Site Discharge Pollution Prevention Plan

Los Alamos National Laboratory

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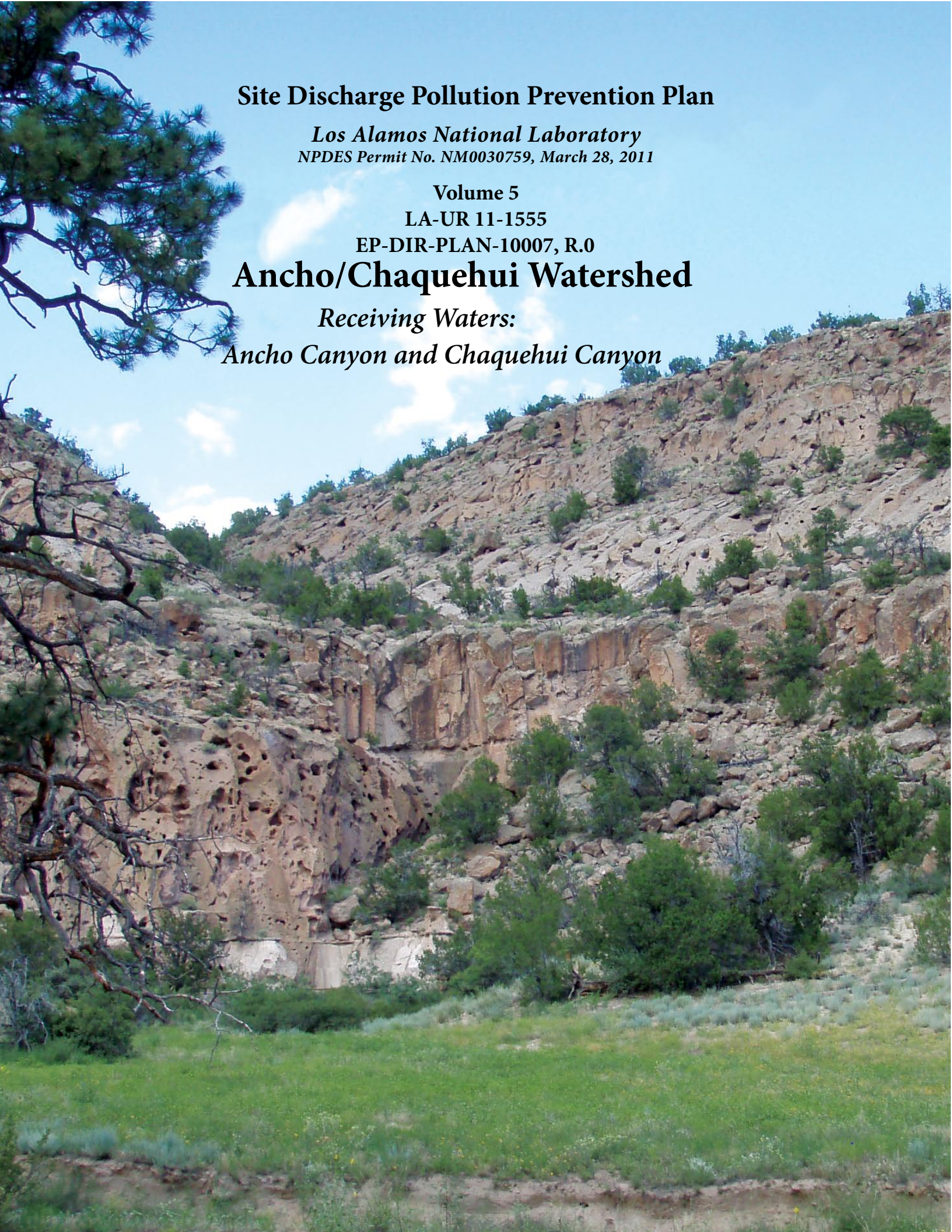
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Ancho/Chaquehui Watershed

Receiving Waters:

Ancho Canyon and Chaquehui Canyon



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Ancho 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.'

Apr. 19, 2011

David McInroy, Program Director
Corrective Actions Program
Environmental Programs
Los Alamos National Security, LLC

Date

4/25/11

Gene Turner, Permitting Manager
Environmental Project Office
National Nuclear Security Administration

Date

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; 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	• Rendija Canyon • Bayo Canyon • Pueblo Canyon • DP Canyon • Los Alamos Canyon	64 (25.6%)
Volume 2	Sandia / Mortandad	• Mortandad Canyon • Ten Site Canyon • Cañada del Buey • Sandia Canyon	64 (25.6%)
Volume 3	Pajarito	• Pajarito Canyon • Starmers Gulch • Twomile Canyon • Threemile Canyon	51 (20.4%)
Volume 4	Water/ Cañon de Valle	• Cañon de Valle • Potrillo Canyon • Water Canyon • Fence Canyon	50 (20%)
Volume 5	Ancho / Chaquehui	• 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 Ancho Chaquehui Watershed Overview

Ancho Canyon is located in the southeastern portion of the Laboratory and originates on the Laboratory in TA-49 at an elevation of approximately 7,285 feet. The watershed extends southeast across LANL and enters the Rio Grande along the boundary between TA-33 and TA-70 at an elevation of approximately 5,410 feet. Ancho Canyon is joined by North Ancho Canyon before it flows into the Rio Grande. The area of Ancho watershed is approximately 6.8 square miles and a channel length of 7.3 miles. Stream flow in Ancho Canyon is ephemeral over most of the canyon length, until about 0.8 miles upstream of the confluence with the Rio Grande, where Ancho Spring is located. This perennial spring supports perennial flow for a very short segment of the canyon where it converges with the Rio Grande. IP-related controls and monitoring activities all occur upstream, in the ephemeral segments of this canyon.

Chaquehui Canyon originates in Bandelier National Monument at an elevation of 6,580 feet. The watershed begins at the northeast corner of the monument, extending 0.4 miles before entering Laboratory property at the northwestern corner of TA-33 and trends southeast. The watershed continues across 2 miles of TA-33 and enters the Rio Grande at an elevation of 6,580 feet. The area of the Chaquehui watershed is approximately 1.6 square miles. Stream flow in Chaquehui canyon is ephemeral over most of the canyon length, until about 0.5 mile upstream of the confluence with the Rio Grande, where Doe Spring is located. This spring supports perennial flow over a short distance. Two other perennial springs, Spring 9 and Spring 9A, are located approximately 0.25 miles above the confluence with the Rio Grande. These springs support perennial flow in the short remainder of the canyon to the confluence with the Rio Grande. IP-related controls and monitoring activities occur upstream of these springs, in the ephemeral segments of this canyon.

300.3.1 Receiving Waters and Wetlands in Ancho Chaquehui 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 Ancho Chaquehui watershed does not contain or influence, any wetland areas.

300.3.2 Vicinity Map

A vicinity map for the Ancho Chaquehui watershed is provided in Attachment B. The map shows locations of SMAs presented in this volume.

300.4 Precipitation Network and Monitoring

LANS 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 Ancho Chaquehui watershed, three 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 Ancho Chaquehui Watershed

Meteorological Tower or Rain Gage	Primary Tower or Network Gage	Year Placed in Service	Location	Associated SMAs
RG265	Network	2008	The rain gage is located in Water Canyon near the confluence with Indio Canyon.	4
RG267.4	Network	2008	The rain gage is located in Fence Canyon.	2
RG340	Network	2008	The rain gage is located in Chaquehui Canyon.	15

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 duties. 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 Ancho Chaquehui 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 Ancho Chaquehui watershed, there are 21 Permitted Features comprised of 39 Sites associated with 21 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 Ancho Chaquehui watershed are generally classified as metals, organics, and radioactivity present in surface soils.

Sites in proximity to Ancho Canyon were primarily to support open-air testing of explosive compounds. SWMUs and AOCs within the Ancho watershed include firing sites, a number of landfills, septic systems, material disposal areas, and outfalls associated with these research activities.

Sites in proximity to Chaquehui Canyon are primarily associated with industrial activities at TA-33. SWMUs and AOCs include outfalls, septic systems, storage areas, landfill, incinerator, power transformer, and firing sites.

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

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.

None of the 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).

500.3 Public Influences

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.

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

SECTION 600
BASELINE CONTROL MEASURES

In the Ancho Chaquehui watershed baseline control measures have been implemented at 21 SMAs. Of the 21 SMAs in this watershed, three 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 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 deployed at SMAs in the Ancho Chaquehui 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 collects 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 deployed 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 Ancho Chaquehui watershed, three SMAs had completed baseline control installations before the effective date of the Permit. Storm water monitoring at these three 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 Ancho Chaquehui Watershed

- **A-SMA-1.1**
- **A-SMA-3**
- **CHQ-SMA-5.05**

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 indentified 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.

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 Disturbance** – 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 NMEDs 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

There are no Sites within the Ancho Chaquehui watershed that have been deemed high priority Sites.

900.2.2 Moderate Priority Sites

Within the Ancho Chaquehui watershed, there are 39 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 A-SMA-1.1

1000.1.1 Area Description

1000.1.2 Potential Pollutant Sources

1000.1.2.1 Historical Industrial Activity Areas

1000.1.3 Control Measures

1000.1.3.1 Control Measures for Historical Industrial Activity Areas

1000.1.4 Project Map

1000.1.5 Storm Water Monitoring Plan and Schedule

1000.1.6 Corrective Action Status



1000.1 A-SMA-1.1

1000.1.1 Area Description

A-SMA-1.1 is located in TA-39 and access to the area is controlled. To the north and west of the SMA are steep canyon walls. On the southern boundary is a paved access road. The eastern boundary is the northeastern tributary of North Ancho canyon. Storm water flows northwest to southeast across the area.

1000.1.2 Potential Pollutant Sources

1000.1.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with Permitted Feature (PF) A001, A-SMA-1.1, Sites 39-004(a) and 39-004(d).

SWMU 39-004(a) is a firing site (structure 39-0007) located along the northern tributary of the upper reach of Ancho Canyon. The firing pad is located in the bottom of the canyon between a diverted ephemeral stream and the canyon wall. A debris mound is located at the base of the canyon wall directly west of the firing pad at SWMU 39-004(a). The firing site was constructed in 1953 to test explosives materials.

SWMU 39-004(d) is a firing site (structure 39-0057) located along the northern tributary of the upper reach of Ancho Canyon and situated in the bottom of the canyon between a diverted ephemeral stream and the canyon wall. The firing site was constructed in 1953 and is used for explosives experiments.

1000.1.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
39-004(a)	Firing site	Co-located, Overlapping	Shared	•	•	•	HE
39-004(d)	Firing site TA-39-57	Co-located, Overlapping	Shared	•	•	•	HE

Substantially Identical Determination

Site 39-004(a) was the original firing site constructed in 1953. Falling debris from the nearby cliff resulted in the construction of another firing pad, 39-004(d), which is located approximately 75 feet, south-southeast from the original firing pad. Planned historical investigations at these sites originally attempted to differentiate between the two firing sites but because of the nature of these units, field investigations have sampled these two firing sites as one contiguous area. Because of the proximity of the firing pads to one another, the nature of activities conducted in these areas, and the similar suspect contaminants at both sites, storm water runoff from these areas will produce substantially identical effluents.

1000.1.3 Control Measures

The majority of run-on to this SMA originates in the natural areas around the Sites. The channel east of the Sites is confined by a berm located parallel to the access road. All Site run-off is captured in the ponding area to the southeast of the Sites, between the intersection of the two access roads and the North Ancho Canyon Road.

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
A001 02 03 0001	Established Vegetation - Vegetative Buffer Strip		●	●	
A001 03 01 0005	Berms - Earthen	●			●

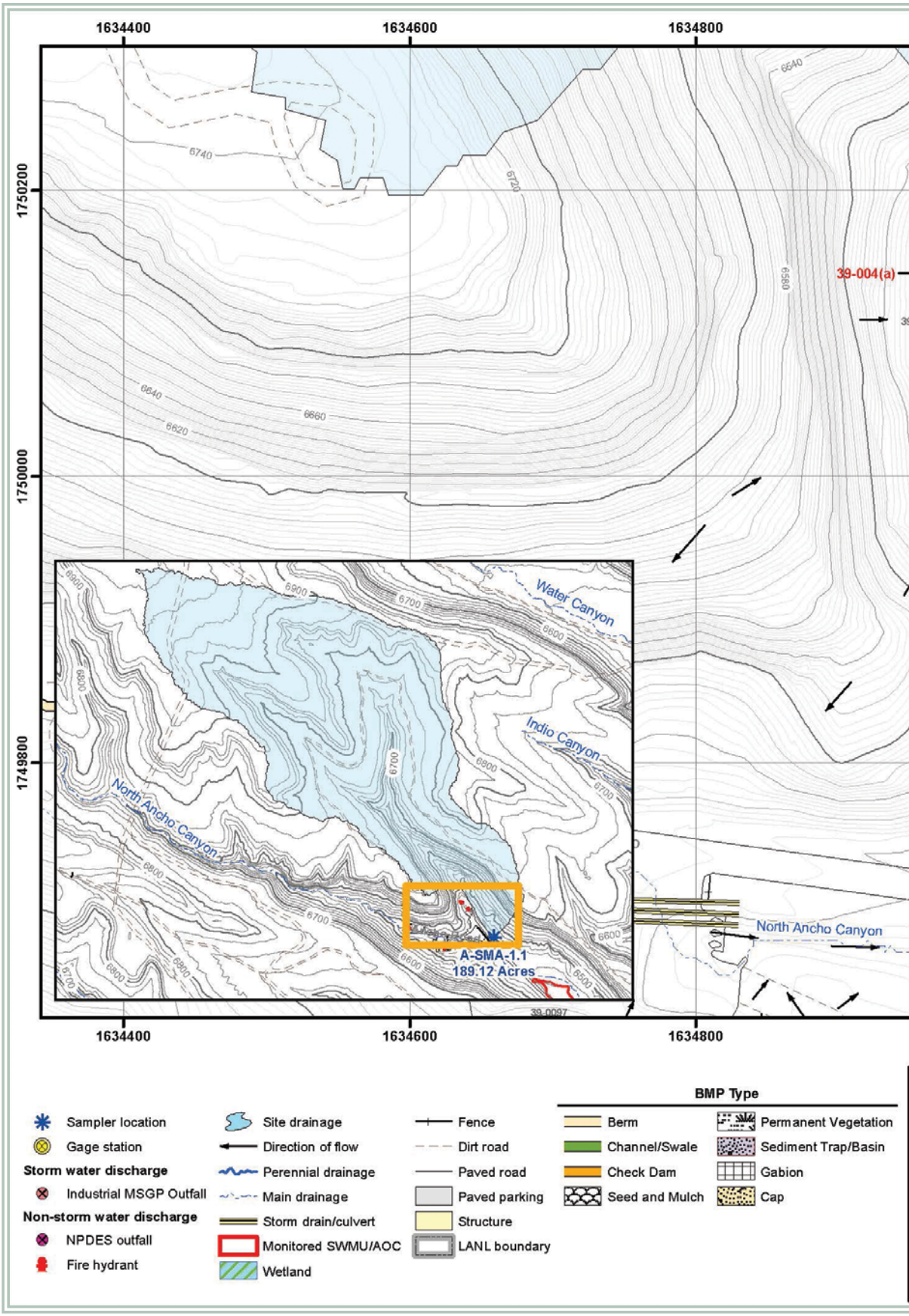
Established Vegetation (A001 02 03 0001)

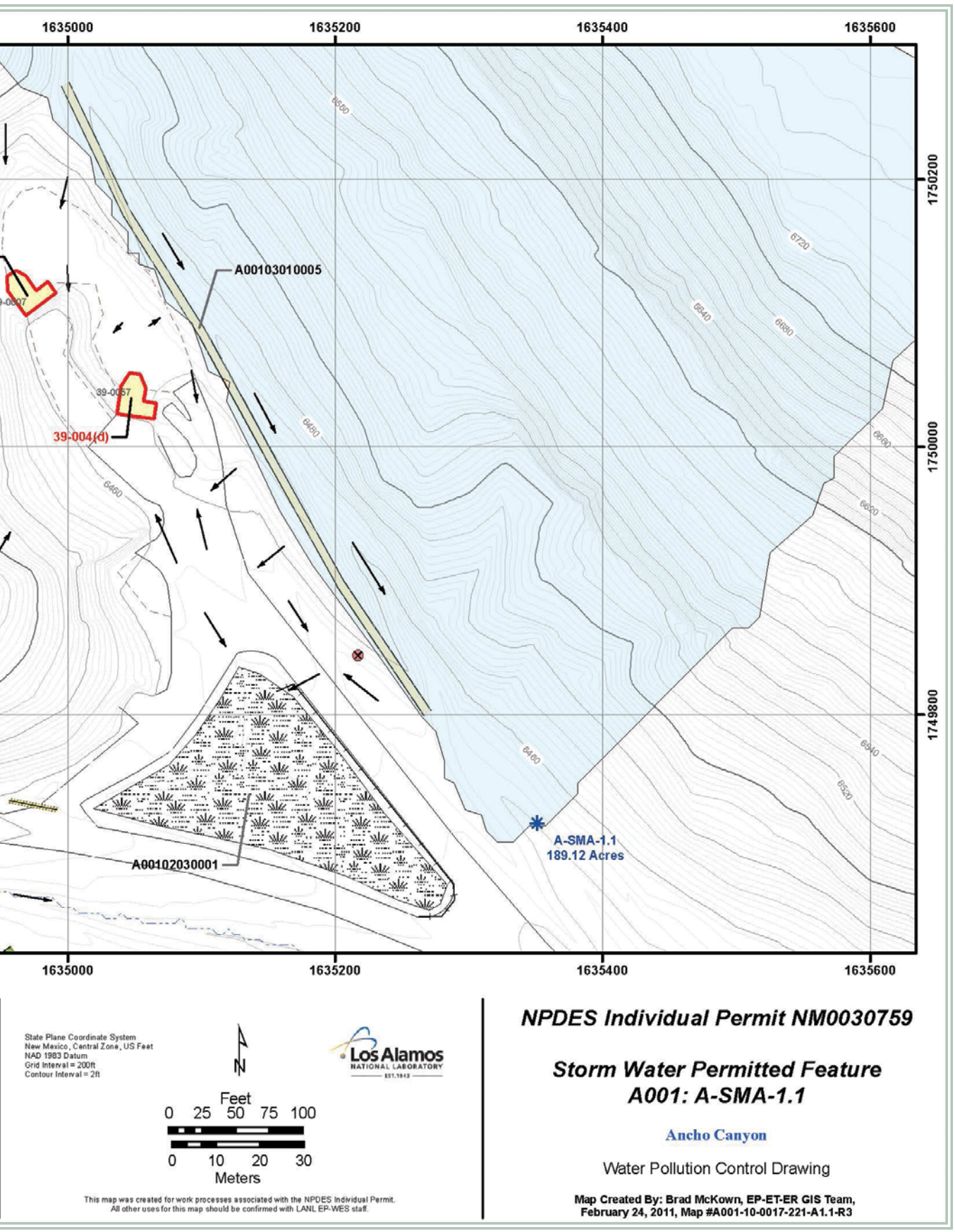
The vegetative buffer strip is a shallow depression of heavy vegetation located near the southern end of the SMA. It is in place to assist with erosion control resulting from run-off associated with the paved roads encircling the buffer strip. A vegetative buffer strip is a gently sloping area of vegetative 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 (A001 03 01 0005)

This berm runs parallel to the eastern boundary of the access road near building 39-0007 and 39-0057. It helps divert run-on away 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 andare also used for sediment control and run-off control in low-flow applications.

1000.1.4 Project Map




1635000
1635200
1635400
1635600
1750200
1750000
1749800
A00103010005
39-0057
39-004(d)
A00102030001
A-SMA-1.1
189.12 Acres
6480
6720
6840
6880
6600
6620
6540
6520
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
EST. 1943
Feet
0 25 50 75 100
0 10 20 30
Meters
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
A001: A-SMA-1.1
Ancho Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team,
February 24, 2011, Map #A001-10-0017-221-A1.1-R3

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)	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).

1000.1.6 Corrective Action Status

The Sites associated with A-SMA-1.1 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.



1000.2 A-SMA-2

1000.2.1 Area Description

1000.2.2 Potential Pollutant Sources

1000.2.2.1 Historical Industrial Activity Areas

1000.2.3 Control Measures

1000.2.3.1 Control Measures for Historical Industrial Activity Areas

1000.2.4 Project Map

1000.2.5 Storm Water Monitoring Plan and Schedule

1000.2.6 Corrective Action Status



1000.2 A-SMA-2

1000.2.1 Area Description

A-SMA-2 is located within TA-39 and access to the area is secure. The northern and southern boundaries of the SMA are steep canyon walls. The eastern boundary is the western tributary of the upper reach of North Ancho canyon. On the western boundary of the SMA is a paved access road. Storm water flows east towards the receiving waters.

1000.2.2 Potential Pollutant Sources

1000.2.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF A002, A-SMA-2, Sites 39-004(b) and 39-004(e).

SWMU 39-004(b) is a firing site, structure 39-0008, located in the western tributary of the upper reach of Ancho Canyon, and is situated in the canyon bottom between an ephemeral stream and the northern canyon wall. Firing site activities began in 1953 and were discontinued in 1980 because of the constant hazard of falling debris from the nearby cliff.

SWMU 39-004(e) is a firing site (structure 39-0088) located in the western tributary of the upper reach of Ancho Canyon. This firing site was constructed in 1978 and is used for explosives experiments..

1000.2.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
39-004(b)	Firing site	Co-located, Overlapping	Shared	•	•	•	HE
39-004(e)	Firing site	Co-located, Overlapping	Shared	•	•	•	HE

Substantially Identical Determination

Because of the proximity of the firing pads to one another, the nature of activities conducted in these areas, and the similar suspect contaminants at both sites, storm water runoff from these areas will produce substantially identical effluents.

1000.2.3 Control Measures

The primary run-on source for this SMA is North Ancho Canyon. Flow passes through the area via a natural drainage channel and a system of culverts that diverts this flow away from the SMA.

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
A002 02 01 0003	Established Vegetation - Grasses and Shrubs			•	
A002 03 01 0007	Berms - Earthen	•			•
A002 03 01 0008	Berms - Earthen	•			•
A002 03 06 0010	Berms - Straw Wattles		•		•
A002 03 06 0015	Berms - Straw Wattles	•			•
A002 04 01 0013	Channel/Swale - Earthen	•		•	
A002 04 06 0004	Channel/Swale - Rip Rap	•		•	
A002 06 01 0011	Check Dam - Rock	•			•
A002 06 01 0012	Check Dam - Rock	•			•

Established Vegetation (A002-02-01-0003)

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 (A002-03-01-0007, -0008)

This is a group of two berms located on the north and west sides of building 39-0008. They are in place to divert run-on discharging from the slope above away from the Site. 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 (A002-03-06-0010)

The wattles are located south of building 39-0008 along the paved access road. They were placed to manage 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.

Straw Wattles East (A002 03 06 0015)

These wattles are located along the edge of the drainage channel south of structure 39-0175. They are in place to help manage storm water run-on from the paved areas. 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/Swale (A002-04-01-0013)

This channel is located east of building 39-0176 in the natural drainage flowing north. It is directing the storm water flow towards the east and controlling erosion in 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.

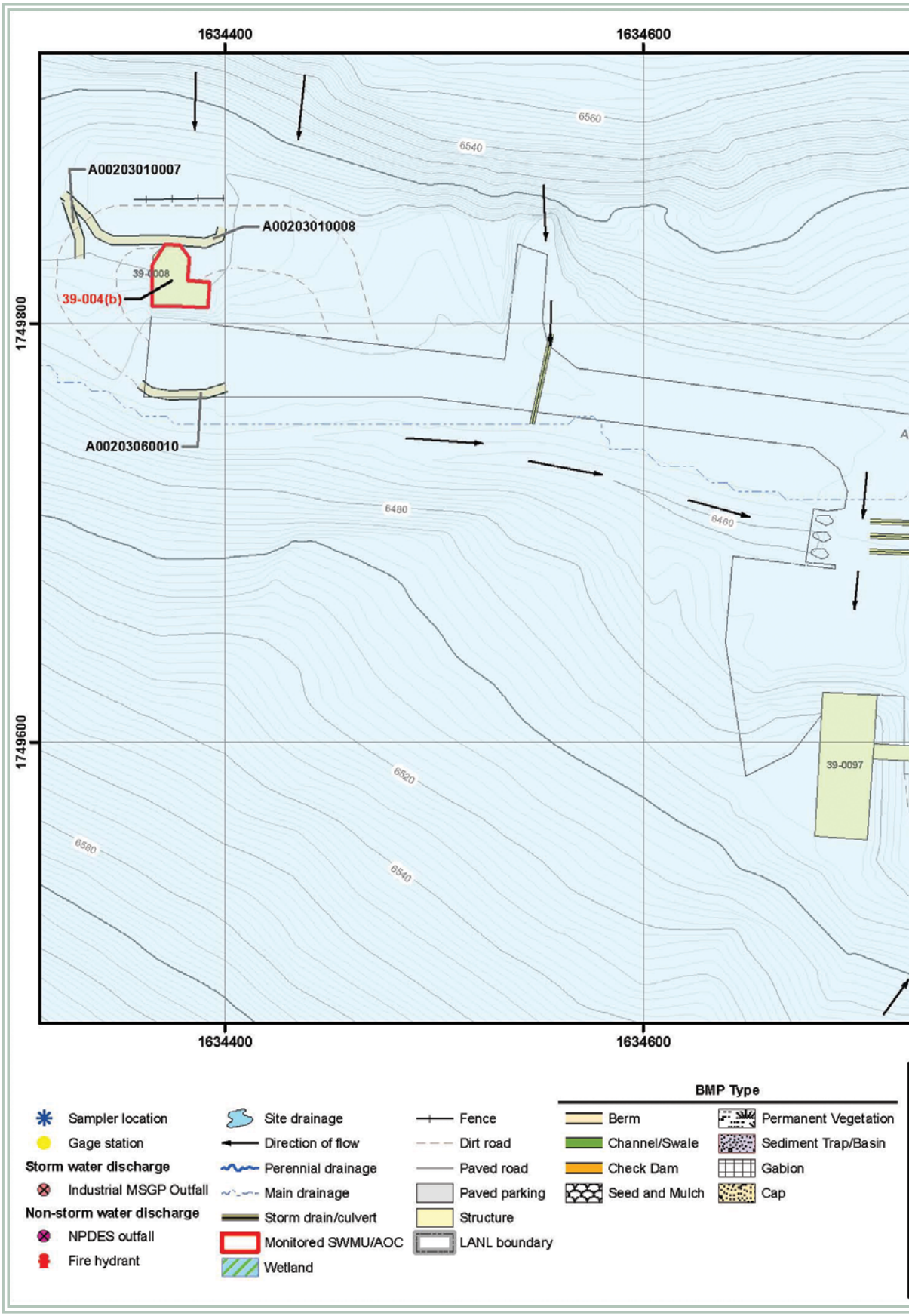
Rip Rap (A002-04-06-0004)

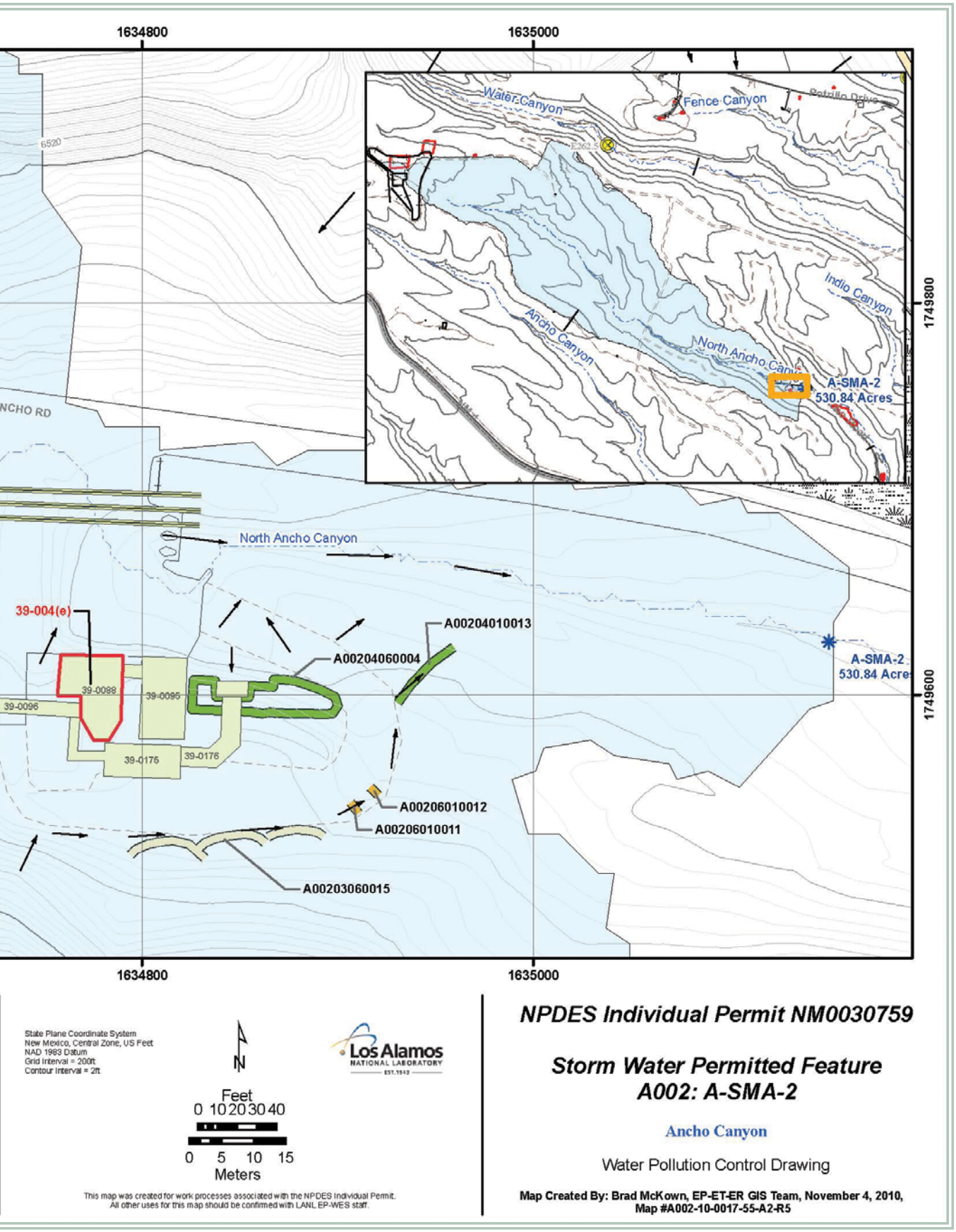
This rip rap is located within the loop formed by the unpaved access road surrounding buildings 39-0176 and 39-0095. It helps control run-on and prevents erosion of the bare areas. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dams (A002-06-01-0011, -0012)

This is a series of two check dams located southeast of building 39-0176, in the drainage channel along the edge of the unpaved parking area. They are used to control run-on and restrict 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.

1000.2.4 Project Map




1634800
1635000
1749800
1749600
Water Canyon
Fence Canyon
Indio Canyon
Ancho Canyon
North Ancho Canyon
A-SMA-2
530.84 Acres
NCHO RD
North Ancho Canyon
39-004(e)
A00204010013
A00204060004
A-SMA-2
530.84 Acre
39-0088
39-0095
39-0096
39-0175
39-0176
A00206010012
A00206010011
A00203060015
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 10 20 30 40
0 5 10 15
Meters
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
A002: A-SMA-2
Ancho Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, November 4, 2010,
Map #A002-10-0017-55-A2-R5

1000.2.5 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).

1000.2.6 Corrective Action Status

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



1000.3 A-SMA-2.5

1000.3.1 Area Description

1000.3.2 Potential Pollutant Sources

1000.3.2.1 Historical Industrial Activity Areas

1000.3.3 Control Measures

1000.3.3.1 Control Measures for Historical Industrial Activity Areas

1000.3.4 Project Map

1000.3.5 Storm Water Monitoring Plan and Schedule

1000.3.6 Corrective Action Status





1000.3 A-SMA-2.5

1000.3.1 Area Description

A-SMA-2.5 is located within TA-39 and access to the area is controlled. The SMA is bordered by the primary drainage in North Fork Ancho canyon on the northern and eastern boundaries. On the western boundary is a paved access road. The southern boundary is undeveloped. Storm water flows across the gently sloping area in a south-southeasterly direction.

1000.3.2 Potential Pollutant Sources

1000.3.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF A003, A-SMA-2.5, Site 39-010.

SWMU 39-010 is the location of a former soil staging area for soil excavated during the 1978 construction of firing site 39-0088 [SWMU 39-004(e)]. During construction of the firing site, large quantities of soil were removed and deposited in the canyon east of the firing site, forming SWMU 39-010.

1000.3.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
39-010	Excavated soil pile	Discrete Location, No overlap	Individual	•		•	

1000.3.3 Control Measures

This Permitted Feature is elevated and flat, resulting in a low potential for run-on or run-off. A natural drainage channel east of the SMA diverts run-on from North Ancho Canyon away from 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
A003 01 06 0004	Seed and Mulch - Erosion Control Blankets			•	
A003 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
A003 03 01 0003	Berms - Earthen		•		•
A003 03 06 0005	Berms - Straw Wattles	•			•
A003 03 06 0006	Berms - Straw Wattles	•			•

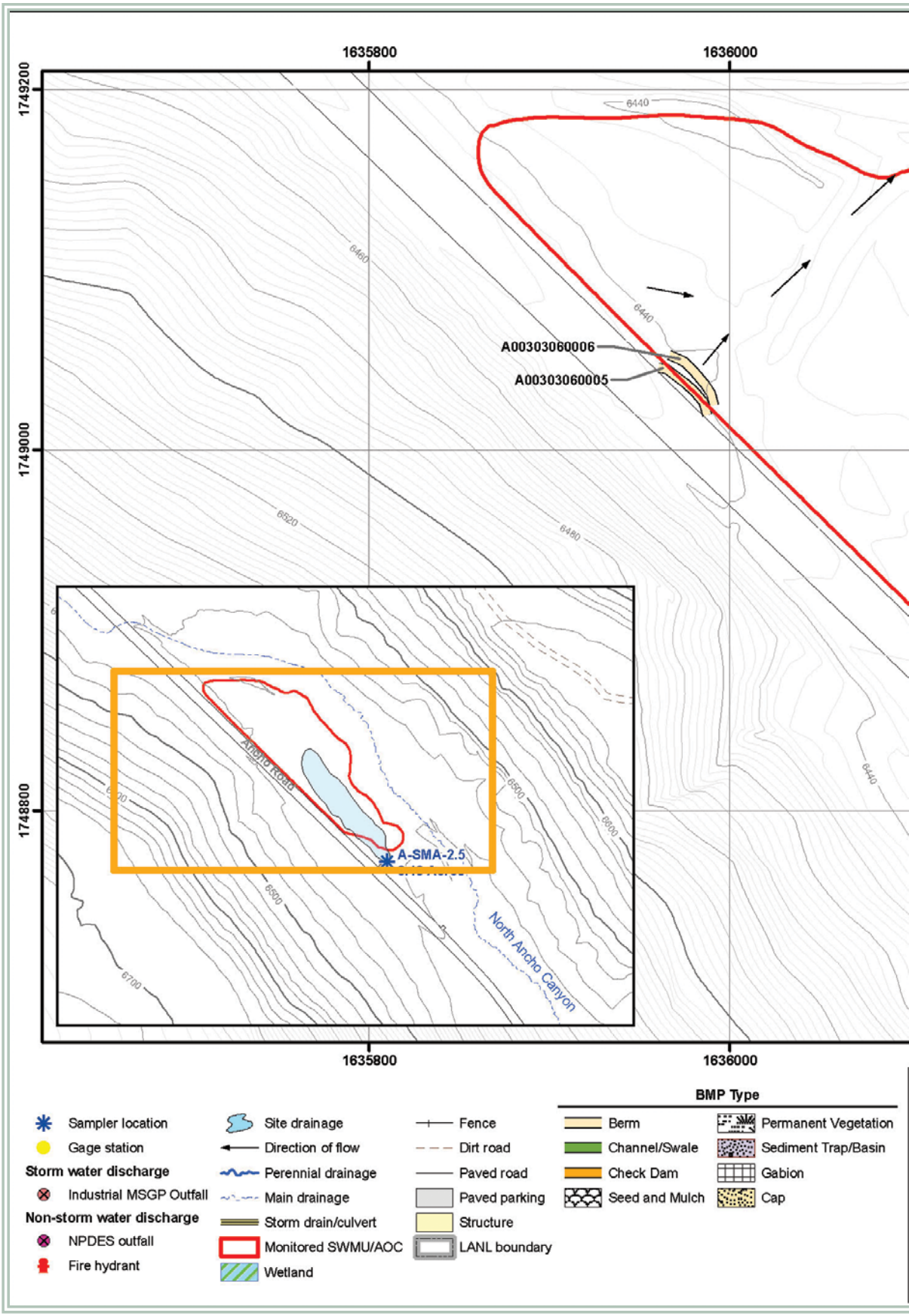
Erosion Control Blankets (A003-01-06-0004)
These erosion control blankets have been installed on the berm to control erosion of the berm`s sides. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil 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.

