SAND2017-8976R

SANDIA NATIONAL LABORATORIES
TONOPAH TEST RANGE, ASSEMBLY BUILDING 9B
(Building 09-54)
Area 9
Tonopah Test Range
Nye County
Nevada

HAER No. NV-XXXX

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
San Francisco, California 94107

HISTORIC AMERICAN ENGINEERING RECORD

SANDIA NATIONAL LABORATORIES, TONOPAH TEST RANGE
ASSEMBLY BUILDING 9B
(BUILDING 09-54)

Location: Area 9, Sandia National Laboratories' Tonopah Test Range, Nye County, Nevada

Date of Construction: 1960

Engineers/Architects: Kenneth S. Clark and Philippe Register, Architect-Engineer, Santa Fe, New Mexico

Builders: General Contracting Corporation

Present Owner: U.S. Department of Energy/National Nuclear Security Administration

Present Use: None. Building is unoccupied.

Significance: Assembly Building 9B (Building 09-54) is a contributing element to the Sandia National Laboratories (SNL) Tonopah Test Range (TTR) Historic District. The SNL TTR Historic District played a significant role in U.S. Cold War history in the areas of stockpile surveillance and non-nuclear field testing of nuclear weapons designs. The district covers approximately 179,200 acres and illustrates Cold War development testing of nuclear weapons components and systems.

Within the district, Assembly Building 9B represents the assembly activities undertaken in preparing units for rocket launches. Assembly Building 9B housed hazardous materials assembly and its location apart from the other facilities in Area 9 reflects that role. As part of the basic operations for rocket testing, it supports the district's representation of the established TTR Cold War theme of field testing.

The SNL TTR Historic District's period of significance is 1956-1989. Assembly Building 9B retains integrity and is a contributing element for 1960-1989.

Part I. HISTORICAL INFORMATION

A. Physical History[1]

1. **Date of erection:** 1960

2. **Architect:**
   Kenneth S. Clark and Philippe Register, Architect-Engineer, Santa Fe, New Mexico.

3. **Original and subsequent owners, occupants, uses:**
   Assembly Building 9B (Building 09-54) was built and used in support of rocket testing activities in SNL TTR's Area 9. SNL, a government-owned, contractor-operated facility, is owned by the U.S. DOE/NNSA.

4. **Builder, contractor, suppliers:**
   General Contracting Corporation, Salt Lake City, Utah

5. **Original plans and constructions:**
   Kenneth S. Clark and Philippe Register, Architect-Engineer, Santa Fe, New Mexico, did the original plans for the building, which are dated February 23, 1960. The building was completed in September 1960. The plans show a one-room, pre-engineered metal building with pedestrian entrances on the east and west walls and a metal roll-up door entry on the north end. The building rests on a poured concrete foundation. (Figure 8)

   The building was designed to house assembly activities involving hazardous (mainly explosive) materials. As a result, it was sited away from the control buildings and launchers in Area 9 (Figures 3, 4, 5, and 6).

6. **Alterations and additions:**
   Soon after construction was completed, a u-shaped monorail hoist was added in the building, suspended at ceiling height (Figure 9). The building has undergone no other alterations or additions.

B. Historic Context:

Assembly Building 9B (Building 09-54) was built in 1960. It was part of the first round of expansion of the site's initial rocket test facilities in TTR's Area 9. It

[1] The following building drawings were used in determining the correct dates of the physical history of Assembly Building 9B (Building 09-54): "Building and Facilities; Station 3 & 9, Station 9 Site, Location and Layout Map," Drawing 87625, Sheet 1 of 22, February 23, 1960; "Buildings & Facilities: Stations 3 & 9, Tonopah Ballistics Range, Buildings 9-B, Plans & Elevations, Architectural, Bldg. #954, Tonopah," Drawing 87625, Sheet 9 of 22, February 23, 1960; and "Monorail Modifications Building 9-B, Architectural, Tonopah," Drawing 77861, August 23, 1960.

provided space for the assembly of hazardous materials and test units, supplementing the non-hazardous assembly activities housed in Assembly Building 9A (Building 09-52).

Early SNL History

SNL began as Z Division, the engineering group of Los Alamos National Laboratory (LANL).[2] LANL was established during World War II (WWII) as the scientific design entity within the Manhattan Engineer District (MED) tasked with the development of atomic weapons. LANL scientists successfully tested the first atomic device at Trinity Site near Alamogordo, New Mexico, on July 16, 1945. On August 6 and 9, 1945, the U.S. deployed the first two atomic bombs against Japan, ending WWII.[3]

In July 1945, around the time of the Trinity test, LANL director J. Robert Oppenheimer gathered up several engineering functions into Z Division. In September 1945, Z Division began moving to Sandia Base, a U.S. Army base just east of Kirtland Air Force Base (KAFB),[4] outside of Albuquerque. Oppenheimer moved Z Division from the main site to alleviate crowded conditions at LANL, to work more closely with the military, and to take advantage of the nearby KAFB airfield for testing.

Z Division originally designed, tested, and oversaw the production of all of the non-nuclear systems on a nuclear weapon. It also had responsibility for training the military in assembly and handling of the weapons, testing completed weapon designs at offsite testing facilities, and supporting full-scale nuclear tests.

In 1946, with passage of the Atomic Energy Act and President Truman's signature, Congress created the Atomic Energy Commission (AEC) to oversee the

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[2] Los Alamos National Laboratory (LANL) will be referred to here by its current name. Originally, LANL was identified as Los Alamos Scientific Laboratory. It became a national laboratory via legislation passed in 1979.

[3] The account of the Manhattan Project and SNL's early history is from Necah Stewart Furman, *Sandia National Laboratories: the Postwar Decade* (Albuquerque: New Mexico, 1990); Gregg Herken, *The Winning Weapon: The Atomic Bomb in the Cold War, 1945-1950* (New York: Alfred Knopf, 1980); Leland Johnson, *Sandia National Laboratories: A History of Exceptional Service in the National Interest* (Albuquerque: Sandia National Laboratories, 1997); Charles R. Loeber, *Building the Bombs: A History of the Nuclear Weapons Complex,* Second Edition (Albuquerque: Sandia National Laboratories, 2005); Rebecca Ullrich, Michael Anne Sullivan, Cynthia Martin, and Dick Gerdes, *Sandia in the Cold War and Post-Cold War Periods: A Statement of Historic Context for Sandia National Laboratories/New Mexico,* SAND2010-4971P (Albuquerque: Sandia National Laboratories, 2010); and Peter Westwick, *The National Labs: Science in an American System, 1947-1974* (Cambridge: Harvard University Press, 2003).

[4] Kirtland Air Force Base is referred to here by its current name. It was originally called the Albuquerque Army Air Base and used as an army staging and training facility. It was renamed Kirtland Army Airfield in 1942 in honor of aviation pioneer Colonel Roy C. Kirtland. It, Sandia Army Base, and Manzano Army Base merged into Kirtland Air Force Base (KAFB) in 1971.

development and management of new nuclear weapons and atomic energy applications.

The AEC took over all MED activities and properties on January 1, 1947. Z Division continued to provide ordnance engineering for nuclear weapon designs. Plans included having Z Division function as the production and assembly site for the growing nuclear weapons complex. Z Division also participated in and supported all post-WWII nuclear tests.

On April 1, 1948, Z Division became Sandia Laboratory, a separate branch of LANL. The following year, on November 1, 1949, Sandia Corporation, a wholly owned subsidiary of Western Electric, took over management of the lab, which became a separate entity from LANL.[5] The core mission of ordnance engineering for nuclear weapons, including testing and production of non-nuclear components remained the same.

As part of its design efforts, SNL conducted environmental tests on each component, weapon sub-system, and final weapon design. Over time, testing was done in off-the-shelf environmental test equipment in SNL/NM buildings, in large test facilities built to the south of the main SNL/NM Tech Area, and at remote sites with space and facilities for drop-testing components and prototypes.

