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National Nuclear Security Administration
Los Alamos Site Office, A316
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Date: JUL 1 2 2012
Refer To: ENV-RCRA-12-0162
LAUR: 12-22794, 12-22795

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. John E. Kieling Program Manager
Permits Management Program
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

Dear Mr. Kieling:

SUBJECT: RESPONSE TO DISAPPROVAL, TA-63 TRANSURANIC WASTE FACILITY PERMIT MODIFICATION REQUEST, REVISION 1.0, LOS ALAMOS NATIONAL LABORATORY, EPA ID #NM 0890010515, LANL-11-045

The purpose of this letter is to transmit the United States Department of Energy and Los Alamos National Security, LLC (Permittees) response to the above referenced Notice of Disapproval (NOD) dated May 24, 2012. The NOD requires additional information or clarification regarding that presented in the *Permit Modification Request for Technical Area 63, Transuranic Waste Facility, Hazardous Waste Container Storage Unit*, Revision 1.0, (PMR) originally submitted to the New Mexico Environment Department-Hazardous Waste Bureau (NMED-HWB) on April 16, 2012.

The Permittees request that a meeting be arranged with the NMED-HWB to further discuss the soil vapor monitoring network proposed in the Response to Comment 30. Some information regarding the proposed goals for the monitoring network was previously discussed in a meeting with NMED-HWB on May 31, 2012. Additional questions indicated in the response have been raised as the proposal was developed. A meeting would also allow further explanation of the proposal, clarify any unresolved technical details, and potentially help to answer any further questions by your office.

As requested by the NOD, this response submittal contains a number of documents. Enclosure 1 is the body of the response to the NOD. In that submittal, the NMED-HWB comments are included verbatim in italics to assist with review. The Permittees' responses follow each NMED-HWB comment and there are several supporting attachments including revisions to the PMR and examples of the revised figures requested in the NOD. A clean hard copy of the revised PMR is also included as Enclosure 2 of this submittal. Accordingly, a signed certification is enclosed. As requested in the NOD, this submittal also includes a reproduction of the hardcopy in portable document format (.PDF) in addition to the word processing files used to create the hardcopy version of the document.

If you have comments or questions regarding this permit modification or would like to arrange the requested meeting, please contact Gene Turner at (505) 667-5794 or Mark Haagenstad, at (505) 665-2014.

Sincerely,

Mike Saladen for

Anthony R. Grieggs
Group Leader
Water Quality & RCRA Group
Los Alamos National Security, LLC

Sincerely,

Peter Maggiore for

Gene E. Turner
Environmental Permitting Manager
Environmental Projects Office
Department of Energy
Los Alamos Site Office

Enclosures:

(1) Response to the Notice of Disapproval, TA-63 Transuranic Waste Facility Permit Modification Request.
(2) Permit Modification Request Technical Area 63 Transuranic Waste Facility Hazardous Waste Container Storage Unit, Rev. 2.0

ARG:GET:GB/lm

Cy: Laurie King, USEPA/Region 6, Dallas, TX, w/enc.
Tim Hall, NMED/HWB, Santa Fe, NM, w/enc.
Kevin Smith, LASO-OOM, w/o enc., A316
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IRM-RMMSO, w/enc., A150, (E-File)
ENV-RCRA Correspondence File, K490

ENCLOSURE 2

Permit Modification Request Technical Area 63 Transuranic Waste Facility Hazardous Waste Container Storage Unit, Rev. 2.0

ENV-RCRA-12-0162

LAUR-12-22795

Date: JUL 1 2 2012

July, 2012

LA-UR-12-22795

Los Alamos National Laboratory Permit Modification Request for Technical Area 63 Transuranic Waste Facility Hazardous Waste Container Storage Unit

Revision: 2.0

Prepared by:

Los Alamos National Laboratory
Water Quality & Resource Conservation and Recovery Act Group
Los Alamos, New Mexico 87545

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Permit Modification Request
Technical Area 63 Transuranic Waste Facility
Hazardous Waste Container Storage Unit

Revision 2.0

LA-UR-12-22795

Prepared by:

Los Alamos National Laboratory

Water Quality & Resource Conservation and Recovery Act Group

Los Alamos, New Mexico 87545

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List of Abbreviations and Acronyms

40 CFR	Title 40, U.S. Code of Federal Regulations
ACI	American Concrete Institute
AK	Acceptable Knowledge
ALARA	As Low As Reasonably Achievable
amsl	Above mean sea level
AOC	Area of Concern
ASCE	Association of Civil Engineers
ASTM	American Society for Testing and Materials, International
BV	Background Value
CCP	Central Characterization Project
CMR	Chemical and Metallurgy Research
CSMM	Container Storage and Matrix Management
D/DE	Drum/Drum Equivalent
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
EDS	Employee Development System
EPA	U.S. Environmental Protection Agency
FGA	Flammable Gas Analysis
HC	Hazard Category
HENC	High Efficiency Neutron Counter
HEPA	High Efficiency Particulate Air
HSG	Head Space Gas
HWB	Hazardous Waste Bureau
INEEL	Idaho National Energy and Environment Laboratory
LACCDC	Los Alamos County Consolidated Dispatch Center
LAFD	Los Alamos Fire Department
LANL	Los Alamos National Laboratory
LANS	Los Alamos National Security, LLC
MSDS	Material Safety Data Sheet
LEED	Leadership in Energy and Environment Design

NDA	Non-Destructive Assay
NDE	Non-Destructive Evaluation
NFPA	National Fire Protection Association
NRHP	National Register of Historic Places
NIOSH	National Institute of Occupational Safety and Health
NMED	New Mexico Environment Department
NMHWA	New Mexico Hazardous Waste Act
NNSA	National Nuclear Security Administration
NRC	Nuclear Regulatory Commission
OSHA	Occupational Safety and Health Administration
OJT	On the Job Training
OWB	Over-sized Waste Box
PA	Public Address
PMR	Permit Modification Request
POC	Pipe Over-pack Container
PPE	Personal protective equipment
ppmw	parts per million by weight
POV	Privately Owned Vehicle
RANT	Radioassay Non-destructive Testing (Facility)
RCRA	Resource Conservation and Recovery Act
RTR	Real Time Radiography
SLB2	Standard Large Box 2
SuperHENC	Super High Efficiency Neutron Counter
SWB	Standard Waste Box
SWEIS	Site-Wide Environmental Impact Statement
SWMU	Solid Waste Management Unit
SWSC	Sanitary Wastewater Systems Consolidation
TA	Technical Area
T&E	Threatened and Endangered
TRU	Transuranic
TWF	Transuranic Waste Facility
USFWS	U.S. Fish and Wildlife Service

VOC	Volatile Organic Compounds
WAC	Waste Acceptance Criteria
WCRRF	Waste Compaction, Reduction, and Repackaging Facility (TA-54)
WIPP	Waste Isolation Pilot Plant
WRCC	Western Regional Climate Center

1.0 INTRODUCTION

This Class 3 permit modification requests the addition of a hazardous waste management unit, the Transuranic Waste Facility (TWF), to the *Los Alamos National Laboratory Hazardous Waste Facility Permit* (November 2010), (hereinafter referred to as "the Permit"). The Permit was issued by the New Mexico Environment Department (NMED) in November, 1989 and renewed in 2010 (NMED 2010). The Los Alamos National Laboratory (LANL) Environmental Protection Agency (EPA) Identification Number is NM0890010515. The facility is owned by the National Nuclear Security Administration (NNSA) of the Department of Energy (DOE), and is operated jointly by NNSA-DOE and by Los Alamos National Security, LLC (LANS). This permit modification request has been prepared to address requirements in the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20.4.1 NMAC), as revised October 2009, that are specific for the proposed new hazardous waste storage operations at the TWF.

The 20.4.1 NMAC adopts, with a few limited exceptions, all of the Code of Federal Regulations, Title 40, (40 CFR) Parts 260 to 266, Part 268, Part 270, and Part 273. The citations in this document reference the appropriate federal regulations because they set forth the detailed requirements for hazardous waste management units and procedures. Table 1-1 provides a list of these regulatory references and the corresponding location for the information addressed in this permit modification request.

The renewed Permit contains many of the conditions addressing the requirements of the New Mexico Hazardous Waste Act (NMHWA) and implementing regulations, specifically 40 CFR, that are common to all LANL hazardous waste management units. The relevant sections of the Permit are referenced throughout this document. Together, information provided in this document and in the Permit will meet the applicable requirements specified in 40 CFR Parts 264 and 270 for the proposed unit.

1.1 REQUEST FOR PERMIT MODIFICATION

This Class 3 permit modification request has been prepared and submitted to the NMED – Hazardous Waste Bureau (NMED-HWB) to request the addition of the proposed hazardous waste storage unit at Technical Area 63 to the Permit.

1.2 PURPOSE OF THE TRANSURANIC WASTE FACILITY

The TWF is a mission-critical component of LANL's strategic role regarding support of the DOE's Stockpile Stewardship Program which is administered by the NNSA and nuclear defense and research programs. LANL must have a continuing capability to process transuranic (TRU) waste and to ship that waste to the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico. TRU waste generally contains radioactive elements heavier than uranium, i.e., those with atomic numbers greater than 92. Mixed TRU (MTRU waste) is waste that also contains a hazardous component as defined by the Resource Conservation and Recovery Act (RCRA). This is the type of waste currently stored at TA-54, Area G, in accordance with the Permit.

The signed Compliance Order on Consent (Consent Order) with the State of New Mexico of March 2005 requires that Area G be closed and remediated by December 2015. The closure of Area G will create a gap in TRU waste management capability for waste generated by LANL in the future. LANL must develop new capabilities for storage, characterization, and intra-site shipping of TRU waste and the TRU waste storage and characterization capabilities located at Area G need to be re-established at a different site on a schedule that supports the closure. The TWF will replace the TRU waste storage and characterization capabilities currently located at Area G. The TWF provides the necessary capacity for management of newly generated TRU waste to allow the closure of Area G in a timely and integrated manner. The TWF is part of a comprehensive, long-term strategy to consolidate hazardous and radioactive waste operations into a smaller, more compact area that can operate safely, securely, and effectively for the foreseeable future.

1.3 FACILITY DESCRIPTION

The TWF will be located at TA-63 at LANL. It will be designed, permitted, constructed, and commissioned as a hazardous waste storage unit to meet the conditions of the Permit for safe storage. The TWF is designated as a DOE Hazard Category (HC)-2 nuclear facility for radioactive material management. The TWF will also be designed, constructed, and operated within the conditions described by the LANL Site-Wide Environmental Impact Statement (SWEIS) for compliance with the National Environmental Policy Act.

The TWF is intended to replace the TRU waste storage currently taking place at TA-54 Area G. It is designed to store a maximum of 105,875 gallons (1,925 55-gallon drum or drum equivalents, D/DE). In addition to drums, the unit will also store other standardized metal containers used for TRU waste management. This storage capacity is less than 2.5% of the 4,346,590 gallon (79,029 D/DE) current storage capacity at Area G as listed in Table J-1, *Active Portion of the Facility* in Attachment J, *Hazardous Waste Management Units,* of the Permit.

The TWF will include various structures for waste management activities. A concrete pad will form a base for storage and characterization buildings, characterization trailers, and a receiving area, as well as providing storm water management and spill retention. The boundaries of the pad will designate the RCRA-permitted portion of the TWF. There will be six waste storage buildings on the pad, five of which will be used only for storage of waste containers. The additional building will be used for storage and for head space gas sampling and analysis of containers. The TWF will also include characterization trailers that are needed to certify containers to the WIPP Waste Acceptance Criteria (WAC). The TWF characterization trailers will include or be functional equivalents of those currently in operation at Area G, Pad 10, as described in the Permit. A fire suppression water storage tank will be situated for emergency fire suppression activities at the storage buildings. A retention basin will be designed to capture and distribute storm and, potentially, fire suppression water from the pad. Other functions provided by the TWF include operational support facilities, and utility services.

1.4 PERMIT MODIFICATION OUTLINE

This permit modification request is organized as follows:

- Section 1.0: Includes an introduction to the permit modification request and a crosswalk of the regulatory requirements associated with the unit requesting permitting.
- Section 2.0: Includes a description of the TWF and addresses environmental performance standards, waste characterization, security, preparedness, hazards prevention, emergency equipment, inspection requirements, and recordkeeping

requirements.

- Section 3.0: Discusses general facility requirements such as traffic patterns, location information, evaluates other federal laws and other permit activities, and training specific to the TWF.
- Section 4.0: Describes two Solid Waste Management Units (SWMUs) assessed for contamination and remediation that are located near the TWF.
- Section 5.0: Includes the closure requirements and proposed closure plan for the TWF.
- Section 6.0: Contains a list of references used throughout this document.
- Section 7.0: Contains the certification statement and signatures for this permit modification request as required by 40 CFR §270.11.

In addition, attachments included with this permit modification request provide detailed information to meet regulatory requirements. These attachments are referenced and described within the individual sections as appropriate.

Attachment G contains proposed changes to the Permit to incorporate the descriptions and site specific equipment and procedures for this unit. Additional and revised text is proposed for Permit Parts and Attachments. The Permit sections proposed for revision include:

- Part 1, General Permit Conditions
- Part 2, General Facility Conditions
- Part 3, Storage in Containers
- Permit Attachment A, Technical Area (TA) – Unit Descriptions
- Permit Attachment B, *Part A Application*
- Permit Attachment D, General Contingency Plan
- Permit Attachment G, *Closure Plans*
- Permit Attachment J, Hazardous Waste Management Units
- Permit Attachment N, *Figures.*

The proposed changes to the Permit incorporate permit conditions appropriate for the new unit as suggested by the Permittees to meet RCRA requirements for operation of the hazardous waste management unit in a manner that protects human health and the environment. Proposed changes may be subject to further revisions subject to the NMED review.

Attachment H of this permit modification request includes presentation materials for a pre-submittal, public information meeting (as required by 40 CFR §124.32). The attachment also includes a list of attendees, and copies of written comments collected at the meeting. The meeting occurred on August 10, 2011, at Fuller Lodge in Los Alamos, New Mexico.

Design drawings are included in this permit modification request to illustrate the construction and project details proposed for the unit structures. 40 CFR §270.14(a) requires that design drawings submitted with waste management unit applications for approval be certified by a qualified Professional Engineer. The drawings in this permit modification request have been certified by Professional Engineers registered in the state of New Mexico. These engineers were responsible for preparation of the drawings in support of the design process for the unit. Similarly, figures such as floor plans have been certified by an architect registered to practice in New Mexico.

The design drawings included with this submittal also contain the phrase “Not for Construction, Part B Permit Application,” in addition to the certification. The addition of this phrase indicates the drawing revision at the time of submittal. The drawings included are complete in terms of the major components and structures for the project. However, there may be future design changes that do not affect the major elements of the project such as the addition of equipment or for changes made in response to NMED direction as a result of the permit modification review and approval process. Design drawings subject to such a potential change included in this submittal are noted with sheet number and date to provide a reference.

Design details presented herein are considered sufficient for the purposes of this permit modification request. The drawings included in this document present detailed information intended to facilitate review of the permit modification request and approval by NMED. These drawings will not be included in the final unit figures used for the Permit based on its current format. Should drawings be changed substantially subsequent to submittal of this permit modification request, supplemental information will be submitted to the NMED.

Table 1-1

Regulatory References and Corresponding Permit Modification Request Location

Regulatory Citation(s) 40 CFR	Description of Requirement	Location in this Permit Modification Request
§270.14(b)(1)	General facility description	Section 2.1,2.2
§270.14(b)(2)	Chemical and physical analyses of hazardous waste	Section 2.3.1
§270.14(b)(3)	Waste analysis plan	Section 2.3
§264.13(b)	Development and implementation of a written waste analysis plan	Section 2.3
§264.13(c)	Off-site waste analysis requirements	Section 2.3
§270.14(b)(4)	Security procedures and equipment	Section 2.4
§264.14	Security procedures and equipment	Section 2.4
§270.14(b)(5)	General inspection schedule	Section 2.9
§264.15(b)	General inspection schedule	Section 2.9
§264.174	Inspections/containers	Section 2.9
§264.195	Overfill control inspections	NA
§264.226	Surface impoundment monitoring and inspection	NA
§264.254	Waste pile monitoring and inspection	NA
§264.273	Land treatment and operating requirements	NA
§264.303	Landfill monitoring and inspection	NA
§264.1033	Process vent standards	NA
§264.1052	Equipment leak air emission standards	NA
§264.1053	Compressor standards	NA

§264.1058	Standards for pumps, valves, pressure relief devices, flanges, and connections	NA
§270.14(b)(6)	Request for waiver from preparedness and prevention requirements of 264 Subpart C	NA
§264.30-37	Preparedness and prevention: applicability, design and operation, required equipment, testing and maintenance of equipment, access to communications or alarm systems, required aisle space, and arrangements with local authorities	Section 2.6 and 2.7
§264.227	Surface impoundment emergency repairs	NA
§270.14(b)(7)	Contingency Plan	Section 2.7
§264.50-56	Contingency plan and emergency procedures: applicability, purpose/implementation of contingency plan, content of contingency plan, copies of contingency plan, amendment to contingency, emergency coordinator, and emergency procedures	Section 2.7
§270.14(b)(8)	Description of preparedness and prevention	Section 2.6, 2.7
§270.14(b)(8)(i)	Hazard prevention in unloading operations	Section 2.5.3
§270.14(b)(8)(ii)	Runoff prevention	Section 2.5.4
§270.14(b)(8)(iii)	Prevent contamination of water supplies	Section 2.5.5
§270.14(b)(8)(iv)	Mitigation of equipment failure and power outages	Section 2.5.6
§270.14(b)(8)(v)	Prevention of undue exposure of personnel to hazardous waste	Section 2.5.7
§270.14(b)(8)(vi)	Prevention of releases to the atmosphere	Section 2.5.8, 2.5.9
270.14(b)(9)	Prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes	Section 2.8

§264.17	Procedures to prevent accidental ignition, reaction of ignitables, reaction of reactives, reaction of incompatibles, and documentation of compliance with 40 CFR §264.17 (general requirements for ignitable, reactive, or incompatible wastes)	Section 2.8
§270.14(b)(10)	Traffic pattern: volume, controls, and access	Section 3.1
§264.18(a)	Seismic considerations	Section 3.2.1
§270.14(b)(11)	Facility/unit identification and location information	Section 3.2
§270.14(b)(11)(i)	Seismic standard applicability [40 CFR §264.18(a)]	Section 3.2.1
§270.14(b)(11)(ii)	Seismic standard requirements	Section 3.2.1
§270.14(b)(11)(ii)(A)	No fault within 3,000 feet (ft) with displacement in Holocene time	Section 3.2.1
§270.14(b)(11)(ii)(B)	If faults which have displacement in Holocene time are present within 3,000 ft, no faults pass within 200 ft of portions of the facility where treatment, storage, or disposal will be conducted	Section 3.2.1, Attachment D
§270.14(b)(11)(iii)	100-year floodplain standard	Section 3.2.2, Fig. 3-4
§270.14(b)(11)(iv)(A-C)	Facilities located within the 100-year floodplain	NA
§270.14(b)(11)(v)	Compliance schedule for 40 CFR §264.18(b)	NA
§270.14(b)(12)	Personnel training program	Section 3.7
§270.14(b)(13)	Closure and post-closure plans	Section 5.0, Attachment F
§264, Subpart G	Closure and post-closure	Section 5.0, Attachment F
§264.178	Closure/containers	Section 5.0, Attachment F
§264.197	Closure and post-closure care/tanks	NA

§264.228	Surface impoundments	NA
§264.258	Waste piles	NA
§264.280	Land treatment	NA
§264.310	Landfills	NA
§264.351	Incinerators	NA
§264.603	Requirements by the Secretary	NA
§270.14(b)(14)	Deed restrictions/post-closure notices (40 CFR §264.119)	NA
§270.14(b)(15)	Closure cost estimate (40 CFR §264.142)	NA, Section 5.1
§270.14(b)(16)	Post-closure cost estimate (40 CFR §264.144)	NA, Section 5.1
§270.14(b)(17)	Liability insurance (40 CFR §264.147)	NA, Section 5.1
§270.14(b)(18)	Proof of financial coverage (40 CFR §264.149-150)	NA, Section 5.1
§270.14(b)(19)	Topographic map requirements	Section 3.3
§270.14(b)(19)(i)	Map scale and date	Section 3.3
§270.14(b)(19)(ii)	100-year floodplain area	Section 3.2.2, Fig. 3-4
§270.14(b)(19)(iii)	Surface waters	Section 3.3, Fig. 3-4
§270.14(b)(19)(iv)	Surrounding land uses	Section 3.3, Fig. 2-2
§270.14(b)(19)(v)	Wind rose	Section 3.3, Fig. 3-5
§270.14(b)(19)(vi)	Map orientation	Section 3.3
§270.14(b)(19)(vii)	Legal boundaries	Section 3.3, Fig. 2-3
§270.14(b)(19)(viii)	Access control	Section 3.3, Fig. 3-3
§270.14(b)(19)(ix)	Wells	Section 3.3, Fig. 3-10
§270.14(b)(19)(x)	Buildings	Section 3.3, Fig. 2-4
§270.14(b)(19)(xi)	Drainage barriers or flood control	Section 3.3, Figs. 2-5, 2-31, 2-32 and 2-33

§270.14(b)(19)(xii)	Location of operational units	Section 2.2, Fig. 2-5
§270.14(b)(20)	Considerations Under Federal Law	Section 3.5
§270.3(a)	Wild and Scenic Rivers Act	Section 3.5
§270.3(b)	National Historic Preservation Act	Section 3.5
§270.3(c)	Endangered Species Act	Section 3.5
§270.3(d)	Coastal Zone Management	Section 3.5
§270.3(e)	Fish and Wildlife Coordination Act	Section 3.5
§270.3(f)	Executive Orders	Section 3.5
§270.14(b)(21)	Notice of extension approval for land disposal facilities	NA
§270.14(b)(22)	A summary of the pre-application meeting	Attachment H
§270.14(c)	Groundwater monitoring requirements	NA, Section 3.4
§270.14(c)(3)	Topographic map with points of compliance	NA
§270.14(c)(3)	Proposed location of groundwater monitoring wells	NA
§270.14(c)(4)	Description of plume of contamination that has entered the groundwater from a regulated unit at the time the application was submitted	NA
§270.14(c)(4)(i)	Extent of plume indicated on topographic map	NA
§270.14(c)(4)(ii)	Identification of constituents and concentration	NA
§270.14(c)(5)	Detailed plan and engineering report describing proposed groundwater monitoring program	NA
§270.14(c)(6)	If no release detected at date of submitted, then submit following	NA
§270.14(c)(6)(i)	List of proposed indicator parameters, waste constituents, and reaction products	NA
§270.14(c)(16)(ii)	Proposed groundwater monitoring system	NA

§270.14(c)(16)(iii)	Background values for each proposed monitoring parameter	NA
§270.14(c)(16)(iv)	Description of proposed sampling, analysis, and statistic comparisons to be used	NA
§270.14(c)(7)	If a release is detected at the point of compliance, then corrective actions	NA
§270.14(d)	Information requirements for SWMUs	Section 4
§270.14(d)(1)(i)	Location of SWMUs on topographic map	Section 4
§270.14(d)(1)(ii)	Types of SWMUs	Section 4
§270.14(d)(1)(iii)	Dimensions and descriptions of SWMUs	Section 4
§270.14(d)(1)(iv)	Dates of SWMU operations	Section 4
§270.14(d)(1)(v)	Waste types managed at SWMUs	Section 4
§270.14(d)(2)	Information on releases from SWMUs	Section 4
§270.14(d)(3)	RCRA Facility Assessment sampling and analysis results	NA
§270.15	Information requirements for containers	Section 2.2
§264.175	Containment	Sections 2.2.2, 2.5.4
§264.175(c)	Solid waste storage drainage conditions	Section 2.5.4
§264.176	15-meter storage buffer for ignitable or reactive wastes	Section 2.8
§264.177(a)	Incompatible wastes in containers	Section 2.8
§264.177(b)	Incompatible wastes in containers	Section 2.8
§264.177 (c)	Incompatible wastes separation or segregation	Section 2.8
§264.17 (b)	Prevention of reactions	Section 2.8
§264.17(c)	Documentation of precautions for ignitable, reactive or incompatible waste	Section 2.8
§270.27	Air emission controls for containers	Section 2.5.8
§264.175 (b)(5)	Spilled or leaked waste	Section 2.2.5

2.0 TA-63 TWF UNIT ACTIVITIES

In accordance with 40 CFR §270.14(b), this section of the permit modification request provides a general description of LANL and a specific description of the TA-63 TWF hazardous waste management unit proposed for approval. The description of the unit includes the waste accepted at the unit, the waste storage activities, how access to the unit is controlled, and preparedness and prevention measures, including hazards prevention. This section also describes the contingency (emergency) plan; containment systems; the management of ignitable, reactive, and incompatible wastes; and inspection and recordkeeping requirements at the unit.

2.1 LANL FACILITY DESCRIPTION

LANL is located in Los Alamos County, an incorporated county, in north-central New Mexico, approximately 60 miles north-northeast of Albuquerque and 25 miles northwest of Santa Fe. The regional location of LANL is shown on Figure 2-1. LANL is divided into TAs, as shown on Figure 2-2 and occupies an area of approximately 39 square miles. LANL and the residential and commercial areas of Los Alamos County, which occupy a combined area of approximately 109 square miles, are situated on the Pajarito Plateau. The plateau consists of a series of finger-like mesas separated by deep east-west trending canyons. Ephemeral, interrupted, or intermittent streams lie at the bottoms of all the canyons. The mesa tops range in elevation from approximately 7,800 feet (ft) above mean sea level (amsl) at the flank of the Jemez Mountains, located to the west of Los Alamos, to about 6,200 ft amsl at their eastern extent, where they terminate above the Rio Grande.

Land use in the LANL region is linked to the economy of northern New Mexico, which depends heavily on tourism, recreation, agriculture, and Federal and state government employment for its economic base. Area communities generally are small and primarily support urban uses including residential, commercial, light industrial and recreational facilities. These include the DOE, the U.S. Forest Service, Native American communities, the U.S. National Park Service, the County of Los Alamos, private land-owners, the State of New Mexico, and the Bureau of Land Management. The Native American communities in the region include the Pueblo of San Ildefonso on LANL's eastern border and six other Pueblos located nearby. Entities that serve as land stewards and determine land uses within the LANL region are depicted in Figure 2-2.

LANL's central mission is the reduction of global nuclear danger supported by research that also contributes to conventional defense, civilian, and industrial needs. This includes programs in nuclear, medium energy, and space physics; hydrodynamics; conventional explosives; chemistry; metallurgy; radiochemistry; space nuclear systems; controlled thermonuclear fusion; laser research; environmental technology; geothermal, solar, and fossil energy research; nuclear safeguards; biomedicine; health and biotechnology; and industrial partnerships. LANL is owned by the DOE and is operated jointly by the DOE NNSA and the LANS. The facility mailing address is P.O. Box 1663, Los Alamos, New Mexico, 87545.

LANL is an existing RCRA treatment and storage facility whose waste management activities are approved through the Permit. The Permit includes treatment and storage units that are current or proposed “active” operating units. This permit modification request is submitted for the addition of the TWF to the Permit as a waste storage unit. Further details regarding the hazardous waste management units and waste types are included in the Permit and the revised Part A Permit Application included as Attachment A of this submittal.

2.2 TA-63 TWF UNIT

The following section generally describes the proposed TWF unit with detailed descriptions of the unit’s structures in the subsections. The TWF will consist of one waste management unit that will provide storage in containers for TRU waste, including the hazardous component of MTRU waste and, potentially, mixed low-level waste streams. The TWF may also manage hazardous-only waste streams generated on site. The information provided in this section is submitted to address the applicable container storage requirements of 40 CFR §270.15 and Part 264, Subpart I.

The TWF will be located at TA-63 on a mesa between a branch of Mortandad Canyon on the north and Pajarito Canyon on the south in the north central portion of LANL (see Figure 2-3 for the location of TA-63 at LANL). The unit will be built at the intersection of Pajarito Road and Puye Road, within the triangle formed by Building 63-111 to the east, Puye Road to the north, and Pajarito Road to the southwest. Figure 2-4 depicts this location with respect to nearby buildings and facilities. The closest buildings are shops immediately north of Puye Road, Office Building 63-111, records storage buildings immediately east of the TWF location, and buildings and structures on Pecos Drive further north of the TWF. A concrete batch plant and staging area will be required and located south-east of the TWF during the future construction activities for the Chemistry and Metallurgy Research Replacement Project at TA-55.

The primary purpose of the TWF is two-fold: first, safe indoor storage of TRU waste newly generated by LANL operations. Second, waste containers stored at the TWF will be subject to characterization including review of generator documentation, gas sampling, and non-intrusive radioassay. The overall process of waste characterization at LANL is described in Attachment C, *Waste Analysis Plan*, of the Permit.

Waste will be contact handled (CH) TRU waste; no remote-handled TRU waste will be stored at the TWF. Some TRU waste containers may be determined through final waste characterization not to meet the WIPP requirements for TRU waste. Depending on the presence of hazardous constituents, these waste containers will be reclassified as either low-level radioactive waste or mixed low-level waste and stored at the TWF until they are dispositioned appropriately.

Waste shipments will be made from the LANL waste generating facilities to the TWF for storage and then to the RCRA permitted Radioactive Assay and Nondestructive Testing (RANT) Facility at TA-54-38 West. The RANT Facility is used to load the TRU waste containers into approved steel shipment containers required for off-site shipment to the WIPP. Waste shipments may also occur from TWF to the RCRA permitted TA-50-69 Waste Characterization, Reduction, and Repackaging Facility (WCRRF) if repackaging of the containers is necessary.

The TWF will be 1.81 acres or 78,843 square feet. The layout of the unit is depicted in Figure 2-5 and proposed Figure 55 (Attachment G) with the location of areas where storage will occur highlighted. The main structure for the unit will be the concrete pad providing a physical base for six waste storage buildings, several waste characterization trailers, and outside storage of waste containers too large for the buildings. The pad will be surrounded by a security fence. The boundary of the hazardous waste management unit will be limited to the northern portion of the concrete pad defined by those areas that drain to a supporting retention pond. Along the northern and western sides of the unit, this will be the edge of the concrete pad along the bottom of the retaining walls. On the east side, the edge of the curbing for the concrete pad will be the boundary. The southern side of the revised boundary will be defined by a painted line in compliance with Permit Section 3.5(2), *Management of Containers.* The line will be situated approximately between the south east corner of the retention basin and the curb and gutter at the opposite corner of the fence line along the eastern side of the unit. This will be defined by the points at which run-off will flow to the retention basin.

To provide containment for the unit, a retention pond is designed to capture and distribute storm water at the TWF. It will also retain fire suppression water in the event of a fire. Water will be released via a manual valve providing control of the flow rate from the basin. Should a fire occur, water collected will be analyzed for contaminants prior to discharge.

The unit will also include a small storage building for calibration sources used for waste characterization activities, a covered forklift charging station, and equipment storage shed. Outside the fence, other site structures include an operations support building and a fire water storage tank and associated utility building.

2.2.1 Concrete Pad

The TWF concrete pad will be of reinforced concrete construction, on grade to provide support for the site structures and vehicle movement. The concrete pad will also provide for low combustible loading between the buildings and for the site. The pad will be laid on a graded soil and gravel base course and be nominally 8 inches thick. The existing ground at the site slopes from the northwest to the southeast. There is a significant grade difference from the northwest corner to the southwest corner of the site. After the site has been graded, portions will be lower in elevation than Pajarito Road or Puye Road. Given the elevation difference on the site, retaining walls will be constructed along the northwest portion of the site. The pad will be sloped at approximately 2% to provide for storm water and fire suppression water drainage.

The perimeter of the pad will have a 24” gutter and 6” high curb to provide run-off control. A valley gutter isolates the northern portion of the pad. Storm water and potentially contaminated firewater run-off (in the event of a fire in the storage buildings) from the northern portion of the pad flows to the valley gutter then will be channeled to the retention basin, thus, providing containment for the site in accordance with 40 CFR §264.175(b). This is a feature that negates the need for berms, dikes, or sumps around each storage building. The southern portion of the concrete pad (where waste is not stored and outside the hazardous waste management unit) slopes southeast providing drainage off the pad toward the parking lot. Refer to Figures 2-5 through 2-8 for further details regarding the pad configuration.

2.2.2 Storage Buildings

The TWF will include six storage buildings, five of which will be functionally identical and are described in this section. The additional storage building with other design elements is described in Section 2.2.3. The five buildings will measure 33 x 64 ft or approximately 2112 square feet, and will be 15 ft high. The storage buildings provide safe covered storage for LANL generated TRU waste containers through weather protection, physical security, and DOE design requirements for safety at nuclear facilities. Multiple buildings are being proposed to minimize the radioactive material content at individual storage buildings and to reduce the potential impact from accidents relative to a single larger building. Multiple smaller buildings will also reduce overall risk associated with events such as vehicle impact or fire. The storage building floor plan is presented in Figure 2-9. These five storage buildings will be designated 63-0149, 63-0150, 63-0151, 63-0152, and 63-0153.

Containers loaded onto pallets will be stored on a reinforced concrete floor. The building floor is a mat slab. A mat slab is a concrete slab designed with reinforcement such as metal bars or mesh to resist the uplift forces created by hydrostatic pressures. Most slab foundations are used to distribute heavy column and wall loads across the entire building area to lower the contact pressure compared to conventional spread footings with extensive reinforcing to ensure relatively uniform load transfer. The slab will be higher than the concrete pad to prevent run-on, and will be sloped towards a roll-up door at the building entrance for drainage in the event of a fire, in accordance with the requirements of 40 CFR§264.175 at 40 CFR §264.175(b)(2) and (c).

The concrete floors will be coated to provide a sealed surface and chemical resistance although secondary containment pallets will be used to meet the containment requirements of the Permit for potential liquid containing waste in the storage buildings and also compliance with 40 CFR §264.175(b)(1). The floor coating standards include:

- Minimum Class B per National Fire Protection Association (NFPA);
- Radiation resistant as determined by American Society for Testing and Materials, International specification ASTM D 4082; and
- Decontaminable to at least 95 percent of total activity removed and certified for Nuclear Coating Service level II.

Further details for the floor coating are provided in Attachment B.

The storage buildings will be constructed as covered single-story structural steel frames. Each of the storage buildings and its structural members are designed to exceed the snow load for roof design, the design wind force for buildings, and the seismic loading for structural components, as described in American Society of Civil Engineers specification ASCE 7-05, *Minimum Design Loads for Buildings and Other Structures.* The document that illustrates the calculations for those loads is included in Part 6.0, *References*, of this document (LANL, 2011a). The steel frame is an ordinary moment frame with joists to attach roof panels and girts to attach wall panels. The walls of the facility will be rigid to provide protection from the elements and external forces. Gypsum board on light gauge metal studs with industrial coating will finish the interior walls. The roof is a high quality metal standing seam. Batt insulation in the ceiling and on the inside of the walls will reduce heat loss and gain inside the buildings. Electric heaters will heat the interior to prevent fire suppression systems and eyewash stations from freezing. Cooling will be provided by venting fans. In order to drain the building in the event of a fire, the floors will be constructed to provide a shallow slope (1/8 inch to 1 foot) from the back end of the building towards the front, and then out the roll-up door opening and a loading ramp to the concrete pad outside the building.

The following drawings illustrate additional design details for the storage buildings:

- Figure 2-10 shows the building foundation plan with dimensions and locations for beam supports.

- Figures 2-11 and 2-12 include support details for the building framework.
- Figure 2-13 shows structural sections for the storage buildings.
- Figure 2-14 provides thickness details of the slab and beam supports.
- Figure 2-15 shows the constructed building elevations.
- Figures 2-16 and 2-17 provide details regarding the buildings' fire protection sprinkler system including sprinkler locations and the water supply system.
- Figure 2-18 provides specifications for the buildings' emergency eyewash and shower equipment (locations in Figure 2-10).

2.2.3 Storage and Characterization Building

The sixth storage building is divided into a storage area, a room for the thermal equilibrium of containers to prepare for head space gas sampling, and additional support and analytical equipment rooms. The storage area in this building will be used for a variety of containers including SWBs and SLB2s. In order to accurately analyze headspace gas, the container temperature must be allowed to equilibrate to a minimum of 64 degrees Fahrenheit for 72 hours, as described in the Central Characterization Project procedure: CCP-TP-093, *CCP Sampling of TRU Waste Container*, (CCP, 2010). Sampling equipment is available for obtaining headspace gas samples and flammable gas samples from waste containers. Gas chromatography and mass spectrometry on the flammable gas sample will occur in an adjacent room.

The floor plan of the building measures 80 x 33 ft or approximately 2640 square ft, and the building height is approximately 15 ft. Figure 2-19 shows the floor plan of the storage building. The building will otherwise be constructed to the same standards as the other storage buildings. The building will be numbered 63-0154.

Additional facility drawings with design details for the Storage and Characterization Building are included as follows:

- Figure 2-18 provides eyewash/safety shower details (specifications are the same as Storage Buildings, shown in Figure 2-18).
- Figure 2-20 shows the building foundation plan with dimensions and locations for beam supports.
- Figures 2-21 and 2-22 provide building structural elevations including support details for the building framework.
- Figure 2-23 includes structural section construction details.
- Figure 2-24 includes foundation construction details.
- Figure 2-25 shows constructed building elevations.
- Figure 2-26 provides building section details.
- Figure 2-27 and 2-28 show the fire protection plan and its associated piping & instrumentation diagram.

2.2.4 Characterization Trailers

The TWF facility will include pads with utility hook-ups for the characterization trailers used to certify containers to DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria (WAC) for the Waste Isolation Pilot Plant,* (WIPP, 2010). The non-destructive evaluation (NDE) and non-destructive assay (NDA) equipment will be provided for the TWF in mobile modified commercial trailers brought to the facility. These trailers are in use and functional at other DOE waste characterization sites. These trailers are currently providing this function for TRU waste management at the TA-54, Area G, Pad 10 permitted hazardous waste unit and will be moved to the TWF when it becomes operational. Radiographic assay equipment used for characterization is housed in these trailers as follows:

- Real Time Radiography (RTR) unit. The NDE equipment in the trailer is designed to provide X-ray examination of the contents of TRU waste drums. This trailer is currently designated as TA-54-0497 in use at Area G.
- High-Efficiency Neutron Counter (HENC) unit. The NDA equipment in the trailer is designed to provide a passive neutron and gamma measurement of 55-gallon TRU waste drums. This trailer is currently designated as TA-54-0498 in use at Area G.
- SuperHENC unit. The NDA equipment in the trailer is similar to the HENC but includes a high efficiency neutron counter and a gamma counter that are both designed to handle SWBs. This trailer is currently designated as TA-54-0457 in use at Area G.

The RTR is a self-contained, non-intrusive X-ray unit, physically housed in a mobile container 48 feet in length by 8 feet wide used to X-ray waste containers up to 85 gallons in volume. Radiography is a nondestructive qualitative and semi-quantitative technique that involves X-ray scanning of waste containers to identify and verify waste container contents. Radiography is used to examine the waste container to verify its physical form. This technique can detect prohibited items such as liquid wastes and gas cylinders, which are prohibited for WIPP disposal. Radiography examination must achieve the following to meet the WIPP criteria:

- Verify and document the physical form of each waste container.
- Identify any prohibited waste in the waste container.
- Confirm that the physical form of the waste matches its waste stream description (i.e., homogeneous solids, soil/gravel, or debris waste [including uncategorized metals]).

The HENC is a self-contained, non-intrusive, passive assay unit, physically housed in a mobile assay container 48 feet in length by 8 ½ feet wide by 12 ¾ feet high. The HENC is designed to assay 55-gallon (208 liter) drums containing fissionable radionuclides. The system simultaneously performs passive neutron counts and gamma spectrometry to detect gamma-emitting radionuclides for the purpose of determining quantitative concentrations of TRU constituents. The equipment and mobile container only require electrical power to operate. Approximately 10 to 13 drums a day can be processed through the HENC, with each drum taking approximately 45 minutes for examination. The HENC is a large rectangular-shaped neutron counter that is specifically designed to assay the container in a fixed geometry. The HENC system uses passive and add-a-source neutron analysis methods to assay the nuclide mass contained in 55-gal drums of TRU waste. Waste drums to be assayed are placed on a conveyor that feeds drums into the system.

The SuperHENC operates on the same principle as the HENC, within a similar tractor trailer. The process however, is applicable to the assay of TRU radionuclides in larger waste packages such as Standard Waste Boxes (SWBs). Data from this process is used to assay the radioactive content of SWBs containing TRU waste, sorting SWBs based on the 100 nanocurie per gram (nCi/g) TRU limit, and confirming radioisotopes indentified via acceptable knowledge (AK).

The trailers will be numbered 63-0155, 63-0156, and 63-0157 at TA-63. Additional trailers may be needed as characterization needs for the facility change and would be located in the area noted (Note #13) for future expansion in Figure 2-5. In the event that trailers are added or moved at the unit, the permit modification procedures in Permit Section 3.1.(3) will be followed.
The WIPP verification procedures for the waste containers managed in the characterization trailers are generally completed within 24 hours in compliance with Permit Section 3.1(2). In some uncommon situations, there is a potential that a waste container could be left in the characterization trailer for greater than that time period. Examples that would require such an option include situations such as inclement weather, power outages, equipment malfunctions, evacuations, and Laboratory closures. If storage of liquid bearing wastes for greater than 24 hours occurs, the reporting conditions of Permit Section 1.9.14, *Other Noncompliance*, will be followed.

2.2.5 Retention Basin

The storage buildings and characterization trailers are located within the northern portion of the site. The retention basin is located south of the storage buildings and characterization trailers along the western edge of the site. The retention basin is designed to collect water from this area in two types of events. Primarily, surface storm water or melt water run-off from the concrete pavement in this area is directed to the retention basin via the slope (nominally 2%) of the concrete pad. A valley gutter also helps to channel water from the east side of the concrete pad to the retention basin. Secondly, in the event of a fire at the unit, fire suppression water will potentially flow out of the storage buildings or from other unit structures to the concrete pad and then to the retention basin.

The designed volume capacity for the retention basin includes the potential for a combination of both events. This includes run-off from a projected 25 year frequency and 2 hour duration precipitation event (1.94 inches of precipitation resulting in approximately 85,900 gallons (11,500 cubic ft.) from 1.63 acres). For a fire suppression event, an estimate of suppression water needed is calculated from NFPA 13 factors (380 gpm for 30 min. of sprinkler demand and 500 gpm for 30 min. fire hose stream allowance), for a total of approximately 26,400 gallons (3,530 cubic ft.). Volume from both events results in a total capacity of approximately 112,300 gallons (approximately 15,000 cubic ft.). The designed total retention basin volume also includes 0.5 ft of freeboard, resulting in a total capacity of 137,450 gallons (18,375 cubic ft.). Final dimensions of the basin will be 125 ft by 42 ft by 3.5 ft deep. Facility drawings for the retention basin foundation plan and foundation details are included as Figure 2-29 and Figure 2-30of this permit modification request. The concrete mixture used for construction of the retention basin will also be supplemented with an additive to improve the concrete's water resistance.

The retention basin will be drained as needed via a manual release valve that is normally in the closed position in order to prevent overflow and to comply with 40 CFR §264.175(b)(5). The retention basin will also be equipped with an automated storm water sampler at a drainage point into the basin. This sampler will only be used to meet the requirements for stormwater monitoring under the *The Multi-Sector General Permit For Stormwater Discharges Associated with Industrial Activity* (MSGP) for the facility. Product specifications for the sampler are included in Attachment E of this submittal. In normal storm water events the manual drain valve will be opened and the collected storm water will be released through a pipeline at the calculated predevelopment flow rate (i.e., the rate of storm water runoff from the site prior to construction of the facility) after the opening of the valve. The released storm water will drain through the pipe line to a release site on the east side of the TWF and then to other stormwater retention structures developed for the aggregate area to be defined and included in the TA-63 TWF Multi Sector General Permit Storm Water Plan to be developed for the site. See Figure 2-34 for details concerning the storm drain plan and Figure 2-35 for construction details of the storm drain inlet. When only stormwater has been contained in the retention basin, the decision to open the drain valve will be based upon standard MSGP processes including visual examination for surface sheens, discoloration or other obvious indicators of stormwater pollution relative to the collected stormwater.

In the event of a fire at the TWF, the retention basin will serve the critical function of collecting the fire suppression water in the basin. The slope of the unit's concrete pad and the valley gutter serve to ensure that any water draining from the unit's storage buildings or the characterization trailers will be routed to the retention basin. This key design feature provides containment of possible contamination and a backup option for any emergency management activities. In such an event, collected water will remain in the basin until sampling and water-quality analysis can be performed to determine whether or not the water is contaminated. The collected water will be evaluated by obtaining a representative grab sample of the liquid and analyzing it for any hazardous waste constituents managed at the facility and reasonably expected to be present. This data will be compared to the surface water quality standards outlined in the Clean Water Act (33 U.S.C. §§ 1251 to 1387), the New Mexico WQCC Regulations (20.6.2 NMAC), and the State of New Mexico Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC) to determine whether the collected water can be released, a Notice of Intent needs to be submitted to the New Mexico Groundwater Bureau, or it will be characterized to the Permit Attachment C, *Waste Analysis Plan*, standards for collection and waste disposition determination. In the event of such a fire or release, any further decontamination of the retention basin will be subject to the provisions of Attachment D, *Contingency Plan*, of the Permit.

The concrete structure, concrete waterproofing additives and associated valve will minimize the potential for leakage of collected water from the retention basin. Routine inspections of the retention basin pursuant to Permit Section 2.6, *General Inspection Requirements* and subsequent repairs as required by Permit Section 2.6.2, *Repair of Equipment and Structures* will ensure that the water collection capability of the retention basin is maintained or mitigated. In the case of a fire water or spill event that results in collected water, the level of water in the retention basin will also be checked for the potential of over-topping and inspected daily for water levels until final disposition of the water is determined.

2.2.6 Other Project Structures

Other project structures are present at the TWF to provide support for the hazardous waste management activities at the unit. These structures are either outside the boundary of the hazardous waste management unit or do not directly store or manage hazardous waste.

The Operations Support Building provides offices and services for operations personnel and management. Personnel are housed in the separate building to ensure that radiological exposures are as low as reasonably achievable (ALARA) by increasing distance from the waste management activities. The Operations Support Building is approximately 75 ft by 80 ft. Operations and characterization personnel will be housed in this building, although it will not be occupied continuously. However, it will provide storage of waste container data and monitoring of key operational parameters and specific safety structure, system, and component (SSC) status. In addition, a public address system will be powered from this building to facilitate emergency response. The building will include offices, conference rooms, restrooms, change rooms, site security access, and circulation space for about 25 workers. The building will be outside the security control fence; windows provide visual observation of the control area. The building will use an ordinary steel moment frame and include nonload bearing metal panel walls. The exterior finish will be metal sandwich insulating panels. The roof will be a low slope membrane-type with high solar reflectance and roof and overflow drains. The floor will be reinforced concrete slab on grade and finished concrete in some areas.

Access to the waste management site is via a gated driveway east of the concrete pad. Gates are normally closed and vehicle access to the controlled area within the unit fence line requires check-in at the Operations Support Building. Pedestrian access to the controlled area also requires check-in through the Operations Support Building. Parking for site workers and visitors is provided south of the Operations Support Building and outside the controlled area fence.

Located to the north of the Operations Support Building, on the project site but outside the controlled area fence, is a dedicated fire water supply tank and utility building. The utility building is adjacent to the water tank that supplies water for the fire suppression system. This building will house two fire water pumps and instrumentation needed to ensure operation of the fire suppression system. The back-up pump is diesel powered. Access into the fenced unit will not be required for filling the diesel pump fuel tank as fueling can occur from the roadway.

Further to the north, across the access driveway is an existing groundwater monitoring well. The monitoring well is R-46, part of the LANL groundwater monitoring network. The TWF controlled area fence line is located to the west of the monitoring well. Space has been allocated to allow for routine and upset condition access to the monitoring well. Access to the TWF is not required for activities associated with the monitoring well.

A forklift charging station is located along the western edge of the site. This structure will be an open roofed shed with storage areas for the forklifts and charging equipment.

There will be an equipment storage shed on the west side of the unit. This shed will be a light warehouse of 1250 square feet and will be used to store items such as metal pallets, containers used to over-pack waste containers if necessary, and snow removal equipment. The building will be 25 ft x 50 ft x 15 ft high. The sides of the shed will be closed with a rollup (garage-type door) in addition to a personnel access/egress door. There will be no fire protection in this building.

The characterization process will require sealed radioactive sources for calibration of the HENC and SuperHENC radioassay sensors. A separate building designated the Characterization Source and Matrix Management (CSMM) Building will house sealed sources.

2.2.7 Waste Management Practices

The primary function of the TWF is to safely receive, inspect, handle, characterize, certify, store, and ship newly generated TRU waste containers to other LANL facilities for additional waste management activities or for off-site disposition. Storage at the TWF will be predominantly for waste in solid form and may include both TRU (radioactive only) or MTRU (radioactive and hazardous component) waste. Wastes that are mainly or completely in liquid form within the volume of the waste container will not be accepted at the TWF but the potential exists that a small quantity of free liquid may be present in some containers (e.g., TRU waste determined to contain liquids such as condensation or in smaller internal containers by RTR characterization after waste receipt at the TWF). Other types of mixed waste (e.g., TRU waste reclassified as low level waste through the NDE/NDA in the HENC or Super HENC) or hazardous only waste (e.g., from on-site waste generation such as empty paint cans or forklift maintenance) may also be managed at the TWF while waiting for further appropriate waste management. Wastes excluded by the LANL TRU WAC will not be accepted at the TWF, including medical, infectious, explosive or compressed gas wastes. However, the hazardous waste management unit will have to store containers that include these waste items needing further management (e.g., aerosol cans) that have been detected in TRU waste drums during the RTR characterization process. The containers will be stored in compliance with the conditions of Parts 2 and 3 of the Permit.

TWF waste management activities will occur in three areas: the waste storage buildings, the characterization trailers, and outside storage on the concrete pad. The main storage function at the unit will occur in the waste storage buildings. Outside storage will be used for occasional storage of large containers pending further action such as re-packaging at one of LANL's other TRU facilities. Temporary waste staging will also occur at the characterization trailers during waste analysis and at the loading/unloading area during receipt of the waste containers.

2.2.7.1 Loading and Unloading

The area between the retention pond and Storage Building 63-0149 will be used for receipt of TRU waste from LANL generators and for re-shipment of waste to the TA-54-38 RANT Facility or TA-50-69 WCRRF. Waste containers will be transported to the TWF by truck and enter from the north gate on the east side. The containers will be unloaded from the trucks in the unloading area. Containers will be unloaded with electric forklifts used exclusively at the TWF to reduce potential ignition sources. Waste containers for storage at the TWF may include: 55 or 85 gal metal drums, SWBs, Standard Large Boxes 2 (SLB2s), Pipe Over-pack Containers (POCs) inside 55 gallon drums, and Over-sized Waste Boxes (OWBs). Further descriptions of these containers are included in Table 2-1. With the exception of the OWBs, all containers will be both WIPP-compliant [DOE/WIPP 2008] and DOT 7A, Type A certified, as described in Section 3.3, *Acceptable Storage Containers*, of the Permit.

Containers may be staged in the unloading area or in Storage Building 63-0149 for a short period after unloading, anticipated to be less than 1 day under normal circumstances. Only closed and vented containers will be handled at the TWF. Waste containers will not be opened at the unit although their filter vents may be replaced if necessary. All containers received at the TWF will be equipped with WIPP-approved filtered vents that contain a sample port for headspace gas/flammable gas sampling without removing the filter. The TRU waste containers provide a confinement barrier between radiological contaminants and the environment and operations personnel. As a result of this confinement capability, the containers can be safely staged temporarily outside after unloading.

While the containers are staged at the unloading area or in Storage Building 63-0149, the following receiving operations will occur: initial inspection, verification of the container identification (scanning the container identification barcode and checking labels), wiping container surfaces, visual inspection of the filter vent, and a radiation/contamination survey (validation of generator's measurements). In the event of an abnormal condition such as inclement weather, staging at the loading/unloading area may exceed 24 hours but removal of the containers to Storage Building 63-0149 or other storage buildings will occur as quickly as possible.

2.2.7.2 Storage

After receiving activities are complete, waste containers will be transported across the TWF concrete pad using forklifts. Containers will be taken to the waste storage buildings and prepared for storage. In the buildings, drums will be placed on metal pallets in groups of four followed by banding with metal strapping. The four-pack is then placed into a storage array within the building, where it awaits further handling such as for transportation to the characterization trailers. The SWBs, SLB2s, and OWBs will also be taken into the storage buildings. Boxes without built-in devices that prevent contact with the floor will be placed on appropriately sized pallets or other structures to allow inspection and preclude contact with liquids as required by Permit Section 3.7, *Containment Systems*.

The following types of waste containers are planned to be used for storage of transuranic (TRU) waste at the TA-63 TWF. These waste container types are 55-gallon drums, SWBs, SLB2s, and OWBs. POCs may be packaged within 55-gallon drums. It is also possible that a 55-gallon drum could be over-packed into an 85-gallon drum if a 55-gallon drum was damaged or there was some other concern for its integrity, but 85-gallon drums will not be used as primary waste containers.

Although 55-gallon drums and SWBs are expected to make up the majority of the containers by number, some TRU waste will also be stored in both SLB2s and OWBs. Numbers of the various types of waste containers will vary at any given time. Table 2-2 presents a scenario for waste container storage that has a maximum number of SWBs, SLB2s, and OWBs that would likely be stored at the facility. Four of the waste storage buildings would store only 55-gallon drums, a fifth storage building would store primarily SWBs but some 55-gallon drums, the storage and characterization building would store primarily SLB2s but some 55-gallon drums, and OWBs would be stored outside under this scenario. This is discussed in more detail below. The total estimated storage capacity shown in the table was rounded to 105,875 gallons for the maximum design storage capacity of the Transuranic Waste Facility. See Table 2-2 for further details on the storage capacity.

The layout of waste containers in the four storage buildings that would store only 55-gallon drums (no other container types) in this scenario consists of two rows of ten groups of pallets with four 55-gallon drums per pallet and pallets stacked three high (resulting in a total of 120 drums per row and 240 drums per waste storage building.) The layout of the rows with pallets is like that shown in Figure 2-9, Storage Building Floor Plan.)

The layout of the storage building that would store primarily SWBs and some drums in this scenario consists of two rows of groups of pallets with a single SWB stacked two high. One row would consist of a total of 10 groups of pallets with one SWB per pallet stacked two high, and the other row would consist of a total of 9 groups of pallets with one SWB per pallet stacked two high (resulting in a total of 20 SWBs in one row and 18 SWBs in the second row.) A single group of pallets with 55-gallon drums stacked three high would be located at the end of the row of 9 groups of pallets with SWBs two high. Total storage within this waste storage building would be a total of 38 SWBs and 12 55-gallon drums). The layout of the rows with pallets would be similar to that shown in Figure 2-9, except that groups of SWBs stacked two-high on pallets would replace all of the groups of drums stacked three high on pallets except for one group of pallets containing drums (this was done to ensure sufficient aisle space for emergency egress at each of the personnel doors in the storage building).

The layout of the storage and characterization building that would store SLB2s and some drums in this scenario consists of two rows of SLB2s (one high stacking) in the storage bay of the building, with two SLB2s in one row and three SLB2s in the other row. Five pallets of four 55-gallon drums (one high stacking) would be located in the Thermal Equilibration (T.E.) Room of the building. Total storage within the storage and characterization building would be a total of 5 SLB2s and 20 drums. The layout of containers under this scenario would be similar to that shown in the floor plan in Figure 2-19, Storage and Characterization Building Floor Plan, except that a row of three SLB2s would replace the row of drums on pallets in the storage bay, and a row of two SLB2s would replace the single large container shown in the figure. The layout of 55-gallon drums stored in the T.E. Room would be like that shown in the figure. Because the waste storage buildings would be filled to capacity under this scenario, the four OWBs would be stored outside on the concrete pad.

The stored containers will be arranged to meet the conditions of Permit Section 3.5.1, *Storage Configuration and Minimum Aisle Space*. The central aisle in the storage buildings allows for the movement of forklifts during waste placement. In addition to the center aisle, a minimum of a two feet wide aisle space will be maintained between the rows of waste containers and the storage building walls. Four-packs of drums may be stored up to three high, SWB's and SLB2's may be stacked 2 high, and OWB containers will be stored one-high indoors.

There may be a need to store containers in different configurations at times to allow assembling of waste for retrieval and transport, waste characterization campaigns, or for segregation of incompatible wastes as required by Permit Section 2.8.2, *Incompatible Waste Precautions*. Aisle spacing of at least two feet will be maintained in any alternate configuration as required by

Permit Section 3.5.1 (1) and the maximum capacity of the TWF permitted unit will not be exceeded.

2.2.7.3 Characterization

TRU waste containers stored at the TWF will be initially characterized using generator knowledge of the waste prior to being received. Newly-generated TRU waste containers are primarily characterized by AK and may go through a certified visual examination (VE) process at the waste generator location (e.g., TA-55) before being transported to the TWF. Container integrity inspection, weighing, and labeling also occur at the generator facility. Additional characterization procedures at the TWF will be used to verify the generator's waste information and certify that the waste containers are ready for shipment to WIPP as required by Permit Section C.3.2.3, *WIPP Characterization*. Characterization activities will be performed at the TWF in the characterization trailers and the Storage and Characterization Building as described below.

Waste containers will be transported to the trailers by forklifts from the storage buildings. Each of the characterization trailers includes internal and external waste handling equipment such as lifts, conveyors, and container radioassay equipment. The containers will be positioned on the trailer's conveyors. They will then be moved into the trailers' radioassay equipment and examined. After characterization, they will be removed by forklift from the trailers and put back into storage in the buildings**.**

Characterization and certification of containers for WIPP is performed at LANL by an independent WIPP contractor. Characterization and certification operations begin by:

- Verification that the containers are from a WIPP AK waste stream.
- Verifying that the containers have a legible radiological label/tag.
- Verifying that the containers have an external radiation dose equivalent rate less than 200 millirem/hour.
- Visual inspection to ensure satisfactory container integrity.
- Visual inspection to ensure use of approved filters and proper seating.
- Verification of the container gross weight.
- The containers are also labeled to record completion of all operations.

Typically, NDE is the first characterization operation performed on drums (only) following the verification steps noted above. The NDE is conducted using RTR performed at the RTR trailer. RTR confirms the waste contents identified in AK and detects free liquids or items or conditions that are prohibited at WIPP. RTR operations will be performed as required by Permit Section C.3.2.1, *Real-Time Radiography,* during storage at the TWF. RTR (at TWF) will not be necessary for newly-generated waste containers that underwent a certified VE process at the generator site but will be used for any other waste containers.

The NDA operation is conducted in the HENC trailer for drums and the SuperHENC trailer for SWBs. The HENC is used to detect gamma-emitting radionuclides for the purpose of determining quantitative concentration of TRU. The HENC and SuperHENC operate on the same principle, and data from this process is used to assay the radioactive content of SWBs containing TRU waste, sorting SWBs based on the 100 nanocurie per gram (nCi/g) TRU limit, and confirming radioisotopes identified via AK.

All TRU containers will be tested for the presence of excessive flammable gases using Flammable Gas Analysis (FGA). The primary concerns are hydrogen and volatile organic compounds (VOCs). The presence of levels higher than those set by WIPP will not be allowed to be transported and may indicate that the hydrogen permeability of the container's vent filters has been compromised. Documentation of the levels of concern below the limit is required for WIPP certification. Internal gases will be extracted from the containers with a syringe inserted into the sampling port of the container vent filter. The sample is analyzed for volatile organic carbon compounds (VOCs) using gas chromatography/ mass spectrometry equipment located in the Storage and Characterization Building. Levels of hydrogen and methane gases are determined with a thermal conductivity detector.

A random sample of containers from TRU waste streams composed of debris waste will require Headspace Gas (HSG) sampling and analysis. Container temperature must be constant in order to collect a valid sample. Container temperature is allowed to stabilize to achieve the minimum temperature requirements for the sampling method in the thermal equilibration (TE) room located in the Storage and Characterization Building. Sampling for FGA may also be conducted in any of the waste storage buildings or on the concrete pad next to the characterization trailers if minimum temperature requirements for sampling are met. After thermal conditioning, HSG samples are collected with a syringe assembly including an evacuated SUMMA® canister (or equivalent) inserted into the sampling port of the vent filter. This sample is sent to the Idaho National Engineering and Environmental Laboratory (INEEL) for analysis of VOCs.

2.2.7.4 Outdoor Staging/Storage

The OWB container is too large to fit into a Nuclear Regulatory Commission (NRC) approved Type B shipping canister, and as such, will not be shipped to WIPP. OWBs will be temporarily stored at the TWF in queue for repackaging at other LANL facilities. OWB sizes vary, but will be no greater than 13 ft by 9 ft by 7 ft (on the order of a 100-drum equivalent). The radioactivity associated with these containers is relatively low compared to other containers.

OWBs may be stored in the TWF storage buildings. In the event that TWF indoor storage is approaching maximum capacity, OWBs will be stored outdoors. OWB storage will comply with the requirements of Permit Section 3.5.1.(5). OWBs stored outdoors will not be contacted by flowing storm water. Containers without stand-offs (i.e., either legs or tubing that runs either the width or length of the OWB) will be placed onto pallets. The OWBs will also be covered with tarps or other weather protective means to prevent contact with precipitation. OWBs may be stored two high outdoors on the concrete pad.

2.2.7.5 Free Liquid Restrictions

The containers to be stored at the TWF will generally contain either (1) no free liquids or (2) free liquids at less than 1% of the total container volume to meet the WIPP WAC. Any free liquid in containers at the TWF will be managed pursuant to the requirements of Permit Sections 3.6 (2) and 3.7 regarding waste labeling and containment systems. This involves the use of secondary containment pallets, maintenance of the run-on and run-off features described in Section 2.5.4 of this submittal, and removal of any spills in a timely manner as required by Permit Section 3.7.1(2).

The presence of liquid in the containers stored at the TWF is determined using either of three methods. The first method involves AK or process information supplied by the waste generators. The second method is the use of RTR to remotely examine the waste containers for liquids and other parameters. The third method for identifying free liquids is visual examination. Visual inspection if needed would necessitate opening the container and thus, would occur at other LANL storage facilities (e.g., TA-55, CMR, or TA-50-69 WCRRF). If plans are made in the future to allow the opening of containers in a suitable characterization trailer at the TWF (e.g., a visual examination trailer), this would be subject to the approval of NMED through a permit modification.

2.2.7.6 Filter Vent Changes

Vent filters that are found to be inadequate (e.g., inoperable or plugged) during container inspection or characterization will be changed out with new approved vent filters in an operation conducted using a portable HEPA filtration unit and appropriate personal protective equipment (PPE) for the operators.

2.3 AUTHORIZED WASTES AND WASTE ACCEPTANCE

The TWF will store hazardous wastes identified by one or more of the EPA Hazardous Waste Numbers presented in “Los Alamos National Laboratory General Part A Permit Application, Revision 8” included in Attachment A of this permit modification request pursuant to Permit Section 2.2, *Authorized Wastes*. These waste numbers are currently associated with wastes in storage at TA-54 included in Attachment B, *Part A Application*, of the Permit. Wastes that will not be accepted at the TWF are documented in the LANL WAC, Attachment 2, *Contact-Handled Transuranic (TRU) Waste* (LANL, 2010). Excluded wastes include medical, infectious, explosive wastes, and waste containing compressed gases. However, the hazardous waste management unit may need to store these types of wastes (e.g., aerosol cans) that have been detected in TRU waste drums during the RTR characterization process. . The containers will be stored in compliance with the conditions of Parts 2 and 3 of the Permit.

Wastes that are mainly or completely in liquid form within the volume of the approved waste containers will not be accepted at the TWF. As discussed in Section 2.2 of this document, the majority of waste stored at the TWF will be mixed TRU waste. However, the potential exists that mixed low-level waste may be stored if the TRU waste is re-characterized as a result of WIPP characterization. There may also be small quantities of nonradioactive hazardous waste generated and stored on-site.

2.3.1 Characterization Procedures

Wastes to be managed at the TWF will be subject to the characterization requirements of Permit Section 2.4, *Waste Analysis*, and Attachment C, *Waste Analysis Plan* (WAP), as applicable. A summary of the waste streams anticipated at the TWF and the applicable characterization criteria is provided in Table 2-3 of this submittal which references the relevant portions of the WAP.

These requirements will be met through the routine waste characterization procedures of LANL for any hazardous or mixed low-level waste generated or stored at the unit. The waste characterization trailers on-site at the TWF will be used to provide additional waste characterization for mixed TRU waste subject to WIPP certification as described in the WAP. This includes HSG analysis at INEEL, FGA for containers at the Storage and Characterization Building, and NDA/NDE radiographic analysis in the characterization trailers as previously described.

2.3.2 Verification Frequencies

Wastes to be managed at the TWF will be subject to the waste verification requirements of Permit Section 2.4.7, *Waste Characterization Review*, and Attachment C, *Waste Analysis Plan*, of the Permit.

2.4 SECURITY AND ACCESS CONTROL

The hazardous waste management unit at the TA-63 TWF will meet the requirements of Permit Section 2.5, *Security*. The DOE provides security for the area within LANL boundaries. Guard stations will control public access to this area of LANL from Pajarito Road east and west of TA-63. Therefore, only properly identified LANL and DOE employees authorized to enter the facility or individuals under their escort will have access to the TWF.

The unit security requirement will be met because the TWF will be within a security fenced area with controlled access gates. The security fence around the waste management portion of the TWF will be at least 8 ft high and be a chain link type fence with steel pipe fence posts. Fence tops will have at least three strands of barbed wire angled away from the protected area to prevent a person from scaling the fence. Two vehicle access gates will be integrated into the fence line. These gates, when opened, shall provide at least a 16 foot wide clearance to enable vehicle access. Gates will be locked when the facility is not operational.

Controlled entry to the unit will be provided by a system of access controls (badge readers and administrative controls will be required prior to entrance) to ensure that only authorized personnel are granted access. These access controls will also ensure that all facility personnel can be identified and located in an emergency.

The TWF will be patrolled by LANL security personnel during both operational and non-operational hours to ensure that the gates are locked and that unauthorized entry does not occur. In accordance with 40 CFR §270.14(b)(19)(viii), the proposed locations of the security fences, entry gates, and entry stations are shown in Figure 2-34.

Warning signs stating “Danger – Unauthorized Personnel Keep Out,” will be posted on the perimeter fences and gates. These will be able to be seen from any approach to the TWF in accordance with Permit Section 2.5.2, *Warning Signs*. The legends on the signs will be bilingual (i.e., English and Spanish) and will also indicate “No Trespassing by Order of the United States Department of Energy.” The signs will be legible from a distance of 25 feet. Signs for any confined areas, if necessary, may be reduced in size, but will be legible to personnel who require access to these areas. TA-63 does not have a shared boundary with the Pueblos of San Ildefonso or Santa Clara and, therefore, the signs will not include warnings in Tewa dialects.

2.5 HAZARDS PREVENTION (PROCEDURES, STRUCTURES, AND EQUIPMENT)

Descriptions of the preventive procedures, structures, and equipment at the TA-63 TWF are presented below. This information is provided in accordance with the requirements of 40 CFR §270.14(b)(8). Adherence to the procedures and proper use of the structures and equipment will help to prevent hazards, prevent undue exposure of personnel to hazardous waste, and prevent releases to the environment.

2.5.1 Fire Protection

The TWF is bordered on two sides by roadways and by parking lot and cleared space on the third side of the roughly triangular space. Beyond the roadways, grassland gives way to sparse piñon woodland near canyons to the north. South of the TWF, ponderosa pine trees and piñon/juniper are about equally distributed and there are stands of scrub oak. Trees near and within canyons are almost all ponderosa and the terrain is covered with shrubs and bushes of various species.

Defensible fire perimeter around TWF structures will be maintained and will include the concrete pad within the fenced TWF, Puye/Pajarito Roads, and parking areas outside of the TWF. Some vegetation control including grass trimming and shrub cutting is anticipated outside the TWF during the growing season, especially to the south and east of the TWF. At least 75 ft of defensible space around the unit will be maintained for minimization of exposure to wildland fire per NFPA 1144, *Standard for Reducing Structure Ignition Hazards from Wildland Fire*, (NFPA, 2007).

The TWF unit uses a wet-pipe sprinkler system designed in accordance with the pertinent portions of the 2010 edition of NFPA 13, *Standard for the Installation of Sprinkler Systems,* for fire suppression. The fire water supply will be sufficient for the fire suppression systems in storage buildings. Water will be supplied via the 150,000-gal tank north of the operations support building, with a combination of electric- and diesel-powered fire pumps, the tank and its associated level detection, freeze protection, pumps, and power supply for the pumps. The fire suppression water will be pumped to automatic sprinkler systems in the buildings. This system is designed in accordance with NFPA 13. Further details for the systems are shown in Figures 2-16, 2-17, 2-27, and 2-28.

Automatic fire suppression is not currently planned for the characterization trailers. Given the small size of the trailers, firefighter entry is not anticipated during an emergency; therefore, lack of fire suppression systems is not considered a potential firefighter hazard requiring built-in protection. However, the capability of providing automatic fire suppression in the future will be provided through the facility utility hookups included in the TWF design.

The fire alarm systems are designed in accordance with pertinent sections of NFPA 72, *National Fire Alarm and Signaling Code*. The storage buildings and characterization trailers in the unit will be tied into a single fire alarm panel located at the TWF Support Operations Building. Fire alarms will also be connected to the Los Alamos Fire Department (LAFD) through the Los Alamos County Consolidated Dispatch Center (LACCDC). Sprinkler system water flow, manual pull-stations, and system supervisory and trouble signals will be monitored at the fire alarm control panel. A fire alarm at any location within the TWF is currently anticipated to result in a TWF-wide alarm: horns/strobes in all appropriate facilities will sound simultaneously; a public address system will be part of this system configuration. If the public address system is to be used for emergency notification, then the system design must meet NFPA 72 requirements. Section 2.7.1 of this permit modification request submittal also includes descriptions of additional fire equipment such as fire extinguishers and alarms.

In addition to the on-site TWF capabilities, the LANL facility fire protection resources and procedures contained in Permit Section 2.11, *Contingency Plan* and Attachment D, *General Contingency Plan* of the Permit may also be utilized if the Contingency Plan is implemented in the event of a fire at the unit. These will include coordination by the LANL Emergency Manager of fire suppression activities and emergency medical services with internal and external agencies such as the LAFD .

2.5.2 Lightning Protection

Lightning protection is provided for TWF storage and storage & characterization buildings. Figures 2-35 and 2-36 present the Electrical Site Plan which provides locations for electrical poles equipped with grounding features that protect the unit structures from lightning. Figure 2-37 specifies design details for both lighting and lightning protection poles. Lightning protection consisting of a system of copper wiring connected to grounding rods protects personnel and structures by providing a path to ground for a lightning strike in the vicinity or a direct strike to a structure. Lightning protection prevents uncontrolled discharge of hazardous electrical energy in a manner that injures personnel, damages equipment or structures, or results in fire. These protective measures for lightning protection are designed to meet the requirement of Permit Section 2.8.1(5).

2.5.3 Waste Handling and Preventing Hazards during Loading/Unloading

Flatbed trucks, trailers, forklifts, or other appropriate vehicles may be used to transport waste containers to and from the waste management unit at the TWF and other LANL waste generation or management units. These vehicles will not be used to transport waste on the concrete pad. Only electric forklifts will be used for vehicular transport of waste containers within the TWF to reduce the combustible- and flammable-loading associated with TWF operations. Forklift operators may use an auxiliary boom, if necessary, to improve handling capabilities. Trained spotters may assist with container movement during forklift operations. Light drums may be handled manually or with a dolly. The use of proper handling equipment, appropriate to a container's size and weight, helps to prevent hazards while moving containers. Waste management personnel will be trained for safe handling operations in accordance with Attachment F, *Personnel Training Plan*, of the Permit.

2.5.4 Control of Run-on/Run-off

This information is provided to meet the requirements of 40 CFR §264.175(b)(4) and 40 CFR §270.14(b)(8)(ii). Controlling run-on and run-off at the TWF locations where waste management operations will regularly occur is accomplished by the design of the buildings and the use of control structures with appropriate contouring of surface areas. Run-on of storm water into the storage buildings will not occur. The building walls are on raised floors, and surface contouring slopes away from the building to prevent storm water from pooling against the foundations, doors, and loading areas. The internal floors of the buildings will be sloped to the front doors to prevent flooding by precipitation or storm water in addition to providing drainage to the outside to meet the requirements of 40 CFR §264.175(c).

The TWF site will maintain a nominally 2% slope to optimize drainage and the use of electric forklifts to handle waste containers. After the site has been graded, the site will be lower in elevation than Pajarito Road or Puye Road. A retention wall will maintain the differences in elevation between the roads and the site. The site will be surfaced in concrete and will include a retention basin for management of storm water and for the collection of fire suppression water until it is sampled and verified to be uncontaminated. Retention basin capacity includes the run-off from a 25-yr 2-hr precipitation event in addition to a fire event or a total capacity of approximately 137,450 gallons or 18,375 cubic feet of water.

Secondary containment will be provided where potential liquid-bearing containers are stored in the buildings to prevent run-off. Secondary containment systems (e.g. pallets) will be utilized, as needed, and will have sufficient capacity to contain at least 10 percent (%) of the volume of potential liquid-bearing containers or the volume of the largest container stored in the system, whichever is greater, pursuant to the requirements of 40 CFR §264.175(b)(3) and Permit Section 3.7, *Containment Systems*.

Waste spills or leaks will be managed inside the characterization trailers to prevent run-off. Containers stored outside on the concrete pad will be protected from contact with precipitation in accordance with Permit Section 3.5.1 (5).

Storm water run-on/run-off controls will meet requirements pursuant to the TA-63 TWF Multi Sector General Permit Storm Water Plan to be developed for the site.

2.5.5 Preventing Water Supply Contamination

The waste management unit at the TWF will be located, designed, constructed, operated, and maintained in a manner that will ensure the prevention of water supply contamination. No disposal activities will occur at the site. Waste storage activities involving any potential liquids will occur only with secondary containment (pallets) and covers, if outdoors. In the event of a release, the liquids will be removed as quickly as possible and packaged in an appropriate container. Potential spills of liquid and solid form wastes will be contained in the storage buildings or prevented from contact with the subsurface by the concrete pad until clean-up occurs. Waste containers will be inspected daily while management activities are occurring in accordance with Permit Section 2.6, *General Inspection Requirements*. Spill responses will be subject to the conditions of Permit Section 2.10.4, *Spill Response*, or Section 2.11, *Contingency Plan* regarding containment and clean-up. Given these conditions, there is little to no potential for contaminants to enter the groundwater or other water supplies as a result of normal operations or accidents at the TWF.

In addition, the depth to groundwater at Well R-46 (the groundwater monitoring well adjacent to the northeast fenced portion of the TWF) is approximately 1,326 ft below ground surface after surface grading is completed (LANL, 2009/2010). The average annual precipitation in the Los Alamos area (including both rain and water equivalent or frozen precipitation) is 48 centimeters (cm) or 18.9 inches (in). The evaporation of freestanding water measured by pan evaporation rates significantly exceeds the annual precipitation. Representative evaporation rates for nearby locations include Santa Fe, 62.9 in/year, Cochiti Dam 88.0 in/year, Abiquiu Dam 72.13 in/year, and Jemez Dam 82.0 in/year. (WRCC, 2011). Permeability rates for soils nearby at TA-55 range from 1.5 to 5.0 cm per hour (cm/hr) in the top layers to 0.15 to 5.0 cm/hr in the lower layers. Available water-holding capacity ranges from 0.14 to 0.21 percent (Nyhan et al., 1978).

Collectively, the depth to the regional aquifer, the annual moisture deficit, and soil parameters significantly limit the potential for contaminants to migrate to the groundwater in the unlikely event that contaminants reach the permeable ground surface surrounding the TWF.

The water supply lines to the TWF will be under pressure and will be equipped with backflow prevention devices to prevent potential contamination of the unit's potable water supplies. Pursuant to the requirements of 40 CFR §270.14(b)(8)(iii), no impact to water supplies is expected.

2.5.6 Mitigating Effects of Power Outages

Electrical power will be supplied at the TWF to operate building heating systems, the Public Address (PA) system, various instruments, and other electrical equipment. Evacuation alarms, equipped with a battery backup, will be located throughout the TWF and will continue to operate for eight hours during a power failure. Lighting and fire alarms will also have battery back-up power for 8 hours. Operations at the waste management unit will be discontinued until power is restored. Neither a power nor an equipment failure would affect containment at the TWF waste management unit. These backup power supplies will be used to meet the requirements of Permit Section 2.10.1, *Required Equipment*.

A seismic event of sufficient magnitude will trip a seismic switch resulting in loss of power at the unit. The three circuit breakers in the main service to the site will each have a shunt trip solenoid connected to a control power circuit. The control power circuit will interrupt the power when seismic sensors are activated by a seismic event. A control scheme that requires a minimum of two activated sensors before control power is applied to the trip coil of the breakers will be used. This scheme will minimize the nuisance tripping of power upon activation of only one sensor. The seismic sensor proposed is the Kinemetrics "Etna" device as used at TA-55 or an equivalent. This design feature is preventive in nature and is specified to prevent issues associated with downed or damaged power lines.

2.5.7 Preventing Undue Exposure

To prevent undue exposure of personnel to hazardous or mixed waste, PPE appropriate for the waste containers being managed and the work performed will be worn by all on-site personnel at the TWF. Hard hats, safety shoes or boots, and gloves may also be worn while equipment is being operated and when containers are being loaded or unloaded. The different levels of PPE are defined by the Occupational Safety and Health Administration (OSHA) as follows:

Level D: Coveralls; safety shoes or boots; safety glasses or goggles; hard hat; and appropriate gloves.

Level C: Full-face, air-purifying respirator with appropriate cartridges for the chemicals or hazards present; chemical-resistant suits; chemical-resistant safety boots or booties; and inner and outer gloves.

Level B: All Level C equipment plus self-contained breathing apparatus in place of a Level C full-face respirator.

Level A: All Level B equipment, plus a fully-encapsulating chemical-resistant suit.

Most waste-handling operations at the TWF will require that personnel handling wastes or working in the unit will wear modified Level D PPE, (safety glasses and hard hats are not always required depending on the associated work hazards identified in job-specific hazard control plans). Modified Level D may include any combination of items in Level D. There are instances where an increased level of PPE is required, such as during sampling of headspace gases and change out of container vent filters, an emergency, or an unusual hazardous situation. If a situation arises during an emergency and an increased level of PPE is required, the PPE will be compatible with the hazards present. All personnel that use PPE are trained and qualified to use the equipment properly.

All personnel involved in waste-handling operations in the TWF will be required to have training appropriate for their work. Training requirements are presented in Attachment F, *Personnel Training Plan*, of the Permit. Personnel will also be required to review job hazards prior to performing waste-handling activities. Sampling plans, hazard control plans (which address monitoring equipment), and work authorizations will be required, in accordance with LANL safety procedures. The need for Personal Contamination Monitors (PCM, e.g., dosimeter, Draeger™ Tubes) will be established using the job hazard review process. Together, the required training, plans, and work authorizations will help to prevent undue exposure to personnel.

2.5.8 Air Emission Standards for Containers

The hazardous wastes that will be stored in containers at the TWF may be subject to 40 CFR Part 264, Subpart CC, "Air Emission Standards for Tanks, Surface Impoundments, and Containers" Permit Section 3.9, *Volatile Organic Air Emissions*, implementing the Subpart CC requirements, and the information requirements of 40 CFR §270.27. Permit Section 3.9, *Volatile Organic Air Emissions*, implementing the Subpart CC requirements will also apply in such a case. Subpart CC standards for containers, as currently set forth by the EPA, require that containers of hazardous waste be covered so that there are no detectable emissions of volatile organic compounds to the air. Inspection and monitoring requirements are also specified.

However, as indicated in 40 CFR §264.1080(b)(6), these standards are not currently applicable to containers that are used solely for management of radioactive mixed waste in accordance with the regulations under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act (EPA, 1994). This exemption will apply for the majority of waste containers stored and characterized at the TWF. The basis for this exemption is the need for these containers to be vented to prevent hydrogen gas buildup as described in the next section. These containers will be clearly labeled as radioactive in accordance with Permit Section 3.6, *Waste Container Labeling*. Under 40 CFR§264.1080, the standards are also not applicable to other containers of hazardous waste with less than 500 parts per million by weight (ppmw) VOCs or containers of less than 0.1 cubic meters (m^3) (approximately 26 gal) capacity, which may apply to hazardous wastes generated on-site.

The following management standards apply for hazardous wastes managed at the TWF that do not meet any of the exemptions listed in 40 CFR §264.1080(b) (or 40 CFR §265.1080(b) for wastes managed under 40 CFR Part 262 generator standards). Generator information will be used to determine whether the concentration of volatile organics in a waste stream at the point of generation is less than 500 ppmw, or is equal to or greater than 500 ppmw, which is the threshold concentration for Subpart CC requirements. In the event that this information is not available, the waste will be characterized in accordance with Attachment C, *Waste Analysis Plan*, of the Permit. Any hazardous waste that is newly-generated at the TWF or re-categorized through the characterization of waste managed at the TWF will be characterized in this manner.

Three levels of air emission controls based on container design capacity are established in 40 CFR §264.1086(b). The TWF hazardous waste storage procedures will require Level 1 controls based upon container design capacities if hazardous waste is managed. Containers of greater than 0.1 m^3 and less than 0.46 m^3 (approximately 119 gal) capacity and that meet U.S. Department of Transportation (DOT) specifications under 49 CFR, Part 178, will be kept closed during storage pursuant to 40 CFR §264.1086(c)(3). Containers undergoing waste characterization activities may be opened for access for the purposes described in 40 CFR §264.1086(c)(3). As required by 40 CFR §264.1086(c)(4), these containers are subject to a visual inspection and monitoring program. During storage at the TWF, the container will be inspected to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position, in accordance with 40 CFR §264.1086(c)(1)(ii). Pursuant to the Permit Section 2.6, *General Inspection Requirements* and Attachment E, *Inspection Plan*, containers will be inspected at least weekly at the TWF to ensure that the containers remain closed during storage.

2.5.9 Preventing Releases to the Atmosphere

In summary, as described in Section 2.5.8, *Air Emission Standards for Containers*, the majority of the waste containers at the TWF will manage and store radioactive mixed waste. Containers that store radioactive mixed waste are not subject to air emission standards under Subpart CC. *See* 40 CFR §264.1080(b)(6). These containers are not subject to RCRA air emission control requirements because these rules conflict with DOE technical requirements for containers holding radioactive mixed waste. Containers holding radioactive mixed waste cannot be sealed with “vapor leak-tight covers” as required under U.S. Environmental Protection Agency (EPA) rules due to unacceptable pressure buildup of hydrogen gas and the safety concerns associated with potential rupture of the container or serious explosion hazard. *See* U.S. EPA, 59 FR 62896, 62914 (1994). For this reason, containers holding radioactive mixed waste are exempt from EPA’s air emission standards.

This information, however, pertains solely to DOE and Occupational Safety and Health Administration (OSHA) requirements for vents and air monitoring applicable to radioactive waste containers. This information is not relevant to containers holding hazardous waste only, which, as previously stated, are required to meet Subpart CC standards for air emissions. DOE requirements, in turn, address container standards for preventing air releases from transuranic waste containers through engineered controls and operations. Transuranic waste containers must meet the U.S. Department of Transportation (DOT) Specification 7A, Type A, packaging requirements delineated in 49 CFR §173.465. These are the same container specifications for hazardous waste containers described by 40 CFR Part 264, Subpart CC §264.1086 standards.

As stated above, vent filters in radioactive waste containers are needed to meet DOE standards. All transuranic waste containers generated and in storage are required to be vented to avoid gas buildup in the containers by DOE *Radioactive Waste Management Manual*, M435.1-1, Item III. L(1)(b), implementing DOE Order 435.1, *Radioactive Waste Management*. This is also contained in the *Waste Isolation Pilot Plant Hazardous Waste Facility Permit* at Attachment A1, Section A1-1b[2]. The vents prevent the escape of particulate emissions from the containers and restrict the release of other gases at rates dependent on their molecular weight.

In addition to the waste container conditions subject to DOE, air sampling and monitoring commensurate with the hazards of the activities planned for the site must be performed to ensure that airborne radioactive is characterized in compliance with DOE Order 458.1, "*Radiation Protection of the Public and the Environment*" and 10 CFR 835, "*Occupational Radiation Protection.*" This may involve a range of monitoring options such as continuous air monitoring and routine swipe sampling for radioactive constituents determined by the waste management activities and locations.

2.6 PREPAREDNESS AND PREVENTION

The following sections present waste management techniques that will be used at TA-63 to comply with the preparedness and prevention requirements of 40 CFR Part 264, Subpart C. Additional information on the communication and alarm equipment available at LANL is presented in Attachment D, *Contingency Plan*, of the Permit. A discussion of the emergency equipment available for use at the hazardous waste management unit at the TWF is provided in Section 2.6.1 of this document. The TWF will be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment, in accordance with 40 CFR §264.31.

2.6.1 Required Equipment

In accordance with Permit Section 2.10.1, *Required Equipment*, at a minimum, the TWF will be equipped with safety-alarm systems to alert personnel in the event of an emergency and to evacuate the area. These alarm systems will be located both inside and outside the unit and will be monitored. The facility monitor/control system will be in operation 24 hours a day and will be located in the access control station at the TWF. Specific facility monitor/control system equipment to be located at the TWF is discussed below.

Emergency equipment will be located throughout the TWF and will include fire alarms, fire response systems, alarm systems, internal communications, spill kits, and decontamination equipment. Detailed information on the required emergency and safety equipment located at the TWF is provided below.

Pursuant to NFPA standards, fire-alarm pull boxes and/or drop box push-button alarms will be located in the TWF where waste management activities will be conducted. Fire-alarm pull boxes may be used by personnel to activate a local fire alarm when a fire or other emergency is discovered. The TWF will also be equipped with automatic fire-suppression alarm systems. The fire-suppression alarms will be activated when water flow is detected in the sprinkler pipes of the fire-suppression system. Upon activation of the fire-alarm system, an alarm will sound and red lights will flash to alert personnel of emergency conditions. All fire-alarm pull boxes and automatic fire-suppression systems that will be located at the TWF will alert the LAFD through the LACCDC.

In addition to the alarms described above, a PA system may also be used to announce emergency conditions or to initiate an evacuation at the TWF. The PA system will be audible throughout the TWF and will be activated at the access control station in the Operations Support Building.

Personnel working at the TWF will have the ability to communicate the location and nature of hazardous conditions using conventional telephones or cellular telephones to call the access control station. This type of call will summon assistance from the Emergency Management and Response Office, local police and fire departments, and state emergency response teams, if necessary.

Fire control equipment will be readily available for the waste management unit. Portable fire extinguishers will be available and may be used by trained on-site personnel depending on the size of the fire and the fuel source. However, LANL policy encourages immediate evacuation of the area and notification of appropriate emergency personnel. Fire hydrants are located in accordance with NFPA standards on the west and east sides of the TWF pad and near the Operations Building (see Figure 2-5). Water will be supplied to the fire hydrants by a municipal water system which will provide adequate volume and pressure (i.e., greater than 1,000 gal per minute and 90 pounds per square inch static pressure) to multiple water hoses in the event of a fire. The LAFD will supply all water hoses needed in the event of a fire at the TWF.

There will be spill kits available at the TWF in the storage areas to mitigate containable spills. These kits will typically contain sorbents, neutralizers, PPE and other equipment essential for containment of spills. Trained personnel will use the spill kits only if they know what has been spilled and they are sure their actions will not put themselves or others at risk. In addition to the spill kits, cleanup equipment such as shovels, bags, drums, etc. will be available at the TWF. Overpack drums and sorbents will also be stored in an equipment storage shed on the west side of the TWF. Emergency personnel can also provide additional spill control equipment and assistance upon request depending on the size and severity of the spill.

Personnel decontamination equipment that will be available at the TWF will include safety showers and eye wash stations located inside each of the storage buildings. These will be situated at all the waste storage buildings in accordance with OSHA requirements. Additional decontamination equipment may be provided by emergency personnel. Material Safety Data Sheets MSDS (e.g., for cleaners or solvents used on site) will be available at operations areas and will provide useful exposure information in accordance with OSHA requirements.

2.6.2 Testing and Maintenance of Equipment

In accordance with Permit Section 2.10.2, *Testing and Maintenance of Equipment*, all communications and alarm systems, fire protection, and decontamination equipment at TWF will be inspected, tested, and/or maintained as provided according to the inspection schedule. The frequency of inspection will be adequate to ensure proper operation in the event of an emergency. Maintenance, repair and replacement of emergency equipment will be performed as required.

2.6.3 Access to Communications or Alarm System

When waste is being handled in the TWF hazardous waste management unit, all personnel involved will have immediate access to an internal alarm or emergency communication devices, either directly or through visual or voice contact with another individual. These devices will include fire alarms, evacuation alarms, and cellular telephones as specified in Permit Section 2.10.3, *Access to Communications or Alarm Systems*. In the event of an emergency, communication equipment at the TWF will allow personnel to contact emergency response personnel, the access control station at the Operations Support Building, the operating group management, and/or the LACCDC operator. In addition to communications and alarm systems, the TWF personnel may carry pagers so that they can be contacted by the access control station and other LANL emergency support personnel at all times.

2.6.4 Space Requirements

Waste containers in the TWF storage units will be arranged in accordance with Permit Section 3.5.1, *Storage Configuration and Minimum Aisle Space*. In addition, storage configuration within a row will depend upon the type of container, its size, and its weight restrictions. Fifty-five-gal drums will be placed on a pallet, banded in an array of four drums, and arranged in rows allowing inspection of all sides and bottom. The four-drum on a pallet array may be stacked up to three units high. SWBs and SLB2s will be stacked to a maximum of two containers high. Stacking height for other containers will be assessed on the basis of container size and weight restrictions (which may prohibit stacking), to address any safety concern.

2.7 CONTINGENCY PLAN

In accordance with 40 CFR Part 264, Subpart D and 40 CFR §270.14(b)(7), emergency measures applicable to the TWF are provided in Attachment D, *Contingency Plan*, of the Permit. Specific information on emergency response resources and release prevention/mitigation at the TWF is provided below. A copy of the Contingency Plan in Attachment D of the Permit will be maintained at the Operations Support Building, 63-0144. Hazardous waste compliance personnel will be primarily responsible for updating the plan.

Figure 2-38 shows the evacuation route and muster area that may be used at the TWF in the event of an emergency. The evacuation route and muster area location are subject to change. A listing of emergency equipment currently available for use at the TWF is provided below.

The waste management personnel at the TWF will be trained in emergency procedures and responsible for correction of a nonsudden release from the unit if the correction can be performed safely with normal maintenance and management procedures. Personnel from the Emergency Management and Response Office may provide assistance in mitigating releases. Any correction methods for nonsudden releases that have resulted in an impact to the environment will be coordinated with the NMED.

Contingency or emergency measures are unanticipated "fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste ..." for which a schedule of remedial actions cannot be reasonably ascertained. Any remedial actions carried out under the provisions of the Contingency Plan will be performed as soon as possible to ensure protection of human health and the environment, as described in Attachment D of the Permit. These remedial actions include site cleanup; proper handling of recovered waste, contaminated soil, or contaminated surface water; decontaminating equipment, as needed; replacing or repairing equipment, as needed; and testing to verify successful cleanup.

2.7.1 Emergency Equipment at the TWF

The following sections list the equipment located at the TWF in case of an emergency. The list is similar to the unit specific lists included in the Contingency Plan of the Permit.

2.7.1.1 Fire Control Equipment:

ABC and/or BC rated fire extinguishers are located in the storage buildings and the characterization trailers. An ABC rated fire extinguisher is located in each vehicle used to transport waste containers.

Description of General Capabilities:

Portable, manually operated, fire extinguishers may be used by any qualified employee in event of a small fire. For larger fires, the LAFD is alerted.

2.7.1.2 Communication Equipment:

Telephones and the public address system are located inside the Operations Support Building.

Description of General Capabilities:

Telephones for internal and external communication are available for use by any employee. Employees can be notified of an emergency situation and appropriate response action through the PA system.

Fire alarm pull stations are located in the storage buildings and at operations support building.

Description of General Capabilities:

Manually-operated fire alarms may be activated by any employee in the event of a fire to alert TWF site personnel, LANL Emergency Response Personnel, and the LAFD.

Fire and public address system alarms

Description of General Capabilities:

The fire and public address system are activated or used to provide a sound signal to alert personnel of fires or the need to clear the area.

2.7.1.3 Decontamination Equipment:

Eyewash/emergency shower stations and MSDSs are available in the storage buildings and the Operation Support Building. MSDS information is maintained where appropriate for personnel accessibility and are used for chemicals that will be needed to support operations or emergency activities.

Description of General Capabilities:

Eyewashes and emergency showers may be used by personnel who receive a chemical splash to the eyes or body. Specific MSDSs should be reviewed prior to working with chemicals.

2.7.1.4 Personal Protective Equipment

Personnel at TWF will be required to use appropriate PPE to protect themselves from hazards found under normal conditions. This PPE may include gloves, steel toe shoes, and eye protection, additional PPE may be required during unusual hazardous situations. First aid kits and hearing protection will also be available.

Description of General Capabilities:

To prevent undue exposure of personnel to hazardous or mixed waste, PPE appropriate for the waste containers being managed will be worn by all on-site personnel at the TWF (see section 2.5.6). First aid kits may be used by personnel who sustain minor injuries at the unit in the course of operations. Hearing protection may be used by operations personnel to mitigate noise impacts.

2.7.1.5 Other

If transportation is needed for evacuation, vehicles may be obtained through the Emergency Management and Response Group.

2.7.2 Support Agreements with Outside Agencies

Information on support agreements with outside agencies, as required by 40 CFR §264.37, is presented in Attachment D, *Contingency Plan*, of the Permit. These include local and state emergency organizations, police, fire, and medical agencies.

2.8 IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTES

Incompatible wastes will be segregated and separated during storage in accordance with 40 CFR §264.177(c) and Permit Section 2.8.2, *Incompatible Wastes Precautions*. All waste will be segregated and stored in accordance with DOT compatibility groups. These DOT compatibility groups are: flammables (Class 3), oxidizers (Class 5.1), combustible and noncombustible miscellaneous hazardous material (Class 9), corrosives (Class 8), poisons (Class 6), radioactive (Class 7), acids (Class 8), reactives (Class 4), and non-regulated materials. Incompatible wastes will be separated and segregated from other wastes and materials by means of a berm, dike, wall, or other specific means (e.g., secondary containment pallets, modular sheds, distance) during storage as required by 40 CFR§ 264.17(c). These precautions will also be used to prevent a release or spill of incompatible wastes from potentially comingling with fire suppression water in the unit's retention pond in accordance with Permit Section 2.8.2. In the event of a fire or spill, the Permit Contingency Plan may also be implemented including emergency segregation procedures determined to be necessary at that time. In addition, no incompatible waste will be mixed, and no waste will be placed in a container that previously held an incompatible waste, as required by 40 CFR §§ 264.177(a) and (b), and 40 CFR §270.15(d).

There will be no sources of open flames allowed within the unit. Cutting and welding activities will not be conducted in the vicinity of waste containers. Ignitable or reactive wastes will be packaged in sealed containers and will not be exposed to ignition sources. Waste management practices of segregation and separation by distance in the TWF storage buildings will minimize the possibility of accidental ignition. Indoor storage eliminates exposure to spontaneous ignition sources such as sunlight and contact with hot surfaces. These wastes will be stored a minimum of 15 m from the TA-63 boundary in accordance with 40 CFR §264. 176 and Permit Section 2.8, *Special Requirements for Ignitable, Reactive, or Incompatible Waste*. The distance to the nearest TA-63 boundary from the TWF boundary is approximately 1.5 m (5 ft) further than the 15 m requirement as shown in Figure 2-39. This distance is only applicable for the south-western side of the TWF where no waste storage is anticipated. The areas and structures where storage occurs in the unit are all significantly over 15 m from the TA-63 boundaries.

Only non-sparking tools will be used for waste management operations such as removing plugged filter vents from waste containers. Smoking will not be allowed in the TWF. "No Smoking" signs will be conspicuously placed wherever there is a potential hazard from ignitable or reactive waste, as required by 40 CFR §264.17(a). Precautions will be taken to prevent reactions that may generate extreme heat, pressure, fire, or explosion. TWF operations will minimize the potential for reactions that may produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment. TRU waste containers will have vents to prevent over-pressurization as discussed previously. Containers will not be opened during storage except to replace vents if necessary. Together, these measures will meet the requirements of 40 CFR §§ 264.17(a) and (b) and 264.176. Cutting and welding activities will be conducted in the TWF only under special authorization and will not be conducted in the vicinity of waste containers. Lightning protection will be provided at the TWF site as described in Section 2.5.2 of this document.

2.9 INSPECTION

In accordance with the requirements of 40 CFR §264.15 and Permit Section 2.6, *General Inspection Requirements*, the TWF will incorporate the inspection requirements outlined in Attachment E, *Inspection Plan*, of the Permit.

2.9.1 Additions to Inspection Plan Necessary for the TWF

In accordance with 40 CFR §§264.15(b) and 264.602, the TWF is inspected according to the schedule provided below. Inspection frequencies are adequate based on the deterioration rates of equipment/systems and the probability of harm to human health or the environment if failure of the equipment/systems occurs, or any operator error goes undetected between inspections.

2.9.1.1 On Day(s) of Waste Handling

Inspections will be conducted daily, or the day after, waste handling activities are conducted at the TWF. Waste handling activities are outlined in Attachment E, *Inspection Plan*, Section E.2.1 of the Permit.

2.9.1.2 Weekly Inspections

Weekly inspections of the storage areas at the TWF will be conducted as long as waste remains in storage. Weekly inspections will be conducted in accordance with Attachment E, *Inspection Plan*, Section E.2.2 of the Permit.

2.10 RECORDKEEPING REQUIREMENTS

In accordance with 40 CFR Part 264, Subpart E, recordkeeping requirements applicable to the TWF are discussed in the following sections. TWF operations will meet the requirements contained in Permit Section 2.12, *Recordkeeping and Reporting*.

2.10.1 Manifest Systems

Waste information supporting shipping manifests will be updated to record TWF TRU waste characterization activities. This data will support manifest information needed for shipments of waste received at, or initiated from, the LANL Facility as a whole. Documentation for each TRU waste container will be maintained from the time of receipt at the TWF and records will follow each container to the RANT Facility where the manifest is completed upon shipment to WIPP. Waste characterization data for manifests for secondary mixed low-level and hazardous waste streams at the TWF will follow the record keeping practices of Permit Section 2.12.1, *Manifest Systems* or the requirements of 40 CFR Part 262.

2.10.2 Facility Operating Record

Many of the records required under the Permit Section 2.12.2, *Facility Operating Record*, will be generated and maintained at TWF in support of LANL Facility requirements. In particular, these include:

- Hazardous waste received and managed, Section 2.12.2(1);
- Location of waste stored, Section 2.12.2(2);

- Waste analyses, Section 2.12.2.(3);
- Contingency Plan incidents, Section 2.12.2.(4);
- Inspection records, Section 2.12.2.(5);
- 40 CFR §268.7 notices, Section 2.12.2.(10);
- Secondary containment records, Section 2.12.2.(15);
- Personnel training records, Section 2.12.2.(16);
- Alternate emergency equipment, Section 2.12.2(17;) and
- Fire suppression system activations, Section 2.12.2(18).

TWF personnel will be trained in the implementation of these record requirements and will maintain logbooks or other formats to enable saving applicable data. These or compiled records will be maintained in the Operations Support Building as part of the unit's operating record.

2.10.3 Availability of Facility Operating Record

The TWF operations will comply with the requirements of Permit Section 2.12.3, *Availability of Facility Operating Record*, by keeping records on-site at the Operations Support Building or by passing data on to centralized LANL records or record organizations.

2.10.4 Biennial Report

The TWF will provide timely waste management data to cover the unit's activities to support the reporting requirements of Permit Section 2.12.5, *Biennial Report*. This will include a description and the quantity of each hazardous waste the facility received during the calendar years covered by the report year and the method of treatment, storage, or disposal for each hazardous waste.

2.10.5 Unmanifested Waste Report

Waste from off-site sources may be accepted on a limited basis at LANL provided that such waste is properly characterized and manifested and meets the requirements listed in Permit Section 2.2.1, *Hazardous Waste from Off-Site Sources*. No wastes will be accepted for treatment at the TWF.

2.10.6 Additional Reports

In accordance with the requirements of 40 CFR §264.77, LANL will also report the following to the NMED-HWB:

- Releases and unanticipated fires and explosions that require implementation of the contingency plan, as specified in 40 CFR §264.56(i);
- Facility closures, as specified in 40 CFR §264.115; and
- As otherwise required by 40 CFR Part 264, Subparts F, BB, and CC.

2.10.6.1 Waste Minimization

In accordance with the requirements of 40 CFR §264.75 and Section 2.9 of the Permit, LANL develops a report outlining annual waste minimization efforts. This report is submitted to NMED-HWB prior to December 1 of each year.

2.10.6.2 Reporting Other Noncompliance

In accordance with the requirements of Permit Section 1.9.13 and 1.9.14, LANL develops an annual report outlining any non-threatening release from or at a permitted unit and all instances of noncompliance not reported as an anticipated noncompliance. This report is submitted to NMED-HWB prior to December 1 of each year.

Table 2-1

Proposed Storage Containers for Mixed Transuranic Waste[a]

Container Type	Description	Requirements	Filter Vents [b]
Standard 55-gallon Drum	• Gross internal volume of 7.3 ft^3 (0.21 m^3). • Constructed of mild steel. • May also contain ridge, molded polyethylene (or other compatible material) liner.	Meet the requirements for DOT Specification 7A in 49 CFR §178.350.	One or more filter vents installed on top of the container.
Pipe Overpack Container (POC)	55-gallon drum containing a pipe component and dunnage.	DOE/WIPP 11-3384 Rev. 1 Page 9 of 27 DOT Type A payload container.	One or more filter vents installed on top of the container
Standard Large Box 2 (SLB2)	Gross internal volume of 261 ft^3 Length 108” x Height 74” x Width 69”	Meet the requirements for DOT Specification 7A in 49 CFR §178.350.	Up to 6 filter vents installed on top of the container
Standard Waste Box (SWB)	Gross internal volume of 66 ft^3 (1.88 m^3). Length 69” x Height 37” x Width 52”	Meet the requirements for DOT Specification 7A in 49 CFR §178.350.	One or more filter vents installed on top of the container.
Standard 85-gallon Drum Over Pack	• Gross internal volume of 11.3 ft^3 (0.32 m^3). • Used for over packing contaminated 55-gallon drums.	DOT Specification 7A and is certified to meet applicable requirements for Type A packaging	One or more filter vents installed on top of the container.
	•		
	•		
Oversized Waste Box	• Gross internal volume greater than 11.3 ft^3 (0.32 m^3). • Used for oversized waste.	DOT Specification 7A and is certified to meet applicable requirements for Type A packaging	Two or more filter vents installed on sides of container.

[a] The containers listed in this table are described for storage at the TWF

[b]Vents are high-efficiency particulate air grade filters to preclude container pressurization caused by gas generation and to prevent particulate material from escaping. Vents have an orifice approximately 0.375 inches (9.53 millimeters [mm]) in diameter through which internally generated gas may pass. Filter media can be any material compatible with the contents of the container (e.g., composite carbon, sintered metal).

CFR = Code of Federal Regulations
m^3 = cubic meters
DOT = U.S. Department of Transportation
ft^3 = cubic feet

TABLE 2-2
Waste Container Storage Capacity Example

Container Type	Number of Containers	Nominal Container Dimensions (feet)	Nominal Container Capacity (gallons)	Total Gallons
55-Gallon Drum	992	Height = 2.79 Diameter = 1.88	55	54,560
Standard Waste Box (SWB)	38	Height = 3.03 Length = 5.73 Width = 4.33	470	17,860
Standard Large Box 2 (SLB2)	5	Height = 5.38 Length = 8.50 Width = 5.25	1,790	8,950
Oversize Waste Box (OWB)	4	Height = 7.0 Length = 13.0 Width = 9.0	6,126	24,504
			TOTAL CAPACITY	105,874

Table 2-3

References for Waste Stored at the TWF

Waste Type	Waste Stream Description	Permit Attachment C, *Waste Analysis Plan*, Waste Description Locations[a]
Hazardous (generated at the TWF only)	• Spent Solvents • Contaminated Solid Waste • Paint and Related Waste • Corrosive Liquid Waste • Solid Metals and Metallic Compounds • Mercury Waste • Contaminated Non-Corrosive Aqueous and Non-aqueous Solutions and Sludges • Gas Cylinder Waste • Used Batteries and Battery Fluids	• Section C.1.2.1, Non-mixed Hazardous Waste • Table C-2, Descriptions of Hazardous Waste Stored at the Facility • Table C-9, Parameters, Characterization Methods, and Rationale for Parameter Selection for Hazardous Waste • Table C-16, Summary of Characterization Methods for Hazardous Waste
Low-Level Mixed (only TRU waste that is re-classified to Low Level Mixed will be stored at TWF until it can be dispositioned)	• Lead Waste • Noncombustible Debris • Combustible Debris • Organic Contaminated Combustible Solids • Mercury Wastes • Aqueous and Non-aqueous Liquids Contaminated with Heavy Metals and/or Organics • Gas Cylinder Waste	• Section C.1.2.2, Mixed Low-Level Waste • Table C-3, Descriptions of Mixed Low-Level Waste Stored at the Facility • Table C-10, Parameters, Characterization Methods, and Rationale for Parameter Selection for Mixed Low-Level Waste • Table C-17, Summary of Characterization Methods for Mixed Low-Level Waste
Transuranic Mixed	• S3000 Homogeneous • S4000 Soil/Gravel • S5000 Debris	• Section C.1.2.3, Mixed Transuranic Waste • Table C-4, Facility MTRU

		Waste Stream Waste Matrix Codes Correlated with Facility Waste Identification Systems • Table C-5, Descriptions of Mixed Transuranic Waste Stored at the Facility • Table C-11, Parameters, Characterization Methods, and Rationale for Parameter Selection for Mixed Transuranic Waste • Table C-18, Summary of Characterization Methods for Mixed Transuranic Waste

[a] From *Los Alamos National Laboratory Hazardous Waste Facility Permit* (LANL, 2010)

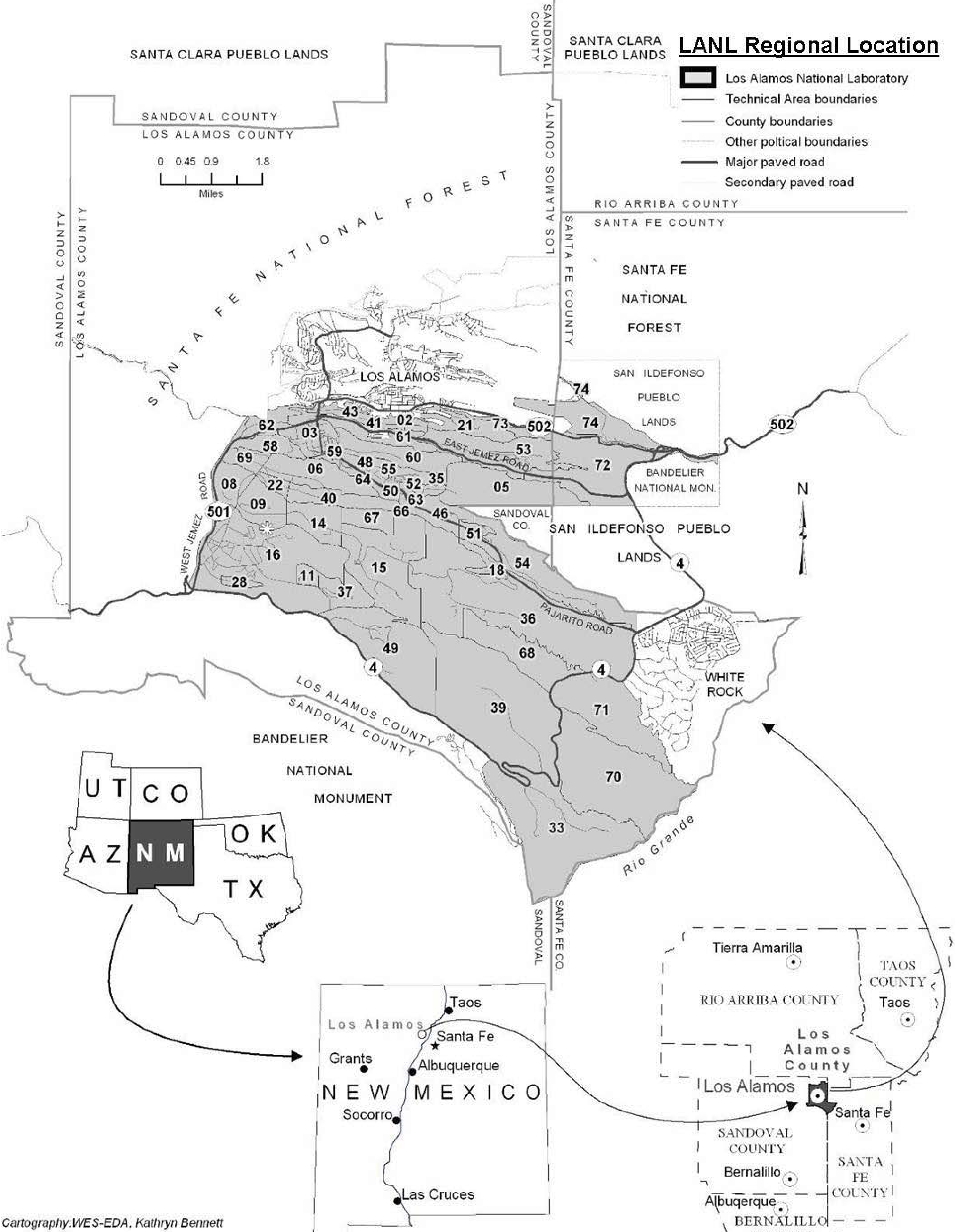


Figure 2-1. LANL Regional Location

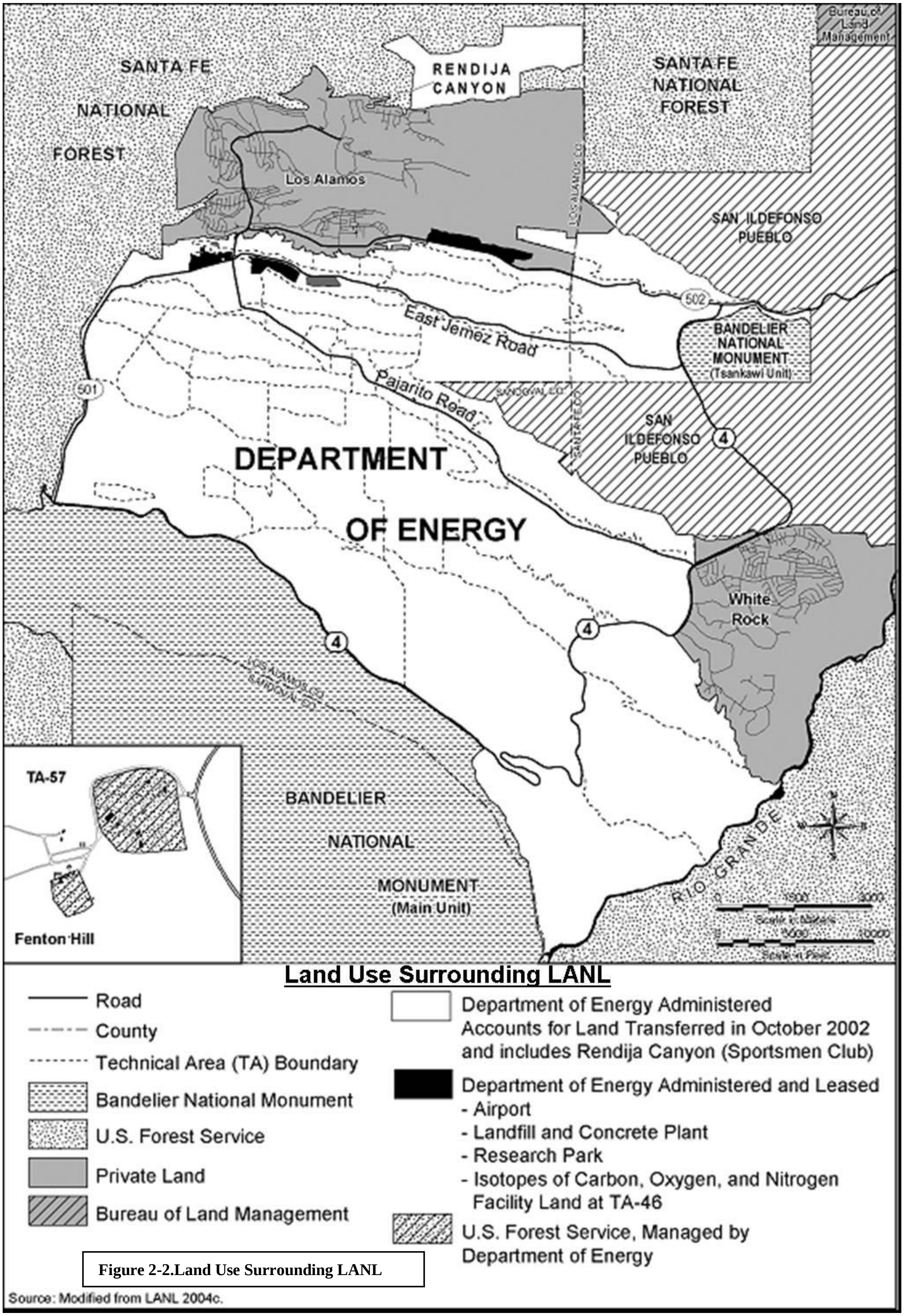


Figure 2-2.Land Use Surrounding LANL

Source: Modified from LANL 2004c.