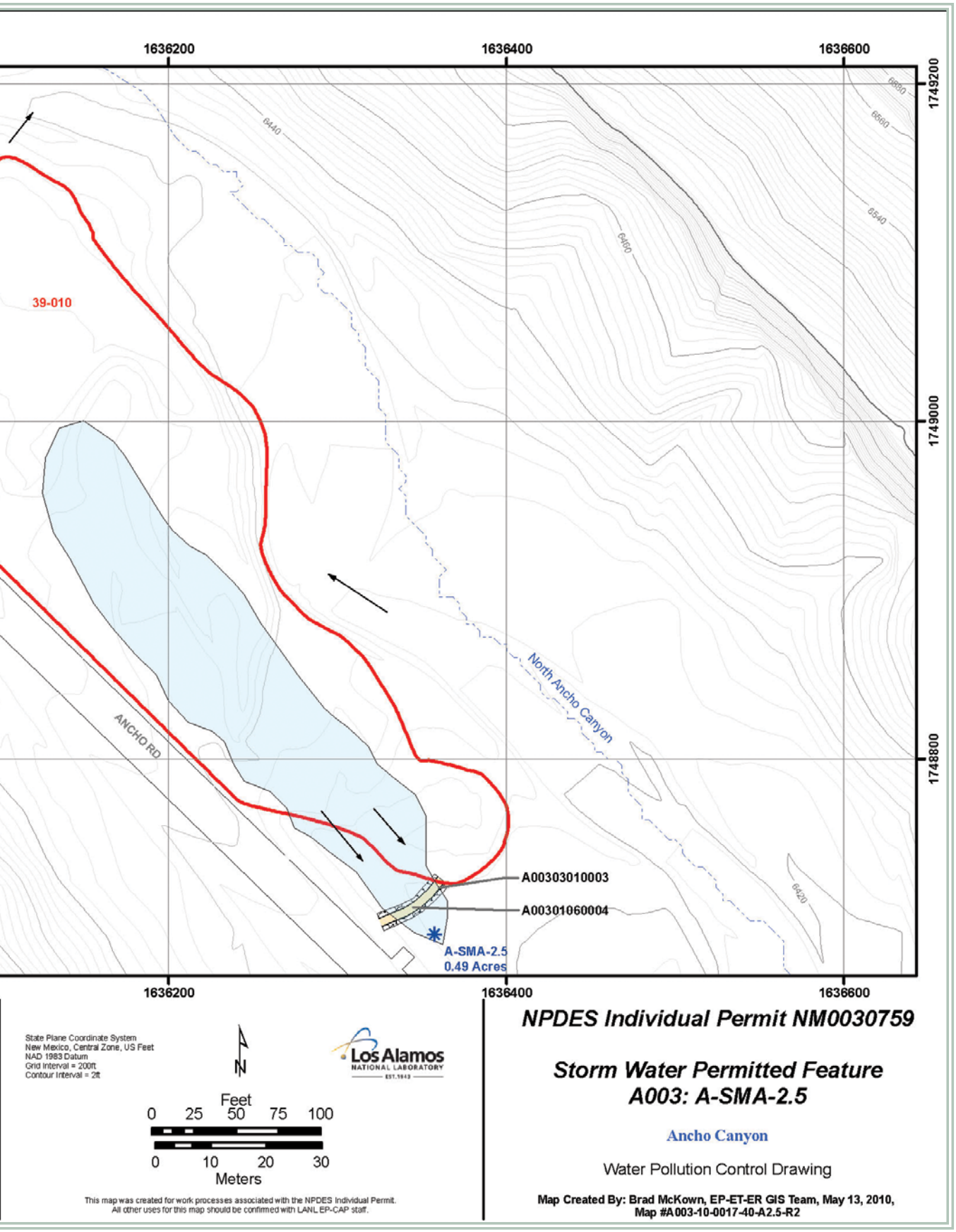
Established Vegetation (A003-02-01-0002)
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm (A003-03-01-0003)
This berm is located just northwest of the sampler location. It is used to mitigate run-off from the area and help with sediment retention. 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 (A003-03-06-0005, -0006)
This is a group of two wattles located east of Ancho Road, northwest of the SMA. They are in place to control run-on to the area from the paved road. 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.

1000.3.4 Project Map




1636200
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39-010
ANCHO RD
North Ancho Canyon
A00303010003
A00301060004
A-SMA-2.5
0.49 Acres
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
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EST. 1943
Feet
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0 10 20 30
Meters
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-CAP staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
A003: A-SMA-2.5
Ancho Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, May 13, 2010,
Map #A003-10-0017-40-A2.5-R2

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 eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.3.6 Corrective Action Status

The Site associated with A-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.



1000.4 A-SMA-2.7

1000.4.1 Area Description

1000.4.2 Potential Pollutant Sources

1000.4.2.1 Historical Industrial Activity Areas

1000.4.3 Control Measures

1000.4.3.1 Control Measures for Historical Industrial Activity Areas

1000.4.4 Project Map

1000.4.5 Storm Water Monitoring Plan and Schedule

1000.4.6 Corrective Action Status



1000.4 A-SMA-2.7

1000.4.1 Area Description

A-SMA-2.7 is located within TA-39 and access to the area is controlled. The northern boundary of this SMA undeveloped. The southern boundary of this SMA is undeveloped with the exception of the paved access road and two structures. The primary drainage in North Ancho canyon borders the eastern side of the SMA and North Ancho Canyon Road. Storm water flows east towards the receiving waters.

1000.4.2 Potential Pollutant Sources

1000.4.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF A004, A-SMA-2.7, Sites 39-002(c) and 39-008.

AOC 39-002(c) is the location of a former outdoor SAA on an asphalt-paved area next to the southwest corner of the gas-gun support structure (39-0056). Waste paper, solvent-contaminated rags (ethanol, acetone, and trichloroethane), and vacuum grease were stored at this SAA. It is not known if this area was used for storage before being placed in service as an SAA. This SAA was removed from service in February 1994.

SWMU 39-008 is an area of potential soil contamination from a gas-gun firing site. Building 39-0137 houses a single-stage gas-gun that is used to fire depleted uranium projectiles at targets on a cliff face. Testing at this site was conducted from 1960 to 1975, suspended for 13 years, and then resumed in 1988. Most of the debris from the site activities is scattered over the area just west of building 39-0137, but occasionally projectiles and target fragments hit the cliff face, which is situated approximately 200 ft west of another building associated with this experimental gun (building 39-0056). Photographic evidence shows that the area between the buildings and the cliff has been leveled, and the removed surface materials were pushed into a mound on the south side of the test area. The gas gun is currently used for experimental purposes.

1000.4.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
39-002(c)	Storage area	Co-located, Overlapping	Shared	•		•	
39-008	Disposal Trenches	Co-located, Overlapping	Shared	•	•	•	HE

Substantially Identical Determination

Sites grouped within this SMA are associated with an experimental explosives testing area within TA-39. Because these Sites share a common drainage and have similar contaminants, they will discharge substantially identical effluent.

1000.4.3 Control Measures

There are no significant run-on sources at this SMA. The SMA is bounded on the west by a canyon wall.

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
A004 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
A004 03 06 0005	Berms - Straw Wattles		•		•
A004 03 06 0006	Berms - Straw Wattles		•		•
A004 03 06 0011	Berms - Straw Wattles		•		•
A004 04 01 0001	Channel/Swale - Earthen	•		•	
A004 04 04 0003	Channel/Swale - Culvert	•		•	
A004 06 01 0007	Check Dam - Rock	•			•
A004 06 01 0008	Check Dam - Rock	•			•
A004 06 01 0009	Check Dam - Rock	•			•
A004 06 01 0010	Check Dam - Rock		•		•

Established Vegetation (A004-02-01-0002)

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.

Straw Wattle West (A004-03-06-0005)

This straw wattle is located in the drainage channel at the northern edge of the SMA footprint. It is in place to control run-off 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.

Straw Wattle East (A004-03-06-0006)

This straw wattle is located in the drainage channel at the northern edge of the SMA footprint just west of the fence line. It is in place to control run-off 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.

Straw Wattle South (A004-03-06-0011)

This wattle is located at the south east corner of the fence west of Ancho Road. It is in place to control run-off from the southern drainage channel. 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 (A004-04-01-0001)

The channel is located on the western side of Ancho Road above the sampler. It diverts 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.

Culvert (A004-04-04-0003)

The culvert is located under the paved road accessing area structures. It mitigates run-on from the paved areas and helps prevent erosion. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

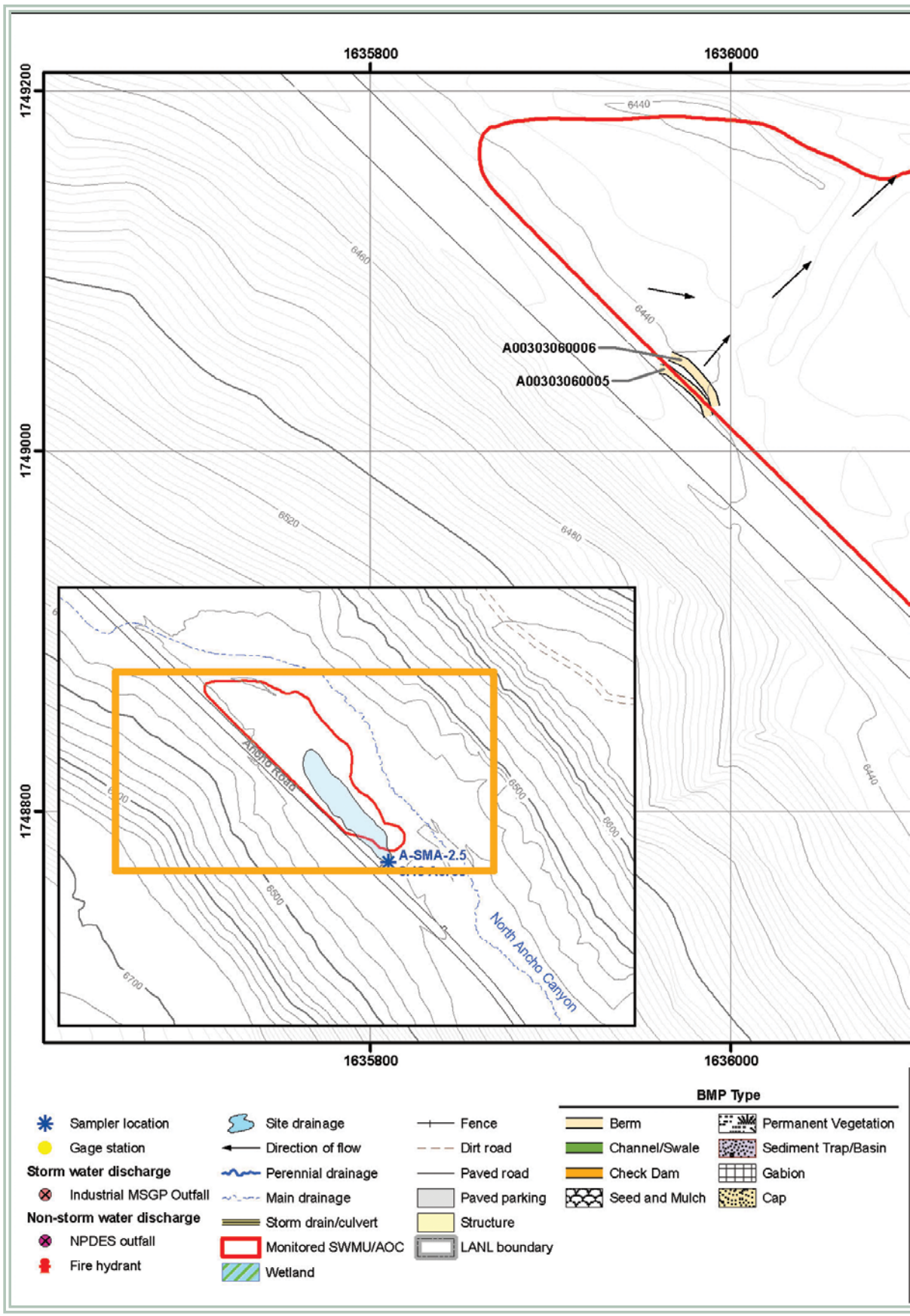
Rock Check Dams (A004-06-01-0007, -0008, -0009)

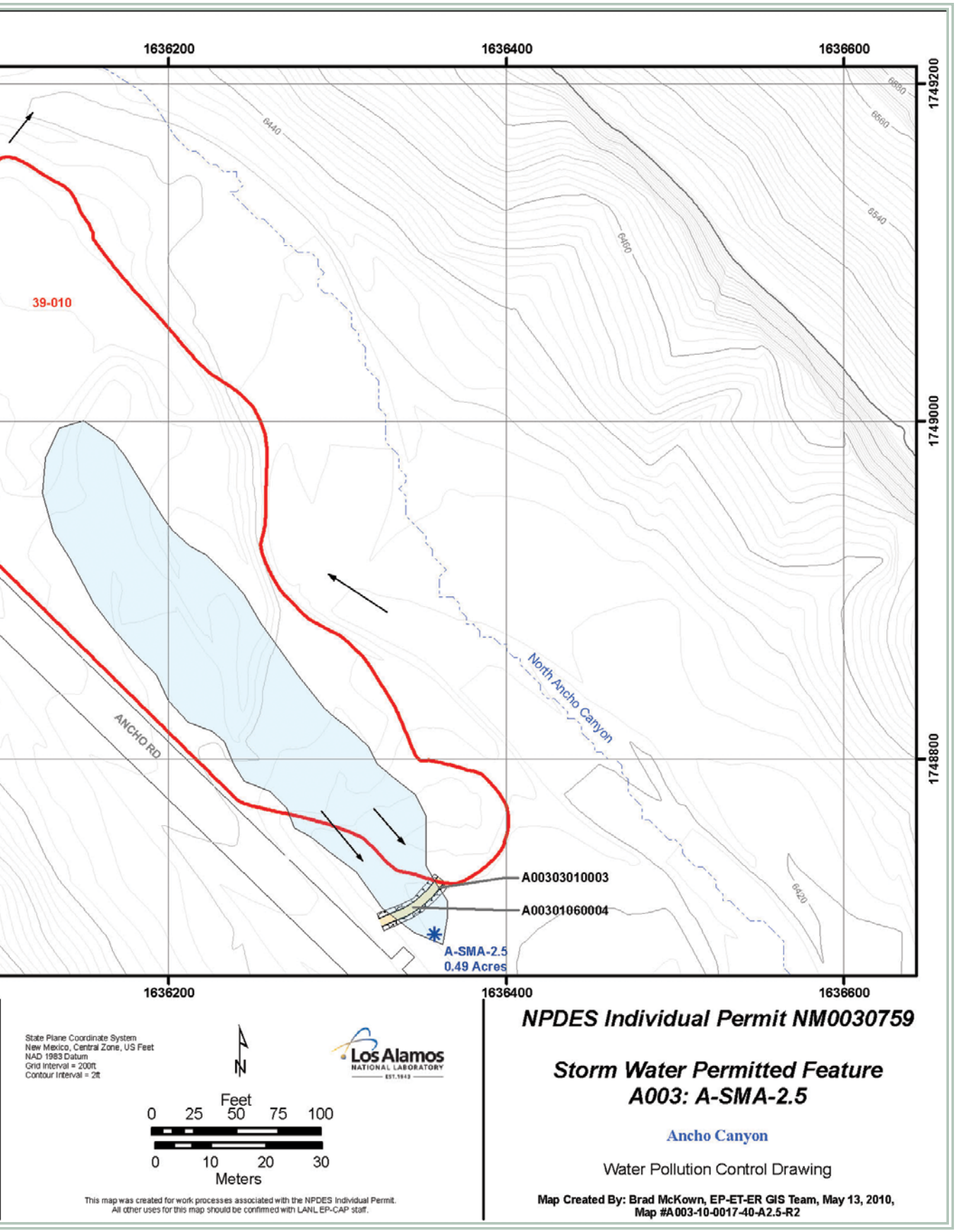
This is a group of three rock check dams that are located between the fence line and Ancho Road north of the area access drive. They are used to control run-on from the paved Ancho Road. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check 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 (A004-06-01-0010)

This check dam is located south of the area access drive in the ditch between the fence line and Ancho Road. It is used to control run-off from the area as well as to prevent 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.

1000.4.4 Project Map




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39-010
North Ancho Canyon
ANCHO RD
A00303010003
A00301060004
A-SMA-2.5
0.49 Acres
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
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Los Alamos
NATIONAL LABORATORY
EST. 1943
Feet
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0 10 20 30
Meters
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-CAP staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
A003: A-SMA-2.5
Ancho Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, May 13, 2010,
Map #A003-10-0017-40-A2.5-R2

1000.4.5 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).

1000.4.6 Corrective Action Status

On April 6, 2010, the New Mexico Environment Department issued a Certificate of Completion without controls for Site 39-002(c) [NMED 2010].

The Sites associated with A-SMA-2.7 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.



1000.5 A-SMA-2.8

1000.5.1 Area Description

1000.5.2 Potential Pollutant Sources

1000.5.2.1 Historical Industrial Activity Areas

1000.5.3 Control Measures

1000.5.3.1 Control Measures for Historical Industrial Activity Areas

1000.5.4 Project Map

1000.5.5 Storm Water Monitoring Plan and Schedule

1000.5.6 Corrective Action Status



1000.5 A-SMA-2.8

1000.5.1 Area Description

A-SMA-2.8 is located in North Ancho Canyon. The northern and southern boundaries of this project area area are undeveloped. The primary drainage in North Fork Ancho canyon borders the east side of the SMA. A paved access road forms the western boundary of the 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 A005, A-SMA-2.8, Site 39-001(b).

SWMU 39-001(b) is a former disposal area that consisted of three trenches used to dispose of debris from firing site SWMU 39-008. The SWMU is part of Consolidated Unit 39-001(b)-00 that includes SWMU 39-008. Empty chemical containers, and office waste were reported as being disposed at this SWMU. Pit 1, originally known as Material Disposal Area Y, was constructed in the late 1960s. Pit 2 was originally constructed parallel and next to Pit 1 and was originally reported to have been used from 1976 to 1981, however, the width of this pit may have been enlarged and kept in service until 1986. Pit 3 was constructed directly south of the other two pits and was used from 1981 to 1989. All three pits were closed by May 1989.

1000.5.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
39-001(b)	Disposal pits (MDA Y)	Discrete Location, No overlap	Individual	•		•	

1000.5.3 Control Measures

There are no significant run-on sources to this SMA. Storm water run-on from adjacent paved areas are diverted by engineered controls away from the SMA.

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
A005 01 03 0003	Seed and Mulch Hydromulch			•	
A005 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
A005 03 01 0002	Berms Earthen		•		•

Hydromulch (A005-01-03-0003)

Hydromulch has been applied to the central portion of the SMA foot print in order to help control erosion in the area around the Sites. 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 (A005-02-01-0001)

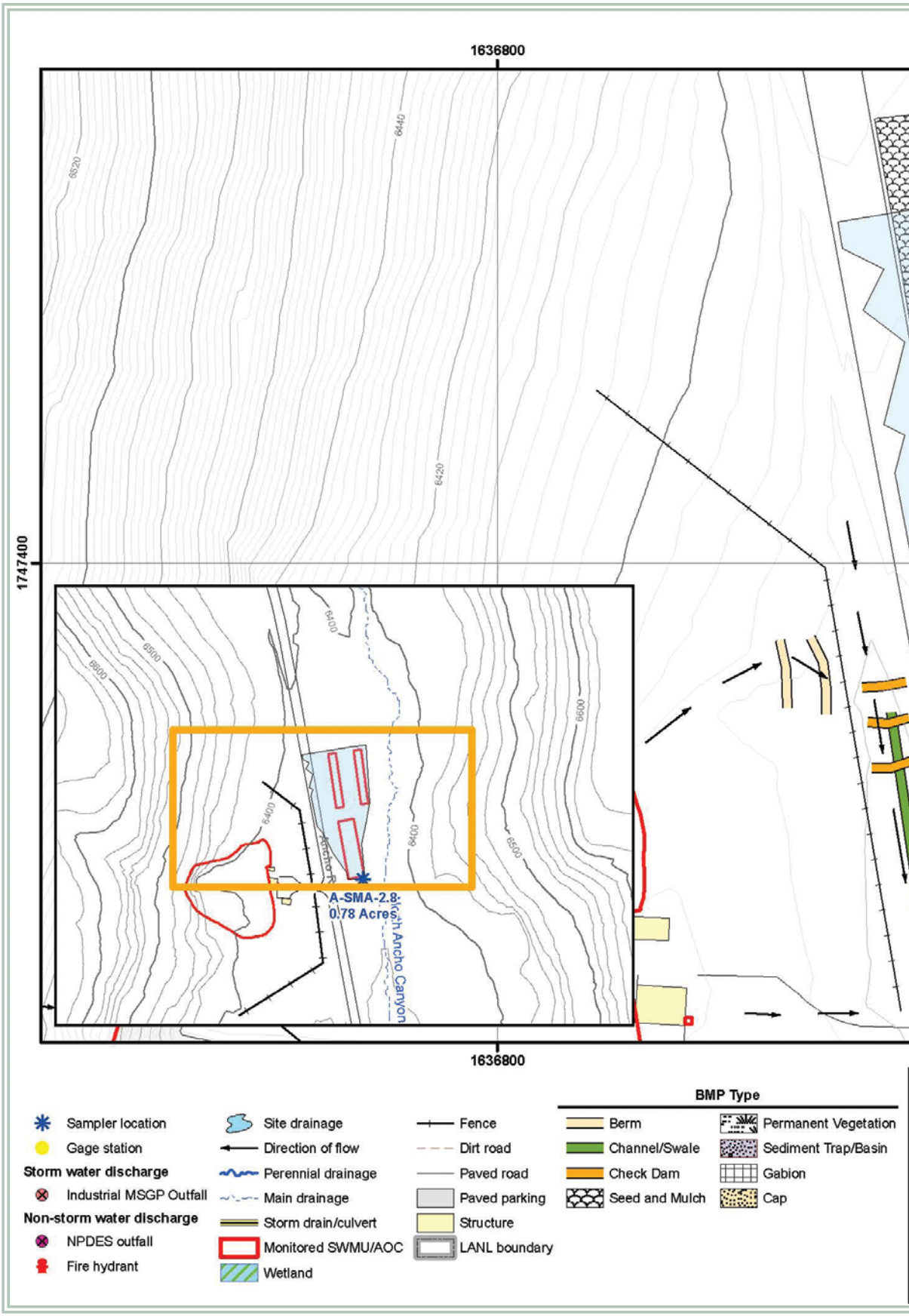
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and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

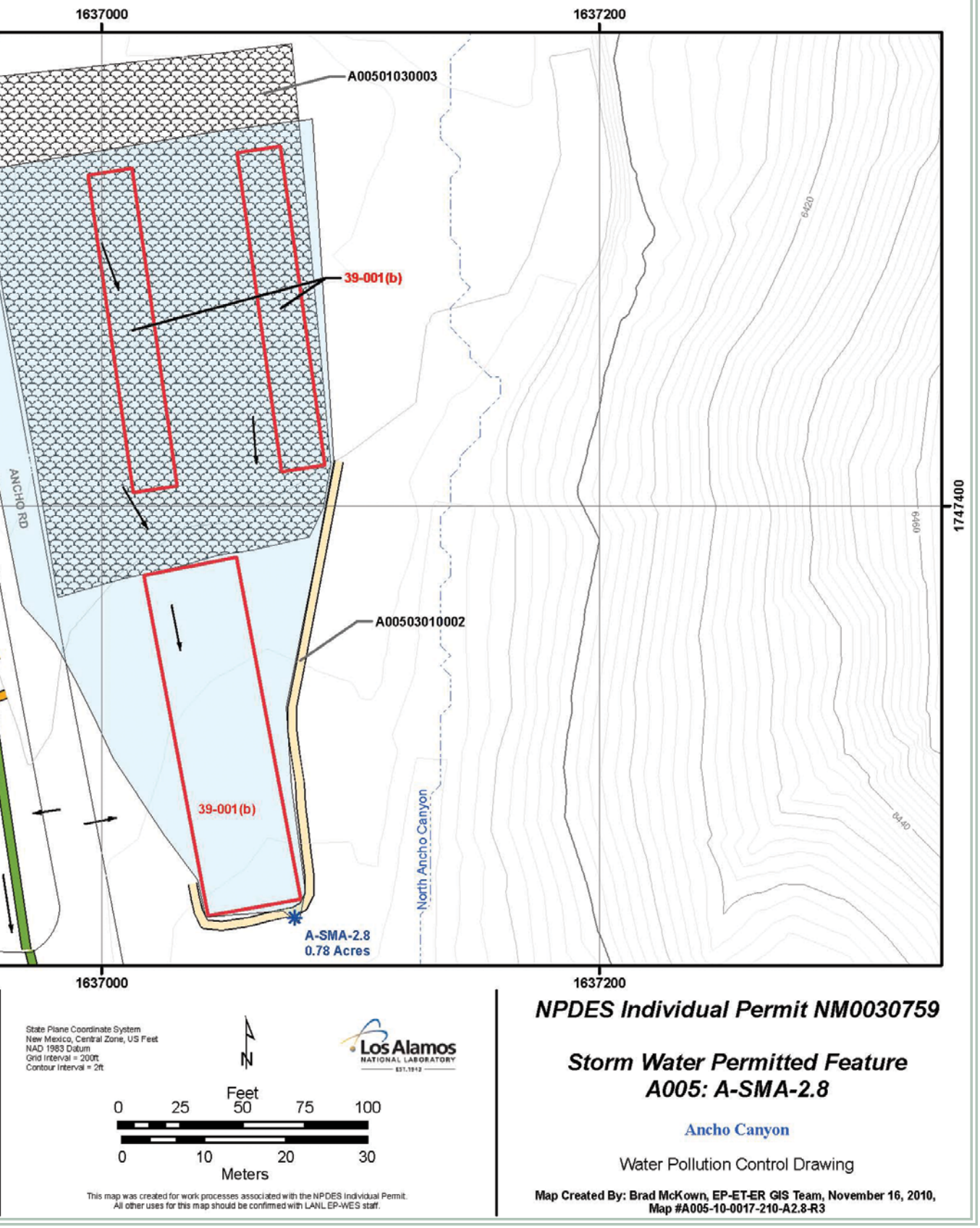
Earthen Berm (A005-03-01-0002)

This berm is located immediately north of the sampler across the main drainage channel and extends to the north following the channel path. It is in place to help manage storm water run-off 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.



1000.5.4 Project Map




1637000
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1747400
A00501030003
39-001(b)
A00503010002
39-001(b)
A-SMA-2.8
0.78 Acres
ANCHO RD
North Ancho Canyon
6420
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1637000
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State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
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Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
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
A005: A-SMA-2.8
Ancho Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, November 16, 2010,
Map #A005-10-0017-210-A2.8-R3

1000.5.5 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).

1000.5.6 Corrective Action Status

On April 6, 2010, the New Mexico Environment Department issued a Certificate of Completion without controls for Site 39-001(b) [NMED 2010].

The Site associated with A-SMA-2.8 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.



1000.6 A-SMA-3

1000.6.1 Area Description

1000.6.2 Potential Pollutant Sources

1000.6.2.1 Historical Industrial Activity Areas

1000.6.3 Control Measures

1000.6.3.1 Control Measures for Historical Industrial Activity Areas

1000.6.4 Project Map

1000.6.5 Storm Water Monitoring Plan and Schedule

1000.6.6 Corrective Action Status



1000.6 A-SMA-3

1000.6.1 Area Description

A-SMA-3 is located in the southernmost, western tributary of North Ancho Canyon. The northern and southern boundaries of the project area are steep slopes. The western boundary is moderately sloped and undeveloped. The eastern boundary is a paved access road.

1000.6.2 Potential Pollutant Sources

1000.6.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF A006, A-SMA-3, Sites 39-002(b) and 39-004(c).

AOC 39-002(b) is the location of a former SAA on a 5 Ã— 5 ft concrete pad next to a firing site support building (structure 39-0006) at a firing site [SWMU 39 004(c)]. AOC 39-002(b) was used for storage before it became an SAA. The date the storage area began operating as an SAA is not known, however, the SAA was removed from service in 1993.

SWMU 39-004(c) is a firing site (structure 39-0006) located in the southernmost western tributary of Ancho Canyon in the canyon bottom. The firing site began operations in 1953, and is used for explosives experiments.

1000.6.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
39-002(b)	Storage area	Discrete Location, No overlap	Shared	•	•	•	PCBs
39-004(c)	Firing site TA-39-6	Co-located, Overlapping	Shared	•	•	•	HE

Substantially Identical Determination

Site 39-004(c) was originally constructed in 1953. The Site is still active as a firing site and open detonation area. Site 39-002(b) is an active satellite waste accumulation area located on the northeastern side of the firing area. Nothing is currently stored in the area. Because of the proximity of the firing pad to the waste storage area, the nature of activities conducted in these areas, and the similar suspect contaminants at both sites, storm water runoff from these areas will produce substantially identical effluents.

1000.6.3 Control Measures

The primary source of run-on to this SMA is from overland flow originating in the natural areas around it. Any run-on primarily enters the Permitted Feature from the south, flowing generally north until it reaches a natural drainage channel, then flowing east.

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
A006 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
A006 03 01 0004	Berms - Earthen	•			•
A006 04 01 0006	Channel/Swale - Earthen		•	•	
A006 04 01 0007	Channel/Swale - Earthen		•	•	
A006 04 01 0008	Channel/Swale - Earthen		•	•	
A006 04 06 0002	Channel/Swale - Rip Rap	•		•	
A006 06 01 0003	Check Dam - Rock		•		•
A006 06 01 0009	Check Dam - Rock		•		•
A006 06 01 0010	Check Dam - Rock				•
A006 06 01 0011	Check Dam - Rock				•
A006 06 01 0012	Check Dam - Rock				•

Established Vegetation (A006-02-01-0001)

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 (A006-03-01-0004)

The berm is located west of the area structures. It is used to control run-on to the area 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.

Western Channel/Swale (A006-04-01-0006)

This swale is located west of the paved spur off of the main access road. It is used to direct run-off in 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.

Eastern Channel/Swale (A006-04-01-0007)

This channel is located in the bar ditch on the northern side of the paved access road. It diverts run-off and mitigates erosion in 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.

Central Channel/Swale (A006-04-01-0008)

This channel is located north of the rock check dam, diverting run-off and limiting erosion in the drainage. 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 (A006-04-06-0002)

This rip rap is located within the loop formed by the unpaved access road accessing building 39-0067. It is used to control run-on and prevent erosion of the slope. 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 (A006-06-01-0003)

The rock check dam is located near the northern terminus of the culvert outfall to control run-off from the culvert. 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.

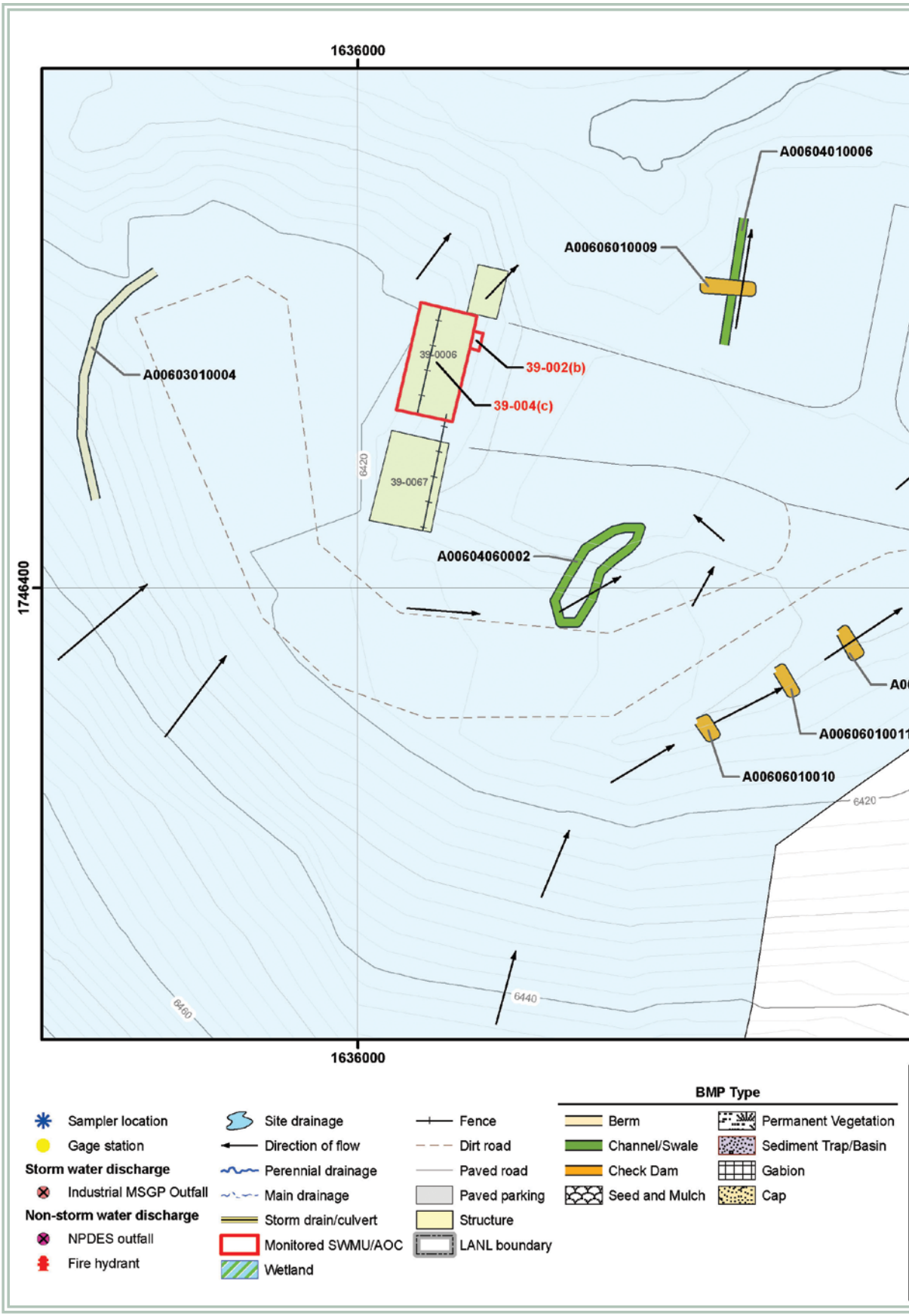
Rock Check Dam West (A006-06-01-0009)

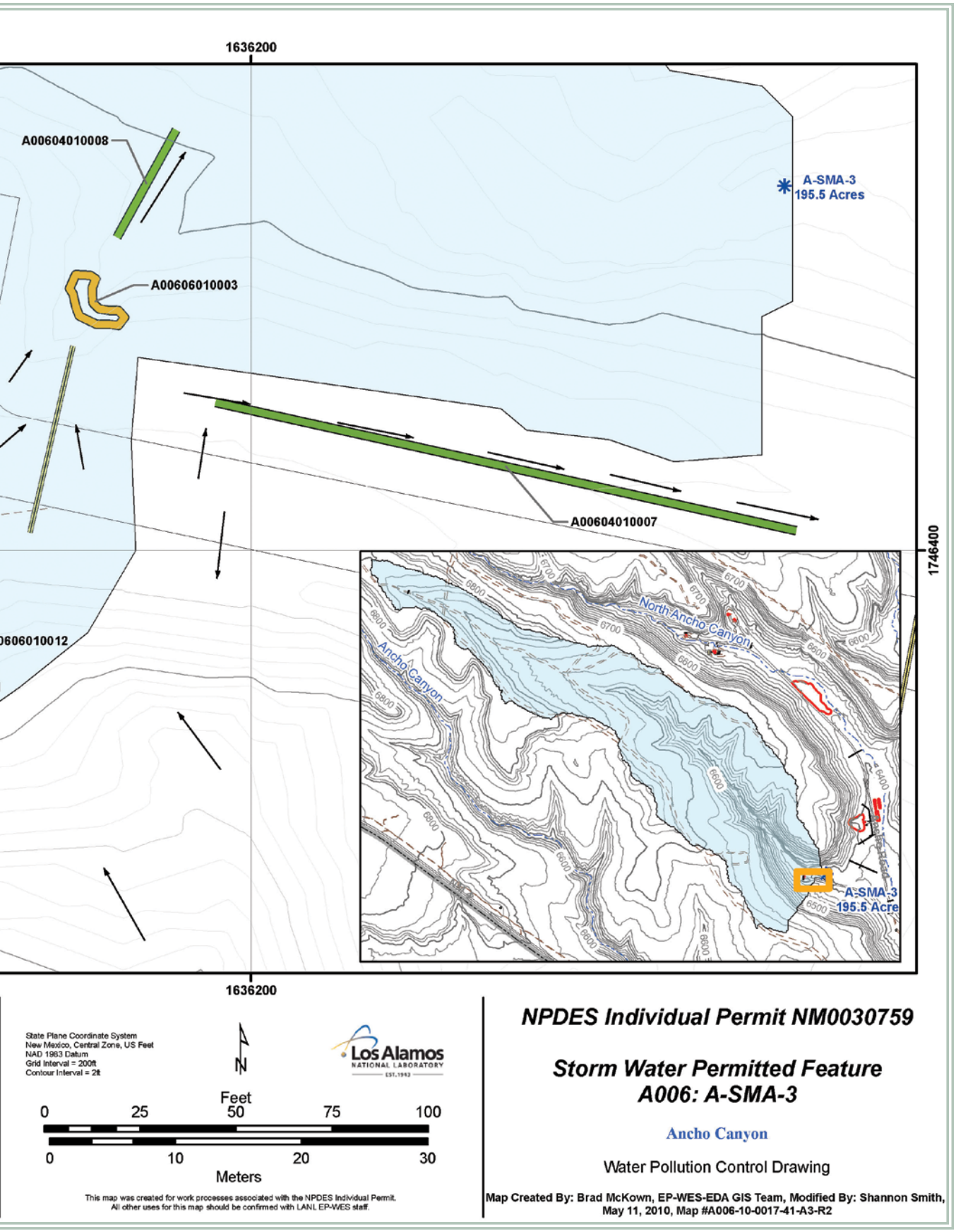
This rock check dam is located across the middle of the Western Channel/Swale. Its purpose is to control run-off and sediment loading. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags,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

Rock Check Dams (A006-06-01-0010, -0011, -0012)

This is a series of three rock check dams located in the natural drainage channel southeast of the southern unpaved access road. They are in place to reduce sediment loading within 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.