Establishing Tonopah Test Range
SNL's early testing activities included ballistic studies of weapon shapes—dropping test devices from aircraft to determine how and where they fell. Drop tests were also used to test the operation of weapon subsystems in flight. In its first months as Z Division, the lab established a practice bombing range west of Los Lunas, New Mexico. By December 1945, the Z Division field test group was setting up equipment at the Los Lunas test range.

While arrangements were underway at the Los Lunas range, the MED received permission to let Z Division use the Salton Sea Test Base as well. The U.S. Navy established a test range at the Salton Sea in southern California during WWII.[6] In June 1946, the U.S. Navy's buildings at the site were transferred to the U.S. Army for use as a bombing range by Z Division.

Sitting approximately 200 feet below sea level and offering excellent testing weather for most of the year, the Salton Sea site allowed Z Division to test ballistic performance in dense, sea-level atmospheric conditions unavailable in

[5] Sandia Corporation became Sandia National Laboratories (SNL) via legislation passed in 1979. It will be referred to as SNL throughout this report.
[6] This was the Naval Auxiliary Air Station at Salton Sea. During WWII, the MED also occasionally used the site as a low-altitude bombing range.

New Mexico. It had a water impact area and, later, a land target. SNL used the site until 1960.

By the mid-1950s, the Salton Sea Test Base experienced tension between a growing number of weapon programs requiring testing and general population growth in the area. Increased population to the west blew in additional haze in the air, limiting visibility for instruments and cameras. The growing population in the nearby Imperial Valley filled in previously open land, restricting opportunities to place tracking stations further out from the target points. Finally, bombing approaches became more complicated as commercial airways increased in the area.

The AEC and SNL launched a search for a new test site. A variety of sites were considered. Potential sites near Salton Sea were small and posed similar problems to the Sea itself. A temporary site was established in 1954 on the bed of Yucca Lake, within the AEC's Nevada Test Site, while scouting continued for an area that could accommodate low-altitude as well as high-altitude approaches. Multiple sites in Arizona, Virginia, Texas, and Colorado were reviewed and excluded.

An area known as Cactus Flats in the northwestern section of the Las Vegas Bombing and Gunnery Range (now Nellis Air Force Base) presented a series of dry lake beds stretching north-south in a long valley between the Cactus Range to the west and the Kawich Range to the east. Used as a practice bombing range during WWII, the site offered a set of potential impact points in the dry lake beds and good flying weather. The Air Force authorized AEC use of the property for SNL for five years beginning November 9, 1956. Approximately 35 miles southeast of Tonopah, Nevada, the site was named Tonopah Test Range.

In the fall of 1956, SNL selected Pork Lake, the northernmost in the string of lake beds, as the primary impact point for drop tests and began construction of facilities. SNL's Plant Engineering Department was responsible for design and the Reynolds Electrical & Engineering Company (REECo) undertook construction work. The AEC had an existing contract with REECo to provide maintenance for the Nevada Test Site and extended that to cover TTR construction. In 1958, a contract was placed with REECo for TTR operation and maintenance activities.

In addition to lights and night-camera stations installed around the target area, construction in the first months included four instrument stations for tracking test items and data collection. Among these was the main Control Point for operations, identified as Area 3 within TTR. Located six miles south of the target, the Area 3 included a generator, offices, a weather station, control consoles, photographic facilities (including a darkroom), and an Askania phototheodolite station.

Testing began on February 4, 1957, with drop tests done both during the day and at night. By the summer, testing included rocket launches. Rocket testing was added to the site as part of the preparation for the Operation Hardtack series of nuclear test shots in the Pacific, scheduled for 1958.

SNL was new to rocket development and testing. The lab tested its first rocket system from a B-36 over White Sands Missile Range (WSMR) in June 1957. Additional air-releases took place at WSMR and TTR throughout 1957 and 1958.

For Hardtack, SNL developed the Doorknob rocket system to carry diagnostic instrumentation and to gather radiochemical samples during the high-altitude nuclear test shots (the Teak and Orange events). The systems captured weapon effects data, atmospheric physics data, and meteorological data.

SNL's development activities included both air releases and ground launches to test systems. Testing encompassed both rocket systems and payloads, including recovery systems.

To support ground-launched tests, SNL created a rocket launch capability in Area 9, northeast of the main target at TTR (Figures 1 and 2). The facilities constructed by REECo during the summer of 1957 included two rocket launchers (Launcher 1 and Launcher 2), an air-building for assembly activities (subsequently replaced by Assembly Building 9A (Building 09-52)), and the Observation Bunker (Building 09-50).

Rocket research and development continued in 1959, with a new high-altitude sampler rocket system introduced in 1960. The new system was not used in nuclear testing right away due to the moratorium the U.S. and USSR established in 1958. The test moratorium remained in effect until 1961. The new SNL-developed rocket system was used in the 1962 Fishbowl high-altitude shots of the Operation Dominic nuclear test series. The system provided recoverable payloads for weapon diagnostics, nuclear debris sampling, and meteorological data.

As rocket research continued at TTR, the site also extended its capabilities in support of both rocket and drop testing. The AEC approved an expansion and improvement program for the site in early 1959. The USAF also extended the permit for SNL's operations until March 31, 1969.[7] On September 1, 1960, TTR was named Sandia's permanent test range and the Salton Sea Test Base range was closed.

[7] The permit has been continuously extended since, with some changes in the site's boundaries over time.

The range expansion was swift and extensive (Figure 4). Additional tracking and data capture stations were added along the line of flight to the target, support facilities at the Control Point were expanded, the weather station at the Control Point was moved to the west side of the range, the Askania phototheodolite stations were replaced with Contraves cinetheodolite stations, and a Control Tower was added. The target impact area on Pork Lake was supplemented with a concrete hard target.

In Area 9, the General Contracting Company of Salt Lake City, Utah, was engaged to install two small Butler-type buildings, a storage igloo, and a prefabricated steel-framed assembly building identified as Assembly Building 9B (Building 09-54) for hazardous assembly activities. This round of construction in Area 9 was completed in the fall of 1960.

Testing increased in subsequent years. Assembly Building 9B was in frequent use for the assembly of test units involving hazardous materials, most frequently explosives, and for handling the rocket motors used in rocket testing. In addition to rocket system and payload development work, SNL used the rockets for acceleration testing of nuclear weapon components. Parachutes, for example, could be propelled to greater speeds and altitudes than could be achieved in drop tests, providing evidence of how they (and the materials of which they were made) would behave under extreme conditions.

The Area 9 capabilities continued to expand. By 1964, there were five rocket launchers in place. In that year, an additional Fire Control Bunker (Building 09-51) was added on the west side of the Observation Bunker (Building 09-50) (Figure 5). By the late 1960s, construction tapered off as the range settled into a more regular, although busy test schedule. Facilities were added to bring in new capabilities—for example, in 1971, another control bunker was added to Area 9 to support testing using large (155 mm) guns (Figure 6). In the late 1970s, TTR management made an argument to refurbish many of the facilities, particularly in Area 3 in support of the overall test control and observation activities.

Assembly Building 9B did not undergo significant renovation at any point. The monorail hoist inside the building was added shortly after the building was constructed and, once the building fell into disuse, some equipment was removed. The building itself remains intact (NV-XXXX-1, -2, -3, and -4).

Rocket testing continued through the end of the Cold War and sporadically in the following decade. Assembly Building 9B (Building 09-54) has been used for various project activities in the absence of rocket testing, but has not been altered. It is not currently in use and SNL has no plans for its use in the future. Related facilities in Area 9, including the Observation Bunker (Building 09-50) and Fire Control Bunker (Building 09-51) are also unused and scheduled for demolition.