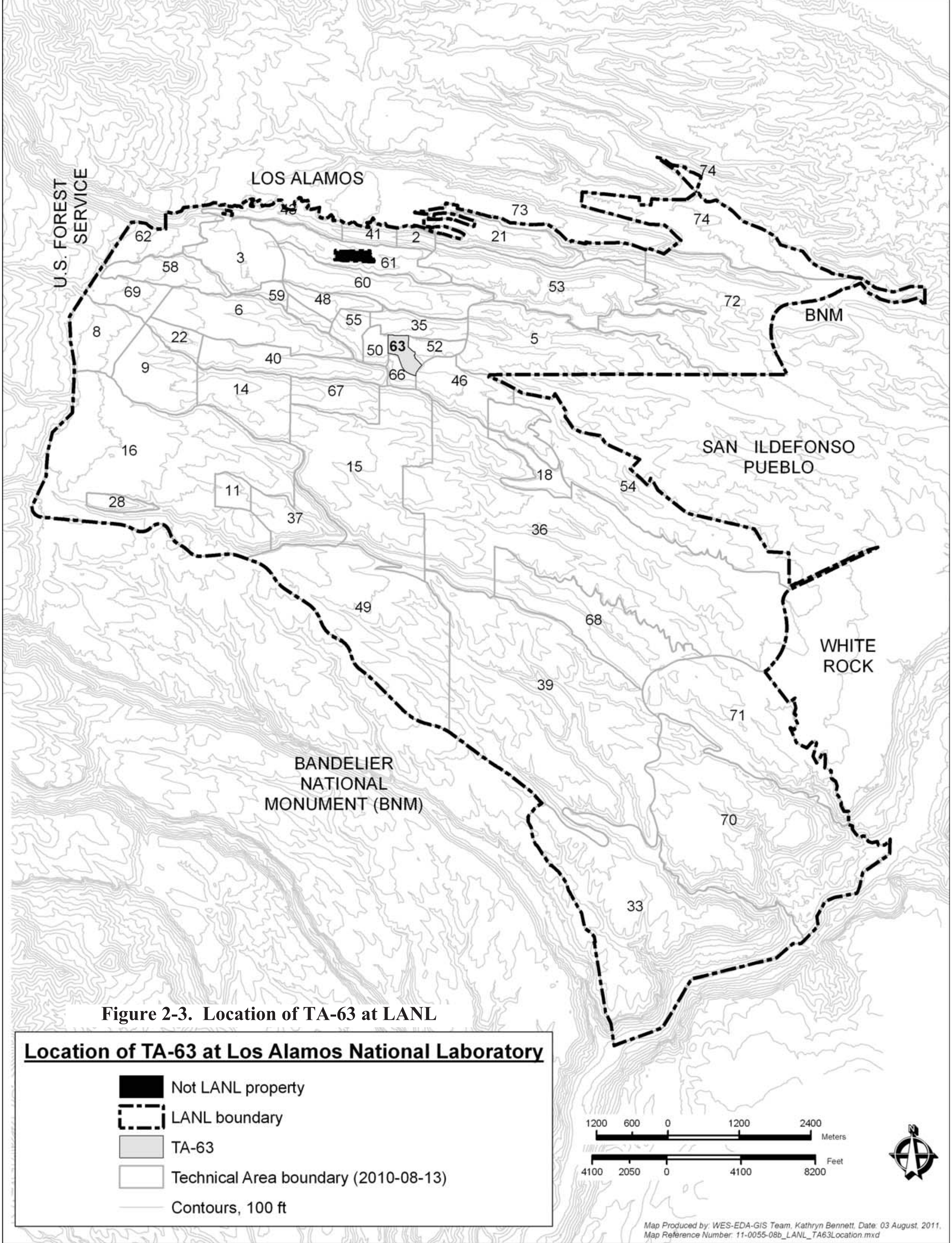


Figure 2-3. Location of TA-63 at LANL

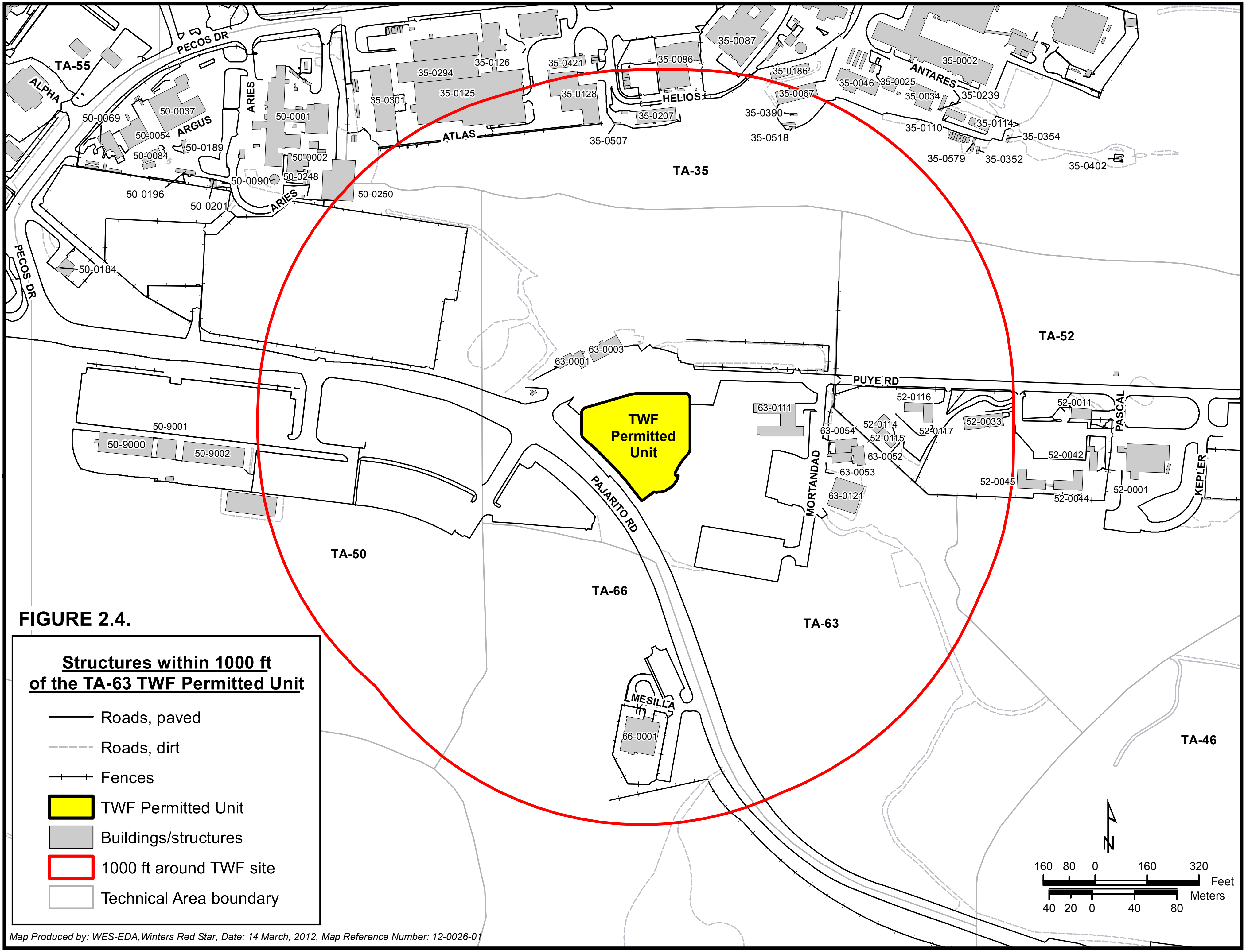
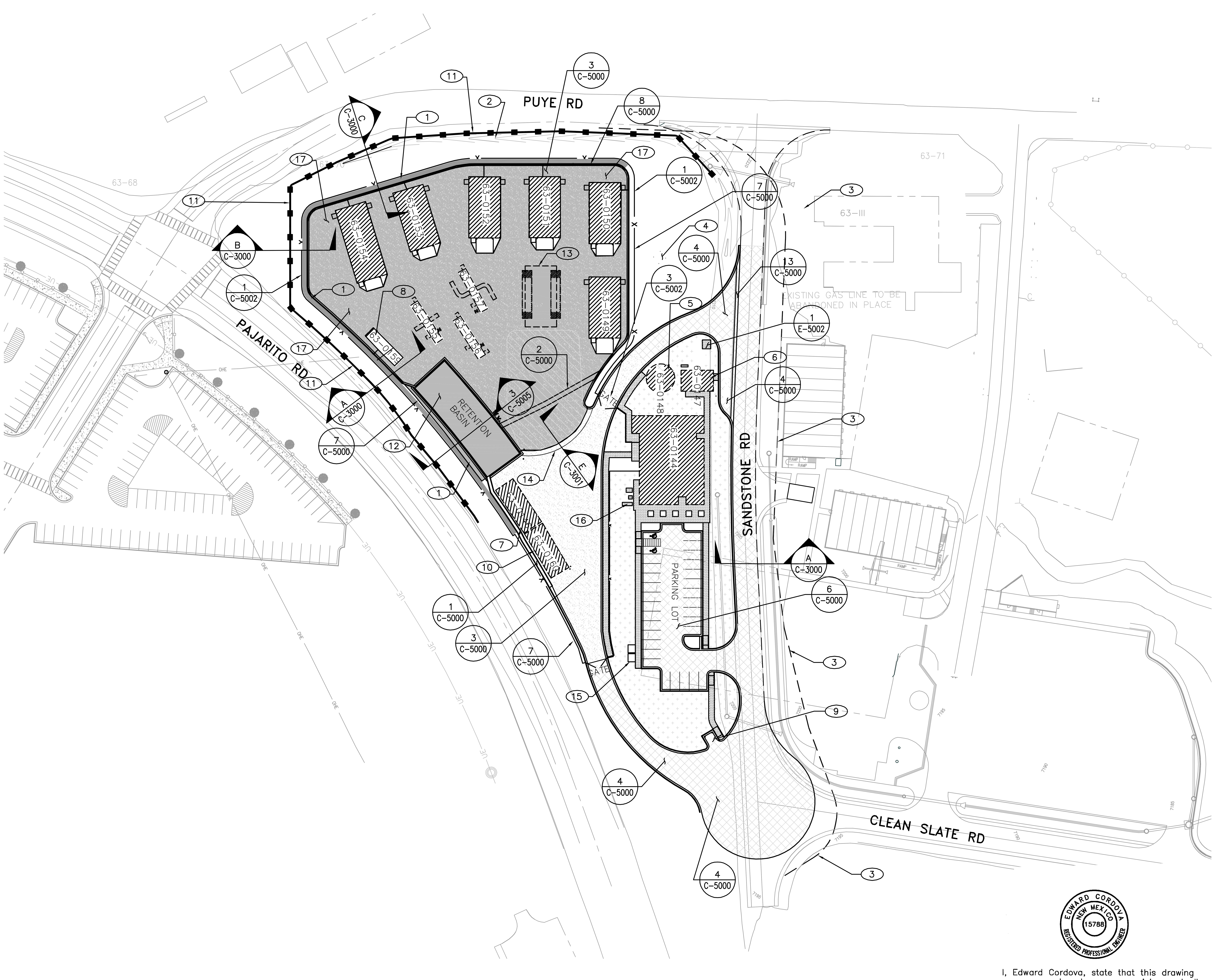


FIGURE 2.4.

Structures within 1000 ft of the TA-63 TWF Permitted Unit



SITE PLAN

0 50' 100'

1"=50'-0"

GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
2. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
3. EXISTING UTILITY LOCATIONS ARE APPROXIMATE ONLY AND SHALL BE FIELD LOCATED PRIOR TO CONSTRUCTION.
4. THE INTENT OF THIS SHEET IS TO GIVE AN OVERALL SITE PLAN VIEW. SEE SHEETS C-1001 & C-1002 FOR MORE DETAIL.

KEYED NOTES

1. EXISTING RETAINING WALL BUILT PER TWF PHASE A
2. EXISTING ROADSIDE SWALE BUILT PER TWF PHASE A
3. LIMITS OF CONSTRUCTION.
4. EXISTING MONITORING WELL TO REMAIN, DO NOT DISTURB
5. FIRE WATER STORAGE DIAMETER=35ft, HEIGHT=21ft, VOLUME=150,000gal
6. UTILITY BUILDING, SEE ARCHITECTURAL PLANS
7. FORKLIFT CHARGING STATION
8. CSMM STORAGE BUILDING
9. DUMPSTER PAD
10. EQUIPMENT STORAGE SHED
11. K-12 P1 VEHICULAR BARRIER, SHEET END OF CONSTRUCTION DRAWINGS. THIS COMMENT IS CLASSIFIED AS SAFETY CLASS PER LANL PSDR (102355-RPT-000012-R0)
12. RETENTION BASIN SEE SHEETS C-1017 & C-5005 FOR DETAILS
13. AREA DESIGNATED AS FUTURE EXPANSION
14. LIMITS OF THE LOADING & UNLOADING AREA
15. LEEDS STORAGE AREA (TYP. 2)
16. EQUIPMENT PADS, SEE MECHANICAL SHEETS
17. TRU WASTE FACILITY PERMITTED UNIT

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

I, Edward Cordova, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12 — Date

Edward Cordova, NM P.E. 15788

EDWARD CORDOVA NEW MEXICO 15788 REGISTERED PROFESSIONAL ENGINEER

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
PROJECT SITE

Figure 2-5. Overall Site Plan

DRAWN	D PADILLA
DESIGN	J RAEL
CHECKED	E CORDOVA
DATE	03-22-12

BLDG TA-63

SUBMITTED — APPROVED FOR RELEASE

Los Alamos NATIONAL LABORATORY — PO Box 1663 Los Alamos, New Mexico 87545

SHEET C-1000 — 8 OF 740

CLASSIFICATION XXX — REVIEWER XXX — DATE

PROJECT ID 102355 — DRAWING NO C55443 — REV F

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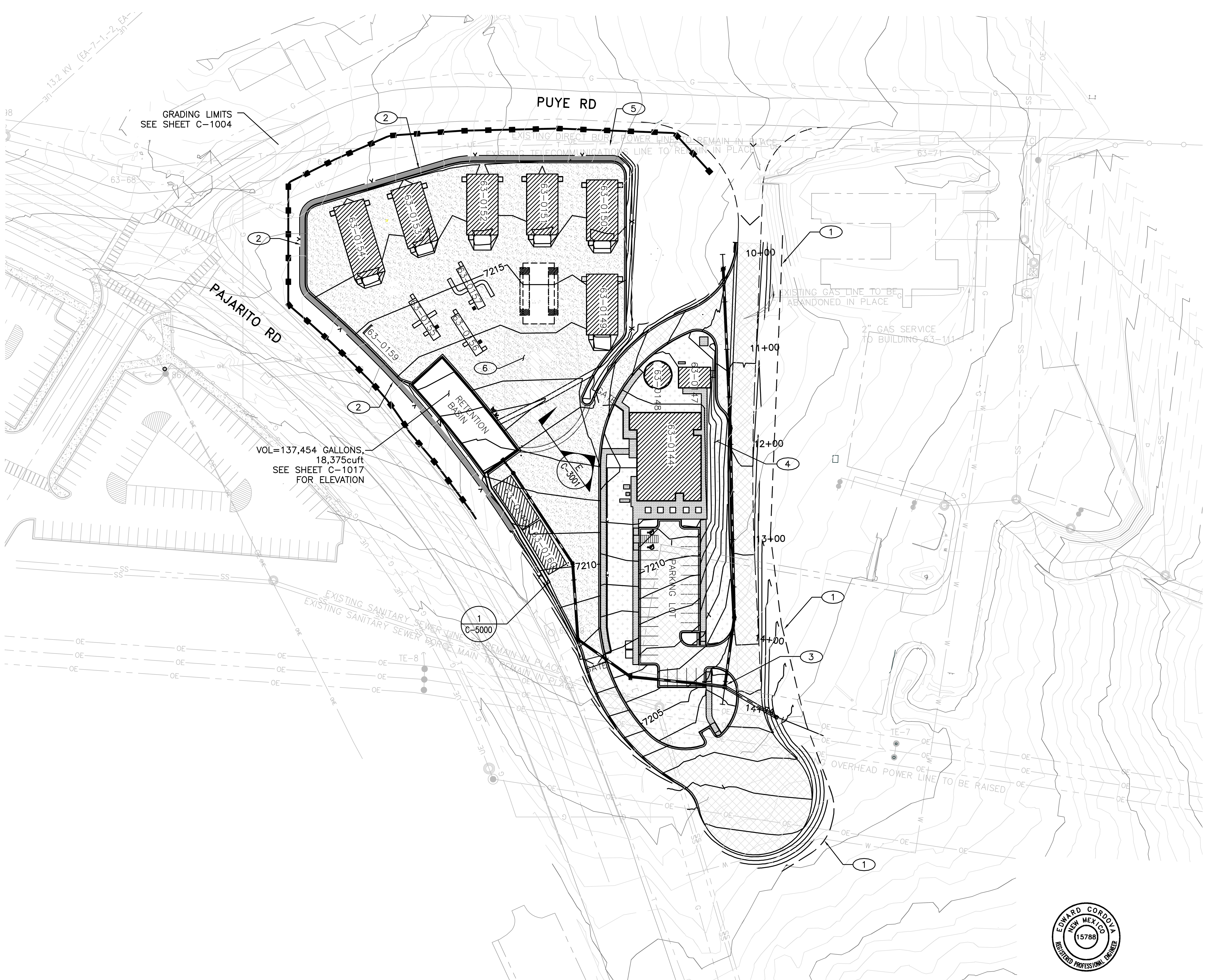

GRADING PLAN

0 50' 100'
1"=50'-0"

GENERAL NOTES

1. THE INTENT OF THIS SHEET IS GIVE AN OVERVIEW OF THE TWF GRADING CONCEPT. REFER TO SHEETS C–1004 & C–1005 FOR DETAILED GRADING INFORMATION.
2. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
3. EXISTING UTILITY LOCATIONS ARE APPROXIMATE ONLY AND SHALL BE FIELD LOCATED PRIOR TO CONSTRUCTION.
4. THE SUBCONTRACTOR WILL IMPLEMENT AND MAINTAIN BEST MANAGEMENT PRACTICES (BMPs) AND CONTROL MEASURES PRIOR TO AND DURING CONSTRUCTION AS SPECIFIED IN THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
5. THE SUBCONTRACTOR WILL STABILIZE ALL DISTURBED AREA IN ACCORDANCE WITH THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) BY LANL.

KEYED NOTES

1. LIMITS OF GRADING WORK
2. RETAINING WALL TO BE BUILT PER PHASE A CONSTRUCTION
3. TIE INTO EXISTING CULVERT PIPE, BUILT PER PHASE A CONSTRUCTION
4. 3:1 FILL SLOPE
5. EXISTING ROADSIDE SWALE
6. LIMITS OF LOADING & UNLOADING AREA

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

EDWARD CORDOVA NEW MEXICO 15788 REGISTERED PROFESSIONAL ENGINEER

I, Edward Cordova, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12
Date — Edward Cordova, NM P.E. 15788

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
PROJECT SITE

Figure 2-6. Overall Grading Plan

DRAWN	D PADILLA
DESIGN	J RAEL
CHECKED	E CORDOVA
DATE	03-22-12

BLDG TA-63

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SHEET C-1003
11 OF 740

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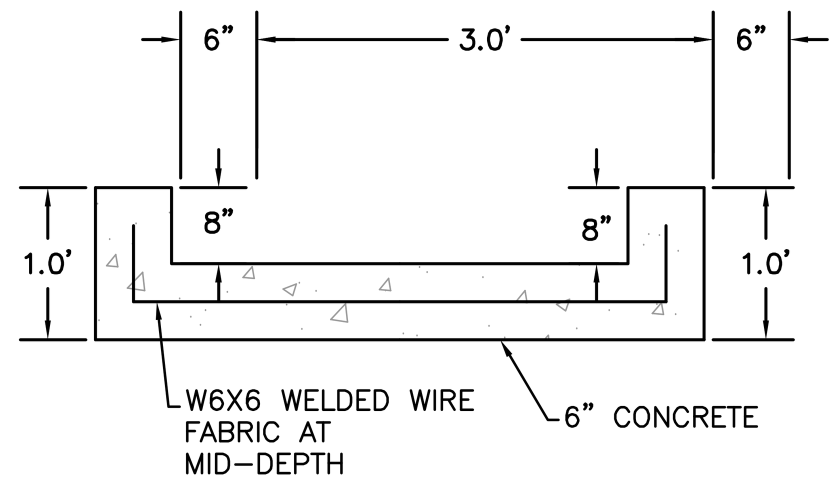
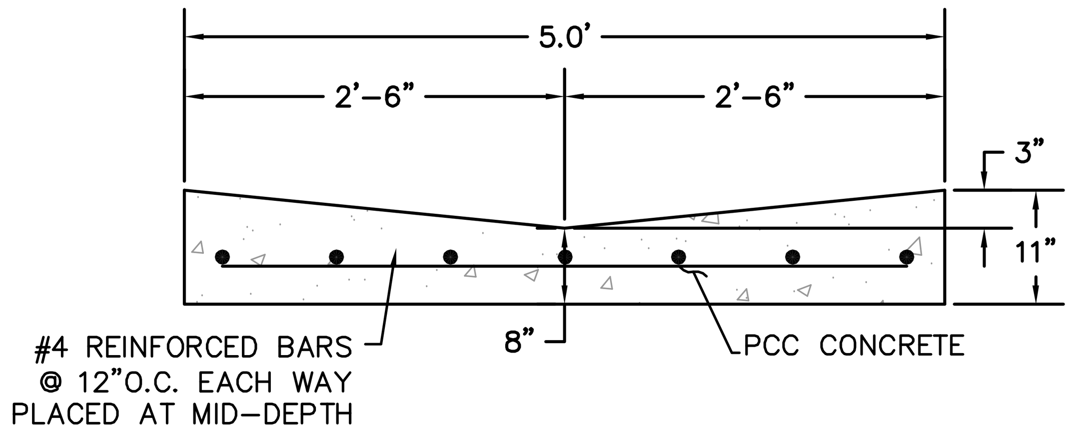
GENERAL NOTES

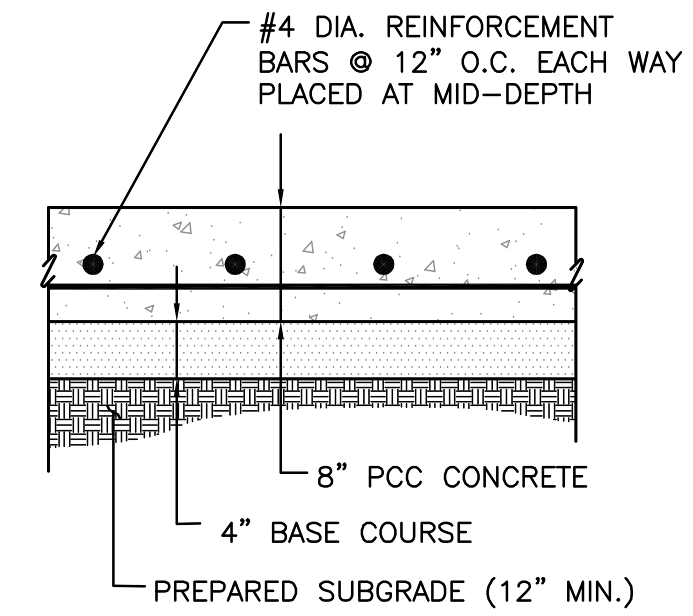
1. REFER TO GEOTECHICAL REPORT & WNNNM JV NO:11–002–GRPT–002.
2. ASPHALT CONCRETE MATERIALS QUALITY CONSTRUCTION REQUIREMENTS SHOULD CONFORM TO SECTIONS 416, 417, 423 OF THE CURRENT NMDOT SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION.
3. CONCRETE SHOULD BE CLASS F CONCRETE MIX AS SPECIFIED IN TABLE 509.2.8.1:1 OF THE CURRENT NMDOT SPECIFICATIONS FOR THE HIGHWAY AND BRIDGE CONSTRUCTION UNLESS THE CONCRETE IS NOT SLIP FORMED IN WHICH CASE A CLASS AA CONCRETE MIX SHOULD BE USED.
4. DETECTABLE WARNING SURFACE (TRUNCATED DOMES) SHALL BE RECESSED INTO CONCRETE
5. DETECTABLE WARNING SURFACE SHALL COMPLY WITH THE LATEST NMDOT SPECIFICATIONS FOR HIGHWAY & BRIDGE CONSTRUCTION SECTION 608.2.4



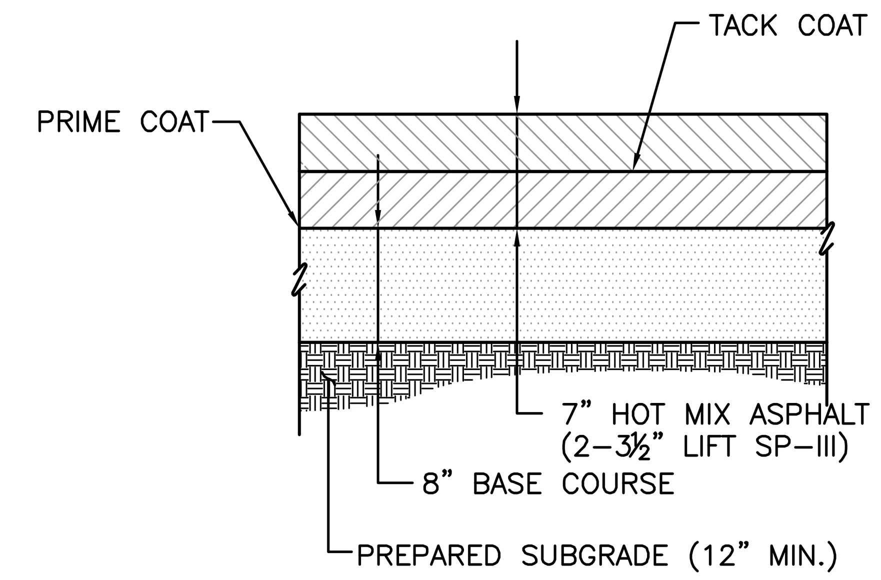
1 C–1002 | 1 C–1003 | 1 C–1017 OVERFLOW DETAIL
SCALE: NONE



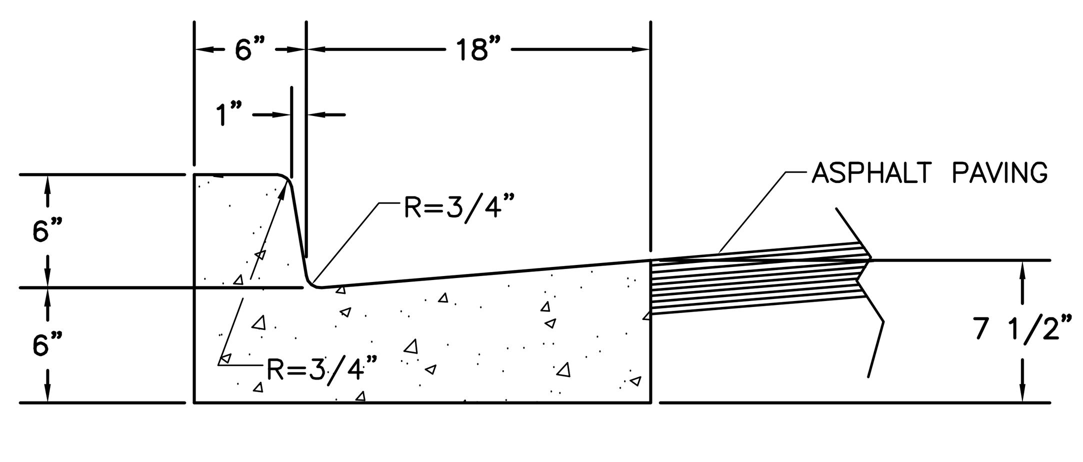
2 C–1000 | 2 C–1001 | 2 C–1014 | 2 C–1017 VALLEY GUTTER DETAIL
SCALE: NONE



3 C–1001 | 3 C–1002 | 3 C–1005 | 3 C–5004 TYPICAL CONCRETE PAVEMENT DETAIL
SCALE: NONE

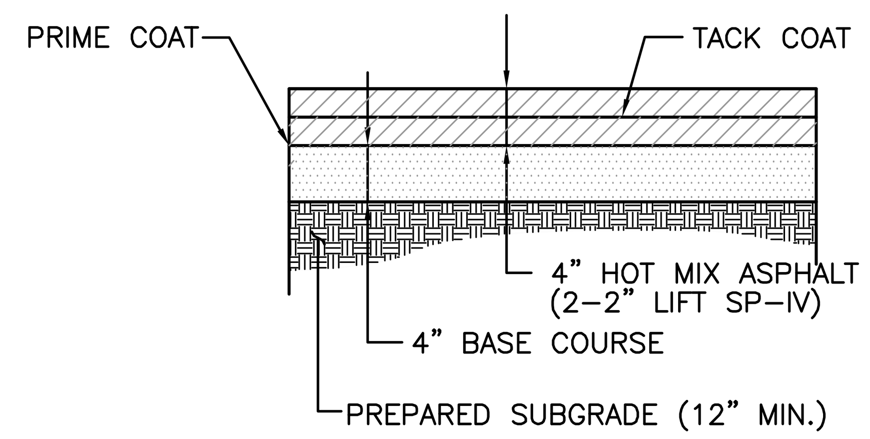


4 C–1000 | 4 C–1001 | 4 C–1002 | 4 C–1014 TYPICAL ASPHALT PAVEMENT DETAIL
SCALE: NONE



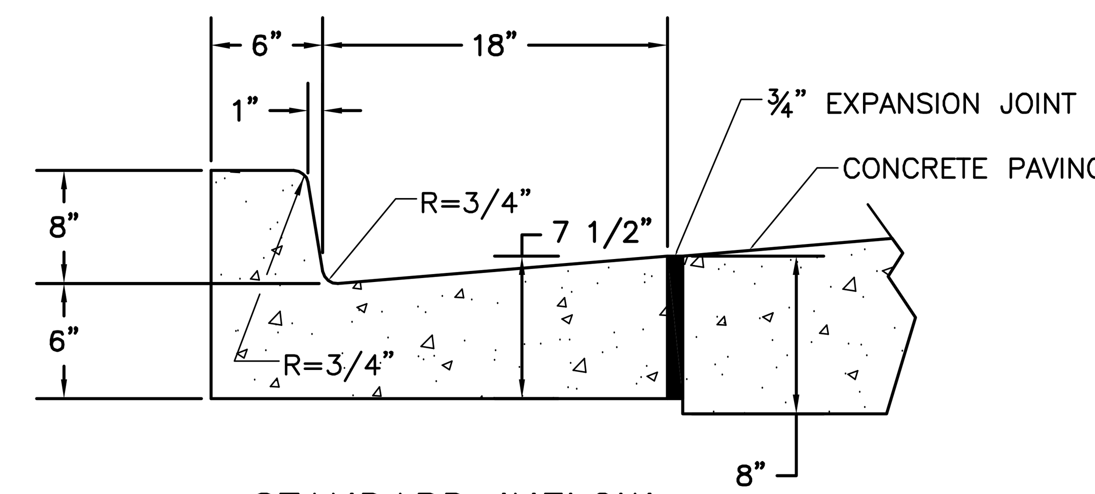
STANDARD INFLOW

5 C–1002 PARKING LOT CURB AND GUTTERS–STANDARD INFLOW
SCALE: NONE



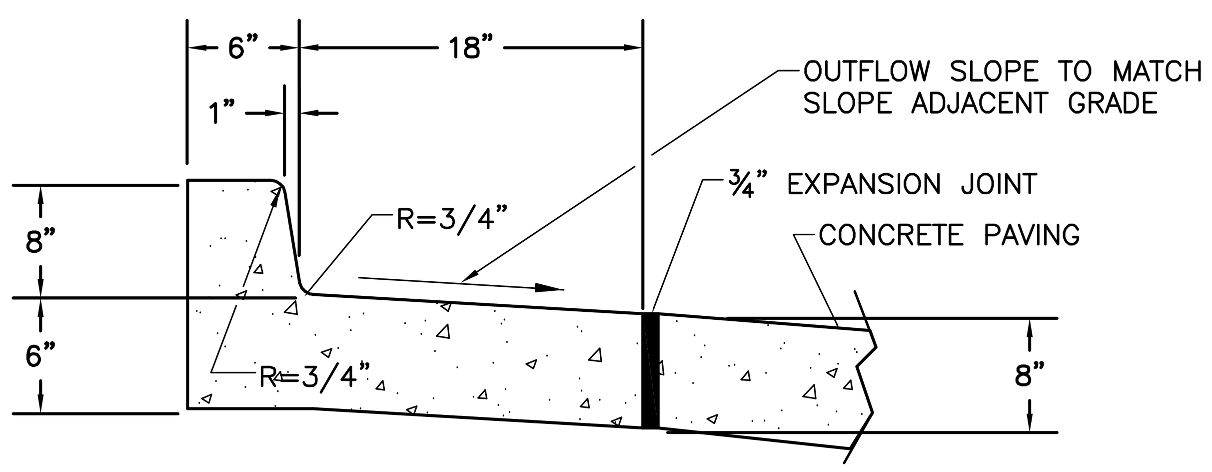
6 C–1000 | 6 C–1002 TYPICAL PARKING LOT ASPHALT PAVEMENT DETAIL
SCALE: NONE

STANDARD INFLOW



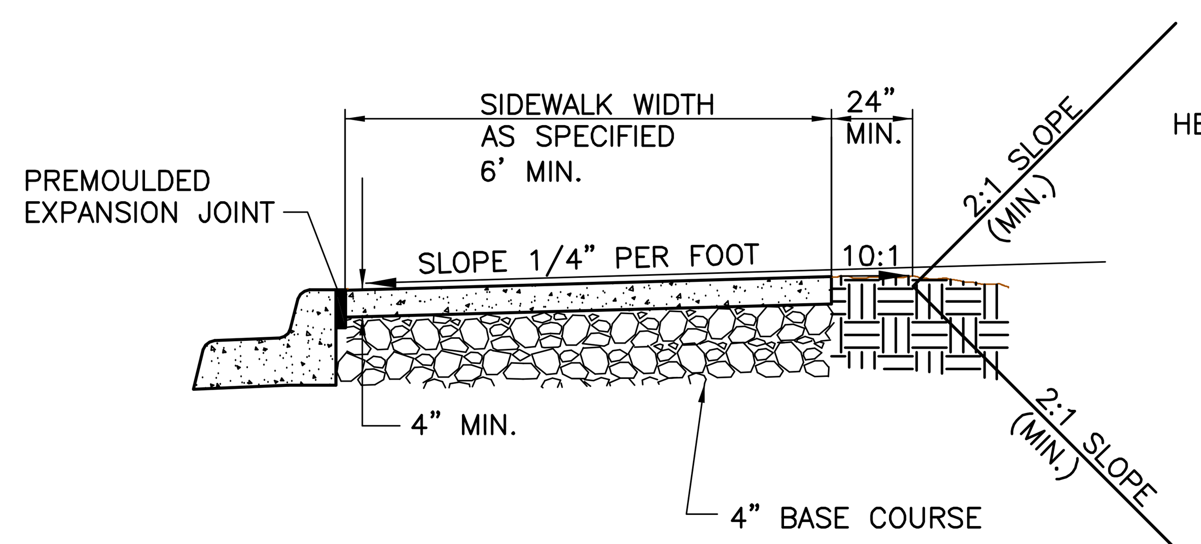
STANDARD INFLOW

7 C–1000 | 7 C–1001 | 7 C–1002 | 7 C–1014 | 7 C–1015 CURB AND GUTTERS –STANDARD INFLOW
SCALE: NONE

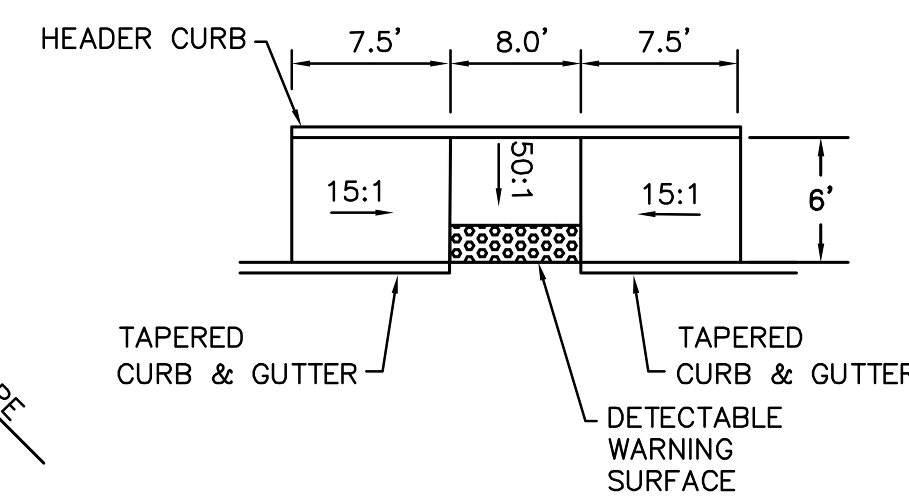


REVERSE OUTFLOW

8 C–1000 | 8 C–1001 | 8 C–1014 CURB AND GUTTERS–REVERSE OUTFLOW
SCALE: NONE

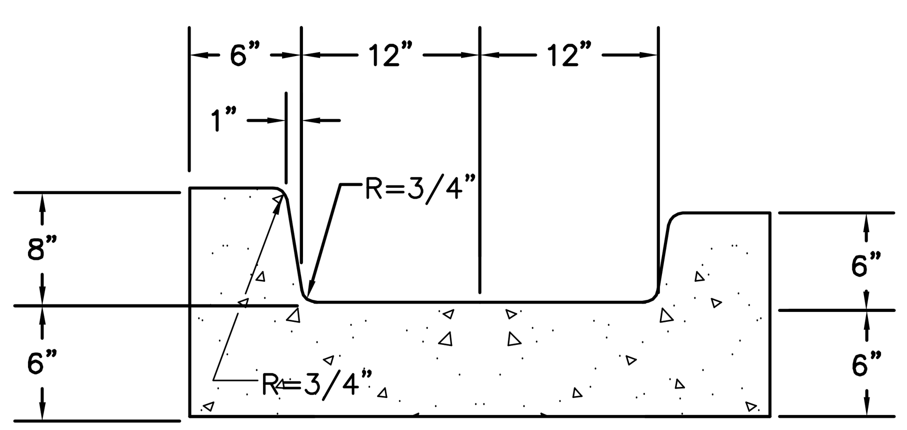


9 C–1001 | 9 C–1002 | 9 C–1014 SIDEWALK
SCALE: NONE

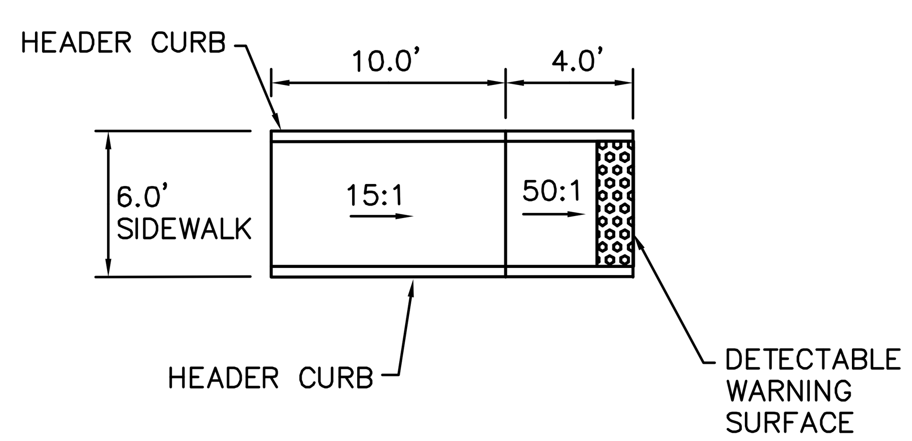


10 C–1002 ADA PARKING RAMP
SCALE: NONE

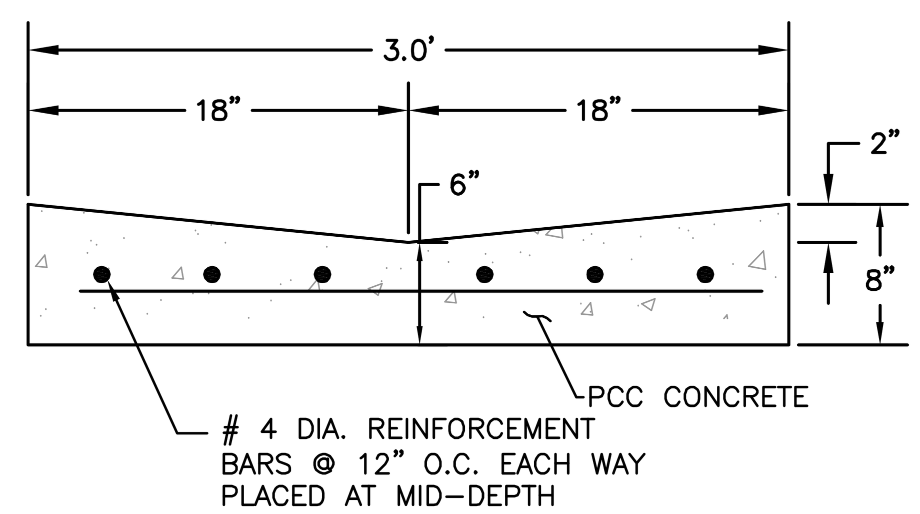
NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION



11 C–1002 | 11 C–1017 CURB CUT DETAIL
SCALE: NONE



12 C–1002 | 12 C–1005 SIDEWALK ADA RAMP
SCALE: NONE



13 C–1000 | 13 C–1001 | 13 C–1002 VALLEY GUTTER DETAIL
SCALE: NONE

EDWARD CORDOVA NEW MEXICO 15788 REGISTERED PROFESSIONAL ENGINEER

I, Edward Cordova, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12
Date

Edward Cordova, NM P.E. 15788

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER–NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
PROJECT SITE

Figure 2-7. Miscellaneous Details

DRAWN	D PADILLA
DESIGN	J RAEL
CHECKED	E CORDOVA
DATE	03–22–12

BLDG TA–63
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APPROVED FOR RELEASE

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Los Alamos, New Mexico 87545

SHEET C–5000
31 OF 740

CLASSIFICATION XXX
REVIEWER XXX
DATE

PROJECT ID 102355
DRAWING NO C55443
REV F

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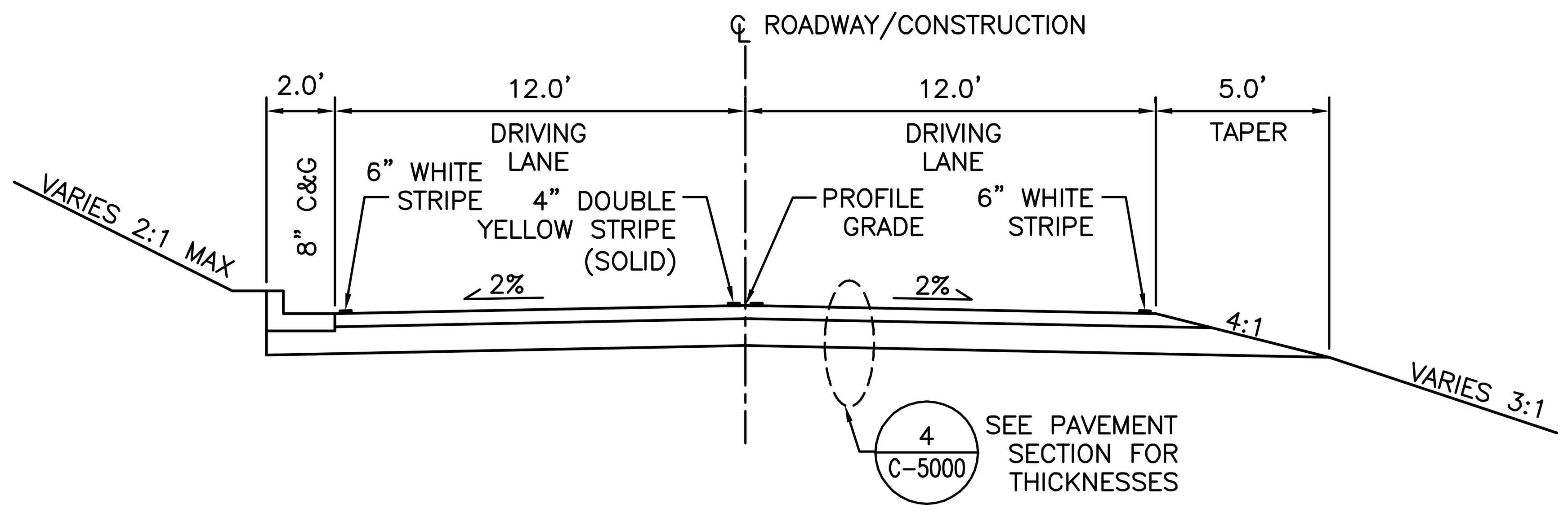
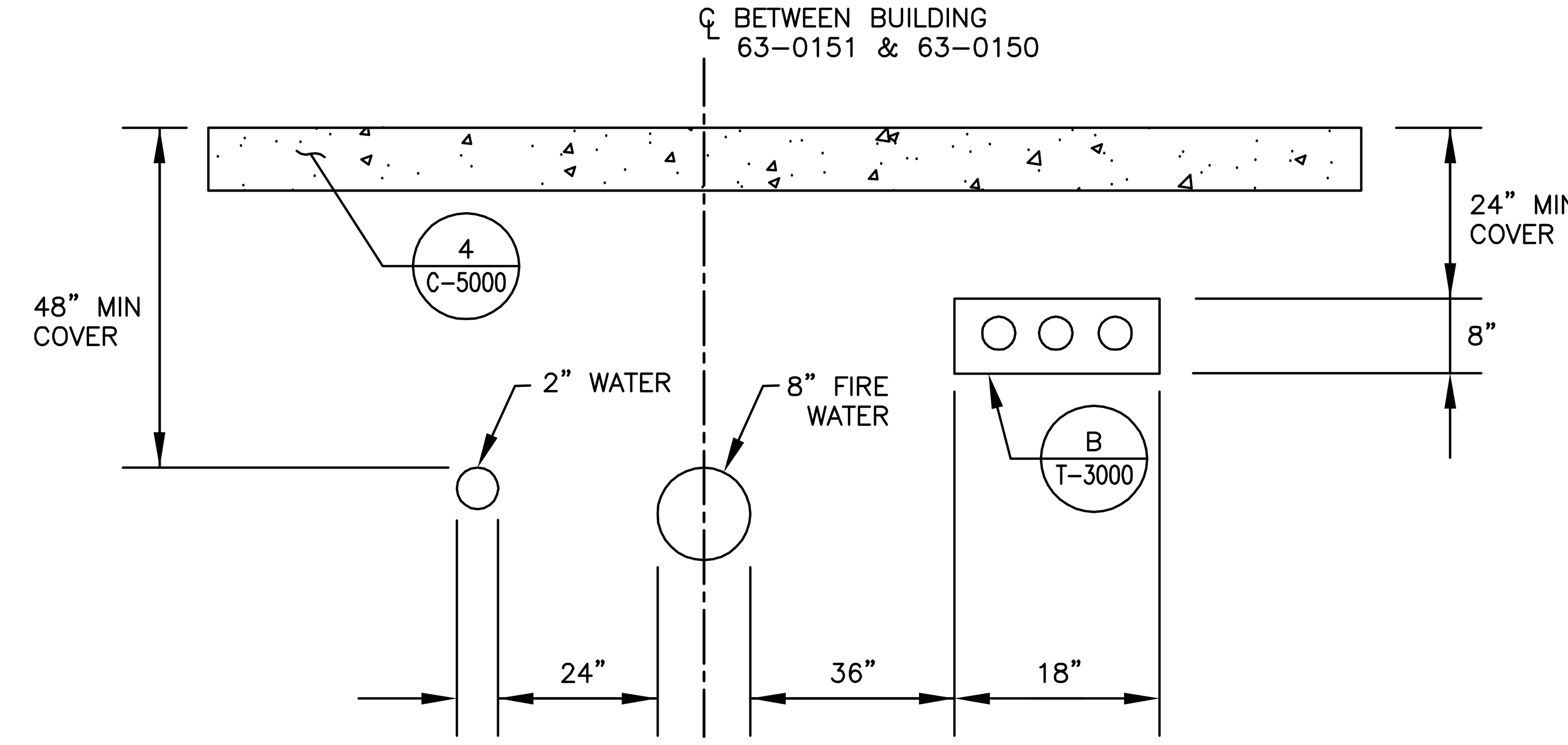


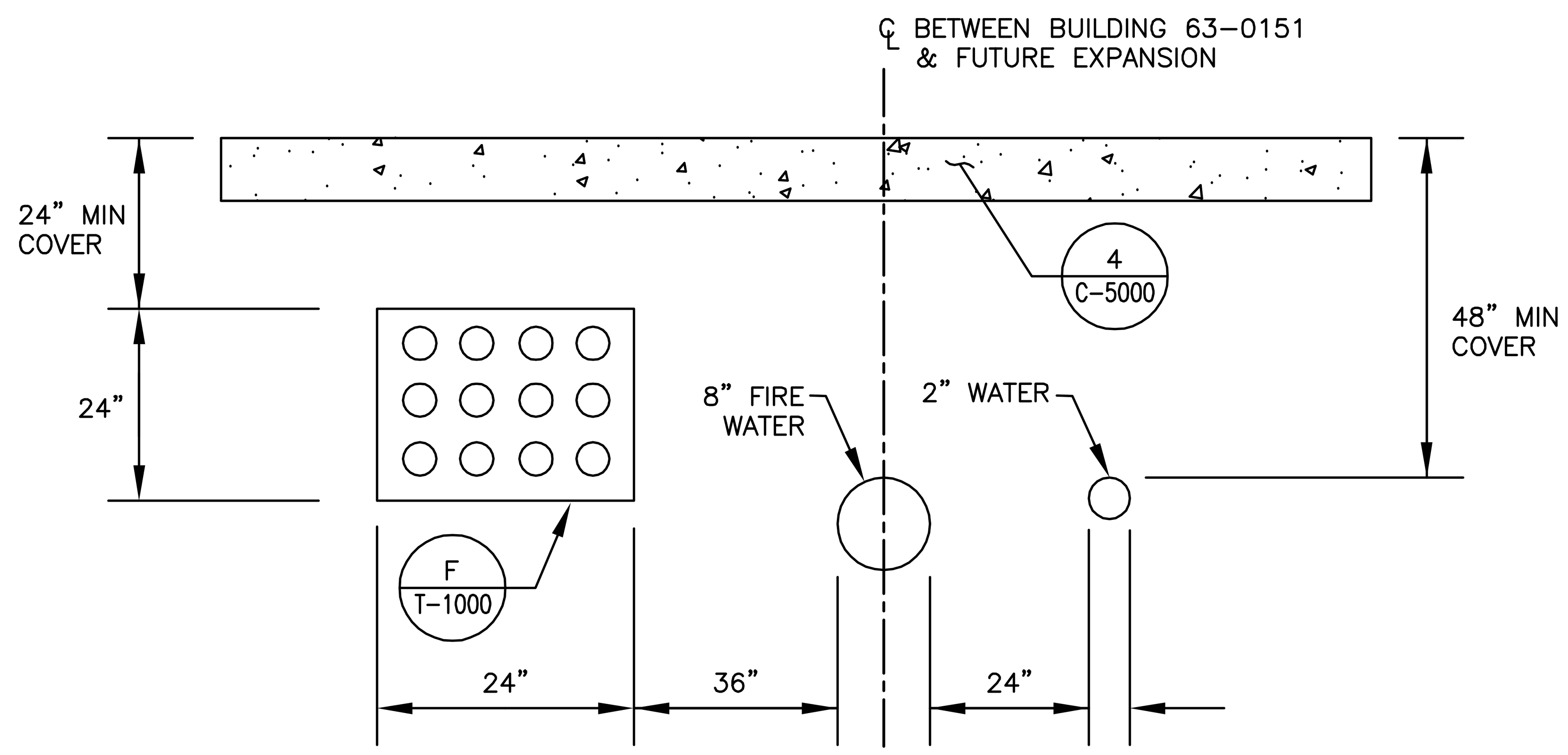
STA 12+99.77 TO STA 16+96.01

SANDSTONE ROAD TYPICAL SECTION

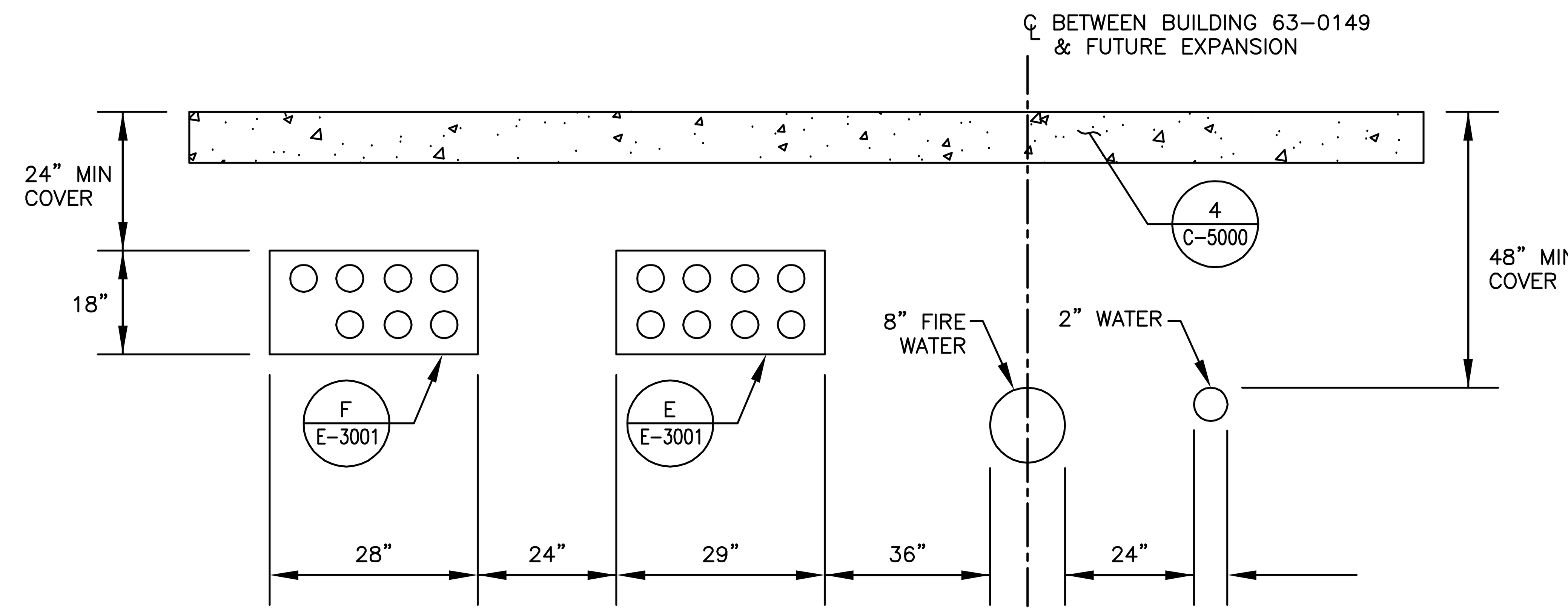
A C-1000 A C-1019 SECTION
SCALE: NONE



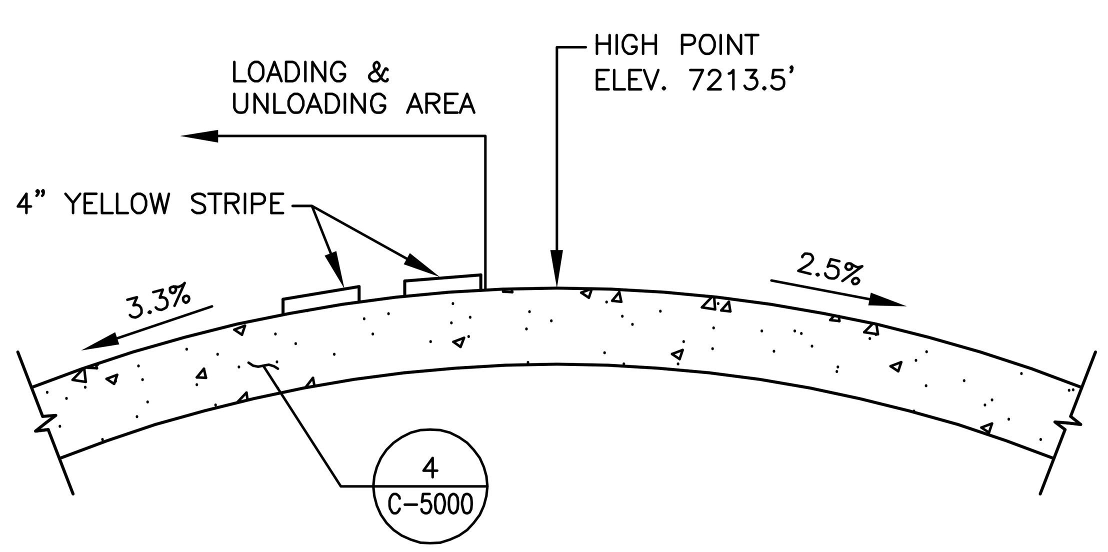
B C-1006 SECTION
SCALE: NONE



C C-1006 SECTION
SCALE: NONE



D C-1006 SECTION
SCALE: NONE



UNLOADING ZONE–SECTION VIEW

E C-1000 E C-1001 E C-1003 E C-1004 SECTION
SCALE: NONE

GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
2. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

EDWARD CORDOVA NEW MEXICO 15788 REGISTERED PROFESSIONAL ENGINEER

I, Edward Cordova, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12
Date
Edward Cordova, NM P.E. 15788

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
PROJECT SITE
Figure 2-8. Sandstone Road Typical Section

DRAWN	D PADILLA
DESIGN	J RAEL
CHECKED	E CORDOVA
DATE	03-22-12

BLDG TA-63
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SHEET C-3001
30 OF 740

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REVIEWER XXX
DATE
PROJECT ID 102355
DRAWING NO C55443
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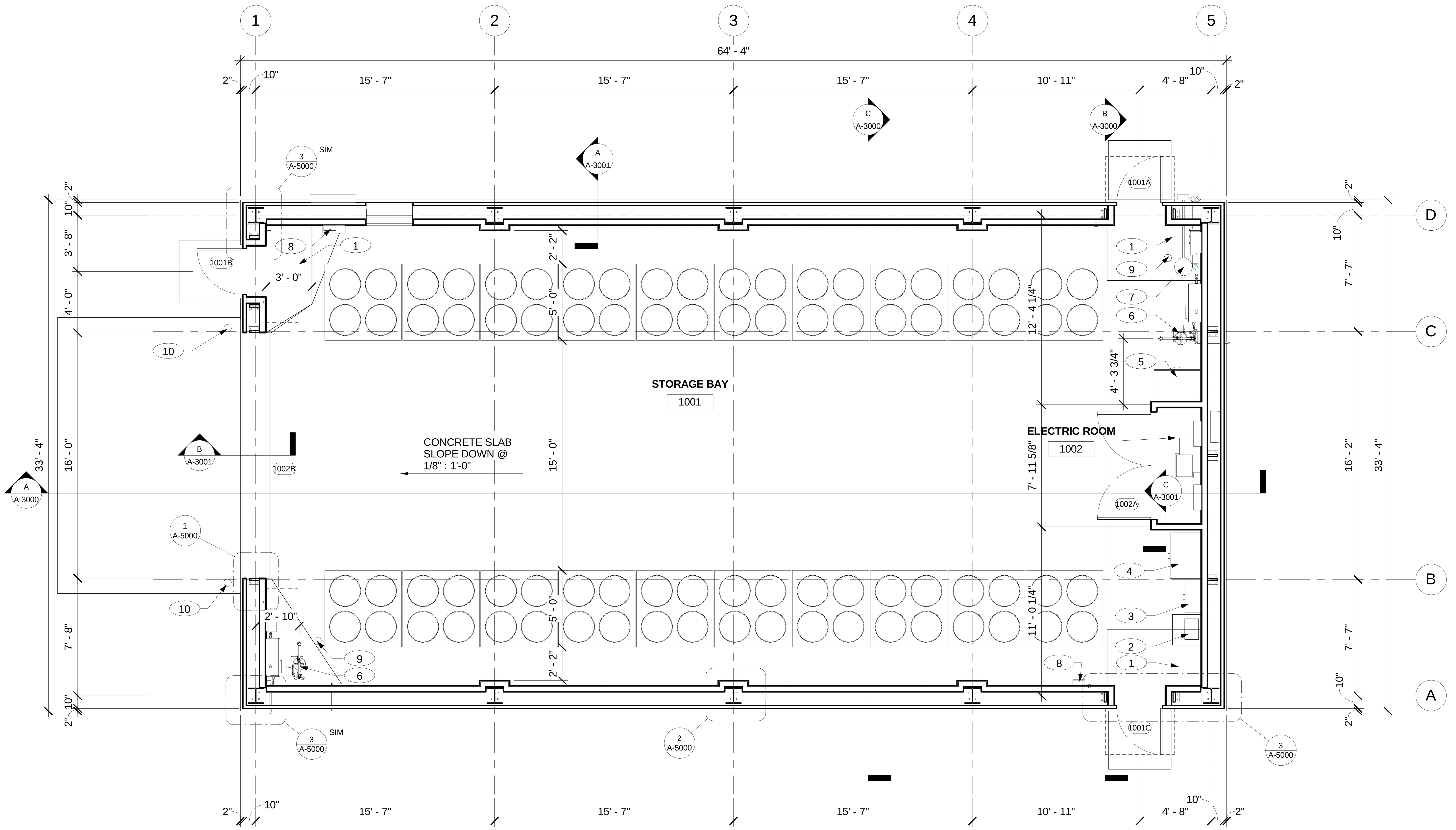

GENERAL NOTES

1. IF THIS SHEET IS NOT 24" x 36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
2. THIS DRAWING WAS GENERATED IN REVIT 2011 AND DOES NOT FOLLOW LANL DRAFTING STANDARDS.
3. PALLETS AND STORAGE CANISTERS ARE NIC.
4. 36" HIGH ABOVE FINISH FLOOR STAINLESS STEEL CORNER GUARDS AT OUTSIDE CORNERS, TYPICAL.

KEYED NOTES

1. LANDING, SEE STRUCTURAL SHEET S-1000
2. COMPUTER WORK STATION SEE DETAIL 4/A-5002
3. SPILL KIT
4. SUPPLY CABINET
5. DECONTAMINATION EQUIPMENT CABINET
6. EYE WASH AND SHOWER
7. FIRE RISER
8. FIRE EXTINGUISHER
9. REMOVABLE BOLLARD, SEE DETAIL 6/A-5002
10. PERMANENT BOLLARD, SEE DETAIL 7/A-5002

FLOOR PLAN

0 1' 2' 4' 6' 8'
1/4"=1'-0"

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

STATE OF NEW MEXICO DAVID L. WALLERSTEDT NO. 3132 REGISTERED ARCHITECT

I, David L. Wallerstedt, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3-21-12 Date

David L. Wallerstedt, NM R.A. 3132

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE BUILDINGS
Figure 2-9. Floor Plan

BLDG 63-0149 TO 63-0153 TA-63

DRAWN	A. GALLEGOS
DESIGN	D. WALLERSTEDT
CHECKED	T. LEACH
DATE	03-22-12

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SHEET A-1050
249 OF 740

CLASSIFICATION | REVIEWER | DATE

PROJECT ID 102355 | DRAWING NO C55444 | REV F

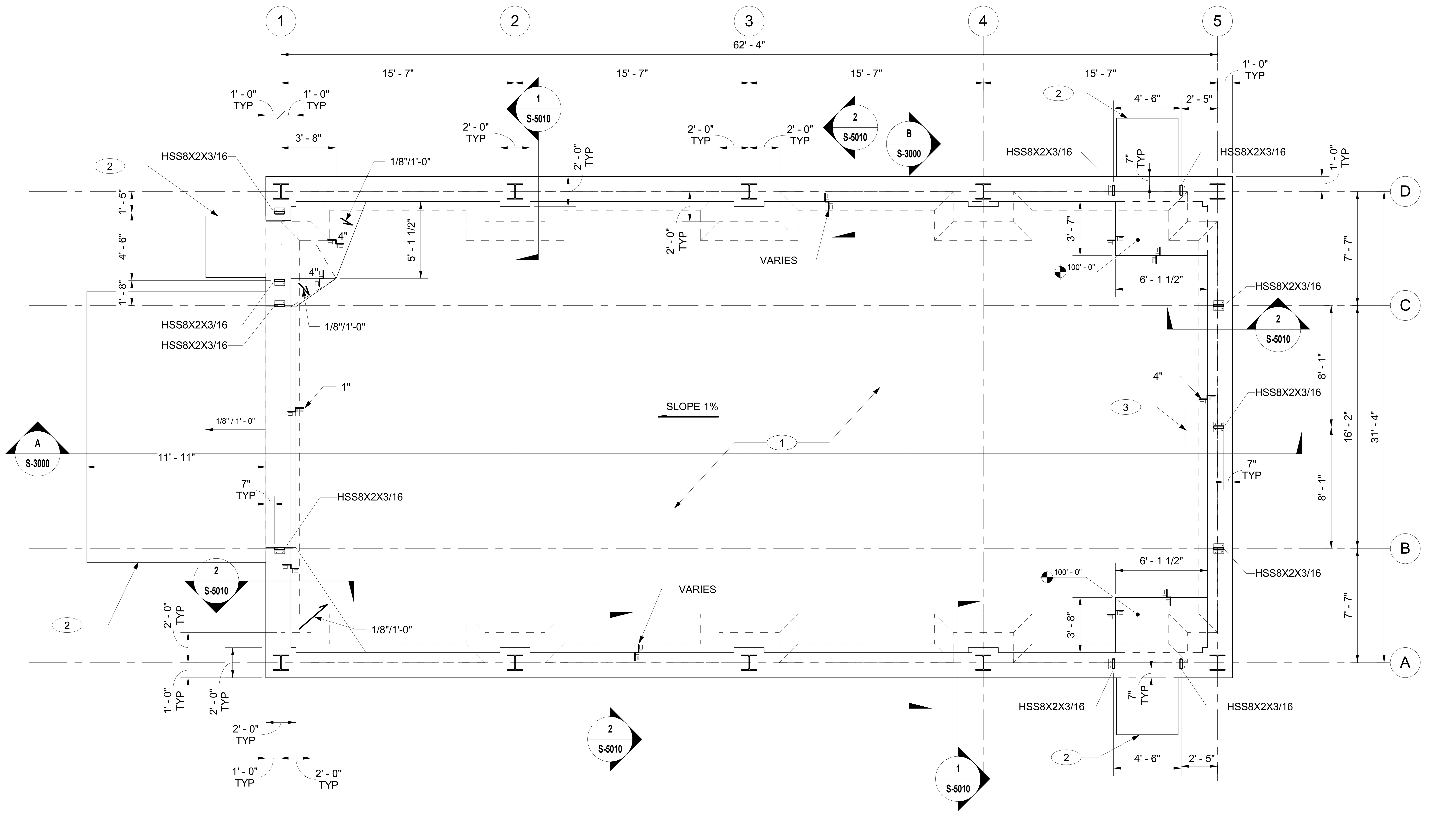
TRU WASTE FACILITY PROJECT 3/20/2012 4:38:07 PM P:_TECHNOLOGY\LANL\102355 - TRU Waste Facility\500 CAD\STORAGE BLDGS\ARCH\REVIT\Storage Bldg 1 - Arch.rvt

GENERAL NOTES

1. ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
2. DETAILS ARE LOCATED ON SHEET S-5000 THRU S-5023.
3. FINISH FLOOR REFERENCE ELEVATION 100'-0" FOR 63-0149 = 7215.83', 63-0150 = 7217.33', 63-0151 = 7217.40', 63-0152 = 7217.46', AND 63-0153 = 7217.45'. SEE PLANS FOR MAT SLAB ELEVATIONS, FOUNDATION PLAN S-1000 AND CIVIL GRADING PLAN C-1005.
4. FLOOR SLOPE = 1/8" PER 1'-0".
5. SEE CIVIL PLANS FOR EXTERIOR SLAB AND PAVING.
6. SEE SOILS REPORT FOR UNDER SLAB AND FOOTING REQUIREMENTS.
7. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
8. THIS DRAWING WAS GENERATED IN REVIT 2011.
9. CONCRETE SLAB, FOOTINGS, AND ALL REINFORCEMENT THEREIN ARE CLASSIFIED AS SAFETY SIGNIFICANT PER LANL PSDR (102355-RPT-00012-R0).
10. FLOOR SLOPE IN THE STORAGE AREA IS CLASSIFIED AS SAFETY CLASS PER LANL PSDR (102355-RPT-00012-R0).

KEYED NOTES

1. 8" CONCRETE MAT SLAB WITH #5@12"O.C. EACH WAY, SEE DETAIL 3/S-5000.
2. CONCRETE PAD, SEE CIVIL.
3. 4" MIN HOUSEKEEPING PAD PER DETAIL 1/S-5001.



FOUNDATION PLAN

0 1' 2' 4' 6' 8'
1/4"=1'-0"

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

I, James M. Weeks, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12
Date

James M. Weeks, NM P.E. 11384

JAMES M. WEEKS NEW MEXICO 11384 REGISTERED PROFESSIONAL ENGINEER

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE BUILDINGS

Figure 2-10. Foundation Plan

BLDG 63-0149 TO 63-0153 TA-63

DRAWN	G.FLORES
DESIGN	J.WEEKS
CHECKED	C.ROSENBERGER
DATE	03-22-12

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SHEET S-1000 230 OF 740

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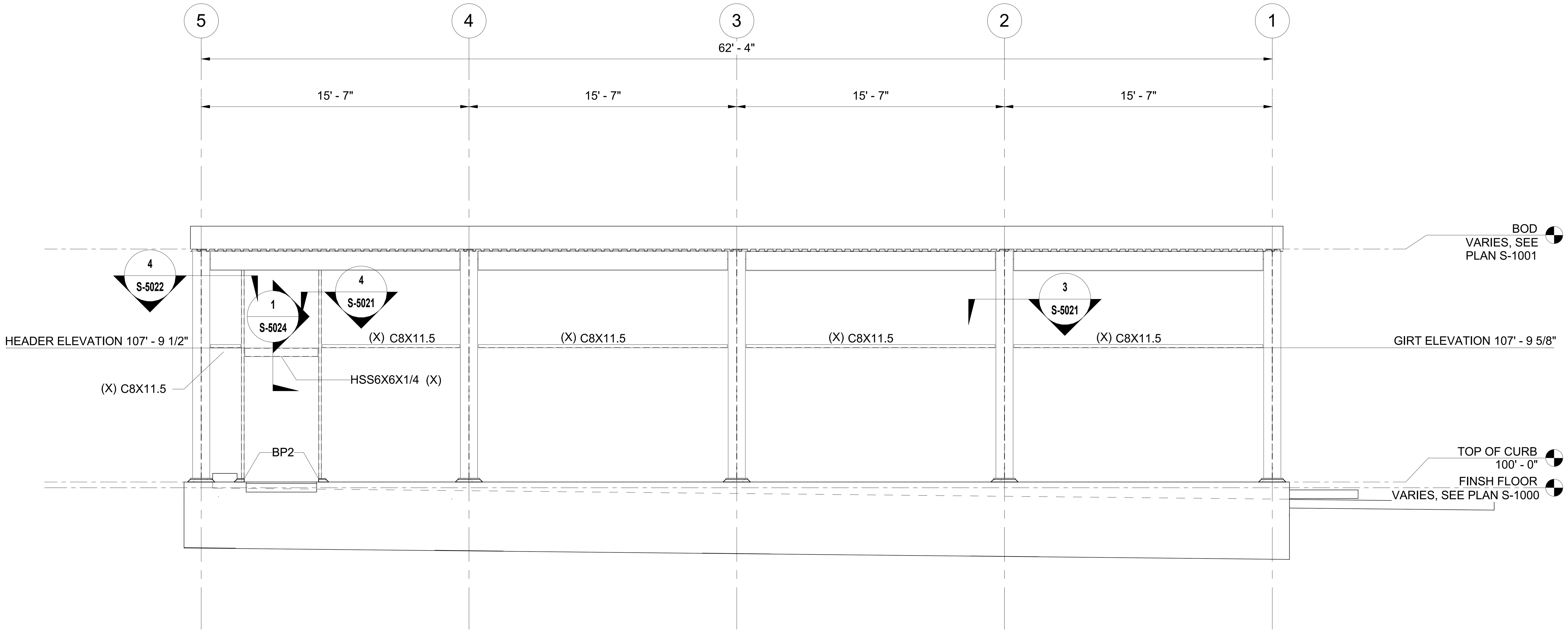
PROJECT ID 102355 | DRAWING NO C55444 | REV F

TRU WASTE FACILITY PROJECT 3/20/2012 10:54:26 AM D:\Projects\21082016 – TRU Waste Facility Design Services Project\Models\STORAGE BLDG1\Storage Bldg1-Struct_flores.rvt

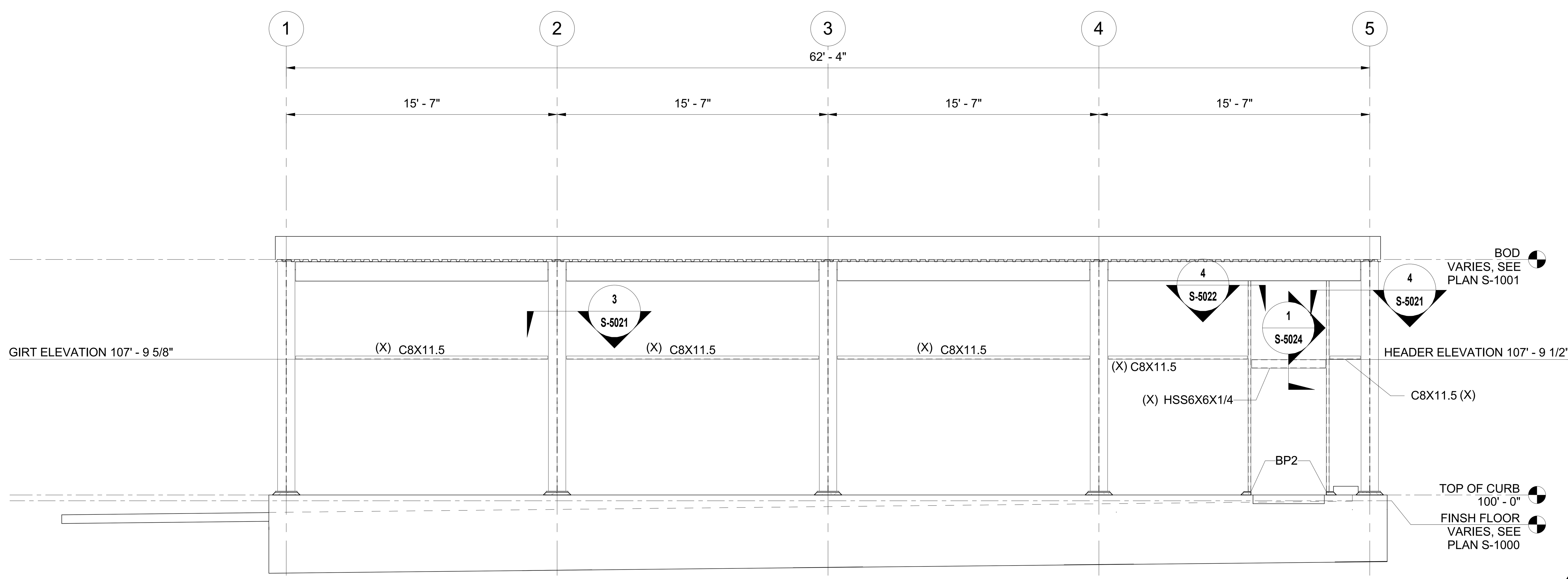
GENERAL NOTES

1. ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
2. DETAILS ARE LOCATED ON SHEET S-5000 THRU S-5023.
3. BASE PLATE SCHEDULE IS LOCATED IN DETAIL 1/S-5000.
4. FINISH FLOOR REFERENCE ELEVATION 100'-0" FOR 63-0149 = 7215.83', 63-0150 = 7217.33', 63-0151 = 7217.40', 63-0152 = 7217.46', AND 63-0153 = 7217.45'. SEE PLANS FOR MAT SLAB ELEVATIONS, FOUNDATION PLAN S-1000 AND CIVIL GRADING PLAN C-1005.
5. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
6. THIS DRAWING WAS GENERATED IN REVIT 2011.
7. ALL STEEL LABELED WITH (X) ARE CLASSIFIED AS SAFETY SIGNIFICANT PER LANL PSDR (102355-RPT-00012-R0).



WEST ELEVATION

0 1' 2' 4' 6' 8'
1/4"=1'-0"



EAST ELEVATION

0 1' 2' 4' 6' 8'
1/4"=1'-0"

JAMES M. WEEKS
NEW MEXICO
11384
REGISTERED PROFESSIONAL ENGINEER

I, James M. Weeks, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12
Date
James M. Weeks, NM P.E. 11384

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE BUILDINGS

Figure 2-11. Structural Elevations

BLDG 63-0149 TO 63-0153 TA-63

DRAWN	G.FLORES
DESIGN	J.WEEKS
CHECKED	C.ROSENBERGER
DATE	03-22-12

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SHEET S-2000
232 OF 740

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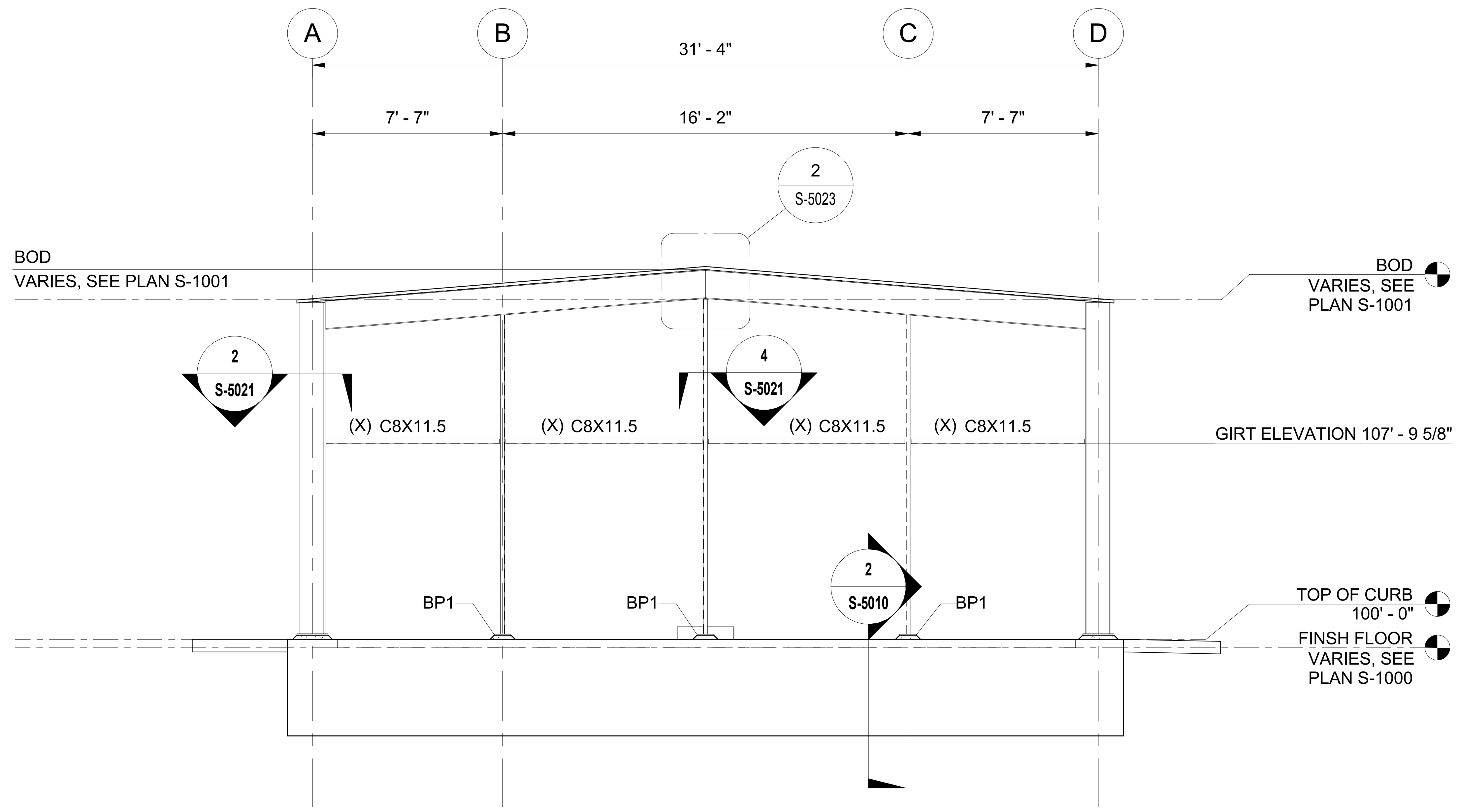
PROJECT ID	DRAWING NO		REV
102355	C55444		F

TRU WASTE FACILITY PROJECT 3/20/2012 10:54:29 AM D:\Projects\21082016 – TRU Waste Facility Design Services Project\Models\STORAGE BLDG1\Storage Bldg1-Struct_flores.rvt

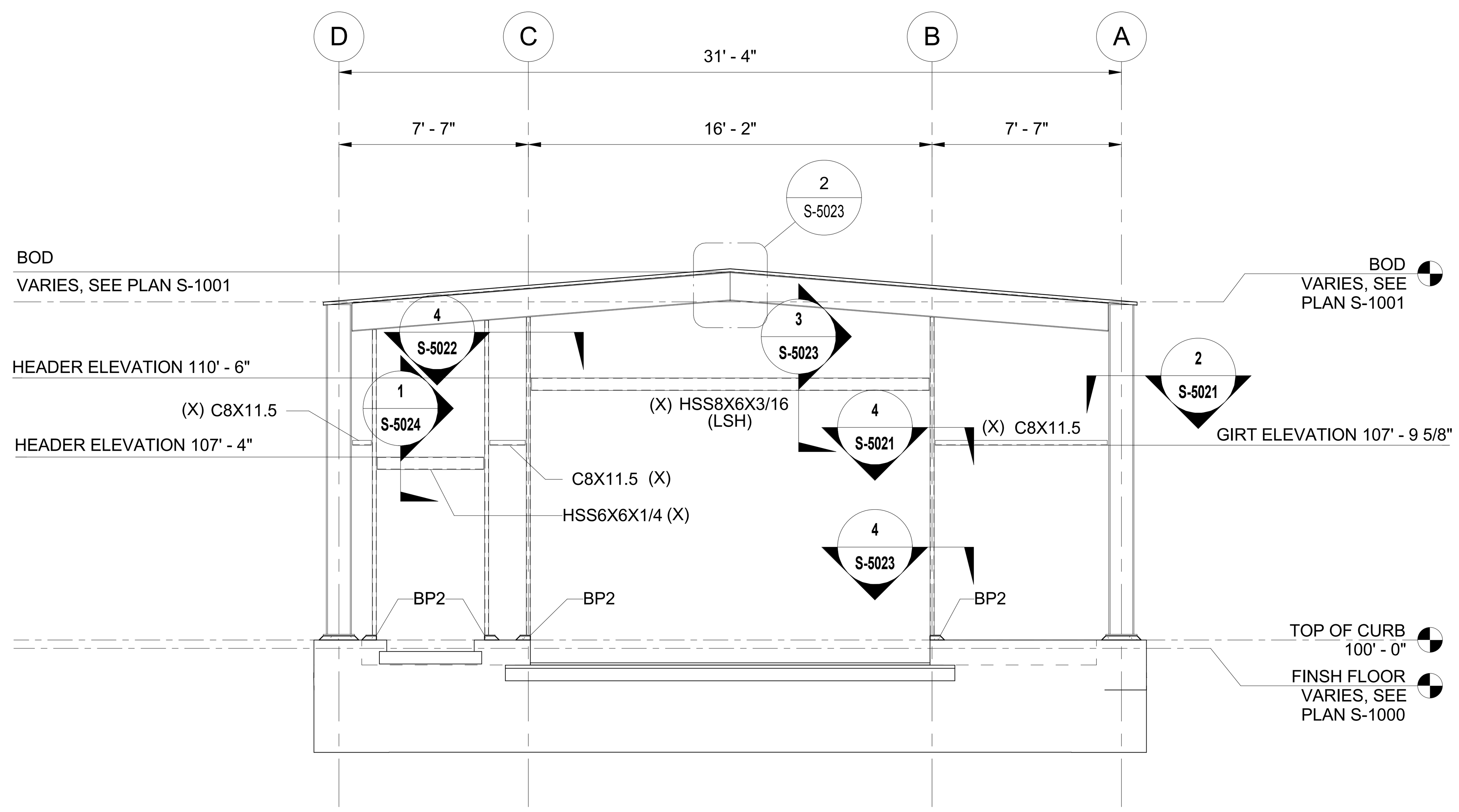
GENERAL NOTES

1. ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
2. DETAILS ARE LOCATED ON SHEET S-5000 THRU S-5023.
3. BASE PLATE SCHEDULE IS LOCATED IN DETAIL 1/S-5000.
4. FINISH FLOOR REFERENCE ELEVATION 100'-0" FOR 63-0149 = 7215.83', 63-0150 = 7217.33', 63-0151 = 7217.40', 63-0152 = 7217.46', AND 63-0153 = 7217.45'. SEE PLANS FOR MAT SLAB ELEVATIONS, FOUNDATION PLAN S-1000 AND CIVIL GRADING PLAN C-1005.
5. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
6. THIS DRAWING WAS GENERATED IN REVIT 2011.
7. ALL STEEL LABELED WITH (X) ARE CLASSIFIED AS SAFETY SIGNIFICANT PER LANL PSDR (102355-RPT-00012-R0).



NORTH ELEVATION

0 1' 2' 4' 6' 8'
1/4"=1'-0"



SOUTH ELEVATION

0 1' 2' 4' 6' 8'
1/4"=1'-0"

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

JAMES M. WEEKS NEW MEXICO 11384 REGISTERED PROFESSIONAL ENGINEER

I, James M. Weeks, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12 Date — James M. Weeks, NM P.E. 11384

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE BUILDINGS
Figure 2-12. Structural Elevations

DRAWN	G.FLORES
DESIGN	J.WEEKS
CHECKED	C.ROSENBERGER
DATE	03-22-12

BLDG 63-0149 TO 63-0153 TA-63

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SHEET S-2001
233 OF 740

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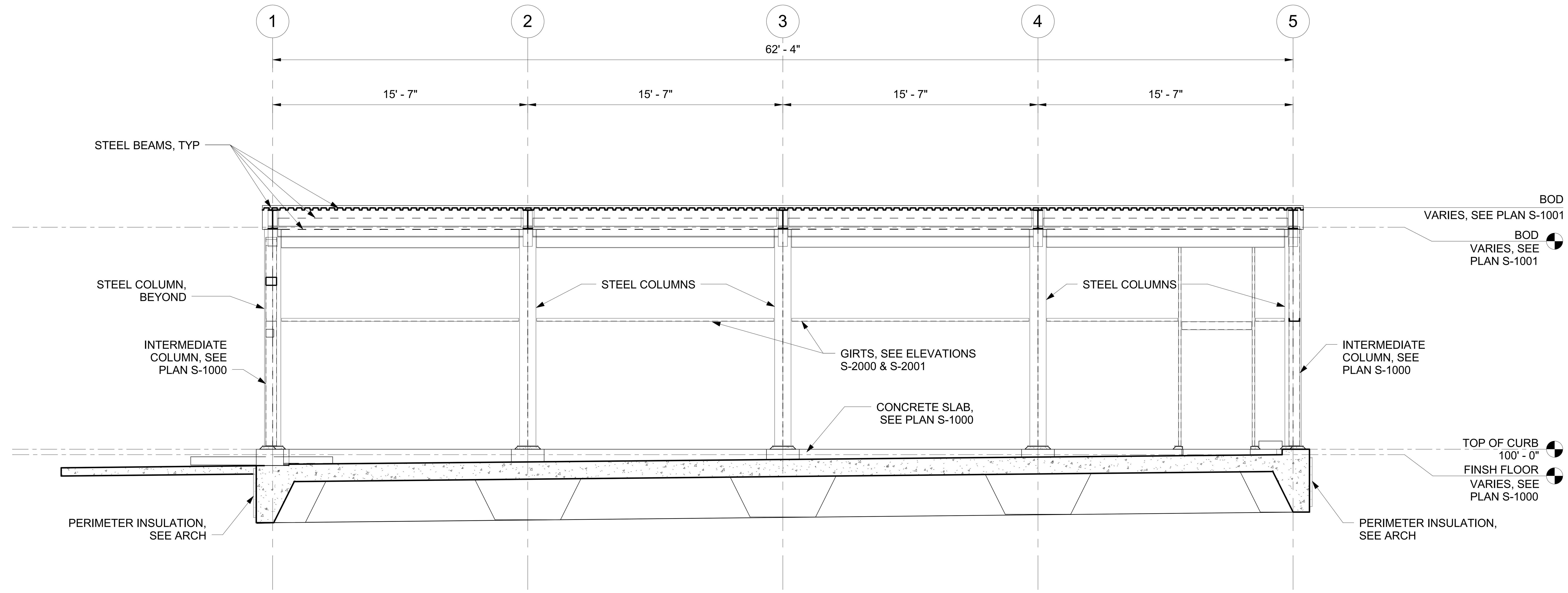
TRU WASTE FACILITY PROJECT

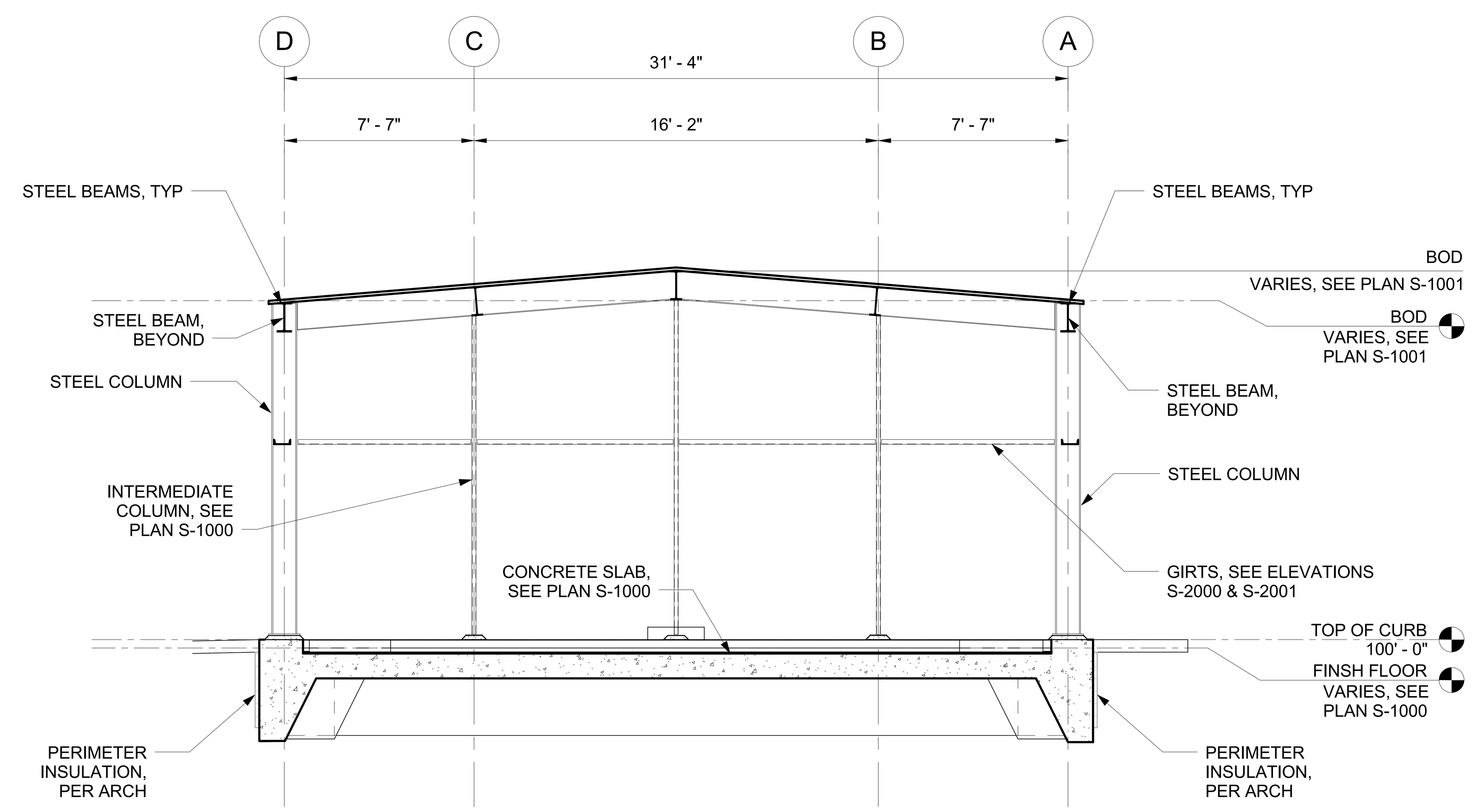
GENERAL NOTES

1. ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
2. DETAILS ARE LOCATED ON SHEET S-5000 THRU S-5023.
3. BASE PLATE SCHEDULE IS LOCATED IN DETAIL 1/S-5000.
4. FINISH FLOOR REFERENCE ELEVATION 100'-0" FOR 63-0149 = 7215.83', 63-0150 = 7217.33', 63-0151 = 7217.40', 63-0152 = 7217.46', AND 63-0153 = 7217.45'. SEE PLANS FOR MAT SLAB ELEVATIONS, FOUNDATION PLAN S-1000 AND CIVIL GRADING PLAN C-1005.
5. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
6. THIS DRAWING WAS GENERATED IN REVIT 2011.
7. ALL STEEL LABELED WITH (X) ARE CLASSIFIED AS SAFETY SIGNIFICANT PER LANL PSDR (102355-RPT-00012-R0).



A **SECTION**
S-1000 , S-1001

0 1' 2' 4' 6' 8'
1/4"=1'-0"



B **SECTION**
S-1000 , S-1001

0 1' 2' 4' 6' 8'
1/4"=1'-0"

JAMES M. WEEKS NEW MEXICO 11384 REGISTERED PROFESSIONAL ENGINEER

I, James M. Weeks, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12 Date

James M. Weeks, NM P.E. 11384

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PART B PERMIT APPLICATION

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE BUILDINGS

Figure 2-13. Structural Sections

BLDG 63-0149 TO 63-0153 TA-63

DRAWN	G.FLORES
DESIGN	J.WEEKS
CHECKED	C.ROSENBERGER
DATE	03-22-12

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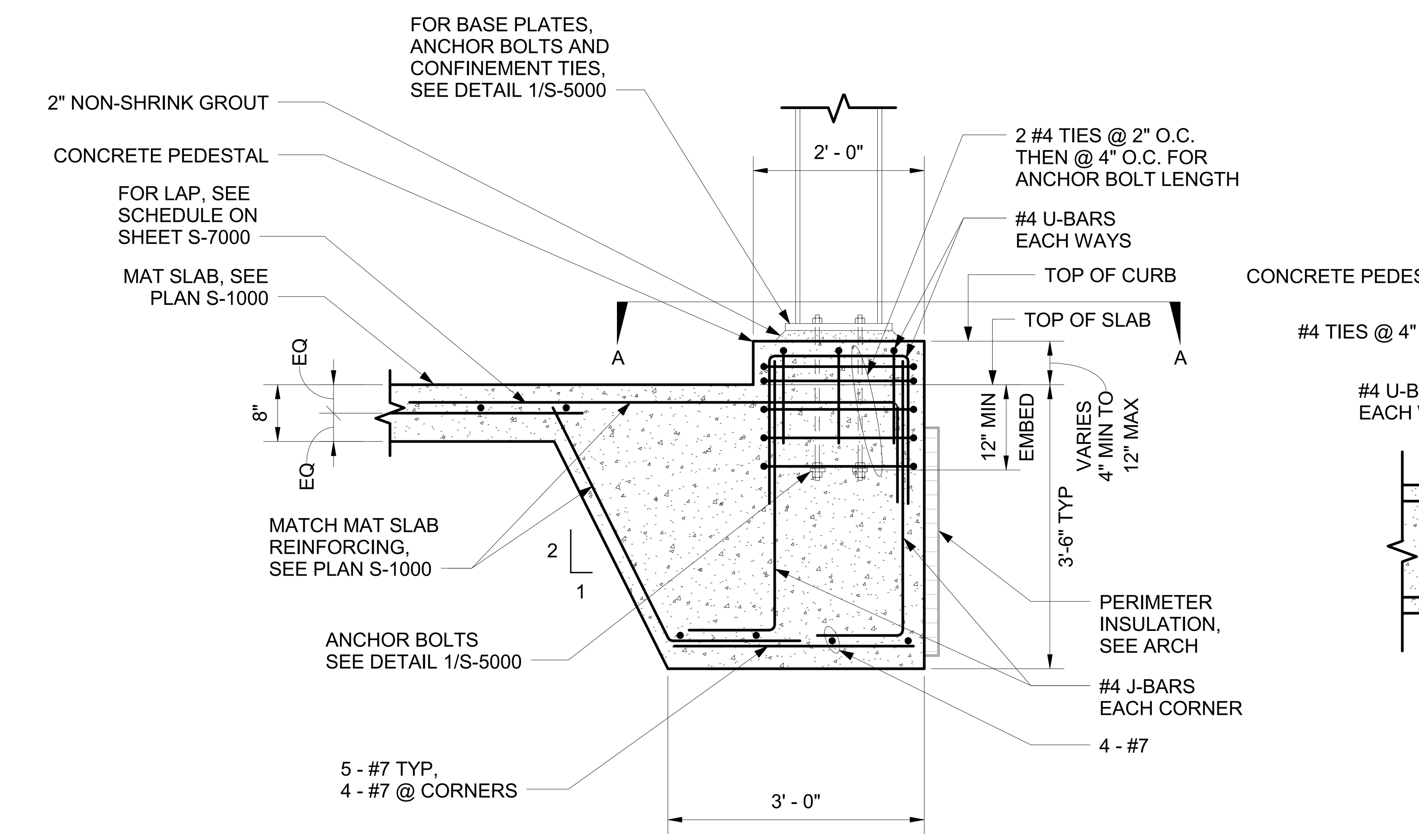
SHEET S-3000
234 OF 740

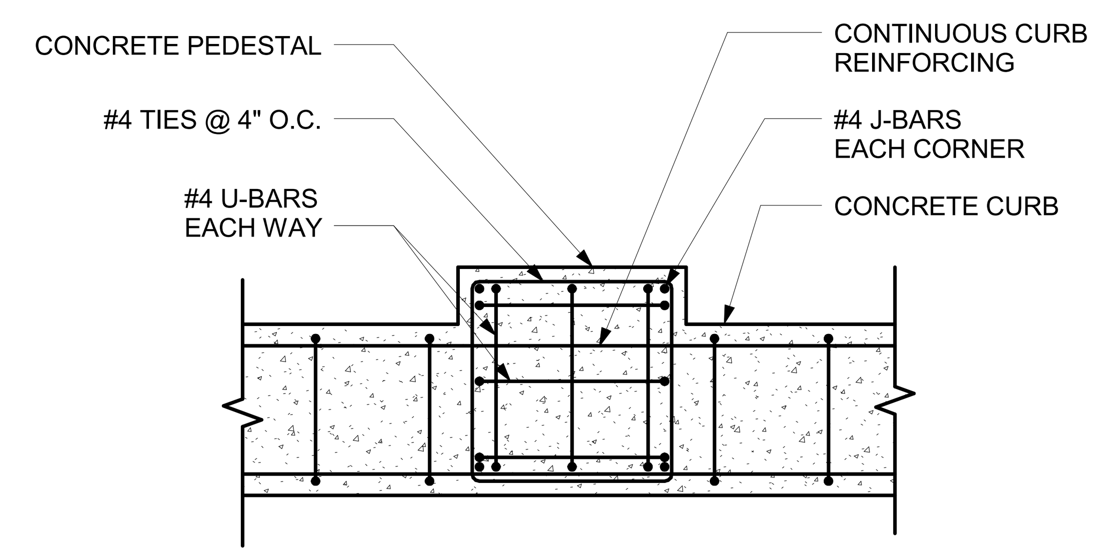
CLASSIFICATION | REVIEWER | DATE

PROJECT ID 102355 | DRAWING NO C55444 | REV F

TRU WASTE FACILITY PROJECT 3/20/2012 10:54:32 AM D:\Projects\21082016 -- TRU Waste Facility Design Services Project\Models\STORAGE BLDG1\Storage Bldg1-Struct_flores.rvt



NOTE: FOR EXCAVATION REQUIREMENTS SEE DETAIL 2/S-5000.



NOTE: SIM @ CORNER CONDITIONS

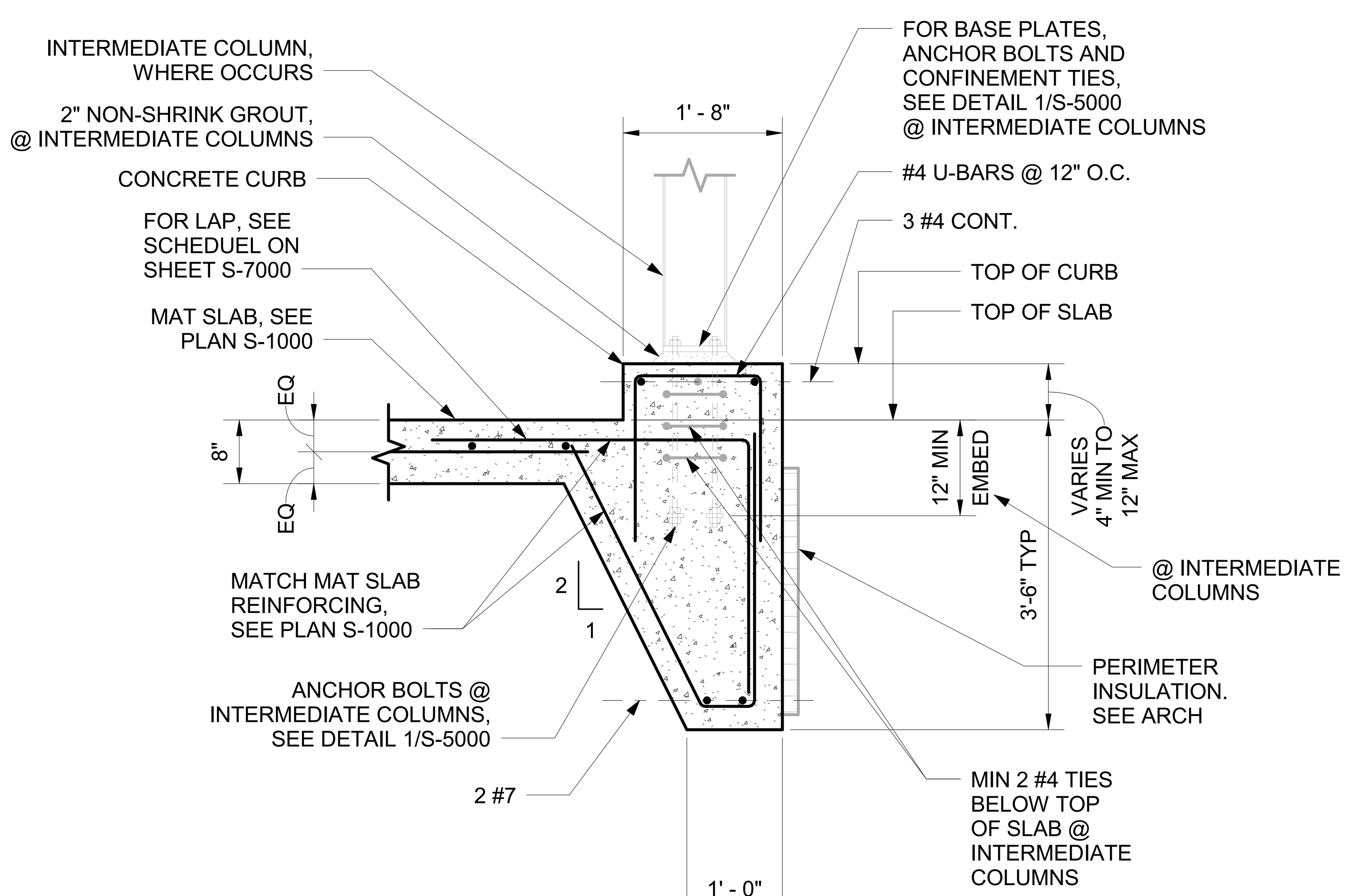
PLAN VIEW A-A

1 THICKENED COLUMN MAT
S-1000

1' 6" 0 1' 2'
3/4"=1'-0"

GENERAL NOTES

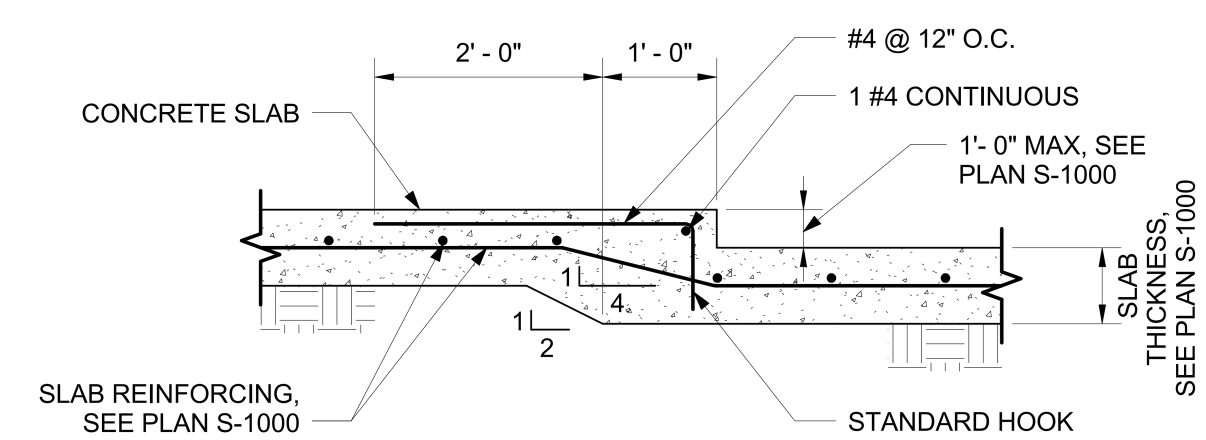
1. ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
2. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
3. THIS DRAWING WAS GENERATED IN REVIT 2011.



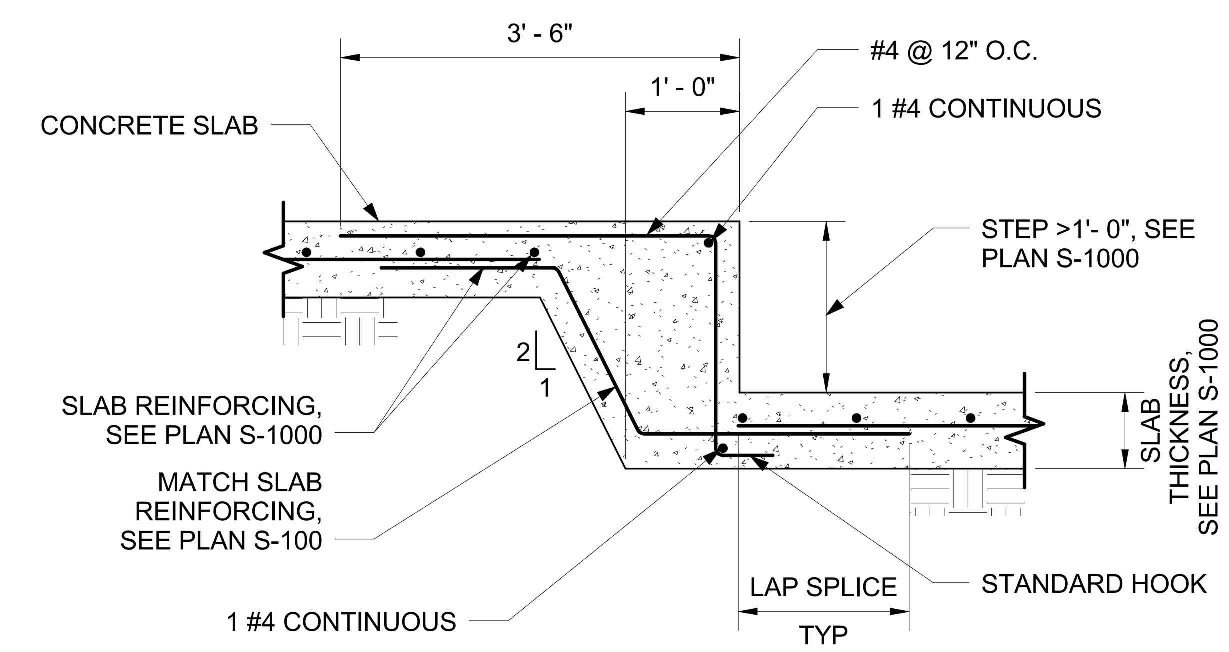
NOTE: FOR EXCAVATION REQUIREMENTS SEE DETAIL 2/S-5000.

2 MAT SLAB TURN DOWN
S-1000

1' 6" 0 1' 2'
3/4"=1'-0"



1' - 0" MAX



GREATER THAN 1' - 0"

3 SLAB STEP
S-1000

1' 6" 0 1' 2'
3/4"=1'-0"

JAMES M. WEEKS NEW MEXICO 11384 REGISTERED PROFESSIONAL ENGINEER

I, James M. Weeks, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12
Date

James M. Weeks, NM P.E. 11384

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PART B PERMIT APPLICATION

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WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE BUILDINGS

Figure 2-14. Foundation Details

DRAWN	G.FLORES
DESIGN	J.WEEKS
CHECKED	C.ROSENBERGER
DATE	03-22-12

BLDG 63-0149 TO 63-0153 TA-63

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SHEET S-5010
237 OF 740

CLASSIFICATION | REVIEWER | DATE

PROJECT ID 102355 | DRAWING NO C55444 | REV F

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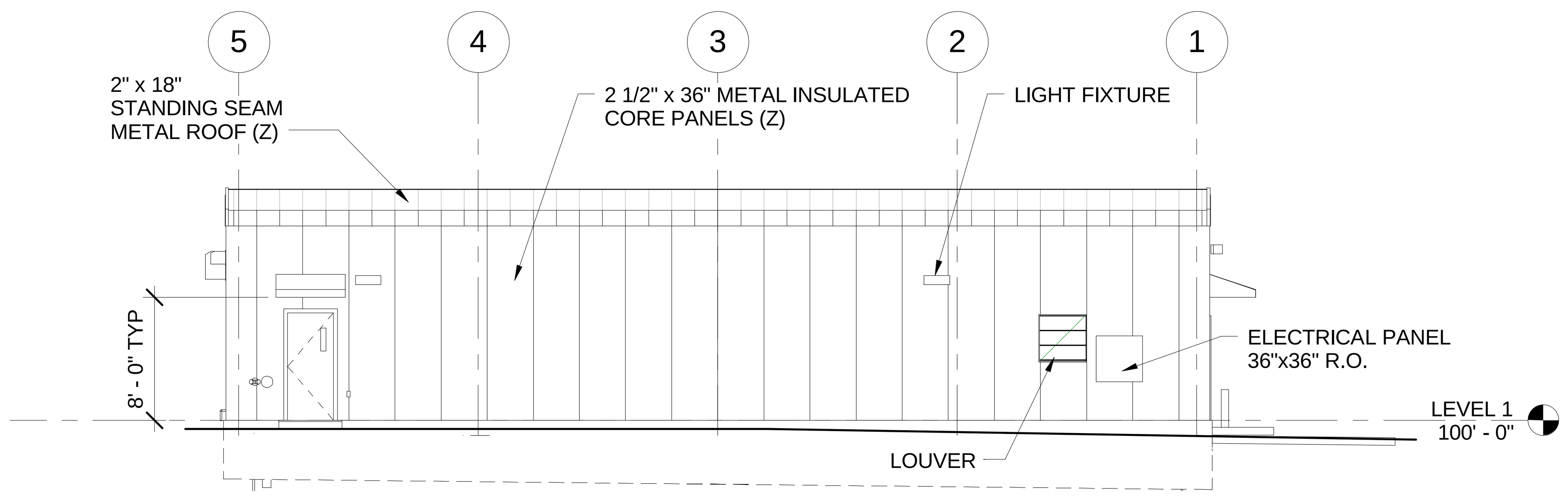
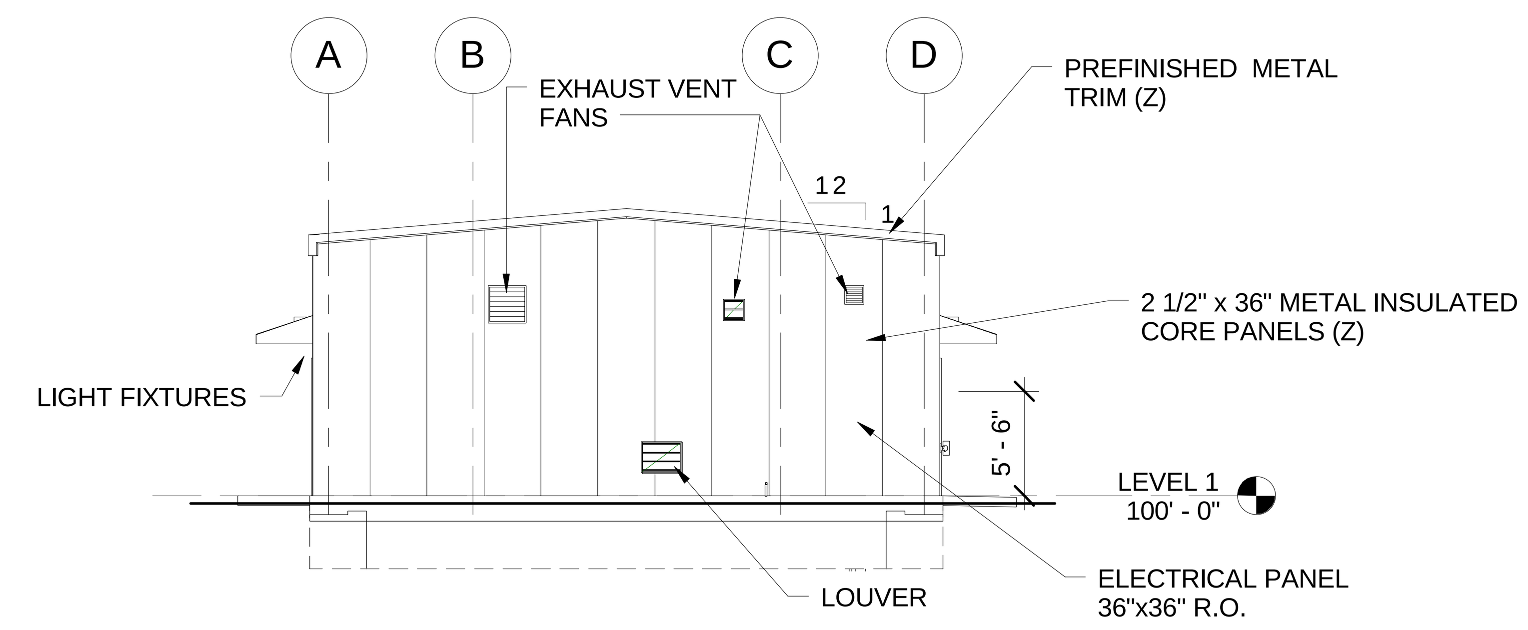
GENERAL NOTES

1. IF THIS SHEET IS NOT 24" X 36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHICS SCALE ACCORDINGLY.
2. THIS DRAWING WAS GENERATED IN REVIT 2011 AND DOES NOT FOLLOW LANL DRAFTING STANDARDS.
3. BUILDING COMPONENTS LABELED WITH (Z) ARE NON-COMBUSTIBLE AND ARE CLASSIFIED AS SAFETY SIGNIFICANT PER LANL PSDR (102355-RPT-00012-RO).