1000.6.4 Project Map




1636200
A00604010008
A-SMA-3
195.5 Acres
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A00604010007
1746400
0606010012
North Ancho Canyon
Ancho Canyon
A-SMA-3
195.5 Acre
1636200
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
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EST. 1943
Feet
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Meters
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
A006: A-SMA-3
Ancho Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-WES-EDA GIS Team, Modified By: Shannon Smith,
May 11, 2010, Map #A006-10-0017-41-A3-R2

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)	PCBs (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).

1000.6.6 Corrective Action Status

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



1000.7 A-SMA-3.5

1000.7.1 Area Description

1000.7.2 Potential Pollutant Sources

1000.7.2.1 Historical Industrial Activity Areas

1000.7.2.2 Urban Influences

1000.7.2.3 Public Influences

1000.7.3 Control Measures

1000.7.3.1 Control Measures for Historical Industrial Activity Areas

1000.7.3.2 Control Measures for Urban Influences

1000.7.3.3 Controls for Public Influences

1000.7.4 Project Map

1000.7.5 Storm Water Monitoring Plan and Schedule

1000.7.6 Corrective Action Status



1000.7 A-SMA-3.5

1000.7.1 Area Description

A-SMA-3.5 is located in the southern most portion of North Ancho canyon. The northern boundary of the project area is the administrative portion of TA-39. The eastern boundary is a locked and gated dirt access road. The western boundary is an ephemeral stream that runs through North Ancho canyon. The southern boundary is just below the confluence of tributaries between North and South Ancho canyon.

1000.7.2 Potential Pollutant Sources

1000.7.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF A007, A-SMA-3.5, Site 39-006(a).

SWMU 39-006(a) consists of a septic system that serves buildings 39-0002, 39-0062, 39-0098 39-0100, 39-103 and 39-107 and its inactive components that formerly served building 39-0002. The active components include a septic tank (structure 39-0104), sand filter and associated drainlines. The inactive components include a septic tank (structure 39-0012), sand filter, associated drainlines, chemical seepage pit and an outfall.

The original septic system was constructed in 1953 and received discharges from building 39-0002. This system included an 1800-gal. septic tank (structure 39-0012), drainlines, subsurface sand filter and an outfall. The septic tank is located 100-ft west of building 39-0002 (partially beneath building 39-0100) and was connected to the sand filter via a 260 ft VCP. The sand filter discharged to an outfall south of state road NM 4. In 1985, the original septic tank and sand filter was abandoned in place. The septic tank waste was removed, the tank filled with sand and the drainline routed through the septic tank. At the same time a 2,500-gal. concrete septic tank (structure 39-0104) and sand filter were installed. In 1989, the outlet from the new sand filter was plugged eliminating the discharge to the outfall.

Photographic processing chemicals from building 39-0102 were routinely discharged to the system at a rate of approximately 65 gal/yr, eventually causing the digestive function within the septic tank to malfunction. To correct the problem, a seepage pit was installed in 1973 to dispose of the photographic processing chemicals, and it handled approximately 75 gal/yr until 1992.

1000.7.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
39-006(a)	Septic system	Discrete Location, No overlap	Individual	•	•	•	PCBs

1000.7.2.2 Urban Influences

A portion of the historical industrial activity area is under and across NM State Highway 4.

1000.7.2.3 Public Influences

Pedestrian traffic on or around the SMA is estimated to be low. This is a remote area and the terrain is rough and sloped, which will discourage any casual hiking. Vehicular traffic is estimated to be moderate since this is one of three access roads for Bandelier National Monument, Jemez, and the Valle Grande. The northern boundary of the SMA is not accessible to the public. The outfall area is several hundred feet south of State Road 4. The eastern access road is locked and gated.

1000.7.3 Control Measures

There are no significant run-on sources to this SMA. The associated Site is an active septic system serving TA-39. The discharge area associated with this system is located in a remote and rugged area.

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
A007 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
A007 03 06 0002	Berms - Straw Wattles		•		•

Established Vegetation (A007-02-01-0001)

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 (A007-03-06-0002)

The straw wattle is located immediately north of the sampler. Its function is to control run-off and retain 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.

1000.7.3.2 Control Measures for Urban Influences

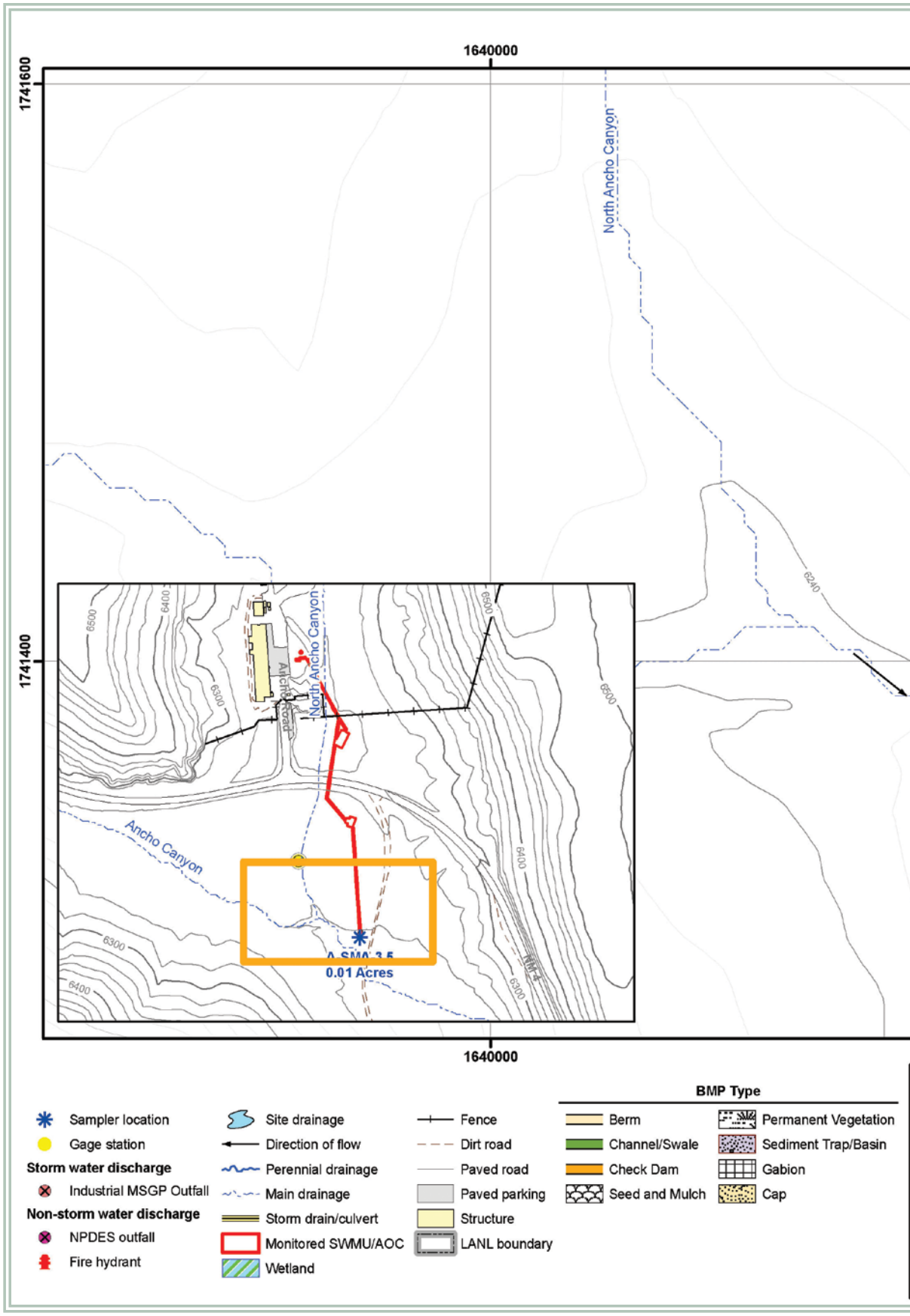
There are no control measures for Urban Influences at PF A007, A-SMA-3.5. Although the potential for urban influences at this SMA exists, no controls are necessary at this time.

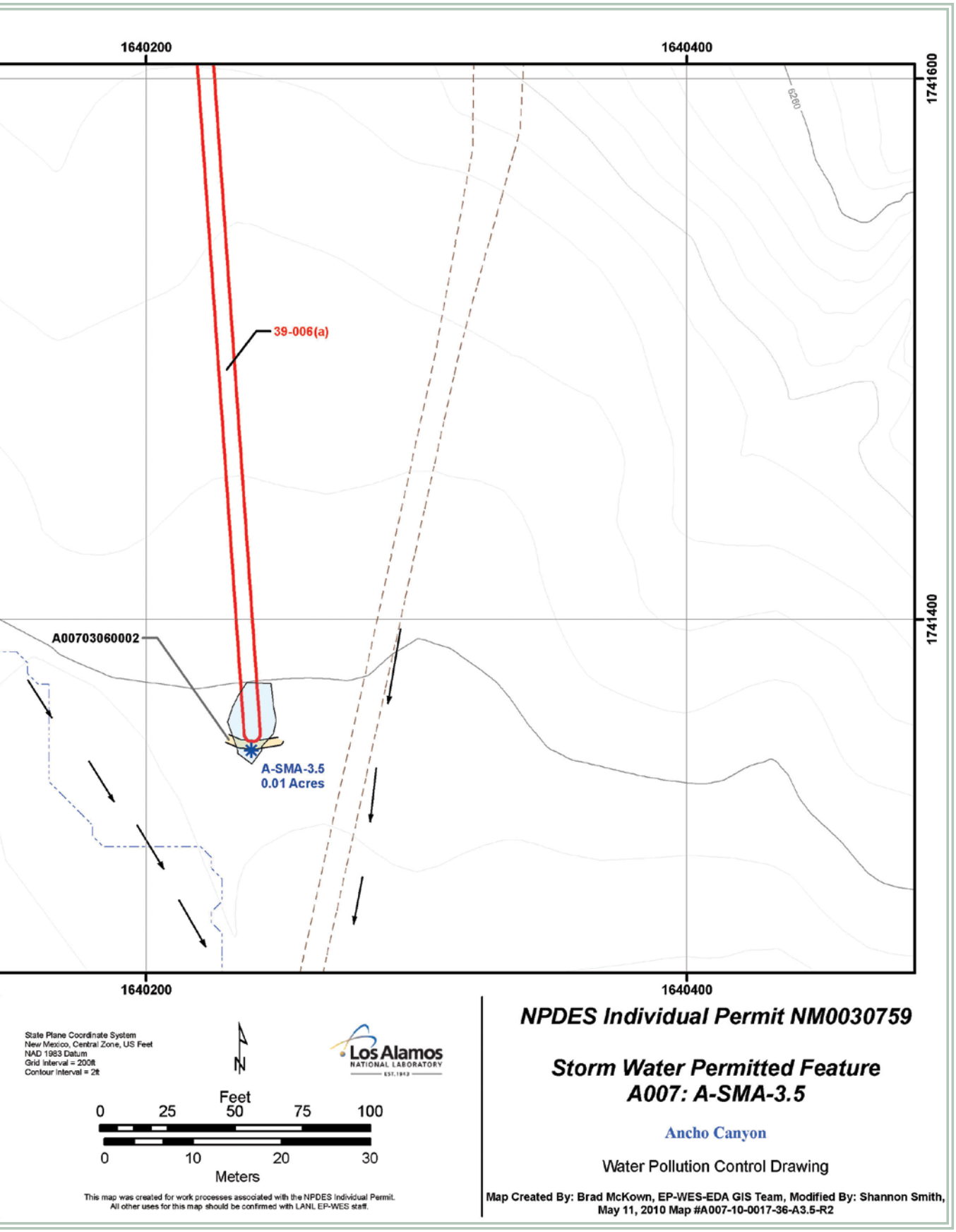
1000.7.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF A007, A-SMA-3.5. Although the potential for public influences at this SMA exists, no controls are necessary at this time.



1000.7.4 Project Map




1640200
1640400
1741600
1741400
6260
39-006(a)
A00703060002
A-SMA-3.5
0.01 Acres
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
EST. 1943
Feet
0 25 50 75 100
0 10 20 30
Meters
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
A007: A-SMA-3.5
Ancho Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-WES-EDA GIS Team, Modified By: Shannon Smith,
May 11, 2010 Map #A007-10-0017-36-A3.5-R2

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)	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).

1000.7.6 Corrective Action Status

The Site associated with A-SMA-3.5 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.



1000.8 A-SMA-4

1000.8.1 Area Description

1000.8.2 Potential Pollutant Sources

1000.8.2.1 Historical Industrial Activity Areas

1000.8.3 Control Measures

1000.8.3.1 Control Measures for Historical Industrial Activity Areas

1000.8.4 Project Map

1000.8.5 Storm Water Monitoring Plan and Schedule

1000.8.6 Corrective Action Status



1000.8 A-SMA-4

1000.8.1 Area Description

A-SMA-4 is located within TA-33 and access to the area is controlled. The northern boundary of the SMA is undeveloped and gently sloping. There is an unpaved road crossing this boundary. The southern boundary of the SMA is the developed portion of East Site. There are paved roads and structures along this boundary. The eastern boundary slopes away towards the receiving waters, north and east of the area. There is an unpaved road crossing this boundary. The western boundary is relatively flat and undeveloped. Storm water flows towards the receiving waters northeast of the SMA.

1000.8.2 Potential Pollutant Sources

1000.8.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF A008, A-SMA-4, Site 33-010(d).

SWMU 33-010(d) is a canyon-side disposal area on the edge of Ancho Canyon on the north side of East Site in TA-33. This disposal site is located just north of the gun-firing site soil berms at former SWMU 33-006(b) and northeast of MDA D. Wastes were deposited along the canyon rim and in a small drainage leading into Ancho Canyon. Wastes disposed of at this site are believed to have been operation and construction debris. Materials observed at the site include concrete blocks, part of the surface cable holder from an underground experiment chamber, empty glass specimen vials, pieces of foam, and metal cans. The period of operation for this disposal site is not known, but the experiment chambers at MDA D were used in 1948 and 1952 and gun-firing operations at East Site were conducted from 1955 through 1972. In a 1995 VCA at the site, a total of two cubic yards of nonhazardous, nonradioactive debris and 0.1 cubic feet of radioactive debris was removed.

1000.8.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
33-010(d)	Surface disposal site	Discrete Location, No overlap	Individual	•	•	•	HE

1000.8.3 Control Measures

Run-on enters this Permitted Feature from the paved access road as well as from the natural areas around the SMA. Planned controls are to address these run-on sources.

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
A008 01 06 0008	Seed and Mulch-Erosion Control Blankets			•	
A008 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
A008 03 01 0007	Berms - Earthen	•			
A008 03 06 0002	Berms - Straw Wattles	•			•
A008 04 05 0005	Channel/Swale - Water Bar	•			
A008 04 05 0006	Channel/Swale - Water Bar	•			
A008 06 01 0003	Check Dam - Rock	•			•
A008 06 01 0004	Check Dam - Rock		•		•

Erosion Control Blankets (A008 01 06 0008)

The Erosion Control Blankets were installed on the sides of the earthen berm to help 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.

Established Vegetation (A008-02-01-0001)

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 (A008-03-01-0007)

This berm is located along the northern edge of the unpaved access road. It is used to control run-on from the 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 Wattles (A008-03-06-0002)

The wattle is located on the eastern side of the unpaved access road in the central section of the SMA. It is in place to manage run-on from the road. 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 (A008-04-05-0005, -0006)

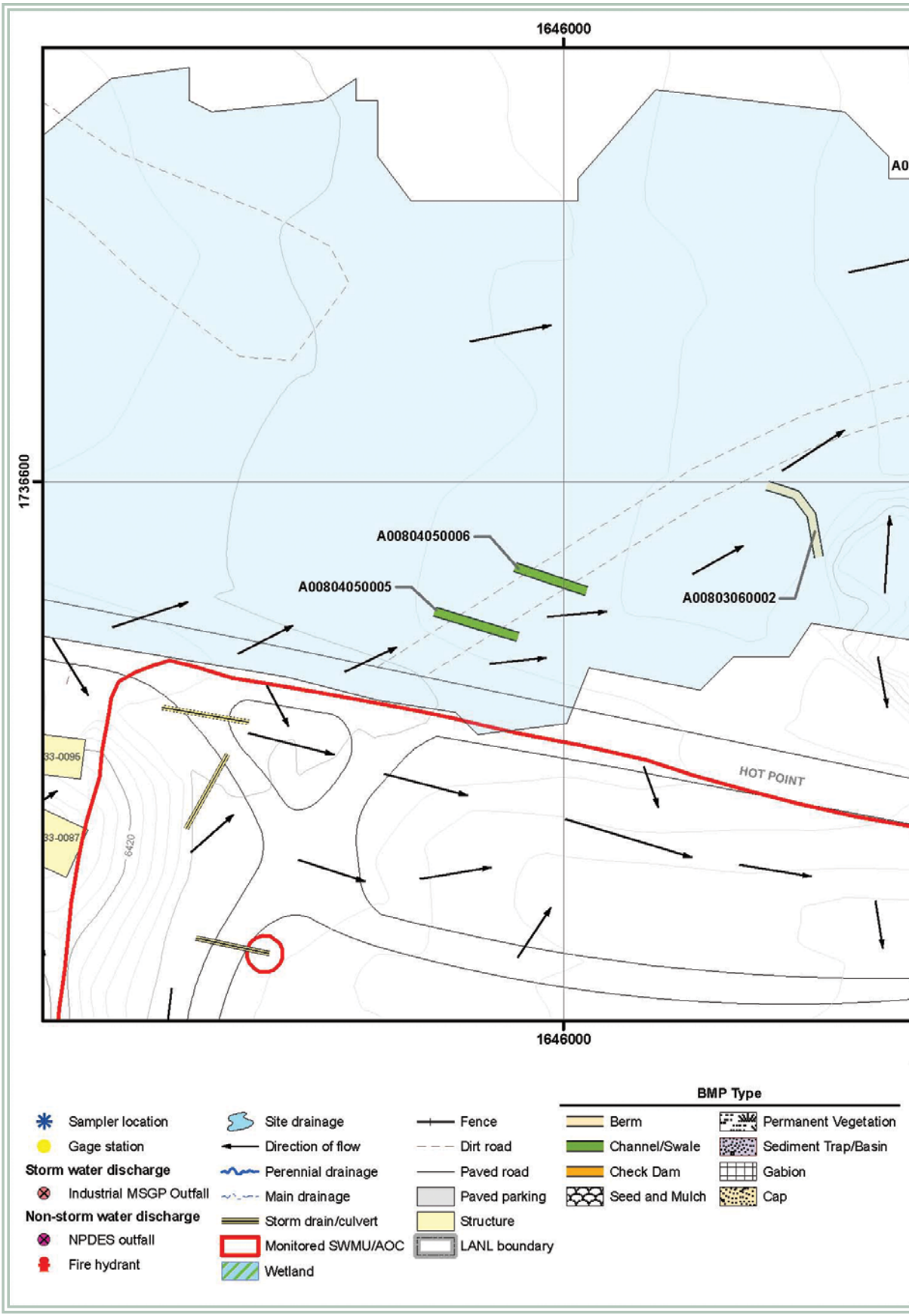
This is a series of two water bars installed across the unpaved access road in order to control run-on to the area. A diversion dam constructed across a road or trail to remove and disperse surface run-off in a manner that adequately protects the soil resource and limits sediment transportation.

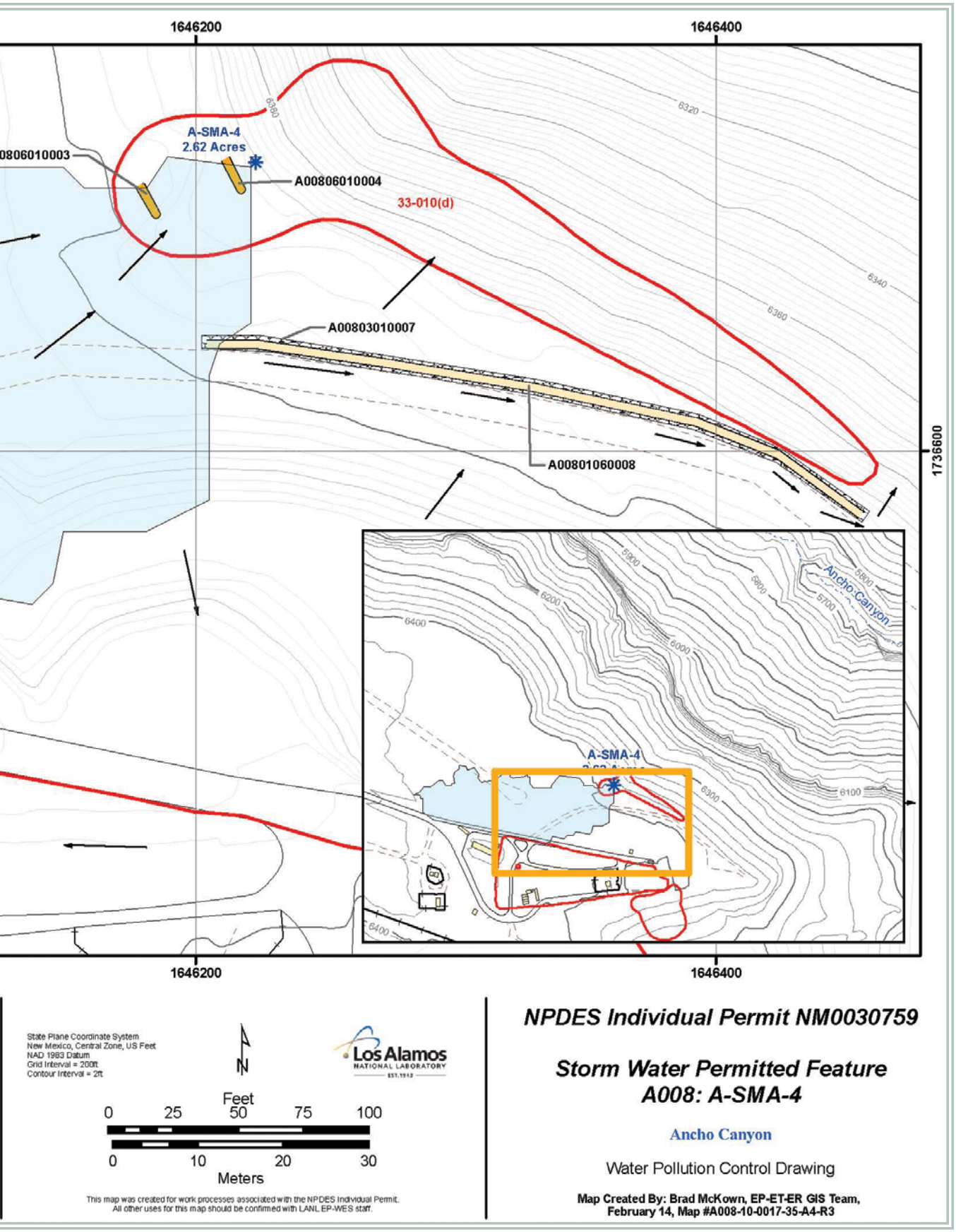
Rock Check Dams (A008-06-01-0003, -0004)

This a pair of check dams located west of the sampler that are used to control run-on to 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.



1000.8.4 Project Map




1646200
1646400
1736600
A-SMA-4
2.62 Acres
0806010003
A00806010004
33-010(d)
A00803010007
A00801060008
Ancho Canyon
6320
6340
6360
6380
6400
5900
6000
6100
6200
6300
5800
5700
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
EST. 1943
Feet
0 25 50 75 100
0 10 20 30
Meters
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
A008: A-SMA-4
Ancho Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team,
February 14, Map #A008-10-0017-35-A4-R3

1000.8.5 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).

1000.8.6 Corrective Action Status

The Site associated with A-SMA-4 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.



1000.9 A-SMA-6

1000.9.1 Area Description

1000.9.2 Potential Pollutant Sources

1000.9.2.1 Historical Industrial Activity Areas

1000.9.3 Control Measures

1000.9.3.1 Control Measures for Historical Industrial Activity Areas

1000.9.4 Project Map

1000.9.5 Storm Water Monitoring Plan and Schedule

1000.9.6 Corrective Action Status



1000.9 A-SMA-6

1000.9.1 Area Description

A-SMA-6 is located within TA-33 and access to the area is controlled. The northern boundary of the SMA borders access roads serving East Site. The southern boundary is steeply sloping towards the receiving waters. The eastern boundary is flat and crossed by paved access roads. The western boundary of the SMA is undeveloped and steeply sloping towards the southeast and the receiving waters.

1000.9.2 Potential Pollutant Sources

1000.9.2.1 Historical Industrial Activity Areas

There are three historical industrial activity areas associated with PF A009, A-SMA-6, Sites 33-004(k), 33-007(a) and 33-010(a).

SWMU 33-004(k) consists of a suspected outfall in the East Site area of TA-33. The RFI work plan identified SWMU 33-004(k) as an outfall associated with drains in a bunker (structure 33-87) that was constructed in 1955 to support firing experiments in East Site. According to an historical engineering drawing, a drain-line ran southeast from structure 33-87 to the outfall. This drain-line reportedly consisted of 54 feet of eight inch diameter cast iron pipe and 71 feet of eight inch diameter VCP. Structure 33-87 and part of the reported path of the drain-line are covered by a soil berm. Structure 33-87 was used to house electronic equipment and there is no recorded use of radioactive materials in this building. The RFI work plan indicated that photo processing may have occurred, however. The firing tests that structure 33-87 supported were conducted until the early 1970s. No previous environmental investigations have been conducted at this site.

The ER project conducted Phase I RFI activities at SWMU 33-004(k) in 1994, 1995, and 1996 to determine the presence or absence of contamination associated with this site. Initial RFI activities consisted of geophysical surveys to locate the drain-line and outfall. In 1994, magnetic and electromagnetic surveys were conducted at the location of the drain-line as indicated on the historical engineering drawing. These surveys did not indicate the presence of the pipe. In 1995, a ground-penetrating radar survey conducted in this area identified two anomalies at the southeast corner of structure 33-87. Eleven trenches were dug to bedrock around the locations of the anomalies and no evidence of a pipe or pipe trench was found. In 1996, the inside of structure 33-87 was inspected to identify the locations of the floor drains noted on the historical engineering drawing. No floor drains were identified in the building. A toilet and sink were present, but they are connected to a septic system north of the building [SWMU 33-004(c)]. In the Phase I RFI for this septic system [SWMU 33-004(c)] beryllium was the only chemical detected above SALs. Based on the results of the Phase I RFI activities for SWMU 33-004(k), the RFI report recommended NFA because the SWMU could not be located or may have never existed.

SWMU 33-007(a), the firing site at East Site, covers a large percentage of the developed area. The firing site is approximately 550 x 150 ft. East Site was developed as a firing area in the mid-1950s and was in use for a variety of experimental activities until W-2 left TA-33 in 1972. Prominent among the shots were projectiles shot from large cannons into catcher boxes, 10 x 10 ft on the face and 100 feet long, filled with vermiculite and sand. A small container of cobalt-60 was put in projectiles to aid in the recovery of the projectile form the catcher box. During one test in 1962, a uranium projectile apparently disintegrated in the gun barrel at the time of ignition. Only a few fragments were recovered; the cobalt-60 vial was never found. Other activities included experiments using scintillation fluids and x-rays. In 1984 East Site was subject to a major cleanup. All catcher box material

was put into a landfill created at East Site, SWMU 33-008(b). The East Site firing range has been inactive since 1972 except for occasional, short-term experiments. The main firing area at East Site lies south of the SWMU 33-006(b) double berm. Gun mounts TA-33-116 and TA-33-135 are located at the west end of the area. The mounts are concrete pads. TA-33-151, the X-ray flash building, is 330 feet east of the mounts; a 25 x 35 x 8 ft metal box filled with sand is adjacent to TA-33-151 on the west. A narrow asphalt road runs the length of the SWMU, as does an asphalt drainage ditch. The firing range is level and covered with chamisa. Aerial photos show a catcher box on a small berm adjacent to bunker TA-33-87. No trace of this or other catcher boxes remain after the 1984 cleanup.

SWMU 33-010(a) consists of a surface disposal area located at TA-33 on a cliff ledge at the edge of White Rock Canyon. Much of the debris disposed of at this site is associated with the initial clearing of East Site and includes dead tree trunks, rocks, and scraped earth. Other debris, such as metal scrap, timbers, and plastic foam, is associated with site operations. The period of operation for this disposal site is not reported, but firing-site operations at East Site were conducted from 1955 through 1972. Debris reportedly was scattered at the rim of the canyon and within 15 feet below the rim. In 1995, a VCA was implemented and a total of eight cubic yards of nonhazardous/ nonradioactive debris and 0.2 cubic yards radioactive debris were removed from the site.

1000.9.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
33-004(k)	Drainline and Outfall Associated with Structure 33-87	Co-located, Overlapping	Shared	•		•	
33-007(a)	Firing site	Co-located, Overlapping	Shared	•	•	•	HE
33-010(a)	Surface disposal site	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

The Sites grouped within this permitted feature discharged to a common drainage during their operational history. All of the Sites were associated with the development and testing of weapons components. Because Sites grouped within this SMA share a common drainage and have similar contaminants, they will discharge substantially identical effluent.

1000.9.3 Control Measures

A system of culverts and rip rap outlet protection control run-on to this Permitted Feature. The primary source of run-on is from overland flow from the natural areas around the SMA, with some contribution from the paved access roads in the vicinity.

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
A009 01 06 0022	Seed and Mulch - Erosion Control Blankets			•	
A009 02 01 0006	Established Vegetation - Grasses and Shrubs			•	
A009 03 01 0021	Berms - Earthen		•		•
A009 03 06 0001	Berms - Straw Wattles	•			•
A009 04 02 0007	Channel/Swale - Concrete/Asphalt		•	•	
A009 04 06 0005	Channel/Swale - Rip Rap		•	•	
A009 06 01 0008	Check Dam - Rock		•		•
A009 06 01 0009	Check Dam - Rock		•		•
A009 06 01 0010	Check Dam - Rock		•		•
A009 06 01 0011	Check Dam - Rock		•		•
A009 06 01 0012	Check Dam - Rock		•		•
A009 06 01 0013	Check Dam - Rock	•			•
A009 06 01 0014	Check Dam - Rock		•		•
A009 06 01 0015	Check Dam - Rock		•		•
A009 06 01 0016	Check Dam - Rock		•		•
A009 06 01 0017	Check Dam - Rock		•		•
A009 06 01 0018	Check Dam - Rock		•		•
A009 06 01 0019	Check Dam - Rock		•		•
A009 06 01 0020	Check Dam - Rock		•		•

Erosion Control Blankets (A009-01-06-0022)

This erosion control blanket was installed on the earthen berm in order to help control 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 (A009-02-01-0006)

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 piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm (A009-03-01-0021)

The berm is located in the eastern portion of the SMA at the end of the unpaved access road. This berm is used to manage run-off as it flows into the drainage channel. 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 (A009-03-06-0001)

These wattles are located east of the turn around loop and are in place 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.

Central Channel/Swale (A009-04-02-0007)

This channel is associated with the rip rap located at the top of the drainage channel on the southern side of the access road loop. It is in place to aid in run-off control and prevent erosion at the mesa edge. 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 (A009-04-06-0005)

This rip rap is located at the top of the drainage channel on the southern side of the access road loop. It is in place to control run-off from the area and prevent erosion at the mesa edge. 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.

Western Check Dams (A009-06-01-0008, -0009, -0010)

This is a series of three rock check dams located west of the rip rap off the southern access loop. The check dams are in place to mitigate run-off from the paved areas 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 Group 1 (A009-06-01-0011, -0012)

This is a group of two rock check

dams located east of the rip rap off the southern loop of the access road. They are in place to restrict run-off from the mesa into the canyon. 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 - West (A009-06-01-0013, -0014, -0015)

This is a group of three of rock check dams located on each side of the western 'T' in the paved access road. They are used to mitigate run-on and run-off from the paved roads and other paved areas 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.