Part II. ARCHITECTURAL INFORMATION

A. General Statement:

1. **Architectural character:**
   Building 09-54 is a one and one-half story, rectangular, pre-engineered, steel-framed Butler-type building. It has metal siding and a metal gable roof. There are pedestrian entrances on the east and west sides and a roll-up metal door on the north end. The south exterior wall bears two blow-out metal panels and the east and west sides each have two windows. The building rests on a poured concrete slab foundation. (NV-XXXX-1, -2, -3, and -4)

2. **Condition of fabric:**
   Fair (Figure 10).

B. Description of Exterior:

1. **Overall dimensions:**
   Building 09-54 is one and one-half stories tall. The exterior is 20' wide x 40' long and rises 12' from the finished floor level to the eaves.

2. **Foundations:**
   The building rests on a 6" thick poured concrete slab foundation that sits above grade (NV-XXXX-2, -3, and -4; Figure 8).

3. **Walls:**
   The exterior walls of Building 09-54 are ribbed metal panels standard in pre-engineered buildings (NV-XXXX-2 and -4). The south wall has two smooth metal blow-out panels meant to provide weaker points in the buildings construction that would direct an explosion out the building's south end (NV-XXXX-3).

4. **Structural system, framing:**
   Building 09-54 has a steel frame. The frame is visible in the building's interior as the walls and ceiling are largely unfinished (NV-XXXX-7 and -8).

5. **Porches, stoops, balconies, porticoes, bulkheads**:
   A small concrete pad provides one step up to floor level outside each of the building's two pedestrian doors (NV-XXXX-2 and -4). The pad on the east side extends to the side of the driveway on the north end, providing a walkway between driveway and pedestrian entrance (NV-XXXX-1; Figure 10).

6. **Stairways:**
   The building has no exterior stairs or ladders.

7. **Chimneys:**
   Building 09-54 has no chimneys. There is a large air power exhauster on the roof (NV-XXXX-2).

8. **Openings:**
   a. **Doorways and doors:**
      The pedestrian door near the north end of the east side of the building is metal. It is a paneled door that opens outward. (NV-XXXX-2)

      The pedestrian door near the south end of the west side of the building is metal. It is a paneled door that opens outward. (NV-XXXX-4)

      There is a 10' x 10' metal roll-up door on the north end of the building. The housing for the door extends along the top edge of the door on the exterior of the building. The mechanism for operating the door is also on the exterior. (NV-XXXX-1)

   b. **Windows and shutters:**
      There are two windows on the building's east side and two on its west side (NV-XXXX-2 and -4). These are single-hung, steel-framed windows with the interior sash movable. The interior sash has four lites (2/2) and the exterior has 18 (6/6/6). (NV-XXXX-6 and -8)

9. **Roof:**
   Building 09-54 has a medium-pitch gable roof made of ribbed steel panels. The key elements of the lightning arrestor system are visible on the roof—a series of connected lightning rods and warning light. (NV-XXXX-1 and -2)

C. Description of Interior:
The basic floor plan of Building 09-54 is provided as Figure 7.

1. **Stairways:**
   There are no interior stairways in Building 09-54.

2. **Flooring:**
   The floor is concrete poured in sections (NV-XXXX-5 and -7).

3. **Wall and ceiling finish:**
   The walls and roof of Building 09-54 are lined with insulation (NV-XXXX-5, -7, and -8). The roof interior remains unfinished, as do the

interior walls above 6'. The lower 6' of the walls are lined with wood panels (NV-XXXX-5 and -6). There is no ceiling installed below the roof (NV-XXXX-7 and -8).

4. **Openings:**
   a. **Doorways and doors:**
      There are no interior doors. There is a curved steel protective panel in the southwest corner of the room (NV-XXXX-8).

   b. **Windows:**
      The only interior window in Building 09-54 is the small opening in the steel shield in the southwest area of the room (NV-XXXX-8). The glass is thick and dark and is set into the curved steel wall with a metal frame.

5. **Decorative features and trim:**
   The building is utilitarian in design and does not display any decorative features or trim.

6. **Hardware:**
   Pedestrian door on the building's west side: right-hand reverse rectangular-leaf hinges with knuckles on the exterior. Door handle and lock have been replaced at least twice; currently, the lock is centered in a metal plate with a cylindrical metal door pull. (NV-XXXX-4)

   Pedestrian door on the building's east side: left-hand reverse rectangular-leaf hinges with knuckles on the exterior. Door handle and lock have been replaced at least twice; currently, the lock is centered in a metal plate with a cylindrical metal door pull. (NV-XXXX-2)

   The metal housing and chain motor mechanism for operating the roll-up door on the north of the building are on the exterior (NV-XXXX-1). There are automatic controls for operating the door on both interior and exterior walls (NV-XXXX-1 and -5).

   Each window has a metal sash fastener on the top edge of the inside sash to lock it in place. The latches are operated by squeezing. (NV-XXXX-6)

7. **Mechanical Equipment:**
   a. **Heating, air conditioning, ventilation:**
      Building 09-54 has a hot water, projection type unit heater manufactured by Trane suspended from the interior roof supports (NV-XXXX-5 and -7). There are finned pipe radiation units manufactured

by the Vulcan Radiator Co. installed at the baseboard level along the east and west interior walls (NV-XXXX—5, -7, and -8).

A Farr Company rotary model evaporative cooler is installed on a stand near the center of the exterior west wall; the water tank originally installed next to it has been removed (NV-XXXX-4). Additional ventilation is provided by the power exhauster on the roof (NV-XXXX-2). Manufactured by Jenn Air, the exhauster holds a spark proof fan.

b. Lighting:
There are three rows of five conical metal light fixtures, each with one bulb, suspended from the interior of the roof to ceiling height (NV-XXXX-7 and -8).

c. Plumbing:
The building has no bathroom or boilers. Water pipes enter the building in the northeast corner in support of the heating system and extend to the baseboard-level heaters along the north and south walls, as well as the unit heater suspended from the ceiling in the north end of the room. The pipes appear to be capped off now. (NV-XXXX-5)

The water tank for the evaporative cooler on the building's west exterior is no longer in place (NV-XXXX-4)

8. Original Furnishings:
The work tables along the east wall appear to be original (NV-XXXX-5 and -6). The other remaining furniture (a table and several chairs) appears to date from the 1970s (NV-XXXX-7). A love seat and a medical gurney stored in the building do not appear to be part of the furnishings used when hazardous assembly took place (NV-XXXX-8).

9. Description of Equipment:
The building retains the curved 2000-lb capacity monorail hoist. It is attached to the building's steel framing and rests at ceiling height. There are also compressed-air hose and a fire extinguisher. The fire extinguisher is not original to the building. (NV-XXXX-7 and -8)

The building has two telephones mounted on the interior of the east wall. The spark-proof Bakelite, circular Model 320-type Western Electric telephone is original to the building. The other, princess-design AT&T telephone was installed later. (NV-XXXX-6)

D. Site:

1. Historic landscape design:

There is no historic landscape design associated with the test facilities at TTR in general or Building 09-54 specifically. The area around the building is cleared, with a poured concrete drive on the north side leading to the roll-up door. The areas immediately outside of the other three sides were paved, although much of that material is cracked and broken now, leaving opportunities for native vegetation. (NV-XXXX-1, -2, -3, and -4)

2. **Outbuildings:**
   There are no outbuildings associated with Building 09-54. It is located in the southwest section of Area 9 and is affiliated with the other buildings supporting rocket launching activities in the area. (Figures 3 and 6)

Part III. SOURCES OF INFORMATION

A. Architectural Drawings: Architectural drawings are held in the SNL Facilities Library, with copies at TTR.

"Building and Facilities; Station 3 & 9, Station 9 Site, Location and Layout Map," Drawing 87625, Sheet 1 of 22, February 23, 1960.

"Buildings & Facilities: Stations 3 & 9, Tonopah Ballistics Range, Buildings 9-B, Plans & Elevations, Architectural, Bldg. #954, Tonopah," Drawing 87625, Sheet 9 of 22, February 23, 1960.