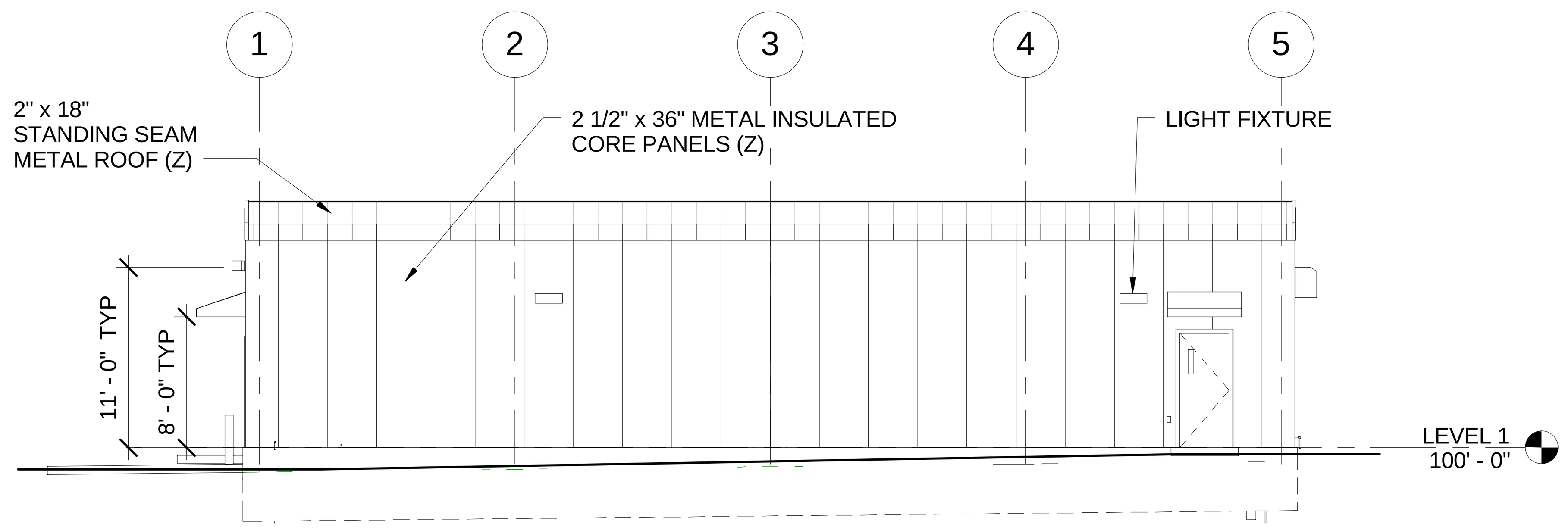
WEST ELEVATION

4' 2' 0 4' 8' 12'
1/8"=1'-0"



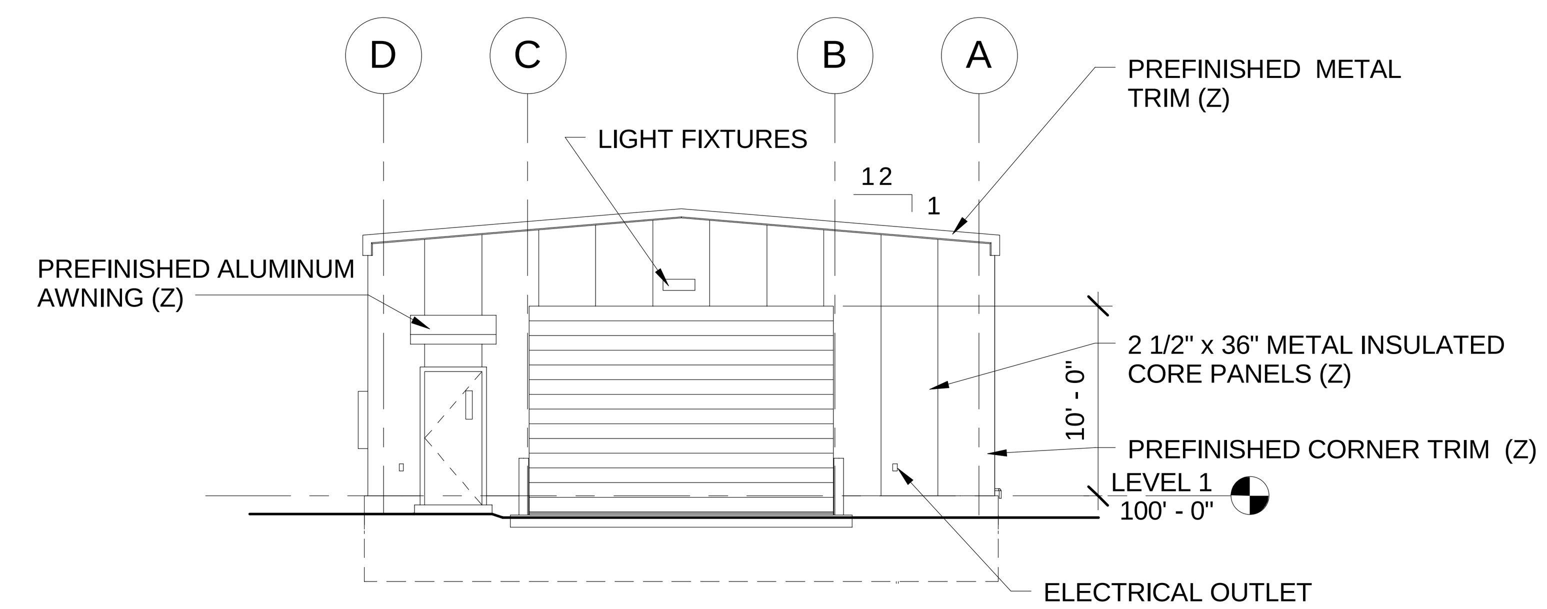
NORTH ELEVATION

4' 2' 0 4' 8' 12'
1/8"=1'-0"



EAST ELEVATION

4' 2' 0 4' 8' 12'
1/8"=1'-0"



SOUTH ELEVATION

4' 2' 0 4' 8' 12'
1/8"=1'-0"

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

STATE OF NEW MEXICO
DAVID L. WALLERSTEDT
NO. 3132
REGISTERED ARCHITECT

I, David L. Wallerstedt, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3-21-12 [signature]
Date — David L. Wallerstedt, NM R.A. 3132

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE BUILDINGS

Figure 2-15. Elevations

BLDG 63-0149 TO 63-0153 TA-63

DRAWN	A. GALLEGOS
DESIGN	D. WALLERSTEDT
CHECKED	T. LEACH
DATE	03-22-12

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SHEET A-2000
252 OF 740

CLASSIFICATION | REVIEWER | DATE

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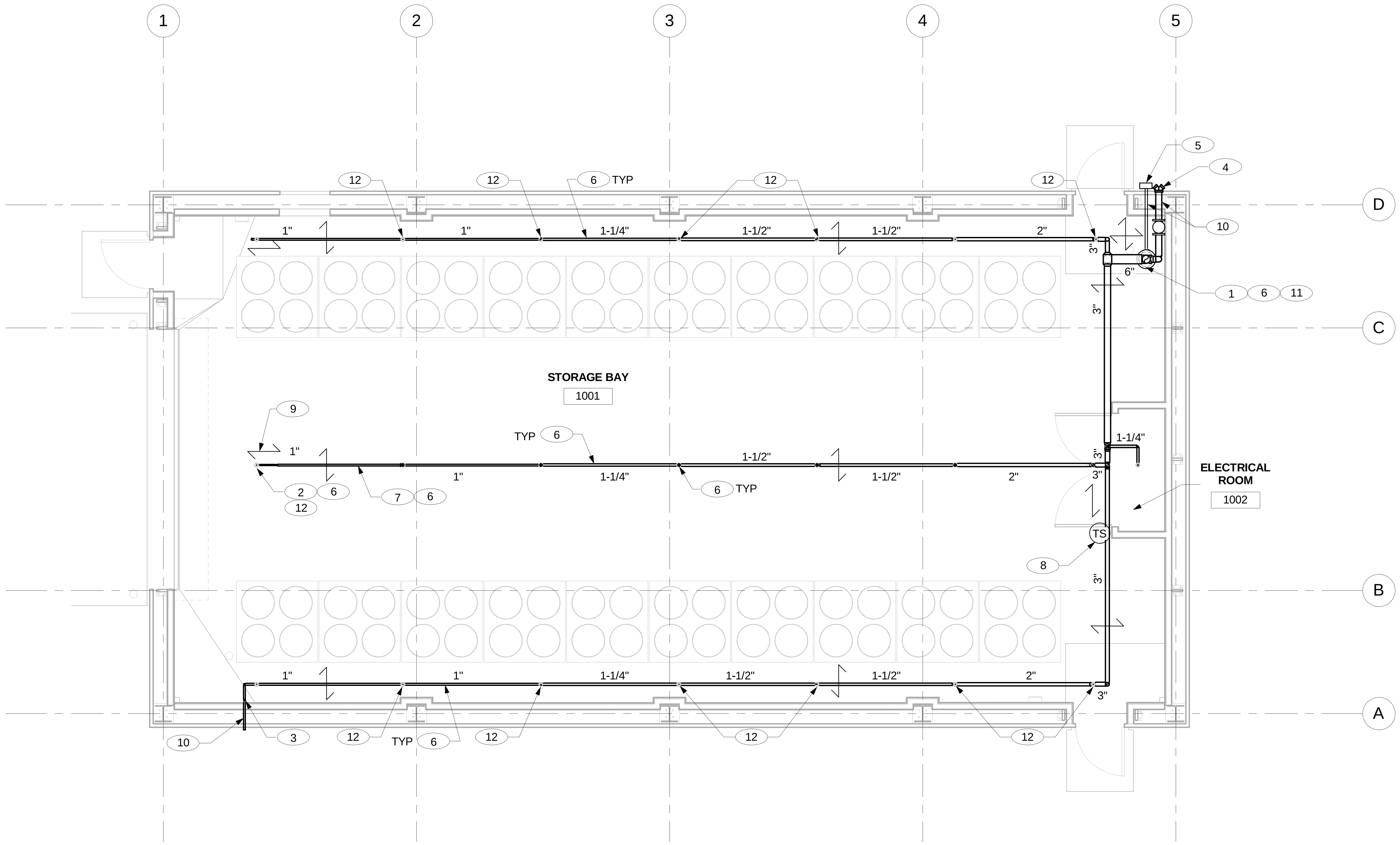
8 | 7 | 6 | 5 | 4 | 3 | 2 | 1



FIRE PROTECTION PLAN

1/4"=1'-0"

GENERAL NOTES

1. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
2. THIS DRAWING WAS GENERATED IN REVIT 2011.
3. SEE SHEET F-0001 FOR SYMBOLS, LEGEND, ABBREVIATION AND STRUCTURAL BRACING INFORMATION.
4. FOR SEISMIC BRACING, SEE DETAILS 2 AND 3 ON SHEET F-5000.
5. SEE CALCULATION 11-001-FCAL-001 FOR HYDRAULIC CALCULATIONS.

KEYED NOTES

1. 6" FIRE PROTECTION RISER, SEE DETAIL 1 ON SHEET F-5000. SEE FLOOR PENETRATION DETAIL 4 ON SHEET F-5000.
2. UPRIGHT SPRINKLER, TYPICAL OF 22.
3. INSPECTOR'S TEST STATION, SEE PIPE THRU WALL PENETRATION DETAIL 5 ON SHEET F-5000.
4. FIRE DEPARTMENT CONNECTION, SEE PIPE THRU WALL PENETRATION DETAIL 5 ON SHEET F-5000.
5. WALL POST INDICATOR VALVE, SEE PIPE THRU WALL PENETRATION DETAIL 5 ON SHEET F-5000.
6. FIRE PROTECTION COMPONENTS ARE CLASSIFIED AS SAFETY SIGNIFICANT PER LANL PSDR (102355-RPT-00012-RO).
7. SEE DETAIL 3 ON SHEET F-5000 FOR SWAY BRACING.
8. SAFETY SIGNIFICANT TEMPERATURE SENSOR. TSL-004-BLDG63-0149; TSL-005-BLDG63-0159; TSL-006-BLDG63-0151; TSL-007-BLDG63-0152; TSL-008-BLDG63-0153.
9. SEE DETAIL 2 ON SHEET F-5000 FOR SWAY BRACING.
10. SEE DETAIL 5 ON SHEET F-5000 FOR PIPE THRU WALL PENETRATION.
11. SEE DETAIL 4 ON SHEET F-5000 FOR PIPE THRU FLOOR PENETRATION.
12. INSTALL HIGH TEMPERATURE RATED (286° F) SPRINKLER HEAD NEAR UNIT HEATER.

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PART B PERMIT APPLICATION

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE BUILDINGS

Figure 2-16. Fire Protection Plan

BLDG 63-0149 T0 63-0153 TA- 63

DRAWN	D.BROERMAN
DESIGN	E. MIYODA
CHECKED	C. MOYERS
DATE	03-22-12

SUBMITTED | APPROVED FOR RELEASE

I, Edward M. Miyoda, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3-21-12 Edward Miyoda
Date Edward M. Miyoda, NM P.E. 8263

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PO Box 1663
Los Alamos, New Mexico 87545

SHEET F-1000
261 OF 740

CLASSIFICATION	REVIEWER	DATE	
PROJECT ID 102355	DRAWING NO C55444		REV F

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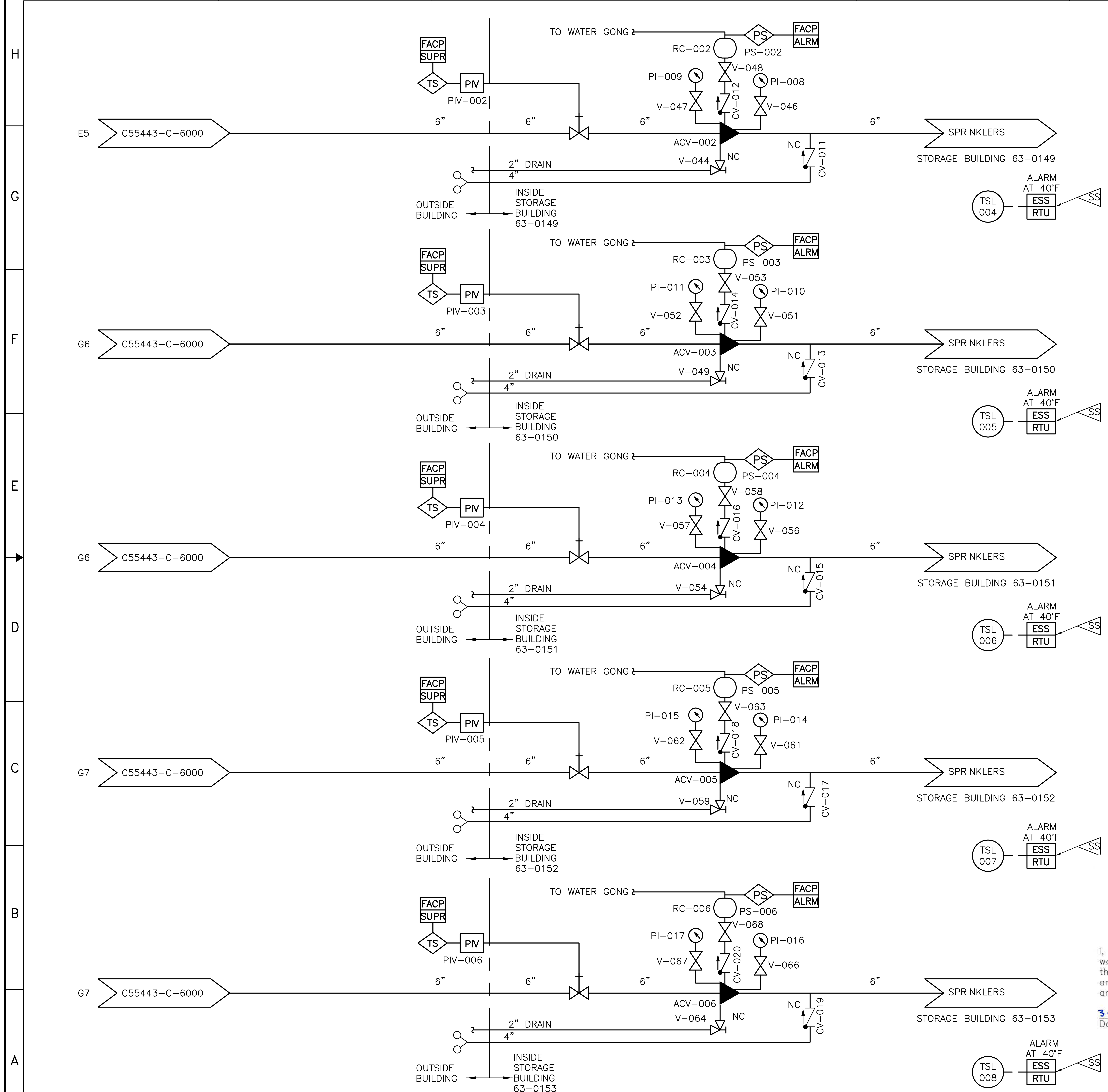

FIRE PROTECTION P & ID
SCALE: NONE

EDWARD M. MIYODA NEW MEXICO 8263 REGISTERED PROFESSIONAL ENGINEER

I, Edward M. Miyoda, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3-21-12 Edward Miyoda
Date Edward M. Miyoda, NM P.E. 8263

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PART B PERMIT APPLICATION

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE BUILDINGS
Figure 2-17. Fire Protection P & ID
BLDG 63-0149 TO 63-0153 TA-63

DRAWN	D. JENSEN
DESIGN	C. MOYERS
CHECKED	E. MIYODA
DATE	03-22-12

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SHEET F-6000
264 OF 740

CLASSIFICATION XXX | REVIEWER XXX | DATE
PROJECT ID 102355 | DRAWING NO C55444 | REV F

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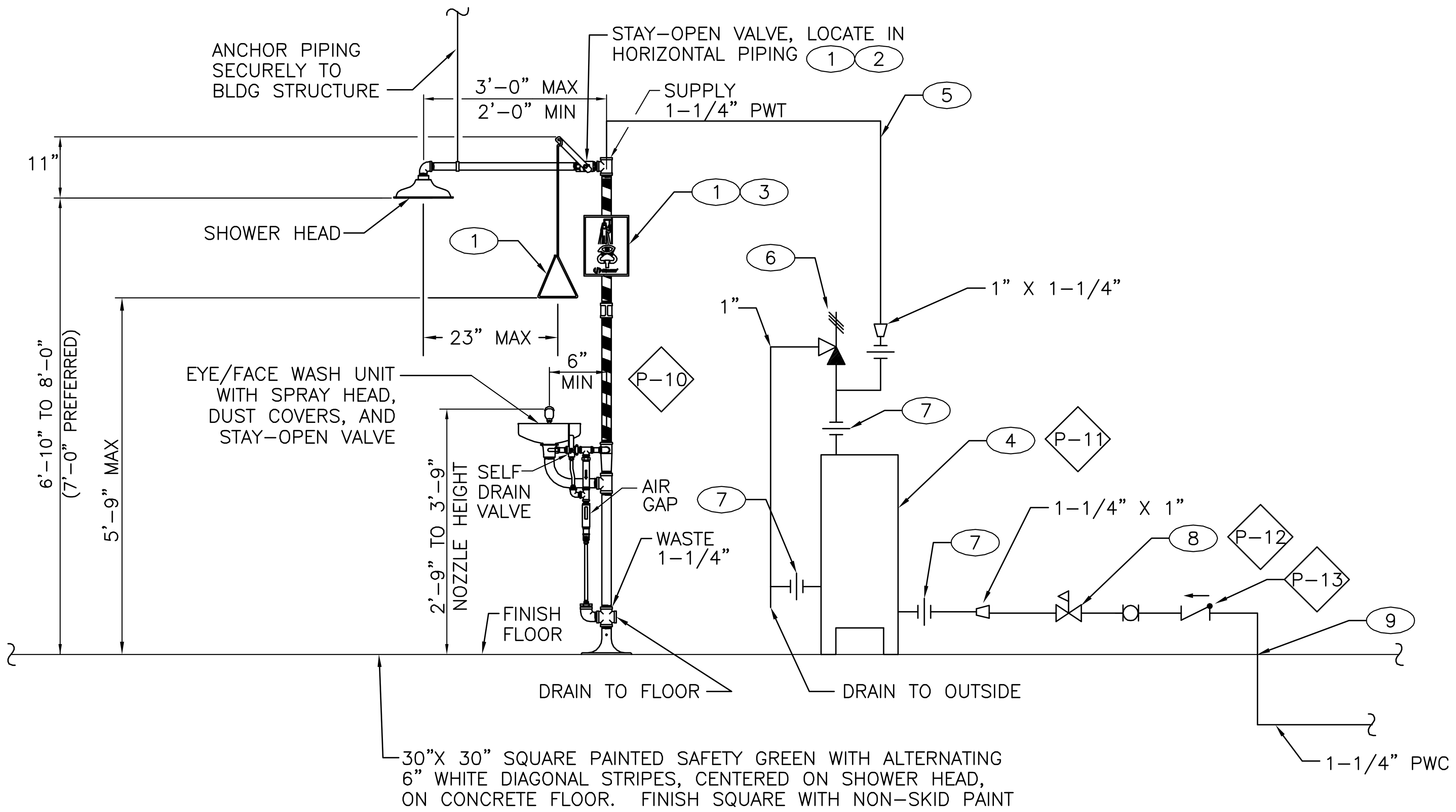
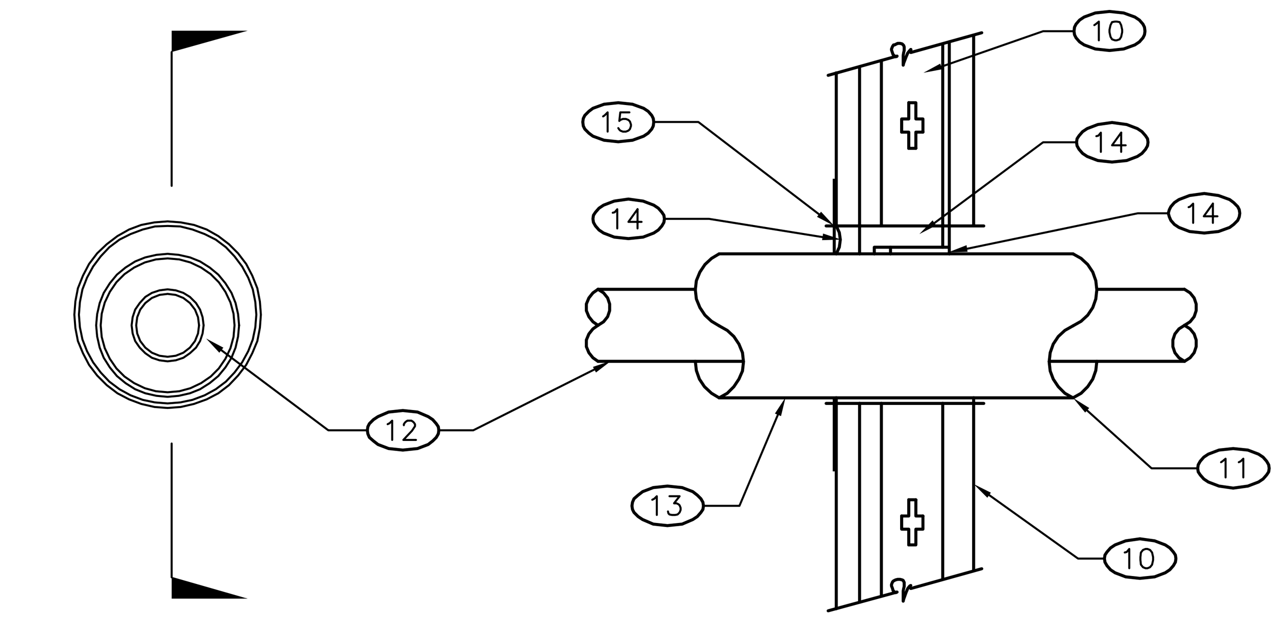
Plotted By: BAHLING, STEVE; Plot Date: Tuesday, March 20, 2012; Plot CTB File: LANL D-SIZE.CTB; Page Setup Name: PDF; InsUnits: 1; LTScale: 1.000000



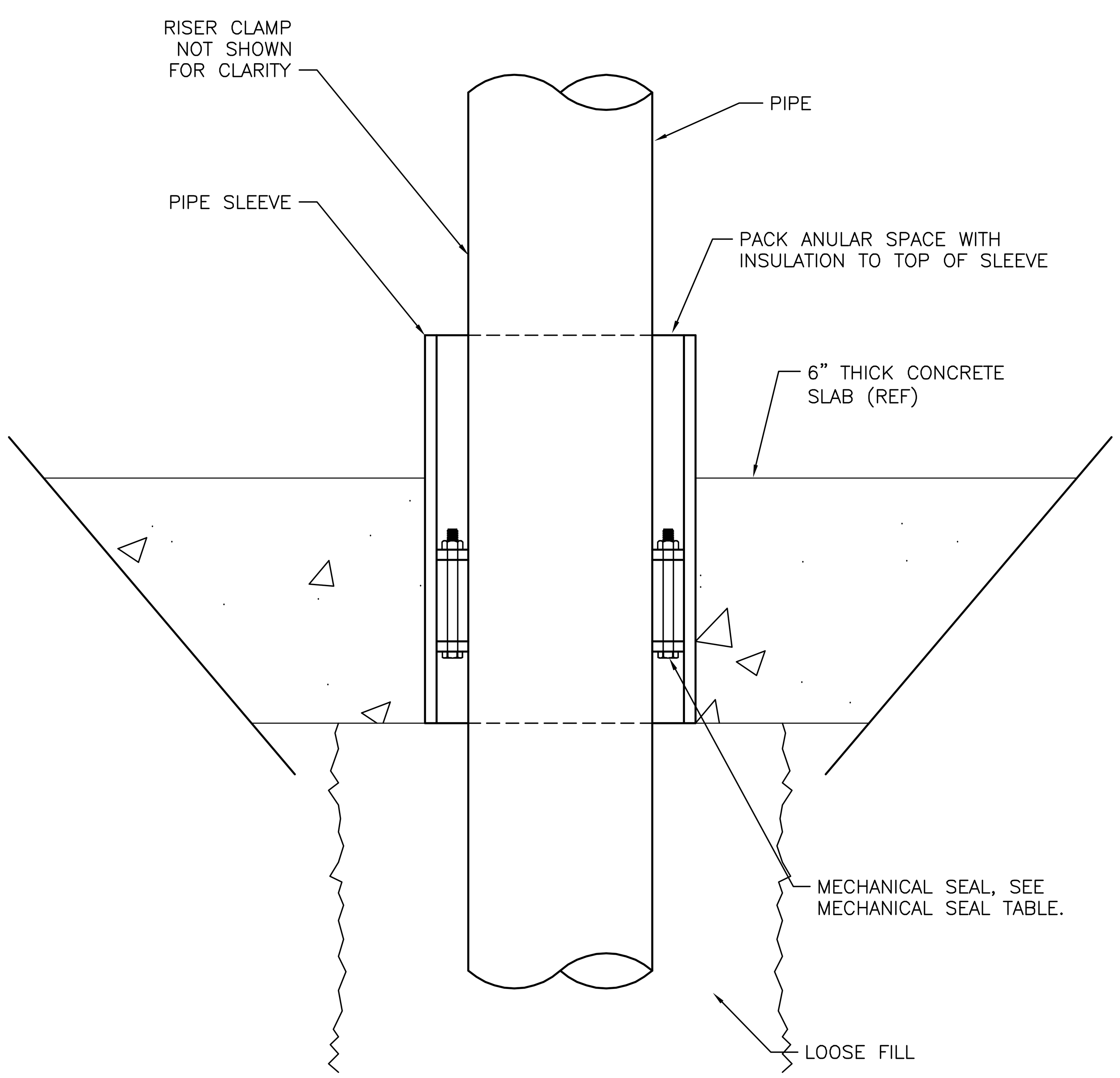
1 P-1000 SAFETY SHOWER W/EYEWASH DETAIL
SCALE: NONE



2 P-1000 PIPE THROUGH WALL PENETRATION
SCALE: NONE

MECHANICAL SEAL TABLE			
NOMINAL PIPE SIZE	NOMINAL SLEEVE SIZE	METRASEAL MODEL NO.	REMARKS
4"	6"	10MS-300ES	PIPE SCHEDULE 40 STEEL PIPE, SLEEVE SCHEDULE 40 STEEL PIPE
3"	5"	8MS-300ES	PIPE SCHEDULE 40 STEEL PIPE, SLEEVE SCHEDULE 40 STEEL PIPE
2 1/2"	4"	9MS-200ES	PIPE SCHEDULE 40 STEEL PIPE, SLEEVE SCHEDULE 40 STEEL PIPE
2"	4"	6MS-300ES	PIPE SCHEDULE 40 STEEL PIPE, SLEEVE SCHEDULE 40 STEEL PIPE
1 1/4"	3"	7MS-275ES	PIPE SCHEDULE 40 STEEL PIPE, SLEEVE SCHEDULE 40 STEEL PIPE

MECHANICAL SEAL TABLE			
NOMINAL PIPE SIZE	NOMINAL SLEEVE SIZE	METRASEAL MODEL NO.	REMARKS
8"	10"	9MS-325ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE
6"	8"	7MS-325ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE
4"	6"	5MS-325ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE
2 1/2"	4"	10MS-275ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE
2"	3 1/2"	8MS-275ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE
1 1/2"	3"	7MS-275ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE
1 1/4"	3"	4MS-300ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE
1"	2 1/2"	5MS-275ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE
3/4"	2"	4MS-200ES	COPPER TUBE, SLEEVE SCHEDULE 40 STEEL PIPE



3 P-1000 FLOOR PENETRATION DETAIL
SCALE: NONE

KEYED NOTES:

1. FURNISHED WITH EMERGENCY EQUIPMENT.
2. VALVE TO BE ACCESSIBLE FOR MAINTENANCE.
3. EMERGENCY SIGN(S).
4. ELECTRIC SAFETY SHOWER TEPID WATER HEATER.
5. TEPID WATER SUPPLY.
6. TEMPERATURE AND PRESSURE RELIEF VALVE.
7. PROVIDE DIELECTRIC UNION AT POINTS OF DISSIMILAR METALS.
8. PRESSURE REDUCING VALVE.
9. FLOOR PENETRATION, SEE DETAIL 3 ON SHEET P-5000.
10. WALL ASSEMBLY – STEEL STUDS
11. STEEL SLEEVE – CYLINDRICAL SLEEVE
12. THROUGH PENETRANTS – PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES OF METALLIC PIPES OR TUBES MAY BE USED:

    STEEL PIPE – NOM. 2" (51 mm) (OR SMALLER) SCHEDULE 5 (OR HEAVIER) STEEL PIPE.
13. PIPE COVERING
14. PACKING MATERIAL – MIN. 3" (76 mm) THICKNESS OF MIN. 4 PCF (64 kg/m³) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM FINISHED SURFACE OF WALL TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.

    STUDS – THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS AS REQUIRED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX SIZE OF OPENING IS 9.800"² (6.32 m²) WITH A MAX. DIMENSION OF 100" (254 cm).
15. METAL RODENT SHIELD LOCATED ON EXTERIOR OF BUILDING.

CHARLES MOYERS NEW MEXICO 16030 REGISTERED PROFESSIONAL ENGINEER

I, Charles Moyers, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12 Date
Charles Moyers, NM P.E. 16030

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PART B PERMIT APPLICATION

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WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE BUILDINGS
Figure 2-18. Details

BLDG 63-0149 TO 63-0153 TA-63

DRAWN	D.BROERMAN
DESIGN	E. MIYODA
CHECKED	C. MOYERS
DATE	3-22-12

SUBMITTED
APPROVED FOR RELEASE

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PO Box 1663 Los Alamos, New Mexico 87545

SHEET P-5000
270 OF 740

CLASSIFICATION XXX
REVIEWER XXX
DATE
PROJECT ID 102355
DRAWING NO C55444
REV F

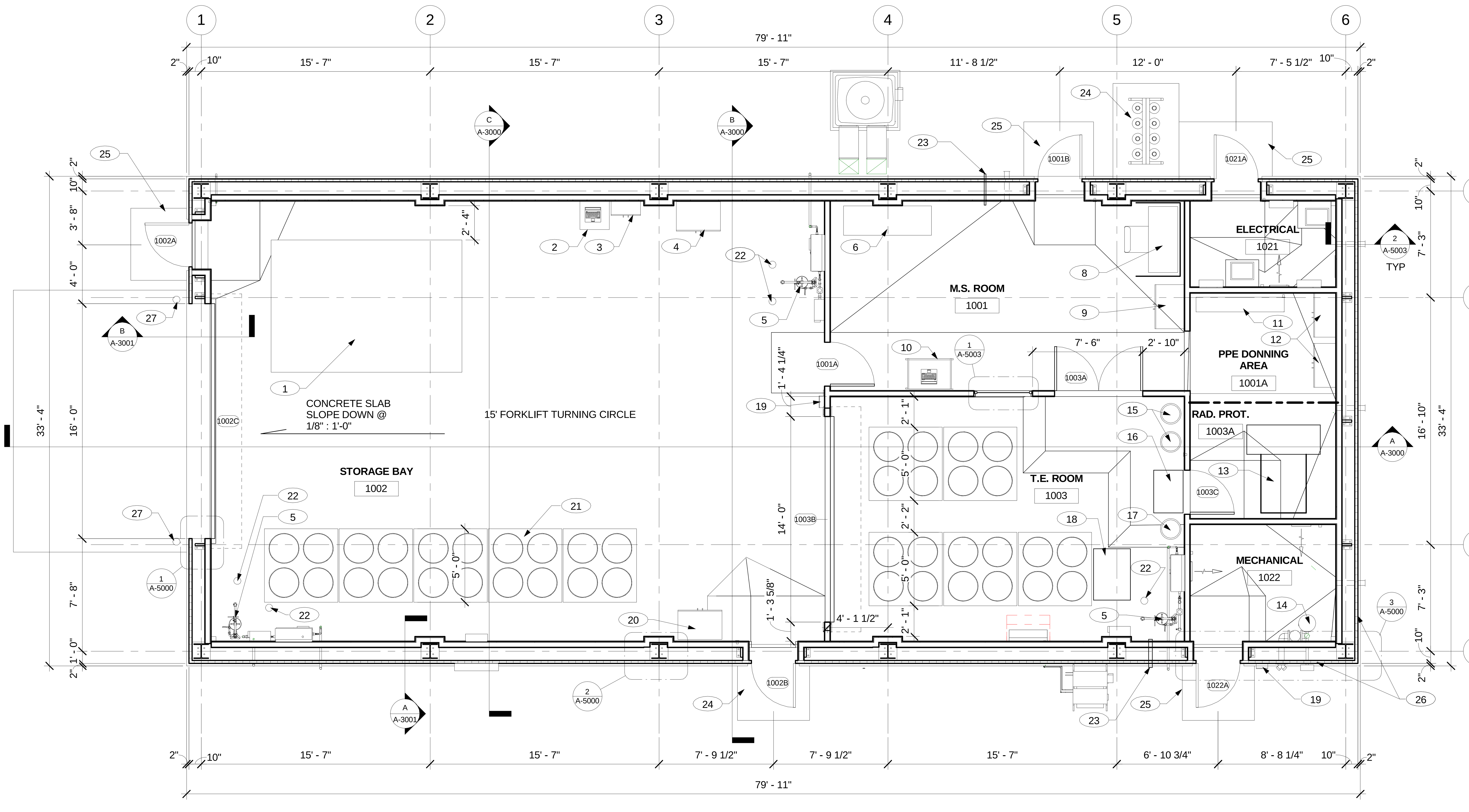
Plotted By: BAHLING, STEVE; Plot Date: Tuesday, March 20, 2012; Plot CTB File: LANL D-SIZE.CTB; Page Setup Name: PDF; InsUnits: 1; LTScale: 1.000000 Measurement: 0;

GENERAL NOTES

1. IF THIS SHEET IS NOT 24" x 36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY
2. THIS DRAWING WAS GENERATED IN REVIT 2011 AND DOES NOT FOLLOW LANL DRAFTING STANDARDS
3. AT THE ELECTRICAL AND MECHANICAL ROOMS, ADD DOOR PLACARDS - LAMINATED PHENOLIC PLASTIC 3/16" THICK x 2" x 6" BEIGE WITH BLACK 1" HIGH LETTERING ENGRAVED HELVETICA BOLD LABELED "ELECTRICAL" AND "MECHANICAL" CENTERED 60" ABOVE THE FLOOR ON THE EXTERIOR SIDE OF THE DOOR WITH ADHESIVE.
4. 36" HIGH ABOVE FINISH FLOOR STAINLESS STEEL CORNER GUARDS AT OUTSIDE CORNERS, TYPICAL.

KEYED NOTES

1. LARGE CONTAINER AREA
2. COMPUTER WORKSTATION, SEE DETAIL 4/A-5002
3. SPILL KIT
4. SUPPLY CABINET
5. EYE WASH AND SHOWER STATION
6. MASS SPECTROMETER (NIC)
7. NOT USED
8. RP-1 COUNTING (NIC)
9. RP-1 STORAGE
10. COMPUTER CART (NIC)
11. BENCH
12. PPE STORAGE
13. PCM
14. FIRE RISER
15. LAUNDRY BIN (NIC)
16. STEP-OFF PAD
17. WASTE BIN (NIC)
18. HEPA FILTER CART (NIC)
19. FIRE EXTINGUISHER
20. DECONTAMINATION EQUIPMENT CABINET (NIC)
21. STORAGE CONTAINERS & PALLETS (NIC)
22. REMOVABLE BOLLARD, SEE DETAIL 6/A-5002
23. VENT TUBE
24. P-10 GAS BOTTLE RACK LOCATION
25. CONCRETE STOOP, TYPICAL - SEE STRUCTURAL DRAWINGS
26. ONE HOUR RATED WALL 10 FEET EITHER SIDE OF WALL MOUNTED POST INDICATOR VALVE
27. PERMANENT BOLLARD, SEE DETAIL 7/A-5002



FLOOR PLAN
1/4"=1'-0"

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PART B PERMIT APPLICATION

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE AND CHARACTERIZATION BUILDING
Figure 2-19. Floor Plan

DRAWN A. GALLEGOS
DESIGN D. WALLERSTEDT
CHECKED T. LEACH
DATE 03-22-12

BLDG 63-0154 TA-63
SUBMITTED
APPROVED FOR RELEASE

STATE OF NEW MEXICO
DAVID L. WALLERSTEDT
NO. 3132
REGISTERED ARCHITECT

I, David L. Wallerstedt, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

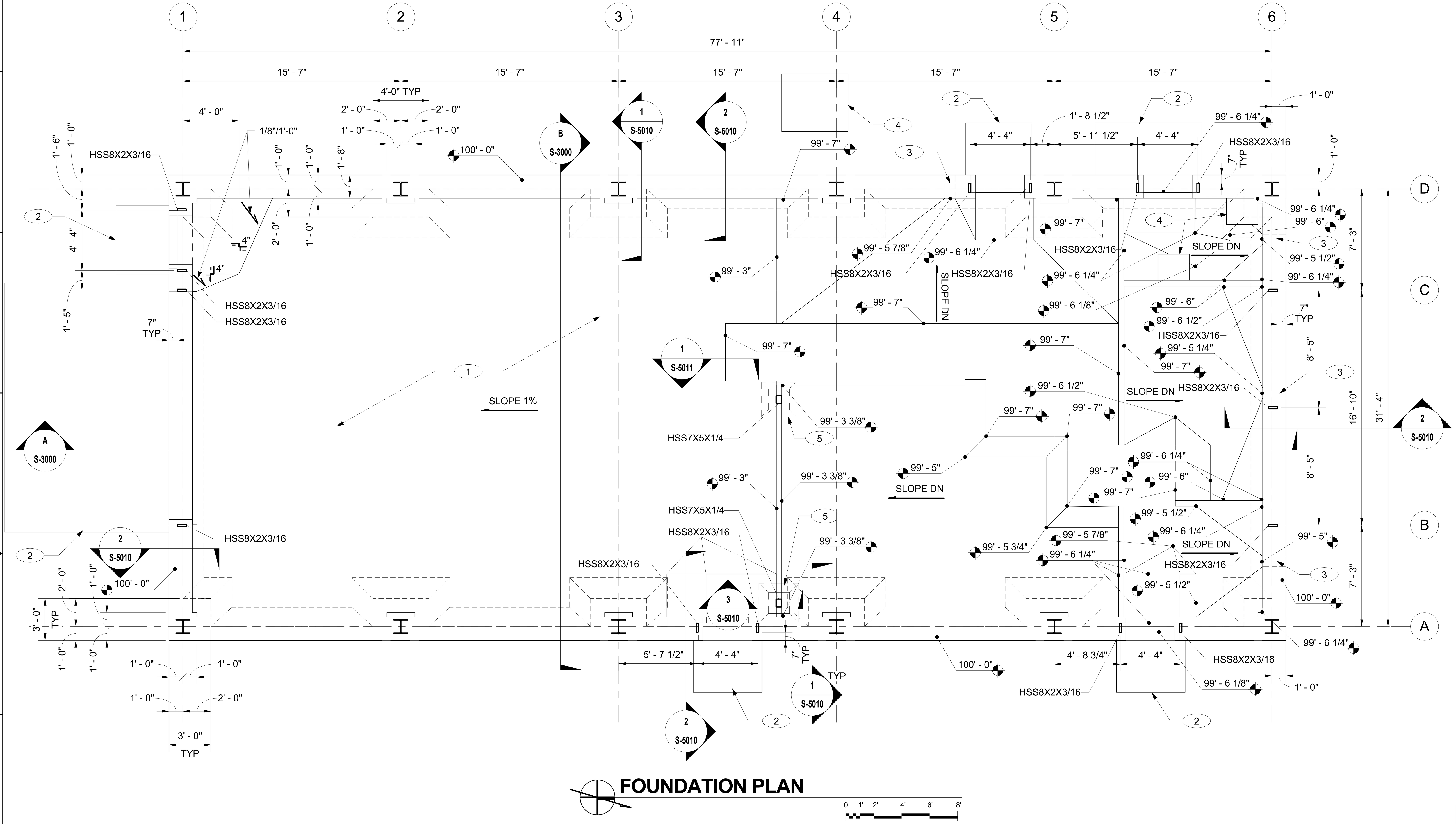
3-21-12
Date
David L. Wallerstedt, NM R.A. 3132

Los Alamos NATIONAL LABORATORY
PO Box 1663
Los Alamos, New Mexico 87545

SHEET A-1050
590 OF 740

CLASSIFICATION | REVIEWER | DATE
PROJECT ID 102355 | DRAWING NO C55445 | REV F

TRU WASTE FACILITY PROJECT 3/20/2012 4:06:11 PM P:_TECHNOLOGY\LANL\102355 - TRU Waste Facility\500 CAD\STORAGE BLDG -TE ROOM\ARCH\REVIT\Storage Bldg 2 - Arch.rvt



FOUNDATION PLAN

1/4"=1'-0"

GENERAL NOTES

1. ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
2. DETAILS ARE LOCATED ON SHEET S-5000 THRU S-5023.
3. FINISH FLOOR REFERENCE ELEVATION 100'-0" = 7217.43'. SEE PLANS FOR MAT SLAB ELEVATIONS, FOUNDATION PLAN S-1000 AND CIVIL GRADING PLAN C-1005.
4. SEE CIVIL PLANS FOR EXTERIOR SLAB AND PAVING.
5. SEE SOILS REPORT FOR UNDER SLAB AND FOOTING REQUIREMENTS.
6. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
7. THIS DRAWING WAS GENERATED IN REVIT 2011.
8. COORDINATE DRAIN PIPES THRU CURB WITH ARCH.
9. CONCRETE SLABS, FOOTINGS, AND ALL REINFORCEMENT THEREIN ARE CLASSIFIED AS SAFETY SIGNIFICANT PER THE LANL PSDR (102355-RPT-00012-R0).
10. FLOOR SLOPE IN STORAGE AREA IS CLASSIFIED AS SAFETY CLASS PER LANL PSDR (102355-RPT-00012-R0).

KEYED NOTES

1. 8" CONCRETE MAT SLAB WITH #5@12"O.C. EACH WAY, SEE DETAIL 3/S-5000. FOR STEPS IN SLAB SEE DETAIL 1/S-5011.
2. CONCRETE PAD, SEE CIVIL.
3. STAINLESS STEEL SCUPPER THROUGH CURB, SEE DETAIL 2/S-5011.
4. 4" MIN HOUSEKEEPING PAD, SEE DETAIL 1/S-5001.
5. THICKENED SLAB, SEE DETAIL 3/S-5010.

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE & CHARACTERIZATION BUILDING

Figure 2-20. Foundation Plan

BLDG 63-0154 TA-63

DRAWN	G.FLORES
DESIGN	J.WEEKS
CHECKED	C.ROSENBERGER
DATE	03-22-12

SUBMITTED | APPROVED FOR RELEASE

JAMES M. WEEKS NEW MEXICO 11384 REGISTERED PROFESSIONAL ENGINEER

I, James M. Weeks, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12 Date — James M. Weeks, NM P.E. 11384

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PO Box 1663 Los Alamos, New Mexico 87545

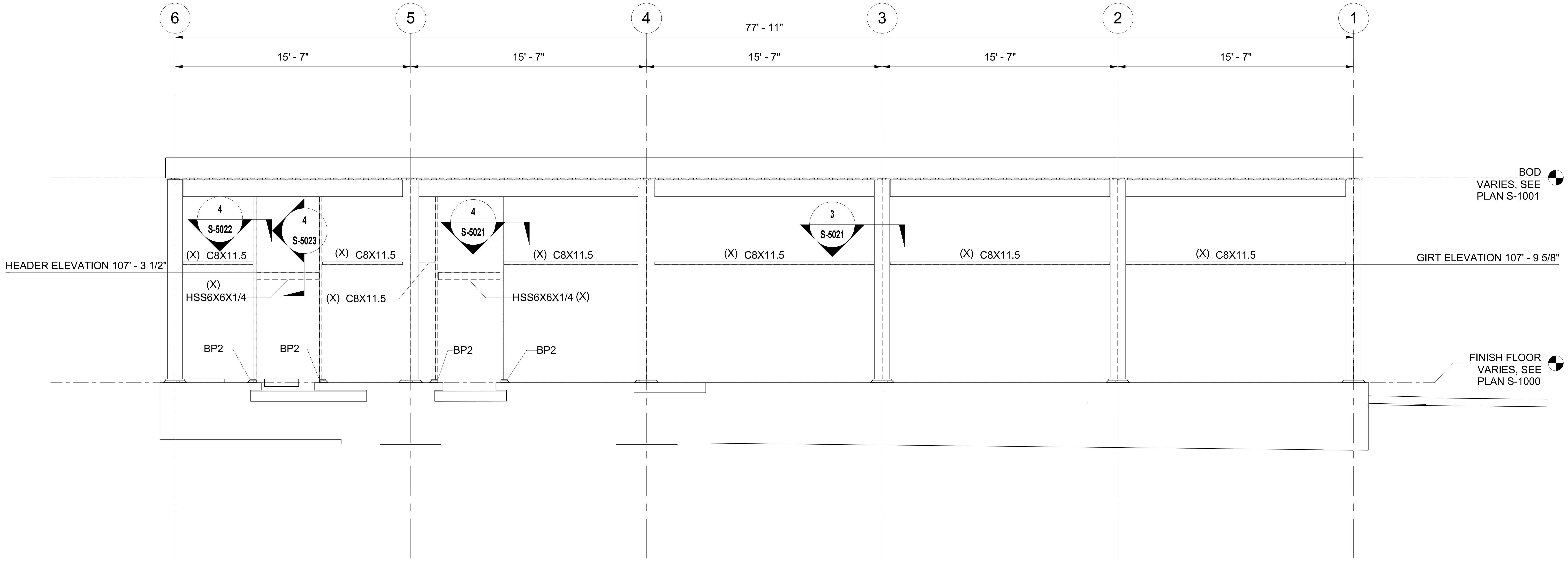
SHEET S-1000
570 OF 740

CLASSIFICATION | REVIEWER | DATE
PROJECT ID 102355 | DRAWING NO C55445 | REV F

TRU WASTE FACILITY PROJECT 3/20/2012 10:45:24 AM D:\Projects\21082016 – TRU Waste Facility Design Services Project\Models\STORAGE BLDG2\Storage Bldg2-Struct_flores.rvt

GENERAL NOTES

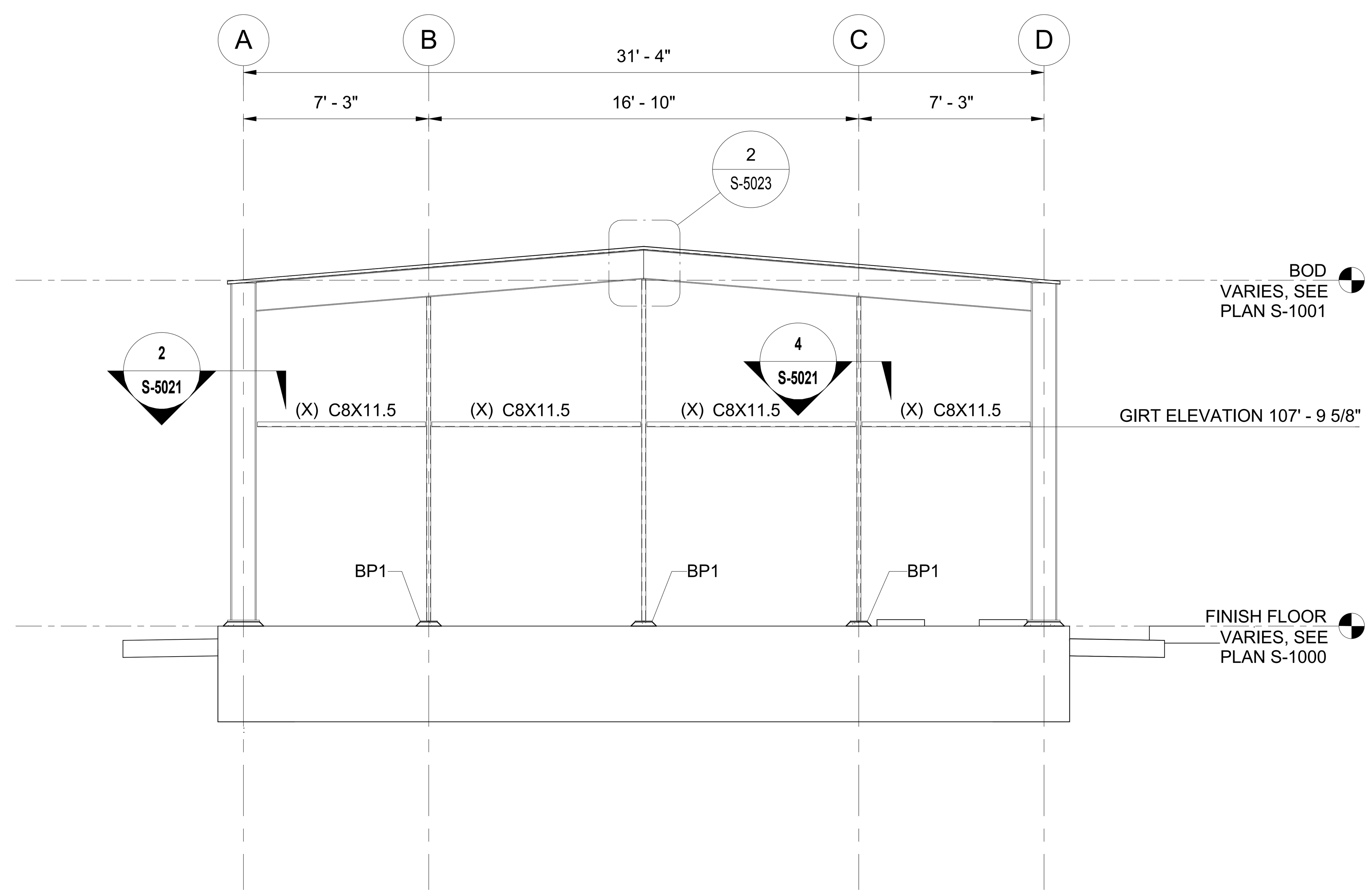
1. ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
2. DETAILS ARE LOCATED ON SHEET S-5000 THRU S-5023.
3. BASE PLATE SCHEDULE LOCATED IN DETAIL 1/S-5000.
4. FINISH FLOOR REFERENCE ELEVATION 100'-0" = 7217.43'. SEE PLANS FOR MAT SLAB ELEVATIONS, FOUNDATION PLAN S-1000 AND CIVIL GRADING PLAN C-1005.
5. IF THIS SHEET IS NOT 24"X36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHICAL SCALE ACCORDINGLY.
6. THIS DRAWING WAS GENERATED IN REVIT 2011.
7. ALL STEEL LABELED WITH (X) ARE CLASSIFIED AS SAFETY SIGNIFICANT PER LANL PSDR (102355-RPT-00012-R0).



WEST ELEVATION

0 1' 2' 4' 6' 8'

1/4"=1'-0"



NORTH ELEVATION

0 1' 2' 4' 6' 8'

1/4"=1'-0"

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

JAMES M. WEEKS
NEW MEXICO
11384
REGISTERED PROFESSIONAL ENGINEER

I, James M. Weeks, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12
Date

James M. Weeks, NM P.E. 11384

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE & CHARACTERIZATION BUILDING

Figure 2-21. Structural Elevations

DRAWN	G.FLORES
DESIGN	J.WEEKS
CHECKED	C.ROSENBERGER
DATE	03-22-12

BLDG 63-0154 TA-63

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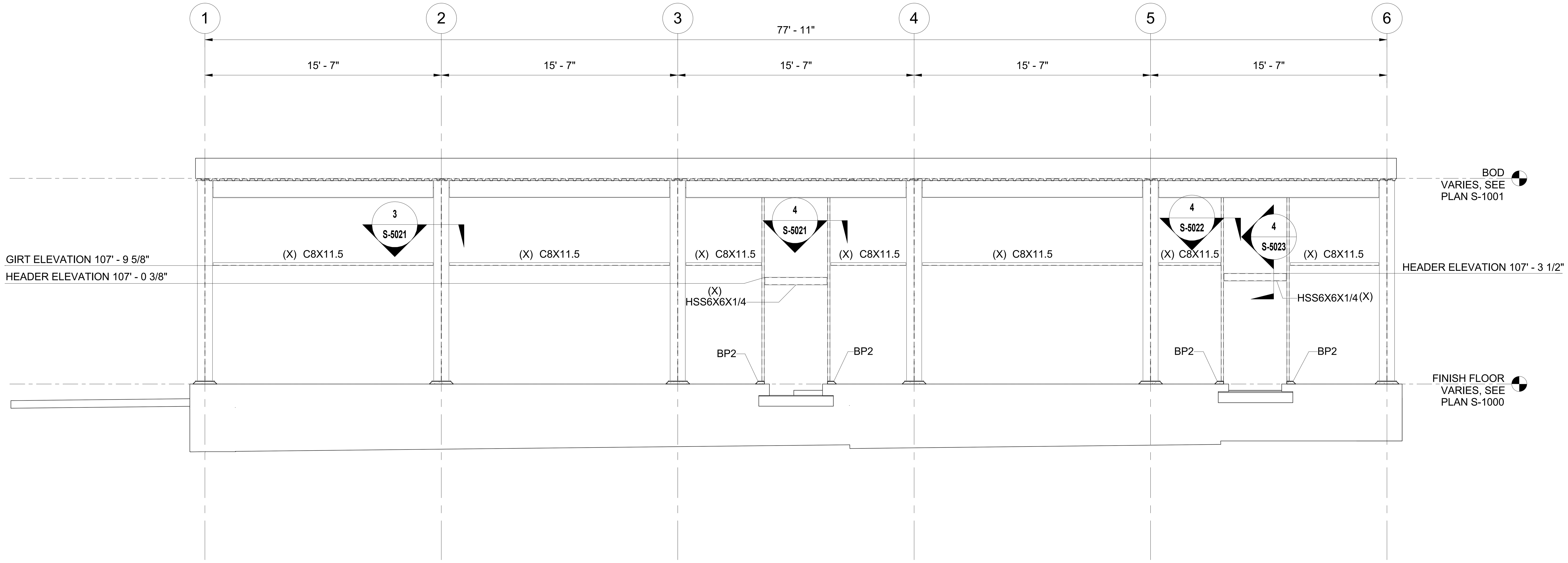
SHEET S-2000
572 OF 740

CLASSIFICATION | REVIEWER | DATE

PROJECT ID 102355 | DRAWING NO C55445 | REV F

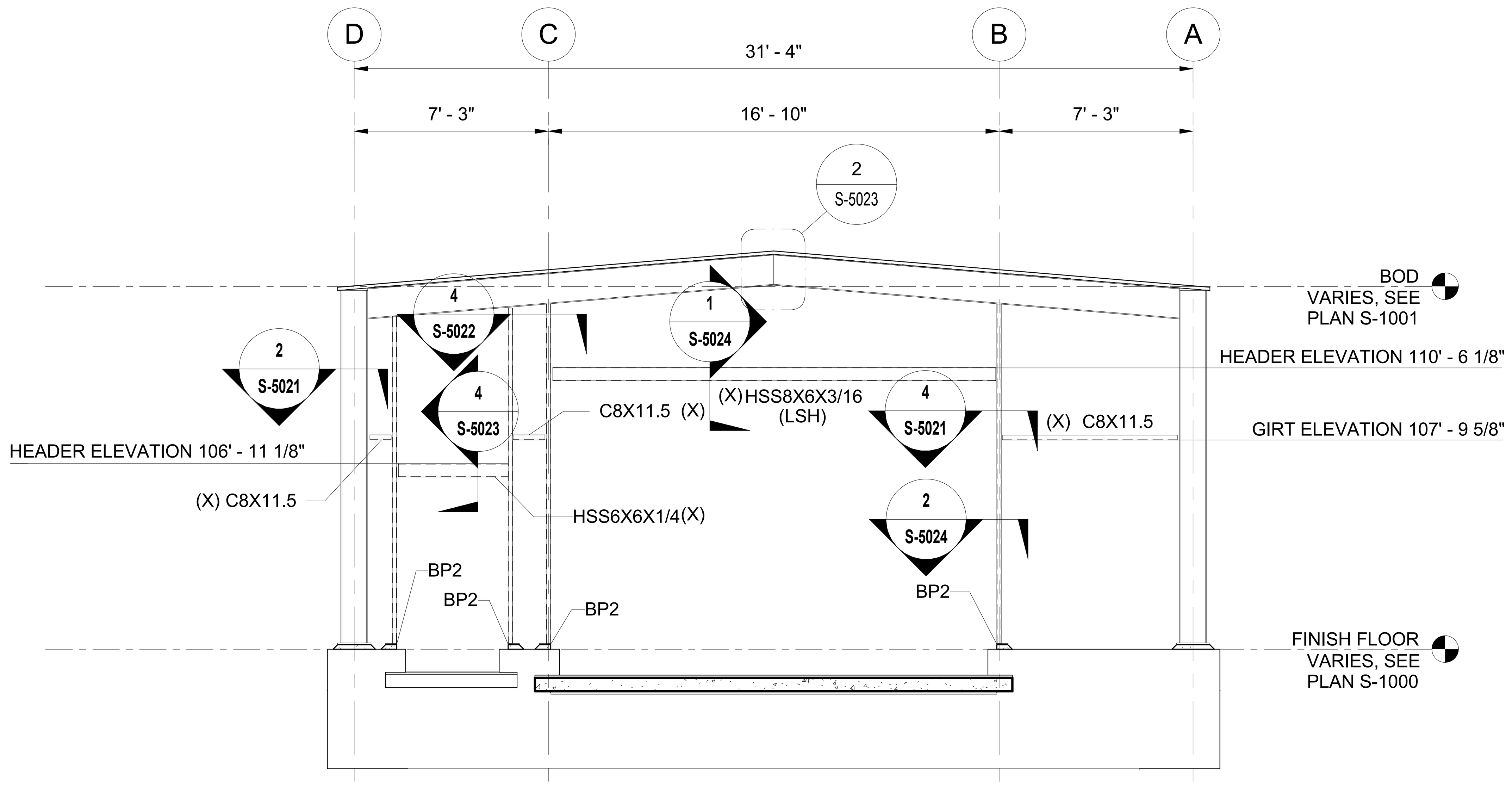
TRU WASTE FACILITY PROJECT 3/20/2012 10:45:27 AM D:\Projects\21082016 – TRU Waste Facility Design Services Project\Models\STORAGE BLDG2\Storage Bldg2-Struct_flores.rvt



EAST ELEVATION

0 1' 2' 4' 6' 8'

1/4"=1'-0"



SOUTH ELEVATION

0 1' 2' 4' 6' 8'

1/4"=1'-0"

GENERAL NOTES

1. ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
2. DETAILS ARE LOCATED ON SHEET S-5000 THRU S-5023.
3. BASE PLATE SCHEDULE LOCATED IN DETAIL 1/S-5000.
4. FINISH FLOOR REFERENCE ELEVATION 100'-0" = 7217.43'. SEE PLANS FOR MAT SLAB ELEVATIONS, FOUNDATION PLAN S-1000 AND CIVIL GRADING PLAN C-1005.
5. IF THIS SHEET IS NOT 24"X36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHICAL SCALE ACCORDINGLY.
6. THIS DRAWING WAS GENERATED IN REVIT 2011.
7. ALL STEEL LABELED WITH (X) ARE CLASSIFIED AS SAFETY SIGNIFICANT PER LANL PSDR (102355-RPT-00012-R0).

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE & CHARACTERIZATION BUILDING

Figure 2-22. Structural Elevations

DRAWN	G.FLORES
DESIGN	J.WEEKS
CHECKED	C.ROSENBERGER
DATE	03-22-12

BLDG 63-0154 TA-63

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JAMES M. WEEKS NEW MEXICO 11384 REGISTERED PROFESSIONAL ENGINEER

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Date

James M. Weeks, NM P.E. 11384

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SHEET S-2001

573 OF 740

CLASSIFICATION | REVIEWER | DATE

PROJECT ID 102355 | DRAWING NO C55445 | REV F

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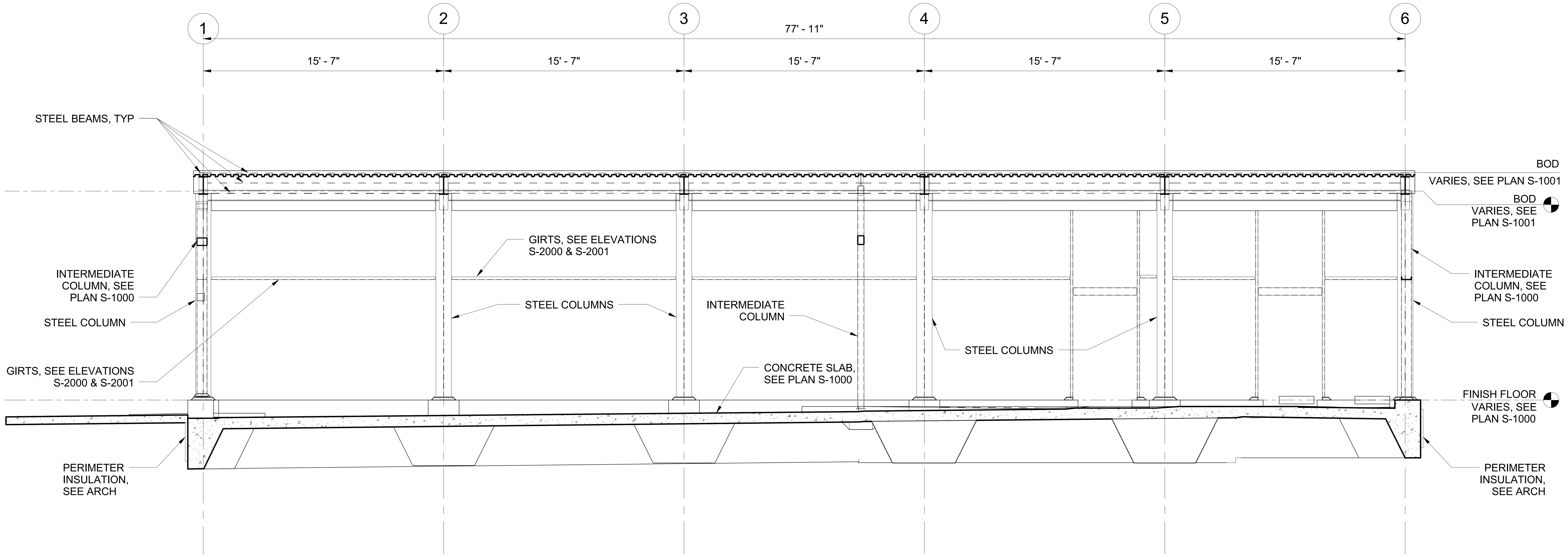
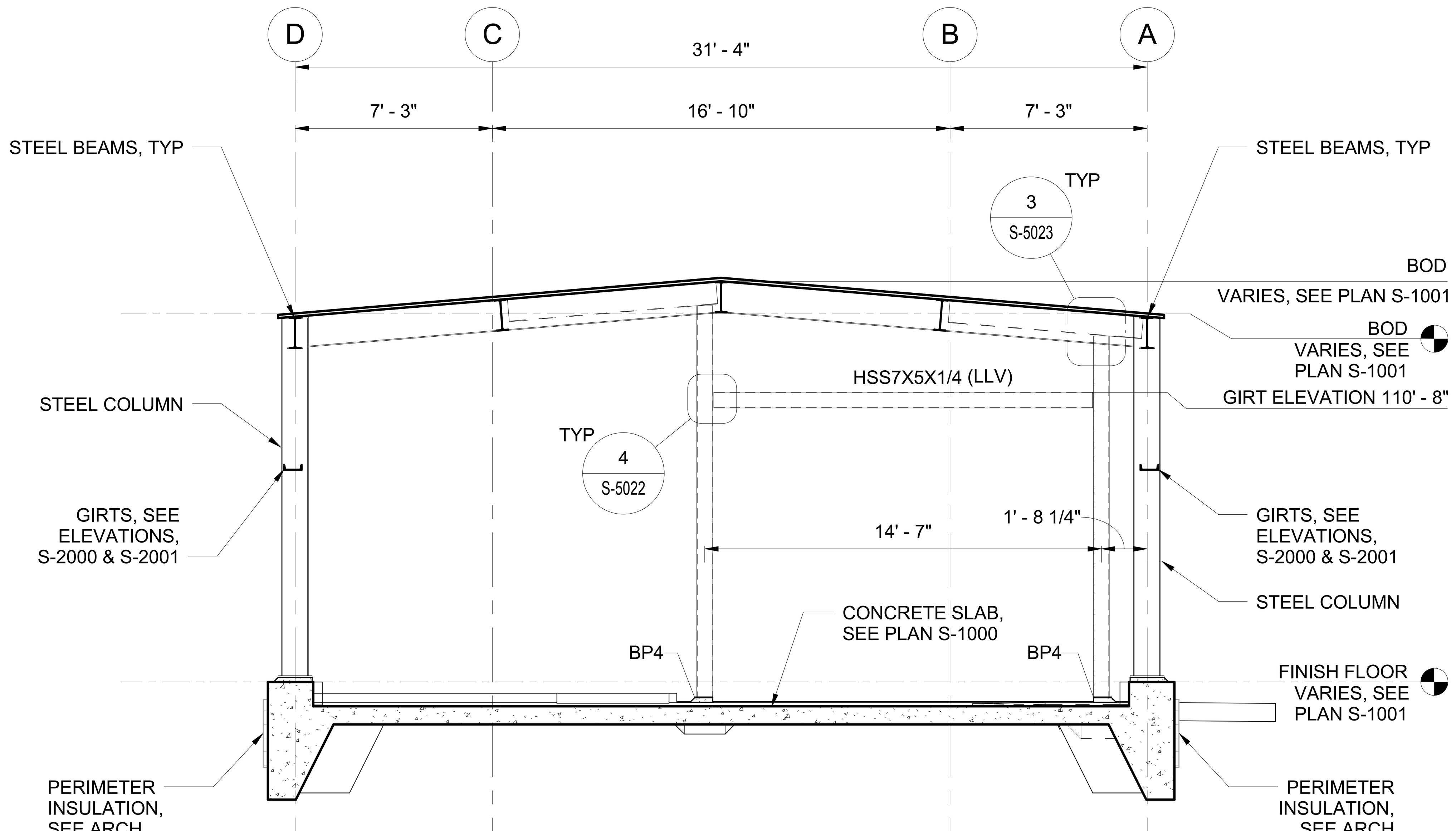


A SECTION
S-1000, S-1001

1/4"=1'-0"



B SECTION
S-1000, S-1001

1/4"=1'-0"

GENERAL NOTES

1. ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
2. DETAILS ARE LOCATED ON SHEETS S-5000 THRU S-5023.
3. FINISH FLOOR REFERENCE ELEVATION 100'-0" = 7217.43'. SEE PLANS FOR MAT SLAB ELEVATIONS, FOUNDATION PLAN S-1000 AND CIVIL GRADING PLAN C-1005.
4. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
5. THIS DRAWING WAS GENERATED IN REVIT 2011.

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JAMES M. WEEKS NEW MEXICO 11384 REGISTERED PROFESSIONAL ENGINEER

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3/21/12
Date

James M. Weeks, NM P.E. 11384

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WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE & CHARACTERIZATION BUILDING
Figure 2-23. Structural Sections

DRAWN	G.FLORES
DESIGN	J.WEEKS
CHECKED	C.ROSENBERGER
DATE	03-22-12

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SHEET S-3000
574 OF 740

CLASSIFICATION	REVIEWER	DATE
PROJECT ID 102355	DRAWING NO C55445	REV F

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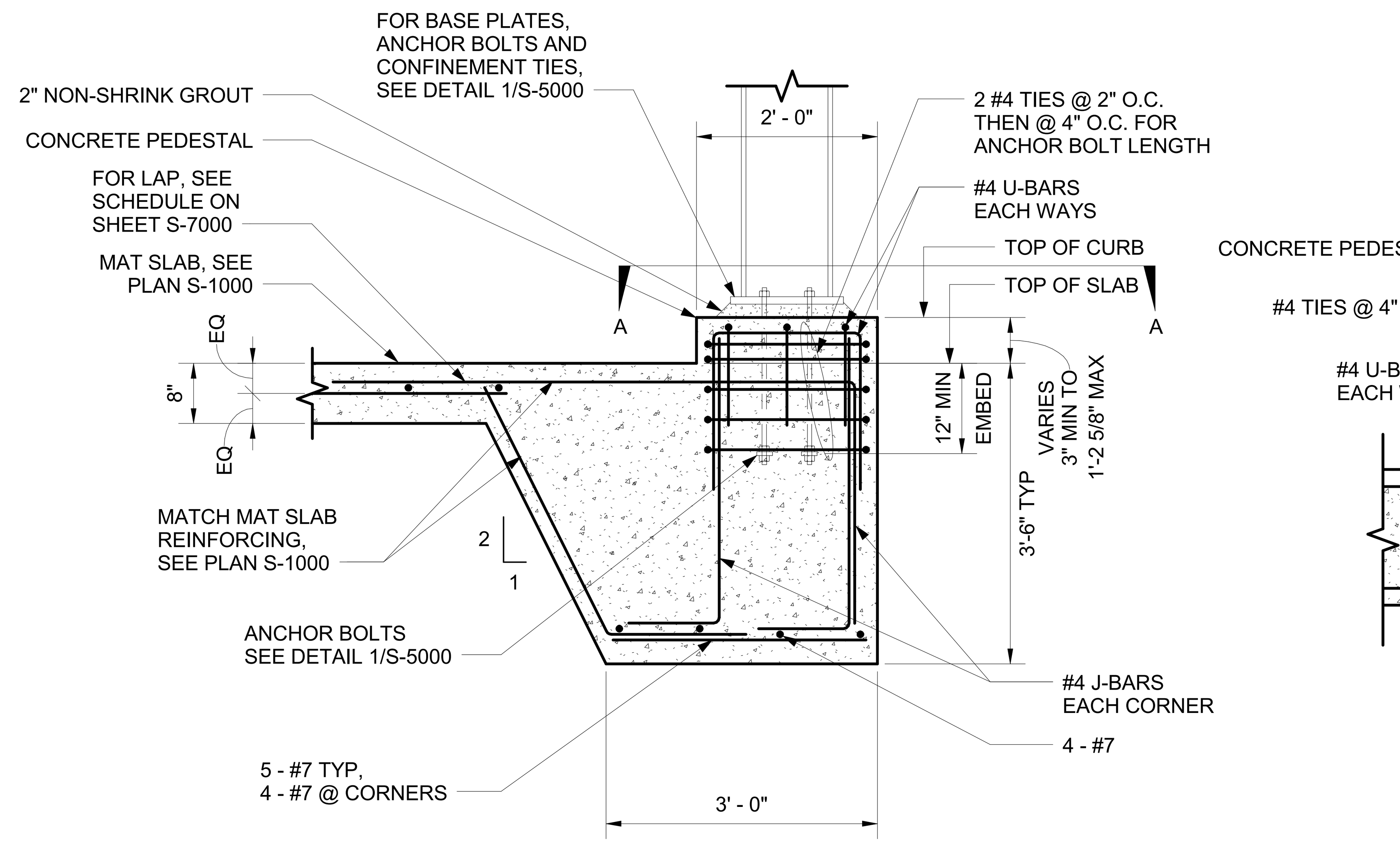
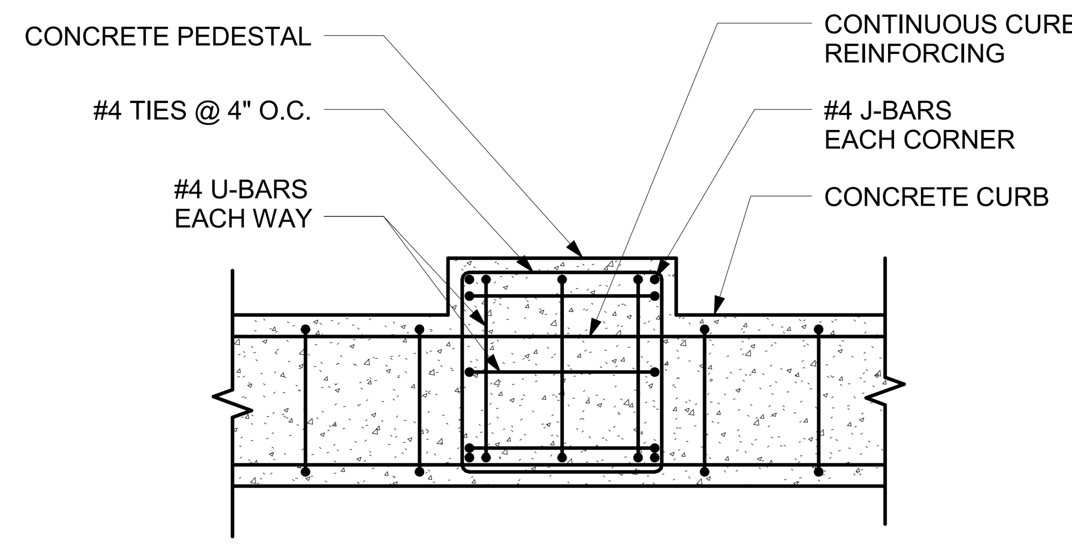




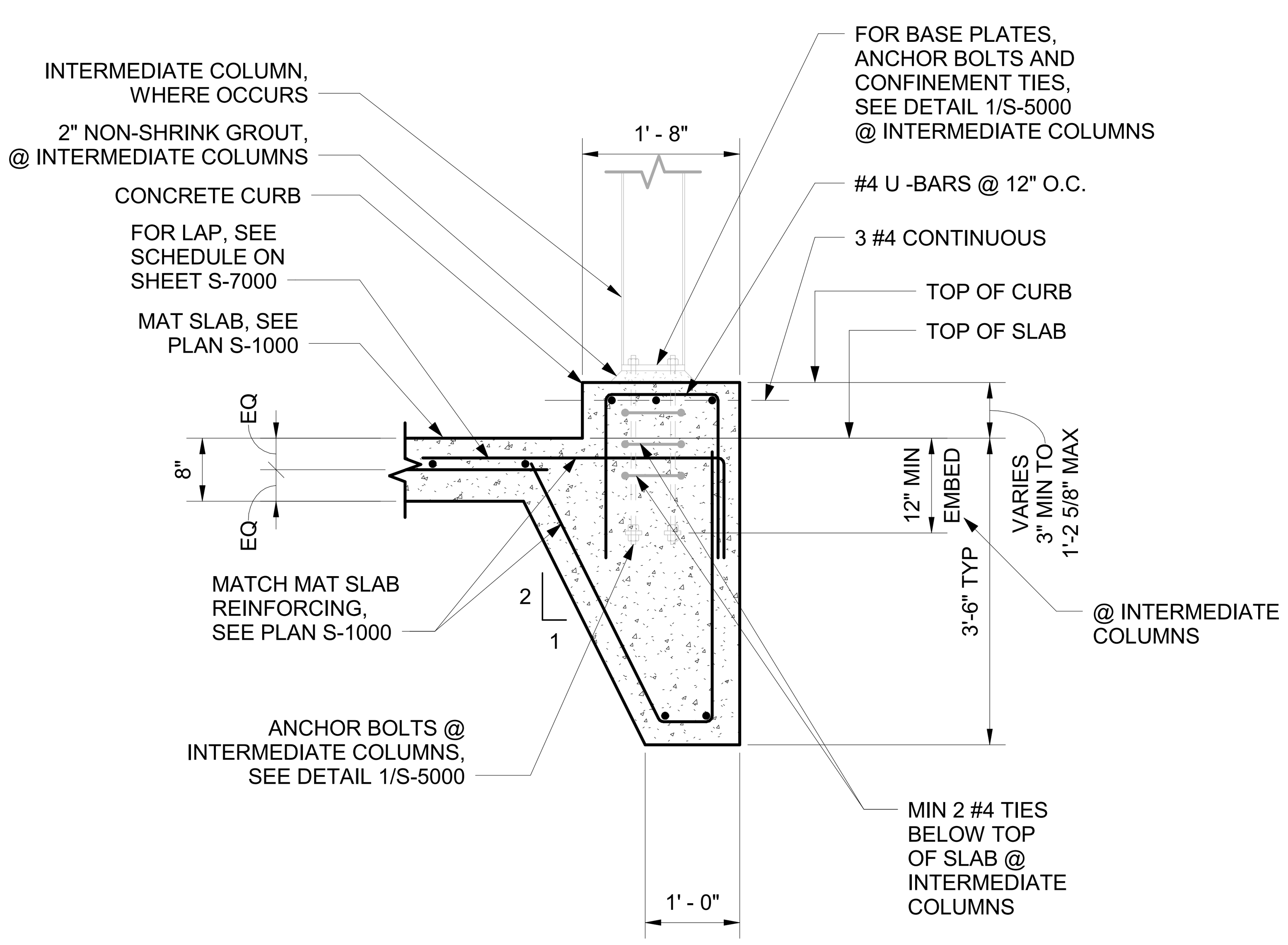
NOTE: SIM @ CORNER CONDITIONS

PLAN VIEW A-A

NOTE: FOR EXCAVATION REQUIREMENTS SEE DETAIL 2/S-5000.

1 S-1000 THICKENED COLUMN MAT

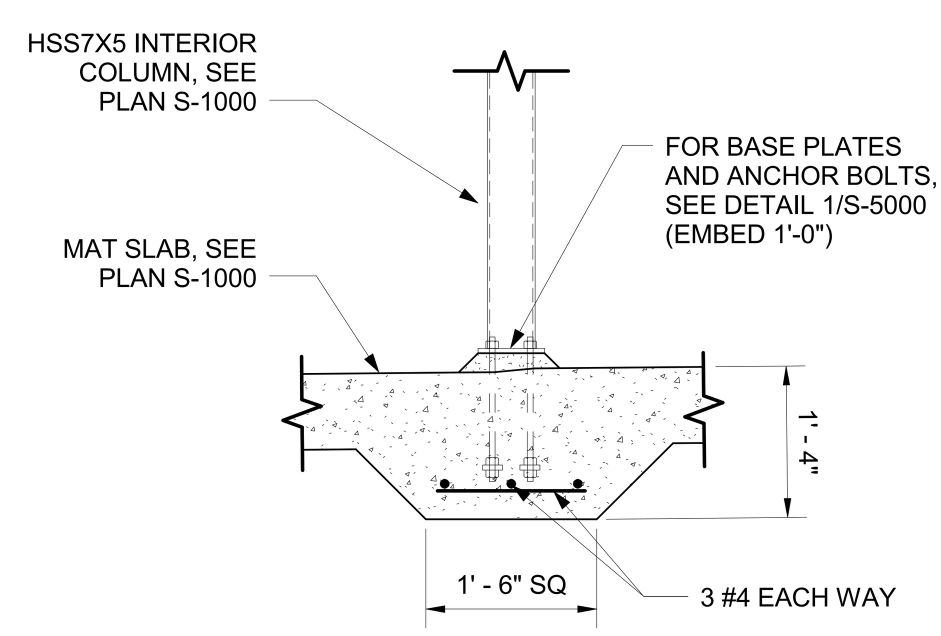
1' 6" 0 1' 2'
3/4"=1'-0"



NOTE: SEE DETAIL 2/S-5000 FOR EXCAVATION REQUIREMENTS.

2 S-1000 MAT SLAB TURN DOWN AT COLUMN

1' 6" 0 1' 2'
3/4"=1'-0"



SLAB REINFORCING NOT SHOWN FOR CLARITY

3 S-1000 INTERIOR COLUMN

1' 6" 0 1' 2'
3/4"=1'-0"

GENERAL NOTES

1. ABBREVIATIONS AND LEGEND ARE LOCATED ON SHEET S-0001 AND GENERAL STRUCTURAL NOTES ARE LOCATED ON SHEET S-0002.
2. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
3. THIS DRAWING WAS GENERATED IN REVIT 2011.

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JAMES M. WEEKS NEW MEXICO 11384 REGISTERED PROFESSIONAL ENGINEER

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3/21/12 Date — James M. Weeks, NM P.E. 11384

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WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT	DRAWN	G.FLORES
STORAGE & CHARACTERIZATION BUILDING	DESIGN	J.WEEKS
Figure 2-24. Foundation Details	CHECKED	C.ROSENBERGER
BLDG 63-0154 TA-63	DATE	03-22-12

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SHEET S-5010
577 OF 740

CLASSIFICATION | REVIEWER | DATE
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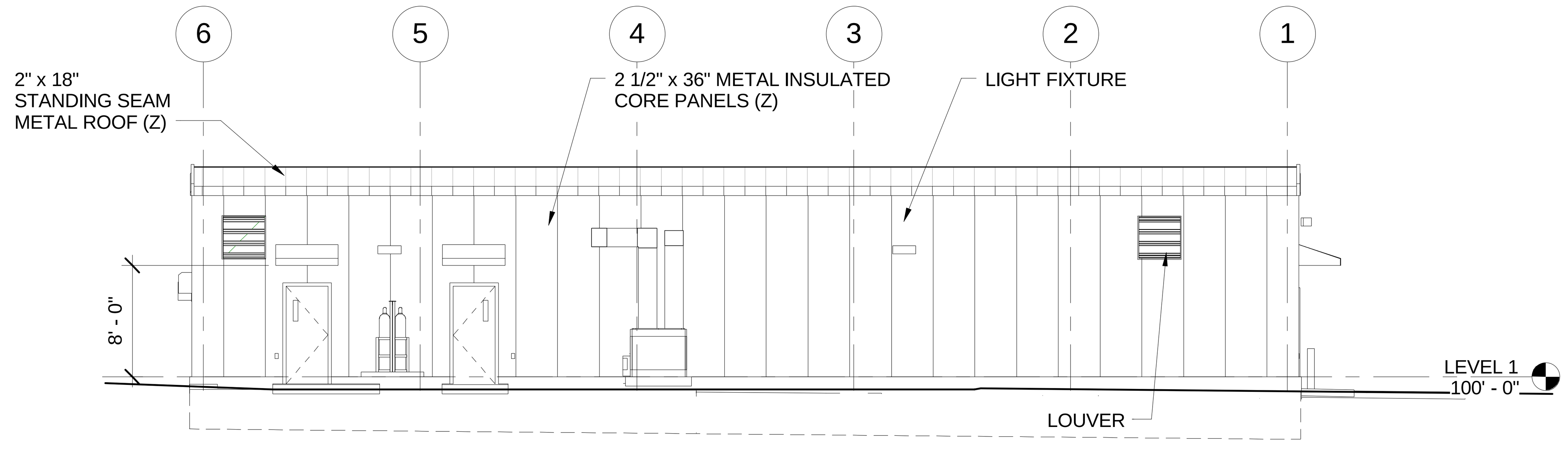
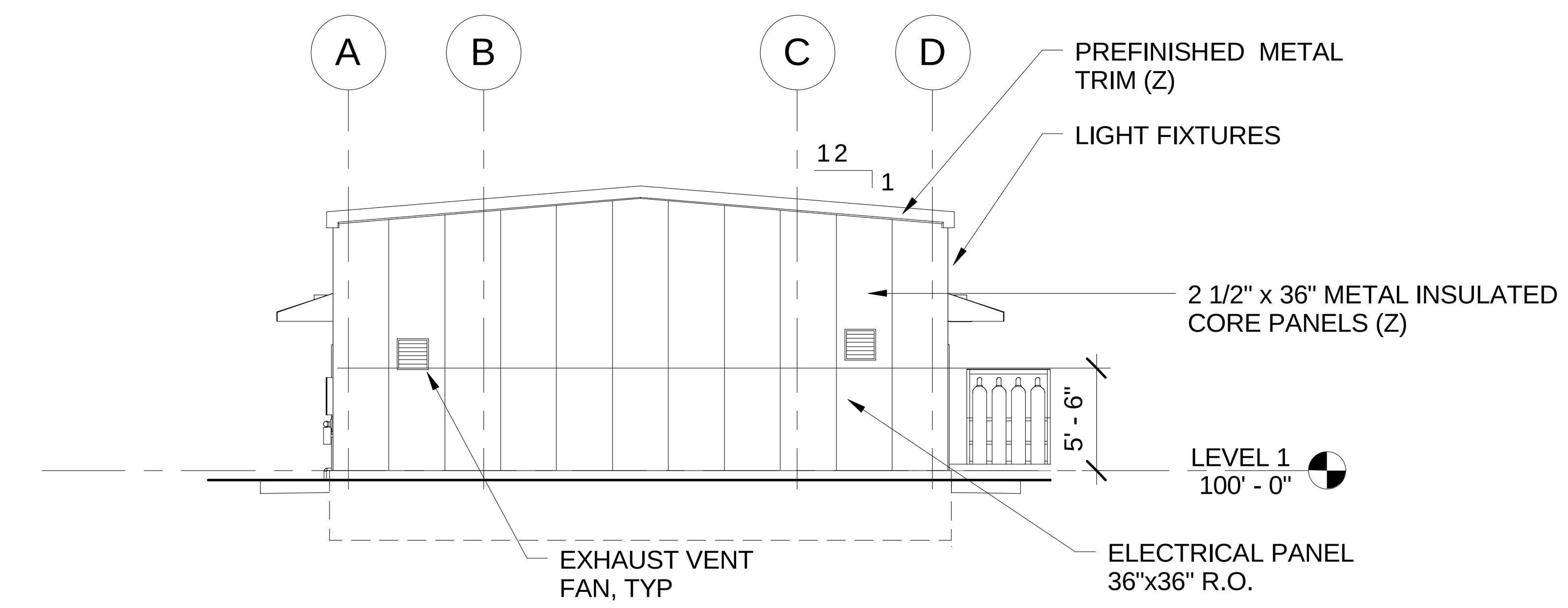
GENERAL NOTES

1. IF THIS SHEET IS NOT 24" X 36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
2. THIS DRAWING WAS GENERATED IN REVIT 2011 AND DOES NOT FOLLOW LANL DRAFTING STANDARDS.
3. BUILDING COMPONENTS LABELED WITH (Z) ARE SAFETY SIGNIFICANT PER LANL PSDR (102355-RPT-00012-R0)



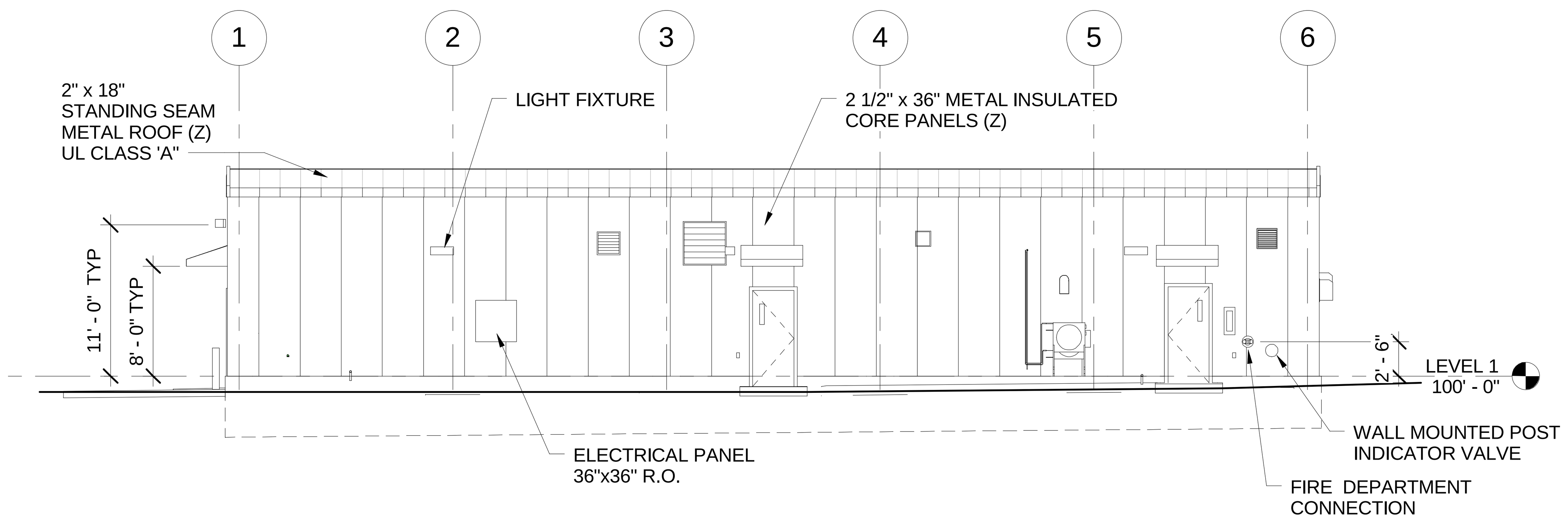
WEST ELEVATION

4' 2' 0 4' 8' 12'
1/8"=1'-0"



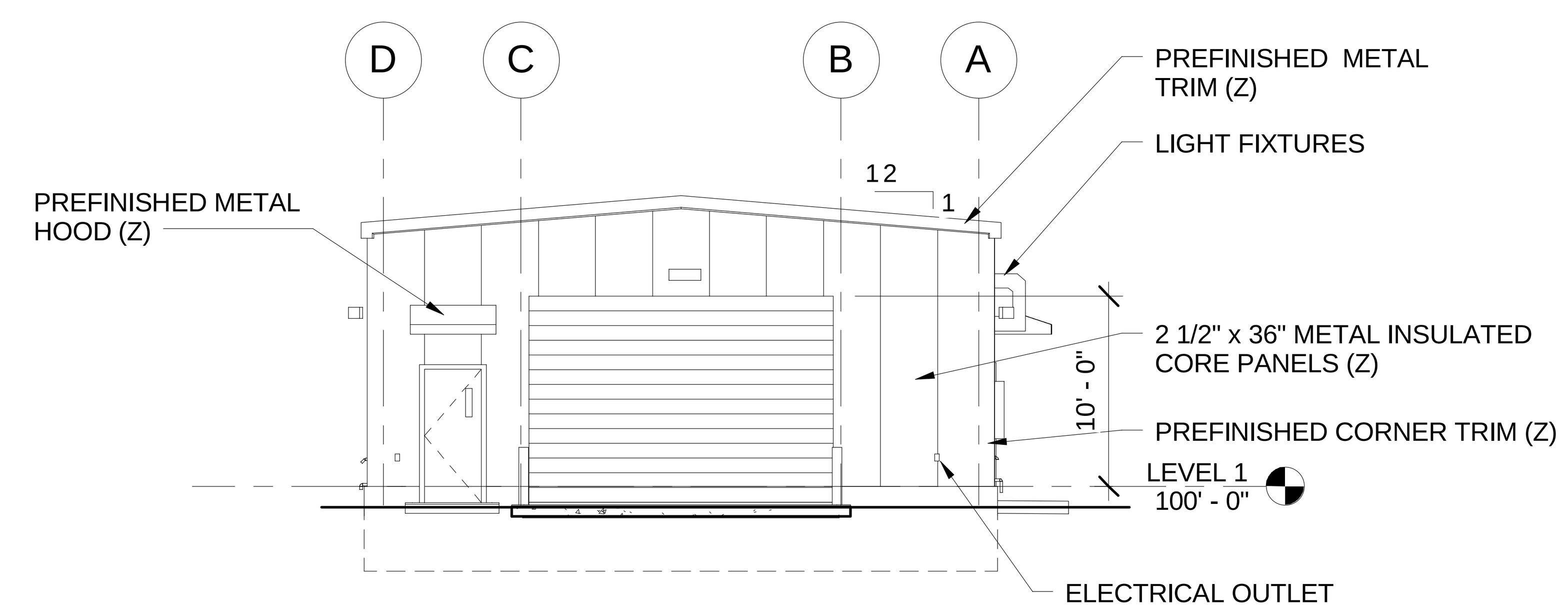
NORTH ELEVATION

4' 2' 0 4' 8' 12'
1/8"=1'-0"



EAST ELEVATION

4' 2' 0 4' 8' 12'
1/8"=1'-0"



SOUTH ELEVATION

4' 2' 0 4' 8' 12'
1/8"=1'-0"

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WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE AND CHARACTERIZATION BUILDING

Figure 2-25. Elevations

DRAWN	A. GALLEGOS
DESIGN	D. WALLERSTEDT
CHECKED	T. LEACH
DATE	03-22-12

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STATE OF NEW MEXICO
DAVID L. WALLERSTEDT
NO. 3132
REGISTERED ARCHITECT

I, David L. Wallerstedt, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3-21-12
Date

David L. Wallerstedt, NM R.A. 3132

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PO Box 1663
Los Alamos, New Mexico 87545

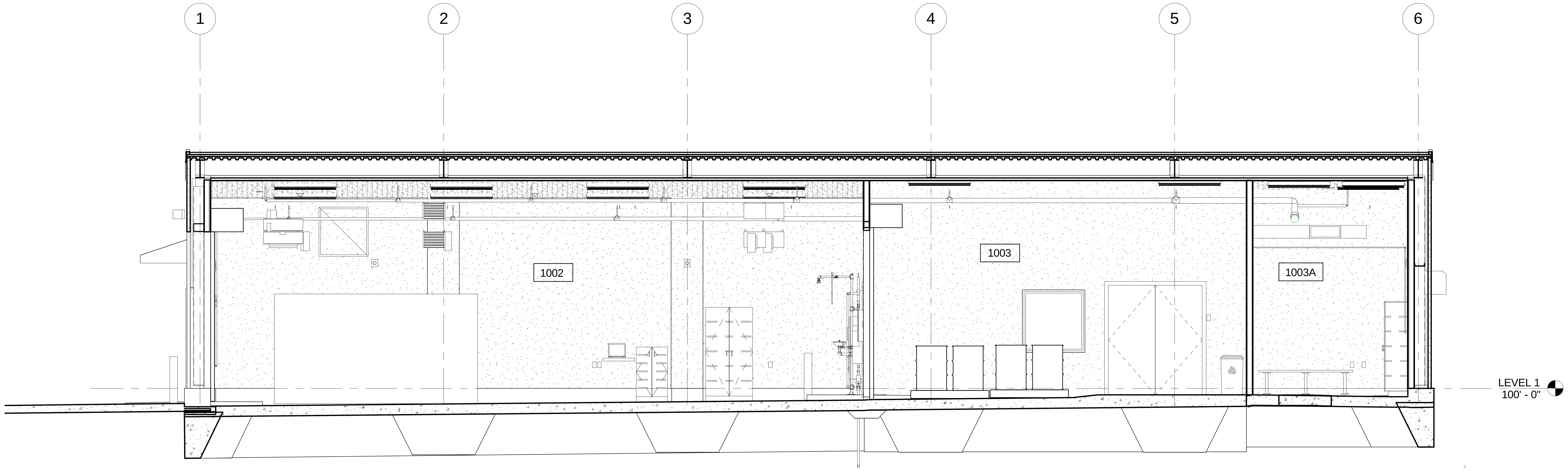
SHEET A-2000
593 OF 740

CLASSIFICATION	REVIEWER	DATE	
PROJECT ID	DRAWING NO		REV
102355	C55445		F

TRU WASTE FACILITY PROJECT 3/20/2012 4:06:21 PM P:_TECHNOLOGY\LANL\102355 - TRU Waste Facility\500 CAD\STORAGE BLDG -TE ROOM\ARCH\REVIT\Storage Bldg 2 - Arch.rvt

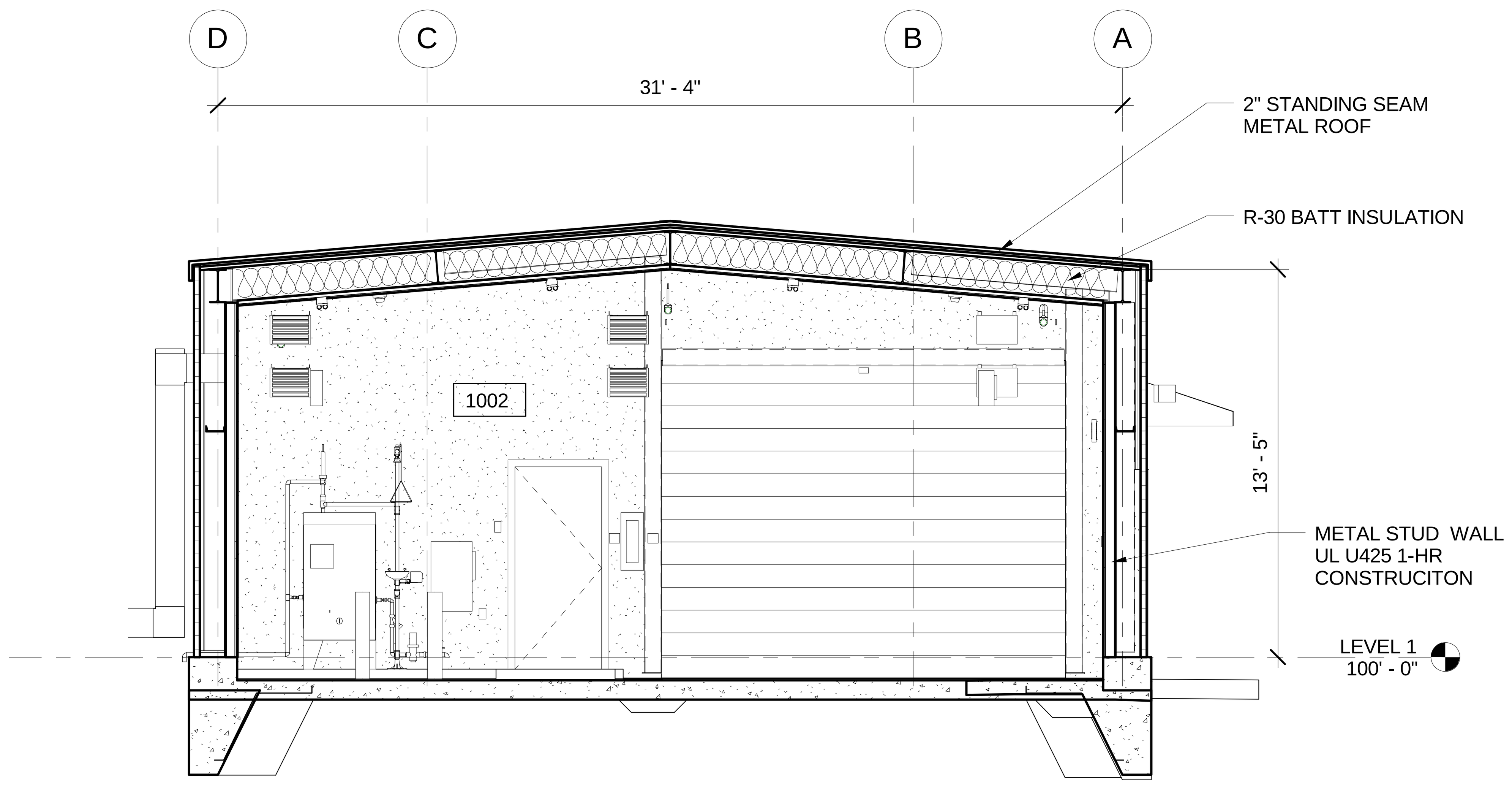
GENERAL NOTES

1. IF THIS SHEET IS NOT 24" X 36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
2. THIS DRAWING WAS GENERATED IN REVIT 2011 AND DOES NOT FOLLOW LANL DRAFTING STANDARDS.



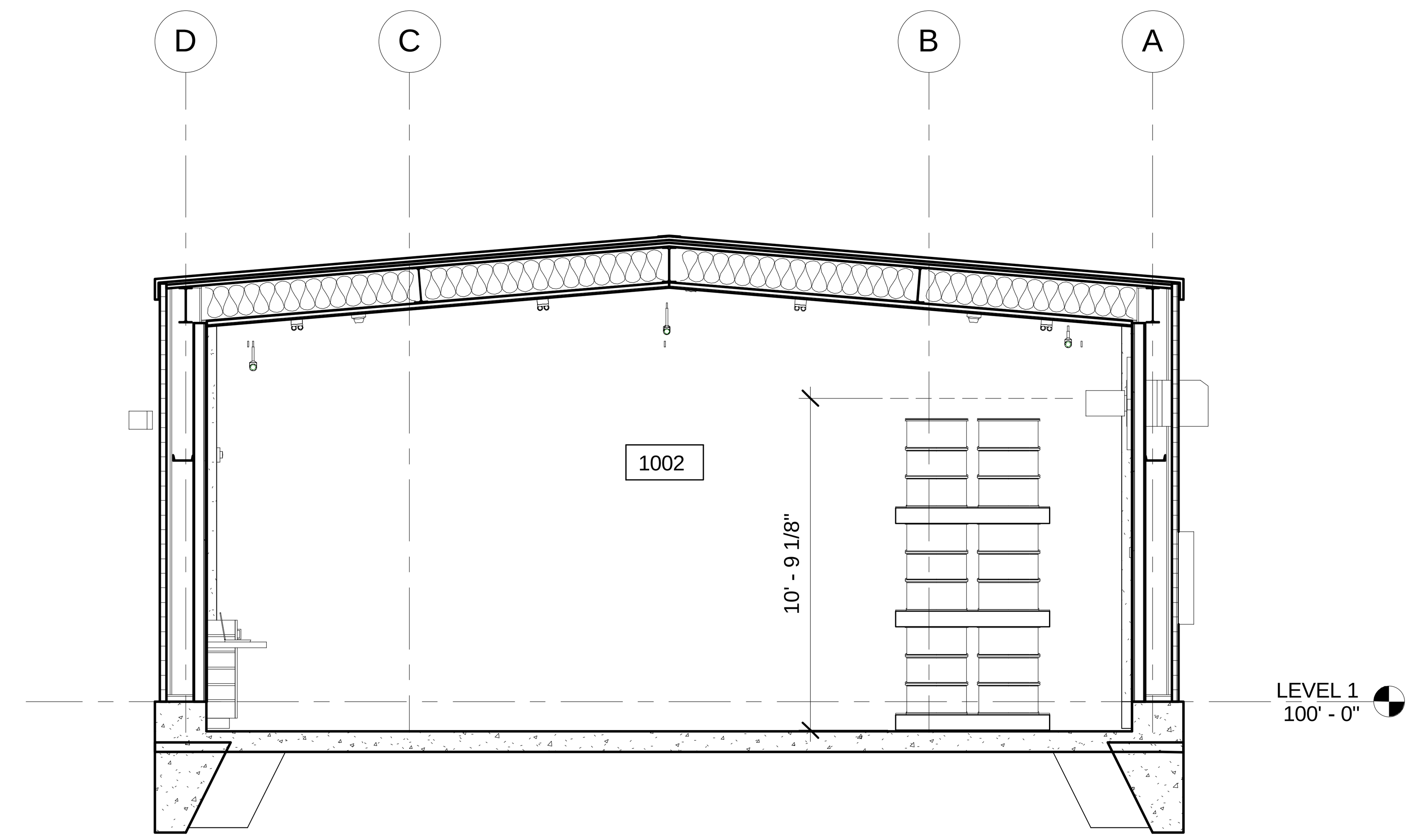
A / A-1050 **BUILDING SECTION**

0 1' 2' 4' 6' 8'
1/4"=1'-0"



B / A-1050 **BUILDING SECTION**

0 1' 2' 4' 6' 8'
1/4"=1'-0"



C / A-1050 **BUILDING SECTION**

0 1' 2' 4' 6' 8'
1/4"=1'-0"

STATE OF NEW MEXICO
DAVID L. WALLERSTEDT
NO. 3132
REGISTERED ARCHITECT

I, David L. Wallerstedt, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3-21-12 — Date
David L. Wallerstedt, NM R.A. 3132

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WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE AND CHARACTERIZATION BUILDING

Figure 2-26. Building Sections

DRAWN	A. GALLEGOS
DESIGN	D. WALLERSTEDT
CHECKED	T. LEACH
DATE	03-22-12

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APPROVED FOR RELEASE

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Los Alamos, New Mexico 87545

SHEET A-3000
594 OF 740

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PROJECT ID 102355 | DRAWING NO C55445 | REV F

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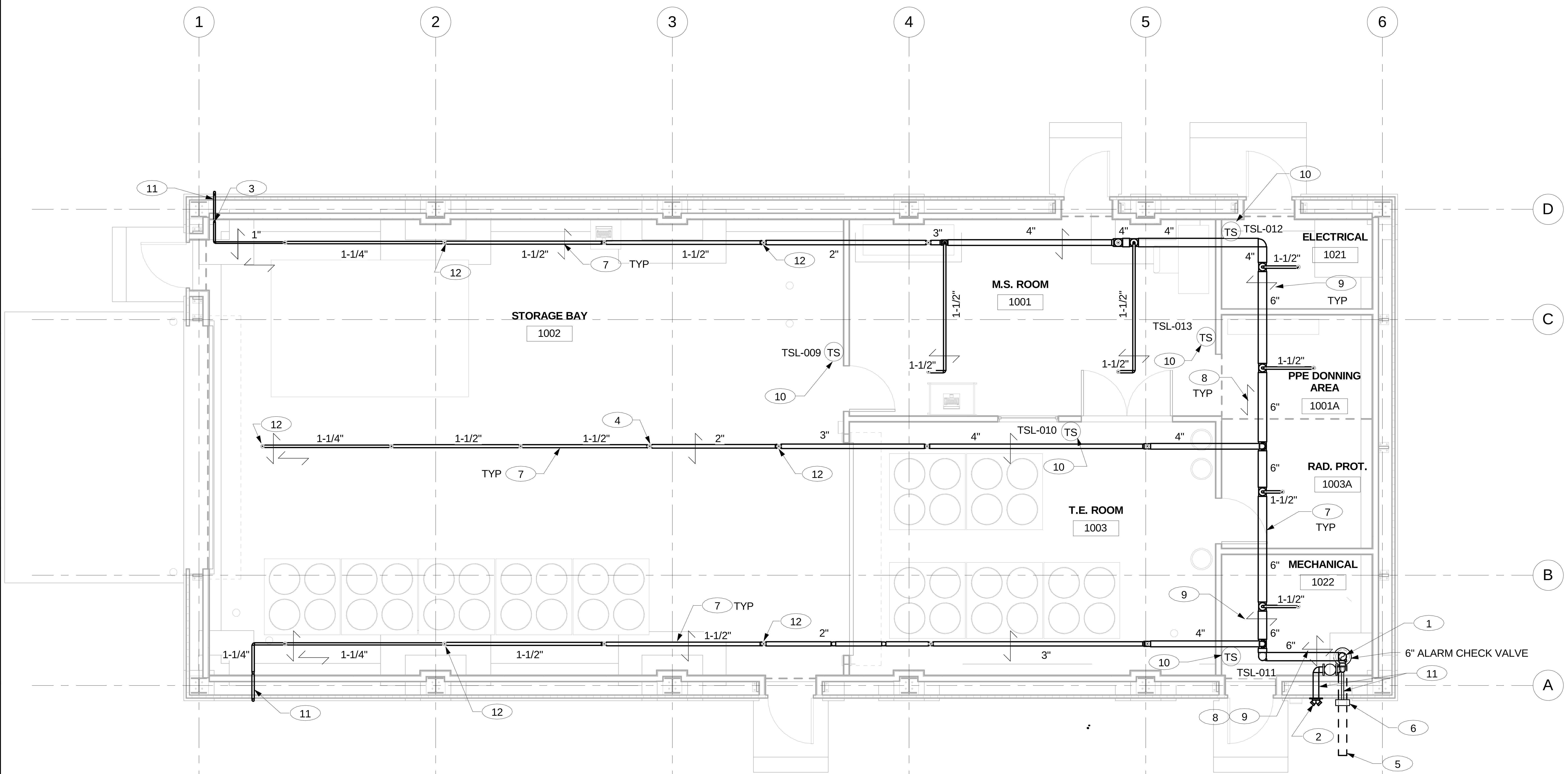
TRU WASTE FACILITY PROJECT

GENERAL NOTES:

1. IF THIS SHEET IS NOT 24"x36", IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
2. THIS DRAWING WAS GENERATED IN REVIT 2011.
3. SEE SHEETS F-0001 AND F-0002 FOR ABBREVIATIONS, GENERAL NOTES, LEGEND AND STRUCTURAL BRACING.
4. FOR SEISMIC BRACING SEE DETAILS 2 AND 3 ON SHEET F-5000.
5. SEE CALCULATION 11-001-FCAL-001 FOR HYDRAULIC CALCULATIONS.
6. SEE DETAIL 4 ON SHEET F-5000 FOR FLOOR PENETRATION DETAIL.

KEYED NOTES:

1. 6" FIRE PROTECTION RISER, SEE DETAIL 1 ON SHEET F-5000.
2. FIRE DEPARTMENT CONNECTION, SEE WALL PENETRATION DETAIL 5 ON SHEET F-5000.
3. INSPECTOR'S TEST STATION, SEE WALL PENETRATION DETAIL 5 ON SHEET F-5000.
4. UPRIGHT SPRINKLER, TYPICAL.
5. SEE SHEET C-1007 FOR CONTINUATION.
6. WALL MOUNTED POST INDICATOR VALVE, SEE WALL PENTRATION DETAIL 5 ON SHEET F-5000.
7. FIRE PROTECTION COMPONENTS ARE CLASSIFIED AS SAFETY SIGNIFICANT PER LANL PSDR (102355-RPT-00012-RO).
8. SEE DETAIL 2 ON SHEET F-5000.
9. SEE DETAIL 3 ON SHEET F-5000.
10. SAFETY SIGNIFICANT TEMPERATURE SENSOR.
11. SEE DETAIL 5 ON SHEET F-5000 FOR PIPE PENETRATION.
12. INSTALL HIGH TEMPERATURE RATED (286° F) SPRINKLER HEAD NEAR UNIT HEATER.



FIRE PROTECTION PLAN

0 1' 2' 4' 6' 8'
1/4"=1'-0"

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WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE & CHARACTERIZATION BUILDING
Figure 2-27. Fire Protection Plan

BLDG 63-0154 TA-63

DRAWN	D.BROERMAN
DESIGN	E. MIYODA
CHECKED	C. MOYERS
DATE	03-22-12

EDWARD M. MIYODA NEW MEXICO 8263 REGISTERED PROFESSIONAL ENGINEER

I, Edward M. Miyoda, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3-21-12 Edward Miyoda
Date Edward M. Miyoda, NM P.E. 8263

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APPROVED FOR RELEASE

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PO Box 1663 Los Alamos, New Mexico 87545

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603 OF 740

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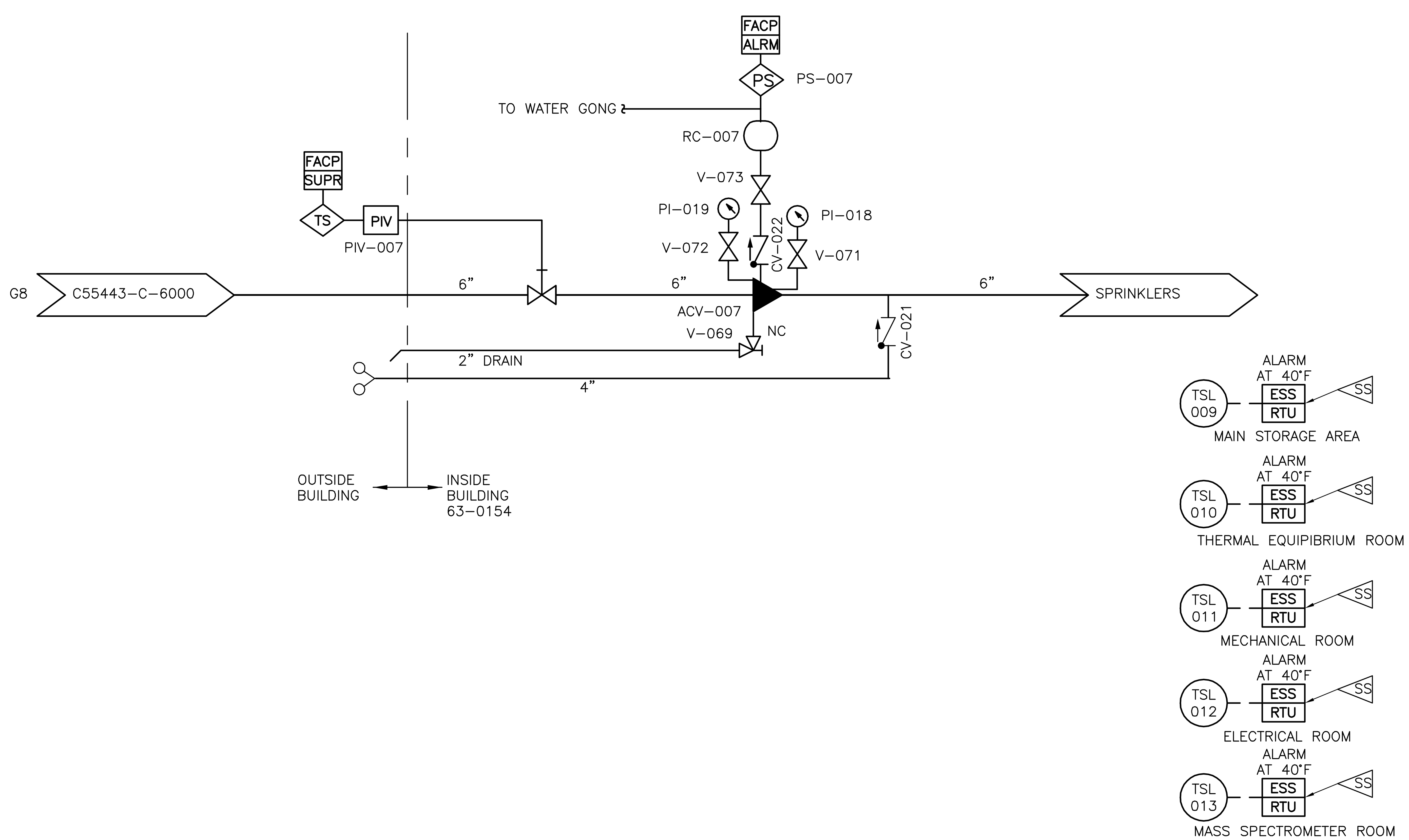
PROJECT ID 102355 | DRAWING NO C55445 | REV F

File Location: P:_TECHNOLOGY\LANL\102355 - TRU WASTE FACILITY\500 CAD\STORAGE BLDG -TE ROOM\M-P-FIRE\ACAD\55445-F-6000-RE.DWG
Plotted By: MOYERS, CHARLES; Plot Date: Tuesday, March 20, 2012; Plot CTB File: LANL D-SIZE.CTB; Page Setup Name: PDF; InsUnits: 1; LTScale: 1.000000 Measurement: 0;



FIRE PROTECTION P&ID
SCALE: NONE

EDWARD M. MIYODA
NEW MEXICO
8263
REGISTERED PROFESSIONAL ENGINEER

I, Edward M. Miyoda, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3-21-12 Edward Miyoda
Date Edward M. Miyoda, NM P.E. 8263

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WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
STORAGE & CHARACTERIZATION BUILDING
Figure 2-28. Fire Protection P & ID
BLDG 63-0154 TA-63

DRAWN	D. JENSEN
DESIGN	E. MIYODA
CHECKED	C. MOYERS
DATE	03-22-12

SUBMITTED
APPROVED FOR RELEASE

Los Alamos NATIONAL LABORATORY
PO Box 1663
Los Alamos, New Mexico 87545

SHEET F-6000
606 OF 740

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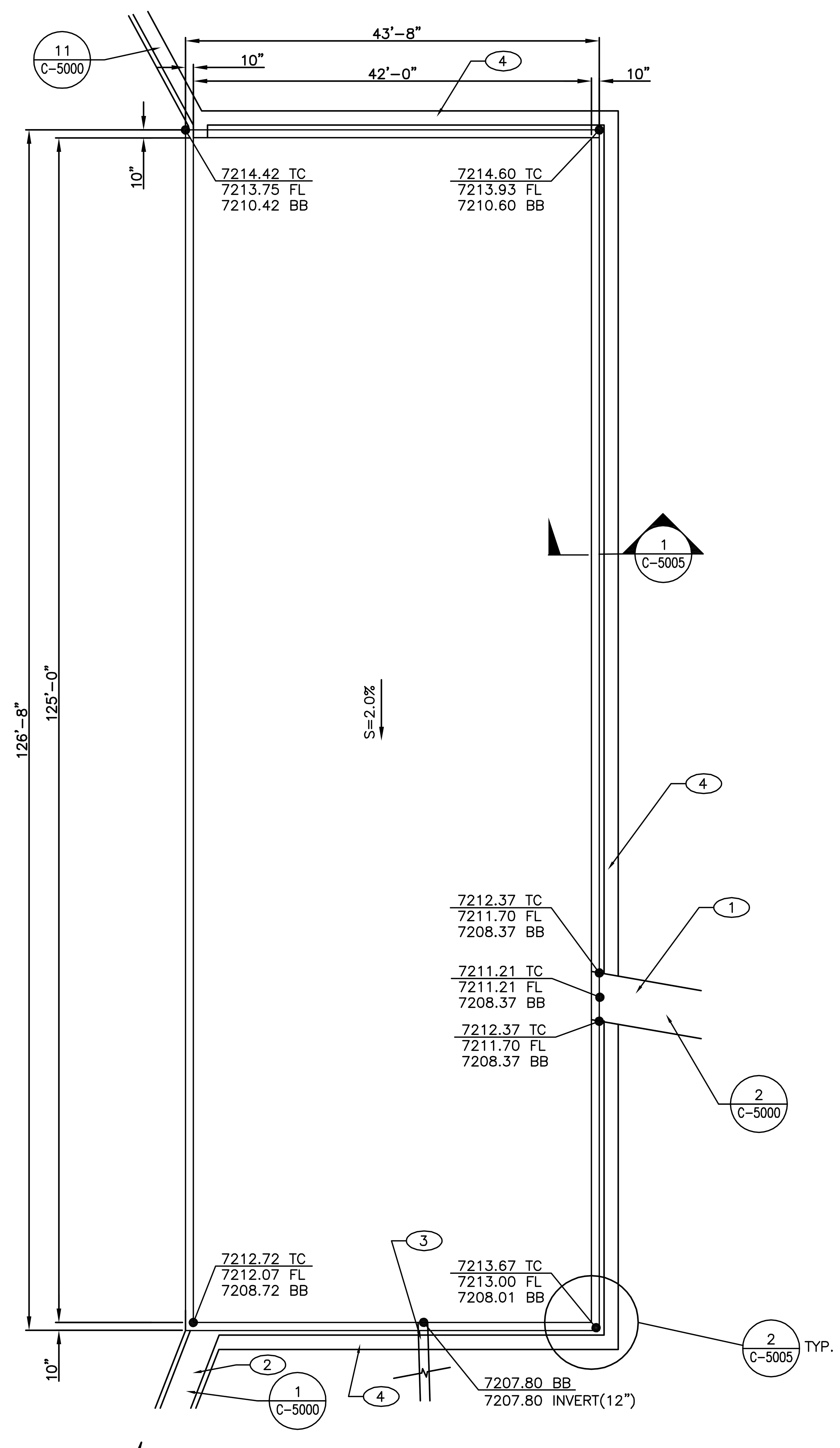
REVIEWER XXX
DATE

PROJECT ID 102355
DRAWING NO C55445
REV F



RETENTION BASIN FOUNDATION PLAN

SCALE: NONE

KEYED NOTES

1. 5' CONCRETE VALLEY GUTTER
2. CONCRETE SPILL WAY
3. 12" CULVERT PIPE WITH GATE VALVE
4. CONCRETE CURB & GUTTER

GENERAL STRUCTURAL NOTES

1. CODES AND STANDARDS:

   LANL ENGINEERING STANDARDS MANUAL (ESM)–ISD 341–2, CHAPTER 5 SECTION 11.