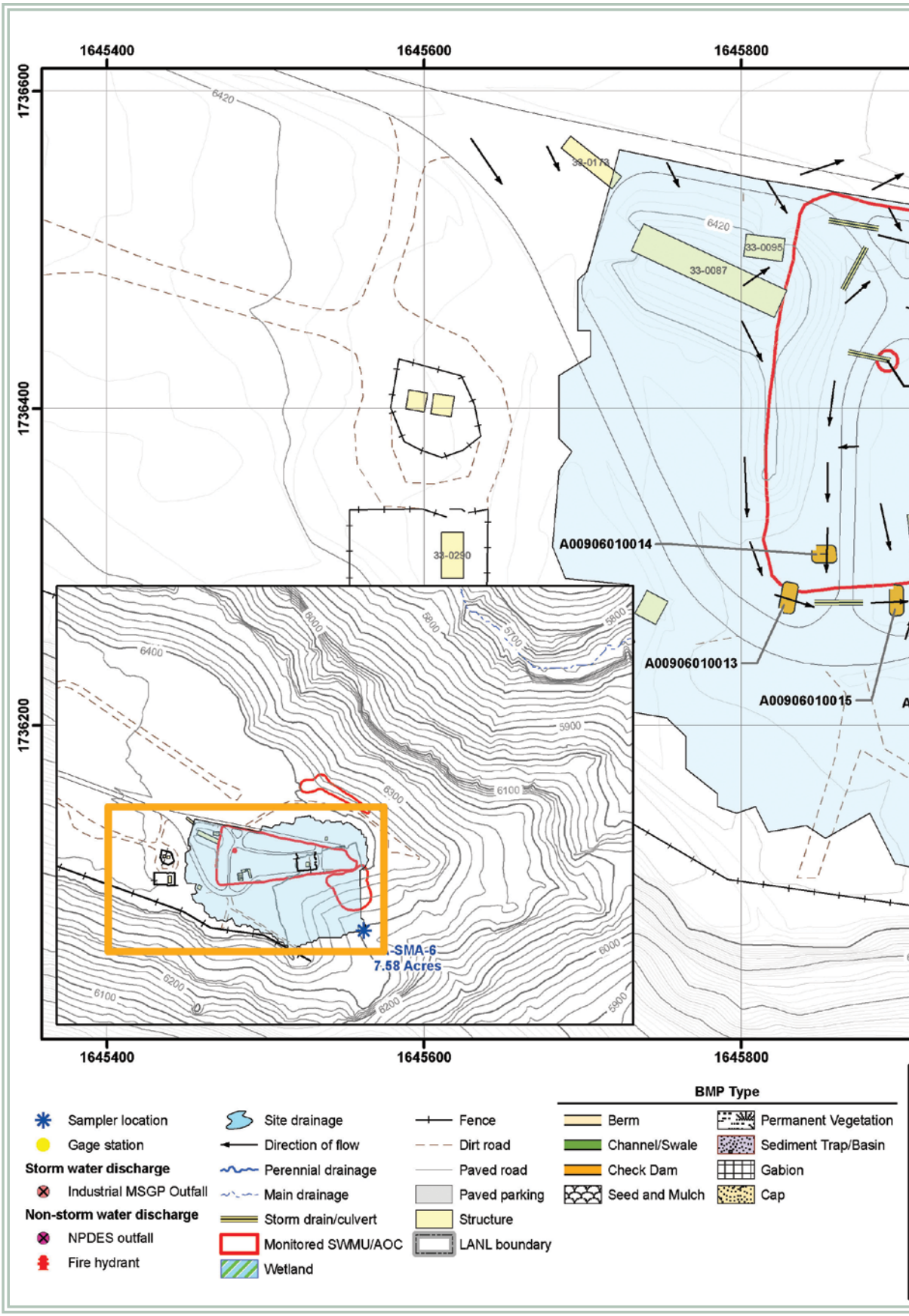
Rock Check Dams Group 2 (A009-06-01-0016, -0017, -0018)

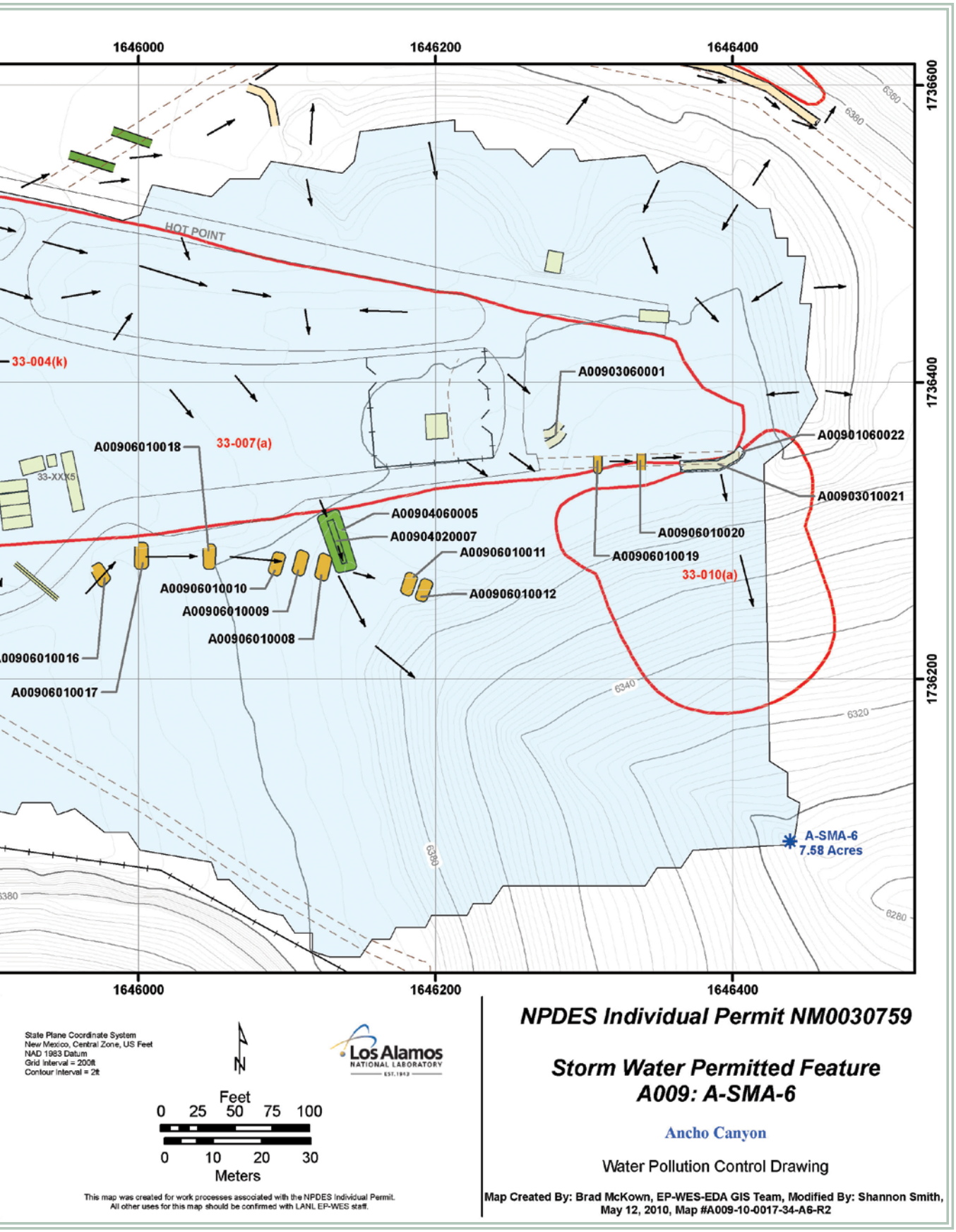
This is a group of three rock check dams located in the drainage channel on the south side of the paved access road south of structure 33-0005. They are in place to manage storm water run-off from the paved areas as it flows through the roadside drainage. Check dams reduce scour and channel erosion by 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 - East (A009-06-01-0019, -0020)

This is a pair of rock check dams that have been installed at the eastern end of the mesa, across an unpaved access road. They are functioning as run-off controls, restricting storm water flow and reducing sediment loading as the flow approaches the canyon edge. 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.

1000.9.4 Project Map




1646000
1646200
1646400
1736600
1736400
1736200
HOT POINT
33-004(k)
33-007(a)
33-010(a)
33-XXX5
A00903060001
A00901060022
A00903010021
A00906010018
A00904060005
A00904020007
A00906010011
A00906010020
A00906010019
A00906010010
A00906010009
A00906010008
A00906010012
A00906010016
A00906010017
6360
6380
6340
6320
6300
6280
A-SMA-6
7.58 Acres
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
EST. 1943
Feet
0 25 50 75 100
0 10 20 30
Meters
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
A009: A-SMA-6
Ancho Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-WES-EDA GIS Team, Modified By: Shannon Smith,
May 12, 2010, Map #A009-10-0017-34-A6-R2

1000.9.5 Storm Water Monitoring Plan and Schedule

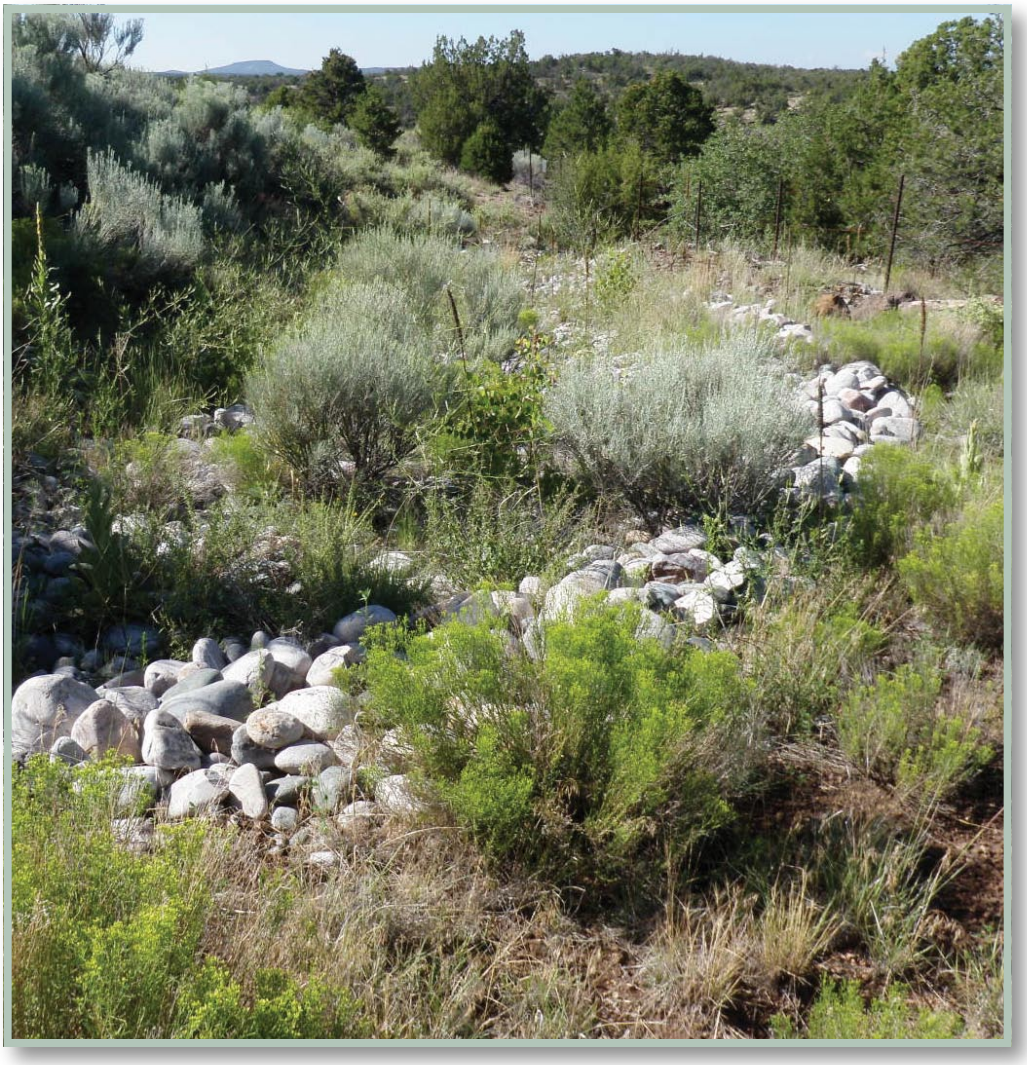
Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

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

1000.9.6 Corrective Action Status

The Sites associated with A-SMA-6 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.



1000.10 CHQ-SMA-0.5

1000.10.1 Area Description

1000.10.2 Potential Pollutant Sources

1000.10.2.1 Historical Industrial Activity Areas

1000.10.3 Control Measures

1000.10.3.1 Control Measures for Historical Industrial Activity Areas

1000.10.4 Project Map

1000.10.5 Storm Water Monitoring Plan and Schedule

1000.10.6 Corrective Action Status



1000.10 CHQ-SMA-0.5

1000.10.1 Area Description

CHQ-SMA-0.5 is located on a mesa top in a mostly undeveloped portion of western TA-33. Access to the area is controlled. The mesa top portion is flat and run-off flows northwest to a tributary of Chaquehui Canyon. The western boundary is undeveloped and sparsely vegetated. The eastern boundary is mostly undeveloped except for a small impervious area. A paved access road to this area also influences run-on to the area.

1000.10.2 Potential Pollutant Sources

1000.10.2.1 Historical Industrial Activity Areas

There are three historical industrial activity areas associated with PF Q001, CHQ-SMA-0.5, Sites 33-004(g), 33-007(c) and 33-009.

SWMU 33-004(g) is an outfall and associated drainline that discharged wastewater from building 33-0016. The outfall is located at the end of a VCP that runs west approximately 50 ft from the northwest corner of building 33-0016. The pipe daylights at the edge of a level area above a drainage channel that leads to a tributary of Chaquehui Canyon. The ground surface below the outfall slopes steeply down to the tributary channel, which is approximately 70 ft lower than the outfall. A culvert under a roadway, approximately 60 ft southwest of the outfall, receives runoff from most of the paved portion of Area 6. Building 33-0016 was constructed in 1949 as a gun building for initiator tests. It housed a gas gun that was used to fire projectiles as well as electronic equipment used to measure neutron production. Large-bore (2-in. to 5-in.-diameter) guns were also mounted on concrete pads around building 33-0016 and used to fire projectiles containing initiator test assemblies. These activities continued until 1955. Photographs may have been developed in building 33-0016 or in a small trailer parked next to the drainage from the site. In 1956, building 33-0016 was used to make and machine laminating materials that contained barium, lead, titanium, and zinc. Toxic fumes were reportedly released from a fume hood in the building used to cure epoxy resins. Building 33-0016 later was used as a library and storage building and has been empty since 1991. A study of drains and discharges at TA-33 was conducted to identify all sources of discharges from TA-33 buildings. This study identified no discharges from building 33-0016. Thus, the source of the discharge from the SWMU 33-004(g) outfall is not known.

A long-time TA-33 staff member reported that the drainline from building 33-0016 also served two trailers that were parked on the pad north of the building when Area 6 was occupied. One trailer was used for assembly and the other contained a darkroom.

SWMU 33-007(c) consists of abandoned firing sites associated with the initiator tests conducted at Area 6. The firing sites included firing pads and two catcher boxes. One pad was located immediately west of building 33-0016. The catcher boxes were located approximately 20 ft south of building 33-0016 and were approximately 6 ft x 6 ft, constructed of timber, and filled with soil, wood chips, and vermiculite. Guns (2-in. to 5-in. bore) were placed on the concrete pads and used to fire projectiles containing test assemblies into targets placed in front of the catcher boxes. Materials used in the projectiles included beryllium, polonium-210, uranium, copper, lead, tungsten, and stainless steel. The projectiles frequently cracked open, contaminating the pads and surrounding area with polonium-210. Contaminated areas on the guns and pads were painted with lead-based paint to fix surface contamination.

Several other firing pads were on a level area excavated into a basaltic cinder cone southwest of building 33-0016. This area was used to test nuclear gun mock-ups. A 4-in. to 5-in. bore gun was used to fire projectiles into the back of the excavation. The back of the excavation currently extends about 75 ft farther back than when the site was used.

A 1951 memorandum describes a test at Area 6 that resulted in leakage of radioactive material from a projectile. The site was cleaned up by using a bulldozer to scrap away the contaminated soil and embankment. A 1954 memorandum describes decontamination of one of the Area 6 gun barrels. The memorandum describes removing loose material and leaving impregnated spots as high as 1 million counts per minute. Contaminated surface dirt was bulldozed from the shot area into the adjacent canyon.

SWMU 33-009 is a former surface disposal area located in Area 6, west of the TA-33 Main Site. The disposal site includes an area approximately 100 ft long x 75 ft wide that has been leveled into the side of a natural basaltic cinder cone as well as an area that extends approximately 80 ft down the slope of the cinder cone. The slope continues below the disposal site until it reaches a tributary of Chaquehui Canyon. The debris within this surface disposal area is believed to be associated with the activities at a nearby gun-firing site [SWMU 33-007(c)]. This gun-firing site operated from 1949 until 1955. When the firing area became contaminated as a result of firing activities, contaminated soil and debris was bulldozed over the edge of the canyon. SWMU 33-009 also received various debris from general operations at TA-33, including metal wastes, light bulbs, tires, and drums. In 1960, the site received uranium turnings from the building 33-0113 machine shop. In addition, from 1967 until 1972, the site served as a storage and disposal site for defective electrical capacitors from the Sherwood Project. These capacitors had an average weight of 300 lb and were about 4 to 6 cu ft in volume. Disposal of the capacitors at this site ceased in 1972, at which time defective capacitors were sent to Area L at TA-54 for disposal.

In December 1974, the site was partially cleaned up as part of general cleanup activities conducted at TA-33. Several truck loads of material were taken to MDA G for disposal. Material removed from the site included DU pieces, electrical capacitors, metal turnings, old tires, and fluorescent light tubes. A radiation survey was performed after the cleanup. The area was surveyed at intervals of about 10 ft across the slope and 16 ft up and down the slope. Radiation above background was not detected. Not all material was removed in 1974. Broken glass and chunks of metal were still present when the RFI was conducted in 1993. An empty capacitor containing small amounts of PCB-contaminated oil was also discovered partially buried on the site in 1994 and was removed.

1000.10.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
33-004(g)	Drainline and outfall associated with Building 33-16	Co-located, Overlapping	Shared	•		•	
33-007(c)	Firing Sites	Co-located, Overlapping	Shared	•	•	•	HE
33-009	Surface disposal site	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

Sites grouped within this SMA are associated with historical activities at Area 6 in TA-33. The Sites share a common drainage, have similar contaminants, and will discharge substantially identical effluent.

1000.10.3 Control Measures

Potential run-on from the paved access road, conveyed by the channel north of the road impacts the SMA. Channelized overland flow may also impact the northwest corner of the area. Planned controls are to address these potential run-on sources.

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
Q001 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
Q001 03 02 0002	Berms - Base Course		•		•
Q001 04 05 0006	Channel/Swale - Water Bar	•			•
Q001 04 05 0007	Channel/Swale - Water Bar	•			•
Q001 06 01 0003	Check Dam - Rock	•			•
Q001 06 01 0004	Check Dam - Rock	•			•
Q001 06 01 0005	Check Dam - Rock	•			•

Established Vegetation (Q001-02-01-0001)

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.

Base Course Berm (Q001-03-02-0002)

This berm is located near the western most portion of the fence. It is used to control storm water flow in 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.

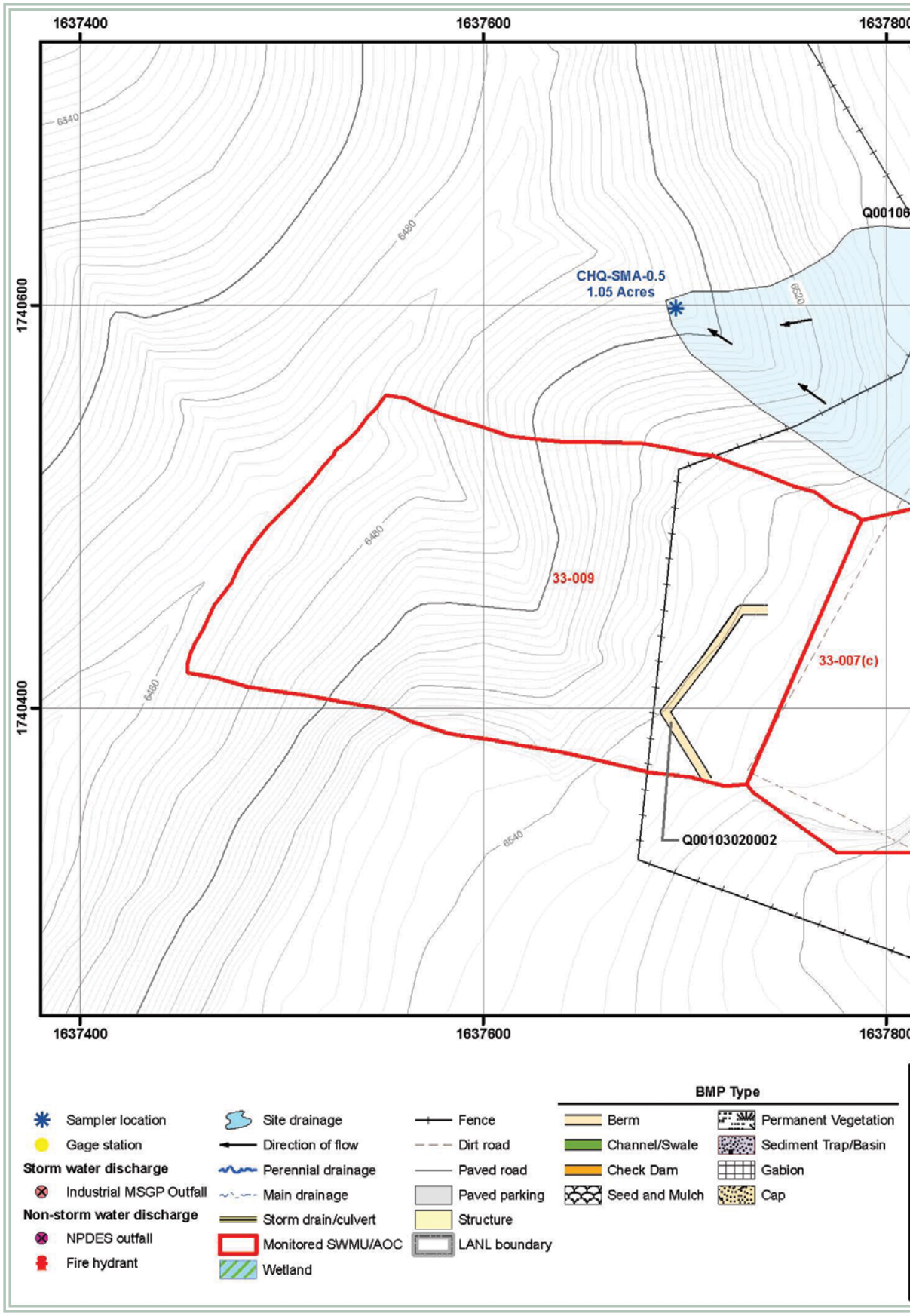
Water Bars (Q001-04-05-0006, -0007)

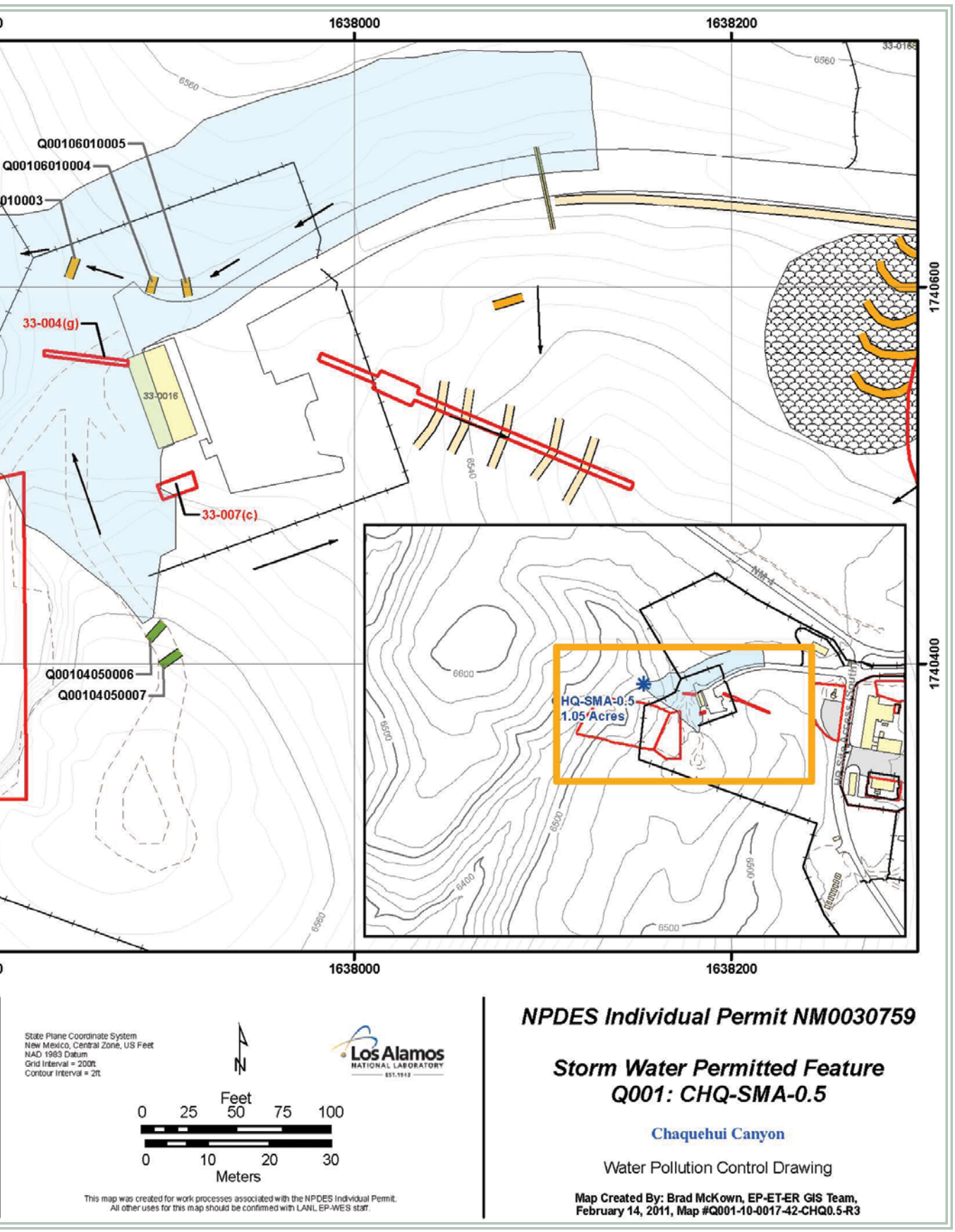
This is a series of two water bars located across the unpaved loop access road south of building 33-0016. They are used to control run-on from the slope above. A diversion dam constructed across a road or trail to remove and disperse surface run-off in a manner that adequately protects the soil resource and limits sediment transportation.

Rock Check Dams (Q001-06-01-0003, -0004, -0005)

This is a series of three rock check dams located in the channel north of the paved access road. They were installed to regulate run-on and handle sediment loading. 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




1638000
1638200
1740600
1740400
Q00106010005
Q00106010004
33-004(g)
33-0016
33-007(c)
Q00104050006
Q00104050007
HQ-SMA-0.5
1.05 Acres
NM-4
6560
6540
6600
6500
6400
6300
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
EST. 1943
Feet
0 25 50 75 100
0 10 20 30
Meters
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
Q001: CHQ-SMA-0.5
Chaquehui Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team,
February 14, 2011, Map #Q001-10-0017-42-CHQ0.5-R3

1000.10.5 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) 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).

1000.10.6 Corrective Action Status

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



1000.11 CHQ-SMA-1.01

1000.11.1 Area Description

1000.11.2 Potential Pollutant Sources

1000.11.2.1 Historical Industrial Activity Areas

1000.11.3 Control Measures

1000.11.3.1 Control Measures for Historical Industrial Activity Areas

1000.11.4 Project Map

1000.11.5 Storm Water Monitoring Plan and Schedule

1000.11.6 Corrective Action Status



1000.11 CHQ-SMA-1.01

1000.11.1 Area Description

CHQ-SMA-1.01 is located in the developed portion of TA-33 and access to the area is controlled. The area is on a relatively flat mesa top and run-off occurs through natural channels to a gradual slope to the southeast. Storm water run-off continues on a relatively gently sloped mesa top and canyon bench before reaching Chaquehui Canyon to the southeast. Storm water run-off is influenced by run-on from paved paved areas west of the SMA. The southern and the eastern boundaries are undeveloped. An unpaved access roads crosses the site in a north to south orientation.

1000.11.2 Potential Pollutant Sources

1000.11.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF Q002, CHQ-SMA-1.01, Site 33-002(d).

SWMU 33-002(d) is a former outfall that discharged noncontact cooling water from former building 33-0086. This outfall was created when the SWMU 33-002(c) seepage pit was deactivated and disconnected from the building 33-0086 drainline. At that time, the drainline to the seepage pit was extended 90 ft to the east to create an outfall for the discharge of noncontact cooling water. The outfall operated under the Laboratory`s National Pollution Discharge Elimination System (NPDES) permit until July 11, 1995, when it was removed from the permit. Tritium and metals were the potential contaminants in the noncontact cooling water. The drainline that discharged to this outfall was removed in 2005.

1000.11.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
33-002(d)	Drainline and outfall from former Building 33-86 (MDA K)	Co-located, Overlapping	Individual	•	•	•	PCBs

1000.11.3 Control Measures

Run-on contributions to the SMA are a result of the paved roads north and west of the SMA, paved parking access, multiple roofs, and the unpaved access road that intersects the SMA. Planned controls are to divert portions of run-on to the area and to better control run-off.

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
Q002 01 02 0001	Seed and Mulch - Seed and Gravel	•		•	
Q002 02 01 0002	Established Vegetation - Grasses and Shrubs			•	
Q002 03 02 0007	Berms - Base Course	•			•
Q002 03 06 0003	Berms - Straw Wattles		•		•
Q002 03 06 0005	Berms - Straw Wattles		•		•

Seed and Gravel Mulch (Q002-01-02-0001)

This gravel mulch is located across the western half of the SMA footprint. It is used to help control run-on and prevent erosion of the slope. 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 (Q002-02-01-0002)

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.

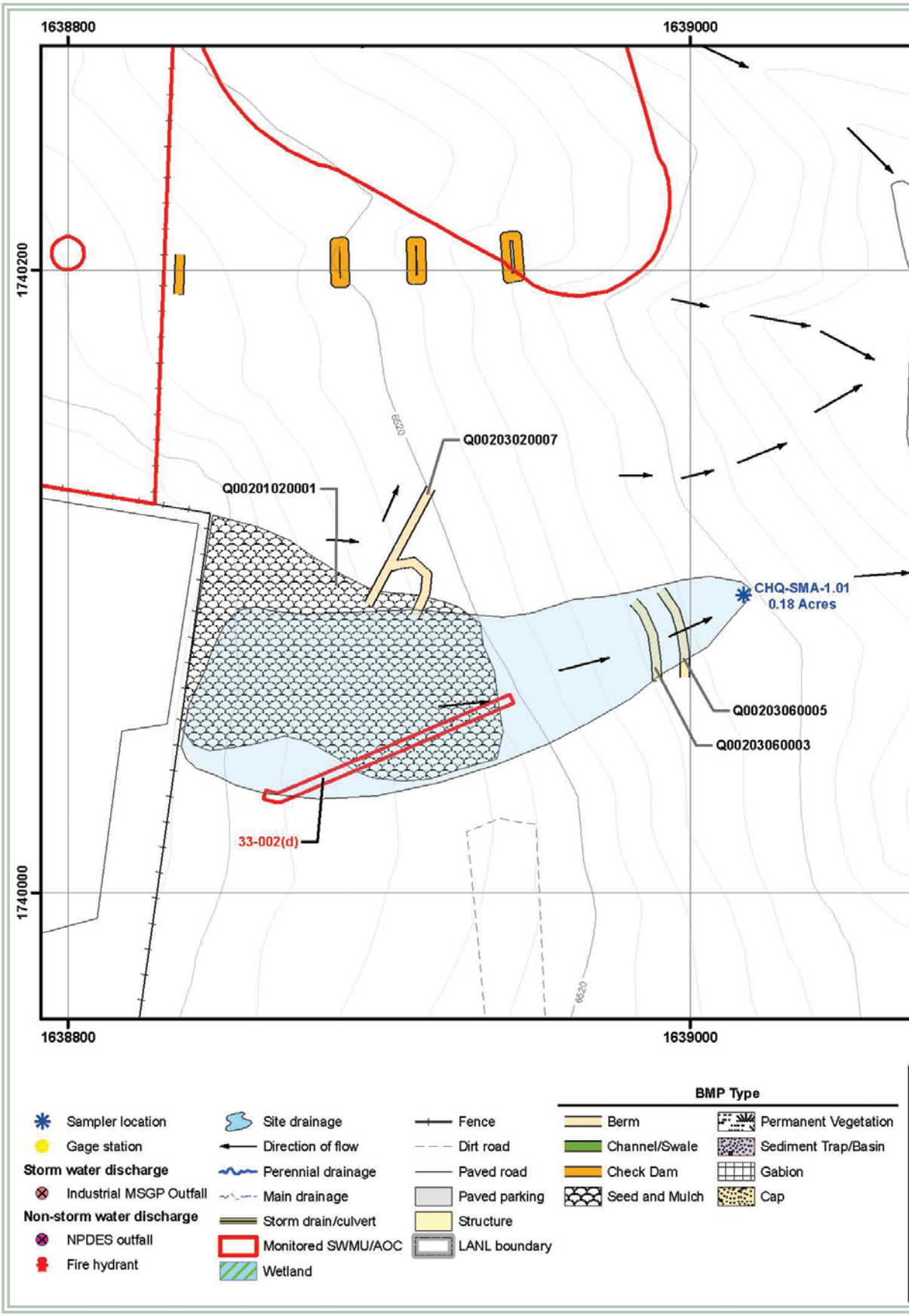
Base Course Berm (Q002-03-02-0007)

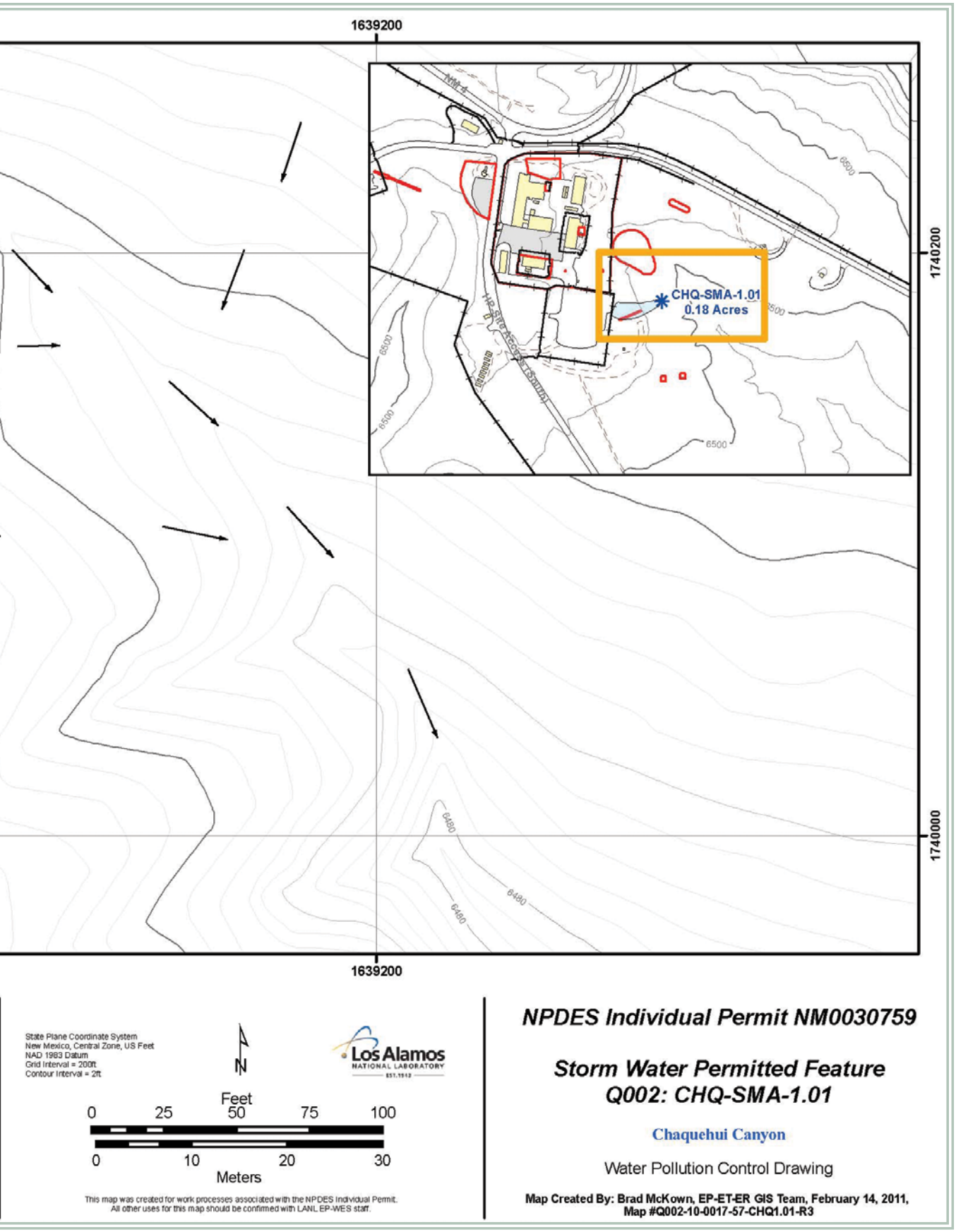
The base course berm is located west of the sampler`s location. It is used to manage storm water run-on from the slope above. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattles (Q002-03-06-0003, -0005)

This is a pair of wattles that have been installed to the west of the sampler. They are in place to mitigate run-off flow 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.

1000.11.4 Project Map




1639200
1740200
1740000
1639200
CHQ-SMA-1.01
0.18 Acres
6500
6480
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
EST. 1943
Feet
0 25 50 75 100
0 10 20 30
Meters
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
Q002: CHQ-SMA-1.01
Chaquehui Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, February 14, 2011,
Map #Q002-10-0017-57-CHQ1.01-R3

1000.11.5 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).

1000.11.6 Corrective Action Status

The Site associated with CHQ-SMA-1.01 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.



1000.12 CHQ-SMA-1.02

1000.12.1 Area Description

1000.12.2 Potential Pollutant Sources

1000.12.2.1 Historical Industrial Activity Areas

1000.12.3 Control Measures

1000.12.3.1 Control Measures for Historical Industrial Activity Areas

1000.12.4 Project Map

1000.12.5 Storm Water Monitoring Plan and Schedule

1000.12.6 Corrective Action Status



1000.12 CHQ-SMA-1.02

1000.12.1 Area Description

CHQ-SMA-1.02 is located in the developed portion of TA-33 and access to the area is controlled. The area is on a relatively flat mesa top and run-off occurs through natural channels to a gradual slope to the southeast. Storm water run-off continues on a relatively gently sloped mesa top and canyon bench before reaching Chaquehui Canyon to the southeast. Storm water run-off is influenced by run-on from paved access roads that form the western and northern boundaries of the SMA. The southern boundary is mostly impervious surface and the eastern boundary is undeveloped. Much of the area on the western half of the SMA is paved and impervious and dirt access roads cross the site in a north to south orientation.

1000.12.2 Potential Pollutant Sources

1000.12.2.1 Historical Industrial Activity Areas

There are four historical industrial activity areas associated with PF Q002A, CHQ-SMA-1.02, Sites 33-004(h), 33-008(c), 33-011(d) and 33-015.

