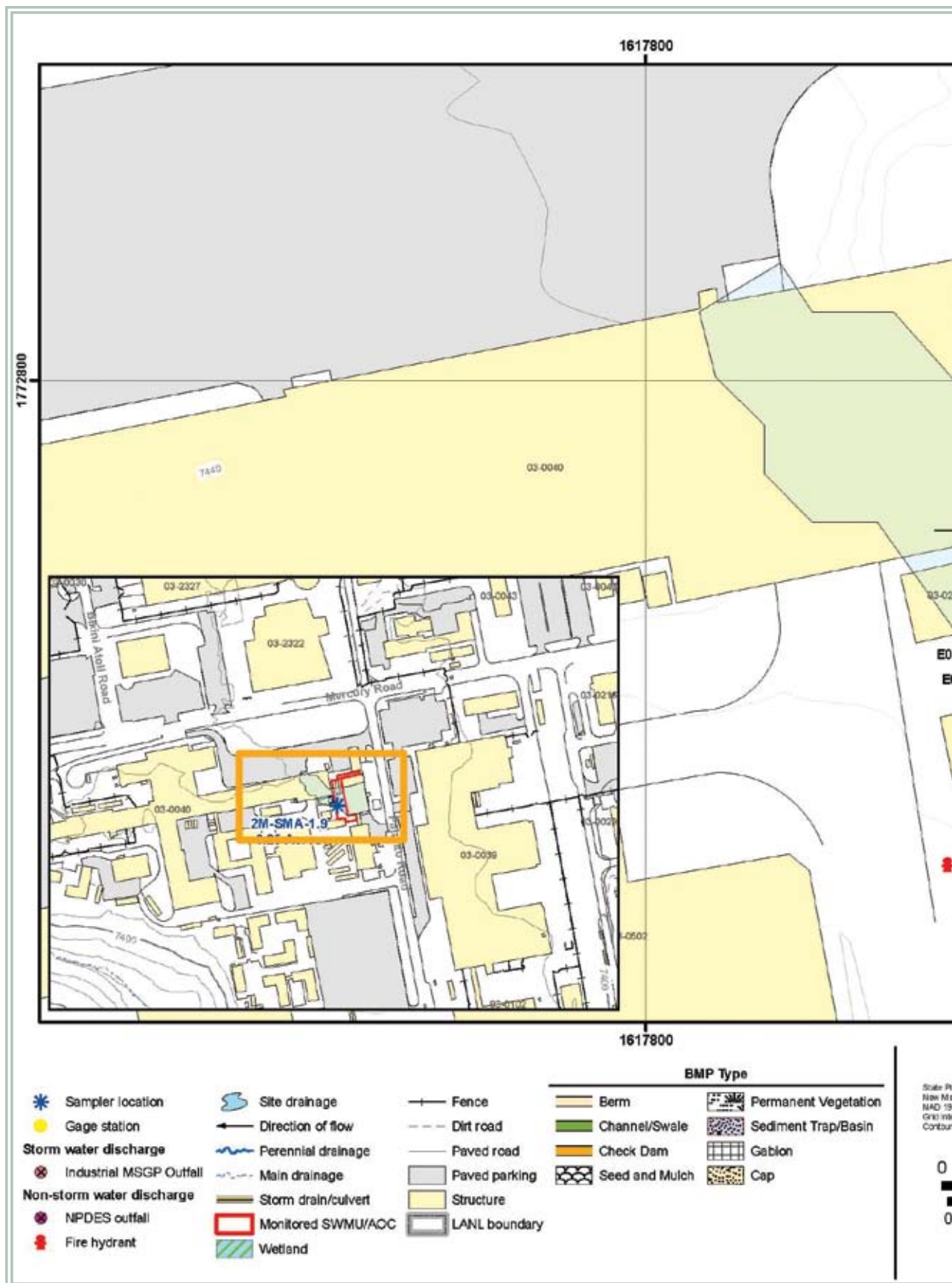
Northern Gravel Bags (E011-03-10-0002)

These bags are installed between buildings 03-0206 and 03-0218. A gravel bag berm is a series of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow run-off, allowing sediment to settle out, and release run-off slowly as sheet flows, preventing erosion.

Southern Gravel Bags (E011-03-10-0003)

These bags are placed around an inlet west of building 03-0218. A gravel bag berm is a series of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow run-off, allowing sediment to settle out, and release run-off slowly as sheet flows, preventing erosion.

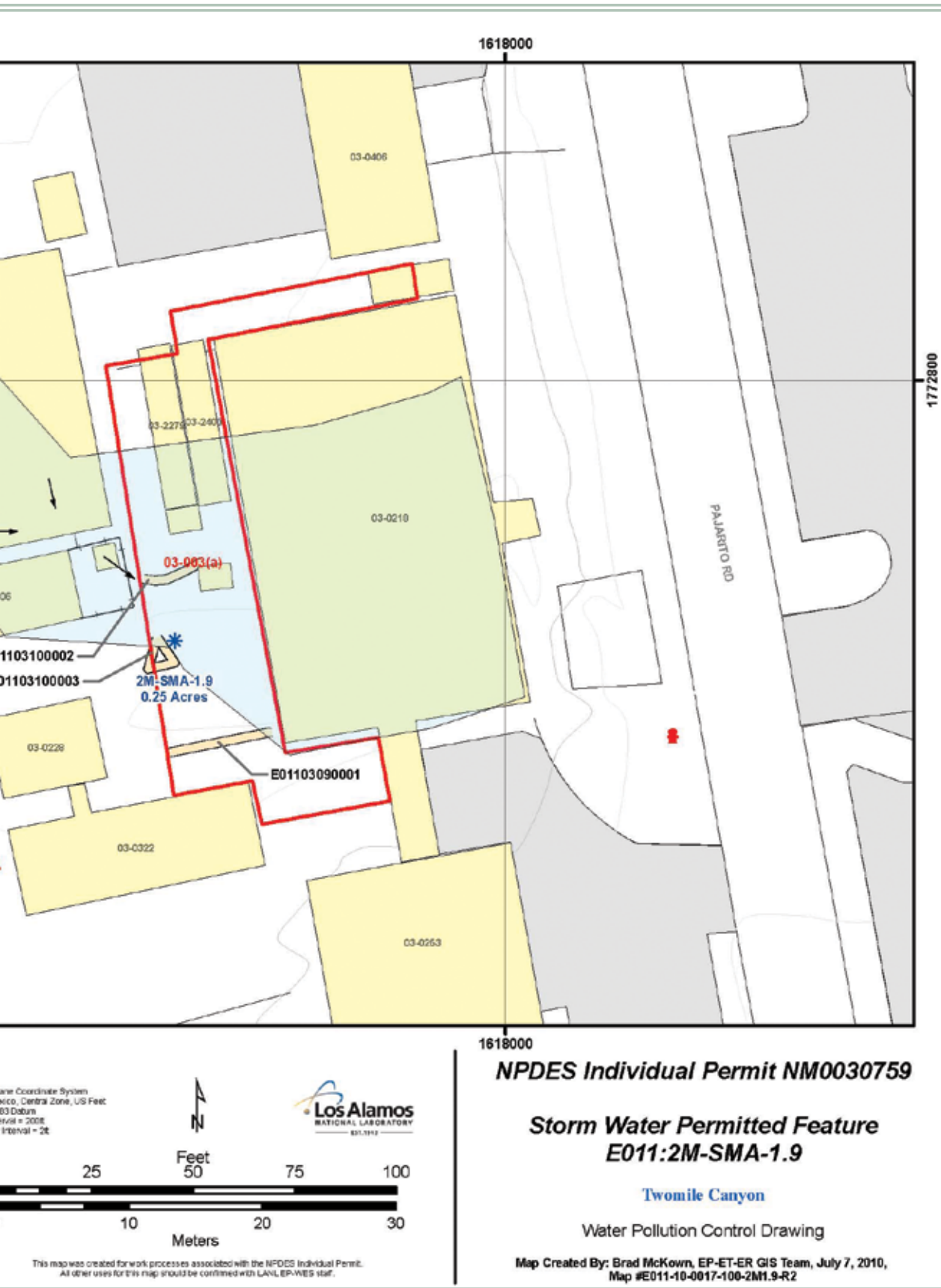
1000.11.4 Project Map



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1000.11.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.11.6 Corrective Action Status

The Site associated with 2M-SMA-1.9 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.12 2M-SMA-2

1000.12.1 Area Description

1000.12.2 Potential Pollutant Sources

1000.12.2.1 Historical Industrial Activity Areas

1000.12.3 Control Measures

1000.12.4 Project Map

1000.12.5 Storm Water Monitoring Plan and Schedule

1000.12.6 Corrective Action Status



1000.12 2M-SMA-2

1000.12.1 Area Description

2M-SMA-2 is located within the heavily developed area of TA-03. The northern boundary of the SMA is influenced by paved surfaces, roads, and structures in the surrounding developed area. The southern boundary of the SMA is influenced by a paved surfaces, roads, and structures in the surrounding developed area. A heavily used road runs along this boundary. The receiving waters are along this boundary as well. The eastern boundary of the SMA is influenced by paved surfaces, roads, and structures in the surrounding developed area. The western boundary of the SMA is influenced by paved surfaces, roads, and structures in the surrounding developed area. A heavily used road runs along this boundary.

1000.12.2 Potential Pollutant Sources

1000.12.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF E012, 2M-SMA-2, Sites 03-050(d) and 03-054(b).

SWMU 03-050(d) is an area of potential soil contamination associated with the exhaust emissions from the air-pollution-control device located on the south side of building 03-0102. The device was a shaker-type baghouse situated on a concrete pad. Building 03-0102 was constructed in 1957 for machining uranium-235 and uranium-238, lithium hydride, and small quantities of other metals. The baghouse was the primary air-pollution-control device to remove lithium hydride particles from the gas stream to the stack, and it was also used as a secondary air-pollution-control device to remove uranium graphite particulates from the gas stream to the stack. The baghouse ceased operating in 1992 because of a failure detected in a test which measured the efficiency of the collection system. The baghouse was replaced by HEPA-filter banks. Radionuclide air emissions from the baghouse were monitored from the time it became operational in 1957 until it was decommissioned in 1992. Releases of radioactive uranium particulates through the baghouse fabric were deposited on the concrete pad. The concrete pad underlying the baghouse was subsequently painted to immobilize any existing uranium particulates. Radiological field survey results showed no detectable activity on the concrete pad or surrounding soil.

SWMU 03-054(b) is an outfall located southeast of building 03-1411 and southwest of building 03-1316. The outfall receives stormwater from surface areas surrounding 26 buildings, stormwater from 94 roof drains, and noncontact cooling water from a furnace in building 03-0102. The outfall discharges to a drainage channel west of building 03-1612. The outfall was formerly permitted as National Pollutant Discharge Elimination System (NPDES) 03A009 to receive discharge water from the cooling tower effluent blowdown from building 03-0102; however, this discharge was rerouted to the TA-46 SWSC in 1993.

1000.12.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
03-050(d)	Soil contamination from TA-3 exhaust emissions	Co-located, Overlapping	Shared	•	•	•	PCBs
03-054(b)	Outfall from Building 3-38	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

Sites grouped within this SMA formerly discharged to a common area in Twomile Canyon. Because of the similarity of contaminants, shared drainage system, and shared discharge point, these Sites will discharge substantially identical effluent.

1000.12.3 Control Measures

The paved parking north of the channel at 03-054(b) is graded to the north alleviating parking lot run-on. The culvert outlet captures storm water from the drop inlets associated with the TA-3 metals fabrication facility.

Subsections to 1000.12.3 list all control measures used to control pollutant sources identified in Section 1000.12.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.12.4.

1000.12.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
E012 02 01 0005	Established Vegetation - Grasses and Shrubs			•	
E012 02 02 0004	Established Vegetation - Forested/Needle Cast			•	
E012 03 06 0007	Berms - Straw Wattles		•		•
E012 03 06 0008	Berms - Straw Wattles		•		•
E012 03 06 0009	Berms-Straw Wattles		•		•
E012 03 09 0006	Berms - Curbing	•			•
E012 04 06 0001	Channel/Swale - Rip Rap		•	•	
E012 07 02 0010	Gabions - Gabion Blanket		•	•	

Established Vegetation (E012-02-01-0005, -02-0004)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles (E012-03-06-0007, -0008, -0009)

This is a group of three wattles located south of 03-0102, between the building and fence line. They are in place to help control run-off from the paved area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Curbing (E012-03-09-0006)

This curbing is located along the northern edge of Pajarito Road opposite the southwest corner of building 03-0102. It is used to mitigate run-on from the paved area diverting it away from the SMA. Curbing is an engineered device used to direct, convey, or divert storm water flow and prevent erosion.

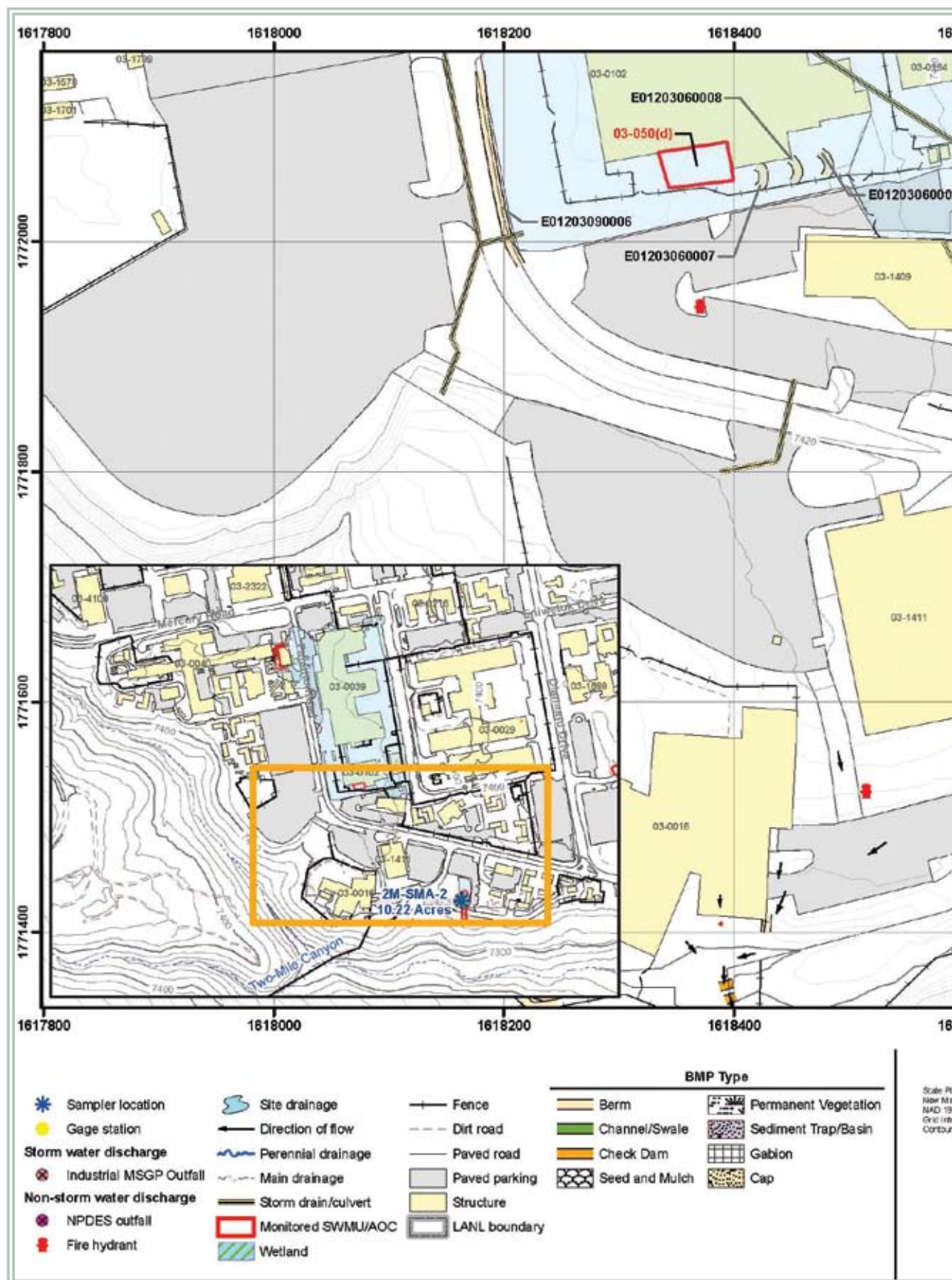
Rip Rap (E012-04-06-0001)

This rip rap is located at the culvert inlet which runs under the paved road south of the sampler. It is in place control run-off and prevent erosion. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Gabion Blanket (E012-07-02-0010)

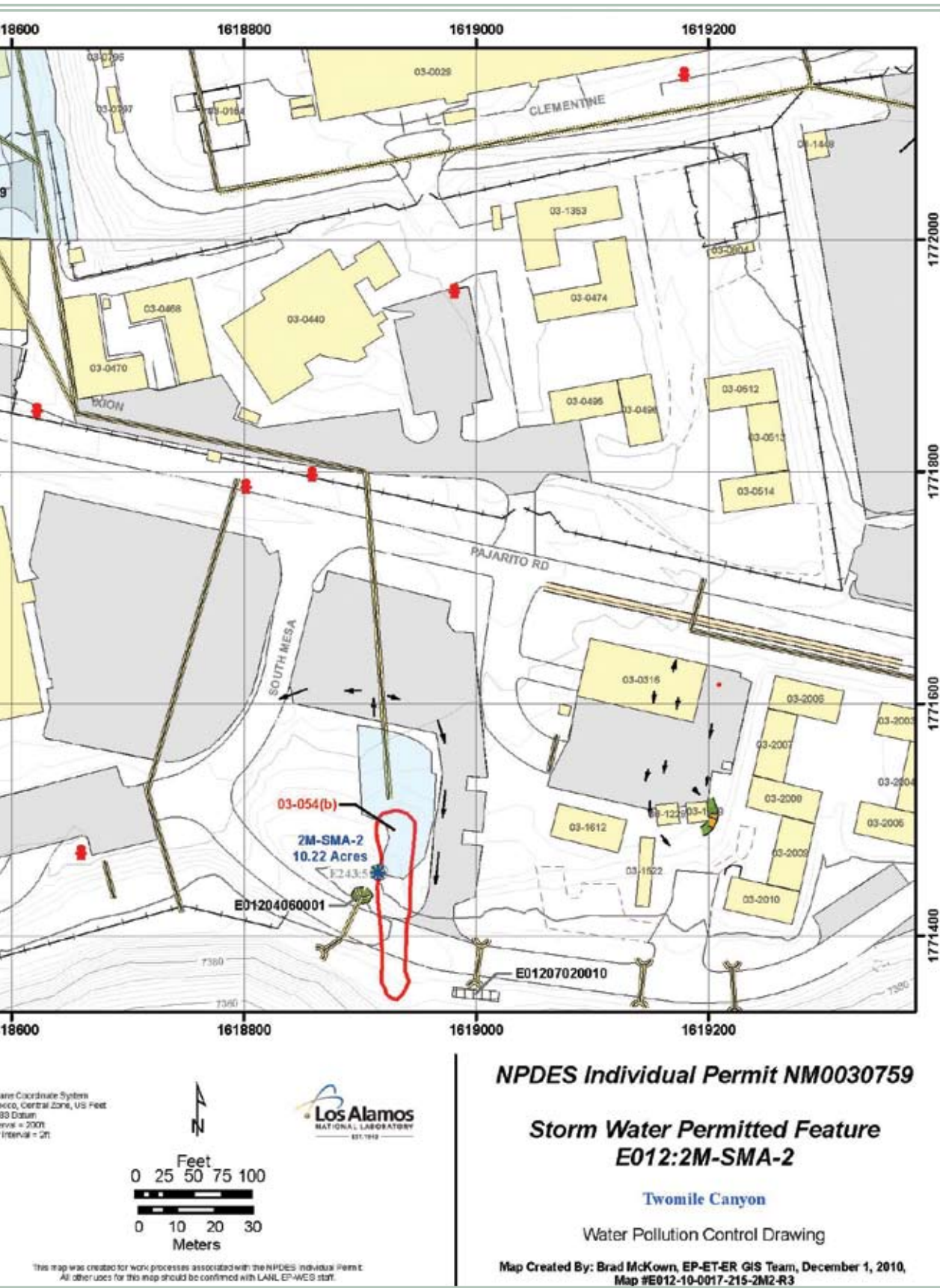
These blankets are located at the culvert out for the culvert located southeast of the sampler. They are in place to help prevent erosion at the outlet. Gabions are large, multi-celled, welded wire or rectangular wire mesh boxes, used in channel revetments, retaining walls, abutments, and check dams. Gabions and gabion blankets are used for erosion control when they are used to line a channel or swale.

1000.12.4 Project Map



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1000.12.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.12.6 Corrective Action Status

The Sites associated with 2M-SMA-2 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.13 2M-SMA-2.2

1000.13.1 Area Description

1000.13.2 Potential Pollutant Sources

1000.13.2.1 Historical Industrial Activity Areas

1000.13.3 Control Measures

1000.13.4 Project Map

1000.13.5 Storm Water Monitoring Plan and Schedule

1000.13.6 Corrective Action Status



1000.13 2M-SMA-2.2

1000.13.1 Area Description

2M-SMA-2.2 is located within TA-03 and access to the area is controlled. Paved areas and structures influence all boundaries of the SMA. Storm water flows from developed areas, south towards the receiving waters.

1000.13.2 Potential Pollutant Sources

1000.13.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF E013, 2M-SMA-2.2, Site 03-003(k).

AOC 03-003(k) is an area of potential soil contamination associated with the former location of a non-PCB transformer (less than 50 ppm PCB), reportedly staged on the east side of building 03-0316. No additional information is available for this site.

1000.13.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
03-003(k)	Storage Area	Discrete Location, No overlap	Individual	•	•	•	PCBs

1000.13.3 Control Measures

Curbing is located on the northern side of building 03-2006 and diverts run-on from the paved areas away from the Permitted Feature. An asphalt swale is preventing erosion resulting from run-off.

Subsections to 1000.13.3 list all control measures used to control pollutant sources identified in Section 1000.13.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.13.4.

1000.13.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
E013 03 09 0002	Berms - Curbing	•			•
E013 04 02 0003	Channel/Swale - Concrete/Asphalt		•	•	
E013 06 01 0004	Check Dam - Rock		•		•
E013 06 01 0005	Check Dam - Rock		•		•

Curbing (E013-03-09-0002)

This curbing is located on the south side of Pajarito Road, north of the Site. It is used to control run-on to the SMA. Curbing is an engineered device used to direct, convey, or divert storm water flow and prevent erosion.

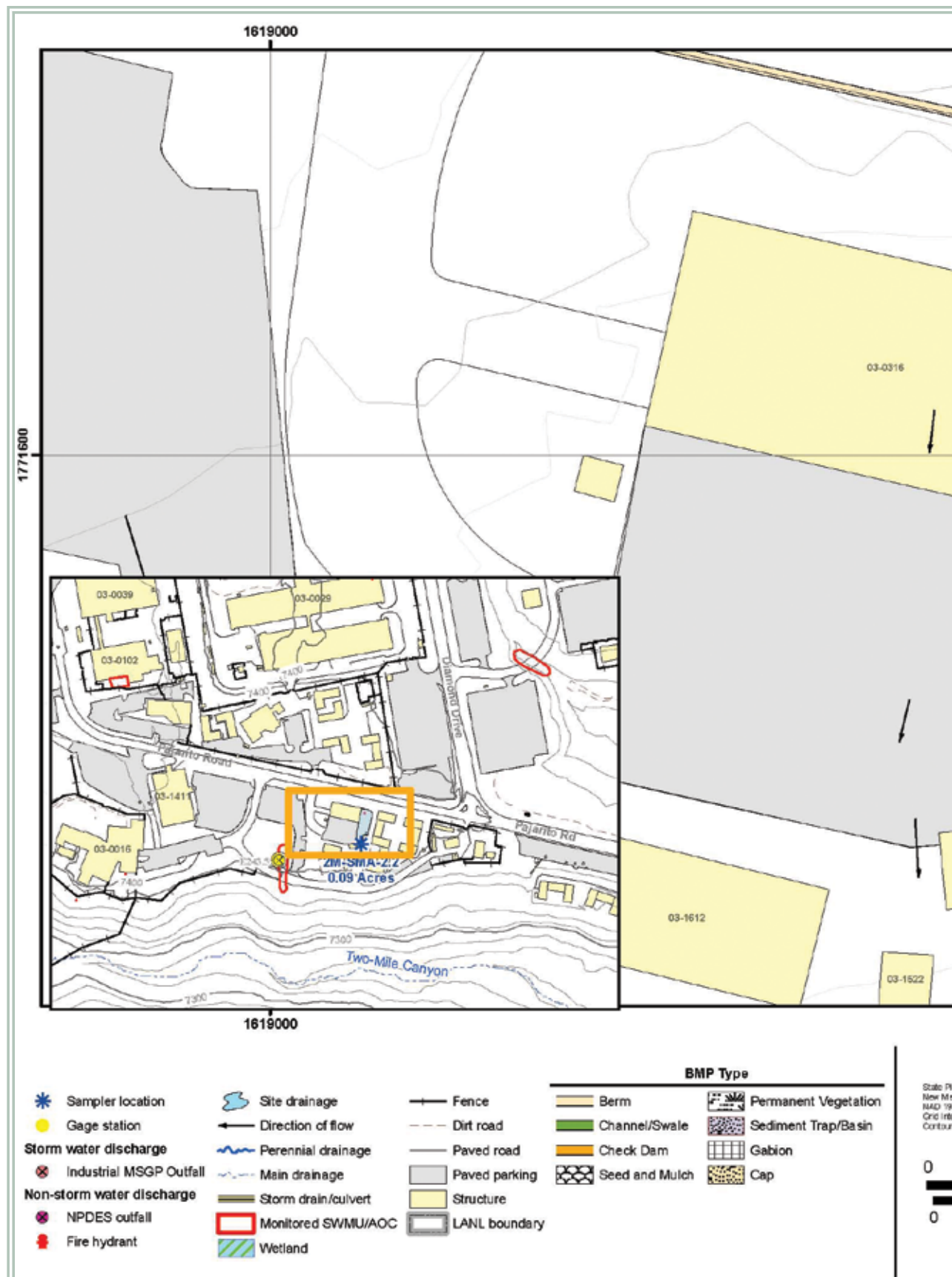
Asphalt Swale (E013-04-02-0003)

This asphalt swale is located east of building 03-1229. It is in place to control run-off from the area. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Rock Check Dams (E013-06-01-0004, -0005)

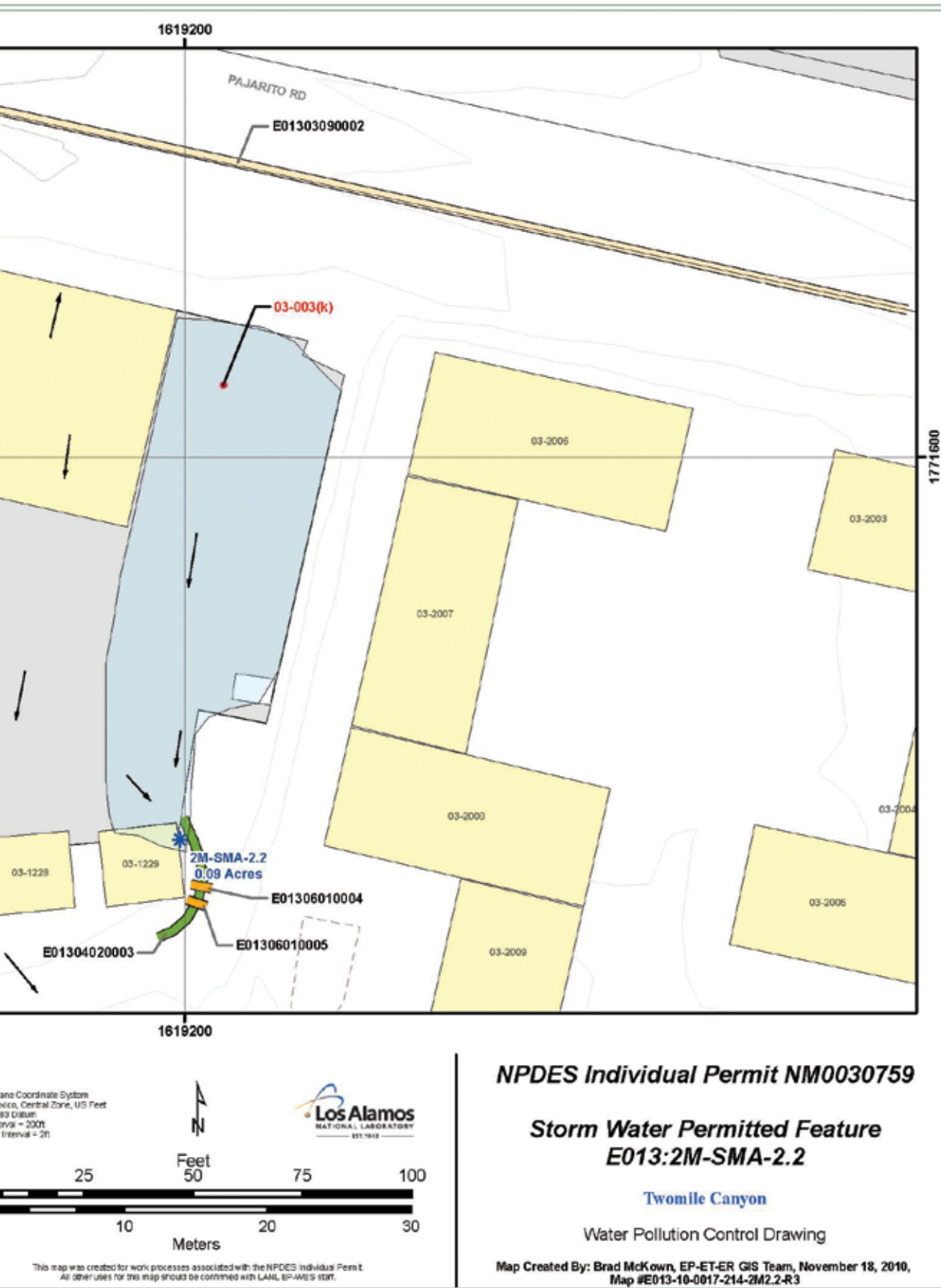
This is a pair of check dams that are located at the southeast corner of structure 03-1229. They are in place to help mitigate storm water run-off from the paved areas. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.13.4 Project Map



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1000.13.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.13.6 Corrective Action Status

The Site associated with 2M-SMA-2.2 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.14 2M-SMA-2.5

1000.14.1 Area Description

1000.14.2 Potential Pollutant Sources

1000.14.2.1 Historical Industrial Activity Areas

1000.14.3 Control Measures

1000.14.4 Project Map

1000.14.5 Storm Water Monitoring Plan and Schedule

1000.14.6 Corrective Action Status



1000.14 2M-SMA-2.5

1000.14.1 Area Description

2M-SMA-2.5, formerly, PJ-SMA-9.2 is located at TA-40 and access to the area is controlled. The southern boundary of the SMA is influenced by paved areas and development in TA-40. The northern boundary of the SMA is undeveloped and gently sloping towards the northeast. The receiving waters are along this northeastern boundary.

1000.14.2 Potential Pollutant Sources

1000.14.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF E015, 2M-SMA-2.5, Site 40-001(c).

SWMU 40-001(c) is an active septic system (structure 40-25) that has served a preparation utility building (Building 40-11) since 1950. The 540 gallon tank is constructed of reinforced concrete. Structure 40-25 serves Building 40-11, which houses change rooms and restrooms; operators at the TA-40 firing sites change into Laboratory-provided clothing in this building. No activities in this building have involved production of hazardous wastes, but hazardous material carried on clothing or skin may have washed down sink drains. Possible contaminants of this system include solvents, inorganic chemicals, and HE. Outflow from this tank originally went to adjacent Pajarito Canyon until a new leach field was constructed and placed into service in 1988.

The ER Project conducted RFI sampling at SWMU 40-001(c) in 1994. Eleven samples were collected and submitted to a fixed laboratory for analysis of inorganic chemicals, organic chemicals, and HE. Two inorganic chemicals were detected above SALs, however the maximum detected value for one of the inorganic chemicals was below its respective BV.

1000.14.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
40-001(c)	Septic system	Discrete Location, No overlap	Individual	•		•	

1000.14.3 Control Measures

The primary source of run-on to the project area originates on the paved area south of the sampler. Exiting controls are in place to divert the run-on to the east. Subsections to 1000.14.3 list all control measures used to control pollutant sources identified in Section 1000.14.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.14.4.

1000.14.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
E015 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
E015 03 01 0004	Berms - Earthen	•			•
E015 03 01 0005	Berms - Earthen		•		•

Established Vegetation (E015-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

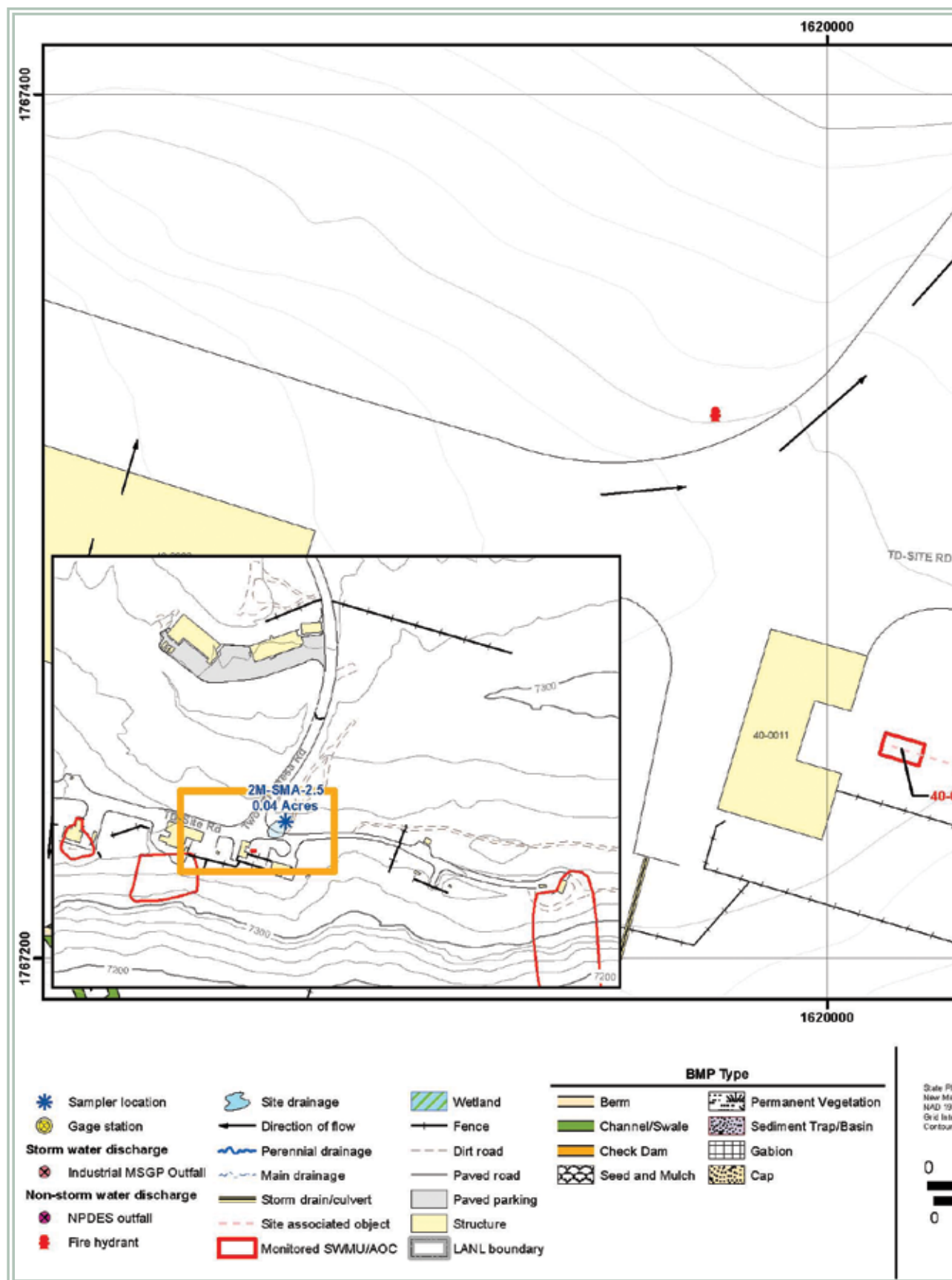
Earthen Berm (E015-03-01-0004)

This berm is located north of TD Site Road and extends east across the unpaved access road. It is in place to help control storm water run-on from the paved road. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm - North (E015-03-01-0005)

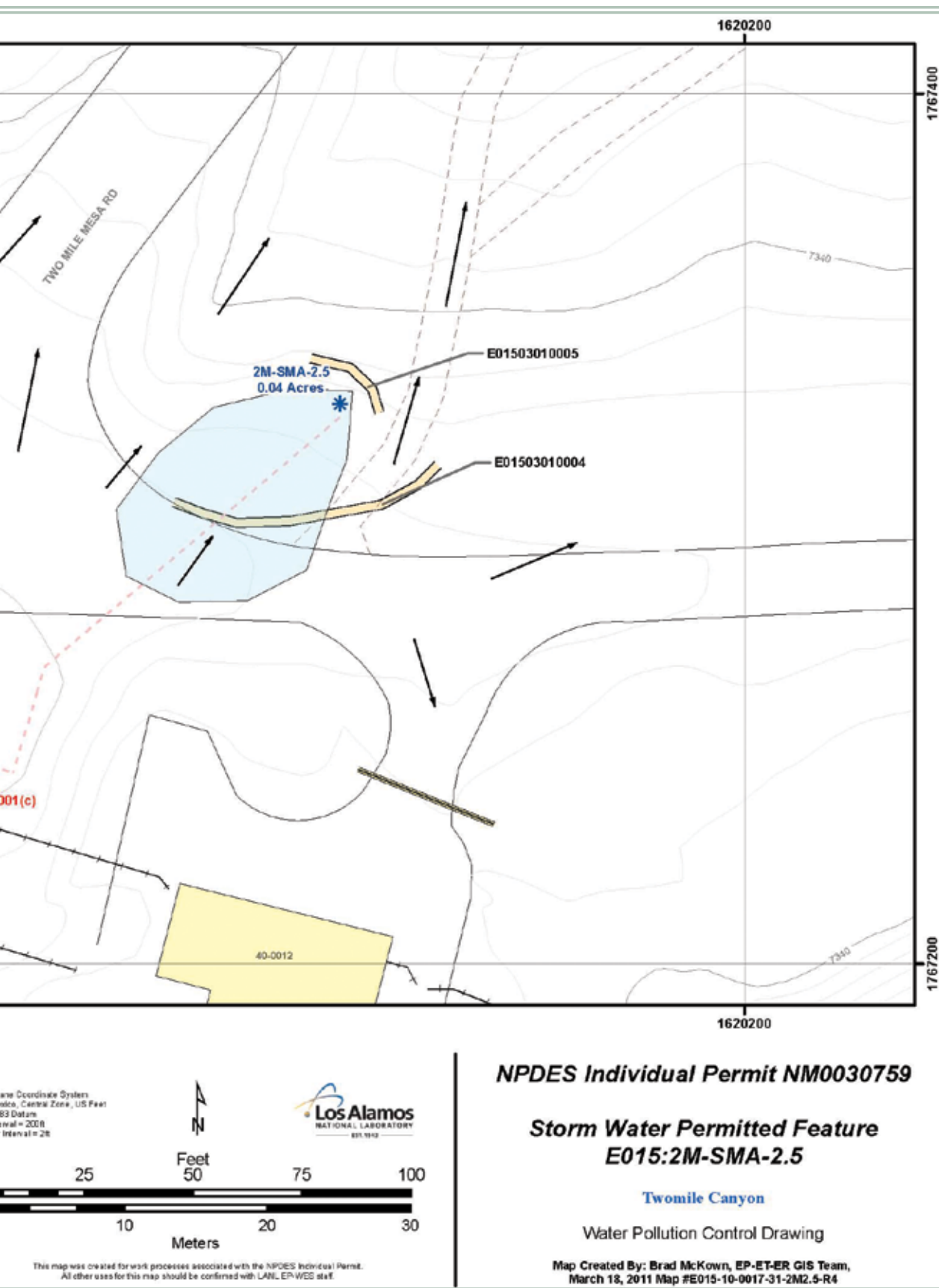
This berm is located north of the sampler and is used to control run-off from the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

1000.14.4 Project Map



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1000.14.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.14.6 Corrective Action Status

The Site associated with 2M-SMA-2.5 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.15 2M-SMA-3

1000.15.1 Area Description

1000.15.2 Potential Pollutant Sources

1000.15.2.1 Historical Industrial Activity Areas

1000.15.3 Control Measures

1000.15.4 Project Map

1000.15.5 Storm Water Monitoring Plan and Schedule

1000.15.6 Corrective Action Status



1000.15 2M-SMA-3

1000.15.1 Area Description

2M-SMA-3 is located in a remote and currently undeveloped area. Access to this area is controlled. Storm water flows from undeveloped areas in the northwest, southeast towards the receiving waters. An unpaved access road runs along the southern boundary of the SMA.

1000.15.2 Potential Pollutant Sources

1000.15.2.1 Historical Industrial Activity Areas

There are four historical industrial activity areas associated with PF E014, 2M-SMA-3, Sites 07-001(a), 07-001(b), 07-001(c) and 07-001(d).

SWMU 07-001(a) is an inactive firing pit located near the east end of TA-06. The site consists of a circular depression, surrounded by an annular berm about 4 ft high and approximately 30 ft in diameter. The firing pit was used in the 1950s to destroy scrap detonators and explosives. The materials to be destroyed were mixed with Composition B scraps or flaked TNT and the mixture was detonated. A 1959 memorandum states this method was very effective in destroying detonators, with no intact detonators thrown out of a pit and no undestroyed detonators found during a site survey, although pellets of unexploded plastic-bonded explosive (PBX) were found. In 1959, this method of destroying detonators was discontinued at this site.

SWMU 07-001(b) is an inactive firing pit located near the east end of TA-06. The site consists of a circular depression, surrounded by an annular berm about 4 ft high and approximately 30 ft in diameter. The firing pit was used in the 1950s to destroy scrap detonators and explosives. The materials to be destroyed were mixed with Composition B scraps or flaked TNT and the mixture was detonated. A 1959 memorandum states this method was very effective in destroying detonators, with no intact detonators thrown out of a pit and no undestroyed detonators found during a site survey, although pellets of unexploded plastic-bonded explosive (PBX) were found. In 1959, this method of destroying detonators was discontinued at this site.

SWMU 07-001(c) is in an inactive amphitheater-shaped firing site, approximately 50 ft × 50 ft, located near the eastern boundary of TA-06. Soft metal disks imbedded with bullets have been found at this site. Little is known about this site's history, but the site may have been used briefly to study ballistic initiation of critical mass through the study of projectiles fired at lead plates.

SWMU 07-001(d) is an inactive firing site located near the eastern boundary of TA-06. The site is an approximately 20-ft-diameter by 3-ft-deep crater. Detonator parts have been found near the crater. Little is known about this site's operating history, but the site is believed to be the location of a one-time "celebratory shot" fired in 1945 after the Japanese surrender at the end of World War II.

1000.15.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
07-001(a)	Firing Site	Co-located, Overlapping	Shared	•	•	•	HE
07-001(b)	Firing Site	Co-located, Overlapping	Shared	•	•	•	HE
07-001(c)	Firing Site	Co-located, Overlapping	Shared	•	•	•	HE
07-001(d)	Firing Site	Co-located, Overlapping	Shared	•	•	•	HE

Substantially Identical Determination

Sites grouped within this SMA were associated with early explosives testing and recovery. The contaminants are similar, they share a common drainage, and will discharge substantially identical effluent.

1000.15.3 Control Measures

There is minimal potential for run-on at this SMA. The site is flat on the eastern end and run-on flow to other areas is sheet flow from natural areas.

Subsections to 1000.15.3 list all control measures used to control pollutant sources identified in Section 1000.15.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.15.4.

1000.15.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
E014 02 01 0004	Established Vegetation - Grasses and Shrubs			•	
E014 03 06 0005	Berms - Straw Wattles		•		•
E014 03 06 0006	Berms - Straw Wattles		•		•
E014 03 06 0007	Berms - Straw Wattles	•			•
E014 03 06 0008	Berms - Straw Wattles		•		•
E014 03 06 0009	Berms - Straw Wattles		•		•

Established Vegetation (E014-02-01-0004)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles - West (E014-03-06-0005)

This straw wattle is located east of 07-001(a) and is used to control run-off in the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - Central (E014-03-06-0006)

This straw wattle is located northeast of 07-001(b) and is in place to control run-off. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

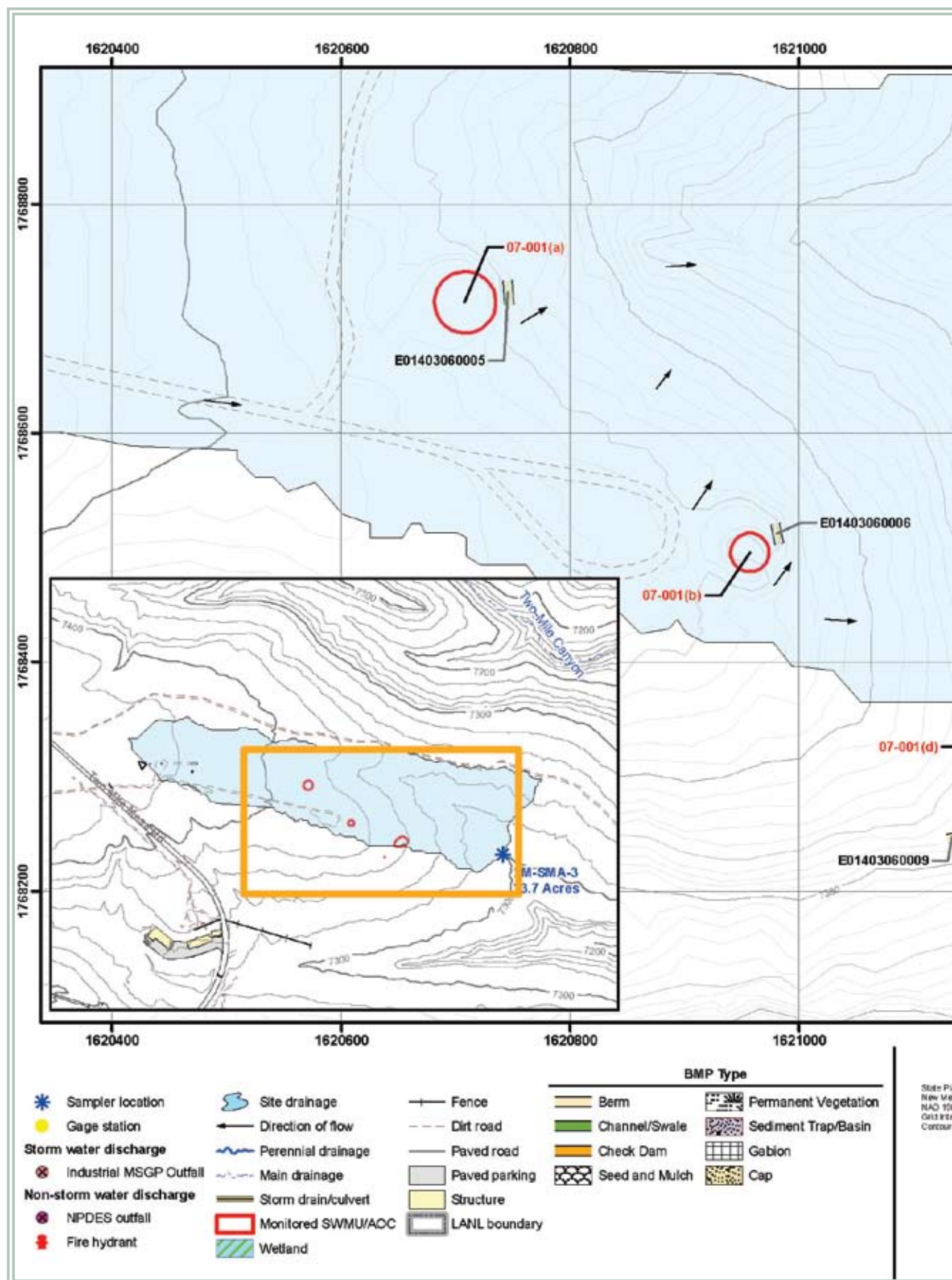
Straw Wattles - Northeast (E014-03-06-0007)

This straw wattle is located west of 07-001(c) and is in place to control run-on from the slope to the west. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - Southeast (E014-03-06-0008, -0009)

This is a grouping of two straw wattles located south and east of 07-001(d). They are in place to control run-off from the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

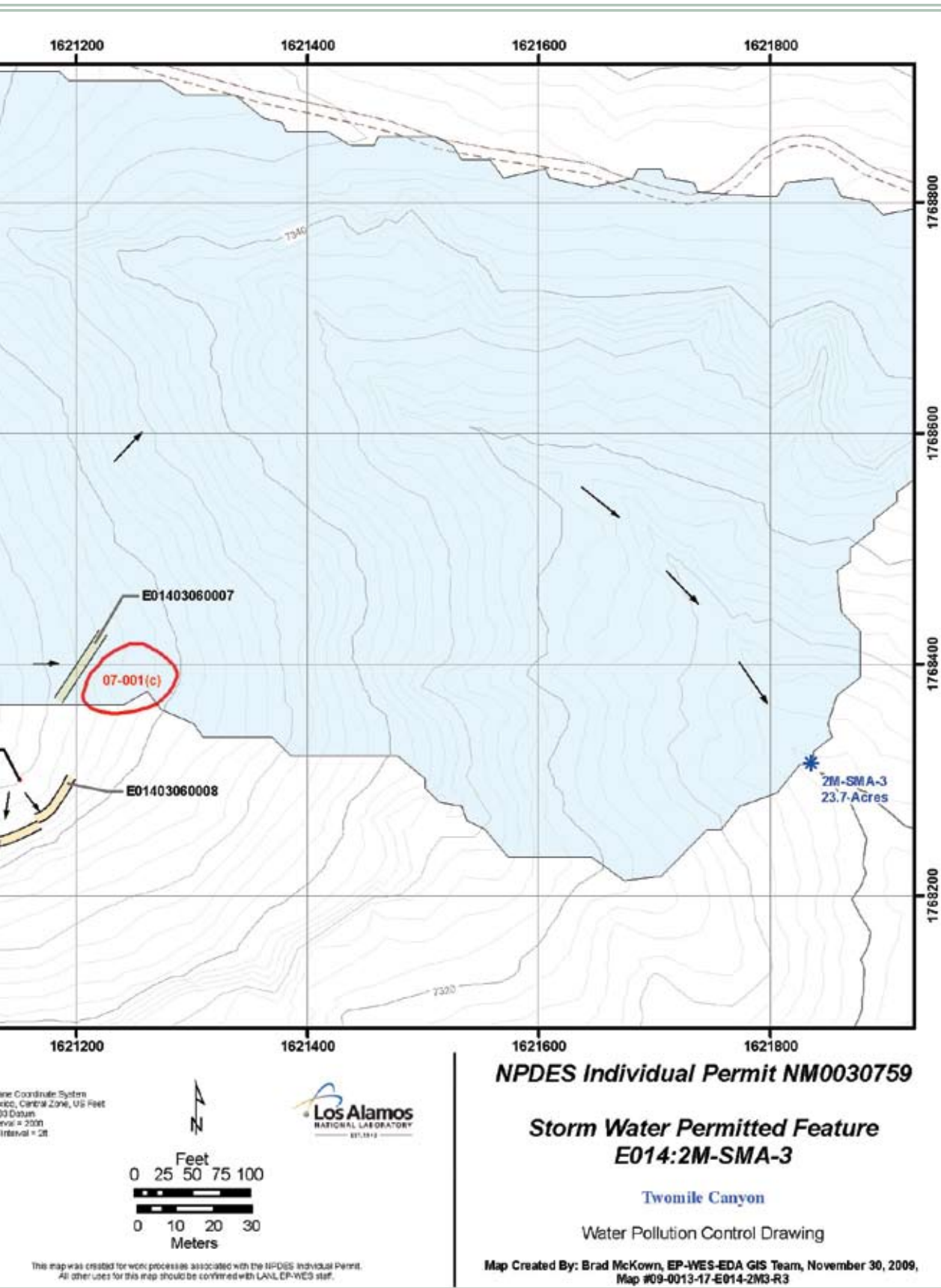
1000.15.4 Project Map



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1000.15.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.15.6 Corrective Action Status

The Sites associated with 2M-SMA-3 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.16 3M-SMA-0.2

1000.16.1 Area Description

1000.16.2 Potential Pollutant Sources

1000.16.2.1 Historical Industrial Activity Areas

1000.16.3 Control Measures

1000.16.4 Project Map

1000.16.5 Storm Water Monitoring Plan and Schedule

1000.16.6 Corrective Action Status



1000.16 3M-SMA-0.2

1000.16.1 Area Description

3M-SMA-0.2 is located within TA-15 and access to the area is controlled. The northern boundary of the SMA gently slopes towards the receiving waters further to the north. The southern boundary of the SMA is influenced by paving and structures in TA-15. Storm water flow is to the northeast.

1000.16.2 Potential Pollutant Sources

1000.16.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF H001, 3M-SMA-0.2, Site 15-010(b).

SWMU 15-010(b) is a settling tank (structure 15-147) located in the northwest corner of TA-15 near former shop building 15-8. The tank is constructed of concrete and measures 5 ft long × 5 ft wide × 5.5 ft deep with an approximate 900-gal. capacity. The settling tank served former building 15-8, which housed HE-machining operations during the 1950s, and discharged to an outfall at the edge of Threemile Canyon. The tank was constructed in 1947 and originally designed to be a septic tank; however, subsequent engineering records confirm the tank was also used as an HE settling tank.

1000.16.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
15-010(b)	Septic system	Discrete Location, No overlap	Individual	•		•	

1000.16.3 Control Measures

There is significant run-on from the R-Site Road north along the unpaved access road bisecting the Permitted Feature. This run-on is diverted along a natural drainage channel on the western side of the SMA. This run-on source does not impact the settling tank outfall area.

Subsections to 1000.16.3 list all control measures used to control pollutant sources identified in Section 1000.16.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.16.4.

1000.16.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
H001 02 02 0001	Established Vegetation - Forested/Needle Cast			•	
H001 06 01 0002	Check Dam - Rock		•		•
H001 06 01 0004	Check Dam - Rock	•			•

Established Vegetation (H001-02-02-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

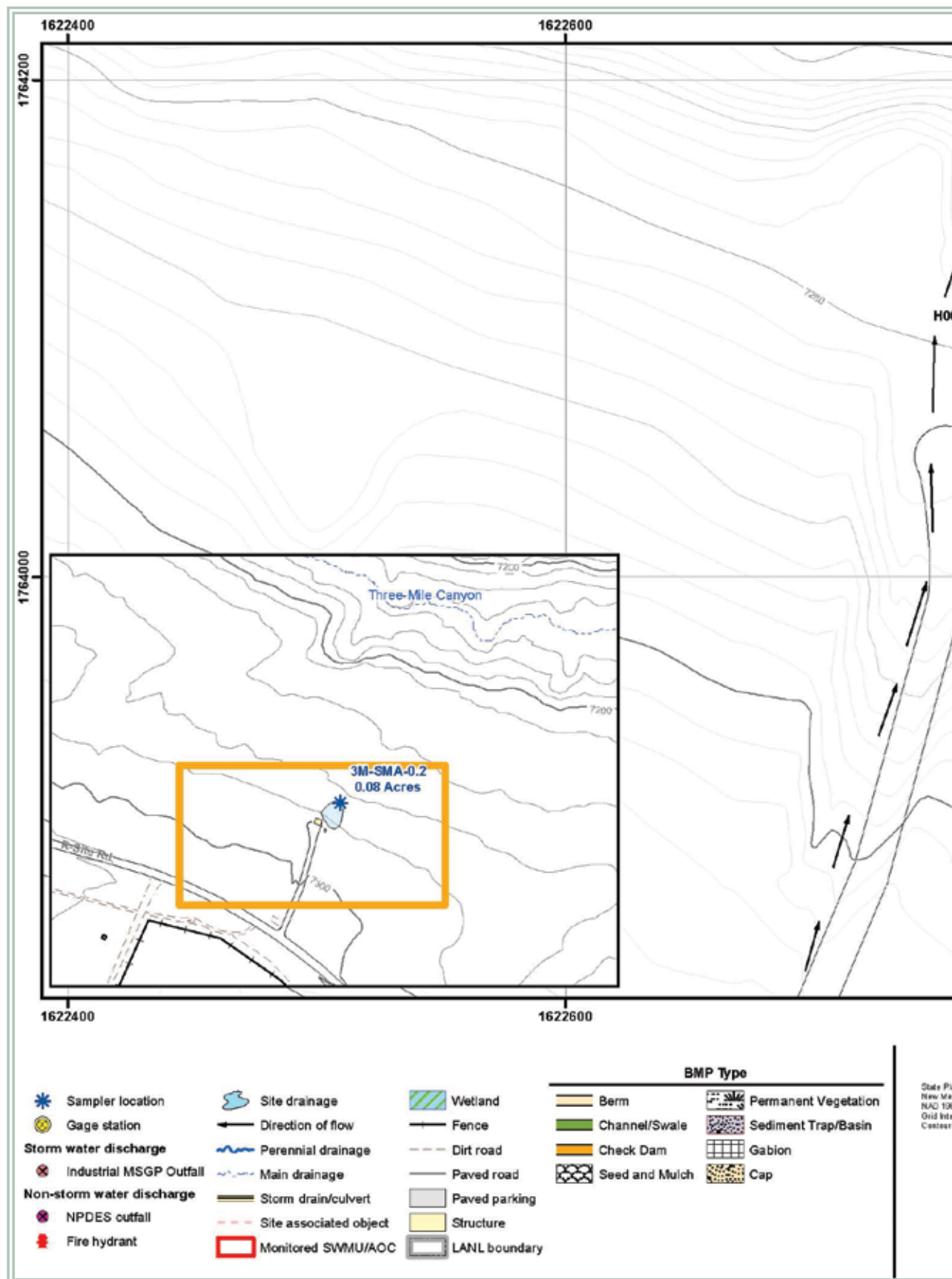
Check Dam North (H001-06-01-0002)

This rock check dam is located northeast of the sampler and in use to control run-off in the vicinity. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Check Dam- Rock (H001-06-01-0004)

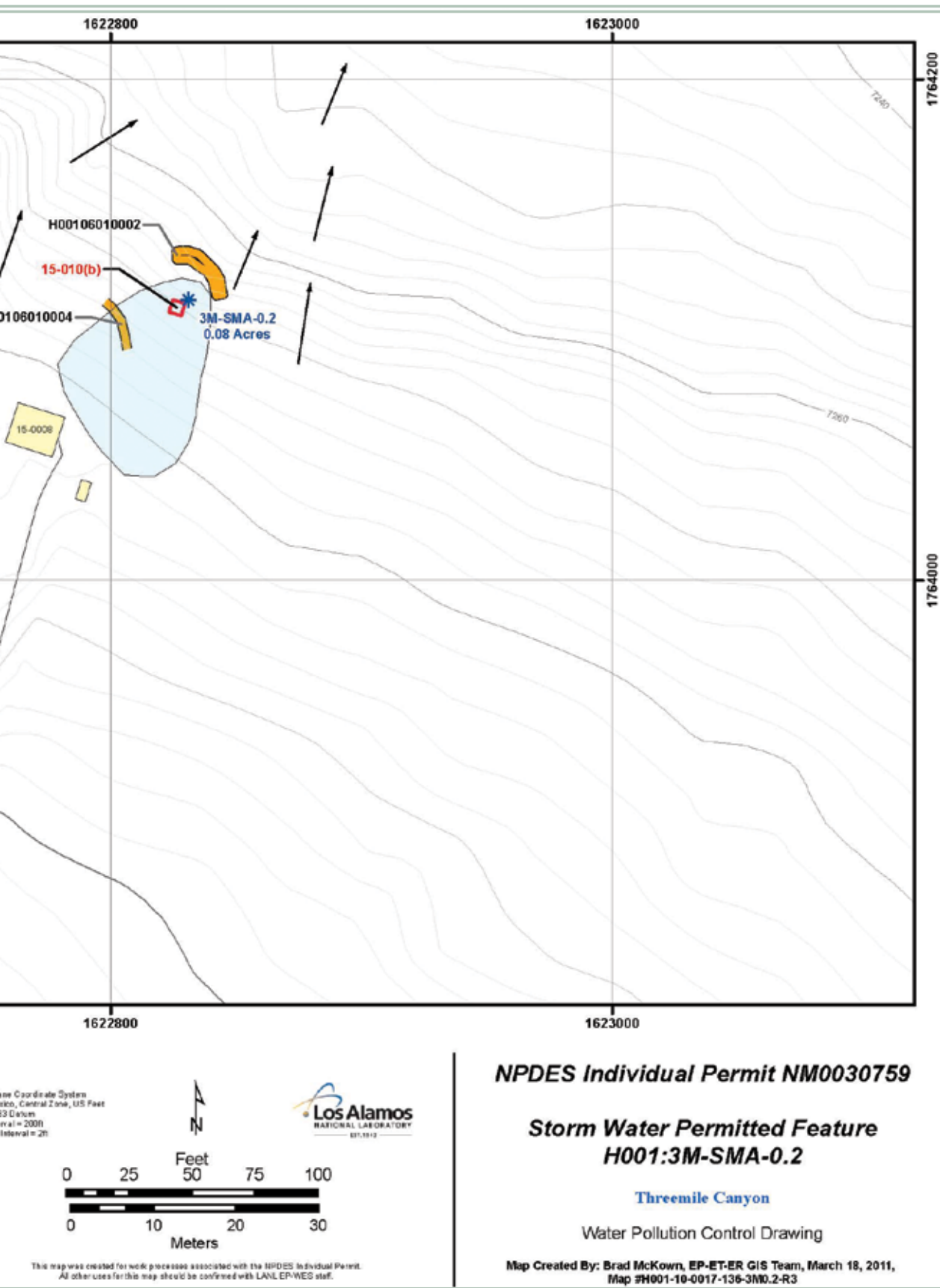
Installed southwest of the sampler. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.16.4 Project Map



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1000.16.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.16.6 Corrective Action Status

The Site associated with 3M-SMA-0.2 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.17 3M-SMA-0.4

1000.17.1 Area Description

1000.17.2 Potential Pollutant Sources

1000.17.2.1 Historical Industrial Activity Areas

1000.17.3 Control Measures

1000.17.4 Project Map

1000.17.5 Storm Water Monitoring Plan and Schedule

1000.17.6 Corrective Action Status



1000.17 3M-SMA-0.4

1000.17.1 Area Description

3M-SMA-0.4 is located within TA-15 and access to the area is controlled. The SMA has very light development. Access roads to the area have existing engineered controls that function to divert storm water away from the Permitted Feature. Storm water flows across a gentle grade to the receiving waters along the eastern boundary.