   DOE–STD–1020 "NATURAL PHENOMENA HAZARDS DESIGN AND EVALUATION CRITERIA FOR DEPARTMENT OF ENERGY FACILITIES"

   DOE–STD–1201–93 "NATURAL PHENOMENA HAZARDS PERFORMANCE CATEGORIZATION CRITERIA FOR STRUCTURES, SYSTEMS AND COMPONENTS"

   DOE–STD–1189–2008, "INTEGRATION OF SAFETY INTO THE DESIGN PROCESS"

   ASCE–7–05 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES

   INTERNATIONAL BUILDING CODE IBC–2006

   ACI 318–08 "BUILDING CODE REQUIREMENTS FOR STRUCTURE CONCRETE" CODE AND COMMENTARY

   ASCE 4–98 SEISMIC ANALYSIS OF SAFETY–RELATED NUCLEAR STRUCTURES AND COMMENTARY

   ACI 349–01 CODE REQUIREMENTS FOR NUCLEAR SAFETY RELATED CONCRETE STRUCTURES

   BROOKHAVEN NATIONAL LABORATORY, BNL–BNL–52361, SEISMIC DESIGN AND EVALUATION GUIDELINES FOR THE DOE HIGH–LEVEL WASTE STORAGE TANKS AND APPURTENANCES

   GEOTECHNICAL REPORT WNNNM JV NO.: 11–002–GRPT–002

   ACI 350.2R–04 CONCRETE STRUCTURES FOR CONTAINMENT OF HAZARDOUS MATERIALS

2. DESIGN DATA:

   REINFORCED CONCRETE FOUNDATIONS – NOMINAL WEIGHT (150 pcf)
   REINFORCED CONCRETE COMPRESSIVE STRENGTH f'c = 4.0 ksi AT 28 DAYS

   RETENTION BASIN CONCRETE SHALL REQUIRE A SPECIAL MIX DESIGN SUBMITTAL FOR APPROVAL PER THE PROJECT SPECIAL PROVISIONS THAT INCORPORATES A WATERPROOFING CHEMICAL ADMIXTURE.

   GRADE 60 REINFORCING STEEL–DEFORMED BARS AND STIRRUPS, ASTM A615, fy = 60 ksi

   MINIMUM SPLICE LENGTH FOR CONTINUOUS #5 REINFORCING = 2'–2" AND FOR #6 REINFORCING = 2'–7".

   RETENTION BASIN SLAB & WALLS SHALL BE WATER CURED PER SPECIFICATIONS.

   DO NOT BACKFILL WALLS UNTIL CONCRETE HAS OBTAINED FULL 28 DAY STRENGTH. BACKFILL EVENLY AROUND BASIN.

   SEISMIC LOADS (ESM CHAPTER 5 – STRUCTURE, ASCE 7–05, SECTION 12 REFER TO PROJECT DESIGN CALCULATIONS.

   SEE SHEET C–1000 FOR LOCATION AND LAYOUT OF RETENTION BASIN.

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

EDWARD CORDOVA NEW MEXICO 15788 REGISTERED PROFESSIONAL ENGINEER

I, Edward Cordova, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/12
Date
Edward Cordova, NM P.E. 15788

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
PROJECT SITE

Figure 2-29. Retention Basin Foundation Plan

DRAWN	C HOGUE
DESIGN	T FREEBORN
CHECKED	C TEPEN
DATE	03–22–12

BLDG TA–63
SUBMITTED
APPROVED FOR RELEASE

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PO Box 1663
Los Alamos, New Mexico 87545

SHEET C–1017
25 OF 740

CLASSIFICATION XXX
REVIEWER XXX
DATE

PROJECT ID 102355
DRAWING NO C55443
REV F

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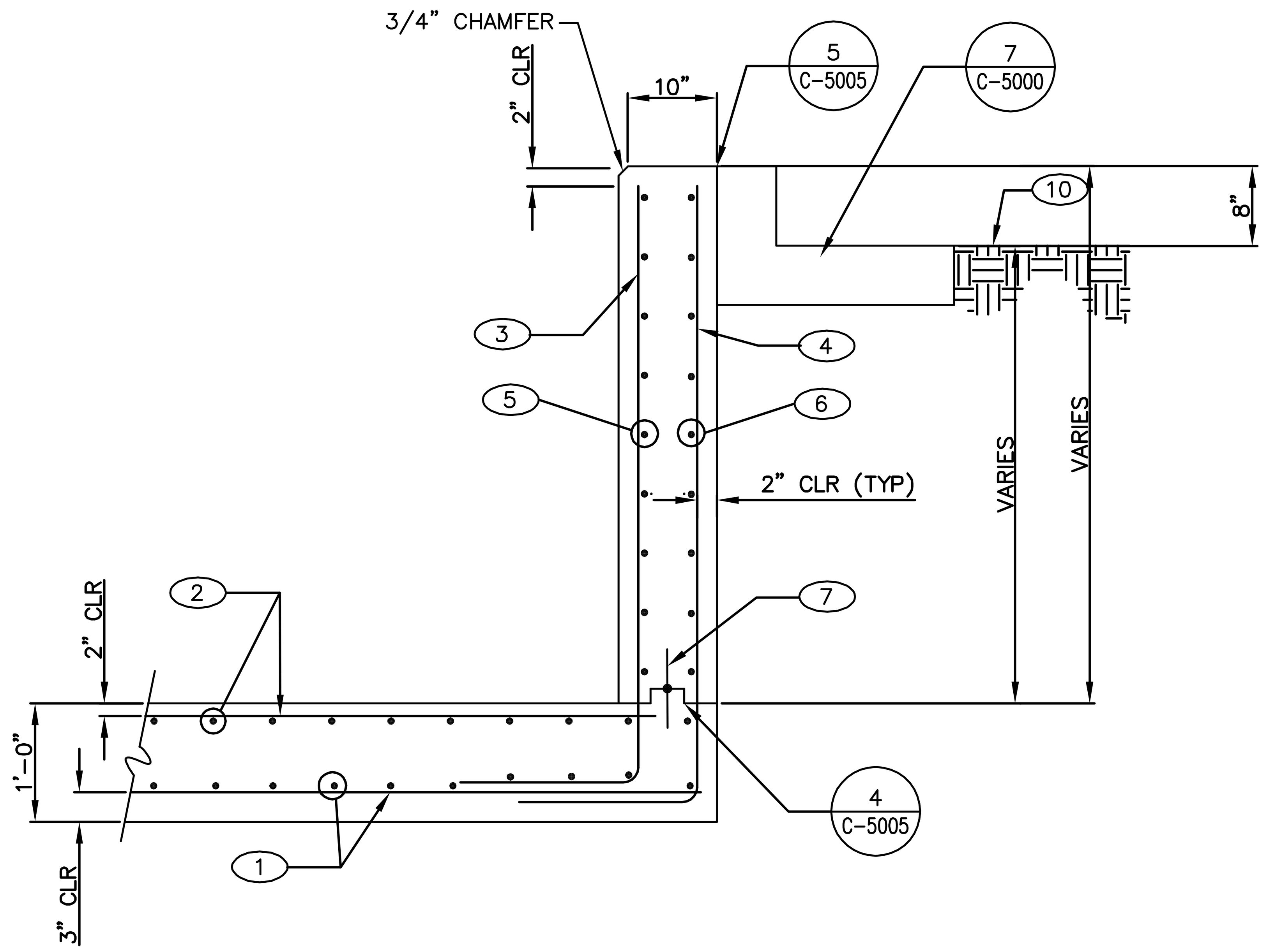
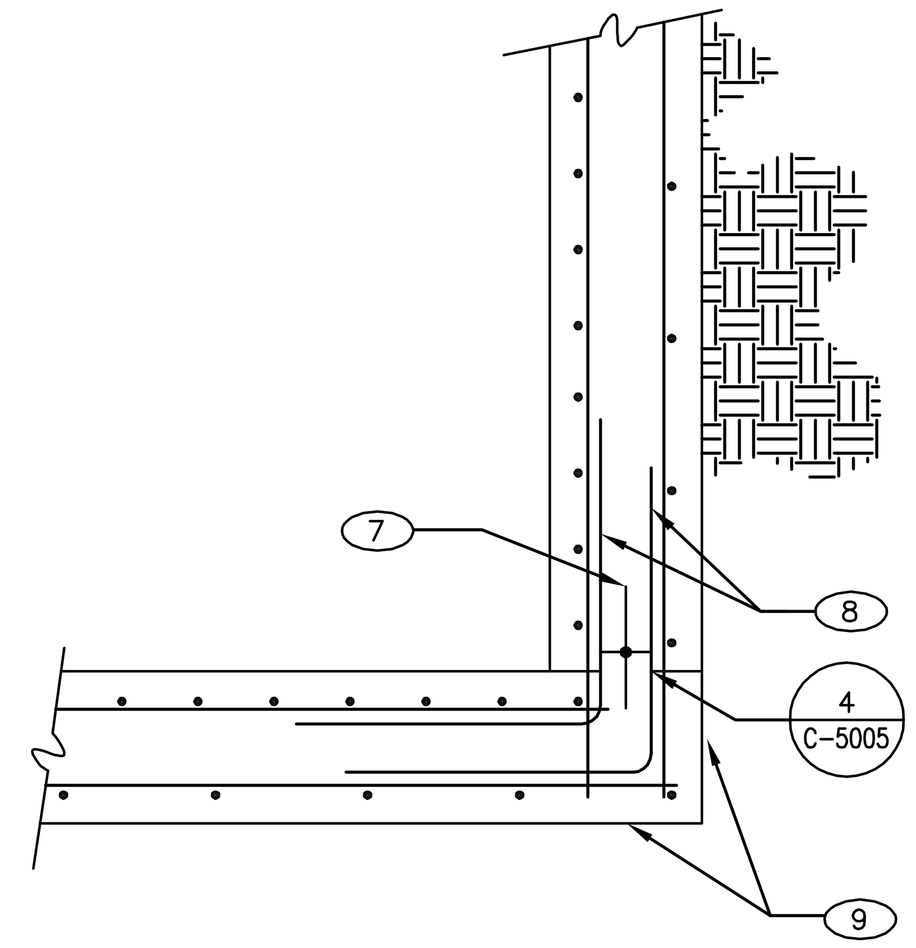
KEYED NOTES

1. SLAB BOTTOM REINFORCING – #6 @ 6" OC EACH WAY
2. SLAB TOP REINF – #6 @ 6" OC EACH WAY
3. VERTICAL REINFORCING @ INSIDE FACE – #5 @ 6" OC W/ 2'-2" LG HOOK AT BOTTOM INTO SLAB
4. VERT REINF @ OUTSIDE FACE – #5 @ 6" OC W/ 2'-2" LONG HOOK AT BOTTOM INTO SLAB
5. HORIZ REINF @ INSIDE FACE FACE – #5 @ 6" OC
6. HORIZ REINF @ OUTSIDE FACE – #5 @ 6" OC
7. "MASCO" 4" TPE – RUBBER WATERSTOP (CHEMICAL RESISTANT), WITH CENTERBULB DESIGN OR APPROVED EQUAL, CENTERED IN WALL
8. PROVIDE #5 W/ 90° HOOKS x 2'-2" LG EA LEG @ CORNER BAR @ EACH HORIZ
9. CONCRETE WALL REINFORCING PER SECTION
10. FINISH GRADE LINE
11. CONCRETE WALL OR SLAB
12. PROVIDE 8" LONG PIPE SLEEVE WITH HSA 1/2"ϕ X 4" LONG TO RECEIVE FENCE POST



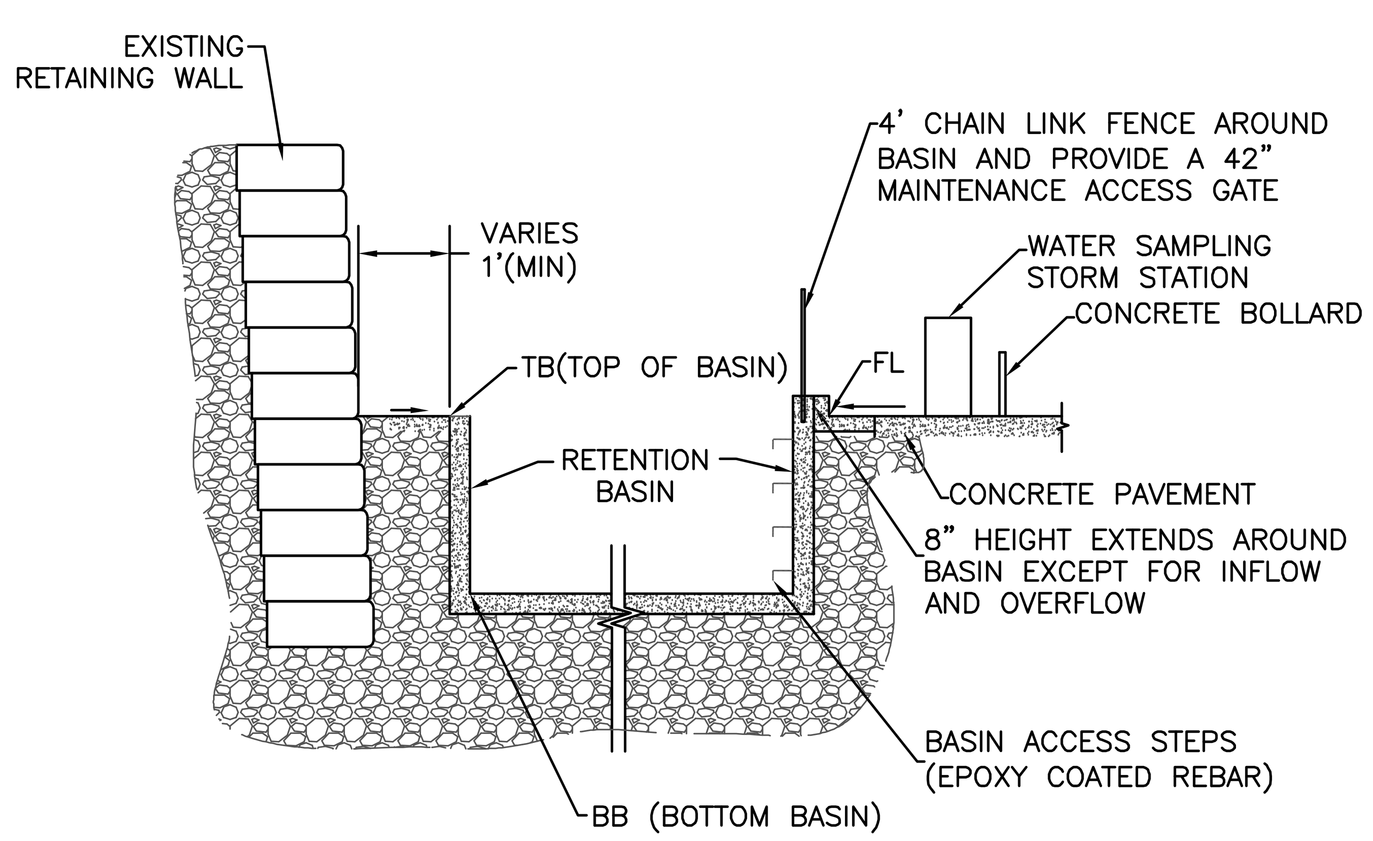
1 C-1017 REINFORCING SECTION @ WALL

1"=1"

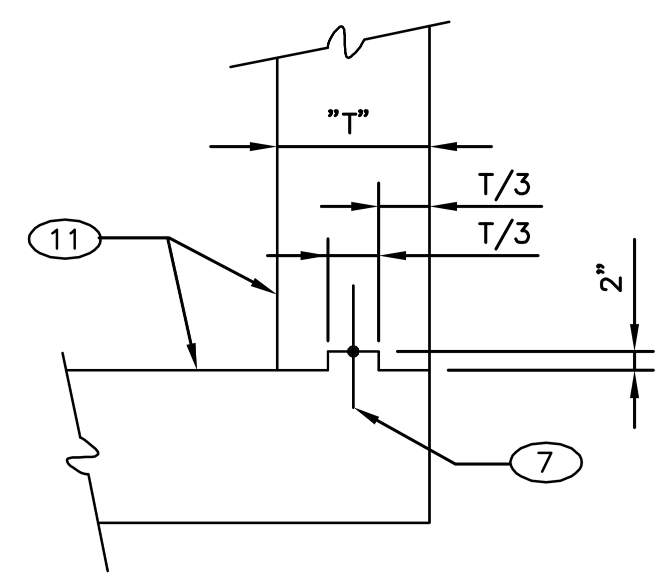


2 C-1017 CORNER REINFORCING

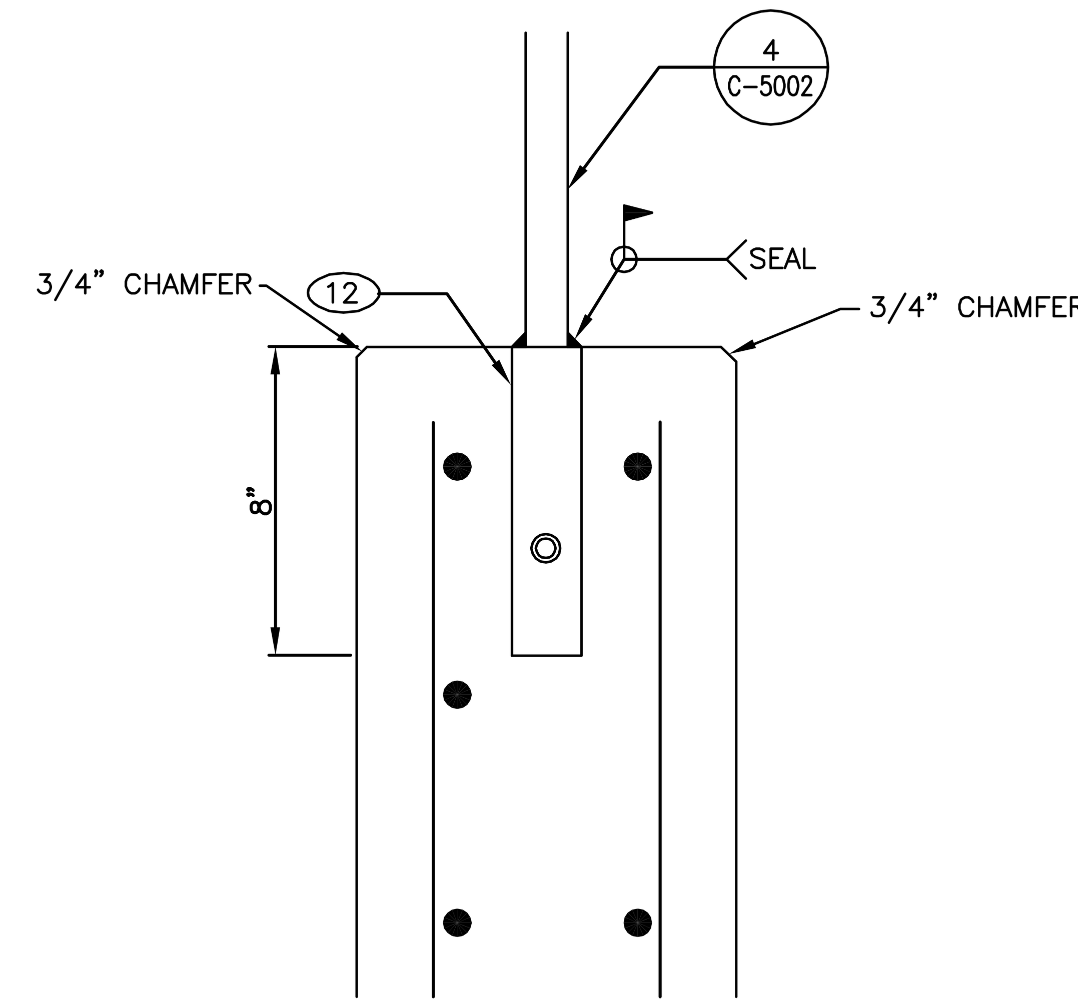
1"=1"



3 C-1000 RETENTION BASIN DETAIL
SCALE: NONE



4 C-5005 KEYED CONSTRUCTION JOINT DETAIL
SCALE: NONE



5 C-5002 5 C-5005 BASIN–FENCE ANCHORING DETAIL
SCALE: NONE

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PART B PERMIT APPLICATION

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
PROJECT SITE
Figure 2-30. Retention Basin Foundation Details

DRAWN C HOGUE
DESIGN T FREEBORN
CHECKED C TEPEN
DATE 03-22-12

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SHEET C-5005
36 OF 740

CLASSIFICATION XXX
REVIEWER XXX
DATE
PROJECT ID 102355
DRAWING NO C55443
REV F

EDWARD CORDOVA NEW MEXICO 15788 REGISTERED PROFESSIONAL ENGINEER

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3/21/12
Date
Edward Cordova, NM P.E. 15788

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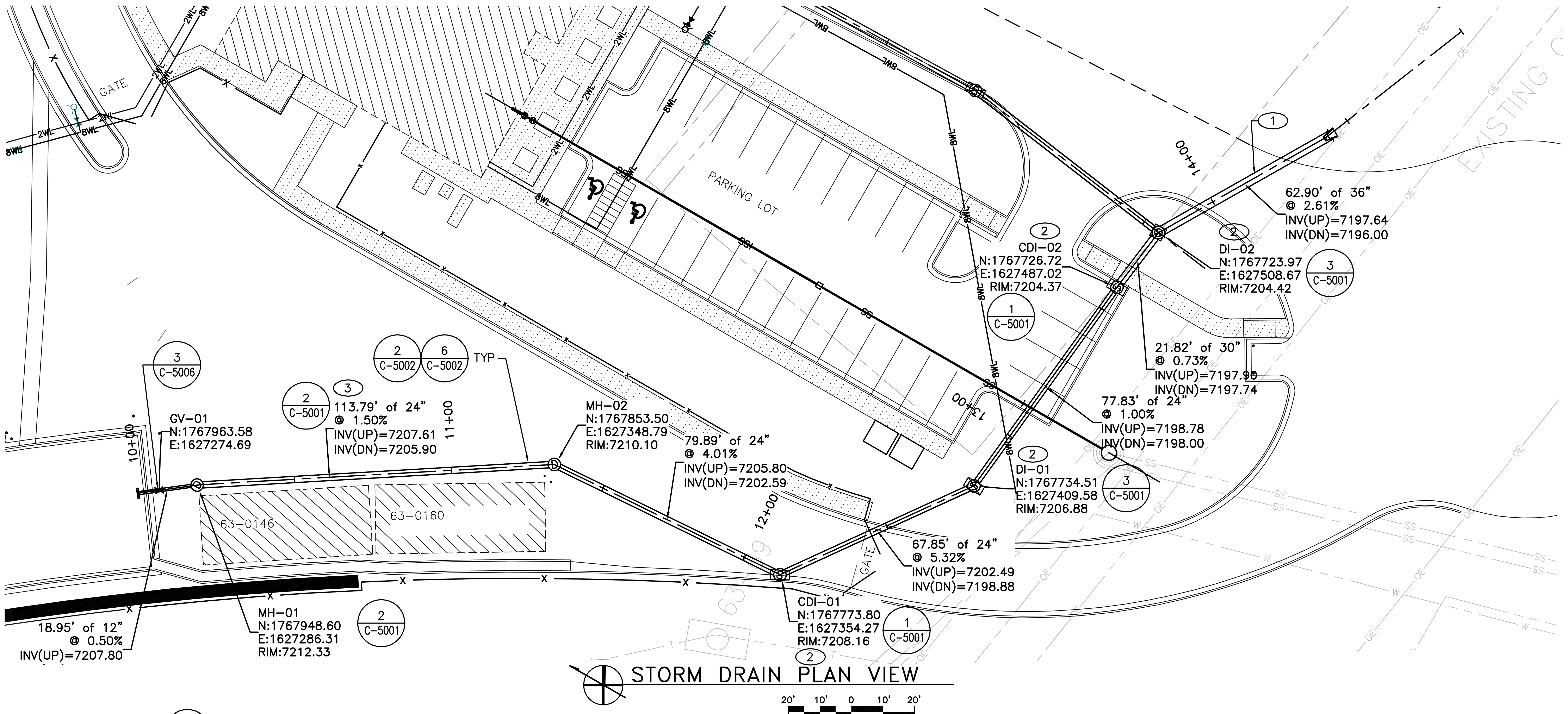
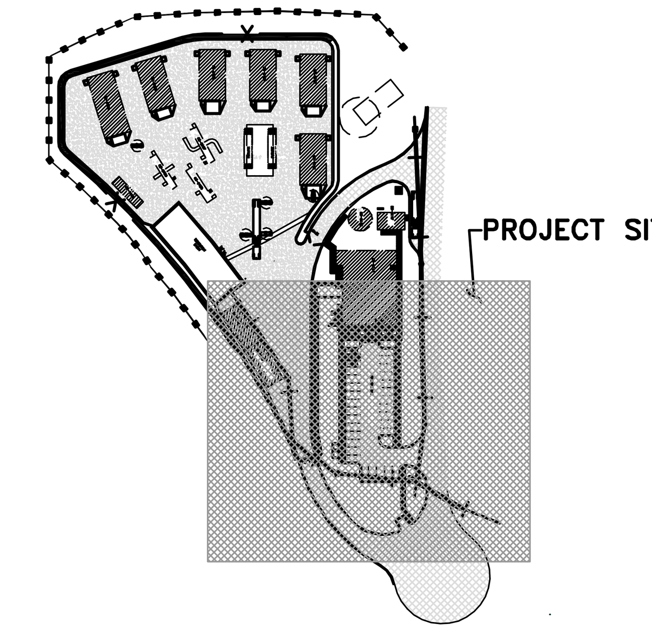


STORM DRAIN PLAN VIEW

20' 10' 0 10' 20'
1"=20'-0"



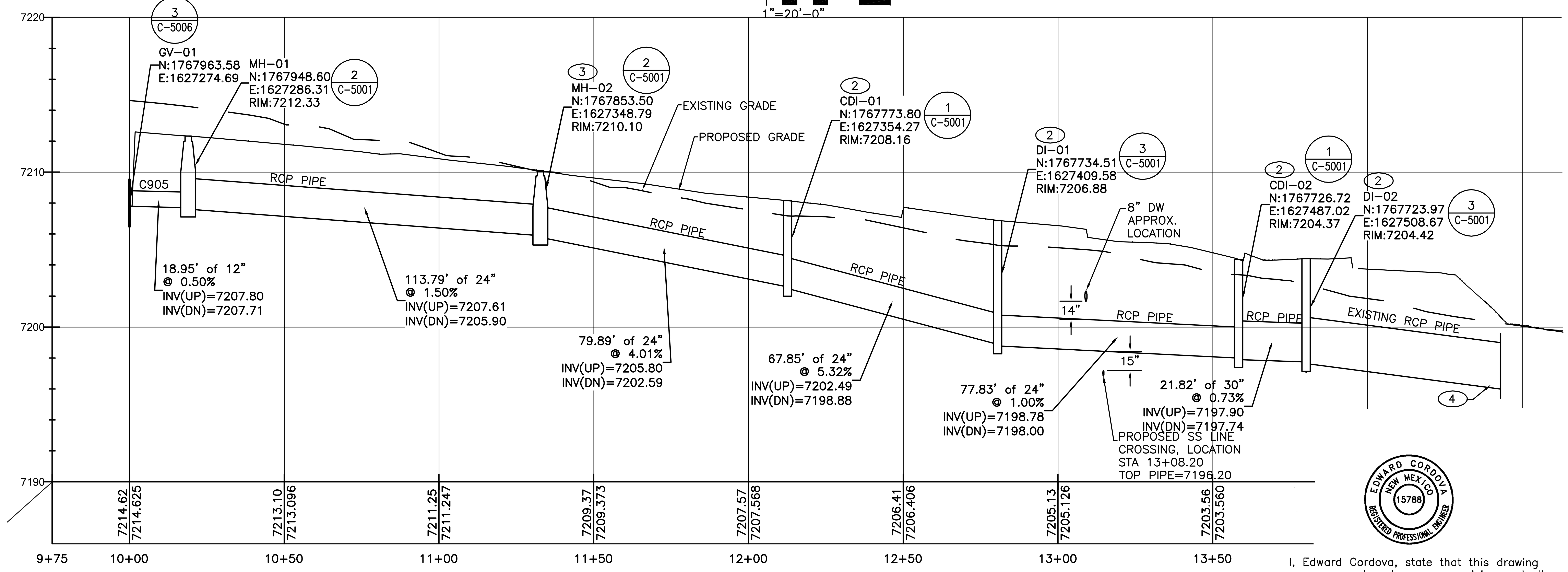
SITE LOCATION PLAN
SCALE: NONE

GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
2. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
3. EXISTING UTILITY LOCATIONS ARE APPROXIMATE ONLY AND SHALL BE FIELD LOCATED PRIOR TO CONSTRUCTION.

KEYED NOTES

1. STORMDRAIN CULVERT TO BE BUILT PER PHASE A CONSTRUCTION
2. DRAINAGE INLET
3. DRAINAGE MANHOLE



STORM DRAIN PROFILE VIEW

20' 10' 0 10' 20'
1"=20'-0"

EDWARD CORDOVA NEW MEXICO 15788 REGISTERED PROFESSIONAL ENGINEER

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3/21/12
Date
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WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
PROJECT SITE
Figure 2-31. Storm Drain Plan & Profile

DRAWN D PADILLA
DESIGN J RAEL
CHECKED E CORDOVA
DATE 03-22-12

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SHEET C-1012
20 OF 740

CLASSIFICATION XXX
REVIEWER XXX
DATE
PROJECT ID 102355
DRAWING NO C55443
REV F

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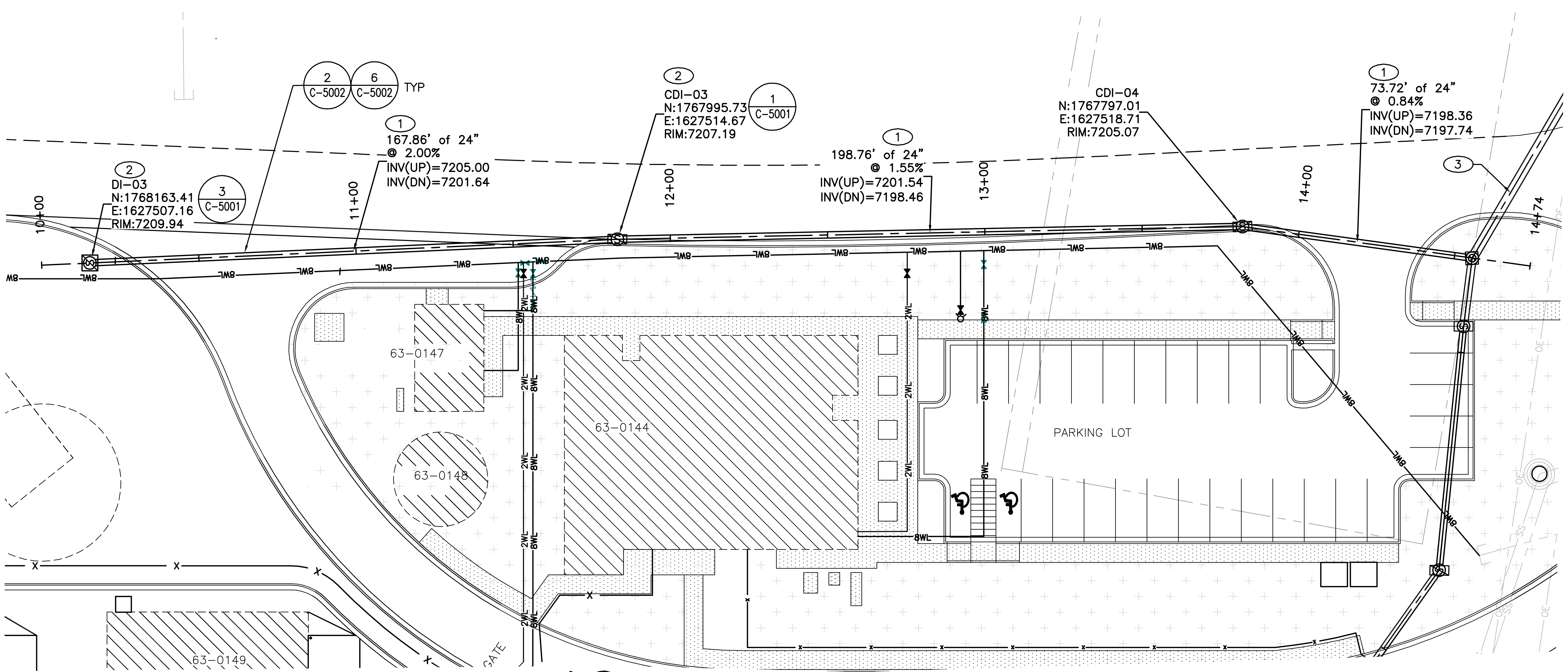
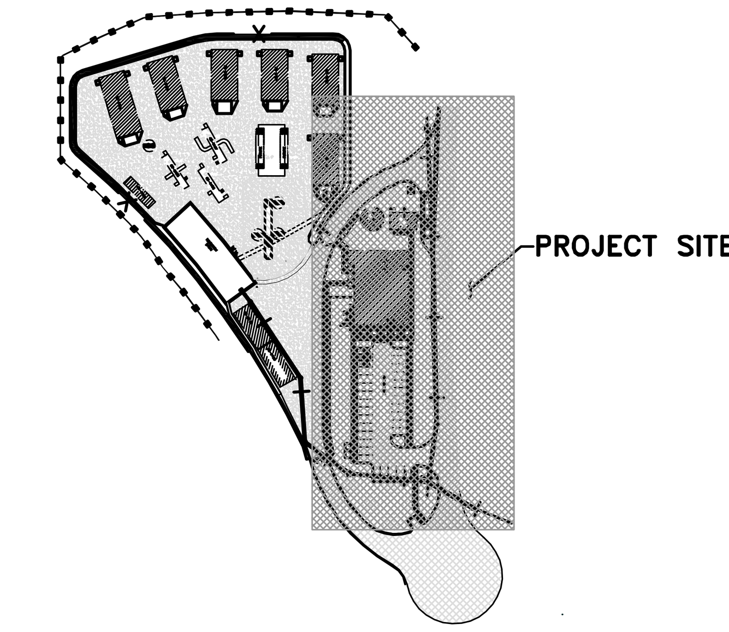


STORM DRAIN PLAN VIEW

1"=20'-0"



SITE LOCATION PLAN

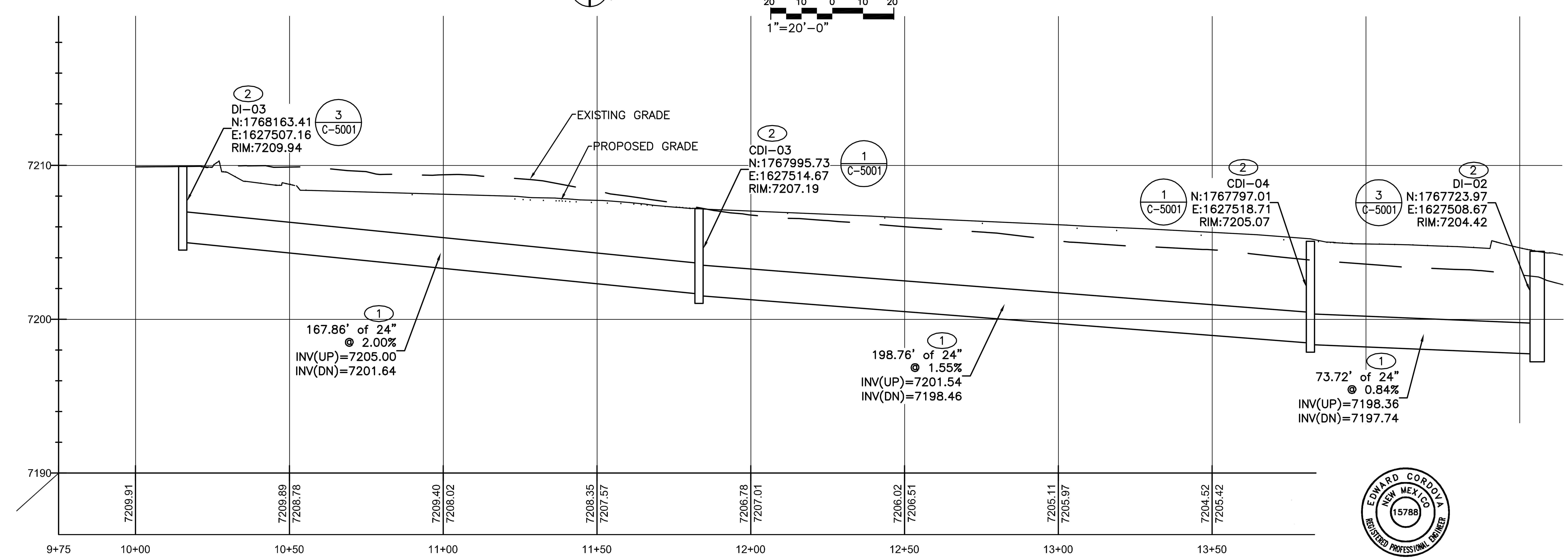
SCALE: NONE

GENERAL NOTES

1. FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
2. IF THIS SHEET IS NOT 24"x36", THEN IT IS A REDUCED SIZE PLOT. USE GRAPHIC SCALE ACCORDINGLY.
3. EXISTING UTILITY LOCATIONS ARE APPROXIMATE ONLY AND SHALL BE FIELD LOCATED PRIOR TO CONSTRUCTION.

KEYED NOTES

1. CULVERT PIPE
2. DRAINAGE INLET
3. STORM DRAIN CULVERT TO BE BUILT PER PHASE A CONSTRUCTION



STORM DRAIN PROFILE VIEW

1"=20'-0"

EDWARD CORDOVA NEW MEXICO 15788 REGISTERED PROFESSIONAL ENGINEER

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3/21/12 Date — Edward Cordova, NM P.E. 15788

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NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
PROJECT SITE

Figure 2-32. Storm Drain Plan & Profile

DRAWN D PADILLA
DESIGN J RAEL
CHECKED E CORDOVA
DATE 03-22-12

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SUBMITTED
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SHEET C-1013
21 OF 740

CLASSIFICATION XXX REVIEWER XXX DATE
PROJECT ID 102355
DRAWING NO C55443
REV F

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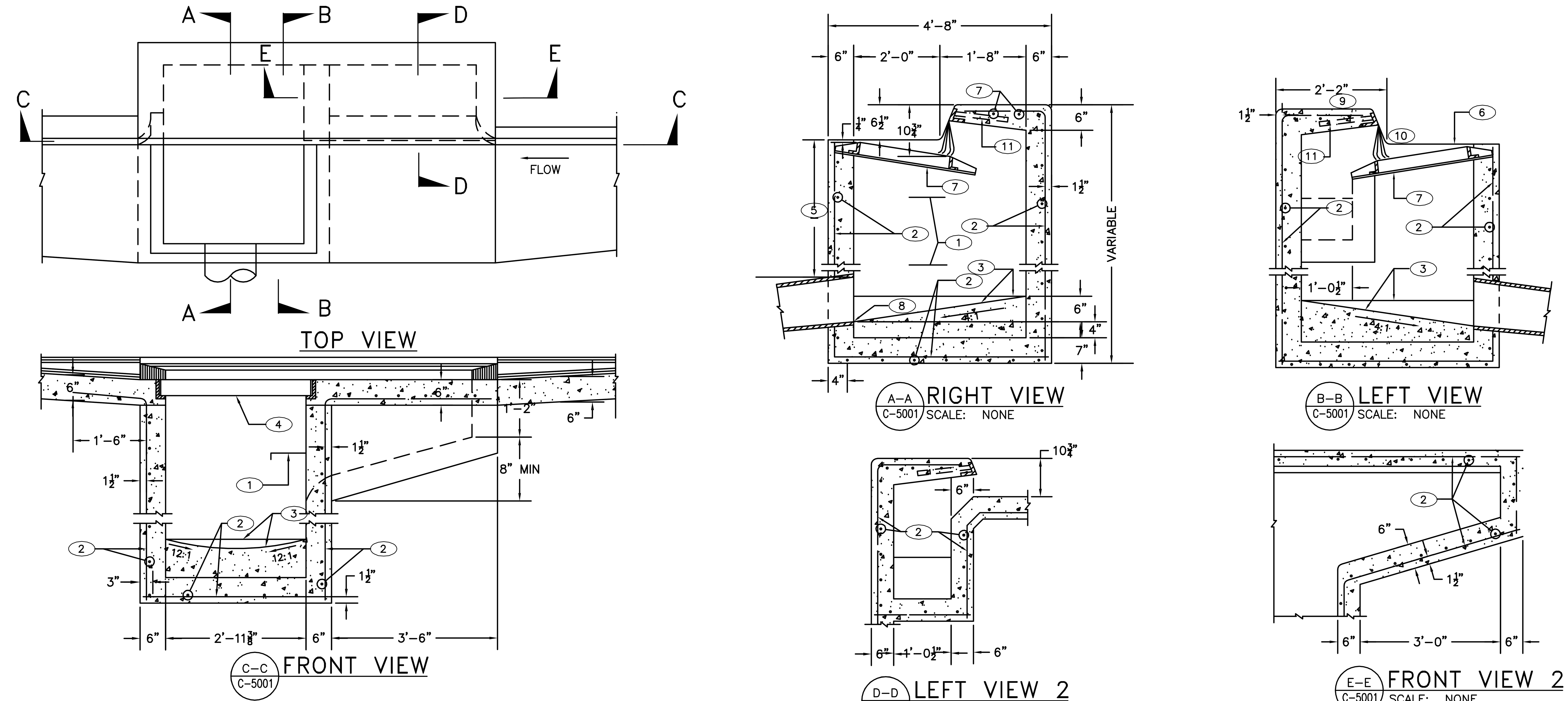
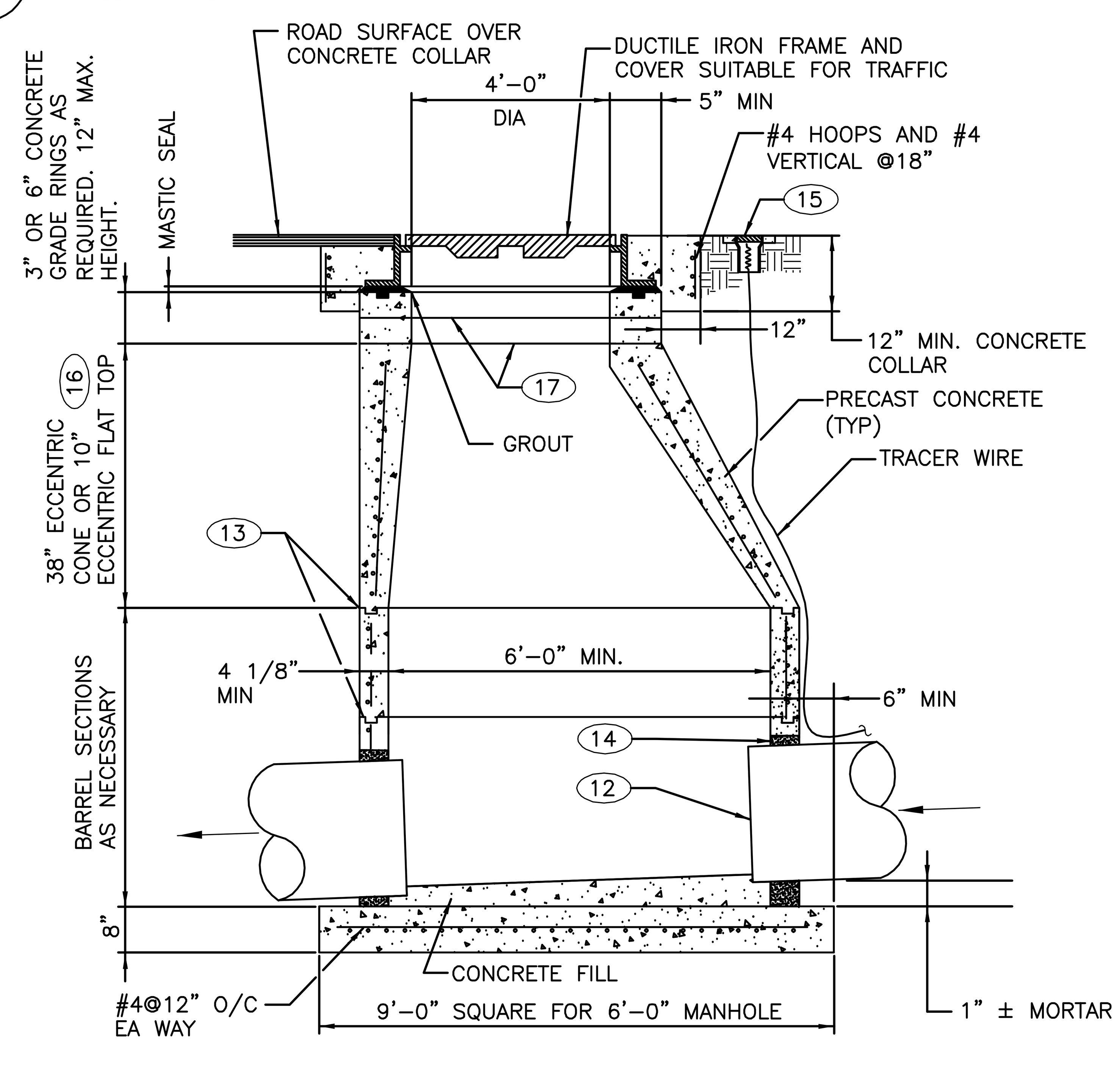
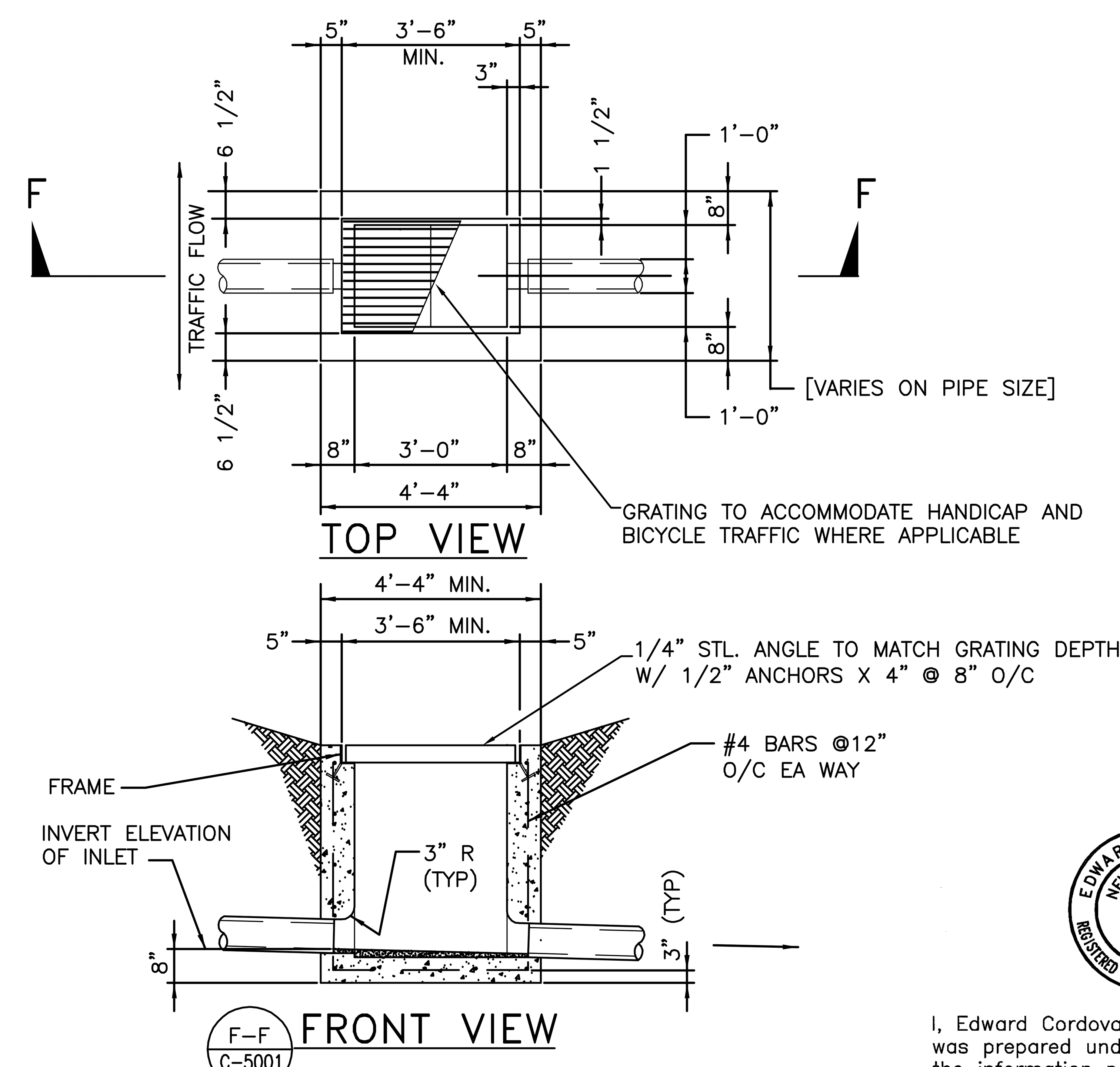


1 C-1012 1 C-1013 STORM DRAIN CURB INLET DETAIL
SCALE: NONE



2 C-1012 STORM WATER MANHOLE DETAIL
SCALE: NONE



3 C-1012 3 C-1013 CONCRETE AREA INLET DETAIL
SCALE: NONE

GENERAL NOTES

1. IF HDPE STORM DRAIN PIPE IS USED, TRACER WIRE SHALL BE INSTALLED.

KEYED NOTES:

1. FOR STORM INLET DEPTHS GREATER THAN 4', INSTALL STD STEPS. STEPS ARE TO BE INSTALLED ON DOWNSTREAM FACE OF INLET.
2. NO. 4 BARS AT 6" OC EW.
3. CONCRETE FILL MINIMUM SLOPE SHOWN
4. GRATING TO ACCOMMODATE HANDICAP AND BICYCLE TRAFFIC PER NMDOT STANDARDS
5. 1'-10" MIN UNLESS OTHERWISE DIRECTED.
6. NORMAL GUTTER.
7. GRATE FRAME.
8. INVERT ELEVATION PER DESIGN.
9. TOP OF CURB.
10. FLOWLINE.
11. ANGLE ANCHOR.
12. STOP ALL PIPE 3" TO 6" INTO MANHOLE.
13. CLEAN ALL JOINTS AND INSTALL SEALING GASKETS.
14. GROUT WATER STOP (TYP).
15. TEST STATION WITH 6" CONCRETE COLLAR.
16. DO NOT USE FLAT TOPS IN PARKING LOTS OR ROADWAYS.
17. MASTIC AND/OR GROUT FOR WATER TIGHT SEAL AND THE PREVENTION OF DISPLACEMENT OF RINGS AND COVER.
18. PROVIDE A MINIMUM OF 12" OF SAND BEDDING BETWEEN PIPE AND VERTICAL SIDEWALLS.
19. TRACER WIRE SHALL BE UTILIZED IF STORM DRAIN PIPE IS HDPE.

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PART B PERMIT APPLICATION

EDWARD CORDOVA NEW MEXICO 15788 REGISTERED PROFESSIONAL ENGINEER

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3/21/12 Date — Edward Cordova, NM P.E. 15788

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
PROJECT SITE
Figure 2-33. Storm Drain Inlet Details

DRAWN	D PADILLA
DESIGN	J RAEL
CHECKED	E CORDOVA
DATE	03-22-12

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SHEET C-5001 — 32 OF 740

CLASSIFICATION XXX — REVIEWER XXX — DATE

PROJECT ID 102355 — DRAWING NO C55443 — REV F

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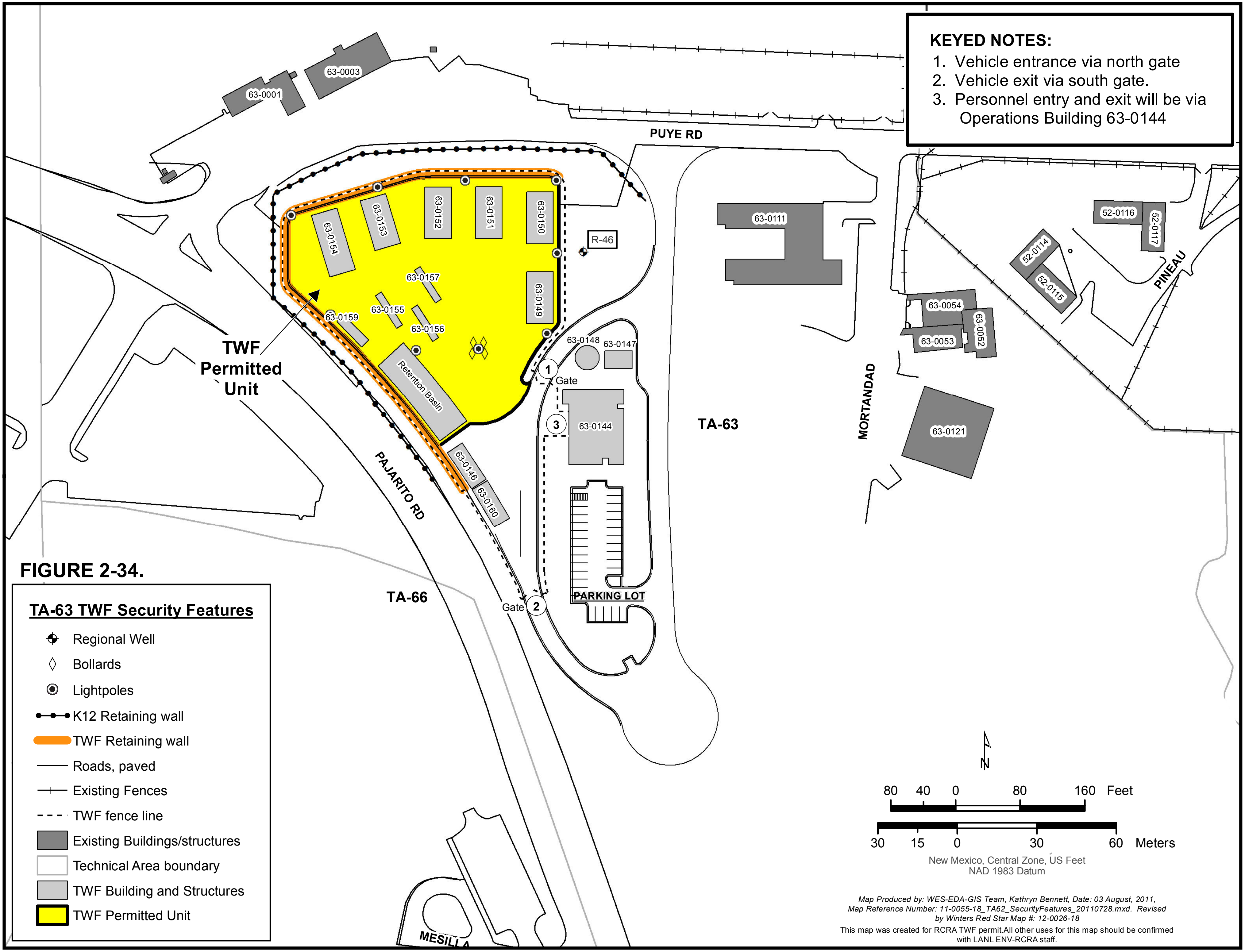
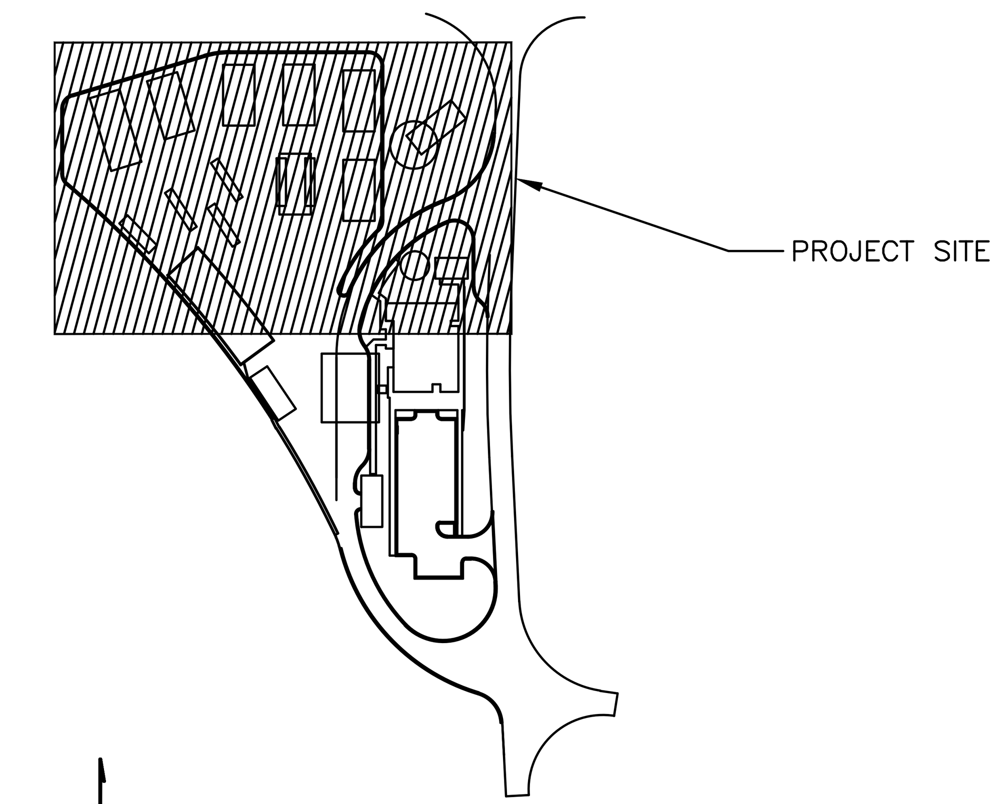

KEYED NOTES:
1. Vehicle entrance via north gate
2. Vehicle exit via south gate.
3. Personnel entry and exit will be via Operations Building 63-0144
PUYE RD
PAJARITO RD
MORTANDAD
PINEAU
MESILLA
TA-63
TA-66
TWF Permitted Unit
Retention Basin
Gate
Gate
PARKING LOT
R-46
63-0001
63-0003
63-0111
63-0121
63-0054
63-0053
63-0052
52-0116
52-0117
52-0114
52-0115
63-0154
63-0153
63-0152
63-0151
63-0150
63-0149
63-0157
63-0155
63-0156
63-0159
63-0148
63-0147
63-0144
63-0146
63-0160
TA-63 TWF Security Features
Regional Well
Bollards
Lightpoles
K12 Retaining wall
TWF Retaining wall
Roads, paved
Existing Fences
TWF fence line
Existing Buildings/structures
Technical Area boundary
TWF Building and Structures
TWF Permitted Unit
N
80 40 0 80 160 Feet
30 15 0 30 60 Meters
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Map Produced by: WES-EDA-GIS Team, Kathryn Bennett, Date: 03 August, 2011,
Map Reference Number: 11-0055-18_TA62_SecurityFeatures_20110728.mxd. Revised by Winters Red Star Map #: 12-0026-18
This map was created for RCRA TWF permit.All other uses for this map should be confirmed with LANL ENV-RCRA staff.

FIGURE 2-34.



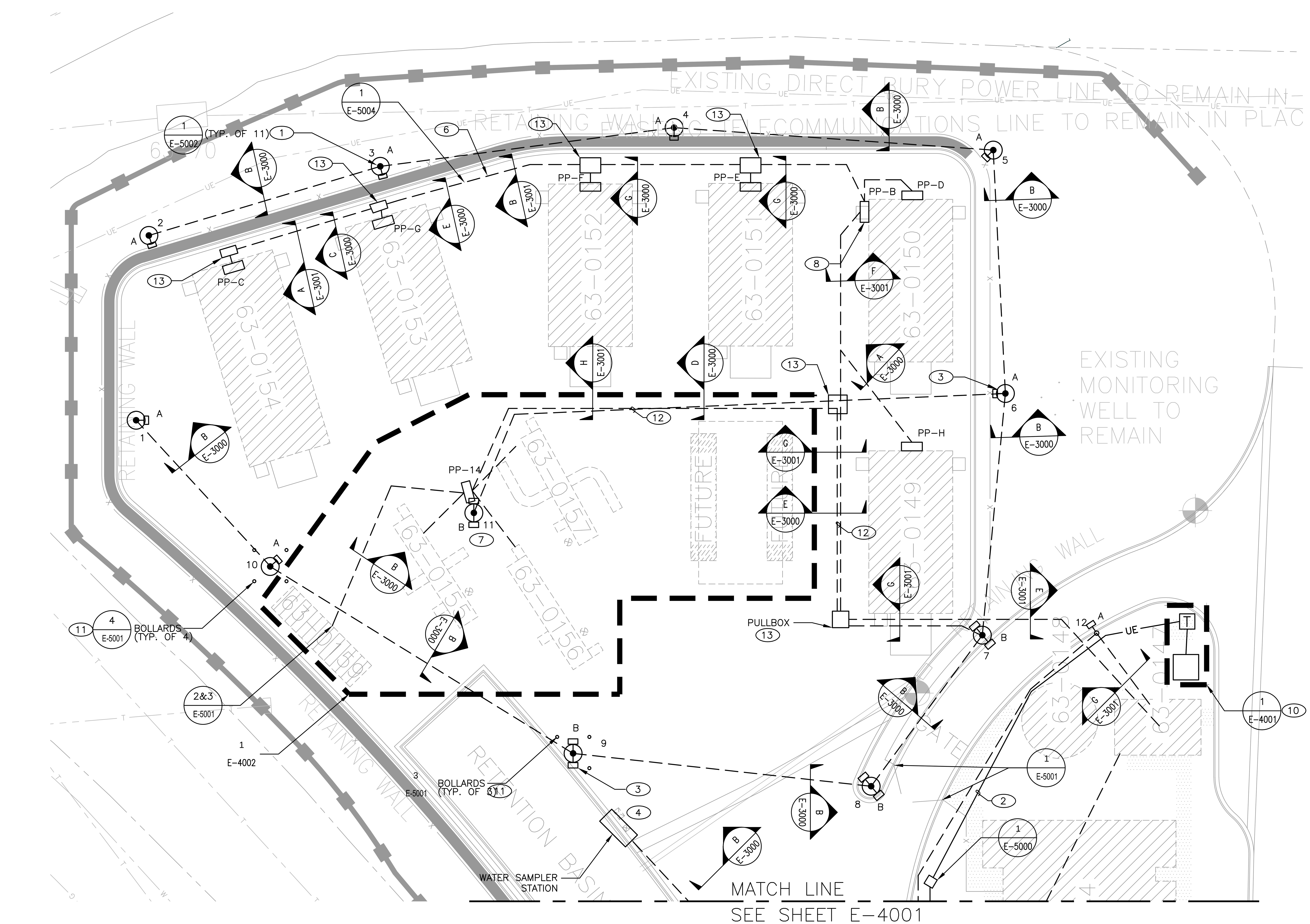
SITE LOCATION PLAN
SCALE: NONE

GENERAL NOTES

1. REFER TO SHEET E-7000 FOR LIGHT FIXTURE SCHEDULE.
2. REFER TO SHEET T-4000 FOR TELECOMMUNICATIONS SITE PLAN

KEYED NOTES

1. 50' STEEL POLE FOR LIGHTNING PROTECTION. REF DETAIL 1, SHEET E-5002 FOR FOUNDATION AND GROUNDING REQUIREMENTS. REF. SHEET (E-1000) FOR COMPLETE LIGHTNING PROTECTION INSTALLATION.
2. 2-6" PVC RED DYED CONCRETE ENCASED. SLOPE DUCT A MINIMUM OF 4" PER 100 FEET TO MANHOLE. COORDINATE DUCT PENETRATION INTO MANHOLE WITH LANL UTILITIES.
3. REF E-7000 FOR POLE GRID COORDINATES.
4. TERMINATE CIRCUIT IN WEATHERPROOF BOX AND COVER WITH GFI RECEPTACLE FOR CORD AND PLUG CONNECTION OF WATER SAMPLER.
5. NOT USED
6. MAINTAIN SEPARATION TO I & C SYSTEM DUCT BANK. REF TO DETAIL 1, SHEET E-5004.
7. INSTALL 4 SPEAKERS (ONE ON EACH QUADRANT) OF 50' POLE AT 20' ABOVE BASE. REF 6003 OF OPERATIONS SUPPORT BUILDING SERIES FOR CONNECTION DETAILS.
8. MOUNT PANEL ON EXTERIOR OF BUILDING REF DETAIL ON STRUCTURAL
9. NOT USED
10. REFERENCED ENLARGED PLAN E-4001 IS IN UTILITY BLDG SERIES OF DWGS.
11. PERMANENT BARRIER INSTALLED 3' FROM POLE BASE.
12. MAINTAIN SEPARATION TO COMMUNICATION SYSTEM DUCT BANK. REFER TO SHEET T-1000 AND CIVIL SHEET.
13. 36"LX24"WX30"D



ELECTRICAL SITE PLAN

0 10' 20' 40' 60'
1" = 20'-0"

NOT FOR CONSTRUCTION
PART B PERMIT APPLICATION

I, Ross H. Krayer, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/2012 Ross H. Krayer
Date Ross H. Krayer, NM P.E. 5026

ROSS H. KRAYER NEW MEXICO 5026 REGISTERED PROFESSIONAL ENGINEER

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
PROJECT SITE

Figure 2-35. Electrical Site Plan

DRAWN	M.MONTANO
DESIGN	M.MONTANO
CHECKED	R.KRAYER
DATE	03-22-12

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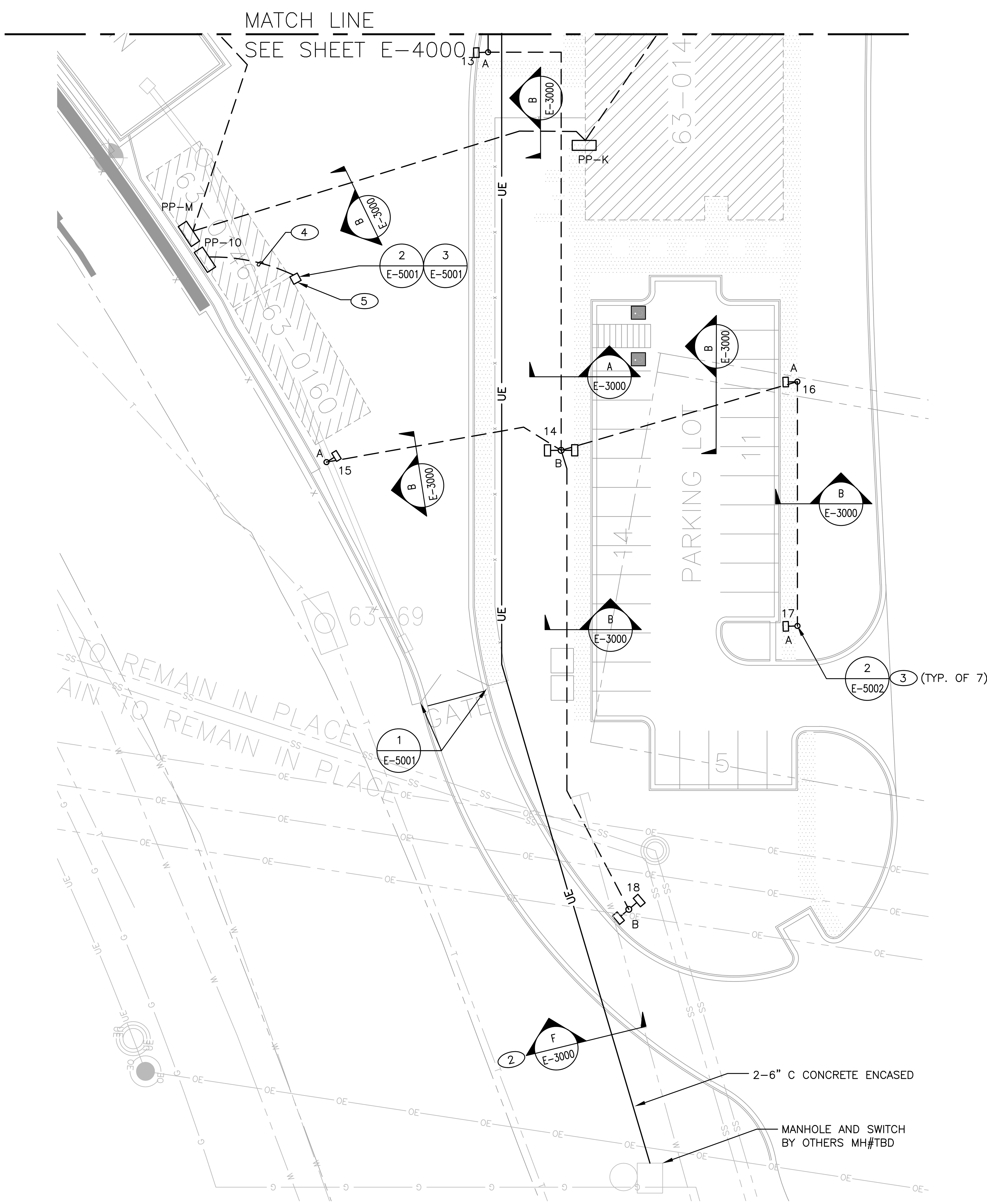
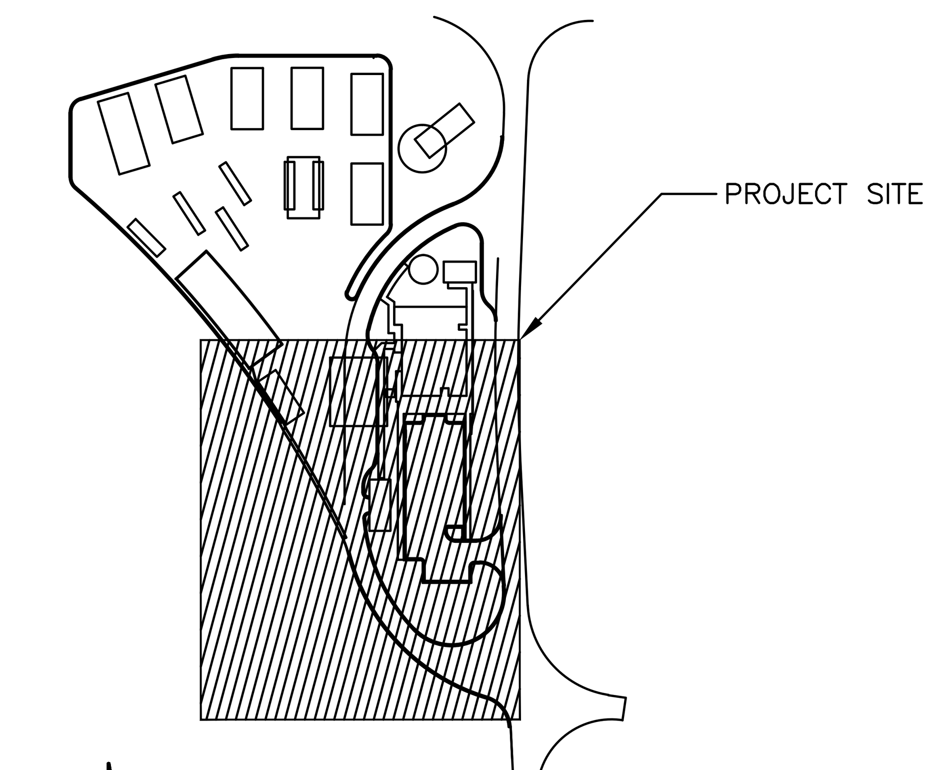
SHEET E-4000 — 46 OF 740

CLASSIFICATION XXX — REVIEWER XXX — DATE
PROJECT ID 102355 — DRAWING NO C55443 — REV F



ELECTRICAL SITE PLAN

1" = 20'-0"



SITE LOCATION PLAN

SCALE: NONE

GENERAL NOTES

1. REFER TO SHEET E-7000 FOR LIGHT FIXTURE SCHEDULE.
1. REFER TO SHEET T-4001 FOR TELECOMMUNICATIONS PLAN.

KEYED NOTES

(1) NOT USED

(2) 2-6" PVC RED DYED CONCRETE ENCASED. SLOPE DUCT A MINIMUM OF 4" PER 100 FEET TO MANHOLE. COORDINATE DUCT PENETRATION INTO MANHOLE WITH LANL UTILITIES.

(3) 30' STEEL POLE FOR AREA LIGHTING. REF DET 2 SHT E-5002 FOR FOUNDATION AND GROUNDING REQUIREMENTS.

(4) 3/4" PVC WITH 2#12 AND 1#12 (GR) TO EQUIPMENT STORAGE TRAILER FOR LIGHTING.

(5) TERMINATE CONDUIT IN WP BOX MOUNTED 6' UP ON TRAILER. PENETRATE TRAILER WALL WITH 3/4" SLEEVE TO SURFACE MOUNTED BOX INSIDE AND EXTEND CONDUIT AND WIRE TO INTERIOR LIGHTS AND SEAL WALL PENETRATION. REF. DETAIL 2 AND 3 SHEET E-5001.

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ROSS H. KRAYER NEW MEXICO 5026 REGISTERED PROFESSIONAL ENGINEER

I, Ross H. Krayer, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/2012 Ross H. Krayer
Date Ross H. Krayer, NM P.E. 5026

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILITY PROJECT
PROJECT SITE
Figure 2-36. Electrical Site Plan

DRAWN	M.MONTANO
DESIGN	M.MONTANO
CHECKED	R.KRAYER
DATE	03-22-12

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Los Alamos, New Mexico 87545

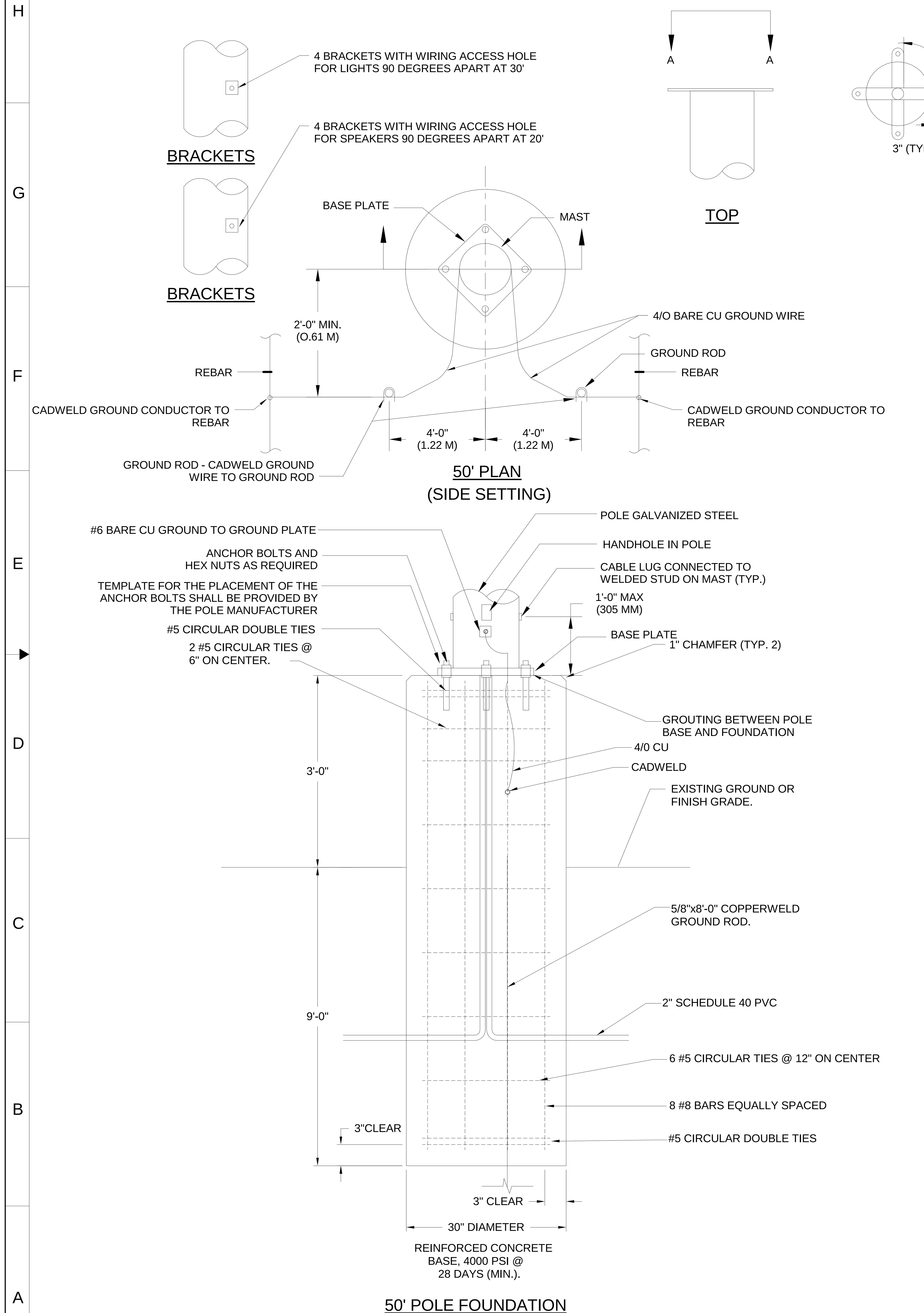
SHEET E-4001
47 OF 740

CLASSIFICATION XXX | REVIEWER XXX | DATE

PROJECT ID 102355 | DRAWING NO C55443 | REV F

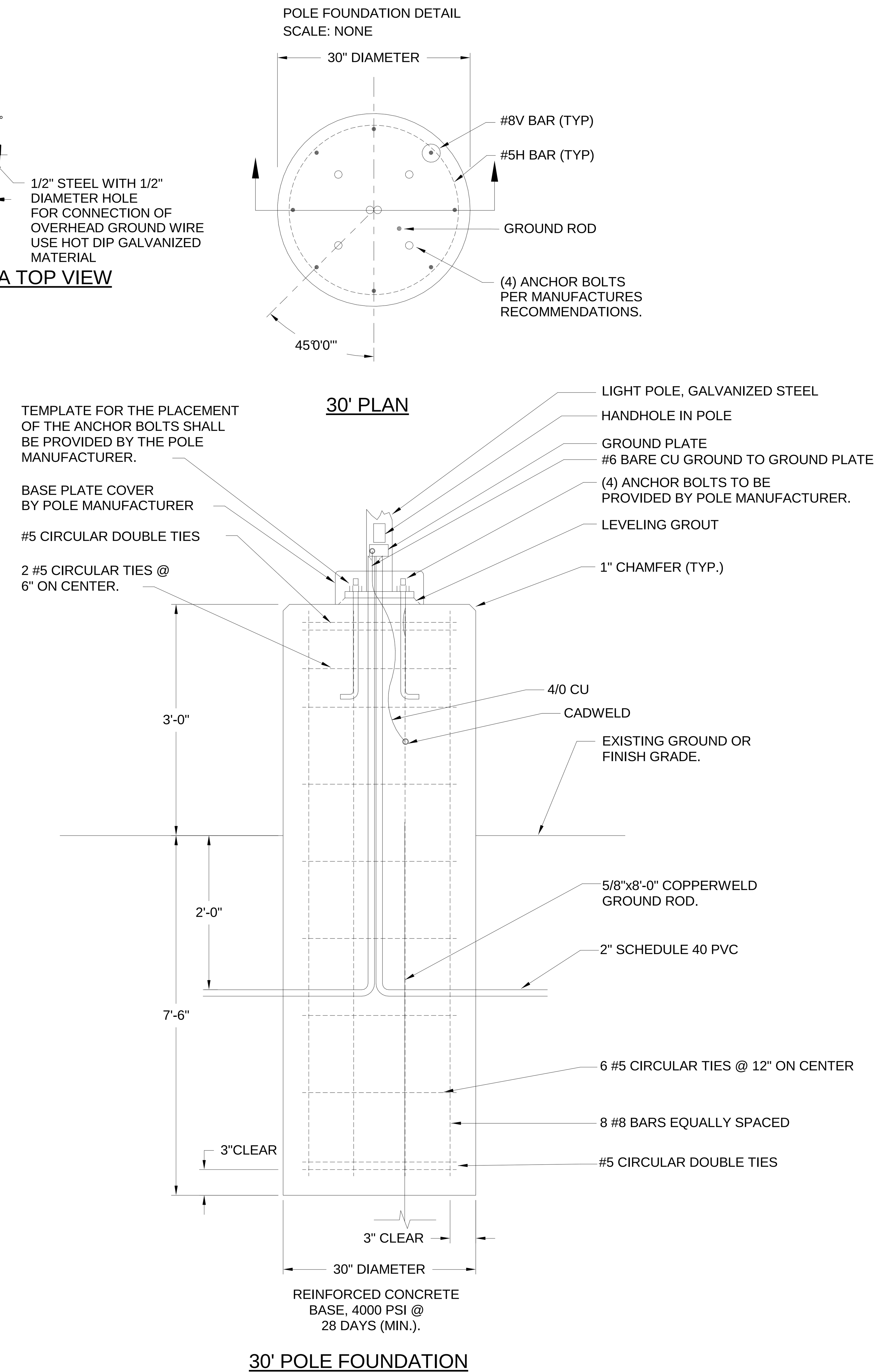
GENERAL NOTES

1 THIS DRAWING WAS GENERATED IN REVIT 2011.



1 E-1000 50' SITE LIGHTING & LIGHTNING PROTECTION POLE DETAIL

SCALE: NONE



2 E-1000 30' LIGHTING POLE FOUNDATION DETAIL

SCALE: NONE

NOT FOR CONSTRUCTION

PART B PERMIT APPLICATION

ROSS H. KRAYER NEW MEXICO 5026 REGISTERED PROFESSIONAL ENGINEER

I, Ross H. Krayer, state that this drawing was prepared under my supervision and all the information presented hereon is true and correct to the best of my knowledge and information.

3/21/2012 Ross H. Krayer

Date Ross H. Krayer, NM P.E. 5026

NO	DATE	CLASS REV	ADC	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

WEIDLINGER-NAVARRO JV NORTHERN NM

TRU WASTE FACILTY PROJECT	DRAWN	M.MONTANO
Figure 2-37. Lightning Protection and Lighting Pole Foundation and Grounding Details	DESIGN	M.MONTANO
	CHECKED	R.KRAYER
BLDG TA– 63	DATE	03-22-12

SUBMITTED | APPROVED FOR RELEASE

Los Alamos NATIONAL LABORATORY PO Box 1663 Los Alamos, New Mexico 87545

SHEET E-5002 51 OF 740

CLASSIFICATION	REVIEWER	DATE	
PROJECT ID 102355	DRAWING NO C55443		REV F

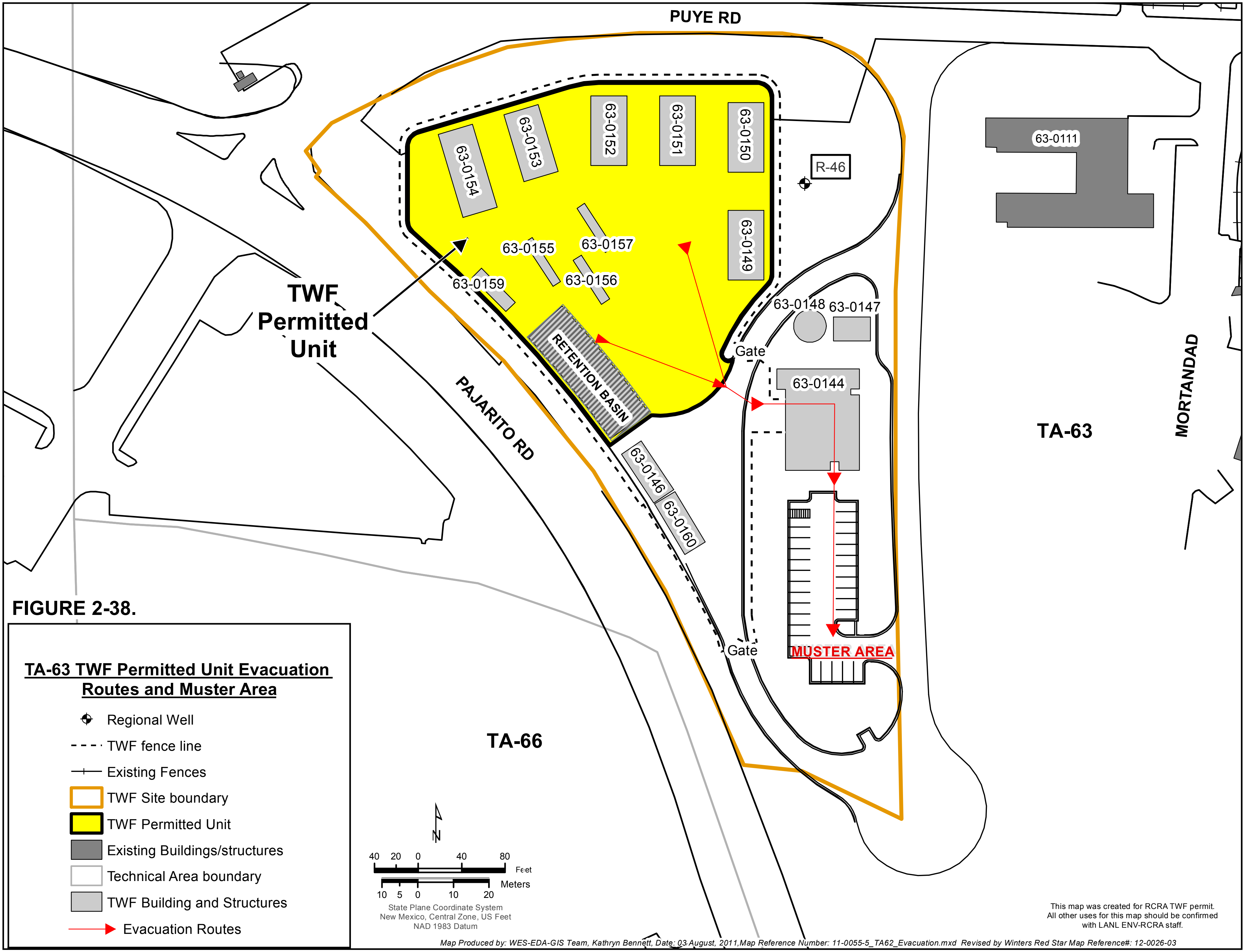


FIGURE 2-38.

TA-63 TWF Permitted Unit Evacuation Routes and Muster Area

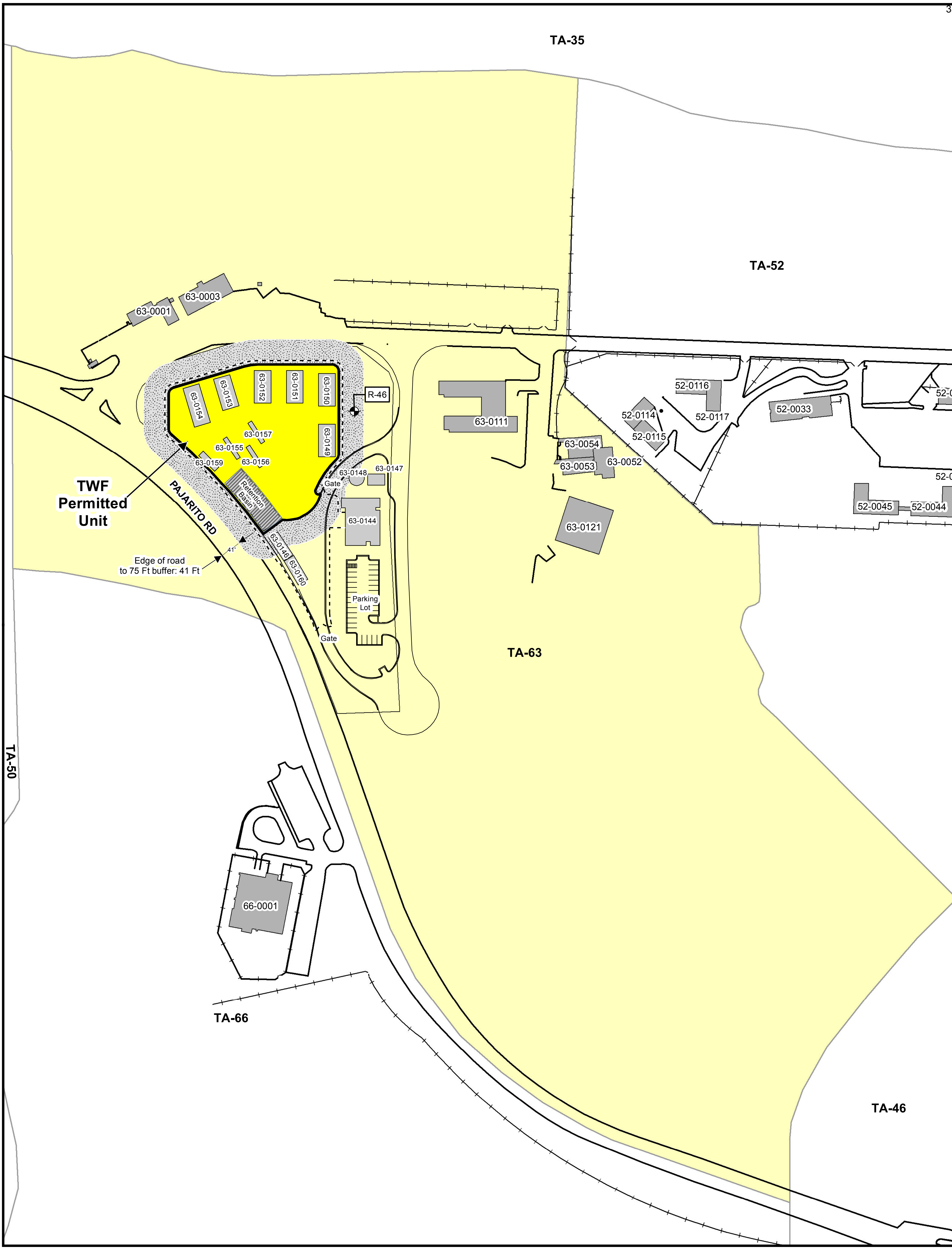


FIGURE 2-39.

TA-63 TWF Technical Area Boundary and 15-Meter Buffer for Ignitable, Reactive, and Incompatible Waste Storage

Regional Well
Roads, paved
TWF Fence line
Fences
Retention basin
Existing Buildings/structures
TWF Building and Structures
TA-63
Technical Area boundary
15-Meter Buffer for Ignitable, Reactive, & Incompatible Waste Storage

N

90 45 0 90 180 Feet
30 15 0 30 60 Meters

This map was created for RCRA TWF permit.
All other uses for this map should be confirmed with LANL ENV-RCRA staff.

State Plane Coordinate System, New Mexico, Central Zone, US Feet, NAD 1983 Datum

Map Produced by: WES-EDA-GIS Team, Kathryn Bennett, Date: 15 August, 2011, Map Reference Number: 11-0055-14_TA62_15MBuffer.mxd Revised by Winters Red Star Map Reference#: 12-0026-04

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3.0 FACILITY REQUIREMENTS

This section of the TWF permit modification request addresses facility information requirements including traffic patterns, location information (i.e., seismic standard, floodplain standard, archeological sites), provides a listing and location for required topographic maps, an evaluation of other federal laws, an evaluation of other permit activities, and training specific to the TA-63 TWF Unit.

3.1 TRAFFIC PATTERNS

In accordance with the requirements of 40 CFR §270.14(b)(10), general traffic pattern information, traffic volumes, and traffic control signals for the LANL-wide facility are provided in Appendix A of the LANL General Part B (LANL, 2003). Figure 3-1 illustrates major roads through LANL. Information specific to the TA-63 TWF is provided below.

3.1.1 Routes of Travel

The primary traffic routes used to transport hazardous waste to the TA-63 TWF include Pajarito Road, Puye Road, and the access road along the east side of the unit, see Figure 3-2. Pajarito Road is a primary thoroughfare at LANL; the following Technical Areas are located along this corridor: TA-3, TA-36, TA-48, TA-54, TA-55, TA-63, and TA-54. This road parallels the west and south borders of the TWF site. The TWF site cannot be directly accessed via Pajarito Road. This two-lane road was built for 55 mph traffic with no vehicle size restrictions, and only limited heavy truck and fuel-truck traffic prohibitions. Puye Road is a secondary two-lane road connecting Pajarito Road and TA-5, TA-52, and TA-63. Vehicle barriers will be used to protect the TWF from Pajarito and Puye Road traffic.

Waste transportation trucks that enter the TWF will park in the area between the retention pond and Storage Building 63-0149 for loading and unloading activities. Loaded electric forklifts will transport waste containers to the Characterization Trailers, the Storage Buildings, and the Storage and Characterization Building.

Other than electric forklifts, it is anticipated that the only vehicle traffic within the TWF controlled area would be semi-trucks (for occasional placement and removal of the characterization trailers), delivery trucks with specialty gases (for characterization and radiation protection equipment), and snow removal equipment. The site has been designed to provide clearance for the movement of the characterization trailers. However, due to the relatively small size of the site, removal of a particular trailer may require temporary shifting of other trailers.

It is anticipated that gas bottles for the specialty gases will be unloaded inside the gates of the site and then transported with forklifts into the controlled area. There will be a single large Dewar flask for liquid nitrogen located near the receiving area and Operations Support Building. This flask will be replenished from a truck transporting liquid nitrogen. Smaller containers will be filled from the Dewar flask and transported (fork lift, dolly, cart, as needed) to the point of use in the characterization trailers.

Snow removal equipment such as blade equipped all-terrain vehicles may also be used. Snow removal equipment such as snow plows may be used for heavy snows, but those vehicles would not be used near waste containers stored outside, would be escorted by TWF personnel, and would be limited to speeds less than ten miles per hour. If snow removal in the vicinity of waste containers stored outside is needed, snow shovels or a snow blower will be used. Other vehicles or equipment that may be required to perform maintenance within the TWF will also be escorted and limited to speeds less than 10 miles per hour.

3.1.2 Traffic Volumes

Pajarito Road has an average daily traffic volume of approximately 4000 vehicles per 24-hour day (LANL, 2008). This includes vehicles traveling both northwest and southeast. Vehicle types include cars, light- and medium-duty trucks, and vans. Traffic volume at the TWF will not be high. Anticipated traffic volumes at the TWF will be from one to several waste shipments by truck to or from the loading/unloading area per day, forklift traffic within the unit, occasional delivery trucks for analytical gases and other supplies, and, rarely, waste characterization trailer movement. Daily use of the Operations Building parking area is anticipated for twenty to thirty vehicles, government-use and privately-owned vehicles (POV).

3.1.3 Traffic Control Signals

Roadway access to the TWF site is required for POV, site vehicles, tractors/semi-trailers, other waste trucks, delivery vehicles, and characterization trailers. Traffic control signals within and around TA-63 will include stop signs, posted speed limits, and other traffic and pedestrian control signs. The locations of existing and proposed signals and signs near the TWF are shown in Figure 3-3.

3.1.4 Road Surfacing and Load-Bearing Capacity

Roads within TA-63 are generally two-lane roads with asphaltic concrete surfaces. Load-bearing capacity for these roads is 32,000 pounds per axle. These roads are typically constructed with a 6-inch-thick base course overlain with a 3-inch-thick asphaltic concrete surface. These roads were designed and constructed to meet the American Association of State Highway and Transportation Officials Specification HS-20.

The reinforced concrete pad within the TWF boundary will be constructed to be nominally 8 inches thick in traffic bearing areas. This will meet American Concrete Institute (ACI) 360 R-92 standards for design of slabs on grade for this type of structure.

3.2 LOCATION INFORMATION

3.2.1 Seismic Standard

The proposed TWF is in compliance with the seismic location standards of 40 CFR §§270.14(b)(11) and 264.18(a). These regulations require seismic studies for new facilities to demonstrate that evidence of Holocene faulting is not found within 200 feet of the waste management unit. The seismic investigation included in Attachment D, *Seismic Report*, of this permit modification request demonstrates that there has been no direct evidence observed for Holocene faulting within that radius of the TWF.

Site specific geologic investigations at TA-63 have revealed the apparent presence of lineaments near this location, i.e., topographic features of regional extent that may reflect crustal structure within 3,000 ft. However, trench excavation and mapping of these lineaments indicates that they do not correlate with known Holocene faults. Published geologic studies in and around TA-63 (including several lengthy geologic test trenches excavated in 1992-1993), together with aerial reconnaissance of the area within a 5-mi radius from the proposed TWF, and the field reconnaissance of the lineaments and contact elevations, combine to demonstrate that no faults with Holocene displacement are present within 200 ft of the proposed TWF. Aerial reconnaissance, detailed geologic mappings of portions of LANL, and paleoseismic trenching investigations show that the focus of potential Holocene faulting at LANL is concentrated along the main Pajarito fault, over 16,000 ft (4877 m) west of the proposed TWF.

3.2.2 Floodplain Standard

Pursuant to the requirements of 40 CFR §270.14(b)(19)(ii), LANL has mapped all 100-year floodplain boundaries within the LANL complex, as required in "*Module VIII: Special Conditions Pursuant to the 1984 Hazardous and Solid Waste Amendments to RCRA for Los Alamos National Laboratory*, EPA I.D. NM0890010515" (EPA, 1998). The latest version of these maps including revisions after the Cerro Grande Fire was published in a report documenting the floodplain mapping procedures (McLin et. al., 2001).

The flood plains near TWF are shown in Figure 3-4 of this permit modification request. The TA-63 TWF is located on a mesa top between Mortandad Canyon on the north and Pajarito Canyon on the south. The proposed site for the TWF is located approximately 150 vertical ft above the floodplain limits for Mortandad Canyon at a distance of approximately 2000 ft. The site is located approximately 200 vertical ft above the floodplain limit for Pajarito Canyon at a distance of approximately 1000 ft. The site is also at the head of the Canada del Buey, thereby assuring surface water drainage to the east. Therefore, the TWF is not located within the 100-year floodplain boundary in accordance with 40 CFR §§270.14(b)(11)(iii through v).

3.2.3 Cultural Resources

Cultural resources are human imprints on the landscape and are defined and protected by a series of federal laws, regulations, and guidelines as described in *A Plan for the Management of the Cultural Heritage at Los Alamos National Laboratory, New Mexico* [LANL 2006]. The three general categories of cultural resources at LANL are archaeological resources, historic buildings and structures, and traditional cultural properties. Archaeological resources include any material remains of past human life or activities which are of archaeological interest. Historic buildings include buildings or other structures constructed after 1942 and LANL-era buildings that have been evaluated for eligibility to the National Register of Historic Places (NRHP). Traditional cultural properties are defined as a place of special heritage value to contemporary communities, often, but not necessarily American Indian groups. A total of 1802 archaeological sites at LANL have been determined eligible or potentially eligible for listing in the NRHP, along with 371 historic buildings and structures. None are within or immediately adjacent to the footprint of the TRU Waste Facility.

3.3 TOPOGRAPHIC MAPS

Topographic maps and figures are provided in this Permit modification request or referenced to meet the requirements of 40 CFR §270.14(b)(19). The maps clearly show the map scale, the date of preparation, and a north arrow. The maps and figures used to fulfill these regulatory requirements in this submittal include the following:

- Access roads and control features for the TA-63 TWF, Figure 3-3.
- 100-year flood plain adjacent to TA-63, Figure 3-4.
- Surface waters, including intermittent streams, near TA-63, Figure 3-4.
- Surrounding land uses (e.g., residential, recreational) are depicted on Figure 2-2.
- Windroses of average wind speed and direction day and night, measurements collected at four primary measurement stations at LANL in 2009, Figure 3-5.
- Legal boundaries of LANL (including TA-63), Figure 2-3.
- A topographic map of buildings and structures within a 1000 foot radius of the TWF at TA-63, Figure 2-4.
- A map of National Pollutant Discharge Elimination System outfall locations, Figure 3-6.
- Storm and process sewer systems at TWF, Figure 3-7.
- Drainage control features of the TWF, Figures 2-5, 2-6, 2-31, 2-32 and 2-33.
- Natural surface drainages are shown on the topographic map included as Figure 3-8.
- Fire stations serving LANL and the County of Los Alamos are shown on Figure 3-9, as well as Attachment N, Fig. 49, of the Permit.
- Map of supply wells, monitoring wells, test wells, springs, and surface-water sampling stations near TA-63, Figure 3-10.
- A map showing all existing and proposed wells and boreholes within an approximate one-mile radius of TA-63 is included as Figure 3-11.

Contour lines on all topographic maps are in intervals sufficient to detail natural drainage at LANL and in the vicinity of the waste management unit. As provided in 40 CFR §270.14(b)(19), LANL has submitted the maps to the NMED at these scales and contour intervals due to the size of the waste management unit, the extent of the LANL facility, and the topographic relief in the area.

3.4 GROUNDWATER MONITORING

The groundwater monitoring requirements of 40 CFR Subpart F do not apply to the TWF as it is not a regulated unit as defined at 40 CFR §264.90(a)(2). The site is for storage in contained structures only and no spills have occurred. The groundwater monitoring well (R-46) outside the north east fence line of the TWF is included in the LANL groundwater monitoring program but is not associated with this container storage unit.

3.5 OTHER FEDERAL LAWS

The following federal laws are required under 40 CFR §§270.3 and 270.14(b)(20), to be given consideration when applying for a hazardous waste facility permit. When any of these laws is applicable, its procedures must be followed:

The Wild and Scenic Rivers Act (16 United States Code [USC] 1273 et seq.). This act provides for a national wild and scenic rivers system and prohibits construction of any waterway that would have a direct adverse effect on the values for which a wild and scenic river was established.

The National Historic Preservation Act of 1966 (16 USC 470 et seq.). This act establishes a program for the preservation of historic properties throughout the country. The act has provisions that require mitigation of adverse effects to registered properties.

The Endangered Species Act of 1973 (16 USC 1531). This act provides for the conservation of endangered and threatened species of fish, wildlife, and plants. The act prohibits any action that would jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat.

The Coastal Zone Management Act of 1972 (16 USC 1451 et seq.). This act establishes national policy for the management, use, protection, and development of land and water resources of the nation's coastal zones. Section 307(c) of the act and implementing regulations prohibit the U.S. EPA from issuing a permit for activity affecting coastal zone land or water without the certification from the applicant that the activity is in compliance with the state Coastal Zone Management Program.

The Fish and Wildlife Coordination Act of 1934, as amended (16 USC 661 et seq.). This act promotes the conservation of wildlife, fish, and game and integrates this conservation with water resource projects. Certain provisions of the act require that permits proposing or authorizing the impoundment, diversion, or other control or modification of any body of water be considered by the appropriate state agency for impacts to wildlife resources.

Because LANL has ongoing programs in support of the National Historic Preservation Act, the Endangered Species Act, and the Fish and Wildlife Coordination Act, consideration was given to these federal laws.

The National Historic Preservation Act is administered by the Advisory Council on Historic Preservation, appointed by the President, and the New Mexico State Historic Preservation Office. Section 106 of the Act requires DOE to consider the effects of its actions on historic properties, and provide the Council with a reasonable opportunity to comment on those actions and the manner in which DOE takes historic properties into account in their decisions. DOE accomplishes this through consultation with the State Historic Preservation Office whenever a project may potentially impact a historic property. LANL may prepare a Historic Building Survey Report assessing the eligibility of a historic building dating from the Manhattan Project and early Cold War periods (1943 to 1956) for the National Register of Historic Places and evaluating the impacts of the proposed actions. The consultation process was formalized in April 2000 through a Programmatic Agreement between DOE, the Council, and the State.

For any undertaking on DOE land that may directly or indirectly impact threatened and endangered (T&E) species or their habitat, DOE must consult with the U.S. Fish and Wildlife Service (USFWS), as provided under Section 7 of the Endangered Species Act. Similarly, DOE must consult with the USFWS for projects that would impound, divert, or otherwise control or modify a body of water, as required by the Fish and Wildlife Coordination Act.

For Endangered Species Act compliance, LANL may prepare a Biological Assessment to document the presence of T&E species and to evaluate the impacts of a project on a listed species or its habitat. DOE will then request in writing that the USFWS concurs with DOE's findings in the Biological Assessment. In recent years, DOE and LANL have streamlined the consultation process by preparing a T&E Species Habitat Management Plan. This plan fulfills the provisions of the Endangered Species Act that require federal agencies to carry out programs for the conservation of T&E species and their habitat. The USFWS approved this plan in February 1999.

Provisions in the Wild and Scenic Rivers Act and the Coastal Zone Management Act are not applicable to LANL's activities.

Consideration will be given to Executive Orders, issued by the President, that are relevant to waste management activities at LANL. When any of these Orders is applicable, its provisions will be followed. Requirements for Executive Orders are reserved in 40 CFR §270.3(f).

3.6 OTHER PERMIT ACTIVITIES

Other types of RCRA permits include, but are not limited to, the following;

- Permits by Rule
- Emergency Permits
- Hazardous Waste Incinerator Permits
- Permits for Land Treatment Demonstrations Using Field Test or Laboratory Analyses
- Interim Permits for Underground Injection Control Program Wells
- Research, Development, and Demonstration Permits
- Permits for Boilers and Industrial Furnaces Burning Hazardous Waste.

None of these permit types are relevant for the proposed waste storage operations at TA-63.

3.7 TRAINING

In accordance with 40 CFR §§270.14(b)(12) and 264.16 and Permit Section 2.7, *Training*, training requirements for treatment, storage, and disposal facility workers at LANL are addressed in Attachment F, *Training Plan*, of the Permit. The training program instituted at the Facility includes a combination of Facility-wide courses, permitted unit-specific training, and on-the-job training (OJT). Facility-wide courses are provided internally or through external vendors and are usually classroom-based. Permitted unit-specific training may be developed and delivered within a particular permitted unit, and OJT consists of supervised and documented training focused primarily on procedures performed by individual workers.

All TWF employees and contract and support personnel who handle hazardous and/or mixed waste at the unit will receive the appropriate level of training within six months of their date of hire or transfer for work. Personnel will not be allowed to work in unsupervised waste handling positions at the TWF until they have successfully completed the appropriate level of training for their positions and responsibilities as included in Table F-1 of Attachment F of the Permit at a minimum.

Records of Facility-wide training currently sponsored or administered by central training personnel are entered by that group into the UTrain System, the official Facility training database, and these records document that the required training has been successfully completed by the TWF workers. LANL will retain these training records in accordance with Permit Section 2.12.2, *Facility Operating Record*.

3.8 LAND DISPOSAL RESTRICTIONS

Wastes managed at the TWF will be subject to the Land Disposal Restrictions of 40 CFR Part 268, as implemented by Permit Section 2.3, *Land Disposal Restrictions*.