"Buildings & Facilities: Stations 3 & 9 Tonopah Ballistics Range, Plans & Details, Mechanical, Bldg. 954, Tonopah," Drawing 87625, Sheet 10 of 22, 1960.

"Buildings & Facilities: Stations 3 & 9, Tonopah Ballistics Range, Building 9-B, Plans & Details, Electrical, Bldg. #954, Tonopah," Drawing 87625, Sheet 11 of 22, February 23, 1960.

"Monorail Modifications Building 9-B, Architectural, Tonopah," Drawing 77861, August 23, 1960.

"Station 9—T.T.R.," Drawing 91558, June 30, 1970.

"Plan View, Building 9B, 09-54," Drawing S93701, Sheet 1 of 1, ca. 1988.

B. Early Views:
No early photographs of the building were located.

C. Interviews:
Although there were several discussions with current TTR staff regarding the rocket launch activities and related support functions in Area 9, no formal interviews were recorded.

D. Bibliography:
Alexander, Frederic C., Jr. *A History of the Tonopah Test Range.* SC-M-68-126. Albuquerque: Sandia Laboratory, 1968.

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Ullrich, Rebecca. "Historical Assessment of Facilities Scheduled for Fiscal Year 2003 Demolition; Sandia National Laboratories' Tonopah Test Range, Nye County, Nevada." Albuquerque: Sandia National Laboratories, 2003.

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Ullrich, Rebecca, Jayne Aaron, and Judy Berryman. *Historic Building Survey: Sandia National Laboratories' Tonopah Test Range, Nye County, Nevada. Volume II: Survey and Historic Resource Inventory Forms.* SAND2005-5109P. Albuquerque: Sandia National Laboratories, 2005.

Ullrich, Rebecca A., Michael Anne Sullivan, Cynthia Martin, and Dick Gerdes. *Sandia in the Cold War and Post-Cold War Periods: A Statement of Historic Context for Sandia National Laboratories/New Mexico.* SAND2010-4971P. Albuquerque: Sandia National Laboratories, 2010.

Westwick, Peter. *The National Labs: Science in an American System, 1947-1974.* Cambridge: Harvard University Press, 2003.

E. Likely Sources Not Yet Investigated:
None

F. Supplemental Material:

None.

Part IV. PROJECT INFORMATION

This report was prepared by Rebecca Ullrich of the SNL[8] Corporate Archives and History Program.

In 2005, DOE/NNSA/SSO completed consultation with the Nevada State Historic Preservation Officer (SHPO) regarding the historic significance and eligibility of the Sandia National Laboratories Tonopah Test Range Historic District for the National Register of Historic Places. DOE determined that fifty buildings located at SNL's Tonopah Test Range were eligible as a district based on the Secretary of the Interior's Criteria for Eligibility. Assembly Building 9B (Building 09-54) was one of the buildings identified as part of the district and is a contributing element to it. SNL has not used Building 09-54 for several years and is planning to demolish it.

Large- and medium-format photographs of the contributing elements within the district were taken by SNL photographers Jim Galli, Joseph M. Bonaguidi, and William Suderman. Jerry Elliston and Clair Blackburn provided construction, design, and maintenance information about the facilities at the site. Myra O'Canna, SNL Corporate Archivist, provided research advice, access to relevant collections, and copies of historical photographs. Joe Bonaguidi and Joanna Eckstein of the SNL NEPA Program oversaw the project.

[8] Sandia National Laboratories is a multimission laboratory managed and operated by National Technology and Engineering Solutions of Sandia, LLC., a wholly owned subsidiary of Honeywell International, Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

Figure 1 USGS 1:100,000 Topo Map.
USGS TOPO MAP MARKED TO INDICATE CONTRIBUTING ELEMENTS WITHIN THE SANDIA NATIONAL LABORATORIES TONOPAH TEST RANGE HISTORIC DISTRICT, INCLUDING AREAS 3 AND 9

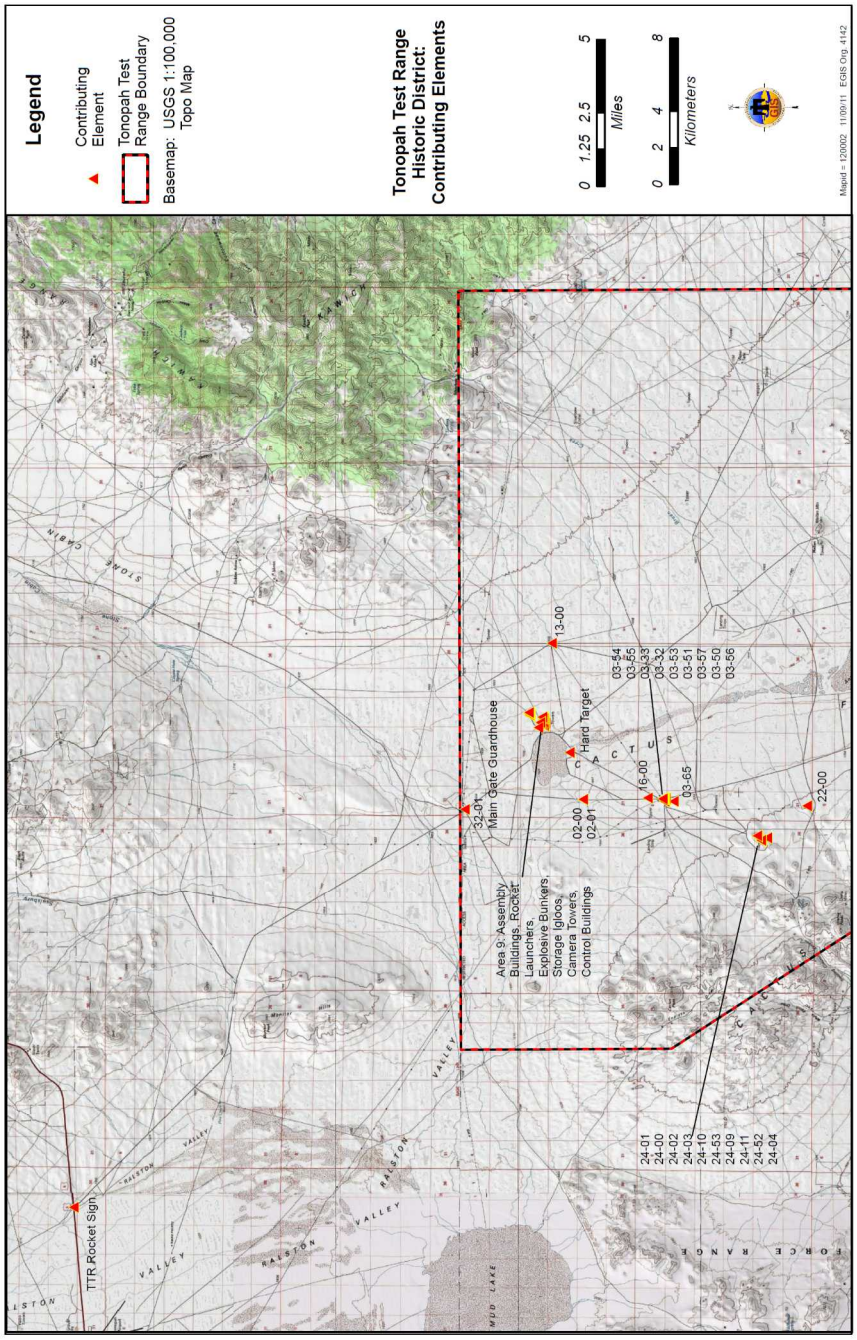

Figure 2 USGS 1:24,000 Topo Map.
USGS TOPO MAP MARKED TO INDICATE CONTRIBUTING ELEMENTS WITHIN THE SANDIA NATIONAL LABORATORIES TONOPAH TEST RANGE HISTORIC DISTRICT; NORTH PORTION OF TONOPAH TEST RANGE; INCLUDING AREA 9, WITH BUILDING 09-54