1000.17.2 Potential Pollutant Sources

1000.17.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF H002, 3M-SMA-0.4, Site 15-006(b).

SWMU 15-006(b) is the Ector firing site, located along the eastern side of TA-15. The firing site was used for dynamic radiography of explosion-driven weapons components. It was originally established in 1973 and was used periodically until 1982. The Ector radiography machine was constructed at this site, and the site has operated with this machine from the mid-1980s to the present. Structures associated with the firing site are the firing point chamber (structure 15-276), the multidagnostic hydrotest (building 15-306), and the blast-protection structure (15-319). Materials used in the tests included uranium, beryllium, lead, and HE.

1000.17.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
15-006(b)	Firing Site Ector	Discrete Location, No overlap	Individual	•	•	•	HE

1000.17.3 Control Measures

There are no significant run-on sources at this SMA. Engineered controls are associated with the paved access road and are working to divert storm water from the roads away from the Permitted Feature. The Permitted Feature is flat and without a significant run-on source. Planned controls are to address run-off around the existing drop inlet.

Subsections to 1000.17.3 list all control measures used to control pollutant sources identified in Section 1000.17.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.17.4.

1000.17.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
H002 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
H002 03 01 0003	Berms - Earthen		•		•
H002 03 05 0002	Berms - Silt Dike		•		•

Established Vegetation (H002-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

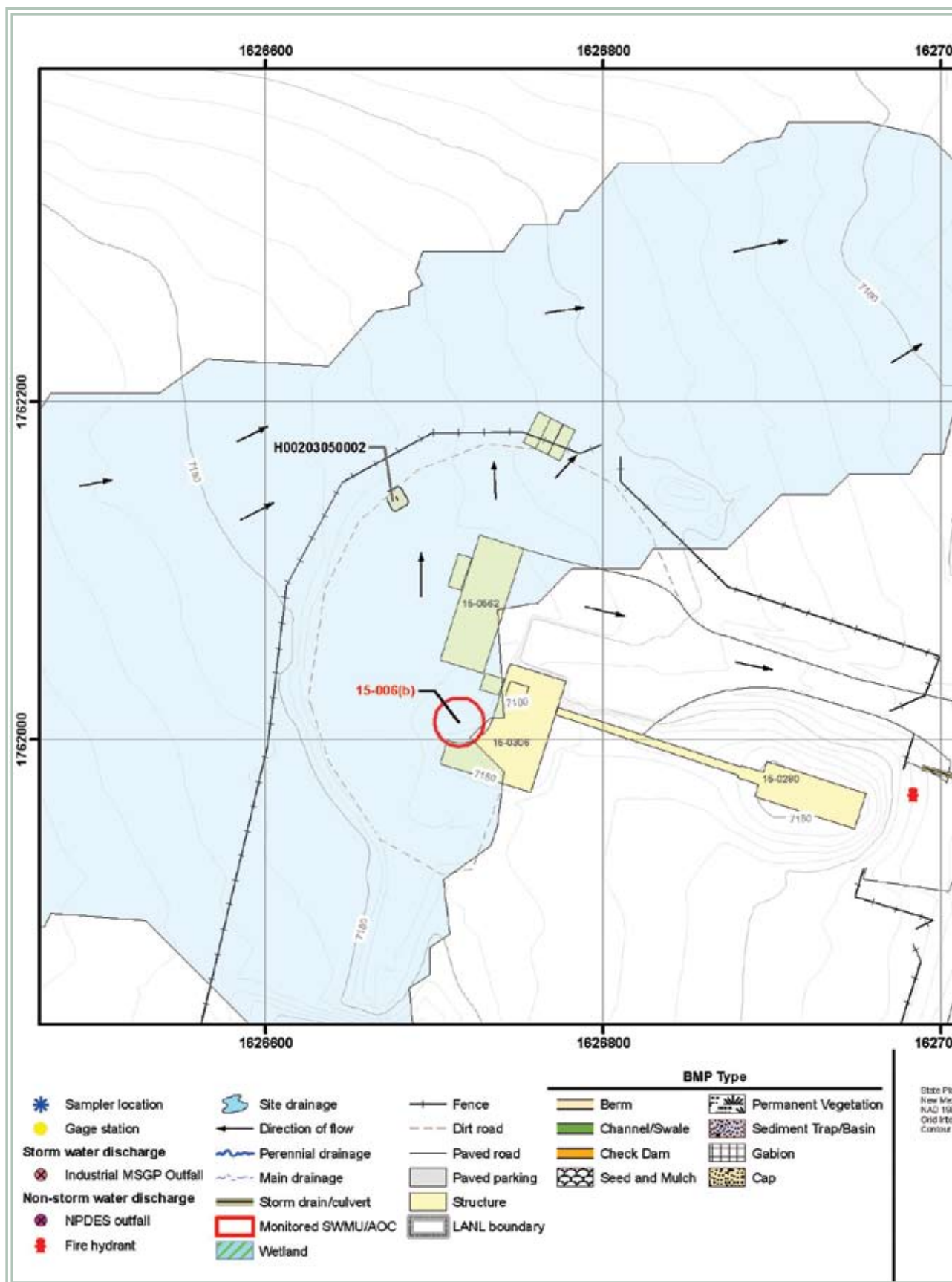
Earthen Berm (H002-03-01-0003)

This earthen berm is located across the drainage channel just west of the sampler and helps control storm water run-off. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Silt Dike (H002-03-05-0002)

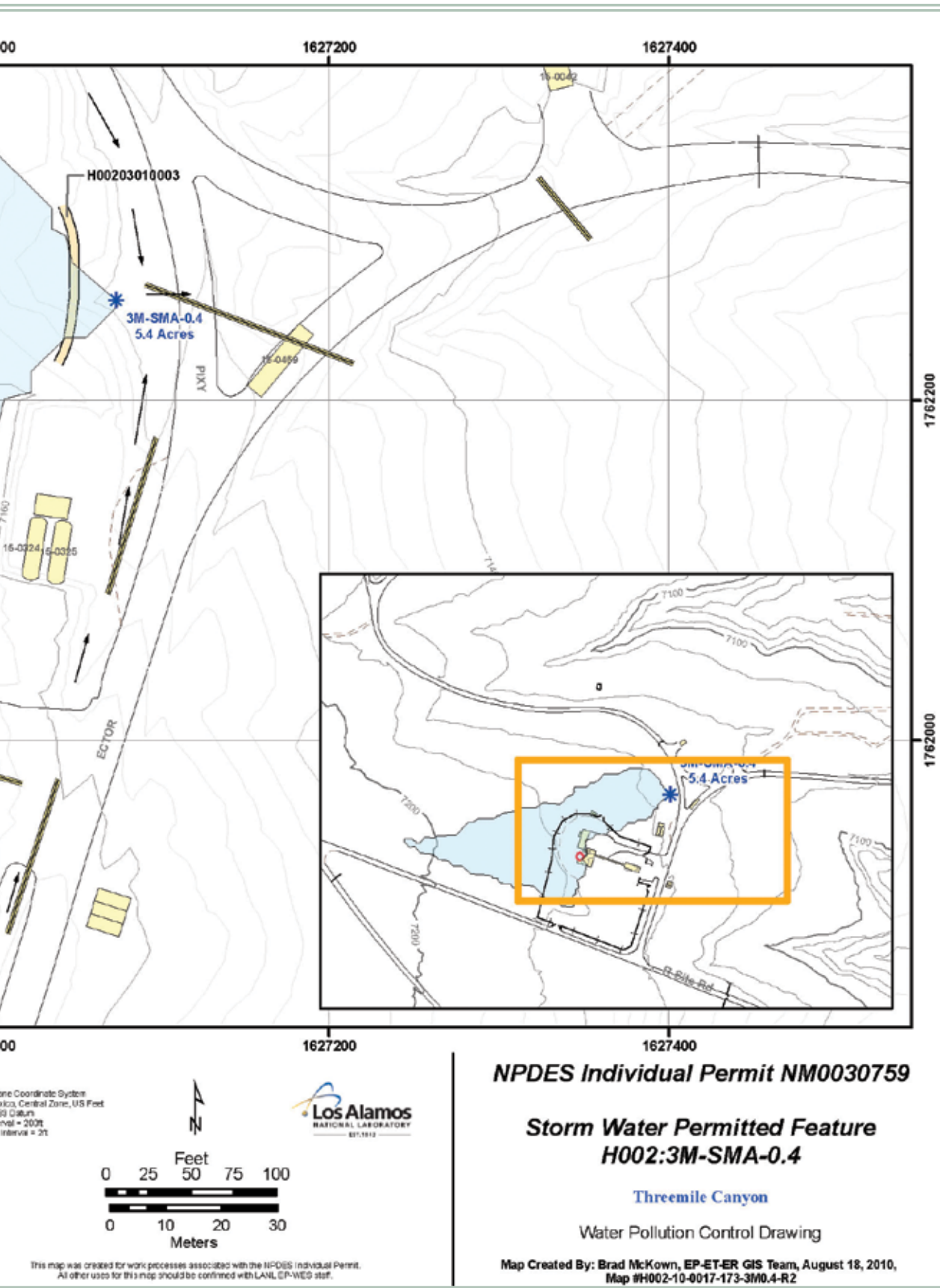
The silt dike is located around the perimeter of the drop inlet west of building 15-0562. It is in place to help manage storm water run-off. A silt dike is an earthen structure used to interrupt or contain the flow of water.

1000.17.4 Project Map



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1000.17.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.17.6 Corrective Action Status

The Site associated with 3M-SMA-0.4 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.18 3M-SMA-0.5

1000.18.1 Area Description

1000.18.2 Potential Pollutant Sources

1000.18.2.1 Historical Industrial Activity Areas

1000.18.3 Control Measures

1000.18.4 Project Map

1000.18.5 Storm Water Monitoring Plan and Schedule

1000.18.6 Corrective Action Status



1000.18 3M-SMA-0.5

1000.18.1 Area Description

3M-SMA-0.5 is located within TA-15 and access to the area is controlled. The northern boundary of the SMA is influenced by paved and unpaved access roads. The southern boundary of the SMA is influenced by structures and unpaved access roads. The western edge of the boundary is sloped and influenced by a paved access road. The eastern edge of this boundary is steeply sloping towards the receiving waters. Storm water flows across the SMA to the southeast before reaching the receiving waters.

1000.18.2 Potential Pollutant Sources

1000.18.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF H003, 3M-SMA-0.5, Sites 15-006(c) and 15-009(c).

SWMU 15-006(c) is Firing Site R-44. This firing site, located along the eastern side of TA-15, was originally constructed in 1951 and was used extensively from 1956 to 1978 for diagnostic tests of weapons components. After the PHERMEX and Ector firing sites became operational, Firing Site R-44 was used only for small experiments. Firing Site R-44 was last used in 1992. Materials used in the tests included uranium, tritium, beryllium, lead, and HE. This firing site is located on a flat open area on a narrow mesa that overlooks Threemile Canyon. Debris from explosives tests has been scattered onto the slope and into the canyon.

SWMU 15-009(c) is a septic system located at TA-15 Firing Site R-44. The septic system consists of a tank (structure 15-62), its associated drainlines, and an outfall. The septic tank was constructed in 1951 of reinforced concrete with a 540-gal. capacity. The septic system received effluent from restroom facilities in the firing site control building 15-44. The drainlines were constructed of cast iron and discharged to an outfall into the south fork of Threemile Canyon. The outfall is located approximately 25 ft downgradient of the tank. An engineering drawing shows the outfall has been plugged.

1000.18.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
15-006(c)	Firing site (R-44)	Co-located, Overlapping	Shared	•	•	•	HE
15-009(c)	Septic system	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

The Sites were both associated with the operation of an experimental explosives testing area. Because of the similarities in contaminants, the common drainage, and the nature of activities in this area, these Sites will discharge substantially identical effluent.

1000.18.3 Control Measures

Run-on associated with paved and bare areas are present. The existing controls serve to direct and control portions of the run-on source associated with paved areas.

Subsections to 1000.18.3 list all control measures used to control pollutant sources identified in Section 1000.18.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.18.4.

1000.18.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
H003 01 03 0015	Seed and Mulch - Hydromulch			•	
H003 02 01 0003	Established Vegetation - Grasses and Shrubs			•	
H003 03 01 0014	Berms - Earthen		•		•
H003 04 06 0001	Channel/Swale - Rip Rap		•	•	
H003 04 06 0004	Channel/Swale - Rip Rap		•	•	
H003 06 01 0002	Check Dam - Rock		•		•
H003 06 01 0005	Check Dam - Rock	•			•
H003 06 01 0006	Check Dam - Rock	•			•
H003 06 01 0007	Check Dam - Rock	•			•
H003 06 01 0008	Check Dam - Rock	•			•
H003 06 01 0009	Check Dam - Rock	•			•
H003 06 01 0010	Check Dam - Rock	•			•
H003 06 01 0011	Check Dam - Rock	•			•
H003 06 01 0012	Check Dam - Rock	•			•
H003 06 01 0013	Check Dam - Rock		•		•
H003 06 01 0016	Check Dam - Rock	•			•

Seed and Mulch **(H003-01-03-0015)**

Hydromulch was applied along the northern perimeter of the SMA to help manage erosion. Hydraulic mulch consists of applying a mixture of shredded wood fiber or a hydraulic matrix and a stabilizing emulsion or tackifier with hydroseeding equipment, which temporarily protects exposed soil from erosion by raindrop impact or wind.

Established Vegetation **(H003-02-01-0003)**

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm **(H003-03-01-0014)**

This berm is located in the northern portion of the SMA, on the north side of the Site access road. It is used to help reduce run-off from the area above. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rip Rap **(H003-04-06-0001)**

This rip rap is located along the southern edge of the paved access road and is associated with the three rock check dams. It is in place to prevent erosion and control run-off from the SMA. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Culvert Rip Rap **(H003-04-06-0004)**

This rip rap is located at the terminus of

the culvert extending under the paved access road, that discharges at the mesa edge. It is in place to prevent erosion and control run-off from the SMA. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dams - South **(H003-06-01-0002, -0005, -0006, -0012, -0016)**

This is a series of five rock check dams that are located along the southern edge of the paved access road. They are used in conjunction with the rip rap to control run-off from the paved areas. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

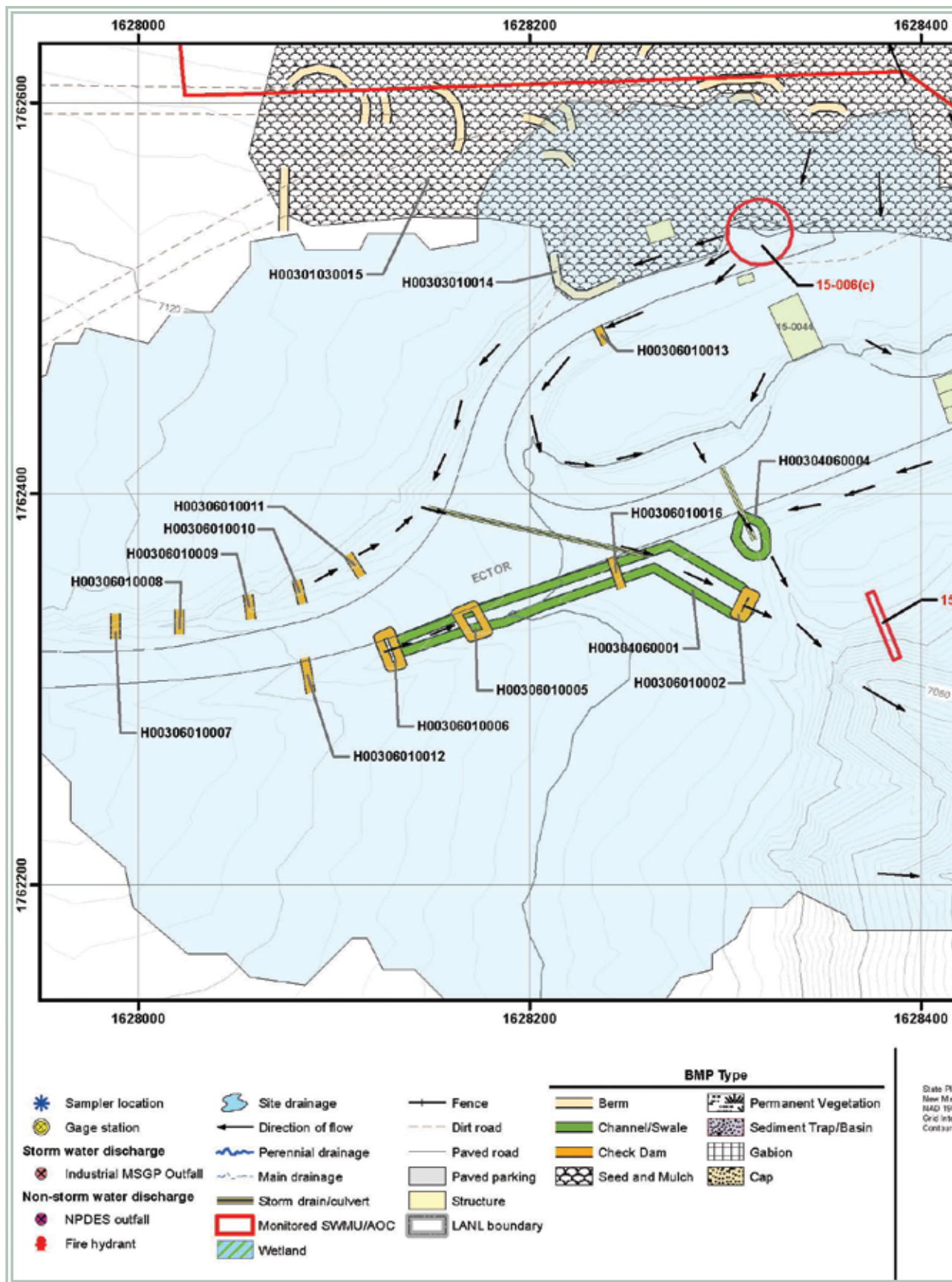
Rock Check Dams - North **(H003-06-01-0007, -0008, -0009, -0010, -0011)**

This is a series of five rock check dams located in the drainage channel on the north side of the access road. They are used to help control run-on in the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dam **(H003-06-01-0013)**

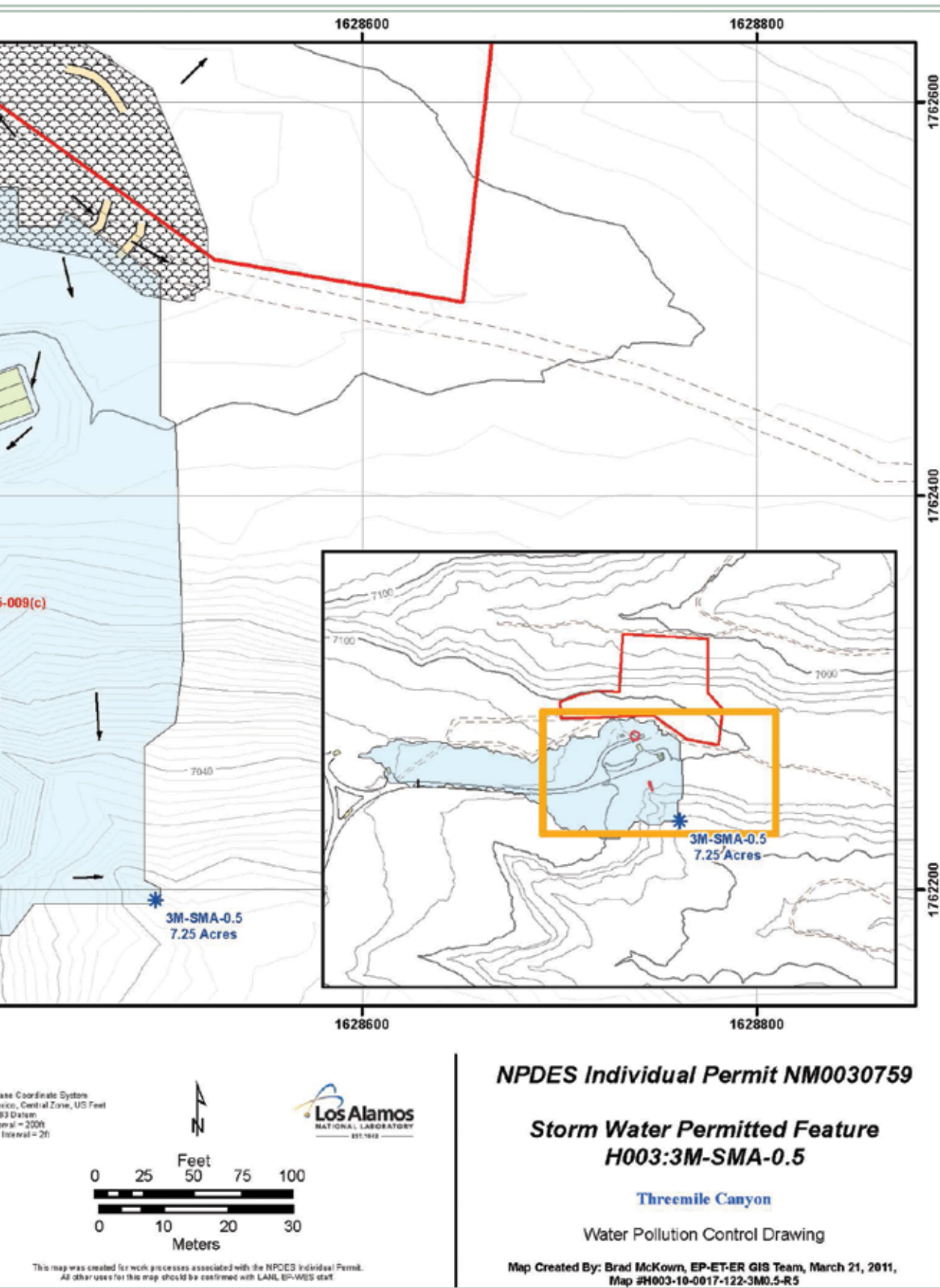
This check dam is located in the northern portion of the SMA, on the south side of the Site access road. It is used to help mitigate run-off from the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.18.4 Project Map



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1000.18.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE(2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.18.6 Corrective Action Status

The Sites associated with 3M-SMA-0.5 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.19 3M-SMA-0.6

1000.19.1 Area Description

1000.19.2 Potential Pollutant Sources

1000.19.2.1 Historical Industrial Activity Areas

1000.19.3 Control Measures

1000.19.4 Project Map

1000.19.5 Storm Water Monitoring Plan and Schedule

1000.19.6 Corrective Action Status



1000.19 3M-SMA-0.6

1000.19.1 Area Description

3M-SMA-0.6 is located within TA-15 and access to the area is controlled. The northern boundary of the SMA is influenced by an unpaved access road. The receiving waters of Middle Fork Threemile Canyon are in this boundary. The southern boundary of the SMA is influenced by unpaved roads and structures. The eastern boundary of the SMA is influenced by an unpaved access road. The western boundary of the SMA is influenced by unpaved access roads. Storm water flows from the southern boundary, north towards the receiving waters.

1000.19.2 Potential Pollutant Sources

1000.19.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF H004, 3M-SMA-0.6, Site 15-008(b).

SWMU 15-008(b) is a surface disposal area at TA-15, located north of Firing Site R-44 [SWMU 15-006(c)] and extending along the edge of the mesa and downslope into Threemile Canyon. The surface disposal area covers approximately 8.5 acres. Firing Site R-44 was built in 1951 for diagnostic tests of weapons components and used extensively until 1978 and sporadically until 1992. Soil and debris from the firing site activities were disposed of at SWMU 15-008(b).

1000.19.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
15-008(b)	Surface disposal	Discrete Location, No overlap	Individual	•		•	

1000.19.3 Control Measures

There is minor run-on from the storage area above the Site. An unpaved road above the northern boundary of the Site is also contributing run-on to the area. Extensive sheet flow across the area results in concentrated flow discharges.

Subsections to 1000.19.3 list all control measures used to control pollutant sources identified in Section 1000.19.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.19.4.

1000.19.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
H004 01 01 0025	Seed and Mulch - Seed and Wood Mulch	•		•	
H004 01 03 0028	Seed and Mulch - Hydromulch			•	
H004 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
H004 02 02 0026	Established Vegetation - Forested/Needle Cast			•	
H004 03 06 0002	Berms - Straw Wattles	•			•
H004 03 06 0003	Berms - Straw Wattles	•			•
H004 03 06 0004	Berms - Straw Wattles	•			•
H004 03 06 0005	Berms - Straw Wattles	•			•
H004 03 06 0006	Berms - Straw Wattles	•			•
H004 03 06 0007	Berms - Straw Wattles	•			•
H004 03 06 0008	Berms - Straw Wattles	•			•
H004 03 06 0009	Berms - Straw Wattles	•			•
H004 03 06 0010	Berms - Straw Wattles	•			•
H004 03 06 0011	Berms - Straw Wattles		•		•
H004 03 06 0012	Berms - Straw Wattles		•		•
H004 03 06 0013	Berms - Straw Wattles		•		•
H004 03 06 0014	Berms - Straw Wattles	•			•
H004 03 06 0015	Berms - Straw Wattles	•			•
H004 03 06 0017	Berms - Straw Wattles		•		•
H004 03 06 0018	Berms - Straw Wattles		•		•
H004 03 06 0019	Berms - Straw Wattles		•		•

1000.19.3.1 Control Measures for Historical Industrial Activity Areas (Continued)

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
H004 03 06 0020	Berms - Straw Wattles		•		•
H004 03 06 0021	Berms - Straw Wattles		•		•
H004 03 06 0022	Berms - Straw Wattles	•			•
H004 03 06 0023	Berms - Straw Wattles	•			•
H004 03 06 0024	Berms - Straw Wattles		•		•
H004 03 06 0027	Berms - Straw Wattles		•		•

Seed and Mulch (H004-01-01-0025)

The seeded and mulched area is located across the southern third of the SMA extending to the east and west of the SMA in order to mitigate erosion of the area associated with run-on in the vicinity. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Hydromulch (H004-01-03-0028)

Hydromulch was applied across the mesa top in order to help control erosion. Hydraulic mulch consists of applying a mixture of shredded wood fiber or a hydraulic matrix and a stabilizing emulsion or tackifier with hydroseeding equipment, which temporarily protects exposed soil from erosion by raindrop impact or wind.

Established Vegetation (H004-02-01-0001, -02-0026)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles - West (H004-03-06-0002)

This wattle are located across the unpaved access road along the edge of the seed and mulch area. It is in place to control run-on in the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - Southwest Group A
(H004-03-06-0003, -0004, -0005, -0006)

This is a group of four straw wattles located near the western border of the seeded area. They are used to mitigate run-on from the areas above the SMA. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - Southwest Group B
(H004-03-06-0007, -0008, -0009)

This is a series of three straw wattles located north west of building 15-0044. They are used to control run-on to the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - West Central
(H004-03-06-0010)

This wattle is located near the northern edge of the seeded area and is used to moderate run-on to the SMA. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - West Group C
(H004-03-06-0011, -0012, -0013)

This is a series of four straw wattles located just outside the western boundary of the SMA. Their purpose is to reduce run-off from the project area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to

prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - West Group D
(H004-03-06-0014, -0015, -0027)

This is a series of three straw wattles located north of building 15-0044. Their function is to alleviate run-on. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - Central
(H004-03-06-0017)

This centrally located straw wattles in place to help control run-off from the SMA. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - East Central
(H004-03-06-0018)

This straw wattle is located near the eastern boundary of the SMA and is used to mitigate run-off from the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - Southeast
(H004-03-06-0019)

This wattle is situated just outside the southern end of the eastern boundary of the SMA, reducing run-off from the SMA. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering

overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

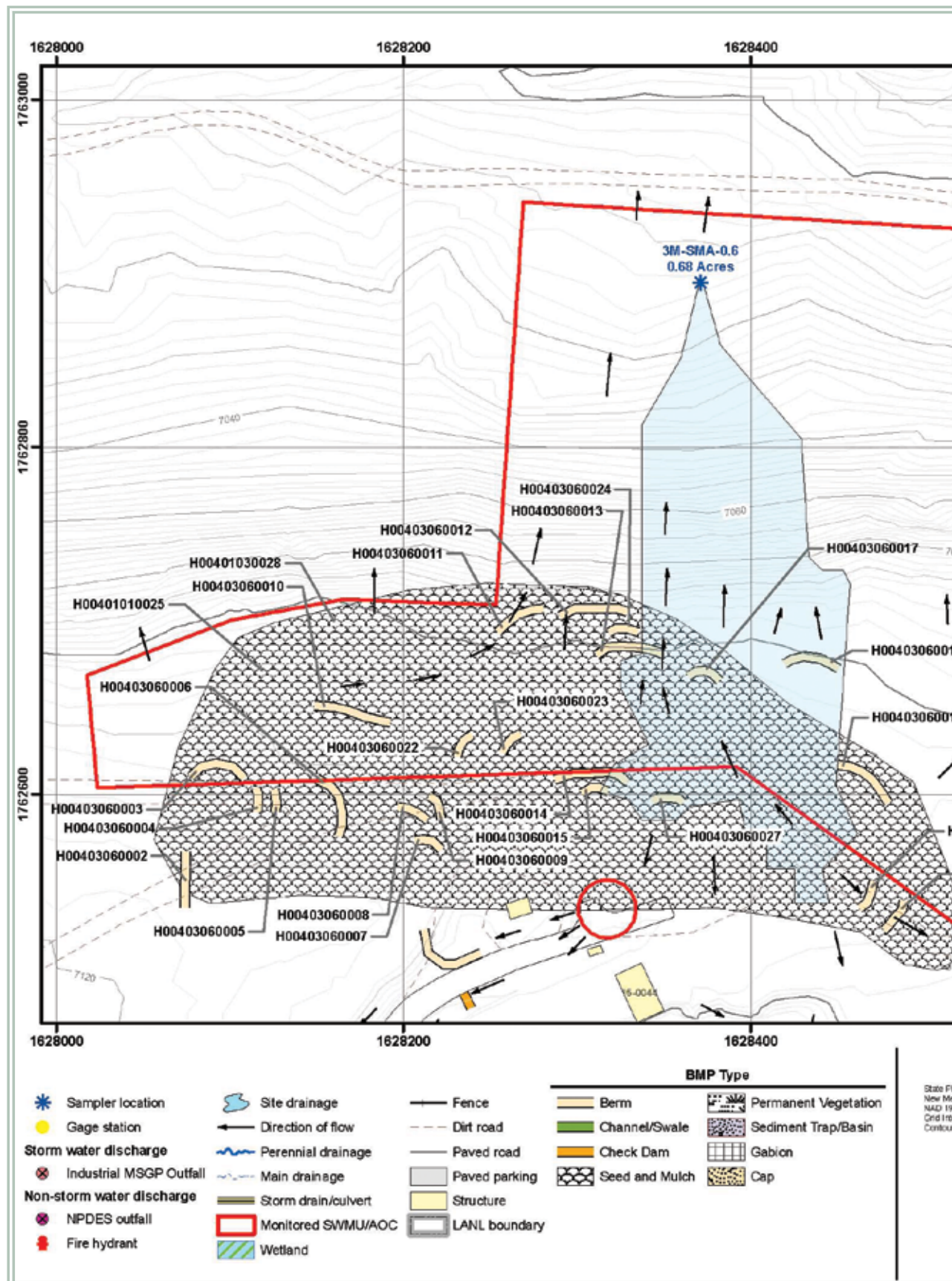
Straw Wattles - East Group E
(H004-03-06-0020, -0021)

This is a group of two straw wattles placed across the unpaved access road east of the southern SMA boundary. They are in place to abate run-off from the SMA. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - West Central Group F
(H004-03-06-0022, -0023, -0024)

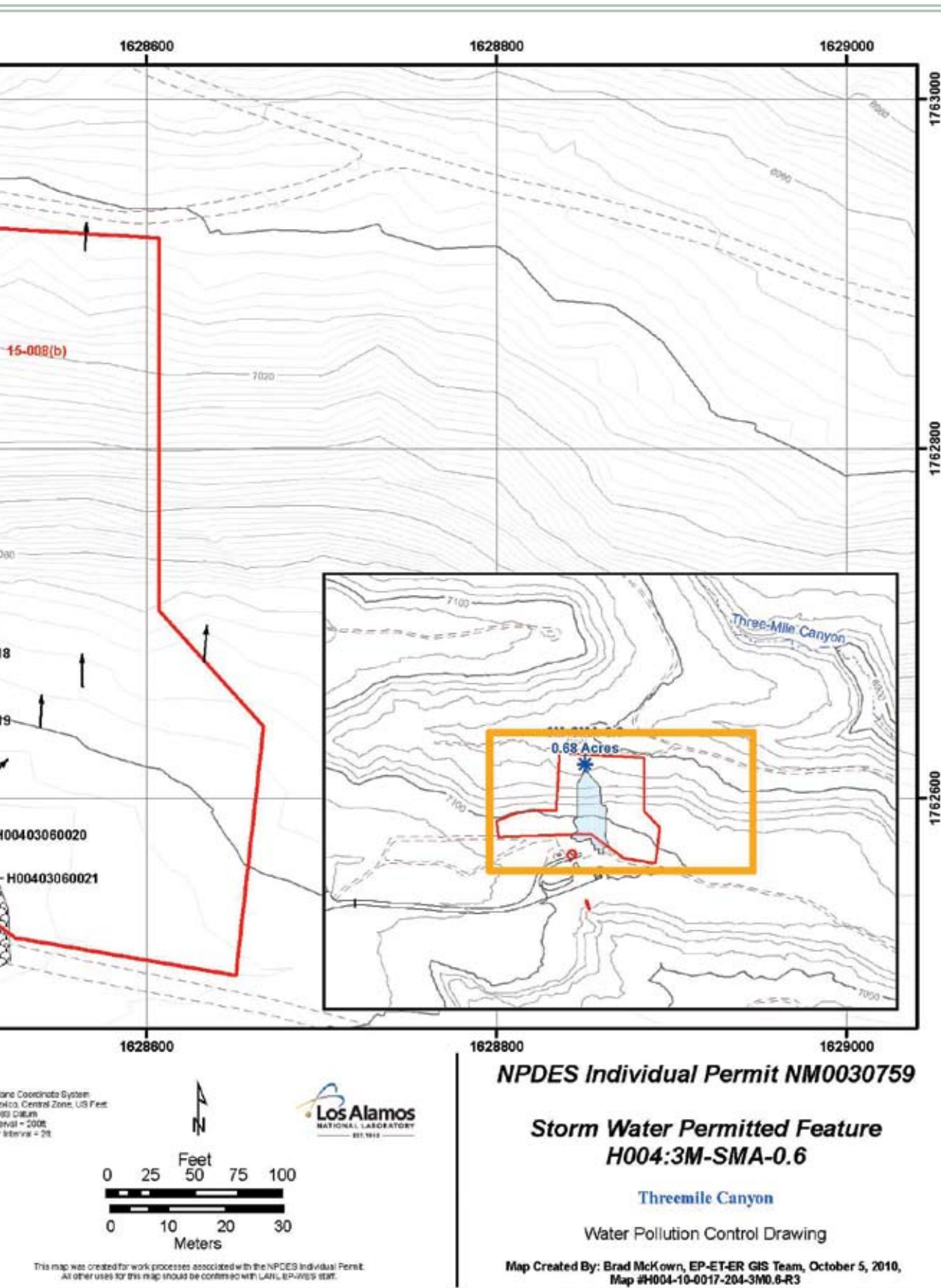
This is a group of two straw wattles located west of the SMA in the central portion of the seeded area. Their purpose is to help prevent run-on from entering the SMA. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.19.4 Project Map



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1000.19.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.19.6 Corrective Action Status

The Site associated with 3M-SMA-0.6 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.20 3M-SMA-2.6

1000.20.1 Area Description

1000.20.2 Potential Pollutant Sources

1000.20.2.1 Historical Industrial Activity Areas

1000.20.3 Control Measures

1000.20.4 Project Map

1000.20.5 StormWater Monitoring Plan and Schedule

1000.20.6 Corrective Action Status



1000.20 3M-SMA-2.6

1000.20.1 Area Description

3M-SMA-2.6 is located within TA-36 and access to the area is controlled. The northern boundary of the SMA gently slopes towards the receiving waters. The southern boundary of the SMA is influenced by paved areas and structures. Storm water flows from the developed area along the southern boundary, north towards the receiving waters.

1000.20.2 Potential Pollutant Sources

1000.20.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF H005, 3M-SMA-2.6, Sites 36-008 and C-36-003.

SWMU 36-008 is a surface disposal area located at TA-36 on the south rim of Threemile Canyon behind building 36-1, shown on Plate 25. The disposal area covers an estimated 1 to 2 acres and extends below the building over the steeply sloping edge of the mesa. The dates the site was used for disposal are not known, but the site appears to be associated with building 36-1 (an office and laboratory), which was constructed in 1949. Materials disposed of at the site included laboratory glassware, metal cans, metal pipe, miscellaneous metal pieces, and other debris. This disposal area was revealed in June 2000 after the Cerro Grande fire burned the vegetation surrounding the site. As part of the emergency response actions associated with the fire, approximately 5 yd³ of debris was collected from the site, segregated, and staged for disposal. Also, as part of the emergency response action, stormwater best management practices were implemented to prevent erosion.

SWMU C-36-003 is a former NPDES-permitted outfall located at TA-36 on the south rim of Threemile Canyon, north of office and laboratory building 36-1. The outfall received effluent from a floor drain and spent photo-processing chemicals from a sink in building 36-1 (an office and laboratory). The outfall became operational shortly after building 36-1 was constructed in 1949. During its operation, the outfall discharged a steady stream of liquid that ran downstream for approximately 35 ft. During a July 1994 sampling effort, it was found that the photo-processing unit was no longer plumbed to the outfall; instead, a floor drain in room 6 of building 36-1 was plumbed to the outfall. This outfall was removed from the NPDES permit by 2001.

1000.20.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
36-008	SWMU - Surface disposal area located near TA-36-1	Co-located, Overlapping	Shared	•	•	•	SVC HE
C-36-003	Outfall from Building 36-1	Co-located, Overlapping	Shared	•	•	•	SVC HE

Substantially Identical Determination

Sites within this SMA are associated with the construction and operation of support building at TA-36. These Sites are physically co-located, have similar suspect contaminants, and share a common drainage. These Sites will discharge substantially identical effluent.

1000.20.3 Control Measures

Road run-on south of the SMA is captured by an asphalt swale, drop inlet, culvert, and discharges to the slope west of the SWMU boundary. A portion of this flow runs onto the SMA at the western boundary. Planned controls are to address this run-on source along the western boundary.

Subsections to 1000.20.3 list all control measures used to control pollutant sources identified in Section 1000.20.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.20.4.

1000.20.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
H005 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
H005 02 02 0002	Established Vegetation - Forested/Needle Cast			•	
H005 02 03 0004	Established Vegetation - Vegetative Buffer Strip			•	
H005 03 12 0005	Berms - Rock	•			•
H005 04 04 0003	Channel/Swale - Culvert	•			
H005 06 01 0006	Check Dam - Rock Check		•		•

Established Vegetation (H005-02-01-0001, -02-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Vegetative Buffer Strip (H005-02-03-0004)

This buffer strip is located north of the SMA and is used to help prevent erosion of the slope. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of

permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion.

Rock Berm (H005-03-12-0005)

This rock berm is located along the northern edge of the unpaved access road at the southern boundary of the SMA. It is in place to control storm water run-on from the road. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

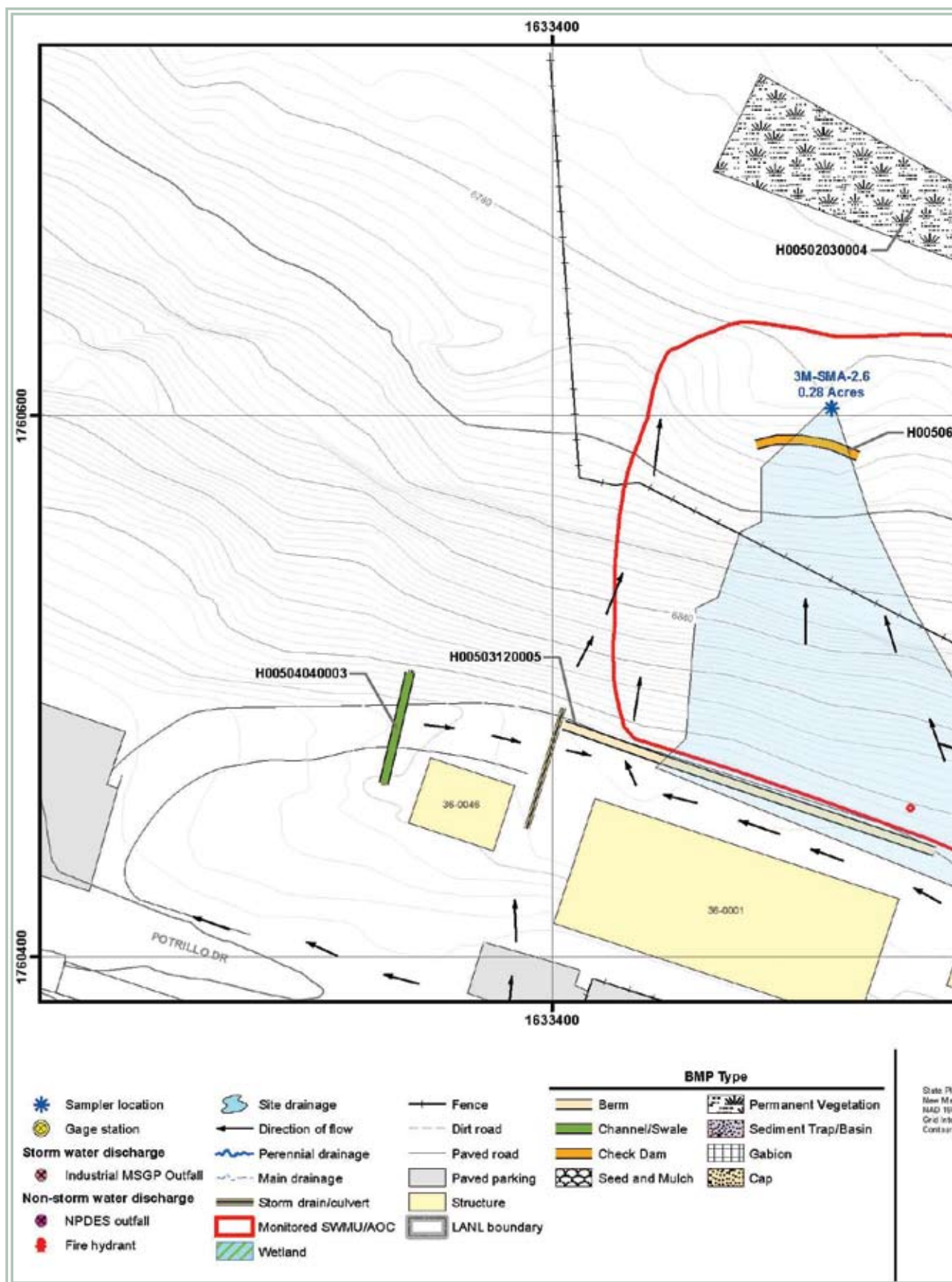
Culvert (H005-04-04-0003)

This culvert is located west of the SMA, passing under the unpaved access road. It is used to help direct storm water run-on. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

Rock Dam (H005-06-01-0006)

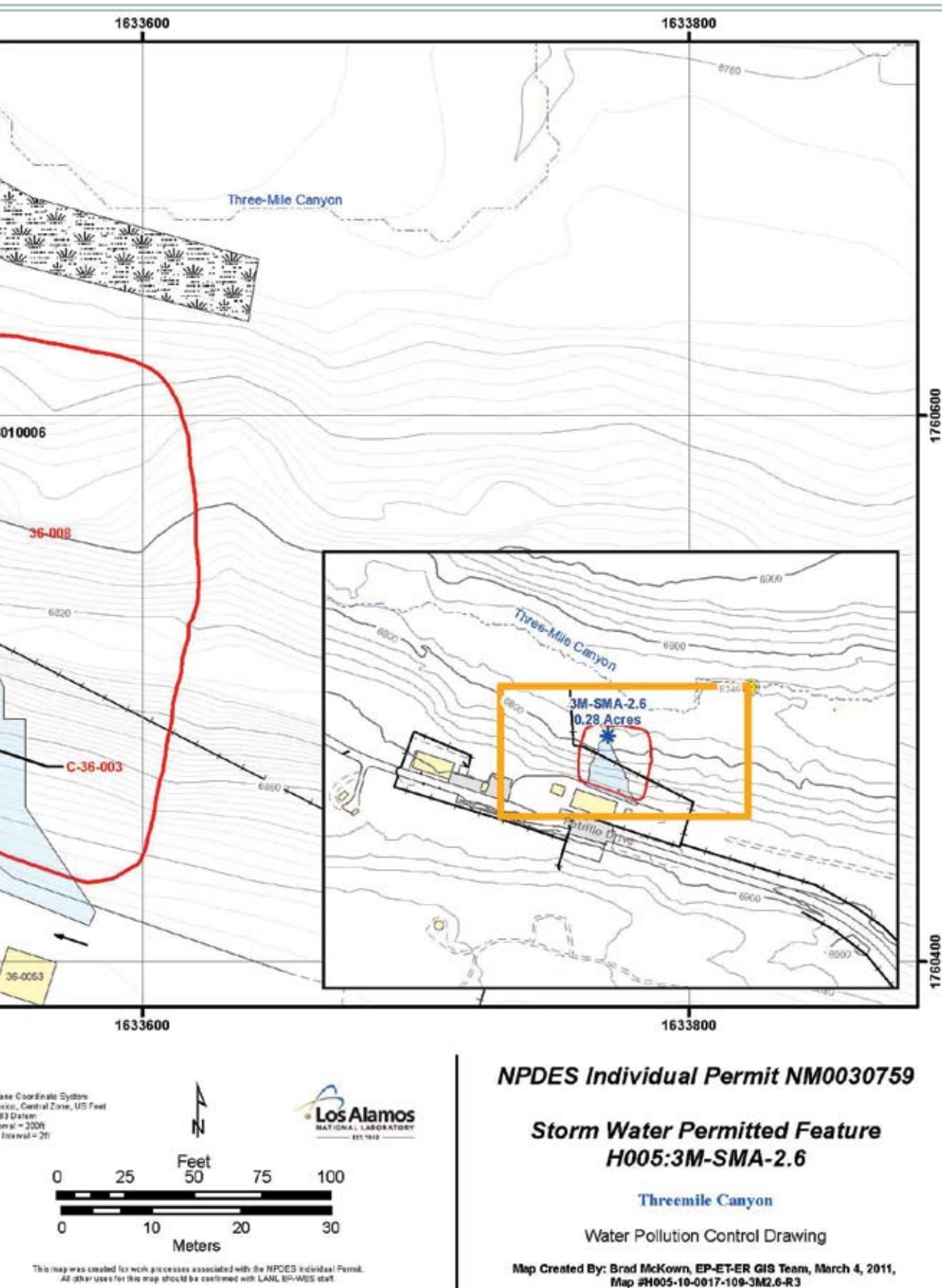
This check dam lies to the south of the sampler and up hill from it to control run-off and sediment. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.20.4 Project Map



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1000.20.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2) SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.20.6 Corrective Action Status

The Sites associated with 3M-SMA-2.6 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.21 3M-SMA-4

1000.21.1 Area Description

1000.21.2 Potential Pollutant Sources

1000.21.2.1 Historical Industrial Activity Areas

1000.21.3 Control Measures

1000.21.4 Project Map

1000.21.5 Storm Water Monitoring Plan and Schedule

1000.21.6 Corrective Action Status



1000.21 3M-SMA-4

1000.21.1 Area Description

3M-SMA-4 is located within TA-18 and access to the area is controlled. The northern boundary of the SMA is undeveloped and steeply sloped. The southern boundary of the SMA is moderately sloped and undeveloped. The eastern boundary of the SMA is partially developed and contains the receiving waters. The western boundary of the SMA is undeveloped. Storm water flows from the northwest to the southeast.

1000.21.2 Potential Pollutant Sources

1000.21.2.1 Historical Industrial Activity Areas

There are three historical industrial activity areas associated with PF H006, 3M-SMA-4, Sites 18-002(b), 18-003(c) and 18-010(f).

SWMU 18-002(b) is an inactive firing site at TA-18 in Threemile Canyon near the present location of building 18-0032 (Kiva 2). The firing site was used from 1944 to 1945. The site consisted of a 2 ft-long x 2 ft-wide x 2-ft-deep firing chamber (former structure 18-0004) constructed from 1-in.-thick steel and an aboveground armored bunker (structure 18-0005), commonly called a 'battleship,' used to protect shot instrumentation. The top of the firing chamber was open and set flush with the ground west of structure 18-0005. A ground-level wooden structure (former structure 18-0006), located east of structure 18-0005, was the battery building for the firing site cable conduit system. It contained racks of lead-acid batteries. Structure 18-0004 was removed in 1945, structure 18-0006 was dismantled in 1951, and structure 18-0005 remains.

Three additional firing points further upcanyon are associated with SWMU 18-002(b). Firing Point C (now beneath building 18-0032) was 51 ft west of structure 18-0005 and on its midline. Firing Point G, located at the southeast corner of the current storage building 18-0122, was 145 ft west of structure 18-0005 on its midline. Firing Points C and G were used

in firing operations involving smaller charges than the third firing point. The third firing point, Medium Firing Point, was built to handle HE charges of up to 2 tons. It was located 478 ft west of structure 18-0005 and 15 ft south of its midline. A flat, graded area west of building 18-0032 marks the former location of this firing point. The firing points were removed in the late 1940s, before the construction of building 18-0032.

SWMU 18-003(c) is an inactive septic system at TA-18 that received sanitary waste from building 18-0032 from 1952 to 1995. The system includes an inlet line, a reinforced concrete septic tank (structure 18-0042), a discharge line, a drain field, and an outfall. The septic tank is located approximately 15 ft east of building 18-0128 and approximately 90 ft northeast of building 18-0032. The tank measures 6 ft in diameter x 5 ft deep and has a capacity of 650 gal. The inlet line leading to the tank is approximately 130 ft in length, and the total length of the outlet line is approximately 115 ft.

The drain field begins approximately 60 ft east of the septic tank and extends east 55 ft. The drain field consists of four drainlines spaced approximately 10 ft apart. Each line is approximately 75 ft long. An outfall, located at the distal end of the drain field, discharged into the stream channel in Threemile Canyon.

AOC 18-010(f) is an outfall at TA-18 that received discharge from the roof and floor drains of building 18-0032. The roof and floor drains discharge into a storm drain that exits the building under the pavement from the northeast corner of building 18-0032. The storm drainline discharges through an outfall, approximately 100 ft north of building 18-0032, located on a sandy, grassy bank on the south side of the stream channel in Threemile Canyon. Building 18-0032 was built in 1951 and used for nuclear critical assembly work. The date this outfall became operational is unknown, but it is likely that the outfall has been operational from the time building 18-0032 was constructed in 1951.

1000.21.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
18-002(b)	Firing site	Co-located, Overlapping	Shared	•	•	•	HE
18-003(c)	Septic system	Co-located, Overlapping	Shared	•		•	
18-010(f)	Outfall from Building 18-32	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

The Sites in this SMA are all associated with the operation of an experimental area at TA-18. The Sites share a common drainage, similar contaminants, and will discharge substantially identical effluent.

1000.21.3 Control Measures

This SMA is located in a canyon floodplain. There is a discrete drainage channel that runs north of the Permitted Feature. Installed controls are in place to stabilize this channel.

Subsections to 1000.21.3 list all control measures used to control pollutant sources identified in Section 1000.21.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.21.4.

1000.21.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
H006 02 01 0004	Established Vegetation - Grasses and Shrubs			•	
H006 03 01 0007	Berms - Earthen		•		•
H006 03 01 0008	Berms - Earthen		•		•
H006 04 02 0009	Channel/Swale - Concrete/Asphalt	•		•	
H006 04 06 0005	Channel/Swale - Rip Rap	•		•	
H006 04 06 0006	Channel/Swale - Rip Rap		•	•	
H006 07 01 0002	Gabions - Gabions	•			•

Established Vegetation (H006-02-01-0004)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while pi-on-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm West (H006-03-01-0007)

This berm is located along the northern boundary of the inner fence line extending from the fence line to the paved parking area. It is used to mitigate run-off from the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm East (H006-03-01-0008)

This earthen berm is located across the natural drainage near the northeast corner of the double fence lines. It is used to control the run-off from the paved areas. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Concrete Swale (H006-04-02-0009)

This swale run along the entire length of the south side of the double fence line. Its function is to divert storm water run-on away from the SMA to the east. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Rip Rap East (H006-04-06-0005)

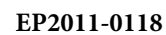
This rip rap is located south of Godiva Road in the unpaved access turn around. It is in place to control run-on from the concrete swale and prevent erosion of the road side ditch. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rip Rap North (H006-04-06-0006)

This rip rap is located outside the northeast corner of the fenced area, below the culvert outlet. It is in place to regulate storm water run-off and prevent erosion of the area. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

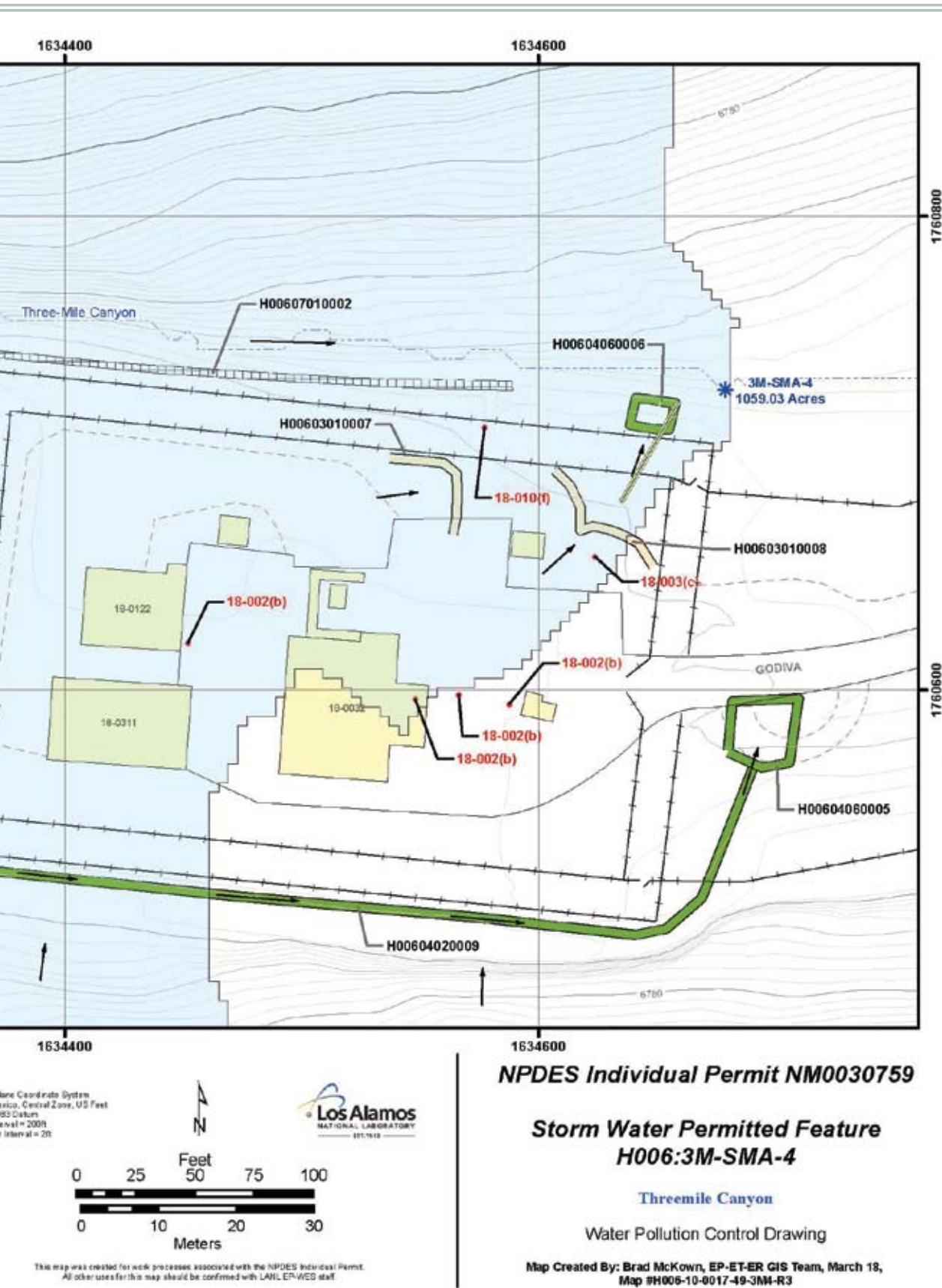
Gabions (H006-07-01-0002)

This gabion runs parallel to the northern outside fence line surrounding the various structures. It is used to stabilize the channel and prevent channel run-on to the associated SWMUs. Gabions are large, multi-celled, welded wire or rectangular wire mesh boxes, used in channel revetments, retaining walls, abutments, and check dams. Gabions are used for sediment control when installed perpendicular to the storm water flow as with a check dam.