SWMU 33-004(h) consists of an outfall associated with a warehouse (building 33-0020) located at the south side of Main Site. The warehouse was constructed in 1950 and used from 1952 to 1972 to store materials associated with initiator tests, including beryllium and uranium. The building subsequently was cleaned and used by other groups as a light laboratory and for general storage. The RFI work plan for Operable Unit (OU) 1122 states historical engineering drawings show an 8-in.-diameter VCP drain exiting the southeast corner of the building, which reportedly discharged to an outfall. A study of building drains at TA-33 identified two floor drains in building 33-0020 but could not locate an outfall. The study also noted there was no source of water in the building.

AOC 33-008(c) is a former surface disposal area located east of Main Site buildings 33-0039 and 33-0113 outside of the Main Site security fence. This former disposal site consists of two areas, one near a culvert discharge where glass bottles and other debris were discovered and the other an area of surface debris situated north of the culvert. The culvert receives stormwater runoff from Main Site, is directly east of building 33-0039, and is located in a drainage channel that leads to a tributary of Chaquehui Canyon. Debris observed included machined metal turnings, cable, glass bottles, and general trash on the ground surface and in the channel downstream of the culvert. The outlines of a possible trenched area are visible in aerial photographs from 1958. A small asphalt pad is located at the west end of the northern area and a partially full bottle was present on the ground surface. In 1999, a best management practice (BMP) was performed and all visible debris was removed from the watercourse.

SWMU 33-011(d) consists of a storage area located on the asphalt next to a warehouse (building 33-0020) near the south side of Main Site. Beryllium and uranium were stored around building 33-0020 from 1950 until 1972. In addition, recovered scrap from shots containing uranium, beryllium, and tungsten was stored south of building 33-0020. The amount of uranium stored at this site is reported to have been "tons." Much of the material stored here was salvaged for use elsewhere. A 1987 site survey found no materials remaining in storage at this location.

SWMU 33-015 consists of an incinerator (structure 33-0110) located approximately 50 ft southeast of building 33-0039 on a hillside that slopes to a side wash of Chaquehui Canyon. The incinerator is approximately 4 ft x 4 ft x 6 ft high and mounted on a concrete base. The incinerator was used previously to burn uncontaminated office trash. The incinerator was first used in 1955. The date that its use stopped is not known.

1000.12.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
33-004(h)	Drainline and outfall associated with Building 33-20	Co-located, Overlapping	Shared	•	•	•	PCBs
33-008(c)	Landfill	Co-located, Overlapping	Shared	•	•	•	PCBs
33-011(d)	Storage area	Co-located, Overlapping	Shared	•	•	•	PCBs
33-015	Incinerator	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

Sites grouped within this SMA are associated with historical operations at TA-33, Main Site. Because these Sites have similar contaminants and share a common drainage, they will discharge substantially identical effluent.

1000.12.3 Control Measures

Run-on contributions to the SMA are a result of the paved roads north and west of the SMA, paved parking access, multiple roofs, and the unpaved access road that intersects the SMA. Planned controls are to divert portions of run-on to the area and to better control run-off.

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
Q002A 06 01 0001	Check Dam - Rock		•		•
Q002A 06 01 0002	Check Dam - Rock		•		•
Q002A 06 01 0003	Check Dam - Rock		•		•
Q002A 06 01 0007	Check Dam - Rock	•			•
Q002A 06 01 0008	Check Dam - Rock	•			•
Q002A 06 01 0009	Check Dam - Rock		•		•
Q002A 08 03 0004	Cap - Asphalt			•	

Rock Check Dams (Q002A-06-01-0001, -0002, -0003, -0009)

Change the text for Rock Check Dams to read: This is a group of four check dams located east of building 33-0020 and east of the unpaved access road in a natural channel. They are in place to mitigate run-off and sedimentation. 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

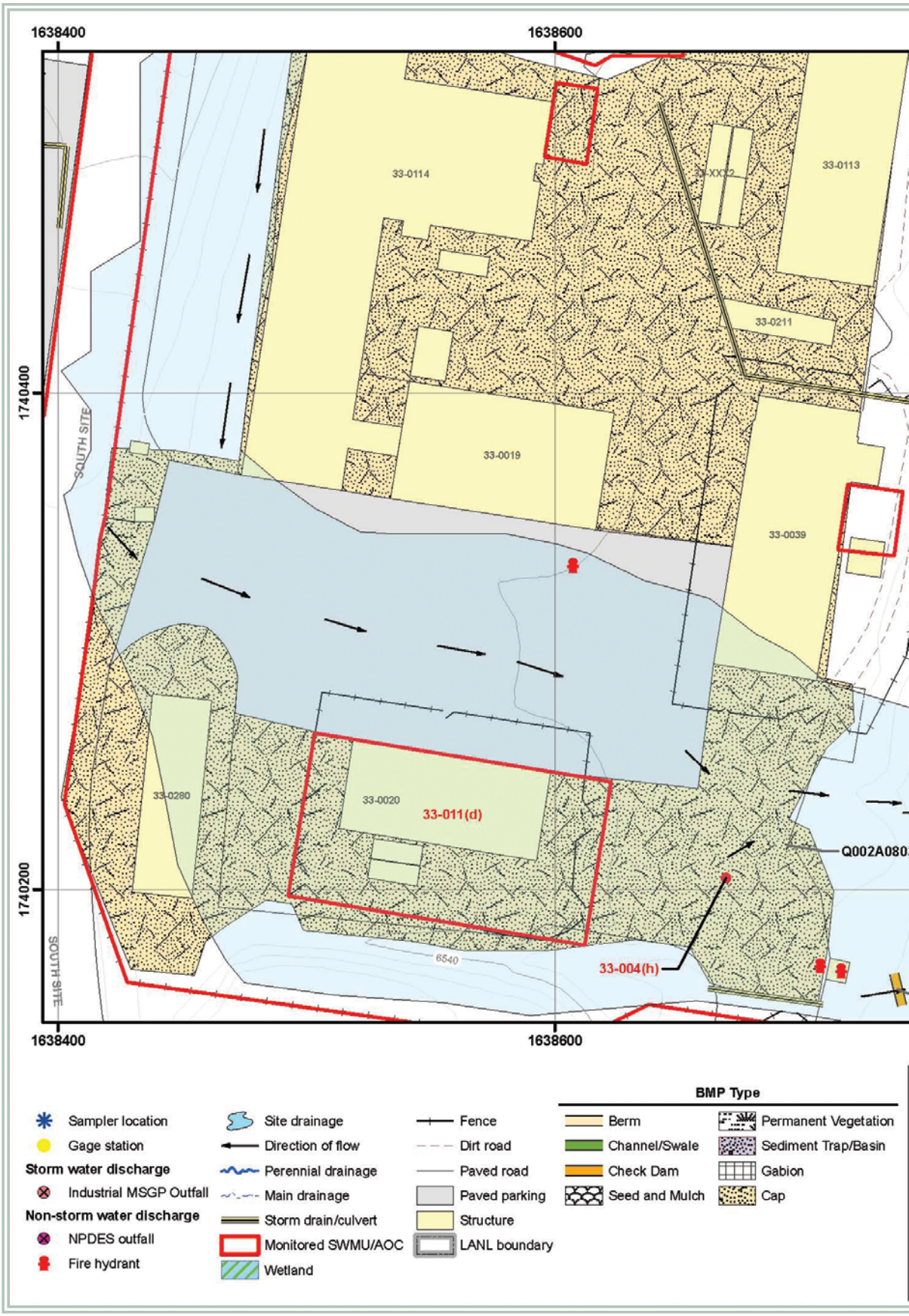
Rock Check Dams (Q002A-06-01-0007, -0008)

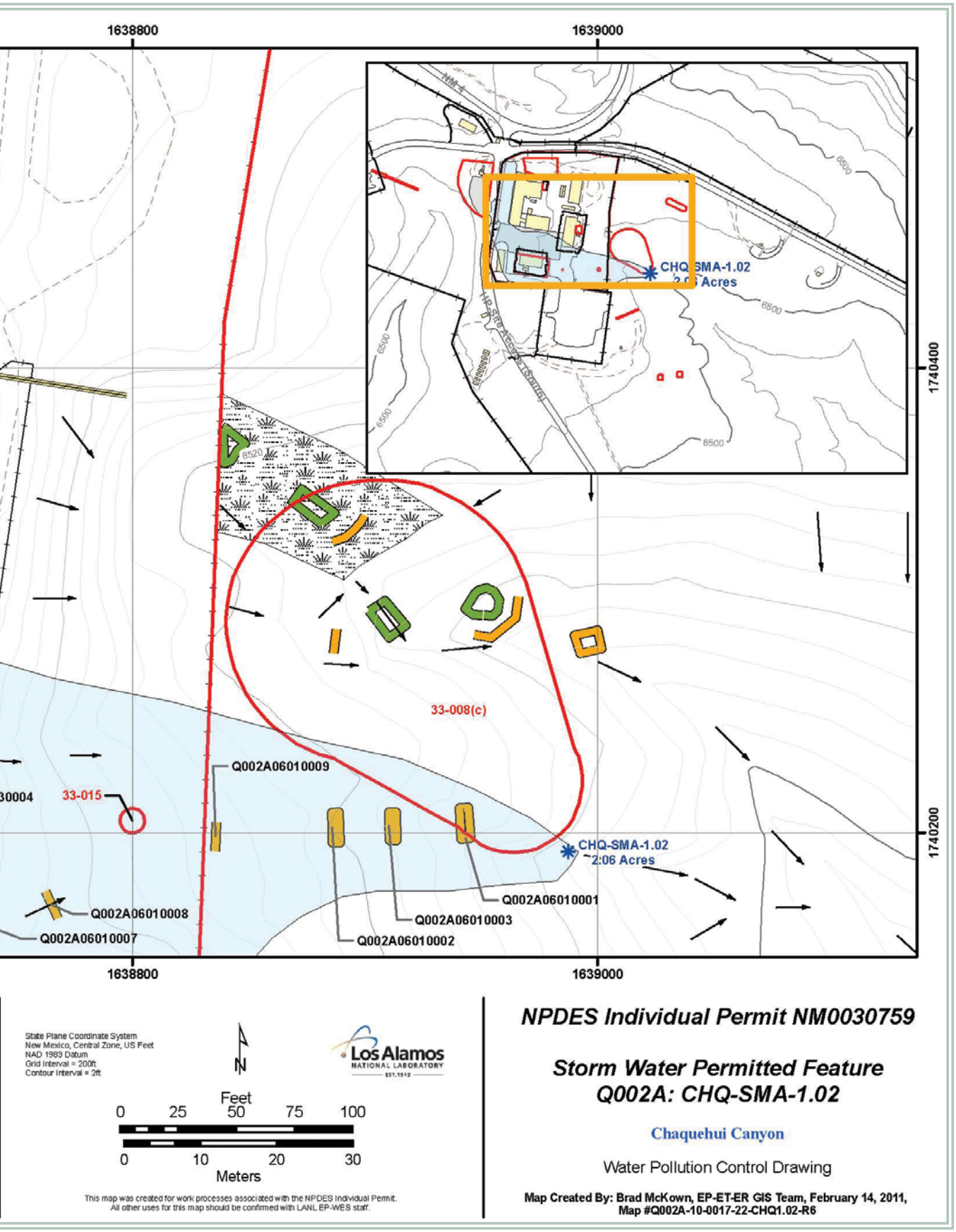
This is a pair of rock check dams located to the east of the asphalt cap near the fire hydrants. They are used to control run-on from the paved areas. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Asphalt Cap (Q002A-08-03-0004)

The asphalt cap is located in the southwest area of the SMA covering the area around and between existing structures. It is in place to limit erosion in the area. 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.

1000.12.4 Project Map




1638800
1639000
1740400
1740200
CHQ-SMA-1.02
2.06 Acres
33-008(c)
33-015
Q002A06010009
Q002A06010008
Q002A06010007
Q002A06010003
Q002A06010002
Q002A06010001
CHQ-SMA-1.02
2.06 Acres
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
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
Q002A: CHQ-SMA-1.02
Chaquehui Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, February 14, 2011,
Map #Q002A-10-0017-22-CHQ1.02-R6

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 CHQ-SMA-1.02 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.13 CHQ-SMA-1.03

1000.13.1 Area Description

1000.13.2 Potential Pollutant Sources

1000.13.2.1 Historical Industrial Activity Areas

1000.13.3 Control Measures

1000.13.3.1 Control Measures for Historical Industrial Activity Areas

1000.13.4 Project Map

1000.13.5 Storm Water Monitoring Plan and Schedule

1000.13.6 Corrective Action Status



1000.13 CHQ-SMA-1.03

1000.13.1 Area Description

CHQ-SMA-1.03 is located in the developed portion of TA-33 and access to the area is controlled. The area is on a relatively flat mesa top and run-off occurs through natural channels to a gradual slope to the southeast. Storm water run-off continues on a relatively gently sloped mesa top and canyon bench before reaching Chaquehui Canyon to the southeast. Storm water run-off is influenced by run-on from paved access roads that form the western and northern boundaries of the SMA. The southern boundary is mostly impervious surface and the eastern boundary is undeveloped. Much of the area on the western half of the SMA is paved and impervious and dirt access roads cross the site in a north to south orientation.

1000.13.2 Potential Pollutant Sources

1000.13.2.1 Historical Industrial Activity Areas

There are five historical industrial activity areas associated with PF Q002B, CHQ-SMA-1.03, Sites 33-008(c), 33-012(a), 33-017, C-33-001 and C-33-003.

AOC 33-008(c) is a former surface disposal area located east of Main Site buildings 33-0039 and 33-0113 outside of the Main Site security fence. This former disposal site consists of two areas, one near a culvert discharge where glass bottles and other debris were discovered and the other an area of surface debris situated north of the culvert. The culvert receives stormwater runoff from Main Site, is directly east of building 33-0039, and is located in a drainage channel that leads to a tributary of Chaquehui Canyon. Debris observed included machined metal turnings, cable, glass bottles, and general trash on the ground surface and in the channel downstream of the culvert. The outlines of a possible trenched area are visible in aerial photographs from 1958. A small asphalt pad is located at the west end of the northern area and a partially full bottle was present on the ground surface. In 1999, a best management practice (BMP) was performed and all visible debris was removed from the watercourse.

SWMU 33-012(a) is a former drum storage area for a machine shop (building 33-0039). This storage area is an asphalt pad located on the east side of building 33-0039, between the building and a storage shed. The asphalt pad is approximately 20 ft wide x 20 ft long. The area was used to accumulate 55-gal. drums of solvents and solvent-contaminated oil that potentially may have been contaminated with PCBs and metals. The drums were placed on pallets or directly on the asphalt pad. The 1990 SWMU report notes the presence of multiple oil stains at this site. The 1992 RFI work plan, however, states no evidence of oil staining was found. The asphalt pad is level, and the ground surface east of building 33-0039 slopes to the east. The beginning date of operation of the storage area is not known; however, building 33-0039 was constructed in 1951. The storage area was deactivated in 1992 or 1993.

SWMU 33-017 consists of areas potentially impacted by operational releases from the TA-33 Main Site. SWMU 33-017 is located at the northern and eastern edges of Main Site and is approximately 600 ft long x 100 ft to 600 ft wide. The site generally slopes downward to the east and is at the head of small drainage tributary of Chaquehui Canyon. SWMU 33-017 is potentially impacted by runoff from the paved areas of the TA-33 Main Site complex by deposition from airborne releases from TA-33 Main Site facilities and by operational releases from an area east of building 33-39 used for vehicle maintenance. Operations conducted within Main Site included uranium processing and machining, cadmium

and silver welding and soldering, lead melting and casting, cadmium and beryllium machining, and tritium processing and decontamination. These operations began in 1949 and most continued until 1972. Following these operations, some of the facilities were used for offices and electronics laboratories.

AOC C-33-001 consists of a former electrical transformer (former structure 33-0124) at the TA-33 Main Site. The transformer was mounted on a 15 ft x 50 ft concrete pad next to the east wall of building 33-0114. The transformer was located next to the northeast wall of building 33-0114 and was bounded by asphalt to the north, east, and south. The pad was enclosed by a fence and accessible only through a locked gate. Because this transformer was placed into service in the 1950s, the oil in the transformer may have contained PCBs. Oil stains were observed on the concrete pad and leaks from the transformer were observed during routine inspections conducted between September 1985 and March 1992. In 1992, the transformer was replaced by a non-PCB transformer. Sampling conducted during transformer replacement was limited to areas where the old transformer had been placed temporarily during removal.

AOC C-33-003 consists of two fill areas located at the Main Site area of TA-33. This fill was used to level sites for two portable trailers. One of the trailers (structure 33-169) was installed next to the Main Site water tower. The filled area to accommodate trailer 33-0169 is approximately 100 ft x 100 ft x 4 ft deep. The other trailer (structure 33-0170) was installed north of building 33-0114. The filled area to accommodate trailer 33-0170 is approximately 70 ft x 90 ft x 7 ft deep. Both trailers were installed in January 1984 and removed in June 1988. After the trailers were removed, no further improvements were made to these sites. Three projectiles, one of which contained uranium, were discovered at the fill area near the water tower during brush-clearing activities conducted during the spring of 1996. The source of these projectiles appears to have been the fill material that had been obtained from the cinder cone located in Area 6, just west of Main Site. Projectiles historically were fired into the base of the cinder cone during experiments conducted at the Area 6 firing area [SWMU 33-007(c)].

1000.13.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
33-008(c)	Landfill	Co-located, Overlapping	Shared	•	•	•	PCBs
33-012(a)	Drum storage area	Co-located, Overlapping	Shared	•	•	•	PCBs
33-017	Operational release	Co-located, Overlapping	Shared	•	•	•	PCBs
C-33-001	Former Transformer	Co-located, Overlapping	Shared	•	•	•	PCBs
C-33-003	Soil contamination	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

Sites grouped within this SMA are associated with historical operations at TA-33, Main Site. Because these Sites have similar contaminants and share a common drainage, they will discharge substantially identical effluent.

1000.13.3 Control Measures

Run-on contributions to the SMA are a result of the paved roads north and west of the SMA, paved parking access, multiple roofs, and the unpaved access road that intersects the SMA. Planned controls are to divert portions of run-on to the area and to better control 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
Q002B 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
Q002B 02 03 0002	Established Vegetation - Vegetative Buffer Strip	•	•	•	
Q002B 04 06 0006	Channel/Swale - Rip Rap	•		•	
Q002B 04 06 0007	Channel/Swale - Rip Rap		•	•	
Q002B 04 06 0009	Channel/Swale Rip Rap		•	•	
Q002B 04 06 0010	Channel/Swale Rip Rap		•	•	
Q002B 06 01 0004	Check Dam - Rock		•		•
Q002B 06 01 0005	Check Dam - Rock		•		•
Q002B 06 01 0008	Check Dam Rock		•		•
Q002B 06 01 0011	Check Dam Rock		•		•
Q002B 08 03 0003	Cap - Asphalt		•	•	

Established Vegetation (Q002B-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.

Vegetative Buffer Strip (Q002B-02-03-0002)

The buffer strip is a large `L` shaped area located east of structure 33-0039 extending to the east almost to the sampler and south to the SMA boundary. It is controlling run-on from the asphalt cap to the west while also limiting run-off from the SMA to the surrounding 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.

Rip Rap (Q002B-04-06-0006)
This rip rap is located east of the north-south running fence line in the vegetative buffer strip. It is in place 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.

Outlet Rip Rap (Q002B-04-06-0007)
This rip rap is located in the channel adjacent to the rock check dam above the sampler. It is used 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.

Rip Rap – Central (Q002B 04 06 0009)
This rip rap is located in the drainage channel northwest of the outlet rip rap and is used to help control area run-off and reduce 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 – South (Q002B 04 06 0010)
This is the southern most rip rap located along the main drainage channel above the sampler. It is used to help manage run-off from above. 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 (Q002B-06-01-0004)
This check dam is located east of building 33-0039 and west of the unpaved access road. The purpose of this check dam is to control run-off and to encourage 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.

Check Dam (Q002B-06-01-0005)
A rock check dam is located in the drainage channel in the southeastern portion of the SMA. This check dam serves to control run-off from the SMA and to encourage 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.

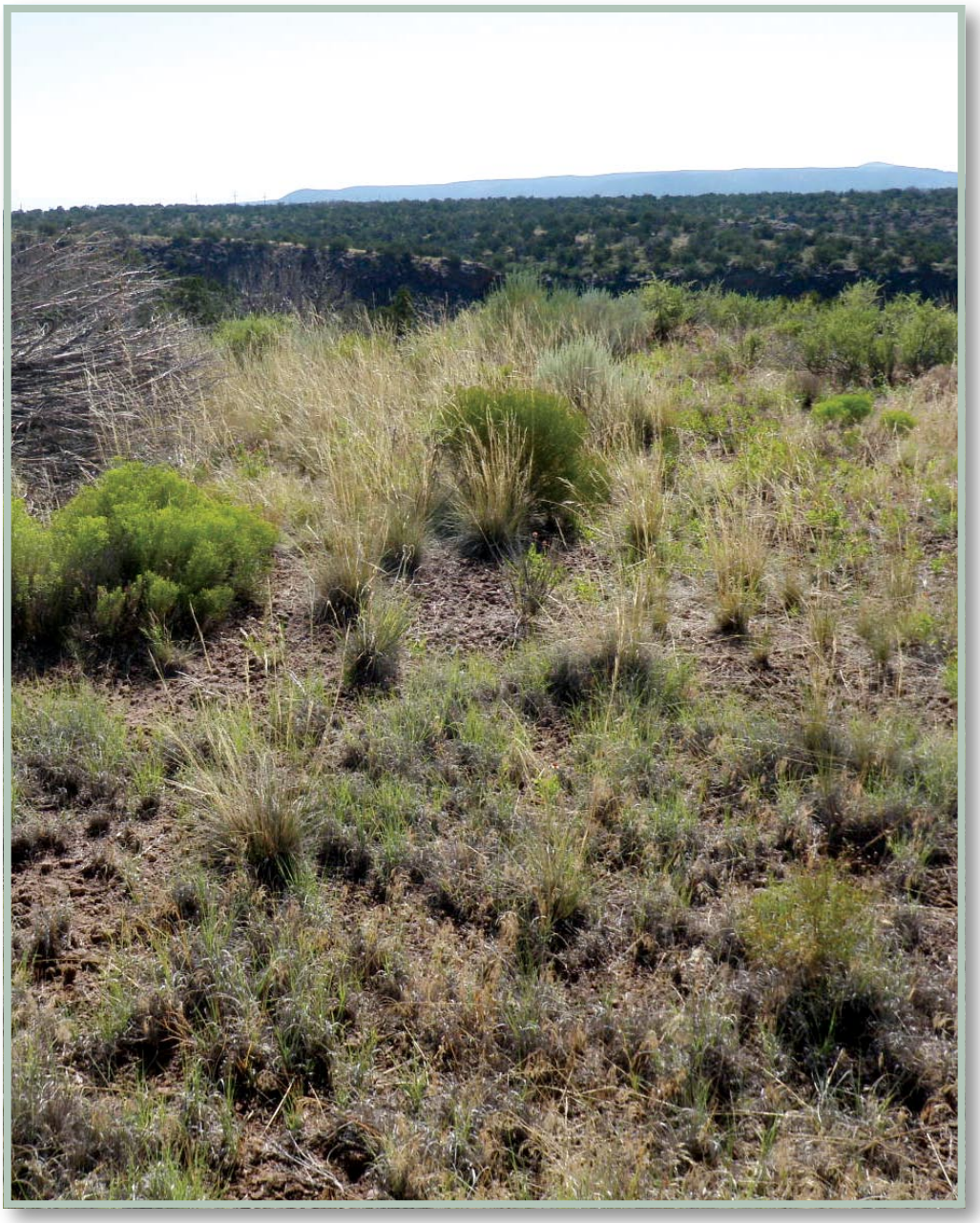
Rock Check Dam (Q002B 06 01 0008)
This check dam is located in the central drainage channel southeast of the central rip rap and is used to manage area run-off. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dam – South (Q002B 06 01 0011)

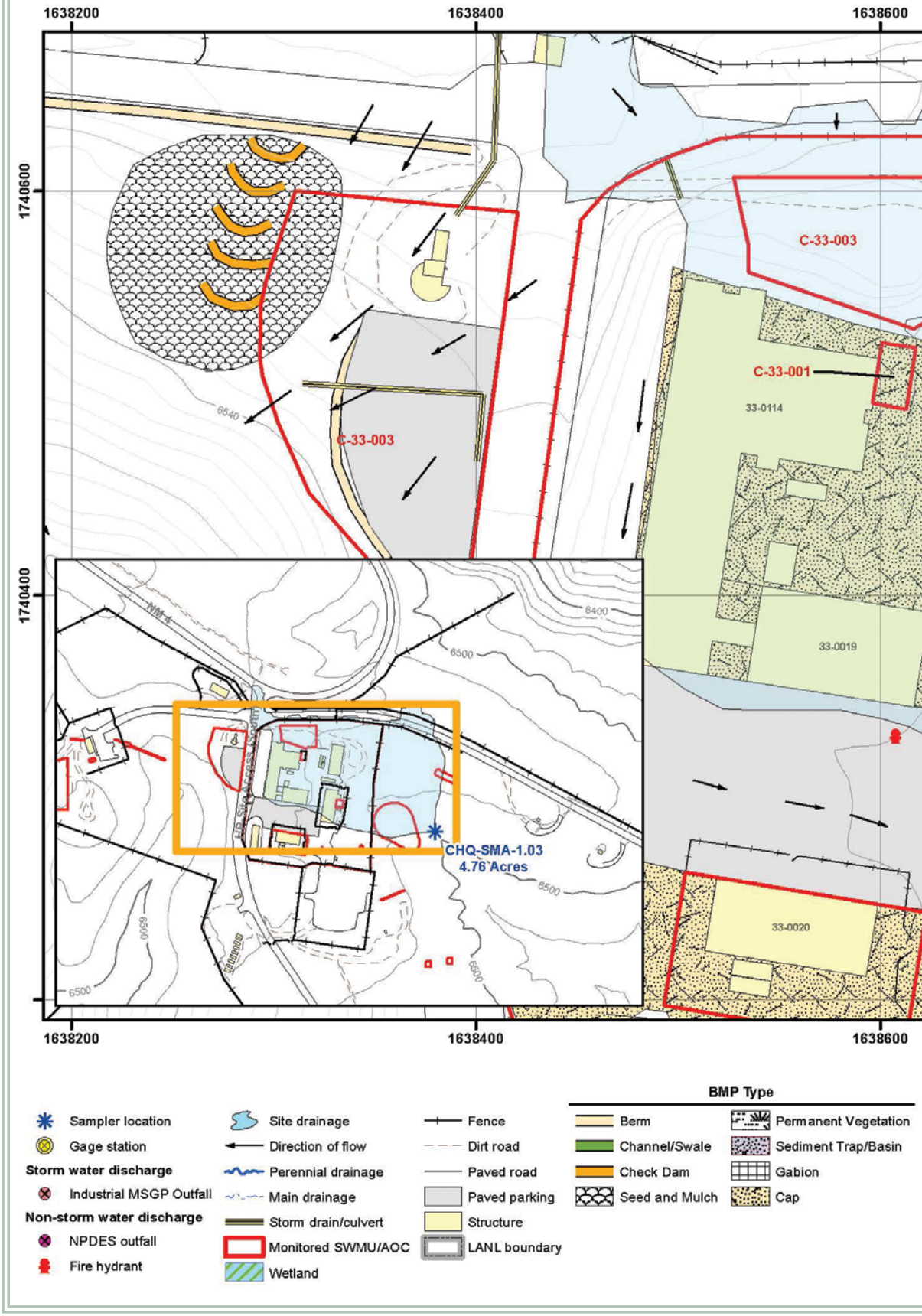
This check dam is located just south of the main drainage channel, east of structure 33-0039. It is used to help control run-off from the paved areas above. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

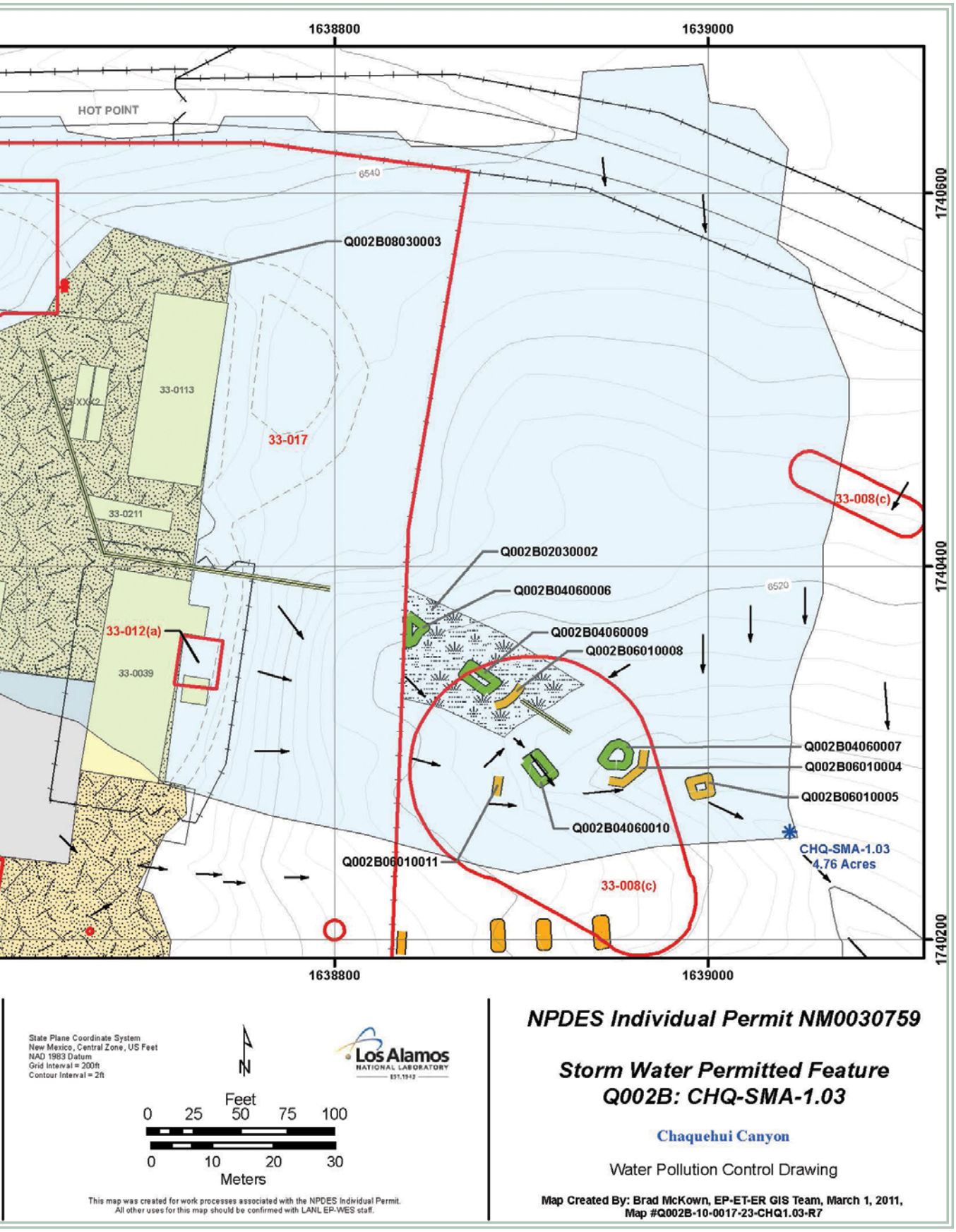
Asphalt Cap (Q002B-08-03-0003)

This asphalt cap is located between and around the existing structures in the SMA. It is in place primarily to 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.



1000.13.4 Project Map




1638800
1639000
1740600
1740400
1740200
HOT POINT
6540
6520
Q002B08030003
33-0113
33-017
33-0211
33-012(a)
33-0039
33-008(c)
Q002B02030002
Q002B04060006
Q002B04060009
Q002B06010008
Q002B04060007
Q002B06010004
Q002B06010005
Q002B04060010
Q002B06010011
CHQ-SMA-1.03
4.76 Acres
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
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
Q002B: CHQ-SMA-1.03
Chaquehui Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, March 1, 2011,
Map #Q002B-10-0017-23-CHQ1.03-R7

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 eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.13.6 Corrective Action Status

The Sites associated with CHQ-SMA-1.03 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.



1000.14 CHQ-SMA-2

1000.14.1 Area Description

1000.14.2 Potential Pollutant Sources

1000.14.2.1 Historical Industrial Activity Areas

1000.14.3 Control Measures

1000.14.3.1 Control Measures for Historical Industrial Activity Areas

1000.14.4 Project Map

1000.14.5 Storm Water Monitoring Plan and Schedule

1000.14.6 Corrective Action Status



1000.14 CHQ-SMA-2

1000.14.1 Area Description

CHQ-SMA-2 is located to the east of the developed portion of TA-33 and access to the area is controlled. The area is located on a flat mesa top that steepens to a south facing slope. Run-off from the area occurs through natural channels down the slope to the east and continues until reaching Chaquehui Canyon to the south. Paved and impervious roads form the northern and eastern boundaries of the area. The western boundary of the area is undeveloped except for a small portion of paved impervious surface. The area is influenced by structural run-on from the impervious surfaces comprising the north and east boundaries.

1000.14.2 Potential Pollutant Sources

1000.14.2.1 Historical Industrial Activity Areas

There are three historical industrial activity areas associated with PF Q003, CHQ-SMA-2, Sites 33-004(d), 33-007(c) and C-33-003.

SWMU 33-004(d) consists of an abandoned septic tank (structure 33-0121) and associated drainline and drain field located at Area 6. Septic tank 33-0121 is located approximately 100 ft east of building 33-0016. The septic tank is constructed of corrugated iron and has a capacity of 500 gal. Septic tank 33-0121 received wastewater from a toilet and sink in a former laboratory building (33-0001). Building 33-0001 and associated machine shop building 33-0002 were built on skids and moved on site sometime in 1946 or 1947. Although use of building 33-0001 was discontinued in 1991 and the building was removed in 1994, the septic tank is still in place. While building 33-0001 was occupied, effluent was discharged from the septic tank to a drain field located approximately 20 ft east of the tank. The drain field is constructed of a single row of vitrified-clay tiles installed in gravel approximately 5 ft below grade. The RFI work plan states an outfall from the drain field was buried in a side wash of Chaquehui Canyon. Land surface at the tank location slopes east approximately 200 ft to a shallow drainage eroded into the bedrock that flows south.

Building 33-0001 was used from 1948 to 1955 to support nonexplosive initiator tests conducted at Area 6. In 1958, the building was used to grow crystals of potassium niobate and possibly other types of crystals (aluminates, titanates, tungstates, etc.). Silver plating was also reportedly performed in this building. Later, building 33-0001 was used as office space and for storage until use of the building was discontinued in 1991. A 1993 study of drains and discharges at TA-33 identified the only discharges to the septic system were from a lavatory, toilet, and sink drain.

SWMU 33-007(c) consists of abandoned firing sites associated with the initiator tests conducted at Area 6. The firing sites included firing pads and two catcher boxes. One pad was located immediately west of building 33-0016. The catcher boxes were located approximately 20 ft south of building 33-0016 and were approximately 6 ft x 6 ft, constructed of timber, and filled with soil, wood chips, and vermiculite. Guns (2-in. to 5-in. bore) were placed on the concrete pads and used to fire projectiles containing test assemblies into targets placed in front of the catcher boxes. Materials used in the projectiles included beryllium, polonium-210, uranium, copper, lead, tungsten, and stainless steel. The projectiles frequently cracked open, contaminating the pads and surrounding area with polonium-210. Contaminated areas on the guns and pads were painted with lead-based paint to fix surface contamination.

Several other firing pads were on a level area excavated into a basaltic cinder cone southwest of building 33-0016. This area was used to test nuclear gun mock-ups. A 4-in. to 5-in. bore gun was used

to fire projectiles into the back of the excavation. The back of the excavation currently extends about 75 ft farther back than when the site was used.

A 1951 memorandum describes a test at Area 6 that resulted in leakage of radioactive material from a projectile. The site was cleaned up by using a bulldozer to scrap away the contaminated soil and embankment. A 1954 memorandum describes decontamination of one of the Area 6 gun barrels. The memorandum describes removing loose material and leaving impregnated spots as high as 1 million counts per minute. Contaminated surface dirt was bulldozed from the shot area into the adjacent canyon.