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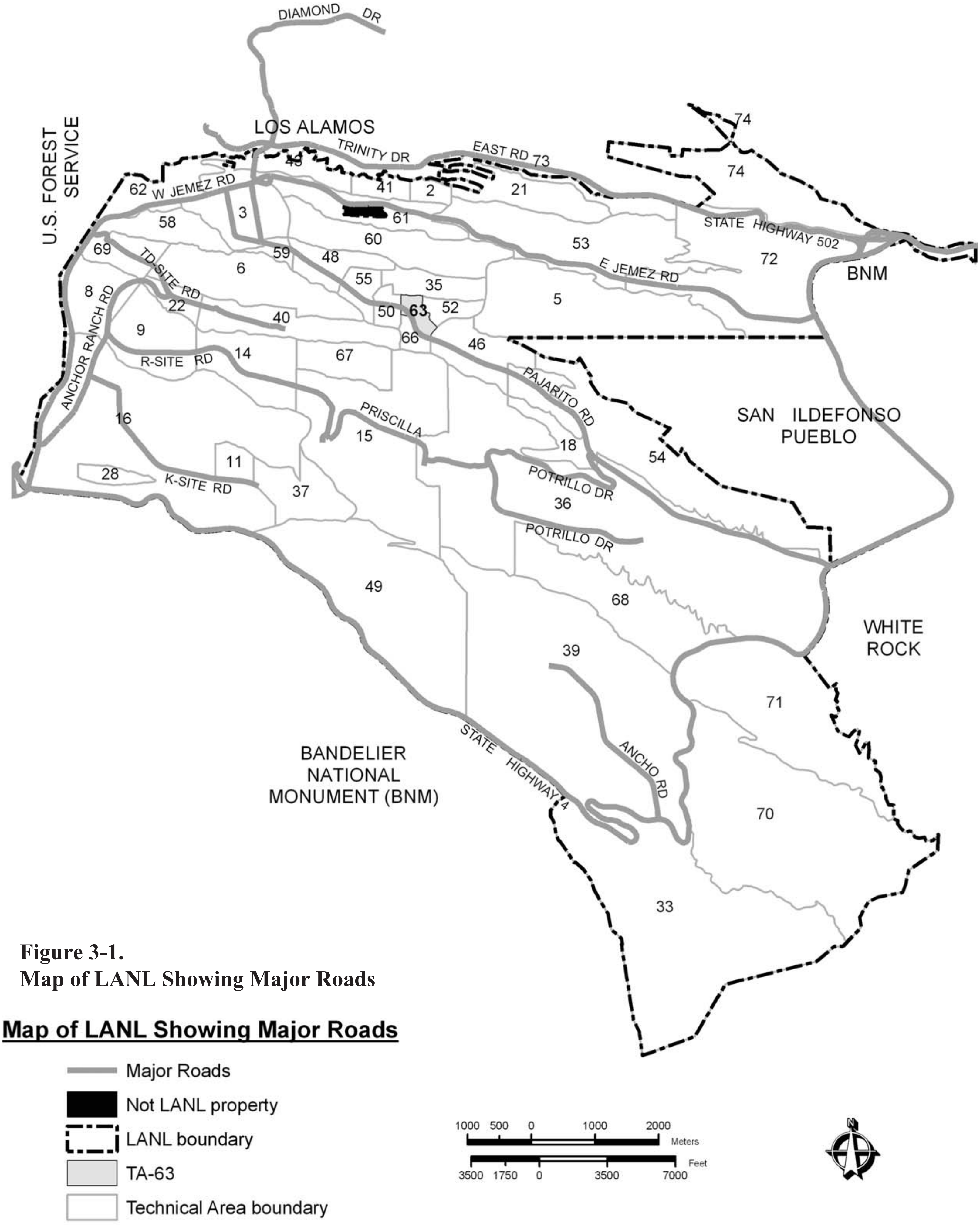


Figure 3-1.
Map of LANL Showing Major Roads

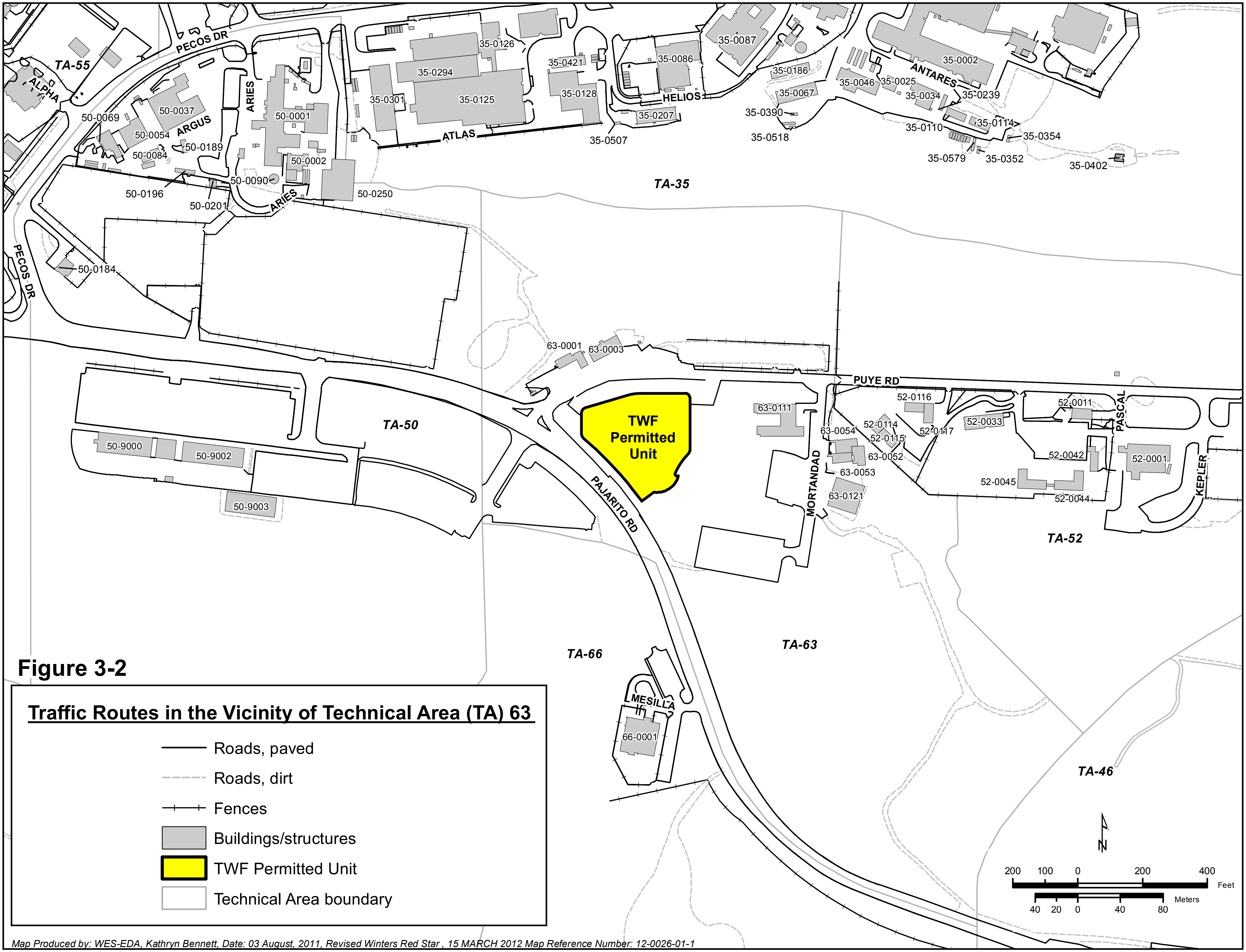


Figure 3-2

Traffic Routes in the Vicinity of Technical Area (TA) 63

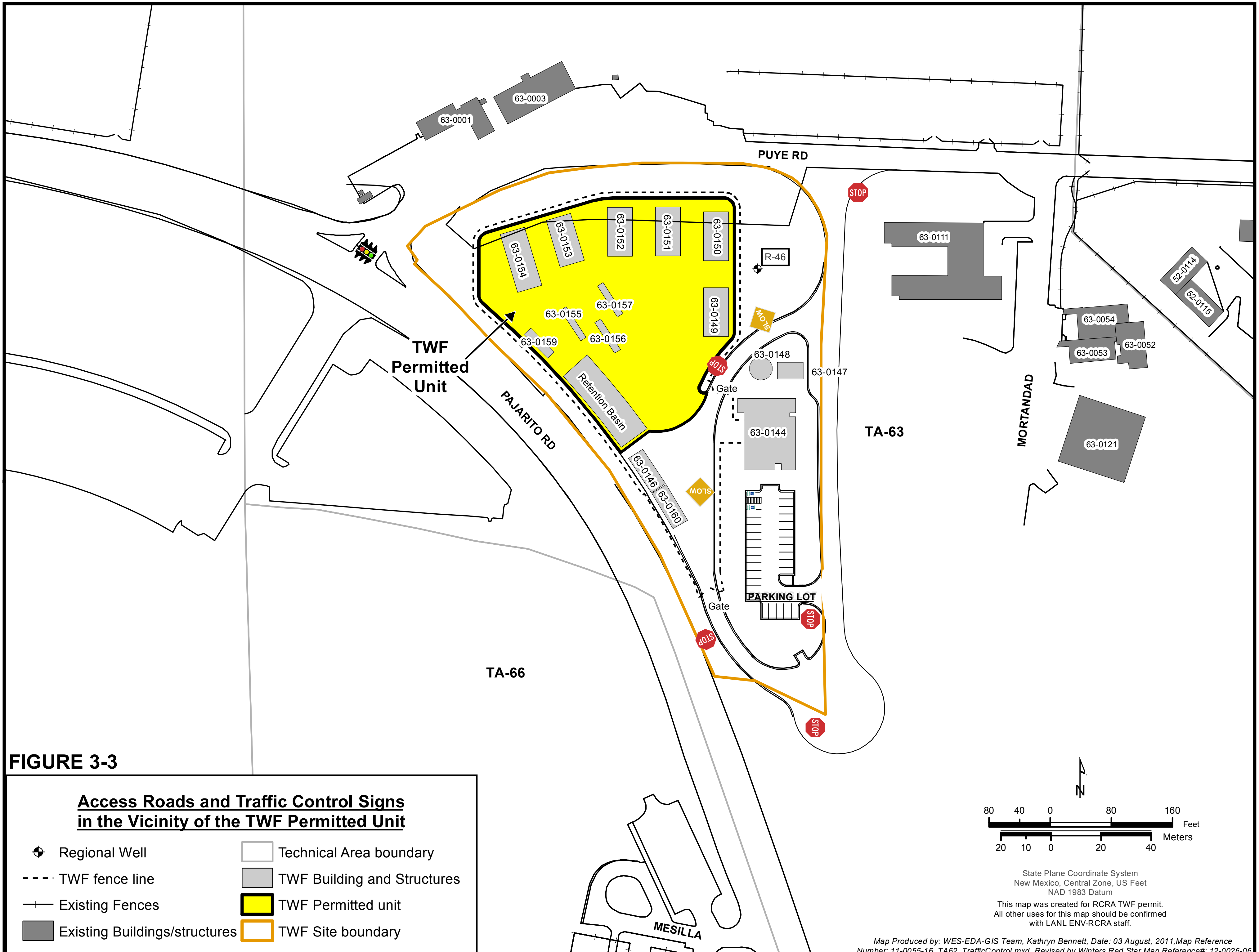
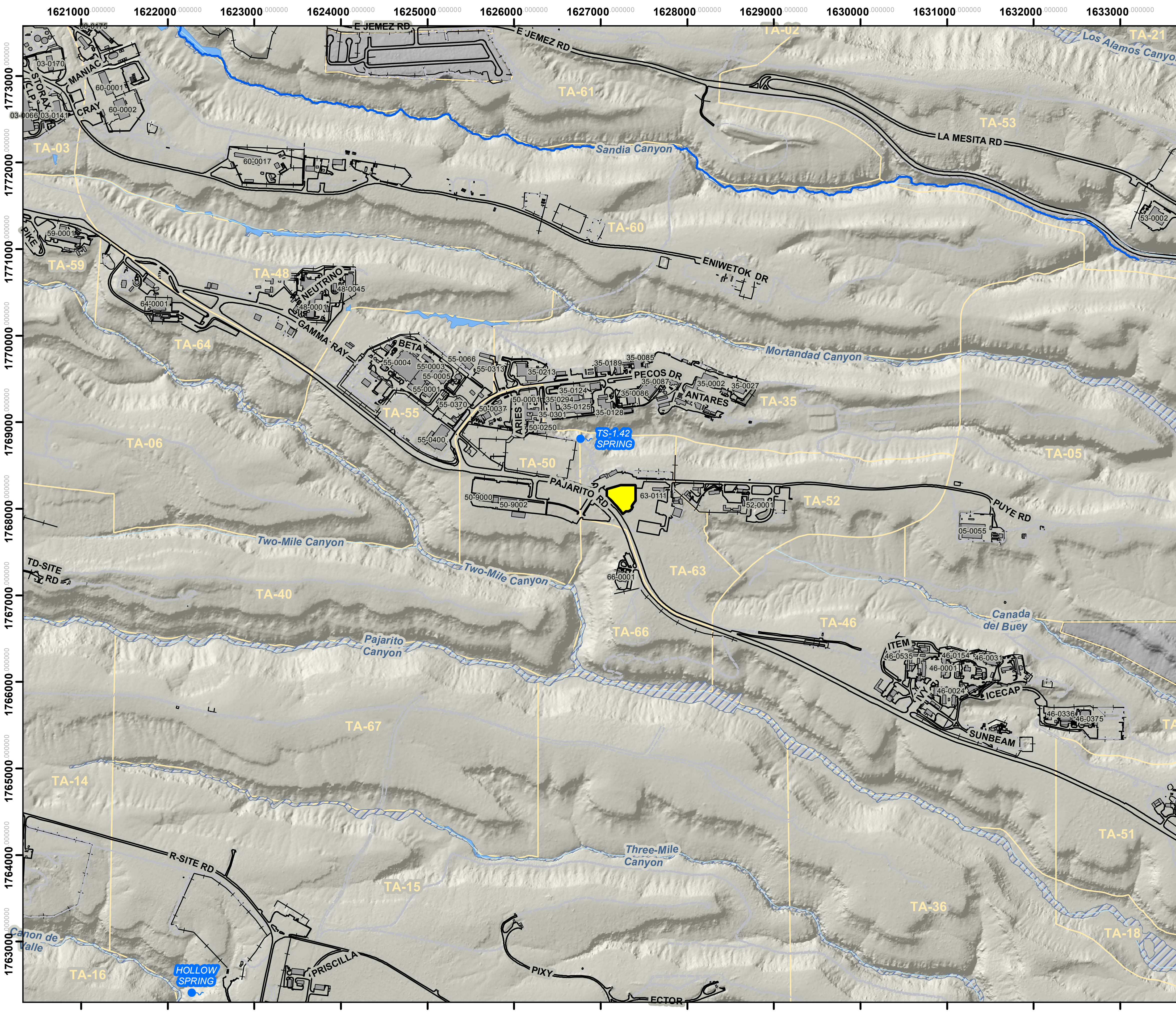


FIGURE 3-3

Access Roads and Traffic Control Signs in the Vicinity of the TWF Permitted Unit

FIGURE 3-4.

Surface Water and Floodplains



Legend

- Springs
- Streams, perennial
- Drainages
- Wetlands
- Floodplains
- Buildings/structures
- TWF Permitted Unit
- Roads, paved
- Roads, dirt
- Fences
- Technical Area boundary

N

Kilometers

0.25 0.125 0 0.25 0.5

1000 500 0 1000 2000

Feet

New Mexico State Plane Coordinate System, Central Zone, Units in Feet.
North American Datum 1983, NGVD 1929.

Reference Grid interval equals 1000 ft

DISCLAIMER: This map was created for work processes associated with LANL TA-63 TWF Permit Modification Request. All other uses for this map should be confirmed with LANL staff.

Map Produced by: WES-EDA-GIS Team, Kathryn Bennett, Date: 14 July, 2011
Map Reference Number: 11-0055-09_TA63_WaterFeatures_NoTitle.mxd. Revised by Winters Red Star map # 12-0026-07

Los Alamos NATIONAL LABORATORY EST. 1943

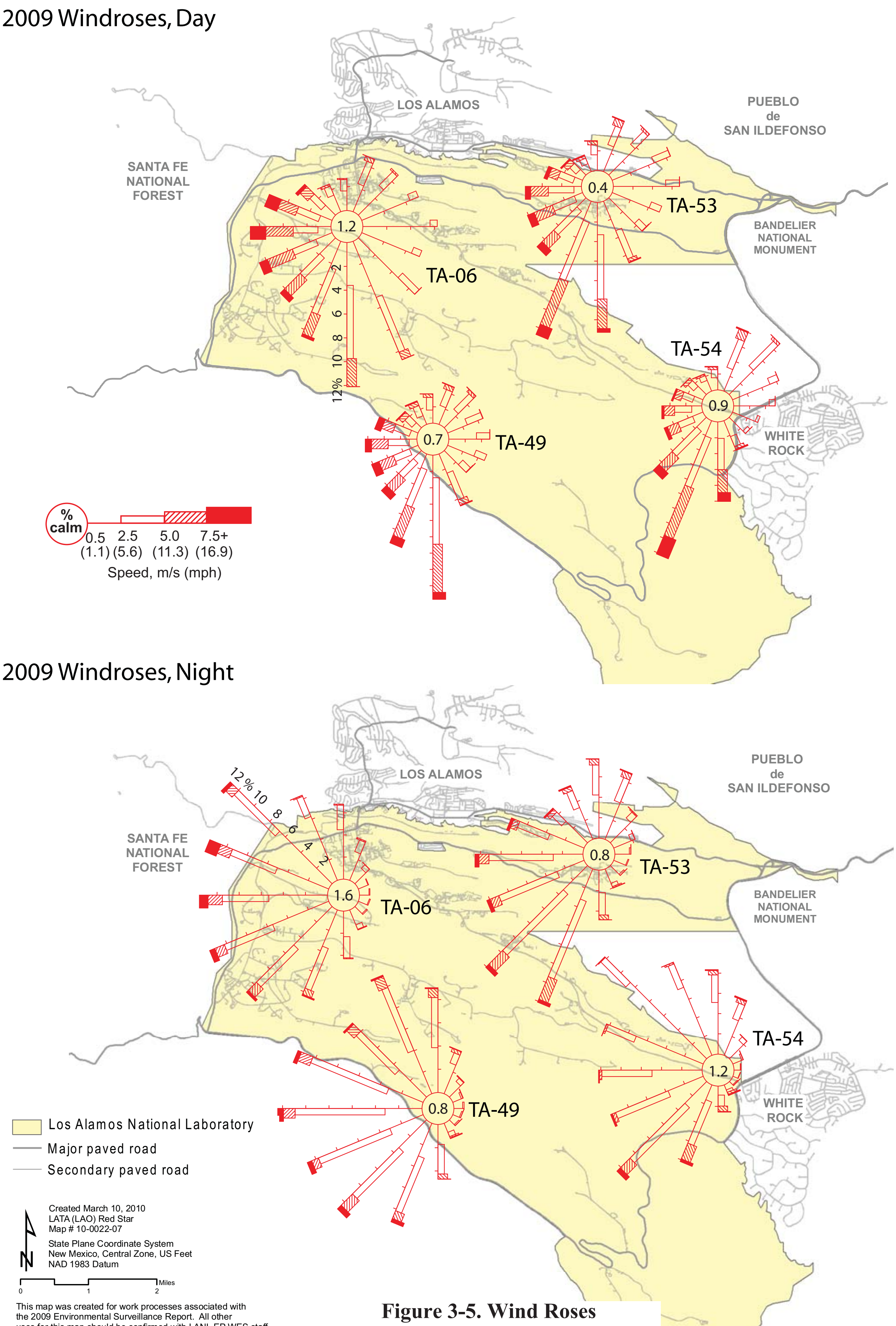


Figure 3-5. Wind Roses

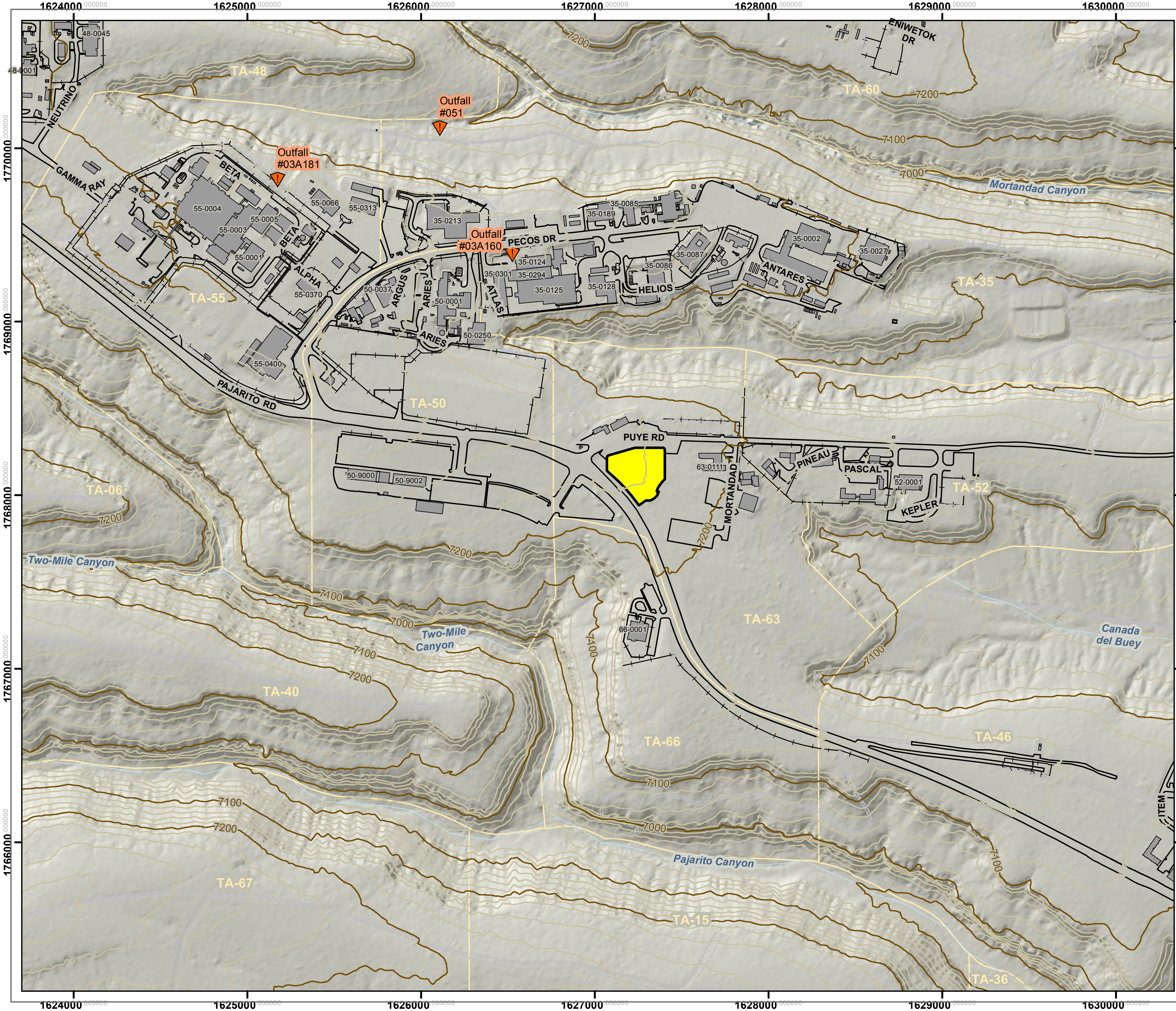


FIGURE 3-6.

National Pollutant Discharge Elimination System (NPDES) Outfalls

Legend

- NPDES Outfalls
- Drainages
- Contours, 100 ft
- Contours, 20 ft
- Roads, paved
- Roads, dirt
- Fences
- TWF Permitted Unit
- Buildings/structures
- Technical Area boundary

Kilometers

0.1 0.05 0 0.1 0.2

500 250 0 500 1000

Feet

New Mexico State Plane Coordinate System,
Central Zone, Units in Feet.
North American Datum 1983.

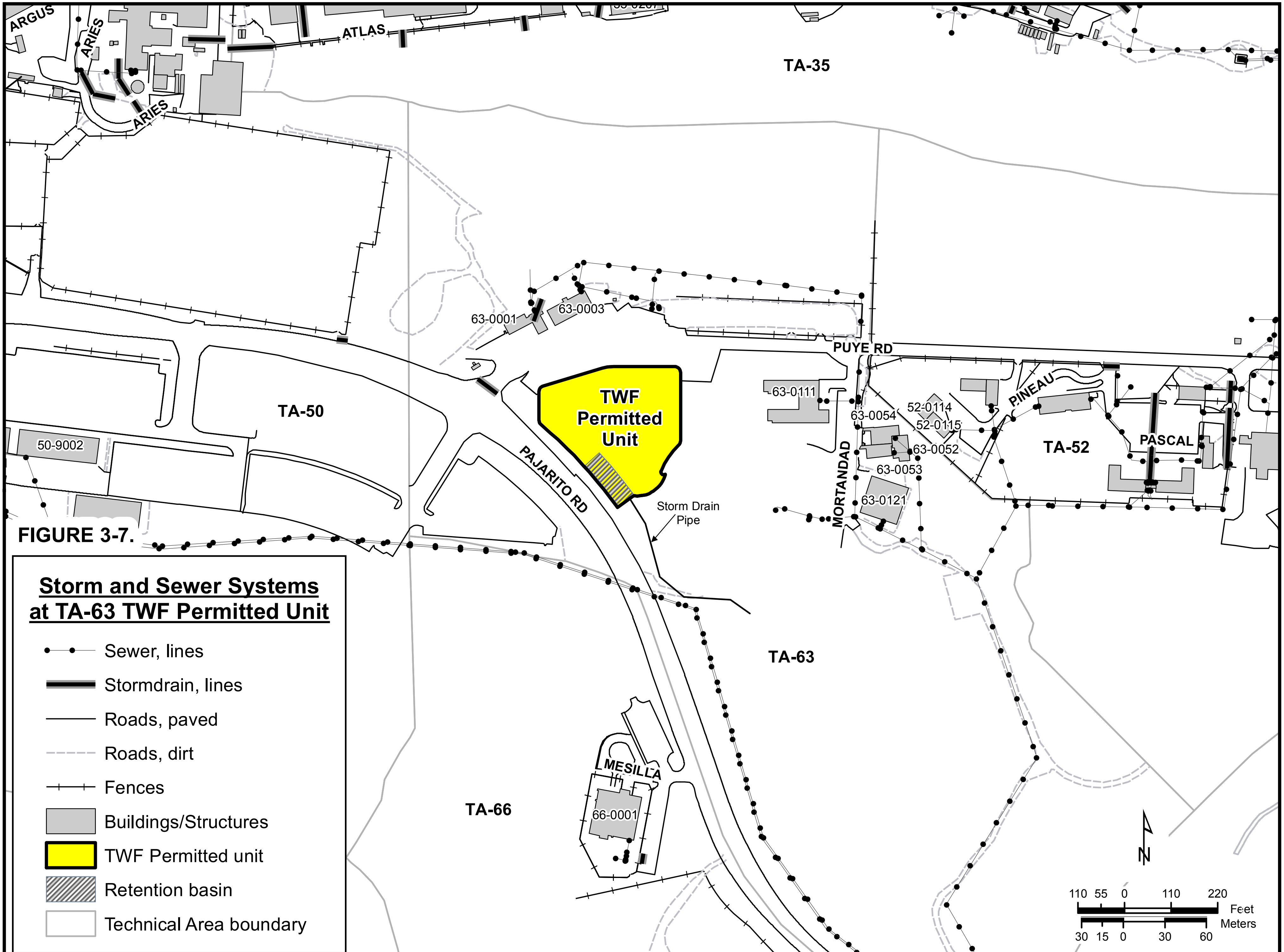
Reference Grid interval equals 1000 ft

DISCLAIMER: This map was created for work processes associated with LANL TA-63 TWF Permit Modification Request. All other uses for this map should be confirmed with LANL staff.

Map Produced by: WES-EDA-GIS Team, Kathryn Bennett,
Date: 03 August, 2011
Map Reference Number: 11-0055-09_TA63_NPDES_Outfalls.mxd

Los Alamos NATIONAL LABORATORY EST. 1943

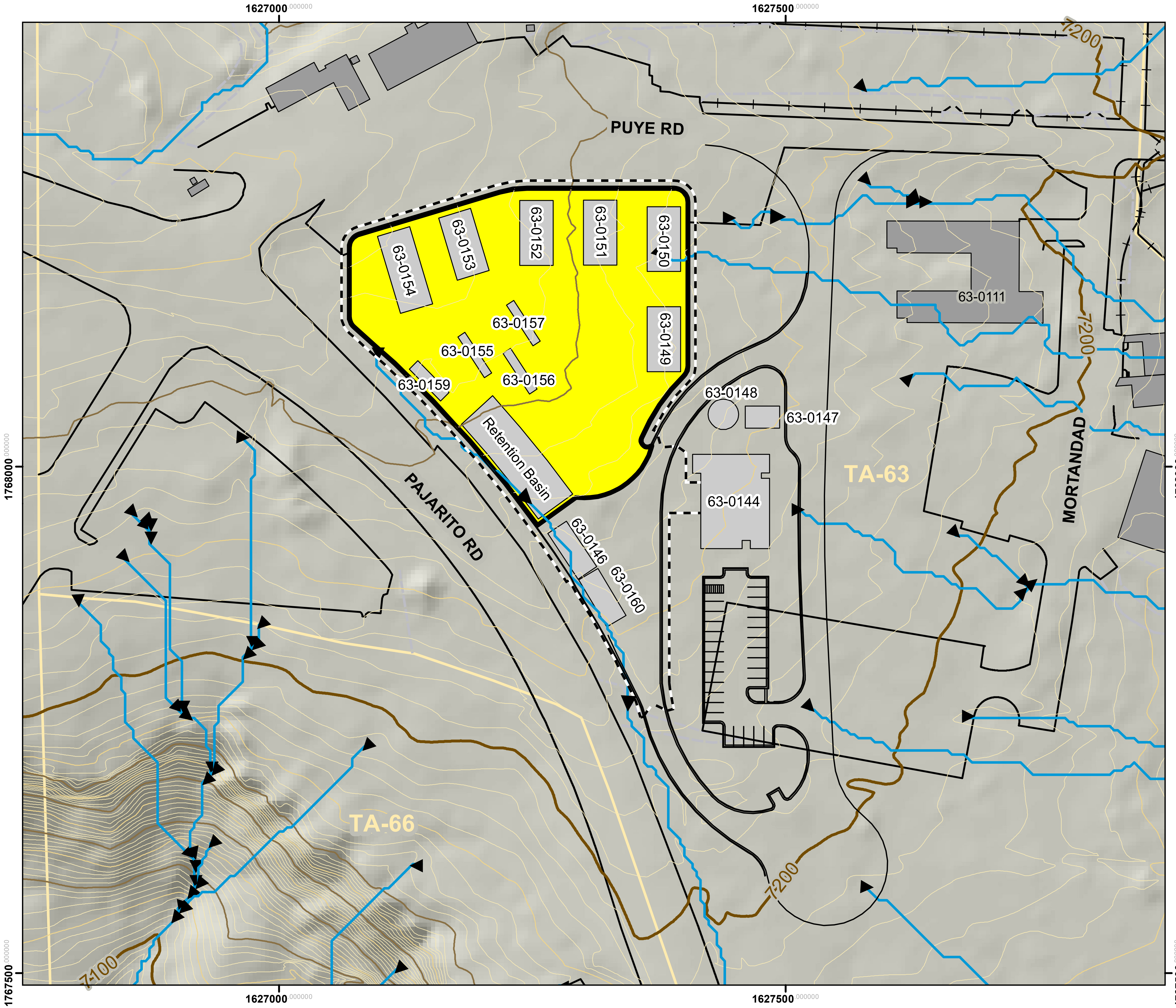
FIGURE 3-7.



Map Produced by: WES-EDA-GIS Team, Kathryn Bennett, Date: 03 August, 2011, Revised by Winters Red Star Map Reference#: 12-0026-09

FIGURE 3-8.

Natural Surface Drainage Map



Legend

- Drainages
- Natural watercourse drainage (arrow indicates flow direction)
- Contours, 100 ft
- Contours, 20 ft
- Contours, 10 ft
- Contours, 2 ft
- Roads, paved (existing)
- Roads, dirt (existing)
- Fences, existing
- TWF fence line
- Buildings/structures
- TWF Building and Structures
- TWF Permitted Unit
- Technical Area boundary

Meters: 20 10 0 20 40

Feet: 100 50 0 100

New Mexico State Plane Coordinate System,
Central Zone, Units in Feet.
North American Datum 1983. NGVD 1929

Reference Grid interval equals 500 ft

DISCLAIMER: This map was created for work processes associated with LANL TA-63 TWF Permit Modification Request. All other uses for this map should be confirmed with LANL staff.

Map Produced by: WES-EDA-GIS Team, Kathryn Bennett,Date: 03 August, 2011Map Reference Number: 11-0055-12_TA63_NaturalSurfaceDrainage .mxd. Revised by Winters Red Star Map #: 12-0026-10

Los Alamos NATIONAL LABORATORY EST. 1943

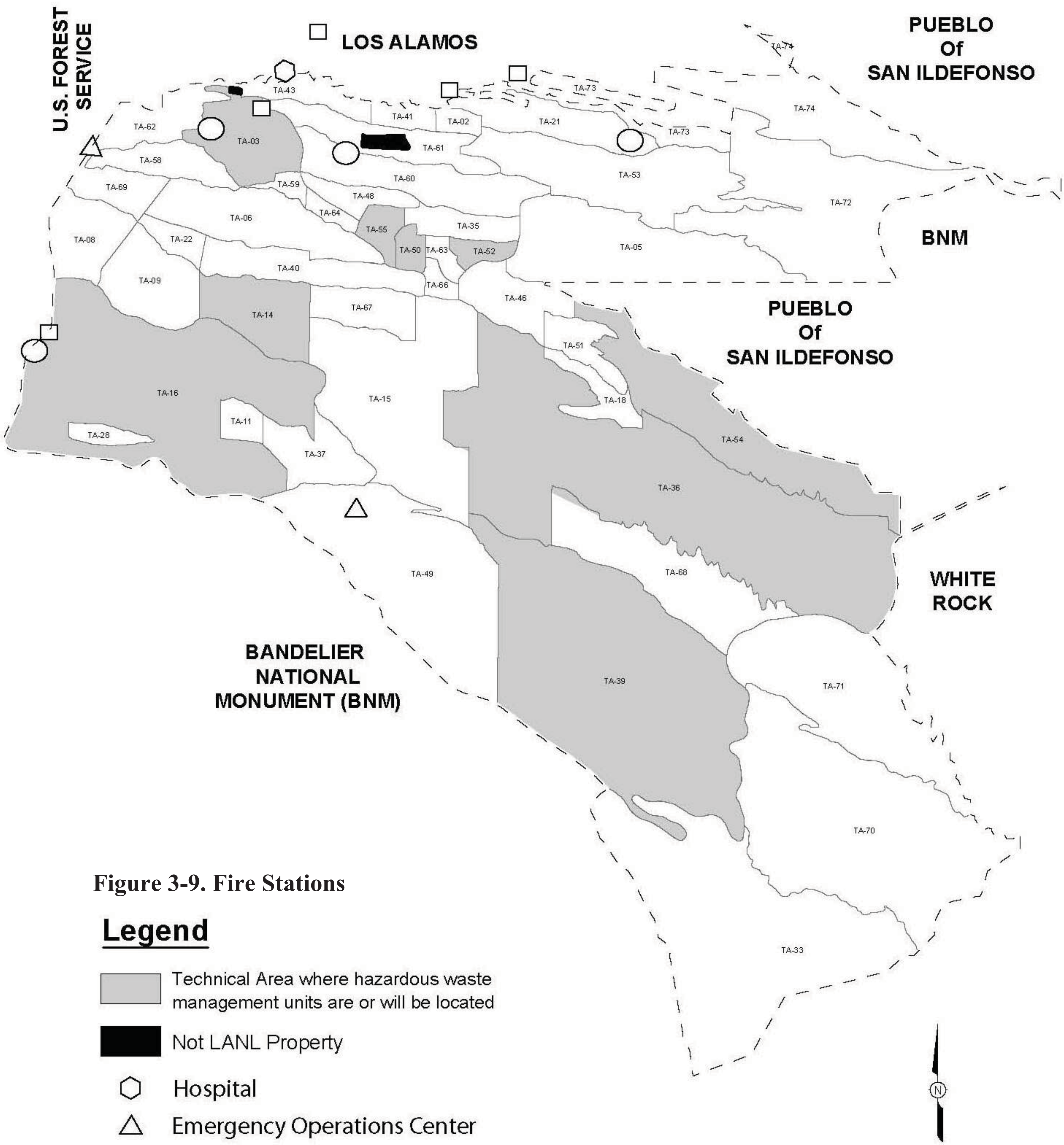


Figure 3-9. Fire Stations

Legend

Technical Area where hazardous waste management units are or will be located

Not LANL Property

Hospital

Emergency Operations Center

Medical Facility

Fire Station

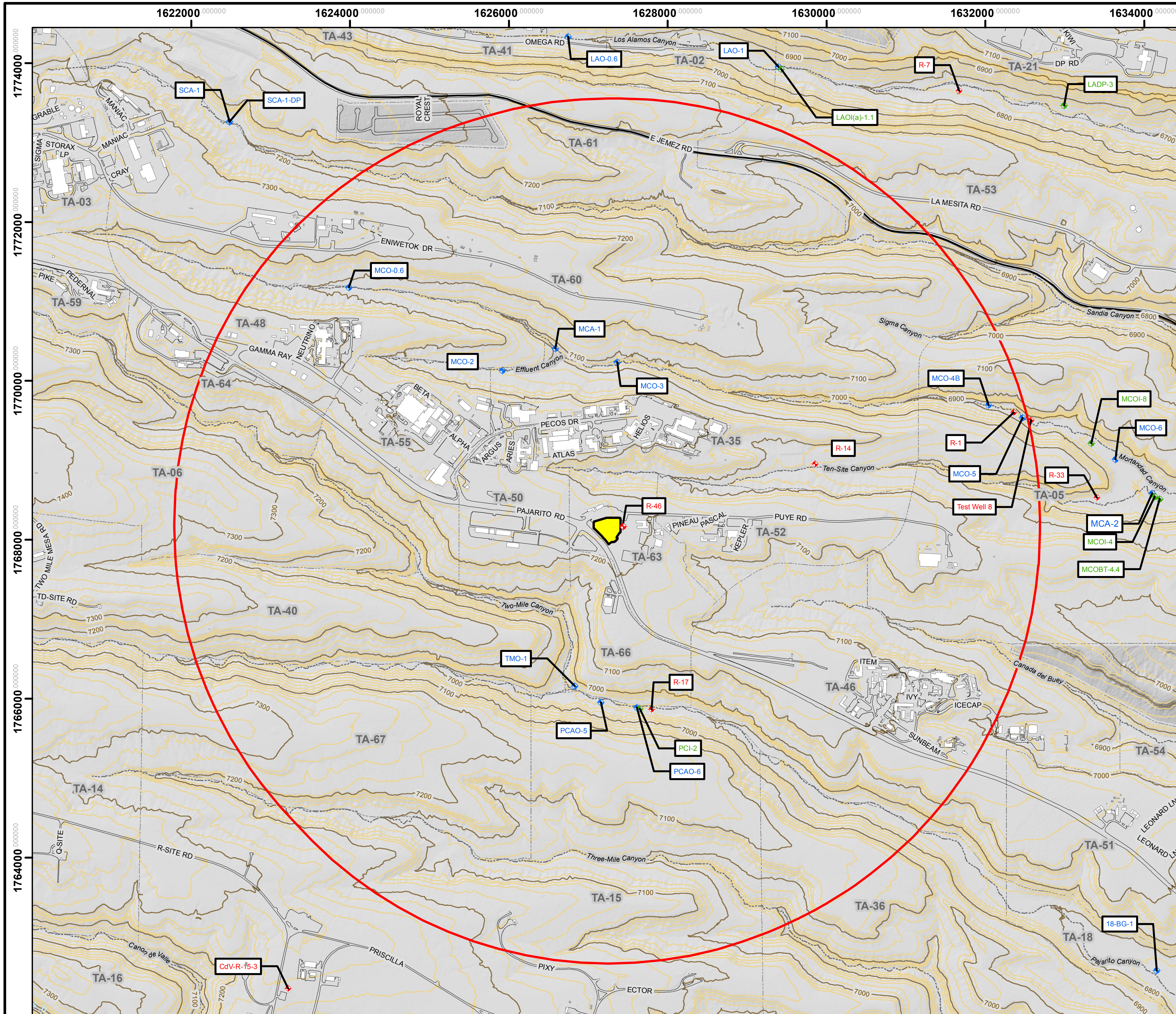


Figure 3.10. Wells, Springs, and Surface Water Sampling Sites Near TA-63

Wells within 1 mile of the TWF Permitted Unit*

- Regional
- Intermediate
- Alluvial
- Major road
- Minor road
- Drainage
- Contours, 100 ft
- Contours, 20 ft
- Structure
- TWF Permitted Unit
- 1 mile buffer
- TA Boundary

*There are no proposed new wells within 1 mile of the TWF (July 2011).

Miles
0 0.1 0.2 0.3 0.4

0 0.1 0.2 0.3 0.4
Kilometers

N

State Plane Coordinate System New Mexico, Central Zone, US Feet NAD 1983 Datum NGVD 1929
2000 ft grid interval is shown

Map Created By:Kathryn Bennett, WES-EDA-GIS, 17 August, 2011, Map # 11-0055-19_Wells_1mile_noBoreholes
Revised By: Winters Red Star 14 MARCH 2012 Map #12-0012-02

Data Sources:

Well locations; Los Alamos National Laboratory, table of locations and attributes pulled from WQDB; Project folder 11-0056; March 24, 2011.
Boreholes: Los Alamos National Laboratory, pulled from ERDGi1v.ER.ER_location_ids_pnt; Accessed July 28, 2011; Unpublished data.
Drainages; Los Alamos National Laboratory; ENV Water Quality & Hydrology; Unpublished 2007 data.
Paved Road Arcs; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; Development Edition of 06 January 2004; as published 29 November 2010.
Structures; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 29 November 2010
Technical Area Boundaries; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Division; 13 August 2010.

This map was created for RCRA reference use only. All other uses for this map should be confirmed with LANL EP-ET-ER staff.

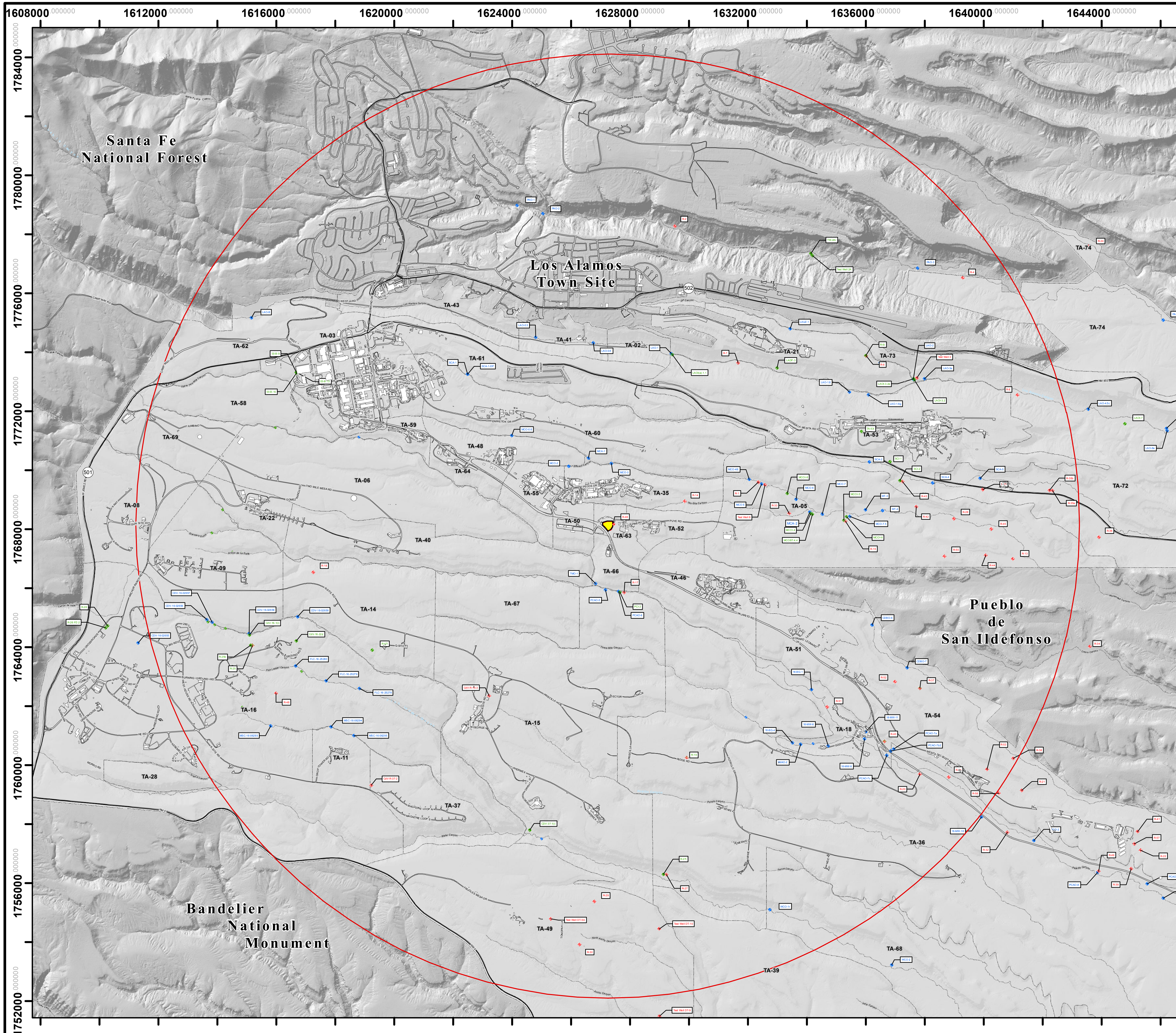


FIGURE 3-11.

Wells and Boreholes within 3-mile Radius of TA-63

Wells within 3 mile of the TWF Permitted Site*

- Regional
- Intermediate
- Alluvial
- Major road
- Minor road
- Drainage
- TWF Permitted Unit
- Structure
- TA Boundary

*There are no proposed new wells within 3 mile of the TWF (July 2011).

N

0 0.25 0.5 1 1.5 2 Miles

0 0.3 0.6 1.2 1.8 2.4 Kilometers

State Plane Coordinate System New Mexico, Central Zone, US Feet NAD 1983 Datum NGVD 1929
2000 ft grid interval is shown

Map Created By:Kathryn Bennett, WES-EDA-GIS,
17 August, 2011, Map # 11-0055-19_Wells_1mile_noBoreholes
Revised By: Winters Red Star 14 MARCH 2012 Map #12-0012-02

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Structures; Los Alamos National Laboratory, KSL Site Support Services, Planning, Locating and Mapping Section; 06 January 2004; as published 29 November 2010
Technical Area Boundaries; Los Alamos National Laboratory, Site Planning & Project Initiation Group, Infrastructure Planning Division; 13 August 2010.

This map was created for RCRA reference use only. All other uses for this map should be confirmed with LANL EP-ET-ER staff.

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4.0 CORRECTIVE ACTION

This section describes four Solid Waste Management Units (SWMUs) located in, or potentially impacting, TA-63 at LANL. Information on the SWMUs at and near TA-63 is contained in LANL's *Solid Waste Management Units Report* (LANL, 1990), hereinafter referred to as the 1990 SWMU Report, and in the *RFI Work Plan for Operable Unit 1129* (LANL, 1992), as well as other references cited below.

4.1 INTRODUCTION

The information in this section is being submitted in response to regulatory requirements in 40 CFR §270.14(d). LANL uses the definition of a SWMU presented in the March 1, 2005 Compliance Order on Consent for LANL issued by NMED on March 1, 2005, hereinafter called the Consent Order. This definition states that SWMUs are "any discernible unit at which solid wastes have been placed at any time, and from which the Department determines there may be a risk of a release of hazardous waste or hazardous waste constituents, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at the Facility at which solid wastes have been routinely and systematically released; they do not include one-time spills."

4.2 SWMU DESCRIPTIONS

Descriptions of the SWMUs at and near TA-63 identified for corrective action in the Consent Order and Table K-1, *SWMUs and AOCs Requiring Corrective Action*, of the Permit are presented below. These descriptions were compiled from the *RFI Work Plan for Operable Unit 1129* (LANL, 1992), the 1990 SWMU Report, the *Addendum to "Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate"* (LANL 2004), and the *Phase III Investigation Report for Material Disposal Area C, Solid Waste Management Unit 50-009 at Technical Area 50* (LANL 2011c). Brief unit and waste descriptions are also provided in Table 4-1.

4.2.1 TA-63 SWMUs

SWMUs at TA-63 include two inactive septic systems, neither of which is situated within the boundary of the TWF. Their locations are shown in Figure 4-1 of this permit modification request.

4.2.1.1 SWMU 63-001(a)

SWMU 63-001(a) is an inactive 1000-gal. septic tank (structure 63-12, formerly designated as structure 52-49) and its associated seepage pit and drain line (formerly designated as structure 52-50). The seepage pit is 4 ft in diameter and 50 ft deep. This septic system formerly served Buildings 63-3, -4, -5, and -6. The septic system was removed from service in 1993 when the lines were connected to the TA-46 SWSC. Building 63-3 is a single-story concrete-block building that contains carpentry, welding, plumbing, and paint shops and two offices. Building 63-4 is a modular office building. Buildings 63-5 and -6 are trailers that are subdivided into offices.

Potential contaminants at SWMU 63-001(a) are solvents and other unspecified chemicals. No documentation of spills, releases, or incidents at TA-63 has been found.

Sampling was conducted at SWMU 63-001(a) in 1995. A total of 31 samples were collected from four locations and submitted for laboratory analysis of inorganic chemicals, organic chemicals, and radionuclides. Arsenic was detected below its background value (BV). Silver was detected slightly above its BV. Three inorganic chemicals with no established BVs were also detected. Nitrate (as NO3), nitrite (as NO2), and nitrogen dioxide were also detected. Cesium-134 was detected in one sample. There is no established BV for this radionuclide. Plutonium-238 and plutonium-239 were detected below their surface BVs. However, because these compounds were detected at depth these results are considered greater than background. Two organic chemicals with no established BVs, xylene and di-n-butyl pthalate, were detected.

Sampling was conducted at SWMU 63-001(a) in 1995. A total of 32 samples were collected from four locations and submitted for laboratory analysis of inorganic chemicals, organic chemicals, and radionuclides. Arsenic was detected below its background value (BV). Silver was detected slightly above its BV. Three inorganic chemicals with no established BVs were also detected. Nitrate (as NO3) and nitrite (as NO2) were also detected. Cesium-134 was detected in one sample. There is no established BV for this radionuclide. Plutonium-238 and plutonium-239 were detected below their surface BVs. However, because these compounds were detected at depth these results are considered greater than background. Two organic chemicals with no established BVs, xylene and di-n-butyl pthalate, were detected. The results of the 1995 sampling were not presented in a report, but were included in the *Addendum to "Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate"* (LANL 2004).

4.2.1.2 SWMU 63-001(b)

SWMU 63-001(b) is an inactive 920-gal. septic tank (structure 63-14) and its associated seepage pit and drainlines. The seepage pit is 4 ft in diameter and 50 ft deep. Formerly, the tank and seepage pit were designated as structures 52-154 and structure 00-462, respectively. This septic system served Building 63-1 and received only sanitary wastewater. The septic system was removed from service in 1993 when the lines were connected to the TA-46 SWSC. Building 63-1 is a single-story building that houses offices, an electronics shop, and a machine shop. The building formerly was designated structure 00-155. Potential contaminants at SWMU 63-001(b) are solvents and other unspecified chemicals. No documentation of spills, releases, or incidents at TA-63 has been found.

In 1995, RFI samples were collected at SWMU 63-001(b). A total of 31 samples were collected from 4 locations and submitted for laboratory analysis of inorganic chemicals, organic chemicals, and radionuclides. Arsenic was detected below its BV. Five inorganic chemicals with no established BVs were detected below their respective screening levels: lithium, molybdenum, nitrate (as NO3), nitrite (as NO2), and strontium. Plutonium-238 was detected above its BV. Two organic chemicals, benzo(a)athracene and di-n-butylpthalate, were detected below their respective screening levels.

4.2.1.3 SWMU 52-002(e) [duplicate of SWMU 63-001(a)]

In the SWMU Report (LANL1990), SWMU 52-002(e) is described as an active 1,000-gal. septic tank, TA-52-49, and its associated seepage pit, TA-52-50. The septic tank/seepage pit were located in the western portion of TA-52. In May of 1989, the western portion of TA-52 was reassigned as TA-63; septic tank TA-52-49 and its associated seepage pit, TA-52-50, were consequently reassigned as structures TA-63-12 and TA-63-13. The Structure Number Log maintained by LANL's Facility Engineering Department recorded that structures TA-52-49 and TA-52-50 were renumbered as TA-63-12 and TA-63-13. The SWMU Report, however, failed to consider the resassigned area as a portion of TA-52, but it also included that same area under its new designation of TA-63. As a component of TA-63, the septic tank and its associated seepage pit, TA-63-12, were assigned a second SWMU number, 63-001(a). Thus, the septic tank/seepage pit received two different SWMU numbers, 52-002(e) and 63-001(a).

Because this site was a duplicate of another SWMU, the Laboratory requested that it be approved for no further action and removed from the corrective action module (Module VIII) of the Laboratory’s Hazardous Waste Facility Permit (LANL 1996). NMED approved this request and modified Module VIII to remove this site on December 8, 1997 (NMED 1997).

4.2.14Corrective Action

Pursuant to 40 CFR §264.101(a), corrective action is required only for releases of hazardous waste or hazardous constituents. The SWMUs at TA-63 will be investigated and remediated, as necessary and with NMED approval, during LANL Corrective Action Program under the Consent Order. Corrective action will generally follow the RCRA Facility Investigation/Corrective Measures Study process.

The July 15, 2011 Investigation Report (LANL, 2011c) discussed the sampling performed to define a vapor plume made up of volatile organic compounds (VOCs) beneath MDA C. In particular, the concentration data for the most prevalent VOC, trichloroethylene (TCE), were modeled to illustrate the shape and extent of the vapor plume. The Investigation Report examined the vapor plume with respect to its potential for impacting groundwater and found that the plume is situated about 700 ft above the regional aquifer with vertical and horizontal extents shown in the figures in the report. These indicate the potential for a VOC plume near or within the boundaries of the TWF site.

Table 4-1. Solid Waste Management Unit (SWMU) Descriptions[a]

SWMU No.	Unit Type	Unit Description	Waste Description
63-001(a)[b]	Septic System	Inactive site located in the Middle Mortandad/ Ten Site Canyons at TA-63	Sanitary and industrial wastewater
63-001(b)[b]	Septic System	Inactive site located in the Middle Mortandad/ Ten Site Canyons at TA-63	Sanitary wastewater

[a] Information compiled from: *Solid Waste Management Units Report* (LANL, 1990); *Module VIII: Special Conditions Pursuant to the 1984 Hazardous and Solid Waste Amendments to RCRA for Los Alamos National Laboratory, EPA I.D. NM0890010515* (EPA 1998); and *RFI Work Plan for Operable Unit 1129* (LANL, 1992).

[b] SWMU is identified in *Module VIII: Special Conditions Pursuant to the 1984 Hazardous and Solid W Amendments to RCRA for Los Alamos National Laboratory, EPA I.D. NM0890010515* (EPA, 1998) *LANL Hazardous Waste Facility Permit* (NMED, 2010).

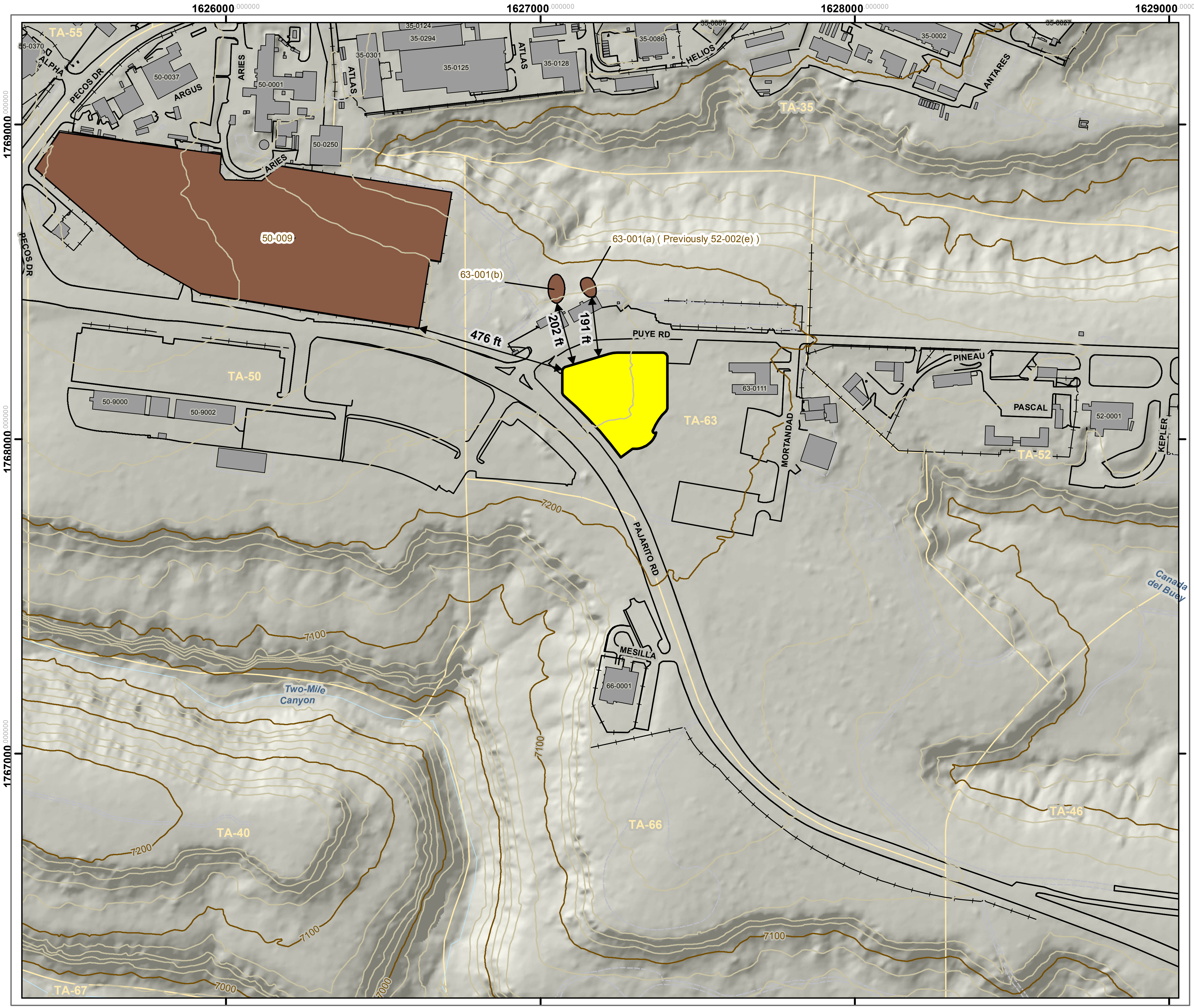

FIGURE 4-1.

Location of TA-63 SWMUs

Legend

- Drainages
- Contours, 100 ft
- Contours, 20 ft
- Roads, paved1
- Roads, dirt
- Fences
- Solid Waste Management Unit
- Buildings/Structures
- TWF Permitted Unit
- Technical Area boundary

N

Kilometers
0.05 0.025 0 0.05 0.1

250 125 0 250 500
Feet

New Mexico State Plane Coordinate System, Central Zone, Units in Feet.
North American Datum 1983. NGVD 1929

Reference Grid interval equals 1000 ft

DISCLAIMER: This map was created for work processes associated with LANL TA-63 TWF Permit Modification Request. All other uses for this map should be confirmed with LANL staff.

Map Produced by: WES-EDA-GIS Team, Kathryn Bennett, Date: 03 August, 2011 Map Reference Number: 11-0055-21_TA63_SWMU _disdir_sm.mxd Revised by Winters Red Star Map Reference#: 12-0026-12

Los Alamos NATIONAL LABORATORY EST. 1943

5.0 CLOSURE PLAN

The closure plan describes the activities necessary to close the TA-63 TWF Unit. The information provided in the closure plan addresses the closure requirements specified in Permit Part 9, 40 CFR Part 264, Subparts G and I for hazardous waste management units operated at LANL under RCRA and the NMHWA.

The proposed closure plan for the TWF is included as Attachment F of this permit modification request. The plan is not included in its entirety as a potential revision to the Permit in Attachment G of this submittal to avoid duplication. The closure plan includes references to the requirements of Permit Part 9, *Closure*, and information regarding the procedures to meet them. It closely follows the format and content of the current closure plans included in Attachment G of the Permit. These includes descriptions of the closure performance standards, schedules, closure procedures (including waste equipment disposition, structure removal, decontamination and verification procedures), the sampling and analysis plan, waste management, and the closure certification report.

Until closure is complete and has been certified in accordance with Permit Section 9.5, *Closure Certification Report,* to the NMED, a copy of the approved closure plan or the Permit containing the plan, any approved revisions, and closure activity documentation associated with the closure will be on file with hazardous waste compliance personnel at LANL and at the DOE Los Alamos Site Office. Prior to closure of the TWF, this closure plan may be amended in accordance with Permit Section 9.4.8, as necessary and appropriate, to provide updated sampling and analysis plans and to incorporate updated decontamination technologies. Amended closure plans will be submitted to NMED for approval prior to implementing closure activities.

5.1 Closure Cost Estimate, Financial Assurance and Liability Requirements

LANL is a federal facility, owned by the DOE. In accordance with 40 CFR §264.140(c), LANL is exempt from the 40 CFR §264 Subpart H requirements to provide a cost estimate, financial assurance mechanisms, and liability insurance for closure actions. Therefore, these provisions are not included in the closure plan included as Attachment F of this permit modification request.

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6.0 REFERENCES

CCP, 2010. CCP-TP-093, *CCP Sampling of TRU Waste Container*, Waste Isolation Pilot Plant, Carlsbad, New Mexico, 2010.

DOE, 1995: *DOE Methods for Evaluating Environmental and Waste Management Samples*, DOE/EM-0089T, Revision 2., prepared for the U.S. Department of Energy by Pacific Northwest Laboratory, Richland, Washington.

DOE, 2010. *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant*, DOE/WIPP-02-3122, Revision 7.0, US Department of Energy, Carlsbad Field Office, Carlsbad, NM.

EPA, 1998: *Module VIII: Special Conditions Pursuant to the 1984 Hazardous and Solid Waste Amendments to RCRA for Los Alamos National Laboratory, EPA I.D. NM0890010515*, effective date May 19, 1994, and December 23, 1998, U.S. Environmental Protection Agency, Region 6, Hazardous Waste Management Division, Dallas, Texas.

EPA, 1986 (and all approved updates): *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA-SW-846, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, U.S. Government Printing Office, Washington, D.C.

EPA, 1994: *Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF) – Background Information for Promulgated Organic Air Emission Standards for Tanks, Surface Impoundments and Containers*, EPA-453/R-94-076b, November 1994, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, U.S. Government Printing Office, Washington, D.C.

EPA, 2002. *RCRA Waste Sampling Draft Technical Guidance Planning, Implementation, and Assessment*, EPA530-D-02-002, August 2002, Office of Solid Waste, U.S. Environmental Protection Agency, Washington, DC.

LANL, 1990: *Solid Waste Management Units Report*, Revision 1.0, LAUR 90-3400, Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 1992: *RFI Work Plan for Operable Unit 1129*. Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 2003. *Los Alamos National Laboratory General Part A Permit Application*, Revision 6.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 2003. *Los Alamos National Laboratory General Part B Permit Application*, Revision 2.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 2004. *Addendum to Sampling and Analysis Plan for the Middle Mortandad/Ten Site Aggregate*, Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 2006. *A Plan for the Management of the Cultural Heritage at Los Alamos National*

Laboratory, New Mexico, Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 2007, *Investigation Report for the Middle Mortandad/ Ten Site Aggregate, Revision 1*, LA-UR-07-4716 EP2007-0379, Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 2008. CMRR Traffic Impact Analysis Study, Rev.0, 35554-009-08, Prepared for Los Alamos National Laboratory by Vigil Enterprises, Inc., September 30, 2088.

LANL, 2009/2010. *Water Level Data at LANL*, electronic database: Environment at LANL, Water Monitoring, Compliance, Risk Reduction, Los Alamos National Laboratory, Los Alamos, 2009/2010

LANL, 2010. *Los Alamos National Laboratory Waste Acceptance Criteria*, P930-1, Los Alamos National Laboratory, Los Alamos, September 2010.

LANL, 2011a. *TWF Storage Building Structural Design*, 11-001-SCAL-001, prepared for Los Alamos National Laboratory by Weidlinger-Navarro JV Northern, Los Alamos, New Mexico.

LANL, 2011b. Specification Section 09 9600 *Special Coatings, Master Document List for the TA-63 TRU Waste Facility Project Phase B Design 11-001-LIST-001*. Prepared for Los Alamos National Laboratory by Weidlinger-Navarro Northern New Mexico JV, 2011.

LANL, 2011c. *Phase III Investigation Report for Material Disposal Area C, Solid Waste Management Unit 50-009 at Technical Area 50.* Los Alamos National Laboratory, Los Alamos, New Mexico.

LANL, 2012. *The Vapor Plume at Material Disposal Area C in Relation to Pajarito Corridor Facilities.* March, 2012, Los Alamos National Laboratory, Los Alamos, New Mexico.

McLin, S.G., M.E. van Eeckhout, and A. Earles, 2001: *Mapping 100-Year Floodplain Boundaries Following the Cerro Grande Wildfire*, LA-UR-01-5218, Los Alamos National Laboratory, Los Alamos, New Mexico.

McLin, S. G., 1992: *Determination of 100-Year Floodplain Elevations at Los Alamos National Laboratory*, LA-12195-MS, Los Alamos National Laboratory, Los Alamos, New Mexico.

NFPA 13. *Standard for the Installation of Sprinkler Systems*, National Fire Protection Association, 2010 ed.

NFPA 72. *National Fire Alarm and Signaling Code*, National Fire Protection Association, 2010 ed.

NFPA 1144. *Standard for Reducing Structure Ignition Hazards from Wildland Fire*, National Fire Protection Association, Technical Committee on Forest and Rural Fire, 2008 ed.

NIOSH, 1994: *The National Institute for Occupational Health and Safety (NIOSH) Manual of Analytical Methods*, 4th ed. Issue 1. 1994.

NMED 2010: *Los Alamos National Laboratory Hazardous Waste Facility Permit*, New Mexico Environment Department, Santa Fe, New Mexico.

Nyhan, J. W., L. W. Hacker, T. E. Calhoun, and D. L. Young, 1978: *Soil Survey of Los Alamos County, New Mexico*, LA-6779-MS, Los Alamos National Laboratory, Los Alamos, New Mexico.

WRCC, 2011. Monthly Average Pan Evaporation (Inches), New Mexico, Western Regional Climate Center, Reno NV, available at: http://www.wrcc.dri.edu/htmlfiles/westevap.final.html#NEW%20MEXICO

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7.0 CERTIFICATION

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 gather and evaluate 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.

7/11/12

Alison M. Dorries
Division Leader
Environmental Protection Division
Los Alamos National Laboratory
Operator

Date Signed

7/12/12

For **Kevin W. Smith**
Manager, Los Alamos Site Office
National Nuclear Security Administration
U.S. Department of Energy
Owner/Operator

Date Signed

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Attachment A
Part A Form

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United States Environmental Protection Agency

HAZARDOUS WASTE PERMIT INFORMATION FORM

1. Facility Permit Contact	**First Name:** Kevin	**MI:** W	**Last Name:** Smith
	Contact Title: Los Alamos Site Office Manager		
	Phone Number: 505-667-5105	**Ext.:**	**Email:** ksmith2@doeal.gov
2. Facility Permit Contact Mailing Address	**Street or P. O. Box:** 3747 West Jemez Road		
	City, Town, or Village: Los Alamos		
	State: NM		
	Country: USA		**Zip Code:** 87544
3. Operator Mailing Address and Telephone Number	**Street or P. O. Box:** P.O. Box 1663		
	City, Town, or Village: Los Alamos		
	State: NM		
	Country: USA	**Zip Code:** 87545	**Phone Number:** 505-667-4218
4. Facility Existence Date	**Facility Existence Date (mm/dd/yyyy):** 01/01/1943		

5. Other Environmental Permits

A. Facility Type *(Enter code)*	B. Permit Number	C. Description
See attached		

6. Nature of Business: LANLs central mission is the reduction of global nuclear danger supported by research that also contributes to conventional defense, civilian, and industrial needs. This includes programs in nuclear,medium energy, and space physics; hydrodynamics; conventional explosives; chemistry; metallurgy;radiochemistry; space nuclear systems; controlled thermonuclear fusion; laser research; environmental technology; geothermal, solar, and fossil energy research; nuclear safeguards; biomedicine; health and biotechnology; and industrial partnerships.

5. Other Environmental Permits

A. Facility Type	B. Permit Number	C. Description
National Pollutant Discharge Elimination System (NPDES):		
NPDES Construction General Permit:		Construction Project Title
N	NMLEWG855	Los Alamos National Laboratory
N	NMR15FG67	Regional Wells Project
N	NMR15EZ86	TA-50 Pumphouse
N	NMR15EZ89	TA-55 Construction
N	NMR15FB75	Ski Hill Bypass Road
N	NMR15EZ87	TA-50 RLWTF
N	NMR15EZ75	DX Strategic Plan
N	NMR15EZ85	TA-33 Construction Activities
N	NMR15EZ98	Deactivation and Decommission
Industrial Point Source Permit:		
N	NMR05GB21	Industrial point source discharges
NPDES Storm Water Multi-Sector General Permit (MSGP) for Industrial Activities:		
N	NMR05GB21	Los Alamos National Security, LLC
N	NMR05GK10	U.S. Department of Energy
Dredge and Fill Permits with the U.S. Army Corps of Engineers:		
	N/A	
Resource Conservation and Recovery Act (RCRA):		
R	NM0890010515-1	RCRA Hazardous Waste Facility Operating Permit
Groundwater Discharge Plans (GDP):		
E	DP-857	TA-46, SWWS Plant, Approved July 1992
E	DP-1132	TA-50, Radioactive Liquid Waste Treatment Facility (New Mexico Environment Department [NMED] approval pending)
E	DP-1589	Domestic Wastewater Septic Systems, Groundwater Discharge Permit Application, April 2006 (NMED approval pending)
1.0 Air Quality Permits:		
E	P100 R1	Air Quality Operating Permit (20.2.70 NMAC) LANL Air Emissions
E	2195	Air Quality (20.2.72 NMAC) Portable Rock Crusher
E	2195B-M1-R2	Air Quality (20.2.72 NMAC) TA-3 Steam Plant – Flue Gas Recirculation
E	2195F-R3	Air Quality (20.2.72 NMAC) TA-33 Generator
E	GCP3-2195-G-R1	Air Quality (20.2.72 NMAC) TA-60 Asphalt Plant
E	2195-H	Air Quality (20.2.72 NMAC) Data disintegrator
E	 #634-M-2 #632 #1081-M-1-R7	Air Quality (National Emission Standards for Hazardous Air Pollutants) Beryllium Machining: TA-3-141 TA-35-213 TA-55-4
E	2195-N	Air Quality (20.2.72 NMAC) Chemistry and Metallurgy Research Replacement Facility
E	NSR 2195-P	TA-33 1-225 kW/2-20 kW Diesel Generators
Septic Tank Permits:		
E	LA-12	TA-69-10, Seepage Pit
E	LA-13	TA-11-43, Leach Field
Septic Tank Permits (Continued):		

EPA ID Number | N | M | 0 | | 8 | 9 | 0 | | 0 | 1 | 0 | | 5 | 1 | 5 |

E	LA-21	TA-15-205, Leach Field
E	LA-24	TA-16-371, Holding Tank
E	LA-32	TA-33-31, Seepage Pit
E	LA-34	TA-33-87 Leach Field
E	LA-38	TA-16-175, Leach Field, tank replaced with new tanks 1194 & 1195
E	LA-39	TA-16-210, Leach Field
E	LA-44	TA-39-104, Evaporation Bed, replaced with TA-33-161
E	LA-45	TA-40-24, Leach Field
E	LA-46	TA-40-11 Leach Field
E	LA-49	TA-49-113, Evapotranspiration Bed
E	LA-50	TA-49-115, Evapotranspiration Bed
E	LA-59	TA-52-99, Seepage Pit
E	SF880258	TA-66-0001, Seepage Pit
E	SF890024	TA-39-111, Leach Field
E	SF890025	TA-72-8,39 Leach Field
E	SF89032R	TA-33-178, Leach Field
E	ES030243	TA-36-78, Leach Field
E	SF890589	TA-25-312, Leach Field
E	Unknown	TA-39-89, Leach Field
E	Unknown	TA-58-0049, Leach Field

7. Process Codes and Design Capacities - Enter information in the Sections on Form Page 3

A. PROCESS CODE - Enter the code from the list of process codes below that best describes each process to be used at the facility. If more lines are needed, attach a separate sheet of paper with the additional information. For "other" processes (i.e., D99, S99, T04, and X99), describe the process (including its design capacity) in the space provided in Item 8.

B. PROCESS DESIGN CAPACITY- For each code entered in Item 7.A; enter the capacity of the process.

1. **AMOUNT - Enter the amount. In a case where design capacity is not applicable (such as in a closure/post-closure or enforcement action) enter the total amount of waste for that process.**
2. **UNIT OF MEASURE - For each amount entered in Item 7.B(1), enter the code in Item 7.B(2) from the list of unit of measure codes below that describes the unit of measure used. Select only from the units of measure in this list.**

C. PROCESS TOTAL NUMBER OF UNITS - Enter the total number of units for each corresponding process code.

Process Code	Process	Appropriate Unit of Measure for Process Design Capacity
	Disposal	
D79	Underground Injection Well Disposal	Gallons; Liters; Gallons Per Day; or Liters Per Day
D80	Landfill	Acre-feet; Hectares-meter; Acres; Cubic Meters; Hectares; Cubic Yards
D81	Land Treatment	Acres or Hectares
D82	Ocean Disposal	Gallons Per Day or Liters Per Day
D83	Surface Impoundment Disposal	Gallons; Liters; Cubic Meters; or Cubic Yards
D99	Other Disposal	Any Unit of Measure Listed Below
	Storage	
S01	Container	Gallons; Liters; Cubic Meters; or Cubic Yards
S02	Tank Storage	Gallons; Liters; Cubic Meters; or Cubic Yards
S03	Waste Pile	Cubic Yards or Cubic Meters
S04	Surface Impoundment	Gallons; Liters; Cubic Meters; or Cubic Yards
S05	Drip Pad	Gallons; Liters; Cubic Meters; Hectares; or Cubic Yards
S06	Containment Building Storage	Cubic Yards or Cubic Meters
S99	Other Storage	Any Unit of Measure Listed Below
	Treatment	
T01	Tank Treatment	Gallons Per Day; Liters Per Day
T02	Surface Impoundment	Gallons Per Day; Liters Per Day
T03	Incinerator	Short Tons Per Hour; Metric Tons Per Hour; Gallons Per Hour; Liters Per Hour; BTUs Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Gallons Per Day; Metric Tons Per Hour; or Million BTU Per Hour
T04	Other Treatment	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Short Tons Per Day; BTUs Per Hour; Gallons Per Day; Liters Per Hour; or Million BTU Per Hour
T80	Boiler	Gallons; Liters; Gallons Per Hour; Liters Per Hour; BTUs Per Hour; or Million BTU Per Hour

Process Code	Process	Appropriate Unit of Measure for Process Design Capacity
	Treatment (Continued)	**(for T81 –T94)**
T81	Cement Kiln	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; BTU Per Hour; Liters Per Hour; Kilograms Per Hour; or Million BTU Per Hour
T82	Lime Kiln	
T83	Aggregate Kiln	
T84	Phosphate Kiln	
T85	Coke Oven	
T86	Blast Furnace	
T87	Smelting, Melting, or Refining Furnace	
T88	Titanium Dioxide Chloride Oxidation Reactor	
T89	Methane Reforming Furnace	
T90	Pulping Liquor Recovery Furnace	
T91	Combustion Device Used in the Recovery of Sulfur Values from Spent Sulfuric Acid	
T92	Halogen Acid Furnaces	
T93	Other Industrial Furnaces Listed in 40 CFR 260.10	
T94	Containment Building Treatment	Cubic Yards; Cubic Meters; Short Tons Per Hour; Gallons Per Hour; Liters Per Hour; Btu Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Metric Tons Per Day; Gallons Per Day; Liters Per Day, Metric Tons Per Hour, or Million Btu Per Hour
	Miscellaneous (Subpart X)	
X01	Open Burning/Open Detonation	Any Unit of Measure Listed Below
X02	Mechanical Processing	Short Tons Per Hour; Metric Tons Per Hour; Short Tons Per Day; Metric Tons Per Day; Pounds Per Hour; Kilograms Per Hour; Gallons Per Hour; Liters Per Hour; or Gallons Per Day
X03	Thermal Unit	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; BTU Per Hour; or Million BTU Per Hour
X04	Geologic Repository	Cubic Yards; Cubic Meters; Acre-feet; Hectare-meter; Gallons; or Liters
X99	Other Subpart X	Any Unit Measure Listed Below

Unit of Measure Code	Unit of Measure	Unit of Measure	Unit of Measure Code	Unit of Measure	Unit of Measure Code
Gallons	G	Short Tons Per Hour	D	Cubic Yards	Y
Gallons Per Hour	E	Metric Tons Per Hour	W	Cubic Meters	C
Gallons Per Day	U	Short Tons Per Day	N	Acres	B
Liters	L	Metric Tons Per Day	S	Acre-feet	A
Liters Per Hour	H	Pounds Per Hour	J	Hectares	Q
Liters Per Day	V	Kilograms Per Hour	R	Hectare-meter	F
		Million Btu Per Hour	X	Btu Per Hour	I

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533,788 gallons.

Line Number		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only					
X	1	S	0	2	533.788	G	001						
Technical Area 3													
	1	S	0	1	18,500	G	001						
	2												
	3												
	4												
	5												
	6												
	7												
	8												
	9												
1	0												
1	1												
1	2												
1	3												

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04 and X99 process codes)

Line Number (Enter #s in sequence with Item 7)		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only					
X	2	T	0	4	100.00	U	001						

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533,788 gallons.

Line Number		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only					
X	1	S	0	2	533.788	G	001						
Technical Area 14													
	1	X	0	1	1,000 50/20	See Lines 2 & 3	002						
	2				Pounds per detonation Gallons per burn/pounds per burn								
	3				Units identified as TA-14-23 is to be closed in accordance with the Code of Federal Regulations (CFR), Title 40, Part 265, Subpart G. Permitted status is not requested.								
	4												
	5												
	6												
	7												
	8												
	9												
1	0												
1	1												
1	2												
1	3												

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04 and X99 process codes)

Line Number (Enter #s in sequence with Item 7)		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only					
X	2	T	0	4	100.00	U	001						

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533,788 gallons.

Line Number		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only
X	1	S	0	2	533.788	G	001	
Technical Area 16								
	1	X	0	1	1,000 50/1,000	See Line 2	002	
	2				Pounds per burn Gallons per burn/pounds per burn			
	3							
	4							
	5							
	6							
	7							
	8							
	9							
1	0							
1	1							
1	2							
1	3							

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04 and X99 process codes)

Line Number (Enter #s in sequence with Item 7)		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only
X	2	T	0	4	100.00	U	001	

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533,788 gallons.

Line Number		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only
X	1	S	0	2	533.788	G	001	
Technical Area 36								
	1	X	0	1	2,000	See line 2	001	
	2				Pounds per detonation			
	3							
	4							
	5							
	6							
	7							
	8							
	9							
1	0							
1	1							
1	2							
1	3							

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04 and X99 process codes)

Line Number (Enter #s in sequence with Item 7)		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only
X	2	T	0	4	100.00	U	001	

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533,788 gallons.

Line Number		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	(2) Unit of Measure	C. Process Total Number of Units	For Official Use Only					
X	1	S	0	2	533.788	G	001						
Technical Area 39													
	1	X	0	1	1,000	See Lines 2 and 3	002						
	2				1,000 pounds per detonation								
	3				One unit identified as TA-39-57 is to be closed in accordance with Code of Federal Regualtions (CFR), Title 40, Part 265, Subpart G. Permitted status is not requested.								
	4												
	5												
	6												
	7												
	8												
	9												
1	0												
1	1												
1	2												
1	3												

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04 and X99 process codes)

Line Number (Enter #s in sequence with Item 7)		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	(2) Unit of Measure	C. Process Total Number of Units	For Official Use Only					
X	2	T	0	4	100.00	U	001						

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533,788 gallons.

Line Number		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	(2) Unit of Measure	C. Process Total Number of Units	For Official Use Only					
X	1	S	0	2	533.788	G	001						
Technical Area 50													
	1	S	0	1	31,500	G	002						
	2												
	3												
	4												
	5												
	6												
	7												
	8												
	9												
1	0												
1	1												
1	2												
1	3												

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04 and X99 process codes)

Line Number (Enter #s in sequence with Item 7)		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	(2) Unit of Measure	C. Process Total Number of Units	For Official Use Only					
X	2	T	0	4	100.00	U	001						

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533,788 gallons.

Line Number		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only					
X	1	S	0	2	533.788	G	001						
					Technical Area 54, Area L								
	1	S	0	1	407,880	G	001						
	2	D	8	0	1,200	See Line 3	001						
	3				To be closed in accordance with Code of Federal Regulations (CFR), Tilte 40, Part 265, Subpart G. Permitted status is not requested. The unit of measure for capacity is cubic yards.								
	4												
	5												
	6												
	7												
	8												
	9												
1	0												
1	1												
1	2												
1	3												

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04 and X99 process codes)

Line Number (Enter #s in sequence with Item 7)		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only					
X	2	T	0	4	100.00	U	001						
	1	S	9	9	600	See Line 2	001						
	2				To be closed in accordance with Code of Federal Regulations (CFR), Tilte 40, Part 265, Subpart G. Permitted status is not requested. The unit of measure for capacity is gallons.								

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533,788 gallons.

Line Number		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only
X	**1**	**S**	**0**	**2**	533.788	**G**	001	
					Technical Area 54, Area G			
	1	S	0	1	4,346,590	G	009	
	2	S	0	1	4,950	See Line 4	001	
	3	D	8	0	14	See Line 5	001	
	4				To be closed in accordance with Code of Federal Regulations (CFR), Tilte 40, Part 265, Subpart G. Permitted status is not requested. The unit of measure for capacity is gallons.			
	5				To be closed in accordance with Code of Federal Regulations (CFR), Tilte 40, Part 265, Subpart G. Permitted status is not requested. The unit of measure for capacity is cubic yards.			
	6							
	7							
	8							
	9							
1	**0**							
1	**1**							
1	**2**							
1	**3**							

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04 and X99 process codes)

Line Number (Enter #s in sequence with Item 7)		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only
X	**2**	**T**	**0**	**4**	**100.00**	U	**001**	

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533,788 gallons.

Line Number		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	(2) Unit of Measure	C. Process Total Number of Units	For Official Use Only					
X	1	S	0	2	533.788	G	001						
Technical Area 54 West													
	1	S	0	1	11,600	G	002						
	2												
	3												
	4												
	5												
	6												
	7												
	8												
	9												
1	0												
1	1												
1	2												
1	3												

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04 and X99 process codes)

Line Number (Enter #s in sequence with Item 7)		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	(2) Unit of Measure	C. Process Total Number of Units	For Official Use Only					
X	2	T	0	4	100.00	U	001						

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533,788 gallons.

Line Number		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	(2) Unit of Measure	C. Process Total Number of Units	For Official Use Only
X	1	S	0	2	533.788	G	001	
Technical Area 54, Material Disposal Area H								
	1	D	8	0	63	See Line 2	001	
	2				To be closed in accordance with Code of Federal Regulations (CFR), Tilte 40, Part 265, Subpart G. Permitted status is not requested. The unit of measure for capacity is cubic yards.			
	3							
	4							
	5							
	6							
	7							
	8							
	9							
1	0							
1	1							
1	2							
1	3							

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04 and X99 process codes)

Line Number (Enter #s in sequence with Item 7)		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	(2) Unit of Measure	C. Process Total Number of Units	For Official Use Only
X	2	T	0	4	100.00	U	001	

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533,788 gallons.

Line Number		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only					
X	**1**	**S**	**0**	**2**	533.788	**G**	001						
Technical Area 55													
	1	S	0	1	208,500	G	007						
	2	S	0	2	137	G	001						
	3												
	4												
	5												
	6												
	7												
	8												
	9												
1	**0**												
1	**1**												
1	**2**												
1	**3**												

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04 and X99 process codes)

Line Number (Enter #s in sequence with Item 7)		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only					
X	**2**	**T**	**0**	**4**	**100.00**	U	**001**						
	3	T	0	4	150	G	001						

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533,788 gallons.

Line Number		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only					
X	1	S	0	2	533.788	G	001						
Technical Area 63													
	1	S	0	1	105,875	G	001						
	2												
	3												
	4												
	5												
	6												
	7												
	8												
	9												
1	0												
1	1												
1	2												
1	3												

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04 and X99 process codes)

Line Number (Enter #s in sequence with Item 7)		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only					
X	2	T	0	4	100.00	U	001						

9. Description of Hazardous Wastes – Enter information in the Sections on Form Page 5

D. EPA HAZARDOUS WASTE NUMBER – Enter the four-digit number from 40 CFR, Part 261 Subpart D of each listed hazardous waste you will handle. For hazardous wastes which are not listed in 40 CFR, Part 261 Subpart D, enter the four-digit number(s) from 40 CFR 261, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

E. ESTIMATED ANNUAL QUANTITY – For each listed waste entered in Item 9.A, estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in Item 9.A, estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.

F. UNIT OF MEASURE – For each quantity entered in Item 9.B, enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure, taking into account the appropriate density or specific gravity of the waste.

A. PROCESSES

1. PROCESS CODES:

For listed hazardous waste: For each listed hazardous waste entered in Item 9.A, select the code(s) from the list of process codes contained in Items 7.A and 8.A on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all the listed hazardous wastes.

For non-listed hazardous waste: For each characteristic or toxic contaminant entered in Item 9.A, select the code(s) from the list of process codes contaminated in Items 7.A and 8.A on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that possess that characteristic or toxic contaminant.

NOTE: THREE SPACES ARE PROVIDED FOR ENTERING PROCESS CODES. IF MORE ARE NEEDED:

1. Enter the first two as described above.

2. Enter “000” in the extreme right box of Item 9.D(1).

3. Use additional sheet, enter line number from previous sheet, and enter additional code(s) in Item 9.E.

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in Item 9.D(2) or in Item 9.E(2).

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER – Hazardous waste that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in Item 9.A. On the same line complete Items 9.B, 9.C and 9.D by estimating the total annual quantity of the waste and describing all the processes to be used to store, treat, and/or dispose of the waste.

2. In Item 9.A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In Item 9.D.2 on that line enter “included with above” and make no other entries on that line.

3. Repeat step 2 for each EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING Item 9 (shown in line numbers X-1, X-2, X-3, and X-4 below) – A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operations. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes area corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and these will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									(2) PROCESS DESCRIPTION (If a code is not entered in 9.D(1))
X	**1**	K	0	5	4	900	P	T	0	3	D	8	0				
X	**2**	D	0	0	2	400	P	T	0	3	D	8	0				
X	**3**	D	0	0	1	100	P	T	0	3	D	8	0				
X	**4**	D	0	0	2												Included With Above

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 3																	
	1	D	0	0	1	7,000	P	S	0	1							
	2	D	0	0	2	21,000	P	S	0	1							
	3	D	0	0	3	2,500	P	S	0	1							
	4	D	0	0	4	3,000	P	S	0	1							
	5	D	0	0	5	3,000	P	S	0	1							
	6	D	0	0	6	2,500	P	S	0	1							
	7	D	0	0	7	7,000	P	S	0	1							
	8	D	0	0	8	27,000	P	S	0	1							
	9	D	0	0	9	4,000	P	S	0	1							
1	0	D	0	1	0	2,500	P	S	0	1							
1	1	D	0	1	1	3,000	P	S	0	1							
1	2	D	0	1	2	1,000	P	S	0	1							
1	3	D	0	1	8	1,500	P	S	0	1							
1	4	D	0	1	9	2,000	P	S	0	1							
1	5	D	0	2	1	2,000	P	S	0	1							
1	6	D	0	2	2	2,000	P	S	0	1							
1	7	D	0	2	3	2,000	P	S	0	1							
1	8	D	0	2	4	2,000	P	S	0	1							
1	9	D	0	2	5	2,000	P	S	0	1							
2	0	D	0	2	6	2,000	P	S	0	1							
2	1	D	0	2	7	1,500	P	S	0	1							
2	2	D	0	2	8	2,000	P	S	0	1							
2	3	D	0	2	9	1,000	P	S	0	1							
2	4	D	0	3	0	1,500	P	S	0	1							
2	5	D	0	3	2	1,500	P	S	0	1							
2	6	D	0	3	3	1,500	P	S	0	1							
2	7	D	0	3	4	1,500	P	S	0	1							
2	8	D	0	3	5	3,500	P	S	0	1							
2	9	D	0	3	6	1,500	P	S	0	1							
3	0	D	0	3	7	1,000	P	S	0	1							
3	1	D	0	3	8	1,500	P	S	0	1							
3	2	D	0	3	9	2,500	P	S	0	1							
3	3	D	0	4	0	2,500	P	S	0	1							
3	4	D	0	4	2	1,500	P	S	0	1							
3	5	D	0	4	3	1,500	P	S	0	1							
3	6	F	0	0	1	21,000	P	S	0	1							
3	7	F	0	0	2	21,000	P	S	0	1							
3	8	F	0	0	3	21,000	P	S	0	1							
3	9	F	0	0	4	2,500	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES*									
								(1) PROCESS CODES (Enter code)									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 3 (Continued)																	
4	0	F	0	0	5	21,000	P	S	0	1							
4	1	F	0	0	6	500	P	S	0	1							
4	2	F	0	0	7	500	P	S	0	1							
4	3	F	0	0	9	500	P	S	0	1							
4	4	P	0	0	3	1,000	P	S	0	1							
4	5	P	0	1	2	1,000	P	S	0	1							
4	6	P	0	1	5	1,000	P	S	0	1							
4	7	P	0	2	9	1,000	P	S	0	1							
4	8	P	0	3	0	1,000	P	S	0	1							
4	9	P	0	3	1	1,000	P	S	0	1							
5	0	P	0	3	8	1,000	P	S	0	1							
5	1	P	0	5	6	1,000	P	S	0	1							
5	2	P	0	6	3	1,000	P	S	0	1							
5	3	P	0	6	8	1,000	P	S	0	1							
5	4	P	0	7	3	1,000	P	S	0	1							
5	5	P	0	7	6	1,000	P	S	0	1							
5	6	P	0	7	8	1,000	P	S	0	1							
5	7	P	0	9	5	1,000	P	S	0	1							
5	8	P	0	9	6	1,000	P	S	0	1							
5	9	P	0	9	8	1,000	P	S	0	1							
6	0	P	0	9	9	500	P	S	0	1							
6	1	P	1	0	6	1,000	P	S	0	1							
6	2	P	1	1	3	1,000	P	S	0	1							
6	3	P	1	2	0	1,000	P	S	0	1							
6	4	U	0	0	1	1,000	P	S	0	1							
6	5	U	0	0	2	1,000	P	S	0	1							
6	6	U	0	0	3	1,000	P	S	0	1							
6	7	U	0	1	2	1,000	P	S	0	1							
6	8	U	0	1	9	1,000	P	S	0	1							
6	9	U	0	2	2	1,000	P	S	0	1							
7	0	U	0	2	9	1,000	P	S	0	1							
7	1	U	0	3	1	1,000	P	S	0	1							
7	2	U	0	3	7	1,000	P	S	0	1							
7	3	U	0	4	4	1,000	P	S	0	1							
7	4	U	0	4	5	1,000	P	S	0	1							
7	5	U	0	5	2	1,000	P	S	0	1							
7	6	U	0	5	6	1,000	P	S	0	1							
7	7	U	0	5	7	1,000	P	S	0	1							
7	8	U	0	7	5	1,000	P	S	0	1							

9. Descriptions of Hazardous Wastes (*Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.*)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 3 (Continued)																		
	7	9	U	0	7	7	1,000	P	S	0	1							
	8	0	U	0	8	0	1,000	P	S	0	1							
	8	1	U	1	0	8	1,000	P	S	0	1							
	8	2	U	1	0	3	500	P	S	0	1							
	8	3	U	1	1	2	1,000	P	S	0	1							
	8	4	U	1	1	5	1,000	P	S	0	1							
	8	5	U	1	1	7	1,000	P	S	0	1							
	8	6	U	1	2	1	1,000	P	S	0	1							
	8	7	U	1	2	2	1,000	P	S	0	1							
	8	8	U	1	2	3	1,000	P	S	0	1							
	8	9	U	1	3	1	1,000	P	S	0	1							
	9	0	U	1	3	3	1,000	P	S	0	1							
	9	1	U	1	3	4	1,000	P	S	0	1							
	9	2	U	1	3	5	1,000	P	S	0	1							
	9	3	U	1	4	0	1,000	P	S	0	1							
	9	4	U	1	4	4	1,000	P	S	0	1							
	9	5	U	1	5	1	1,000	P	S	0	1							
	9	6	U	1	5	4	1,000	P	S	0	1							
	9	7	U	1	5	9	1,000	P	S	0	1							
	9	8	U	1	6	0	1,000	P	S	0	1							
	9	9	U	1	6	1	1,000	P	S	0	1							
1	0	0	U	1	6	5	1,000	P	S	0	1							
1	0	1	U	1	6	9	1,000	P	S	0	1							
1	0	2	U	1	8	8	1,000	P	S	0	1							
1	0	3	U	1	9	0	1,000	P	S	0	1							
1	0	4	U	1	9	6	1,000	P	S	0	1							
1	0	5	U	2	0	4	1,000	P	S	0	1							
1	0	6	U	2	1	0	1,000	P	S	0	1							
1	0	7	U	2	1	1	1,000	P	S	0	1							
1	0	8	U	2	1	3	1,000	P	S	0	1							
1	0	9	U	2	1	6	1,000	P	S	0	1							
1	1	0	U	2	1	8	1,000	P	S	0	1							
1	1	1	U	2	1	9	1,000	P	S	0	1							
1	1	2	U	2	2	0	1,000	P	S	0	1							
1	1	3	U	2	2	5	500	P	S	0	1							
1	1	4	U	2	2	6	1,000	P	S	0	1							
1	1	5	U	2	2	7	500	P	S	0	1							
1	1	6	U	2	2	8	1,000	P	S	0	1							
1	1	7	U	2	3	9	500	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 3 (Continued)																		
1	1	8	U	2	4	6	500	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 14																	
	1	D	0	0	1	2,000	P	X	0	1							
	2	D	0	0	3												Included with above.
	3	D	0	0	5												Included with above.
	4	D	0	0	6												Included with above.
	5	D	0	0	7												Included with above.
	6	D	0	0	8												Included with above.
	7	D	0	0	9												Included with above.
	8	D	0	1	1												Included with above.
	9	D	0	1	8												Included with above.
1	0	D	0	2	2												Included with above.
1	1	D	0	2	8												Included with above.
1	2	D	0	2	9												Included with above.
1	3	D	0	3	0												Included with above.
1	4	D	0	3	5												Included with above.
1	5	D	0	3	6												Included with above.
1	6	D	0	3	8												Included with above.
1	7	D	0	4	0												Included with above.
1	8	F	0	0	1												Included with above.
1	9	F	0	0	2												Included with above.
2	0	F	0	0	3												Included with above.
2	1	F	0	0	4												Included with above.
2	2	F	0	0	5												Included with above.
2	3																
2	4																
2	5																
2	6																
2	7																
2	8																
2	9																
3	0																
3	1																
3	2																
3	3																
3	4																
3	5																
3	6																
3	7																
3	8																
3	9																

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 16																	
	1	D	0	0	1	20,000	P	X	0	1							
	2	D	0	0	2												Included with above.
	3	D	0	0	3												Included with above.
	4	D	0	0	5												Included with above.
	5	D	0	0	6												Included with above.
	6	D	0	0	7												Included with above.
	7	D	0	0	8												Included with above.
	8	D	0	0	9												Included with above.
	9	D	0	1	0												Included with above.
1	0	D	0	1	1												Included with above.
1	1	D	0	1	8												Included with above.
1	2	D	0	2	2												Included with above.
1	3	D	0	2	8												Included with above.
1	4	D	0	2	9												Included with above.
1	5	D	0	3	0												Included with above.
1	6	D	0	3	5												Included with above.
1	7	D	0	3	6												Included with above.
1	8	D	0	3	8												Included with above.
1	9	D	0	4	0												Included with above.
2	0	F	0	0	1												Included with above.
2	1	F	0	0	2												Included with above.
2	2	F	0	0	3												Included with above.
2	3	F	0	0	4												Included with above.
2	4	F	0	0	5												Included with above.
2	5	K	0	4	4												Included with above.
2	6	K	0	4	5												Included with above.
2	7																
2	8																
2	9																
3	0																
3	1																
3	2																
3	3																
3	4																
3	5																
3	6																
3	7																
3	8																
3	9																

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 36																	
	1	D	0	0	1	15,000	P	X	0	1							
	2	D	0	0	3												Included with above.
	3	D	0	0	5												Included with above.
	4	D	0	0	6												Included with above.
	5	D	0	0	7												Included with above.
	6	D	0	0	8												Included with above.
	7	D	0	0	9												Included with above.
	8	D	0	1	0												Included with above.
	9	D	0	1	1												Included with above.
1	0	D	0	1	8												Included with above.
1	1	D	0	2	2												Included with above.
1	2	D	0	2	8												Included with above.
1	3	D	0	2	9												Included with above.
1	4	D	0	3	0												Included with above.
1	5	D	0	3	5												Included with above.
1	6	D	0	3	6												Included with above.
1	7	D	0	3	8												Included with above.
1	8	D	0	4	0												Included with above.
1	9	F	0	0	1												Included with above.
2	0	F	0	0	2												Included with above.
2	1	F	0	0	3												Included with above.
2	2	F	0	0	4												Included with above.
2	3	F	0	0	5												Included with above.
2	4																
2	5																
2	6																
2	7																
2	8																
2	9																
3	0																
3	1																
3	2																
3	3																
3	4																
3	5																
3	6																
3	7																
3	8																
3	9																

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number	*A. EPA Hazardous Waste No. (Enter code)*	*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*	*D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 39					
1	D001	15,000	P	X01	
2	D003				Included with above.
3	D005				Included with above.
4	D006				Included with above.
5	D007				Included with above.
6	D008				Included with above.
7	D009				Included with above.
8	D010				Included with above.
9	D011				Included with above.
10	D018				Included with above.
11	D022				Included with above.
12	D028				Included with above.
13	D029				Included with above.
14	D030				Included with above.
15	D035				Included with above.
16	D036				Included with above.
17	D038				Included with above.
18	D040				Included with above.
19	F001				Included with above.
20	F002				Included with above.
21	F003				Included with above.
22	F004				Included with above.
23	F005				Included with above.
24					
25					
26					
27					
28					
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30					
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38					
39					

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 50																	
	1	D	0	0	1	69,696	P	S	0	1							
	2	D	0	0	2	52,734	P	S	0	1							
	3	D	0	0	3	3,444	P	S	0	1							
	4	D	0	0	4	7,531	P	S	0	1							
	5	D	0	0	5	7,740	P	S	0	1							
	6	D	0	0	6	535, 451	P	S	0	1							
	7	D	0	0	7	567, 226	P	S	0	1							
	8	D	0	0	8	1,405,439	P	S	0	1							
	9	D	0	0	9	75,666	P	S	0	1							
1	0	D	0	1	0	8,922	P	S	0	1							
1	1	D	0	1	1	31,255	P	S	0	1							
1	2	D	0	1	2	100	P	S	0	1							
1	3	D	0	1	3	100	P	S	0	1							
1	4	D	0	1	4	100	P	S	0	1							
1	5	D	0	1	5	100	P	S	0	1							
1	6	D	0	1	6	44	P	S	0	1							
1	7	D	0	1	7	66	P	S	0	1							
1	8	D	0	1	8	5,535	P	S	0	1							
1	9	D	0	1	9	4,261	P	S	0	1							
2	0	D	0	2	0	100	P	S	0	1							
2	1	D	0	2	1	100	P	S	0	1							
2	2	D	0	2	2	100	P	S	0	1							
2	3	D	0	2	3	100	P	S	0	1							
2	4	D	0	2	4	100	P	S	0	1							
2	5	D	0	2	5	100	P	S	0	1							
2	6	D	0	2	6	518	P	S	0	1							
2	7	D	0	2	7	972	P	S	0	1							
2	8	D	0	2	8	216,783	P	S	0	1							
2	9	D	0	2	9	215,184	P	S	0	1							
3	0	D	0	3	0	5,491	P	S	0	1							
3	1	D	0	3	1	293	P	S	0	1							
3	2	D	0	3	2	3,135	P	S	0	1							
3	3	D	0	3	3	2,222	P	S	0	1							
3	4	D	0	3	4	1,228	P	S	0	1							
3	5	D	0	3	5	1,792	P	S	0	1							
3	6	D	0	3	6	549	P	S	0	1							
3	7	D	0	3	7	761	P	S	0	1							
3	8	D	0	3	8	1,549	P	S	0	1							
3	9	D	0	3	9	1,675	P	S	0	1							

9.	Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)																
Line Number		*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 50 (Continued)																	
4	0	D	0	4	0	3,942	P	S	0	1							
4	1	D	0	4	1	293	P	S	0	1							
4	2	D	0	4	2	1,182	P	S	0	1							
4	3	D	0	4	3	655	P	S	0	1							
4	4	F	0	0	1	442,263	P	S	0	1							
4	5	F	0	0	2	147,347	P	S	0	1							
4	6	F	0	0	3	50,980	P	S	0	1							
4	7	F	0	0	4	2,817	P	S	0	1							
4	8	F	0	0	5	334,821	P	S	0	1							
4	9	F	0	0	6	100	P	S	0	1							
5	0	F	0	0	7	100	P	S	0	1							
5	1	F	0	0	8	100	P	S	0	1							
5	2	F	0	0	9	165	P	S	0	1							
5	3	F	0	1	0	100	P	S	0	1							
5	4	F	0	1	1	100	P	S	0	1							
5	5	F	0	1	2	100	P	S	0	1							
5	6	F	0	1	9	100	P	S	0	1							
5	7	F	0	2	0	100	P	S	0	1							
5	8	F	0	2	1	100	P	S	0	1							
5	9	F	0	2	2	100	P	S	0	1							
6	0	F	0	2	3	100	P	S	0	1							
6	1	F	0	2	4	100	P	S	0	1							
6	2	F	0	2	5	100	P	S	0	1							
6	3	F	0	2	6	100	P	S	0	1							
6	4	F	0	2	7	165	P	S	0	1							
6	5	F	0	2	8	100	P	S	0	1							
6	6	F	0	3	2	100	P	S	0	1							
6	7	F	0	3	4	100	P	S	0	1							
6	8	F	0	3	5	100	P	S	0	1							
6	9	F	0	3	7	100	P	S	0	1							
7	0	F	0	3	8	100	P	S	0	1							
7	1	F	0	3	9	100	P	S	0	1							
7	2	K	0	4	4	100	P	S	0	1							
7	3	K	0	4	5	100	P	S	0	1							
7	4	K	0	4	6	100	P	S	0	1							
7	5	K	0	4	7	100	P	S	0	1							
7	6	K	0	8	4	100	P	S	0	1							
7	7	K	1	0	1	100	P	S	0	1							
7	8	K	1	0	2	100	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 50 (Continued)																		
	7	9	P	0	0	1	100	P	S	0	1							
	8	0	P	0	0	2	100	P	S	0	1							
	8	1	P	0	0	3	293	P	S	0	1							
	8	2	P	0	0	4	100	P	S	0	1							
	8	3	P	0	0	5	100	P	S	0	1							
	8	4	P	0	0	6	143	P	S	0	1							
	8	5	P	0	0	7	100	P	S	0	1							
	8	6	P	0	0	8	100	P	S	0	1							
	8	7	P	0	0	9	100	P	S	0	1							
	8	8	P	0	1	0	100	P	S	0	1							
	8	9	P	0	1	1	143	P	S	0	1							
	9	0	P	0	1	2	293	P	S	0	1							
	9	1	P	0	1	3	100	P	S	0	1							
	9	2	P	0	1	4	100	P	S	0	1							
	9	3	P	0	1	5	293	P	S	0	1							
	9	4	P	0	1	6	100	P	S	0	1							
	9	5	P	0	1	7	100	P	S	0	1							
	9	6	P	0	1	8	100	P	S	0	1							
	9	7	P	0	2	0	100	P	S	0	1							
	9	8	P	0	2	1	100	P	S	0	1							
	9	9	P	0	2	2	100	P	S	0	1							
1	0	0	P	0	2	3	100	P	S	0	1							
1	0	1	P	0	2	4	100	P	S	0	1							
1	0	2	P	0	2	6	100	P	S	0	1							
1	0	3	P	0	2	7	100	P	S	0	1							
1	0	4	P	0	2	8	100	P	S	0	1							
1	0	5	P	0	2	9	293	P	S	0	1							
1	0	6	P	0	3	0	485	P	S	0	1							
1	0	7	P	0	3	1	485	P	S	0	1							
1	0	8	P	0	3	3	143	P	S	0	1							
1	0	9	P	0	3	4	100	P	S	0	1							
1	1	0	P	0	3	6	100	P	S	0	1							
1	1	1	P	0	3	7	100	P	S	0	1							
1	1	2	P	0	3	8	227	P	S	0	1							
1	1	3	P	0	3	9	100	P	S	0	1							
1	1	4	P	0	4	0	100	P	S	0	1							
1	1	5	P	0	4	1	100	P	S	0	1							
1	1	6	P	0	4	2	100	P	S	0	1							
1	1	7	P	0	4	3	143	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 50 (Continued)																		
1	1	8	P	0	4	4	100	P	S	0	1							
1	1	9	P	0	4	5	100	P	S	0	1							
1	2	0	P	0	4	6	100	P	S	0	1							
1	2	1	P	0	4	7	100	P	S	0	1							
1	2	2	P	0	4	8	143	P	S	0	1							
1	2	3	P	0	4	9	100	P	S	0	1							
1	2	4	P	0	5	0	100	P	S	0	1							
1	2	5	P	0	5	1	100	P	S	0	1							
1	2	6	P	0	5	4	100	P	S	0	1							
1	2	7	P	0	5	6	2,624	P	S	0	1							
1	2	8	P	0	5	7	100	P	S	0	1							
1	2	9	P	0	5	8	100	P	S	0	1							
1	3	0	P	0	5	9	100	P	S	0	1							
1	3	1	P	0	6	0	100	P	S	0	1							
1	3	2	P	0	6	2	100	P	S	0	1							
1	3	3	P	0	6	3	293	P	S	0	1							
1	3	4	P	0	6	4	100	P	S	0	1							
1	3	5	P	0	6	5	100	P	S	0	1							
1	3	6	P	0	6	6	100	P	S	0	1							
1	3	7	P	0	6	7	100	P	S	0	1							
1	3	8	P	0	6	8	293	P	S	0	1							
1	3	9	P	0	6	9	100	P	S	0	1							
1	4	0	P	0	7	0	100	P	S	0	1							
1	4	1	P	0	7	1	100	P	S	0	1							
1	4	2	P	0	7	2	100	P	S	0	1							
1	4	3	P	0	7	3	293	P	S	0	1							
1	4	4	P	0	7	4	100	P	S	0	1							
1	4	5	P	0	7	5	100	P	S	0	1							
1	4	6	P	0	7	6	403	P	S	0	1							
1	4	7	P	0	7	7	100	P	S	0	1							
1	4	8	P	0	7	8	425	P	S	0	1							
1	4	9	P	0	8	1	100	P	S	0	1							
1	5	0	P	0	8	2	100	P	S	0	1							
1	5	1	P	0	8	4	100	P	S	0	1							
1	5	2	P	0	8	5	100	P	S	0	1							
1	5	3	P	0	8	7	100	P	S	0	1							
1	5	4	P	0	8	8	100	P	S	0	1							
1	5	5	P	0	8	9	100	P	S	0	1							
1	5	6	P	0	9	2	143	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 50 (Continued)																		
1	5	7	P	0	9	3	100	P	S	0	1							
1	5	8	P	0	9	4	100	P	S	0	1							
1	5	9	P	0	9	5	293	P	S	0	1							
1	6	0	P	0	9	6	293	P	S	0	1							
1	6	1	P	0	9	7	100	P	S	0	1							
1	6	2	P	0	9	8	293	P	S	0	1							
1	6	3	P	0	9	9	100	P	S	0	1							
1	6	4	P	1	0	1	100	P	S	0	1							
1	6	5	P	1	0	2	100	P	S	0	1							
1	6	6	P	1	0	3	100	P	S	0	1							
1	6	7	P	1	0	4	143	P	S	0	1							
1	6	8	P	1	0	5	143	P	S	0	1							
1	6	9	P	1	0	6	293	P	S	0	1							
1	7	0	P	1	0	8	100	P	S	0	1							
1	7	1	P	1	0	9	100	P	S	0	1							
1	7	2	P	1	1	0	100	P	S	0	1							
1	7	3	P	1	1	1	100	P	S	0	1							
1	7	4	P	1	1	2	143	P	S	0	1							
1	7	5	P	1	1	3	293	P	S	0	1							
1	7	6	P	1	1	4	100	P	S	0	1							
1	7	7	P	1	1	5	100	P	S	0	1							
1	7	8	P	1	1	6	100	P	S	0	1							
1	7	9	P	1	1	8	100	P	S	0	1							
1	8	0	P	1	1	9	143	P	S	0	1							
1	8	1	P	1	2	0	293	P	S	0	1							
1	8	2	P	1	2	1	100	P	S	0	1							
1	8	3	P	1	2	2	100	P	S	0	1							
1	8	4	P	1	2	3	100	P	S	0	1							
1	8	5	P	1	2	7	100	P	S	0	1							
1	8	6	P	1	2	8	100	P	S	0	1							
1	8	7	P	1	8	5	100	P	S	0	1							
1	8	8	P	1	8	8	100	P	S	0	1							
1	8	9	P	1	8	9	100	P	S	0	1							
1	9	0	P	1	9	0	100	P	S	0	1							
1	9	1	P	1	9	1	100	P	S	0	1							
1	9	2	P	1	9	2	100	P	S	0	1							
1	9	3	P	1	9	4	100	P	S	0	1							
1	9	4	P	1	9	6	100	P	S	0	1							
1	9	5	P	1	9	7	100	P	S	0	1							

9.	Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)																		
Line Number			A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)										(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 50 (Continued)																			
1	9	6	P	1	9	8	100	P	S	0	1								
1	9	7	P	1	9	9	100	P	S	0	1								
1	9	8	P	2	0	1	100	P	S	0	1								
1	9	9	P	2	0	2	100	P	S	0	1								
2	0	0	P	2	0	3	100	P	S	0	1								
2	0	1	P	2	0	4	100	P	S	0	1								
2	0	2	P	2	0	5	100	P	S	0	1								
2	0	3	U	0	0	1	293	P	S	0	1								
2	0	4	U	0	0	2	954	P	S	0	1								
2	0	5	U	0	0	3	485	P	S	0	1								
2	0	6	U	0	0	4	100	P	S	0	1								
2	0	7	U	0	0	5	100	P	S	0	1								
2	0	8	U	0	0	6	100	P	S	0	1								
2	0	9	U	0	0	7	143	P	S	0	1								
2	1	0	U	0	0	8	143	P	S	0	1								
2	1	1	U	0	0	9	143	P	S	0	1								
2	1	2	U	0	1	0	100	P	S	0	1								
2	1	3	U	0	1	1	100	P	S	0	1								
2	1	4	U	0	1	2	293	P	S	0	1								
2	1	5	U	0	1	4	100	P	S	0	1								
2	1	6	U	0	1	5	100	P	S	0	1								
2	1	7	U	0	1	6	100	P	S	0	1								
2	1	8	U	0	1	7	100	P	S	0	1								
2	1	9	U	0	1	8	143	P	S	0	1								
2	2	0	U	0	1	9	470	P	S	0	1								
2	2	1	U	0	2	0	100	P	S	0	1								
2	2	2	U	0	2	1	100	P	S	0	1								
2	2	3	U	0	2	2	293	P	S	0	1								
2	2	4	U	0	2	3	100	P	S	0	1								
2	2	5	U	0	2	4	100	P	S	0	1								
2	2	6	U	0	2	5	100	P	S	0	1								
2	2	7	U	0	2	6	100	P	S	0	1								
2	2	8	U	0	2	7	100	P	S	0	1								
2	2	9	U	0	2	8	100	P	S	0	1								
2	3	0	U	0	2	9	293	P	S	0	1								
2	3	1	U	0	3	0	100	P	S	0	1								
2	3	2	U	0	3	1	293	P	S	0	1								
2	3	3	U	0	3	2	100	P	S	0	1								
2	3	4	U	0	3	3	143	P	S	0	1								

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)	D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 50 (Continued)					
235	U034	100	P	S01	
236	U035	100	P	S01	
237	U036	100	P	S01	
238	U037	143	P	S01	
239	U038	100	P	S01	
240	U039	100	P	S01	
241	U041	143	P	S01	
242	U042	100	P	S01	
243	U043	100	P	S01	
244	U044	293	P	S01	
245	U045	293	P	S01	
246	U046	100	P	S01	
247	U047	100	P	S01	
248	U048	100	P	S01	
249	U049	100	P	S01	
250	U050	100	P	S01	
251	U051	100	P	S01	
252	U052	293	P	S01	
253	U053	100	P	S01	
254	U055	143	P	S01	
255	U056	293	P	S01	
256	U057	293	P	S01	
257	U058	100	P	S01	
258	U059	100	P	S01	
259	U060	100	P	S01	
260	U061	100	P	S01	
261	U062	100	P	S01	
262	U063	100	P	S01	
263	U064	100	P	S01	
264	U066	100	P	S01	
265	U067	143	P	S01	
266	U068	143	P	S01	
267	U069	100	P	S01	
268	U070	165	P	S01	
269	U071	100	P	S01	
270	U072	100	P	S01	
271	U073	100	P	S01	
272	U074	100	P	S01	
273	U075	381	P	S01	

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 50 (Continued)																		
2	7	4	U	0	7	6	100	P	S	0	1							
2	7	5	U	0	7	7	293	P	S	0	1							
2	7	6	U	0	7	8	100	P	S	0	1							
2	7	7	U	0	7	9	100	P	S	0	1							
2	7	8	U	0	8	0	4,129	P	S	0	1							
2	7	9	U	0	8	1	100	P	S	0	1							
2	8	0	U	0	8	2	100	P	S	0	1							
2	8	1	U	0	8	3	100	P	S	0	1							
2	8	2	U	0	8	4	100	P	S	0	1							
2	8	3	U	0	8	5	143	P	S	0	1							
2	8	4	U	0	8	6	100	P	S	0	1							
2	8	5	U	0	8	7	100	P	S	0	1							
2	8	6	U	0	8	8	100	P	S	0	1							
2	8	7	U	0	8	9	100	P	S	0	1							
2	8	8	U	0	9	0	100	P	S	0	1							
2	8	9	U	0	9	1	518	P	S	0	1							
2	9	0	U	0	9	2	143	P	S	0	1							
2	9	1	U	0	9	3	100	P	S	0	1							
2	9	2	U	0	9	4	100	P	S	0	1							
2	9	3	U	0	9	5	100	P	S	0	1							
2	9	4	U	0	9	6	100	P	S	0	1							
2	9	5	U	0	9	7	100	P	S	0	1							
2	9	6	U	0	9	8	100	P	S	0	1							
2	9	7	U	0	9	9	100	P	S	0	1							
2	9	8	U	1	0	1	100	P	S	0	1							
2	9	9	U	1	0	2	100	P	S	0	1							
3	0	0	U	1	0	3	143	P	S	0	1							
3	0	1	U	1	0	5	100	P	S	0	1							
3	0	2	U	1	0	6	100	P	S	0	1							
3	0	3	U	1	0	7	100	P	S	0	1							
3	0	4	U	1	0	8	293	P	S	0	1							
3	0	5	U	1	0	9	143	P	S	0	1							
3	0	6	U	1	1	0	100	P	S	0	1							
3	0	7	U	1	1	1	100	P	S	0	1							
3	0	8	U	1	1	2	293	P	S	0	1							
3	0	9	U	1	1	3	100	P	S	0	1							
3	1	0	U	1	1	4	100	P	S	0	1							
3	1	1	U	1	1	5	293	P	S	0	1							
3	1	2	U	1	1	6	100	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 50 (Continued)																		
3	1	3	U	1	1	7	293	P	S	0	1							
3	1	4	U	1	1	8	100	P	S	0	1							
3	1	5	U	1	1	9	100	P	S	0	1							
3	1	6	U	1	2	0	100	P	S	0	1							
3	1	7	U	1	2	1	293	P	S	0	1							
3	1	8	U	1	2	2	778	P	S	0	1							
3	1	9	U	1	2	3	293	P	S	0	1							
3	2	0	U	1	2	4	143	P	S	0	1							
3	2	1	U	1	2	5	100	P	S	0	1							
3	2	2	U	1	2	6	100	P	S	0	1							
3	2	3	U	1	2	7	100	P	S	0	1							
3	2	4	U	1	2	8	100	P	S	0	1							
3	2	5	U	1	2	9	100	P	S	0	1							
3	2	6	U	1	3	0	100	P	S	0	1							
3	2	7	U	1	3	1	293	P	S	0	1							
3	2	8	U	1	3	2	100	P	S	0	1							
3	2	9	U	1	3	3	293	P	S	0	1							
3	3	0	U	1	3	4	667	P	S	0	1							
3	3	1	U	1	3	5	447	P	S	0	1							
3	3	2	U	1	3	6	143	P	S	0	1							
3	3	3	U	1	3	7	100	P	S	0	1							
3	3	4	U	1	3	8	100	P	S	0	1							
3	3	5	U	1	4	0	293	P	S	0	1							
3	3	6	U	1	4	1	100	P	S	0	1							
3	3	7	U	1	4	2	100	P	S	0	1							
3	3	8	U	1	4	3	100	P	S	0	1							
3	3	9	U	1	4	4	293	P	S	0	1							
3	4	0	U	1	4	5	293	P	S	0	1							
3	4	1	U	1	4	6	100	P	S	0	1							
3	4	2	U	1	4	7	100	P	S	0	1							
3	4	3	U	1	4	8	100	P	S	0	1							
3	4	4	U	1	4	9	100	P	S	0	1							
3	4	5	U	1	5	0	100	P	S	0	1							
3	4	6	U	1	5	1	884	P	S	0	1							
3	4	7	U	1	5	2	100	P	S	0	1							
3	4	8	U	1	5	3	143	P	S	0	1							
3	4	9	U	1	5	4	359	P	S	0	1							
3	5	0	U	1	5	5	100	P	S	0	1							
3	5	1	U	1	5	6	100	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 50 (Continued)																		
3	5	2	U	1	5	7	100	P	S	0	1							
3	5	3	U	1	5	8	100	P	S	0	1							
3	5	4	U	1	5	9	315	P	S	0	1							
3	5	5	U	1	6	0	293	P	S	0	1							
3	5	6	U	1	6	1	470	P	S	0	1							
3	5	7	U	1	6	2	143	P	S	0	1							
3	5	8	U	1	6	3	143	P	S	0	1							
3	5	9	U	1	6	4	100	P	S	0	1							
3	6	0	U	1	6	5	293	P	S	0	1							
3	6	1	U	1	6	6	100	P	S	0	1							
3	6	2	U	1	6	7	143	P	S	0	1							
3	6	3	U	1	6	8	143	P	S	0	1							
3	6	4	U	1	6	9	293	P	S	0	1							
3	6	5	U	1	7	0	143	P	S	0	1							
3	6	6	U	1	7	1	100	P	S	0	1							
3	6	7	U	1	7	2	100	P	S	0	1							
3	6	8	U	1	7	3	100	P	S	0	1							
3	6	9	U	1	7	4	100	P	S	0	1							
3	7	0	U	1	7	6	100	P	S	0	1							
3	7	1	U	1	7	7	100	P	S	0	1							
3	7	2	U	1	7	8	100	P	S	0	1							
3	7	3	U	1	7	9	100	P	S	0	1							
3	7	4	U	1	8	0	100	P	S	0	1							
3	7	5	U	1	8	1	100	P	S	0	1							
3	7	6	U	1	8	2	100	P	S	0	1							
3	7	7	U	1	8	3	100	P	S	0	1							
3	7	8	U	1	8	4	100	P	S	0	1							
3	7	9	U	1	8	5	100	P	S	0	1							
3	8	0	U	1	8	6	100	P	S	0	1							
3	8	1	U	1	8	7	100	P	S	0	1							
3	8	2	U	1	8	8	293	P	S	0	1							
3	8	3	U	1	8	9	100	P	S	0	1							
3	8	4	U	1	9	0	293	P	S	0	1							
3	8	5	U	1	9	1	100	P	S	0	1							
3	8	6	U	1	9	2	100	P	S	0	1							
3	8	7	U	1	9	3	100	P	S	0	1							
3	8	8	U	1	9	4	100	P	S	0	1							
3	8	9	U	1	9	6	293	P	S	0	1							
3	5	2	U	1	9	7	100	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 50 (Continued)																		
3	9	1	U	2	0	0	100	P	S	0	1							
3	9	2	U	2	0	1	100	P	S	0	1							
3	9	3	U	2	0	2	100	P	S	0	1							
3	9	4	U	2	0	3	100	P	S	0	1							
3	9	5	U	2	0	4	293	P	S	0	1							
3	9	6	U	2	0	5	100	P	S	0	1							
3	9	7	U	2	0	6	100	P	S	0	1							
3	9	8	U	2	0	7	100	P	S	0	1							
3	9	9	U	2	0	8	100	P	S	0	1							
4	0	0	U	2	0	9	100	P	S	0	1							
4	0	1	U	2	1	0	513	P	S	0	1							
4	0	2	U	2	1	1	359	P	S	0	1							
4	0	3	U	2	1	3	293	P	S	0	1							
4	0	4	U	2	1	4	100	P	S	0	1							
4	0	5	U	2	1	5	100	P	S	0	1							
4	0	6	U	2	1	6	293	P	S	0	1							
4	0	7	U	2	1	7	100	P	S	0	1							
4	0	8	U	2	1	8	293	P	S	0	1							
4	0	9	U	2	1	9	293	P	S	0	1							
4	1	0	U	2	2	0	491	P	S	0	1							
4	1	1	U	2	2	1	100	P	S	0	1							
4	1	2	U	2	2	2	100	P	S	0	1							
4	1	3	U	2	2	3	143	P	S	0	1							
4	1	4	U	2	2	5	293	P	S	0	1							
4	1	5	U	2	2	6	6,594	P	S	0	1							
4	1	6	U	2	2	7	293	P	S	0	1							
4	1	7	U	2	2	8	1,219	P	S	0	1							
4	1	8	U	2	3	4	100	P	S	0	1							
4	1	9	U	2	3	5	100	P	S	0	1							
4	2	0	U	2	3	6	100	P	S	0	1							
4	2	1	U	2	3	7	100	P	S	0	1							
4	2	2	U	2	3	8	100	P	S	0	1							
4	2	3	U	2	3	9	646	P	S	0	1							
4	2	4	U	2	4	0	143	P	S	0	1							
4	2	5	U	2	4	3	100	P	S	0	1							
4	2	6	U	2	4	4	100	P	S	0	1							
4	2	7	U	2	4	6	231	P	S	0	1							
4	2	8	U	2	4	7	100	P	S	0	1							
4	2	9	U	2	4	8	100	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 50 (Continued)																		
4	3	0	U	2	4	9	100	P	S	0	1							
4	3	1	U	2	7	1	100	P	S	0	1							
4	3	2	U	2	7	8	100	P	S	0	1							
4	3	3	U	2	7	9	100	P	S	0	1							
4	3	4	U	2	8	0	100	P	S	0	1							
4	3	5	U	3	2	8	100	P	S	0	1							
4	3	6	U	3	5	3	100	P	S	0	1							
4	3	7	U	3	5	9	100	P	S	0	1							
4	3	8	U	3	6	4	100	P	S	0	1							
4	3	9	U	3	6	7	100	P	S	0	1							
4	4	0	U	3	7	2	100	P	S	0	1							
4	4	1	U	3	7	3	100	P	S	0	1							
4	4	2	U	3	8	7	100	P	S	0	1							
4	4	3	U	3	8	9	100	P	S	0	1							
4	4	4	U	3	9	4	100	P	S	0	1							
4	4	5	U	3	9	5	100	P	S	0	1							
4	4	6	U	4	0	4	100	P	S	0	1							
4	4	7	U	4	0	9	100	P	S	0	1							
4	4	8	U	4	1	0	100	P	S	0	1							
4	4	9	U	4	1	1	100	P	S	0	1							
4	3	0																
4	3	1																
4	3	2																
4	3	3																
4	3	4																
4	3	5																
4	3	6																
4	3	7																
4	3	8																
4	3	9																
4	4	0																
4	4	1																
4	4	2																
4	4	3																
4	4	4																
4	4	5																
4	4	6																
4	4	7																
4	4	8																