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1000.21.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE(2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.21.6 Corrective Action Status

The Sites associated with 3M-SMA-4 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.22 STRM-SMA-1.05

1000.22.1 Area Description

1000.22.2 Potential Pollutant Sources

1000.22.2.1 Historical Industrial Activity Areas

1000.22.3 Control Measures

1000.22.4 Project Map

1000.22.5 Storm Water Monitoring Plan and Schedule

1000.22.6 Corrective Action Status



1000.22 STRM-SMA-1.05

1000.22.1 Area Description

STRM-SMA-1.05 is located within TA-08 and access to the area is controlled. The northern boundary of the SMA is undeveloped and slopes gently southeast. The southern boundary of the SMA is influenced by a paved access road. The eastern boundary of the SMA is influenced by paving and structures. Further south along this boundary are the receiving waters. The western boundary of the SMA is influenced by a paved access road.

1000.22.2 Potential Pollutant Sources

1000.22.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J028, STRM-SMA-1.05, Site 08-009(f).

AOC 08-009(f) was an outfall in TA-08 near a manhole (structure 8-57), at the southeast end of the x-ray building (Building 08-22). Historically, fluorescent penetrant, developer, and emulsifiers from fluorescent penetration experiments were discharged to the outfall through two floor drains (1FD12 and 1FD13). The valves to the sinks which discharged to drains 1FD12 and 1FD13 were disconnected in 1992 and the drains were re-piped to the sanitary sewer system. After 1992, secondary containers were used to collect the chemicals prior to disposal.

1000.22.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
08-009(f)	Outfall associated with Building 8-22	Discrete Location, No overlap	Individual	•		•	

1000.22.3 Control Measures

Run-on from the paved access road is directed to the culvert inlet located adjacent to the former out fall via the roadside conveyance located along the southern SMA boundary and the conveyance located west of building 08-0022. Roof run-on terminates at a ponding area in the vegetated area just west of building 08-0022 and does not impact the SWMU.

Subsections to 1000.22.3 list all control measures used to control pollutant sources identified in Section 1000.22.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.22.4.

1000.22.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J028 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
J028 02 03 0003	Established Vegetation - Vegetative Buffer Strip	•		•	
J028 04 06 0006	Channel/Swale - Rip Rap		•	•	
J028 06 01 0001	Check Dam - Rock	•			•
J028 06 01 0004	Check Dam - Rock	•			•
J028 06 01 0005	Check Dam - Rock	•			•

Established Vegetation (J028-02-01-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Permanent Vegetation - Vegetative Buffer Strip (J028-02-03-0003)

This buffer strip is located near the southern boundary of the SMA adjacent to the paved access road. Its purpose is to control run-on and prevent erosion of the slope. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion.

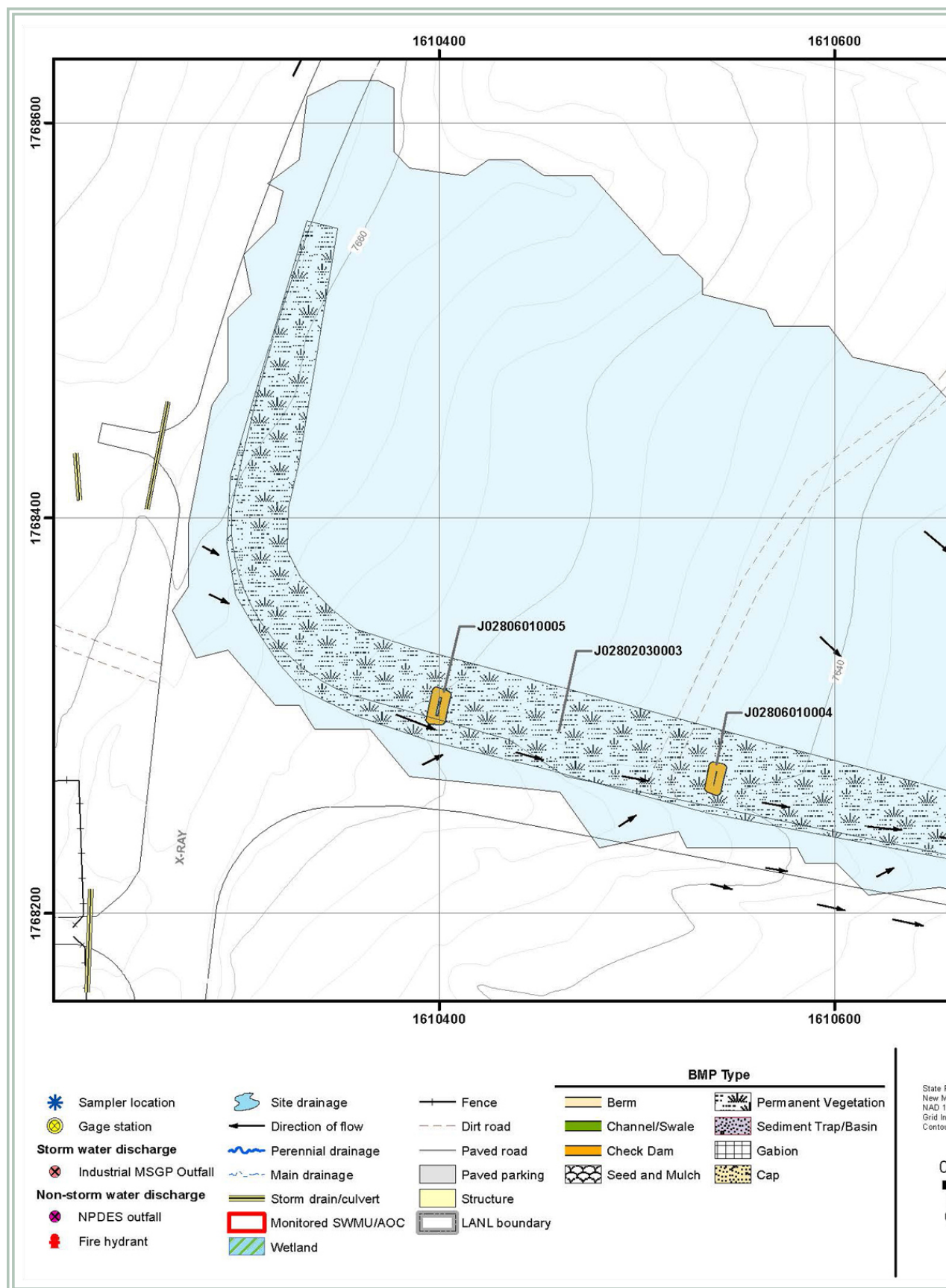
Rip Rap (J028-04-06-0006)

The rip rap is located at the culvert southeast of building 22. It is used to mitigate run-off and prevent erosion of the drainage channel. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dam (J028-06-01-0001, -0004, -0005)

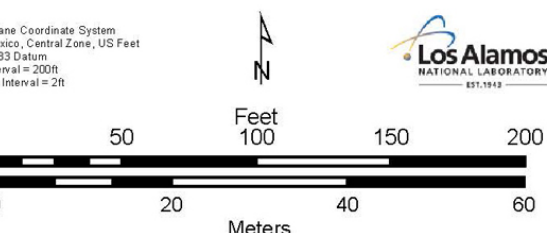
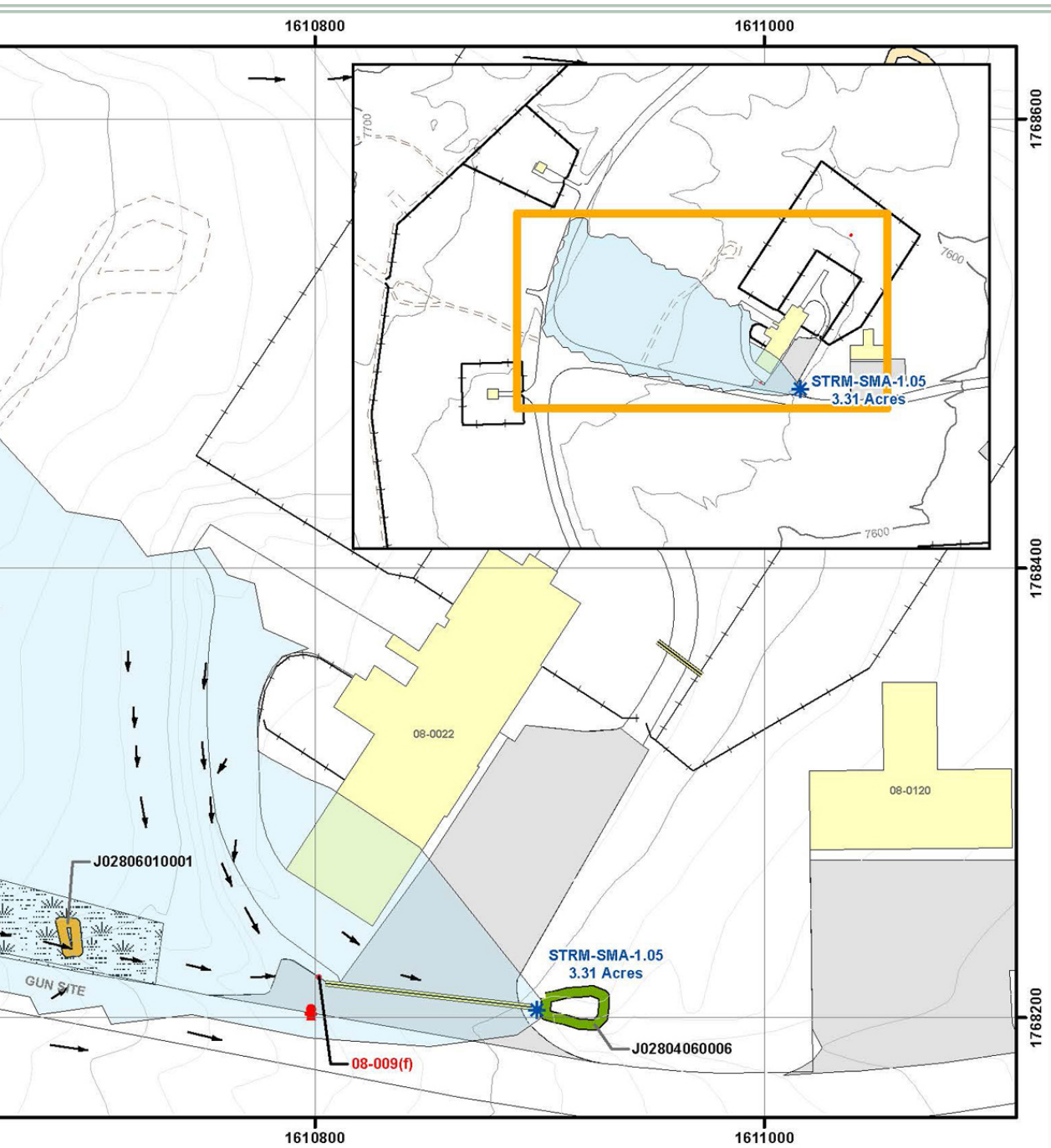
This is a series of check dams located in the channel near the southern boundary of the SMA adjacent to the paved access road. They are in place to control run-on from the road and collect sediments in any run-on. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.22.4 Project Map



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Los Alamos National Laboratory, NPDES Permit No. NM0030759
EP-DIR-PLAN-10005, R.0 • April 5, 2011



NPDES Individual Permit NM0030759

**Storm Water Permitted Feature
J028: STRM-SMA-1.05**

Pajarito Canyon

Water Pollution Control Drawing

Map Created By: Brad McKown, EP-ET-ER GIS Team, March 16, 2011,
Map #J028-10-0017-180-STRM1.05-R3

1000.22.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.22.6 Corrective Action Status

The Site associated with STRM-SMA-1.05 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.23 STRM-SMA-1.5

1000.23.1 Area Description

1000.23.2 Potential Pollutant Sources

1000.23.2.1 Historical Industrial Activity Areas

1000.23.3 Control Measures

1000.23.4 Project Map

1000.23.5 Storm Water Monitoring Plan and Schedule

1000.23.6 Corrective Action Status



1000.23 STRM-SMA-1.5

1000.23.1 Area Description

STRM-SMA-1.5 is located within TA-08 and access to the area is controlled. The northern boundary of the SMA is undeveloped and gently sloping northeast. The southern boundary of the SMA is undeveloped. The eastern boundary of the SMA is undeveloped and contains the receiving waters along the northeastern corner. The western boundary of the SMA is influenced by a paved access road.

1000.23.2 Potential Pollutant Sources

1000.23.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J029, STRM-SMA-1.5, Site 08-009(d).

SWMU 08-009(d) consists of the drains at TA-08 that discharge to an outfall into Starmer Gulch, a tributary of Pajarito Canyon. The drains served an x-ray building (Building 08-22), which was built in 1950 to house x-ray machines that are used for radiography. The outfall is a formerly NPDES permitted outfall. Photo-processing and photo-development solutions that contained silver salts sometimes were disposed of directly into a dedicated drain in the building. The outfall for the building drains was located approximately 300 feet northeast of Building 08-22.

1000.23.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
08-009(d)	Drains	Discrete Location, No overlap	Individual	•	•	•	SVC

1000.23.3 Control Measures

The primary source of run-on to this SMA is a culvert system associated with the paved access road bisecting the SMA.

Subsections to 1000.23.3 list all control measures used to control pollutant sources identified in Section 1000.23.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.23.4.

1000.23.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J029 01 01 0007	Seed and Mulch - Seed and Wood Mulch	•		•	
J029 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
J029 02 02 0002	Established Vegetation - Forested/Needle Cast			•	
J029 03 06 0003	Berms - Straw Wattles		•		•
J029 03 06 0004	Berms - Straw Wattles	•			•
J029 03 06 0005	Berms - Straw Wattles	•			•
J029 03 06 0006	Berms - Straw Wattles	•			•

Seed and Mulch (J029-01-01-0007)

Seed and mulch has been applied to the area northeast of the inner fence. It is used to help prevent erosion of the bare areas. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (J029-02-01-0001, -02-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

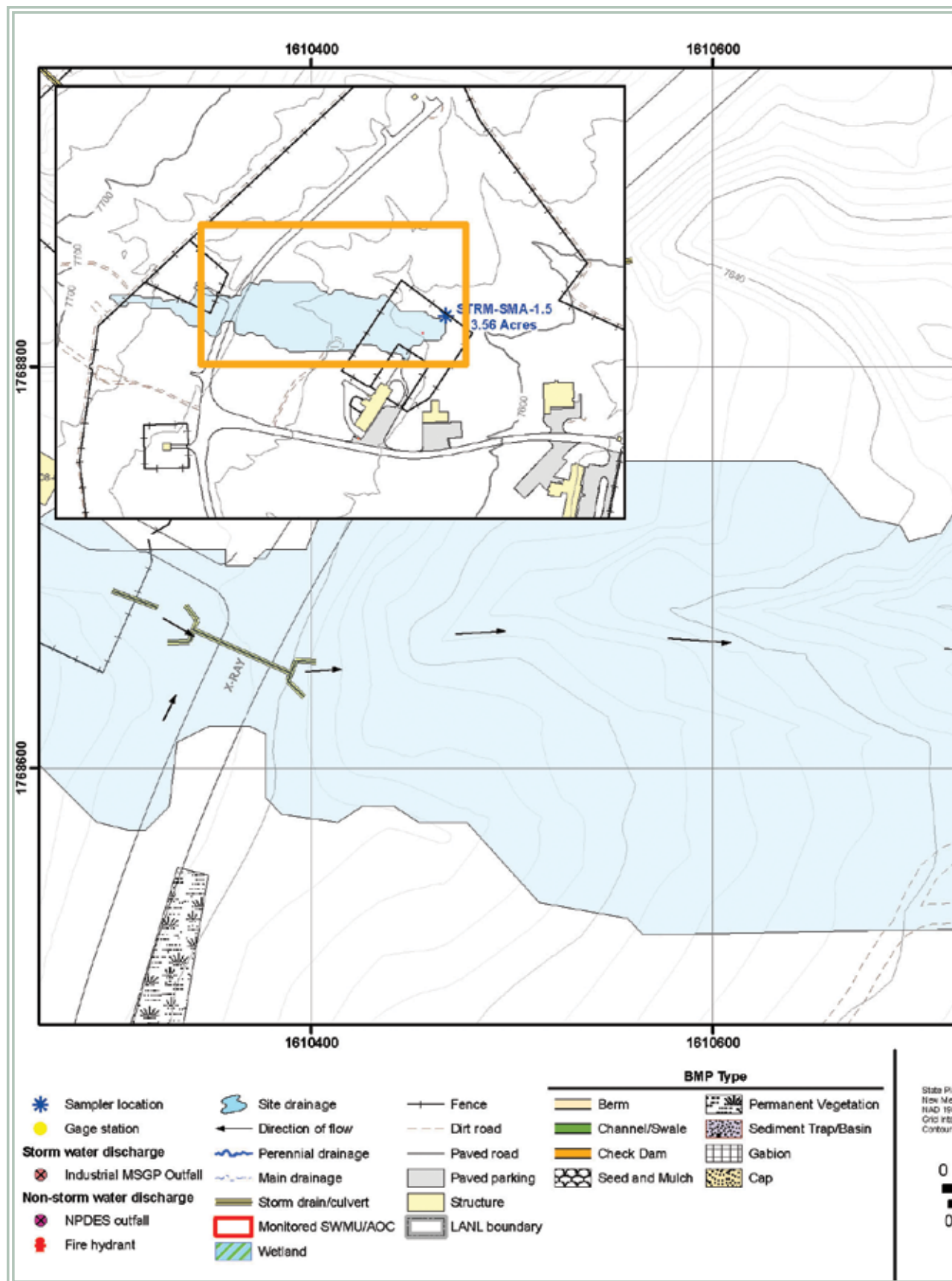
Straw Wattles - North (J029-03-06-0003)

This wattle is located in the northern portion of the monitored area, southwest of the sampler location. The wattles are used to control run-off from the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.)

Straw Wattles - South (J029-03-06-0004, -0005, -0006)

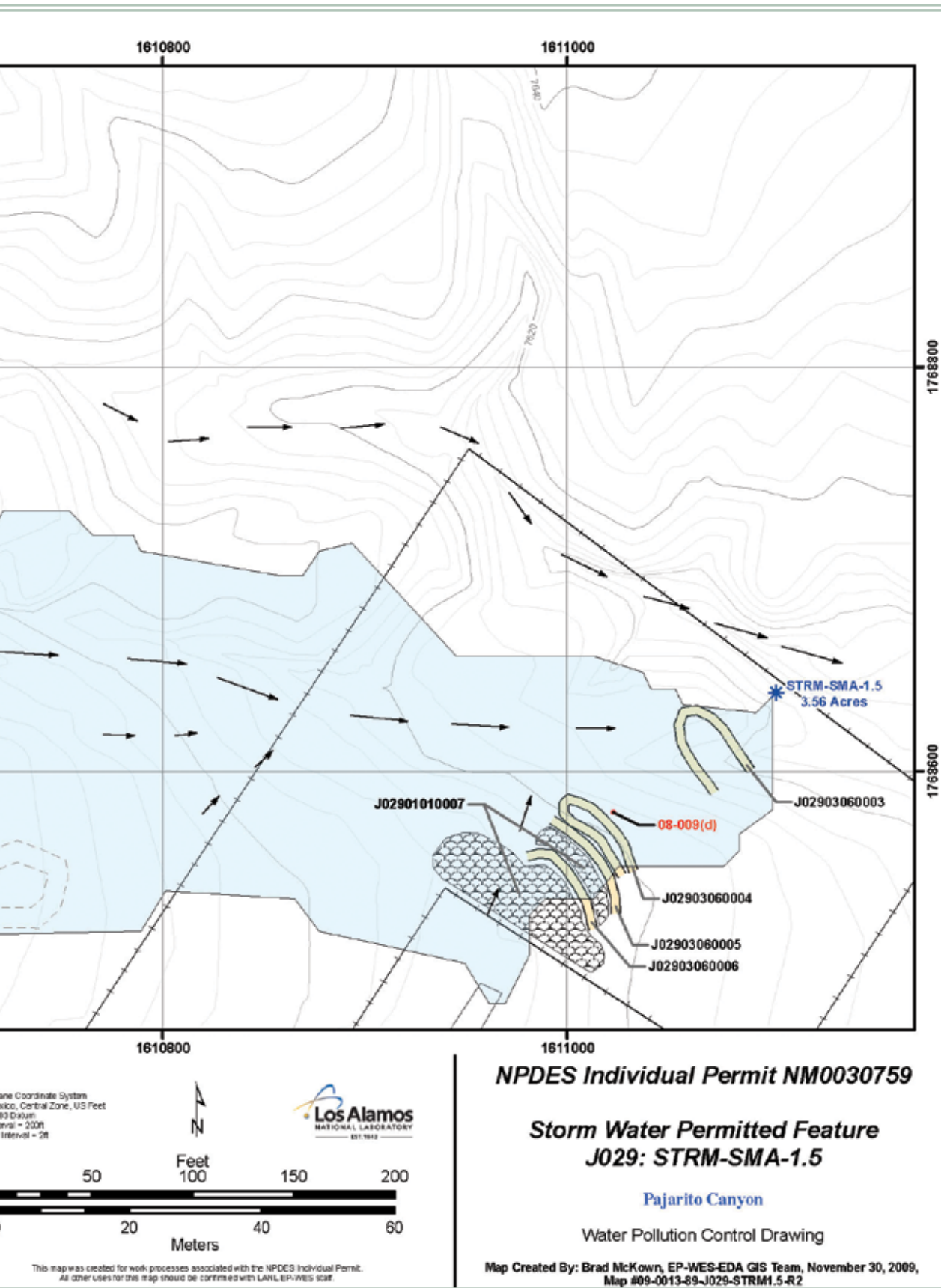
This is a series of three straw wattles located northeast of, and within, the seeded and mulched area. They are in place to help mitigate run-on from the paved areas to the southwest. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.23.4 Project Map



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1000.23.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.23.6 Corrective Action Status

The Site associated with STRM-SMA-1.5 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.24 STRM-SMA-4.2

1000.24.1 Area Description

1000.24.2 Potential Pollutant Sources

1000.24.2.1 Historical Industrial Activity Areas

1000.24.3 Control Measures

1000.24.4 Project Map

1000.24.5 Storm Water Monitoring Plan and Schedule

1000.24.6 Corrective Action Status



1000.24 STRM-SMA-4.2

1000.24.1 Area Description

STRM-SMA-4.2 is located within TA-09 and access to the area is controlled. The SMA gently slopes towards the receiving water to the southeast.

1000.24.2 Potential Pollutant Sources

1000.24.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J030, STRM-SMA-4.2, Site 09-008(b).

SWMU 09-008(b) is an oxidation pond that received sanitary waste from structure 09-211. The pond is 65 ft long x 15 ft wide x 6 ft deep and is located 15 feet east of structure 09-211, about 250 feet east of Anchor Ranch Road. The oxidation pond was used to treat sanitary waste from old Anchor East and West Site. LANL conducted an RFI at SWMUs 09-005(a and d) and 09-008(b) in 1995 to determine if strontium-90 had been transported to the SWMU through the sewage system that was in service from 1950-1988.

1000.24.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
09-008(b)	Oxidation Pond	Discrete Location, No overlap	Individual	•		•	

1000.24.3 Control Measures

The run-on diversion channel located to the north of the SMA serves to divert run-on away from the Permitted Feature.

Subsections to 1000.24.3 list all control measures used to control pollutant sources identified in Section 1000.24.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.24.4.

1000.24.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J030 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
J030 03 01 0003	Berms - Earthen		•		•
J030 04 01 0002	Channel/Swale - Earthen	•		•	

Established Vegetation (J030-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

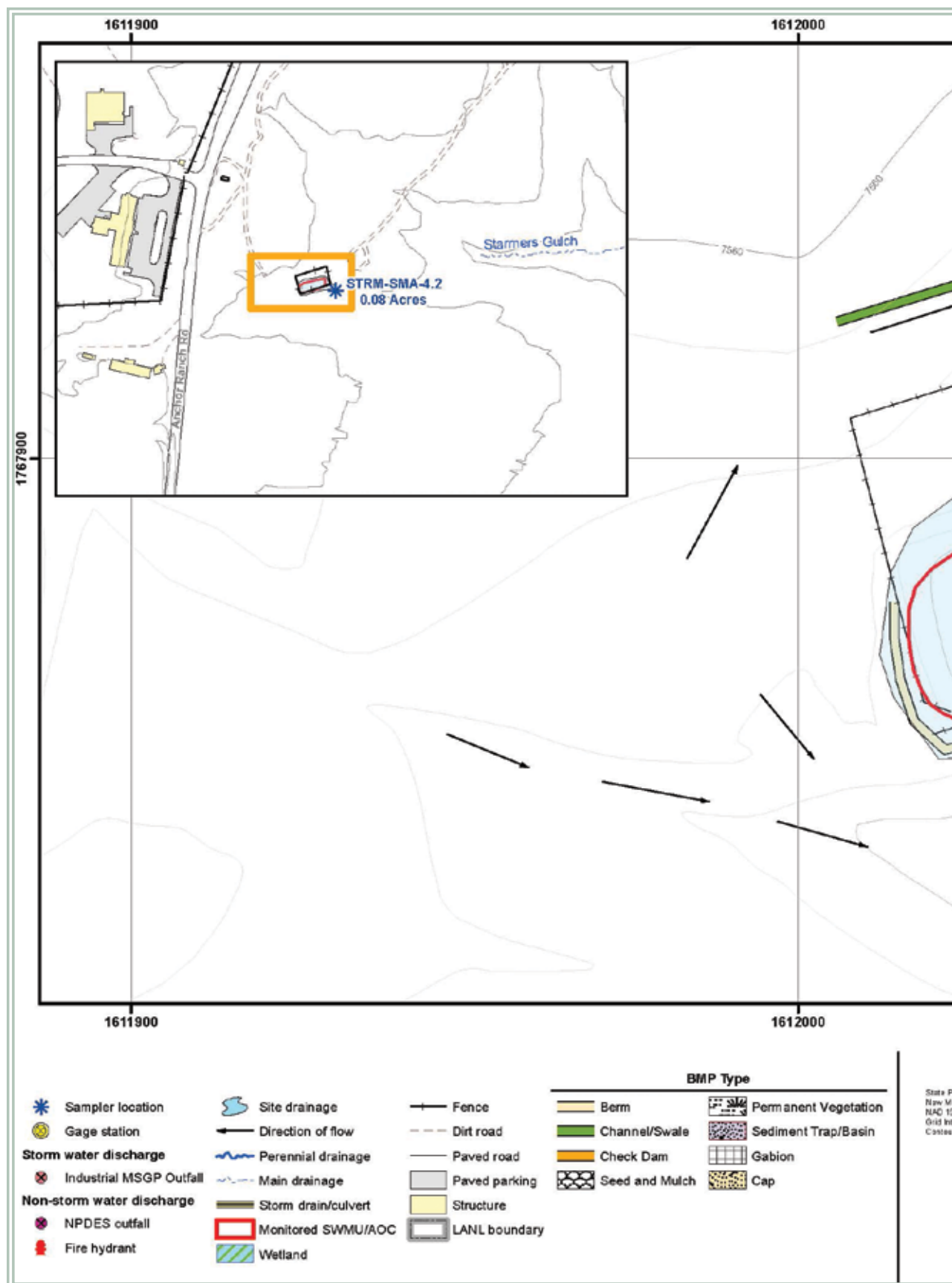
Earthen Berms (J030-03-01-0003)

This berm is located along the southern side of the Site running parallel to the fence line. It is in place to control run-off from the SMA. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

North Channel (J030-04-01-0002)

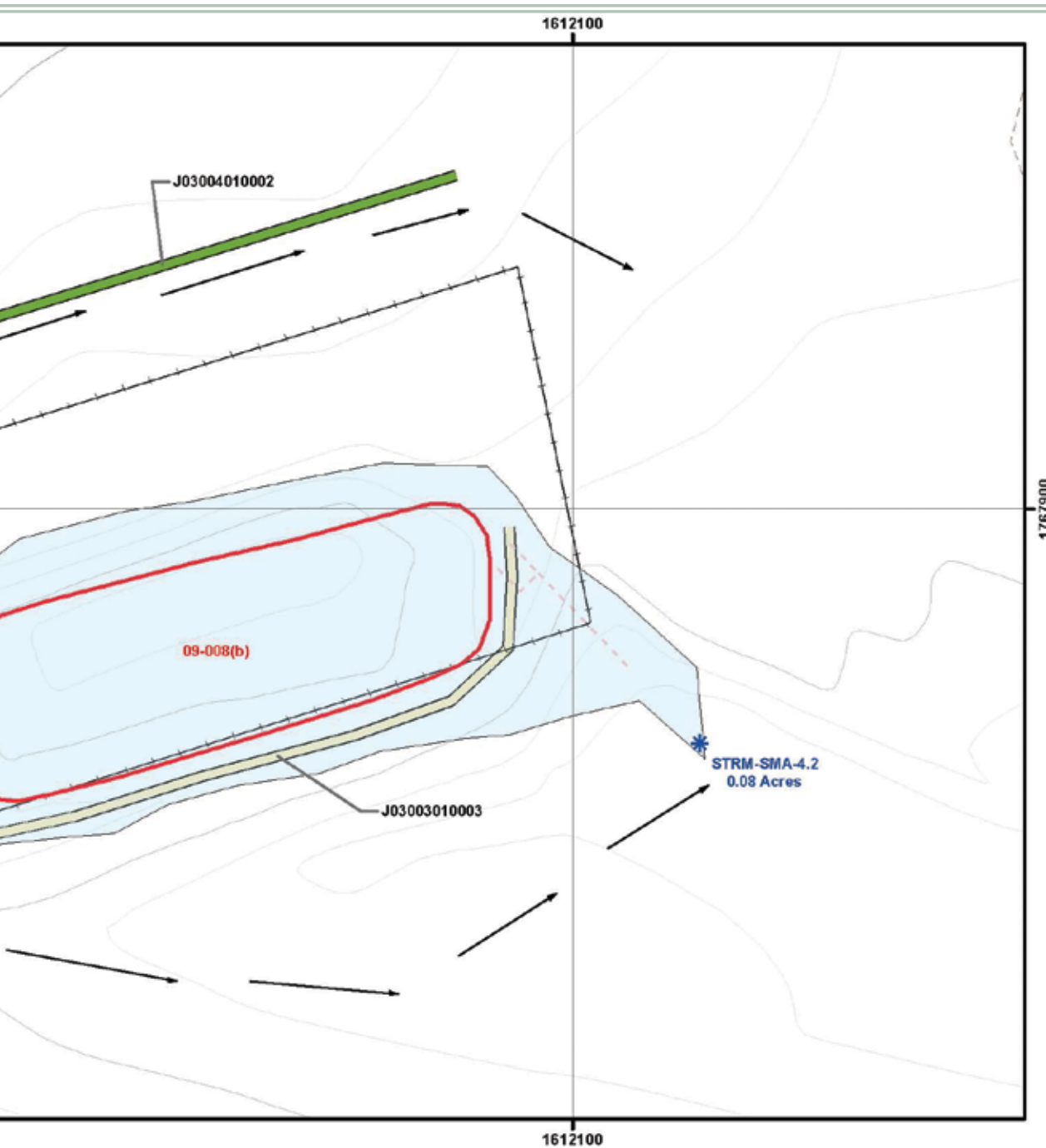
The north channel is located on the northern side of the SMA and diverts run-on flow from the west around the monitored area. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

1000.24.4 Project Map

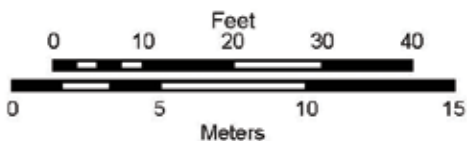


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Plane Coordinate System
Mexico, Central Zone, US Feet
100 Datum
Interval = 1000
Interval = 20



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All other uses for this map should be confirmed with LANL EP-WCS staff.

NPDES Individual Permit NM0030759

**Storm Water Permitted Feature
J030: STRM-SMA-4.2**

Pajarito Canyon

Water Pollution Control Drawing

Map Created By: Brad McKown, EP-ET-ER GIS Team,
March 21, 2011, Map #J030-10-0017-223-STRM4.2-R4

1000.24.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.24.6 Corrective Action Status

The Site associated with STRM-SMA-4.2 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.25 STRM-SMA-5.05

1000.25.1 Area Description

1000.25.2 Potential Pollutant Sources

1000.25.2.1 Historical Industrial Activity Areas

1000.25.3 Control Measures

1000.25.4 Project Map

1000.25.5 Storm Water Monitoring Plan and Schedule

1000.25.6 Corrective Action Status



1000.25 STRM-SMA-5.05

1000.25.1 Area Description

STRM-SMA-5.05 is located within TA-09 and access to the area is controlled. The northern boundary of the SMA is undeveloped and contains an unpaved access road leading to a satellite storage area, further north and west. The southern boundary of the SMA is undeveloped and slopes gently to the receiving waters in Starmer Canyon along the southeastern boundary. The eastern boundary of the SMA is undeveloped. The western boundary of the SMA is undeveloped.

1000.25.2 Potential Pollutant Sources

1000.25.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J031, STRM-SMA-5.05, Site 09-013.

SWMU 09-013 is former MDA M, which consisted of two disposal areas at TA-09: a 3.2 acre circular surface MDA and a satellite disposal area located about 750 feet northwest of the main disposal area. MDA M and the satellite area are located within the secure area of TA-09, southeast of guard station 502 and northeast of old Anchor Ranch East Site, TA-08. Both areas are located on a mesa between two branches of Pajarito Canyon. The main disposal area was surrounded by an earth berm that was eroded through by surface-water run-off. MDA M was used as a surface dump for construction debris and other solid wastes. Metal and debris generated during the removal of the old Anchor Ranch East and West Sites and construction of the present TA-08 and TA-09 facilities (1945 to 1965) were flash-burned to remove any HE, and deposited over the MDA M surface. Nonhazardous wastes from the construction of other sites also were disposed of at MDA M from 1960 through 1965. MDA M has been inactive since 1965. In 1995 and 1996 surface debris and contaminated soil were removed. Following the remedial activities, the site access road was regraded and revegetated. The main disposal area was graded and tiered to prevent erosion, and then seeded to control soil movement and erosion.

1000.25.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
09-013	Material Disposal Area (MDA) M	Discrete Location, No overlap	Individual	•	•	•	PCBs

1000.25.3 Control Measures

Potential run-on to the SMA is sheet flow and run-on generated by the unpaved access road. These run-on contributions are minimal and run-on is managed effectively by the existing controls.

Subsections to 1000.25.3 list all control measures used to control pollutant sources identified in Section 1000.25.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.25.4.

1000.25.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J031 02 01 0003	Established Vegetation - Grasses and Shrubs			•	
J031 03 02 0004	Berms - Base Course		•		•
J031 03 05 0005	Silt Dike		•		•
J031 03 05 0006	Silt Dike	•			•
J031 03 06 0007	Straw Wattles		•		•

Established Vegetation (J031-02-01-0003)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Base Course Berm (J031-03-02-0004)

The berm is located on the northern side of the unpaved access road. It is in place to mitigate run-off from the area. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Silt Dike - East (J031-03-05-0005)

A silt dike is located on the eastern side of the SMA and serves to mitigate run-off in the area. A silt dike is an earthen structure used to interrupt or contain the flow of water.

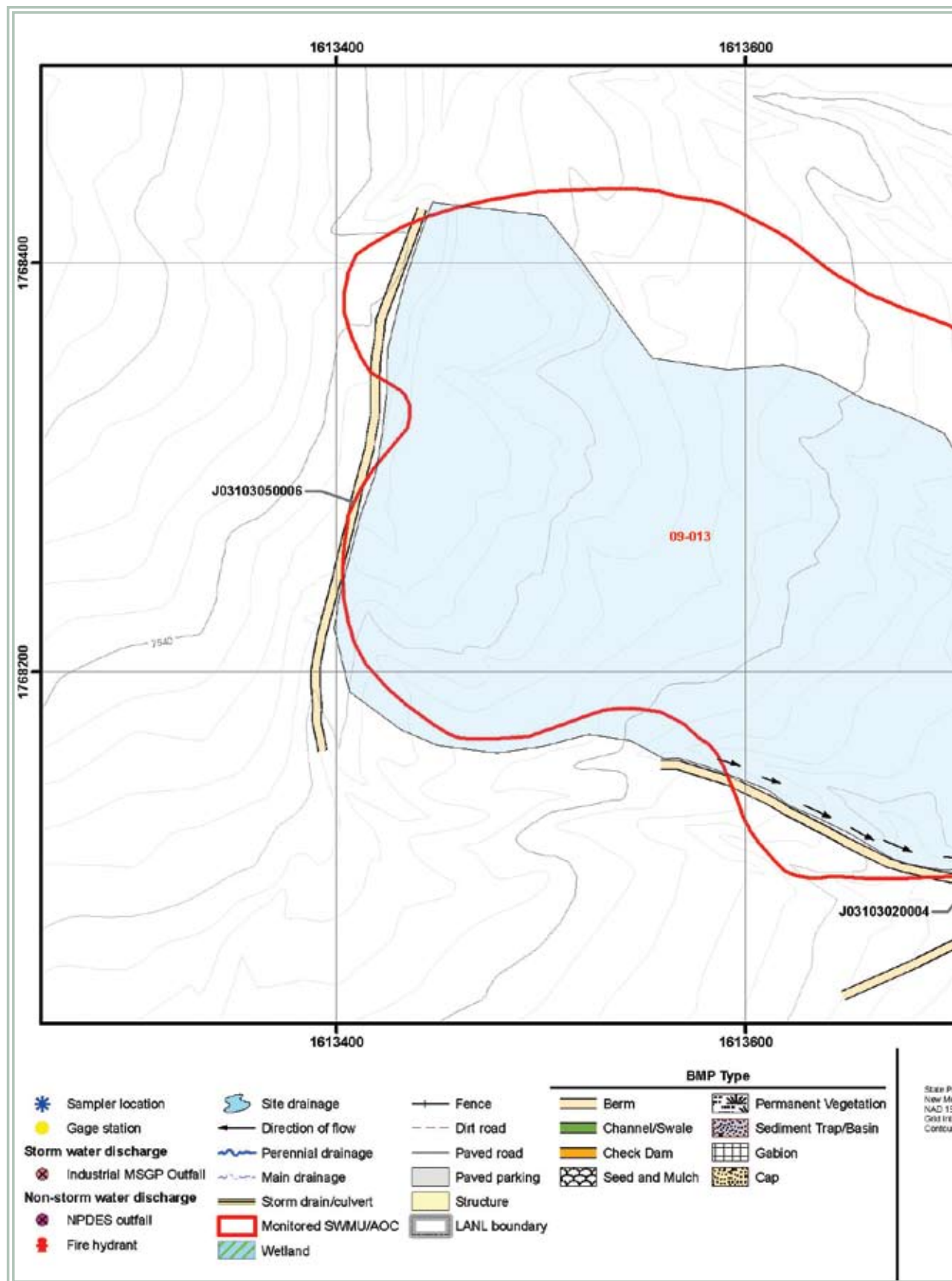
Silt Dike (J031-03-05-0006)

A silt dike is located on the western portion of the area and serves as a run-on control. A silt dike is an earthen structure used to interrupt or contain the flow of water.

Straw Wattles (J031-03-06-0007)

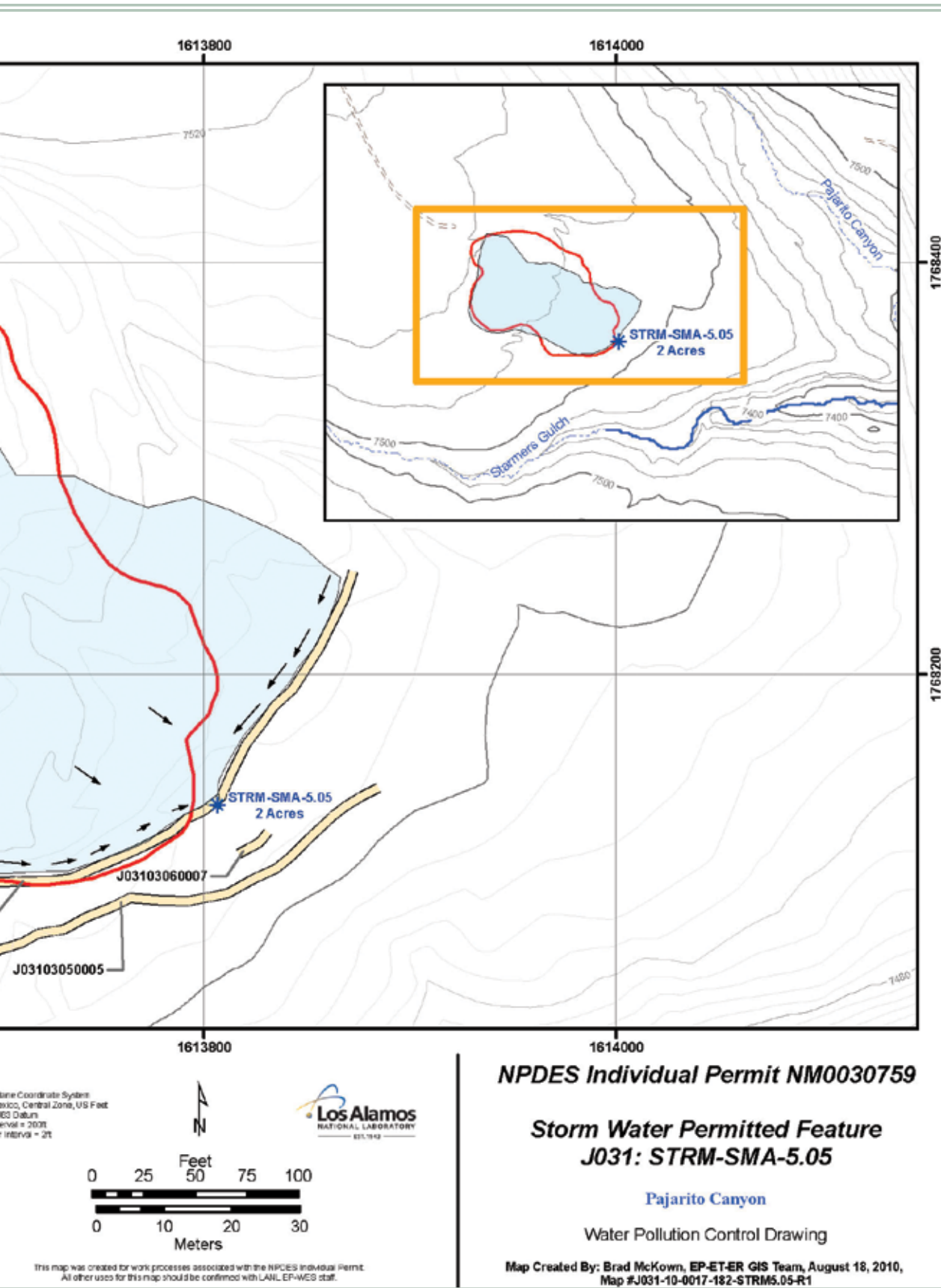
The wattles are located southeast of the sampler and southeast of the unpaved access road and are used to control run-off from the Site. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.25.4 Project Map



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1000.25.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.25.6 Corrective Action Status

The Sites associated with STRM-SMA-5.05 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.26 PJ-SMA-1.05

1000.26.1 Area Description

1000.26.2 Potential Pollutant Sources

1000.26.2.1 Historical Industrial Activity Areas

1000.26.3 Control Measures

1000.26.4 Project Map

1000.26.5 Storm Water Monitoring Plan and Schedule

1000.26.6 Corrective Action Status



1000.26 PJ-SMA-1.05

1000.26.1 Area Description

PJ-SMA-1.05 is located within TA-09 and access to the area is controlled. The northern boundary of the SMA is undeveloped and sloping east towards the receiving waters along the eastern boundary. The southern boundary of the SMA is undeveloped and contains an unpaved access road leading to the primary disposal area further south and east. The eastern boundary of the SMA is undeveloped and contains the receiving waters of Pajarito Canyon. The western boundary of the SMA is undeveloped and contains unpaved access roads.

1000.26.2 Potential Pollutant Sources

1000.26.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J001, PJ-SMA-1.05, Site 09-013.

SWMU 09-013 is former MDA M, which consisted of two disposal areas at TA-09: a 3.2 acre circular surface MDA and a satellite disposal area located about 750 feet northwest of the main disposal area. MDA M and the satellite area are located within the secure area of TA-09, southeast of guard station 502 and northeast of old Anchor Ranch East Site, TA-08. Both areas are located on a mesa between two branches of Pajarito Canyon. The main disposal area was surrounded by an earth berm that was eroded through by surface-water run-off. MDA M was used as a surface dump for construction debris and other solid wastes. Metal and debris generated during the removal of the old Anchor Ranch East and West Sites and construction of the present TA-08 and TA-09 facilities (1945 to 1965) were flash-burned to remove any HE, and deposited over the MDA M surface. Nonhazardous wastes from the construction of other sites also were disposed of at MDA M from 1960 through 1965. MDA M has been inactive since 1965. In 1995 and 1996 surface debris and contaminated soil were removed. Following the remedial activities, the site access road was regraded and revegetated. The main disposal area was graded and tiered to prevent erosion, and then seeded to control soil movement and erosion.

1000.26.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
09-013	Material Disposal Area (MDA) M	Discrete Location, No overlap	Individual	•	•	•	PCBs

1000.26.3 Control Measures

This permitted feature is gently sloped although there is evidence of minor run-on from the unpaved access road that bisects the Site.

Subsections to 1000.26.3 list all control measures used to control pollutant sources identified in Section 1000.26.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.26.4.

1000.26.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J001 01 01 0007	Seed and Mulch - Seed and Wood Mulch		•	•	
J001 02 01 0003	Established Vegetation - Grasses and Shrubs			•	
J001 03 06 0004	Berms - Straw Wattles		•		•
J001 03 06 0005	Berms - Straw Wattles		•		•
J001 03 06 0006	Berms - Straw Wattles		•		•
J001 04 05 0008	Channel/Swale - Water Bar		•	•	
J001 04 05 0009	Channel/Swale - Water Bar	•		•	
J001 04 06 0011	Channel/Swale - Rip Rap		•	•	
J001 06 01 0010	Check Dam - Rock		•		•

Seed and Mulch (J001-01-01-0007)

Seed and mulch has been applied to the southern and eastern portion of the SMA, extending outside the SMA footprint. It is used primarily as an erosion control measure for run-off in the area. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (J001-02-01-0003)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles (J001-03-06-0004, -0005, -0006)

This is a series of three straw wattles located southeast of the central portion of the

SMA. They are used to mitigate run-off from the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Water Bar (J001-04-05-0008)

The water bar is located on the unpaved access road southwest of the SMA. It is used for run-on and erosion control. A diversion dam constructed across a road or trail to remove and disperse surface run-off in a manner that adequately protects the soil resource and limits sediment transportation.

North Water Bar (J001-04-05-0009)

This water bar is located on the north side of the SMA boundary southwest of the sampler. It is in place to manage road run-off and reduce erosion. A diversion dam constructed across a road or trail to remove and disperse surface run-off in a manner that adequately protects the soil resource and limits sediment transportation.

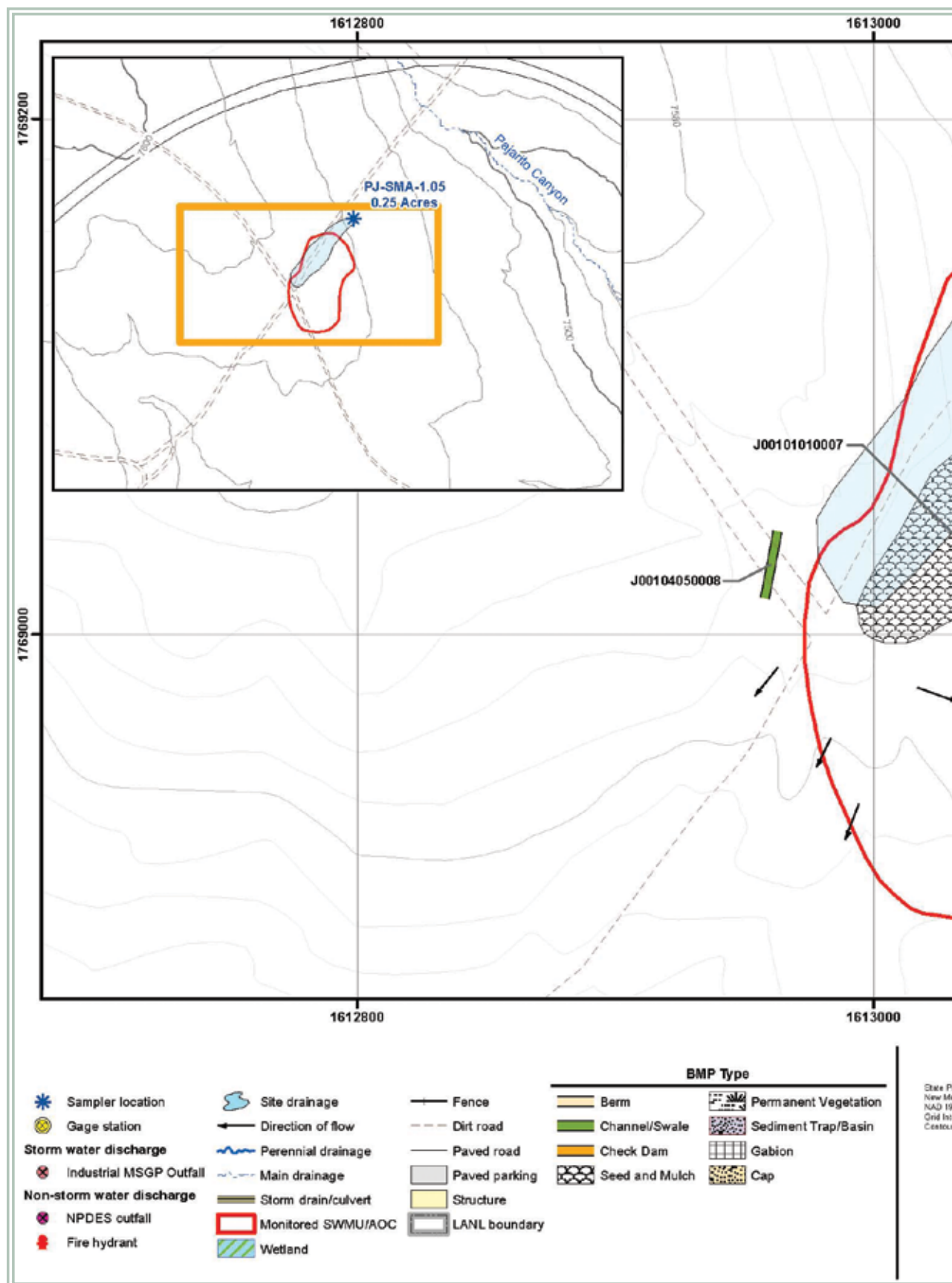
Rip Rap (J001-04-06-0011)

The rip rap is located south and west of the sampler in the central portion of the SMA footprint. It is in place to help restrict run-off from the SMA. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off

Rock Check Dam (J001-06-01-0010)

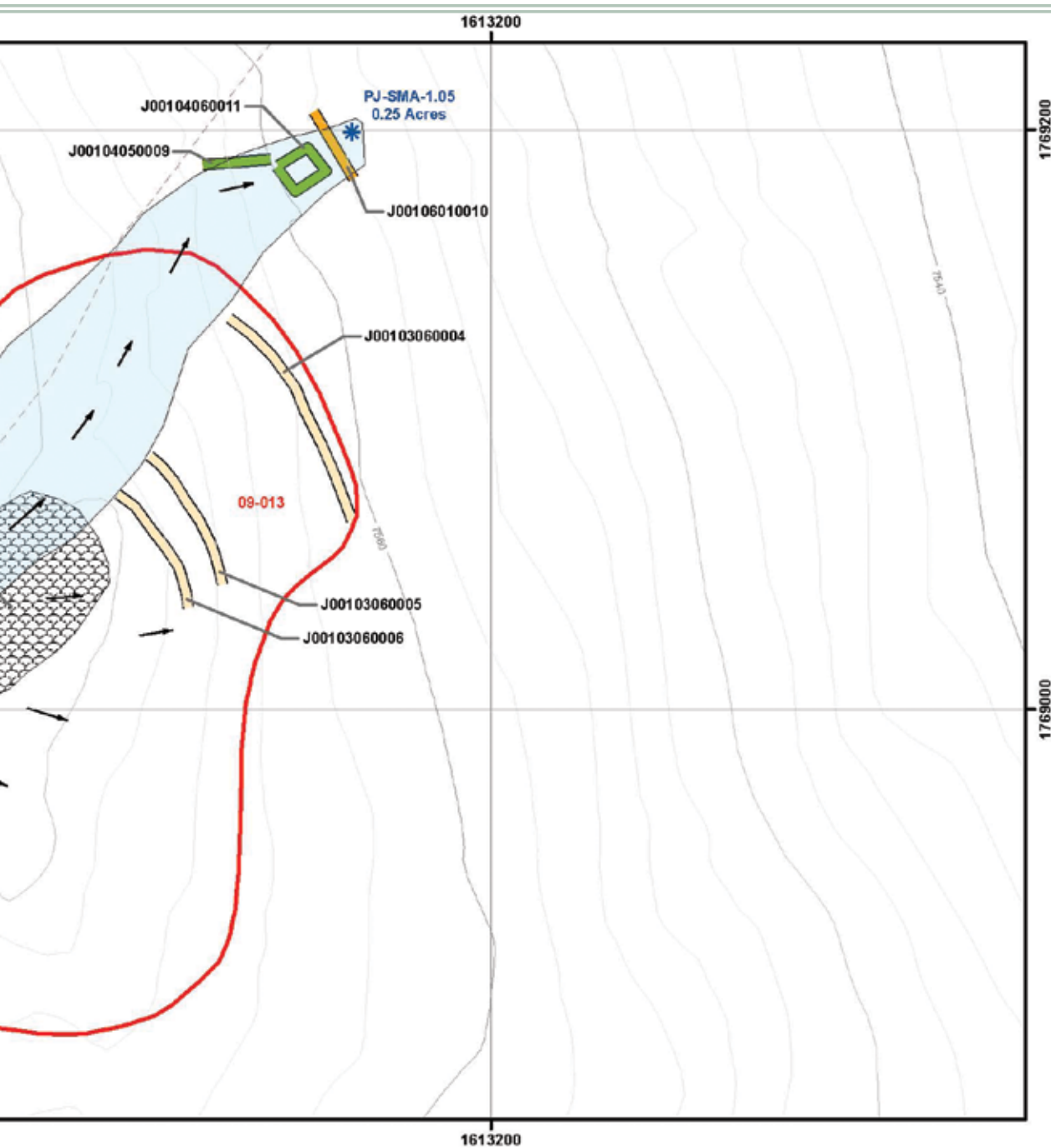
The rock check dam is located southwest of the sampler. Its purpose is to control run-off and sediment migration. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.26.4 Project Map



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North Arrow
 UTM Zone 18N
 Datum: NAD 83
 Spheroid: GRS 80
 Datum Shift: 118m East, 199m North
 Scale: 1:2500
 Contour Interval: 20ft

Los Alamos
 NATIONAL LABORATORY
 805.526.4100

Feet: 0, 25, 50, 75, 100
 Meters: 0, 10, 20, 30

This map was created for work processes associated with the NPDES Individual Permit.
 All other uses for this map should be confirmed with LANL EP-WES staff.

NPDES Individual Permit NM0030759

**Storm Water Permitted Feature
J001:PJ-SMA-1.05**

Pajarito Canyon

Water Pollution Control Drawing

Map Created By: Brad McKown, EP-ET-ER GIS Team, March 8, 2011,
Map #J001-10-0017-226-PJ1.05-R2

1000.26.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.26.6 Corrective Action Status

The Sites associated with PJ-SMA-1.05 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.27 PJ-SMA-2

1000.27.1 Area Description

1000.27.2 Potential Pollutant Sources

1000.27.2.1 Historical Industrial Activity Areas

1000.27.3 Control Measures

1000.27.4 Project Map

1000.27.5 Storm Water Monitoring Plan and Schedule

1000.27.6 Corrective Action Status



1000.27 PJ-SMA-2

1000.27.1 Area Description

PJ-SMA-2 is located within TA-09 and access to the area is controlled. The northern boundary of the SMA is undeveloped and gently sloping towards the receiving waters along the northeastern corner of this boundary. The southern boundary of the SMA is largely undeveloped and contains an old sanitary treatment structure. The eastern boundary of the SMA is undeveloped and slopes gently towards the receiving waters further north. The western boundary of the SMA is undeveloped.

1000.27.2 Potential Pollutant Sources

1000.27.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J002, PJ-SMA-2, Site 09-009.

SWMU 09-009 consists of a treatment lagoon (structure 09-218) and sand filters that were built at TA-09 to treat sanitary waste from Buildings 09-20, 09-21, 09-28, 09-29, 09-32, 09-33, 09-34, 09-35, 09-37, and 09-38. The lagoon is 60 ft long x 32 ft wide x 7 ft deep; the sides are concrete and the bottom is bentonite. The lagoon discharged to two sand filters that cover a total (combined) area that is 60 ft long x 33 ft wide. The sand filters have a flexible membrane liner and are surrounded by a concrete lip. The lagoon and sand filters were replaced by a LANL site wide sanitary wastewater system. The lagoon may have been contaminated with strontium-90 after it was connected to the sanitary wastewater system from TA-08 in 1986.