AOC C-33-003 consists of two fill areas located at the Main Site area of TA-33. This fill was used to level sites for two portable trailers. One of the trailers (structure 33-169) was installed next to the Main Site water tower. The filled area to accommodate trailer 33-0169 is approximately 100 ft x 100 ft x 4 ft deep. The other trailer (structure 33-0170) was installed north of building 33-0114. The filled area to accommodate trailer 33-0170 is approximately 70 ft x 90 ft x 7 ft deep. Both trailers were installed in January 1984 and removed in June 1988. After the trailers were removed, no further improvements were made to these sites. Three projectiles, one of which contained uranium, were discovered at the fill area near the water tower during brush-clearing activities conducted during the spring of 1996. The source of these projectiles appears to have been the fill material that had been obtained from the cinder cone located in Area 6, just west of Main Site. Projectiles historically were fired into the base of the cinder cone during experiments conducted at the Area 6 firing area [SWMU 33-007(c)].

1000.14.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
33-004(d)	Septic system	Co-located, Overlapping	Shared	•	•	•	PCBs
33-007(c)	Firing Sites	Co-located, Overlapping	Shared	•	•	•	PCBs
C-33-003	Soil contamination	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

Sites grouped within this SMA are associated with historical operations at Area 6 Site at TA-33. Because the Sites have similar contaminants and share a common drainage, they will discharge substantially identical effluent.

1000.14.3 Control Measures

Any potential run-on to the SMA originates on the paved roads north and east of the Project Area. Planned controls are to fortify and strengthen diversion of storm water associated with these run-on contributions.

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
Q003 01 03 0022	Seed and Mulch Hydromulch			•	
Q003 02 01 0004	Established Vegetation - Grasses and Shrubs			•	
Q003 02 02 0005	Established Vegetation - Forested/Needle Cast			•	
Q003 03 02 0001	Berms - Base Course	•			•
Q003 03 02 0006	Berms - Base Course	•			•
Q003 03 04 0015	Berms - Asphalt	•			•
Q003 03 06 0016	Berms - Straw Wattles	•			•
Q003 03 06 0017	Berms - Straw Wattles	•			•
Q003 03 06 0018	Berms - Straw Wattles	•			•
Q003 03 06 0019	Berms - Straw Wattles	•			•
Q003 03 06 0020	Berms - Straw Wattles	•			•
Q003 03 06 0021	Berms - Straw Wattles	•			•
Q003 04 06 0002	Channel/Swale - Rip Rap	•		•	
Q003 04 06 0007	Channel/Swale - Rip Rap	•		•	
Q003 06 01 0003	Check Dam - Rock		•		•

1000.14.3.1 Control Measures for Historical Industrial Activity Areas (continued)

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
Q003 06 01 0008	Check Dam - Rock		•		•
Q003 06 01 0009	Check Dam - Rock	•			•
Q003 06 01 0010	Check Dam - Rock	•			•
Q003 06 01 0011	Check Dam - Rock	•			•
Q003 06 01 0012	Check Dam - Rock	•			•
Q003 06 01 0013	Check Dam - Rock	•			•
Q003 06 01 0014	Check Dam - Rock	•			•

Hydromulch (Q003-01-03-0022)
The hydromulch was applied between and around the north rock check dams 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.

Established Vegetation (Q003-02-01-01-0004, -02-0005)
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 piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Base Course Berm (Q003-03-02-0001)
The berm is situated along the western edge of the paved pull-out on the west side of HP Site Access (south) road. It is in place to control run-on from the paved areas away from the SMA. 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 (Q003-03-02-0006)
This berm is located south of the paved area in the southeast part of the SMA. It is used to control run-on 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.

Asphalt Berm (Q003-03-04-0015)

This berm is located on the southern side of Hot Point Road just west of the intersection with South Site Road. It is used to help control run-on from the paved areas. An asphalt berm is a temporary containment control constructed of asphalt.

Straw Wattles (Q003-03-06-0016, -0017, -0018, -0019, -0020)

This is a series of five straw wattles installed in the drainage channel east of the paved parking area. They are reducing run-on 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.

Straw Wattle (Q003-03-06-0021)

This wattle is located west of the main drainage channel. It was installed to help control storm water run-on flow 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.

Rip Rap (Q003-04-06-0002)

The rip rap is located southwest of and adjacent to the berm. It is controlling run-on and erosion in 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.

Rip Rap - South (Q003-04-06-0007)

This rip rap is located at the southern end of the berm located in the southeast portion of the SMA. It is used to help control run-on and prevent erosion from the storm water flow. 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 (Q003-06-01-0003)

This check dam is located west of HP Site Access (south) road. It is in place to manage run-off from the paved road. 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 (Q003-06-01-0008)

This check dam is located just above the sampler in the main drainage channel. It is in place to mitigate storm water run-off and reduce sediment loading. 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 (Q003-06-01-0009, -0010, -0011, -0012, -0013)

This is a series of rock check dams located in the northern portion of the SMA on the southern side of the paved access road and asphalt berm. They are in place to regulate run-on and control sediment transport. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check

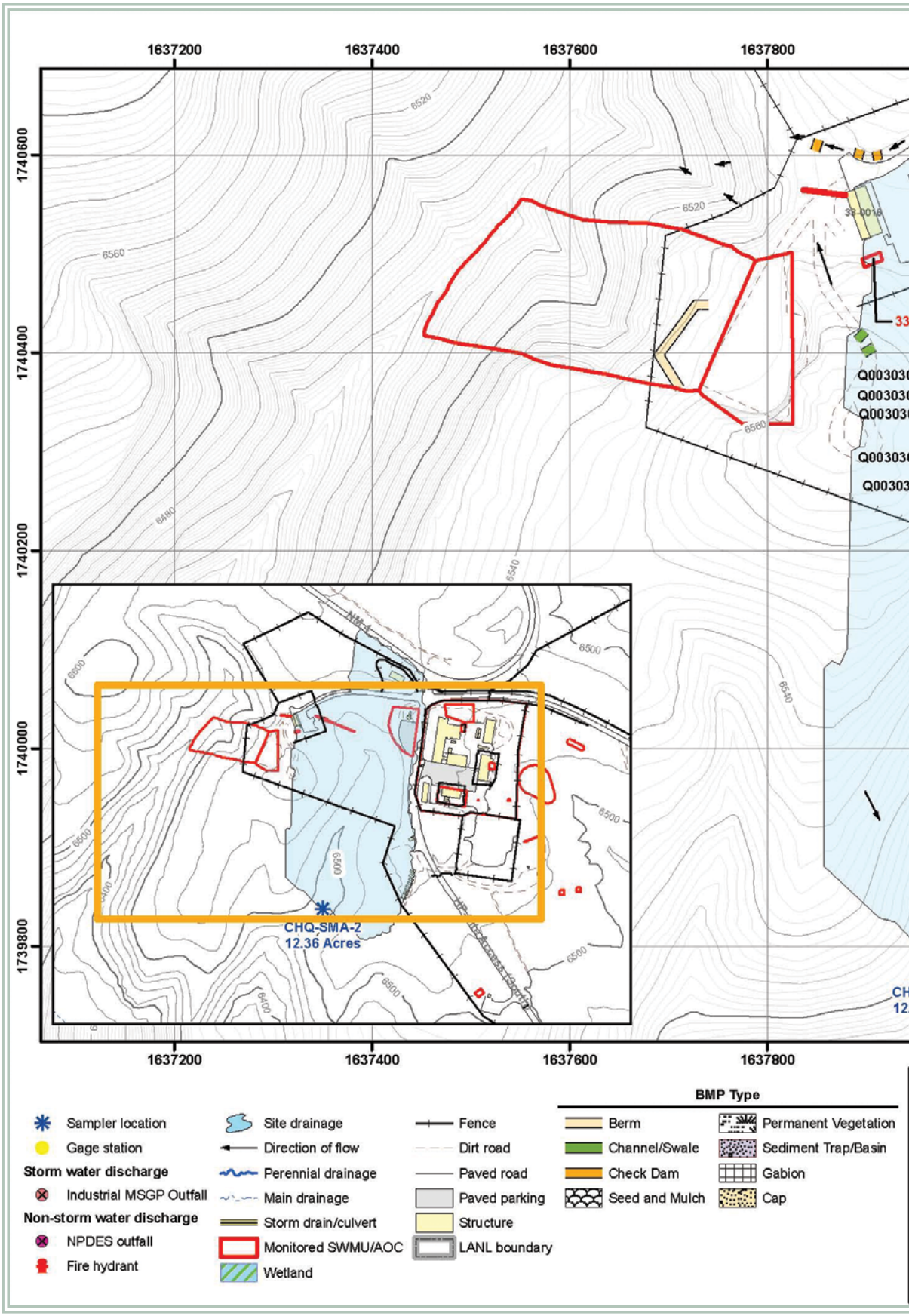
dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

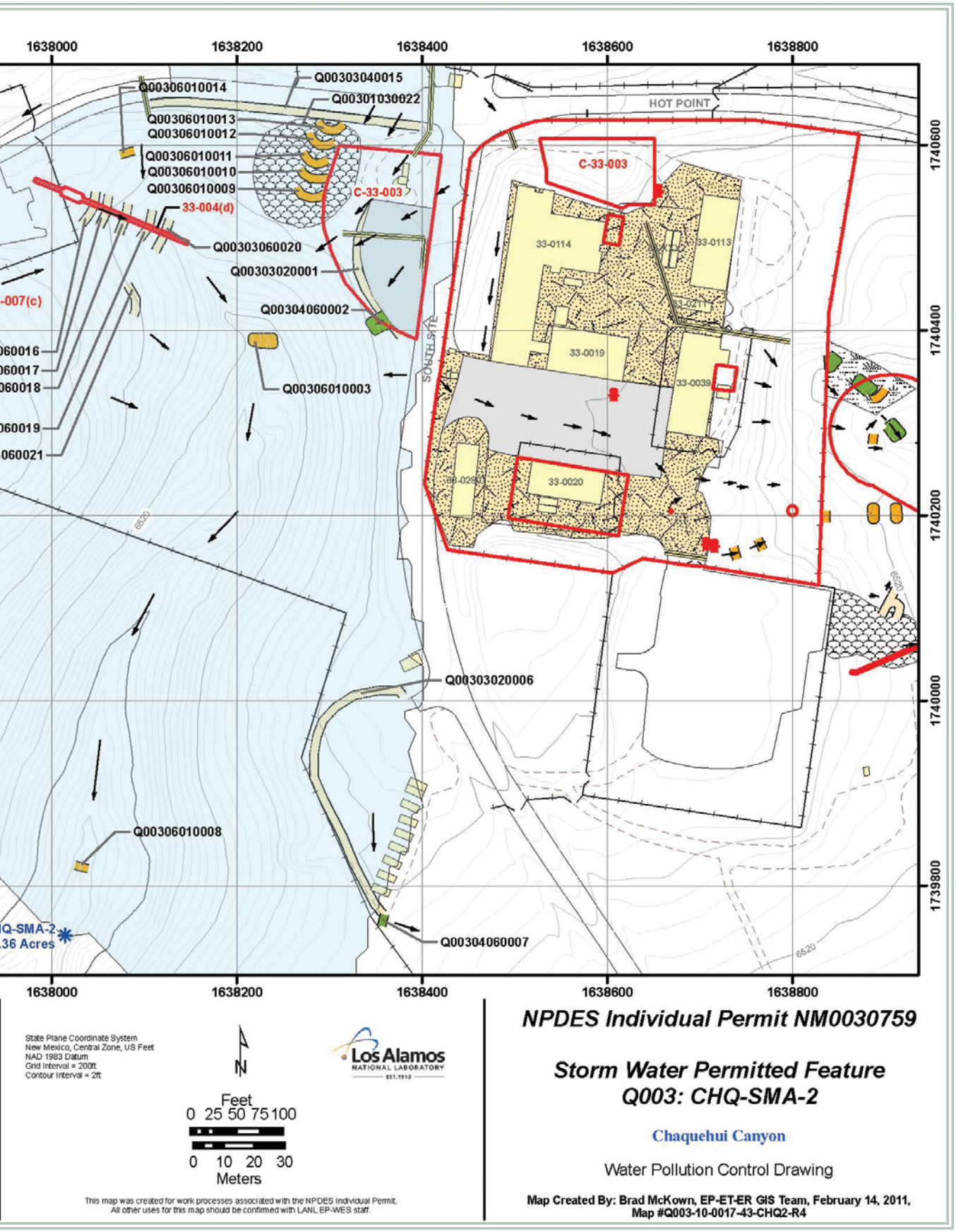
Rock Check Dam - West (Q003-06-01-0014)

This check dam is located to the west of the group of five check dams, and is also on the southern side of Hot Point Road. It is functioning as a run-on control for storm water flow from the slope and paved areas 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.



1000.14.4 Project Map




1638000
1638200
1638400
1638600
1638800
1740600
1740400
1740200
1740000
1739800
Q00303040015
Q00306010014
Q00301030022
Q00306010013
Q00306010012
Q00306010011
Q00306010010
Q00306010009
C-33-003
33-004(d)
Q00303060020
Q00303020001
Q00304060002
Q00306010003
Q00303020006
Q00306010008
Q00304060007
HOT POINT
33-0114
33-0113
33-021H
33-0019
33-0039
33-0020
SOUTH SITE
6520
Q-SMA-2
.36 Acres
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Feet
0 25 50 75 100
0 10 20 30
Meters
Los Alamos
NATIONAL LABORATORY
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
Q003: CHQ-SMA-2
Chaquehui Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, February 14, 2011,
Map #Q003-10-0017-43-CHQ2-R4

1000.14.5 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).

1000.14.6 Corrective Action Status

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



1000.15 CHQ-SMA-3.05

1000.15.1 Area Description

1000.15.2 Potential Pollutant Sources

1000.15.2.1 Historical Industrial Activity Areas

1000.15.3 Control Measures

1000.15.3.1 Control Measures for Historical Industrial Activity Areas

1000.15.4 Project Map

1000.15.5 Storm Water Monitoring Plan and Schedule

1000.15.6 Corrective Action Status



1000.15 CHQ-SMA-3.05

1000.15.1 Area Description

CHQ-SMA-3.05 is located to the southeast of the developed area of TA-33 and access to the area is controlled. The area is located on a moderate slope trending to the east. Run-off from the area continues east to a bench before reaching Chaquehui Canyon further southeast. Storm water run-off in the area is influenced by natural run-off from undeveloped land with minimal ground cover and an unpaved access road to the west. All boundaries of the SMA are undeveloped.

1000.15.2 Potential Pollutant Sources

1000.15.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF Q004, CHQ-SMA-3.05, Site 33-010(f).

SWMU 33-010(f) is a surface disposal area. The history of the site and the origins of the wastes are not known. The 1990 SWMU report states the SWMU was observed during a 1987 ER Project reconnaissance and describes it as concrete, cans, and metal pieces that littered the area east of former building 33-0086. The RFI report describes this SWMU as consisting of two small surface disposal areas located 300 ft southeast of former building 33-0086 and approximately 50 ft apart. One of the areas is described as approximately 15 ft square, and the other as approximately 10 ft x 20 ft. Materials at the site included pieces of concrete; piles of tuff and cured asphalt; rusted metal cans, rebar, and strapping bands; and other debris. Although the source of these materials is not known, some are believed to be associated with roadwork activities.

1000.15.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
33-010(f)	Surface Disposal Site (MDA K)	Discrete Location, No overlap	Individual	•	•	•	PEST PCBs

1000.15.3 Control Measures

This SMA is located in an undeveloped area. There are no roads, structures, or other contributions of concentrated run-on to the monitored area. Planned controls are to provide improved sediment retention and to reduce any impact to the area from overland sheet flow.

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
Q004 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
Q004 03 06 0002	Berms - Straw Wattles	•			•
Q004 03 06 0003	Berms - Straw Wattles	•			•
Q004 03 06 0004	Berms - Straw Wattles		•		•
Q004 03 06 0005	Berms - Straw Wattles		•		•
Q004 06 01 0006	Check Dam - Rock		•		•
Q004 06 01 0007	Check Dam - Rock		•		•

Established Vegetation (Q004-02-01-0001)

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 West (Q004-03-06-0002)

This wattle is located along the southern boundary of the Site footprint. It is in place to control run-on and to assist with sediment retention. 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 (Q004-03-06-0003)

This wattle is located off the northwest corner of the Site footprint and is used to mitigate 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 (Q004-03-06-0004, -0005)

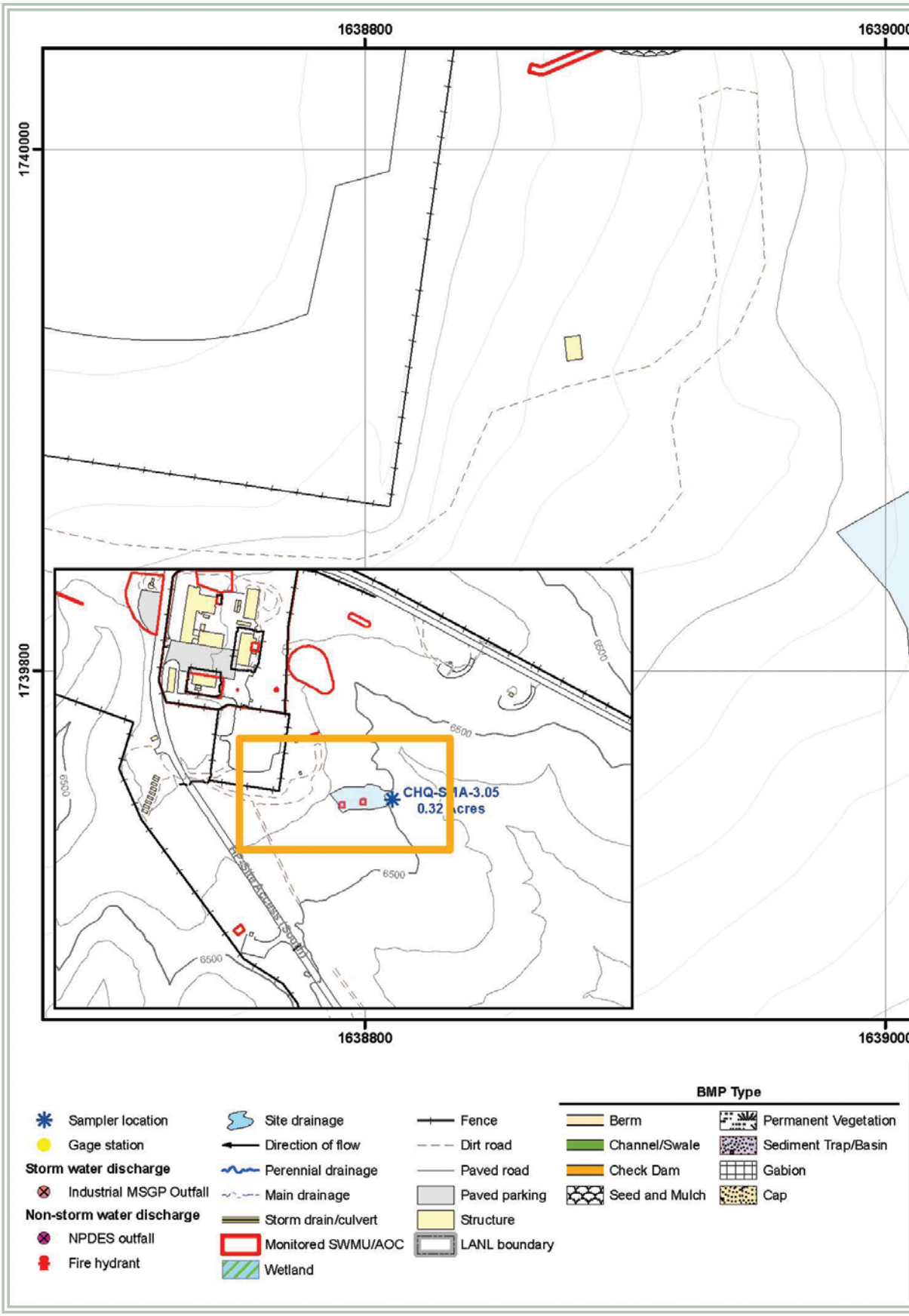
This is a group of two wattles on the eastern side, down slope, of the SMA to control

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.

Rock Check Dams (Q004-06-01-0006, -0007)

This is a series of two check dams located west of the sampler. They are in place to restrict run-off from above and prevent sediment migration off 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.

1000.15.4 Project Map



1639200
1740000
1739800
1639200
6480
Q00406010006
Q00406010007
CHQ-SMA-3.05
0.32 Acres
33-010(f)
33-010(f)
Q00403060003
Q00403060002
Q00403060004
Q00403060005
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
EST. 1943
Feet
0 25 50 75 100
0 10 20 30
Meters
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
Q004: CHQ-SMA-3.05
Chaquehui Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team,
February 14, 2011, Map #Q004-10-0017-44-CHQ3.05-R2

1000.15.5 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) PEST (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 Site associated with CHQ-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.



1000.16 CHQ-SMA-4

1000.16.1 Area Description

1000.16.2 Potential Pollutant Sources

1000.16.2.1 Historical Industrial Activity Areas

1000.16.3 Control Measures

1000.16.3.1 Control Measures for Historical Industrial Activity Areas

1000.16.4 Project Map

1000.16.5 Storm Water Monitoring Plan and Schedule

1000.16.6 Corrective Action Status



1000.16 CHQ-SMA-4

1000.16.1 Area Description

CHQ-SMA-4 is located north of a paved access road and a remote structure at TA-33. Access to the area is controlled. Storm water run-off is influenced by natural run-on and run-on from the structure located east of the SMA. The boundaries of the SMA are undeveloped with sparse vegetative cover. The outfall location is on the edge of the impervious paved area. Run-off from the area flows south along the perimeter of the paved area, through a natural drainage to a tributary of Chaquehui Canyon, and eventually to the canyon to the south.

1000.16.2 Potential Pollutant Sources

1000.16.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF Q005, CHQ-SMA-4, Site 33-011(e).

SWMU 33-011(e) is a former drum-storage area located at the south end of TA-33 Main Site, approximately 30 ft northwest of building 33-0022, a former HE storage magazine. The area is unpaved and gradually slopes to the southwest. Drums containing unknown materials were previously stored at this area. The date the materials were first stored at this site is not known. At the time that the OU 1122 RFI work plan was prepared in 1992, all drums had been removed from the site and the area had been cleared. The site is currently not used.

1000.16.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
33-011(e)	Storage Area	Discrete Location, No overlap	Individual	•	•	•	HE PCBs

1000.16.3 Control Measures

Run-on in the form of sheet flow originates from a small portion of the paved area inside the SWUM boundary. The majority of the paved run-on flows to the south, away from the SWMU.

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
Q005 01 03 0015	Seed and Mulch Hydromulch			•	
Q005 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
Q005 03 06 0002	Berms - Straw Wattles		•		•
Q005 03 06 0006	Berms - Straw Wattles	•			•
Q005 03 06 0007	Berms - Straw Wattles	•			•
Q005 03 06 0008	Berms - Straw Wattles	•			•
Q005 03 06 0009	Berms - Straw Wattles	•			•
Q005 03 06 0010	Berms - Straw Wattles		•		•
Q005 03 06 0011	Berms - Straw Wattles		•		•
Q005 03 06 0012	Berms - Straw Wattles		•		•
Q005 03 06 0013	Berms - Straw Wattles		•		•
Q005 03 06 0014	Berms - Straw Wattles		•		•
Q005 06 01 0003	Check Dam - Rock		•		•
Q005 06 01 0004	Check Dam - Rock		•		•
Q005 06 01 0005	Check Dam - Rock		•		•

Hydromulch (Q005-01-03-0015)

Hydromulch has been applied throughout the Site footprint, extending outside the Site boundary and entirely encompassing the SMA footprint. It was installed to help alleviate 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.

Established Vegetation (Q005-02-01-0001)

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 (Q005-03-06-0002)

The wattles are situated to the east of the SMA and are in place to mitigate run-off from the SWMU. 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 Northwest (Q005-03-06-0006, -0007, -0008, -0009)

This is a group of four straw wattles located northwest of the SMA. They are used to control run-on to the area 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.

Straw Wattles North (Q005-03-06-0010, -0011)

This pair of wattles is located north of the SMA. They are used to control run-off from the area and prevent sediment migration. 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.

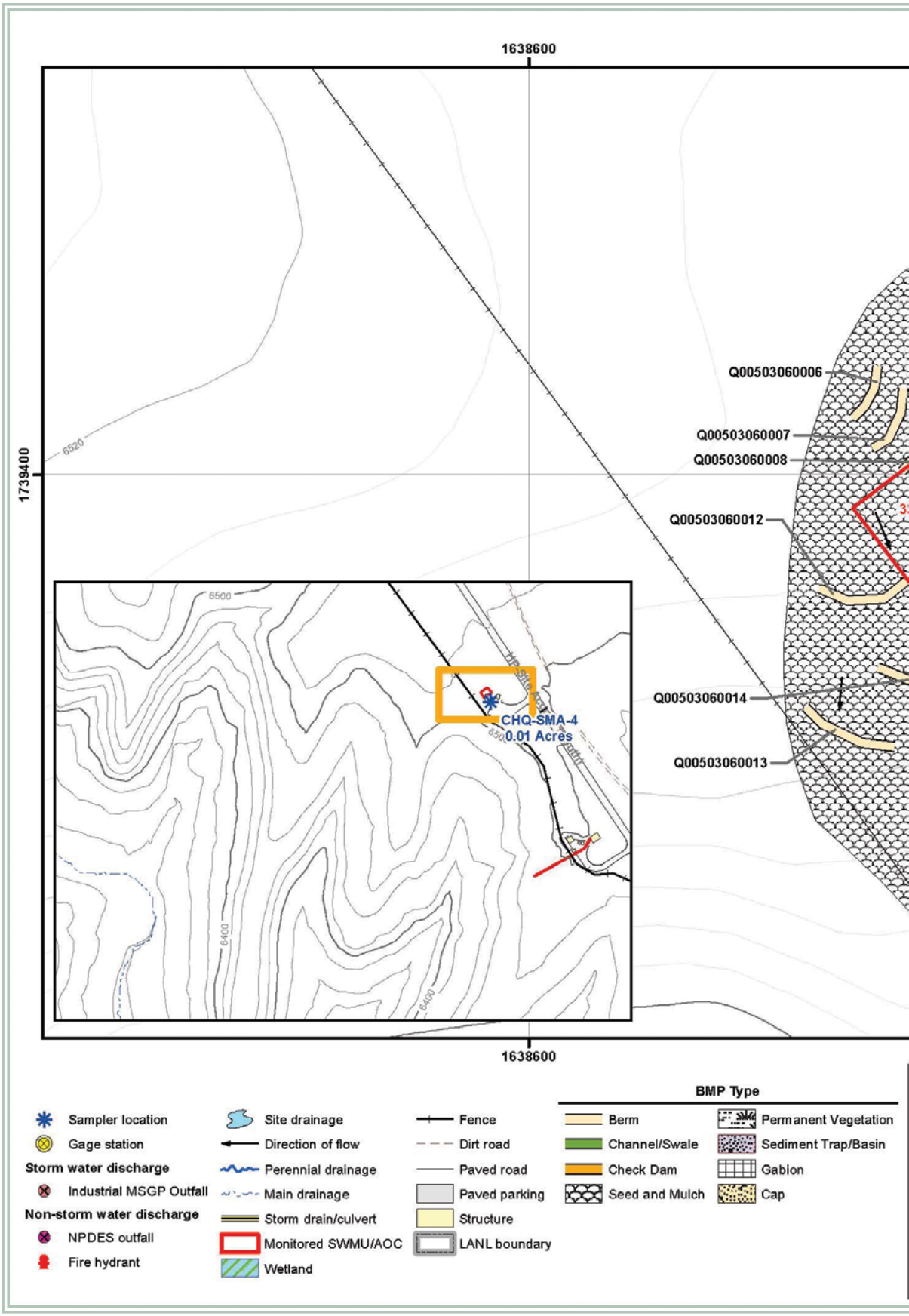
Straw Wattles West (Q005-03-06-0012, -0013, -0014)

This is a group of three wattles located west of the SMA, near the fence line. They are used to control run-off 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 Dams (Q005-06-01-0003, -0004, -0005)

This is a series of three rock check dams located on the western edge of the paved area west of South Site Road. They are in place to control 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.

1000.16.4 Project Map



1638800
1739400
Q00503060009
Q00501030015
Q00503060011
Q00503060010
Q00503060002
SOUTH SITE
33-0022
CHQ-SMA-4
0.01 Acres
Q00506010003
Q00506010004
Q00506010005
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 10 20 30 40
0 5 10 15
Meters
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
Q005: CHQ-SMA-4
Chaquehui Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, February 15, 2011,
Map #Q005-10-0017-45-CHQ4-R4

1000.16.5 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)	PCBs (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).

1000.16.6 Corrective Action Status

The Site associated with CHQ-SMA-4 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.17 CHQ-SMA-4.1

1000.17.1 Area Description

1000.17.2 Potential Pollutant Sources

1000.17.2.1 Historical Industrial Activity Areas

1000.17.3 Control Measures

1000.17.3.1 Control Measures for Historical Industrial Activity Areas

1000.17.4 Project Map

1000.17.5 Storm Water Monitoring Plan and Schedule

1000.17.6 Corrective Action Status



1000.17 CHQ-SMA-4.1

1000.17.1 Area Description

CHQ-SMA-4.1 is located southwest of a remote developed area in TA-33 and access to the area is controlled. The area is located on a moderately-sloping west facing slope. Run-off flows west through natural pathways to a tributary of Chaquehui Canyon before reaching the canyon further south. The eastern SMA boundary is developed with impervious areas, however, the topography limits its influence to the SMA.

1000.17.2 Potential Pollutant Sources

1000.17.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF Q006, CHQ-SMA-4.1, Site 33-016.

SWMU 33-016 is a formerly used sump and associated drainline and outfall at a process bunker located in the southern portion of Main Site. The concrete sump is 3 ft x 2 ft x 2 ft deep and is located next to the northwest corner of the bunkerâ€™s exterior wall, near the door. A drainline leads from the sump to an outfall approximately 250 ft southwest of the building to a small side canyon to Chaquehui Canyon. The sump was connected to a sink and floor drain in the bunker, which was constructed in 1950. From 1950 until 1972, the bunker was used as a trim building to prepare propellant charges for gun tests at South Site. Structure 33-0023 was subsequently used until 1994 to store lithologic cores from the Hot Dry Rock Program. In addition to the sink and floor drain, the sump also may have received rainwater and snowmelt. The sump was decommissioned in 1995.

1000.17.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
33-016	Sump	Discrete Location, No overlap	Individual	•	•	•	HE PCBs

1000.17.3 Control Measures

There are no significant run-on sources at this SMA. Planned controls are to address overland flow along the southwestern boundary and to strengthen sediment retention of storm water running off of this area.

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
Q006 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
Q006 03 06 0004	Berms - Straw Wattles	•			•
Q006 03 06 0005	Berms - Straw Wattles	•			•
Q006 03 06 0006	Berms - Straw Wattles	•			•
Q006 03 06 0007	Berms - Straw Wattles	•			•
Q006 06 01 0002	Check Dam - Rock		•		•
Q006 06 01 0003	Check Dam - Rock		•		•

Established Vegetation (Q006-02-01-0001)

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.

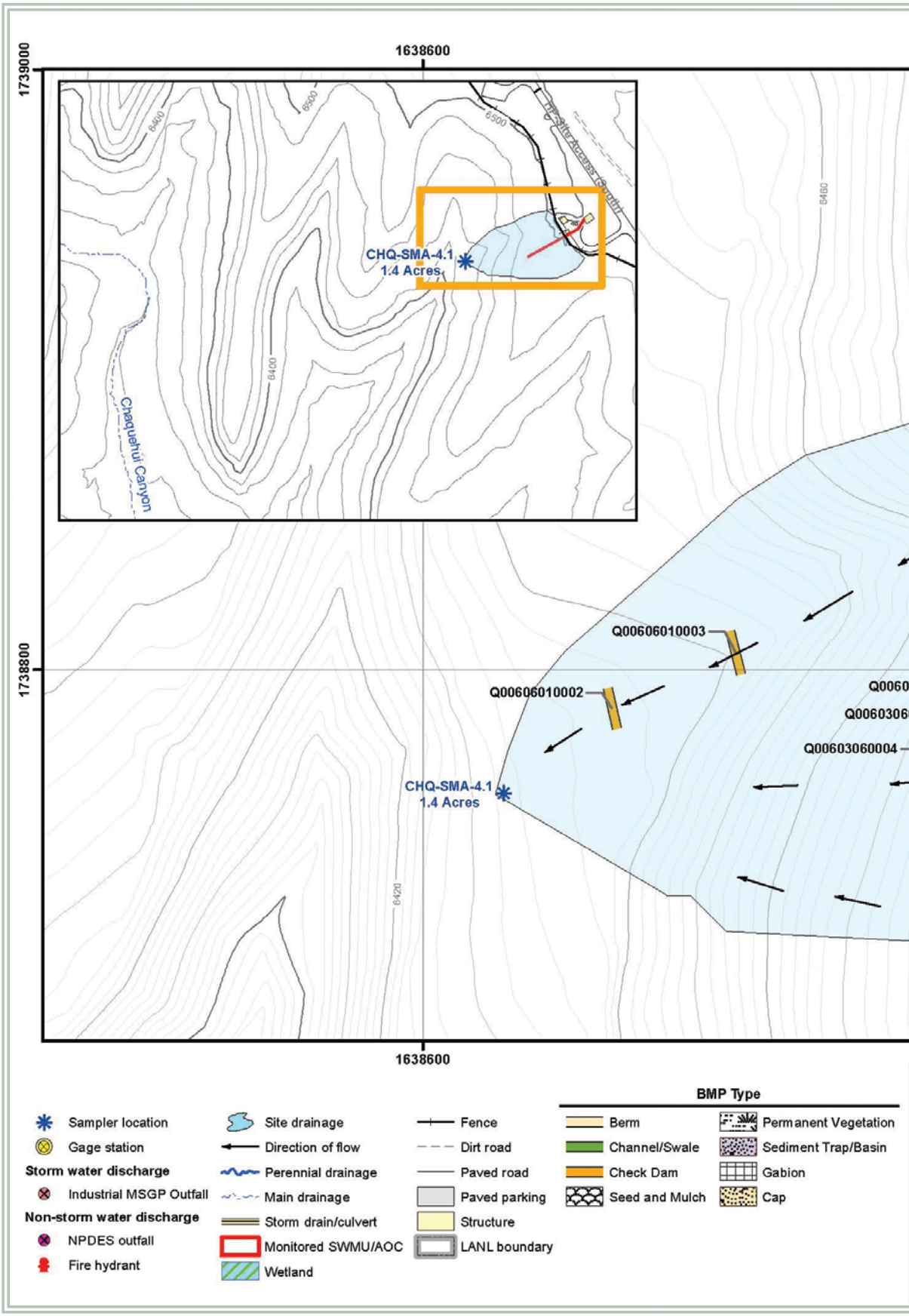
Straw Wattles (Q006-03-06-0004, -0005, -0006, -0007)

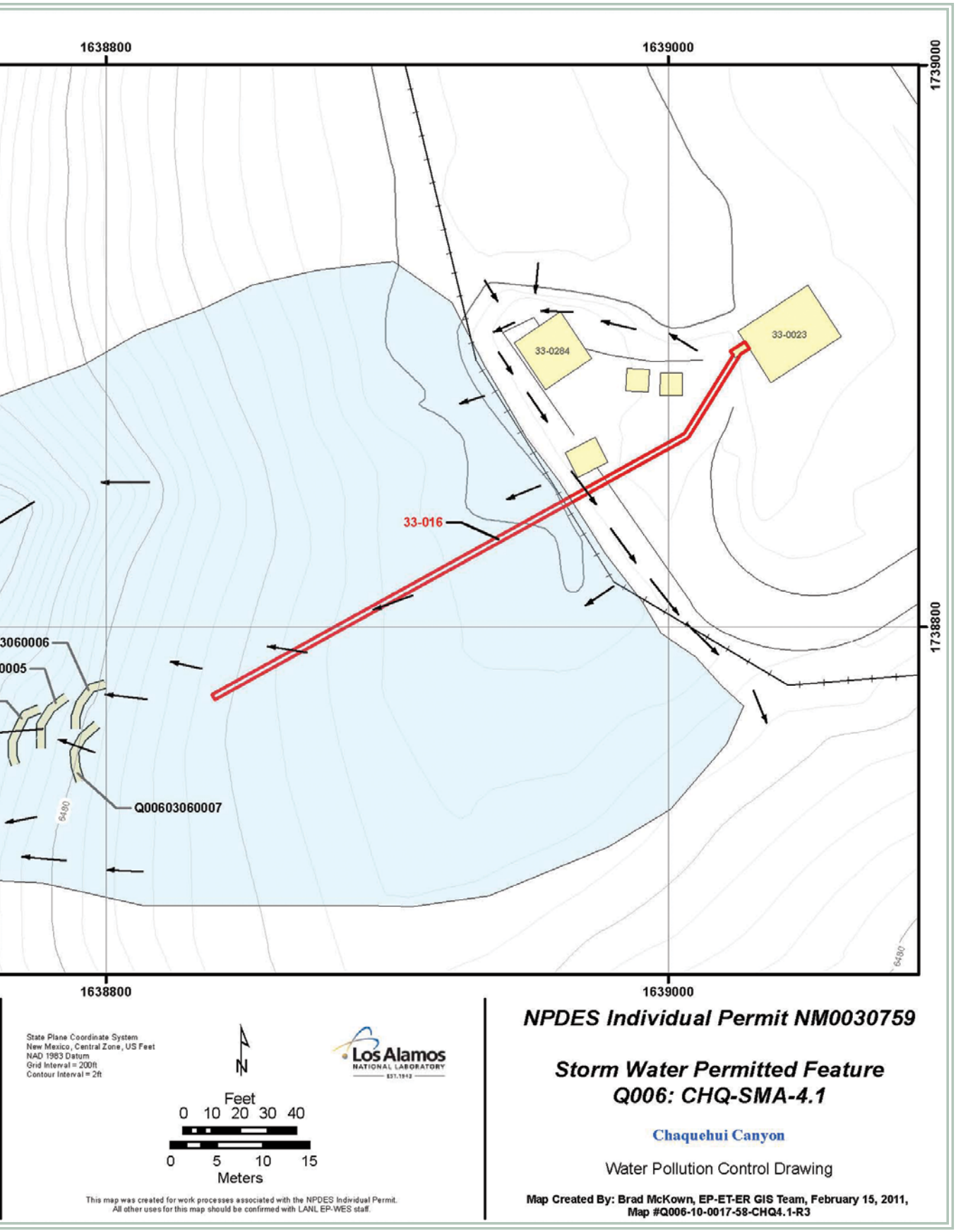
This is a group of four straw wattles that have been installed on the slope at the western end of the Site. They are used to mitigate storm water run-on flow from the slope above. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water 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.