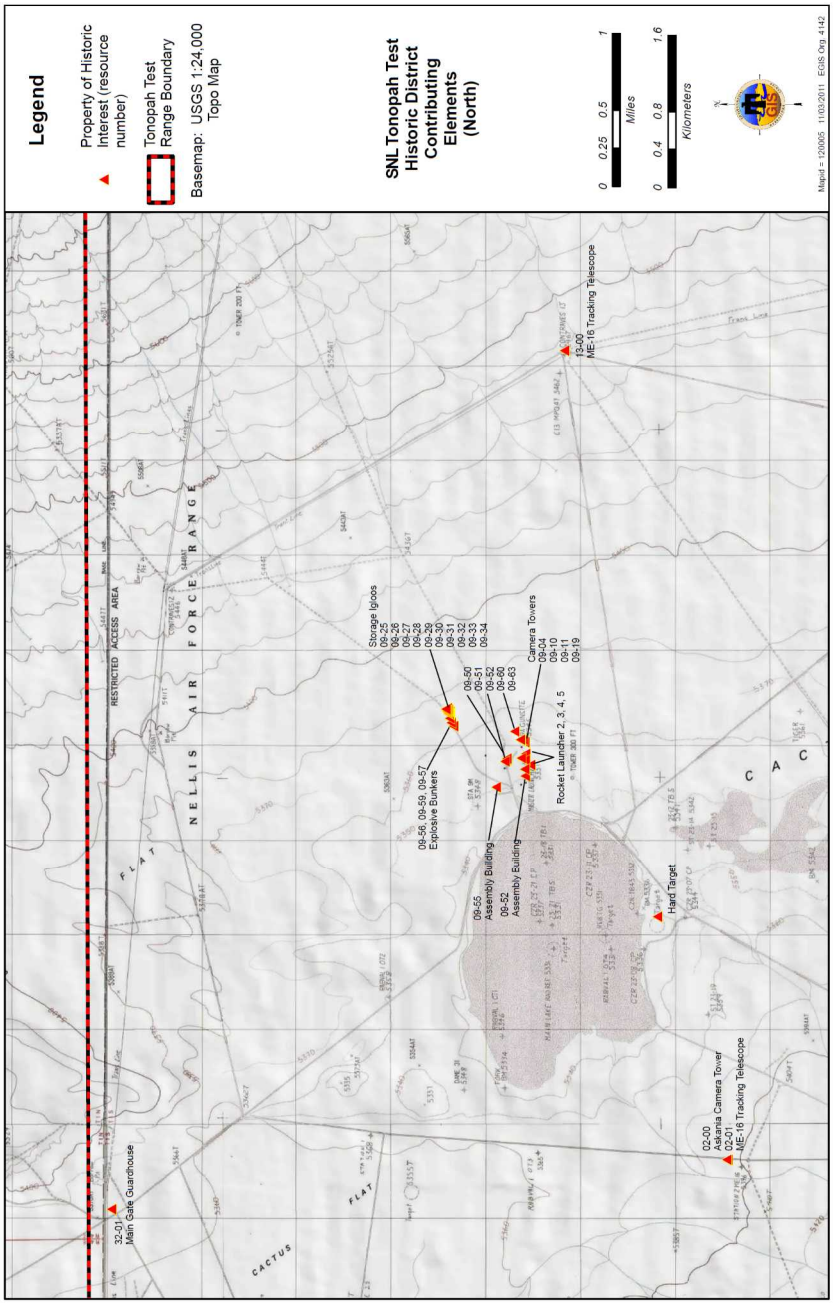

Figure 3 "TTR-area IX."
SIMPLE SCHEMATIC OF AREA 9, TONOPAH TEST RANGE, INDICATING LOCATION OF 09-54 RELATIVE TO THE LAUNCHERS AND OTHER SUPPORT FACILITIES IN THE AREA.

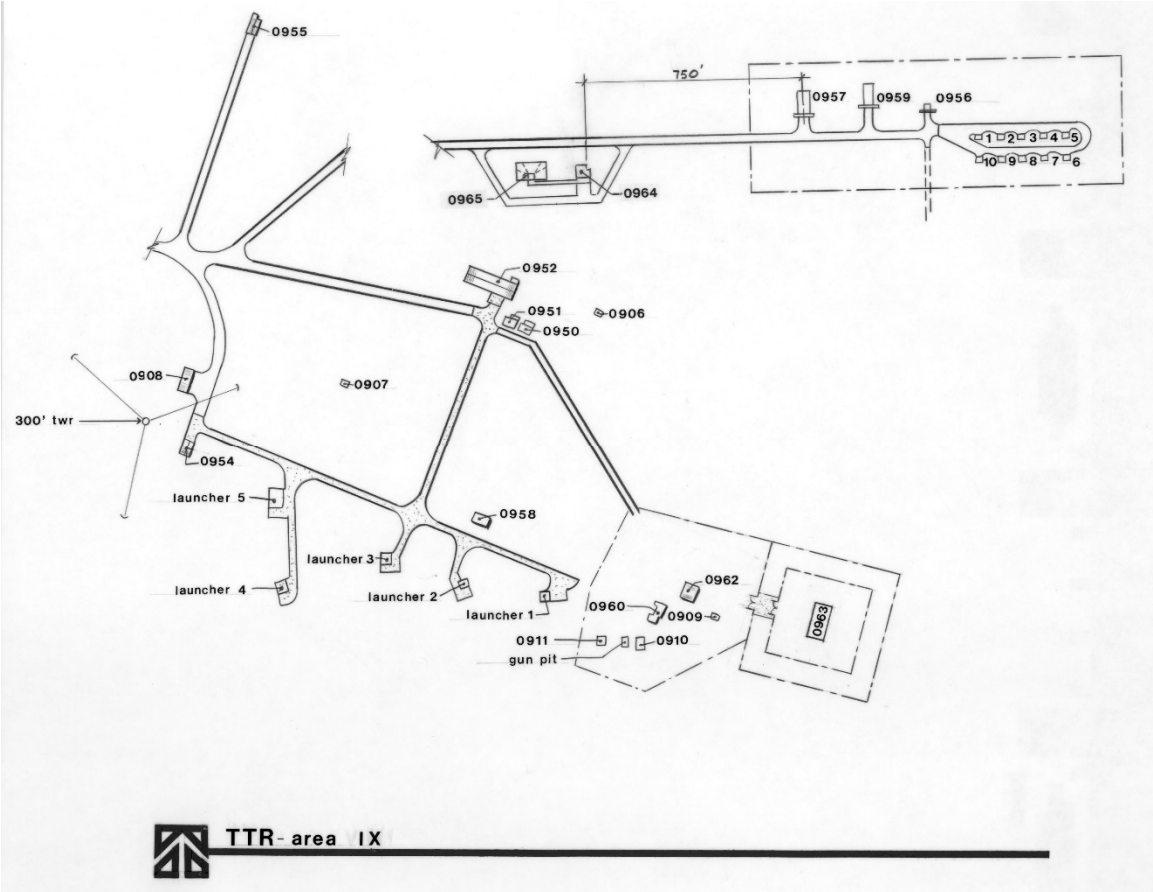

Figure 4 Sandia Plant Engineering, "Building and Facilities; Station 3 & 9, Station 9 Site, Location and Layout Map," Drawing 87625, Sheet 1 of 22, February 23, 1960.
AREA 9, TONOPAH TEST RANGE; LOCATION OF PROPERTIES IN AREA 9; BUILDING 09-54 IS IN SOUTHWEST SECTION OF AREA (FAR LEFT ON DRAWING)