1000.27.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
09-009	Surface impoundment	Discrete Location, No overlap	Individual	•		•	

1000.27.3 Control Measures

Run-on potential exists as a result of concentrated flow generated from the unpaved access road southeast of the SWMU and the hillside, south of the fence and south of the SWMU. Planned controls are to divert this run-on source and to provide additional sediment capture in run-off from the area.

Subsections to 1000.27.3 list all control measures used to control pollutant sources identified in Section 1000.27.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.27.4.

1000.27.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J002 01 06 0010	Seed and Mulch - Erosion Control Blankets	•		•	
J002 01 06 0011	Seed and Mulch - Erosion Control Blankets	•		•	
J002 01 06 0012	Seed and Mulch - Erosion Control Blankets	•		•	
J002 01 06 0013	Seed and Mulch - Erosion Control Blankets	•		•	
J002 02 01 0003	Established Vegetation - Grasses and Shrubs			•	
J002 02 02 0004	Established Vegetation - Forested/Needle Cast			•	
J002 03 01 0006	Berms - Earthen	•			•
J002 03 01 0007	Berms - Earthen	•			•
J002 03 01 0008	Berms - Earthen	•			•
J002 03 01 0009	Berms - Earthen	•			•
J002 06 01 0014	Check Dam - Rock		•		•

Erosion Control Blankets - Southwest (J002-01-06-0010)

These erosion control blankets are associated with the Southwest Earthen Berm. Their function is to stabilize the berm itself by controlling erosion of the berm slopes. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Erosion Control Blankets - West (J002-01-06-0011)

These erosion control blankets are associated with the West Earthen Berm. Their function is to stabilize the berm itself by controlling erosion of the berm slopes. Used

to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Erosion Control Blankets -Southeast (J002-01-06-0012)

These erosion control blankets are associated with the Southeast Earthen Berm. Their function is to stabilize the berm itself by controlling erosion of the berm slopes. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Erosion Control Blankets - East (J002-01-06-0013)

These erosion control blankets are associated with the East Earthen Berm. Their function is to stabilize the berm itself by controlling erosion of the berm slopes. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Established Vegetation (J002-02-01-0003, -02-0004)

Established vegetation describes areas

of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm - Southeast (J002-03-01-0006)

This berm is located across the eastern end of the unpaved access road loop. It is in place to control run-on to the SMA, diverting it towards the east. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm - East (J002-03-01-0007)

This berm is located across the eastern loop of the unpaved access road near the SMA boundary. It is used to mitigate run-on to the monitored area, diverting it to the east. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm - Southwest (J002-03-01-0008)

This berm is located across the western side of the unpaved road loop. It is in place to restrict run-on from entering the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm - West (J002-03-01-0009)

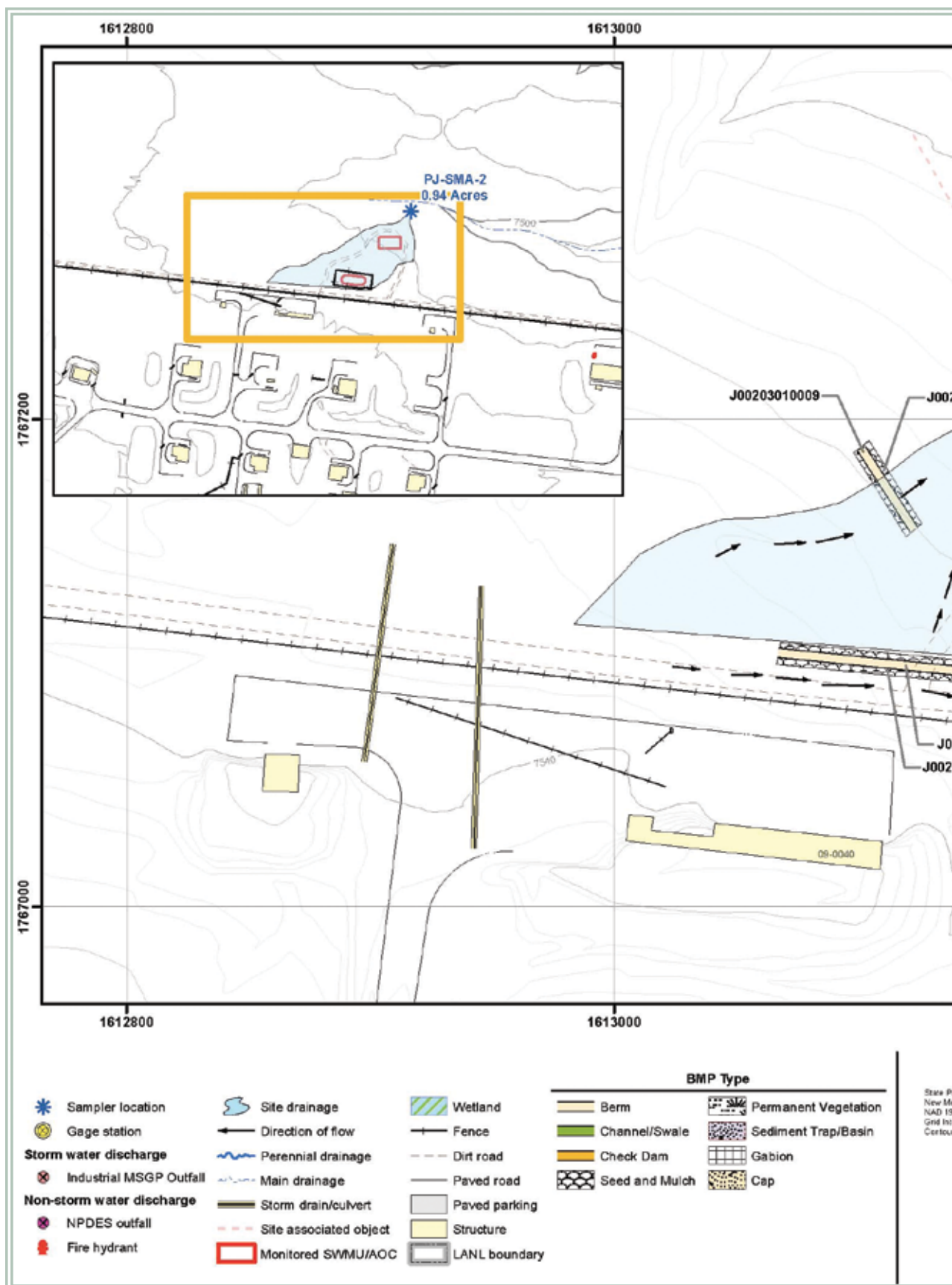
This berm is located on the western side

of the monitored area across the natural drainage flow. It is in place to control run-on to the SMA. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rock Check Dam (J002-06-01-0014)

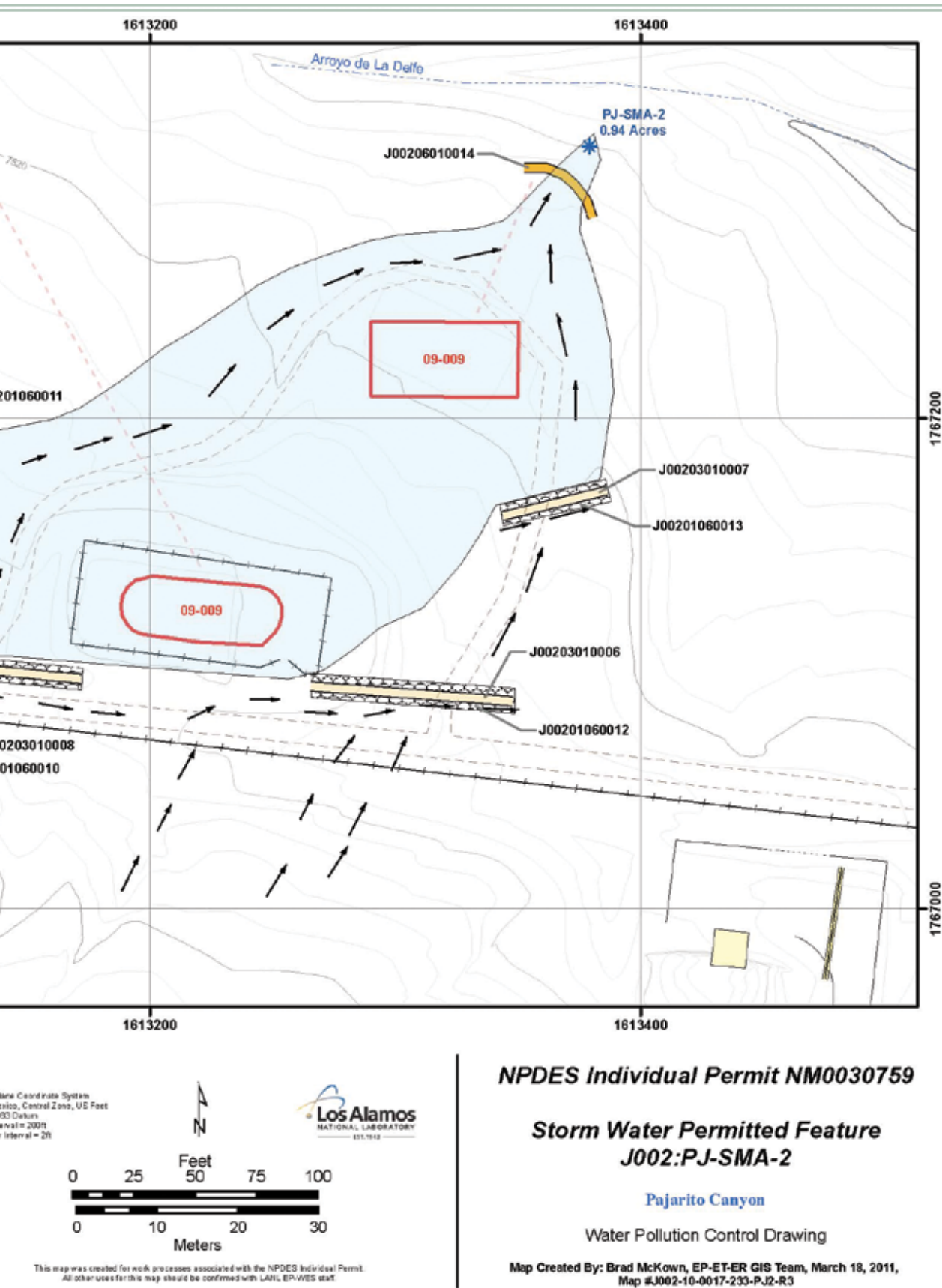
The rock check dam is located just to the south west of the sampler, across the drainage. It is used to help restrict run-off from the monitored area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.27.4 Project Map



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1000.27.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.27.6 Corrective Action Status

The Site associated with PJ-SMA-2 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.28 PJ-SMA-3.05

1000.28.1 Area Description

1000.28.2 Potential Pollutant Sources

1000.28.2.1 Historical Industrial Activity Areas

1000.28.3 Control Measures

1000.28.4 Project Map

1000.28.5 Storm Water Monitoring Plan and Schedule

1000.28.6 Corrective Action Status



1000.28 PJ-SMA-3.05

1000.28.1 Area Description

PJ-SMA-3.05 is located within TA-09 and access to the area is controlled. The northern boundary of the SMA is flat, undeveloped, and contains the receiving waters. The southern boundary of the SMA is influenced by paving and structures associated with Building 09-0048. The eastern boundary of the SMA is influenced by paving and Building 09-0048. The western boundary of the SMA is flat and undeveloped.

1000.28.2 Potential Pollutant Sources

1000.28.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J003, PJ-SMA-3.05, Site 09-004(o).

SWMU 09-004(o) is an active settling tank (structure 09-198) that receives industrial waste from an HE machining building (Building 09-48) at TA-09. The rectangular, reinforced-concrete tank was installed in 1952. Settling tanks are externally submerged basins lined with a corrosion-resistant material and are open to the outside. They generally are located at the end of industrial waste plumbing systems at the point where the systems exit the buildings. Industrial waste from the buildings that the settling tanks serve travels through a sump and into the tanks, which trap HE residues. Large solids are collected before they enter the waste system; small solids are filtered out but fine particles may enter the tanks. The tanks are cleaned and debris is removed using specially equipped trucks. The settling tanks are inspected periodically to ensure their integrity. Structure 09-198 historically discharged to a formerly NPDES permitted outfall.

1000.28.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
09-004(o)	Settling tank	Discrete Location, No overlap	Individual	•		•	

1000.28.3 Control Measures

The Permitted Feature has potential for run-on from the paved areas around Building 09-0048 but this run-on source provides little contribution to the monitored area. An asphalt berm is diverting pavement run-on away from the area.

Subsections to 1000.28.3 list all control measures used to control pollutant sources identified in Section 1000.28.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.28.4.

1000.28.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J003 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
J003 03 04 0008	Berms - Asphalt	•			•
J003 06 01 0006	Check Dam - Rock		•		•
J003 06 01 0007	Check Dam - Rock		•		•
J003 06 01 0009	Check Dam - Rock	•			•

Established Vegetation (J003-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Asphalt Berm (J003-03-04-0008)

This berm is located south of the SMA along the edge of the paved area. It is used to help divert storm water run-on away from the SMA. An asphalt berm is a temporary containment control constructed of asphalt.

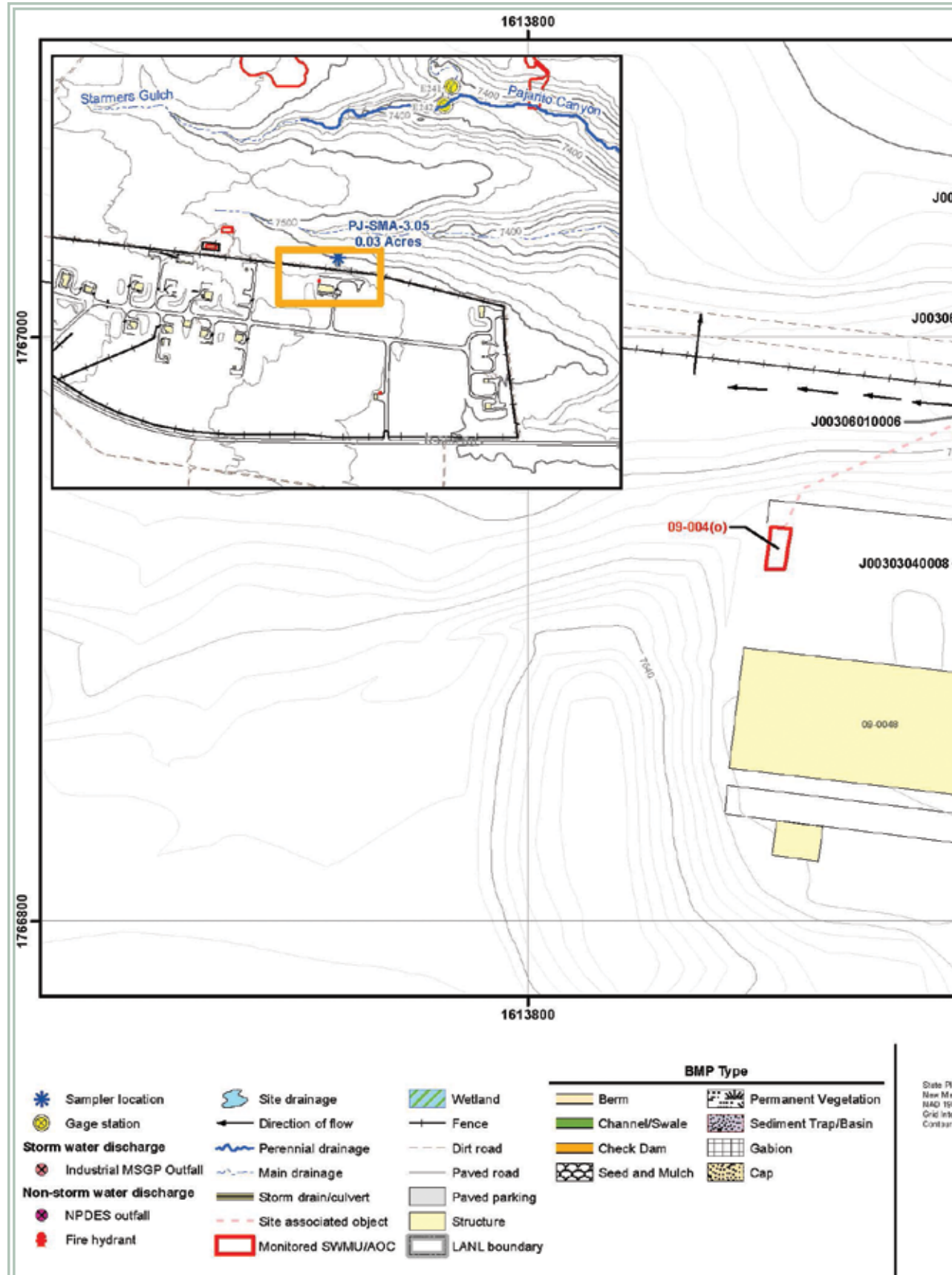
Rock Check Dams (J003-06-01-0006, -0007)

This is a pair of check dams located west of the sampler in the drainage channel. They are used to help control storm water run-off from the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dam - North (J003-06-01-0009)

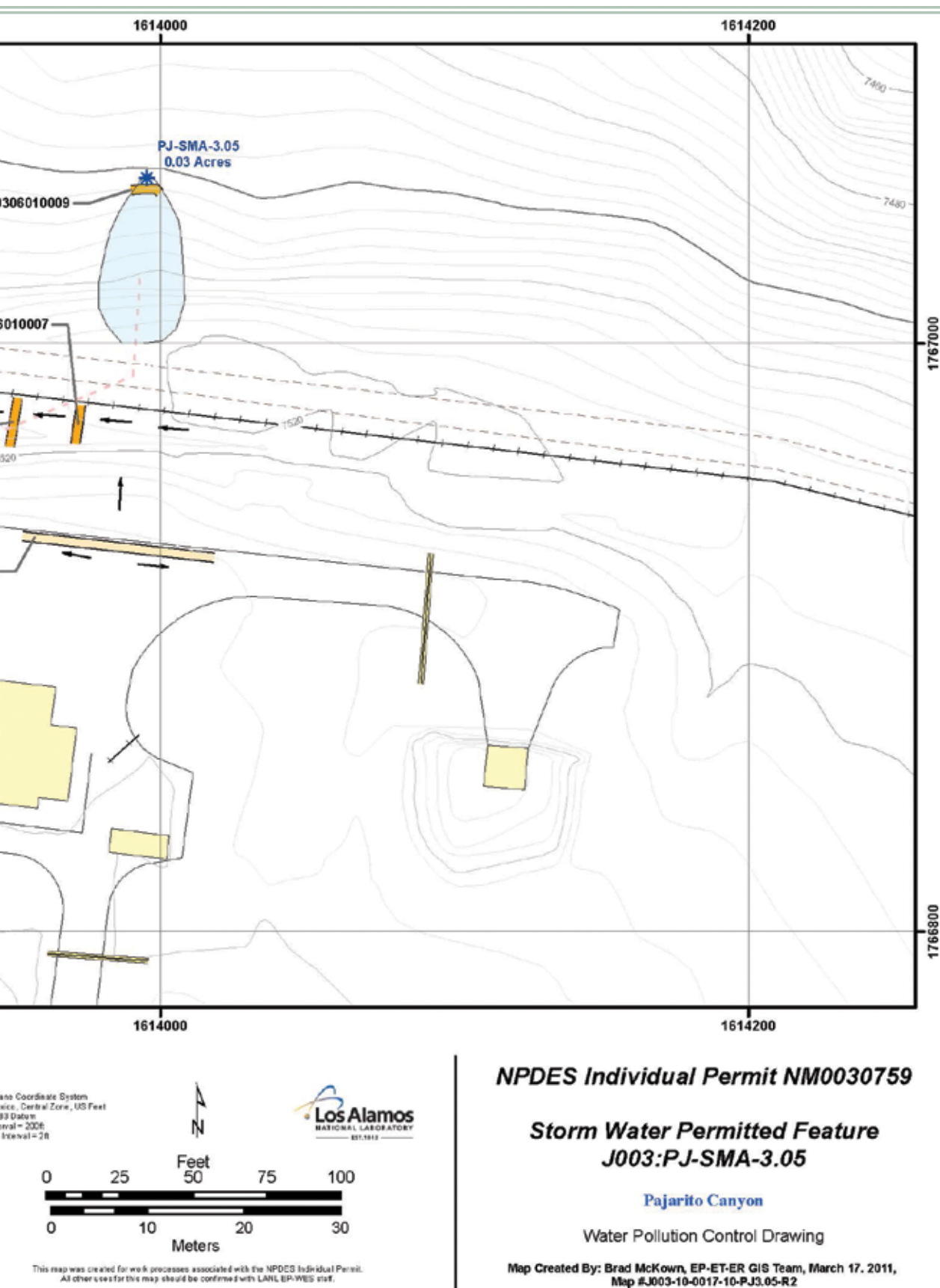
This check dam is located immediately south of the sampler location and is in place to help control run-on from above. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.28.4 Project Map



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1000.28.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.28.6 Corrective Action Status

The Site associated with PJ-SMA-3.05 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.29 PJ-SMA-4.05

1000.29.1 Area Description

1000.29.2 Potential Pollutant Sources

1000.29.2.1 Historical Industrial Activity Areas

1000.29.3 Control Measures

1000.29.4 Project Map

1000.29.5 Storm Water Monitoring Plan and Schedule

1000.29.6 Corrective Action Status



1000.29 PJ-SMA-4.05

1000.29.1 Area Description

PJ-SMA-4.05 is located within TA-09 and access to the area is controlled. The northern boundary of the SMA is influenced by paved access roads within TA-09. The southern boundary of the SMA is flat and undeveloped. The receiving waters are along this boundary at the southeastern corner. The eastern boundary of the SMA is undeveloped but influenced by paved access roads. The western boundary of the SMA is flat and undeveloped.

1000.29.2 Potential Pollutant Sources

1000.29.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J004, PJ-SMA-4.05, Site 09-004(g).

SWMU 09-004(g) is a former settling tank (structure 09-190) that served a receiving and shipping building (Building 09-50) at TA-09. Activities in Building 09-50 included shipping, receiving, and short-term HE storage. In addition, small-scale laser experiments historically were conducted in the building. The settling tank was removed in October 2006. A silt fence has been installed until the area can undergo final restoration activities.

1000.29.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
09-004(g)	Settling tank	Discrete Location, No overlap	Individual	•		•	

1000.29.3 Control Measures

Run-on contributions to the area are primarily from paved areas in proximity to the monitored area. Existing controls are designed to provide run-off controls and retain sediment.

Subsections to 1000.29.3 list all control measures used to control pollutant sources identified in Section 1000.29.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.29.4.

1000.29.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J004 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
J004 03 06 0003	Berms - Straw Wattles	•			•
J004 03 06 0004	Berms - Straw Wattles	•			•
J004 03 06 0005	Berms - Straw Wattles	•			•
J004 06 01 0006	Check Dam - Rock		•		•

Established Vegetation (J004-02-01-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while pi-on-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

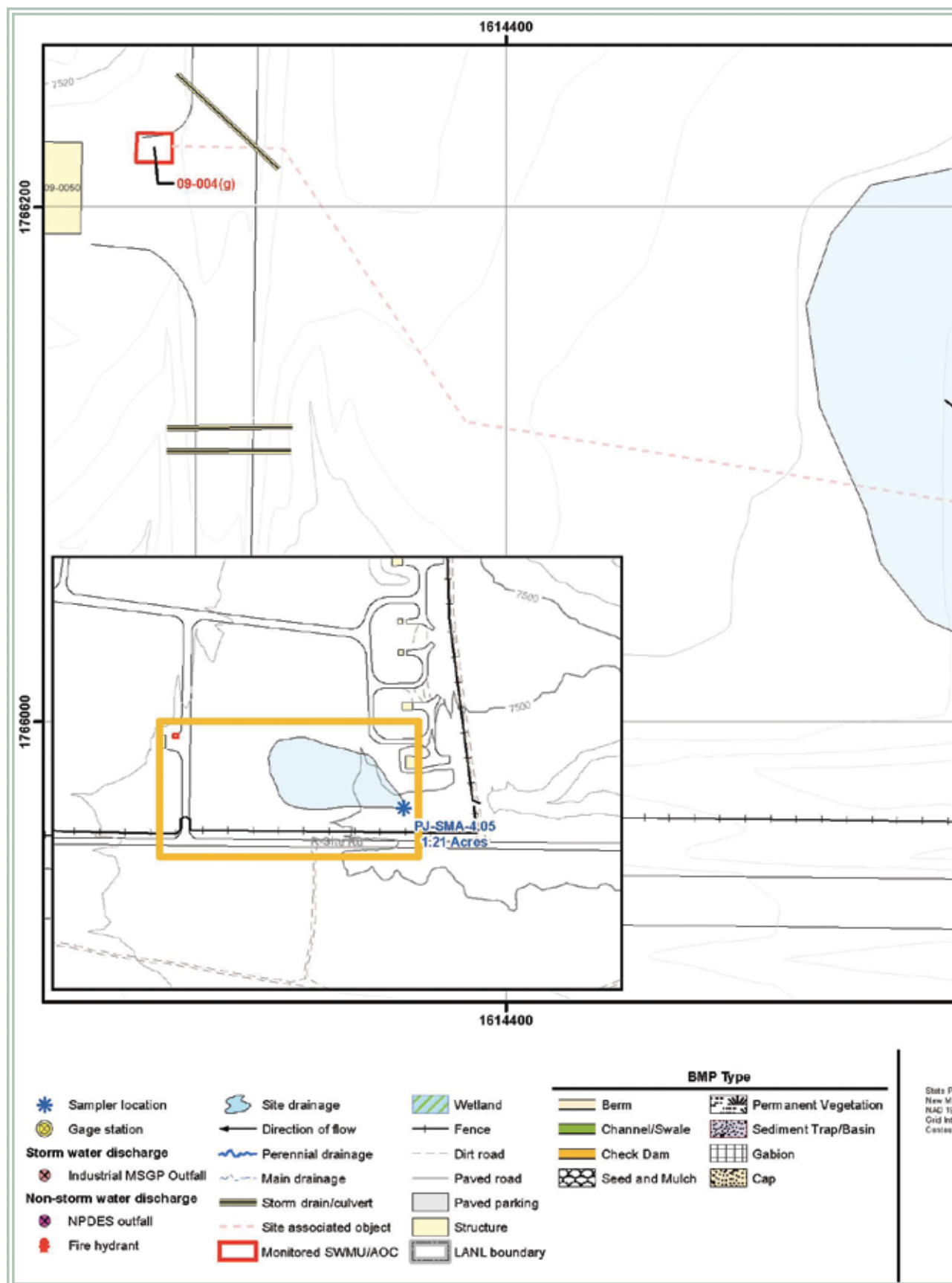
Straw Wattles (J004-03-06-0003, -0004, -0005)

This is a grouping of three straw wattles that are located across the monitored area to the west of the sampler. They are in place to control run-on from the slope above. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rock Check Dam (J004-06-01-0006)

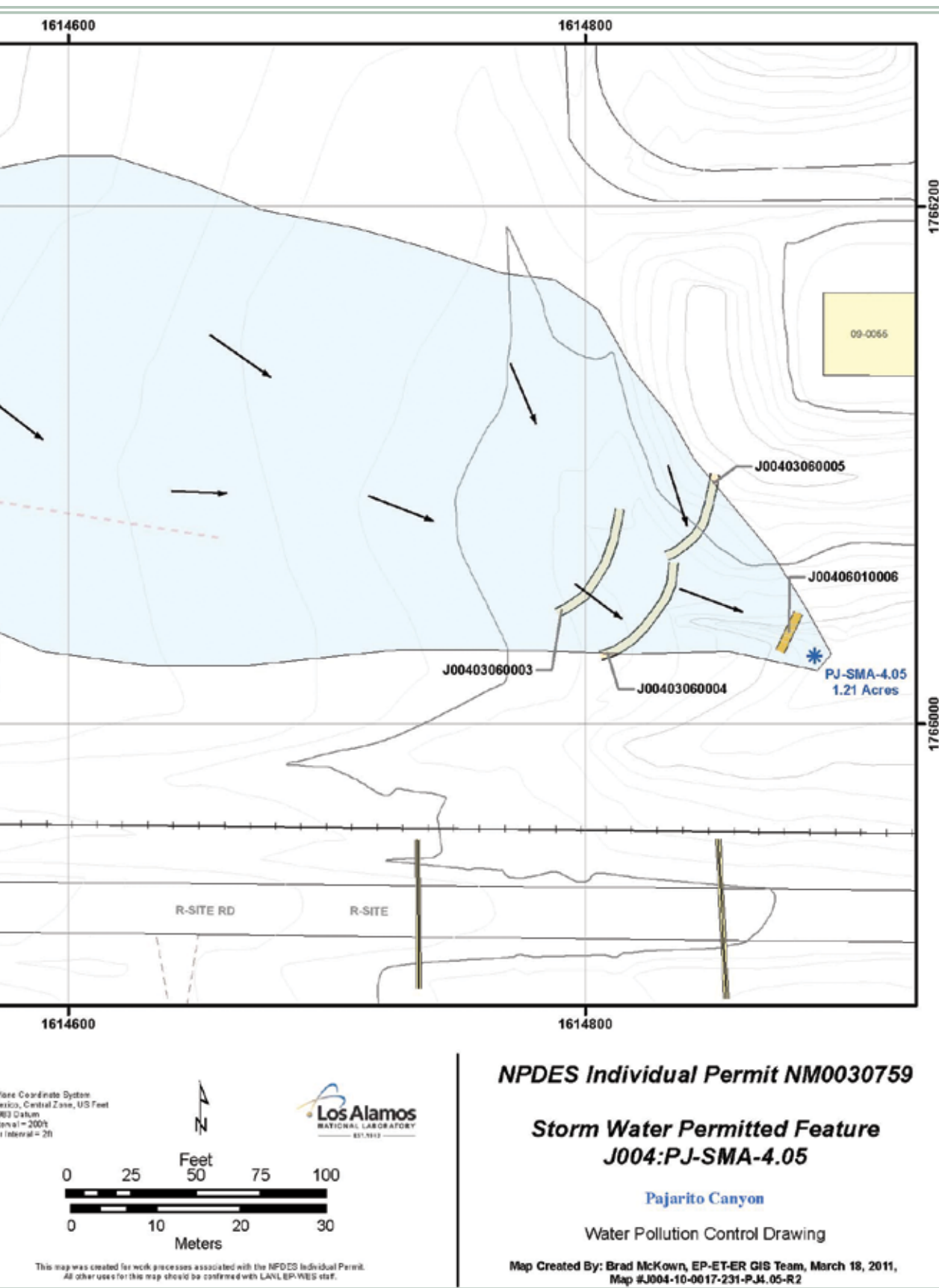
The rock check dam is located just to the west of the sampler across the natural drainage flow. It is in place to mitigate run-off from the SMA. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.29.4 Project Map



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1000.29.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.29.6 Corrective Action Status

The Site associated with PJ-SMA-4.05 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.30 PJ-SMA-5

1000.30.1 Area Description

1000.30.2 Potential Pollutant Sources

1000.30.2.1 Historical Industrial Activity Areas

1000.30.3 Control Measures

1000.30.4 Project Map

1000.30.5 Storm Water Monitoring Plan and Schedule

1000.30.6 Corrective Action Status



1000.30 PJ-SMA-5

1000.30.1 Area Description

PJ-SMA-5 is located within TA-22 and access to the area is controlled. The northern boundary of the SMA is influenced by structures and paved areas within the developed portion of TA-22. The southern boundary of the SMA is undeveloped and contains the receiving waters. The eastern boundary of the SMA is influenced by structures and paved areas within the developed portion of TA-22. Further south along this boundary, terrain is undeveloped and moderately sloping. The western boundary of the SMA is influenced by structures and paved areas within the developed portion of TA-22. Further south along this boundary, terrain is undeveloped and moderately sloping.

1000.30.2 Potential Pollutant Sources

1000.30.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J005, PJ-SMA-5, Site 22-015(c).

SWMU 22-015(c) is an outfall and related run-off area at TA-22 originating from a floor drain system in a plating and circuit etching shop (Building 22-52) that operated from about 1953 to 1985. The outfall is a formerly NPDES permitted outfall. The floor drains received spilled liquids from plating baths and rinse tank overflow. SWMU 22-015(c) includes a drainage channel leading to a former pond area located near the edge of the mesa. The overflow drainage channel from the pond area flowed downhill and across a wagon road and discharged over a cliff into Pajarito Canyon. The outfall became inactive in 1977. In 1995 soil was excavated, and the site was regraded to minimize further erosion.

1000.30.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
22-015(c)	Outfall from Building 22-52	Discrete Location, No overlap	Individual	•	•	•	SVC

1000.30.3 Control Measures

The majority of potential run-on to this SMA originates on the paved areas and access road north of the SMA. The paved areas and associated engineered controls divert storm water flow to a culvert outlet on the slope south of building 0110.

Subsections to 1000.30.3 list all control measures used to control pollutant sources identified in Section 1000.30.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.30.4.

1000.30.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J005 02 01 0006	Established Vegetation - Grasses and Shrubs			•	
J005 03 06 0002	Berms - Straw Wattles	•			•
J005 04 01 0003	Channel/Swale - Earthen	•		•	
J005 06 01 0008	Check Dam - Rock	•			•
J005 06 01 0009	Check Dam - Rock	•			•
J005 06 01 0010	Check Dam - Rock	•			•
J005 06 01 0011	Check Dam - Rock		•		•
J005 06 01 0012	Check Dam - Rock		•		•
J005 06 03 0004	Check Dam - Juniper Bales	•			•
J005 06 03 0007	Check Dam - Juniper Bales	•			•

Established Vegetation (J005-02-01-0006)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while pi-on-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles (J005-03-06-0002)

These wattles are located on the northern boundary of the SMA and are in place to control run-on to the SMA. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Earthen Channel or Swale (J005-04-01-0003)

This channel is located west of the SMA and is diverting run-on away from the SMA. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Rock Check Dam (J005-06-01-0008, -0009, -0010)

This is a series of three rock check dams that are located in the central portion of the SMA across the culvert drainage channel. They are in place to control run-on to the monitored area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dams - South (J005-06-01-0011, -0012)

This is a series of two rock check dams located in the southern portion of the SMA across the former access road. They are used to mitigate run-off from the slope above. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

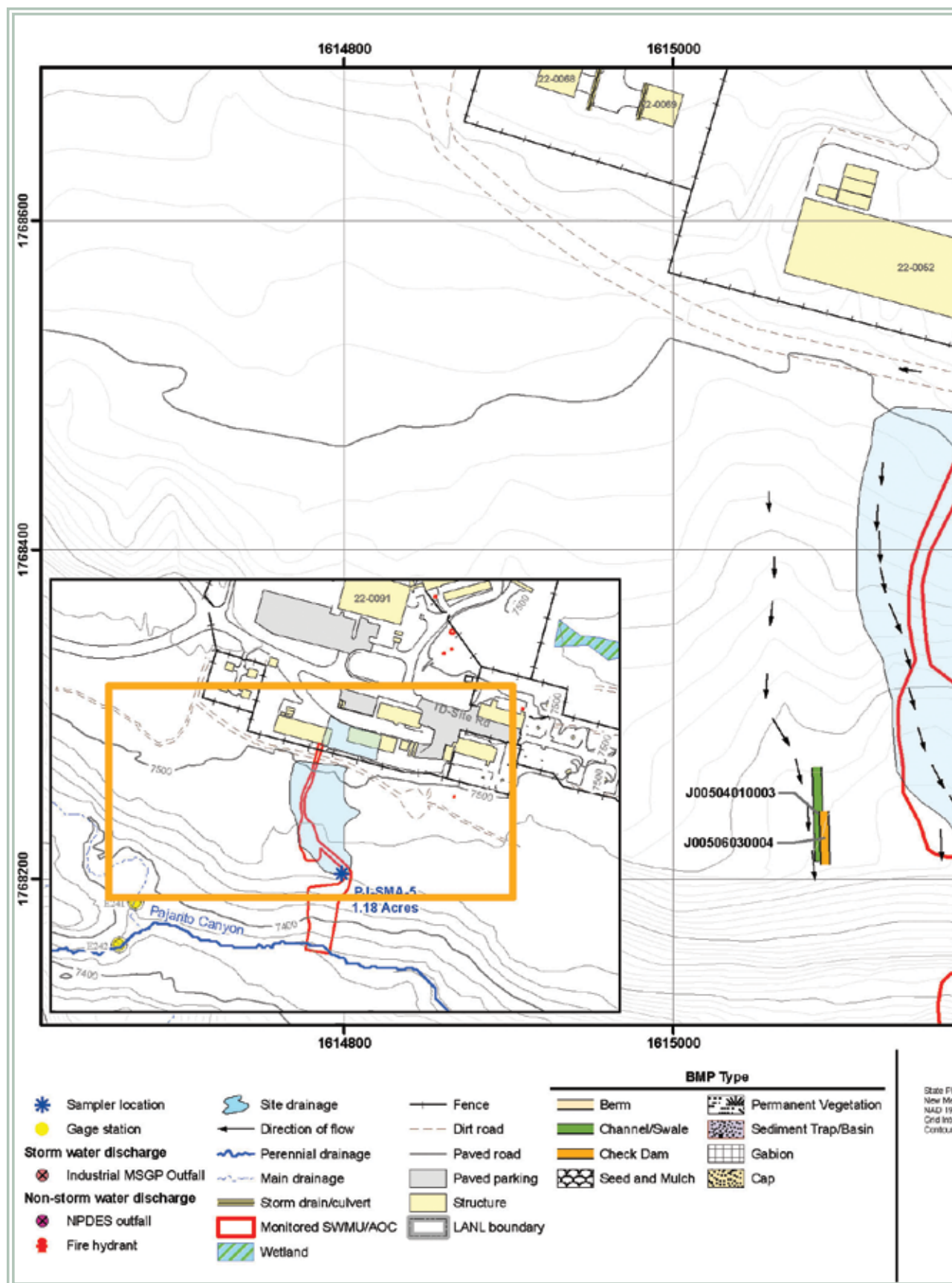
Western Juniper Bales (J005-06-03-0004)

These bales are located to the west of the SMA near the earthen channel and are also used to divert run-on away from the SMA. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.

Juniper Bales (J005-06-03-0007)

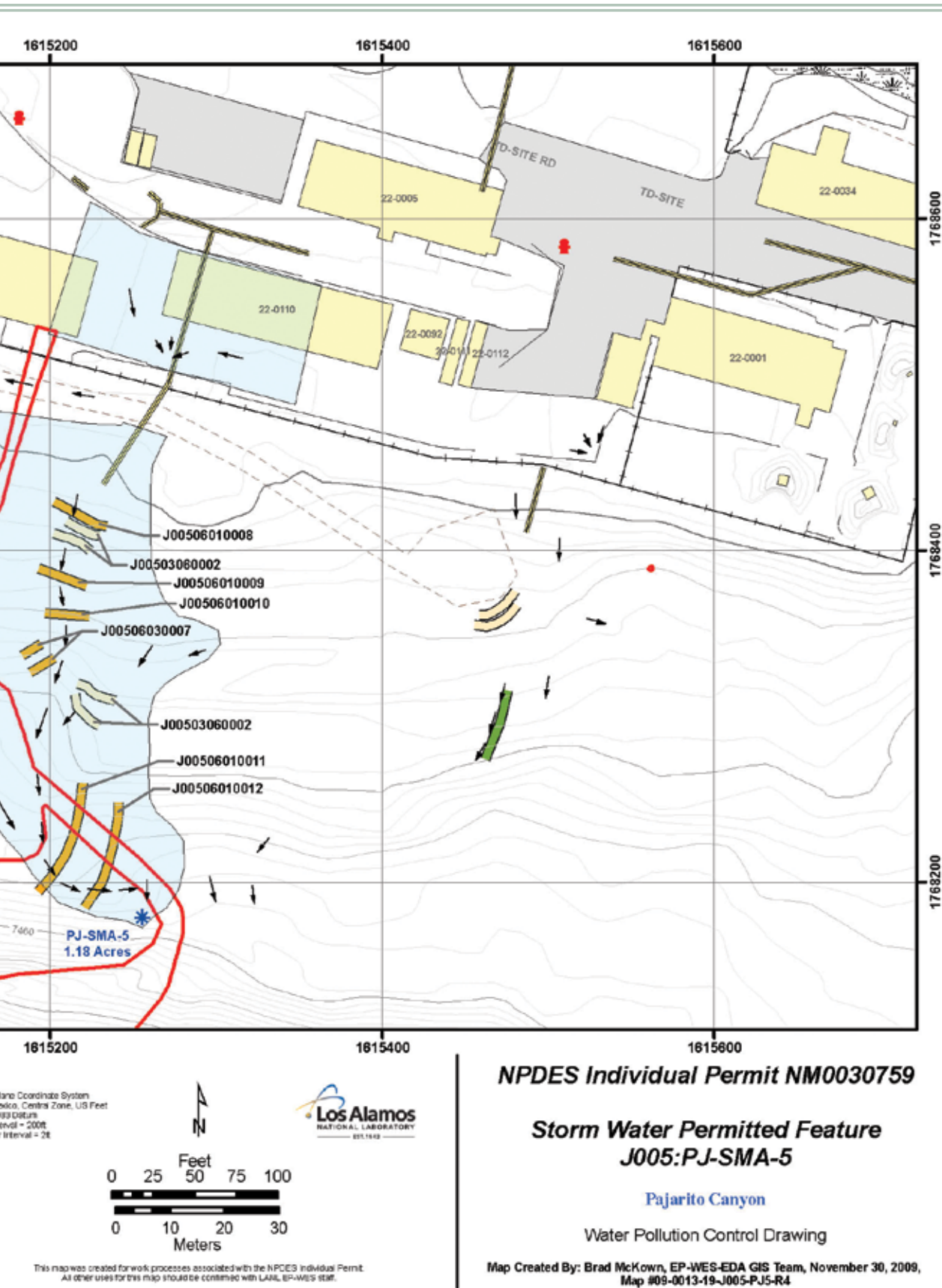
These two juniper bales are located in the natural channel below the culvert outlet. Their function is to control run-on on the slope above the SMA. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.

1000.30.4 Project Map



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1000.30.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.30.6 Corrective Action Status

The Site associated with PJ-SMA-5 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.31 PJ-SMA-5.1

1000.31.1 Area Description

1000.31.2 Potential Pollutant Sources

1000.31.2.1 Historical Industrial Activity Areas

1000.31.3 Control Measures

1000.31.4 Project Map

1000.31.5 Storm Water Monitoring Plan and Schedule

1000.31.6 Corrective Action Status



1000.31 PJ-SMA-5.1

1000.31.1 Area Description

PJ-SMA-5.1 is located within TA-22 and access to the area is controlled. The northern boundary of the SMA is influenced by structures and paved areas within TA-22. The southern boundary of the SMA is sloping and undeveloped. There is an unpaved access road crossing through the SMA. Storm water flows from paved areas in the northern portion of the SMA to the receiving waters along the southern boundary.

1000.31.2 Potential Pollutant Sources

1000.31.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J006, PJ-SMA-5.1, Site 22-016.

Consolidated unit 22-015(d)-99 consists of SWMUs 22-010(b), 22-012, 22-015(d and e), and 22-016. The septic systems in this consolidated unit received sanitary wastewater from buildings associated with HE assembly, fabrication, and laundry operations. Chemicals used in the processes that discharged to this consolidated unit include HE, solvents, non-PCB oils, inorganic chemicals, acids, and photo processing chemicals.

SWMU 22-016 is an inactive septic tank (structure 22-42) that served Building 22-1 and former Building 22-4. The septic tank discharged to an outfall (now inactive) with drainage to Pajarito Canyon. The tank was used from 1945 until 1948, when it was supplemented by the SWMU 22-010(b) septic tank.

1000.31.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
22-016	Septic system	Discrete Location, No overlap	Individual	•		•	

1000.31.3 Control Measures

Significant run-on enters this Permitted Feature from paved areas to the north. Culvert run-on is controlled and diverted to the west of the SMA via the earthen channel.

Subsections to 1000.31.3 list all control measures used to control pollutant sources identified in Section 1000.31.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.31.4.

1000.31.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J006 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
J006 03 06 0005	Berms - Straw Wattles	•			•
J006 03 06 0006	Berms - Straw Wattles	•			•
J006 04 01 0004	Channel/Swale - Earthen	•		•	
J006 06 01 0007	Check Dam - Rock		•		•

Established Vegetation (J006-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while pi-on-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles - North (J006-03-06-0005)

These wattles are located just to the east of the turn around area at the end of the unpaved access road. They are in place to control run-on from the turn around area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - South (J006-03-06-0006)

This wattle is located just to the east of the turn around area at the end of the unpaved access road and south of the other straw wattles. It is in place to control run-on from the turn around area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

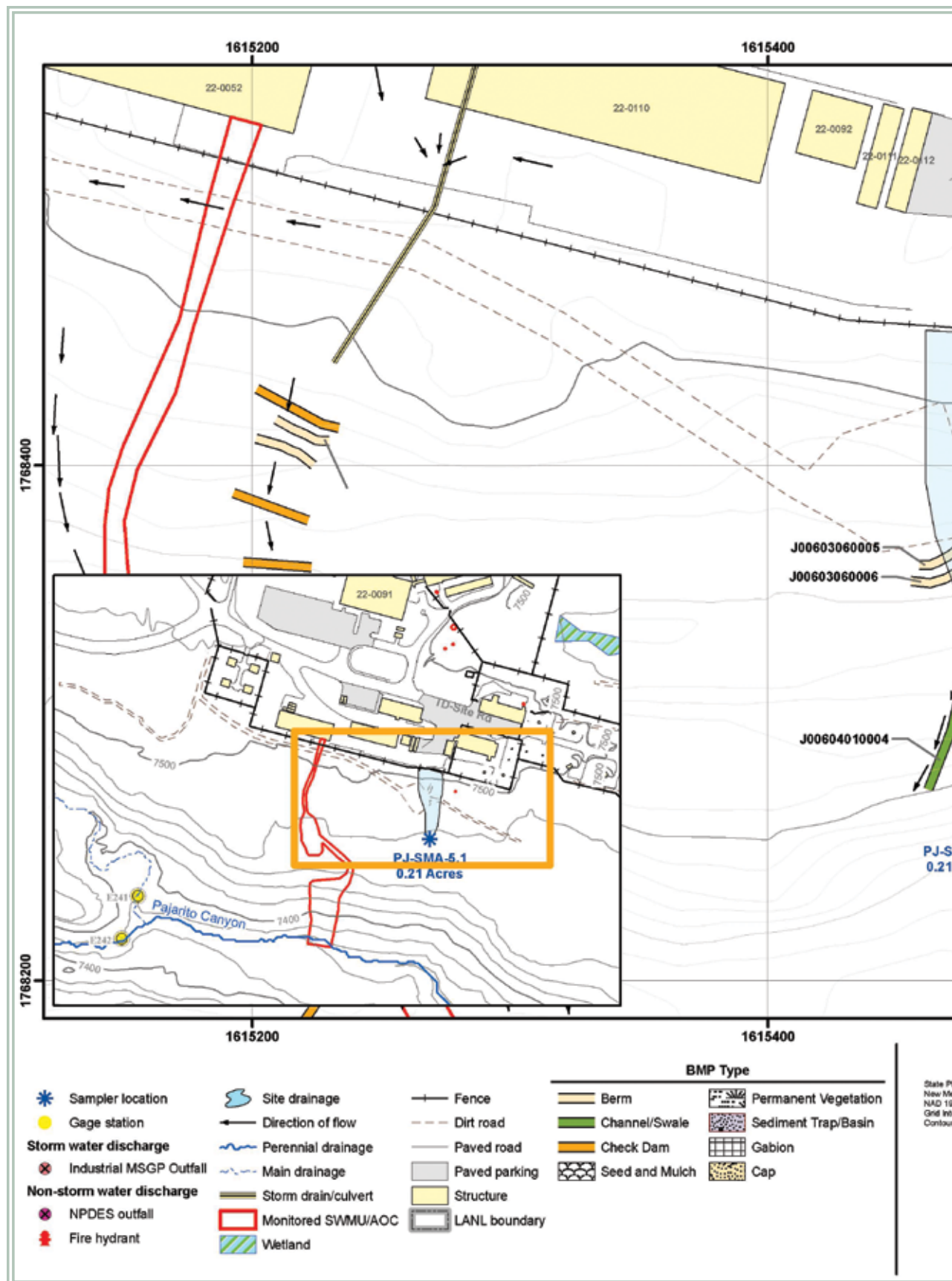
Earthen Channel (J006-04-01-0004)

This channel is located in the culvert discharge channel west of the sampler. It is used to divert run-on flow to the west away from the monitored area. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Southern Check Dam (J006-06-01-0007)

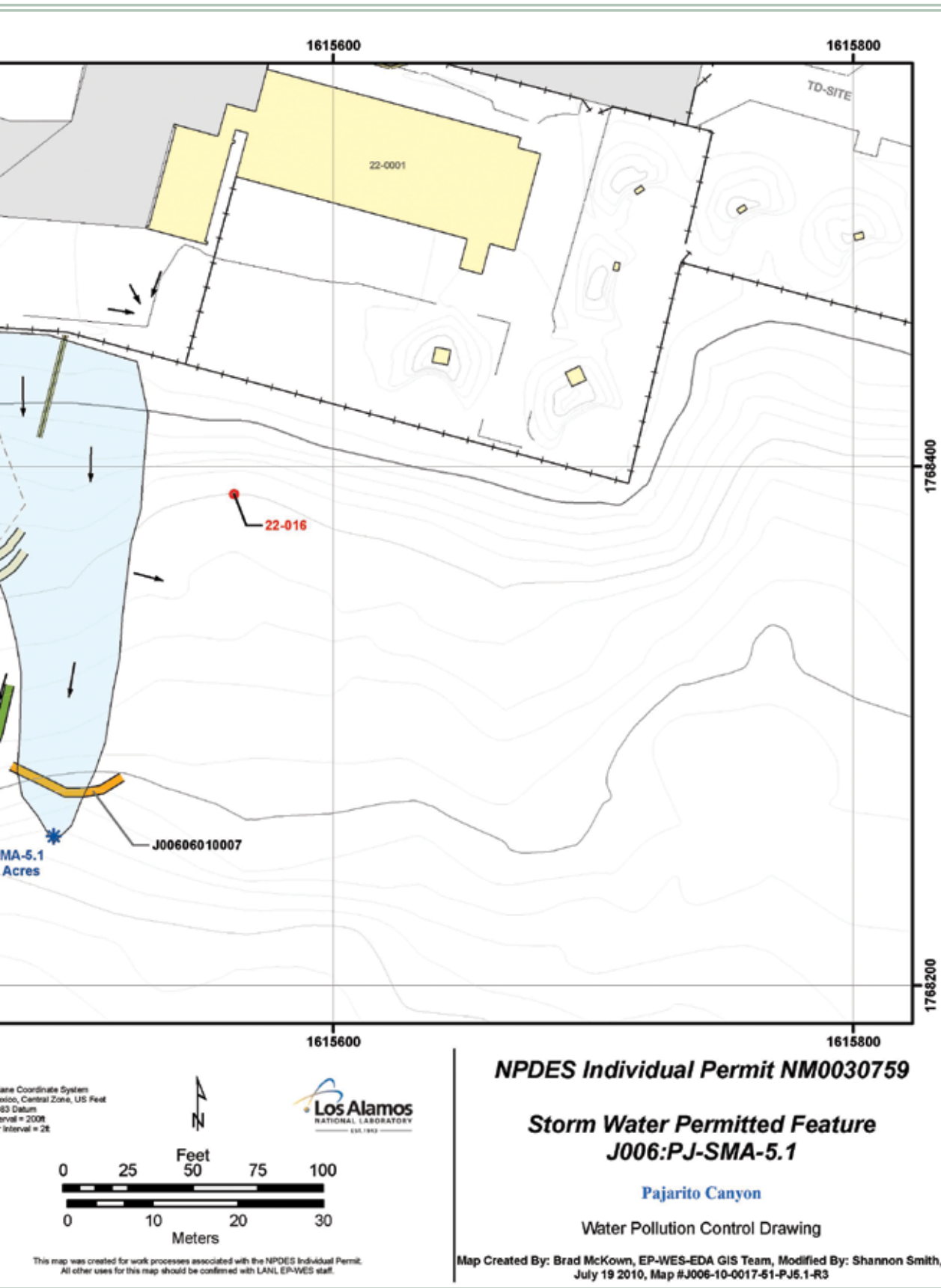
Installed at the southern end of the SMA, just above the sampler. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.31.4 Project Map



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1000.31.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.31.6 Corrective Action Status

The Site associated with PJ-SMA-5.1 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.32 PJ-SMA-6

1000.32.1 Area Description

1000.32.2 Potential Pollutant Sources

1000.32.2.1 Historical Industrial Activity Areas

1000.32.3 Control Measures

1000.32.4 Project Map

1000.32.5 Storm Water Monitoring Plan and Schedule

1000.32.6 Corrective Action Status



1000.32 PJ-SMA-6

1000.32.1 Area Description

PJ-SMA-6 is located within TA-40 and access to the area is controlled. The northern boundary of the SMA is steep and undeveloped. The southern boundary of the SMA is gently sloping and undeveloped. The receiving waters are along this boundary to the southeast. The eastern boundary of the SMA is gently sloping and undeveloped. The western boundary of the SMA is gently sloping and undeveloped.

1000.32.2 Potential Pollutant Sources

1000.32.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J007, PJ-SMA-6, Site 40-010.

SWMU 40-010 is a surface disposal area located at TA-40 on the edge of Pajarito Canyon. This surface disposal area extends about 50 feet along the canyon edge and 50 feet down the canyon side. Debris includes farm and home implements that likely predate Manhattan Project activities. Reportedly, this disposal area also contained other debris, including approximately 30 gallon sized drums.

In May 2000, the Cerro Grande fire burned through SWMU 40-010 and exposed the debris in the disposal area. As part of the post-Cerro Grande recovery activities, straw wattles were installed upslope from the landfill to reduce run-on impact. Large trees were contour felled to provide run-on diversion. The area was hand raked, reseeded and straw mulched. Post-Cerro Grande fire activities removed all exposed debris, with the exception of the pre-Manhattan debris which is considered to be of archaeological importance.

1000.32.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
40-010	Surface disposal site	Discrete Location, No overlap	Individual	•		•	

1000.32.3 Control Measures

There are no run-on contributions from developed areas at this SMA. There is concentrated flow associated with a natural channel west of the SMA. This natural channel is less defined along the mesa edge. Installed controls are to fortify sediment retention within this channel.

Subsections to 1000.32.3 list all control measures used to control pollutant sources identified in Section 1000.32.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.32.4.

1000.32.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J007 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
J007 06 01 0002	Check Dam - Rock	•			•
J007 06 01 0003	Check Dam - Rock	•			•
J007 06 01 0004	Check Dam - Rock	•			•
J007 06 01 0005	Check Dam - Rock		•		•
J007 06 01 0006	Check Dam - Rock		•		•
J007 06 01 0007	Check Dam - Rock		•		•
J007 06 03 0008	Check Dam - Juniper Bales	•			•

Established Vegetation (J007-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Rock Check Dam - North (J007-06-01-0002, -0003, -0004)

This is a series of three rock check dams located in the northern reaches of the SMA, within the natural channel. They are in place to control run-on to the area from the slope above. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

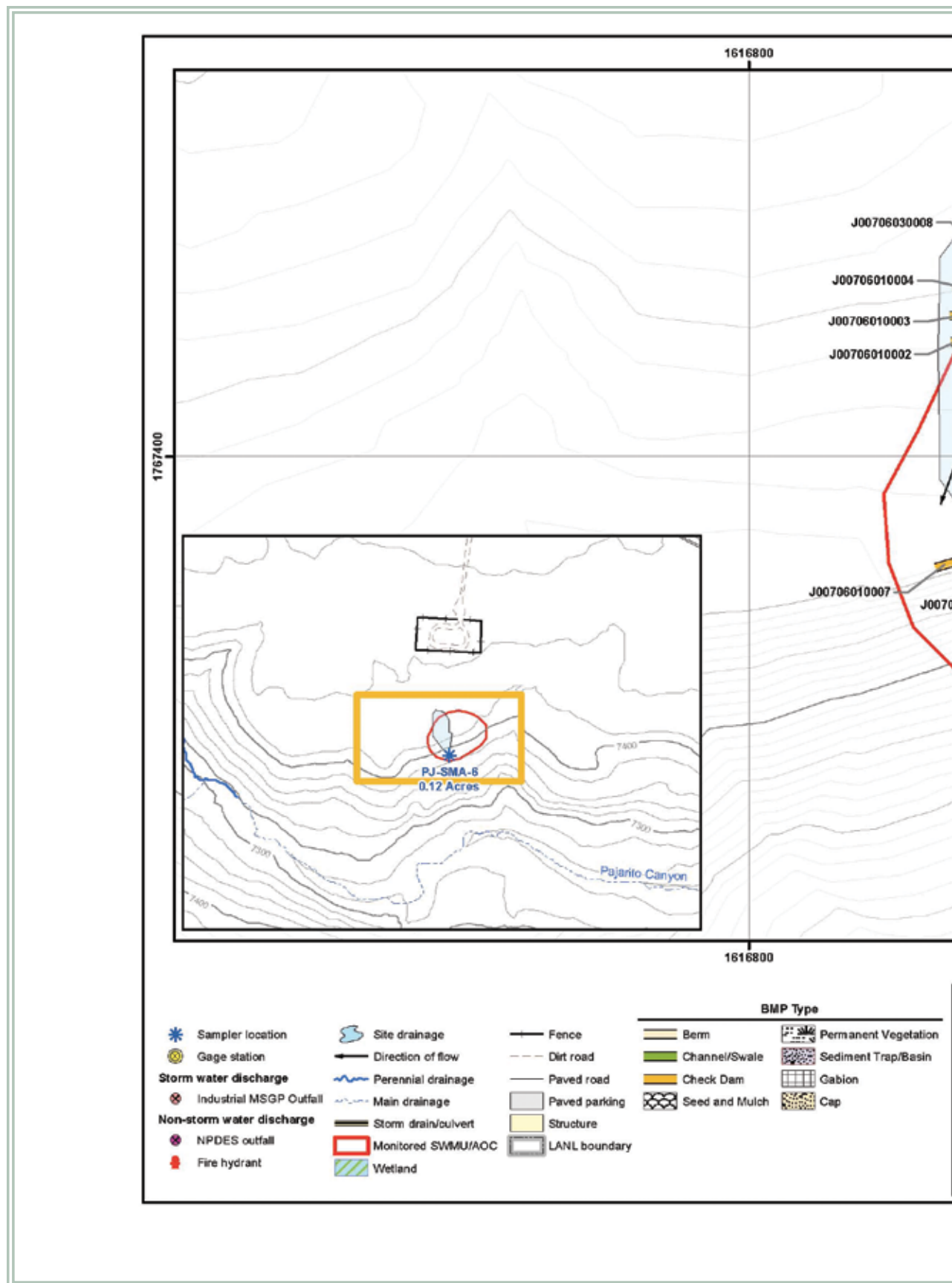
Rock Check Dam - South (J007-06-01-0005, -0006, -0007)

This is a series of three rock check dams that have been installed across the SMA near the edge of the mesa top. They are in place to restrict run-off from the monitored area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Juniper Bales (J007-06-03-0008)

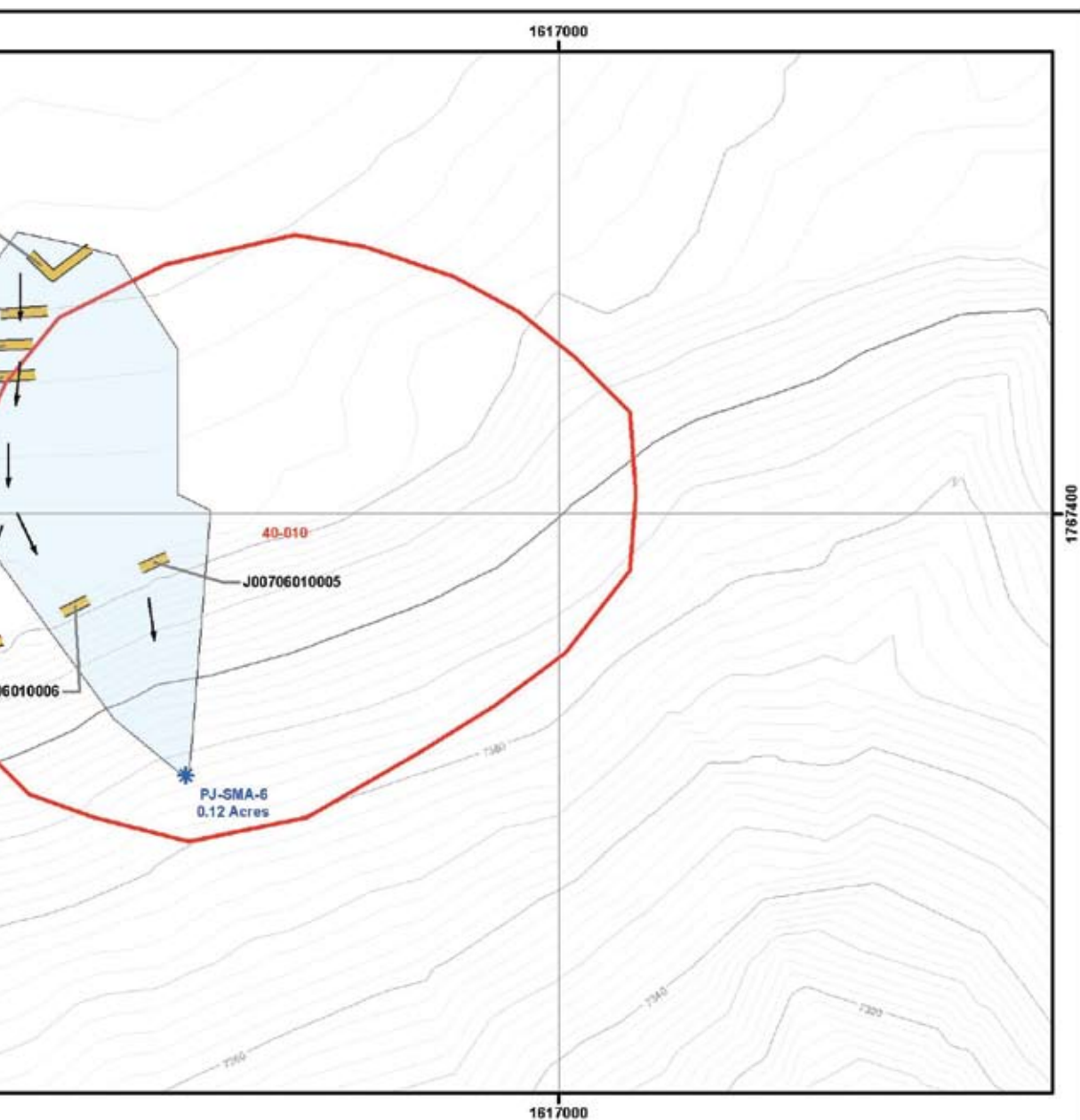
This juniper bale is located on the northern boundary of the SMA. It is in place to mitigate run-on to the monitored area. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.