Check Dam Rocks (Q006-06-01-0002, -0003)

This is a pair of rock check dams located in the main channel above the sampler. They are used to control run-off from the SMA and reduce sediment loading. 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.

1000.17.4 Project Map




1638800
1639000
1739000
1738800
33-0284
33-0023
33-016
3060006
0005
Q00603060007
6480
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 10 20 30 40
0 5 10 15
Meters
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
Q006: CHQ-SMA-4.1
Chaquehui Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, February 15, 2011,
Map #Q006-10-0017-58-CHQ4.1-R3

1000.17.5 Storm Water Monitoring Plan and Schedule

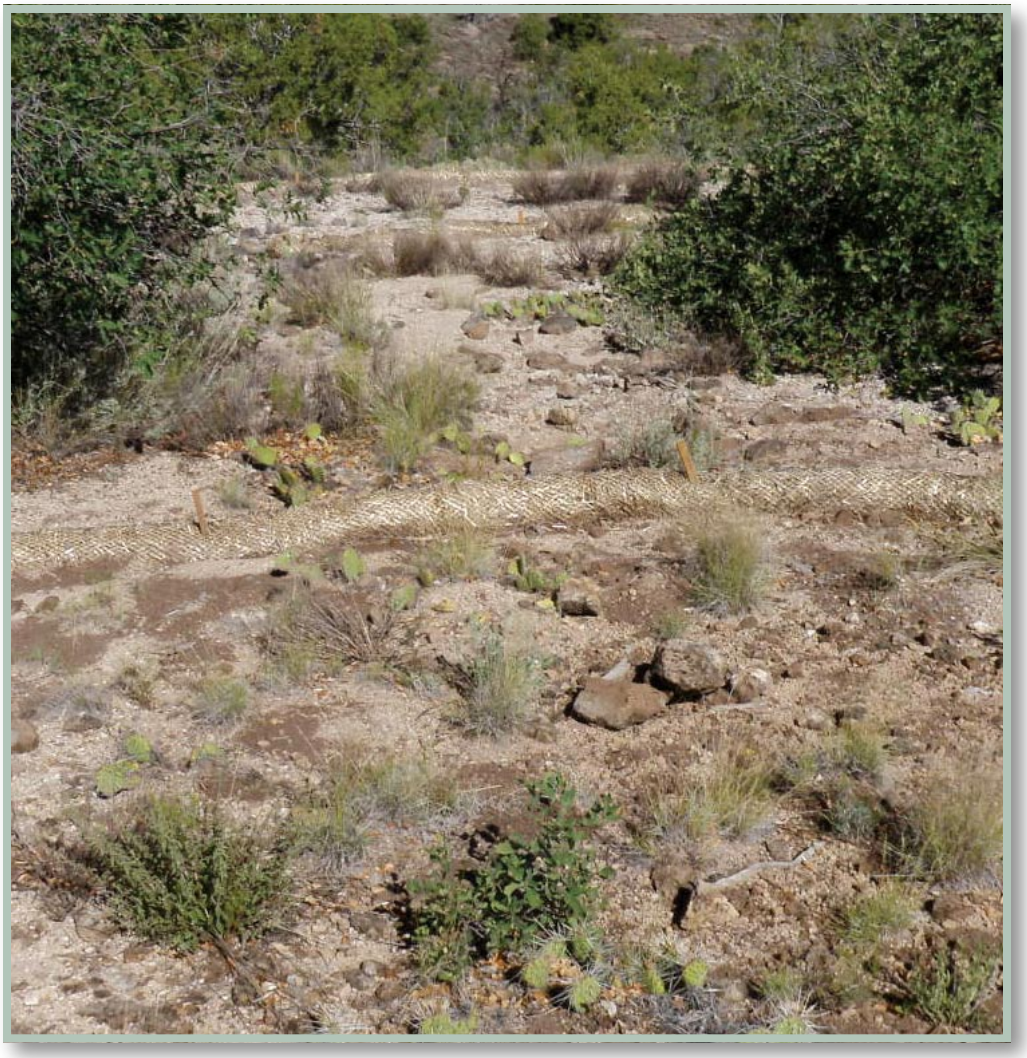
Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (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 CHQ-SMA-4.1 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.



1000.18 CHQ-SMA-4.5

1000.18.1 Area Description

1000.18.2 Potential Pollutant Sources

1000.18.2.1 Historical Industrial Activity Areas

1000.18.3 Control Measures

1000.18.3.1 Control Measures for Historical Industrial Activity Areas

1000.18.4 Project Map

1000.18.5 Storm Water Monitoring Plan and Schedule

1000.18.6 Corrective Action Status



1000.18 CHQ-SMA-4.5

1000.18.1 Area Description

CHQ-SMA-4.5 is located northwest of a remote, semi-developed area in TA-33 and access to the area is controlled. The area on the mesa top is flat. Run-off occurs through natural pathways and flows west to a tributary of Chaquehui Canyon before reaching the canyon further south. The eastern boundary of the area contains an unpaved access road.

1000.18.2 Potential Pollutant Sources

1000.18.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF Q007, CHQ-SMA-4.5, Site 33-011(b).

AOC 33-011(b) is a former storage area located just outside the northwest corner of the NRAO site at TA-33. This storage area was approximately 300 ft wide x 600 ft long. Beginning in the 1950s, the site served as a storage area for equipment and materials such as tungsten, uranium, and beryllium were stored at the site. Equipment used at the TA-33 firing sites was also stored at the site. The storage area was cleaned in 1984, and most materials and debris were removed at that time, although some debris remained. Approximately 75% of the area had been scraped and leveled to or near the tuff bedrock.

1000.18.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
33-011(b)	Storage area	Discrete Location, No overlap	Individual	•		•	

1000.18.3 Control Measures

There are no significant run-on contributions to this monitored area. Paved areas in proximity to the SMA are graded away from the SMA. Planned controls are to fortify sediment retention in any run-off that may be generated at this SMA.

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
Q007 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
Q007 03 06 0004	Berms - Straw Wattles		•		•
Q007 03 06 0005	Berms - Straw Wattles		•		•
Q007 03 06 0006	Berms - Straw Wattles		•		•
Q007 03 06 0007	Berms - Straw Wattles		•		•
Q007 03 06 0008	Berms - Straw Wattles		•		•
Q007 06 01 0002	Check Dam - Rock		•		•
Q007 06 01 0003	Check Dam - Rock		•		•

Established Vegetation (Q007-02-01-0001)

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 Wattle Northeast (Q007-03-06-0004)

This wattle is located on the slope above rock check dam to assist with run-off control. 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 (Q007-03-06-0005)

This is a series of four wattles placed along the canyon edge to restrict 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 Wattle East (Q007-03-06-0006)

This wattle is located to the south and east of the central straw wattles and is also used to control run-off from 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.

Straw Wattle West (Q007-03-06-0007)

This wattle is located at the western boundary of the SMA, south and west of the central straw wattles. It is in place to mitigate run-off from the unpaved parking 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 (Q007-03-06-0008)

This is a series of two straw wattles that are located along the fence west of 33-0175 and south of the SMA. They are used to control run-off from the area surrounding the structure. 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.

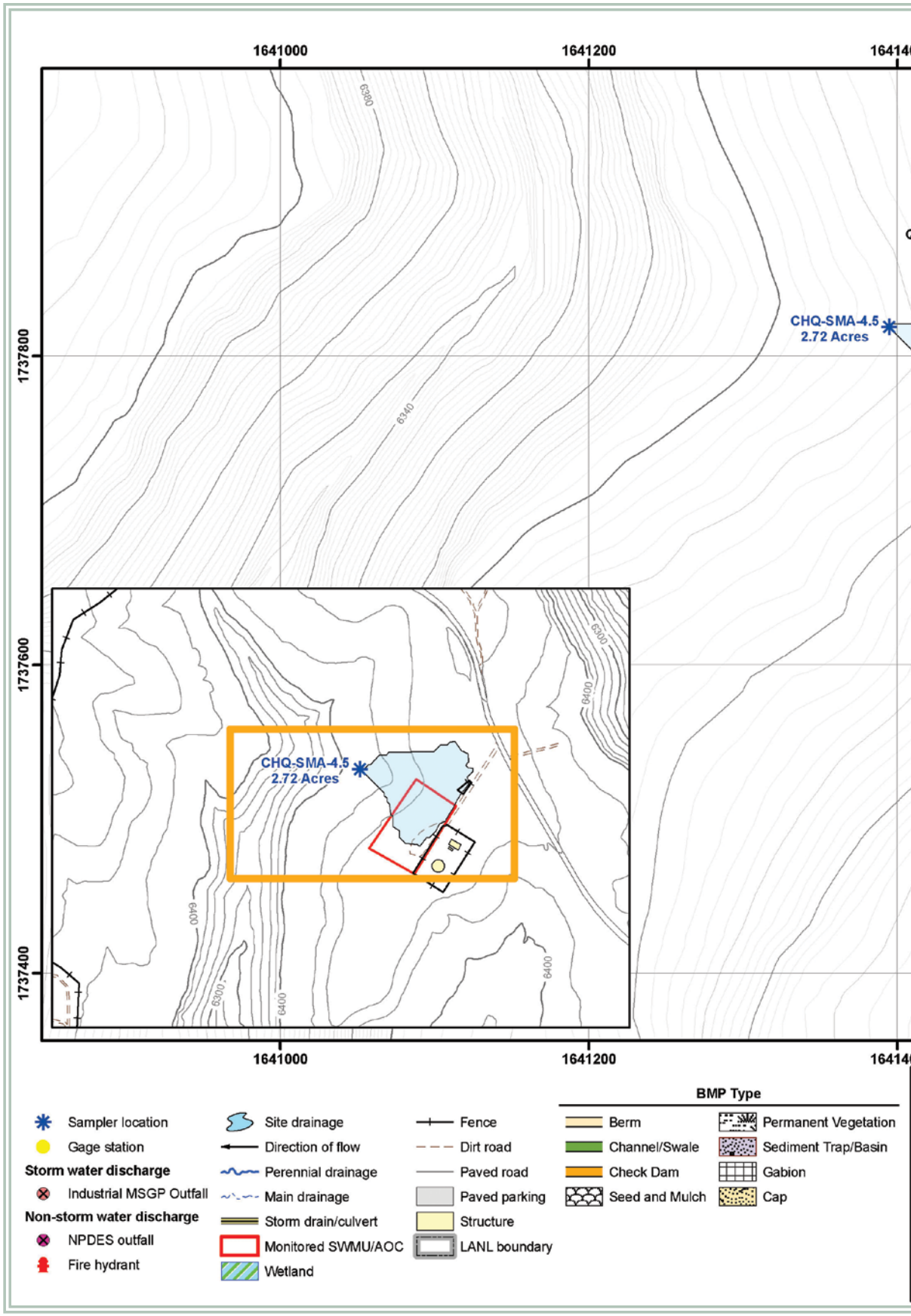
Rock Check Dam West (Q007-06-01-0002)

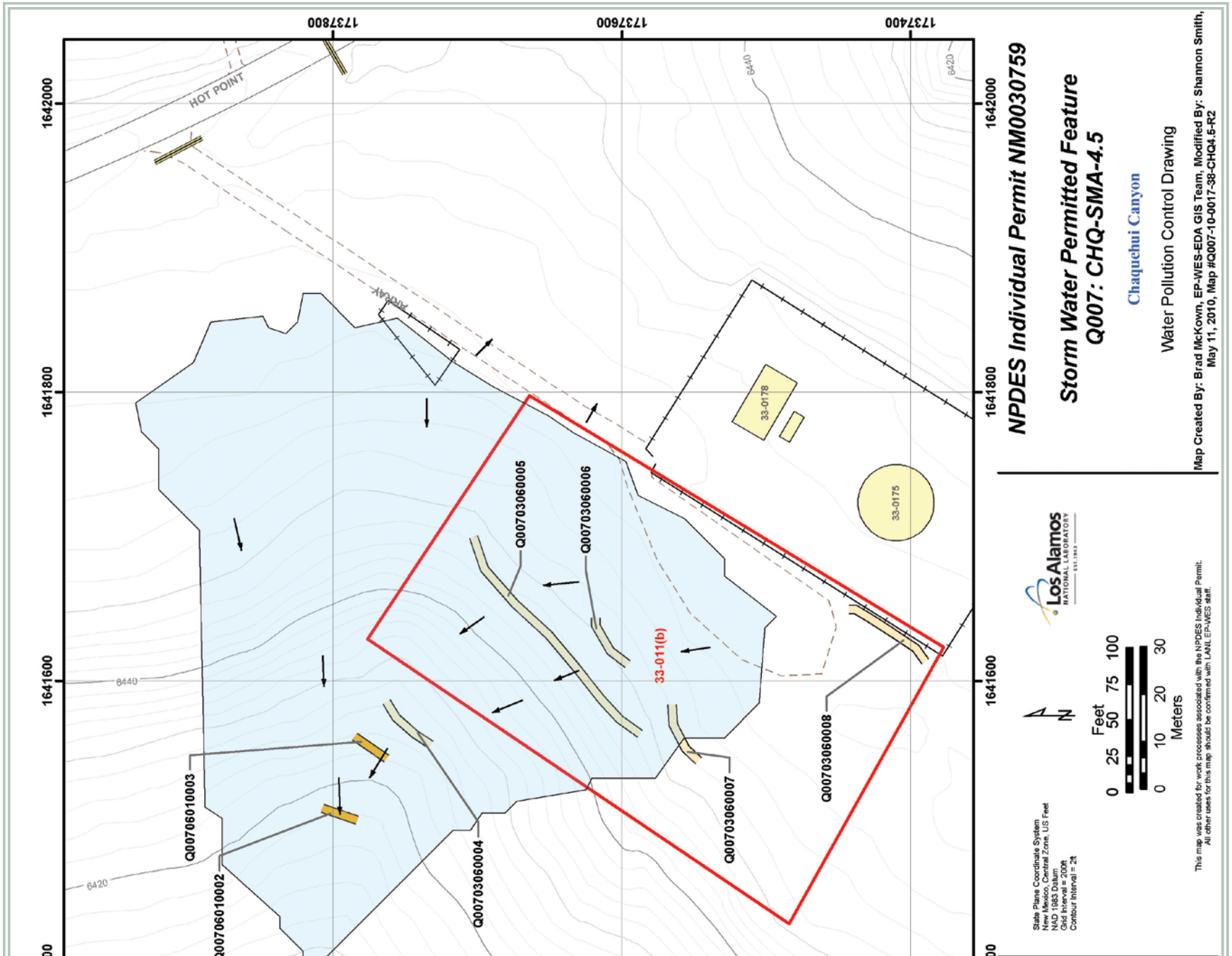
This check dam is located due east of the sampler and is used to control run-off and sediment retention. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or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

Rock Check Dam East (Q007-06-01-0003)

This check dam is located east of the sampler and rock check dam west. It is used to mitigate run-off and 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.

1000.18.4 Project Map




1737800
1737600
1737400
1642000
1641800
1641600
HOT POINT
ACCESS
6440
6420
33-0178
33-0175
33-011(b)
Q00703060005
Q00703060006
Q00703060007
Q00703060008
Q00706010003
Q00706010002
Q00703060004
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
Q007: CHQ-SMA-4.5
Chaquehui Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-WES-EDA GIS Team, Modified By: Shannon Smith,
May 11, 2010, Map #QO07-10-0017-38-CHQ4.5-R2
Los Alamos
NATIONAL LABORATORY
EST. 1943
N
Feet
0 25 50 75 100
Meters
0 10 20 30
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.

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)	

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 Site associated with CHQ-SMA-4.5 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.



1000.19 CHQ-SMA-5.05

1000.19.1 Area Description

1000.19.2 Potential Pollutant Sources

1000.19.2.1 Historical Industrial Activity Areas

1000.19.3 Control Measures

1000.19.3.1 Control Measures for Historical Industrial Activity Areas

1000.19.4 Project Map

1000.19.5 Storm Water Monitoring Plan and Schedule

1000.19.6 Corrective Action Status



1000.19 CHQ-SMA-5.05

1000.19.1 Area Description

CHQ-SMA-5.05 is located in a remote developed area of TA-33 and access to the area is controlled. The majority of the area is impervious area. Run-off occurs through manmade and natural channels to the northwest to Chaquehui Canyon. Storm water run-off in the area is influenced by structures and impervious areas north of the area. The western boundary is formed by impervious surfaces and a dirt access road. Much of the area on the northern boundary of the SMA is also paved and impervious.

1000.19.2 Potential Pollutant Sources

1000.19.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF Q008, CHQ-SMA-5.05, Site 33-007(b).

SWMU 33-007(b) consists of two former gun-firing sites. The first area is located approximately 600 ft north of structure 33-0026 [SWMU 33-006(a)] and consists of a 6-ft x 6-ft concrete pad and gun mount (structure 33-0085), a u-shaped soil berm (structure 33-0043), and a catcher box. The berm and catcher box were constructed in August 1950. The concrete pad and gun mount were constructed in June 1952. This area was used to test free-recoil weapons. Tests involved firing projectiles into the berm and the catcher box. Projectiles fired from the guns contained uranium, beryllium, titanium, and tritium housed inside steel casings. Activities at South Site were discontinued in the late 1950s. This area was used to support atmospheric physics measurements during the late 1980s and early 1990s. Structures associated with these activities include a tower (structure 33-0203) constructed in 1987 and two trailers (structures 33-0201 and 33-0202). All structures have been removed.

The second site was located approximately 400 ft northwest of structure 33-0026 and included a gun building (structure 33-0025) and a soil berm (structure 33-0063). Both structures were built in 1950. The gun building housed 2-in. to 4-in. bore guns that were used to fire projectiles into berm 33-0063. The projectiles used at this site contained uranium, beryllium, and tungsten. Firing site activities at SWMU 33-007(b) were discontinued in the late 1950s. A VCA was performed at berm 33-0063 in 1999. During the VCA, the berm was removed. Treated soil was returned to the location of the former berm. The site was graded, compacted, and reseeded with native seed. Recently, approximately 1 to 2 ft of engineered fill has been placed over the location of the former berm. Building 33-0025 was renovated in 2005 and 2006.

1000.19.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
33-007(b)	Firing Sites	Co-located, Overlapping	Individual	•		•	

1000.19.3 Control Measures

There are minor run-on contributions from a roof and surrounding bare areas to the SMA. Existing controls effectively manage these run-on contributions and also provide sediment retention for any run-off from this SMA.

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
Q008 02 01 0004	Established Vegetation - Grasses and Shrubs			•	
Q008 03 02 0006	Berms - Base Course		•		•
Q008 04 06 0002	Channel/Swale - Rip Rap		•	•	
Q008 04 06 0005	Channel/Swale - Rip Rap	•		•	
Q008 04 06 0007	Channel/Swale - Rip Rap		•	•	
Q008 06 01 0003	Check Dam - Rock		•		•

Established Vegetation (Q008-02-01-0004)

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.

Base Course Berm (Q008-03-02-0006)

The berm is located to the south and west of building 33-0025 and is controlling run-off from the SWMU. 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 (Q008-04-06-0002)

This rip rap is located to the north west of the SMA and runs parallel to the edge of the paved area. It is controlling erosion and run-off. 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.

Spillway Rip Rap (Q008-04-06-0005)

The rip rap is located adjacent to the emergency spillway near the southern boundary of the SMA. It functions as outlet protection and diverts run-on towards the paved areas and prevents erosion of the spillway. 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 - South (Q008-04-06-0007)

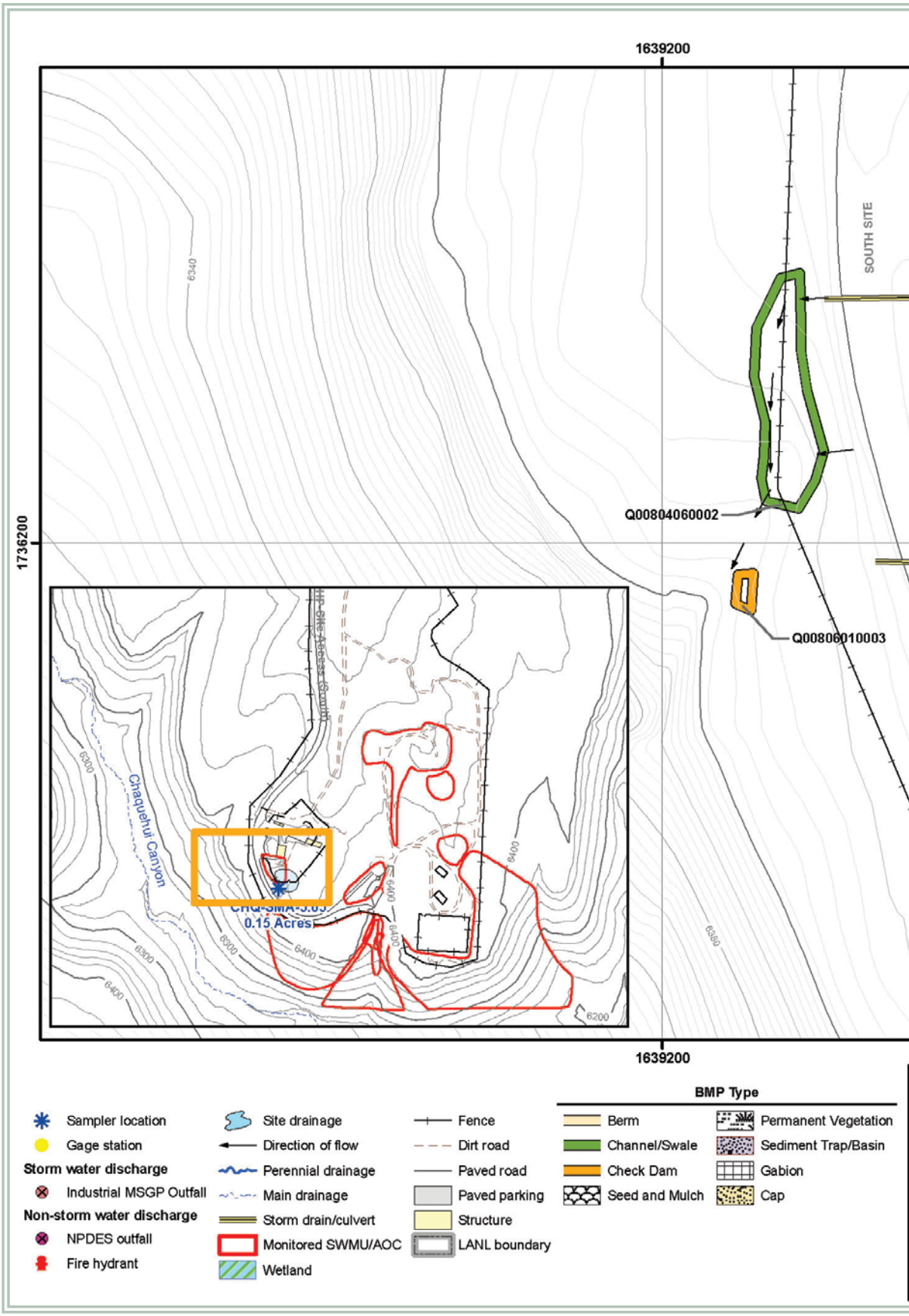
This rip rap is located along the southern perimeter of buildings 33-0025 and is used to divert run-off away from the SMA to the northwest. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

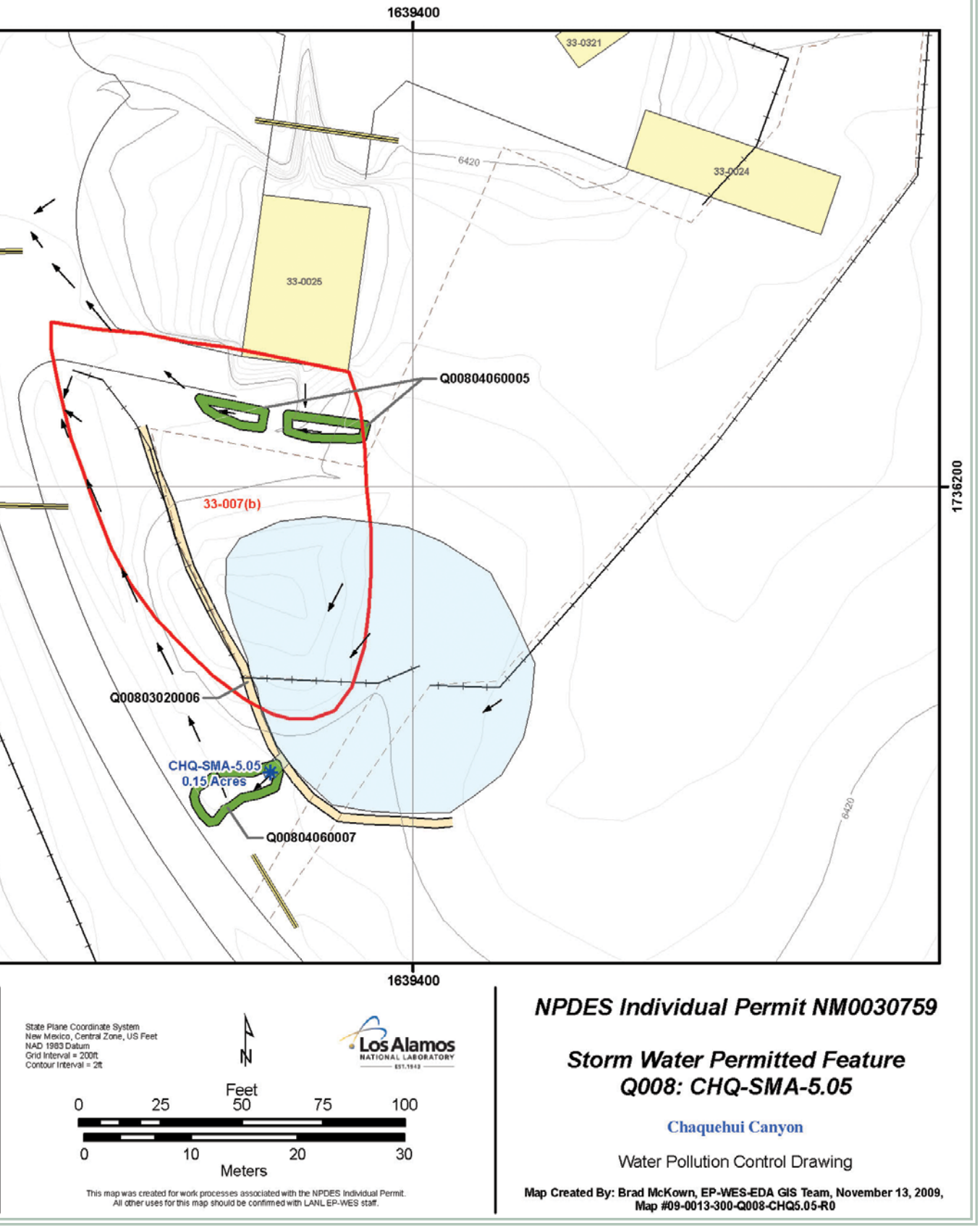
Rock Check Dam (Q008-06-01-0003)

The check dam is located west of the access road. It is controlling run-off from the paved areas to the east and preventing erosion. 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.



1000.19.4 Project Map




1639400
33-0321
6420
33-0024
33-0025
Q00804060005
1736200
33-007(b)
Q00803020006
CHQ-SMA-5.05
0.15 Acres
Q00804060007
6420
1639400
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
EST. 1943
Feet
0 25 50 75 100
0 10 20 30
Meters
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
Q008: CHQ-SMA-5.05
Chaquehui Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-WES-EDA GIS Team, November 13, 2009,
Map #09-0013-300-Q008-CHQ5.05-R0

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

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



1000.20 CHQ-SMA-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

1000.20.3.1 Control Measures for Historical Industrial Activity Areas

1000.20.4 Project Map

1000.20.5 Storm Water Monitoring Plan and Schedule

1000.20.6 Corrective Action Status



1000.20 CHQ-SMA-6

1000.20.1 Area Description

CHQ-SMA-6 is located in a remote developed area of TA-33 and access to the area is controlled. The mesa top is flat and drainage flows to the south through natural and man-made channels to the outfall location where it flows down a steep south-facing slope to Chaquehui Canyon. The western boundary of the area is formed by an unpaved access road and a small amount of impervious area. Structures at this impervious area influence run-off from the SMA. The northern boundary is undeveloped, but an unpaved access road in the central portion of the SMA influences run-off from the SMA. The western boundary is mostly undeveloped area, but is intersected by unpaved access roads running across the SMA.

1000.20.2 Potential Pollutant Sources

1000.20.2.1 Historical Industrial Activity Areas

There are seven historical industrial activity areas associated with PF Q009, CHQ-SMA-6, Sites 33-004(j), 33-006(a), 33-007(b), 33-010(c), 33-010(g), 33-010(h) and 33-014.

SWMU 33-004(j) consists of a 4-in. steel drainpipe and outfall connected to structure 33-0026, a culvert located immediately east of structure 33-0026, and the drainage channel that flows south and empties into Chaquehui Canyon. The pipe is connected to a drain located on the concrete pad at the entrance to structure 33-0026. Structure 33-0026, held electronic equipment used for experiments on the shot pad [SWMU 33-006(a)] located directly above the structure. The drainpipe extends 75 ft southeast and discharges to an open channel that drains into Chaquehui Canyon. The culvert is situated beneath the unpaved portion of the road that extends beyond structure 33-0026. The upper portion of the drainage channel where both the outfall pipe and the culvert discharge has been cut into the tuff.

SWMU 33-006(a) is a shot pad at South Site where implosion studies were conducted. The shot pad was a 50-ft-diameter circular area located immediately north of and next to the roof of structure 33-0026, an X-unit chamber (i.e., a control chamber containing a firing voltage distribution system used for the remote detonation of test firings). Structure 33-0026 was completed in 1950. Implosion tests performed at the shot pad contained up to 5000 lb of HE. Before detonations, wooden boxes covered the assemblages. Detonations from the shot pad scattered debris, shrapnel, and wood fragments over the mesa top of South Site and into Chaquehui Canyon. Shrapnel has been found at distances up to a mile away from the shot pad. The shot pad has not been used since 1955 when implosion testing was discontinued at TA-33. Currently, the pad is covered with up to a foot or more of sand and firing site debris.

SWMU 33-007(b) consists of two former gun-firing sites. The first area is located approximately 600 ft north of structure 33-0026 [SWMU 33-006(a)] and consists of a 6-ft x 6-ft concrete pad and gun mount (structure 33-0085), a u-shaped soil berm (structure 33-0043), and a catcher box. The berm and catcher box were constructed in August 1950. The concrete pad and gun mount were constructed in June 1952. This area was used to test free-recoil weapons. Tests involved firing projectiles into the berm and the catcher box. Projectiles fired from the guns contained uranium, beryllium, titanium, and tritium housed inside steel casings. Activities at South Site were discontinued in the late 1950s. This area was used to support atmospheric physics measurements during the late 1980s and early 1990s. Structures associated with these activities include a tower (structure 33-0203) constructed in 1987 and two trailers (structures 33-0201 and 33-0202). All structures have been removed.

The second site was located approximately 400 ft northwest of structure 33-0026 and included a gun building (structure 33-0025) and a soil berm (structure 33-0063). Both structures were built in 1950. The gun building housed 2-in. to 4-in. bore guns that were used to fire projectiles into berm 33-0063. The projectiles used at this site contained uranium, beryllium, and tungsten. Firing site activities at SWMU 33-007(b) were discontinued in the late 1950s. A VCA was performed at berm 33-0063 in 1999. During the VCA, the berm was removed. Treated soil was returned to the location of the former berm. The site was graded, compacted, and reseeded with native seed. Recently, approximately 1 to 2 ft of engineered fill has been placed over the location of the former berm. Building 33-0025 was renovated in 2005 and 2006.

SWMU 33-010(c) is a former surface disposal area located at South Site on the northern rim of Chaquehui Canyon, approximately 230 ft south of structure 33-0026. The disposal area dimensions were approximately 50 ft x 30 ft x 2 ft to 4 ft deep. The area is located along the western edge of the main South Site drainage channel. From approximately 1950 to 1955, this site was used to dispose of debris from the implosion tests conducted at SWMU 33-006(a). Debris disposed of at the site includes copper and aluminum shrapnel, pieces of electronic cable, and wood. Between shots, the shot pad and surrounding area were scraped and the debris deposited at SWMU 33-010(c). A VCA was performed in 1999, and the debris pile was excavated and removed.

SWMU 33-010(g) is a former disposal area located on the northern rim of Chaquehui Canyon. Debris was scattered along the rim and upper walls of the canyon. This former disposal area is located next to MDA E [Consolidated Unit 33-001(a)-99]. Some debris present at SWMU 33-010(g) (such as dead tree trunks, rocks, and scraped earth) may have originated from the initial clearing of South Site in the 1940s. Other debris, including chunks of metal, was also present. The period of operation for this disposal site is not known, but firing site operations associated with initiator testing at South Site were conducted from 1950 to 1956. The debris was removed and disposed of in 1995.

SWMU 33-010(h) is a surface disposal area located approximately 450 ft northeast of structure 33-0026 and immediately south of berm 33-0043. The area appears to be a mound of dirt and firing-site debris is scattered on the soil surface. Debris includes metal, wood, cable, and shrapnel. The area is approximately 100 ft x 100 ft. There is no documentation regarding the history of the disposal area. The main drainage for South Site bounds the disposal area on the west, and an unimproved road is located to the east.

SWMU 33-014 is the former location of an open burn area located approximately 300 ft north of the fence surrounding MDA E [Consolidated Unit 33-001(a)-99]. The soil at the burn site has been scraped to bedrock, and some bedrock is blackened from burning. This burn area was believed to have been established in 1950 when operations at South Site began and may have served all of TA-33. Materials burned at this site may have included construction debris, timber, sawdust used in catcher boxes, and black powder. It is not known when burning operations were discontinued at this site.

1000.20.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
33-004(j)	Outfall from Building 33-26	Co-located, Overlapping	Shared	•	•	•	HE
33-006(a)	Firing site	Co-located, Overlapping	Shared	•	•	•	HE
33-007(b)	Firing Sites	Co-located, Overlapping	Shared	•	•	•	HE
33-010(c)	Surface disposal site	Co-located, Overlapping	Shared	•	•	•	HE
33-010(g)	Surface disposal site	Discrete Location, No overlap	Shared	•	•	•	HE
33-010(h)	Surface disposal site	Co-located, Overlapping	Shared	•	•	•	HE
33-014	Burn site	Co-located, Overlapping	Shared	•	•	•	HE

Substantially Identical Determination

Sites grouped within this SMA are associated with historical activities at TA-33, South Site. Because these Sites have similar contaminants and share a common drainage, these Sites will discharge substantially identical effluent.

1000.20.3 Control Measures

Run-on contributions to this monitored area originate on the unpaved access road that runs north and south through the SMA, as well as from the paved areas in proximity to the area. Planned controls are to close and rehabilitate unpaved access roads and to improve sediment retention of any run-off from the SMA.