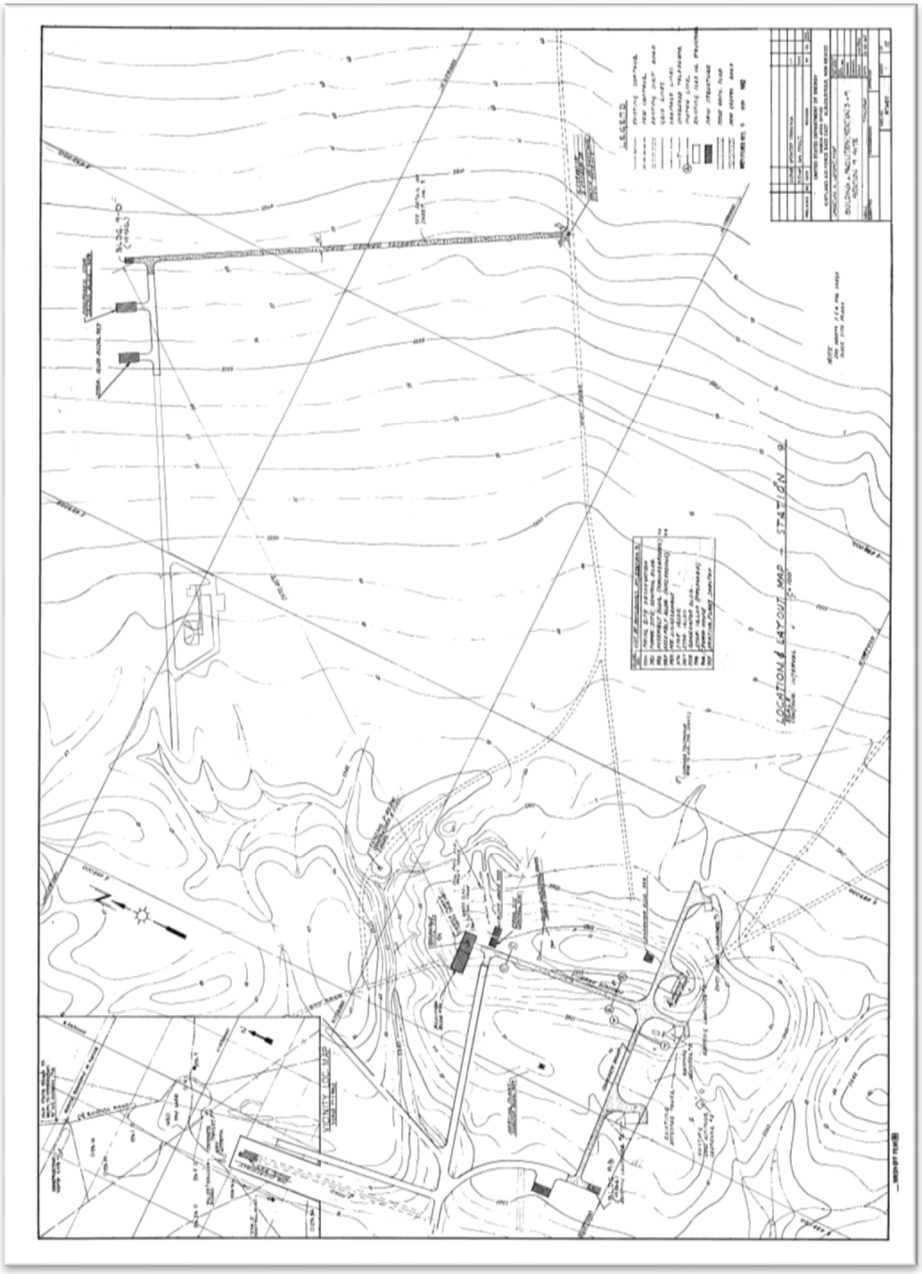

Figure 5 Sandia Plant Engineering, "Station 9—T.T.R.," Drawing 91558, June 30, 1970.
TONOPAH TEST RANGE, AREA 9; LOCATION OF PROPERTIES WITHIN AREA 9; BUILDING 09-54 IN SOUTHWEST CORNER

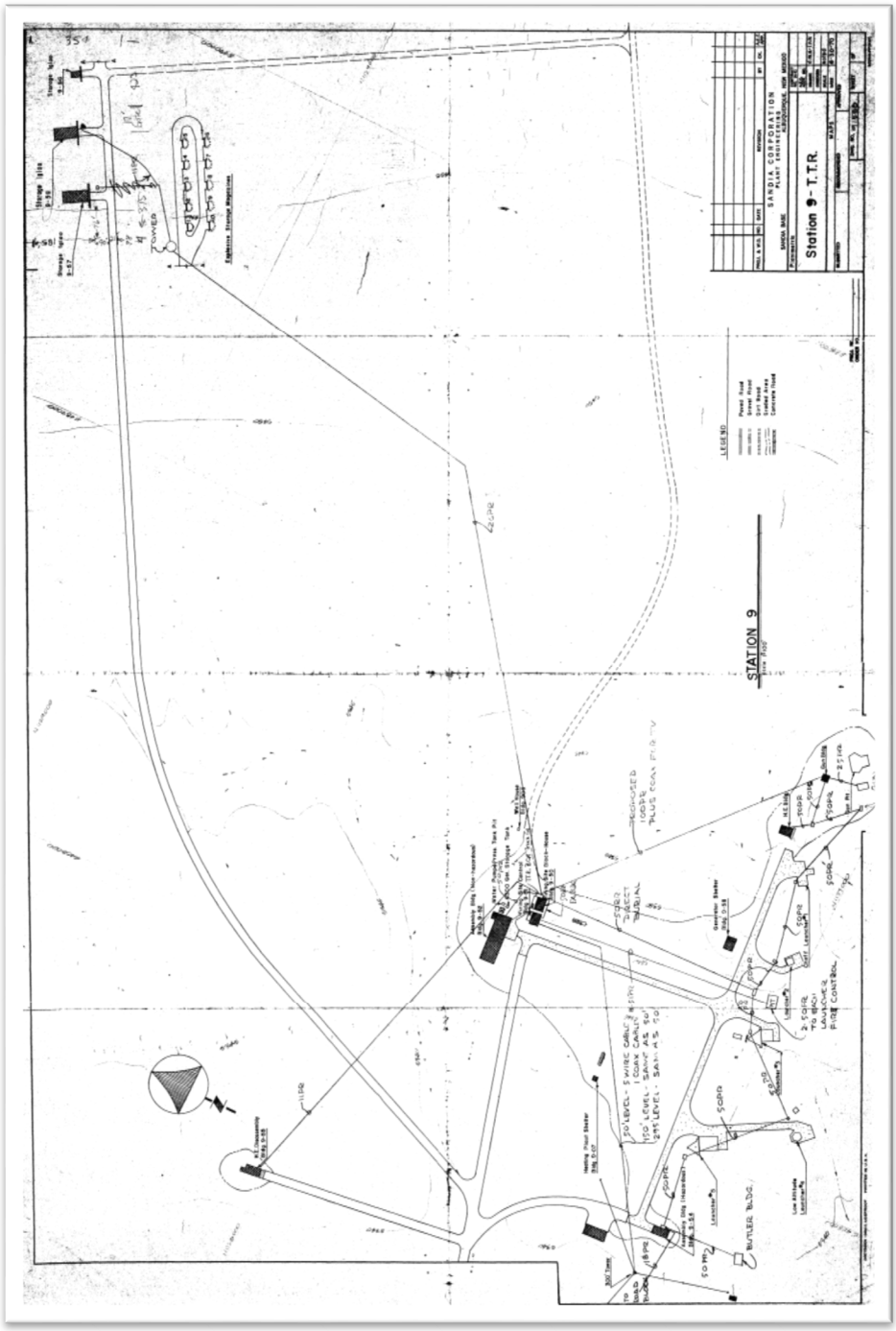

Figure 6 Photographer unknown. 1985.
AREA 9, TONOPAH TEST RANGE; AERIAL PHOTOGRAPH; BUILDING 09-54 IS LEFT OF CENTER, IN FRONT OF BUILDING 80-00, 300' METEOROLOGICAL TOWER; VIEW FROM WEST