1000.32.4 Project Map

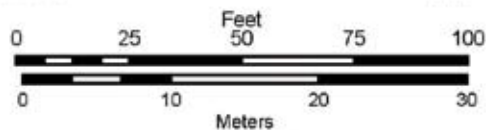


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State Plane Coordinate System
 New Mexico, Central Zone, U.S. Feet
 NAD 1983 Datum
 Grid Interval = 200 ft
 Contour Interval = 20



This map was created for work processes associated with the NPDES Individual Permit.
 All other uses for this map should be confirmed with LANS/EP/DES staff.

NPDES Individual Permit NM0030759

**Storm Water Permitted Feature
 J007:PJ-SMA-6**

Pajarito Canyon

Water Pollution Control Drawing

Map Created By: Brad McKown, EP-ET-ER GIS Team,
 March 16, 2011, Map #J007-10-0017-227-PJ6-R4

1000.32.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.32.6 Corrective Action Status

The Site associated with PJ-SMA-6 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.33 PJ-SMA-7

1000.33.1 Area Description

1000.33.2 Potential Pollutant Sources

1000.33.2.1 Historical Industrial Activity Areas

1000.33.3 Control Measures

1000.33.4 Project Map

1000.33.5 Storm Water Monitoring Plan and Schedule

1000.33.6 Corrective Action Status



1000.33 PJ-SMA-7

1000.33.1 Area Description

PJ-SMA-7 is located within TA-40 and access to the area is controlled. The northern boundary of the SMA is influenced by structures and paved areas within TA-40. The southern boundary of the SMA is largely undeveloped and contains the receiving waters. The eastern and western boundaries of the SMA are influenced by structures and paved areas within TA-40.

1000.33.2 Potential Pollutant Sources

1000.33.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J008, PJ-SMA-7, Site 40-006(c).

SWMU 40-006(c) is one of several active firing sites at TA-40. This detonator firing site (structure 40-5) was constructed in 1950 and consists of a reinforced concrete and steel building that allows observation of the test shots, a partially protected area adjacent to the building where the shot is set up and, historically, an open area covered with sand where the larger shots were fired. After each shot, large pieces of debris were removed and disposed of and the open area was graded. This firing site is used only to test and develop small explosive devices. Tests conducted at the site have included detonator booster tests, which use two pounds of explosives, and large open-air shots, which can use up to 50 pounds of explosives. Explosives and other materials used in the tests conducted at SWMU 40-006(c) included PETN, RDX, HMX, HNS, TATB, Baratol, TNT, nitroguanidine, thallium azide, lead bricks, and diethanolamine.

In May 2000, the Cerro Grande fire burned through SWMU 40-006(c). The fire damage was moderate to severe with several buildings destroyed near this site. As part of the post-Cerro Grande recovery activities, BMPs (straw wattles) were installed on the steep portion of the slope to reduce the sediment migration potential. Wattles were also installed on the mesa's edge to divert run-on from the slope.

1000.33.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
40-006(c)	Firing site	Discrete Location, No overlap	Individual	•	•	•	HE

1000.33.3 Control Measures

Potential run-on contributions to this SMA originate from the paved area south of Building 40-005 and the related roof drainage. Paved roads and the parking area north of the SMA are diverted to the east of the SMA.

Subsections to 1000.33.3 list all control measures used to control pollutant sources identified in Section 1000.33.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.33.4.

1000.33.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J008 01 06 0005	Seed and Mulch - Erosion Control Blankets		•	•	
J008 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
J008 03 01 0004	Berms - Earthen		•		•
J008 04 01 0002	Channel/Swale - Earthen	•		•	
J008 04 04 0003	Channel/Swale - Culvert	•		•	

Erosion Control Blankets (J008-01-06-0005)

These erosion control blankets are associated with the earthen berm. Their function is to protect the berm sides from erosion. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Established Vegetation (J008-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm (J008-03-01-0004)

This berm is located to the east of the outbuilding south of building 40-0005. It is in place to control run-off from the monitored area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

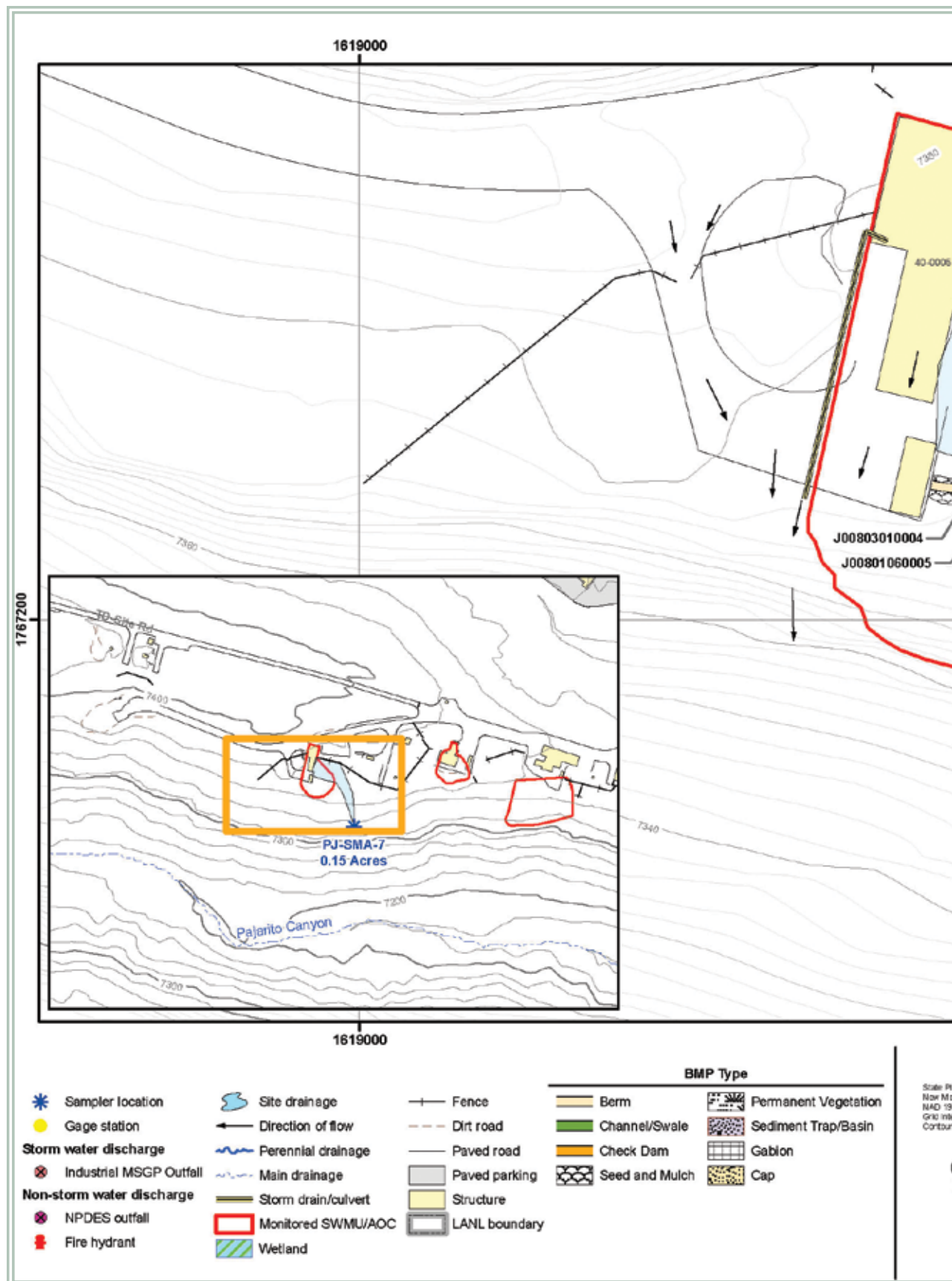
Earthen Channel (J008-04-01-0002)

This channel is located east of building 05 and flows into the culvert east of the SMA and is diverting run-on away from the area. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Culvert (J008-04-04-0003)

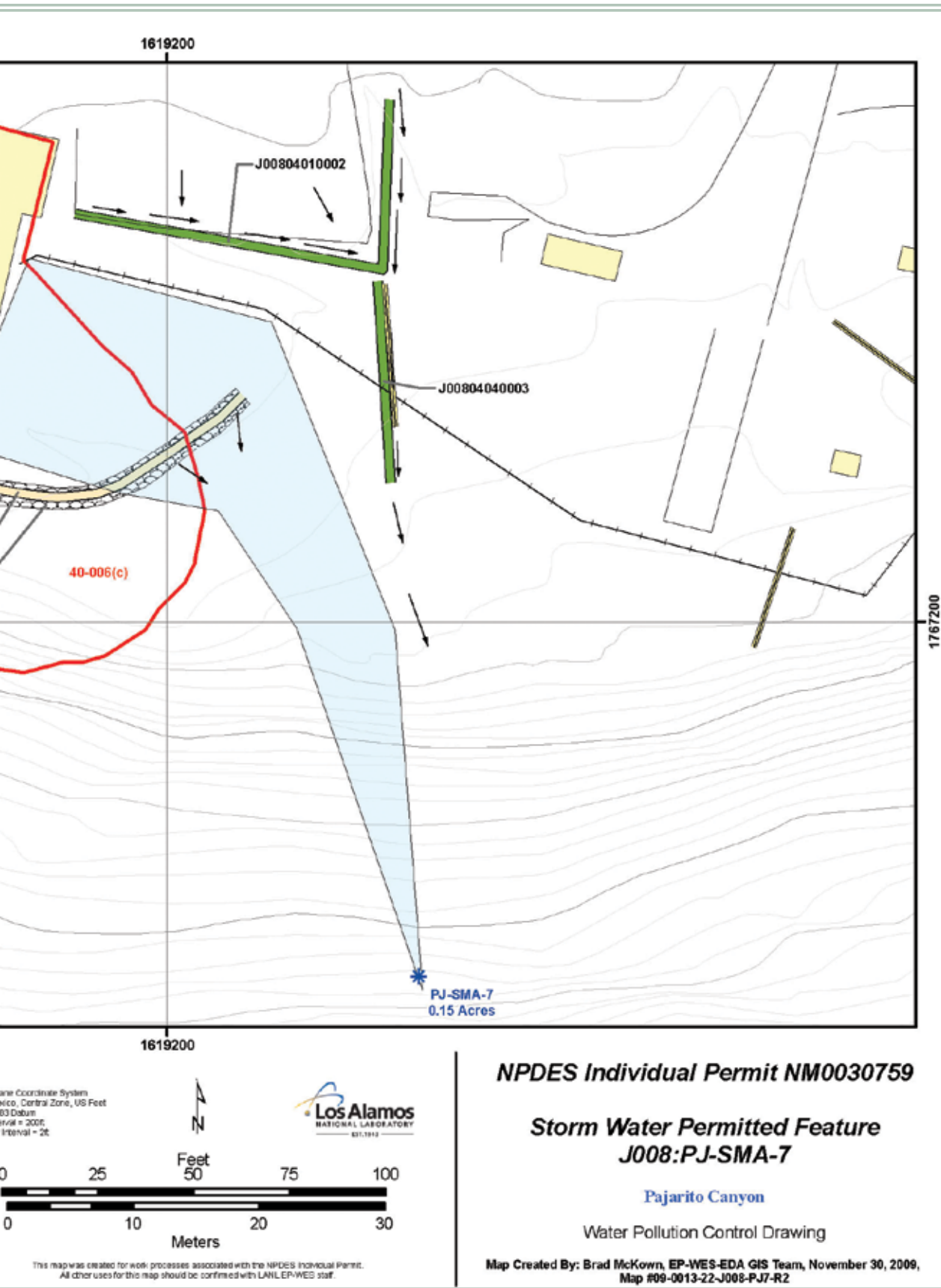
This culvert is located east of the SMA and diverts run-on flow away from the Site. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

1000.33.4 Project Map



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1000.33.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.33.6 Corrective Action Status

The Site associated with PJ-SMA-7 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.34 PJ-SMA-8

1000.34.1 Area Description

1000.34.2 Potential Pollutant Sources

1000.34.2.1 Historical Industrial Activity Areas

1000.34.3 Control Measures

1000.34.4 Project Map

1000.34.5 Storm Water Monitoring Plan and Schedule

1000.34.6 Corrective Action Status



1000.34 PJ-SMA-8

1000.34.1 Area Description

PJ-SMA-8 is located within TA-40 and access to the area is controlled. The northern boundary of the SMA is influenced by paved areas and structures within the developed area of TA-40. The southern boundary of the SMA is undeveloped and contains the receiving waters. The eastern and western boundaries of the SMA are influenced by paved areas and structures within the developed area of TA-40.

1000.34.2 Potential Pollutant Sources

1000.34.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J009, PJ-SMA-8, Site 40-006(b).

SWMU 40-006(b) is one of several active firing sites at TA-40. This detonator firing site (structure 40-8) was constructed in 1950 and consists of a reinforced concrete and steel building that allows observation of the test shots, a partially protected area adjacent to the building where the shot is set up and, historically, an open area covered with sand where the larger shots were fired. After each shot, large pieces of debris were removed and disposed of and the open area was graded. In 1992, structure 40-8 was extended and a containment system consisting of a large vessel with a high-efficiency particulate filtration system was installed. This firing site is used only to test and develop small explosive devices. Tests conducted at the site have included detonator booster tests, which use two pounds of explosives, and large open-air shots, which can use up to 85 pounds of explosives. Explosives and other materials used in the tests conducted at SWMU 40-006(b) included PETN, RDX, HMX, HNS, TATB, Baratol, TNT, nitroguanidine, thallium azide, lead bricks, and diethanolamine.

In 1991, the existing firing pad at structure 40-8 was excavated in preparation for the installation of the containment system. A reconnaissance survey was conducted for contaminants in the soil surrounding the firing pad, prior to its excavation. Results showed that lead and uranium were present at levels greater than the analytical limits of detection. Before construction began, the top six inches of soil on the firing pad were removed and placed on plastic sheeting to confine contaminants that might have leached from it.

In May 2000, the Cerro Grande fire burned through SWMU 40-006(b). The fire damage was moderate to severe with several buildings destroyed near this site. As part of the post-Cerro Grande recovery activities, BMPs (straw wattles) were installed on the steep portion of the slope to reduce the sediment migration potential. Wattles were also installed on the mesa's edge to divert run-on from the slope.

1000.34.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
40-006(b)	Firing site	Discrete Location, No overlap	Individual	•	•	•	HE

1000.34.3 Control Measures

Run-on contributions at this SMA originate from roof drainage associated with Building 40-0008. The majority of run-on from the surrounding paved areas is diverted east, away from the monitored area.

Subsections to 1000.34.3 list all control measures used to control pollutant sources identified in Section 1000.34.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.34.4.

1000.34.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J009 01 06 0007	Seed and Mulch - Erosion Control Blankets		•	•	
J009 01 06 0008	Seed and Mulch - Erosion Control Blankets		•	•	
J009 02 01 0003	Established Vegetation - Grasses and Shrubs			•	
J009 03 01 0006	Berms - Earthen		•		•
J009 03 01 0009	Berms - Earthen		•		•
J009 04 02 0005	Channel/Swale - Concrete/Asphalt	•		•	
J009 04 06 0001	Channel/Swale - Rip Rap	•		•	
J009 06 01 0002	Check Dam - Rock	•			•
J009 06 01 0004	Check Dam - Rock	•			•

Erosion Control Blankets - East (J009-01-06-0007)

This erosion control blanket is associated with the East Earthen Berm. Its function is to prevent erosion of the berm. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Erosion Control Blankets - West (J009-01-06-0008)

This erosion control blanket is associated with the West Earthen Berm. Its function is to

prevent erosion of the berm. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Established Vegetation(J009-02-01-0003)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berms - West (J009-03-01-0006)

This berm is located south of building 40-0008 along the mesa edge. It is in place to mitigate run-off from the monitored area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berms - East (J009-03-01-0009)

This berm is located south of building 40-0007. It is used to control run-off from the paved areas above. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Asphalt Swale (J009-04-02-0005)

The swale is located east of the paved parking area above the Site. It is diverting run-on away from the SMA. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

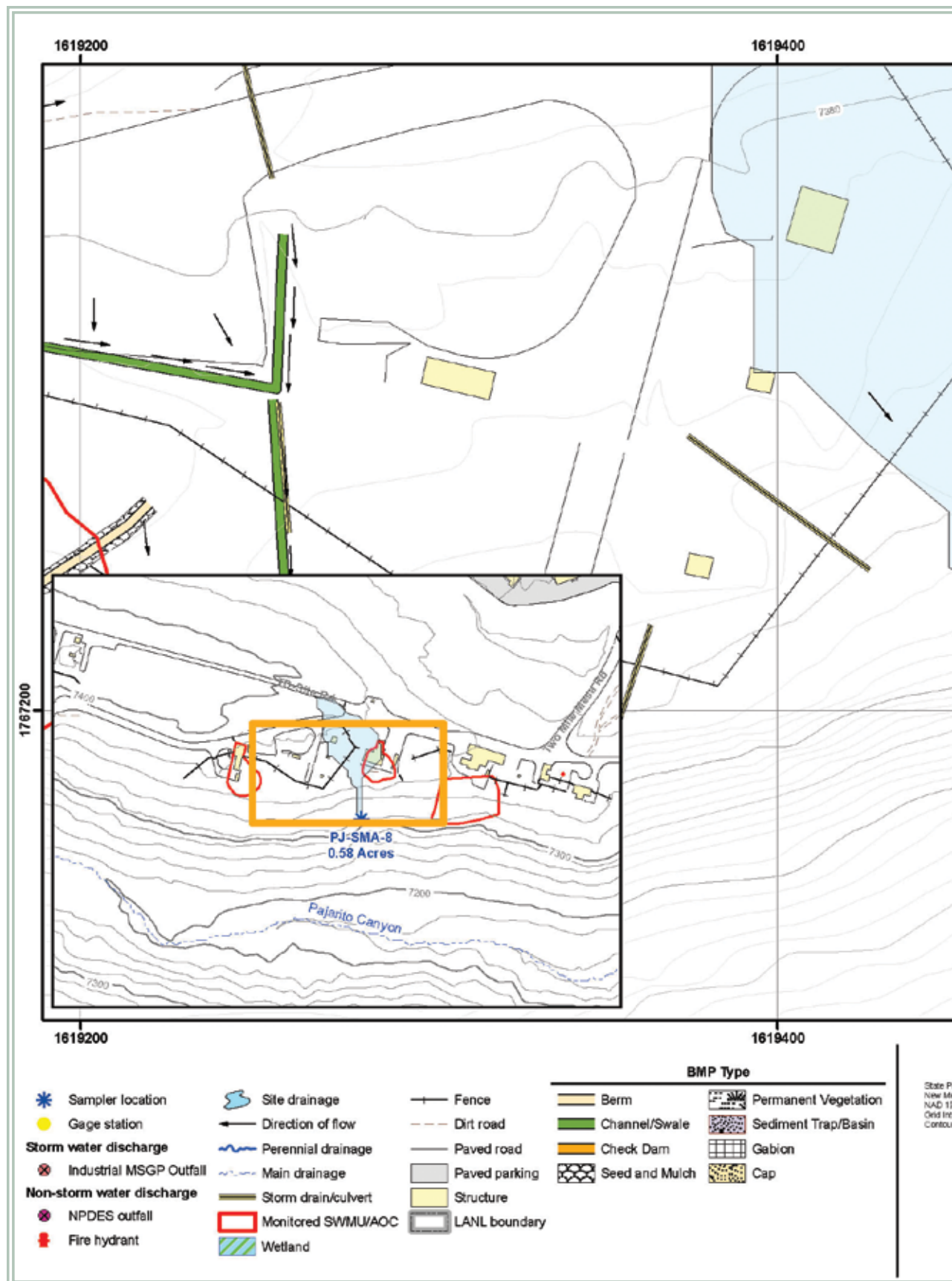
Rip Rap (J009-04-06-0001)

The rip rap is located east of building 40-007 adjacent to the paved area and is diverting run-on away from the SMA. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dam (J009-06-01-0002, -0004)

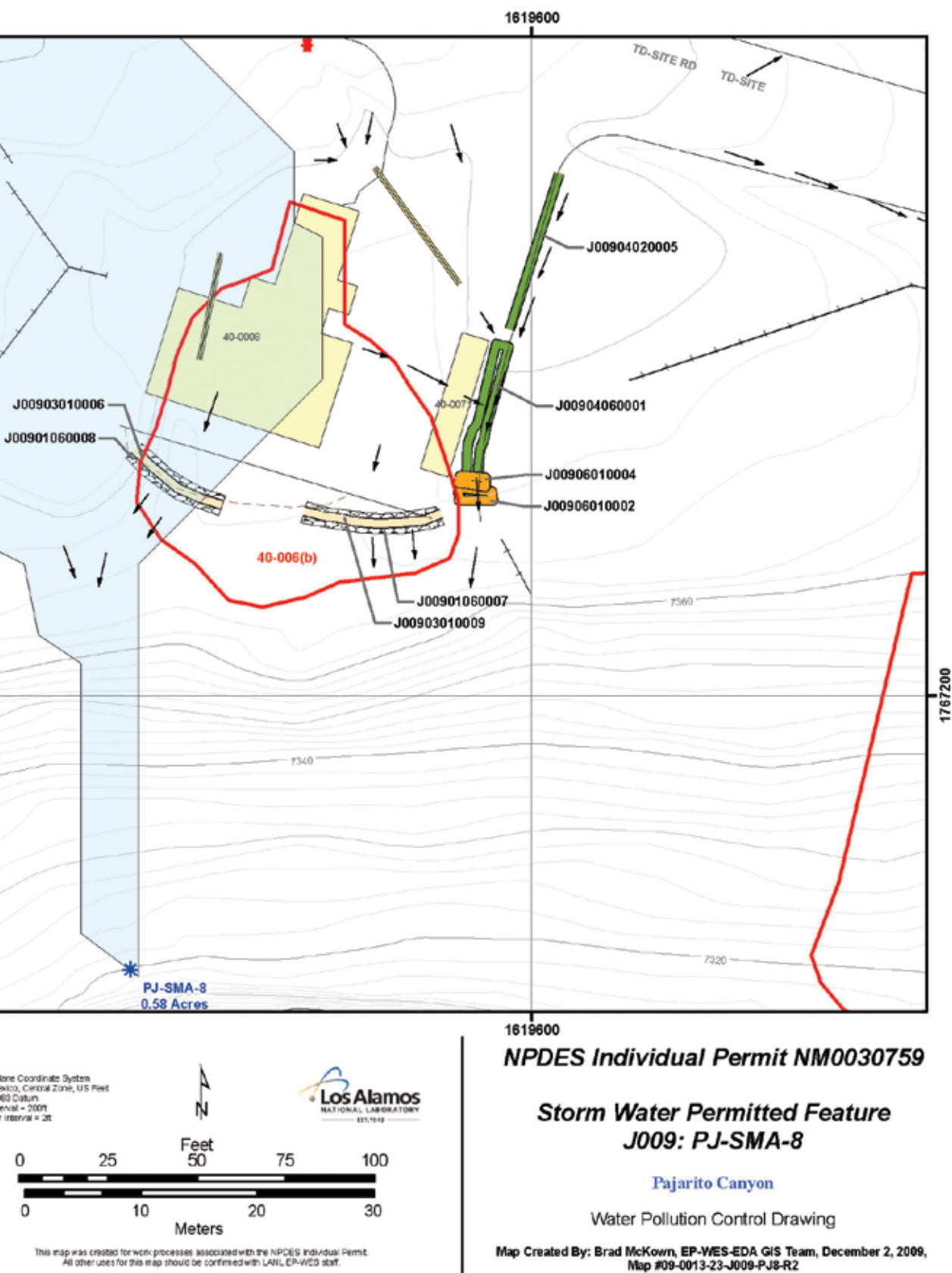
This is a series of check dams located east of the SMA, adjacent to the paved area east of Building 40-0007 and south of the rip rap. They are helping to control run-on generated from the paved areas east of building 40-008. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.34.4 Project Map



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1000.34.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.34.6 Corrective Action Status

The Site associated with PJ-SMA-8 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.35 PJ-SMA-9

1000.35.1 Area Description

1000.35.2 Potential Pollutant Sources

1000.35.2.1 Historical Industrial Activity Areas

1000.35.3 Control Measures

1000.35.4 Project Map

1000.35.5 Storm Water Monitoring Plan and Schedule

1000.35.6 Corrective Action Status



1000.35 PJ-SMA-9

1000.35.1 Area Description

PJ-SMA-9 is located within TA-40 and access to the area is controlled. The northern boundary of the SMA is influenced by paved areas and structures within TA-40. The southern boundary of the SMA is undeveloped and contains the receiving waters. The eastern and western boundaries of the SMA are influenced by paved areas and structures within TA-40.

1000.35.2 Potential Pollutant Sources

1000.35.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J010, PJ-SMA-9, Site 40-009.

SWMU 40-009 is a landfill at TA-40 adjacent to Building 40-9. This landfill contains debris from decommissioning buildings at TA-15. Before disposal, the debris was monitored for radioactivity. No additional information exists about the building debris buried at this site.

In May 2000, the Cerro Grande fire burned through SWMU 40-009. As part of the post-Cerro Grande recovery activities, BMPs (straw wattles) were installed along the mesa edge to divert run-on from the slope. Rock check dams (on-site materials used) were provided to dissipate flow within the drainage channels on both the east and west ends of the site.

1000.35.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
40-009	Landfill	Discrete Location, No overlap	Individual	•	•	•	SVC HE

1000.35.3 Control Measures

This SMA is influenced by run-on contributions from paved areas and roof drains associated with Building 40-0009. There is also a channel to the west of Building 40-0009 that may contribute to run-on at this Permitted Feature.

Subsections to 1000.35.3 list all control measures used to control pollutant sources identified in Section 1000.35.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.35.4.

1000.35.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J010 02 01 0003	Established Vegetation - Grasses and Shrubs			•	
J010 03 01 0002	Berms - Earthen		•		•
J010 04 06 0001	Channel/Swale - Rip Rap	•		•	
J010 06 01 0006	Check Dam - Rock		•		•
J010 06 01 0007	Check Dam - Rock	•			•
J010 06 01 0008	Check Dam - Rock	•			•
J010 06 01 0009	Check Dam - Rock	•			•

Established Vegetation (J010-02-01-0003)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while pi-on-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm(J010-03-01-0002)

The berm is located southeast of building 40-0009 near the edge of the mesa top. It is in place to control run-off from the paved areas above. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rip Rap (J010-04-06-0001)

The rip rap is located at the head of the eastern channel. It is helping to manage run-on from the paved areas around building 40-0009. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dam - South (J010-06-01-0006)

This rock check dam is located on the slope in the natural drainage channel above the sampler. It is in place to mitigate run-off from the monitored area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

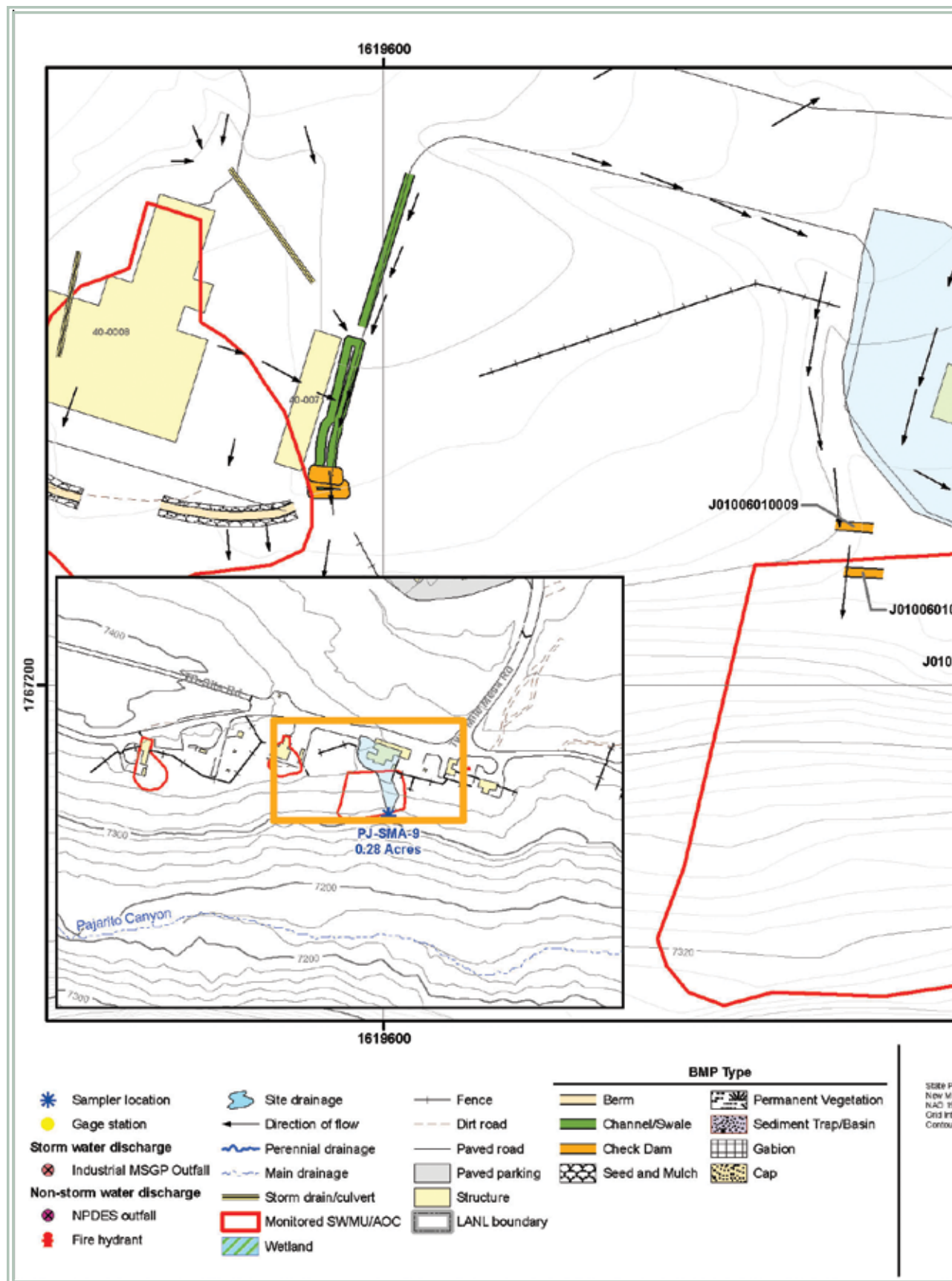
Check Dam - East (J010-06-01-0007)

This rock check dam is located near the edge of the mesa top on the eastern side of the SMA. It is in place to restrict run-off flow. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dams - West (J010-06-01-0008, -0009)

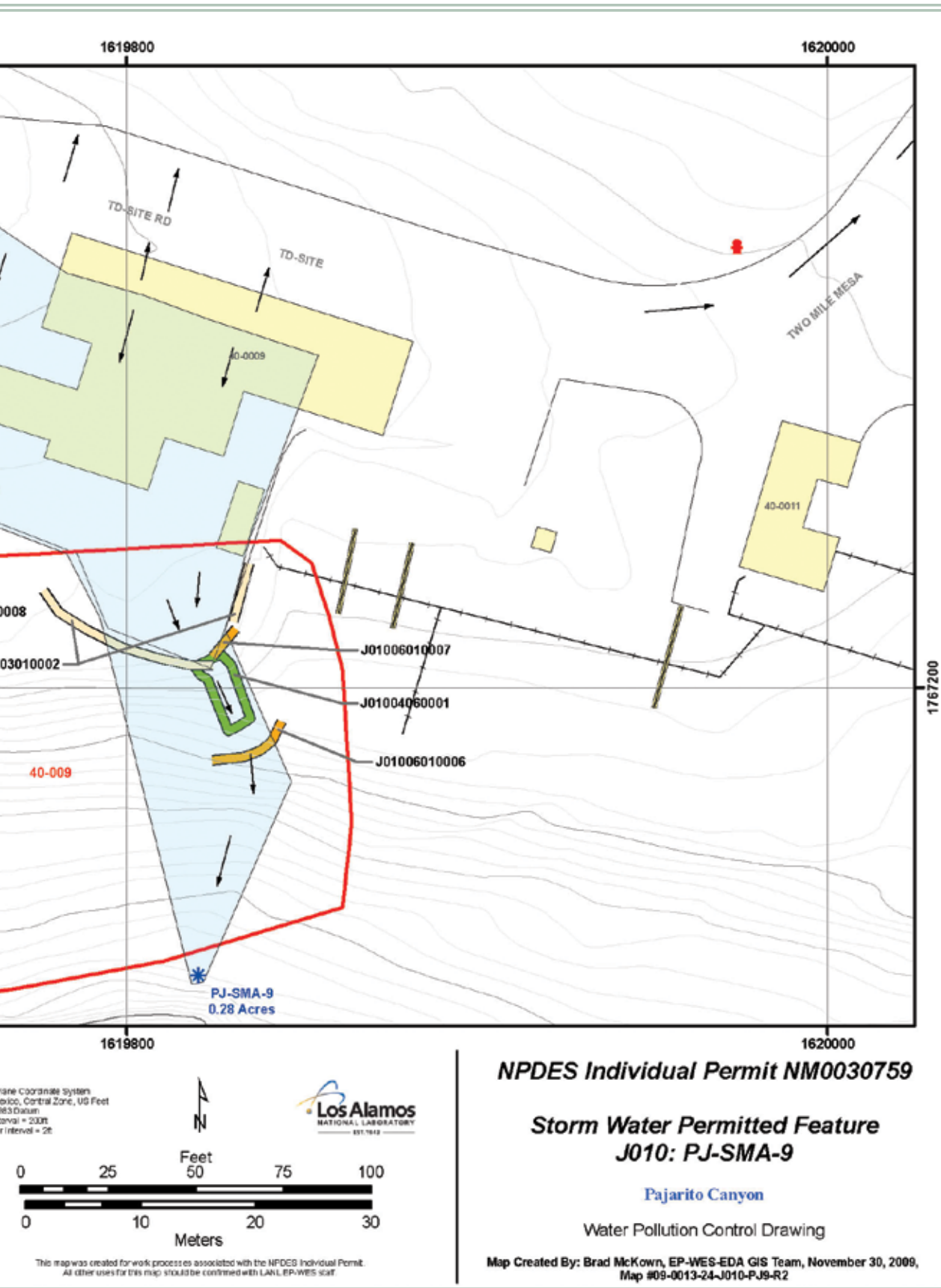
This is a series of two rock check dams located west of the monitored area close to the edge of the mesa top. They are in place to help control run-on in the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.35.4 Project Map



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1000.35.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2) SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.35.6 Corrective Action Status

The Site associated with PJ-SMA-9 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.36 PJ-SMA-10

1000.36.1 Area Description

1000.36.2 Potential Pollutant Sources

1000.36.2.1 Historical Industrial Activity Areas

1000.36.3 Control Measures

1000.36.4 Project Map

1000.36.5 Storm Water Monitoring Plan and Schedule

1000.36.6 Corrective Action Status



1000.36 PJ-SMA-10

1000.36.1 Area Description

PJ-SMA-10 is located within TA-40 and access to the area is controlled. The northern boundary of the SMA is influenced by structures and unpaved access roads with TA-40. The southern boundary of the SMA is undeveloped and contains the receiving waters. The eastern and western boundaries of the SMA are influenced by unpaved roads and structures.

1000.36.2 Potential Pollutant Sources

1000.36.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J012, PJ-SMA-10, Site 40-006(a).

SWMU 40-006(a) is one of several active firing sites at TA-40. This detonator firing site (structure 40-15) consists of a reinforced concrete and steel building that allows observation of the test shots, a partially protected area adjacent to the building where the shot is set up, and an open area covered with sand where the larger shots are fired. After each shot, large pieces of debris are removed and disposed of and the open area is graded. Because of this practice, a soil berm has developed near the canyon edge. This firing site is used only to test and develop small explosive devices. Tests conducted at the site have included detonator booster tests, which use two pounds of explosives, and large open-air shots, which can use up to 50 pounds of explosives.

1000.36.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
40-006(a)	Firing site	Discrete Location, No overlap	Individual	•	•	•	SVC HE

1000.36.3 Control Measures

Run-on contributions to this SMA originate from bare areas, structures, and an access road, south of the developed area. These run-on sources are managed by an existing berm. This monitored area is flat but the hill slope south of the berm is steep with minimal vegetation. Flow is generated south, or below, the berm on the hill slope.

Subsections to 1000.36.3 list all control measures used to control pollutant sources identified in Section 1000.36.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.36.4.

1000.36.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J012 02 01 0005	Established Vegetation - Grasses and Shrubs			•	
J012 03 02 0001	Berms - Base Course	•			•
J012 04 06 0004	Channel/Swale - Rip Rap		•	•	
J012 06 01 0006	Check Dam - Rock		•		•

Established Vegetation (J012-02-01-0005)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while pi-on-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Base Course Berm (J012-03-02-0001)

This berm is located along the southern edge of the access road south of building 40-0015. It is in place to control run-on generated from the unpaved access road south of building 40-0015. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

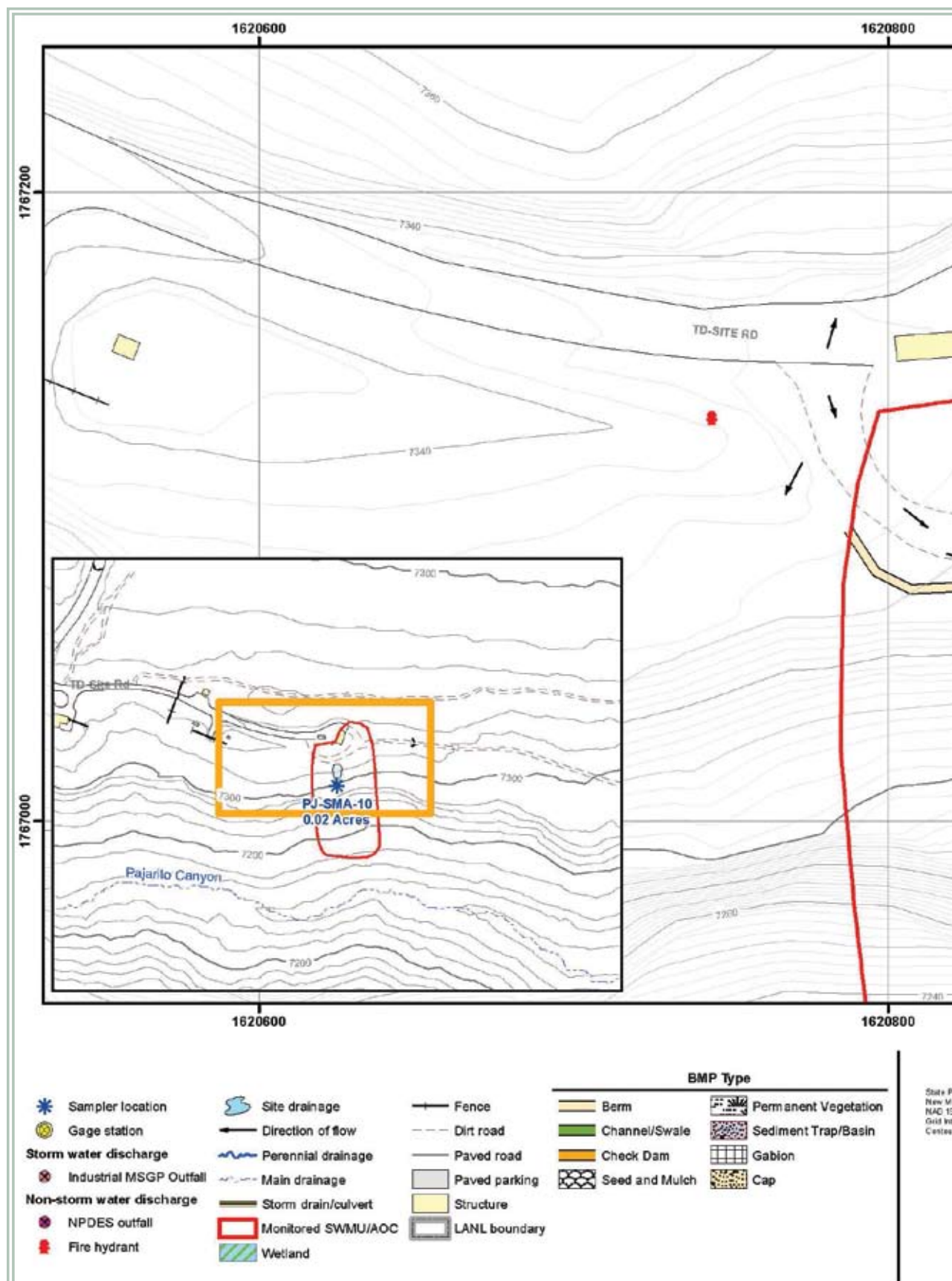
Rip Rap (J012-04-06-0004)

The rip rap is located southeast of structure 40-0015, and is preventing erosion generated by road run-off at this location. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dam (J012-06-01-0006)

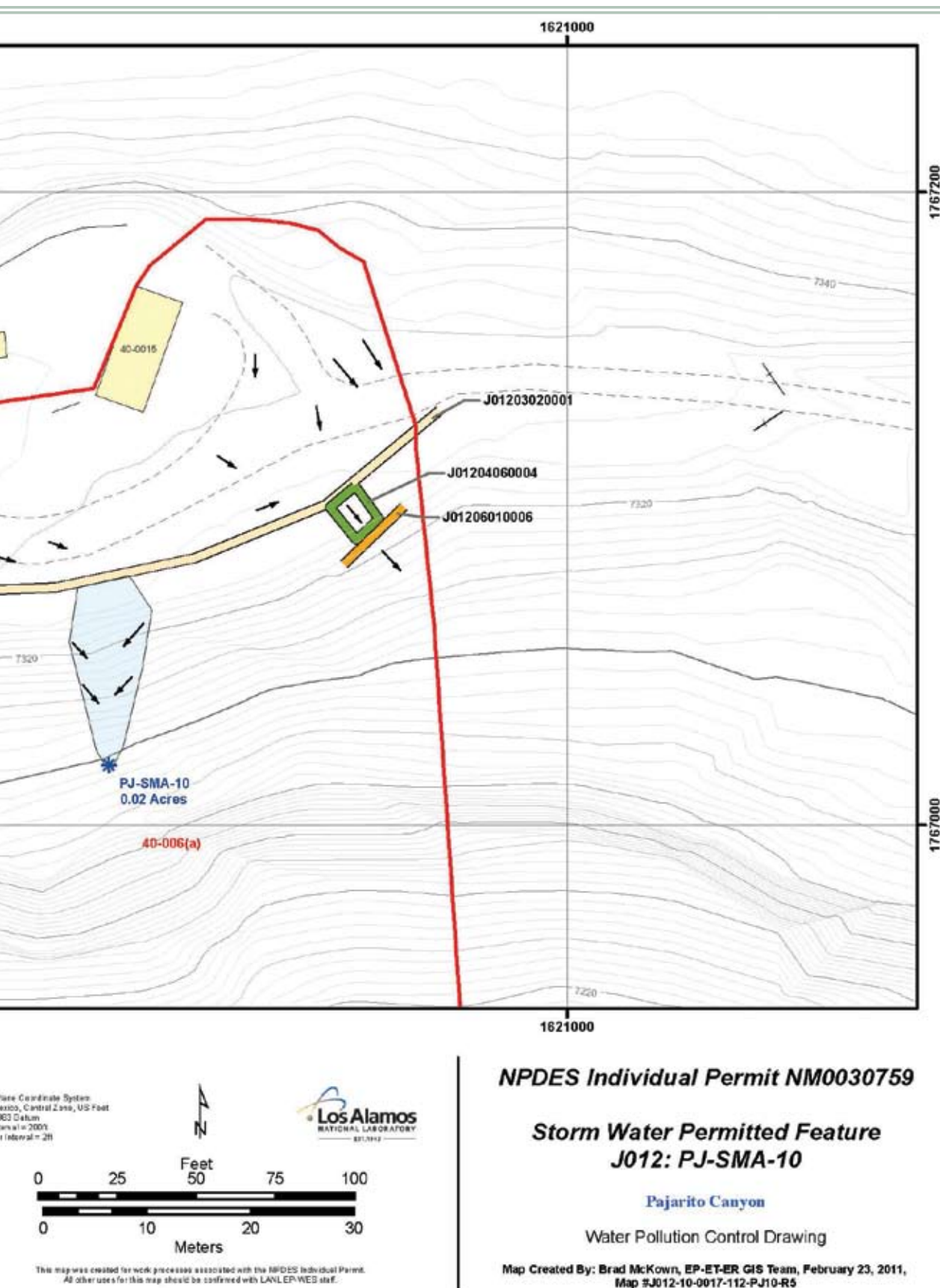
This check dam is located below the rip rap. It is in place to assist with storm water run-off in the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.36.4 Project Map



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1000.36.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2) SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.36.6 Corrective Action Status

The Site associated with PJ-SMA-10 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.37 PJ-SMA-11

1000.37.1 Area Description

1000.37.2 Potential Pollutant Sources

1000.37.2.1 Historical Industrial Activity Areas

1000.37.3 Control Measures

1000.37.4 Project Map

1000.37.5 Storm Water Monitoring Plan and Schedule

1000.37.6 Corrective Action Status



1000.37 PJ-SMA-11

1000.37.1 Area Description

PJ-SMA-11 is located within TA-40 and access to the area is controlled. The northern boundary of the SMA is undeveloped but may be influenced by an unpaved access road. The southern and eastern boundaries of the SMA are undeveloped. The western boundary of the SMA is undeveloped but may be influenced by an unpaved access road.

1000.37.2 Potential Pollutant Sources

1000.37.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J013, PJ-SMA-11, Site 40-003(a).

SWMU 40-003(a) is a former scrap burning site that was also used from the early 1960s until April 1985 as a detonation area for scrap explosive materials. Detonated materials included scrap explosive pieces, chips, powder, and waste detonators. After each detonation, all scattered debris was picked up and transported to an appropriate waste-disposal site. The scrap detonation site was not manned continually. Personnel were at the site only for the time needed to set up a detonation. Detonations were remotely controlled from a firing point located 1,300 feet to the west. Scrap explosives and explosives-contaminated waste were delivered from other LANL facilities just before detonation. Soils remaining after detonation were nonreactive and nonignitable. Repeated detonations have formed a south-facing amphitheater in the northern cliff, below the mesa top. The back (north) of the amphitheater is a cliff that rises 30 feet from the amphitheater floor. The east and west rims of the amphitheater drop to the south, framing its opening on the mesa shelf. In 1990, LANL personnel found that the site had been used as a dumping area for construction rubble and debris. The construction debris was removed from the detonation area in April 1992. During removal all debris was field-screened for HE contamination, and all uncontaminated material was properly disposed of at the sanitary landfill. Debris that showed residual HE contamination was either decontaminated and then disposed of at the landfill or was collected for treatment and subsequent disposal. Approximately 177 cubic yards of rubble were removed.

1000.37.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
40-003(a)	Scrap burn site completed RCRA closure	Discrete Location, No overlap	Individual	•		•	

1000.37.3 Control Measures

Potential run-on contributions to this monitored area originate from an access road and bare areas on the northern portion of the SWMU. Sandy areas are present at the head of this SMA.

Subsections to 1000.37.3 list all control measures used to control pollutant sources identified in Section 1000.37.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.37.4.

1000.37.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J013 01 03 0015	Seed and Mulch - Hydromulch			•	
J013 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
J013 03 01 0003	Berms - Earthen		•		•
J013 03 01 0004	Berms - Earthen	•			•
J013 03 06 0009	Berms - Straw Wattles		•		•
J013 03 06 0010	Berms - Straw Wattles		•		•
J013 03 06 0011	Berms - Straw Wattles		•		•
J013 03 06 0012	Berms - Straw Wattles		•		•
J013 03 06 0013	Berms - Straw Wattles		•		•
J013 03 06 0014	Berms - Straw Wattles		•		•
J013 06 01 0005	Check Dam - Rock		•		•
J013 06 01 0006	Check Dam - Rock		•		•
J013 06 01 0007	Check Dam - Rock		•		•
J013 06 01 0008	Check Dam - Rock		•		•

Hydromulch (J013-01-03-0015)

Hydromulch was applied throughout the central portion of the SMA in order to help control erosion. Hydraulic mulch consists of applying a mixture of shredded wood fiber or a hydraulic matrix and a stabilizing emulsion or tackifier with hydroseeding equipment, which temporarily protects exposed soil from erosion by raindrop impact or wind.

Established Vegetation (J013-02-01-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of

existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berms (J013-03-01-0003)

This berm and its spillway is installed to the northeast of berm -0004 to control run-off and sediment. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Berms- Earthen (J013-03-01-0004)

This berm is installed on the unpaved access road to manage run-on and divert flow to the west of the SMA. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

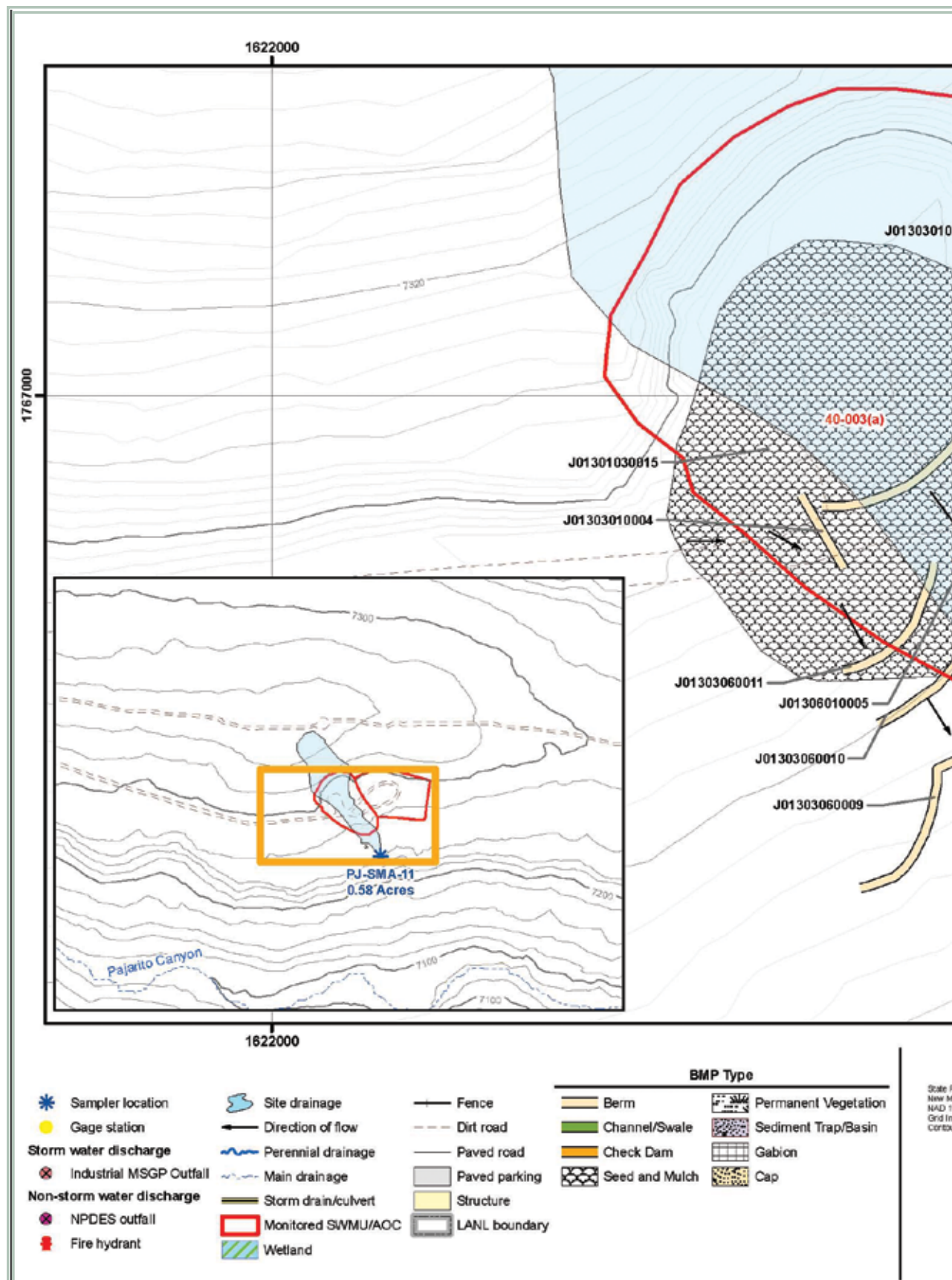
Straw Wattles (J013-03-06-0009, -0010, -0011, -0012, -0013, -0014)

This cluster of seven wattles flanks check dams -0005 through -0008 on both the northeast and southwest sides, and serve to control run-off and sediment. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rock Check Dams (J013-06-01-0005, -0006, -0007, -0008)

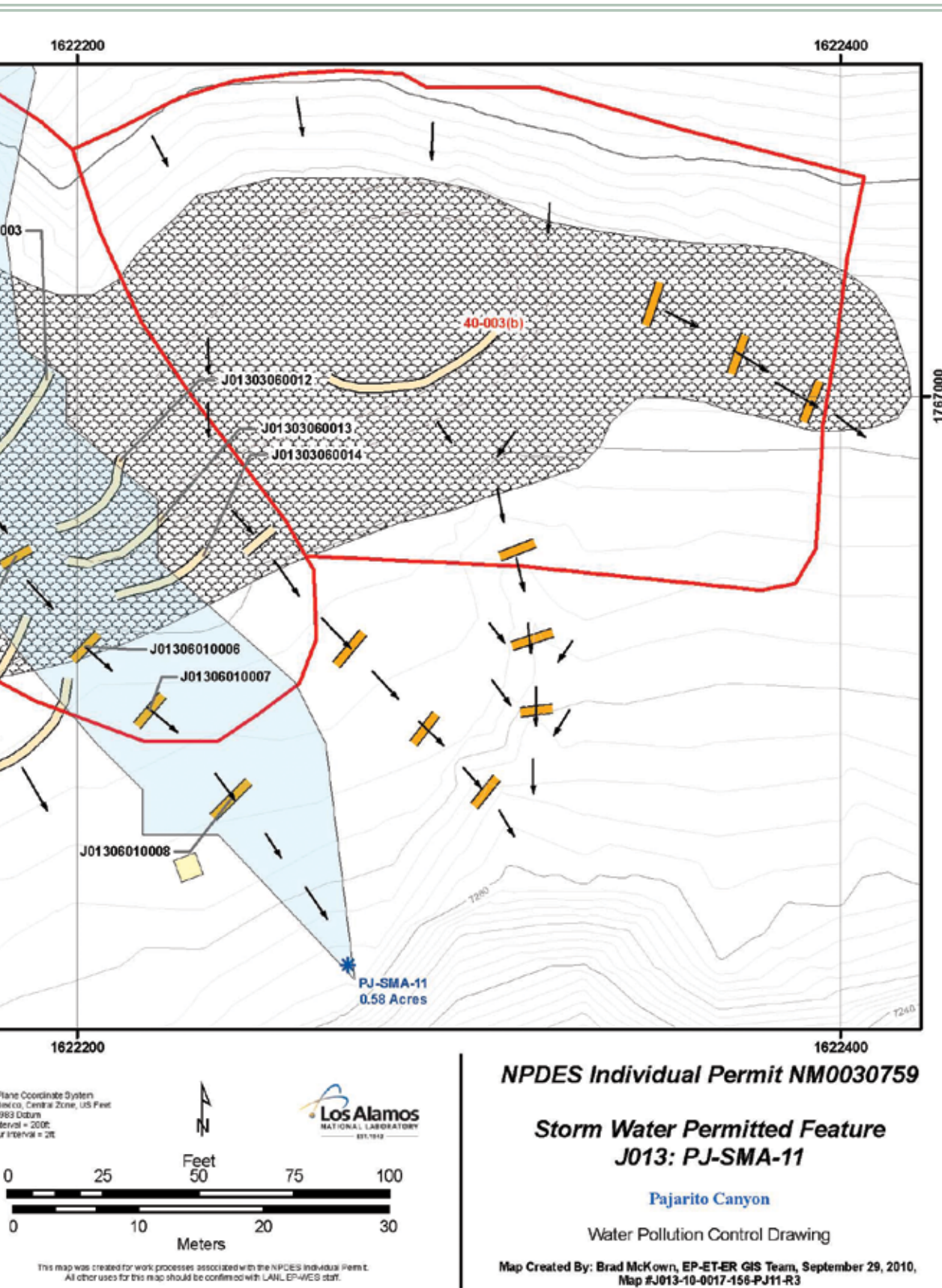
This is a series of four check dams located in the channel above the sampler. They are in place to help regulate storm water run-off in the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.37.4 Project Map



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1000.37.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.37.6 Corrective Action Status

The Site associated with PJ-SMA-11 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.38 PJ-SMA-11.1

1000.38.1 Area Description

1000.38.2 Potential Pollutant Sources

1000.38.2.1 Historical Industrial Activity Areas

1000.38.3 Control Measures

1000.38.4 Project Map

1000.38.5 Storm Water Monitoring Plan and Schedule

1000.38.6 Corrective Action Status



1000.38 PJ-SMA-11.1

1000.38.1 Area Description

PJ-SMA-11.1 is located within TA-40 and access to the area is controlled. The northern boundary of the SMA is undeveloped and influenced by unpaved access roads. The southern boundary of the SMA is undeveloped and contains the receiving waters. The eastern and western boundaries of the SMA are influenced by unpaved access roads.