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Area L																	
	1	D	0	0	1	220,000	P	S	0	1							
	2	D	0	0	2	365,000	P	S	0	1							
	3	D	0	0	3	100,000	P	S	0	1							
	4	D	0	0	4	25,000	P	S	0	1							
	5	D	0	0	5	80,000	P	S	0	1							
	6	D	0	0	6	65,000	P	S	0	1							
	7	D	0	0	7	75,000	P	S	0	1							
	8	D	0	0	8	800,000	P	S	0	1							
	9	D	0	0	9	65,000	P	S	0	1							
1	0	D	0	1	0	30,000	P	S	0	1							
1	1	D	0	1	1	40,000	P	S	0	1							
1	2	D	0	1	2	12,000	P	S	0	1							
1	3	D	0	1	3	4,000	P	S	0	1							
1	4	D	0	1	4	4,000	P	S	0	1							
1	5	D	0	1	5	7,000	P	S	0	1							
1	6	D	0	1	6	4,000	P	S	0	1							
1	7	D	0	1	7	4,000	P	S	0	1							
1	8	D	0	1	8	20,000	P	S	0	1							
1	9	D	0	1	9	20,000	P	S	0	1							
2	0	D	0	2	0	30,000	P	S	0	1							
2	1	D	0	2	1	10,000	P	S	0	1							
2	2	D	0	2	2	23,000	P	S	0	1							
2	3	D	0	2	3	4,000	P	S	0	1							
2	4	D	0	2	4	4,000	P	S	0	1							
2	5	D	0	2	5	4,000	P	S	0	1							
2	6	D	0	2	6	4,000	P	S	0	1							
2	7	D	0	2	7	12,000	P	S	0	1							
2	8	D	0	2	8	30,000	P	S	0	1							
2	9	D	0	2	9	7,000	P	S	0	1							
3	0	D	0	3	0	20000	P	S	0	1							
3	1	D	0	3	1	12000	P	S	0	1							
3	2	D	0	3	2	19000	P	S	0	1							
3	3	D	0	3	3	19000	P	S	0	1							
3	4	D	0	3	4	19000	P	S	0	1							
3	5	D	0	3	5	20000	P	S	0	1							
3	6	D	0	3	6	9000	P	S	0	1							
3	7	D	0	3	7	7000	P	S	0	1							
3	8	D	0	3	8	4000	P	S	0	1							
3	9	D	0	3	9	10000	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 54, Area L (Continued)																	
4	0	D	0	4	0	15000	P	S	0	1							
4	1	D	0	4	1	7000	P	S	0	1							
4	2	D	0	4	2	12000	P	S	0	1							
4	3	D	0	4	3	15000	P	S	0	1							
4	4	F	0	0	1	660000	P	S	0	1							
4	5	F	0	0	2	350000	P	S	0	1							
4	6	F	0	0	3	250000	P	S	0	1							
4	7	F	0	0	4	30000	P	S	0	1							
4	8	F	0	0	5	250000	P	S	0	1							
4	9	F	0	0	6	7000	P	S	0	1							
5	0	F	0	0	7	28000	P	S	0	1							
5	1	F	0	0	8	7000	P	S	0	1							
5	2	F	0	0	9	8000	P	S	0	1							
5	3	F	0	1	0	4000	P	S	0	1							
5	4	F	0	1	1	4000	P	S	0	1							
5	5	F	0	1	2	4000	P	S	0	1							
5	6	F	0	1	9	500	P	S	0	1							
5	7	F	0	2	0	500	P	S	0	1							
5	8	F	0	2	1	500	P	S	0	1							
5	9	F	0	2	2	500	P	S	0	1							
6	0	F	0	2	3	500	P	S	0	1							
6	1	F	0	2	4	500	P	S	0	1							
6	2	F	0	2	5	500	P	S	0	1							
6	3	F	0	2	6	500	P	S	0	1							
6	4	F	0	2	7	4000	P	S	0	1							
6	5	F	0	2	8	4000	P	S	0	1							
6	6	F	0	3	2	500	P	S	0	1							
6	7	F	0	3	4	500	P	S	0	1							
6	8	F	0	3	5	500	P	S	0	1							
6	9	F	0	3	7	500	P	S	0	1							
7	0	F	0	3	8	500	P	S	0	1							
7	1	F	0	3	9	4000	P	S	0	1							
7	2	K	0	4	4	22000	P	S	0	1							
7	3	K	0	4	5	4000	P	S	0	1							
7	4	K	0	4	6	4000	P	S	0	1							
7	5	K	0	4	7	4000	P	S	0	1							
7	6	K	0	8	4	500	P	S	0	1							
7	7	K	1	0	1	500	P	S	0	1							
7	8	K	1	0	2	500	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Area L (Continued)																		
	7	9	P	0	0	1	4,000	P	S	0	1							
	8	0	P	0	0	2	4,000	P	S	0	1							
	8	1	P	0	0	3	4,000	P	S	0	1							
	8	2	P	0	0	4	4,000	P	S	0	1							
	8	3	P	0	0	5	4,000	P	S	0	1							
	8	4	P	0	0	6	4,000	P	S	0	1							
	8	5	P	0	0	7	4,000	P	S	0	1							
	8	6	P	0	0	8	4,000	P	S	0	1							
	8	7	P	0	0	9	4,000	P	S	0	1							
	8	8	P	0	1	0	4,000	P	S	0	1							
	8	9	P	0	1	1	4,000	P	S	0	1							
	9	0	P	0	1	2	4,000	P	S	0	1							
	9	1	P	0	1	3	4,000	P	S	0	1							
	9	2	P	0	1	4	4,000	P	S	0	1							
	9	3	P	0	1	5	4,000	P	S	0	1							
	9	4	P	0	1	6	4,000	P	S	0	1							
	9	5	P	0	1	7	4,000	P	S	0	1							
	9	6	P	0	1	8	4,000	P	S	0	1							
	9	7	P	0	2	0	4,000	P	S	0	1							
	9	8	P	0	2	1	4,000	P	S	0	1							
	9	9	P	0	2	2	4,000	P	S	0	1							
1	0	0	P	0	2	3	4,000	P	S	0	1							
1	0	1	P	0	2	4	4,000	P	S	0	1							
1	0	2	P	0	2	6	4,000	P	S	0	1							
1	0	3	P	0	2	7	4,000	P	S	0	1							
1	0	4	P	0	2	8	4,000	P	S	0	1							
1	0	5	P	0	2	9	4,000	P	S	0	1							
1	0	6	P	0	3	0	4,000	P	S	0	1							
1	0	7	P	0	3	1	4,000	P	S	0	1							
1	0	8	P	0	3	3	4,000	P	S	0	1							
1	0	9	P	0	3	4	4,000	P	S	0	1							
1	1	0	P	0	3	6	4,000	P	S	0	1							
1	1	1	P	0	3	7	4,000	P	S	0	1							
1	1	2	P	0	3	8	4,000	P	S	0	1							
1	1	3	P	0	3	9	4,000	P	S	0	1							
1	1	4	P	0	4	0	4,000	P	S	0	1							
1	1	5	P	0	4	1	4,000	P	S	0	1							
1	1	6	P	0	4	2	4,000	P	S	0	1							
1	1	7	P	0	4	3	4,000	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Area L (Continued)																		
1	1	8	P	0	4	4	4,000	P	S	0	1							
1	1	9	P	0	4	5	4,000	P	S	0	1							
1	2	0	P	0	4	6	4,000	P	S	0	1							
1	2	1	P	0	4	7	4,000	P	S	0	1							
1	2	2	P	0	4	8	4,000	P	S	0	1							
1	2	3	P	0	4	9	4,000	P	S	0	1							
1	2	4	P	0	5	0	4,000	P	S	0	1							
1	2	5	P	0	5	1	4,000	P	S	0	1							
1	2	6	P	0	5	4	4,000	P	S	0	1							
1	2	7	P	0	5	6	4,000	P	S	0	1							
1	2	8	P	0	5	7	4,000	P	S	0	1							
1	2	9	P	0	5	8	4,000	P	S	0	1							
1	3	0	P	0	5	9	4,000	P	S	0	1							
1	3	1	P	0	6	0	4,000	P	S	0	1							
1	3	2	P	0	6	2	4,000	P	S	0	1							
1	3	3	P	0	6	3	4,000	P	S	0	1							
1	3	4	P	0	6	4	4,000	P	S	0	1							
1	3	5	P	0	6	5	4,000	P	S	0	1							
1	3	6	P	0	6	6	4,000	P	S	0	1							
1	3	7	P	0	6	7	4,000	P	S	0	1							
1	3	8	P	0	6	8	4,000	P	S	0	1							
1	3	9	P	0	6	9	4,000	P	S	0	1							
1	4	0	P	0	7	0	4,000	P	S	0	1							
1	4	1	P	0	7	1	4,000	P	S	0	1							
1	4	2	P	0	7	2	4,000	P	S	0	1							
1	4	3	P	0	7	3	4,000	P	S	0	1							
1	4	4	P	0	7	4	4,000	P	S	0	1							
1	4	5	P	0	7	5	4,000	P	S	0	1							
1	4	6	P	0	7	6	4,000	P	S	0	1							
1	4	7	P	0	7	7	4,000	P	S	0	1							
1	4	8	P	0	7	8	4,000	P	S	0	1							
1	4	9	P	0	8	1	4,000	P	S	0	1							
1	5	0	P	0	8	2	4,000	P	S	0	1							
1	5	1	P	0	8	4	4,000	P	S	0	1							
1	5	2	P	0	8	5	4,000	P	S	0	1							
1	5	3	P	0	8	7	4,000	P	S	0	1							
1	5	4	P	0	8	8	4,000	P	S	0	1							
1	5	5	P	0	8	9	4,000	P	S	0	1							
1	5	6	P	0	9	2	4,000	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)																	
Line Number			A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)								D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 54, Area L (Continued)																	
1	5	7	P	0	9	3	4,000	P	S	0	1						
1	5	8	P	0	9	4	4,000	P	S	0	1						
1	5	9	P	0	9	5	4,000	P	S	0	1						
1	6	0	P	0	9	6	4,000	P	S	0	1						
1	6	1	P	0	9	7	4,000	P	S	0	1						
1	6	2	P	0	9	8	4,000	P	S	0	1						
1	6	3	P	0	9	9	4,000	P	S	0	1						
1	6	4	P	1	0	1	4,000	P	S	0	1						
1	6	5	P	1	0	2	4,000	P	S	0	1						
1	6	6	P	1	0	3	4,000	P	S	0	1						
1	6	7	P	1	0	4	4,000	P	S	0	1						
1	6	8	P	1	0	5	4,000	P	S	0	1						
1	6	9	P	1	0	6	4,000	P	S	0	1						
1	7	0	P	1	0	8	4,000	P	S	0	1						
1	7	1	P	1	0	9	4,000	P	S	0	1						
1	7	2	P	1	1	0	4,000	P	S	0	1						
1	7	3	P	1	1	1	4,000	P	S	0	1						
1	7	4	P	1	1	2	4,000	P	S	0	1						
1	7	5	P	1	1	3	4,000	P	S	0	1						
1	7	6	P	1	1	4	4,000	P	S	0	1						
1	7	7	P	1	1	5	4,000	P	S	0	1						
1	7	8	P	1	1	6	4,000	P	S	0	1						
1	7	9	P	1	1	8	4,000	P	S	0	1						
1	8	0	P	1	1	9	4,000	P	S	0	1						
1	8	1	P	1	2	0	4,000	P	S	0	1						
1	8	2	P	1	2	1	4,000	P	S	0	1						
1	8	3	P	1	2	2	4,000	P	S	0	1						
1	8	4	P	1	2	3	4,000	P	S	0	1						
1	8	5	P	1	2	7	4,000	P	S	0	1						
1	8	6	P	1	2	8	4,000	P	S	0	1						
1	8	7	P	1	8	5	4,000	P	S	0	1						
1	8	8	P	1	8	8	4,000	P	S	0	1						
1	8	9	P	1	8	9	4,000	P	S	0	1						
1	9	0	P	1	9	0	4,000	P	S	0	1						
1	9	1	P	1	9	1	4,000	P	S	0	1						
1	9	2	P	1	9	2	4,000	P	S	0	1						
1	9	3	P	1	9	4	4,000	P	S	0	1						
1	9	4	P	1	9	6	4,000	P	S	0	1						
1	9	5	P	1	9	7	4,000	P	S	0	1						

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Area L (Continued)																		
1	9	6	P	1	9	8	4,000	P	S	0	1							
1	9	7	P	1	9	9	4,000	P	S	0	1							
1	9	8	P	2	0	1	4,000	P	S	0	1							
1	9	9	P	2	0	2	4,000	P	S	0	1							
2	0	0	P	2	0	3	4,000	P	S	0	1							
2	0	1	P	2	0	4	4,000	P	S	0	1							
2	0	2	P	2	0	5	4,000	P	S	0	1							
2	0	3	U	0	0	1	4,000	P	S	0	1							
2	0	4	U	0	0	2	4,000	P	S	0	1							
2	0	5	U	0	0	3	4,000	P	S	0	1							
2	0	6	U	0	0	4	4,000	P	S	0	1							
2	0	7	U	0	0	5	4,000	P	S	0	1							
2	0	8	U	0	0	6	4,000	P	S	0	1							
2	0	9	U	0	0	7	4,000	P	S	0	1							
2	1	0	U	0	0	8	4,000	P	S	0	1							
2	1	1	U	0	0	9	4,000	P	S	0	1							
2	1	2	U	0	1	0	4,000	P	S	0	1							
2	1	3	U	0	1	1	4,000	P	S	0	1							
2	1	4	U	0	1	2	4,000	P	S	0	1							
2	1	5	U	0	1	4	4,000	P	S	0	1							
2	1	6	U	0	1	5	4,000	P	S	0	1							
2	1	7	U	0	1	6	4,000	P	S	0	1							
2	1	8	U	0	1	7	4,000	P	S	0	1							
2	1	9	U	0	1	8	4,000	P	S	0	1							
2	2	0	U	0	1	9	4,000	P	S	0	1							
2	2	1	U	0	2	0	4,000	P	S	0	1							
2	2	2	U	0	2	1	4,000	P	S	0	1							
2	2	3	U	0	2	2	4,000	P	S	0	1							
2	2	4	U	0	2	3	4,000	P	S	0	1							
2	2	5	U	0	2	4	4,000	P	S	0	1							
2	2	6	U	0	2	5	4,000	P	S	0	1							
2	2	7	U	0	2	6	4,000	P	S	0	1							
2	2	8	U	0	2	7	4,000	P	S	0	1							
2	2	9	U	0	2	8	4,000	P	S	0	1							
2	3	0	U	0	2	9	4,000	P	S	0	1							
2	3	1	U	0	3	0	4,000	P	S	0	1							
2	3	2	U	0	3	1	4,000	P	S	0	1							
2	3	3	U	0	3	2	4,000	P	S	0	1							
2	3	4	U	0	3	3	4,000	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Area L (Continued)																		
2	3	5	U	0	3	4	4,000	P	S	0	1							
2	3	6	U	0	3	5	4,000	P	S	0	1							
2	3	7	U	0	3	6	4,000	P	S	0	1							
2	3	8	U	0	3	7	4,000	P	S	0	1							
2	3	9	U	0	3	8	4,000	P	S	0	1							
2	4	0	U	0	3	9	4,000	P	S	0	1							
2	4	1	U	0	4	1	4,000	P	S	0	1							
2	4	2	U	0	4	2	4,000	P	S	0	1							
2	4	3	U	0	4	3	4,000	P	S	0	1							
2	4	4	U	0	4	4	4,000	P	S	0	1							
2	4	5	U	0	4	5	4,000	P	S	0	1							
2	4	6	U	0	4	6	4,000	P	S	0	1							
2	4	7	U	0	4	7	4,000	P	S	0	1							
2	4	8	U	0	4	8	4,000	P	S	0	1							
2	4	9	U	0	4	9	4,000	P	S	0	1							
2	5	0	U	0	5	0	4,000	P	S	0	1							
2	5	1	U	0	5	1	4,000	P	S	0	1							
2	5	2	U	0	5	2	4,000	P	S	0	1							
2	5	3	U	0	5	3	4,000	P	S	0	1							
2	5	4	U	0	5	5	4,000	P	S	0	1							
2	5	5	U	0	5	6	4,000	P	S	0	1							
2	5	6	U	0	5	7	4,000	P	S	0	1							
2	5	7	U	0	5	8	4,000	P	S	0	1							
2	5	8	U	0	5	9	4,000	P	S	0	1							
2	5	9	U	0	6	0	4,000	P	S	0	1							
2	6	0	U	0	6	1	4,000	P	S	0	1							
2	6	1	U	0	6	2	4,000	P	S	0	1							
2	6	2	U	0	6	3	4,000	P	S	0	1							
2	6	3	U	0	6	4	4,000	P	S	0	1							
2	6	4	U	0	6	6	4,000	P	S	0	1							
2	6	5	U	0	6	7	4,000	P	S	0	1							
2	6	6	U	0	6	8	4,000	P	S	0	1							
2	6	7	U	0	6	9	4,000	P	S	0	1							
2	6	8	U	0	7	0	4,000	P	S	0	1							
2	6	9	U	0	7	1	4,000	P	S	0	1							
2	7	0	U	0	7	2	4,000	P	S	0	1							
2	7	1	U	0	7	3	4,000	P	S	0	1							
2	7	2	U	0	7	4	4,000	P	S	0	1							
2	7	3	U	0	7	5	4,000	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES*									
									(1) PROCESS CODES (Enter code)									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Area L (Continued)																		
2	7	4	U	0	7	6	4,000	P	S	0	1							
2	7	5	U	0	7	7	4,000	P	S	0	1							
2	7	6	U	0	7	8	4,000	P	S	0	1							
2	7	7	U	0	7	9	4,000	P	S	0	1							
2	7	8	U	0	8	0	4,000	P	S	0	1							
2	7	9	U	0	8	1	4,000	P	S	0	1							
2	8	0	U	0	8	2	4,000	P	S	0	1							
2	8	1	U	0	8	3	4,000	P	S	0	1							
2	8	2	U	0	8	4	4,000	P	S	0	1							
2	8	3	U	0	8	5	4,000	P	S	0	1							
2	8	4	U	0	8	6	4,000	P	S	0	1							
2	8	5	U	0	8	7	4,000	P	S	0	1							
2	8	6	U	0	8	8	4,000	P	S	0	1							
2	8	7	U	0	8	9	4,000	P	S	0	1							
2	8	8	U	0	9	0	4,000	P	S	0	1							
2	8	9	U	0	9	1	4,000	P	S	0	1							
2	9	0	U	0	9	2	4,000	P	S	0	1							
2	9	1	U	0	9	3	4,000	P	S	0	1							
2	9	2	U	0	9	4	4,000	P	S	0	1							
2	9	3	U	0	9	5	4,000	P	S	0	1							
2	9	4	U	0	9	6	4,000	P	S	0	1							
2	9	5	U	0	9	7	4,000	P	S	0	1							
2	9	6	U	0	9	8	4,000	P	S	0	1							
2	9	7	U	0	9	9	4,000	P	S	0	1							
2	9	8	U	1	0	1	4,000	P	S	0	1							
2	9	9	U	1	0	2	4,000	P	S	0	1							
3	0	0	U	1	0	3	4,000	P	S	0	1							
3	0	1	U	1	0	5	4,000	P	S	0	1							
3	0	2	U	1	0	6	4,000	P	S	0	1							
3	0	3	U	1	0	7	4,000	P	S	0	1							
3	0	4	U	1	0	8	4,000	P	S	0	1							
3	0	5	U	1	0	9	4,000	P	S	0	1							
3	0	6	U	1	1	0	4,000	P	S	0	1							
3	0	7	U	1	1	1	4,000	P	S	0	1							
3	0	8	U	1	1	2	4,000	P	S	0	1							
3	0	9	U	1	1	3	4,000	P	S	0	1							
3	1	0	U	1	1	4	4,000	P	S	0	1							
3	1	1	U	1	1	5	4,000	P	S	0	1							
3	1	2	U	1	1	6	4,000	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Area L (Continued)																		
3	1	3	U	1	1	7	4,000	P	S	0	1							
3	1	4	U	1	1	8	4,000	P	S	0	1							
3	1	5	U	1	1	9	4,000	P	S	0	1							
3	1	6	U	1	2	0	4,000	P	S	0	1							
3	1	7	U	1	2	1	4,000	P	S	0	1							
3	1	8	U	1	2	2	4,000	P	S	0	1							
3	1	9	U	1	2	3	4,000	P	S	0	1							
3	2	0	U	1	2	4	4,000	P	S	0	1							
3	2	1	U	1	2	5	4,000	P	S	0	1							
3	2	2	U	1	2	6	4,000	P	S	0	1							
3	2	3	U	1	2	7	4,000	P	S	0	1							
3	2	4	U	1	2	8	4,000	P	S	0	1							
3	2	5	U	1	2	9	4,000	P	S	0	1							
3	2	6	U	1	3	0	4,000	P	S	0	1							
3	2	7	U	1	3	1	4,000	P	S	0	1							
3	2	8	U	1	3	2	4,000	P	S	0	1							
3	2	9	U	1	3	3	4,000	P	S	0	1							
3	3	0	U	1	3	4	4,000	P	S	0	1							
3	3	1	U	1	3	5	4,000	P	S	0	1							
3	3	2	U	1	3	6	4,000	P	S	0	1							
3	3	3	U	1	3	7	4,000	P	S	0	1							
3	3	4	U	1	3	8	4,000	P	S	0	1							
3	3	5	U	1	4	0	4,000	P	S	0	1							
3	3	6	U	1	4	1	4,000	P	S	0	1							
3	3	7	U	1	4	2	4,000	P	S	0	1							
3	3	8	U	1	4	3	4,000	P	S	0	1							
3	3	9	U	1	4	4	4,000	P	S	0	1							
3	4	0	U	1	4	5	4,000	P	S	0	1							
3	4	1	U	1	4	6	4,000	P	S	0	1							
3	4	2	U	1	4	7	4,000	P	S	0	1							
3	4	3	U	1	4	8	4,000	P	S	0	1							
3	4	4	U	1	4	9	4,000	P	S	0	1							
3	4	5	U	1	5	0	4,000	P	S	0	1							
3	4	6	U	1	5	1	4,000	P	S	0	1							
3	4	7	U	1	5	2	4,000	P	S	0	1							
3	4	8	U	1	5	3	4,000	P	S	0	1							
3	4	9	U	1	5	4	4,000	P	S	0	1							
3	5	0	U	1	5	5	4,000	P	S	0	1							
3	5	1	U	1	5	6	4,000	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)	D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 54, Area L (Continued)					
354	U157	4,000	P	S01	
355	U158	4,000	P	S01	
356	U159	4,000	P	S01	
357	U160	4,000	P	S01	
358	U161	4,000	P	S01	
359	U162	4,000	P	S01	
360	U163	4,000	P	S01	
361	U164	4,000	P	S01	
362	U165	4,000	P	S01	
363	U166	4,000	P	S01	
364	U167	4,000	P	S01	
365	U168	4,000	P	S01	
366	U169	4,000	P	S01	
367	U170	4,000	P	S01	
368	U171	4,000	P	S01	
369	U172	4,000	P	S01	
370	U173	4,000	P	S01	
371	U174	4,000	P	S01	
372	U176	4,000	P	S01	
373	U177	4,000	P	S01	
374	U178	4,000	P	S01	
375	U179	4,000	P	S01	
376	U180	4,000	P	S01	
377	U181	4,000	P	S01	
378	U182	4,000	P	S01	
379	U183	4,000	P	S01	
380	U184	4,000	P	S01	
381	U185	4,000	P	S01	
382	U186	4,000	P	S01	
383	U187	4,000	P	S01	
384	U188	4,000	P	S01	
385	U189	4,000	P	S01	
386	U190	4,000	P	S01	
387	U191	4,000	P	S01	
388	U192	4,000	P	S01	
389	U193	4,000	P	S01	
390	U194	4,000	P	S01	
354	U196	4,000	P	S01	
355	U197	4,000	P	S01	

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number	*A. EPA Hazardous Waste No. (Enter code)*	*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*	*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Area L (Continued)					
391	U200	4,000	P	S01	
392	U201	4,000	P	S01	
393	U202	4,000	P	S01	
394	U203	4,000	P	S01	
395	U204	4,000	P	S01	
396	U205	4,000	P	S01	
397	U206	4,000	P	S01	
398	U207	4,000	P	S01	
399	U208	4,000	P	S01	
400	U209	4,000	P	S01	
401	U210	4,000	P	S01	
402	U211	4,000	P	S01	
403	U213	4,000	P	S01	
404	U214	4,000	P	S01	
405	U215	4,000	P	S01	
406	U216	4,000	P	S01	
407	U217	4,000	P	S01	
408	U218	4,000	P	S01	
409	U219	4,000	P	S01	
410	U220	7,000	P	S01	
411	U200	4,000	P	S01	
412	U201	4,000	P	S01	
413	U202	4,000	P	S01	
414	U203	4,000	P	S01	
415	U204	7,000	P	S01	
416	U205	4,000	P	S01	
417	U206	7,000	P	S01	
418	U207	4,000	P	S01	
419	U208	4,000	P	S01	
420	U209	4,000	P	S01	
421	U210	4,000	P	S01	
422	U211	4,000	P	S01	
423	U213	7,000	P	S01	
424	U214	4,000	P	S01	
425	U215	4,000	P	S01	
426	U216	4,000	P	S01	
427	U217	4,000	P	S01	
428	U218	4,000	P	S01	
429	U219	4,000	P	S01	

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES*									
									(1) PROCESS CODES (Enter code)									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Area L (Continued)																		
4	3	0	U	2	4	9	4,000	P	S	0	1							
4	3	1	U	2	7	1	4,000	P	S	0	1							
4	3	2	U	2	7	8	4,000	P	S	0	1							
4	3	3	U	2	7	9	4,000	P	S	0	1							
4	3	4	U	2	8	0	4,000	P	S	0	1							
4	3	5	U	3	2	8	4,000	P	S	0	1							
4	3	6	U	3	5	3	4,000	P	S	0	1							
4	3	7	U	3	5	9	4,000	P	S	0	1							
4	3	8	U	3	6	4	4,000	P	S	0	1							
4	3	9	U	3	6	7	4,000	P	S	0	1							
4	4	0	U	3	7	2	4,000	P	S	0	1							
4	4	1	U	3	7	3	4,000	P	S	0	1							
4	4	2	U	3	8	7	4,000	P	S	0	1							
4	4	3	U	3	8	9	4,000	P	S	0	1							
4	4	4	U	3	9	4	4,000	P	S	0	1							
4	4	5	U	3	9	5	4,000	P	S	0	1							
4	4	6	U	4	0	4	4,000	P	S	0	1							
4	4	7	U	4	0	9	4,000	P	S	0	1							
4	4	8	U	4	1	0	4,000	P	S	0	1							
4	4	9	U	4	1	1	4,000	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 54, Material Disposal Area L (Impoundments B and D/Shafts 1, 13-17, and 19-34)[a,b]																	
	1	D	0	0	1	82,000	P	D	8	0							
	2	D	0	0	2	17,200	P	D	8	0							
	3	D	0	0	3	750	P	D	8	0							
	4	D	0	0	4	1,700	P	D	8	0							
	5	D	0	0	6	650	P	D	8	0							
	6	D	0	0	7	1,000	P	D	8	0							
	7	D	0	0	8	1,250	P	D	8	0							
	8	D	0	0	9	2,200	P	D	8	0							
	9	D	0	1	1	100	P	D	8	0							
1	0	D	0	1	6	600	P	D	8	0							
1	1	F	0	0	2	1,400	P	D	8	0							
1	2	P	0	1	5	4,000	P	D	8	0							
1	3	P	0	8	7	15	P	D	8	0							
1	4	U	0	0	2	5,000	P	D	8	0							
1	5	U	0	1	9	200	P	D	8	0							
1	6	U	0	6	9	500	P	D	8	0							
1	7	U	0	8	0	2,000	P	D	8	0							
1	8	U	1	2	2	550	P	D	8	0							
1	9	U	1	5	1	35	P	D	8	0							
2	0	U	1	5	4	550	P	D	8	0							
2	1	U	1	5	9	300	P	D	8	0							
2	2	U	1	6	1	500	P	D	8	0							
2	3	U	1	6	5	140	P	D	8	0							
2	4	U	2	2	0	620	P	D	8	0							
2	5	U	2	2	6	10,000	P	D	8	0							
2	6	U	2	2	8	4,400	P	D	8	0							
2	7	U	2	3	9	345	P	D	8	0							
2	8																
2	9																
3	0																
3	1																
3	2																
3	3																
3	4																
3	5																
3	6																
3	7																
3	8																
3	9																

[a] Based on historical data from waste operations personnel.

[b] To be closed in accordance with Code of Federal Regulations (CFR), Title 40, Part 265, Subpart G. Permitted status is not requested.

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 54, Area G																	
	1	D	0	0	1	330,000	P	S	0	1							
	2	D	0	0	2	395,000	P	S	0	1							
	3	D	0	0	3	185,000	P	S	0	1							
	4	D	0	0	4	2,525,000	P	S	0	1							
	5	D	0	0	5	82,000	P	S	0	1							
	6	D	0	0	6	515,000	P	S	0	1							
	7	D	0	0	7	3,775,000	P	S	0	1							
	8	D	0	0	8	5,400,000	P	S	0	1							
	9	D	0	0	9	100,000	P	S	0	1							
1	0	D	0	1	0	45,000	P	S	0	1							
1	1	D	0	1	1	2,540,000	P	S	0	1							
1	2	D	0	1	2	18,000	P	S	0	1							
1	3	D	0	1	3	4,000	P	S	0	1							
1	4	D	0	1	4	4,000	P	S	0	1							
1	5	D	0	1	5	7,000	P	S	0	1							
1	6	D	0	1	6	4,000	P	S	0	1							
1	7	D	0	1	7	4,000	P	S	0	1							
1	8	D	0	1	8	30,000	P	S	0	1							
1	9	D	0	1	9	25,000	P	S	0	1							
2	0	D	0	2	0	30,000	P	S	0	1							
2	1	D	0	2	1	15,000	P	S	0	1							
2	2	D	0	2	2	33,000	P	S	0	1							
2	3	D	0	2	3	4,000	P	S	0	1							
2	4	D	0	2	4	4,000	P	S	0	1							
2	5	D	0	2	5	4,000	P	S	0	1							
2	6	D	0	2	6	4,000	P	S	0	1							
2	7	D	0	2	7	22,000	P	S	0	1							
2	8	D	0	2	8	40,000	P	S	0	1							
2	9	D	0	2	9	7,000	P	S	0	1							
3	0	D	0	3	0	30,000	P	S	0	1							
3	1	D	0	3	1	22,000	P	S	0	1							
3	2	D	0	3	2	29,000	P	S	0	1							
3	3	D	0	3	3	29,000	P	S	0	1							
3	4	D	0	3	4	29,000	P	S	0	1							
3	5	D	0	3	5	30,000	P	S	0	1							
3	6	D	0	3	6	19,000	P	S	0	1							
3	7	D	0	3	7	7,000	P	S	0	1							
3	8	D	0	3	8	14,000	P	S	0	1							
3	9	D	0	3	9	20,000	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 54, Area G (Continued)																	
4	0	D	0	4	0	25,000	P	S	0	1							
4	1	D	0	4	1	17,000	P	S	0	1							
4	2	D	0	4	2	22,000	P	S	0	1							
4	3	D	0	4	3	25,000	P	S	0	1							
4	4	F	0	0	1	6,410,000	P	S	0	1							
4	5	F	0	0	2	3,450,000	P	S	0	1							
4	6	F	0	0	3	2,850,000	P	S	0	1							
4	7	F	0	0	4	35,000	P	S	0	1							
4	8	F	0	0	5	3,250,000	P	S	0	1							
4	9	F	0	0	6	7,000	P	S	0	1							
5	0	F	0	0	7	18,000	P	S	0	1							
5	1	F	0	0	8	7,000	P	S	0	1							
5	2	F	0	0	9	8,000	P	S	0	1							
5	3	F	0	1	0	4,000	P	S	0	1							
5	4	F	0	1	1	4,000	P	S	0	1							
5	5	F	0	1	2	4,000	P	S	0	1							
5	6	F	0	1	9	4,000	P	S	0	1							
5	7	F	0	2	0	4,000	P	S	0	1							
5	8	F	0	2	1	4,000	P	S	0	1							
5	9	F	0	2	2	4,000	P	S	0	1							
6	0	F	0	2	3	4,000	P	S	0	1							
6	1	F	0	2	4	4,000	P	S	0	1							
6	2	F	0	2	5	4,000	P	S	0	1							
6	3	F	0	2	6	4,000	P	S	0	1							
6	4	F	0	2	7	4,000	P	S	0	1							
6	5	F	0	2	8	4,000	P	S	0	1							
6	6	F	0	3	2	4,000	P	S	0	1							
6	7	F	0	3	4	4,000	P	S	0	1							
6	8	F	0	3	5	4,000	P	S	0	1							
6	9	F	0	3	7	4,000	P	S	0	1							
7	0	F	0	3	8	4,000	P	S	0	1							
7	1	F	0	3	9	4,000	P	S	0	1							
7	2	K	0	4	4	22,000	P	S	0	1							
7	3	K	0	4	5	4,000	P	S	0	1							
7	4	K	0	4	6	4,000	P	S	0	1							
7	5	K	0	4	7	4,000	P	S	0	1							
7	6	K	0	8	4	500	P	S	0	1							
7	7	K	1	0	1	500	P	S	0	1							
7	8	K	1	0	2	500	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Area G (Continued)																		
	7	9	P	0	0	1	4000	P	S	0	1							
	8	0	P	0	0	2	4000	P	S	0	1							
	8	1	P	0	0	3	4100	P	S	0	1							
	8	2	P	0	0	4	4000	P	S	0	1							
	8	3	P	0	0	5	4000	P	S	0	1							
	8	4	P	0	0	6	4000	P	S	0	1							
	8	5	P	0	0	7	4000	P	S	0	1							
	8	6	P	0	0	8	4000	P	S	0	1							
	8	7	P	0	0	9	4000	P	S	0	1							
	8	8	P	0	1	0	4000	P	S	0	1							
	8	9	P	0	1	1	4000	P	S	0	1							
	9	0	P	0	1	2	4100	P	S	0	1							
	9	1	P	0	1	3	4000	P	S	0	1							
	9	2	P	0	1	4	4000	P	S	0	1							
	9	3	P	0	1	5	4100	P	S	0	1							
	9	4	P	0	1	6	4000	P	S	0	1							
	9	5	P	0	1	7	4000	P	S	0	1							
	9	6	P	0	1	8	4000	P	S	0	1							
	9	7	P	0	2	0	4000	P	S	0	1							
	9	8	P	0	2	1	4000	P	S	0	1							
	9	9	P	0	2	2	4000	P	S	0	1							
1	0	0	P	0	2	3	4000	P	S	0	1							
1	0	1	P	0	2	4	4000	P	S	0	1							
1	0	2	P	0	2	6	4000	P	S	0	1							
1	0	3	P	0	2	7	4000	P	S	0	1							
1	0	4	P	0	2	8	4000	P	S	0	1							
1	0	5	P	0	2	9	4100	P	S	0	1							
1	0	6	P	0	3	0	4100	P	S	0	1							
1	0	7	P	0	3	1	4100	P	S	0	1							
1	0	8	P	0	3	3	4000	P	S	0	1							
1	0	9	P	0	3	4	4000	P	S	0	1							
1	1	0	P	0	3	6	4000	P	S	0	1							
1	1	1	P	0	3	7	4000	P	S	0	1							
1	1	2	P	0	3	8	4100	P	S	0	1							
1	1	3	P	0	3	9	4000	P	S	0	1							
1	1	4	P	0	4	0	4000	P	S	0	1							
1	1	5	P	0	4	1	4000	P	S	0	1							
1	1	6	P	0	4	2	4000	P	S	0	1							
1	1	7	P	0	4	3	4000	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Area G (Continued)																		
1	1	8	P	0	4	4	4000	P	S	0	1							
1	1	9	P	0	4	5	4000	P	S	0	1							
1	2	0	P	0	4	6	4000	P	S	0	1							
1	2	1	P	0	4	7	4000	P	S	0	1							
1	2	2	P	0	4	8	4000	P	S	0	1							
1	2	3	P	0	4	9	4000	P	S	0	1							
1	2	4	P	0	5	0	4000	P	S	0	1							
1	2	5	P	0	5	1	4000	P	S	0	1							
1	2	6	P	0	5	4	4000	P	S	0	1							
1	2	7	P	0	5	6	4100	P	S	0	1							
1	2	8	P	0	5	7	4000	P	S	0	1							
1	2	9	P	0	5	8	4000	P	S	0	1							
1	3	0	P	0	5	9	4000	P	S	0	1							
1	3	1	P	0	6	0	4000	P	S	0	1							
1	3	2	P	0	6	2	4000	P	S	0	1							
1	3	3	P	0	6	3	4100	P	S	0	1							
1	3	4	P	0	6	4	4000	P	S	0	1							
1	3	5	P	0	6	5	4000	P	S	0	1							
1	3	6	P	0	6	6	4000	P	S	0	1							
1	3	7	P	0	6	7	4000	P	S	0	1							
1	3	8	P	0	6	8	4100	P	S	0	1							
1	3	9	P	0	6	9	4000	P	S	0	1							
1	4	0	P	0	7	0	4000	P	S	0	1							
1	4	1	P	0	7	1	4000	P	S	0	1							
1	4	2	P	0	7	2	4000	P	S	0	1							
1	4	3	P	0	7	3	4100	P	S	0	1							
1	4	4	P	0	7	4	4000	P	S	0	1							
1	4	5	P	0	7	5	4000	P	S	0	1							
1	4	6	P	0	7	6	4000	P	S	0	1							
1	4	7	P	0	7	7	4000	P	S	0	1							
1	4	8	P	0	7	8	4000	P	S	0	1							
1	4	9	P	0	8	1	4000	P	S	0	1							
1	5	0	P	0	8	2	4000	P	S	0	1							
1	5	1	P	0	8	4	4000	P	S	0	1							
1	5	2	P	0	8	5	4000	P	S	0	1							
1	5	3	P	0	8	7	4000	P	S	0	1							
1	5	4	P	0	8	8	4000	P	S	0	1							
1	5	5	P	0	8	9	4000	P	S	0	1							
1	5	6	P	0	9	2	4000	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)	D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 54, Area G (Continued)					
157	P093	4,000	P	S01	
158	P094	4,000	P	S01	
159	P095	4,100	P	S01	
160	P096	4,100	P	S01	
161	P097	4,000	P	S01	
162	P098	4,100	P	S01	
163	P099	4,000	P	S01	
164	P101	4,000	P	S01	
165	P102	4,000	P	S01	
166	P103	4,000	P	S01	
167	P104	4,000	P	S01	
168	P105	4,000	P	S01	
169	P106	4,100	P	S01	
170	P108	4,000	P	S01	
171	P109	4,000	P	S01	
172	P110	4,000	P	S01	
173	P111	4,000	P	S01	
174	P112	4,000	P	S01	
175	P113	4,000	P	S01	
176	P114	4,000	P	S01	
177	P115	4,000	P	S01	
178	P116	4,000	P	S01	
179	P118	4,000	P	S01	
180	P119	4,000	P	S01	
181	P120	4,100	P	S01	
182	P121	4,000	P	S01	
183	P122	4,000	P	S01	
184	P123	4,000	P	S01	
185	P127	4,000	P	S01	
186	P128	4,000	P	S01	
187	P185	4,000	P	S01	
188	P188	4,000	P	S01	
189	P189	4,000	P	S01	
190	P190	4,000	P	S01	
191	P191	4,000	P	S01	
192	P192	4,000	P	S01	
193	P194	4,000	P	S01	
194	P196	4,000	P	S01	
195	P197	4,000	P	S01	

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Area G (Continued)																		
1	9	6	P	1	9	8	4,000	P	S	0	1							
1	9	7	P	1	9	9	4,000	P	S	0	1							
1	9	8	P	2	0	1	4,000	P	S	0	1							
1	9	9	P	2	0	2	4,000	P	S	0	1							
2	0	0	P	2	0	3	4,000	P	S	0	1							
2	0	1	P	2	0	4	4,000	P	S	0	1							
2	0	2	P	2	0	5	4,000	P	S	0	1							
2	0	3	U	0	0	1	4,100	P	S	0	1							
2	0	4	U	0	0	2	7,100	P	S	0	1							
2	0	5	U	0	0	3	4,100	P	S	0	1							
2	0	6	U	0	0	4	4,000	P	S	0	1							
2	0	7	U	0	0	5	4,000	P	S	0	1							
2	0	8	U	0	0	6	4,000	P	S	0	1							
2	0	9	U	0	0	7	4,000	P	S	0	1							
2	1	0	U	0	0	8	4,000	P	S	0	1							
2	1	1	U	0	0	9	4,000	P	S	0	1							
2	1	2	U	0	1	0	4,000	P	S	0	1							
2	1	3	U	0	1	1	4,000	P	S	0	1							
2	1	4	U	0	1	2	4,100	P	S	0	1							
2	1	5	U	0	1	4	4,000	P	S	0	1							
2	1	6	U	0	1	5	4,000	P	S	0	1							
2	1	7	U	0	1	6	4,000	P	S	0	1							
2	1	8	U	0	1	7	4,000	P	S	0	1							
2	1	9	U	0	1	8	4,000	P	S	0	1							
2	2	0	U	0	1	9	4,100	P	S	0	1							
2	2	1	U	0	2	0	4,000	P	S	0	1							
2	2	2	U	0	2	1	4,000	P	S	0	1							
2	2	3	U	0	2	2	4,100	P	S	0	1							
2	2	4	U	0	2	3	4,000	P	S	0	1							
2	2	5	U	0	2	4	4,000	P	S	0	1							
2	2	6	U	0	2	5	4,000	P	S	0	1							
2	2	7	U	0	2	6	4,000	P	S	0	1							
2	2	8	U	0	2	7	4,000	P	S	0	1							
2	2	9	U	0	2	8	4,000	P	S	0	1							
2	3	0	U	0	2	9	4,100	P	S	0	1							
2	3	1	U	0	3	0	4,000	P	S	0	1							
2	3	2	U	0	3	1	4,100	P	S	0	1							
2	3	3	U	0	3	2	4,000	P	S	0	1							
2	3	4	U	0	3	3	4,000	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 54, Area G (Continued)																		
2	3	5	U	0	3	4	4,000	P	S	0	1							
2	3	6	U	0	3	5	4,000	P	S	0	1							
2	3	7	U	0	3	6	4,000	P	S	0	1							
2	3	8	U	0	3	7	4,100	P	S	0	1							
2	3	9	U	0	3	8	4,000	P	S	0	1							
2	4	0	U	0	3	9	4,000	P	S	0	1							
2	4	1	U	0	4	1	4,000	P	S	0	1							
2	4	2	U	0	4	2	4,000	P	S	0	1							
2	4	3	U	0	4	3	4,000	P	S	0	1							
2	4	4	U	0	4	4	4,100	P	S	0	1							
2	4	5	U	0	4	5	4,100	P	S	0	1							
2	4	6	U	0	4	6	4,000	P	S	0	1							
2	4	7	U	0	4	7	4,000	P	S	0	1							
2	4	8	U	0	4	8	4,000	P	S	0	1							
2	4	9	U	0	4	9	4,000	P	S	0	1							
2	5	0	U	0	5	0	4,000	P	S	0	1							
2	5	1	U	0	5	1	4,000	P	S	0	1							
2	5	2	U	0	5	2	4,100	P	S	0	1							
2	5	3	U	0	5	3	4,000	P	S	0	1							
2	5	4	U	0	5	5	4,000	P	S	0	1							
2	5	5	U	0	5	6	4,100	P	S	0	1							
2	5	6	U	0	5	7	4,100	P	S	0	1							
2	5	7	U	0	5	8	4,000	P	S	0	1							
2	5	8	U	0	5	9	4,000	P	S	0	1							
2	5	9	U	0	6	0	4,000	P	S	0	1							
2	6	0	U	0	6	1	4,000	P	S	0	1							
2	6	1	U	0	6	2	4,000	P	S	0	1							
2	6	2	U	0	6	3	4,000	P	S	0	1							
2	6	3	U	0	6	4	4,000	P	S	0	1							
2	6	4	U	0	6	6	4,000	P	S	0	1							
2	6	5	U	0	6	7	4,000	P	S	0	1							
2	6	6	U	0	6	8	4,000	P	S	0	1							
2	6	7	U	0	6	9	4,000	P	S	0	1							
2	6	8	U	0	7	0	4,000	P	S	0	1							
2	6	9	U	0	7	1	4,000	P	S	0	1							
2	7	0	U	0	7	2	4,000	P	S	0	1							
2	7	1	U	0	7	3	4,000	P	S	0	1							
2	7	2	U	0	7	4	4,000	P	S	0	1							
2	7	3	U	0	7	5	4,100	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number	*A. EPA Hazardous Waste No. (Enter code)*	*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*	*D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Area G (Continued)					
274	U076	4,000	P	S01	
275	U077	4,100	P	S01	
276	U078	4,000	P	S01	
277	U079	4,000	P	S01	
278	U080	12,000	P	S01	
279	U081	4,000	P	S01	
280	U082	4,000	P	S01	
281	U083	4,000	P	S01	
282	U084	4,000	P	S01	
283	U085	4,000	P	S01	
284	U086	4,000	P	S01	
285	U087	4,000	P	S01	
286	U088	4,000	P	S01	
287	U089	4,000	P	S01	
288	U090	4,000	P	S01	
289	U091	4,000	P	S01	
290	U092	4,000	P	S01	
291	U093	4,000	P	S01	
292	U094	4,000	P	S01	
293	U095	4,000	P	S01	
294	U096	4,000	P	S01	
295	U097	4,000	P	S01	
296	U098	4,000	P	S01	
297	U099	4,000	P	S01	
298	U101	4,000	P	S01	
299	U102	4,000	P	S01	
300	U103	4,000	P	S01	
301	U105	4,000	P	S01	
302	U106	4,000	P	S01	
303	U107	4,000	P	S01	
304	U108	4,100	P	S01	
305	U109	4,000	P	S01	
306	U110	4,000	P	S01	
307	U111	4,000	P	S01	
308	U112	4,100	P	S01	
309	U113	4,000	P	S01	
310	U114	4,000	P	S01	
311	U115	4,100	P	S01	
312	U116	4,000	P	S01	

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 54, Area G (Continued)																		
3	1	3	U	1	1	7	4,100	P	S	0	1							
3	1	4	U	1	1	8	4,000	P	S	0	1							
3	1	5	U	1	1	9	4,000	P	S	0	1							
3	1	6	U	1	2	0	4,000	P	S	0	1							
3	1	7	U	1	2	1	4,100	P	S	0	1							
3	1	8	U	1	2	2	7,100	P	S	0	1							
3	1	9	U	1	2	3	4,100	P	S	0	1							
3	2	0	U	1	2	4	4,000	P	S	0	1							
3	2	1	U	1	2	5	4,000	P	S	0	1							
3	2	2	U	1	2	6	4,000	P	S	0	1							
3	2	3	U	1	2	7	4,000	P	S	0	1							
3	2	4	U	1	2	8	4,000	P	S	0	1							
3	2	5	U	1	2	9	4,000	P	S	0	1							
3	2	6	U	1	3	0	4,000	P	S	0	1							
3	2	7	U	1	3	1	4,100	P	S	0	1							
3	2	8	U	1	3	2	4,000	P	S	0	1							
3	2	9	U	1	3	3	4,100	P	S	0	1							
3	3	0	U	1	3	4	12,100	P	S	0	1							
3	3	1	U	1	3	5	4,100	P	S	0	1							
3	3	2	U	1	3	6	4,000	P	S	0	1							
3	3	3	U	1	3	7	4,000	P	S	0	1							
3	3	4	U	1	3	8	4,000	P	S	0	1							
3	3	5	U	1	4	0	4,100	P	S	0	1							
3	3	6	U	1	4	1	4,000	P	S	0	1							
3	3	7	U	1	4	2	4,000	P	S	0	1							
3	3	8	U	1	4	3	4,000	P	S	0	1							
3	3	9	U	1	4	4	4,100	P	S	0	1							
3	4	0	U	1	4	5	4,000	P	S	0	1							
3	4	1	U	1	4	6	4,000	P	S	0	1							
3	4	2	U	1	4	7	4,000	P	S	0	1							
3	4	3	U	1	4	8	4,000	P	S	0	1							
3	4	4	U	1	4	9	4,000	P	S	0	1							
3	4	5	U	1	5	0	4,000	P	S	0	1							
3	4	6	U	1	5	1	7,100	P	S	0	1							
3	4	7	U	1	5	2	4,000	P	S	0	1							
3	4	8	U	1	5	3	4,000	P	S	0	1							
3	4	9	U	1	5	4	4,100	P	S	0	1							
3	5	0	U	1	5	5	4,000	P	S	0	1							
3	5	1	U	1	5	6	4,000	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Area G (Continued)																		
3	5	2	U	1	5	7	4,000	P	S	0	1							
3	5	3	U	1	5	8	4,000	P	S	0	1							
3	5	4	U	1	5	9	4,100	P	S	0	1							
3	5	5	U	1	6	0	4,100	P	S	0	1							
3	5	6	U	1	6	1	4,100	P	S	0	1							
3	5	7	U	1	6	2	4,000	P	S	0	1							
3	5	8	U	1	6	3	4,000	P	S	0	1							
3	5	9	U	1	6	4	4,000	P	S	0	1							
3	6	0	U	1	6	5	4,100	P	S	0	1							
3	6	1	U	1	6	6	4,000	P	S	0	1							
3	6	2	U	1	6	7	4,000	P	S	0	1							
3	6	3	U	1	6	8	4,000	P	S	0	1							
3	6	4	U	1	6	9	4,100	P	S	0	1							
3	6	5	U	1	7	0	4,000	P	S	0	1							
3	6	6	U	1	7	1	4,000	P	S	0	1							
3	6	7	U	1	7	2	4,000	P	S	0	1							
3	6	8	U	1	7	3	4,000	P	S	0	1							
3	6	9	U	1	7	4	4,000	P	S	0	1							
3	7	0	U	1	7	6	4,000	P	S	0	1							
3	7	1	U	1	7	7	4,000	P	S	0	1							
3	7	2	U	1	7	8	4,000	P	S	0	1							
3	7	3	U	1	7	9	4,000	P	S	0	1							
3	7	4	U	1	8	0	4,000	P	S	0	1							
3	7	5	U	1	8	1	4,000	P	S	0	1							
3	7	6	U	1	8	2	4,000	P	S	0	1							
3	7	7	U	1	8	3	4,000	P	S	0	1							
3	7	8	U	1	8	4	4,000	P	S	0	1							
3	7	9	U	1	8	5	4,000	P	S	0	1							
3	8	0	U	1	8	6	4,000	P	S	0	1							
3	8	1	U	1	8	7	4,000	P	S	0	1							
3	8	2	U	1	8	8	4,100	P	S	0	1							
3	8	3	U	1	8	9	4,000	P	S	0	1							
3	8	4	U	1	9	0	4,100	P	S	0	1							
3	8	5	U	1	9	1	4,000	P	S	0	1							
3	8	6	U	1	9	2	4,000	P	S	0	1							
3	8	7	U	1	9	3	4,000	P	S	0	1							
3	8	8	U	1	9	4	4,000	P	S	0	1							
3	8	9	U	1	9	6	4,100	P	S	0	1							
3	9	0	U	1	9	7	4,000	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Area G (Continued)																		
3	9	1	U	2	0	0	4,000	P	S	0	1							
3	9	2	U	2	0	1	4,000	P	S	0	1							
3	9	3	U	2	0	2	4,000	P	S	0	1							
3	9	4	U	2	0	3	4,000	P	S	0	1							
3	9	5	U	2	0	4	4,100	P	S	0	1							
3	9	6	U	2	0	5	4,000	P	S	0	1							
3	9	7	U	2	0	6	4,000	P	S	0	1							
3	9	8	U	2	0	7	4,000	P	S	0	1							
3	9	9	U	2	0	8	4,000	P	S	0	1							
4	0	0	U	2	0	9	4,000	P	S	0	1							
4	0	1	U	2	1	0	4,100	P	S	0	1							
4	0	2	U	2	1	1	4,100	P	S	0	1							
4	0	3	U	2	1	3	4,100	P	S	0	1							
4	0	4	U	2	1	4	4,000	P	S	0	1							
4	0	5	U	2	1	5	4,000	P	S	0	1							
4	0	6	U	2	1	6	4,100	P	S	0	1							
4	0	7	U	2	1	7	4,000	P	S	0	1							
4	0	8	U	2	1	8	4,100	P	S	0	1							
4	0	9	U	2	1	9	4,100	P	S	0	1							
4	1	0	U	2	2	0	7,100	P	S	0	1							
4	1	1	U	2	2	1	4,000	P	S	0	1							
4	1	2	U	2	2	2	4,000	P	S	0	1							
4	1	3	U	2	2	3	4,000	P	S	0	1							
4	1	4	U	2	2	5	4,100	P	S	0	1							
4	1	5	U	2	2	6	7,100	P	S	0	1							
4	1	6	U	2	2	7	4,100	P	S	0	1							
4	1	7	U	2	2	8	7,100	P	S	0	1							
4	1	8	U	2	3	4	4,000	P	S	0	1							
4	1	9	U	2	3	5	4,000	P	S	0	1							
4	2	0	U	2	3	6	4,000	P	S	0	1							
4	2	1	U	2	3	7	4,000	P	S	0	1							
4	2	2	U	2	3	8	4,000	P	S	0	1							
4	2	3	U	2	3	9	7,100	P	S	0	1							
4	2	4	U	2	4	0	4,000	P	S	0	1							
4	2	5	U	2	4	3	4,000	P	S	0	1							
4	2	6	U	2	4	4	4,000	P	S	0	1							
4	2	7	U	2	4	6	4,100	P	S	0	1							
4	2	8	U	2	4	7	4,000	P	S	0	1							
4	2	9	U	2	4	8	4,000	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Area G (Continued)																		
4	3	0	U	2	4	9	4,000	P	S	0	1							
4	3	1	U	2	7	1	4,000	P	S	0	1							
4	3	2	U	2	7	8	4,000	P	S	0	1							
4	3	3	U	2	7	9	4,000	P	S	0	1							
4	3	4	U	2	8	0	4,000	P	S	0	1							
4	3	5	U	3	2	8	4,000	P	S	0	1							
4	3	6	U	3	5	3	4,000	P	S	0	1							
4	3	7	U	3	5	9	4,000	P	S	0	1							
4	3	8	U	3	6	4	4,000	P	S	0	1							
4	3	9	U	3	6	7	4,000	P	S	0	1							
4	4	0	U	3	7	2	4,000	P	S	0	1							
4	4	1	U	3	7	3	4,000	P	S	0	1							
4	4	2	U	3	8	7	4,000	P	S	0	1							
4	4	3	U	3	8	9	4,000	P	S	0	1							
4	4	4	U	3	9	4	4,000	P	S	0	1							
4	4	5	U	3	9	5	4,000	P	S	0	1							
4	4	6	U	4	0	4	4,000	P	S	0	1							
4	4	7	U	4	0	9	4,000	P	S	0	1							
4	4	8	U	4	1	0	4,000	P	S	0	1							
4	4	9	U	4	1	1	4,000	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 54, Material Dispsoal Area G (Shaft 124 and Pit 29) [a, b]																	
	1	D	0	0	4	850	P	D	8	0							
	2	D	0	0	5	2,100	P	D	8	0							
	3	D	0	0	6	4,250	P	D	8	0							
	4	D	0	0	7	4,450	P	D	8	0							
	5	D	0	0	8	507,100	P	D	8	0							
	6	D	0	0	9	850	P	D	8	0							
	7	D	0	1	0	15	P	D	8	0							
	8	D	0	1	1	530	P	D	8	0							
	9																
1	0																
1	1																
1	2																
1	3																
1	4																
1	5																
1	6																
1	7																
1	8																
1	9																
2	0																
2	1																
2	2																
2	3																
2	4																
2	5																
2	6																
2	7																
2	8																
2	9																
3	0																
3	1																
3	2																
3	3																
3	4																
3	5																
3	6																
3	7																
3	8																
3	9																

[a] Based on total estimated hazardous waste chemical inventory from the TA-54 RFI Report, Los Alamos National Laboratory, Los Alamos, New Mexico, March 2000.

[b] To be closed in accordance with Code of Federal Regulations (CFR), Title 40, Part 265, Subpart G. Permitted status is not requested.

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 54, West																	
	1	D	0	0	1	18,563	P	S	0	1							
	2	D	0	0	2	9,612	P	S	0	1							
	3	D	0	0	3	882	P	S	0	1							
	4	D	0	0	4	6,173	P	S	0	1							
	5	D	0	0	5	5,644	P	S	0	1							
	6	D	0	0	6	906,805	P	S	0	1							
	7	D	0	0	7	946,136	P	S	0	1							
	8	D	0	0	8	2,147,302	P	S	0	1							
	9	D	0	0	9	65,433	P	S	0	1							
1	0	D	0	1	0	6,790	P	S	0	1							
1	1	D	0	1	1	7,584	P	S	0	1							
1	2	D	0	1	2	9,000	P	S	0	1							
1	3	D	0	1	3	2,000	P	S	0	1							
1	4	D	0	1	4	2,000	P	S	0	1							
1	5	D	0	1	5	3,500	P	S	0	1							
1	6	D	0	1	6	2,000	P	S	0	1							
1	7	D	0	1	7	2,000	P	S	0	1							
1	8	D	0	1	8	353	P	S	0	1							
1	9	D	0	1	9	7,055	P	S	0	1							
2	0	D	0	2	0	15,000	P	S	0	1							
2	1	D	0	2	1	1,220	P	S	0	1							
2	2	D	0	2	2	1,676	P	S	0	1							
2	3	D	0	2	3	2,000	P	S	0	1							
2	4	D	0	2	4	2,000	P	S	0	1							
2	5	D	0	2	5	2,000	P	S	0	1							
2	6	D	0	2	6	2,000	P	S	0	1							
2	7	D	0	2	7	1,014	P	S	0	1							
2	8	D	0	2	8	289,600	P	S	0	1							
2	9	D	0	2	9	288,144	P	S	0	1							
3	0	D	0	3	0	6,525	P	S	0	1							
3	1	D	0	3	1	88	P	S	0	1							
3	2	D	0	3	2	4,145	P	S	0	1							
3	3	D	0	3	3	2,778	P	S	0	1							
3	4	D	0	3	4	1,455	P	S	0	1							
3	5	D	0	3	5	132	P	S	0	1							
3	6	D	0	3	6	441	P	S	0	1							
3	7	D	0	3	7	705	P	S	0	1							
3	8	D	0	3	8	88	P	S	0	1							
3	9	D	0	3	9	1,940	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 54, West (Continued)																	
4	0	D	0	4	0	4,365	P	S	0	1							
4	1	D	0	4	1	88	P	S	0	1							
4	2	D	0	4	2	1,411	P	S	0	1							
4	3	D	0	4	3	529	P	S	0	1							
4	4	F	0	0	1	556,402	P	S	0	1							
4	5	F	0	0	2	72,003	P	S	0	1							
4	6	F	0	0	3	34,464	P	S	0	1							
4	7	F	0	0	4	2,160	P	S	0	1							
4	8	F	0	0	5	324,211	P	S	0	1							
4	9	F	0	0	6	3,500	P	S	0	1							
5	0	F	0	0	7	9,000	P	S	0	1							
5	1	F	0	0	8	3,500	P	S	0	1							
5	2	F	0	0	9	2,000	P	S	0	1							
5	3	F	0	1	0	2,000	P	S	0	1							
5	4	F	0	1	1	2,000	P	S	0	1							
5	5	F	0	1	2	2,000	P	S	0	1							
5	6	F	0	1	9	2,000	P	S	0	1							
5	7	F	0	2	0	2,000	P	S	0	1							
5	8	F	0	2	1	2,000	P	S	0	1							
5	9	F	0	2	2	2,000	P	S	0	1							
6	0	F	0	2	3	2,000	P	S	0	1							
6	1	F	0	2	4	2,000	P	S	0	1							
6	2	F	0	2	5	2,000	P	S	0	1							
6	3	F	0	2	6	2,000	P	S	0	1							
6	4	F	0	2	7	2,000	P	S	0	1							
6	5	F	0	2	8	2,000	P	S	0	1							
6	6	F	0	3	2	2,000	P	S	0	1							
6	7	F	0	3	4	2,000	P	S	0	1							
6	8	F	0	3	5	2,000	P	S	0	1							
6	9	F	0	3	7	2,000	P	S	0	1							
7	0	F	0	3	8	2,000	P	S	0	1							
7	1	F	0	3	9	2,000	P	S	0	1							
7	2	K	0	4	4	1,000	P	S	0	1							
7	3	K	0	4	5	2,000	P	S	0	1							
7	4	K	0	4	6	2,000	P	S	0	1							
7	5	K	0	4	7	2,000	P	S	0	1							
7	6	K	0	8	4	250	P	S	0	1							
7	7	K	1	0	1	250	P	S	0	1							
7	8	K	1	0	2	250	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 54, West (Continued)																		
	7	9	P	0	0	1	44	P	S	0	1							
	8	0	P	0	0	2	44	P	S	0	1							
	8	1	P	0	0	3	44	P	S	0	1							
	8	2	P	0	0	4	44	P	S	0	1							
	8	3	P	0	0	5	44	P	S	0	1							
	8	4	P	0	0	6	44	P	S	0	1							
	8	5	P	0	0	7	44	P	S	0	1							
	8	6	P	0	0	8	44	P	S	0	1							
	8	7	P	0	0	9	44	P	S	0	1							
	8	8	P	0	1	0	44	P	S	0	1							
	8	9	P	0	1	1	44	P	S	0	1							
	9	0	P	0	1	2	44	P	S	0	1							
	9	1	P	0	1	3	44	P	S	0	1							
	9	2	P	0	1	4	44	P	S	0	1							
	9	3	P	0	1	5	44	P	S	0	1							
	9	4	P	0	1	6	44	P	S	0	1							
	9	5	P	0	1	7	44	P	S	0	1							
	9	6	P	0	1	8	44	P	S	0	1							
	9	7	P	0	2	0	44	P	S	0	1							
	9	8	P	0	2	1	44	P	S	0	1							
	9	9	P	0	2	2	44	P	S	0	1							
1	0	0	P	0	2	3	44	P	S	0	1							
1	0	1	P	0	2	4	44	P	S	0	1							
1	0	2	P	0	2	6	44	P	S	0	1							
1	0	3	P	0	2	7	44	P	S	0	1							
1	0	4	P	0	2	8	44	P	S	0	1							
1	0	5	P	0	2	9	44	P	S	0	1							
1	0	6	P	0	3	0	44	P	S	0	1							
1	0	7	P	0	3	1	44	P	S	0	1							
1	0	8	P	0	3	3	44	P	S	0	1							
1	0	9	P	0	3	4	44	P	S	0	1							
1	1	0	P	0	3	6	44	P	S	0	1							
1	1	1	P	0	3	7	44	P	S	0	1							
1	1	2	P	0	3	8	44	P	S	0	1							
1	1	3	P	0	3	9	44	P	S	0	1							
1	1	4	P	0	4	0	44	P	S	0	1							
1	1	5	P	0	4	1	44	P	S	0	1							
1	1	6	P	0	4	2	44	P	S	0	1							
1	1	7	P	0	4	3	44	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, West (Continued)																		
1	1	8	P	0	4	4	44	P	S	0	1							
1	1	9	P	0	4	5	44	P	S	0	1							
1	2	0	P	0	4	6	44	P	S	0	1							
1	2	1	P	0	4	7	44	P	S	0	1							
1	2	2	P	0	4	8	44	P	S	0	1							
1	2	3	P	0	4	9	44	P	S	0	1							
1	2	4	P	0	5	0	44	P	S	0	1							
1	2	5	P	0	5	1	44	P	S	0	1							
1	2	6	P	0	5	4	44	P	S	0	1							
1	2	7	P	0	5	6	44	P	S	0	1							
1	2	8	P	0	5	7	44	P	S	0	1							
1	2	9	P	0	5	8	44	P	S	0	1							
1	3	0	P	0	5	9	44	P	S	0	1							
1	3	1	P	0	6	0	44	P	S	0	1							
1	3	2	P	0	6	2	44	P	S	0	1							
1	3	3	P	0	6	3	44	P	S	0	1							
1	3	4	P	0	6	4	44	P	S	0	1							
1	3	5	P	0	6	5	44	P	S	0	1							
1	3	6	P	0	6	6	44	P	S	0	1							
1	3	7	P	0	6	7	44	P	S	0	1							
1	3	8	P	0	6	8	44	P	S	0	1							
1	3	9	P	0	6	9	44	P	S	0	1							
1	4	0	P	0	7	0	44	P	S	0	1							
1	4	1	P	0	7	1	44	P	S	0	1							
1	4	2	P	0	7	2	44	P	S	0	1							
1	4	3	P	0	7	3	44	P	S	0	1							
1	4	4	P	0	7	4	44	P	S	0	1							
1	4	5	P	0	7	5	44	P	S	0	1							
1	4	6	P	0	7	6	44	P	S	0	1							
1	4	7	P	0	7	7	44	P	S	0	1							
1	4	8	P	0	7	8	44	P	S	0	1							
1	4	9	P	0	8	1	44	P	S	0	1							
1	5	0	P	0	8	2	44	P	S	0	1							
1	5	1	P	0	8	4	44	P	S	0	1							
1	5	2	P	0	8	5	44	P	S	0	1							
1	5	3	P	0	8	7	44	P	S	0	1							
1	5	4	P	0	8	8	44	P	S	0	1							
1	5	5	P	0	8	9	44	P	S	0	1							
1	5	6	P	0	9	2	44	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, West (Continued)																		
1	5	7	P	0	9	3	44	P	S	0	1							
1	5	8	P	0	9	4	44	P	S	0	1							
1	5	9	P	0	9	5	44	P	S	0	1							
1	6	0	P	0	9	6	44	P	S	0	1							
1	6	1	P	0	9	7	44	P	S	0	1							
1	6	2	P	0	9	8	44	P	S	0	1							
1	6	3	P	0	9	9	44	P	S	0	1							
1	6	4	P	1	0	1	44	P	S	0	1							
1	6	5	P	1	0	2	44	P	S	0	1							
1	6	6	P	1	0	3	44	P	S	0	1							
1	6	7	P	1	0	4	44	P	S	0	1							
1	6	8	P	1	0	5	44	P	S	0	1							
1	6	9	P	1	0	6	44	P	S	0	1							
1	7	0	P	1	0	8	44	P	S	0	1							
1	7	1	P	1	0	9	44	P	S	0	1							
1	7	2	P	1	1	0	44	P	S	0	1							
1	7	3	P	1	1	1	44	P	S	0	1							
1	7	4	P	1	1	2	44	P	S	0	1							
1	7	5	P	1	1	3	44	P	S	0	1							
1	7	6	P	1	1	4	44	P	S	0	1							
1	7	7	P	1	1	5	44	P	S	0	1							
1	7	8	P	1	1	6	44	P	S	0	1							
1	7	9	P	1	1	8	44	P	S	0	1							
1	8	0	P	1	1	9	44	P	S	0	1							
1	8	1	P	1	2	0	44	P	S	0	1							
1	8	2	P	1	2	1	44	P	S	0	1							
1	8	3	P	1	2	2	44	P	S	0	1							
1	8	4	P	1	2	3	44	P	S	0	1							
1	8	5	P	1	2	7	44	P	S	0	1							
1	8	6	P	1	2	8	44	P	S	0	1							
1	8	7	P	1	8	5	44	P	S	0	1							
1	8	8	P	1	8	8	44	P	S	0	1							
1	8	9	P	1	8	9	44	P	S	0	1							
1	9	0	P	1	9	0	44	P	S	0	1							
1	9	1	P	1	9	1	44	P	S	0	1							
1	9	2	P	1	9	2	44	P	S	0	1							
1	9	3	P	1	9	4	44	P	S	0	1							
1	9	4	P	1	9	6	44	P	S	0	1							
1	9	5	P	1	9	7	44	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)	D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 54, West (Continued)					
196	P198	44	P	S01	
197	P199	44	P	S01	
198	P201	44	P	S01	
199	P202	44	P	S01	
200	P203	44	P	S01	
201	P204	44	P	S01	
202	P205	44	P	S01	
203	U001	44	P	S01	
204	U002	44	P	S01	
205	U003	44	P	S01	
206	U004	44	P	S01	
207	U005	44	P	S01	
208	U006	44	P	S01	
209	U007	44	P	S01	
210	U008	44	P	S01	
211	U009	44	P	S01	
212	U010	44	P	S01	
213	U011	44	P	S01	
214	U012	44	P	S01	
215	U014	44	P	S01	
216	U015	44	P	S01	
217	U016	44	P	S01	
218	U017	44	P	S01	
219	U018	44	P	S01	
220	U019	44	P	S01	
221	U020	44	P	S01	
222	U021	44	P	S01	
223	U022	44	P	S01	
224	U023	44	P	S01	
225	U024	44	P	S01	
226	U025	44	P	S01	
227	U026	44	P	S01	
228	U027	44	P	S01	
229	U028	44	P	S01	
230	U029	44	P	S01	
231	U030	44	P	S01	
232	U031	44	P	S01	
233	U032	44	P	S01	
234	U033	44	P	S01	

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, West (Continued)																		
2	3	5	U	0	3	4	44	P	S	0	1							
2	3	6	U	0	3	5	44	P	S	0	1							
2	3	7	U	0	3	6	44	P	S	0	1							
2	3	8	U	0	3	7	44	P	S	0	1							
2	3	9	U	0	3	8	44	P	S	0	1							
2	4	0	U	0	3	9	44	P	S	0	1							
2	4	1	U	0	4	1	44	P	S	0	1							
2	4	2	U	0	4	2	44	P	S	0	1							
2	4	3	U	0	4	3	44	P	S	0	1							
2	4	4	U	0	4	4	44	P	S	0	1							
2	4	5	U	0	4	5	44	P	S	0	1							
2	4	6	U	0	4	6	44	P	S	0	1							
2	4	7	U	0	4	7	44	P	S	0	1							
2	4	8	U	0	4	8	44	P	S	0	1							
2	4	9	U	0	4	9	44	P	S	0	1							
2	5	0	U	0	5	0	44	P	S	0	1							
2	5	1	U	0	5	1	44	P	S	0	1							
2	5	2	U	0	5	2	44	P	S	0	1							
2	5	3	U	0	5	3	44	P	S	0	1							
2	5	4	U	0	5	5	44	P	S	0	1							
2	5	5	U	0	5	6	44	P	S	0	1							
2	5	6	U	0	5	7	44	P	S	0	1							
2	5	7	U	0	5	8	44	P	S	0	1							
2	5	8	U	0	5	9	44	P	S	0	1							
2	5	9	U	0	6	0	44	P	S	0	1							
2	6	0	U	0	6	1	44	P	S	0	1							
2	6	1	U	0	6	2	44	P	S	0	1							
2	6	2	U	0	6	3	44	P	S	0	1							
2	6	3	U	0	6	4	44	P	S	0	1							
2	6	4	U	0	6	6	44	P	S	0	1							
2	6	5	U	0	6	7	44	P	S	0	1							
2	6	6	U	0	6	8	44	P	S	0	1							
2	6	7	U	0	6	9	44	P	S	0	1							
2	6	8	U	0	7	0	44	P	S	0	1							
2	6	9	U	0	7	1	44	P	S	0	1							
2	7	0	U	0	7	2	44	P	S	0	1							
2	7	1	U	0	7	3	44	P	S	0	1							
2	7	2	U	0	7	4	44	P	S	0	1							
2	7	3	U	0	7	5	44	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, West (Continued)																		
2	7	4	U	0	7	6	44	P	S	0	1							
2	7	5	U	0	7	7	44	P	S	0	1							
2	7	6	U	0	7	8	44	P	S	0	1							
2	7	7	U	0	7	9	44	P	S	0	1							
2	7	8	U	0	8	0	132	P	S	0	1							
2	7	9	U	0	8	1	44	P	S	0	1							
2	8	0	U	0	8	2	44	P	S	0	1							
2	8	1	U	0	8	3	44	P	S	0	1							
2	8	2	U	0	8	4	44	P	S	0	1							
2	8	3	U	0	8	5	44	P	S	0	1							
2	8	4	U	0	8	6	44	P	S	0	1							
2	8	5	U	0	8	7	44	P	S	0	1							
2	8	6	U	0	8	8	44	P	S	0	1							
2	8	7	U	0	8	9	44	P	S	0	1							
2	8	8	U	0	9	0	44	P	S	0	1							
2	8	9	U	0	9	1	44	P	S	0	1							
2	9	0	U	0	9	2	44	P	S	0	1							
2	9	1	U	0	9	3	44	P	S	0	1							
2	9	2	U	0	9	4	44	P	S	0	1							
2	9	3	U	0	9	5	44	P	S	0	1							
2	9	4	U	0	9	6	44	P	S	0	1							
2	9	5	U	0	9	7	44	P	S	0	1							
2	9	6	U	0	9	8	44	P	S	0	1							
2	9	7	U	0	9	9	44	P	S	0	1							
2	9	8	U	1	0	1	44	P	S	0	1							
2	9	9	U	1	0	2	44	P	S	0	1							
3	0	0	U	1	0	3	44	P	S	0	1							
3	0	1	U	1	0	5	44	P	S	0	1							
3	0	2	U	1	0	6	44	P	S	0	1							
3	0	3	U	1	0	7	44	P	S	0	1							
3	0	4	U	1	0	8	44	P	S	0	1							
3	0	5	U	1	0	9	44	P	S	0	1							
3	0	6	U	1	1	0	44	P	S	0	1							
3	0	7	U	1	1	1	44	P	S	0	1							
3	0	8	U	1	1	2	44	P	S	0	1							
3	0	9	U	1	1	3	44	P	S	0	1							
3	1	0	U	1	1	4	44	P	S	0	1							
3	1	1	U	1	1	5	44	P	S	0	1							
3	1	2	U	1	1	6	44	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 54, West (Continued)																		
3	1	3	U	1	1	7	44	P	S	0	1							
3	1	4	U	1	1	8	44	P	S	0	1							
3	1	5	U	1	1	9	44	P	S	0	1							
3	1	6	U	1	2	0	44	P	S	0	1							
3	1	7	U	1	2	1	44	P	S	0	1							
3	1	8	U	1	2	2	44	P	S	0	1							
3	1	9	U	1	2	3	44	P	S	0	1							
3	2	0	U	1	2	4	44	P	S	0	1							
3	2	1	U	1	2	5	44	P	S	0	1							
3	2	2	U	1	2	6	44	P	S	0	1							
3	2	3	U	1	2	7	44	P	S	0	1							
3	2	4	U	1	2	8	44	P	S	0	1							
3	2	5	U	1	2	9	44	P	S	0	1							
3	2	6	U	1	3	0	44	P	S	0	1							
3	2	7	U	1	3	1	44	P	S	0	1							
3	2	8	U	1	3	2	44	P	S	0	1							
3	2	9	U	1	3	3	44	P	S	0	1							
3	3	0	U	1	3	4	44	P	S	0	1							
3	3	1	U	1	3	5	44	P	S	0	1							
3	3	2	U	1	3	6	44	P	S	0	1							
3	3	3	U	1	3	7	44	P	S	0	1							
3	3	4	U	1	3	8	44	P	S	0	1							
3	3	5	U	1	4	0	44	P	S	0	1							
3	3	6	U	1	4	1	44	P	S	0	1							
3	3	7	U	1	4	2	44	P	S	0	1							
3	3	8	U	1	4	3	44	P	S	0	1							
3	3	9	U	1	4	4	44	P	S	0	1							
3	4	0	U	1	4	5	44	P	S	0	1							
3	4	1	U	1	4	6	44	P	S	0	1							
3	4	2	U	1	4	7	44	P	S	0	1							
3	4	3	U	1	4	8	44	P	S	0	1							
3	4	4	U	1	4	9	44	P	S	0	1							
3	4	5	U	1	5	0	44	P	S	0	1							
3	4	6	U	1	5	1	265	P	S	0	1							
3	4	7	U	1	5	2	44	P	S	0	1							
3	4	8	U	1	5	3	44	P	S	0	1							
3	4	9	U	1	5	4	44	P	S	0	1							
3	5	0	U	1	5	5	44	P	S	0	1							
3	5	1	U	1	5	6	44	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, West (Continued)																		
3	5	2	U	1	5	7	44	P	S	0	1							
3	5	3	U	1	5	8	44	P	S	0	1							
3	5	4	U	1	5	9	132	P	S	0	1							
3	5	5	U	1	6	0	44	P	S	0	1							
3	5	6	U	1	6	1	44	P	S	0	1							
3	5	7	U	1	6	2	44	P	S	0	1							
3	5	8	U	1	6	3	44	P	S	0	1							
3	5	9	U	1	6	4	44	P	S	0	1							
3	6	0	U	1	6	5	44	P	S	0	1							
3	6	1	U	1	6	6	44	P	S	0	1							
3	6	2	U	1	6	7	44	P	S	0	1							
3	6	3	U	1	6	8	44	P	S	0	1							
3	6	4	U	1	6	9	44	P	S	0	1							
3	6	5	U	1	7	0	44	P	S	0	1							
3	6	6	U	1	7	1	44	P	S	0	1							
3	6	7	U	1	7	2	44	P	S	0	1							
3	6	8	U	1	7	3	44	P	S	0	1							
3	6	9	U	1	7	4	44	P	S	0	1							
3	7	0	U	1	7	6	44	P	S	0	1							
3	7	1	U	1	7	7	44	P	S	0	1							
3	7	2	U	1	7	8	44	P	S	0	1							
3	7	3	U	1	7	9	44	P	S	0	1							
3	7	4	U	1	8	0	44	P	S	0	1							
3	7	5	U	1	8	1	44	P	S	0	1							
3	7	6	U	1	8	2	44	P	S	0	1							
3	7	7	U	1	8	3	44	P	S	0	1							
3	7	8	U	1	8	4	44	P	S	0	1							
3	7	9	U	1	8	5	44	P	S	0	1							
3	8	0	U	1	8	6	44	P	S	0	1							
3	8	1	U	1	8	7	44	P	S	0	1							
3	8	2	U	1	8	8	44	P	S	0	1							
3	8	3	U	1	8	9	44	P	S	0	1							
3	8	4	U	1	9	0	44	P	S	0	1							
3	8	5	U	1	9	1	44	P	S	0	1							
3	8	6	U	1	9	2	44	P	S	0	1							
3	8	7	U	1	9	3	44	P	S	0	1							
3	8	8	U	1	9	4	44	P	S	0	1							
3	8	9	U	1	9	6	44	P	S	0	1							
3	9	0	U	1	9	7	44	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 54, West (Continued)																		
3	9	1	U	2	0	0	44	P	S	0	1							
3	9	2	U	2	0	1	44	P	S	0	1							
3	9	3	U	2	0	2	44	P	S	0	1							
3	9	4	U	2	0	3	44	P	S	0	1							
3	9	5	U	2	0	4	44	P	S	0	1							
3	9	6	U	2	0	5	44	P	S	0	1							
3	9	7	U	2	0	6	44	P	S	0	1							
3	9	8	U	2	0	7	44	P	S	0	1							
3	9	9	U	2	0	8	44	P	S	0	1							
4	0	0	U	2	0	9	44	P	S	0	1							
4	0	1	U	2	1	0	44	P	S	0	1							
4	0	2	U	2	1	1	44	P	S	0	1							
4	0	3	U	2	1	3	44	P	S	0	1							
4	0	4	U	2	1	4	44	P	S	0	1							
4	0	5	U	2	1	5	44	P	S	0	1							
4	0	6	U	2	1	6	44	P	S	0	1							
4	0	7	U	2	1	7	44	P	S	0	1							
4	0	8	U	2	1	8	44	P	S	0	1							
4	0	9	U	2	1	9	44	P	S	0	1							
4	1	0	U	2	2	0	44	P	S	0	1							
4	1	1	U	2	2	1	44	P	S	0	1							
4	1	2	U	2	2	2	44	P	S	0	1							
4	1	3	U	2	2	3	44	P	S	0	1							
4	1	4	U	2	2	5	44	P	S	0	1							
4	1	5	U	2	2	6	1,146	P	S	0	1							
4	1	6	U	2	2	7	44	P	S	0	1							
4	1	7	U	2	2	8	44	P	S	0	1							
4	1	8	U	2	3	4	44	P	S	0	1							
4	1	9	U	2	3	5	44	P	S	0	1							
4	2	0	U	2	3	6	44	P	S	0	1							
4	2	1	U	2	3	7	44	P	S	0	1							
4	2	2	U	2	3	8	44	P	S	0	1							
4	2	3	U	2	3	9	88	P	S	0	1							
4	2	4	U	2	4	0	44	P	S	0	1							
4	2	5	U	2	4	3	44	P	S	0	1							
4	2	6	U	2	4	4	44	P	S	0	1							
4	2	7	U	2	4	6	44	P	S	0	1							
4	2	8	U	2	4	7	44	P	S	0	1							
4	2	9	U	2	4	8	44	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number	*A. EPA Hazardous Waste No. (Enter code)*	*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*	*D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, West (Continued)					
430	U249	44	P	S01	
431	U271	44	P	S01	
432	U278	44	P	S01	
433	U279	44	P	S01	
434	U280	44	P	S01	
435	U328	44	P	S01	
436	U353	44	P	S01	
437	U359	44	P	S01	
438	U364	44	P	S01	
439	U367	44	P	S01	
440	U372	44	P	S01	
441	U373	44	P	S01	
442	U387	44	P	S01	
443	U389	44	P	S01	
444	U394	44	P	S01	
445	U395	44	P	S01	
446	U404	44	P	S01	
447	U409	44	P	S01	
448	U410	44	P	S01	
449	U411	44	P	S01	

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 54, Material Disposal Area H (Shaft 9)[a]																	
	1	D	0	0	3	0	P	D	8	0							
	2																
	3																
	4																
	5																
	6																
	7																
	8																
	9																
1	0																
1	1																
1	2																
1	3																
1	4																
1	5																
1	6																
1	7																
1	8																
1	9																
2	0																
2	1																
2	2																
2	3																
2	4																
2	5																
2	6																
2	7																
2	8																
2	9																
3	0																
3	1																
3	2																
3	3																
3	4																
3	5																
3	6																
3	7																
3	8																
3	9																

[b] To be closed in accordance with Code of Federal Regulations (CFR), Title 40, Part 265, Subpart G. Permitted status is not requested.

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 55																	
	1	D	0	0	1	75,000	P	S	0	1							
	2	D	0	0	2	150,000	P	S	0	1	S	0	2	T	0	4	
	3	D	0	0	3	42,000	P	S	0	1							
	4	D	0	0	4	5,000	P	S	0	1	S	0	2	T	0	4	
	5	D	0	0	5	11,000	P	S	0	1	S	0	2	T	0	4	
	6	D	0	0	6	400,500	P	S	0	1	S	0	2	T	0	4	
	7	D	0	0	7	605,000	P	S	0	1	S	0	2	T	0	4	
	8	D	0	0	8	900,000	P	S	0	1	S	0	2	T	0	4	
	9	D	0	0	9	26,000	P	S	0	1	S	0	2	T	0	4	
1	0	D	0	1	0	2,500	P	S	0	1	S	0	2	T	0	4	
1	1	D	0	1	1	11,000	P	S	0	1	S	0	2	T	0	4	
1	2	D	0	1	2	1,000	P	S	0	1				T	0	4	
1	3	D	0	1	8	4,500	P	S	0	1				T	0	4	
1	4	D	0	1	9	4,500	P	S	0	1				T	0	4	
1	5	D	0	2	1	4,500	P	S	0	1				T	0	4	
1	6	D	0	2	2	1,500	P	S	0	1				T	0	4	
1	7	D	0	2	7	1,500	P	S	0	1				T	0	4	
1	8	D	0	2	8	2,500	P	S	0	1				T	0	4	
1	9	D	0	3	0	1,500	P	S	0	1				T	0	4	
2	0	D	0	3	2	1,500	P	S	0	1				T	0	4	
2	1	D	0	3	3	1,500	P	S	0	1				T	0	4	
2	2	D	0	3	4	1,500	P	S	0	1				T	0	4	
2	3	D	0	3	5	12,000	P	S	0	1				T	0	4	
2	4	D	0	3	6	1,500	P	S	0	1				T	0	4	
2	5	D	0	3	7	1,500	P	S	0	1				T	0	4	
2	6	D	0	3	8	1,500	P	S	0	1				T	0	4	
2	7	D	0	3	9	11,000	P	S	0	1				T	0	4	
2	8	D	0	4	0	11,000	P	S	0	1				T	0	4	
2	9	D	0	4	2	1,500	P	S	0	1				T	0	4	
3	0	D	0	4	3	1,500	P	S	0	1				T	0	4	
3	1	F	0	0	1	110,000	P	S	0	1							
3	2	F	0	0	2	110,000	P	S	0	1							
3	3	F	0	0	3	110,000	P	S	0	1							
3	4	F	0	0	5	110,000	P	S	0	1							
3	5	F	0	0	6	500	P	S	0	1							
3	6	F	0	0	7	500	P	S	0	1							
3	7	F	0	0	9	500	P	S	0	1							
3	8	P	0	0	3	1,500	P	S	0	1							
3	9	P	0	1	2	1,500	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 55 (Continued)																	
4	0	P	0	1	5	6,000	P	S	0	1							
4	1	P	0	2	9	1,500	P	S	0	1							
4	2	P	0	3	0	1,500	P	S	0	1							
4	3	P	0	3	1	1,500	P	S	0	1							
4	4	P	0	3	8	1,500	P	S	0	1							
4	5	P	0	5	6	3,000	P	S	0	1							
4	6	P	0	6	3	1,500	P	S	0	1							
4	7	P	0	6	8	1,500	P	S	0	1							
4	8	P	0	7	3	1,500	P	S	0	1							
4	9	P	0	7	6	1,500	P	S	0	1							
5	0	P	0	7	8	1,500	P	S	0	1							
5	1	P	0	9	5	1,500	P	S	0	1							
5	2	P	0	9	6	1,500	P	S	0	1							
5	3	P	0	9	8	1,500	P	S	0	1							
5	4	P	0	9	9	500	P	S	0	1							
5	5	P	1	0	6	1,500	P	S	0	1							
5	6	P	1	1	3	1,500	P	S	0	1							
5	7	P	1	2	0	1,500	P	S	0	1							
5	8	U	0	0	1	3,000	P	S	0	1							
5	9	U	0	0	2	1,500	P	S	0	1							
6	0	U	0	0	3	1,500	P	S	0	1							
6	1	U	0	1	2	1,500	P	S	0	1							
6	2	U	0	1	9	3,000	P	S	0	1							
6	3	U	0	2	2	1,500	P	S	0	1							
6	4	U	0	2	9	1,500	P	S	0	1							
6	5	U	0	3	1	1,500	P	S	0	1							
6	6	U	0	3	7	1,500	P	S	0	1							
6	7	U	0	4	4	1,500	P	S	0	1							
6	8	U	0	4	5	1,500	P	S	0	1							
6	9	U	0	5	2	1,500	P	S	0	1							
7	0	U	0	5	6	1,500	P	S	0	1							
7	1	U	0	5	7	1,500	P	S	0	1							
7	2	U	0	7	5	1,500	P	S	0	1							
7	3	U	0	7	7	1,500	P	S	0	1							
7	4	U	0	8	0	6,000	P	S	0	1							
7	5	U	1	0	3	500	P	S	0	1							
7	6	U	1	0	8	1,500	P	S	0	1							
7	7	U	1	1	2	1,500	P	S	0	1							
7	8	U	1	1	5	1,500	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 55 (Continued)																		
	7	9	U	1	1	7	1,500	P	S	0	1							
	8	0	U	1	2	1	1,500	P	S	0	1							
	8	1	U	1	2	2	1,500	P	S	0	1							
	8	2	U	1	2	3	1,500	P	S	0	1							
	8	3	U	1	3	1	1,500	P	S	0	1							
	8	4	U	1	3	3	1,500	P	S	0	1							
	8	5	U	1	3	4	6,000	P	S	0	1							
	8	6	U	1	3	5	1,500	P	S	0	1							
	8	7	U	1	4	0	1,500	P	S	0	1							
	8	8	U	1	4	4	1,500	P	S	0	1							
	8	9	U	1	5	1	6,000	P	S	0	1							
	9	0	U	1	5	4	6,000	P	S	0	1							
	9	1	U	1	5	9	6,000	P	S	0	1							
	9	2	U	1	6	0	1,500	P	S	0	1							
	9	3	U	1	6	1	1,500	P	S	0	1							
	9	4	U	1	6	5	1,500	P	S	0	1							
	9	5	U	1	6	9	1,500	P	S	0	1							
	9	6	U	1	8	8	1,500	P	S	0	1							
	9	7	U	1	9	0	1,500	P	S	0	1							
	9	8	U	1	9	6	1,500	P	S	0	1							
	9	9	U	2	0	4	1,500	P	S	0	1							
1	0	0	U	2	1	0	6,000	P	S	0	1							
1	0	1	U	2	1	1	6,000	P	S	0	1							
1	0	2	U	2	1	3	1,500	P	S	0	1							
1	0	3	U	2	1	6	1,500	P	S	0	1							
1	0	4	U	2	1	8	1,500	P	S	0	1							
1	0	5	U	2	1	9	1,500	P	S	0	1							
1	0	6	U	2	2	0	6,000	P	S	0	1							
1	0	7	U	2	2	5	1,500	P	S	0	1							
1	0	8	U	2	2	6	6,000	P	S	0	1							
1	0	9	U	2	2	7	1,500	P	S	0	1							
1	1	0	U	2	2	8	1,500	P	S	0	1							
1	1	1	U	2	3	9	1,500	P	S	0	1							
1	1	2	U	2	4	6	1,500	P	S	0	1							
1	1	3																
1	1	4																
1	1	5																
1	1	6																
1	1	7																

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 63																	
	1	D	0	0	1	3300	P	S	0	1							
	2	D	0	0	2	3950	P	S	0	1							
	3	D	0	0	3	1850	P	S	0	1							
	4	D	0	0	4	25250	P	S	0	1							
	5	D	0	0	5	820	P	S	0	1							
	6	D	0	0	6	5150	P	S	0	1							
	7	D	0	0	7	37750	P	S	0	1							
	8	D	0	0	8	54000	P	S	0	1							
	9	D	0	0	9	1000	P	S	0	1							
1	0	D	0	1	0	450	P	S	0	1							
1	1	D	0	1	1	25400	P	S	0	1							
1	2	D	0	1	2	180	P	S	0	1							
1	3	D	0	1	3	40	P	S	0	1							
1	4	D	0	1	4	40	P	S	0	1							
1	5	D	0	1	5	70	P	S	0	1							
1	6	D	0	1	6	40	P	S	0	1							
1	7	D	0	1	7	40	P	S	0	1							
1	8	D	0	1	8	300	P	S	0	1							
1	9	D	0	1	9	250	P	S	0	1							
2	0	D	0	2	0	300	P	S	0	1							
2	1	D	0	2	1	150	P	S	0	1							
2	2	D	0	2	2	330	P	S	0	1							
2	3	D	0	2	3	40	P	S	0	1							
2	4	D	0	2	4	40	P	S	0	1							
2	5	D	0	2	5	40	P	S	0	1							
2	6	D	0	2	6	40	P	S	0	1							
2	7	D	0	2	7	220	P	S	0	1							
2	8	D	0	2	8	400	P	S	0	1							
2	9	D	0	2	9	70	P	S	0	1							
3	0	D	0	3	0	300	P	S	0	1							
3	1	D	0	3	1	220	P	S	0	1							
3	2	D	0	3	2	290	P	S	0	1							
3	3	D	0	3	3	290	P	S	0	1							
3	4	D	0	3	4	290	P	S	0	1							
3	5	D	0	3	5	300	P	S	0	1							
3	6	D	0	3	6	190	P	S	0	1							
3	7	D	0	3	7	70	P	S	0	1							
3	8	D	0	3	8	140	P	S	0	1							
3	9	D	0	3	9	200	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 63 (Continued)																	
4	0	D	0	4	0	250	P	S	0	1							
4	1	D	0	4	1	170	P	S	0	1							
4	2	D	0	4	2	220	P	S	0	1							
4	3	D	0	4	3	250	P	S	0	1							
4	4	F	0	0	1	6410	P	S	0	1							
4	5	F	0	0	2	3450	P	S	0	1							
4	6	F	0	0	3	2850	P	S	0	1							
4	7	F	0	0	4	350	P	S	0	1							
4	8	F	0	0	5	3250	P	S	0	1							
4	9	F	0	0	6	70	P	S	0	1							
5	0	F	0	0	7	180	P	S	0	1							
5	1	F	0	0	8	70	P	S	0	1							
5	2	F	0	0	9	80	P	S	0	1							
5	3	F	0	1	0	40	P	S	0	1							
5	4	F	0	1	1	40	P	S	0	1							
5	5	F	0	1	2	40	P	S	0	1							
5	6	F	0	1	9	40	P	S	0	1							
5	7	F	0	2	0	40	P	S	0	1							
5	8	F	0	2	1	40	P	S	0	1							
5	9	F	0	2	2	40	P	S	0	1							
6	0	F	0	2	3	40	P	S	0	1							
6	1	F	0	2	4	40	P	S	0	1							
6	2	F	0	2	5	40	P	S	0	1							
6	3	F	0	2	6	40	P	S	0	1							
6	4	F	0	2	7	40	P	S	0	1							
6	5	F	0	2	8	40	P	S	0	1							
6	6	F	0	3	2	40	P	S	0	1							
6	7	F	0	3	4	40	P	S	0	1							
6	8	F	0	3	5	40	P	S	0	1							
6	9	F	0	3	7	40	P	S	0	1							
7	0	F	0	3	8	40	P	S	0	1							
7	1	F	0	3	9	40	P	S	0	1							
7	2	K	0	4	4	220	P	S	0	1							
7	3	K	0	4	5	40	P	S	0	1							
7	4	K	0	4	6	40	P	S	0	1							
7	5	K	0	4	7	40	P	S	0	1							
7	6	K	0	8	4	50	P	S	0	1							
7	7	K	1	0	1	50	P	S	0	1							
7	8	K	1	0	2	50	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 63 (Continued)																		
	7	9	P	0	0	1	40	P	S	0	1							
	8	0	P	0	0	2	40	P	S	0	1							
	8	1	P	0	0	3	40	P	S	0	1							
	8	2	P	0	0	4	40	P	S	0	1							
	8	3	P	0	0	5	40	P	S	0	1							
	8	4	P	0	0	6	40	P	S	0	1							
	8	5	P	0	0	7	40	P	S	0	1							
	8	6	P	0	0	8	40	P	S	0	1							
	8	7	P	0	0	9	40	P	S	0	1							
	8	8	P	0	1	0	40	P	S	0	1							
	8	9	P	0	1	1	40	P	S	0	1							
	9	0	P	0	1	2	40	P	S	0	1							
	9	1	P	0	1	3	40	P	S	0	1							
	9	2	P	0	1	4	40	P	S	0	1							
	9	3	P	0	1	5	40	P	S	0	1							
	9	4	P	0	1	6	40	P	S	0	1							
	9	5	P	0	1	7	40	P	S	0	1							
	9	6	P	0	1	8	40	P	S	0	1							
	9	7	P	0	2	0	40	P	S	0	1							
	9	8	P	0	2	1	40	P	S	0	1							
	9	9	P	0	2	2	40	P	S	0	1							
1	0	0	P	0	2	3	40	P	S	0	1							
1	0	1	P	0	2	4	40	P	S	0	1							
1	0	2	P	0	2	6	40	P	S	0	1							
1	0	3	P	0	2	7	40	P	S	0	1							
1	0	4	P	0	2	8	40	P	S	0	1							
1	0	5	P	0	2	9	40	P	S	0	1							
1	0	6	P	0	3	0	40	P	S	0	1							
1	0	7	P	0	3	1	40	P	S	0	1							
1	0	8	P	0	3	3	40	P	S	0	1							
1	0	9	P	0	3	4	40	P	S	0	1							
1	1	0	P	0	3	6	40	P	S	0	1							
1	1	1	P	0	3	7	40	P	S	0	1							
1	1	2	P	0	3	8	40	P	S	0	1							
1	1	3	P	0	3	9	40	P	S	0	1							
1	1	4	P	0	4	0	40	P	S	0	1							
1	1	5	P	0	4	1	40	P	S	0	1							
1	1	6	P	0	4	2	40	P	S	0	1							
1	1	7	P	0	4	3	40	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES* *(1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 63 (Continued)																		
1	1	8	P	0	4	4	40	P	S	0	1							
1	1	9	P	0	4	5	40	P	S	0	1							
1	2	0	P	0	4	6	40	P	S	0	1							
1	2	1	P	0	4	7	40	P	S	0	1							
1	2	2	P	0	4	8	40	P	S	0	1							
1	2	3	P	0	4	9	40	P	S	0	1							
1	2	4	P	0	5	0	40	P	S	0	1							
1	2	5	P	0	5	1	40	P	S	0	1							
1	2	6	P	0	5	4	40	P	S	0	1							
1	2	7	P	0	5	6	40	P	S	0	1							
1	2	8	P	0	5	7	40	P	S	0	1							
1	2	9	P	0	5	8	40	P	S	0	1							
1	3	0	P	0	5	9	40	P	S	0	1							
1	3	1	P	0	6	0	40	P	S	0	1							
1	3	2	P	0	6	2	40	P	S	0	1							
1	3	3	P	0	6	3	40	P	S	0	1							
1	3	4	P	0	6	4	40	P	S	0	1							
1	3	5	P	0	6	5	40	P	S	0	1							
1	3	6	P	0	6	6	40	P	S	0	1							
1	3	7	P	0	6	7	40	P	S	0	1							
1	3	8	P	0	6	8	40	P	S	0	1							
1	3	9	P	0	6	9	40	P	S	0	1							
1	4	0	P	0	7	0	40	P	S	0	1							
1	4	1	P	0	7	1	40	P	S	0	1							
1	4	2	P	0	7	2	40	P	S	0	1							
1	4	3	P	0	7	3	40	P	S	0	1							
1	4	4	P	0	7	4	40	P	S	0	1							
1	4	5	P	0	7	5	40	P	S	0	1							
1	4	6	P	0	7	6	40	P	S	0	1							
1	4	7	P	0	7	7	40	P	S	0	1							
1	4	8	P	0	7	8	40	P	S	0	1							
1	4	9	P	0	8	1	40	P	S	0	1							
1	5	0	P	0	8	2	40	P	S	0	1							
1	5	1	P	0	8	4	40	P	S	0	1							
1	5	2	P	0	8	5	40	P	S	0	1							
1	5	3	P	0	8	7	40	P	S	0	1							
1	5	4	P	0	8	8	40	P	S	0	1							
1	5	5	P	0	8	9	40	P	S	0	1							
1	5	6	P	0	9	2	40	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 63 (Continued)																		
1	5	7	P	0	9	3	40	P	S	0	1							
1	5	8	P	0	9	4	40	P	S	0	1							
1	5	9	P	0	9	5	40	P	S	0	1							
1	6	0	P	0	9	6	40	P	S	0	1							
1	6	1	P	0	9	7	40	P	S	0	1							
1	6	2	P	0	9	8	40	P	S	0	1							
1	6	3	P	0	9	9	40	P	S	0	1							
1	6	4	P	1	0	1	40	P	S	0	1							
1	6	5	P	1	0	2	40	P	S	0	1							
1	6	6	P	1	0	3	40	P	S	0	1							
1	6	7	P	1	0	4	40	P	S	0	1							
1	6	8	P	1	0	5	40	P	S	0	1							
1	6	9	P	1	0	6	40	P	S	0	1							
1	7	0	P	1	0	8	40	P	S	0	1							
1	7	1	P	1	0	9	40	P	S	0	1							
1	7	2	P	1	1	0	40	P	S	0	1							
1	7	3	P	1	1	1	40	P	S	0	1							
1	7	4	P	1	1	2	40	P	S	0	1							
1	7	5	P	1	1	3	40	P	S	0	1							
1	7	6	P	1	1	4	40	P	S	0	1							
1	7	7	P	1	1	5	40	P	S	0	1							
1	7	8	P	1	1	6	40	P	S	0	1							
1	7	9	P	1	1	8	40	P	S	0	1							
1	8	0	P	1	1	9	40	P	S	0	1							
1	8	1	P	1	2	0	40	P	S	0	1							
1	8	2	P	1	2	1	40	P	S	0	1							
1	8	3	P	1	2	2	40	P	S	0	1							
1	8	4	P	1	2	3	40	P	S	0	1							
1	8	5	P	1	2	7	40	P	S	0	1							
1	8	6	P	1	2	8	40	P	S	0	1							
1	8	7	P	1	8	5	40	P	S	0	1							
1	8	8	P	1	8	8	40	P	S	0	1							
1	8	9	P	1	8	9	40	P	S	0	1							
1	9	0	P	1	9	0	40	P	S	0	1							
1	9	1	P	1	9	1	40	P	S	0	1							
1	9	2	P	1	9	2	40	P	S	0	1							
1	9	3	P	1	9	4	40	P	S	0	1							
1	9	4	P	1	9	6	40	P	S	0	1							
1	9	5	P	1	9	7	40	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 63 (Continued)																		
1	9	6	P	1	9	8	40	P	S	0	1							
1	9	7	P	1	9	9	40	P	S	0	1							
1	9	8	P	2	0	1	40	P	S	0	1							
1	9	9	P	2	0	2	40	P	S	0	1							
2	0	0	P	2	0	3	40	P	S	0	1							
2	0	1	P	2	0	4	40	P	S	0	1							
2	0	2	P	2	0	5	40	P	S	0	1							
2	0	3	U	0	0	1	40	P	S	0	1							
2	0	4	U	0	0	2	70	P	S	0	1							
2	0	5	U	0	0	3	40	P	S	0	1							
2	0	6	U	0	0	4	40	P	S	0	1							
2	0	7	U	0	0	5	40	P	S	0	1							
2	0	8	U	0	0	6	40	P	S	0	1							
2	0	9	U	0	0	7	40	P	S	0	1							
2	1	0	U	0	0	8	40	P	S	0	1							
2	1	1	U	0	0	9	40	P	S	0	1							
2	1	2	U	0	1	0	40	P	S	0	1							
2	1	3	U	0	1	1	40	P	S	0	1							
2	1	4	U	0	1	2	40	P	S	0	1							
2	1	5	U	0	1	4	40	P	S	0	1							
2	1	6	U	0	1	5	40	P	S	0	1							
2	1	7	U	0	1	6	40	P	S	0	1							
2	1	8	U	0	1	7	40	P	S	0	1							
2	1	9	U	0	1	8	40	P	S	0	1							
2	2	0	U	0	1	9	40	P	S	0	1							
2	2	1	U	0	2	0	40	P	S	0	1							
2	2	2	U	0	2	1	40	P	S	0	1							
2	2	3	U	0	2	2	40	P	S	0	1							
2	2	4	U	0	2	3	40	P	S	0	1							
2	2	5	U	0	2	4	40	P	S	0	1							
2	2	6	U	0	2	5	40	P	S	0	1							
2	2	7	U	0	2	6	40	P	S	0	1							
2	2	8	U	0	2	7	40	P	S	0	1							
2	2	9	U	0	2	8	40	P	S	0	1							
2	3	0	U	0	2	9	40	P	S	0	1							
2	3	1	U	0	3	0	40	P	S	0	1							
2	3	2	U	0	3	1	40	P	S	0	1							
2	3	3	U	0	3	2	40	P	S	0	1							
2	3	4	U	0	3	3	40	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 63 (Continued)																		
2	3	5	U	0	3	4	40	P	S	0	1							
2	3	6	U	0	3	5	40	P	S	0	1							
2	3	7	U	0	3	6	40	P	S	0	1							
2	3	8	U	0	3	7	40	P	S	0	1							
2	3	9	U	0	3	8	40	P	S	0	1							
2	4	0	U	0	3	9	40	P	S	0	1							
2	4	1	U	0	4	1	40	P	S	0	1							
2	4	2	U	0	4	2	40	P	S	0	1							
2	4	3	U	0	4	3	40	P	S	0	1							
2	4	4	U	0	4	4	40	P	S	0	1							
2	4	5	U	0	4	5	40	P	S	0	1							
2	4	6	U	0	4	6	40	P	S	0	1							
2	4	7	U	0	4	7	40	P	S	0	1							
2	4	8	U	0	4	8	40	P	S	0	1							
2	4	9	U	0	4	9	40	P	S	0	1							
2	5	0	U	0	5	0	40	P	S	0	1							
2	5	1	U	0	5	1	40	P	S	0	1							
2	5	2	U	0	5	2	40	P	S	0	1							
2	5	3	U	0	5	3	40	P	S	0	1							
2	5	4	U	0	5	5	40	P	S	0	1							
2	5	5	U	0	5	6	40	P	S	0	1							
2	5	6	U	0	5	7	40	P	S	0	1							
2	5	7	U	0	5	8	40	P	S	0	1							
2	5	8	U	0	5	9	40	P	S	0	1							
2	5	9	U	0	6	0	40	P	S	0	1							
2	6	0	U	0	6	1	40	P	S	0	1							
2	6	1	U	0	6	2	40	P	S	0	1							
2	6	2	U	0	6	3	40	P	S	0	1							
2	6	3	U	0	6	4	40	P	S	0	1							
2	6	4	U	0	6	6	40	P	S	0	1							
2	6	5	U	0	6	7	40	P	S	0	1							
2	6	6	U	0	6	8	40	P	S	0	1							
2	6	7	U	0	6	9	40	P	S	0	1							
2	6	8	U	0	7	0	40	P	S	0	1							
2	6	9	U	0	7	1	40	P	S	0	1							
2	7	0	U	0	7	2	40	P	S	0	1							
2	7	1	U	0	7	3	40	P	S	0	1							
2	7	2	U	0	7	4	40	P	S	0	1							
2	7	3	U	0	7	5	40	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)	D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 63 (Continued)					
274	U076	40	P	S01	
275	U077	40	P	S01	
276	U078	40	P	S01	
277	U079	40	P	S01	
278	U080	120	P	S01	
279	U081	40	P	S01	
280	U082	40	P	S01	
281	U083	40	P	S01	
282	U084	40	P	S01	
283	U085	40	P	S01	
284	U086	40	P	S01	
285	U087	40	P	S01	
286	U088	40	P	S01	
287	U089	40	P	S01	
288	U090	40	P	S01	
289	U091	40	P	S01	
290	U092	40	P	S01	
291	U093	40	P	S01	
292	U094	40	P	S01	
293	U095	40	P	S01	
294	U096	40	P	S01	
295	U097	40	P	S01	
296	U098	40	P	S01	
297	U099	40	P	S01	
298	U101	40	P	S01	
299	U102	40	P	S01	
300	U103	40	P	S01	
301	U105	40	P	S01	
302	U106	40	P	S01	
303	U107	40	P	S01	
304	U108	40	P	S01	
305	U109	40	P	S01	
306	U110	40	P	S01	
307	U111	40	P	S01	
308	U112	40	P	S01	
309	U113	40	P	S01	
310	U114	40	P	S01	
311	U115	40	P	S01	
312	U116	40	P	S01	

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 63 (Continued)																		
3	1	3	U	1	1	7	40	P	S	0	1							
3	1	4	U	1	1	8	40	P	S	0	1							
3	1	5	U	1	1	9	40	P	S	0	1							
3	1	6	U	1	2	0	40	P	S	0	1							
3	1	7	U	1	2	1	40	P	S	0	1							
3	1	8	U	1	2	2	70	P	S	0	1							
3	1	9	U	1	2	3	40	P	S	0	1							
3	2	0	U	1	2	4	40	P	S	0	1							
3	2	1	U	1	2	5	40	P	S	0	1							
3	2	2	U	1	2	6	40	P	S	0	1							
3	2	3	U	1	2	7	40	P	S	0	1							
3	2	4	U	1	2	8	40	P	S	0	1							
3	2	5	U	1	2	9	40	P	S	0	1							
3	2	6	U	1	3	0	40	P	S	0	1							
3	2	7	U	1	3	1	40	P	S	0	1							
3	2	8	U	1	3	2	40	P	S	0	1							
3	2	9	U	1	3	3	40	P	S	0	1							
3	3	0	U	1	3	4	120	P	S	0	1							
3	3	1	U	1	3	5	40	P	S	0	1							
3	3	2	U	1	3	6	40	P	S	0	1							
3	3	3	U	1	3	7	40	P	S	0	1							
3	3	4	U	1	3	8	40	P	S	0	1							
3	3	5	U	1	4	0	40	P	S	0	1							
3	3	6	U	1	4	1	40	P	S	0	1							
3	3	7	U	1	4	2	40	P	S	0	1							
3	3	8	U	1	4	3	40	P	S	0	1							
3	3	9	U	1	4	4	40	P	S	0	1							
3	4	0	U	1	4	5	40	P	S	0	1							
3	4	1	U	1	4	6	40	P	S	0	1							
3	4	2	U	1	4	7	40	P	S	0	1							
3	4	3	U	1	4	8	40	P	S	0	1							
3	4	4	U	1	4	9	40	P	S	0	1							
3	4	5	U	1	5	0	40	P	S	0	1							
3	4	6	U	1	5	1	70	P	S	0	1							
3	4	7	U	1	5	2	40	P	S	0	1							
3	4	8	U	1	5	3	40	P	S	0	1							
3	4	9	U	1	5	4	40	P	S	0	1							
3	5	0	U	1	5	5	40	P	S	0	1							
3	5	1	U	1	5	6	40	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			*A. EPA Hazardous Waste No. (Enter code)*				*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*									*D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 63 (Continued)																		
3	5	2	U	1	5	7	40	P	S	0	1							
3	5	3	U	1	5	8	40	P	S	0	1							
3	5	4	U	1	5	9	40	P	S	0	1							
3	5	5	U	1	6	0	40	P	S	0	1							
3	5	6	U	1	6	1	40	P	S	0	1							
3	5	7	U	1	6	2	40	P	S	0	1							
3	5	8	U	1	6	3	40	P	S	0	1							
3	5	9	U	1	6	4	40	P	S	0	1							
3	6	0	U	1	6	5	40	P	S	0	1							
3	6	1	U	1	6	6	40	P	S	0	1							
3	6	2	U	1	6	7	40	P	S	0	1							
3	6	3	U	1	6	8	40	P	S	0	1							
3	6	4	U	1	6	9	40	P	S	0	1							
3	6	5	U	1	7	0	40	P	S	0	1							
3	6	6	U	1	7	1	40	P	S	0	1							
3	6	7	U	1	7	2	40	P	S	0	1							
3	6	8	U	1	7	3	40	P	S	0	1							
3	6	9	U	1	7	4	40	P	S	0	1							
3	7	0	U	1	7	6	40	P	S	0	1							
3	7	1	U	1	7	7	40	P	S	0	1							
3	7	2	U	1	7	8	40	P	S	0	1							
3	7	3	U	1	7	9	40	P	S	0	1							
3	7	4	U	1	8	0	40	P	S	0	1							
3	7	5	U	1	8	1	40	P	S	0	1							
3	7	6	U	1	8	2	40	P	S	0	1							
3	7	7	U	1	8	3	40	P	S	0	1							
3	7	8	U	1	8	4	40	P	S	0	1							
3	7	9	U	1	8	5	40	P	S	0	1							
3	8	0	U	1	8	6	40	P	S	0	1							
3	8	1	U	1	8	7	40	P	S	0	1							
3	8	2	U	1	8	8	40	P	S	0	1							
3	8	3	U	1	8	9	40	P	S	0	1							
3	8	4	U	1	9	0	40	P	S	0	1							
3	8	5	U	1	9	1	40	P	S	0	1							
3	8	6	U	1	9	2	40	P	S	0	1							
3	8	7	U	1	9	3	40	P	S	0	1							
3	8	8	U	1	9	4	40	P	S	0	1							
3	8	9	U	1	9	6	40	P	S	0	1							
3	9	0	U	1	9	7	40	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number			A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
Technical Area 63 (Continued)																		
3	9	1	U	2	0	0	40	P	S	0	1							
3	9	2	U	2	0	1	40	P	S	0	1							
3	9	3	U	2	0	2	40	P	S	0	1							
3	9	4	U	2	0	3	40	P	S	0	1							
3	9	5	U	2	0	4	40	P	S	0	1							
3	9	6	U	2	0	5	40	P	S	0	1							
3	9	7	U	2	0	6	40	P	S	0	1							
3	9	8	U	2	0	7	40	P	S	0	1							
3	9	9	U	2	0	8	40	P	S	0	1							
4	0	0	U	2	0	9	40	P	S	0	1							
4	0	1	U	2	1	0	40	P	S	0	1							
4	0	2	U	2	1	1	40	P	S	0	1							
4	0	3	U	2	1	3	40	P	S	0	1							
4	0	4	U	2	1	4	40	P	S	0	1							
4	0	5	U	2	1	5	40	P	S	0	1							
4	0	6	U	2	1	6	40	P	S	0	1							
4	0	7	U	2	1	7	40	P	S	0	1							
4	0	8	U	2	1	8	40	P	S	0	1							
4	0	9	U	2	1	9	40	P	S	0	1							
4	1	0	U	2	2	0	70	P	S	0	1							
4	1	1	U	2	2	1	40	P	S	0	1							
4	1	2	U	2	2	2	40	P	S	0	1							
4	1	3	U	2	2	3	40	P	S	0	1							
4	1	4	U	2	2	5	40	P	S	0	1							
4	1	5	U	2	2	6	70	P	S	0	1							
4	1	6	U	2	2	7	40	P	S	0	1							
4	1	7	U	2	2	8	70	P	S	0	1							
4	1	8	U	2	3	4	40	P	S	0	1							
4	1	9	U	2	3	5	40	P	S	0	1							
4	2	0	U	2	3	6	40	P	S	0	1							
4	2	1	U	2	3	7	40	P	S	0	1							
4	2	2	U	2	3	8	40	P	S	0	1							
4	2	3	U	2	3	9	70	P	S	0	1							
4	2	4	U	2	4	0	40	P	S	0	1							
4	2	5	U	2	4	3	40	P	S	0	1							
4	2	6	U	2	4	4	40	P	S	0	1							
4	2	7	U	2	4	6	40	P	S	0	1							
4	2	8	U	2	4	7	40	P	S	0	1							
4	2	9	U	2	4	8	40	P	S	0	1							

9. Descriptions of Hazardous Wastes (Continued. Use the Additional Sheet(s) as necessary; number pages as 5 a, etc.)

Line Number	*A. EPA Hazardous Waste No. (Enter code)*	*B. Estimated Annual Quantity of Waste*	*C. Unit of Measure (Enter code)*	*D. PROCESSES (1) PROCESS CODES (Enter code)*	*(2) PROCESS DESCRIPTION (If a code is not entered in D(1))*
Technical Area 63 (Continued)					
430	U249	40	P	S01	
431	U271	40	P	S01	
432	U278	40	P	S01	
433	U279	40	P	S01	
434	U280	40	P	S01	
435	U328	40	P	S01	
436	U353	40	P	S01	
437	U359	40	P	S01	
438	U364	40	P	S01	
439	U367	40	P	S01	
440	U372	40	P	S01	
441	U373	40	P	S01	
442	U387	40	P	S01	
443	U389	40	P	S01	
444	U394	40	P	S01	
445	U395	40	P	S01	
446	U404	40	P	S01	
447	U409	40	P	S01	
448	U410	40	P	S01	
449	U411	40	P	S01	

10. Map

Attach to this application a topographic map, or other equivalent map, of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in this map area. See instructions for precise requirements.