Figure 7 Sandia Plant Engineering, "Plan View, Building 9B, 09-54," Drawing S93701, Sheet 1 of 1, ca. 1988.
ASSEMBLY BUILDING 9B, BUILDING 09-54; CURRENT FLOOR PLAN

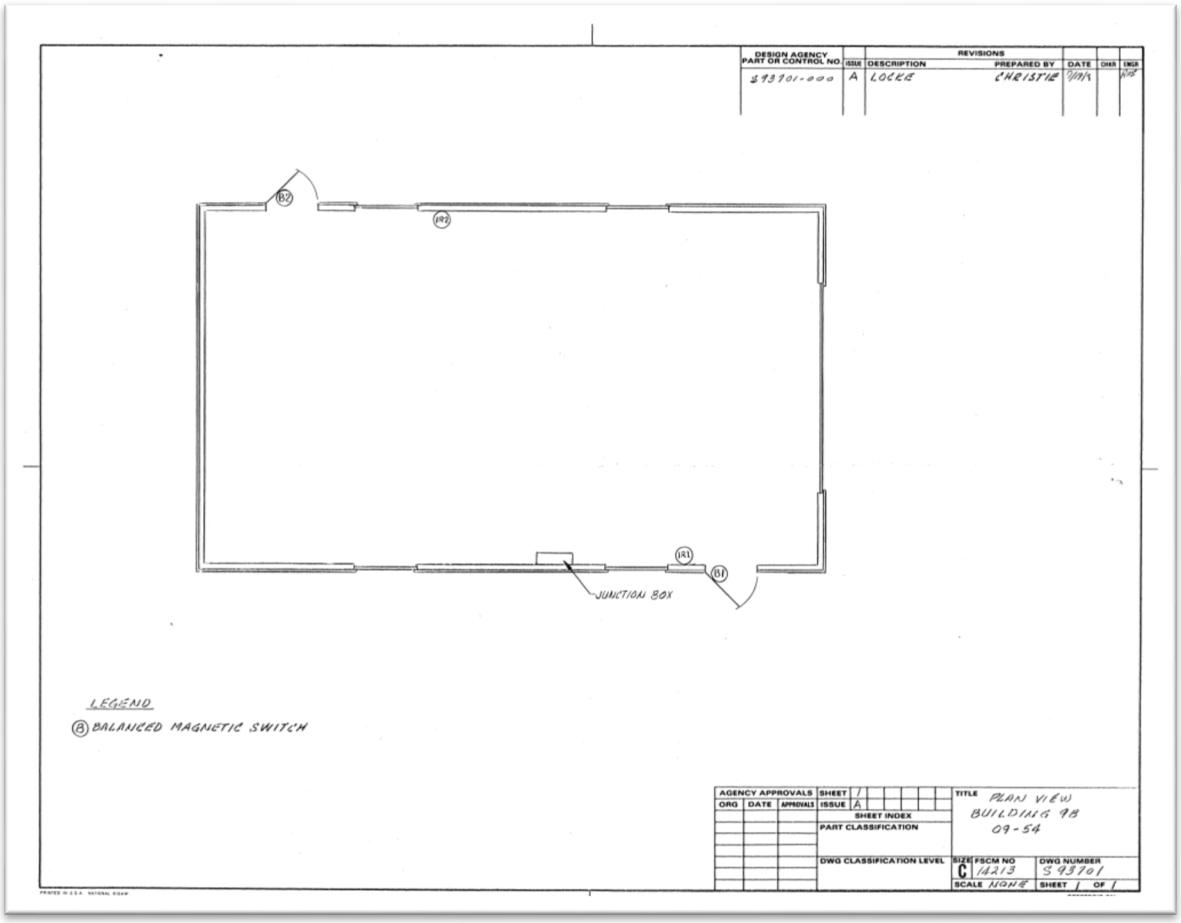

Figure 8 Kenneth S. Clark, "Buildings & Facilities: Stations 3 & 9, Tonopah Ballistics Range, Buildings 9-B, Plans & Elevations, Architectural, Bldg. #954, Tonopah, drawing 87625, Sheet 9 of 22, marked as-built 1960. ASSEMBLY BUILDING 9B, BUILDING 09-54; AS-BUILT ELEVATIONS

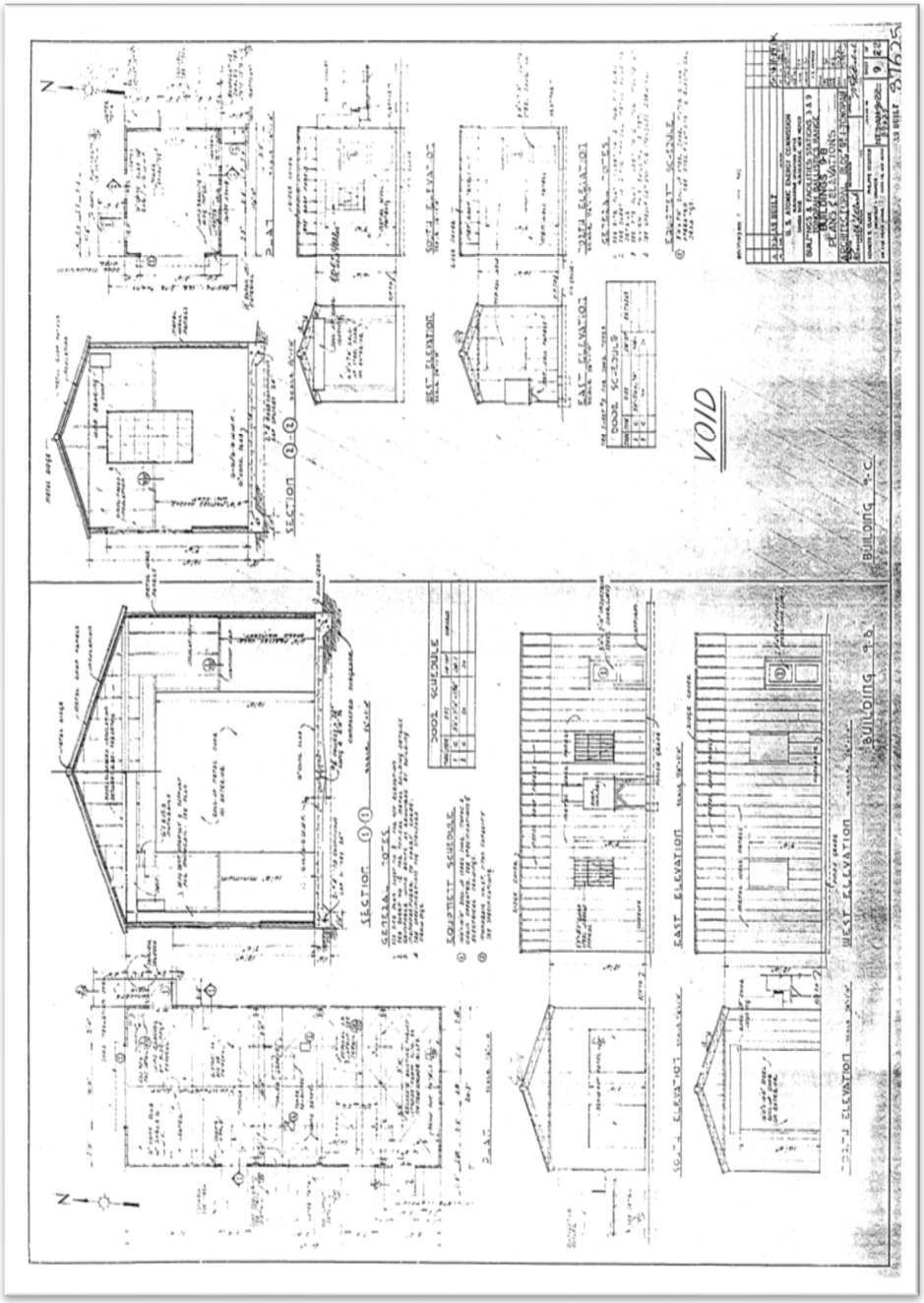

Figure 9 Sandia Plant Engineering, "Monorail Modifications Building 9-B, Architectural, Tonopah," Drawing 77861, August 23, 1960. BUILDING 09-54; PLAN FOR MONORAIL INSTALLED AT CEILING HEIGHT; ASSEMBLY BUILDING 9B