1000.38.2 Potential Pollutant Sources

1000.38.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J014, PJ-SMA-11.1, Site 40-003(b).

AOC 40-003(b) is a former burning site that was used from the early 1960s through April 1985 to dispose of trash suspected of containing contamination from explosives and other combustible wastes. The wastes were stacked and burned in a burn pit (trench) or in a wire cage. Burning was initiated using explosive detonators set off remotely. Typical wastes included rags, paper, tape, cotton swabs, wood, glassware, and other trash items that had contacted explosives and were suspected of being explosives-contaminated. The site consists of three small former burn areas approximately 6 x 6 ft and one burn pit. A wire cage, approximately 4 x 4 x 5 ft, was used to burn wastes in three separate areas at the site. These areas exhibited scorched soil and rock, charred ash, and other debris. The burn pit, where burned material was buried, is believed to be approximately 12 ft wide x 12 ft deep x 50 ft long covered with crushed tuff. The burn areas, excluding the pit, operated as a hazardous waste thermal treatment unit under RCRA interim status until operations ceased in 1985. The burn pit ceased operations prior to 1980. 40-003(b) was proposed for NFA in the RFI work plan because it was being closed under a RCRA closure plan NMED approved initially in 1992. The RCRA closure plan was implemented in 1992, amended, and then approved by NMED in 1994. NMED approved the RCRA closure report and closure certification for the burn site in 1995.

1000.38.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
40-003(b)	Burning area	Discrete Location, No overlap	Individual	•		•	

1000.38.3 Control Measures

There is no concentrated run-on from developed areas at this SMA. Any run-off from this SMA originates from bare areas located in the northern reaches of the SMA. This overland flow has resulted in concentrated flow channels. Installed controls are to further stabilize bare areas in the upper reach of the SMA and to fortify sediment retention associated with run-off controls.

Subsections to 1000.38.3 list all control measures used to control pollutant sources identified in Section 1000.38.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.38.4.

1000.38.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J014 01 03 0013	Seed and Mulch - Hydromulch			•	
J014 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
J014 03 01 0003	Berms - Earthen	•			•
J014 03 06 0014	Berms - Straw Wattles		•		•
J014 06 01 0004	Check Dam - Rock		•		•
J014 06 01 0005	Check Dam - Rock		•		•
J014 06 01 0006	Check Dam - Rock		•		•
J014 06 01 0007	Check Dam - Rock		•		•
J014 06 01 0008	Check Dam - Rock		•		•
J014 06 01 0009	Check Dam - Rock		•		•
J014 06 01 0010	Check Dam - Rock		•		•
J014 06 01 0011	Check Dam - Rock		•		•
J014 06 01 0012	Check Dam - Rock		•		•

Hydromulch (J014-01-03-0013)

Hydromulch was applied throughout the central area of the SMA, extending east and west of the SMA footprint. It was installed to help control erosion. Hydraulic mulch consists of applying a mixture of shredded wood fiber or a hydraulic matrix and a stabilizing emulsion or tackifier with hydroseeding equipment, which temporarily protects exposed soil from erosion by raindrop impact or wind.

Established Vegetation (J014-02-01-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing perma-

ment vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm (J014-03-01-0003)

This berm is in the center of the SMA controlling run-on generated from the unpaved access road. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattle (J014-03-06-0014)

This wattle is centrally located between the two check dam series. It is in place to help manage storm water run-off. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rock Check Dams - East (J014-06-01-0004, -0005, -0006)

This is a series of three check dams located east of the SMA footprint. They are used to manage storm water run-off and sediment transport in the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

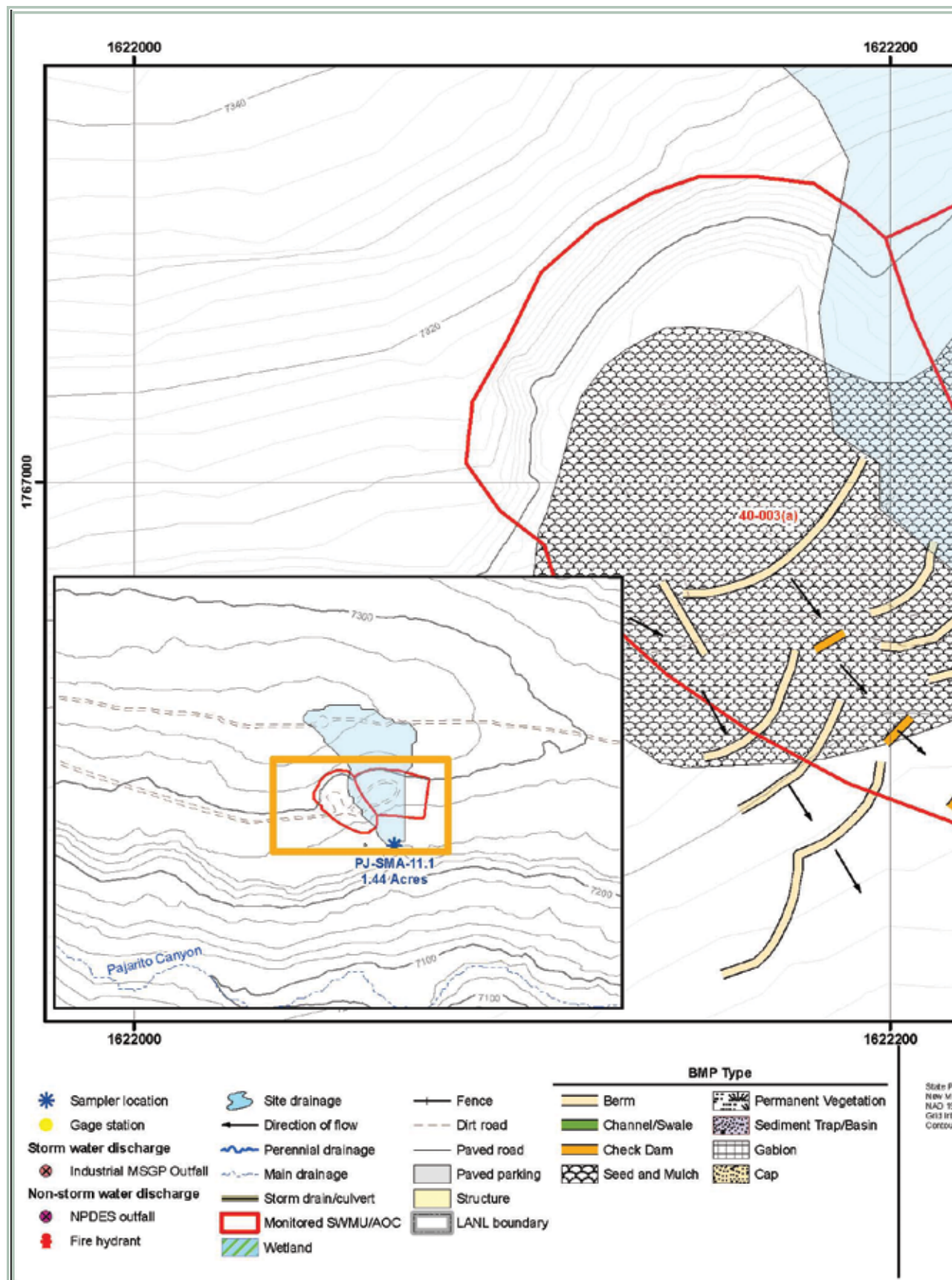
Rock Check Dams - Central (J014-06-01-0007, -0008, -0009)

This is a series of three check dams located on the eastern side of the SMA they are used to control run-off from the unpaved access road above. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dams - West (J014-06-01-0010, -0011, -0012)

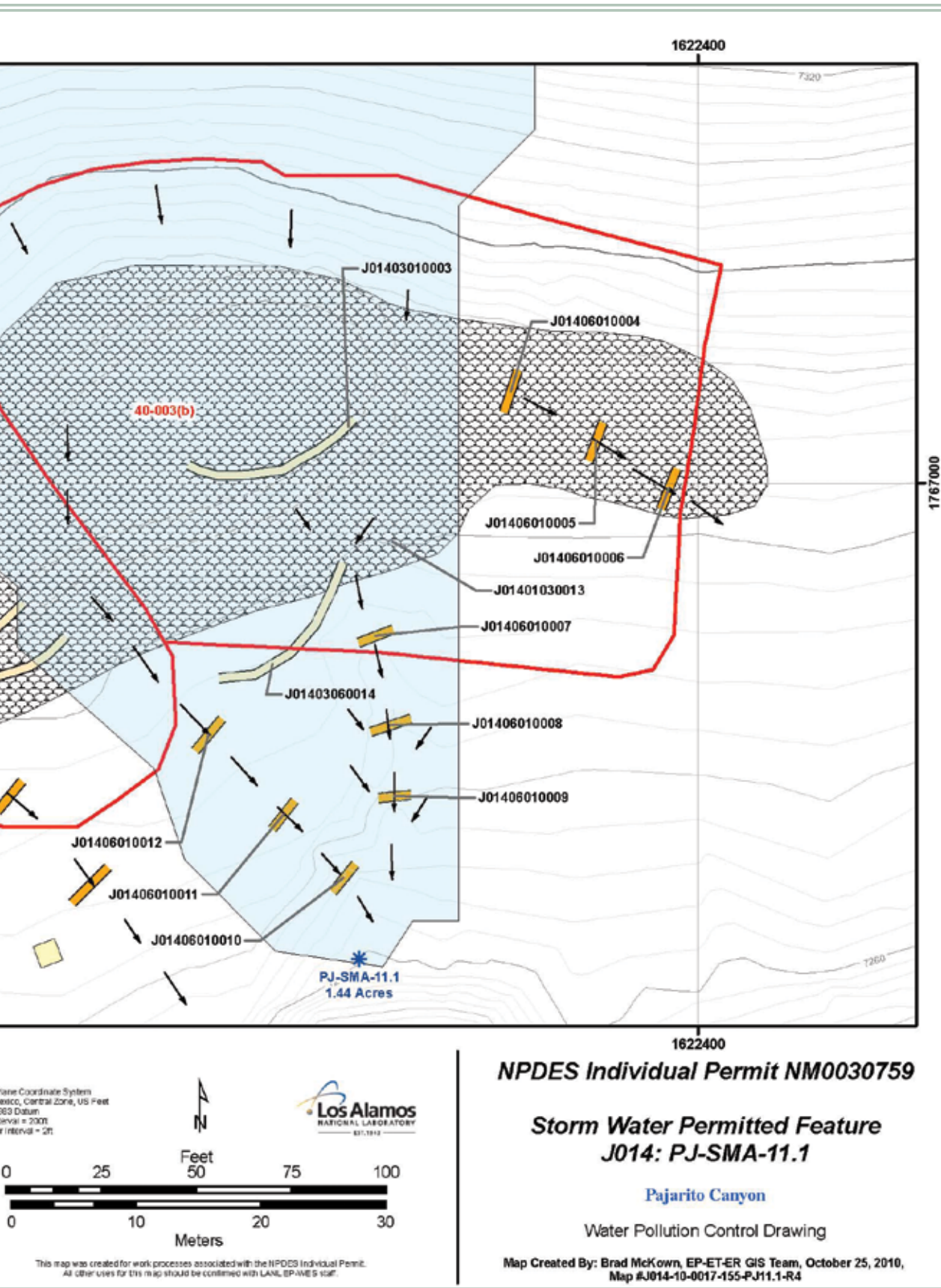
This series of three check dams is located in the channel in the southwest portion of the SMA. They are in place to interrupt run-off and sediment as it approaches the sampler from the northwest. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.38.4 Project Map



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1000.38.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.38.6 Corrective Action Status

The Site associated with PJ-SMA-11.1 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.39 PJ-SMA-13

1000.39.1 Area Description

1000.39.2 Potential Pollutant Sources

1000.39.2.1 Historical Industrial Activity Areas

1000.39.3 Control Measures

1000.39.4 Project Map

1000.39.5 Storm Water Monitoring Plan and Schedule

1000.39.6 Corrective Action Status



1000.39 PJ-SMA-13

1000.39.1 Area Description

PJ-SMA-13 is located within TA-18 and access to the area is controlled. The northern boundary of the SMA is influenced by paved areas and activities within the CASA 1 area of TA-18. The southern boundary of the SMA is within the secure but undeveloped area of TA-18. This boundary contains the receiving waters. The eastern boundary of the SMA is influenced by paved and unpaved access roads within TA-18. The western boundary of the SMA is influenced by paved areas within the CASA 1 area of TA-18.

1000.39.2 Potential Pollutant Sources

1000.39.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J015, PJ-SMA-13, Site 18-002(a).

SWMU 18-002(a) consists of an inactive HE firing site at TA-18 in Pajarito Canyon south of the present location of building 18-0023 (Kiva 1). The firing site was used from 1944 to 1945 and consisted of two structures: former structure 18-0003, a firing chamber 2 ft wide x 2 ft long x 2.2 ft deep constructed from 1 in. thick steel, and former structure 18-0002, an aboveground armored bunker, commonly called a 'battleship', used to protect shot instrumentation.

The firing chamber was open on the top and set flush with the ground west of the bunker, which was designated as storage for HE in the historical TA-18 structure log. Structure 18-0003 was removed in 1945, while structure 18-0002 is no longer used.

1000.39.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
18-002(a)	Firing site	Discrete Location, No overlap	Individual	•	•	•	HE

1000.39.3 Control Measures

There is minor run-on contribution from paved areas at this SMA. Run-on is also generated in the natural area southeast of the fence. Installed controls are to fortify sediment retention in the run-off from the area.

Subsections to 1000.39.3 list all control measures used to control pollutant sources identified in Section 1000.39.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.39.4.

1000.39.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J015 01 01 0004	Seed and Mulch - Seed and Wood Mulch			•	
J015 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
J015 03 01 0002	Berms - Earthen	•			•
J015 03 01 0003	Berms - Earthen		•		•

Seed and Wood Mulch (J015-01-01-0004)

Seed and mulch has been applied throughout the area to help control erosion. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (J015-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

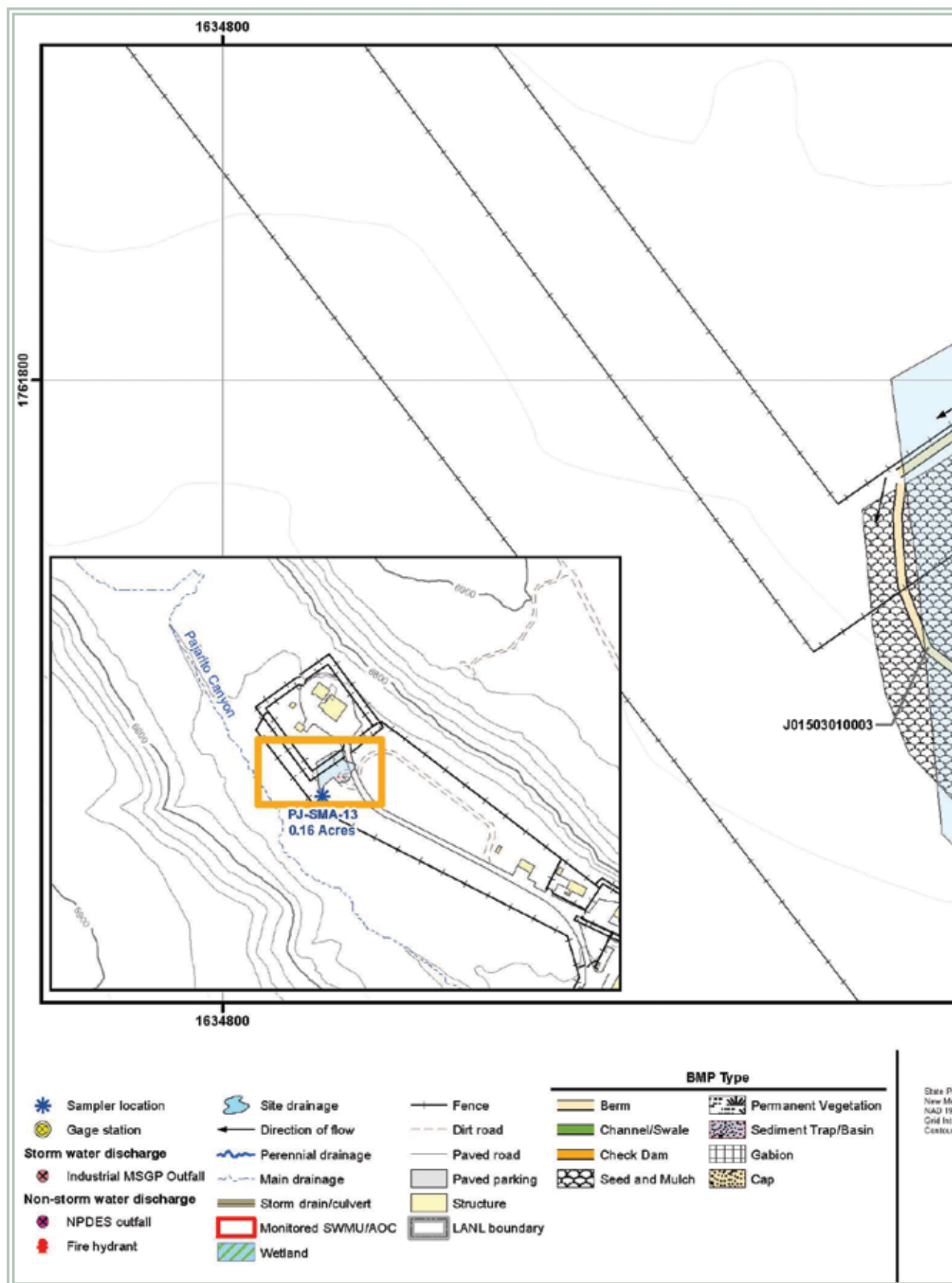
Earthen Berms (J015-03-01-0002)

This berm is located outside of the inner security fence. It is used to control storm water run-on from the paved access, diverting the flow towards the southwest. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm West (J015-03-01-0003)

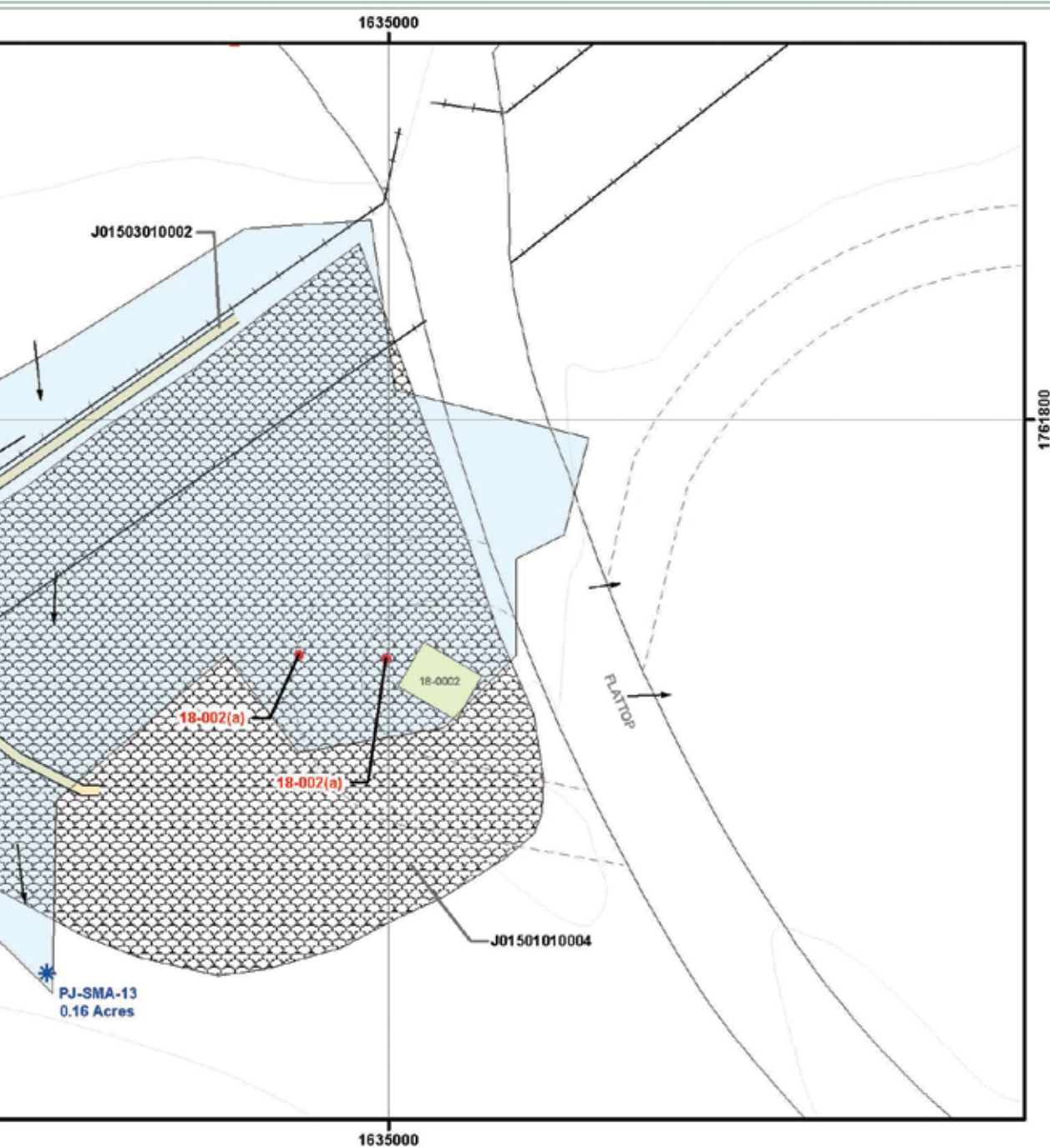
This berm is located north of the sampler, running across the SMA footprint and the area between fence lines. It is in place to control run-off from the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

1000.39.4 Project Map



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Map Coordinate System:
NAD 83, Central Zone, US Feet
Datum
1983 Datum
Interval = 20'



NPDES Individual Permit NM0030759

**Storm Water Permitted Feature
J015: PJ-SMA-13**

Pajarito Canyon

Water Pollution Control Drawing

Map Created By: Brad McKown, EP-ET-ER GIS Team,
February 16, Map #J015-10-0017-52-PJ13-R3

This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LAM, EP-WES staff.

1000.39.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.39.6 Corrective Action Status

The Site associated with PJ-SMA-13 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.40 PJ-SMA-13.7

1000.40.1 Area Description

1000.40.2 Potential Pollutant Sources

1000.40.2.1 Historical Industrial Activity Areas

1000.40.3 Control Measures

1000.40.4 Project Map

1000.40.5 Storm Water Monitoring Plan and Schedule

1000.40.6 Corrective Action Status



1000.40 PJ-SMA-13.7

1000.40.1 Area Description

PJ-SMA-13.7 is located within TA-18 and access to the area is controlled. The northern boundary of the SMA is influenced by paved areas and activities within the administrative area of TA-18. The southern boundary of the SMA is undeveloped and contains the receiving waters. The eastern boundary of the SMA is influenced by paved areas and activities within the administrative area of TA-18. The western boundary of the SMA is undeveloped.

1000.40.2 Potential Pollutant Sources

1000.40.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J016, PJ-SMA-13.7, Site 18-010(b).

AOC 18-010(b) is an outfall at TA-18 that receives stormwater discharge from an asphalt-paved drainage ditch running southward along the west side of the paved area west of building 18-0030. The outfall discharges to a flat, grassy area at the fence southwest of building 18-0030. The discharge point is approximately 25 ft north of the stream channel in Pajarito Canyon. The date this outfall became operational is unknown, but it is likely that the outfall has been operational from the time building 18-0030 was constructed in 1951.

The 1993 RFI work plan for AOC 18-010(b) described a 1988 photograph that noted spillage from a refueling platform into the asphalt-paved drainage ditch.

1000.40.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
18-010(b)	Outfall	Discrete Location, No overlap	Individual	•		•	

1000.40.3 Control Measures

The SMA is impacted by paved areas north and west of Building 18-0030, as well as from roof drains associated with the building. Flow is routed to the channel just east of the fence. The channel feeds a culvert inlet/outlet that discharges at the SWMU.

Subsections to 1000.40.3 list all control measures used to control pollutant sources identified in Section 1000.40.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.40.4.

1000.40.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J016 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
J016 02 03 0003	Established Vegetation - Vegetative Buffer Strip		•	•	
J016 06 01 0004	Check Dam - Rock	•			•
J016 06 01 0005	Check Dam - Rock	•			•
J016 06 01 0006	Check Dam - Rock	•			•
J016 06 01 0007	Check Dam - Rock	•			•
J016 07 01 0002	Gabions - Gabions		•	•	

Established Vegetation (J016-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Permanent Vegetation - Vegetative Buffer Strip (J016-02-03-0003)

The buffer is located along the northern boundary of the SMA parallel to the unpaved access road. It is used to control run-off from the road. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion.

Rock Check Dam South (J016-06-01-0004)

The check dam is located northeast of the sampler adjacent to the fence line. It is used to control run-on and for sediment retention. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dam South Central (J016-06-01-0005)

This check dam is located west of structure 18-0247 in the drainage channel. It is used to control run-on. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device

constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dam North Central (J016-06-01-0006)

This check dam is located along the fence in the drainage channel between structures 18-0148 and 18-0251. It is used to mitigate run-on at the site. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

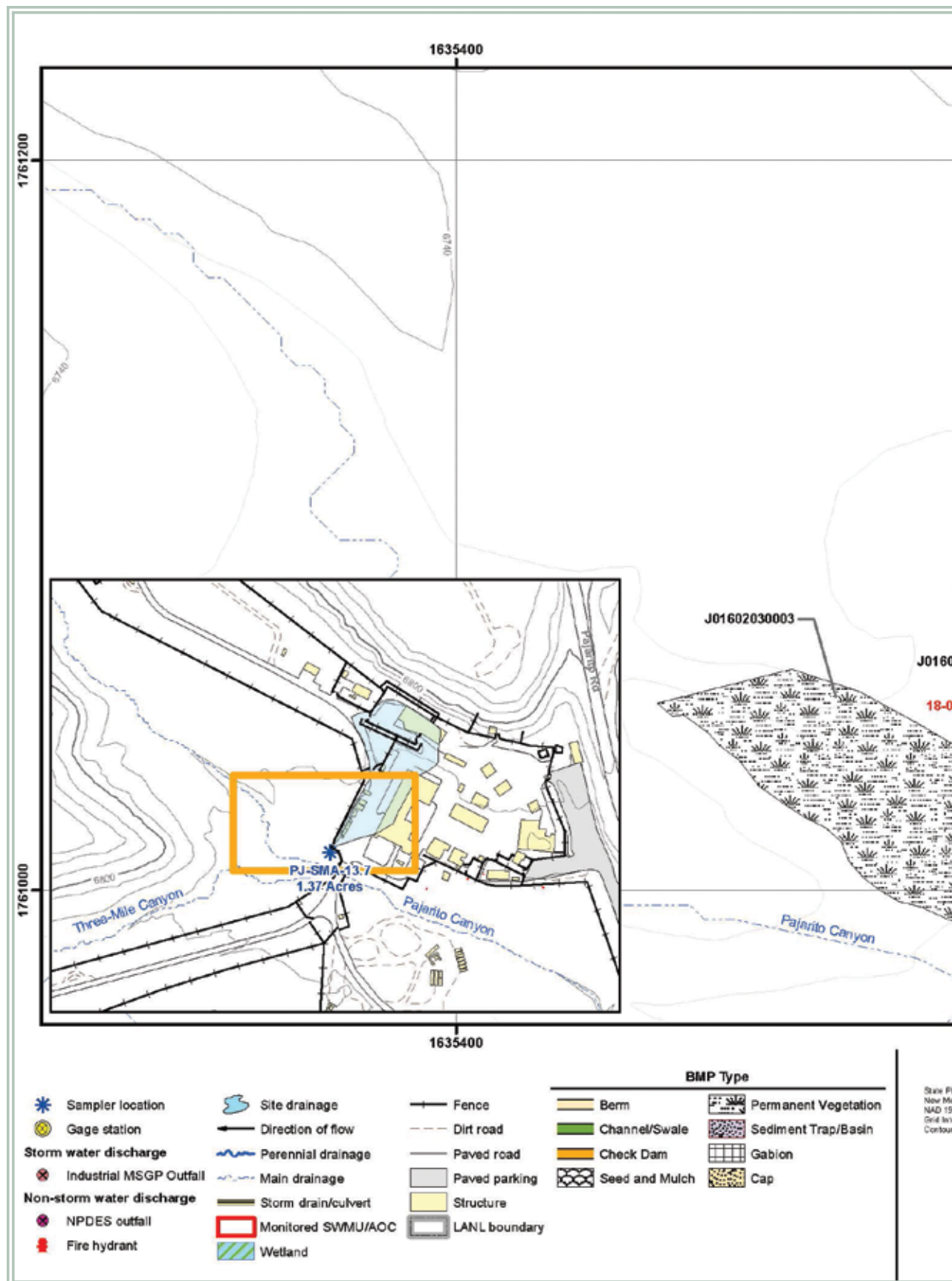
Rock Check Dam North (J016-06-01-0007)

The check dam is located west of structure 18-0287 in the drainage channel east of the fence. It is used to restrict run-on in the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Gabions (J016-07-01-0002)

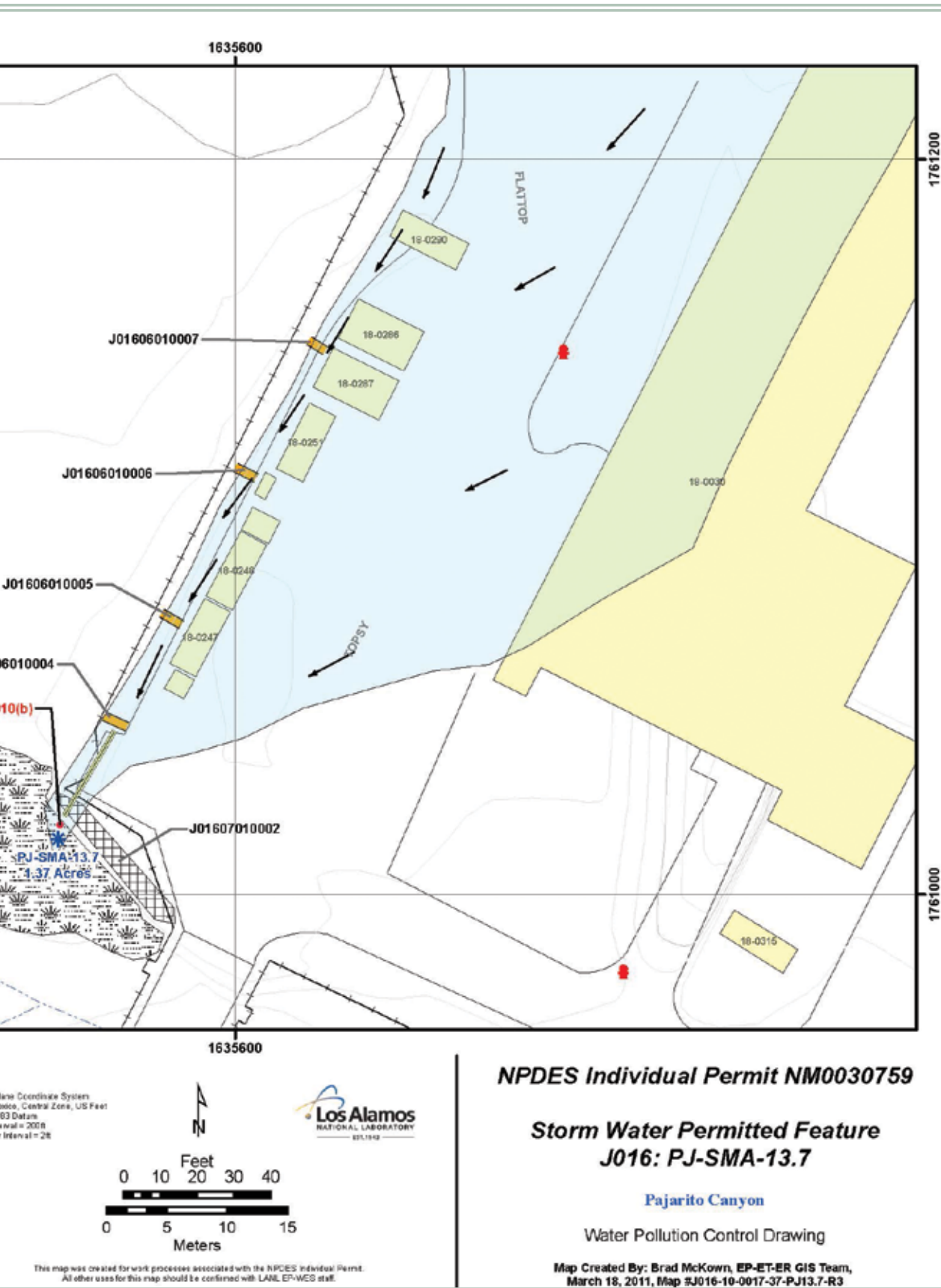
The gabions are located just east of the SMA near the fence line, and adjacent to the paved access road. They are in place for basic channel stabilization and to control run-off from the paved areas to the east. Gabions are large, multi-celled, welded wire or rectangular wire mesh boxes, used in channel revetments, retaining walls, abutments, and check dams. Gabions are used for sediment control when installed perpendicular to the storm water flow as with a check dam.

1000.40.4 Project Map



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1000.40.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.40.6 Corrective Action Status

The Site associated with PJ-SMA-13.7 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.41 PJ-SMA-14

1000.41.1 Area Description

1000.41.2 Potential Pollutant Sources

1000.41.2.1 Historical Industrial Activity Areas

1000.41.3 Control Measures

1000.41.4 Project Map

1000.41.5 Storm Water Monitoring Plan and Schedule

1000.41.6 Corrective Action Status



1000.41 PJ-SMA-14

1000.41.1 Area Description

PJ-SMA-14 is located within the bounds of TA-54 and access to the area is controlled. The northern boundary is on a paved access road to TA-54. The southern boundary is on a dirt access road that circles the Site. The eastern boundary is on undeveloped land. This area is in close proximity to the paved access road to TA-54. The western boundary is potentially influenced by an unpaved access road.

1000.41.2 Potential Pollutant Sources

1000.41.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J017, PJ-SMA-14, Site 54-004.

SWMU 54-004 is MDA H, a 0.3-acre site on Mesita del Buey in TA-54 that contains nine inactive shafts that were used for disposal of LANL classified waste such as weapon-component mockup shapes, detonators, papers, and tritium-contaminated items. Each shaft is six feet in diameter and 60 feet deep. The shafts were capped when waste came to within six feet of the surface. Shafts 1 through 8 are capped with three feet of crushed tuff followed by three foot thick concrete caps; shaft 9 is capped solely by a six foot thick layer of concrete. The nine shafts at MDA H were used from 1960 to 1986. One shaft, shaft 9, received hazardous waste after July 26, 1982, and is therefore considered a RCRA-regulated landfill. The surface area of MDA H has been reseeded.

1000.41.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
54-004	MDA H	Discrete Location, No overlap	Individual	•	•	•	HE

1000.41.3 Control Measures

There is a minor potential for run-on from the paved road north of the SMA. The SMA is slightly elevated on the southwestern side, reducing the potential for run-on from the area southwest of the SMA. Controls have been installed to manage run-off and reduce sediment migration.

Subsections to 1000.41.3 list all control measures used to control pollutant sources identified in Section 1000.41.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.41.4.

1000.41.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J017 01 01 0004	Seed and Mulch - Seed and Wood Mulch			•	
J017 03 02 0002	Berms - Base Course	•			•
J017 03 02 0003	Berms - Base Course		•		•
J017 08 01 0001	Cap - Earth			•	

Seed and Wood Mulch (J017-01-01-0004)

Seed and wood mulch has been applied in a broad area south of the paved road, Mesita Del Buey and north of the unpaved access road. It is used to help control erosion in the area. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Base Course Berm - North (J017-03-02-0002)

This berm is located north of MDA-H and parallels Mesita Del Buey Road. It is used to help prevent storm water run-on to the area. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

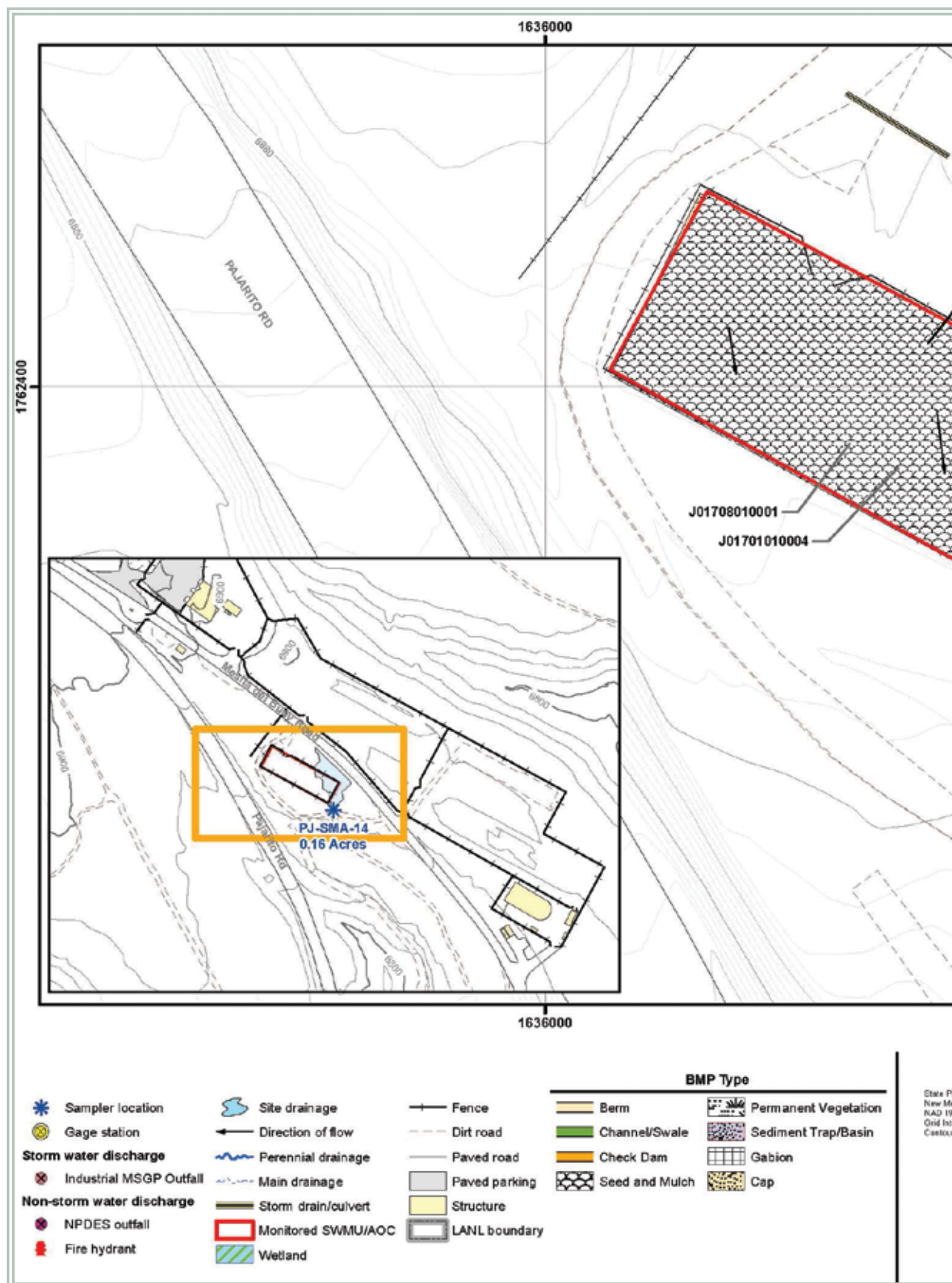
Base Course Berm - South (J017-03-02-0003)

This berm is located just north of the sampler and helps manage run-off from the slope above. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earth Cap (J017-08-01-0001)

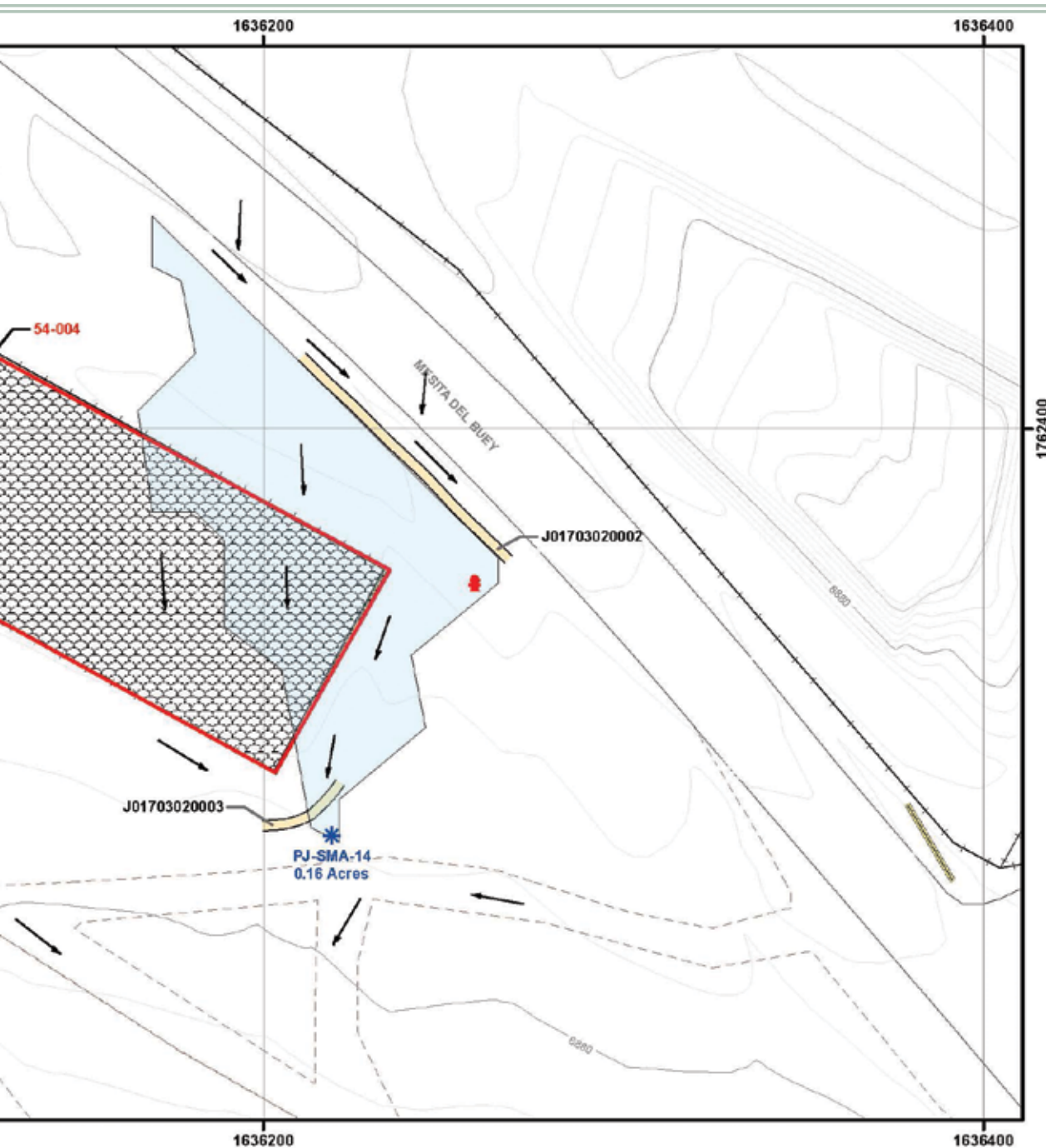
This cap is located over the Site and helps control erosion in the vicinity. An earthen cap consists of clean fill material generally 1 foot or greater in depth that is properly compacted. Generally used to cap subsurface areas such as shafts or boreholes. This category of storm water control includes earth, rock and asphalt caps. Caps are used primarily for erosion control and to isolate areas of potential soil contamination from storm water.

1000.41.4 Project Map

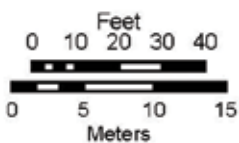


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Plane Coordinate System
North American Datum, Central Zone, US Feet
Datum
Interval = 200ft
Interval = 2%



This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EPWES staff.

NPDES Individual Permit NM0030759

**Storm Water Permitted Feature
J017: PJ-SMA-14**

Pajarito Canyon

Water Pollution Control Drawing

Map Created By: Brad McKown, EP-ET-ER GIS Team, February 28, 2011,
Map #J017-10-0017-159-PJ14-R3

1000.41.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.41.6 Corrective Action Status

The Site associated with PJ-SMA-14 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.42 PJ-SMA-14.2

1000.42.1 Area Description

1000.42.2 Potential Pollutant Sources

1000.42.2.1 Historical Industrial Activity Areas

1000.42.3 Control Measures

1000.42.4 Project Map

1000.42.5 Storm Water Monitoring Plan and Schedule

1000.42.6 Corrective Action Status



1000.42 PJ-SMA-14.2

1000.42.1 Area Description

PJ-SMA-14.2 is located within the administrative area of TA-18. Access to the most of the Permitted Feature is heavily controlled and behind a security fence. The northern boundary of the SMA is influenced by paved areas and associated engineered controls within this administrative area. The southern boundary of the SMA is heavily vegetated and contains the receiving waters. A portion of the SMA lies just outside of the security fencing for TA-18.

1000.42.2 Potential Pollutant Sources

1000.42.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J018, PJ-SMA-14.2, Site 18-012(b).

SWMU 18-012(b) is an outfall that received discharge from several sources in buildings 18-0030 and 18-0031. The outfall, active since the buildings were constructed in 1950, is located south of building 18-0031 approximately 20 ft north of the main drainage channel in Pajarito Canyon. The outfall received discharge from an associated sump [SWMU 18-001(c)], floor drains, sinks, stormwater from the east-wing roof of building 18-0031, and a welding quench tank in building 18-0030. The outfall also received discharge from machine shop floor drains and stormwater from the roof of building 18-0031.

Discharge from both buildings was transported to the outfall via a series of 4-in. polyethylene pipes connected to the sources within the buildings. Currently, this outfall receives only stormwater from the east-wing roof of building 18-0030. The drainline that exits the southeast corner of building 18-0031 flows into the SWMU 18-003(e) septic system and is not associated with SWMU 18-012(b).

1000.42.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
18-012(b)	Outfall from Buildings 18-30 and -31	Discrete Location, No overlap	Individual	•		•	

1000.42.3 Control Measures

There is no evidence of significant run-on from the paved areas. Established vegetation south of the paved areas is effectively managing all minor run-on contributions.

Subsections to 1000.42.3 list all control measures used to control pollutant sources identified in Section 1000.42.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.42.4.

1000.42.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J018 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
J018 02 03 0002	Established Vegetation - Vegetative Buffer Strip	•		•	
J018 03 12 0004	Berms - Rock		•		•

Established Vegetation (J018-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while pi-on-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

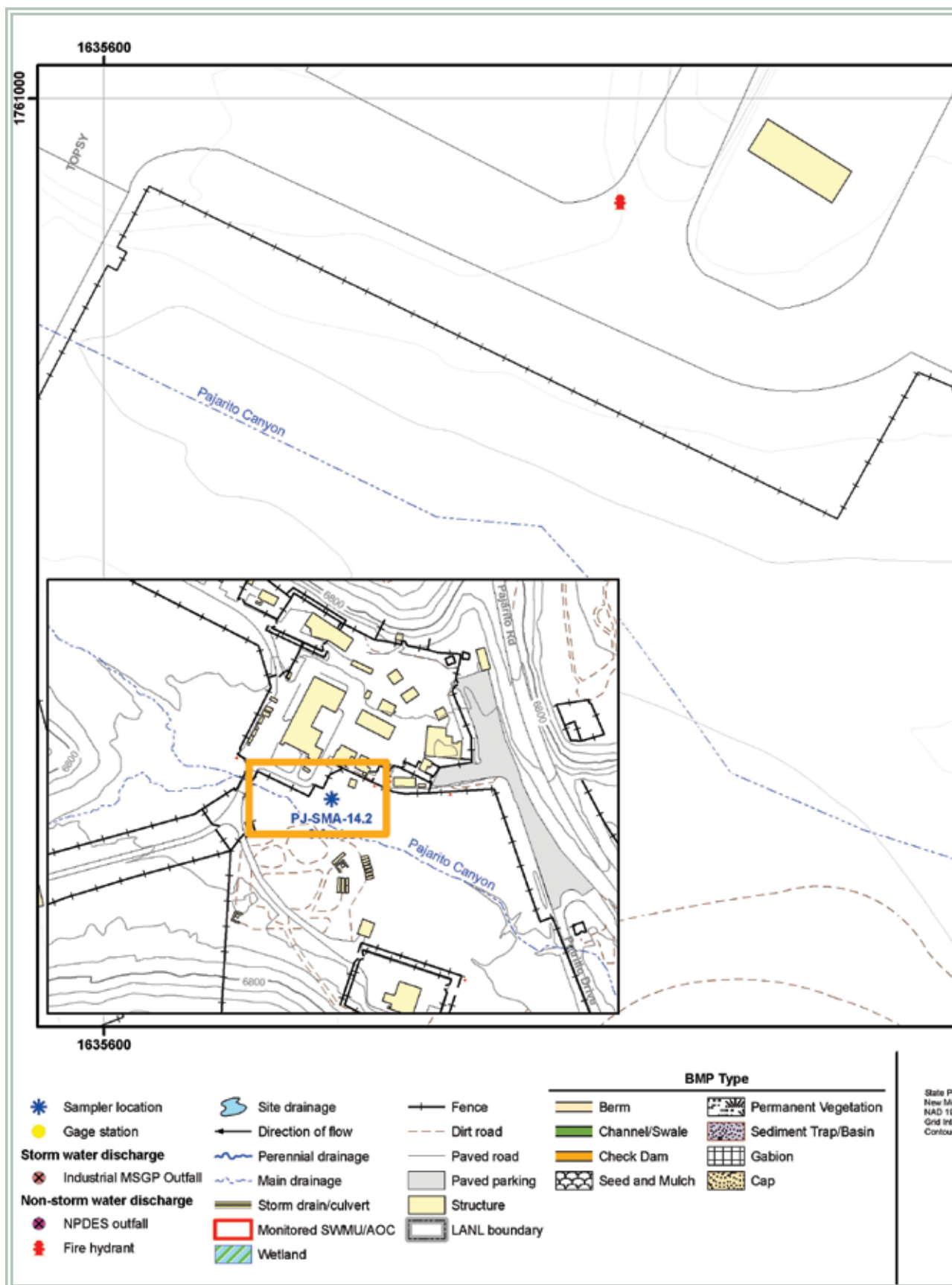
Permanent Vegetation - Vegetative Buffer Strip (J018-02-03-0002)

This buffer strip is located above and below the outfall and is used to control run-on. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion.

Rock Berm (J018-03-12-0004)

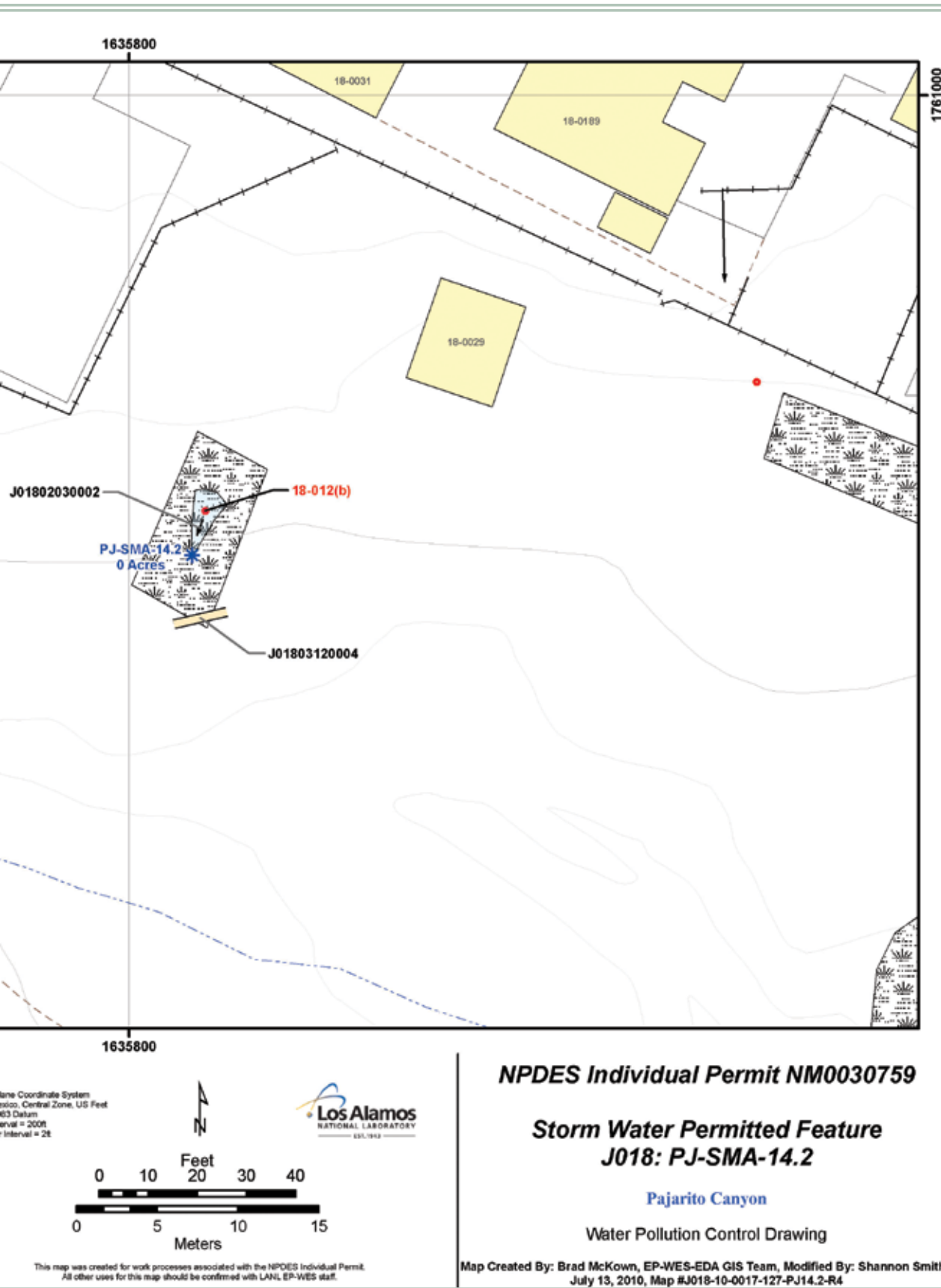
This rock berm is located below, south of, the sampler. It is used to help control run-off from the area. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

1000.42.4 Project Map



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1000.42.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.42.6 Corrective Action Status

The Site associated with PJ-SMA-14.2 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.43 PJ-SMA-14.3

1000.43.1 Area Description

1000.43.2 Potential Pollutant Sources

1000.43.2.1 Historical Industrial Activity Areas

1000.43.3 Control Measures

1000.43.4 Project Map

1000.43.5 Storm Water Monitoring Plan and Schedule

1000.43.6 Corrective Action Status



1000.43 PJ-SMA-14.3

1000.43.1 Area Description

PJ-SMA-14.3 is located within the administrative area of TA-18. Access to the most of the Permitted Feature is heavily controlled and behind a security fence. The northern boundary of the SMA is influenced by paved areas and associated engineered controls within this administrative area. The southern boundary of the SMA is heavily vegetated and contains the receiving waters. A portion of the SMA lies just outside of the security fencing for TA-18.

1000.43.2 Potential Pollutant Sources

1000.43.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J019, PJ-SMA-14.3, Site 18-003(e).

SWMU 18-003(e) is an inactive septic system at TA-18 that includes two inlet lines, a cylindrical septic tank (structure 18-0040), an outlet line, a drain field, and a former outfall. The septic tank is located approximately 50 ft southwest of building 18-0037 and approximately 50 ft east of building 18-0029 (a log cabin). The tank is constructed of reinforced concrete and measures 6 ft in diameter x 6 ft deep. The septic system received sanitary waste from building 18-0031 (a utility building), building 18-0037 (Guard Station 205), building 18-0129 (a reactor subassembly building), building 18-0189, and building 18-0190. While in operation from 1951 to 1969, the septic system may have also received industrial waste from a sink in building 18-0028 (a warehouse). Septic tanks associated with SWMUs 18-003(g,h) (structure 18-0043 and structure 18-0152, respectively) may have discharged to this septic system.

Effluent discharged into a drain field that has four drainlines, each of which is approximately 40 ft long. The drainlines, which are 10 ft apart from each other, merge at the distal end of the drain field and continue an estimated 100 ft to the former outfall. In 1969, sanitary waste from the buildings was connected to the site sewer system that routed effluent to the sanitary sewage lagoons. At that time, the septic tank was backfilled with sand.