11. Facility Drawing

All existing facilities must include a scale drawing of the facility (see instructions for more detail).

12. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail).

13. Comments

Attachment B

Storage Building Floor Coating

Amerlock® Sealer

AMERON INTERNATIONAL
Performance Coatings & Finishes

AMERON INTERNATIONAL GLOBAL PRODUCT LINE

100% solids epoxy sealer

Product Data/ Application Instructions

- Solventless sealer and tiecoat
- Penetrates rust and and adheres to aged coatings
- Compatible with aged coatings
- Accepts broad range of topcoats
- Compatible with damp substrates
- Resists high humidity and moisture
- Primer for concrete surfaces
- Curing compound for new concrete

Typical Uses

Amerlock Sealer is a penetrating sealer for marginally prepared steel and aged coatings. Its low viscosity and excellent wetting properties allow it to penetrate rust and discontinuities in existing coatings which in turn improves adhesion of subsequent topcoats. Amerlock Sealer has excellent resistance to corrosive environments.

Amerlock Sealer is also used as a concrete primer/sealer and as a concrete curing compound. When used as a concrete curing compound, Amerlock Sealer is applied to concrete slabs immediately after pouring and finishing, or to formed concrete surfaces as soon as the forms are removed (three days after initial pour). Concrete must cure a minimum of 14 days (total) prior to topcoating with epoxy surfacers or coatings.

Typical Systems Using Amerolock Sealer

First Coat	Second Coat	Third Coat
Amerlock Sealer	Amercoat 370, 385, or Amerlock 2, 400	Amercoat 450 Series, Amershield, or none
Amerlock Sealer	Nu-Klad 100A, 110C, 120A, or PSX 758	Amerlock 2, 400 Amershield, or or none

Physical Data

Finish	Gloss	
Color	Clear	
Components	2	
Curing mechanism	Chemical reaction	
Volume solids (calculated)	100%	
Dry film thickness per coat	1.5 mils (38 microns)	
Coats	1 or 2	
Theoretical coverage	ft^2/gal	m^2/L
1.5 mils (38 microns)	1069	27.1
VOC (theoretical)	lb/gal	g/L
mixed	0.0	0.0
Temperature resistance, dry	°F	°C
continuous	200	93
intermittent	250	121
Flash point (SETA)	°F	°C
Amerlock Sealer resin	>212	>100
Amerlock Sealer cure	>212	>100
Amercoat 12	2	-17
Amercoat 65	81	27

Formerly Amercoat 3431

Surface Preparation

Coating performance is, in general, proportional to the degree of surface preparation. All surfaces must be clean, dry and free of all contaminants.

Amerlock Sealer is intended for less than ideal surfaces. Amerlock Sealer may be used over most types of properly prepared and tightly adhering coatings. A test patch is recommended for use over existing coatings to insure compatibility.

Steel – Remove all loose rust, dirt, moisture, grease or other contaminants from surface. Power-tool clean SSPC-SP3 or hand-tool clean SSPC-SP2. For more severe environments, dry abrasive blast SSPC-SP7. Water jetting is also acceptable.

Aluminum – Remove oil, grease or soap film with neutral detergent or emulsion cleaner. Treat with Alodine® 1200, Alumiprep® or equivalent, or power tool clean or blast lightly with fine abrasive.

Galvanizing – Remove oil or soap film with detergent or emulsion cleaner, then use zinc treatment such as Galvaprep® or equivalent or power tool clean or blast lightly with fine abrasive.

Concrete – All surfaces to be coated must be strong and sound, contain no additives or hardeners, and should not be treated with sealers or conventional curing compounds containing waxes, silicones, or silicates. New slabs (horizontal surfaces) should have a float finish or broom finish as described in ACI Specification 301. Finishing shall be within Class A tolerance, when using Amerlock Sealer as a concrete curing compound and applying epoxy surfacing. For existing slabs with a trowelled finish, see 'Primer' below.

Primer –Water-cured concrete or existing structures must be cured a minimum of 14 days and have attained 80 percent of its final strength. When cured, surface must either be prepared per ASTM D4259 or ASTM D4260 with muriatic acid using equal parts of acid to water by volume.

A suitably finished surface must have a uniform surface texture exposing fine aggregate resembling coarse sandpaper. If required, repeat acid etching or abrasive blasting until the surface texture is uniform.

Concrete surfaces cured with conventional curing compounds or contaminated with form oils must be completely cleaned by ASTM D4259. Acid etching is not acceptable, as it will not normally remove these contaminants.

Curing compound – Formed surfaces should be adequately vibrated to minimize air pockets and holes. Suitable form facing material should be used to produce a smooth form finish as described in ACI Specification 301.Do not use form release agents based on oils, which will deposit a residue on the concrete. When Amerlock Sealer is used as a curing compound the forms should be removed within three days and the Amerlock Sealer applied immediately. New concrete which will be cured with Amerlock Sealer does not require blasting or etching. Remove fins and projections from formed concrete, and ensure that all surfaces are free from oil or contaminants. Cure concrete a minimum of 14 days prior to applying epoxy surfacing. When applying epoxy surfacing the Amerlock Sealer must be roughened when maximum topcoat time is exceeded.

Apply as soon as possible after pouring and finishing the concrete.

Application Equipment

The following is a guide; suitable equipment from other manufacturers may be used. Changes in pressure, hose and tip size may be needed for proper spray characteristics.

Airless spray – Standard equipment such as Graco Bulldog Hydra-Spray or larger with a 0.13- to 0021-in. (0.38 to 0.53 mm) fluid tip.

Conventional spray – Industrial equipment such as DeVilbiss MBC or JGA spray gun with 78 or 765 air cap and "E" fluid tip, or Binks No. 18 or 62 gun with a 66 x 63 PB nozzle set up. Separate air and fluid pressure regulators, and a moisture and oil trap in the main air supply line are recommended.

Power mixer – Jiffy Mixer powered by an air or an explosion-proof electric motor.

Brush – Natural bristle. Maintain wet edge.

Roller – Use industrial roller. Level any air bubbles with bristle brush.

Application Data

Applied over	Prepared steel, or concrete, galvanizing, aluminum or aged coatings
Method	Airless or conventional spray, brush or roller
Mixing ratio (by volume)	1 part resin to 1 part cure

Pot life (minutes)	°F/°C		
	90/32	70/21	50/10
	35	60	100

Environmental conditions		
Temperature	°F	°C
air	32 to 120	0 to 49
surface	32 to 120	0 to 49

Drying time (ASTM D1640) (hours)	°F/°C			
	90/32	70/21	50/10	32/0
touch	8	12	18	28
hard	22	28	36	52

Recoat/topcoat time (hours)	°F/°C			
	90/32	70/21	50/10	32/0
minimum	18	24	30	38
maximum[xxx]	1 month			
Thinner	Amercoat 65			
Equipment cleaner	Thinner or Amercoat 12			

[xxx]*Roughen surface if max recoat/topcoat time exceeded.*

Application Procedure

1. Flush equipment with thinner or Amercoat 12.
2. Add Amerlock Sealer cure to Amerlock Sealer resin. Mix thoroughly until uniformly blended.

Pot life (minutes)		°F/°C	
2 gal unit	90/32	70/21	50/10
	35	60	100

3. Thinning is not normally recommended. If needed for workability add Amercoat 65 up to ¼ pint per gallon of mixed Amerlock Sealer.
4. Apply wet coat in even parallel passes, overlapping each pass by 50%.
5. Amerlock Sealer is low in viscosity. Apply one coat at 1.5 mils or sufficient thickness to completely cover and penetrate steel. Porous surfaces may require an additional coat of Amerlock Sealer.
6. Clean all equipment with thinner or Amercoat 12 immediately after use.

On slabs, puddled areas of water must not remain. On formed surfaces no running water may be evident.

Primer - When used over acid-etched concrete apply immediately after water rinsing. Abrasive blasted concrete must be thoroughly cleaned to remove all loose material, then may be moistened with water. A damp surface aids in primer/sealer penetration into the surface.

Brush out any primer/sealer which puddles in low areas on slabs (horizontals) or runs or sags on formed surfaces (verticals) during application.

After overnight curing, coated surface may vary in appearance. Areas which appear to have no evidence of primer/sealer indicate a high porosity. In these areas, a second application is recommended. Surfaces not properly primed or sealed may result in bubbling of surfacer. Avoid thick glossy areas of Amerlock Sealer. Roughen these areas prior to topcoating.

Curing compound – When used as a curing compound, Amerlock Sealer must be applied to slabs (horizontals) immediately after the final finishing operation or upon disappearance of the “sheen” of surface moisture. On formed surfaces (verticals), apply immediately after form removal. (Forms should be removed within three days after concrete is poured.) If there is any drying or appreciable loss of moisture, spray the surface with water and allow to reach a uniform damp condition with no excess water on the surface.

Immediately after use, clean all application equipment with Amercoat 12.

Safety Precautions

Read each component's material safety data sheet before use. Mixed material has hazards of each component. Safety precautions must be strictly followed during storage, handling and use.

CAUTION – Improper use and handling of this product can be hazardous to health and cause fire or explosion.

Do not use this product without first taking all appropriate safety measures to prevent property damage and injuries. These measures may include, without limitation: implementation of proper ventilation, use of proper lamps, wearing of proper protective clothing and masks, tenting and proper separation of application areas. Consult your supervisor. Proper ventilation and protective measures must be provided during application and drying to keep spray mists and vapor concentrations within safe limits and to protect against toxic hazards. Necessary safety equipment must be used and ventilation requirements carefully observed, especially in confined or enclosed spaces, such as tank interiors and buildings.

This product is to be used by those knowledgeable about proper application methods. Ameron makes no recommendation about the types of safety measures that may need to be adopted because these depend on application environment and space, of which Ameron is unaware and over which it has no control.

If you do not fully understand these warnings and instructions or if you cannot strictly comply with them, do not use the product.

Note: Consult Code of Federal Regulations Title 29, Labor, parts 1910 and 1915 concerning occupational safety and health standards and regulations, as well as any other applicable federal, state and local regulations on safe practices in coating operations.

This product is for industrial use only. Not for residential use.

Shipping Data

Packaging unit	2-gal
Amerlock Sealer resin	1 gal in 3-gal can
Amerlock Sealer cure	1 gal in 1-gal can

Shipping weight (approx)	lb	kg
2-gal unit		
Amerlock Sealer resin	13.5	6.1
Amerlock Sealer cure	11.0	5.0

Shelf life when stored indoors at 40 to 100°F (4 to 38°C)

resin and cure	1 year from shipment date

Numerical values are subject to normal manufacturing tolerances, colors and testing variances. Allow for application losses and surface irregularities.

Warranty

Ameron warrants its products to be free from defects in material and workmanship. Ameron's sole obligation and Buyer's exclusive remedy in connection with the products shall be limited, at Ameron's option, to either replacement of products not conforming to this Warranty or credit to Buyer's account in the invoiced amount of the nonconforming products. Any claim under this Warranty must be made by Buyer to Ameron in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life, or one year from the delivery date, whichever is earlier. Buyer's failure to notify Ameron of such nonconformance as required herein shall bar Buyer from recovery under this Warranty.

Ameron makes no other warranties concerning the product. No other warranties, whether express, implied, or statutory, such as warranties of merchantability or fitness for a particular purpose, shall apply. In no event shall Ameron be liable for consequential or incidental damages.

Any recommendation or suggestion relating to the use of the products made by Ameron, whether in its technical literature, or in response to specific inquiry, or otherwise, is based on data believed to be reliable; however, the products and information are intended for use by Buyers having requisite skill and know-how in the industry, and therefore it is for Buyer to satisfy itself of the suitability of the products for its own particular use and it shall be deemed that Buyer has done so, at its sole discretion and risk. Variation in environment, changes in procedures of use, or extrapolation of data may cause unsatisfactory results.

Limitation of Liability

Ameron's liability on any claim of any kind, including claims based upon Ameron's negligence or strict liability, for any loss or damage arising out of, connected with, or resulting from the use of the products, shall in no case exceed the purchase price allocable to the products or part thereof which give rise to the claim. **In no event shall Ameron be liable for consequential or incidental damages.**

AMERON INTERNATIONAL

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PPG Amercoat

Amercoat® 114A

Epoxy filler compound

Product Data/ Application Instructions

• Filler for steel, formed concrete or concrete block

Amercoat 114A is a 100% solids epoxy filler compound to fill holes, voids and surface discontinuities in steel, formed concrete or concrete block up to one inch across as measured in their largest dimension. A single application will fill or seal most air bubbles and holes. On concrete block surfaces, Amercoat 114A provides a smooth surface in a single application for applying coatings.

• Amercoat 114A may be used to fill pits, voids, or seams in steel or concrete water tanks. For potable water tanks, topcoat with an ANSI/NSF Standard 61 - approved potable water tank lining.

Typical Uses

Steel and concrete surfaces in :

- Nuclear facilities
- Plants – fossil fuel, sewage and waste treatment, food and beverage, chemical processing
- Mills – pulp and paper, textile, steel
- Mining and metal finishing operations
- Water tanks

Typical Properties – after 7 days @ 70°F (21°C)

Mechanical

Density (ASTM D71 modified)	88.6 lbs/ft^3
Tensile strength (ASTM D412)	3000 psi
Compressive strength (ASTM C579)	12549 psi
Modulus of elasticity (ASTM C580)	9.4 x 10^5 psi

Qualifications

ANSI/NSF Standard 61 - for use in drinking water

- Maximum Surface Area / Volume - 0.033 in^2/L or maximum 1% of a 4000 gallon tank or larger
- Maximum Use Temperature - 23˚C

CLASSIFIED UL EPH
ANSI/NSF61
DRINKING WATER
SYSTEM COMPONENTS
8NA1

Physical Data

Color	Off-white	
Components	2	
Curing mechanism	Chemical reaction between components	
Volume solids	100%	
Theoretical coverage 1 mil (25 microns)	ft^2/unit	
3 lb unit	406	
20 lb unit	2709	
VOC	lb/gal	g/L
mixed	0.0	0.0
Flash point (SETA)	°F	°C
114A cure	>200	93
114A resin	>200	93
Amercoat 12	2	-17
Amercoat 928	175	79

Application Data

Applied over	Prepared or primed steel, concrete, masonry block
Surface preparation	
steel	Abrasive blast
concrete	ASTM D4258, 4259 or 4260
masonry	ASTM D4261
Primer	Amerlock Sealer
Method	Squeegee, roller, trowel, spatula
Mixing ratio (by volume)	1.84 parts resin to 1 part cure

	°F/°C		
	90/32	70/21	50/10
Working time (hours)	1	2$^1/_2$	4
Initial setting	9	18	36
Curing time before topcoating			
minimum	9	18	36
maximum			
with 114A	36	72	144
with 100A	72	168	336
with Amercoat 90HS	1 month		

If maximum recoat time exceeded, roughen surfaces.

Environmental conditions		
Temperature	°F	°C
material and surface	50 to 120	10 to 27

Below 65°F (18°C) workability is reduced and application more difficult. Above 80°F (27°C) working time decreases.

Amercoat 114A can be applied to surfaces as low as 50°F (10°C); although curing retarded, typical properties of cured material will not be affected.

Application under direct sunlight and rising surface temperatures can result in bubbling of filler compound by release of air or moisture from concrete. Prior to application of Amercoat 114A shade for 24 hours any concrete exposed to direct sunlight and keep shaded until after initial set. With rising surface temperatures it may be necessary to postpone application.

Equipment cleaner — Amercoat 12 or 928

Surface Preparation

Coating performance, in general, is proportional to the degree of surface preparation. Prior to coating, all surfaces must be clean, undamaged, dry and free of all contaminants, including salt deposits.

Steel – Abrasive blast SSPC-SP10. Prepare surface in accordance with Application Instructions for specific primer being used.

Concrete – Cure concrete a minimum of 14 days and until 80 percent of its physical properties have been attained before applying Amercoat 114A. Prepare surfaces according to ASTM D4258, surface cleaning; D4259, abrading; or D4260, acid etching.

Concrete block – Walls must be laid plumb and square with flush joints. Do not rake joints. All surfaces must be clean and dry following ASTM D4261.

Amerlock Sealer applied over water-cured concrete – Cure to a tack-free condition [l6 hours at 70°F (21°C)] before application of Amercoat 114A.

Apply Amercoat 114A over prepared concrete surfaces or surfaces primed with Amerlock Sealer. See primer literature.

Mixing

Amercoat 114A supplied in the correct proportions of resin and cure which must be mixed together before use. Mix only full units. Make no additions or deletions. Any deviations will inhibit curing and alter final physical properties. Do not mix more material than can used within working time: $2^{1}/_{2}$ hours at 70°F (21°C). Material which has begun to set must be discarded.

Application

Apply Amercoat 114A to the surface using a short nap paint roller or trowel. Spread and work the filler compound across surface filling voids using the American Olean KR Groutmaster epoxy floor trowel or wide bladed putty knives. Continue working filler compound across surface, applying pressure to achieve a smooth finish. Leave only a slight film above the surface plane. Filler compound should appear somewhat transparent allowing the concrete surface or concrete block texture to remain visible.

A single application will provide a suitable surface to receive Amercoat 100A epoxy surfacer or for application of a coating over concrete block. A second application may be required for complete filling and sealing of formed concrete surfaces receiving Amercoat protective coatings. Allow overnight curing at 70°F (21°C), or until first application is firm.

Do not exceed 3 days at 70°F (21°C) before second application. When making second application, use only reasonable pressure to build film thickness to approximately 5 to 10 mils above the surface plane, at the same time remove ridges left during spreading of filler compound by the application tool. Repair all holidays with Amercoat 114A before applying coating.

Cleanup

Clean all mixing equipment and application tools immediately with Amercoat 12 or Amercoat 928.

Coverage

Coverage depends upon the number and size of air bubbles or holes to be filled. The theoretical coverage per 20 pound unit on a smooth, pore-free surface is 2709 ft^2.

Curing Time Before Topcoating

	°F/°C 90/32	70/21	50/10
Curing time before topcoating			
minimum (hours)	9	18	36
maximum (hours)			
with 114A	36	72	144
with 100A	72	168	336
with Amercoat 90HS	1 month		

If maximum recoat time exceeded, roughen surfaces.

Shipping Data

Packaging units	3 lb	20 lb
cure	1-pt can	$^{1}/_{2}$-gal can
resin	1-qt can	$2^{1}/_{2}$-gal can
Shipping weight (approx)	3 lb	20 lb
cure	.79	5.28
resin	2.21	14.72

Shelf life when stored indoors at 40 to 100°F (4 to 38°C)
1 year from shipment date

Numerical values are subject to normal manufacturing tolerances and testing variances. Allow for application losses and surface irregularities.

This mixed product is nonphotochemically reactive as defined by the South Coast Air Quality Management District's Rule 102 or equivalent regulations.

Safety Precautions

Read each component's material safety data sheet before use. Mixed material has hazards of each component. Safety precautions must be strictly followed during storage, handling and use.

CAUTION – Improper use and handling of this product can be hazardous to health.

Do not use this product without first taking all appropriate safety measures to prevent property damage and injuries. These measures may include, without limitation: implementation of proper ventilation, use of proper lamps, wearing of proper protective clothing and masks, tenting and proper separation of application areas. Consult your supervisor. Proper ventilation and protective measures must be provided during application and drying to keep spray mists and vapor concentrations within safe limits and to protect against toxic hazards. Necessary safety equipment must be used and ventilation requirements carefully observed, especially in confined or enclosed spaces, such as tank interiors and buildings.

This product is to be used by those knowledgeable about proper application methods. PPG makes no recommendation about the types of safety measures that may need to be adopted because these depend on application environment and space, of which PPG is unaware and over which it has no control.

If you do not fully understand these warnings and instructions or if you cannot strictly comply with them, do not use the product.

Note: Consult Code of Federal Regulations Title 29, Labor, parts 1910 and 1915 concerning occupational safety and health standards and regulations, as well as any other applicable federal, state and local regulations on safe practices in coating operations.

This product is for professional use only. Not for residential use.

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Amerlock® 400

Amerlock Series — *High-solids epoxy coating*

Product Data/ Application Instructions

- Low VOC
- High-performance general maintenance coating for new or old steel
- Cures through wide temperature range
- Self-priming topcoat over most existing coatings
- Can be overcoated with wide range of topcoats
- Compatible with prepared damp surfaces
- Compatible with adherent rust remaining on prepared surfaces
- 5 mils or more in a single coat
- Resists high humidity and moisture
- Temperature resistance to 450°F on insulated or uninsulated surfaces when mixed with Amercoat 880 glass flake additive
- Can be applied to substrates with temperatures up to 250˚F

Amerlock's low solvent level meets VOC requirements, reduces the chances for film pinholing and solvent entrapment at the substrate-coating interface, often a major cause of coating failure with conventional epoxies and lower solids systems.

Amerlock 400 is available in a variety of colors, including aluminum, and therefore does not require a topcoat. For extended weatherability or special uses, a topcoat may be desired.

Typical Uses

Amerlock 400 is used in those areas where blasting is impractical or impossible. As a maintenance coating, Amerlock 400 protects steel structures in industrial facilities, bridges, tank exteriors, marine weathering, offshore, oil tanks, piping, roofs, water towers and other exposures. Amerlock 400 has good chemical resistance to splash/spillage, fumes and immersion in neutral, fresh and salt water (see resistance table). Contact your PPG representative for specific information.

Typical Properties

Physical

Abrasion resistance (ASTM D4060)	
1 kg load/1000 cycles	weight loss
CS-17 wheel	102 mg
Impact resistance (ASTM D2794)	
Direct	24 in • lb
Reverse	6 in • lb
Moisture vapor transmission (ASTM D1653)	6.28g/m²/24hrs.
Adhesion (ASTM D4541)	900 psi

Performance

Salt spray (ASTM B117) 3000 hours	
Face blistering	None
Humidity (ASTM D2247) 750 hours	
Face corrosion, blistering	None
Immersion (NACE TM-01-69) fresh water 1 year	
blistering	None

Qualifications

USDA – Incidental food contact
NFPA – Class A
NSF Standard 61* – For use in drinking water, valves only.

NSF

** For NSF application information, please visit our website at www.ppgamercoatus.ppgpmc.com/NSF/*

Physical Data

Finish	Semigloss
Color	Standard, Rapid Response, custom colors and aluminum

White and light colors may show yellowing on aging. Use of Amercoat 861 with white or light colors will slightly discolor.
Yellow, red and orange colors will fade faster than other colors due to the replacement of lead-based pigments with lead-free pigments in these colors

Components	2
Curing mechanism	Solvent release and chemical reaction between components
Volume solids (ASTM D2697 modified)	
400	83% ± 3%
400AL	88% ± 3%
Dry film thickness (per coat)	4-8 mils (100-200 microns)
Coats	1 or 2

Theoretical coverage	ft²/gal	m²/L
1 mil (25 microns)		
400	1331	32.6
400AL	1412	34.7
5 mils (125 microns)		
400	266	6.5
400AL	282	6.9

VOC	lb/gal	g/L
400 mixed*	1.5	180
mixed/thinned (½ pt/gal)**	1.8	220
400AL mixed**	1.0	120
mixed/thinned (1½ pt/gal)**	2.0	240

** EPA method 24*
*** Calculated*

Temperature resistance,*	wet		dry	
400	°F	°C	°F	°C
continuous	100	38	200	93
intermittent	100	38	350	177
with 880 (1 gal can/2 gal mix)				
continuous	100	38	425	218
intermittent	100	38	450	232

** At temperatures above 200˚F, dry film thickness must not exceed 10 mils (250 microns).*

Some discoloration and darkening will occur at temperatures greater than 200˚F, this will not affect film integrity or coating performance.

Flash point (SETA)	°F	°C
2/400 resin	131	55
400 cure	85	29
2AL/400AL resin	110	43
400AL cure	116	47
Amercoat® 8	20	-7
Amercoat 65	78	25
Amercoat 101	145	63
Amercoat 12	2	-17

** Amerlock 400 resin and Amerlock 2 resin are identical, and are packaged under a common label as Amerlock 2/400 resin. Amerlock 400 cure and Amerlock 2 cure are different, and are labeled individually.*

Chemical Resistance Guide

Environment	Immersion		Splash and Spillage		Fumes and Weather	
	400	400AL	400	400AL	400	400AL
Acidic	*	*	F	F	G	G
Alkaline	*	*	E	G	E	E
Solvents	*	*	G	G	E	E
Salt water	E	E	E	E	E	E
Water	E	E	E	E	E	E

F-Fair G-Good E-Excellent

**Contact your PPG representative.*

This table is only a guide to show typical resistances of Amerlock 400 and 400AL. For specific recommendations, contact your PPG representative for your particular corrosion protection needs.

Systems using Amerlock 400 or 400AL

1st coat	2nd Coat***	3rd coat***
400	None	None
400	450H Series	None
Amershield™ 400**	None 400	None
Dimetcote® 9 Series	400	None
Dimetcote 9 Series	400	450H Series

***Water immersion.*

****For color contrast when 2 coats of 400AL are used, 400AL red can be used as first coat.*

Recoat/Topcoat time °F/°C

minimum (hours)	90/32	70/21	50/10
400	8	16	30
400 with 1 pt 861	4	7	16
400AL	3	12	48
400AL with ½ pt 861	3	5	12

Recoat/Topcoat time @ 70°F (21°C)

System	Maximum time
400/400	3 months
400 with 861/400	1 month
400/Amershield or 450H Series	1 month
400/5405	1 day
400 with 861/Amershield or 450H Series	2 weeks

Drying times are dependent on air and surface temperatures as well as film thickness, ventilation and relative humidity. Maximum recoating time is highly dependent upon actual surface temperatures - not simply ambient air temperatures. Surface temperatures should be monitored, especially with sun-exposed or otherwise heated surfaces. Higher surface tempertures shorten the maximum recoat window.

Note: If maximum time is exceeded, roughen surface. For topcoats (finish coats) not listed, see Product Data sheet for specific topcoat time limitations.

Surface Preparation

Coating performance is, in general, proportional to the degree of surface preparation. Abrasive blasting is usually the most effective and economical method. When this is impossible or impractical, Amerlock 400 can be applied over mechanically cleaned surfaces. All surfaces must be clean, dry and free of all contaminants, including salt deposits.

Amerlock 400 may be used over most types of properly prepared and tightly adhering coatings. A test patch is recommended for use over existing coatings.

Steel – Remove all loose rust, dirt, moisture, grease or other contaminants from surface. Power-tool clean SSPC-SP3 or hand-tool clean SSPC-SP2. For more severe environments, dry abrasive blast SSPC-SP7. Water blasting is also acceptable. For immersion service – dry abrasive blast SSPC-SP10. For high-heat service on uninsulated substrates, abrasive blast per SSPC-SP6. For insulated substrates, abrasive blast per SSPC-SP10. In both cases, a 2-3 mil profile must be obtained.

Aluminum – Remove oil, grease or soap film with neutral detergent or emulsion cleaner, treat with Alodine® 1200, Alumiprep® or equivalent or blast lightly with fine abrasive.

Galvanizing – Remove oil or soap film with detergent or emulsion cleaner, then use zinc treatment such as Galvaprep® or equivalent or blast lightly with fine abrasive.

Concrete – Acid etching (ASTM D4260) or abrasive blast (ASTM D4259) new concrete cured a minimum of 14 days.

Application Data

Applied over	Steel, concrete, aluminum, galvanizing
Surface preparation	
Steel	SSPC-SP2, 3, 6, 7, 10, 11, or 12
Concrete	ASTM D4259 or 4260
Aluminum	Alodine®, Alumiprep® or light abrasive blast
Galvanizing	Galvaprep® or light abrasive blast
Method	Airless or conventional spray. Brush or roller may require additional coats.
Mixing ratio (by volume)	1 part resin to 1 part cure

Pot life (hours) °F/°C

861 Accelerator Amount	Amerlock /mixed 5 gal	90/32	70/21	50/10	32/0
None	400	1½	2½	4	7
	400AL	3½	5½	10	15
½ pt	400	1	1½	2½	4
	400AL	1	1½	2½	4
1 pt	400	½	1	1½	2

Pot life is the period of time after mixing that a five-gallon unit of material is sprayable when thinned as recommended. Mixture may appear fluid beyond this time, but spraying and film build characteristics may be impaired.

Environmental conditions

Product	Air or Surface Temperature
Amerlock 400	40˚ to 250˚F (4˚ to 121˚C)
Amerlock 400 AL	40˚ to 122˚F (4˚ to 50˚C)
Amerlock with 861	20˚ to 122˚F (-6˚ to 50˚C)
Amerlock 400 with 101*	123˚ to 250˚F (51˚ to 121˚C)

Surface temperatures must be at least 5°F (3°C) above dew point to prevent condensation. At freezing temperatures, surface must be free of ice.

Do not use Amerlock 400AL on water damp surfaces.

** Amerlock 400 may be applied to surfaces as hot as 250˚ (121˚C). When applying Amerlock 400 to surfaces between 122˚F and 250˚F, thin ½ pint per gallon with Amercoat 101 thinner. Multiple passes may be required to achieve film build and to avoid solvent blistering.*

Drying time (ASTM D1640) (hours)

861 Amt	Amerlock /mixed 5 gal	120/49	90/32	70/21	50/10	32/0	20/-6
		touch °F/°C					
None	400	1½	4½	9	28	96	NR
	400AL	1	4	12	36	96	NR
½ pt	400	1½	3	5	24	72	120
	400AL	1	1½	2½	5	10	24
1 pt	400	1	2	4	15	48	96

Drying time continued

				through			
None	400	6	12	20	40	140	NR
	400AL	1½	7½	24	72	216	NR
½ pt	400	3	6	10	30	96	180
	400AL	2	4	9	24	48	120
1 pt	400	2½	5	9	24	72	160
		Cure for immersion (days)					
None	400	2	4	7	21	NR	NR
	400AL	2	4	7	21	NR	NR
½ pt	400AL	1	2	3	7	21	NR
1 pt	400	1	2	3	7	21	NR

Amercoat 861 Accelerator will slightly discolor Amerlock 400 white and other Amerlock light colors.
NR = Not recommended

Thinner	Amercoat 8, 65, or 101
Equipment cleaner	Thinner or Amercoat 12

Application Equipment

The following is a guide; suitable equipment from other manufacturers may be used. Changes in pressure, hose and tip size may be needed for proper spray characteristics.

Airless spray – Standard equipment with 30:1 pump ratio or larger, with a 0.017- to 0.021-inch fluid tip.

Conventional spray – Industrial equipment, such as DeVilbiss MBC or JGA or Binks 18 or 62 spray gun. A moisture and oil trap in the main air supply line, a pressure material pot with mechanical agitator and separate regulators of air and fluid pressure are recommended.

Power mixer – Jiffy Mixer powered by an air or explosion-proof electric motor.

Brush or roller – Additional coats may be required to attain proper thickness.

Application Procedure

1. Flush all equipment with thinner or Amercoat® 12 before use.
2. Stir resin and cure using an explosion-proof power mixer to disperse pigments.
3. Add cure to resin. Mix thoroughly until uniformly blended to a workable consistency. For low temperature application, use Amercoat 861 accelerator. Do not exceed the 1 pint Amercoat 861 accelerator per 5 gallon unit recommendation.
4. Do not mix more material than can be used within the expected pot life.
5. For optimum application, material should be from 50° to 90°F (10° to 32°C). Above 122°F (50°C), sagging may occur.
6. Use only PPG recommended thinners. For potable water applications, see current NSF listing at www.nsf.org for approved thinners and thinning restrictions. For other applications, above 85°F (29°C) use Amercoat 8, or 101 at lower temperatures use Amercoat 65. A small amount of thinner greatly reduces viscosity; excessive thinning will cause running or sagging. Thin cautiously as follows:

Amercoat 8 or 65 thinner	400	400AL
Airless – up to	¼ pt/gal	1½ pt/gal
Conventional – up to	½ pt/gal	1½ pt/gal

Below 50°F additional thinning may be needed and multiple coats required to achieve specified thickness.

Above 122˚F, up to 250˚F surface temperatures, use Amercoat 101 thinner sparingly to promote flow and leveling. Excessive thinning will cause running or sagging.

7. To minimize orange peel appearance, adjust conventional spray equipment to obtain adequate atomization at lowest air pressure.
8. Apply a wet coat in even, parallel passes with 50 percent overlap to avoid holidays, bare areas and pinholes. If required, cross spray at right angles.
9. When applying Amerlock 400 directly over inorganic zincs or zinc rich primers, a mist coat/full coat technique may be required to minimize bubbling. This will depend on the age of the Dimetcote®, surface roughness and conditions during curing.

Note – Do not use Amerlock 400AL on water damp surfaces

10. Ventilate confined areas with clean air between coats and while curing the final coat. Prevent moisture condensation on the surface between coats.
11. Repair damaged areas by brush or spray.
12. Clean equipment with thinner or Amercoat 12 immediately after use.

Shipping Data

Packaging unit	2 gal	5 gal
cure	1-gal can	2.5-gal can
resin	1-gal can	2.5-gal can

Shipping weight (approx)	lbs	kg
2-gal unit		
400 cure	12.5	5.7
2/400 resin	13.7	6.2
400AL cure	12.1	5.5
400AL resin	11.0	5.0
5-gal unit		
400 cure	31.8	14.4
2/400 resin	35.0	15.9
400AL cure	30.9	14.0
400AL resin	28.3	12.8

Shelf life when stored indoors at 40° to 100°F (4° to 38°C)
resin and cure 3 years from date of manufacture.

Numerical values are subject to normal manufacturing tolerances, color and testing variances. Allow for application losses and surface irregularities.

This mixed product is photochemically reactive as defined by the South Coast Air Quality Management District's Rule 102 or equivalent regulations.

Safety Precautions

Read each component's material safety data sheet before use. Mixed material has hazards of each component. Safety precautions must be strictly followed during storage, handling and use.

CAUTION – Improper use and handling of this product can be hazardous to health and cause fire or explosion.

Do not use this product without first taking all appropriate safety measures to prevent property damage and injuries. These measures may include, without limitation: implementation of proper ventilation, use of proper lamps, wearing of proper protective clothing and masks, tenting and proper separation of application areas. Consult your supervisor. Proper ventilation and protective measures must be provided during application and drying to keep solvent vapor concentrations within safe limits and to protect against toxic hazards. Necessary safety equipment must be used and ventilation requirements carefully observed, especially in confined or enclosed spaces, such as tank interiors and buildings.

This product is to be used by those knowledgeable about proper application methods. PPG makes no recommendation about the types of safety measures that may need to be adopted because these depend on application and space, of which PPG is unaware and over which it has no control.

If you do not fully understand the warnings and instructions or if you cannot strictly comply with them, do not use the product.

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Surface temperatures must be at least 5°F (3°C) above dew point to prevent condensation during application and initial dry through. Relative humidity lower than 40% will extend dry times.

Heat curing

Allow 700 to dry to touch before exposing to curing temperatures above 140°F.

APPLICATION PROCEDURE

Adhere to all application instructions, precautions, conditions, and limitations to obtain the maximum performance. For conditions outside the requirements or limitations described, contact your PPG representative.

1. Flush equipment with thinner or Amercoat® 12 before use.
2. Mix to a uniform consistency.
3. Add PSX® 700 cure to 700 resin. Mix thoroughly until uniformly blended.

Pot life (hours)*

	°F/°C		
	90/32	70/21	50/10
700 & 700FD	1.5	4	6.5

4. If needed for workability, thin** with Amercoat 65 or 101 up to 1 pint per gallon PSX® 700.
5. Apply a wet coat in even, parallel passes, overlap each pass 50 percent to avoid holidays, bare areas and pinholes. If required, follow with a cross spray at right angles to first pass.

Drying time (ASTM D1640) (hours) @ 40% R.H. or above

	°F/°C			
	90/32	70/21	50/10	32/0
touch (700)	1.5	3	6	12
touch (700FD)	1	2	4.5	9
through (700)	4	6	11	38
through (700FD)	3	4.5	8.5	24

Recoat/topcoat time (hours) @ 40% R.H. or above

	°F/°C			
	90/32	70/21	50/10	32/0
minimum (700 over 700)	3	4.5	9	32
minimum (700FD over 700FD)	2	3	7	18

6. Brush and/or roll applications will require 2 coats to achieve a 7 mil DFT. There will be some surface texture, which is typical for brush and roll applications.
7. When applying PSX® 700 directly over Dimetcote® or Amercoat 68HS see special thinning instructions.
8. Clean all equipment with thinner or Amercoat 12 cleaner immediately after use.

** Thinning material with 1/2 pt/gal after 3 hours will extend pot life to 5 hours at 70°F.*

*** See special thinning for application over Dimetcote and Amercoat 68HS primers.*

**** See surface preparation for aged coatings.*

THINNING FOR APPLICATION OVER DIMETCOTE

Thin PSX® 700 with Amercoat 65 or 101 up to 1 pint per gallon to assist in film thickness control and to minimize bubbling. This will depend on the age of the coating, surface roughness and conditions during curing. Based on conditions an interval between the mist-coat and full-coat may assist in the application.

SAFETY PRECAUTIONS

Read each component's material safety data sheet before use. Mixed material has hazards of each component. Safety precautions must be strictly followed during storage, handling and use.

CAUTION – Improper use and handling of this product can be hazardous to health and cause fire or explosion.

Do not use this product without first taking all appropriate safety measures to prevent property damage and injuries. These measures may include, without limitation: implementation of proper ventilation, use of proper lamps, wearing of proper protective clothing and masks, tenting and proper separation of application areas. Consult your supervisor. Proper ventilation and protective measures must be provided during application and drying to keep spray mists and vapor concentrations within safe limits and to protect against toxic hazards. Necessary safety equipment must be used and ventilation requirements carefully observed, especially in confined or enclosed spaces, such as tank interiors and buildings.

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Note: Consult Code of Federal Regulations Title 29, Labor, parts 1910 and 1915 concerning occupational safety and health standards and regulations, as well as any other applicable federal, state and local regulations on safe practices in coating operations.

This product is for industrial use only. Not for residential use.

SHIPPING DATA

Packaging unit	1-gal	5-gal
cure	0.20 gal in 1-qt can	1 gal in 1-gal can
FD cure	0.20 gal in 1-qt can	1 gal in 1-gal can
resin	0.80 gal in 1-gal can	4 gal in 5-gal can

Shipping weight (approx)	lb	kg
1-gal unit		
cure	2.0	00.9
FD cure	1.8	00.8
resin	10.3	4.7
5-gal unit		
cure	9.0	4.1
FD cure	8.9	4.0
resin	50	22.7

Shelf life when stored indoors at 40 to 100°F (4 to 38°C)
resin and cure 1 year from shipment date

Numerical values are subject to normal manufacturing tolerances, colors and testing variances. Allow for application losses and surface irregularities.

This product is photochemically reactive as defined by the South Coast Air Quality Management District's Rule 102 or equivalent regulations.

PPG Protective & Marine Coatings

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PSX® 700

Engineered Siloxane Coating

PSX® ADVANTAGE

PSX® 700 is the world's first weatherable epoxy that embodies the properties of both a high performance epoxy and an acrylic polyurethane in one coat. This multi-purpose coating offers "breakthrough" weather resistance and corrosion control.

PRODUCT DATA/APPLICATION INSTRUCTIONS

- Unique, high-gloss, self-priming coating
- Can be applied directly over inorganic zinc
- Gloss and appearance retention exceeding the best polyurethane
- Significantly lower applied costs
- Excellent resistance to acid and corrosion
- High solids, low VOC
- Resists high humidity and moisture
- Applied by brush, roller or spray—without thinning
- Outstanding resistance to chemical splash and spill

TYPICAL USES

PSX® 700 adheres strongly to bare steel, coated steel and inorganic zinc silicate coated surfaces on new construction, repair and field maintenance coating projects. It provides effective long-term corrosion control and weatherability.

- Structural steel
  - Bridges
  - Marine
- Tanks
- Piping
- Concrete walls and floors
- Industrial power plants
  - Power
  - Wastewater treatment
  - Pulp and paper
  - Chemical and petrochemical
- Transportation
  - Rail car exterior
  - Vehicle equipment–buses, trucks
- Marine
  - Decks
  - Topside and superstructures on ships
  - Boottops
  - Barges and offshore platforms

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PHYSICAL DATA

Finish	Gloss	
Color	See Color Card	
Yellow, red and orange colors will fade faster than other colors due to the replacement of lead-based pigments with lead-free pigments in these colors.		
Components	2	
Curing mechanism	Chemical reaction	
Volume solids (calculated) PSX 700 PSX 700FD	 90% ± 3% 90% ± 3%	
Coats*	1 or 2	
Theoretical coverage 1 mil (25 microns) 3 mils (75 microns) 5 mils (125 microns) 7 mils (175 microns)	ft^2/gal 1444 481 289 206	m^2/L 35.5 11.8 7.1 5.1
VOC** 700 & 700FD (EPA method 24) 700 & 700FD mixed/thinned @ 2 1/2 oz/gal (calculated)	lb/gal 0.7 0.83	g/L 84.0 99.9
Temperature resistance, dry continuous intermittent	°F 200 250	°C 193 121
Flash Point (SETA) resin cure FD cure Amercoat 12 Amercoat 65 Amercoat 101 Amercoat 939	°F 207 205 180 2 81 145 60	°C 97 96 82 -17 27 63 16

QUALIFICATIONS

NFPA – Class A
USDA – Incidental food contact

** When applying more than one coat, it is recommended that total dry film thickness not exceed 10 mils.*

***The mixed and applied coating cure reaction will produce VOC of mixed alcohols. For 100 g/l VOC requirements, a VOC – exempt thinner such as Amercoat 939 may be used as needed.*

TYPICAL PROPERTIES

PHYSICAL		
Abrasion resistance (ASTM D4060)		
1 kg load/1000 cycles	weight loss	
CS-17 wheel	53mg	
Adhesion, elcometer (ASTM D4541)	2700 psi	
Elongation (ASTM D522)	14%	
PERFORMANCE		
Salt spray (ASTM B117)	5500 hours	
Face corrosion, blistering	None	
Humidity (ASTM D2247)	5500 hours	
Face corrosion, blistering	None	
Gloss retention (ASTM G53) QUV-B bulb Greater than 50% gloss retention at 26 weeks		
CHEMICAL RESISTANCE GUIDE		
Environment	Splash and Spillage	Fumes and Weather
Acidic	E	E
Alkaline	E	E
Salt solutions		
acidic	E	E
neutral	E	E
alkaline	E	E
Fresh water	E	E
Solvents	E	E
Petroleum products	E	E

F-Fair G-Good E-Excellent

This table is only a guide to show typical resistances of PSX® 700. For specific recommendations, contact your PPG representative for your particular corrosion protection needs.

SYSTEMS USING PSX 700 OR 700FD

Substrate	Coats	DFT per Coat
Steel (blasted)	1 or 2	5-7
Intact coating	1	3
Dimetcote†	1	4-6
Amercoat 68HS†, 370 or 385	1	3-5
Amerlock Series	1	3-5
Concrete††	2	5-7
Amercoat 385,	1	3-5
Amerlock Series	1	3-5
Masonry		
Amerlock 400BF	1	3-5
Nu-Klad 965	1	3-5

† Mist-coat/full-coat application may be required. See special thinning instructions.

†† Fill voids with Nu-Klad 114A prior to applying Amercoat 385, Amerlock Series.

APPLICATION DATA

Applied over**	Prepared or primed steel, primed concrete, prepared galvanizing or aluminum		
Surface preparation steel concrete galvanizing aluminum aged coatings	 SSPC-SP5, 6 or 10 ASTM D4259 or 4260 Galvaprep or blast lightly Alumiprep or blast lightly Contact your PPG representative		
Primers	Dimetcote® 9 Series, Dimetcote® 21-5, Amerlock® Series, Amercoat 68HS, 351, 370, 385		
Method	Airless or conventional spray, brush or roller		
Mixing ratio (by volume)	4 parts resin to 1 part cure		
Pot life (hours)‡	°F/°C		
	90/32	70/21	50/10
700 & 700FD	1.5	4	6.5

‡ Thinning material with 1⁄2 pt/gal after 3 hours will extend pot life to 5 hours at 70°F.

ENVIRONMENTAL CONDITIONS

Temperature	°F	°C
air	40 to 120	4 to 49
surface	40 to 120	4 to 49
Relative humidity	40% minimum	

Surface temperatures must be at least 5°F (3°C) above dew point to prevent condensation during application and initial dry through.

Relative humidity lower than 40% will extend dry times.

Heat curing

Allow 700 or 700FD to dry to touch before exposing to curing temperatures above 140°F.

Drying time (ASTM D1640) (hours) @ 40% R.H. or above

	°F/°C			
	90/32	70/21	50/10	32/0
touch (700)	1.5	3	6	12
touch (700FD)	1	2	4.5	9
through (700)	4	6	11	38
through (700FD)	3	4.5	8.5	24

Recoat/topcoat time (hours) @ 40% R.H. or above

	°F/°C			
	90/32	70/21	50/10	32/0
minimum (700 over 700)	3	4.5	9	32
minimum (700FD over 700FD)	2	3	7	18
maximum‡‡	None			
Thinner	Amercoat 65, 101			
Equipment cleaner	Thinner or Amercoat 12			

‡‡See surface preparation for aged coatings.

***Appearance will vary depending on substrate and application method. Use two coats of PSX® 700 over bare concrete.*

SURFACE PREPARATION

Coating performance is, in general, proportional to the degree of surface preparation. Refer to specifications for the specific primer being used. Prior to coating, primed surface must be clean, dry, undamaged and free of all contaminants including salt deposits. Round off all rough welds and remove all weld spatter.

Steel – Remove all loose rust, dirt, grease or other contaminants by one of the following depending on the degree of cleanliness required: SSPC-SP6 or 10. The choice of surface preparation will depend on the primer selected and end-use service conditions. In very low to low corrosivity environments, PSX 700 may be applied directly to steel that has been abrasive-blasted to a near-white metal condition (SSPC-SP10).

Concrete – Acid etching (ASTM D4260) or abrasive blast (ASTM D4259) new concrete before priming.

Aluminum – Remove oil, grease or soap film with neutral detergent or emulsion cleaner, blast lightly with fine abrasive.

Galvanizing – Remove oil or soap film with detergent or emulsion cleaner, then blast lightly with fine abrasive.

Aged coatings – Contact your PPG representative. A test patch of PSX® 700 over intact clean coating and observation for film defects over a period of time may be required, dependant upon the type of aged coating.

PSX® 700 is compatible over Amercoat 450H and Amershield.

Repair – Prepare damaged areas to original surface preparation specifications, feathering edges of intact coating. Thoroughly remove dust or abrasive residue before touch up.

APPLICATION EQUIPMENT

The following is a guide; suitable equipment from other manufacturers may be used. Changes in pressure, hose and tip size may be needed for proper spray characteristics.

Airless spray – Standard equipment with a 30 to 1 pump ratio or larger with a 0.015- to 0.021-in. (0.38 to 0.53 mm) fluid tip.

Conventional spray – Industrial equipment such as DeVilbiss MBC or JGA spray gun with 78 or 765 air cap and "E" fluid tip, or Binks No. 18 or 62 gun with a 66 x 63 PB nozzle set up. Separate air and fluid pressure regulators, and a moisture and oil trap in the main air supply line are recommended.

Power mixer – Jiffy Mixer powered by an air or an explosion proof electric motor.

Brush – Natural bristle. Maintain wet edge.

Roller – Use industrial roller. Level any air bubbles with bristle brush.

ENVIRONMENTAL CONDITIONS

Temperature	°F	°C
air	40 to 120	4 to 49
surface	40 to 120	4 to 49
Relative humidity	40% minimum	

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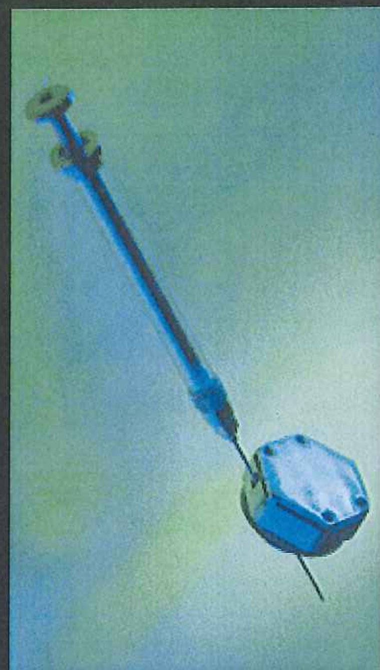
Attachment C

Transuranic Waste Container Vents

Direct Sample Filter

Direct Sample NucFil®-019 DS Drum Vent Filter



Direct Sample Drum Vent Filter

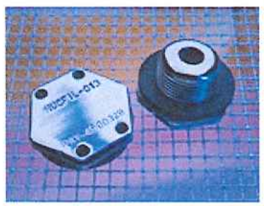
- Nuclear Filter Technology's new NucFil®-019 DS direct sample drum vent filter is engineered to provide the same effective hydrogen diffusivity as our NucFil®-019 design, plus it has a sample port to allow drum headspace gas sampling without removing the filter.
- The sample port is self-sealing using a septa material for side-port needle insertion and can be double sealed with a nylon tipped sealing set screw.
- Due to the angle of the sample port, the carbon filter is untouched.
- Filters are certified carbon-carbon HEPA drum vent filters that meet WIPP WAC and TRUPACT-II SAR Appendix 1.3.5 requirements.
- DOT Type 7A Certified.

Drum Vent Filters

NucFil® Drum Vent Filters

- Nuclear Filter Technology's drum vent filters are engineered to provide effective hydrogen diffusivity in a 3/4" design.
- Filters are certified carbon-carbon HEPA drum vent filters that meet WIPP WAC and TRUPACT-II SAR Appendix 1.3.5 requirements:
  - H_2 permeability exceeds 11 E-06 mol/s/mol fraction
  - Greater than 99.97% removal of 0.45 micron DOP
  - Greater than 200 ml/min air flow capacity at < 1.0" W.C.
- NucFil® drum vent filters pass the DOT 7A drop test, stacking test, vibrations test, dart impact and water entry test.
- The carbon-carbon composite filter media:
  - Resists acid and chloride corrosion
  - Is 70% porous
  - Is unaffected by extreme temperatures.

NucFil®-013 Carbon-Bonded/Carbon Filter



Carbon-carbon offers the best in hydrogen permeability, chemical compatibility and physical durability. The NucFil®-013 has been in use for over 20 years. Filters that have been retrieved from field use and re-tested for filtration performance demonstrate the innate durability and quality of the carbon-carbon filter in a type 304 stainless steel housing.

All filters manufactured are tested for flow rate and percent penetration of 0.45 micron Dioctylpthyalate (DOP) aerosol. We have been manufacturing and testing drum vent filters for ventilation of nuclear and mixed waste drums to NQA-1 standards for over 20 years.

Carbon Composites in Space

The same carbon composite technology used in our NucFil® drum vent filters is used in an Adiabatic Demagnetization Refrigerator on NASA's Astro V Satellite launched on February 7, 2000.

FILTERS

Nuclear Filter Technology

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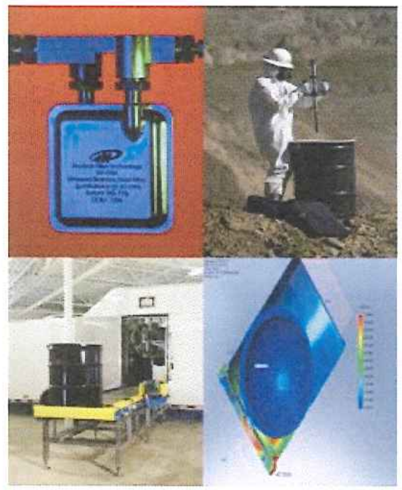
Protecting Our Global Environment Through Innovative Solutions

CLICK HERE Laser Application Division



Nuclear Filter Technology (NucFil®) is the first company in the world to provide ventilation for flammable gas mixtures in nuclear waste containers. The company is founded on a unique product that safely vents gases through a robust, chemically inert and radiation resistant carbon composite filter. The activated carbon-bonded-carbon media is the pioneering invention that set the standard and launched an industry in vented nuclear waste packaging.

Over 20 years later, NucFil® is the industry leader dedicated to providing superior packaging, shielding and characterization technologies for ventilation, storage, transportation and disposal of radioactive and mixed waste.

Today, the same innovative thinking that started the company continues, as does our commitment to quality. With a specialized staff of scientists and engineers available to provide engineering, design, fabrication, testing and analytical services, (NucFil®) is able to assist clients with a wide array of needs.

Nuclear Filter Technology
741 Corporate Circle, Suite R
Golden, Colorado 80401

(303) 384-9785 • (303) 384-9579 fax

For information about technical consulting, laboratory and analytical services, and on-site technical support, Please visit:

NFT Incorporated

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Drum Vent Filter

Hydrogen Diffusion Advanced NucFil®-019 Drum Vent Filter

- Nuclear Filter Technology's newest drum vent filter is engineered to provide the maximum hydrogen diffusivity in a 3/4" design.

Increased hydrogen diffusion means more loading in each drum

- Filters are certified carbon-carbon HEPA drum vent filters that meet WIPP WAC and TRUPACT-II SAR Appendix 1.3.5 requirements:
    - H_2 permeability exceeds 24 E-06 mol/s/mol fraction- a 5X according to Rev 19 Appendix 2.5
    - Greater than 99.97% removal of 0.45 micron DOP
    - Greater than 200 ml/min air flow capacity at < 1.0" W.C.
- The NucFil®-019 drum vent filter is tested and passes the DOT 7A drop test, stacking test, vibrations test, dart impact and water entry test.
- The carbon-carbon composite filter media:
    - Resists acid and chloride corrosion
    - Is 70% porous
    - Is unaffected by extreme temperatures.

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Product Specification Data Sheet

Model:	NucFil 007	**Date:**	07/07/05
Specification #:	NFT-007	**Revision:**	4
Engineering Drawing #:	05260000		

Usage:

The NucFil 007 filter is used in conjunction with the NucFil Drum Venting System for drums needing headspace gas analysis in order to comply with shipping regulations and for the control of VOC release and maximum ventilation of Hydrogen gas generated in 30 or 55-gallon drums with or without liners that contain TRU, Low Level, Hazardous or mixed waste

Performance Characteristics:

Particle Removal Efficiency:	≥ 99.97% of 0.45µ mean diameter poly- dispersed di-ocytl phthalate (DOP) aerosol
Resistance to Flow:	≤ 1" W.C. DP @ 200 ml/min
Hydrogen Diffusivity:	≥ 6.1 E^{-06} Mol/Sec/Mol Frac @ 25.0°C
Notes:	

Physical Characteristics:

Filter Media:		Carbon-bonded-carbon
Size:	**Overall Height:**	4.25"
	Diameter:	1.125" head 3.6" depth into drum.
	Profile:	.66" including .19" O-ring
Material of Construction:		Type 316 Stainless steel
Type of Installation:		9/16 – 11 self tapping tapered threads
Type of Seal:		Neoprene 70 O-Ring, with a silicone sealant secondary seal
Operating Temperature:		-40.0 °C to +70 °C (-40 °F to +158 °F)

In conformance to the following Standards or Specifications:

ASME-NQA-1
DOT 7A 49 CFR – 173.465
Trampac Section 2.5

Identification markings: *(All items will be marked with the following information at a minimum)*

Model Number: **NucFil-007**
Date of Manufacture: (mm/yy)
Unique Serial Number:

Engineering: [signature] Quality: Roger Allen

Nuclear Filter Technology

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Product Specification Data Sheet

Model:	NucFil-015 DS	**Date:**	Aug. 31, 2004
Specification #:	NFT015DS	**Revision:**	3
Engineering Drawing #:	05150000		

Usage:

This specification describes the material, construction, and performance of the NucFil®015 ventilation filter with sample port. The intended use for this filter is the control of VOC release and venting Hydrogen gas generated in containers of, Low Level, Hazardous or mixed waste. The threads are designed to allow installation in a 1" diameter hole in thin gage steel drum lids. The sample port allows direct gas sampling of the container void space while providing maximum hydrogen permeability and qualifying for TRAMPAC, App. 2.5 Rev.19, and 2X HDCF.

Physical Characteristics:

Filter Media:		Carbon-bonded-Carbon
Size:	**Overall Height:**	1.08"
	Diameter:	1.5" Hexagonal head
Material of Construction:		304 SS
Type of Installation:		Special self tapping thread
Type of Seal:		70 Viton O-Ring with silicone RTV secondary seal
Resistance to flow:		Less than 1" W.C. DP @ 200 ml/min
Particle Removal Efficiency:		Greater than 99.97% of 0.3µ to 0.5µ Polydispersed DOP
Hydrogen diffusivity:		≥ 1.5 E^{-05} Mol/Sec/Mol Frac @ 25.0°C
Operating Temperature:		-40.0° C to +70° C (-40° F to +158° F)
Sample port media:		Silicone septa, with stainless steel hardware
Sample port seal:		Silicone O-ring with stainless steel hardware
Sample port area:		.005 sq. inches

In conformance to the following Standards or Specifications:

ASME-NQA-1, DOT 7A, TRAMPAC, App. 2.5 Rev.19, 2X HDCF

Installation

Drill a 1" (+0.050"/-0.000") diameter hole, such that the top of the filter does not break the plane of the drum lid-retaining ring. Hand start installation, then wrench tighten until o-ring is compressed and the filter goes to zero torque. Apply a bead of silicone RTV sealant between filter housing and the drum lid.

Identification markings: *(All items will be marked with the following information at a minimum)*

Model Number: **NucFil 015 DS**

Date of Manufacture: (mm/yy)

Unique Serial Number:

Engineering: [signature] Quality: [signature]

Nuclear Filter Technology

741 Corporate Circle, Suite R Golden, Colorado 80401

Product Specification Data Sheet

Model:	NucFil®019	**Date:**	03/18/04
Specification #:	NFT-019	**Revision:**	2
Engineering Drawing #:	05190000		

Usage:

Advanced design for Control VOC release and ventilation of hydrogen gas generated in 55-gallon drums, overpack drums, and Standard Waste Boxes containing TRU, Low Level, Hazardous or Mixed Wastes. Installed into 3/4" flange of newly generated waste drum lids with 10-foot pounds torque. Maximum hydrogen permeability without loss of integrity.

Performance Characteristics:

Particle Removal Efficiency:	Tested at greater than 99.97% of 0.3μ to 0.5μ poly-dispersed (DOP) aerosol.
Resistance to Flow:	Less than 1.0" W.C. DP @200 ml/min
Hydrogen Diffusivity:	2.4 E –05 Mol/sec/mol fraction
Notes:	

Physical Characteristics:

Filter Media:		Carbon-bonded-carbon
Size:	**Overall Height:**	0.72"
	Diameter:	1.50" Hex
	Profile:	0.4"
Material of Construction:		Type 304 Stainless steel
Type of Installation:		Threaded into ¾"-14 NPS
Type of Seal:		Neoprene gasket 0.125" thick 50-70 Durometer

In conformance to the following Standards or Specifications:

ASME-NQA-1

Identification markings:

(All items will be marked with the following information at a minimum)

Model Number: NucFil®019
Date of Manufacture: (MM/YY)
Unique Serial Number:

Engineering: [signature]

Quality: [signature]

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Attachment D

Seismic Report for TA-63 Transuranic Waste Facility

memorandum

Earth and Environmental Sciences Division

To/MS: Greg Juerling, TWF Project Manager, MS M870
From/MS: Emily S. Schultz-Fellenz, EES-16, D452
Peter Roberts, EES-17, D443
Richard Kelley, EES-16, D452
Phone/Fax: 7-3605/Fax 7-1628
Symbol: EES16-SHG-2010-001 R1
Date: August 5, 2011

Evaluation of potential seismic hazards from Holocene-age surface-rupturing faults at the site of the proposed transuranic waste facility (TWF), Technical Area 63, Los Alamos National Laboratory: Revision 1

This memorandum summarizes geologic investigations at and around the site of the proposed transuranic waste facility (TWF) at Technical Area 63 (TA-63) of the Los Alamos National Laboratory (LANL) in Los Alamos County, New Mexico.

When selecting a site for a hazardous waste treatment, storage, and/or disposal facility, the owner/operator (in this case, LANS, LLC and NNSA) must adhere to certain location standards, as identified in the Code of Federal Regulations, Title 40 (40 CFR), Part 264.18. The guidelines used to demonstrate compliance with the seismic location standard are presented in 40 CFR, Part 270.14(b)(11).

In this document, we address compliance with the seismic location standard through published geologic data, beginning with a regional view of the Pajarito Plateau and ending with specific focus on the area to be permitted (in this case, a fenced area containing all facilities affiliated with the proposed TWF at TA-63 and proposed to be permitted under the Resource Conservation and Recovery Act [RCRA], herein referred to as the "proposed TWF"). We present a Pajarito Plateau-scale map of faults and aerial photographic lineaments located within a five-mile radius of the area to provide an overview of the structural setting and state of knowledge of the area. We discuss recent published mapping of the Pajarito fault system to determine the presence or absence of Holocene-aged surface-rupturing faults. We also include the following: field reconnaissance and analysis of aerial photography covering a 3,000-ft radius of the area; a thorough discussion of microseismic monitoring, analyses, and identified anomalies in the LANL earthquake catalogue; and a summarization of published geologic studies completed in and around TA-63 for purposes of evaluating Holocene seismic hazards. These studies provide important control on the known extent of possible faults in the area.

Definitions

The following technical terms are used frequently throughout this document. Definitions are taken from The Dictionary of Geological Terms (Bates and Jackson, eds., 1984).

Displacement: a general term for the relative movement of the two sides of a fault, measured in any chosen direction; also, the specific amount of such movement. [Within this report, "displacement" and "offset" are interchangeable terms.]

Holocene: an epoch of the Quaternary period, from the end of the Pleistocene, approximately 8 thousand years ago [*sic*; recent studies have updated the beginning of the Holocene to 11,700 years ago; *cf*. Gradstein et al. (2008); Ogg et al. (2008)] to the present time.

Lineament: a linear topographic feature of regional extent that is believed to reflect crustal structure. Examples are fault lines, aligned volcanoes, and straight stream courses.

Note that the definition of "lineament" used in this report primarily in the context of faulting does not imply that such an identified feature is actually a surficial manifestation of crustal structure with recent tectonic activity until the local geology is carefully considered.

General Geologic Setting

LANL and the Los Alamos townsite sit atop the Pajarito Plateau, which is bounded on its western edge by the Pajarito fault system, a 50-km-long system locally comprised of the down-to-the-east Pajarito fault (the master fault) and subsidiary down-to-the-west Rendija Canyon, Guaje Mountain, and Sawyer Canyon faults (Figure 1). This fault system forms the local active western margin of the Rio Grande rift near Los Alamos.

The proposed TWF area at TA-63 is situated on an unnamed mesa in the north-central part of LANL between Twomile Canyon to the south, Ten Site Canyon to the north, and the headwaters of Cañada del Buey to the east (Figure 2). The local bedrock is the Quaternary Bandelier Tuff, formed in two eruptive pulses from nearby Valles caldera, the eastern edge of which is located approximately 6.5 miles west-northwest of the technical area. The older member (Otowi Member) of the Bandelier Tuff has been dated at 1.61 Ma (Izett and Obradovich 1994). The younger member (Tshirege Member) of the Bandelier Tuff has been dated at 1.256 Ma (age from Phillips et al. 2007) and is widely exposed as the mesa-forming unit around Los Alamos. Several discrete cooling units comprise the Tshirege Member. Commonly accepted stratigraphic nomenclature for the Tshirege Member is described in detail by Broxton and Reneau (1995), Gardner et al. (2001), and Lewis et al. (2009). The cooling unit surficially exposed at TA-63 is Qbt3. Understanding the subtle differences between Tshirege Member cooling units and the nature of the contacts between cooling units is critical to identifying fault-generated displacements around the Pajarito Plateau.

Regional Structural and Seismic Studies

Geologic quadrangle mapping

The New Mexico Bureau of Geology and Mineral Resources, in conjunction with the US Geological Survey's National Cooperative Geologic Mapping Program (STATEMAP), published a geologic and structural map of the Frijoles 7.5-minute quadrangle (Los Alamos area) at 1:24,000 scale (Goff et al. 2002). This study did not identify surficial geologic faults that disrupt the Bandelier Tuff or younger units in the vicinity (e.g., within 3,000 ft) of the proposed facilities at TA-63.

Lineament mapping

Before the completion of detailed geologic mapping at LANL, previous studies had inferred the surface traces of the Rendija Canyon and Guaje Mountain faults to continue southward through TA-55 and TA-63, respectively (including Rogers et al. 1996; Dransfield and Gardner 1985; Vaniman and Wohletz 1990; Wong et al. 1995; Olig et al. 1996; and Wohletz 2004). Studies by Gardner et al. (1998, 1999, 2008), Lewis et al. (2002, 2009), and Lavine et al. (2003, 2005) utilized the most widely-accepted and detailed published stratigraphy of the Bandelier Tuff (that of Broxton and Reneau 1995; published in peer-reviewed literature by Lewis et al. 2009) to map small displacements across Tshirege Member cooling unit contacts throughout much of western and central LANL. Additionally, these more recent studies have acquired information on fault locations and amount of displacement using high-precision geodetic mapping of Tshirege Member cooling unit contacts along canyon exposures. These recent, detailed studies have shown that previously-mapped lineaments in this area are not expressed as young surface-rupturing projections of the Rendija Canyon and Guaje Mountain faults transecting TA-55 and TA-63. In fact, the surface trace of the Rendija Canyon fault bends southwesterly and splays into TA-3 instead of continuing southerly through TA-55, and the surface expression of the Guaje Mountain fault is not identifiable south of Pueblo Canyon.

While lineament mapping has been completed at a regional scale across much of the Pajarito Plateau, we emphasize that for determining the presence of Holocene faults at a given site, conventional field geologic mapping or paleoseismic trenching must be consulted or performed to confirm that (1) a lineament is truly a fault, and (2) that it displaces young units. Olig et al. (1998) supports this:

> The lineaments [from Wong et al. (1995), Plate 1] were identified on aerial photographs or observed during an aerial reconnaissance and field-checked at a reconnaissance level. However, this generalized map … should be considered preliminary in nature until a more comprehensive and detailed surficial mapping of LANL is completed.

Plate 1 of this report shows the proposed RCRA-permitted TWF fenced area at TA-63, a five-mile buffer around the facility (as mandated by 40 CFR 270.14(b)(11)(A)(2)), mapped surficial faults (Lewis et al. 2009), and mapped lineaments (Vaniman and Wohletz 1990; Wong et al. 1995). The surficial faults shown on Plate 1 and mapped by Lewis et al. (2009) represent the most recent and detailed state of knowledge of the surficial expression of the Pajarito fault system near LANL. The Pajarito fault system was mapped at 1:1,200 scale by personnel with a detailed knowledge of structural geology and Tshirege Member subunits, and the map of Lewis et al. (2009) represents a culmination of many years of work by the LANL Seismic Hazards Geology Team. In many locations around TA-63, high-precision geodetic surveying was used to identify minor (< 3 ft) displacements on the contacts of Tshirege Member subunits along canyon exposures, thus determining the presence or absence of faults in anthropogenically-disturbed areas. No surficial faults with lateral continuity associated with the Pajarito fault system fall within the 3,000 ft buffer surrounding the proposed TWF shown on Plate 1.

Microseismic monitoring and analyses

The Los Alamos Seismic Network (LASN) continuously monitors local earthquake activity in the Los Alamos area in support of LANL's Seismic Hazards program. Seismic monitoring of LANL facilities is a requirement of DOE Order 420.1B (Facility Safety). LASN currently consists of several permanent seismic instrument field stations that telemeter real-time sensitive ground motion data to a central recording facility. Four of these stations are located on LANL property, with three of those positioned within 1 to 4 km of TA-63. Four other stations are in remote locations in the Jemez Mountains, St Peters Dome, and the Caja del Rio plateau across the Rio Grande. The network has been detecting and archiving seismic events from 1973 to present. During that time, over 750 clearly locatable earthquakes were recorded in northern New Mexico. Over 200 of these were located within a 50-km radius of Los Alamos, and roughly 90 of those were within 20 km. Figure 3 shows the current LASN station locations and the seismic events recorded in the area from 1973 to 2007. Because the LASN station spatial coverage is limited, and stations on LANL property are plagued by cultural noise (e.g., construction activities, explosive shots), there can be issues with earthquake identification and location errors. Misidentification of recorded events as local earthquakes is very rare. When it does occur, the most common cause is that LANL test explosions and distant earthquakes occasionally generate signals that can mimic the characteristics of local earthquakes.

Previous versions of the map of LASN-detected local seismic events had plotted two local earthquake epicenters close to TA-63. Subsequent assessment of those specific earthquake signals determined they were erroneously identified as local earthquakes. The two events in question were recorded on September 22, 1992, and on November 11, 2001. The signal characteristics and arrival times at the LASN stations for both of these events led to ambiguous interpretations of the origin of the sources that generated them. LANL seismologists have recently taken a closer look at the signals and identified the 1992 event as a LANL explosion at TA-36, and the 2001 event as a specific type of seismic wave reflected off the Earth's core and generated by a distant earthquake roughly

6,000 km away. No earthquakes detected by LASN have occurred or been located within 3,000 feet of TA-63 during the network's 37 years of operation.

Published geologic studies of relevance to seismic hazards issues at TA-63

Three published geologic investigations sought evidence for the presence or absence of Holocene faulting associated with the Rendija Canyon and Guaje Mountain faults in the TA-63 and surrounding areas. One study in particular examined TA-63 for Holocene faulting hazards in accordance with 40 CFR 264. These investigations provide important constraint on the location, size, distribution, and implications of known faults with relation to TA-63. We summarize these geologic studies below, in chronological order by publication date.

- **Dransfield and Gardner 1985**, Subsurface Geology of the Pajarito Plateau, Española Basin, New Mexico [report number LA-10455-MS]

  This report provides a description of geologic structure in units older than the Bandelier Tuff, based upon drill cores and geophysical surveys across the Pajarito Plateau. The authors note prominent aerial photographic lineaments projecting southward from Pueblo Canyon, and interpret these lineaments as subsurface projections of the Rendija Canyon and Guaje Mountain faults as far south as Water Canyon. The study attributes the lineaments to surficial manifestations of eroded fracture zones propagating upward from the subsurface trace of the faults. Both the Rendija Canyon and Guaje Mountain faults appear in seismic reflection transects south of their mapped surficial traces. A detailed surficial mapping campaign for the antithetic structures of the Pajarito fault system (Rendija Canyon and Guaje Mountain) had not yet been undertaken by the Laboratory at the time of publication of Dransfield and Gardner's work. The work of Dransfield and Gardner, however, provided the impetus for further detailed geologic investigations throughout much of northern and western LANL as the Laboratory complex began to modernize facilities.

- **Reneau et al. 1995**, Surficial Materials and Structure at Pajarito Mesa [from Reneau and Raymond, eds., report number LA-13089-MS]

  A proposed mixed waste disposal facility at Pajarito Mesa prompted geologic surface mapping, high-precision total station mapping, and exploratory trenching around TA-67, south of TA-55 and southwest of TA-63. At the time of this study, it was postulated that young surface faulting associated with the Rendija Canyon fault might trend southward from the Los Alamos townsite, directly through TA-60, TA-48, TA-55, TA-40, and TA-67. Previous studies (including Dransfield and Gardner, 1985) had shown southern projections of the Rendija Canyon and Guaje Mountain faults through Pajarito Mesa. The geological mapping and trenching of Reneau et al. (1995) showed that faulting had affected Pajarito Mesa in the past, but the faulting is more complicated than previously inferred by Dransfield and Gardner (1985). Both down-to-the-east and down-to-the-west faulting is seen at Pajarito Mesa. Small faults were identified through conventional geologic mapping and mesa-edge investigations. Their lateral continuity could not be constrained, so these small faults are identified on maps as point-locations of offset on Tshirege Member cooling units (cf. Plate 2). A full paleoseismic history was not identified in this study, but it was determined that faults did not affect geologic units younger than ~50-60 ka (ka = thousand years ago). No increase in fracture density across the projections of the Rendija Canyon or Guaje Mountain faults was seen, and a detailed geodetic survey showed no displacement of the Bandelier Tuff along the Rendija Canyon fault projection.

- **Kolbe et al. 1995**, Evaluation of the Potential for Surface Faulting at TA-63 [unpublished consulting report prepared for LANL by Woodward-Clyde Federal Services]

In the early 1990s, LANL began planning a hazardous waste treatment facility and radioactive liquid waste treatment facility at TA-63. Since this facility was designed for use in the treatment and storage of hazardous waste (thus requiring compliance with seismic location standards outlined in 40 CFR Part 264), a detailed geologic investigation of the site was undertaken to determine the presence or absence of Holocene faults. This detailed investigation included the examination of a series of paleoseismic trenches across the full west-east extent of TA-63, and southwestern portions of TA-52. Trenches were opened and investigated because Dransfield and Gardner (1985), Vaniman and Wohletz (1990), and Wong et al. (1993) projected faults through the site based on fracture density studies, aerial photography lineaments, and deep seismic analyses. Trenches totaling 685 m in length were excavated (Figure 4). These trenches were oriented perpendicular to the north-south trending geologic faults. The trench locations were dictated by cultural and physical constraints (e.g., archaeological sites, utilities), and were designed with overlap to maximize the opportunity to expose potential fault traces and displacements. At the time of the Kolbe et al. (1995) study, a detailed geologic investigation of surficial deposits at TA-63 had not been undertaken and it was not known whether Holocene surface faulting associated with the Guaje Mountain fault was expressed in this area. The trenches were excavated to expose the Bandelier Tuff and overlying deposits, to evaluate whether evidence of faulting was present, and to constrain the timing of faulting.

Kolbe et al (1995) performed a field reconnaissance of the TA-63 area before any paleoseismic trenching began. The site's geologic conditions were assessed to determine whether fault activity younger than the Bandelier Tuff might be geomorphically expressed at the site. The researchers determined that enough material overlying the tuff was present to make trenching useful in determining the presence or absence of Holocene faulting. Investigators opened four paleoseismic trenches across TA-63 and TA-52 (Figure 4). A fifth trench was also excavated in TA-63 west of the others and across the projected trace of the Guaje Mountain fault as projected by Vaniman and Wohletz (1990) and Wong et al. (1993).

The trenches exposed the Tshirege Member cooling unit Qbt3 and an associated pyroclastic surge deposit, and also exposed discontinuous deposits of six units overlying the tuff. The study attempted through two mechanisms to date the stratified material overlying Bandelier Tuff. The first method, radiocarbon dating, had little success. Only six charcoal samples were recovered from all the trenches at TA-63, with ^{14}C ages ranging from modern to 3050 ± 70 years before present (in radiocarbon years before AD 1950). Sample ages were interpreted by the authors to be inconsistent with the probable age of the units in which the ^{14}C samples were entrained, therefore presenting a challenge for constraining the ages of materials overlying tuff. Considering this, the project used composition of fracture fills, morphology of fractures, assessment of vertical separations at the interface of the tuff and the overlying material, and estimates of soil development rates to evaluate Holocene faulting at the site.

Evaluating fracture age based upon fracture fill also posed problems. Fracture fill varied depending upon the width of the fracture. However, a few fractures were found to contain rounded Tschicoma Formation dacite pebbles, which from other sites around LANL indicated the presence of older alluvial material (e.g., Wong et al., 1993) deposited shortly after the Bandelier Tuff was emplaced. This finding implies that those fractures are old features. In addition, at least three other fractures contained El Cajete pumice, dated at ~50-60 ka, suggesting that by the time of deposition of the El Cajete pumice the fractures were already present.

Fractures in tuff versus overlying material vary markedly in aperture (2 to 80 mm in tuff; 1 to 5 mm in overlying deposits). Only about 10% of through-going fractures found in Qbt3 in the trenches are coincident with fractures in the overlying material. Fractures in overlying material that are coincident with tuff fractures were not found to extend to the ground surface. The morphological difference and lack of coincidence of tuff fractures and those in overlying deposits suggest these fractures are not contemporaneous.

Three, possibly four, episodes of soil formation were documented in the TA-63 and TA-52 trenches. The ages of the soils, identified by thickness, entrained materials (e.g., El Cajete pumice), and degree of soil development, ranged from modern to >50 ka. The most complete stratigraphic column found at the site was in Trench 1 (see Figure 3), in the southeastern corner of TA-63.

No vertical offsets were observed in any stratified material overlying bedrock (tuff) fractures. Evidence for gas-escape structures (fossil fumaroles) were found within Qbt3 in the trenches. These features had random distribution, pipe-like in geometry, and fines-depleted fill material. Similar features have been identified through geologic trenching investigations at TA-55 (Gardner et al. 2008) and TA-67 (Kolbe et al. 1994).

Width, orientation, frequency, and characteristics of fracture fill materials were recorded in all trenches for through-going fractures with dips greater than 45°. These data were further subdivided into faults or joints (by the presence or absence of shearing and/or slickensides). Fracture frequency and width were compiled and plotted. The analyses show no significant increase in fracture density toward or within the projection of the Guaje Mountain fault or toward the cliff edge along the northern and eastern margins of the site. Strikes of steeply-dipping fractures were plotted on lower-hemisphere stereonet projections. Most fractures were vertical with northwest to northeast strikes. The study found no strong correlation between fracture width and fracture density. Average fracture widths increase with proximity to the mesa edge on the eastern side of the site (TA-52), and away from the projection of the Guaje Mountain fault. This is in contrast to Vaniman and Wohletz (1990), which suggested fracture widths should have increased toward/within the area of the projected fault. The study interpreted the widening of fractures as a relationship to settling of tuff blocks toward the canyons, and not to faulting.

To summarize, **no geomorphic or stratigraphic evidence for Holocene faulting was identified at TA-63 through trenching investigations**. At that site, no vertical displacement of the Bandelier Tuff was evident. No scarps from the projected Guaje Mountain fault, as mapped by Vaniman and Wohletz (1990) and Wong et al. (1993) were identified within TA-63, either through site reconnaissance or trenching investigations.

Local Lineament Mapping and Field Reconnaissance at TA-63 and Surrounding Canyons

We present a local lineament map (Plate 2) of the 3,000-ft buffer area surrounding the proposed TWF at TA-63. Present on both Plates 1 and 2 are lineaments from Wong et al. (1995; yellow lines) and Vaniman and Wohletz (1990; orange lines) that trend roughly north-south. The lineaments mapped by Wong et al. (1995) and Vaniman and Wohletz (1990) were identified using aerial photographs. Subsequent published geologic studies that examined the canyon exposures at areas where the lineaments are projected to cross TA-63 (*cf.* Gardner et al., 1998, 1999; Lavine et al. 2003) identified that some lineaments do correspond to small displacements of the Bandelier Tuff. Two small point-locations of displacement were identified on the Qbt2-Qbt3 contact in Twomile and Mortandad Canyons. However, displacement could not be traced down or up through the stratigraphic section, faults were not visible as surficial offset nor could they be traced across mesa-tops through conventional geologic mapping, and were not found to displace geologic units younger than the tuff (younger than 1.256 Ma).

At TA-63, high-precision geodetic surveying was used to identify displacements on the Tshirege Member cooling unit contacts along canyon exposures, thus determining the presence or absence of small-displacement faults. Gardner et al. (1998; 1999) performed high-precision geodetic surveying of Twomile, Ten Site, and Mortandad Canyons to locate small-displacement faults, and while they located numerous small faults further west and south within TA-55, they found no faults within 200 ft of the proposed TWF at TA-63. Similarly, Kolbe et al. (1995) found no evidence of Holocene faulting in numerous trenches across the east-west extent of TA-63.

Figure 5 is a map of the proposed RCRA-permitted TWF area, with 200-ft (red) and 3,000-ft (blue) buffers for RCRA seismic considerations. This map shows no faults within the 200-ft buffer. Two identified points of offset on the Bandelier Tuff Tshirege Member cooling units fall within the 3,000 ft buffer. The point-locations of offset south of the proposed TWF was mapped by Gardner et al. (1999) as 2 ft down-to-the-north displacement, and the point-location of offset north of the proposed TWF was mapped by Lavine et al. (2003) as 2-3 ft down-to-the-west displacement. The points of offset roughly correlate with a lineament mapped by Vaniman and Wohletz (1990). These points of offset were found to have very little to no lateral continuity, could not be traced down or up through the stratigraphic section, were not visible as surficial offset, they could not be followed across mesa-tops through conventional geologic mapping, and were not found to displace geologic units younger than the tuff (younger than 1.256 Ma). Additionally, Kolbe et al. (1995) found no evidence for faulting within the trenches that span TA-63.

This evaluation identifies a few lineaments on Plate 2 (red dotted lines) that broadly correlate to previously mapped lineaments. Only one minor lineament in this current investigation roughly correlates with a horsetail splay of a lineament mapped by Vaniman and Wohletz (1990). Lineaments identified in this mapping do not correlate to known surficial geologic faults , and have not been found to displace the Bandelier Tuff or younger units (where present) in the previous studies summarized above.

Discussion

Site-specific geologic investigations in the TA-63 area, described above, show that the lineaments mapped through TA-63 on Plates 1 and 2 do not correlate with any Holocene faults. Earlier studies that projected lineaments through the site at the ground surface prompted careful geologic site investigations by the extensive trenching campaign of Kolbe et al. (1995), which did not find evidence of Holocene fault activity at TA-63. Neither geologic investigations at the TA-63 area, nor geologic quadrangle mapping in the Los Alamos area, show surficial faults in areas where lineaments were identified on Plate 2 of this report.

One detailed geologic study in the greater TA-63 area identified two point-locations of Tshirege Member offset, one each to the north and south of the technical area in canyon exposures (Gardner et al., 1999). These offsets are small, both in amount of displacement (< 3 ft) and in lateral continuity. The offsets were identified at only one Tshirege Member subunit contact, and could not be similarly found in the same area in subunit contacts higher or lower in the stratigraphic section. In comparison, other locations around Los Alamos where Holocene faulting has occurred and paleoearthquakes have been documented often show tens of feet of displacement along a linear feature that is several miles long. The small point-locations of offset north and south of the TWF are too small to be independently seismogenic and thus the hazard with respect to Holocene surface faulting to the proposed TWF is extremely low.

Since the investigations by Kolbe et al. (1995), anthropogenic disturbance and further facility/infrastructure development at LANL affects much of the area within the 200-ft buffer of the proposed TWF. Many post-Bandelier Tuff sediments have been stripped from the mesa-top within the technical area to construct new facilities. Without undisturbed post-Bandelier Tuff sediments, conducting future geologic field studies with the purpose of identifying potential Holocene movement(s) across geologic structures (including paleoseismic trenching or borehole investigations) would be extremely challenging, if not impossible, in the vicinity of the proposed TWF. Also, further such investigations would be redundant to the careful work of Kolbe et al. (1995).

Conclusions

Trenching investigations across the west-east extent of TA-63 found no geomorphic or stratigraphic evidence for Holocene faulting at the site. Two locations of offset on Tshirege Member cooling units within the 3,000 ft buffer around the proposed TWF correlate roughly to one lineament mapped by Vaniman and Wohletz (1990). These locations show only small displacements (< 3 ft) on Tshirege Member cooling unit contacts along the mesa edges. The faults cannot be traced across mesas or to other canyon exposures, they do not show movement in Holocene time, and they do not have clear connections to other major regional faults. Therefore, these small faults should not be considered a seismic hazard to the proposed TWF. Based on the data presented in this memo using information from published geologic studies at and around TA-63, aerial reconnaissance of the area within a five-mile radius from the proposed TWF, an analysis of aerial photographs, and field reconnaissance of lineaments and contact elevations, we demonstrate that no faults with Holocene displacement are present within 200 ft of the proposed TWF. Aerial reconnaissance, detailed geologic mapping of portions of LANL, and paleoseismic trenching investigations show that the focus of potential Holocene faulting is concentrated along the main Pajarito fault, over 16,000 ft west of the proposed TWF.

Figure Captions

Figure 1. Map of the Pajarito fault system in the vicinity of Los Alamos National Laboratory (green outline). Location of TA-63 is highlighted as an orange polygon; proposed TWF location represented as red polygon within TA-63. Proposed TWF area is shown in greater detail in Figure 2. **PF** = Pajarito fault; **RCF** = Rendija Canyon fault; **GMF** = Guaje Mountain fault; **SCF** = Sawyer Canyon fault. Fault mapping (bold black lines) from Lewis et al. (2009).

Figure 2. Map view of the location of the proposed TWF within TA-63. The TA-63 technical area is shaded yellow with a green border. The region proposed for RCRA permitting is shown as a pink shaded area with a red ball-bar border. Some proposed support and operational structures are also shown as orange polygons within the proposed RCRA-permitted area. The 200 ft buffer is a bold red line surrounding the proposed TWF. Twomile Canyon lies to the southwest of the technical area; Ten Site Canyon heads along the northeastern corner of TA-63; and the headwaters of Cañada del Buey are along the eastern margin of TA-63.

Figure 3. Map of earthquakes recorded by the Los Alamos Seismic Network (LASN) from 1973 to 2007. Individual earthquake epicenters shown as purple circles; relative circle size indicates earthquake magnitude. TA-63 shown as red square. See report text for further discussion.

Figure 4. Map of trench locations, taken directly from Kolbe et al. (1995). Trenches 5, 4, and 1 span the full west-east extent of TA-63. (At the time of publication of Kolbe et al. (1995), the boundary of TA-63 was slightly different than it is now.) Trenches 1 and 4 span a majority of the footprint of the proposed TWF. Projected trace of the Guaje Mountain fault (as indicated by Vaniman and Wohletz 1990; Wong et al. 1993) shown as bold dashed line.

Figure 5. Map of the proposed TWF (gray polygon at center of map) in relation to the 200 ft (red) and 3,000 ft (blue) buffers. Two locations of offset identified on Tshirege Member cooling unit contacts fall within the 3,000 ft buffer, but none are located within the 200 ft buffer. See text for further discussion.

Plate 1. Color orthophotography, mapped faults, and mapped lineaments within 3,000 feet (blue circle) and five miles (black circle) of the proposed TWF at TA-63. Structural mapping (bold black lines) from Lewis et al. (2009). Mapped lineaments from Vaniman and Wohletz (1990; orange dotted lines), Wong et al. (1995; yellow dotted lines), and this study (red dotted lines). TA-63 is east of the main trace of the Pajarito fault system. See text for further discussion.

Plate 2. Orthophotography, mapped faults, and mapped lineaments in the area surrounding the proposed TWF. Lineaments from Vaniman and Wohletz (1990; orange dotted lines), Wong et al. (1995; yellow dotted lines), and

this study (red dotted lines). Two separate lineaments project into the 3,000 ft buffer (blue circle) around Building 185. These lineaments also project within the 200 ft buffer (red line) surrounding the facility. However, trenching by Kolbe et al. (1995) did not find evidence for young faulting along either of these lineaments. Two locations of offset fall within the 3,000 ft buffer and were mapped by high-precision geodetic studies (Gardner et al. 1999; Lavine et al. 2003). The two offset locations broadly correlate with mapped lineaments; however, displacement could only be identified on the Qbt3-Qbt2 contact, was not found at other locations in the same stratigraphic section, nor was displacement identified at any location along the same mapped lineament north of Mortandad Canyon. See text for further discussion.

References

Bates, RL and JA Jackson, eds., 1984, *Dictionary of Geological Terms*; American Geological Institute, 571 pp.

Broxton, DE and SL Reneau, 1995, Stratigraphic nomenclature of the Bandelier Tuff for the Environmental Restoration Project at Los Alamos National Laboratory; Los Alamos National Laboratory report LA-13010-MS, 21 pp.

Dransfield, BJ, and JN Gardner, 1985, Subsurface geology of the Pajarito Plateau, Española Basin, New Mexico; Los Alamos National Laboratory report LA-10455-MS, 15 pp.

Gardner, JN, A Lavine, D Vaniman, and G WoldeGabriel, 1998, High-precision geologic mapping to evaluate the potential for seismic surface rupture at TA-55, Los Alamos National Laboratory; Los Alamos National Laboratory report LA-13456-MS, 13 pp.

Gardner, JN, A Lavine, G WoldeGabriel, D Krier, D Vaniman, FA Caporuscio, CJ Lewis, SL Reneau, E Kluk, and MJ Snow, 1999, Structural geology of the northwestern portion of Los Alamos National Laboratory, Rio Grande rift, New Mexico: Implications for seismic surface rupture potential from TA-3 to TA-55; Los Alamos National Laboratory report LA-13589-MS, 112 pp.

Gardner, JN, ES Schultz-Fellenz, FA Caporuscio, CJ Lewis, RE Kelley, and MK Greene, 2008, Geology and structure of the Chemistry and Metallurgy Research Facility Replacement Site, Los Alamos National Laboratory, New Mexico; Los Alamos National Laboratory report LA-14378, 295 pp.

Goff, F, JN Gardner, and SL Reneau, 2002, Geologic map and structure of the Frijoles 7.5-minute Quadrangle, Los Alamos and Sandoval Counties, New Mexico; New Mexico Bureau of Geology and Mineral Resources, Geologic Open-File Map OF-GM 42, scale 1:24,000.

Gradstein, FM, JG Ogg, and M van Kranendonk, 2008, On the Geologic Time Scale 2008; *Newsletters on Stratigraphy* **43**, 5-13.

Izett, GA, and JD Obradovich, 1994, $^{40}Ar/^{39}Ar$ age constraints for the Jaramillo normal subchron and the Matuyama-Brunhes geomagnetic boundary; *J Geophys Res* **99** (B2), pp. 2925-2934.

Kolbe, T, J Sawyer, A Gorton, S Olig, D Simpson, C Fenton, S Reneau, J Carney, J Bott, and I Wong, 1994, Evaluation of the potential for surface faulting at the proposed Mixed Waste Disposal Facility, TA-67; unpublished consulting report prepared for Los Alamos National Laboratory by Woodward-Clyde Federal Services, Oakland, California.

Kolbe, T, J Sawyer, J Springer, S Olig, S Reneau, M Hemphill-Haley, and I Wong, 1995, Evaluation of the potential for surface faulting at TA-63; unpublished consulting report prepared for Los Alamos National Laboratory by Woodward-Clyde Federal Services, Oakland, California.

Lavine, A, CJ Lewis, DK Katcher, and J Wilson, 2003, Geology of the north-central to northeastern portion o f Los Alamos National Laboratory, New Mexico; Los Alamos National Laboratory report LA-14043-MS, 44 pp.

Lavine, A, JN Gardner, and ES Schultz, 2005, Evaluation of faulting at the Chemistry and Metallurgy Research Facility Replacement (CMRR) site based on examination of core from geotechnical drilling studies, TA-55, Los Alamos National Laboratory; Los Alamos National Laboratory report LA-14170, 21 pp.

Lewis, CJ, A Lavine, SL Reneau, JN Gardner, R Channell, and CW Criswell, 2002, Geology of the western part of Los Alamos National Laboratory (TA-3 to TA-16), Rio Grande rift, New Mexico; Los Alamos National Laboratory report LA-13960-MS, 98 pp.

Lewis, CJ, JN Gardner, ES Schultz-Fellenz, A Lavine, SL Reneau, and S Olig, 2009, Fault interaction and along-strike variation in throw in the Pajarito fault system, north-central New Mexico; *Geosphere* **5**, pp. 252-269.

Ogg, JG, G Ogg, and FM Grandstein, eds., 2008, *The Concise Geologic Time Scale*; Cambridge University Press, 184 pp.

Olig, SS, KI Kelson, JN Gardner, SL Reneau, and M Hemphill-Haley, 1996, The earthquake potential of the Pajarito fault system, New Mexico; in Goff, F, BS Kues, MA Rogers, LD McFadden, and JN Gardner, eds., *New Mexico Geological Society 47th Annual Fall Field Conference Guidebook; The Jemez Mountains Region*, p. 143-152.

Olig, S, R Youngs, and I Wong, 1998, Probabilistic seismic hazard analysis for surface fault displacement at TA-3, Los Alamos National Laboratory; unpublished consulting report prepared for Los Alamos National Laboratory by Woodward-Clyde Federal Services, Oakland, California.

Phillips, EH, F Goff, PR Kyle, WC McIntosh, NW Dunbar, and JN Gardner, 2007, The $^{40}Ar/^{39}Ar$ age constraints on the duration of resurgence at the Valles caldera, New Mexico; *J Geophys Res* **112** (B09201), DOI: 10.1029/2006JB004511.

Reneau, SL, TR Kolbe, DT Simpson, JS Carney, JN Gardner, S Olig, and DT Vaniman, 1995, Surficial materials and structure at Pajarito Mesa; in *Geological Site Characterization for the proposed Mixed Waste Disposal Facility, Los Alamos National Laboratory*, SL Reneau and R Raymond, eds.; Los Alamos National Laboratory report LA-13089-MS, 31-69.

Rogers, MA, KE Budding, and CVL Christie, 1996, Distinguishing tectonic joints from cooling joints in the Bandelier Tuff (Pleistocene), Pajarito Plateau, Los Alamos county, New Mexico; *New Mexico Geological Society Guidebook* **47**, 293-302.

Vaniman, D and K Wohletz, 1990, Results of geological mapping and fracture studies: TA-55 area; unpublished memo report, Los Alamos National Laboratory, EES1-SH90-17.

Wohletz, K, 2004, Tuff fracture characterization along Mortandad Canyon between OU-1114 and OU-1129; Los Alamos National Laboratory report LA-UR-04-8337, 29 pp.

Wong, I, M Hemphill-Haley, K Kelson, T Kolbe, R Green, H Kanakari, J Bott, W Silva, C Haraden, J Gardner, L House, and S Reneau, 1993, Seismic hazards evaluation of the Los Alamos National Laboratory; unpublished consulting report prepared for Los Alamos National Laboratory by Woodward-Clyde Federal Services, Oakland, California.

Wong, I, K Kelson, S Olig, T Kolbe, M Hemphill-Haley, J Bott, R Green, H Kanakari, J Sawyer, W Silva, C Stark, C Haraden, C Fenton, J Unruh, J Gardner, S Reneau, and L House, 1995, Seismic hazards evaluation of the Los Alamos National Laboratory; unpublished consulting report prepared for Los Alamos National Laboratory by Woodward-Clyde Federal Services, Oakland, California.

Distribution

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Attachments (5 figures; 2 plates)

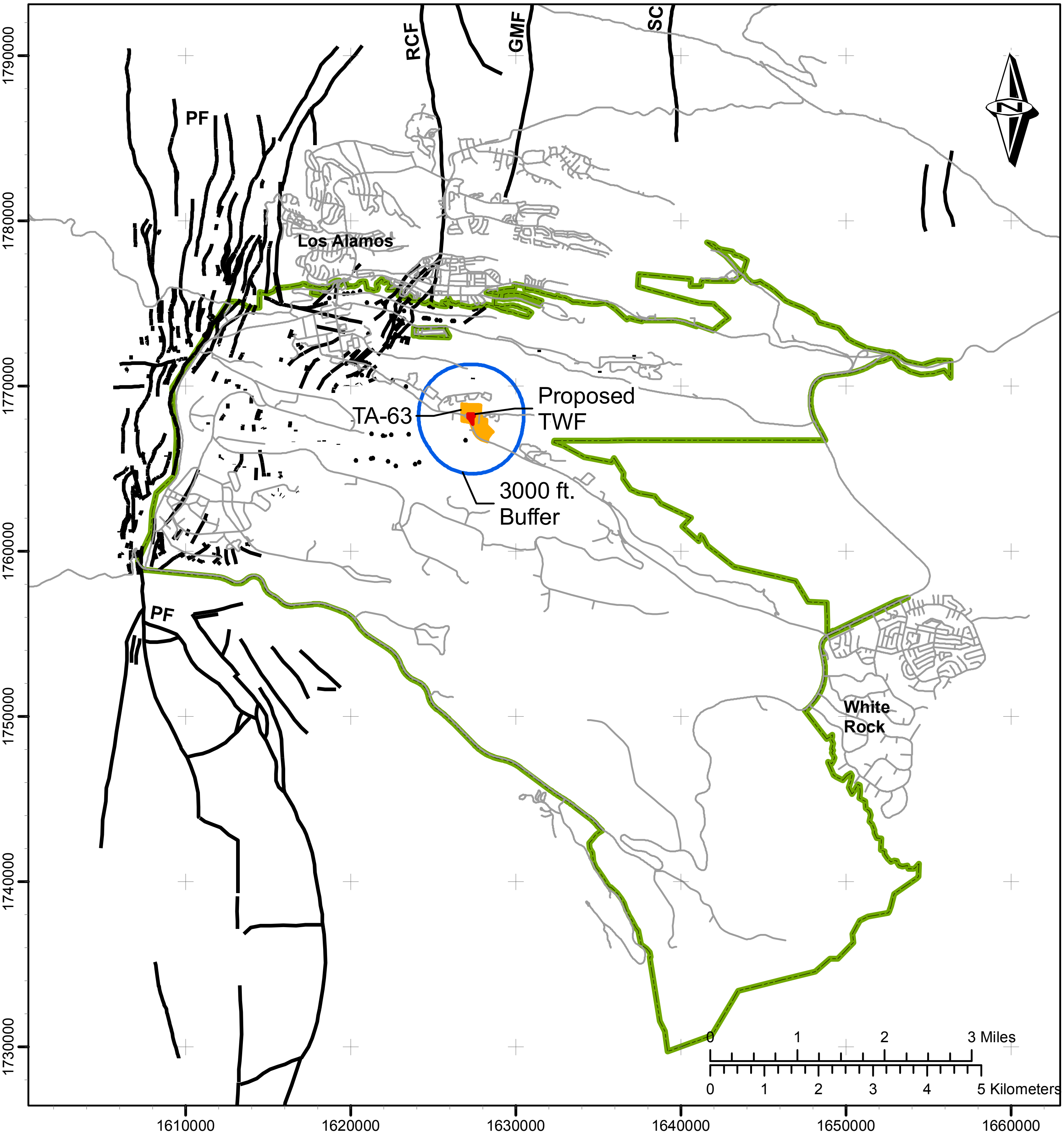

Figure 1:
Map of the Pajarito Fault System in the Vicinity of Los Alamos National Laboratory

Legend
- Planned TWF area
- 3000' buffer
- Road
- LANL boundary
- TA-63 boundary
- Identified Offsets
- Faults

State Plane Coordinate System
New Mexico Central Zone
1983 North American Datum
Grid Provides Units in Feet

GISLab Map No. m202208, rev. 1
GISLab Req. No. 14327
Document No. EES-16-SHG-2010-001
Cartography by Richard E. Kelley
December 20, 2010

Work Performed on Behalf of the TWF Project
Los Alamos National Laboratory
Los Alamos, NM 87545

GISLab
Los Alamos National Laboratory

Los Alamos
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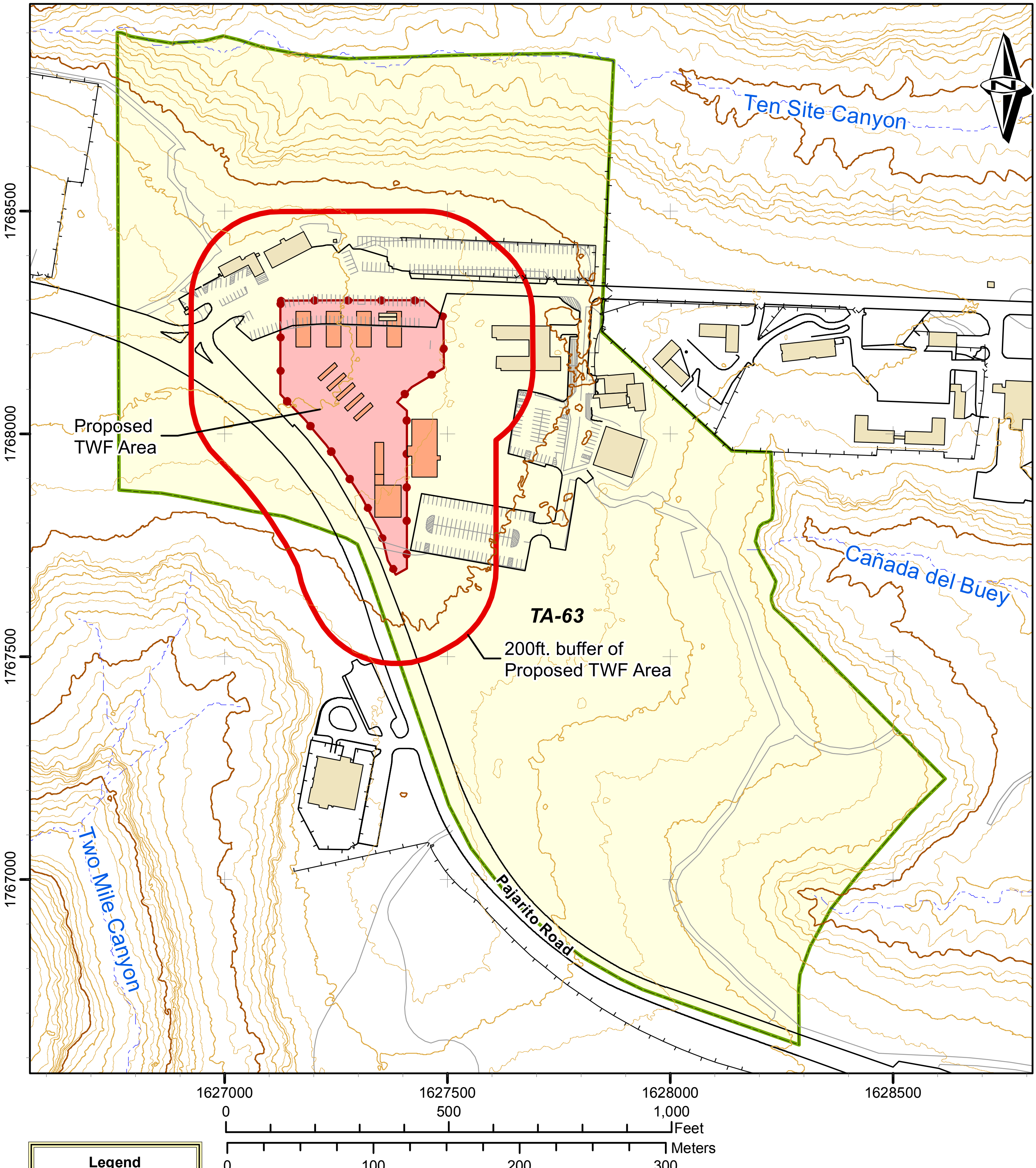
EST. 1943



Legend

- TA-63 area
- Existing facility
- Planned TWF structure
- Existing fence
- Proposed TWF area
- 200' buffer
- Drainage
- Paved road
- Parking
- Dirt road

Figure 2. Details of RCRA Permitted Area of Proposed TWF, TA-63

State Plane Coordinate System
New Mexico Central Zone
1983 North American Datum
Grid Provides Units in Feet

GISLab Map No. m202209, rev. 2
GISLab Req. No. 14327
Document No. EES16-SHG-2010-001
Cartography by Richard E. Kelley
August 1, 2011

Contour interval = 10ft

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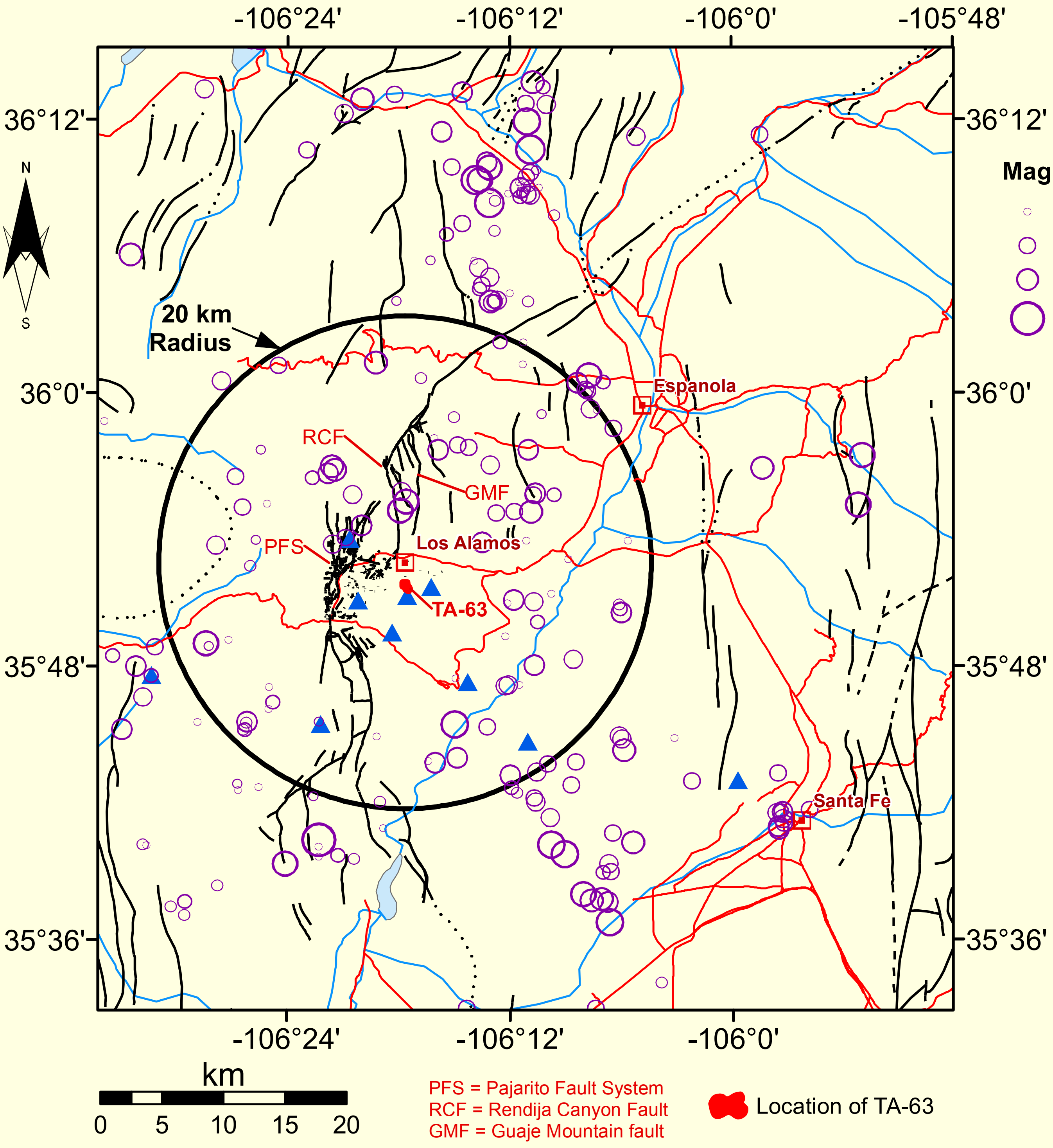
Los Alamos National Laboratory
Los Alamos, NM 87545

Los Alamos NATIONAL LABORATORY EST. 1943

GISLab Los Alamos National Laboratory

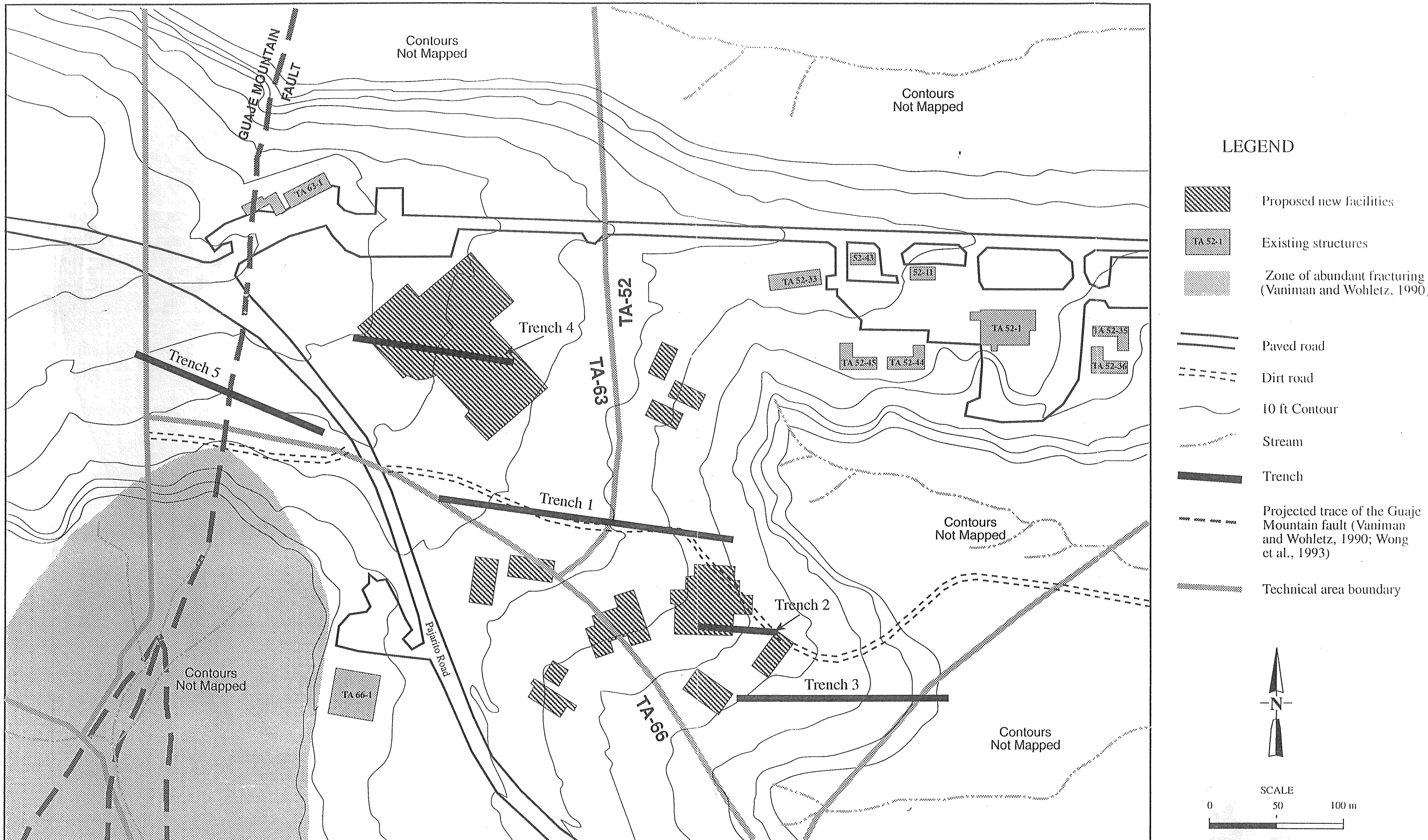
Los Alamos Area Seismic Events



219 Total Local Earthquakes (1973 - 2007)
89 Earthquakes within 20-km Radius of LANL
Blue Triangles: LASN Seismic Stations
Purple Circles: Earthquake Locations and Magnitudes

Figure 3

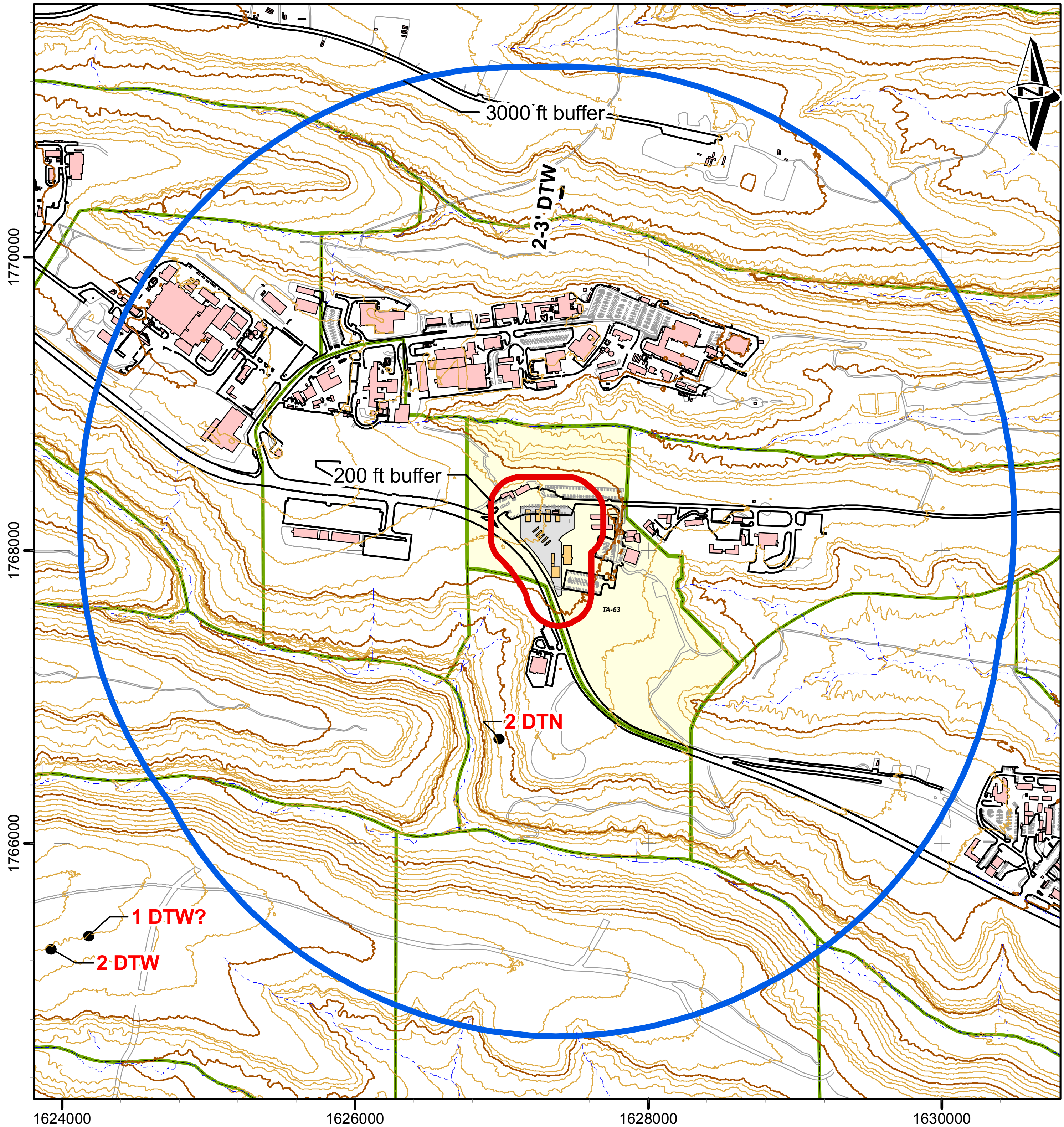
m202271_earthquakes_20110803



Base map: University of California
Los Alamos National Laboratory
Earth & Earth Sciences Division
FIMAD (Facility for Information Management Analysis and Display)
Plot ID: G101144, Date: Aug 19, 1993

Project No. 92C0774	LANL TA-63	MAP SHOWING TRENCH LOCATIONS
Woodward-Clyde Federal Services		

Figure 4
EES16-SHG-2010-001



Legend

- Drainage
- Planned facility
- 200' buffer
- 3000' buffer
- Existing facility
- Paved road
- Parking
- Dirt road
- Faults
- Identified Offsets
- Planned fenced area
- TA-63 area
- Other tech ares

0 500 1,000 Feet

0 100 200 300 Meters

200ft and 3000ft Buffers of Proposed TWF

State Plane Coordinate System
New Mexico Central Zone
1983 North American Datum
Grid Provides Units in Feet

GISLab Map No. m202210, rev. 0
GISLab Req. No. 14327
Cartography by Richard E. Kelley
December 01, 2010

Contour interval = 20 ft

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Los Alamos, NM 87545

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Attachment E

Isco™ Water Sampler

Isco Product Data

Isco 6712FR Fiberglass Refrigerated Sampler

The 6712FR is a sequential or composite refrigerated sampler designed for indoor or outdoor applications where rugged, corrosion-resistant construction is required.The extensive range of programming modes lets you select the most suitable routine for your application. Programming is fast and simple, with on-line help just a key stroke away.