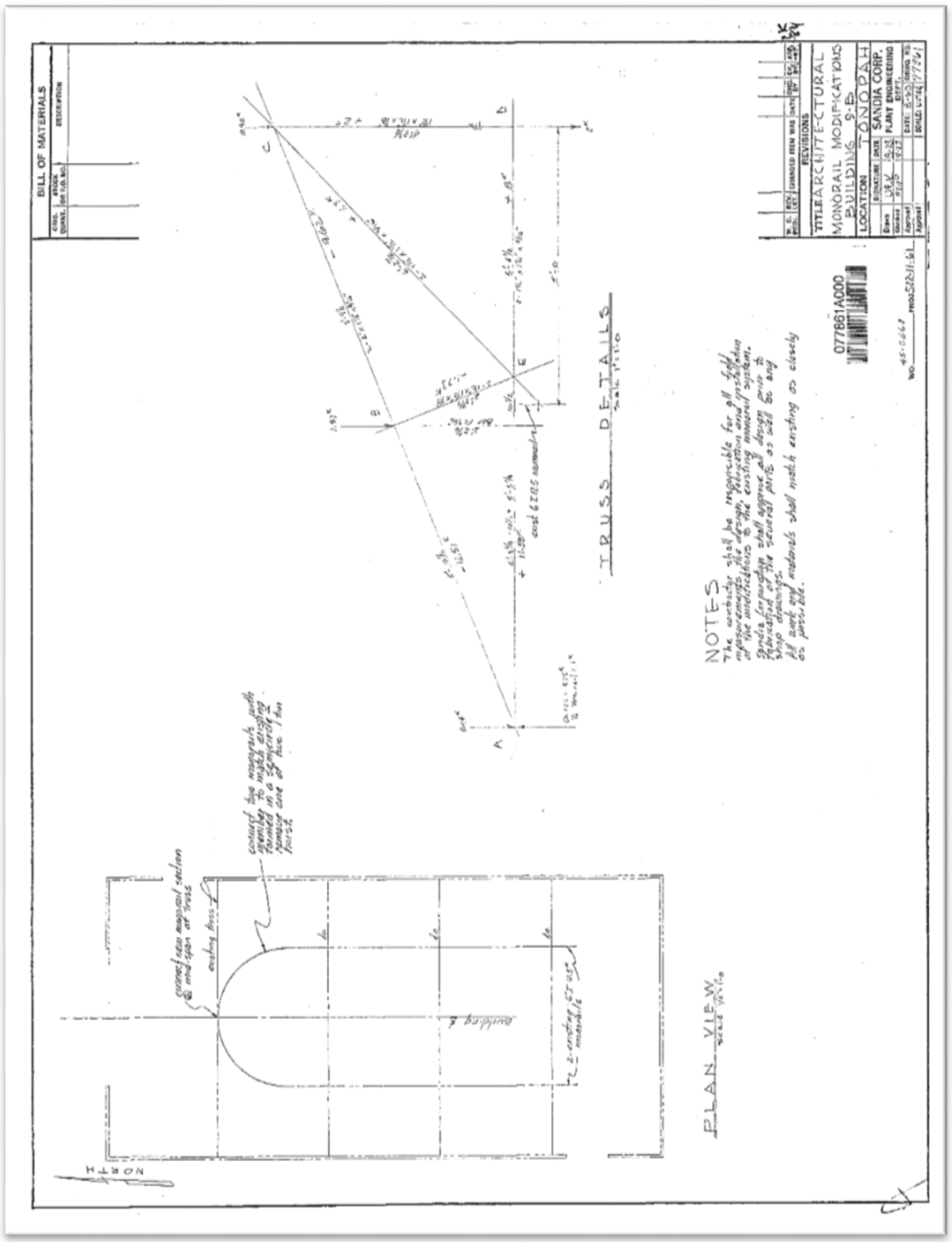

Figure 10 Clair Blackburn, Photographer. 2009.
BUILDING 09-54, EXTERIOR; NORTH END OF BUILDING; ROLL-UP DOOR AND POURED CONCRETE DRIVEWAY; ASSEMBLY BUILDING 9B; VIEW FROM NORTHEAST

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NV-XXXX-1 Joseph M. Bonaguidi, Photographer. July 21, 2005.
BUILDING 09-54, EXTERIOR; NORTH END OF BUILDING; ROLL-UP DOOR; POURED CONCRETE DRIVEWAY; LIGHTNING RODS FOR LIGHTNING ARRESTOR SYSTEM; ASSEMBLY BUILDING 9B; VIEW FROM NORTH

NV-XXXX-2 Joseph M. Bonaguidi, Photographer. July 21, 2005.
BUILDING 09-54, EXTERIOR; EAST SIDE OF BUILDING; PEDESTRIAN ENTRANCE; ASSEMBLY BUILDING 9B; VIEW FROM EAST

NV-XXXX-3 Joseph M. Bonaguidi, Photographer. July 21, 2005.
BUILDING 09-54, EXTERIOR; SOUTH END OF BUILDING; TWO METAL BLOW-OUT PANELS IN EXTERIOR WALL; ASSEMBLY BUILDING 9B; VIEW FROM SOUTH

NV-XXXX-4 Joseph M. Bonaguidi, Photographer. July 21, 2005.
BUILDING 09-54, EXTERIOR; WEST SIDE OF BUILDING; PEDESTRIAN ENTRANCE; ASSEMBLY BUILDING 9B; VIEW FROM WEST

NV-XXXX-5 Jim Galli, Photographer. July 19, 2005.
BUILDING 09-54, INTERIOR; NORTH END OF BUILDING; EAST WALL WITH PEDESTRIAN ENTRANCE (DOOR OPEN); MONORAIL IN CEILING; SUSPENDED LIGHTING; ASSEMBLY BUILDING 9B; VIEW FROM SOUTHWEST

NV-XXXX-6 Jim Galli, Photographer. July 19, 2005.
BUILDING 09-54, INTERIOR; DETAIL OF EAST WALL NEAR ENTRANCE (NORTH PORTION OF WALL); EXPLOSION-PROOF TELEPHONE; FIRE EXTINGUISHER; LOWER PORTION OF WALL FINISHED; UPPER PORTION OF WALL UNFINISHED WITH INSULATION VISIBLE; ASSEMBLY BUILDING 9B; VIEW FROM NORTHWEST

NV-XXXX-7 Jim Galli, Photographer. July 19, 2005.
BUILDING 09-54, INTERIOR; WEST WALL, NORTH END WITH ROLL-UP DOOR; CEILING OPEN TO INTERIOR OF ROOF; POURED CONCRETE FLOOR; SUSPENDED LIGHTING; ASSEMBLY BUILDING 9B; VIEW FROM SOUTHEAST

NV-XXXX-8 Jim Galli, Photographer. July 19, 2005.
BUILDING 09-54, INTERIOR; EAST WALL AND SOUTH END OF BUILDING; MONORAIL IN CEILING; SHIELDED VIEWING AREA IN SOUTHEAST CORNER OF ROOM; ASSEMBLY BUILDING 9B; VIEW FROM NORTHWEST