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
Q009 01 03 0028	Seed and Mulch Hydromulch			•	
Q009 01 06 0006	Seed and Mulch - Erosion Control Blanket		•	•	
Q009 02 01 0005	Established Vegetation - Grasses and Shrubs			•	
Q009 03 01 0017	Berms - Earthen		•		•
Q009 03 06 0003	Berms - Straw Wattles		•		•
Q009 03 06 0009	Berms - Straw Wattles	•			•
Q009 03 06 0010	Berms - Straw Wattles	•			•
Q009 03 06 0012	Berms - Straw Wattles	•			•
Q009 03 06 0013	Berms - Straw Wattles	•			•
Q009 03 06 0014	Berms - Straw Wattles		•		•
Q009 03 06 0015	Berms - Straw Wattles		•		•
Q009 03 06 0016	Berms - Straw Wattles		•		•
Q009 06 01 0001	Check Dam - Rock		•		•
Q009 06 01 0002	Check Dam - Rock		•		•
Q009 06 01 0007	Check Dam - Rock		•		•
Q009 06 01 0008	Check Dam - Rock		•		•

1000.20.3.1 Control Measures for Historical Industrial Activity Areas (continued)

Control ID	Control Name	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
Q009 06 01 0011	Check Dam - Rock	•			•
Q009 06 01 0018	Check Dam - Rock	•			•
Q009 06 01 0019	Check Dam - Rock	•			•
Q009 06 01 0020	Check Dam - Rock	•			•
Q009 06 01 0021	Check Dam - Rock		•		•
Q009 06 01 0022	Check Dam - Rock		•		•
Q009 06 01 0023	Check Dam - Rock		•		•
Q009 06 01 0024	Check Dam - Rock	•			•
Q009 06 01 0025	Check Dam - Rock	•			•
Q009 06 01 0026	Check Dam - Rock	•			•
Q009 06 01 0027	Check Dam - Rock	•			•

Hydromulch (Q009-01-03-0028)

The hydromulch was applied north of the sampler 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 (Q009-01-06-0006)

The erosion control blanket is located to the west of the large fenced area. It is being used to control run-off from the SWMU and prevent the area from eroding. 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 (Q009-02-01-0005)

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 piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm (Q009-03-01-0017)

The berm is located in the northern portion of the SMA and runs across an abandoned unpaved access road. It functions as a run-off control directing the flow 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.

Straw Wattles (Q009-03-06-0003)

This wattle is installed on the southern portion of the SMA and serves as a run-off control. 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 North (Q0009-03-06-0009, 0010, -0012, -0013)

This group of four wattles is up slope at the northern end of the SMA to control run-on 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.

Straw Wattles South (Q009-03-06-0014, -0015, -0016)

This is a group of three wattles located in southern portion of the SMA west of the sampler. They 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.

Rock Check Dams (Q009-06-01-0001, -0002, -0007, -0008)

The series of four rock check dams are located east of the north-south access road within the channel. All are functioning to control run-off from the access read. 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 Central (Q009-06-01-0011, -0018, -0027)

This is a series of three rock check dams located in the area north and east of the 'Y' created by the fork in South Site Road. They are in place to control run-on from the 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 Dam Central (Q009-06-01-0019, -0020)

This is a group of two check dams located in the central portion of the SMA, west of the north south running unpaved access road. They are in place to assist with run-on control from the unpaved access road. 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 Turn Around (Q009-06-01-0021, -0022, -0023)

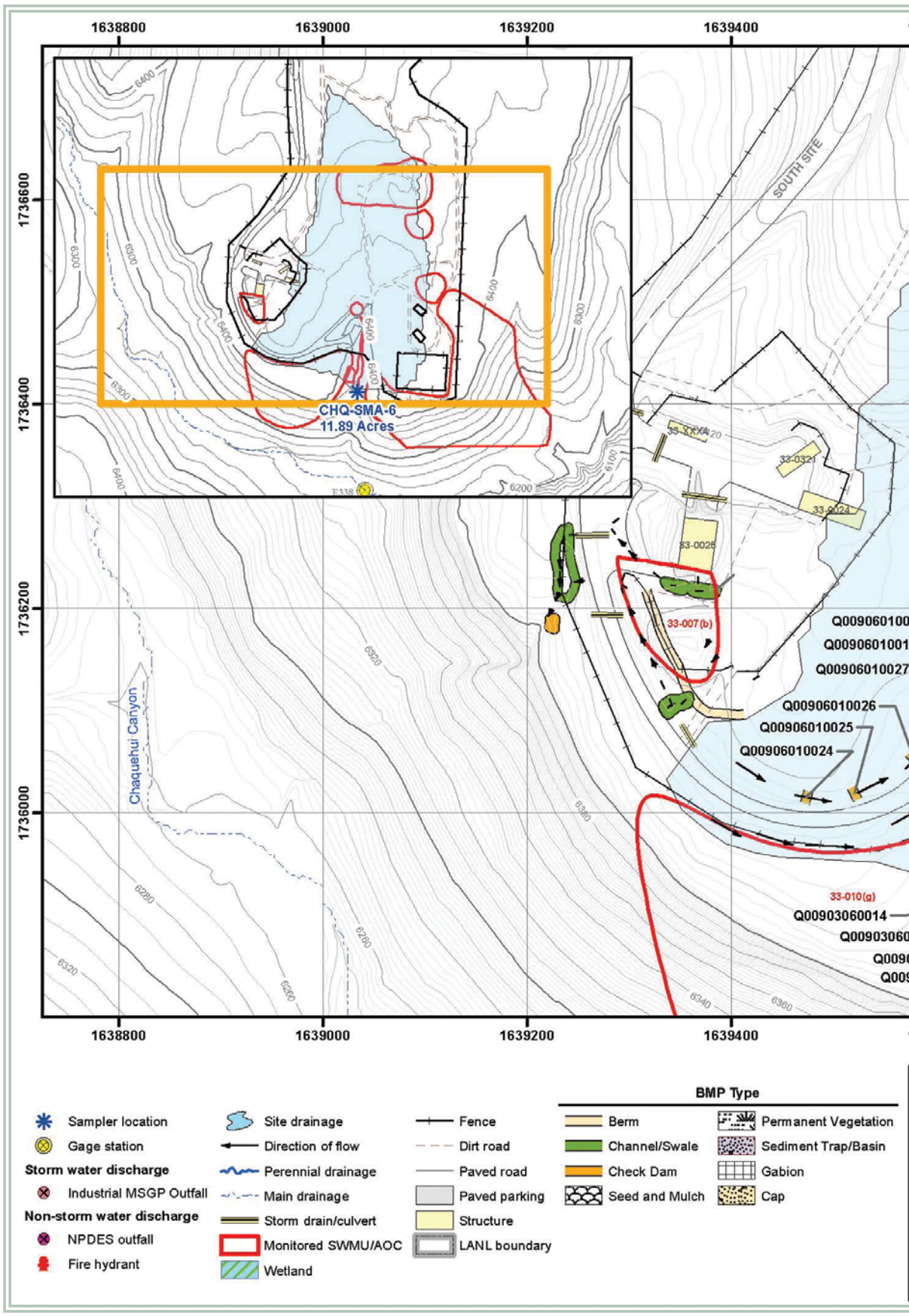
This is a group of three check dams located around the northern edge of the unpaved turn around lot at the end of the western fork of South Site Road. They are in place to mitigate run-off from the unpaved turn around. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging 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.

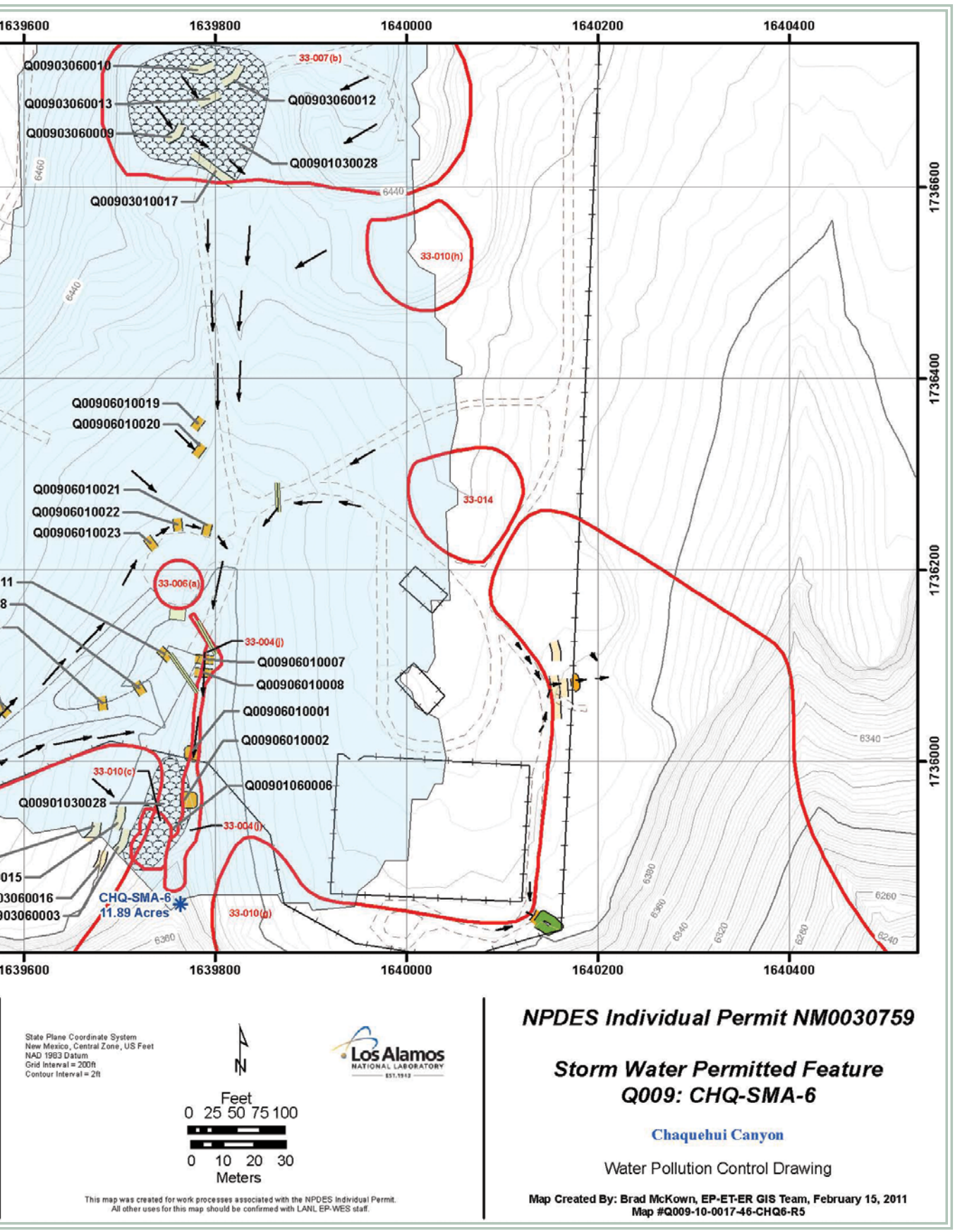
Rock Check Dams West (Q009-06-01-0024, -0025, -0026)

This is a group of three rock check dams located in the ditch on the north side of South Site Road just before the road forks. They are in place to control run-on from the paved road and developed area to the west. 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




1639600
1639800
1640000
1640200
1640400
1736600
1736400
1736200
1736000
Q00903060010
Q00903060013
Q00903060009
Q00903060012
Q00901030028
Q00903010017
33-007(b)
33-010(h)
33-014
Q00906010019
Q00906010020
Q00906010021
Q00906010022
Q00906010023
33-006(a)
33-004(j)
Q00906010007
Q00906010008
Q00906010001
Q00906010002
33-010(c)
Q00901030028
Q00901060006
33-004(j)
CHQ-SMA-6
11.89 Acres
33-010(g)
6460
6440
6420
6400
6380
6360
6340
6320
6300
6280
6260
6240
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Feet
0 25 50 75 100
0 10 20 30
Meters
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.
Los Alamos
NATIONAL LABORATORY
EST. 1943
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
Q009: CHQ-SMA-6
Chaquehui Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, February 15, 2011
Map #Q009-10-0017-46-CHQ6-R5

1000.20.5 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).

1000.20.6 Corrective Action Status

The Sites associated with CHQ-SMA-6 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.



1000.21 CHQ-SMA-7.1

1000.21.1 Area Description

1000.21.2 Potential Pollutant Sources

1000.21.2.1 Historical Industrial Activity Areas

1000.21.3 Control Measures

1000.21.3.1 Control Measures for Historical Industrial Activity Areas

1000.21.4 Project Map

1000.21.5 Storm Water Monitoring Plan and Schedule

1000.21.6 Corrective Action Status



1000.21 CHQ-SMA-7.1

1000.21.1 Area Description

CHQ-SMA-7.1 is located in the extreme southwest corner of TA-33 and access to the area is controlled. The mesa top portion of the area is flat. Run-off occurs through natural channels northeast and southeast to converge and flow east. All boundaries of the SMA are undeveloped. A network of unpaved access roads cross the SMA and influence natural run-on to the area from the north.

1000.21.2 Potential Pollutant Sources

1000.21.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF Q010, CHQ-SMA-7.1, Site 33-010(g).

SWMU 33-010(g) is a former disposal area located on the northern rim of Chaquehui Canyon. Debris was scattered along the rim and upper walls of the canyon. This former disposal area is located next to MDA E [Consolidated Unit 33-001(a)-99]. Some debris present at SWMU 33-010(g) (such as dead tree trunks, rocks, and scraped earth) may have originated from the initial clearing of South Site in the 1940s. Other debris, including chunks of metal, was also present. The period of operation for this disposal site is not known, but firing site operations associated with initiator testing at South Site were conducted from 1950 to 1956. The debris was removed and disposed of in 1995.

1000.21.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
33-010(g)	Surface disposal site	Discrete Location, No overlap	Individual	•	•	•	HE

1000.21.3 Control Measures

Run-on contributions from the surrounding developed area are minor and originate on the unpaved north to south access road. Planned controls are to fortify existing run-on controls and to improve sediment retention of any run-off from this SMA.

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
Q010 02 01 0001	Established Vegetation - Grasses and Shrubs			•	
Q010 03 06 0002	Berms - Straw Wattles	•			•
Q010 03 06 0005	Berms - Straw Wattles	•			•
Q010 03 06 0006	Berms - Straw Wattles	•			•
Q010 03 06 0007	Berms - Straw Wattles	•			•
Q010 04 06 0009	Channel/Swale - Rip Rap	•		•	
Q010 06 01 0003	Check Dam - Rock		•		•
Q010 06 01 0008	Check Dam - Rock	•			•

Established Vegetation (Q010-02-01-01-0001)

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 (Q010-03-06-0002, -0005, -0006, -0007)

This is a group of four straw wattles located in the southern portion of the SMA on the western side of the unpaved access road next to the fence line. They are used to control run-on from the road and restrict sediment migration. 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 (Q010-04-06-0009)

This rip rap is located adjacent to the South Rock Check Dam and assists with run-on and erosion control. 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 (Q010-06-01-0003)

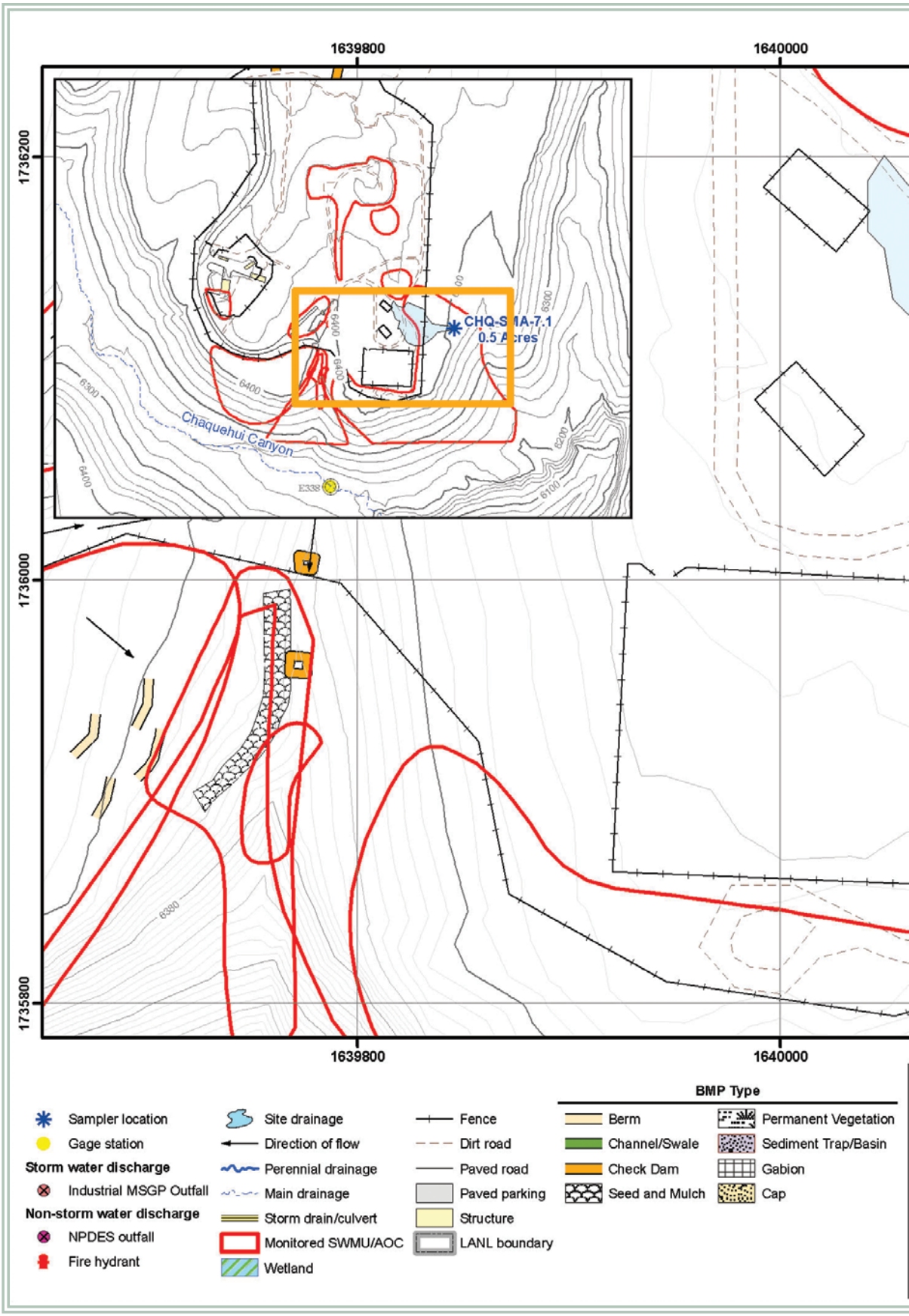
The check dam is located to the east of the unpaved access road spur in the southern portion of the SMA. It is in place to mitigate run-off in the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed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

Rock Check Dam South (Q010-06-01-0008)

The check dam is located south of the SMA between the southeast corners of the two fence lines, east of the unpaved access road. It is in place to 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.



1000.21.4 Project Map



1640200
1640400
1736200
1736000
1735800
Q01003060002
Q01003060005
Q01006010003
CHQ-SMA-7.1
0.5 Acres
33-010(g)
Q01003060006
Q01003060007
Q01006010008
Q01004060009
8340
6320
6380
6280
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
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
Q010: CHQ-SMA-7.1
Chaquehui Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-WES-EDA GIS Team, Modified By: Shannon Smith,
August 18, 2010, Map #Q010-10-0017-47-CHQ7.1-R4

1000.21.5 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).

1000.21.6 Corrective Action Status

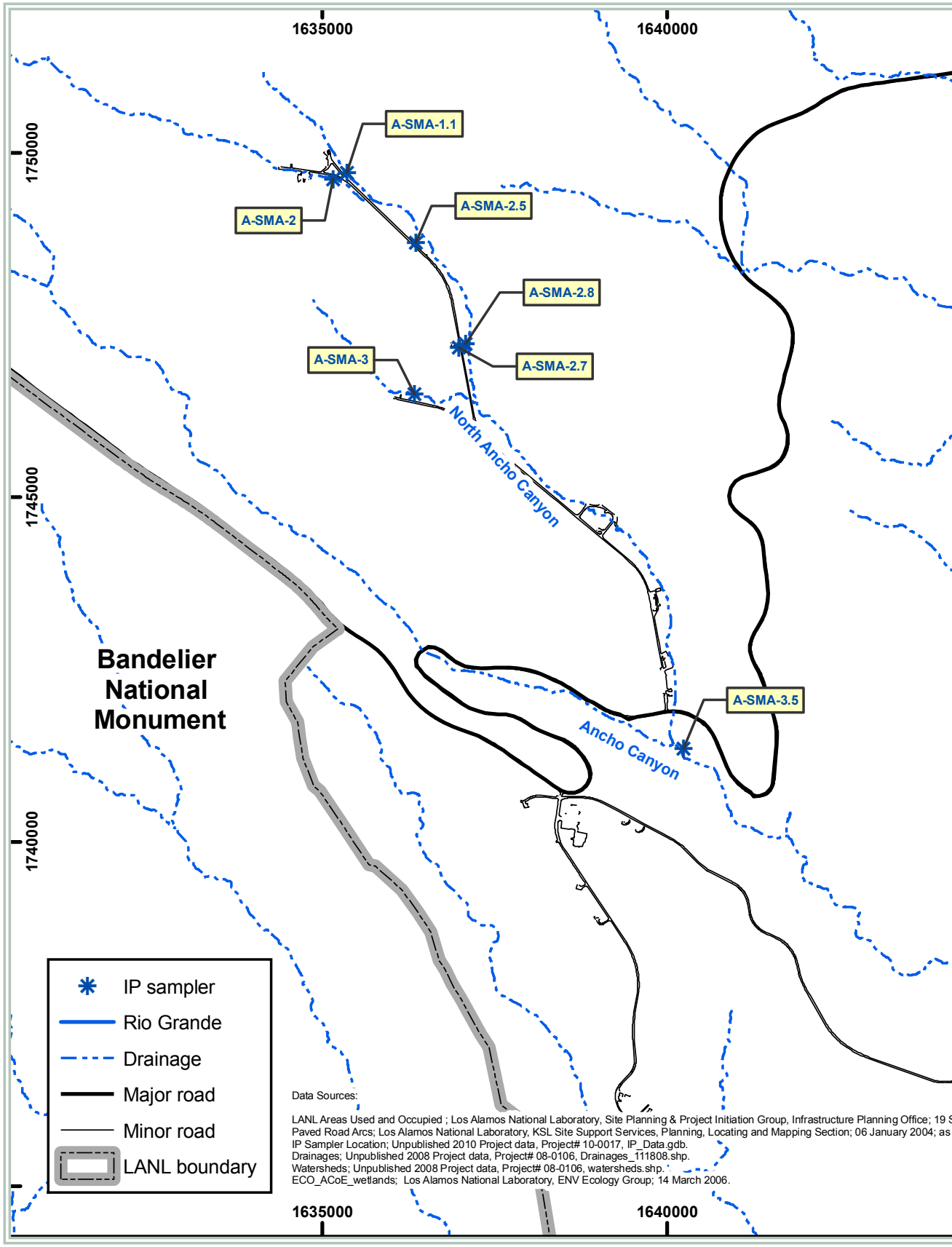
The Sites associated with CHQ-SMA-7.1 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.



ATTACHMENT A
AMENDMENTS

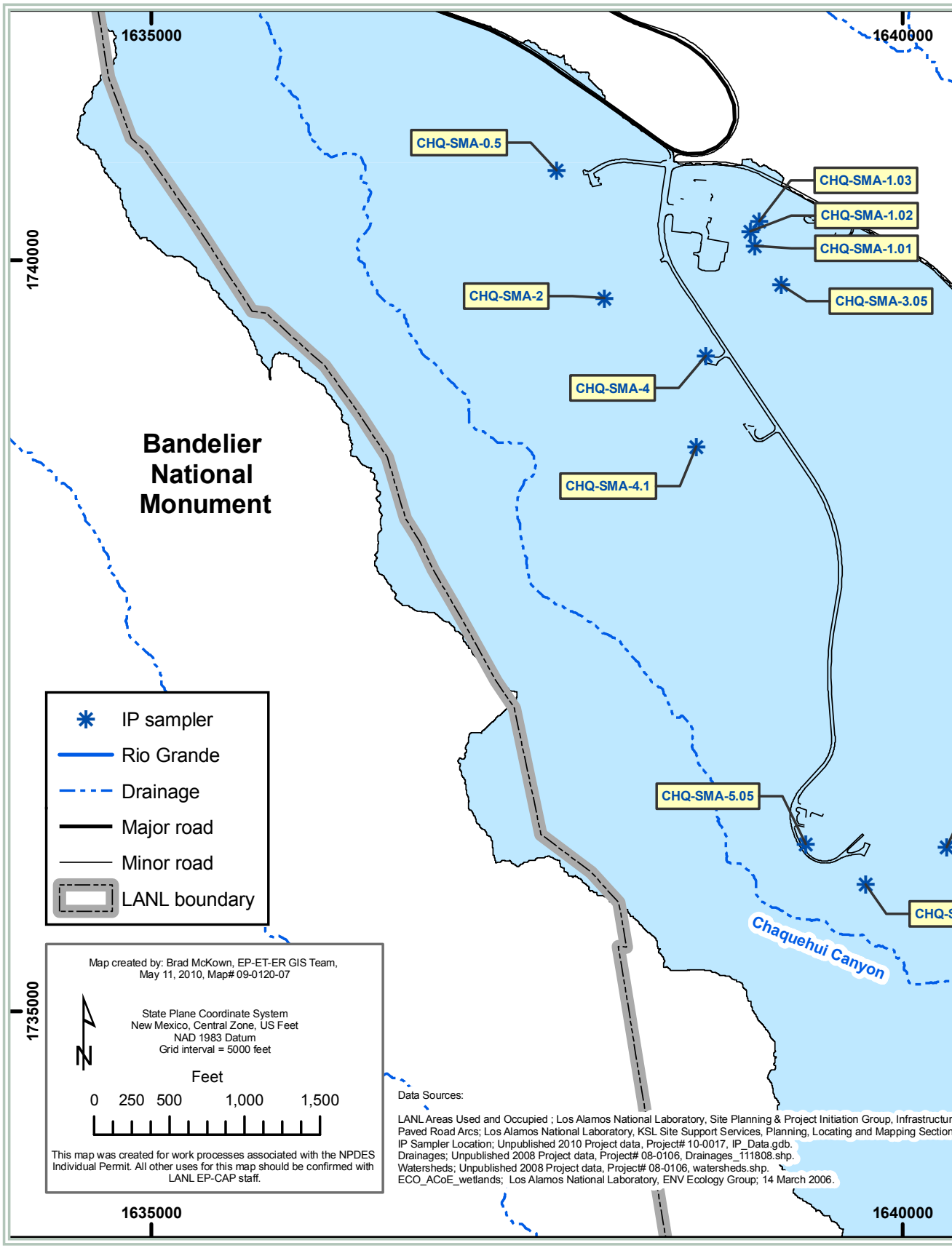
(Reserved)

ATTACHMENT B
VICINITY MAP



1645000
1650000
1655000
1750000
1745000
1740000
White Rock
Ancho Watershed
Locator Map
501
502
4
4
Rio Grande
Rio Grande
A-SMA-4
September 2007; as published 04 December 2008.
published 28 May 2009.
Map created by: Brad McKown, EP-ET-ER GIS Team,
May 11, 2010, Map# 09-0120-06
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid interval = 5000 feet
N
Miles
0 0.125 0.25 0.5 0.75
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-CAP staff.

ATTACHMENT B
VICINITY MAP (continued)

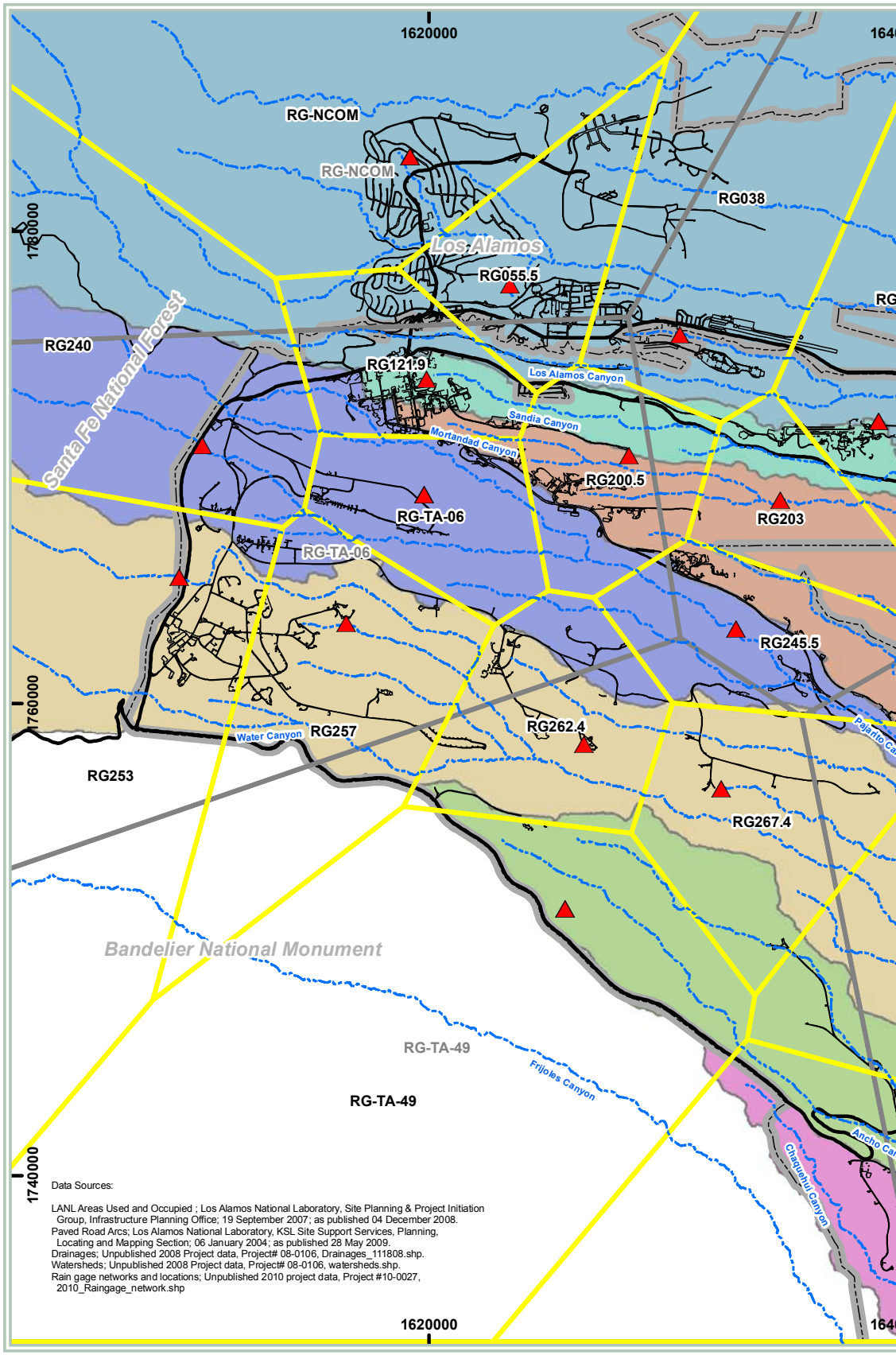


1645000
1740000
1735000
1645000
Chaquehui Watershed
501
502
4
4
Rio Grande
Locator Map
CHQ-SMA-4.5
CHQ-SMA-7.1
SMA-6
Rio Grande
e Planning Office; 19 September 2007; as published 04 December 2008.
; 06 January 2004; as published 28 May 2009.

ATTACHMENT C
PRECIPITATION NETWORK

SMA Number	Rain Gage	Alternate Gage
A-SMA-1.1	RG267.4	RG-TA-49
A-SMA-2	RG267.4	RG-TA-49
A-SMA-2.5	RG265	RG-TA-49
A-SMA-2.7	RG265	RG-TA-49
A-SMA-2.8	RG265	RG-TA-49
A-SMA-3	RG265	RG-TA-49
A-SMA-3.5	RG340	RG-TA-54
A-SMA-4	RG340	RG-TA-54
A-SMA-6	RG340	RG-TA-54
CHQ-SMA-0.5	RG340	RG-TA-49
CHQ-SMA-1.01	RG340	RG-TA-49
CHQ-SMA-1.02	RG340	RG-TA-49
CHQ-SMA-1.03	RG340	RG-TA-49
CHQ-SMA-2	RG340	RG-TA-49
CHQ-SMA-3.05	RG340	RG-TA-49
CHQ-SMA-4	RG340	RG-TA-49
CHQ-SMA-4.1	RG340	RG-TA-49
CHQ-SMA-4.5	RG340	RG-TA-54
CHQ-SMA-5.05	RG340	RG-TA-49
CHQ-SMA-6	RG340	RG-TA-49
CHQ-SMA-7.1	RG340	RG-TA-49

ATTACHMENT C
PRECIPITATION NETWORK (continued)



1660000
1780000
1760000
1740000
1660000
San Ildefonso Pueblo
RG-TA-53
RG042
RG110
Guaje Canyon
Rio Grande
San Ildefonso Pueblo
RG-TA-54
RG-TA-54
White Rock
RG265
RG340
Map created by: Brad McKown, EP-ET-ER GIS Team,
May 11, 2010, Map# 09-0120-08
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid interval = 20000 feet
Miles
0
0.5
1
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 EP-CAP staff.
Rain gage
Major road
Minor road
Rain gage network
Alternate rain gage network
LANL boundary
Watershed
Ancho Canyon
Chaquehui Canyon
Los Alamos Canyon
Mortandad Canyon
Pajarito Canyon
Sandia Canyon
Water Canyon

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.)
Ancho	A001	A-SMA-1.1	1,635,351.01	1,749,719.05	8,238,094.43	39-004(a) 39-004(d)	0.00 0.00
Ancho	A002	A-SMA-2	1,635,151.01	1,749,627.05	23,123,516.61	39-004(b) 39-004(e)	589.79 1,074.60
Ancho	A003	A-SMA-2.5	1,636,357.37	1,748,696.08	21,301.09	39-010	19,105.81
Ancho	A004	A-SMA-2.7	1,636,976.60	1,747,175.30	415,581.36	39-002(c) 39-008	6.98 14,508.56
Ancho	A005	A-SMA-2.8	1,637,077.69	1,747,234.81	30,457.26	39-001(b)	5,085.54
Ancho	A006	A-SMA-3	1,636,339.00	1,746,495.05	8,516,072.97	39-002(b) 39-004(c)	10.14 374.92
Ancho	A007	A-SMA-3.5	1,640,239.02	1,741,351.51	370.26	39-006(a)	124.10
Ancho	A008	A-SMA-4	1,646,223.01	1,736,711.05	114,205.09	33-010(d)	1,579.75
Ancho	A009	A-SMA-6	1,646,439.01	1,736,091.05	330,186.36	33-004(k) 33-007(a) 33-010(a)	131.75 95,198.36 17,915.25
Chaquehui	Q001	CHQ-SMA-0.5	1,637,695.61	1,740,598.39	45,790.40	33-004(g) 33-007(c) 33-009	134.41 148.09 13,518.75
Chaquehui	Q002	CHQ-SMA-1.01	1,639,017.41	1,740,095.73	8,055.69	3-002(d)	241.09
Chaquehui	Q002A	CHQ-SMA-1.02	1,638,987.61	1,740,192.12	89,697.16	33-004(h) 33-008(c) 33-011(d) 33-015	7.02 1,551.30 8,051.69 85.85
Chaquehui	Q002B	CHQ-SMA-1.03	1,639,043.84	1,740,258.13	207,276.81	33-008(c) 33-012(a) 33-017 C-33-001 C-33-003	13,224.91 591.95 114,281.55 518.51 7,614.69
Chaquehui	Q003	CHQ-SMA-2	1,638,015.01	1,739,747.05	538,186.74	33-004(d) 33-007(c) C-33-003	862.46 140.21 19,037.77

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.)
Chaquehui	Q004	CHQ-SMA-3.05	1,639,192.22	1,739,835.66	13,791.40	33-010(f)	640.17
Chaquehui	Q005	CHQ-SMA-4	1,638,691.01	1,739,363.05	626.74	33-011(e)	104.66
Chaquehui	Q006	CHQ-SMA-4.1	1,638,627.01	1,738,759.05	47,597.20	33-016	290.69
Chaquehui	Q007	CHQ-SMA-4.5	1,641,395.01	1,737,819.05	118,510.86	33-011(b)	43,063.86
Chaquehui	Q008	CHQ-SMA-5.05	1,639,356.10	1,736,112.21	6,700.00	33-007(b)	2,254.47
Chaquehui	Q009	CHQ-SMA-6	1,639,763.37	1,735,851.79	518,103.82	33-004(j) 33-006(a) 33-007(b) 33-010(c) 33-010(g) 33-010(h) 33-014	4,008.38 1,955.76 53,013.12 1,954.18 20,307.29 4,695.05 3,519.27
Chaquehui	Q010	CHQ-SMA-7.1	1,640,295.01	1,736,091.05	21,690.50	33-010(g)	12,401.55

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
MQL	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.

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