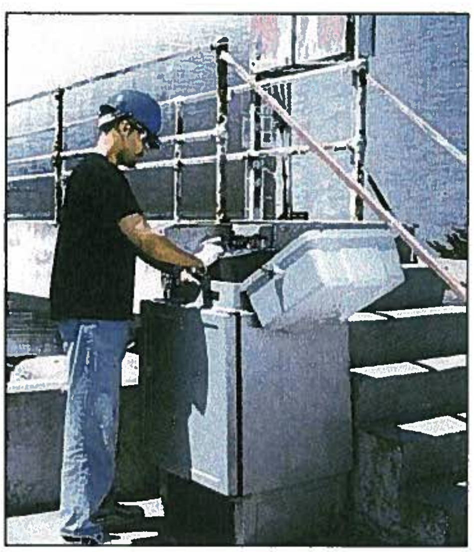
The environmentally-sealed 6712 controller delivers maximum accuracy and easily handles all of your sampling applications, including:

- wastewater effluent
- stormwater monitoring
- CSO monitoring
- permit compliance
- pretreatment complience

In the Standard Programming Mode, the controller walks you through the sampling sequence step-by-step, allowing you to choose all parameters specific to your application. Selecting the Extended Programming Mode lets you enter more complex programs.

Factory installed options

An optional built-in telephone modem lets you change programs and download data remotely, from a touch-tone phone. It also has dial-out alarm features.



For automatic documentation of sample storage temperature, specify the 6712FR with optional temperature sensor. With this thermally ballasted sensor, the 6712 controller can log compartment temperatures at programmable intervals with 0.1°C precision.

Versatile, Tough, and Reliable

Isco FR samplers feature a corrosion-proof refrigerator cabinet molded from polyester resin fiberglass and supported by a stainless steel frame. A UV-resistant gel coat provides a smooth, non-porous finish for added protection and easy cleaning.

The 6712FR uses thick, foamed-in-place insulation to keep samples preserved at the EPA-recommended 39°F (4°C). An automatically controlled, built-in heater ensures that samples won't freeze, even when ambient temperatures drop to -20°F (-29°C). Coolant is environmentally safe R134a. Durable powder-coated epoxy, phenolic paint, and polyester tubing, protect refrigeration components against corrosion.

The 6712FR provides long service life in corrosive environments, and can be used outdoors without an enclosure.

Specifications

Isco 6712FR	
Size (HxWxD):	49.3 x 26 x 26 inches (125 x 66 x 66 cm)
Weight:	Dry, 160 lbs (73 kg)
Bottle configurations:	24 1-liter PP or 350-ml glass 24 ProPak 1-liter disposable sample bags 12 2.5-liter wedge PE 8 2-liter PE or 1.8-liter glass. 2 2-gallon (7.5-liter) PE or 2.5-gallon (9.4-liter) glass 1 2.5-gallon (9.4 liter) PE or glass 1 4-gallon (15-liter) PE 1 5.5-gallon (21-liter) PE or 5 gallon (19 liter) glass
Refrigerator Body	Fiberglass reinforced plastic with UV-resistant gel coat
Power Requirements:	120 VAC, 60 Hz; or 240 VAC, 50 Hz (specify)
Pump	
Intake suction tubing: Length Material Inside dimension	 3 to 99 feet (1 to 30 m) Vinyl or Teflon 3/8 inch (1 cm)
Pump tubing life:	Typically 1,000,000 pump counts
Maximum lift:	28 feet (8.5 m)
Typical Repeatability	±5 ml or ±5% of the average volume in a set
Typical line velocity at Head height: of 3 ft. (0.9 m) 10 ft. (3.1 m) 15 ft. (4.6 m)	 3.0 ft./s (0.91 m/s) 2.9 ft./s (0.87 m/s) 2.7 ft./s (0.83 m/s)
Liquid presence detector:	Non-wetted, non-conductive sensor detects when liquid sample reaches the pump to automatically compensate for changes in head heights.

Controller	
Weight:	13 lbs. (5.9 kg)
Size (HxWxD)	10.3 x 12.5 x 10 inches (26 x 31.7 x 25.4 cm)
Operational temperature:	32° to 120°F (0° to 49°C)
Enclosure rating:	NEMA 4X, 6 (IP67)
Program memory:	Non-volatile ROM
Flow meter signal input:	5 to 15 volt DC pulse or 25 millisecond isolated contact closure.
Number of composite samples:	Programmable from 1 to 999 samples.
Clock Accuracy:	1 minute per month, typical, for real time clock
Software	
Sample frequency:	1 minute to 99 hours 59 minutes, in 1 minute increments. Non-uniform times in minutes or clock times 1 to 9,999 flow pulses
Sampling modes:	Uniform time, non-uniform time, flow, random interval event. (Flow mode is controlled by external flow meter pulses.)
Programmable sample volumes:	10 to 9,990 ml in 1 ml increments
Sample retries:	If no sample is detected, up to 3 attempts; user selectable
Rinse cycles:	Automatic rinsing of suction line up to 3 rinses for each sample collection
Program storage:	5 sampling programs
Sampling Stop/Resume:	Up to 24 real time/date sample stop/resume commands
Controller diagnostics:	Tests for RAM, ROM, pump, display, and distributor

Ordering Information

Note: Bottle configuration, suction line, and strainer must be ordered separately. Many options and accessories are available for 6712 Samplers; see separate literature for 700 Series Modules and other components to expand your monitoring capabilities.

Description	Part No.
6712FR Refrigerated Sampler, 120VAC 60Hz Includes controller, distributor arm, instruction manual, pocket guide.	**68-6710-072**
6712FR Refrigerated Sampler, 230VAC 50Hz includes controller, distribution arm instruction manual, pocket guide.	**68-6710-073**
6712FR with temperature logging, 120VAC 60Hz As above, with internal temperature sensor	**68-6710-144**
6712FR with temperature logging, 230VAC 50Hz As above, with internal temperature sensor	**68-6710-145**

The 6712 Controller is also an SDI-12 data logger, and has many optional capabilities. Please contact Isco or your Isco distributor for more information.

ISCO®
Water is life. Protect it.

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Lincoln NE 68504 USA
Phone: (402) 464-0231
USA and Canada: (800) 228-4373
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Attachment F

TA-63 Transuranic Waste Facility Closure Plan

ATTACHMENT F
TECHNICAL AREA 63
TRANSURANIC WASTE FACILITY
CLOSURE PLAN

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CLOSURE PLAN

1.0 INTRODUCTION

This closure plan describes the activities necessary to close the permitted mixed waste Transuranic Waste Facility (TWF) at Technical Area (TA)-63 at the Los Alamos National Laboratory (Facility) hereinafter referred to as the “Unit To Be Closed,” or the “Permitted Unit.” The information provided in this closure plan addresses the closure requirements specified in Permit Part 9 and the Code of Federal Regulations (CFR), Title 40, Part 264, Subparts G and I for waste management units operated at the Facility under the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act.

The TWF unit will be closed by removal of all structures and equipment. Until closure is complete and has been certified in accordance with Permit Part 9.5 and 40 CFR §264.115, a copy of the approved closure plan or the hazardous waste facility permit containing the plan, any approved revisions to the plan, and closure activity documentation associated with the closure will be on file with hazardous waste compliance personnel at the Facility and at the U.S. Department of Energy (DOE) Los Alamos Site Office. Prior to closure of the unit, this closure plan may be amended in accordance with Permit Section 9.4.8 to provide updated sampling and analysis plans and to incorporate updated decontamination technologies. Amended closure plans shall be submitted to the New Mexico Environment Department (the Department) for approval prior to implementing closure activities.

2.0 DESCRIPTION OF THE UNIT TO BE CLOSED

The TWF is located at TA-63 at the junction of Pajarito Road and Puye Road, within the triangle formed by Building 63-111 to the east, Puye Road to the north, and Pajarito Road to the southwest. It was designed, constructed, and commissioned as a Hazard Category (HC)-2 nuclear facility and permitted as Resource Conservation and Recovery Act (RCRA) Storage Facility for TRU, mixed TRU and hazardous wastes. Refer to Permit Figure 55 for additional site information and to Permit Attachment A.6, *Technical Area (TA), Unit Descriptions* for additional site information and building numbers..

STRUCTURES THAT HAVE MANAGED HAZARDOUS WASTE TO BE REMOVED AT CLOSURE:

- Storage Buildings: 63-0149, 63-0150, 63-0151, 63-0152, and 63-0153
- Storage and Characterization Building: 63-0154
- Characterization Trailers: 63-0155, 63-0156, and 63-0156
- Concrete Storage Pad

Six buildings are designated for storage of TRU and Mixed TRU wastes in support of LANL programs and missions. One of the storage structures is used for both storage of larger-sized waste containers and for head space gas sampling and analysis. Certification of containers in accordance with Waste Isolation Pilot Plant (WIPP) Waste Acceptance Criteria (WAC) will occur at the three characterization and testing trailers. A concrete pad underlies the storage and characterization buildings and trailers. The boundaries of the pad will be used to designate the RCRA-permitted portion of the TWF.

OTHER TWF STRUCTURES TO BE REMOVED AT CLOSURE:

- Calibration Source and Matrix Module (CSMM) Building: 63-0158
- Retention Basin

The CSMM Building and the Retention Basin are the only structures that will be closed within the boundary of the TWF permitted hazardous waste management unit that are not used to manage hazardous waste.

3.0 ESTIMATE OF MAXIMUM WASTE STORED

The TWF will be capable of storing/staging a minimum of 825 55-gallon drum/drum equivalents (D/DE) with overflow storage capacity up to 1,240 D/DE. On a yearly basis, the TWF will process 1,100 D/DE per year, or 33,000 D/DE or 1.815 million gallons during the lifetime of the facility. Refer to Table 1 for more information pertaining to the estimate of waste stored at the permitted unit.

4.0 GENERAL CLOSURE REQUIREMENTS

The following sections describe the closure objectives and schedule for the permitted unit.

4.1 Closure Performance Standard

As required by Permit Section 9.2, the permitted unit will be closed to meet the following performance standards:

a. remove all hazardous waste residues and hazardous constituents; and

b. ensure contaminated media do not contain concentrations of hazardous constituents greater than the clean-up levels established in accordance with Permit Sections 11.4 and 11.5. The cleanup levels for soil shall be established based on residential use. The Permittees must also demonstrate that there is no potential to contaminate groundwater.

If the Permittees are unable to achieve either of the clean closure standards above, they must:

c. control hazardous waste residues, hazardous constituents, and, as applicable, contaminated media such that they do not exceed a total excess cancer risk of 10^{-5} for carcinogenic substances and, for non-carcinogenic substances, a target Hazard Index of 1.0 for human receptors, and meet Ecological Screening Levels established under Permit Section 11.5;

d. minimize the need for further maintenance;

e. control, minimize, or eliminate, to the extent necessary to protect human health and the environment, the post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground, groundwater, surface waters, or to the atmosphere; and

f. comply with the closure requirements of Permit Part 9 (*Closure*) and 40 CFR Part 264, Subparts G and I for container storage units.

Closure of the permitted unit will be deemed complete when:1) All surfaces and equipment have been decontaminated, or otherwise properly disposed of; 2) closure has been certified by an independent, professional engineer licensed in the State of New Mexico; and 3) closure certification has been submitted to, and approved by, the Department.

4.2 Closure Schedule

This closure plan is intended to address closure requirements for the permitted unit within the authorized timeframe of this Permit (see Permit Section 9.4.1). However, pursuant to 40 CFR §264.112(e), removing hazardous wastes and decontaminating or dismantling equipment in accordance with an approved closure plan may be conducted at any time before or after notification of closure. Subject to the provisions of 40 CFR §264.113(a), such removal may only occur before the end of the allowed 90 day period to remove, treat or dispose of closure related hazardous waste after receiving the final volume of hazardous waste. For the purposes of this closure plan, portable and temporary structures in this permitted unit such as characterization trailers are considered to be equipment by their design and to facilitate the closure schedule for the TWF.

Closure activities will proceed according to the schedule discussed below and Table 2 of this closure plan. Notification of closure will occur at least 45 days prior to when LANL expects to begin closure (see 40 CFR § 264.112(d)(1)). Closure activities will begin according to the requirements of 40 CFR § 264.112(d)(2) no later than 30 days after the date on which the unit receives the known final volume of hazardous waste. All hazardous wastes will be removed from the TWF within 90 days of the receipt of the known final volume of hazardous waste pursuant to Permit Section 9.4.1, *Closure Schedule*, Permit Section 9.4.2, *Removal of Hazardous Waste*, and 40 CFR §264.113(a). A records review of the operating history of the unit will occur within ten days of the completed removal or treatment of all waste from the permitted unit as required by Permit Section 9.4.6.1, *Records Review*. A structural assessment of the unit will occur within ten days of the completed removal or treatment of all waste from the permitted unit as required by Permit Section 9.4.6.2, *Structural Assessment.* Notification of the structural assessment (assessment), as described in Section 5.2 of this closure plan, will occur in accordance with Permit Section 9.4.6.2.

After completion of the records review and structural assessment, LANL will submit an amended closure plan, if necessary, to the NMED for review and approval as a permit modification to incorporate changes to the sampling and analysis plan. After approval of the modified closure plan, if applicable, LANL will continue with closure activities. Decontamination verification sampling activities, and soil sampling, will be conducted to demonstrate that removal of the TWF structures and any other closure activities included in this or a modified closure plan will meet the closure performance standards in Permit Section 9.2.1.

All closure activities will be completed within 150 days of the beginning of closure activities or 180 days after the receipt of the known volume of hazardous waste in compliance with Permit

Section 9.4.1.1. The final closure report and certification will be submitted to NMED for review and approval within 60 days of closure completion as required by Permit Section 9.5. In the event that the activities required under the closure plan cannot be completed within the allotted timeframe, the Permittees may request a permit modification to modify the schedule pursuant to the requirements of Permit Section 9.4.8, *Amendment of the Closure Plan*, referencing the conditions of 40 CFR §264.112(c)(2) or of 40 CFR§264.113(b) and (c). In the event that closure of the TWF cannot proceed according to schedule, LANL will notify the NMED in accordance with the extension request requirements in Permit Section 9.4.1.1.

5.0 CLOSURE PROCEDURES

The following sections describe the procedures to be used for closure of the permitted unit. The procedures will proceed in the order described although the operating records review described in Section 5.2.1 may be started earlier.

5.1 Removal of Waste

In accordance with Permit Part 9.4.2, all stored hazardous waste will be removed from the permitted unit scheduled for closure. Depending upon their size, containers will be removed with forklifts, container dollies, pallets, or manually. Containers will be placed on flat bed trucks, trailers, or other appropriate vehicles for transport from the permitted unit. Appropriate shipping documentation will be prepared for the wastes during transport. All hazardous waste containers will be moved to a permitted on-site storage unit or a permitted off-site treatment, storage, or disposal facility.

5.2 Records Review and Structural Assessment

Before starting decontamination and sampling activities, the operating and inspection records for the permitted unit will be reviewed and a structural assessment of the unit will be conducted to determine any finding(s) or action(s) that may influence closure activities or additional sampling locations.

5.2.1 Records Review

The Facility Operating and Inspection Records shall be reviewed in accordance with Permit Section 9.4.6.1. The goals of this review will be to:

a) confirm the specific hazardous waste constituents of concern; and

b) confirm additional sampling locations (e.g., locations of any spills or chronic conditions identified in the Operating Record).

5.2.2 Structural Assessment

A structural assessment (assessment) of the unit's physical condition will be conducted in accordance with Permit Section 9.4.6.2 and documented with photographs and drawings, as necessary. The TWF structural assessment will include the concrete pad (as an outdoor pad defined in Section 9.1.3(1) of the Permit) and the retention basin. If the assessment reveals any evidence of a release (e.g., stains) or damage (e.g., cracks, gaps, chips) to the flooring or building materials, the Permittees must incorporate these locations as additional sampling points in the updated sampling and analysis plan (see Section 7.0) and include the applicable sampling methods and procedures. If evidence of a release or damage is present, a wipe sample or a representative sample of the media (e.g., concrete chip) will be collected according to the procedures in Section 7.2. If additional sampling locations are necessary, the Permittees will request a permit modification to modify the sampling and analysis plan in accordance with Permit Section 9.4.6. The locations of any additional sampling locations will be determined using Global Positioning Satellite (GPS) coordinates.

5.3 Removal and Decontamination of Structures and Related Equipment

In accordance with the procedures in Permit Section 9.4.3, all remaining hazardous waste residues and hazardous constituents will be removed from the permitted unit. The unit's structures and related equipment will be decontaminated if necessary, removed, and managed appropriately. All waste material will be handled and characterized as necessary as required by Permit Attachment C, *Waste Analysis Plan*, Permit Section 9.4.5, and the LANL waste management procedures.

5.3.1 Removal of Structures and Related Equipment

All structures and related equipment that are removed from the unit will require no further decontamination but will be considered solid waste and potentially, hazardous waste, as defined by the Permit, at removal. They will be disposed of in accordance with Permit Section 9.4.5 and Section 5.3 of this closure plan. The concrete pad, the materials associated with the pad (curbing and ramps), and a minimum of six inches of the base course and soil underlying the concrete pad will be removed. If the remaining soil surface shows evidence that the removal to this point has not gathered all appropriate soils and materials associated with the pad, additional soil removal will occur until the conditions of Permit Section 9.2 are met. The option of removing small areas of concrete at sampling locations where contamination is suspected (i.e., spill or staining sites) to allow sampling without disturbing the surrounding area prior to the general removal of the pad will be reviewed at the time of the structural assessment. If this option is used, the concrete removed at the sampling location and any concrete subsequently removed from the location during the general removal of the concrete pad to a radius to be determined during the structural assessment will be segregated to prevent potential cross contamination during the closure process.

5.3.2 Decontamination of Structures and Related Equipment

All structures and related equipment that will be re-used by the Facility will be decontaminated in accordance with Permit Section 9.4.3.1. This may include the characterization trailers and any associated equipment removed at closure. The lists of equipment needing decontamination will be reviewed during the pre-closure and structural assessment described in Part 9 of the Permit.

Water resistant equipment at the permitted unit will be decontaminated by steam cleaning using water or pressure washing with a solution consisting of a surfactant detergent (e.g., Alconox®) and water. Wipe-down washing with a solution consisting of a surfactant detergent (e.g., Alconox®) and water may be conducted on equipment within the unit if containment cannot be established for the steam cleaning water or pressure wash solution or these methods will damage the equipment preventing further use or recycling. The quantity of the wash solution will be minimized by dispensing from buckets, spray bottles, or other types of containers. Cheesecloth, rags, or other absorbent materials will be used to wipe down the equipment after being wetted in the wash solution or after spraying solution onto the equipment. If necessary, portable berms or other devices (e.g., absorbent socks, plastic sheeting, wading pools, or existing secondary containment) designed to collect and provide containment will collect excess wash water and provide containment during the decontamination process. Wash solution will not be allowed to enter the fire suppression water drains.

5.4 Equipment Used During Decontamination Activities

Reusable protective clothing, tools, and equipment used during closure activities will be cleaned with a wash water solution. The solution will be characterized and managed as a hazardous waste if appropriate. Residue, disposable equipment, and equipment that cannot be decontaminated will be containerized and managed as waste.

6.0 SAMPLING AND ANALYSIS PLAN

This sampling and analysis plan (SAP) describes the sampling and analytical methods as well as the quality assurance and quality control (QA/QC) procedures that will be used to demonstrate that the permitted unit is closed in accordance with Permit Part 9 and all applicable closure requirements.

6.1 Soil Sampling Locations

Soils sampling will be conducted at the permitted unit in order to verify that the removal of structures and soils, with other closure related activities meet the closure performance standards in Permit Section 9.2, *Closure Performance Standards*. All samples will be collected and analyzed in accordance with the procedures in Sections 6.2, 6.3, and 6.4 of this closure plan. Soil samples will be collected from beneath the concrete pad of the unit and in additional sampling locations specified to meet the conditions of Permit Section 9.4.7.1.ii.

In compliance with Permit Section 9.4.7.ii, this closure plan will ensure the collection of soil samples in the following locations:

a. One sample at each loading/unloading point for a total of 6 samples (see Permit Section 9.4.7.1.ii(1));

b. one sample every 900 square feet of the permitted unit for a total of 88 samples (see Permit Section 9.4.7.1.ii(2));

c. one sample at the south of the permitted unit at the stormwater discharge drainage location (see Permit Section 9.4.7.1.ii(3));

d. one sample, at 30 foot intervals, along the valley gutter for a total of 4 samples (see Permit Section 9.4.7.1.ii(8)); and

e. 3 additional samples along the long axis of the retention basin (see Permit Section 9.4.7.ii(5).

All soil sample locations are illustrated in Figure F-1 of this closure plan.

6.2 Sample Collection Procedures

Samples will be collected in accordance with Permit Section 9.4.7.1 and the procedures identified in this SAP which incorporates guidance from the United States Environmental

Protection Agency (USEPA)(EPA, 1986 and EPA, 2003), DOE (DOE, 1995) and other Department-approved procedures.

6.2.1 Liquid Sampling

Liquid sampling will consist of grab samples of the liquid at the drain of the retention basin, if applicable, to ensure the drain system has not been contaminated. Liquid sampling will be conducted using glass or plastic tubes, a composite liquid waste sampler, a bacon bomb, a bailer, or by pouring liquid into sample containers.

6.2.2 Wipe Sampling

When surface wipe samples are used to determine if residual hazardous constituents remain for structures or surfaces within the TWF, the samples will be taken in accordance with the National Institute of Occupational Safety and Health (NIOSH) *Manual of Analytical Methods*, Method 9100 (NIOSH, 1994), or other approved methodology. The appropriate use of wipe sample methods will consider the type of surface being sampled, the type of contaminant, the solution used, and the desired contaminant concentration detection limits. The NIOSH method includes wiping a 100 square centimeter area at each discrete location with a gauze wipe wetted with a liquid solution appropriate for the desired analysis (e.g., de-ionized water for lead). For wipe sampling, guidance from the analytical laboratory must be obtained prior to wipe verification sampling to confirm that the solution chosen for each analysis is appropriate for the analysis to be conducted and that wipe sampling is a proper technique for the analysis.

6.2.3 Soil Sampling

Soil will be sampled using a spade, scoop, auger, trowel, or other equipment as specified in approved methods for the type of analyte (i.e., EPA 1996 or 2002). Soil samples will be collected in accordance with Permit, Section 9.4.7.1.ii. Samples will be kept at their at-depth temperature or lower, protected from ultraviolet light, sealed tightly in the recommended container, and analyzed within the specific holding times listed in Table 3.

6.2.4 Cleaning of Sampling Equipment

Reusable sampling equipment will be cleaned and rinsed prior to use. Sampling equipment rinsate blanks will be collected and analyzed only if reusable sampling equipment is used. Reusable decontamination equipment, including protective clothing and tools, used during closure activities will be scraped as necessary to remove residue and cleaned with a wash water solution. Sampling equipment will be cleaned prior to each use with a wash solution, rinsed several times with tap water, and air-dried or wiped dry to prevent cross contamination of samples. A disposable sampler is considered clean if still in a factory-sealed wrapper. Residue, disposable decontamination equipment, and reusable decontamination equipment that cannot be decontaminated will be containerized and managed appropriately at an approved on-site facility.

6.3 Sample Management Procedures

The following information presents general sample management and sampling equipment cleaning procedures for closure of the permitted unit. Samples will be collected and transported using documented chain-of-custody and sample management procedures to ensure the integrity of the sample and provide an accurate and defensible written record of the possession and handling of a sample from the time of collection through laboratory analysis. Sample collection equipment will include labels, chain-of-custody forms, EPA-certified clean containers, coolers, preservatives, and custody seals. The following provides a description of sample documentation; sample handling, preservation, and storage; and sample packaging and transportation requirements that will be followed during the sampling activities associated with the closure.

6.3.1 Sample Documentation

Sampling personnel will complete and maintain records to document sampling and analysis activities. Sample documentation will include sample identification numbers, chain-of-custody forms, analysis requested, sample logbooks detailing sample collection activities, and shipping forms (if necessary).

6.3.1.1 Chain-of-Custody

Chain-of-custody forms will be maintained by sampling personnel until the samples are relinquished to the analytical laboratory. One chain-of-custody form may be used to document all of the samples collected from a single sampling event. The sample collector will be responsible for the integrity of the samples collected until properly transferred to another person. The EPA considers a sample to be in a person's custody if it is:

a) in a person's physical possession;
b) in view of the person in possession; or
c) secured by that person in a restricted access area to prevent tampering.

The sample collector will document all pertinent sample collection data. Individuals relinquishing or receiving custody of the samples will sign, date, and note the time on the analysis request/chain-of-custody form. A chain-of-custody form must accompany all samples from collection through laboratory analysis. The completed original chain-of-custody form will be returned by the analytical laboratory and will become a part of the permanent record documenting the sampling effort.

6.3.1.2 Sample Labels and Custody Seals

A sample label will be affixed to each sample container. The sample label will include the following information:

a) a unique sample identification number;
b) name of the sample collector;
c) date and time of collection;
d) type of preservatives used, if any; and
e) location from which the sample was collected.

A custody seal will be placed on each sample container to detect unauthorized tampering with the samples. These labels must be initialed, dated, and affixed by the sample collector in such a manner that it is necessary to break the seal to open the container.

6.3.1.3 Sample Logbook

All pertinent information on the sampling effort must be recorded in a bound logbook. Information must be recorded in ink and any cross outs must be made with a single line and the change initialed and dated by the author. The sample logbook will include the following information:

a) the sample location by GPS coordinates recorded during the structural assessment,

b) suspected composition,

c) sample identification number,

d) volume/mass of sample taken,

e) purpose of sampling,

f) description of sample point and sampling methodology,

g) date and time of collection,

h) name of the sample collector,

i) sample destination and how it will be transported,

j) observations, and

k) names of personnel responsible for the observations.

6.3.2 Sample Handling, Preservation, and Storage

Samples will be collected and containerized in appropriate pre-cleaned sample containers. Table 3 presents the requirements in SW-846 (EPA, 1986) for sample containers, preservation techniques, and holding times. Samples that require cooling to 4 degrees Celsius will be placed in a cooler with ice or ice gel or in a refrigerator immediately upon collection.

6.3.3 Packaging and Transportation of Samples

All packaging and transportation activities will meet safety expectations, QA requirements, DOE Orders, and relevant local, state, and federal laws (including 10 CFR and 49 CFR). Appropriate Facility documents establish these requirements for packaging design, testing, acquisition, acceptance, use, maintenance, and decommissioning and for on-site, intra-site, and off-site shipment preparation and transportation of general commodities, hazardous materials, substances, waste, and defense program materials.

Off-site transportation of samples will occur via private, contract, or common motor carrier; air carrier; or freight. All off-site transportation will be processed through the Facility packaging and transportation organization, unless the shipper is specifically authorized through formal documentation by that organization to independently tender shipments to common motor or air carriers.

6.4 Sample Analysis Requirements

Samples will be analyzed for all hazardous constituents listed in Appendix VIII 40 CFR 261 and in Appendix IX of 40 CFR 264 that have been stored at the permitted unit during its operational history. Samples will be analyzed by an independent laboratory using the methods outlined in

Table 4. Analytes, test methods and instrumentation, target detection limits, and rationale for metals and organic analyses are presented in Table 4.

6.4.1 Analytical Laboratory Requirements

The analytical laboratory will perform the detailed qualitative and quantitative chemical analyses specified in Section 6.4.2. This analytical laboratory will have:

a) a documented comprehensive QA/ QC program,

b) technical analytical expertise,

c) a document control/records management plan, and;

d) the capability to perform data reduction, validation, and reporting.

The selection of the analytical testing methods identified in Table 4 was based on the following considerations:

a) the physical form of the waste,

b) constituents of interest,

c) required detection limits (e.g., regulatory thresholds), and

d) information requirements (e.g., waste classification).

6.4.2 Quality Assurance/Quality Control

Field sampling procedures and laboratory analyses will be evaluated through the use of QA/QC samples to assess the overall quality of the data produced. QC samples evaluate precision, accuracy, and potential sample contaminations associated with the sampling/analysis process and are described in the following sections, along with information on calculations necessary to evaluate the QC results. QA/QC samples will be collected in accordance with the Facility’s most recent and appropriate sampling plan incorporating guidance from the EPA (EPA, 2002) and DOE (DOE, 1995), or other approved procedures. Analysis will be conducted in accordance with procedures given in SW-846 (EPA, 1986), or other approved procedures or methods.

6.4.2.1 Field Quality Control

The field QC samples that will be collected include trip blanks, field blanks, field duplicates, and equipment rinsate blanks as required by Permit Section 9.4.7.1(8). Table 5 presents a summary of QC sample types, applicable analyses, frequency, and acceptance criteria. QC samples will be given a unique sample identification number and submitted to the analytical laboratory as blind samples. QC samples will be identified on the applicable forms so that the results can be applied to the associated sample.

6.4.2.2 Analytical Laboratory QC Samples

QA/QC considerations are an integral part of analytical laboratory operations. Laboratory QA ensures that analytical methods generate data that are technically sound, statistically valid, and that can be documented. QC procedures are the tools employed to measure the degree to which these QA objectives are met.

6.4.3 Data Reduction, Verification, Validation, and Reporting

Analytical data generated by the activities described in this closure plan will be verified and validated. Data reduction is the conversion of raw data to reportable units; transfer of data between recording media; and computation of summary statistics, standard errors, confidence intervals, and statistical tests.

6.4.4 Data Reporting Requirements

Analytical results will include all pertinent information about the condition and appearance of the sample-as-received. Analytical reports will include:

a) a summary of analytical results for each sample;

b) results from QC samples such as blanks, spikes, and calibrations;

c) reference to standard methods or a detailed description of analytical procedures; and

d) raw data printouts for comparison with summaries.

The laboratory will describe off-normal sample preparations that occur during the analysis in sufficient detail so that the data user can understand how the sample was analyzed.

7.0 WASTE MANAGEMENT

All waste generated during closure will be controlled, handled, characterized, and disposed of in accordance with Permit Section 9.4.5, Permit Attachment C (*Waste Analysis Plan*), and Facility waste management procedures. Closure activities may generate different types of waste materials, which are listed with potential disposal options in Table 6 of this closure plan. Subsequent disposition options for the decontaminated structures and equipment include reuse, recycling, or disposal.

Portable berms or other devices, if necessary, will be used to collect excess wash water and provide containment during the decontamination activities to prevent releases. The excess wash water will be collected, transferred to containers, sampled, and analyzed for the hazardous constituents listed in Table 7. The results of this analysis will determine if the excess wash water should be managed as hazardous or non-hazardous wastewater. Reusable protective clothing, tools, and equipment used during decontamination will be cleaned with a wash water solution. Disposable equipment and other small equipment that cannot be decontaminated will be containerized and managed as waste.

8.0 CLOSURE CERTIFICATION REPORT

Upon completion of the closure activities at the TWF, a closure certification report will be prepared and submitted to the Department. The report will document that the unit has been closed in compliance with the specifications in this closure plan and will contain the following information in accordance with Section 9.5 of the Permit:

The Report shall summarize all activities conducted during closure including, but not limited to, the following:

(1) the results of all investigations;

(2) remediation waste management;

(3) decontamination;

(4) decontamination verification and soil sampling activities; and

(5) results of all chemical analyses and other characterization activities.

The closure certification report will be submitted to the Department no later than 60 days after completion of closure of the TWF Permitted Unit. The certification will be signed by the Permittees and by an independent professional engineer registered in the State of New Mexico.

The report will document the permitted unit's closure and contain, at a minimum, the following information:

(6) a copy of the certification pursuant to 40 CFR § 264.115;

(7) any variance, and the reason for the variance, from the activities approved in this closure plan;

(8) documentation of the structural assessment and records review conducted under this Permit Part 9;

(9) a summary of all sampling results, showing:

a. sample identification;
b. sampling location;
c. data reported;
d. detection limit for each analyte;
e. a measure of analytical precision (*e.g.*, uncertainty, range, variance);
f. identification of analytical procedure;
g. identification of analytical laboratory;

(10) a QA/QC statement on analytical data validation and decontamination verification;

(11) the location of the file of supporting documentation, including:

a. field logbooks;
b. laboratory sample analysis reports;
c. QA/QC documentation;
d. chain-of-custody forms;

(12) storage or disposal location of hazardous waste resulting from closure activities;

(13) a copy of the Human Health and Ecological Risk Assessment Reports, if a site specific risk assessment was conducted pursuant to Permit Sections 11.10.4 and 11.10.5 for the permitted unit; and

(14) a certification statement of the accuracy of the Closure Report.

9.0 DEPARTMENT CLOSURE ASSESSMENT

Upon submittal of the closure certification report described in Section 8.0 of this closure plan, the Facility will arrange an on-site closure review with representatives of the Department to assess the completion of the closure activities of the permitted unit's closure activities. The Facility may also arrange, at reasonable times, for other on-site reviews before, during, or after the closure period upon request by Department representatives.

10.0 REFERENCES

DOE, 1995. "DOE Methods for Evaluating Environmental and Waste Management Samples," DOE/EM-0089T, Rev. 2. Prepared for the U.S. Department of Energy by Pacific Northwest Laboratory, Richland, Washington.

EPA, 1986 and all approved updates. "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA-*SW-846*, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, U.S. Government Printing Office, Washington, D.C.

EPA, 2002. "RCRA Waste Sampling Draft Technical Guidance Planning, Implementation, and Assessment," EPA530-D-02-002, August 2002, Office of Solid Waste, U.S. Environmental Protection Agency, Washington, D.C.

NIOSH, 1994. The National Institute for Occupational Health and Safety (NIOSH) *Manual of Analytical Methods*, Method 9100, 4th ed. Issue 1. 1994.

NMED, 2012. "Risk Assessment Guidance for Site Investigations and Remediation," New Mexico Environment Department, Santa Fe, New Mexico.

Table 1
Technical Area 63 TWF Storage Unit Capacities and Waste Categories

Structure	Estimated Maximum Waste[a] (gallons)	55-gallon Drum Equivalent	Estimated Inventory[b, c] (gallons)	Waste Category	Dimensions (feet^2)
TA-63-0149	11,367	206.7	302,500	TRU, MTRU	62’4” x 31’4”
TA-63-0150	11,367	206.7	302,500	TRU, MTRU	62’4” x 31’4”
TA-63-0151	11,367	206.7	302,500	TRU, MTRU	62’4” x 31’4”
TA-63-0152	11,367	206.7	302,500	TRU, MTRU	62’4” x 31’4”
TA-63-0153	11,367	206.7	302,500	TRU, MTRU	62’4” x 31’4”
TA-63-0154	11,367	206.7	302,500	TRU, MTRU	77’11” x 31’4”
Totals	**68,200**	**1,240**	**1,815,000**		

[a] Estimated maximum quantity of waste that can be stored at the unit at one time.

[b] Estimated lifetime inventory of waste stored/treated at the unit.

[c] Estimated waste inventories include future use.

Table 2
Closure Schedule for the TA-63 TWF

Closure Activity	Schedule	Basis
Provide closure notification to NMED	-45	40 CFR §264.112(d)(1)
Receive known final volume of waste	-30	Permit Section 9.4.1, 40 CFR §264.112(d)(2)(i)
Begin closure activity – requirement to begin removal of hazardous waste from the permitted unit	0	Permit Section 9.4.1, 40 CFR §264.112(d)(2)(i)
Notification of structural assessment to NMED	40	Permit Section 9.4.6.2: notification to occur at least 30 days prior to the structural assessment.
Hazardous waste removed	60	Permit Section 9.4.1 and 9.4.2, 40 CFR §264.113(a): removal must be completed within 90 days of the receipt of known final volume of hazardous waste.
Completion of record review	70	Permit Section 9.4.6.1: record review will occur within 10 days of completed waste removal or treatment.
Completion of structural assessment	70	Permit Section 9.4.6.2: structural assessment will occur within 10 days of completed waste removal or treatment.
Completion of closure activities	150	Permit Section 9.4.1.1, 40 CFR §264.113(b): closure activities must be completed within 180 days of the receipt of known final volume of hazardous waste.
Submittal of closure report to NMED	210	Permit Section 9.5, 40 CFR §264.115: report submitted within 60 days of closure completion

Note: The schedule shown represents the maximum allowable time to complete the activity.

Table 3
Recommended Sample Containers[a], Preservation Techniques, and Holding Times[b]

Analyte Class and Sample Type	Container Type and Materials	Preservation	Holding Time
	Metals		
TCLP Metals: Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver	Aqueous Media: 500-mL Wide-Mouth-Polyethylene or Glass with Teflon Liner	Aqueous Media: HNO_3 to pH <2 Cool to 4°C	180 Days
	Solid Media: 125-mL Glass	Solid Media: Cool to 4°C	
TCLP/Total Mercury	Aqueous Media: 500-mL Wide-Mouth-Polyethylene or Glass with Teflon Liner	Aqueous Media: HNO_3 to pH <2 Cool to 4 °C	28 Days
	Solid Media: 125-mL Glass	Solid Media: Cool to 4°C	
	Volatile Organic Compounds		
Target Compound Volatile Organic Compounds	Aqueous Media: Two 40-mL Amber Glass Vials with Teflon-Lined Septa	Aqueous Media: HCl to pH<2 Cool to 4 °C	14 days
	Solid Media: 125-mL Glass or Two 40-mL Amber Glass Vials with Teflon-Lined Septa	Solid Media: Cool to 4°C Add 5 mL Methanol or Other Water Miscible Organic Solvent to 40-mL Glass Vials	
	Semi-Volatile Organic Compounds		
Target Compound Semi-volatile Organic Compounds	Aqueous Media: Four 1-L Amber Glass with Teflon-Lined Lid	Aqueous Media: Cool to 4 °C	Seven days from field collection to preparative extraction. 40 days from preparative extraction to determinative analysis.
	Solid Media: 250-mL Glass	Solid Media: Cool to 4°C	

[a] Smaller sample containers may be required due to health and safety concerns associated with potential radiation exposure, transportation requirements, and waste management considerations.

[b] Information obtained from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, U.S. Environmental Protection Agency, 1986 and all approved updates.

°C = degrees Celsius
HNO_3 = nitric acid
L = Liter
mL = milliliter
HCl = hydrochloric acid
TCLP = Toxicity Characteristic Leaching Procedure

Table 4
Summary of Proposed Analytical Methods

Analyte	EPA SW-846 Analytical Method [a]	Test Methods/ Instrumentation	Target Detection Limit [b]	Rationale
Metal Analysis				
Antimony	6010, 7010	ICP-AES, GFAA	20 ug/L	Determine the metal concentration in the samples.
Arsenic	6010, 7010, 7061A	ICP-AES, GFAA, CVAA	10 ug/L	
Barium	6010, 7010	ICP-AES,GFAA	200 ug/L	
Beryllium	6010, 7010	ICP-AES, GFAA	0.2 ug/L	
Cadmium	6010, 7010	ICP-AES, GFAA	2 ug/L	
Chromium	6010, 7010	ICP-AES, GFAA	10 ug/L	
Cobalt	6010, 7010	ICP-AES, GFAA	5 ug/L	
Copper	6010, 7010	ICP-AES, GFAA	5 ug/L	
Lead	6010, 7010	ICP-AES, GFAA	5 ug/L	
Mercury	6010, 7470A, 7471B	ICP-AES, CVAA	0.2 ug/L	
Selenium	6010, 7010, 7741A	ICP-AES, GFAA, CVAA	5 ug/L	
Silver	6010, 7010	ICP-AES, GFAA	10 ug/L	
Thallium	6010, 7010	ICP-AES, GFAA	30 ug/L	
Vanadium	6010, 7010	ICP-AES, GFAA	5 ug/L	
Zinc	6010, 7010	ICP-AES, GFAA	1 ug/L	
Organic Analysis				
Target compound list VOCs plus ten tentatively identified compounds (TIC)	8260B	GC/MS	10 mg/L	Determine the VOCs concentration in the samples.
Target compound list SVOCs plus 20 TICs	8270D, 8275	GC/MS	10 mg/L	Determine the SVOCs concentration in the samples.
Other Parameters				
Cyanide	9010, 9012	Colorimetric	20 ug/L	Determine cyanide concentration

[a] U.S. Environmental Protection Agency (EPA), 1986 and all approved updates, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846.

[b] Detection limits listed for metals are for clean water. Detection limits for organics are expressed as practical quantitative limits. Actual detection limits may be higher depending on sample composition and matrix type.

CVAA = Cold-vapor atomic absorption spectroscopy
FLAA = Flame atomic absorption spectroscopy
GC/MS = Gas chromatography/mass spectrometry
GFAA = Graphite furnace atomic absorption spectroscopy
ICP-AES = Inductively coupled plasma-atomic emission spectrometry
mg/L = milligrams per liter
SVOC = semi volatile organic compounds
ug/L = micrograms per liter.
VOC = volatile organic compounds

Table 5
Recommended Quality Control Sample Types, Applicable Analyses, Frequency, and Acceptance Criteria

QC Sample Type	Applicable Analysis [a]	Frequency	Acceptance Criteria
Trip Blank	VOC	One set per shipping cooler containing samples to be analyzed for VOCs	Not Applicable
Field Blank	VOC/SVOC, metals	One sample daily per analysis	Not Applicable
Field Duplicate	Chemical	One for each sampling sequence	Relative percent difference less than or equal to 20 percent
Equipment Rinsate Blank[b]	VOC/SVOC, metals	One sample daily	Not Applicable

[a] For VOC and SVOC analysis, if blank shows detectable levels of any common laboratory contaminant (e.g., methylene chloride, acetone, 2-butanone, toluene, and/or any phthalate ester), sample must exhibit that contaminant at a level 10 times the quantitation limit to be considered detectable. For all other contaminants, sample must exhibit the contaminant at a level 5 times the quantitation level to be considered detectable.
[b] Collected only if reusable sampling equipment used.

QC = quality control
VOC = volatile organic compound
SVOC = semi-volatile organic compound

Table 6
Potential Waste Materials, Waste Types, and Disposal Options

Potential Waste Materials	Waste Types	Disposal Options
Personal protective equipment (PPE)	Non-regulated solid waste	Subtitle D landfill
	Hazardous waste	The PPE will be treated to meet Land Disposal Restriction (LDR) treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Low-level radioactive solid waste	Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA, or an authorized off-site radioactive waste disposal facility. [a]
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D mixed waste landfill or the WIPP, as appropriate.
Decontamination wash water	Non-regulated liquid waste	Sanitary sewer
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Radioactive liquid waste	Radioactive Liquid Waste Treatment Facility (RLWTF)
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D mixed waste landfill or WIPP, as appropriate.
Verification water	Non-regulated liquid waste	Sanitary sewer
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Radioactive liquid waste	RLWTF
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D mixed waste landfill or WIPP, as appropriate.
Metal	Non-regulated solid waste	Subtitle D landfill or recycled
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.

Potential Waste Materials	Waste Types	Disposal Options
	Low-level radioactive solid waste	Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA, or an authorized off-site radioactive waste disposal facility. [a]
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D mixed waste landfill, or WIPP, as appropriate.
Discarded waste management equipment	Non-regulated solid waste	Subtitle D landfill
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Low-level radioactive solid waste	Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA, or an authorized off-site radioactive waste disposal facility. [a]
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D mixed waste landfill or WIPP, as appropriate.
Sampling equipment	Non-regulated solid waste	Subtitle D landfill
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Low-level radioactive solid waste	Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA , or an authorized off-site radioactive waste disposal facility. [a]
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D mixed waste landfill or WIPP, as appropriate.
Storage Structures	Non-regulated solid waste	Subtitle D landfill
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Low-level radioactive solid waste	Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA, or an authorized off-site radioactive waste disposal facility. [a]

Potential Waste Materials	Waste Types	Disposal Options
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D mixed waste landfill or WIPP, as appropriate.
Concrete Pad	Non-regulated solid waste	Subtitle D landfill or potentially, re-use/recycle
	Hazardous waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D landfill, as appropriate.
	Low-level radioactive solid waste	Either an authorized on-site radioactive waste disposal area that is not undergoing closure under RCRA, or an authorized off-site radioactive waste disposal facility.[a]
	Mixed waste	Waste will be treated to meet LDR treatment standards, if necessary, and disposed in a Subtitle C or D mixed waste landfill or WIPP, as appropriate.

[a] This description of the disposal option for low level waste may be subject to revision pending the resolution of the LANL Appeal of the November 2010 LANL Hazardous Waste Facility Permit.

Table 7
Hazardous Waste Constituents of Concern at the TWF[a]

Category	EPA Hazardous Waste Numbers	Specific Constituents
Toxic Contaminants	D004	Arsenic
	D005	Barium hydroxide
	D006	Cadmium
	D007	Chromium
	D008	Lead
	D009	Mercury
	D010	Selenium
	D011	Silver
	D018	Benzene
	D019	Carbon tetrachloride
	D021	Chlorobenzene
	D022	Chloroform
	D026	Cresol
	D027	1,4-Dichlorobenzene
	D028	1,2-Dichloroethane
	D029	1,1-Dichloroethylene
	D030	2,4-Dinitrotoluene
	D032	Hexachlorobenzene
	D033	Hexachlorobutadiene
	D034	Hexachloroethane
	D035	Methyl ethyl ketone
	D036	Nitrobenzene
	D037	Pentachlorophenol
	D038	Pyridine
	D039	Tetrachloroethylene
	D040	Trichloroethylene
	D041	2,4,5-Trichlorophenol
	D042	2,4,6-Trichlorophenol
	D043	Vinyl chloride
Volatile Organic Compounds	F001	Spent halogenated solvents, trichloroethylene
	F002	Spent halogenated solvents
	F003	Spent non-halogenated solvents, xylene, acetone
	F004	Spent non-halogenated solvents
	F005	Spent non-halogenated solvents
Toxic listed waste	U080	Methylene chloride

[a] This will be modified as needed, based on the unit operating record.
EPA = U.S. Environmental Protection Agency

Attachment G

Proposed Revisions to the LANL Hazardous Waste Facility Permit

(Additions to Attachment G, Revision 1.0 of the PMR**)**

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3.13 TA-55 CONTAINER STORAGE REQUIREMENTS

3.13.1 General Operating Conditions

The Permittees shall ensure that storage of hazardous or mixed waste in containers at TA-55 occurs only in the permitted units B45, B40, B05, K13, the vault located at TA-55-4, TA-55-185, and the outdoor container storage pad located northwest of TA-55-4, and as identified in Attachment A (*Technical Area Unit Descriptions*) and Attachment J (*Hazardous Waste Management Units*).

3.14 TA-63 CONTAINER STORAGE REQUIREMENTS

3.14.1. **General Operating Conditions**

The Permittees shall ensure that storage of hazardous waste in containers at the TWF occurs only on the permitted unit pad at TA-63, and as identified in Attachment A (*Technical Area Unit Descriptions)* and Attachment J (*Hazardous Waste Management Units*). This will include five storage buildings, the storage and characterization building, the characterization trailers, and the outside areas of the concrete pad within the unit boundary subject to the provisions of Permit Section 3.5.1, *Storage Configuration and Minimum Aisle Space*.

Transuranic Waste Facility

(1) The Permittees shall ensure that at the TWF, all containers storing hazardous waste with free liquids are stored on secondary containment pallets as required by Permit Section 3.1(2)~~, except inside the following structures: Trailers 155, 156, and 157~~.

(2) Waste containers will only be accepted at the TWF if they are closed and equipped with WIPP approved filter vents. Waste containers will not be opened during characterization nor while in storage although their filter vents may be replaced if necessary. However, as noted in the contingency plan, provisions are in place to manage open containers on an emergency basis.

(3) Wastes that are mainly or completely in liquid form within the volume of the approved waste containers will not be accepted at the TWF.

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A.6 TA-63 TRANSURANIC WASTE FACILITY

The following section generally describes the TWF unit with detailed descriptions of the unit's structures in the subsections. The TWF consists of one hazardous waste management unit that provides storage in containers for TRU waste, including the hazardous component of MTRU waste and, potentially, mixed low-level waste streams. The TWF also manages hazardous-only waste streams generated on site. The information provided in this section is submitted to address the applicable container storage requirements of 40 CFR §270.15 and Part 264, Subpart I.

The TWF is located at TA-63 on a mesa between a branch of Mortandad Canyon on the north and Pajarito Canyon on the south in the north central portion of LANL (see Figure 2-3 for the location of TA-63 at LANL). The unit is built at the intersection of Pajarito Road and Puye Road, within the triangle formed by Building 63-111 to the east, Puye Road to the north, and Pajarito Road to the southwest. The closest buildings are shops immediately north of Puye Road, Office Building 63-111, records storage buildings immediately east of the TWF location, and buildings and structures on Pecos Drive further north of the TWF.

The primary purpose of the TWF is two-fold: first, safe indoor storage of TRU waste newly generated by LANL operations. Second, waste containers stored at the TWF are subject to characterization including review of generator documentation, gas sampling, and non-intrusive radioassay. Non-destructive assay (NDA) is used to confirm the types and amounts of radioactive elements within the waste container. NDA is a non-intrusive characterization technique that measures gamma rays and neutrons emanating from the container. Non-destructive examination (NDE) uses X-rays and a video system to inspect waste container contents. The overall process of waste characterization at LANL is described in Attachment C, *Waste Analysis Plan*, of the Permit. Waste containers will only be accepted at the TWF if they are closed and equipped with WIPP approved filter vents. Waste containers will not be opened during characterization nor while in storage although their filter vents may be replaced if necessary. However, as noted in the contingency plan, provisions are in place to manage open containers on an emergency basis.

Waste is contact handled (CH) TRU waste; no remote-handled TRU waste is stored at the TWF. Some TRU waste containers are determined through final waste characterization not to meet the WIPP requirements for TRU waste. Depending on the presence of hazardous constituents, these waste containers are reclassified as either low-level radioactive waste or mixed low-level waste and stored at the TWF until they are dispositioned appropriately.

Waste shipments are made from the LANL waste generating facilities to the TWF for storage and then to the RCRA permitted Radioactive Assay and Nondestructive Testing (RANT) Facility at TA-54-38 West. The RANT Facility is used to load the TRU waste containers into TRUPACTs (steel shipment containers) required for off-site shipment to the WIPP. Waste shipments may also occur from TWF to the RCRA permitted TA-50-69 Waste Characterization, Reduction, and Repackaging Facility (WCRRF) if repackaging of the containers is necessary.

The TWF is 1.81 acres or 78,843 square feet. The layout of the unit is depicted in Figure 55 with the location of areas where storage occurs highlighted. The main structure for the unit is the concrete pad providing a physical base for the six waste storage buildings, several waste characterization trailers and outside storage of waste containers too large for the buildings. The pad is surrounded by a security fence. The boundary of the hazardous waste management unit is limited to the northern portion of the concrete pad defined by those areas that drain to a supporting retention pond. Along the northern and western sides of the unit, this is the edge of the concrete pad along the bottom of the retaining walls. On the east side, the edge of the curbing for the concrete pad is the boundary. The southern side of the revised boundary is defined by a painted line in compliance with Permit Section 3.5(2), *Management of Containers*. The line is situated approximately between the south east corner of the retention basin and the curb and gutter at the opposite corner of the fence line along the eastern side of the unit. This is defined by the points at which run-off will flow to the retention basin.

To provide containment for the unit, a retention basin is designed to capture and distribute storm water at the TWF. It also retains fire suppression water in the event of a fire. Water is released via a manual valve providing control of the flow rate from the basin. Should a fire occur, water collected will be analyzed for contaminants prior to discharge.

The unit also includes a small storage building for calibration sources used for waste characterization activities, a covered forklift charging station, and equipment storage shed. Outside the fence, other site structures include an operations support building and a fire water storage tank and associated utility building.

A.6.1 Concrete Pad

The TWF concrete pad is of reinforced concrete construction, on grade to provide support for the site structures and vehicle movement. The concrete pad also provides for low combustible loading between the buildings and for the site. The pad is laid on a graded soil and gravel base course and is nominally 8 inches thick. The existing ground at the site slopes from the northwest to the southeast. There is a significant grade difference from the northwest corner to the southwest corner of the site. Portions are lower in elevation than Pajarito Road or Puye Road. Given the elevation difference on the site, retaining walls are along the northwest portion of the site. The pad is sloped at approximately 2% to provide for storm water and fire suppression water drainage.

The perimeter of the pad has a 24" gutter and 6" high curb to provide run-off control. A valley gutter isolates the northern portion of the pad. Storm water and potentially contaminated firewater run-off (in the event of a fire in the storage buildings) from the northern portion of the pad flows to the valley gutter then will be channeled to the retention basin, thus, providing containment for the site in accordance with 40 CFR §264.175(b). This is a feature that negates the need for berms, dikes, or sumps around each storage building. The southern portion of the unit (where waste is not stored and outside the hazardous waste management unit) slopes southeast providing drainage off the pad toward the parking lot. Refer to Figure 55 for further details regarding the pad configuration.

A.6.2 Storage Buildings

The TWF includes six storage buildings, five of which are functionally identical and are described in this section. The additional storage building with other design elements is described in section A.6.3. The five buildings measure 33 x 64 ft or approximately 2112 square feet, and equipment is available for obtaining headspace gas samples and flammable gas samples from waste containers. Gas chromatography and mass spectrometry on the flammable gas sample occurs in an adjacent room.

The floor plan of the building measures 80 x 33 ft or approximately 2640 square ft, and is 15 ft high. The building is constructed to the same standards as the other storage buildings. The building is numbered 63-0154.

A.6.4 Characterization Trailers

The TWF facility includes pads with utility hook-ups for the characterization trailers used to certify containers to DOE WIPP waste acceptance criteria The non-destructive evaluation (NDE) and non-destructive assay (NDA) equipment is provided for the TWF in mobile modified commercial trailers brought to the facility. These trailers are in use and functional at other DOE waste characterization sites. These trailers are currently providing this function for TRU waste management at the TA-54, Area G, Pad 10 permitted hazardous waste unit and were moved to the TWF . Mixed waste containers may be stored for a period longer than 24 hours as a result of operational or weather related delays in the staging of the containers through the characterization trailers. Radiographic assay equipment used for characterization is housed in these trailers as follows:

- Real Time Radiography (RTR) unit. The NDE~~assay~~ equipment in the trailer is designed to provide X-ray examination of the contents of TRU waste drums.
- High-Efficiency Neutron Counter (HENC) unit. The NDA~~assay~~ equipment in the trailer is designed to provide a passive neutron and gamma measurement of 55-gallon TRU waste drums.
- SuperHENC unit. The NDA~~assay~~ equipment in the trailer is similar to the HENC but includes a high efficiency neutron counter and a gamma counter that are both designed to handle SWBs.

The RTR is a self-contained, non-intrusive X-ray unit, physically housed in a mobile container 48 feet in length by 8 feet wide used to X-ray waste containers up to 85 gallons in volume. Radiography is a nondestructive qualitative and semi-quantitative technique that involves X-ray scanning of waste containers to identify and verify waste container contents. Radiography is used to examine the waste container to verify its physical form. This technique can detect prohibited items such as liquid wastes and gas cylinders, which are prohibited for WIPP disposal. Radiography examination must achieve the following to meet the WIPP criteria:

- Verify and document the physical form of each waste container.
- Identify any prohibited waste in the waste container.
- Confirm that the physical form of the waste matches its waste stream description (i.e., homogeneous solids, soil/gravel, or debris waste [including uncategorized metals]).

The HENC is a self-contained, non-intrusive, passive assay unit, physically housed in a mobile assay container 48 feet in length by 8 ½ feet wide by 12 ¾ feet high. The HENC is designed to assay 55-gallon (208 liter) drums containing fissionable radionuclides. The system simultaneously performs passive neutron counts and gamma spectrometry to detect gamma-emitting radionuclides for the purpose of determining quantitative concentrations of TRU constituents. The equipment and mobile container only require electrical power to operate. Approximately 10 to 13 drums a day can be processed through the HENC, with each drum taking approximately 45 minutes for examination. The HENC is a large rectangular-shaped neutron counter that is specifically designed to assay the container in a fixed geometry. The HENC system uses passive and add-a-source neutron analysis methods to assay the nuclide mass contained in 55-gal drums of TRU waste. Waste drums to be assayed are placed on a conveyor that feeds drums into the system.

The SuperHENC operates on the same principle as the HENC, within a similar tractor trailer. The process however, is applicable to the assay of TRU radionuclides in waste packages such as SWBs and SLB2's. Data from this process is used to assay the radioactive content of SWBs containing TRU waste, sorting SWBs based on the 100 nanocurie per gram (nCi/g) TRU limit, and confirming radioisotopes indentified via acceptable knowledge (AK).

The trailers are numbered 63-0155, 63-0156, and 63-0157 at TA-63. Additional trailers may be needed as characterization needs for the facility change. In the event that trailers are added or moved at the unit, the permit modification procedures in Permit Section 3.1.(3) will be followed.

The WIPP verification procedures for the waste containers managed in the characterization trailers are generally completed within 24 hours. In some uncommon situations, there is a potential that a waste container could be left in the characterization trailer for greater than that time period~~ and the option for storage should be retained to preserve operational flexibility~~. Examples that would require such an option include situations such as inclement weather, power outages, equipment malfunctions, ~~-~~evacuations, and Laboratory closures. If storage of liquid bearing wastes for greater than 24 hours occurs, the reporting conditions of Permit Section 1.9.14, *Other Noncompliance*, will be followed.

~~The basis for not requiring secondary containment pallets is that the containers are located inside the trailers and the internal radioassay equipment during the characterization process. These do not represent secondary containment although they are enclosed and provide a degree of containment. The containers are never opened during the process and the potential waste volumes involved in a spill from an individual drum would be minimal based on the typical transuranic waste streams involved and the waste characterization and packaging requirements for the generators to meet the LANL TRU Waste Acceptance Criteria. In the event of a spill during active management of the containers, the primary defense for containment would be detection and remediation of the spill by the on-site personnel at the trailers or, if necessary, by the provisions of the Contingency Plan. If a spill occurred that could not be remediated or during off hours in the facility, containment would ultimately be provided by the grading of the site to the retention pond and the confinement provided by the volume of the pond and the normally closed exit valve.~~

~~Additionally, in the event that a liquid containing waste item or free liquids such as condensation are discovered in a container through the waste verification process in the trailers, the item will~~

~~routinely be transported back to a storage building and managed in compliance with the secondary containment requirement in the permit provision within 24 hours. This is based on the typical multiple daily container turn around, the identification of the container as an anomaly meriting priority, and best management policy to avoid potential waste management problems.~~

A.6.5 Retention Basin

The storage buildings and characterization trailers are located within the northern portion of the site. The retention basin is located south of the storage buildings and characterization trailers along the western edge of the site. The retention basin is designed to collect water from this area in two types of events. Primarily, surface storm water or melt water run-off from the concrete pavement in this area is directed to the retention basin via the slope (nominally 2%) of the concrete pad. A valley gutter also helps to channel water from the east side of the concrete pad to the retention basin. Secondly, in the event of a fire at the unit, fire suppression water will potentially flow out of the storage buildings or from other unit structures to the concrete pad and then to the retention basin.

The designed volume capacity for the retention basin includes the potential for a combination of both events. This includes run-off from a projected 25 year frequency and 2 hour duration precipitation event (1.94 inches of precipitation resulting in approximately 85,900 gallons (11,500 cubic ft.) from 1.63 acres). For a fire suppression event, an estimate of suppression water needed is calculated from NFPA 13 factors (380 gpm for 30 min. of sprinkler demand and 500 gpm for 30 min. fire hose stream allowance), for a total of approximately 26,400 gallons (3,530 cubic ft.). Volume from both events results in a total capacity of approximately 112,300 gallons (approximately 15,000 cubic ft.). The designed total retention basin volume also includes 0.5 ft of freeboard, resulting in a total capacity of 137,450 gallons (18,375 cubic ft.). Final dimensions of the basin will be 125 ft by 42 ft by 3.5 ft deep. The concrete mixture used for construction of the retention basin will also be supplemented with an additive to improve the concrete's water resistance.

The retention basin will be drained as needed via a manual release valve that is normally in the closed position in order to prevent overflow and to comply with 40 CFR §264.175(b)(5). The retention basin will also be equipped with an automated storm water sampler at a drainage point into the basin. This sampler will only be used to meet the requirements for storm water monitoring under the *The Multi-Sector General Permit For Stormwater Discharges Associated with Industrial Activity* (MSGP) for the facility. In normal storm water events the manual drain valve is opened and the collected storm water is released through a pipeline at the calculated predevelopment flow rate (i.e., the rate of storm water runoff from the site prior to construction of the facility) after the opening of the valve. The released storm water drains through the pipe line to a release site on the east side of the TWF and then to other stormwater retention structures developed for the aggregate area to be defined and included in the TA-63 TWF Multi Sector General Permit Storm Water Plan to be developed for the site. When only storm water has been contained in the retention basin, the decision to open the drain valve will be based upon standard MSGP processes.

The exterior finish is metal sandwich insulating panels. The roof is a low slope membrane-type with high solar reflectance and roof and overflow drains. The floor is reinforced concrete slab on grade and finished concrete in some areas.

Access to the waste management site is via a gated driveway east of the concrete pad. Gates are normally closed and vehicle access to the controlled area within the unit fence line requires check-in at the Operations Support Building. Pedestrian access to the controlled area also requires check-in through the Operations Support Building. Parking for site workers and visitors is provided south of the Operations Support Building and outside the controlled area fence.

Located to the north of the Operations Support Building, on the project site but outside the controlled area fence, is a dedicated fire water supply tank and utility building. The utility building is adjacent to the water tank that supplies water for the fire suppression system. This building will house two fire water pumps and instrumentation needed to ensure operation of the fire suppression system. The back-up pump is diesel powered. Access into the fenced unit will not be required for filling the diesel pump fuel tank as fueling can occur from the roadway.

Further to the north, across the access driveway is an existing groundwater monitoring well. The monitoring well is R-46, part of the LANL groundwater monitoring network. The TWF controlled area fence line is located to the west of the monitoring well. Space has been allocated to allow for routine and upset condition access to the monitoring well. Access to the TWF is not required for activities associated with the monitoring well.

There will be an equipment storage shed on the west side of the unit. This shed will be a light warehouse of 1250 square feet and will be used to store items such as metal pallets, containers used to over-pack waste containers if necessary, and snow removal equipment. The building will be 25 ft x 50 ft x 15 ft high. The sides of the shed will be closed with a rollup (garage-type door) in addition to a personnel access/egress door. There will be no fire protection in this building.

The characterization process will require sealed radioactive sources for calibration of RTR and HENC sensors. A separate building designated the Characterization Source and Matrix Management (CSMM) Building will house sealed sources.

A.6.7 ~~A.6.8~~ Security and Access Control

The DOE provides security for the area within LANL boundaries. Guard stations control public access to this area of LANL from Pajarito Road east and west of TA-63. Therefore, only properly identified LANL and DOE employees authorized to enter the facility or individuals under their escort have access to the TWF. The unit security requirements are met because the TWF is within a security fenced area with controlled access gates. The security fence around the waste management portion of the TWF is at least 8 feet (ft) high and is a chain link type fence with steel pipe fence posts. Fence tops have at least three strands of barbed wire angled away from the protected area to prevent a person from scaling the fence. Two vehicle access gates are integrated into the fence line. These gates, when opened, provide at least a 16 foot wide clearance to enable vehicle access. Gates are locked when the facility is not operational. Controlled entry to the unit is provided by a system of access controls (badge readers and administrative controls are required prior to entrance) to ensure that only authorized personnel are granted access. These access controls also ensure that all facility personnel can be identified and located in an emergency.

The TWF is patrolled by LANL security personnel during both operational and nonoperational hours to ensure that the gates are locked and that unauthorized entry does not occur. Warning signs stating "Danger – Unauthorized Personnel Keep Out," are posted on the perimeter fences and gates. These can be seen from any approach to the TWF in accordance with Permit Section 2.5.2, *Warning Signs*. The legends on the signs are bilingual (i.e., English and Spanish) and indicate "No Trespassing by Order of the United States Department of Energy." The signs are legible from a distance of 25 feet. Signs for any confined areas, if necessary, may be reduced in size, but are to personnel who require access to these areas. TA-63 does not have a shared boundary with the Pueblos of San Ildefonso or Santa Clara and, therefore, the signs do not include warnings in Tewa dialects.

A.6.8 ~~A.6.9~~ Required Equipment

In accordance with Permit Attachment D.2, Contingency Plan, emergency equipment is located throughout the TWF and includes fire alarms, fire response systems, alarm systems, internal communications, spill kits, and decontamination equipment. Detailed information on the required emergency and safety equipment located at the TWF is provided below.

The TWF is equipped with safety-alarm systems to alert personnel in the event of an emergency and to evacuate the area. These alarm systems are located both inside and outside the unit and will be monitored. The facility monitor/control system will be in operation 24 hours a day and is located in the access control station at the TWF; the system is also connected to the LANL CAS. Specific facility monitor/control system equipment located at the TWF is discussed below. Emergency equipment is located throughout the TWF and will include fire alarms, fire response systems, alarm systems, internal communications, spill kits, and decontamination equipment. Detailed information on the required emergency and safety equipment located at the TWF is provided below.

Fire-alarm pull boxes and/or drop box push-button alarms are located pursuant to NFPA standards in the TWF where waste management activities will be conducted. Fire-alarm pull boxes can be used by personnel to activate a local fire alarm when a fire or other emergency is discovered. Once manually activated, an alarm will sound in the TWF access control station and at the LAFD through LANL's CAS. The TWF is also equipped with automatic fire suppression alarm systems. The fire-suppression alarms will be activated when water flow is detected in the sprinkler pipes of the fire-suppression system. Upon activation of the fire-alarm system, an alarm will sound and red lights will flash to alert personnel of emergency conditions. All fire-alarm pull boxes and automatic fire-suppression systems that will be located at the TWF will be connected to the LAFD through LANL's CAS.

A.6.9 ~~A.6.10~~ Control of Run-on/Run-off

Controlling run-on and run-off at the TWF locations where waste management operations regularly occur is accomplished by the design of the buildings and the use of control structures with appropriate contouring of surface areas. Run-on of storm water into the storage buildings will not occur: walls enclose raised floors, and surface contouring slopes away from the building to prevents storm water from pooling against the foundations, doors, and loading areas. The internal floors of the buildings are sloped to the front doors to prevent flooding by precipitation or storm water in addition to providing drainage to the outside.

The TWF site will maintain a nominally 2% slope to optimize drainage and the use of electric forklifts to handle waste containers. A retention wall maintains the differences in elevation between the surrounding roads and the site. The site is surfaced in concrete and includes a retention basin for management of storm water and for the collection of fire suppression water until it is sampled and verified to be uncontaminated. Retention basin capacity includes the runoff from a 25 yr-2 hr precipitation event in addition to a fire event or a total capacity of approximately 137,450 gallons or 18,375 cubic feet of water.

Secondary containment is provided where potential liquid-bearing containers are stored in the buildings to prevent run-off. Secondary containment systems (i.e., pallets) are utilized as needed and have sufficient capacity to contain at least 10 percent (%) of the volume of potential liquid-bearing containers or the volume of the largest container stored in the system, whichever is greater, pursuant to the requirements of 40 CFR §264.175(b)(3) and Permit Section 3.7, *Containment Systems*. Waste spills or leaks will be managed inside the characterization trailers to prevent run-off. Containers stored outside on the concrete pad will be protected from contact with precipitation in accordance with Permit Section3.5.1 (5).

ATTACHMENT N

FIGURES

KEYED NOTES:

1. Vehicle entrance via north gate
2. Vehicle exit via south gate.
3. Personnel entry and exit will be via Operations Building 63-0144

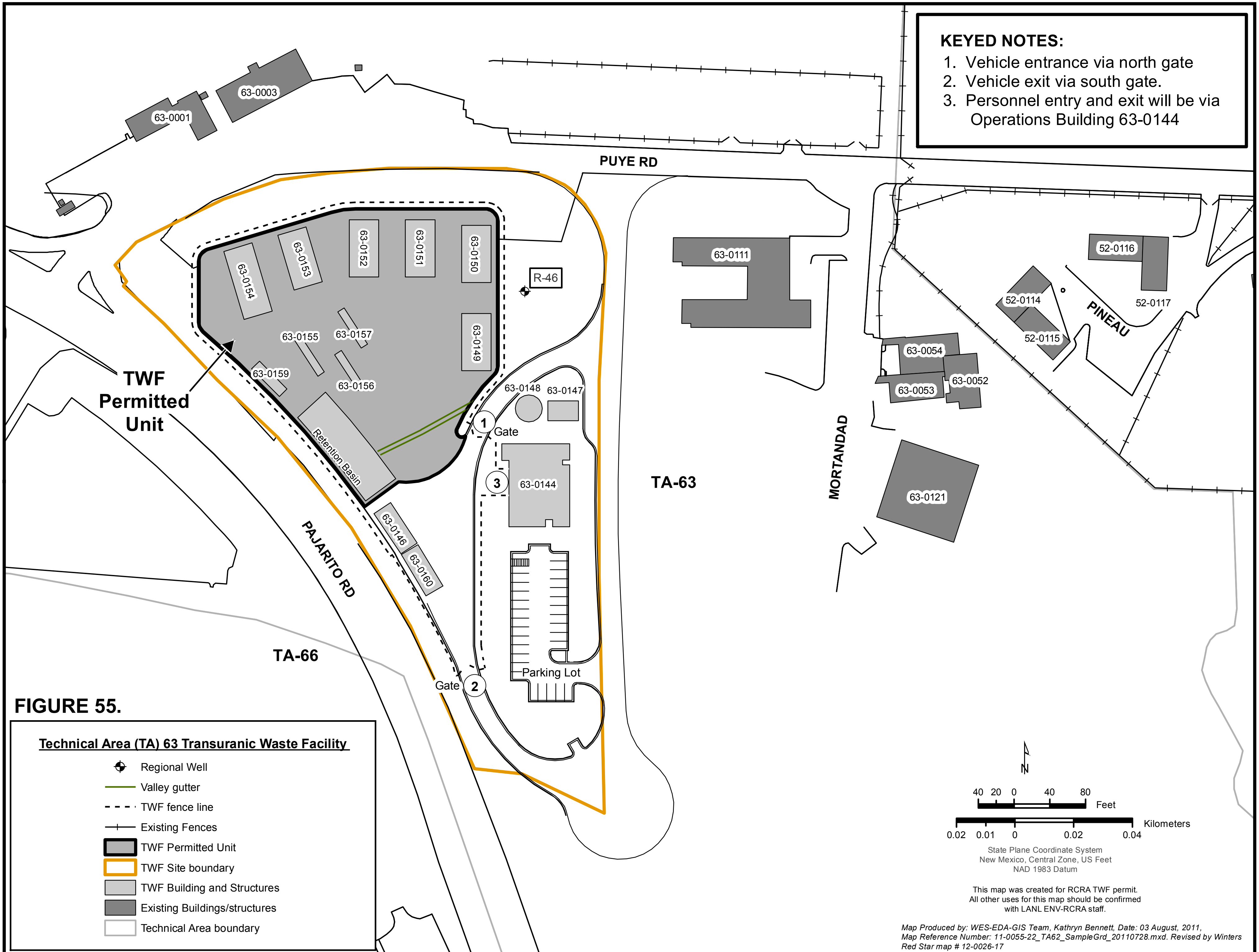

FIGURE 55.

Technical Area (TA) 63 Transuranic Waste Facility

- Regional Well
- Valley gutter
- TWF fence line
- Existing Fences
- TWF Permitted Unit
- TWF Site boundary
- TWF Building and Structures
- Existing Buildings/structures
- Technical Area boundary

State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum

This map was created for RCRA TWF permit.
All other uses for this map should be confirmed
with LANL ENV-RCRA staff.

Map Produced by: WES-EDA-GIS Team, Kathryn Bennett, Date: 03 August, 2011,
Map Reference Number: 11-0055-22_TA62_SampleGrd_20110728.mxd. Revised by Winters
Red Star map # 12-0026-17

Attachment H
Pre-submittal Public Information Meeting, August 10, 2011

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Los Alamos National Laboratory
Permit Modification Request
TA-63 Transuranic Waste Facility
Hazardous Waste Container Storage Unit
Pre-submittal Public Information Meeting
5:30 pm – 7:30pm, August 10, 2011
Fuller Lodge, Los Alamos, New Mexico

Summary

Los Alamos National Laboratory hosted a pre-submittal meeting prior to the submittal of the Transuranic Waste Facility (TWF) permit modification request using the guidelines set out in 40 CFR §124.31 regarding expanded public participation for environmental permits. The purpose of the meeting was to describe the proposed facility and solicit public comments to be included in this permit modification request. The meeting included presentations on the TWF function and its relation to the LANL TRU waste program, the physical layout and safety factors for the unit, and the permit modification schedule and public input process. This attachment contains copies of the presentation power point slides for the meeting, the sign-in list, and comments collected. This meeting was rescheduled after a previously announced meeting on June 27, 2011 had to be cancelled due to the evacuation of Los Alamos during the Las Conchas Fire.

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Transuranic Waste Facility Permit Modification Request

Public Information Meeting

LANL Hazardous Waste Facility Permit
Fuller Lodge, Los Alamos
Wednesday, August 10, 2011

LA-UR-11-04597

Meeting Procedures

Presenter: Bruce McAllister, Meeting Facilitator

Topics and Guidelines

- The meeting focus is on permit compliance activities.
- The purpose of this meeting is to share information and status.
- The meeting is not designed to include debate about LANL's programmatic mission.
- We will be collecting questions and comments on Permit Question Cards
- We will answer as many questions as time allows.
- Any unanswered questions and suggestions will be provided to the program managers for future reference.
- If you have suggestions to improve the meeting, please use the Meeting Comment Cards

Agenda

Time	Subject	Speaker
5:30 – 5:45	Posters Meet and Greet	
5:45 – 5:55	Meeting purpose	Bruce MacAllister
5:55 – 6:15	Purpose of the Transuranic Waste Facility (TWF)	Matthew Nuckols Program Director
6:15 – 6:35	Description of the TWF	Greg Juerling Project Manager
6:35 – 6:55	Permit Modification Request	Gian Bacigalupa RCRA Permitting
6:55 – 7:30	Question and Answer	Bruce MacAllister

General Meeting Procedures

- Please write your questions on the cards so we can collect them.
- Please identify yourself before speaking.
- Please keep your questions short and remember that others may be waiting to ask questions.
- Please honor the process by keeping questions and comments civil and by using appropriate language.
- Please yield the floor if requested by the facilitator
- Please help the participants and facilitator keep to the agenda and timeframes

New Mexico Environment Department (NMED) Approves Permits under the Resource Conservation and Recovery Act (RCRA)

- Los Alamos National Laboratory (LANL) will request approval of a permit modification to the current Hazardous Waste Facility Permit for the proposed Transuranic Waste Facility (TWF).
- The permit modification request will be reviewed by the NMED for approval of construction and incorporation into the Permit.
- The permit modification request follows regulatory procedures, including this meeting.
- Seeking public comment is an important aspect of the regulatory process for review and approval of the new unit.
- Your written questions and comments will be provided to NMED when LANL submits the permit modification request .

End of Meeting Section

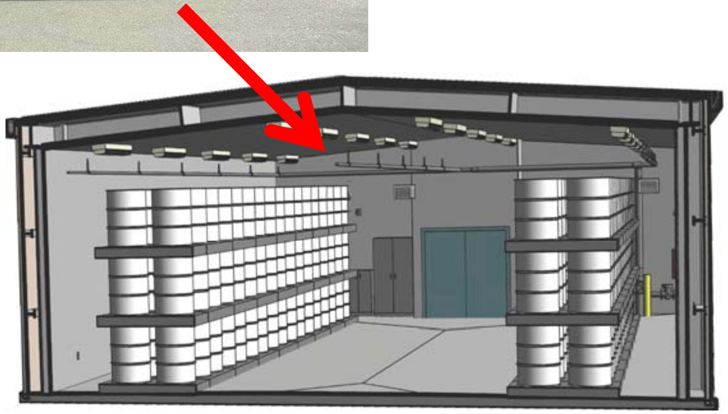
- **Does anyone have questions or comments related to meeting procedures?**

Transuranic Waste Facility Project

Presenter: Matthew Nuckols, Program Director Capital Projects

Basis for Permit Modification

- **Container storage unit to replace existing waste management units when Material Disposal Area G at TA-54 is closed in compliance with the 2005 NMED Compliance Order on Consent.**



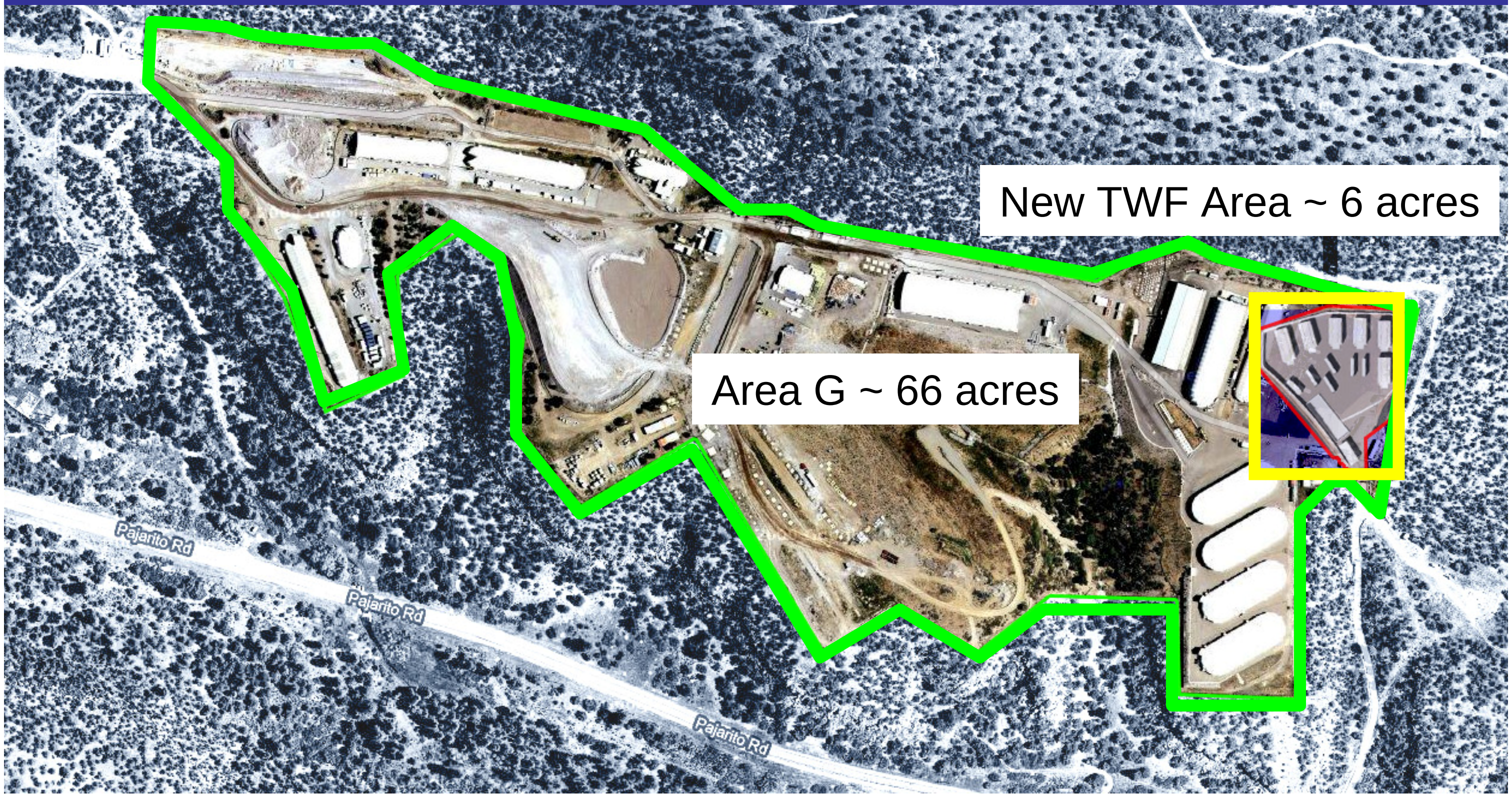
- **Waste management capability is required to continue to process newly generated (future) TRU waste from LANL to the Waste Isolation Pilot Plant near Carlsbad, NM.**

TA-54 AREA G – Current Transuranic Waste Storage

Transuranic Waste in TA-54 Dome

Area G Comparison

TWF Site Superimposed on Area G



TWF Provides Container Storage and Analytical Capability to Support Disposal at WIPP

Plutonium Facility (TA-55)

Chemistry and Metallurgy Research (TA-3)

Radioactive Liquid Waste Treatment Facility (TA-50)

Off-site Source Recovery Project

Generator Intra-site Transport of WIPP compliant containers to New TWF

Storage & Waste Certification at New TWF

Scope removed from previous TWF Project

- ***Decontamination***
- ***Repackaging***
- ***Size Reduction***
- ***Loading to WIPP***

Intra-site Transport to RANT

Loading at Radio Assay Non-destructive Testing (RANT) Facility

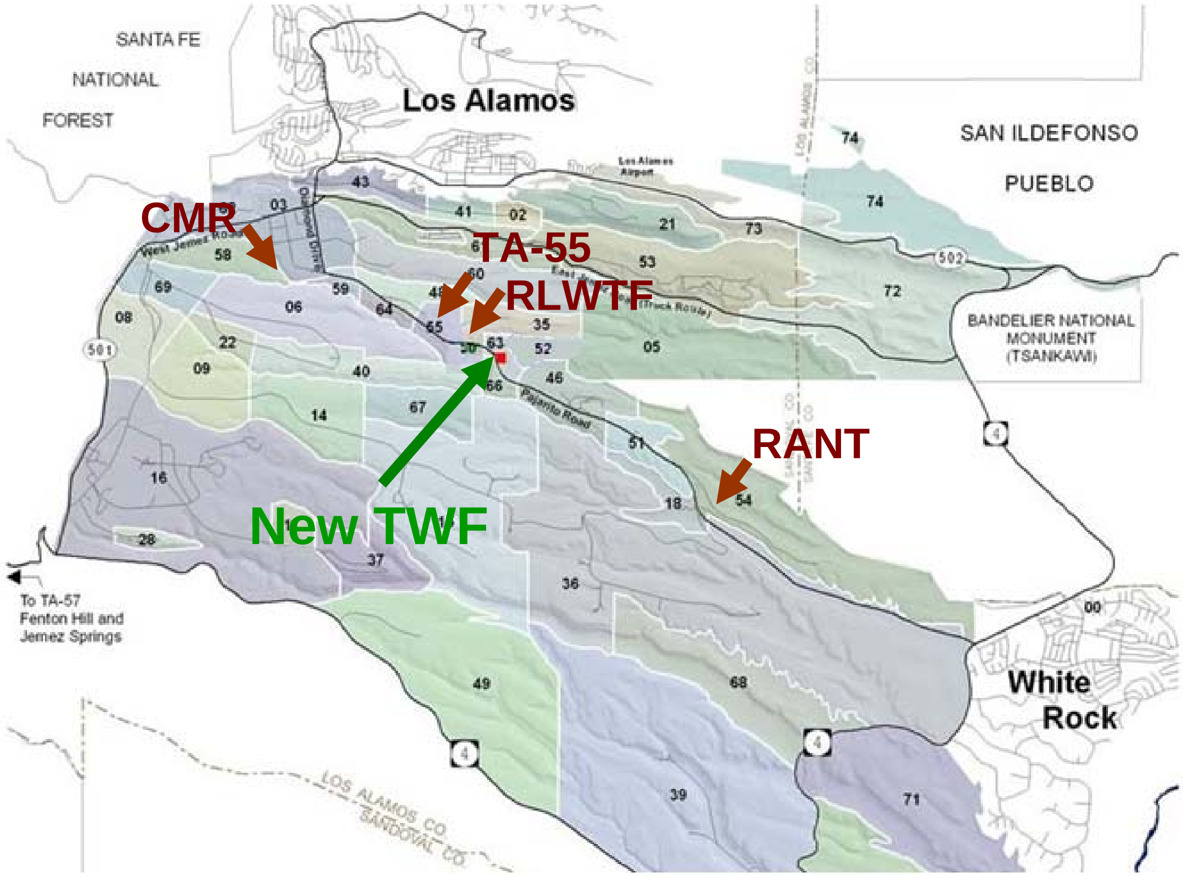
Ship To WIPP

TWF Functions

- Storage of Waste Containers in Protective, Enclosed Buildings

- Characterization and Certification of Containers in Trailers

Location of New Facility at TA-63



New Facility Schedule and Benefits

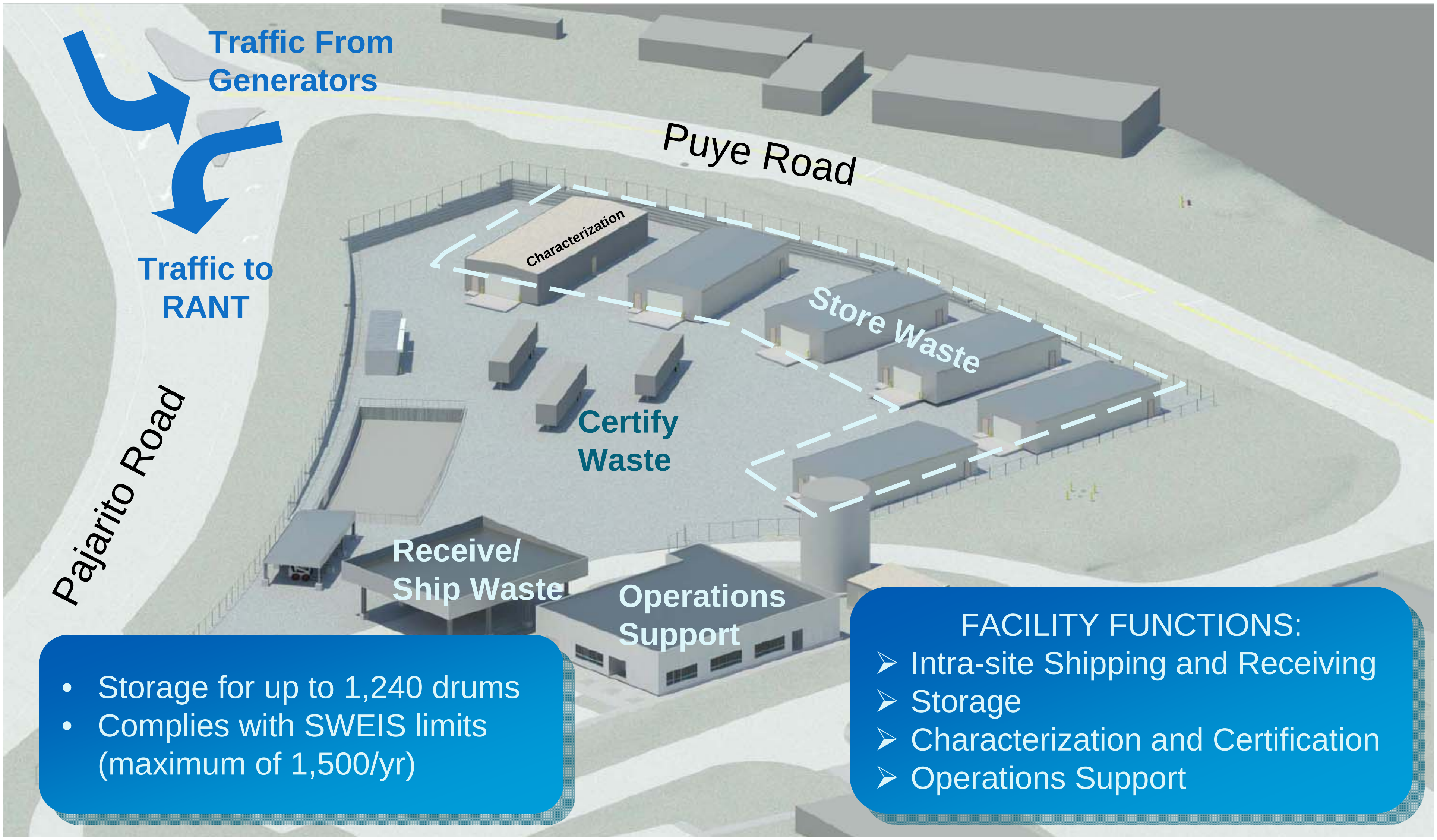
- TWF design for permit modification is complete.
- Construction planned to start in 2013 and finish in 2014. Facility will be ready to accept waste in early 2016.
- Ends newly generated transuranic waste shipment to Area G
- Much smaller storage capacity (2.5% of Area G capacity)
- Shorter transport distances from waste generating activities to storage area
- Interior site location, away from the Laboratory boundaries
- Enhanced protection for waste container storage.

End of TWF Project Section

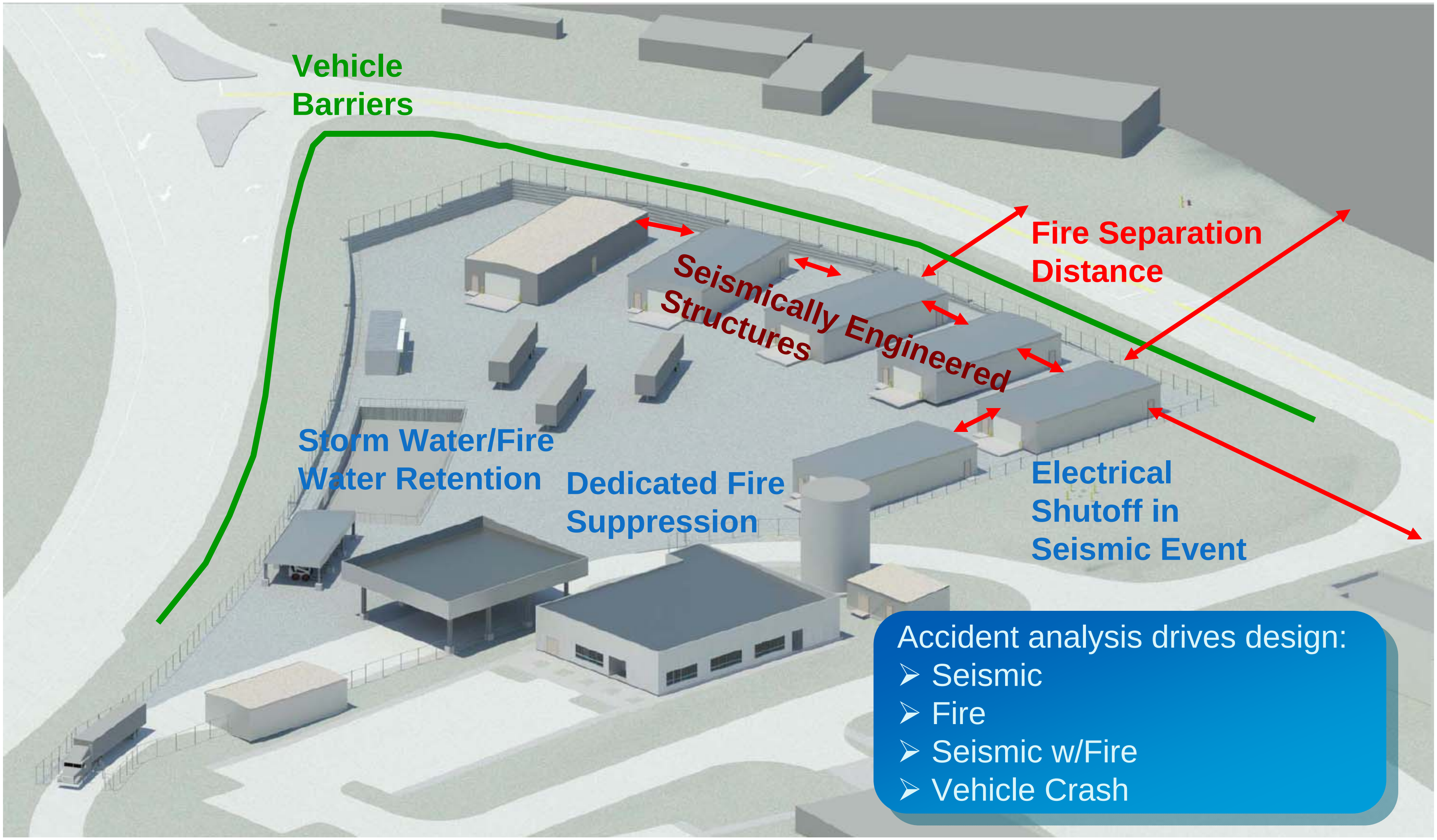
- **Does anyone have questions or comments related to TWF Program purpose or functions?**

Transuranic Waste Facility Design

Presenter: Greg Juerling, TWF Project Manager



TWF Waste Management Activities

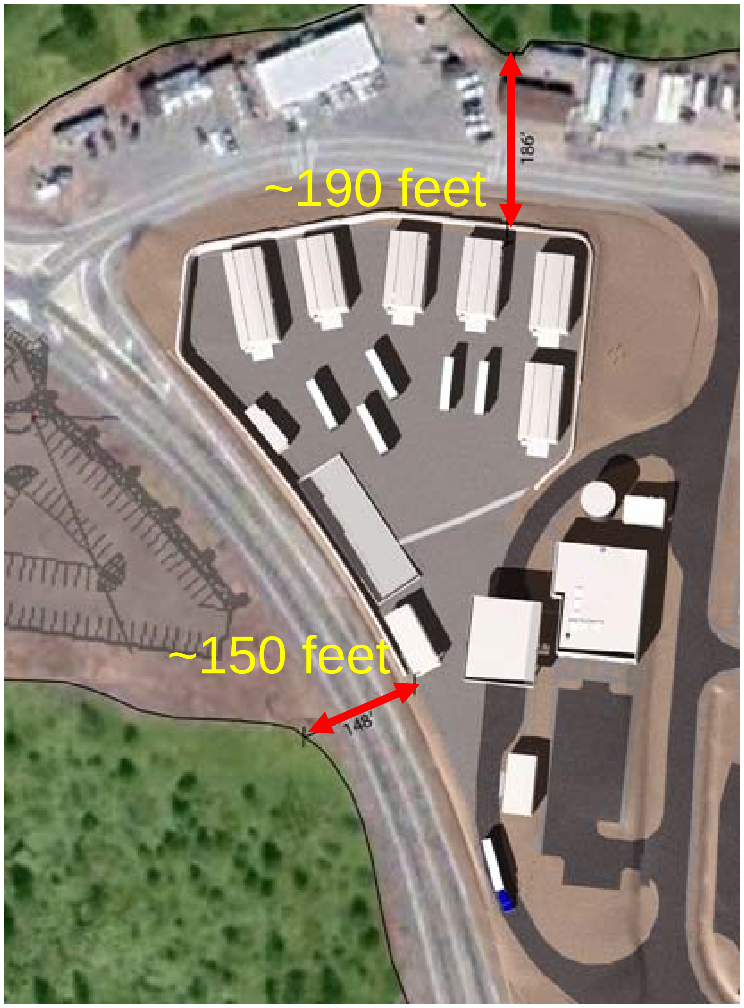


Accident analysis drives design:
- Seismic
- Fire
- Seismic w/Fire
- Vehicle Crash

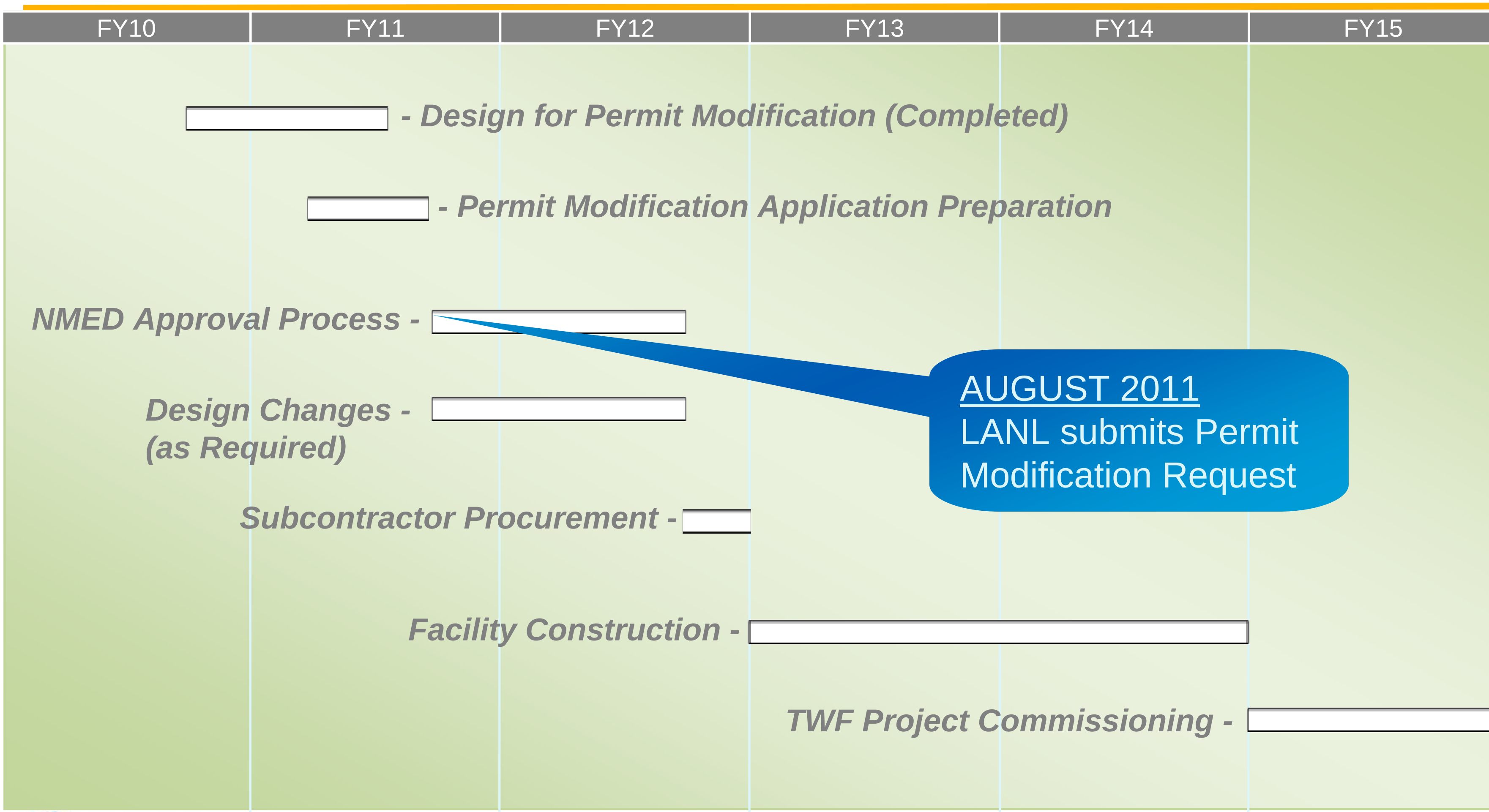
TWF Waste Protective Features

Wild land fire protection

Defensible space perimeter of 75 feet is recommended for wild land fire control



TWF Project Schedule



End of Project Design Section

- **Does anyone have questions or comments related to TWF design, layout, or safety features?**

Permit Modification Request

Presenter: Gian Bacigalupa, RCRA Permitting

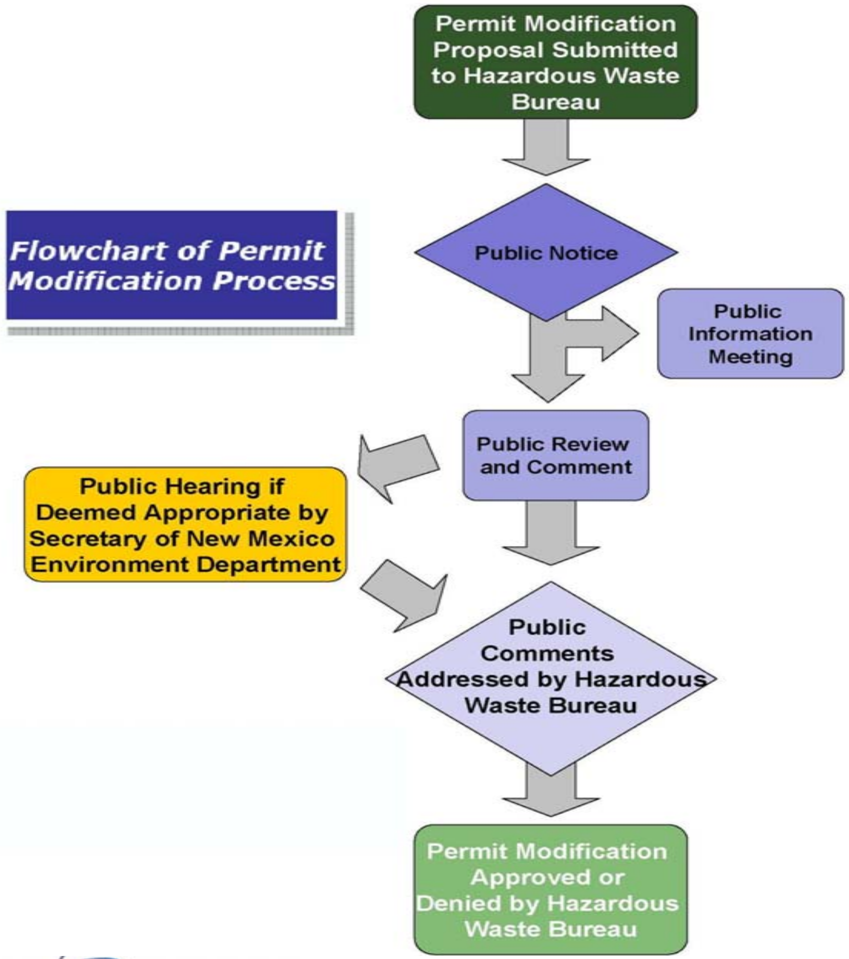
Permit Modification Request Content

- Permit Modification Request
  - Descriptions and construction figures for unit structures
  - Waste management practices
  - Emergency equipment and procedures
  - Draws on current LANL Hazardous Waste Facility Permit conditions
  - Attachments (e.g., specifications, closure plan, revisions to permit pages)
  - Seismic Analysis: During 1992-1993, trenches were excavated across TA-63 and immediately adjacent areas. No evidence of Holocene faulting was observed.

Permit Modification Request Content (cont'd)

- Revision of current LANL Part A Permit Application incorporating the proposed new unit.
  - 1 RCRA permitted hazardous waste management unit
  - Storage at TWF – Maximum 105,875 gallons in DOT Type A Metal Containers
  - Storage capacity at new TWF is less than 2.5% of current permitted storage at Area G
- Copies of pre-submittal public information meeting written comments

Process for Public Comments



- Submit comments during this public information meeting to be included with permit modification request submittal to NMED
- Review permit modification request and submit comments to NMED before the end of the public review and comment period (August 25 to October 24, 2011).
- Submit comments at public comment meeting during public review and comment period.
- NMED reviews and responds to public comments regarding the permit modification request.
- NMED issues final decision.

Permit Modification Schedule

AUGUST 2011						
SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

SEPTEMBER 2011						
SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

OCTOBER 2011						
SUN	MON	TUE	WED	THU	FRI	SAT
30	31					1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

- **August 10, 2011.** Pre-submittal public information meeting for proposed new Transuranic Waste Facility Permit Modification. Please submit any comments by August 12, 2011.
- **August 18, 2011.** LANL anticipates submittal of permit modification request to NMED – Hazardous Waste Bureau.
- **August 25, 2011.** 60-day public comment period for the permit modification will begin with the publishing of legal notices and mailing notice to the facility mailing list.
- **September 9 – October 9, 2011.** Range of dates for public comment meeting during comment period.
- **October 24, 2011.** Public comment period ends.

Contacts for Public Comment Submittal

- Written comments may be given to the meeting facilitators tonight or sent to Lorrie Bonds-Lopez, envoutreach@lanl.gov, or at Environmental Outreach and Public Involvement, Los Alamos National Laboratory, P.O. Box 1663, MS M996, Los Alamos, NM 87545 by August 12, 2011.
- Copies of the proposed permit modification will be available for public review after the August 18, 2011 submittal at:
  - Hazardous Waste Bureau, New Mexico Environment Department, 2905 Rodeo Park Drive East, Building 1, Santa Fe, New Mexico 87505-6303 (also on website @ http://www.nmenv.state.nm.us/hwb/lanlperm.html)
  - J. Robert Oppenheimer Study Center and Research Library, 4200 West Jemez Road at Casa Grande, Los Alamos, NM 87545
  - LANL electronic public reading room: http://eprr.lanl.gov/,
- To comment after the submittal:
  - John E. Kieling, Permits Management Program Leader, NMED-HWB at (505) 428-2500 or john.kieling@state.nm.us

End of TWF Permit Modification Request Section

- **Does anyone have questions or comments related to permit modification request contents, procedures, or schedule?**

Final Questions and Comments

Presenter: Bruce McAllister, Facilitator

Los Alamos
NATIONAL LABORATORY

Wednesday, August 10, 2011
TRU Waste Facility Permit Modification Public Information Meeting @ Fuller Lodge – SIGN IN SHEET

Do you want to be on the mailing list

NAME (please print)	ADDRESS	TELEPHONE NUMBER	E-MAIL	YES	NO
John Severand	LA Monitor		John@lamonitor.com		
Eric Trujillo	LASO	665-5914	ETRUJILLO@DOEAL.GOV		
Dennis Hjeresen	LANS	665-7251	dlh@lanl.gov		
Steve Pullen	NMED	476-6044	Steve.Pullen@state.nm.us		
Toni Chiri	LASO	667-6691			✓
KYLE DEINES	LANL				✓
Kelsey Souza	LANL				✓
AUSTIN BLANKS	LANL				
Jeff Chernicky	LANL	665-2505			
Ken Hargis	LANL	667-2347	khargis@lanl.gov		✓

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Do you want to be on the mailing list

NAME (please print)	ADDRESS	TELEPHONE NUMBER	E-MAIL	YES	NO
John Ahlquist	Walnut Creek, CA				
BLAKE CLEGHORN					
Catherine Juarez	4740 Dewina Dr RR, NM		catherinejuarez@msn.com		
Angela Martinez	P.O. Box 1403 Santa Cruz, NM 87567		angmtz505@gmail.com	✓	
Patricia Jones	709 C Viento Dr. Santa Fe 87501		pjones850@yahoo.com		
Joni Arends	107 Cienega SF 87501		jarends@nuclearactive.org	–	
Susan Gordon	903 W Alameda #505 SF NM 87501		sgordon@ananuclear.org		
Scott Kovac	551 W Cordova #808 #87505, SFNM		scott@nukewatch.org	✓	
Luciana Vigil Holterman	43609 NB436 Espanola NM		vigilholterman@gmail.com		
TAMMY DIAZ	Santa Fe, NM		tammy_diaz@hotmail.com		✓

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Wednesday, August 10, 2011
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Do you want to be on the mailing list?

NAME (please print)	ADDRESS	TELEPHONE NUMBER	E-MAIL	YES	NO
Nick Salazar	PO Box 644	505 629 9598	nicks@lanl.gov	X	
Janice Salazar	P.O. Box 644	606-2077	jaragon@lanl.gov	X	
Edwin Groover	1306 Bikini Pl Augusta GA 30909	706-736-3624	egroover83@hotmail.com		X
Crystal Rodarte-Romero	—	505-927-3297	crystal@lanl.gov	X	
Terry Snagel	—	505 662 5630	snagetl@lanl.gov		X
Patricia Harlow	LA	662 4179			no need
Dan Vitalotti	Po Box 912 LA		DVitalotti@AOL.com		X
Joe Frey					X
Judy Frey					X
Dan Schmitt			dschmitt@lanl.gov		X

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Wednesday, August 10, 2011
TRU Waste Facility Permit Modification Public Information Meeting @ Fuller Lodge – SIGN IN SHEET

NAME (please print)	ADDRESS	TELEPHONE NUMBER	E-MAIL	YES	NO
JUAN GRIEGO		505 665 6439	JUAN.GRIEGO@NNSA.DOE.GOV		
Jermaine Herrera		667-1023	jermaine@lanl.gov		

Los Alamos National Laboratory
TRU Waste Facility MODIFCATION

Los Alamos NATIONAL LABORATORY EST. 1943

COMMENT AND QUESTION CARD

Why is this meeting being held without having released the permit modification?

The stockpile is being reduced. Has the Lab considered the smaller amount of waste that will be generated when examing the need for this facility?

How much of the existing waste has to be moved to the new facility? Why can't it stay where it is?

What new waste will be received when it opens?

Provide a paper color copy of mod Request when given to NMED.

(Optional) Name: SGordon Telephone: Email: sgordon@ananuclear.org
Mailing List:
Address City State Zipcode

Visit our website: www.lanl.gov/environment

Los Alamos NATIONAL LABORATORY EST. 1943

Los Alamos National Laboratory
TRU Waste Facility MODIFCATION

COMMENT AND QUESTION CARD

Please put presentation and posters online.

Would like to have the storage buildings built more robustly. HARDened storage.

WE NEED TO HAVE A Copy of the DRAFT Permit for This Meeting!

MAKE These ~~Lines~~ spaces Bigger, please.

There is a smaller chance That The public will try To ask for a hearing if the public has a Copy of the draft permit at this meeting.

Please explain why RANT-type facility is not planned for here.

(Optional) Name: SK Telephone: Email:
Mailing List:
Address City State Zipcode

Thanks

Visit our website: www.lanl.gov/environment

Los Alamos National Laboratory
TRU Waste Facility MODIFCATION

COMMENT AND QUESTION CARD

It appears that this facility has been well designed through a robust process. I urge it be completed as expeditiously as possible. It will lead to improved waste management.

(Optional) Name: John Ahlquist Telephone: Email:
Mailing List: on record
Address City State Zipcode

Visit our website: www.lanl.gov/environment

Los Alamos
NATIONAL LABORATORY
EST. 1943

Los Alamos National Laboratory
TRU Waste Facility MODIFCATION

COMMENT AND QUESTION CARD

Request for paper color copy of PMR application submitted to NMED
Please send to:
CCNS
107 Cienega
Santa Fe, NM 87501
Please coordinate calendars w/ NNSA CMRR semiannual mtg, OD PMR FEED mtg, and TWF PMR Mtg.

(Optional) Name:________ Telephone:________ Email:________
Mailing List:________
Address City State Zipcode

Please schedule only one public mtg a week. Please honor Pueblo cultural calendar.

Visit our website: www.lanl.gov/environment

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What is the design-basis earthquake for the proposed TWF?
What is the vertical PGA?
what is the horizontal PGA?

What is VPGA for simultaneous earthquake?
" HPGA " ?

What is VPGA for synchronous earthquake?
" HPGA " ?

What is the site for the exemption under NM law for no air quality construction permit?

(Optional) Name: CCNS Telephone: Email: CCNS@nuclearactive.org
Mailing List:
Address City State Zipcode

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MEETING FEEDBACK CARD

Los Alamos
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Meeting Date: 8/10/11
Meeting Title: Tru Waste Facility Permit Mod

In order to serve you better, we are collecting feedback and suggestions about our public outreach effectiveness and suggestions for project execution.

	Strongly agree	Agree	Disagree	Strongly disagree	Not applicable
I was provided the information I needed to give comments				X	
The information presented was clear and effective					
The technical staff, poster displays, and information sheets were helpful			X		

Suggestions or Comments:

A draft of the permit should have been available before this meeting.

(Optional) Name:______ Telephone:______ Email:______
Mailing List:______
Address City State Zipcode

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