1000.43.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
18-003(e)	Septic system	Discrete Location, No overlap	Individual	•		•	

1000.43.3 Control Measures

There is no indication of run-on to the outfall area from the paved area above. Run-on to the area is managed by engineered controls within the TA-18 administrative area and the Permitted Feature is not impacted. A vegetative buffer strip serves to filter and mitigate run-off from this area.

Subsections to 1000.43.3 list all control measures used to control pollutant sources identified in Section 1000.43.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.43.4.

1000.43.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J019 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
J019 02 03 0002	Established Vegetation - Vegetative Buffer Strip		•	•	•

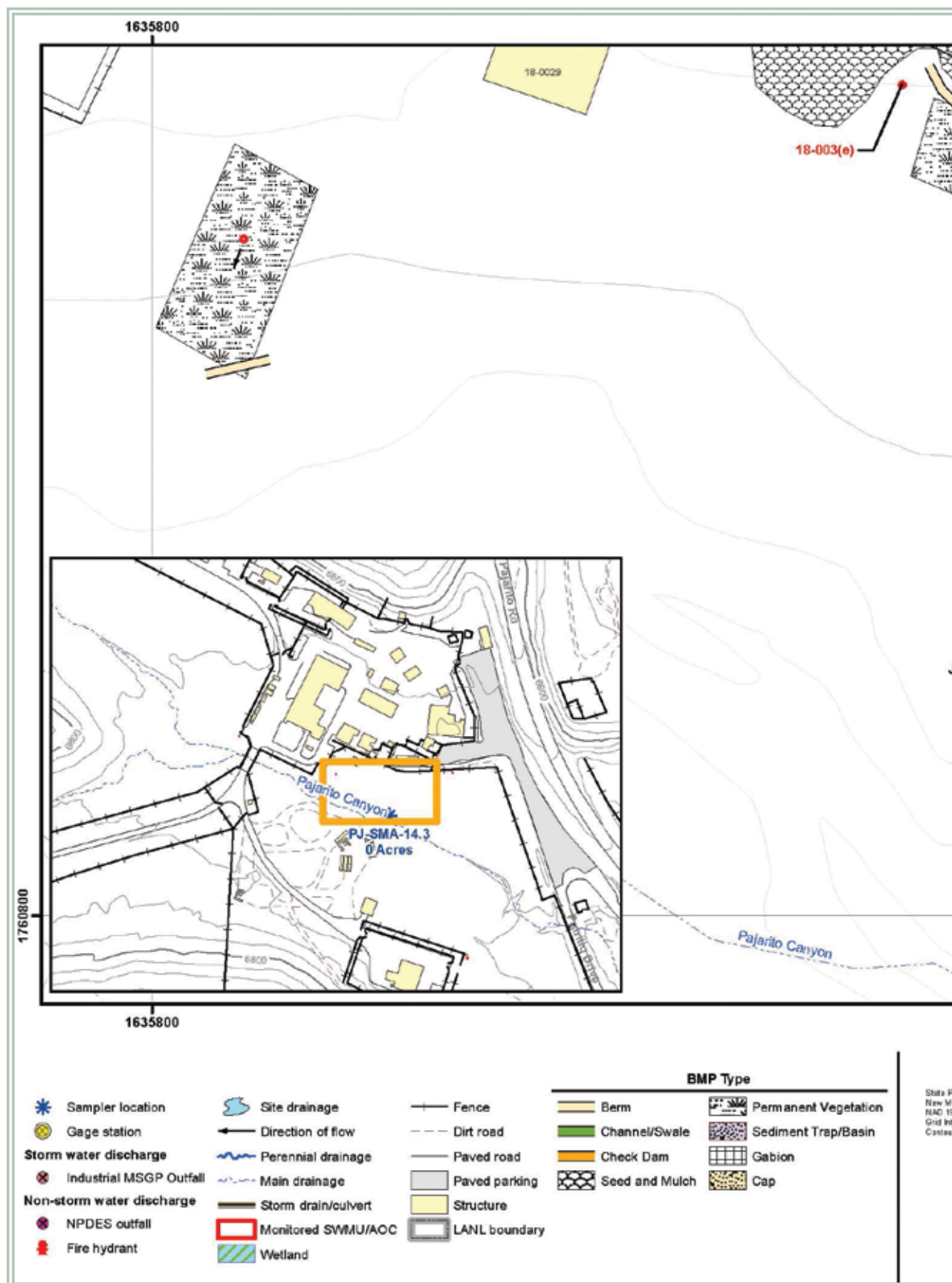
Established Vegetation (J019-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while pi-on-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Permanent Vegetation - Vegetative Buffer Strip (J019-02-03-0002)

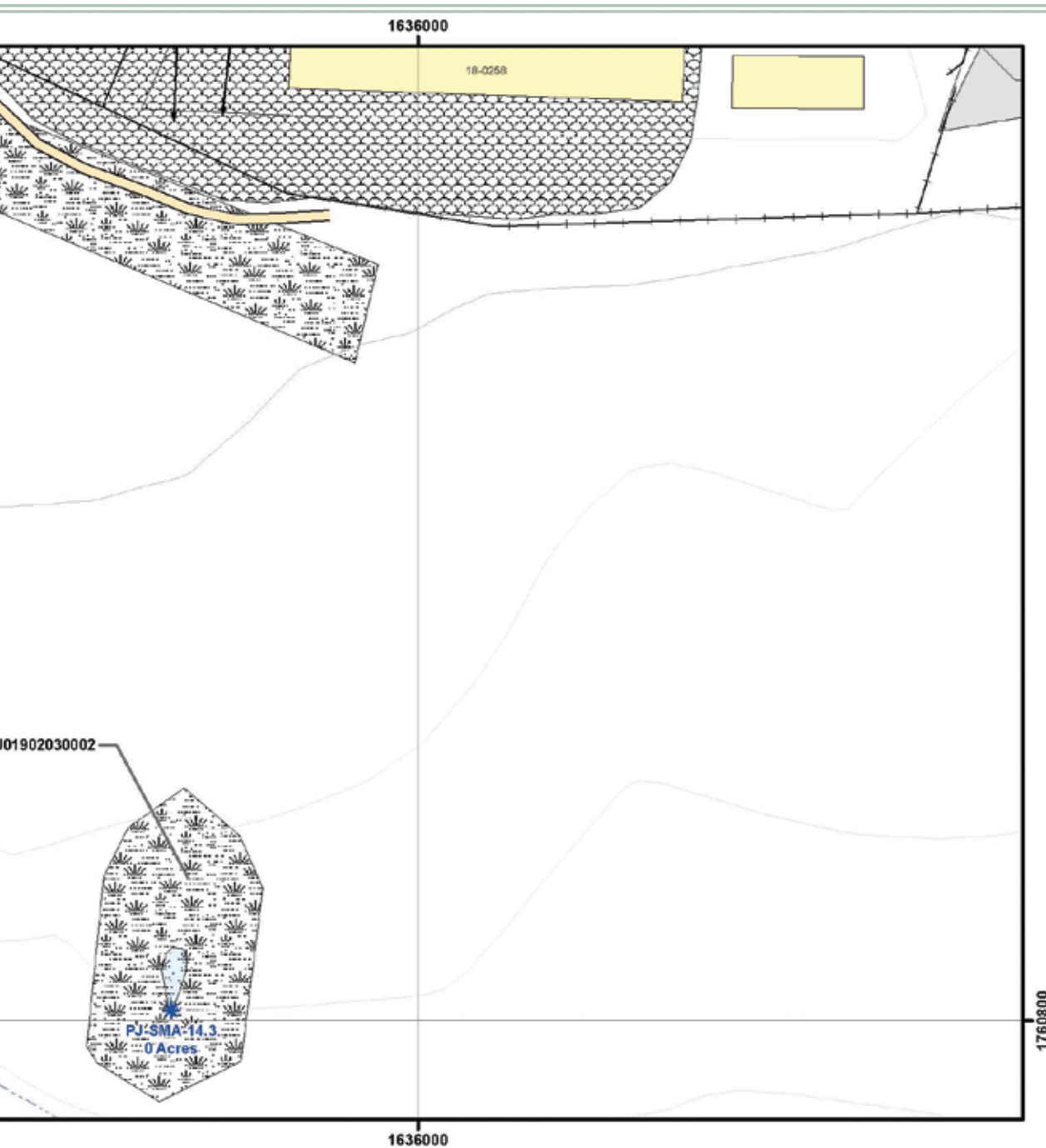
The buffer strip is located on the slope above the sampler and is controlling run-off in the area. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion

1000.43.4 Project Map

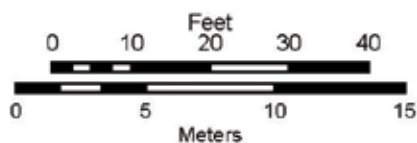


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Plane Coordinate System
Mexico, Central Zone, US Feet
NAD 83 Datum
Vertical = 2003
Horizontal = 2011



This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WES staff.

NPDES Individual Permit NM0030759

**Storm Water Permitted Feature
J019: PJ-SMA-14.3**

Pajarito Canyon

Water Pollution Control Drawing

Map Created By: Brad McKown, EP-ET-ER GIS Team,
March 18, 2011, Map #J019-10-0017-232-PJ14.3-R4

1000.43.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.43.6 Corrective Action Status

The Site associated with PJ-SMA-14.3 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.44 PJ-SMA-14.4

1000.44.1 Area Description

1000.44.2 Potential Pollutant Sources

1000.44.2.1 Historical Industrial Activity Areas

1000.44.3 Control Measures

1000.44.4 Project Map

1000.44.5 Storm Water Monitoring Plan and Schedule

1000.44.6 Corrective Action Status



1000.44 PJ-SMA-14.4

1000.44.1 Area Description

PJ-SMA-14.4 is located within the administrative area of TA-18. Access to the most of the Permitted Feature is heavily controlled and behind a security fence. The northern boundary of the SMA is influenced by paved areas and associated engineered controls within this administrative area. The southern boundary of the SMA is heavily vegetated and contains the receiving waters. A portion of the SMA lies just outside of the security fencing for TA-18.

1000.44.2 Potential Pollutant Sources

1000.44.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J020, PJ-SMA-14.4, Site 18-010(d).

AOC 18-010(d) is an outfall at TA-18 that receives discharge in the form of sheet flow from a storm drainage collection area that drains the paved area northeast of building 18-0037. The outfall discharges to a flat graveled and grassy area southeast of building 18-0037 and west of building 18-0258. The discharge point is approximately 100 ft north of the stream channel in Pajarito Canyon. The date this outfall became operational is unknown, but it is likely that the outfall has been operational from the time building 18-0037 was constructed in 1951.

1000.44.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
18-010(d)	Outfall	Discrete Location, No overlap	Individual	•		•	

1000.44.3 Control Measures

This SMA receives a large amount of run-on from the paved areas located north of the security fence. Existing controls address these contributions and help manage resultant run-off from the area.

Subsections to 1000.44.3 list all control measures used to control pollutant sources identified in Section 1000.44.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.44.4.

1000.44.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J020 01 01 0009	Seed and Mulch - Seed and Wood Mulch			•	
J020 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
J020 02 03 0002	Established Vegetation - Vegetative Buffer Strip		•	•	
J020 03 01 0008	Berms - Earthen		•		•
J020 03 04 0006	Berms - Asphalt	•			•

Seed and Mulch (J020-01-01-0009)

This mulch controls erosion north of the sampler along the fence line. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (J020-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Permanent Vegetation - Vegetative Buffer Strip (J020-02-03-0002)

This buffer strip is located south of the fence at the western end of building 18-0258 and is used to control erosion and run-off. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion.

Earthen Berm (J020-03-01-0008)

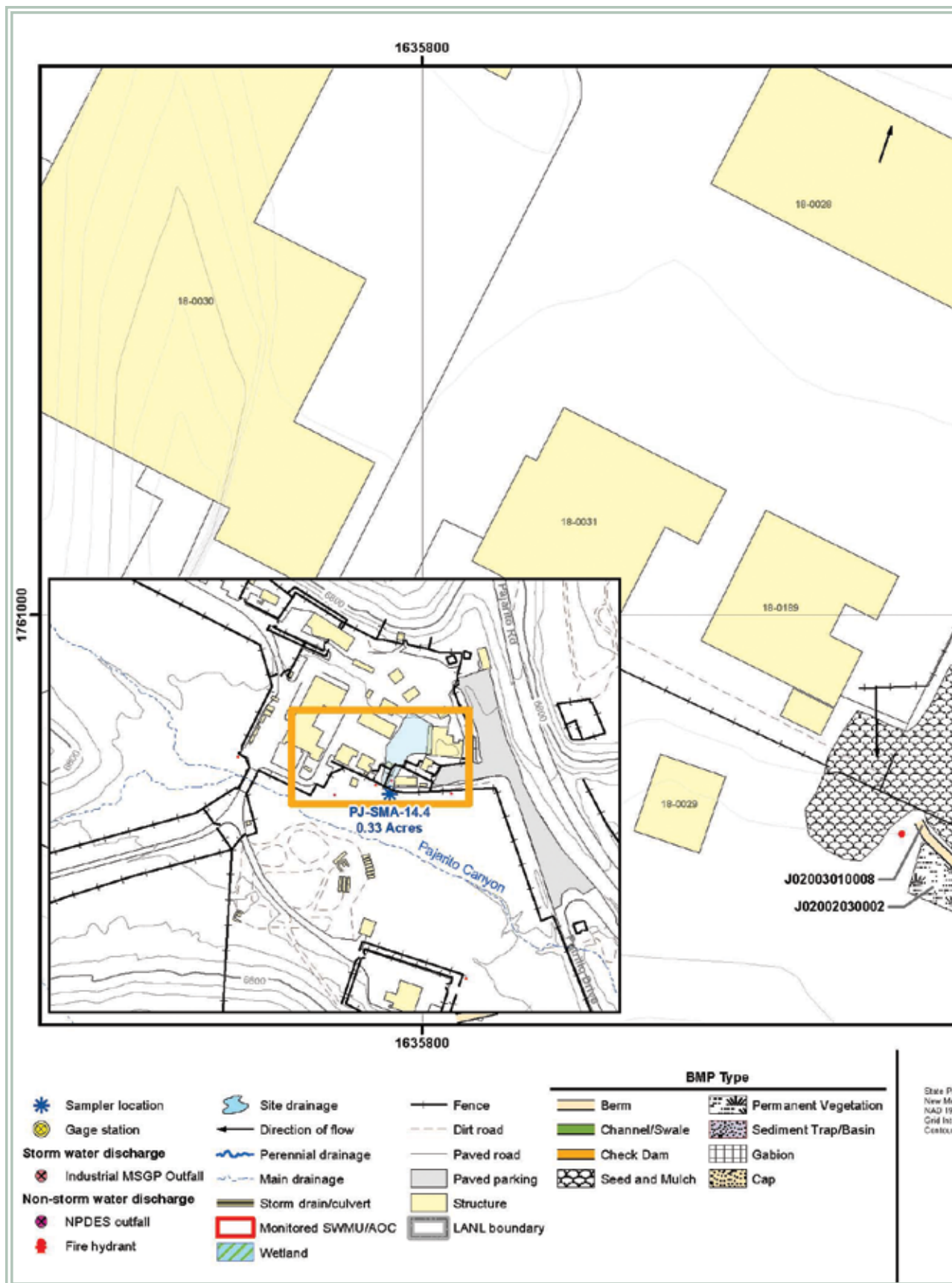
The berm is located south of the fence line and just north of the sampler. It is used to help reduce run-off in the area. An earthen berm is a temporary containment control

constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Asphalt Berm (J020-03-04-0006)

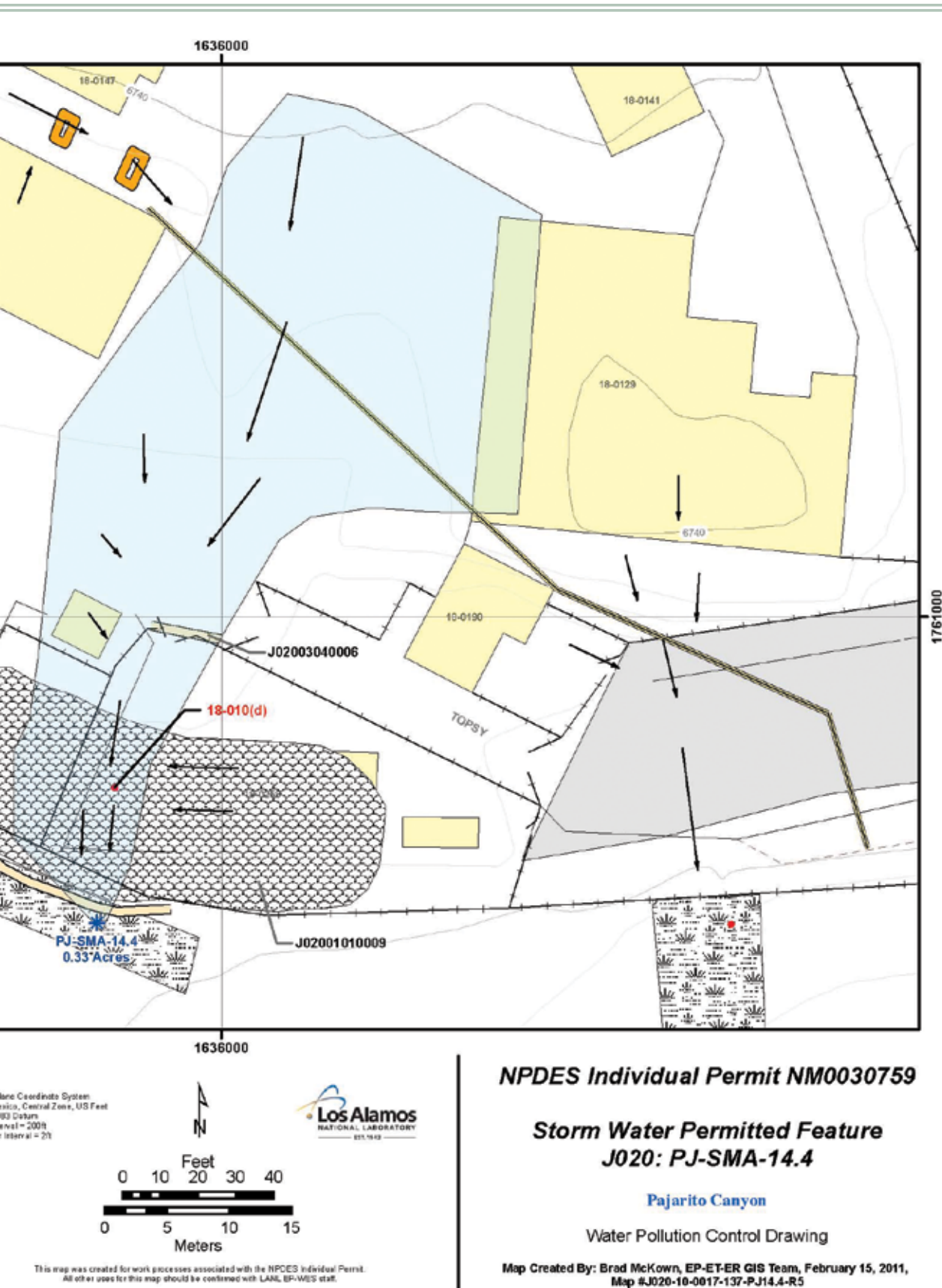
This berm is located at the gate in the fence around structure 18-0258. It is used to help control run-on in the area. An asphalt berm is a temporary containment control constructed of asphalt.

1000.44.4 Project Map



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1000.44.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.44.6 Corrective Action Status

The Site associated with PJ-SMA-14.4 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.45 PJ-SMA-14.6

1000.45.1 Area Description

1000.45.2 Potential Pollutant Sources

1000.45.2.1 Historical Industrial Activity Areas

1000.45.3 Control Measures

1000.45.4 Project Map

1000.45.5 Storm Water Monitoring Plan and Schedule

1000.45.6 Corrective Action Status



1000.45 PJ-SMA-14.6

1000.45.1 Area Description

PJ-SMA-14.6 is located within the administrative area of TA-18. Access to the most of the Permitted Feature is heavily controlled and behind a security fence. The northern boundary of the SMA is influenced by paved areas and associated engineered controls within this administrative area. The southern boundary of the SMA is heavily vegetated and contains the receiving waters. A portion of the SMA lies just outside of the security fencing for TA-18.

1000.45.2 Potential Pollutant Sources

1000.45.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J021, PJ-SMA-14.6, Site 18-010(e).

AOC 18-010(e) is an outfall at TA-18 that receives discharge from a storm sewer drainage that drains the paved area between buildings 18-0028 and 18-0147. The drainage enters a storm drain that runs southeast under the paved area west of building 18-0129 to a grating east of building 18-0190 and turns south. The drain reaches the outfall south of building 18-0129, which discharges to a small grassy gully leading to the main stream channel in Pajarito Canyon. The outfall is located approximately 200 ft north of the stream channel. The date this outfall became operational is unknown, but it is likely that the outfall has been operational from the time building 18-0037 was constructed in 1951.

1000.45.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
18-010(e)	Outfall	Discrete Location, No overlap	Individual	•		•	

1000.45.3 Control Measures

Run-on to this SMA is heavily influenced by engineered storm water controls within the administrative area at TA-18. Existing controls are managing flow above the culvert inlet within the administrative area. Run-off from the area discharges to a vegetated buffer strip.

Subsections to 1000.45.3 list all control measures used to control pollutant sources identified in Section 1000.45.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.45.4.

1000.45.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J021 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
J021 02 03 0002	Established Vegetation - Vegetative Buffer Strip		•	•	
J021 06 01 0003	Check Dam - Rock	•			•
J021 06 01 0004	Check Dam - Rock	•			•

Established Vegetation (J021-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

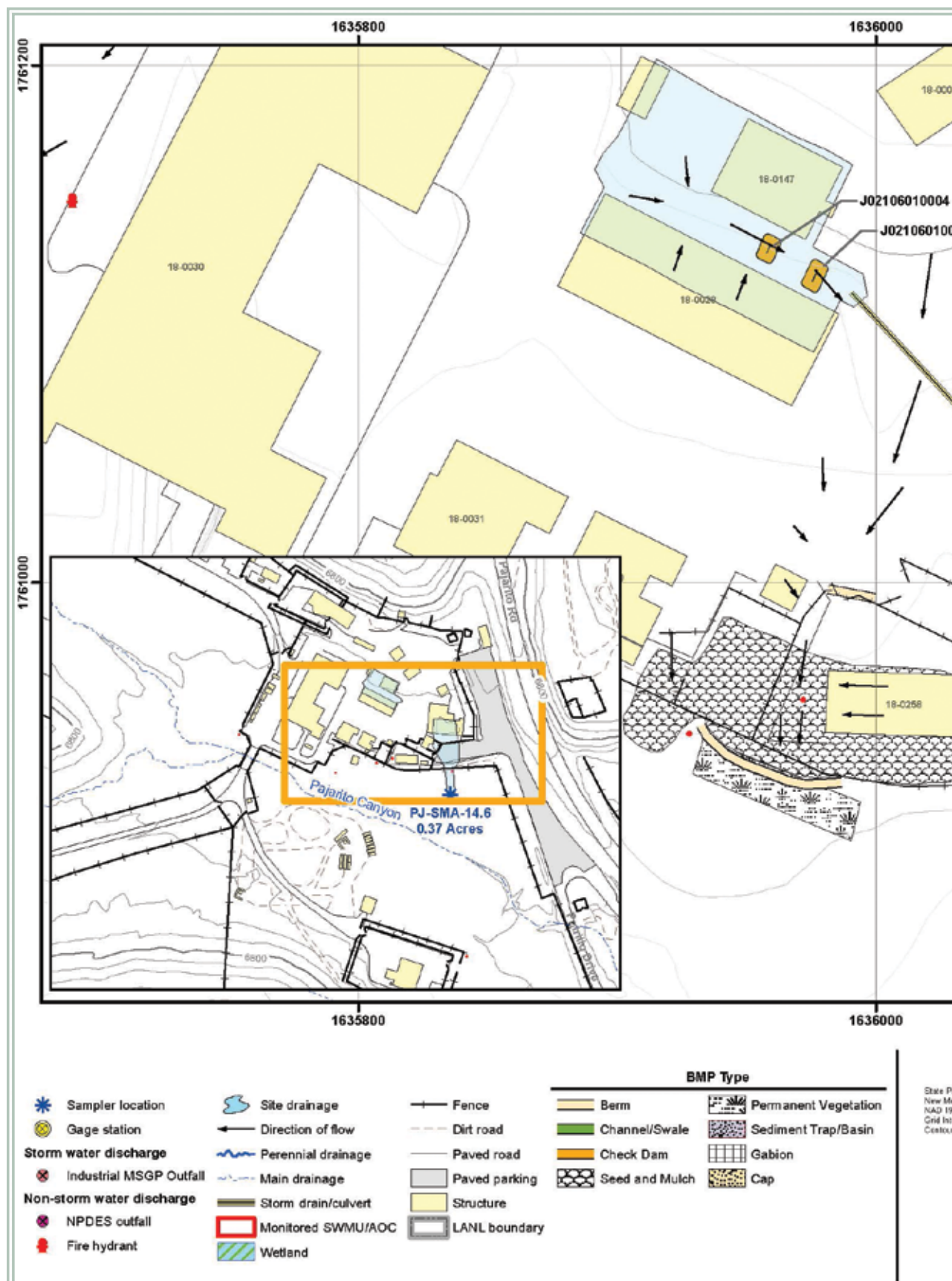
Permanent Vegetation - Vegetative Buffer Strip (J021-02-03-0002)

This buffer strip is located north of the sampler location between the sampler and the fence south of the structures. It is in place to help prevent erosion of the area from run-off originating on the paved areas. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion.

Rock Check Dam (J021-06-01-0003, -0004)

This is a series of two rock check dams that are located in the asphalt channel above the culvert inlet north of building 18-0028. They are in place to mitigate run-on in the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.45.4 Project Map

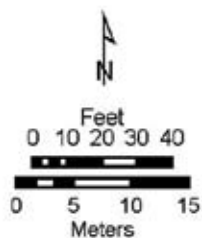


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Map Coordinate System:
NAD 83, Central Zone, US Feet
Datum
1983
Interval = 20'



This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LANL EP-WSS staff.

NPDES Individual Permit NM0030759

**Storm Water Permitted Feature
J021: PJ-SMA-14.6**

Pajarito Canyon

Water Pollution Control Drawing

Map Created By: Brad McKown, EP-ET-ER GIS Team, March 18, 2011,
Map #J021-10-0017-228-PJ14.6-R3

1000.45.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.45.6 Corrective Action Status

The Site associated with PJ-SMA-14.6 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.46 PJ-SMA-14.8

1000.46.1 Area Description

1000.46.2 Potential Pollutant Sources

1000.46.2.1 Historical Industrial Activity Areas

1000.46.3 Control Measures

1000.46.4 Project Map

1000.46.5 Storm Water Monitoring Plan and Schedule

1000.46.6 Corrective Action Status



1000.46 PJ-SMA-14.8

1000.46.1 Area Description

PJ-SMA-14.8 is located within TA-18 and access is heavily controlled. Storm water flows in an easterly direction to a heavily vegetated area. The area adjacent to the SMA is paved and may provide minimal run-on contribution to the Permitted Feature.

1000.46.2 Potential Pollutant Sources

1000.46.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J022, PJ-SMA-14.8, Site 18-012(a).

SWMU 18-012(a) is an outfall at TA-18 for a combined industrial drain and storm sewer drain for building 18-0116 (Kiva 3). Drainlines discharging to this outfall are connected to building 18-0116 roof drains, floor drains, and sinks. The outfall, found during 1992 field inspections using a dye-trace test, is located approximately 120 ft northeast of building 18-0116 and approximately 150 ft from the stream channel in Pajarito Canyon. Building 18-0116 was built in 1960 and used for uranium mockup tests for the Rover Program - a nuclear rocket propulsion program conducted from 1955 to 1972. The date this outfall became operational is unknown, but it is likely that the outfall has been operational from the time building 18-0116 was completed in 1960.

1000.46.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
18-012(a)	Outfall from Building 18-116	Discrete Location, No overlap	Individual	•		•	

1000.46.3 Control Measures

There is a small paved area associated with CASA 3 that may provide run-on contributions to the Permitted Feature. Existing controls address this potential contribution.

Subsections to 1000.46.3 list all control measures used to control pollutant sources identified in Section 1000.46.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.46.4.

1000.46.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J022 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
J022 02 03 0004	Established Vegetation - Vegetative Buffer Strip		•	•	
J022 03 02 0005	Berms - Base Course	•			•
J022 03 06 0006	Berms - Straw Wattles		•		•

Established Vegetation (J022-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Eastern Vegetative Buffer Strip (J022-02-03-0004)

This BMP is installed to control run-off and erosion on the eastern edge of the SMA. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion.

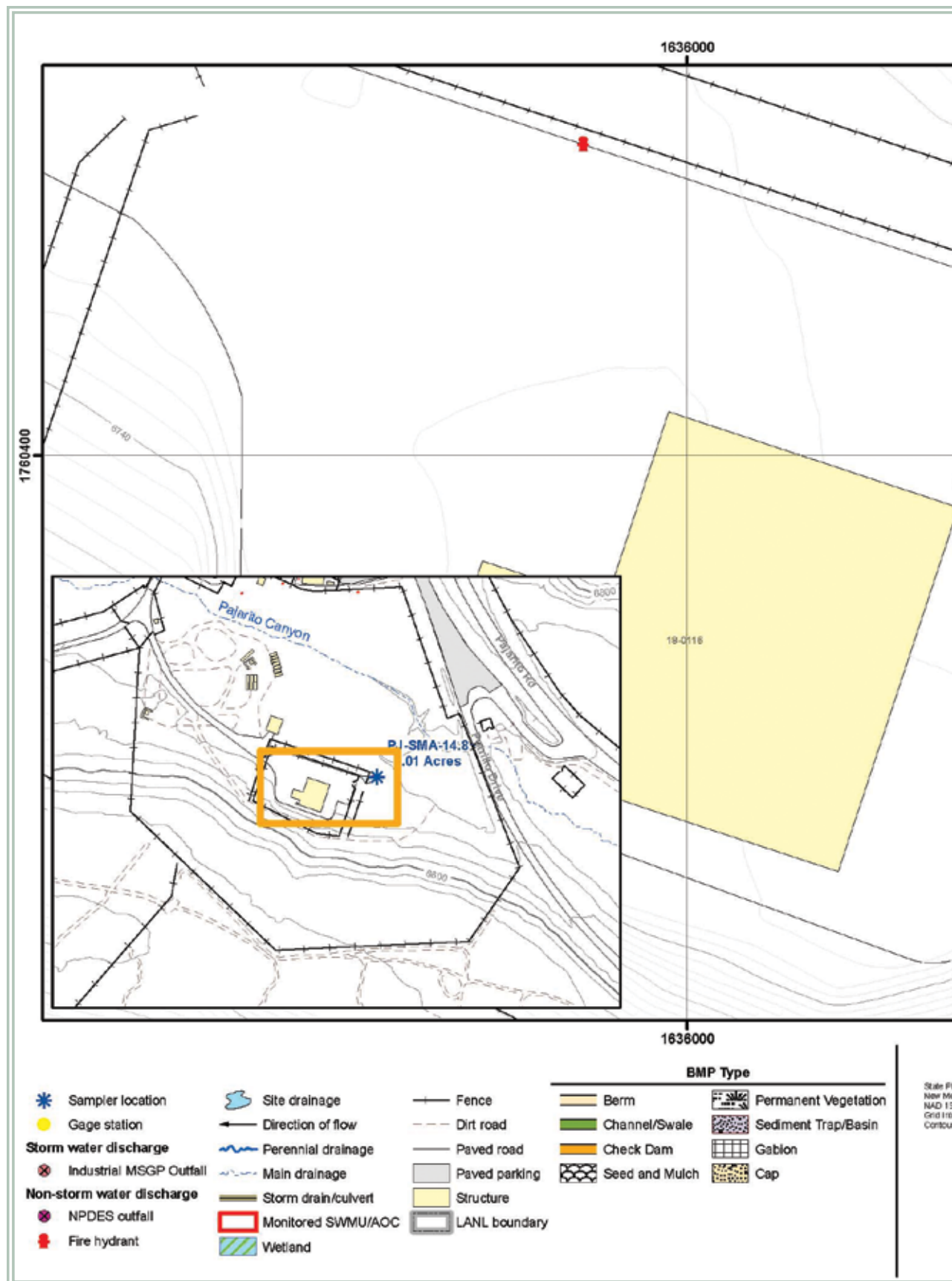
Base Course Berms (J022-03-02-0005)

These berms are installed east of building 18-0116 to control run-on and sediment coming from the building's vicinity. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattle Berms (J022-03-06-0006)

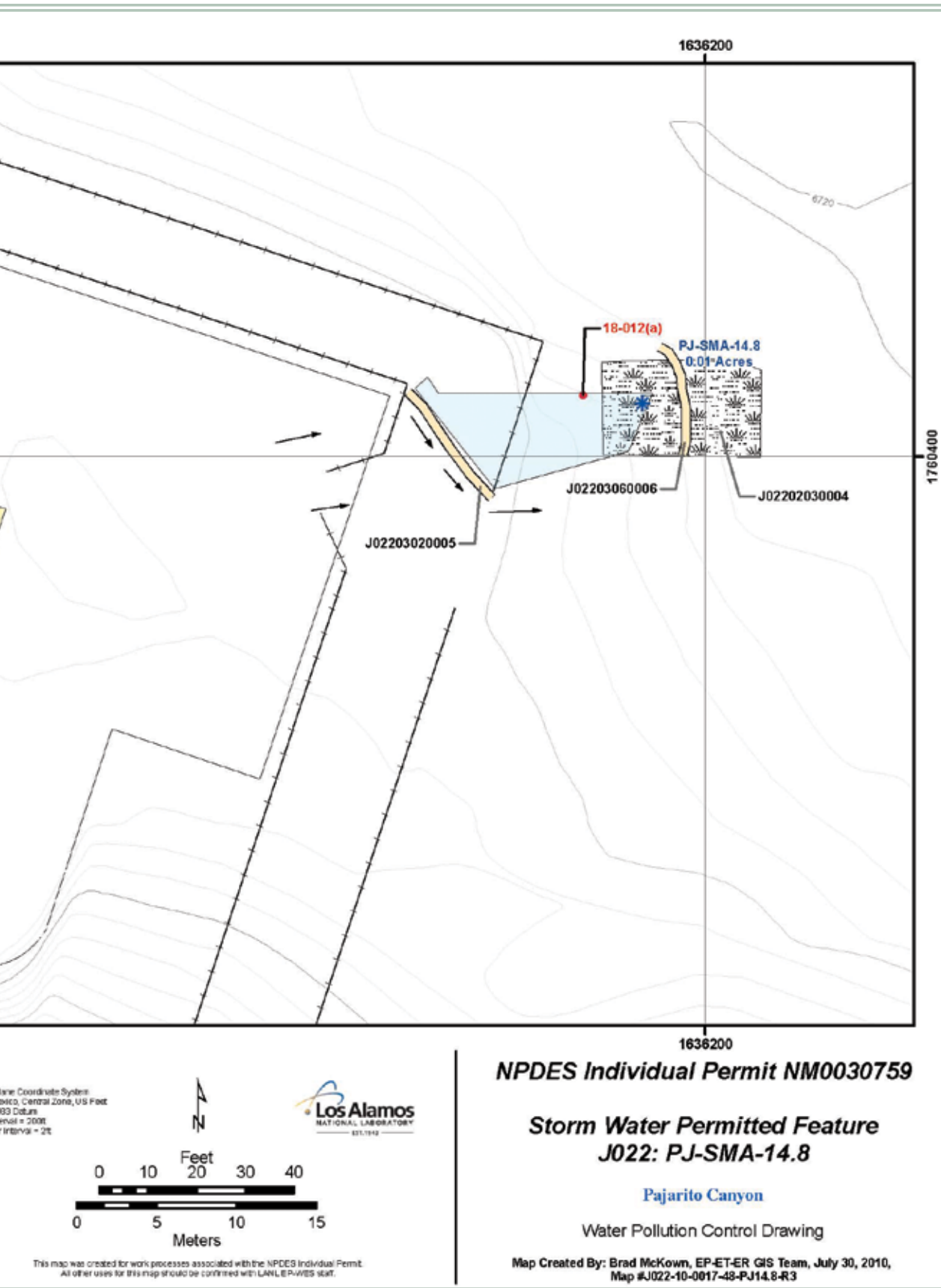
This wattle is directly east of the sampler to control run-off and sediment. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.46.4 Project Map



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1000.46.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.46.6 Corrective Action Status

The Site associated with PJ-SMA-14.8 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.47 PJ-SMA-16

1000.47.1 Area Description

1000.47.2 Potential Pollutant Sources

1000.47.2.1 Historical Industrial Activity Areas

1000.47.3 Control Measures

1000.47.4 Project Map

1000.47.5 Storm Water Monitoring Plan and Schedule

1000.47.6 Corrective Action Status



1000.47 PJ-SMA-16

1000.47.1 Area Description

PJ-SMA-16 is located in Pajarito Canyon. Although bounded on south by Pajarito Road, the permitted area is flat, undeveloped.

1000.47.2 Potential Pollutant Sources

1000.47.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J023, PJ-SMA-16, Site 27-002.

SWMU 27-002 is an inactive firing site in Pajarito Canyon used between 1944 and 1947. The site consists of five firing pits situated on either side of Pajarito Road, approximately 0.9 mi southeast of TA-18. Firing Pit 1 is located in the grassy area approximately 100 ft south of the TA-36 fence. Firing Pits 2 and 3 are approximately 200 ft east of Firing Pit 1, between the fence and Pajarito Road. Firing Pit 4 has been impacted by the construction of Pajarito Road but is located on the north side of Pajarito Road. Firing Pit 5 is located on a small curve on the north side of Pajarito Road. The pits were used for explosives testing with materials such as beryllium, thorium, and uranium. A 1946 bullet sensitivity test at Firing Pit 1 caused a block of Composition B explosive to undergo a low-order explosion, scattering unexploded HE over a 250-yd radius.

1000.47.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
27-002	Firing sites	Discrete Location, No overlap	Individual	•	•	•	HE

1000.47.3 Control Measures

The only potential run-on contributions to PJ-SMA-16 are associated with Pajarito Road. This run-on source is minimal in this flat and well-vegetated area.

Subsections to 1000.47.3 list all control measures used to control pollutant sources identified in Section 1000.47.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.47.4.

1000.47.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J023 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
J023 03 06 0002	Berms - Straw Wattles		•		•

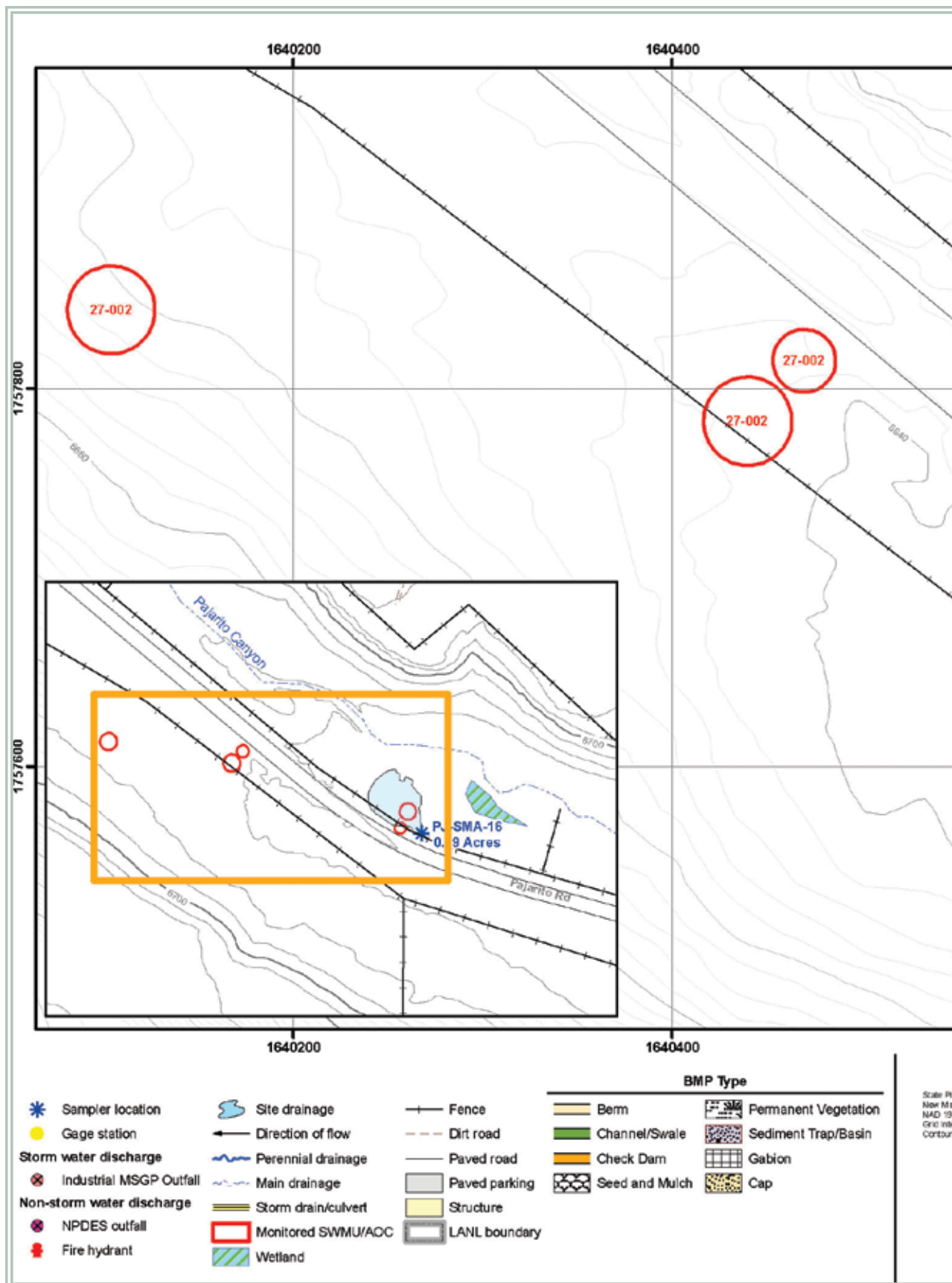
Established Vegetation (J023-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles (J023-03-06-0002)

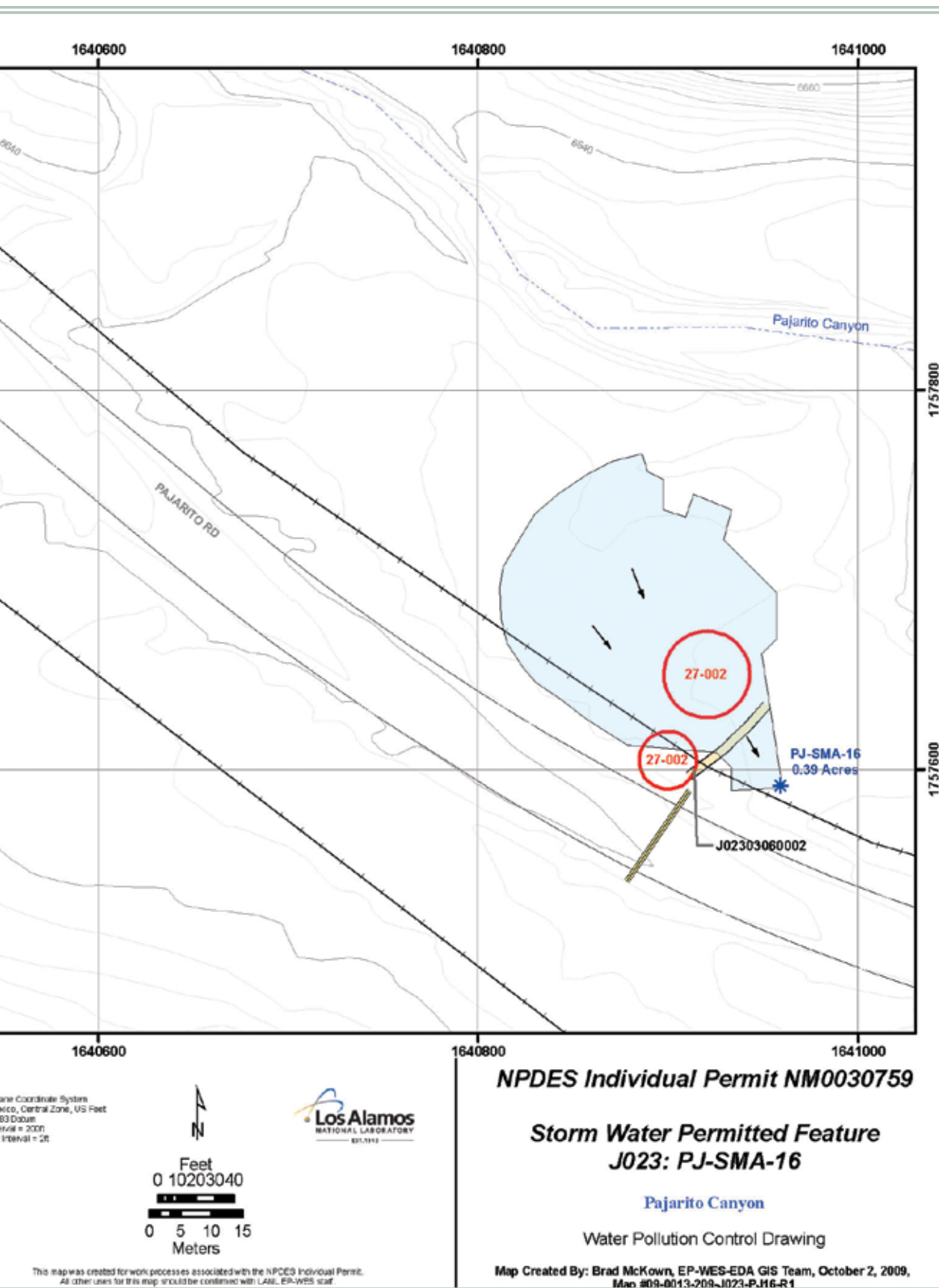
These wattles are located northwest of the sampler and were implemented to control run-off in the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.47.4 Project Map



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1000.47.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.47.6 Corrective Action Status

The Site associated with PJ-SMA-16 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.48 PJ-SMA-17

1000.48.1 Area Description

1000.48.2 Potential Pollutant Sources

1000.48.2.1 Historical Industrial Activity Areas

1000.48.3 Control Measures

1000.48.4 Project Map

1000.48.5 Storm Water Monitoring Plan and Schedule

1000.48.6 Corrective Action Status



1000.48 PJ-SMA-17

1000.48.1 Area Description

PJ-SMA-17 is located within TA-54 and access to the area is controlled. The northern boundary is developed area of TA-54. The southern boundary is Pajarito Canyon bottom. Pajarito road is located south of the project area on the Canyon bottom. The eastern boundary is dirt access roads and developed mesa top in TA-54. The western boundary is comprised of dirt access roads and the developed mesa top in TA-54.

1000.48.2 Potential Pollutant Sources

1000.48.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J024, PJ-SMA-17, Site 54-018.

SWMU 54-018 consists of disposal pits 25 through 33 and 35 through 37. Only pit 29 (although no longer in use) is considered a regulated unit until RCRA closure is certified and approved by NMED. This site is included in Module VIII of LANL's Hazardous Waste Facility Permit. Pits 25 through 28 and 30 through 36 were operational between 1979 and 1980 and received radioactive, mixed, and TRU waste in the form of reactor control rods, D&D waste, contaminated soil, transformers, gloveboxes, asbestos, and lab waste and range in volume from 20,957 to 59,930 cubic yards. Pit 29 operated until 1986. Pit 37 operated from 1990 to 1997 and primarily received circuit boards and contaminated soil. Once filled, the pits were covered with 3.3 feet of consolidated crushed tuff and four inches of topsoil, and reseeded with native grasses.

1000.48.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
54-018	Disposal Pits (MDA G)	Co-located, Overlapping	Individual	•	•	•	PCBs

1000.48.3 Control Measures

The primary run-on source at this SMA originates on the paved road and from the roofs of area structures.

Subsections to 1000.48.3 list all control measures used to control pollutant sources identified in Section 1000.48.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.48.4.

1000.48.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J024 02 01 0003	Established Vegetation - Grasses and Shrubs			•	
J024 04 06 0006	Channel/Swale - Rip Rap		•	•	
J024 04 06 0007	Channel/Swale - Rip Rap		•	•	
J024 05 01 0005	Sediment Traps and Basins - Sediment Trap		•		•
J024 06 01 0004	Check Dam - Rock	•			•

Established Vegetation (J024-02-01-0003)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Southern Rip Rap (J024-04-06-0006)

This rip rap is located east of structure 54-0049 and is serving as a run-off control for the drainage channel. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Northern Rip Rap (J024-04-06-0007)

The rip rap is located east of structure 54-0224 on the hill slope. It is serving to reduce the velocity of run-off discharge from this area. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

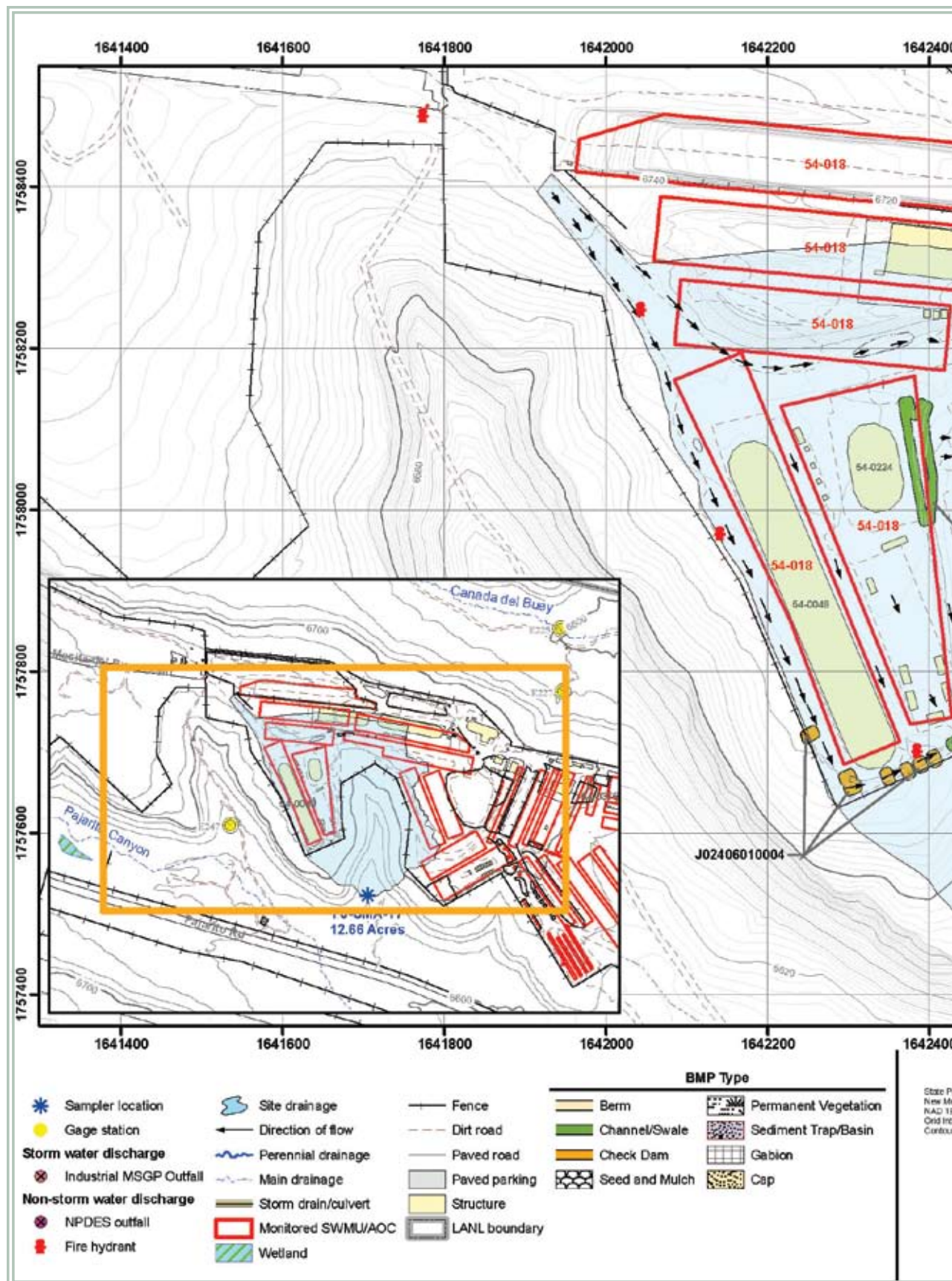
Sediment Trap (J024-05-01-0005)

This is a series of five sediment traps located east of building 54-0224 that are controlling run-off from the SMA. Sediment traps and detention basins are used primarily for sediment control and secondarily for run-off control. Sediment traps perform the same function as sediment basins but are typically smaller in size and do not have pipe outlets.

Rock Check Dam (J024-06-01-0004)

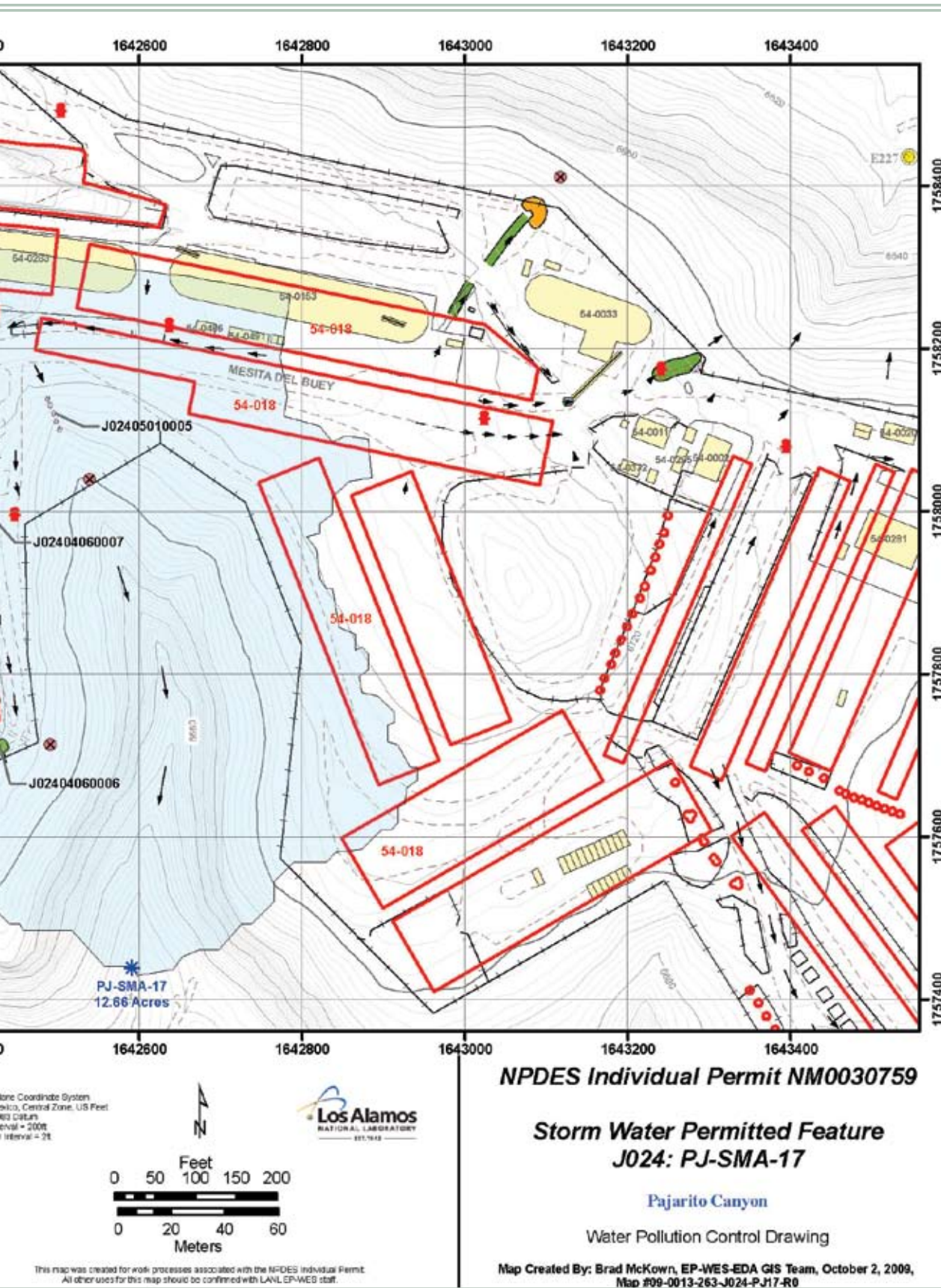
This is a series of seven rock check dams located in the channel south and east of building 54-0049. They are controlling run-on from the paved areas. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.48.4 Project Map



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1000.48.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.48.6 Corrective Action Status

The Sites associated with PJ-SMA-17 are high priority Sites. Corrective action is to be certified complete within three years of the effective date of the IP.

1000.49 PJ-SMA-18

1000.49.1 Area Description

1000.49.2 Potential Pollutant Sources

1000.49.2.1 Historical Industrial Activity Areas

1000.49.3 Control Measures

1000.49.4 Project Map

1000.49.5 Storm Water Monitoring Plan and Schedule

1000.49.6 Corrective Action Status



1000.49 PJ-SMA-18

1000.49.1 Area Description

PJ-SMA-18 is located within TA-54 and access to the area is controlled. The northern boundary is unpaved access roads and the developed mesa top of Mesita del Buey. The southern boundary is on the canyon bottom of Pajarito Canyon. The eastern boundary is on dirt access roads and developed mesa top of TA-54. The western boundary is on dirt access roads on the southern end of Mesita del Buey.

1000.49.2 Potential Pollutant Sources

1000.49.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF J026, PJ-SMA-18, Sites 54-014(d) and 54-017.

SWMU 54-014(d) consists of retrievable TRU waste storage trenches A, B, C, and D, which are located in the south-central portion of TA-54's Area G. These trenches began receiving TRU and mixed LLW in 1974. Trenches A, B, and C vary in size from 219 to 262.5 feet long by 13 feet wide by six to eight feet deep. Trench D is 60 ft long x 13 ft wide x 6 ft deep. The TRU waste placed in these trenches was packaged in 30 gallon containers inside concrete casks. When filled, the trenches were backfilled with 3.3 feet of crushed tuff followed by four inches of topsoil. The surface was reseeded with native grasses. The TRU wastes in these trenches will be retrieved and processed for disposal at WIPP.

SWMU 54-017 consists of inactive disposal pits 1 through 8, 10, 12, 13, 16 through 22, and 24. Pits 11, 14, 23, and 24 were never excavated. This site is included in Module VIII of LANL's Hazardous Waste Facility Permit. Pits 1 through 24 were operational between 1959 and 1980 and received radioactive, mixed, and TRU wastes in the form of wing tanks, dry boxes, building debris, sludge drums, lab waste, contaminated soil, D&D waste, filter plenums, and uranium. Pits 1 through 24 are located in the eastern portion of Area G with volumes ranging from 1,371 to 56,759 cubic yards. Once filled, the pits were covered with 3.3 feet of consolidated crushed tuff and four inches of topsoil, and reseeded with native grasses.

1000.49.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
54-014(d)	Storage trenches A, B, C, and D (MDA G)	Co-located, Overlapping	Shared	•	•	•	PCBs
54-017	Disposal Pits (MDA G)	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

Sites grouped within this SMA are associated with historical waste management activities. The Sites have similar contaminants, share a common drainage, and will discharge substantially identical effluent.

1000.49.3 Control Measures

The majority of the run-on at this SMA originates on the unpaved access roads. Subsections to 1000.49.3 list all control measures used to control pollutant sources identified in Section 1000.49.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.49.4.

1000.49.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J026 01 06 0002	Seed and Mulch - Erosion Control Blankets		•	•	
J026 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
J026 04 05 0008	Channel/Swale - Water Bar	•		•	
J026 04 06 0007	Channel/Swale - Rip Rap		•	•	
J026 05 01 0005	Sediment Traps and Basins - Sediment Trap		•		•
J026 06 01 0004	Check Dam - Rock		•		•
J026 06 01 0006	Check Dam - Rock		•		•

Erosion Control Blanket (J026-01-06-0002)

An erosion control blanket, located along the entire southern boundary of the SMA, is used to dissipate the velocity of storm water run-off from the monitored area. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Established Vegetation (J026-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as

grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Water Bar (J026-04-05-0008)

This water bar is located above the sampler and is used to help control run-on from the unpaved areas above. A diversion dam constructed across a road or trail to remove and disperse surface run-off in a manner that adequately protects the soil resource and limits sediment transportation.

Rip Rap (J026-04-06-0007)

The rip rap is located in the channel north of the fenceline. It is used to help manage storm water run-off and to prevent erosion. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Sediment Trap (J026-05-01-0005)

The sediment trap is located at the fence line. It is used to control run-off from the SMA. Sediment traps and detention basins are used primarily for sediment control and secondarily for run-off control. Sediment traps perform the same function as sediment basins but are typically smaller in size and do not have pipe outlets.

Rock Check Dam (J026-06-01-0004)

The check dam is located to the south of the paved loop access road and east of the storage trailers. It is used to control run-off from the SMA. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dam - East (J026-06-01-0006)

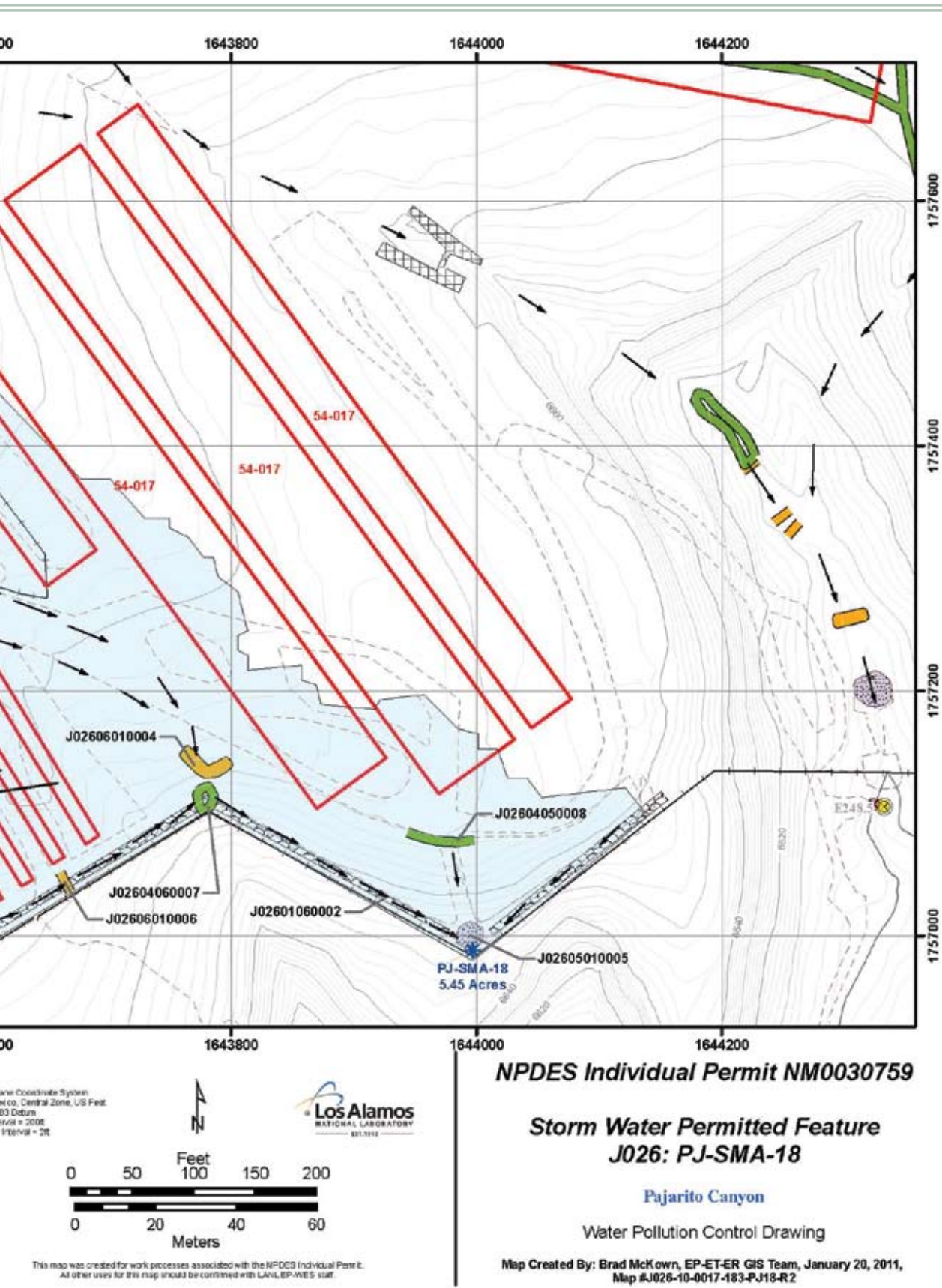
This check dam is located in the drainage channel south of 54-014(d) and is used to help mitigate run-off and reduce sediment transport. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.49.4 Project Map



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1000.49.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.49.6 Corrective Action Status

The Sites associated with PJ-SMA-18 are high priority Sites. Corrective action is to be certified complete within three years of the effective date of the IP.

1000.50 PJ-SMA-19

1000.50.1 Area Description

1000.50.2 Potential Pollutant Sources

1000.50.2.1 Historical Industrial Activity Areas

1000.50.3 Control Measures

1000.50.4 Project Map

1000.50.5 Storm Water Monitoring Plan and Schedule

1000.50.6 Corrective Action Status



1000.50 PJ-SMA-19

1000.50.1 Area Description

PJ-SMA-19 is located in Pajarito Canyon. The northern boundary is on an unpaved/paved road on the northern edge of Mesita del Buey. The southern boundary is the canyon bottom of Pajarito Canyon. The eastern boundary is on developed mesa top area in TA-54. The western boundary is comprised of unpaved access roads and developed/undeveloped mesa top in TA-54.

1000.50.2 Potential Pollutant Sources

1000.50.2.1 Historical Industrial Activity Areas

There are three historical industrial activity areas associated with PF J025, PJ-SMA-19, Sites 54-013(b), 54-017 and 54-020.

SWMU 54-013(b) was a vehicle monitoring/decontamination area located in the central portion of Area G on the surface of pit 19. The area was used to decontaminate trucks and TRU waste drums but is no longer in use and is included in Module VIII of LANL's Hazardous Waste Facility Permit.

SWMU 54-017 consists of inactive disposal pits 1 through 8, 10, 12, 13, 16 through 22, and 24. Pits 11, 14, 23, and 24 were never excavated. This site is included in Module VIII of LANL's Hazardous Waste Facility Permit. Pits 1 through 24 were operational between 1959 and 1980 and received radioactive, mixed, and TRU wastes in the form of wing tanks, dry boxes, building debris, sludge drums, lab waste, contaminated soil, D&D waste, filter plenums, and uranium. Pits 1 through 24 are located in the eastern portion of Area G with volumes ranging from 1,371 to 56,759 cubic yards. Once filled, the pits were covered with 3.3 feet of consolidated crushed tuff and four inches of topsoil, and reseeded with native grasses.

SWMU 54-020 consists of TA-54 disposal shafts C1 through C10, C12, C13, 22, 35 through 37, 93 through 95, 99 through 108, 114, 115, 118 through 136, 138 through 140, 151 through 160, 189 through 192, and 196. These shafts were operational between 1970 and the early 1990s. Only shaft 124 (although no longer in use) is considered active until RCRA closure is certified and approved by NMED. The shafts contain one or a combination of the following waste types: PCB residues, LLW, hazardous and mixed waste. The shafts range in size from one to eight feet in diameter and 25 to 65 feet deep, and are located throughout the eastern portion of Area G. Disposal shafts were typically filled with waste to within three feet of the ground surface, backfilled with crushed tuff, and covered with a concrete dome.

1000.50.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
54-013(b)	Vehicle Montiroing/	Co-located, Overlapping	Shared	•	•	•	PCBs
54-017	Disposal Pits (MDA G)	Co-located, Overlapping	Shared	•	•	•	PCBs
54-020	MDA G	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

Sites grouped within this SMA are associated with historical waste management activities. They share a common drainage, have similar contaminants, and will discharge substantially identical effluent.

1000.50.3 Control Measures

The majority of run-on at this SMA originates in the paved areas and the structure roof drains.

Subsections to 1000.50.3 list all control measures used to control pollutant sources identified in Section 1000.50.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.50.4.

1000.50.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J025 02 01 0003	Established Vegetation-Grasses and Shrubs			•	
J025 04 02 0004	Channel/Swale - Concrete/Asphalt	•		•	
J025 04 02 0006	Channel/Swale - Concrete/Asphalt	•		•	
J025 04 06 0010	Channel/Swale - Rip Rap		•	•	
J025 05 02 0002	Sediment Traps and Basins - Sediment Basin		•		•
J025 06 01 0005	Check Dam - Rock		•		•
J025 06 01 0007	Check Dam - Rock		•		•
J025 06 01 0008	Check Dam - Rock		•		•
J025 06 01 0009	Check Dam - Rock		•		•
J025 07 01 0001	Gabions - Gabions		•		•

Established Vegetation (J025-02-01-0003)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Asphalt Swale - West (J025-04-02-0004)

This swale is located on the western side of building 54-0375. It is controlling run-on from the paved areas around the building as well as from the area roof drains. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Asphalt Swale - South (J025-04-02-0006)

This swale is located south of building 54-0375 and is controlling run-on and preventing erosion of the area. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around

an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Rip Rap (J025-04-06-0010)

The rip rap is located in the main drainage channel adjacent to the rock check dams above the sampler. It is used to help control run-off and reduce erosion of the channel. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Sediment Basins (J025-05-02-0002)

This basin is located north of the sampler in the main drainage channel. It assists with storm water run-off and reduces sediment transport. Sediment basins are used to detain sediment and run off and release it at a reduced rate through a controlled outlet structure. Sediment traps and detention basins are used primarily for sediment control and secondarily for run-off control.

Rock Check Dam . (J025-06-01-0005)

The check dams are located east of the unpaved loop drive in the southern portion of the SMA. They are controlling run-off from the SMA. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch

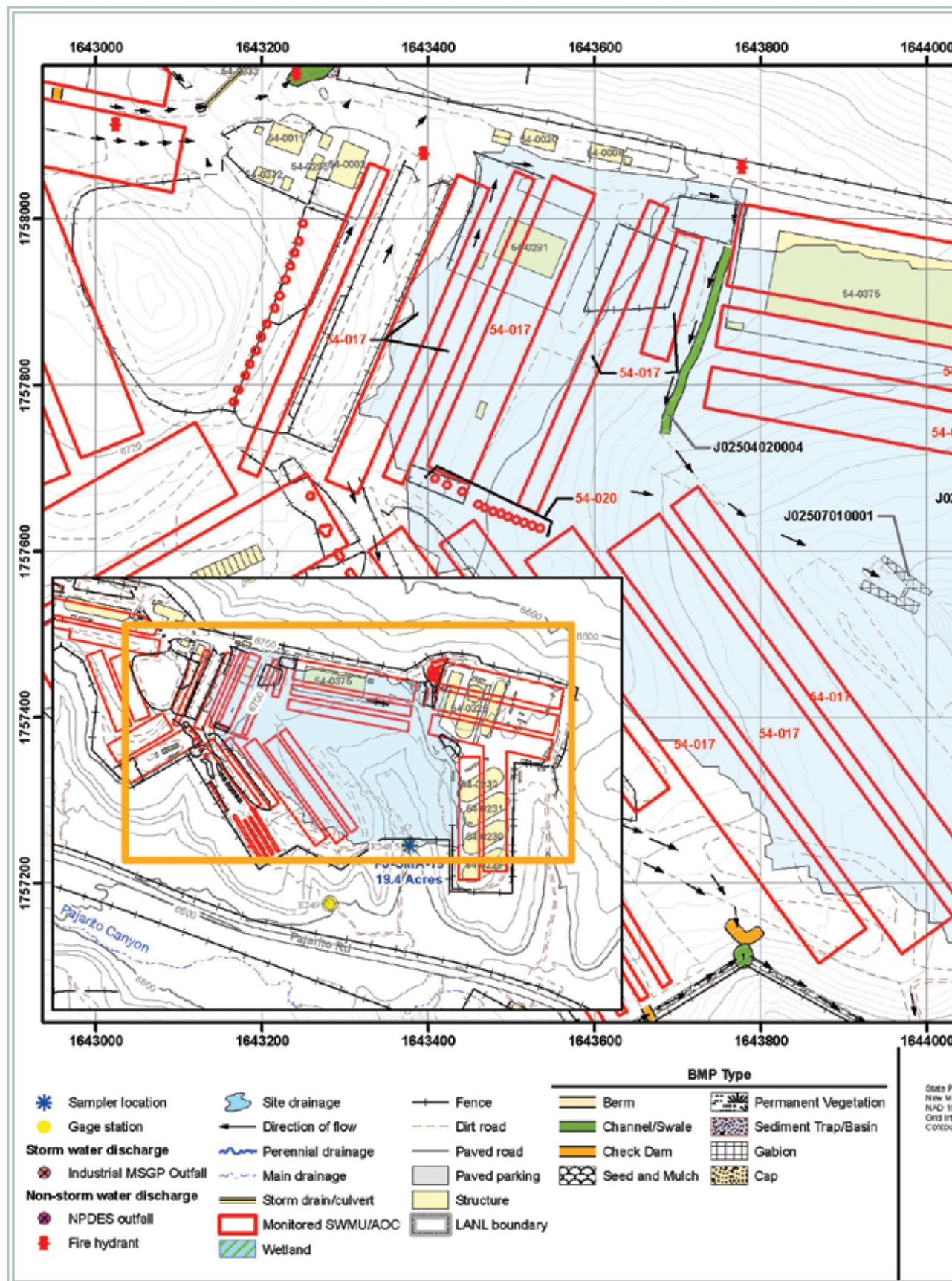
Rock Check Dams (J025-06-01-0007, -0008, -0009)

This is a series of three rock check dams located in the main drainage channel north of the sampler. They are used to manage storm water run-off and reduce sediment migration. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Gabions (J025-07-01-0001)

The gabion is located in the central section of the natural channel bisecting the SMA. It is mitigating run-off from the SMA. Gabions are large, multi-celled, welded wire or rectangular wire mesh boxes, used in channel revetments, retaining walls, abutments, and check dams. Gabions are used for sediment control when installed perpendicular to the storm water flow as with a check dam.

1000.50.4 Project Map



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1000.50.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of the Permit (11/1/2010).

1000.50.6 Corrective Action Status

The Sites associated with PJ-SMA-19 are high priority Sites. Corrective action is to be certified complete within three years of the effective date of the IP.

1000.51 PJ-SMA-20

1000.51.1 Area Description

1000.51.2 Potential Pollutant Sources

1000.51.2.1 Historical Industrial Activity Areas

1000.51.3 Control Measures

1000.51.4 Project Map

1000.51.5 Storm Water Monitoring Plan and Schedule

1000.51.6 Corrective Action Status



1000.51 PJ-SMA-20

1000.51.1 Area Description

PJ-SMA-20 is located in Pajarito Canyon. The northern boundary is on an unpaved access road and the northern end of Mesita del Buey. The southern boundary is on unpaved access roads near the bottom of Pajarito Canyon. The eastern boundary is on unpaved access roads and the east end of Mesita del Buey. The western boundary is on developed mesa top in TA-54.

1000.51.2 Potential Pollutant Sources

1000.51.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF J027, PJ-SMA-20, Site 54-017.

SWMU 54-017 consists of inactive disposal pits 1 through 8, 10, 12, 13, 16 through 22, and 24. Pits 11, 14, 23, and 24 were never excavated. This site is included in Module VIII of LANL's Hazardous Waste Facility Permit. Pits 1 through 24 were operational between 1959 and 1980 and received radioactive, mixed, and TRU wastes in the form of wing tanks, dry boxes, building debris, sludge drums, lab waste, contaminated soil, D&D waste, filter plenums, and uranium. Pits 1 through 24 are located in the eastern portion of Area G with volumes ranging from 1,371 to 56,759 cubic yards. Once filled, the pits were covered with 3.3 feet of consolidated crushed tuff and four inches of topsoil, and reseeded with native grasses.

1000.51.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
54-017	Disposal Pits (MDA G)	Co-located, Overlapping	Individual	•	•	•	PCBs

1000.51.3 Control Measures

The primary source of run-on at this SMA results from flow from the roofs and the paved areas within the Project Area.

Subsections to 1000.51.3 list all control measures used to control pollutant sources identified in Section 1000.51.2. Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.51.4.

1000.51.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
J027 02 01 0004	Established Vegetation - Grasses and Shrubs			•	
J027 03 09 0001	Berms - Curbing		•		•
J027 04 06 0006	Channel/Swale - Rip Rap		•	•	
J027 08 03 0005	Cap - Asphalt	•		•	

Established Vegetation (J027-02-01-0004)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Curbing (J027-03-09-0001)

The curbing is located on the eastern edge of the asphalt cap surrounding the container storage tanks. It is diverting run-off from the paved area away from the east facing hillside. Curbing is an engineered device used to direct, convey, or divert storm water flow and prevent erosion.

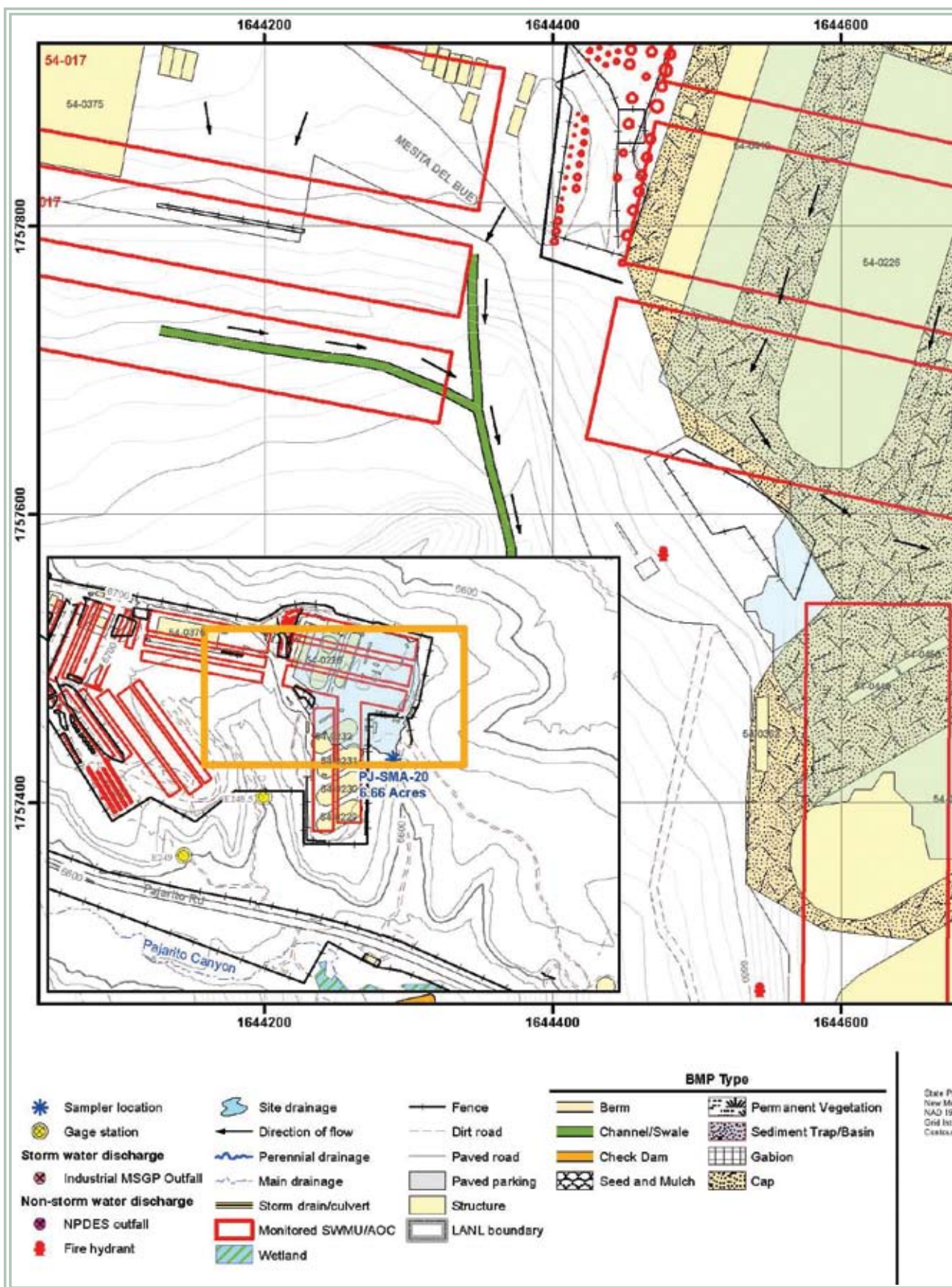
Rip Rap (J027-04-06-0006)

This rip rap is located near the fire hydrant west of 54-8242. It is in place to help control run-off and prevent erosion. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Asphalt Cap (J027-08-03-0005)

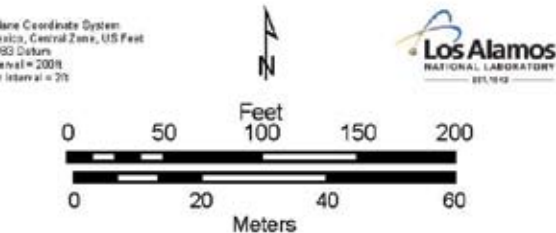
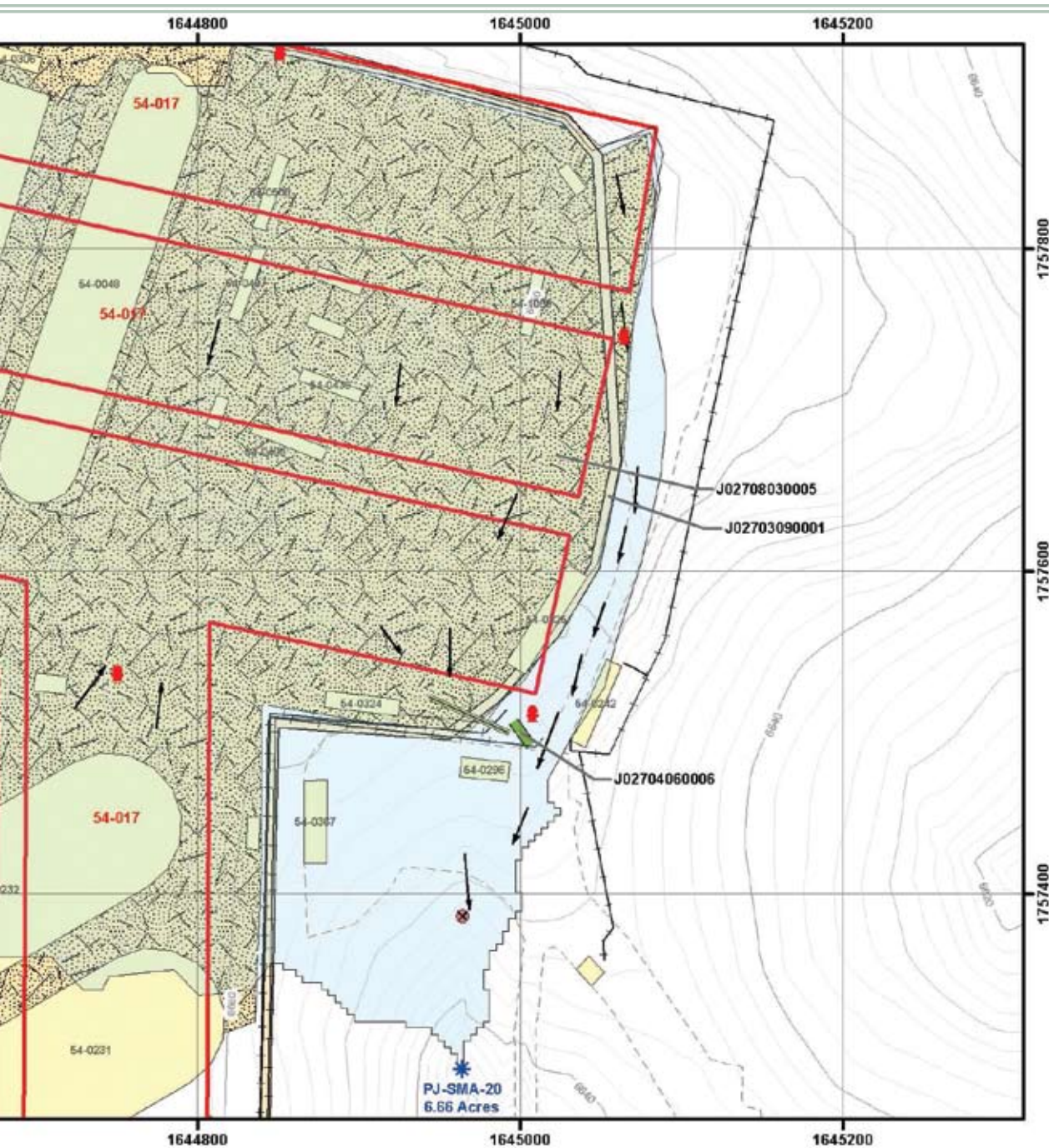
This cap is located west of the SMA, extending north to south parallel to the SMA footprint. It is in place to restrict run-on to the SMA and prevent erosion. An asphalt cap consists of properly applied asphalt paving material generally 2 inches or greater in depth. Generally used to cap potential surface contamination areas occurring on existing paved areas. This category of storm water control includes earth, rock and asphalt caps.

1000.51.4 Project Map



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This map was created for work processes associated with the NPDES Individual Permit.
All other uses for this map should be confirmed with LAM-EP-WES staff.

NPDES Individual Permit NM0030759

**Storm Water Permitted Feature
J027: PJ-SMA-20**

Pajarito Canyon

Water Pollution Control Drawing

Map Created By: Brad McKown, EP-ET-ER GIS Team, March 18, 2011,
Map #J027-10-0017-111-PJ20-R3

1000.51.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

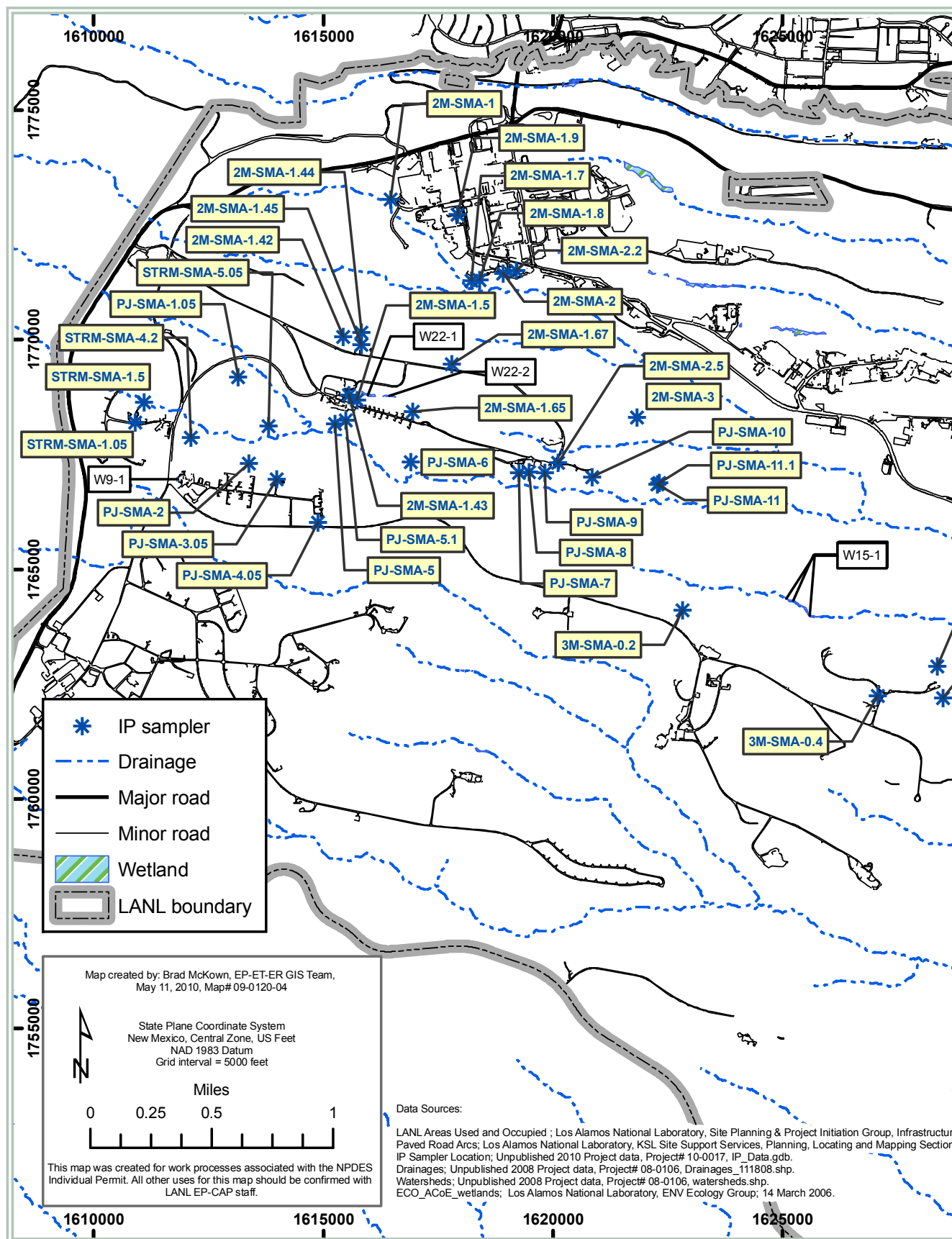
1000.51.6 Corrective Action Status

The Sites associated with PJ-SMA-20 are high priority Sites. Corrective action is to be certified complete within three years of the effective date of the IP.

**ATTACHMENT A
AMENDMENTS**

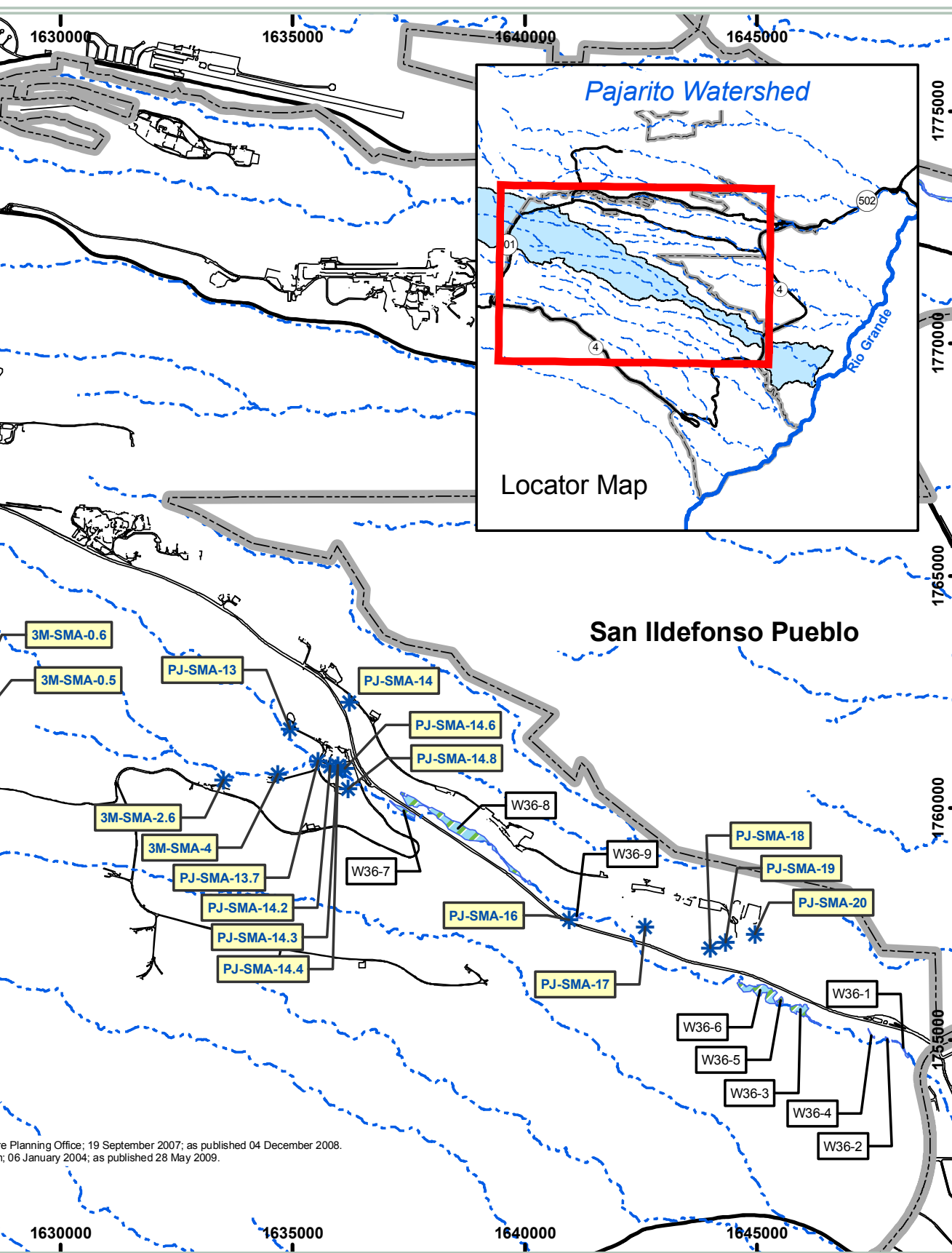
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ATTACHMENT B VICINITY MAP



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Planning Office; 19 September 2007; as published 04 December 2008.
; 06 January 2004; as published 28 May 2009.

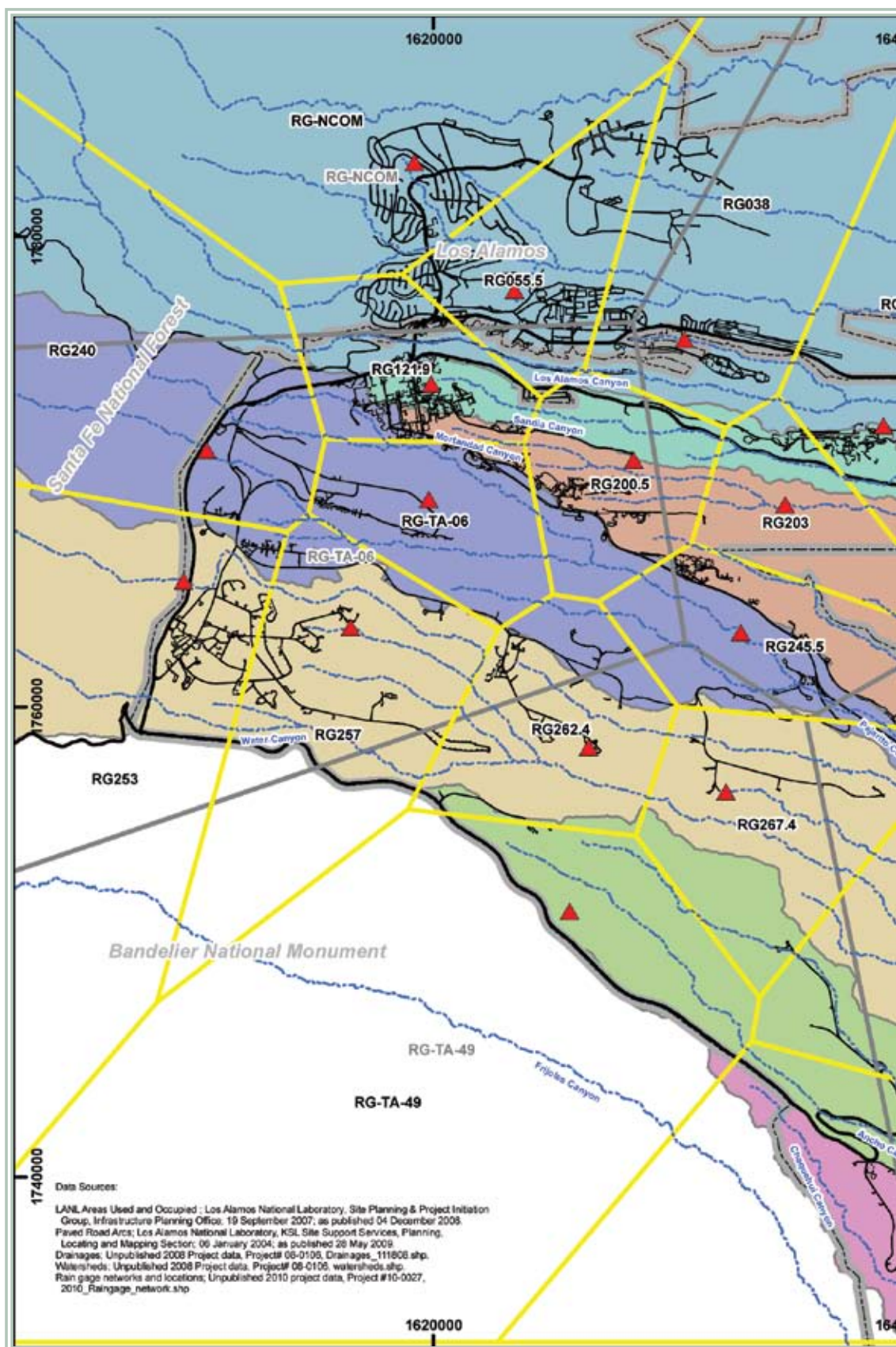
ATTACHMENT C
PRECIPITATION NETWORK

SMA Number	Rain Gage	Alternate Gage
2M-SMA-1	RG121.9	RG-TA-06
2M-SMA-1.42	RG-TA-06	RG-TA-06
2M-SMA-1.43	RG-TA-06	RG-TA-06
2M-SMA-1.44	RG-TA-06	RG-TA-06
2M-SMA-1.45	RG-TA-06	RG-TA-06
2M-SMA-1.5	RG-TA-06	RG-TA-06
2M-SMA-1.65	RG-TA-06	RG-TA-06
2M-SMA-1.67	RG-TA-06	RG-TA-06
2M-SMA-1.7	RG-TA-06	RG-TA-06
2M-SMA-1.8	RG-TA-06	RG-TA-06
2M-SMA-1.9	RG121.9	RG-TA-06
2M-SMA-2	RG121.9	RG-TA-06
2M-SMA-2.2	RG121.9	RG-TA-06
2M-SMA-2.5	RG-TA-06	RG-TA-06
2M-SMA-3	RG-TA-06	RG-TA-06
3M-SMA-0.2	RG-TA-06	RG-TA-06
3M-SMA-0.4	RG262.4	RG-TA-06
3M-SMA-0.5	RG262.4	RG-TA-06
3M-SMA-0.6	RG245.5	RG-TA-06
3M-SMA-2.6	RG245.5	RG-TA-49
3M-SMA-4	RG245.5	RG-TA-53
STRM-SMA-1.05	RG240	RG-TA-06
STRM-SMA-1.5	RG240	RG-TA-06
STRM-SMA-4.2	RG240	RG-TA-06
STRM-SMA-5.05	RG240	RG-TA-06
PJ-SMA-1.05	RG240	RG-TA-06

ATTACHMENT C
PRECIPITATION NETWORK (Continued)

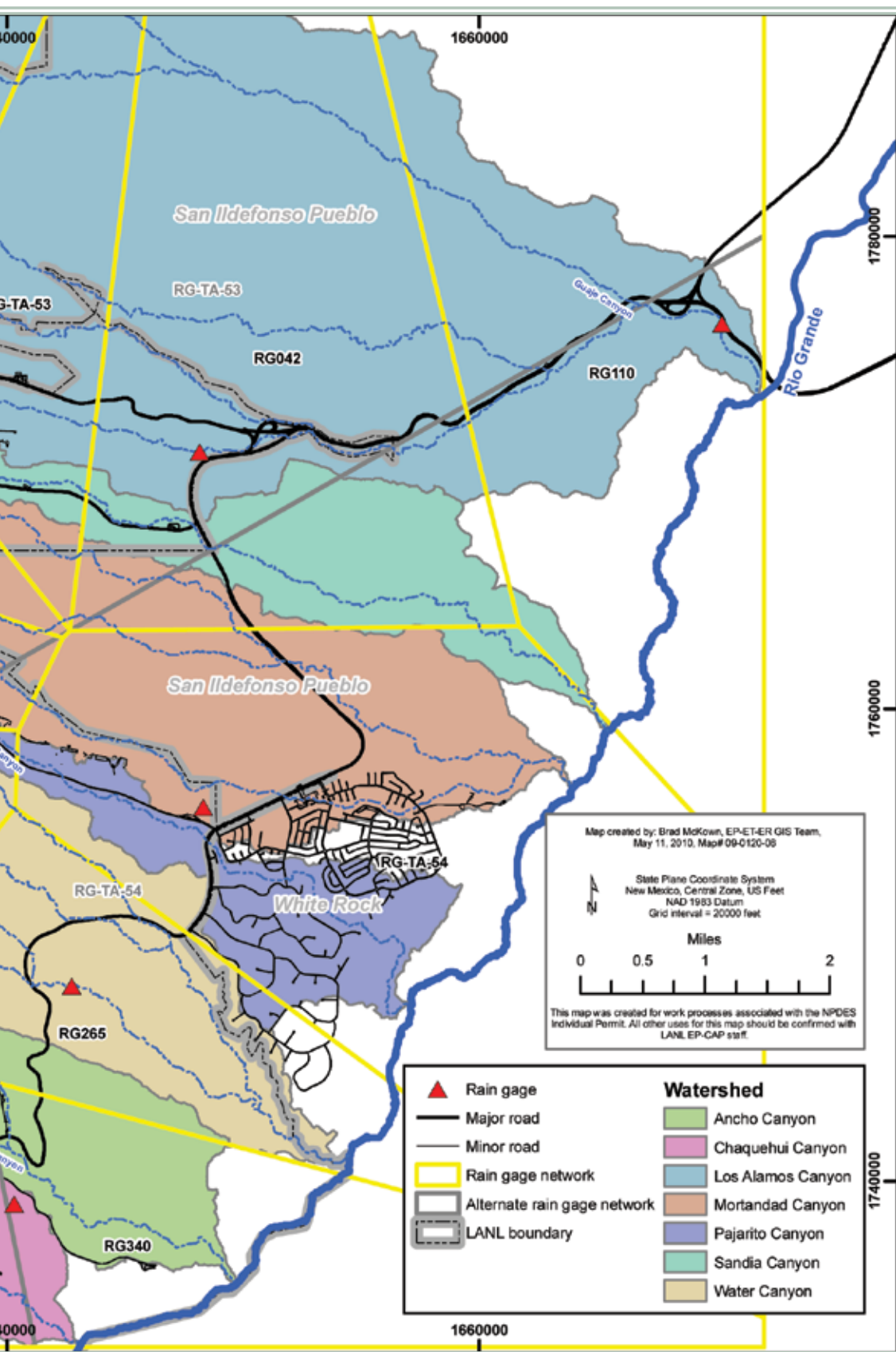
SMA Number	Rain Gage	Alternate Gage
PJ-SMA-2	RG253	RG-TA-06
PJ-SMA-3.05	RG257	RG-TA-06
PJ-SMA-4.05	RG257	RG-TA-06
PJ-SMA-5	RG-TA-06	RG-TA-06
PJ-SMA-5.1	RG-TA-06	RG-TA-06
PJ-SMA-6	RG-TA-06	RG-TA-06
PJ-SMA-7	RG-TA-06	RG-TA-06
PJ-SMA-8	RG-TA-06	RG-TA-06
PJ-SMA-9	RG-TA-06	RG-TA-06
PJ-SMA-10	RG-TA-06	RG-TA-06
PJ-SMA-11	RG-TA-06	RG-TA-06
PJ-SMA-11.1	RG-TA-06	RG-TA-06
PJ-SMA-13	RG245.5	RG-TA-53
PJ-SMA-13.7	RG245.5	RG-TA-53
PJ-SMA-14	RG245.5	RG-TA-53
PJ-SMA-14.2	RG245.5	RG-TA-53
PJ-SMA-14.3	RG245.5	RG-TA-53
PJ-SMA-14.4	RG245.5	RG-TA-53
PJ-SMA-14.6	RG245.5	RG-TA-53
PJ-SMA-14.8	RG245.5	RG-TA-53
PJ-SMA-16	RG-TA-54	RG-TA-54
PJ-SMA-17	RG-TA-54	RG-TA-54
PJ-SMA-18	RG-TA-54	RG-TA-54
PJ-SMA-19	RG-TA-54	RG-TA-54
PJ-SMA-20	RG-TA-54	RG-TA-54

ATTACHMENT C RAINGAGE NETWORK MAP



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ATTACHMENT D
PHYSICAL CHARACTERISTICS

Canyon	Permitted Feature	SMA Number	Sampler X Coordinate	Sampler Y Coordinate	SMA Drainage Area (Sq.Ft.)	Site Number	Site Drainage Area (Sq.Ft.)
Twomile	E001	2M-SMA-1	1,616,471.01	1,773,067.05	808,387.02	03-010(a)	7,480.34
Twomile	E002	2M-SMA-1.42	1,615,431.68	1,770,069.40	238.90	06-001(a)	0.00
Twomile	E003	2M-SMA-1.43	1,615,556.11	1,768,802.99	9,742.30	22-014(a) 22-015(a)	0.00 0.00
Twomile	E004	2M-SMA-1.44	1,615,829.09	1,770,174.00	691.79	06-001(b)	0.00
Twomile	E005	2M-SMA-1.45	1,615,829.64	1,769,892.79	12,701.51	06-006	2,408.47
Twomile	E006	2M-SMA-1.5	1,615,753.922551	1,768,696.346725	90.39	22-014(b)	0.00
Twomile	E007	2M-SMA-1.65	1,616,951.59	1,768,438.78	2,335.23	40-005	0.00
Twomile	E008	2M-SMA-1.67	1,617,799.01	1,769,475.05	3,672.04	06-003(h)	3,168.53
Twomile	E009	2M-SMA-1.7	1,618,223.01	1,771,303.05	9,523.48	03-055(a)	0.00
Twomile	E010	2M-SMA-1.8	1,618,404.63	1,771,315.26	53,560.20	03-001(k)	0.77
Twomile	E011	2M-SMA-1.9	1,617,918.77	1,772,736.22	11,104.28	03-003(a)	1,709.60
Twomile	E012	2M-SMA-2	1,618,915.00	1,771,455.00	445,008.77	03-050(d) 03-054(b)	1,913.57 1,358.74
Twomile	E013	2M-SMA-2.2	1,619,198.90	1,771,512.39	4,039.88	03-003(k)	0.77
Twomile	E015	2M-SMA-2.5	1,620,107.10	1,767,328.85	1,925.26	40-001(c)	0.00
Twomile	E014	2M-SMA-3	1,621,835.01	1,768,315.05	1,032,244.09	07-001(a) 07-001(b) 07-001(c) 07-001(d)	2,265.31 884.92 3,097.57 0.00
Pajarito	J028	STRM-SMA-1.05	1,610,898.78	1,768,203.76	144,271.08	08-009(f)	0.77
Pajarito	J029	STRM-SMA-1.5	1,611,103.01	1,768,639.05	155,072.72	08-009(d)	0.77
Pajarito	J030	STRM-SMA-4.2	1,612,116.98	1,767,868.67	3,459.21	09-008(b)	1,733.55

ATTACHMENT D
PHYSICAL CHARACTERISTICS (continued)

Canyon	Permitted Feature	SMA Number	Sampler X Coordinate	Sampler Y Coordinate	SMA Drainage Area (Sq.Ft.)	Site Number	Site Drainage Area (Sq.Ft.)
Pajarito	J031	STRM-SMA-5.05	1,613,806.76	1,768,136.98	87,012.57	09-013	76,189.35
Threemile	H001	3M-SMA-0.2	1,622,831.22	1,764,112.23	3,347.78	15-010(b)	50.71
Threemile	H002	3M-SMA-0.4	1,627,075.01	1,762,259.05	235,152.99	15-006(b)	627.41
Threemile	H003	3M-SMA-0.5	1,628,495.01	1,762,195.05	315,963.74	15-006(c) 15-009(c)	865.19 146.97
Threemile	H004	3M-SMA-0.6	1,628,371.01	1,762,895.05	29,678.86	15-008(b)	25,784.61
Threemile	H005	3M-SMA-2.6	1,633,503.01	1,760,603.05	12,220.06	36-008 C-36-003	10,503.38 3.13
Threemile	H006	3M-SMA-4	1,634,679.01	1,760,727.05	46,131,320.74	18-002(b) 18-003(c) 18-010(f)	2.31 0.77 0.77
Pajarito	J001	PJ-SMA-1.05	1,613,152.03	1,769,199.23	10,767.13	09-013	7,896.56
Pajarito	J002	PJ-SMA-2	1,613,379.01	1,767,311.05	40,895.61	09-009	3,293.67
Pajarito	J003	PJ-SMA-3.05	1,613,987.20	1,766,966.65	633.10	09-004(o)	0.00
Pajarito	J004	PJ-SMA-4.05	1,614,888.61	1,766,026.45	52,608.18	09-004(g)	0.00
Pajarito	J005	PJ-SMA-5	1,615,255.01	1,768,179.05	51,399.45	22-015(c)	7,216.67
Pajarito	J006	PJ-SMA-5.1	1,615,492.52	1,768,257.67	9,050.88	22-016	0.00
Pajarito	J007	PJ-SMA-6	1,616,907.01	1,767,335.05	5,257.12	40-010	4,471.19
Pajarito	J008	PJ-SMA-7	1,619,265.73	1,767,107.31	6,473.29	40-006(c)	1,963.98
Pajarito	J009	PJ-SMA-8	1,619,487.21	1,767,132.71	25,261.94	40-006(b)	2,403.10
Pajarito	J010	PJ-SMA-9	1,619,820.33	1,767,117.87	12,111.07	40-009	3,966.81
Pajarito	J012	PJ-SMA-10	1,620,855.01	1,767,019.05	1,034.00	40-006(a)	1,034.00
Pajarito	J013	PJ-SMA-11	1,622,271.01	1,766,851.05	25,449.06	40-003(a)	11,693.50
Pajarito	J014	PJ-SMA-11.1	1,622,311.01	1,766,875.05	62,576.27	40-003(b)	14,173.19

ATTACHMENT D
PHYSICAL CHARACTERISTICS (continued)

Canyon	Permitted Feature	SMA Number	Sampler X Coordinate	Sampler Y Coordinate	SMA Drainage Area (Sq.Ft.)	Site Number	Site Drainage Area (Sq.Ft.)
Pajarito	J015	PJ-SMA-13	1,634,943.48	1,761,708.62	6,977.39	18-002(a)	1.54
Pajarito	J016	PJ-SMA-13.7	1,635,551.83	1,761,015.08	59,731.90	18-010(b)	0.77
Pajarito	J017	PJ-SMA-14	1,636,219.01	1,762,287.05	10,552.06	54-004	2,022.21
Pajarito	J018	PJ-SMA-14.2	1,635,812.89	1,760,906.35	51.84	18-012(b)	0.77
Pajarito	J019	PJ-SMA-14.3	1,635,962.38	1,760,801.70	24.13	18-003(e)	0.00
Pajarito	J020	PJ-SMA-14.4	1,635,967.01	1,760,919.05	14,580.52	18-010(d)	0.77
Pajarito	J021	PJ-SMA-14.6	1,636,130.89	1,760,854.57	16,256.96	18-010(e)	0.77
Pajarito	J022	PJ-SMA-14.8	1,636,187.01	1,760,411.05	2,578.20	18-012(a)	0.72
Pajarito	J023	PJ-SMA-16	1,640,958.78	1,757,591.69	17,038.16	27-002	1,790.55
Pajarito	J024	PJ-SMA-17	1,642,591.72	1,757,439.05	551,419.73	54-018	181,987.49
Pajarito	J026	PJ-SMA-18	1,643,996.87	1,756,988.90	237,408.23	54-014(d) 54-017	11,056.71 58,872.77
Pajarito	J025	PJ-SMA-19	1,644,331.01	1,757,107.05	845,108.54	54-013(b) 54-017 54-020	0.00 272,540.59 1,100.47
Pajarito	J027	PJ-SMA-20	1,644,964.00	1,757,291.70	290,080.75	54-017	190,661.89

ATTACHMENT E
PROCEDURAL DOCUMENTS

Procedure	Title	Summary
EP-SOP-5211	Surface Water Site Assessments	This SOP describes the process for conducting the annual erosion re-evaluation. The procedure identifies responsible participants and provides a detailed checklist to evaluate the erosion potential at a Site permitted under the IP. Erosion matrix scores range from 1 to 100 and are qualitatively determined based on a systematic assessment of the Site. The assessment involves an evaluation of the Site setting, examination of the Site for evidence of runoff and erosion, and documentation of structures and/or operations that are directing storm water onto the Site.
SOP-5213	Inspecting storm water runoff samplers and retrieving samples	This procedure describes the process for inspecting ISCO storm water runoff samplers and retrieving storm water runoff samples from all locations where the Los Alamos National Laboratory (LANL) conducts storm water sampling activities. This procedure applies to the storm water project technical staff and subcontractor personnel conducting activities at storm water sampler stations.
SOP-5215	Processing Storm Water Samples	Describes the processing of storm water samples in the laboratory at TA-59 and preparation of samples for shipping.

ATTACHMENT E
PROCEDURAL DOCUMENTS (continued)

Procedure	Title	Summary
SOP-5217	Inspecting, Maintaining, and Installing Control Measures	Describes the steps to inspect, maintain when necessary, and install new control measures (formerly called BMPs) for the Individual Permit Compliance Project.
SOP-5219	Photograph Management	Describes how to log in, process, and submit to records photos that are taken in the field.
SOP-5220, R0	EX-ID/PR-ID Project Reviews for the IP	Describes the assignment of review responsibilities, documentation of reviews, and followup actions for projects with potential impacts to SMAs.
EP-DIV-SOP-10004	Managing Electronic Precipitation Data for Storm Water Projects	This standard operating procedure (SOP) states the responsibilities and describes the process for managing electronic precipitation measurement data collected for use by LANL storm water programs. Electronic data management processes include: downloading electronic data from remote data loggers and/or the LANL Weather Machine; processing the raw data files; uploading electronic data from the remote data loggers into Hydstra ©; calculating the 24-hour cumulative amount, storm duration, and maximum 30-minute storm intensity; and transferring the calculated precipitation results to the Storm Water Tracking System (SWTS).

ATTACHMENT E
PROCEDURAL DOCUMENTS (continued)

Procedure	Title	Summary
EP-DIV-SOP-10005	Operation and Maintenance of Gage Stations for Storm Water Projects	This procedure describes the installation, verification, activation, inspection, maintenance, seasonal deactivation, and permanent decommissioning of surface water gaging stations and the rain gage that is installed at some gage stations. Gage station equipment and electronic instruments include flumes, weirs, stilling wells, electronic data loggers, transducers for stage (water level) measurement, digital cell phones and telemetry, solar battery-charging equipment, and electronic rain gages. This procedure also describes how to obtain supplemental flow measurements in flowing streams.
EP-DIV-SOP-10008	Installing, Setting Up, and Operating ISCO Samplers	This procedure describes the installation, setup, programming, and operation of Teledyne ISCO model 3700 full-size portable automated samplers used to collect storm water runoff samples. This procedure applies to the project and contractor personnel conducting operation and maintenance activities at stream gaging stations and single stage stations.

**ATTACHMENT F
TRAINING LOG**

(Reserved)

ATTACHMENT G ACRONYMS AND REFERENCES

AOC	Area of Concern
ATAL	Average Target Action Level
Control	Best Management Practice
CEARP	Comprehensive Environmental Assessment and Response Program
CMP	Corrugated Metal Pipe
CWA	Clean Water Act
D & D	Decontamination and Decommissioning
DL	Detectable Level
DU	Depleted Uranium
EPA	Environmental Protection Agency
FFCA	Federal Facility Compliance Agreement
HEs	High Explosives
IP	NPDES Permit No. NM0030759
JCNNM	Johnson Controls Northern New Mexico
LACP	Los Alamos Characterization Program
LANL	Los Alamos National Laboratory
LANS	Los Alamos National Security
MDA	Material Disposal Area
MLQ	Minimum Quantification Level
MSGP	Multi-Sector General Permit
MTAL	Maximum Target Action Level
NMED	New Mexico Environmental Department
NMFS	National Marine Fisheries Service
NNSA	National Nuclear Security Administration
NPDES	National Pollutant Discharge Elimination System
OEW	Ordnance and Explosive Waste
PCBs	Polychlorinated biphenyl
PF	Permitted Feature
PPT	Pollution Prevention Team
RADS	Radioactive Pollutants
RCRA	Resource Conservation and Recovery Act
RFI	Remedial Facilities Investigation
RLW	Radioactive Liquid Waste
SAA	Satellite Accumulation Area
SDPPP	Site Discharge Pollution Prevention Plan
SMA	Site Monitoring Area
SWMU	Solid Waste Management Unit
SWTS	Storm Water Tracking System
TA	Technical Area
TALs	Target Action Levels
TMDL	Total Maximum Daily Load
TSCA	Toxic Substances Control Act
USFWS	United States Fish & Wildlife Service
UXO	Unexploded Ordnance
VCA	Voluntary Corrective Action
VCP	Vitrified Clay Pipe
WPCD	Water Pollution Control Drawing
WQDB	Water Quality Database
WWTP	Waste Water Treatment Plan

REFERENCES

The following list includes documents used in the preparation of this plan. The reference list is provided to allow the reader to search additional sources of information and serves as a starting point for further research. Where provided, parenthetical information following each reference provides the author(s), publication date, and ER ID number. ER ID numbers are assigned by the Environmental Programs Directorate's Record Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set. Copies of these references 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; and the Directorate.

LANL (Los Alamos National Laboratory) 2008. "*2008 Interim Facility-Wide Groundwater Monitoring Plan*", Los Alamos National Laboratory document LA-UR-08-3273, Los Alamos, New Mexico

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