SANDIA NATIONAL LABORATORIES,
TONOPAH TEST RANGE, TELESCOPE
REPAIR AND OFFICE BUILDING
(Building 03-56)
Area 3
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 TELESCOPE REPAIR AND OFFICE BUILDING (Building 03-56)

Location: Sandia National Laboratories (SNL) Tonopah Test Range (TTR), Area 3, in east half of north side of Area 3, Nye County, Nevada

Date of Construction: 1965; Altered 1982

Engineers/Architects: Kenneth S. Clark, Architect, Santa Fe, New Mexico
Soule Building Systems, Manufacturers, Cotati, California

Builders: Holmes & Narver, Inc., of Albuquerque, New Mexico

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

Present Use: Maintenance and repair of mobile Contraves telescope units

Significance: The Telescope Repair and Office Building (Building 03-56) is a contributing element to the Sandia National Laboratories Tonopah Test Range Historic District. The building served as, and generally represents, a supporting structure component at TTR during its period of significance. Building 03-56 supported TTR's role as an outdoor laboratory and was built in 1965, a period when the number of tests at the range doubled. The repair and maintenance of the radar and telescope tracking units was critical to range operations throughout its history. The period of significance for the historic district is 1956-1989; 03-56 is a contributing element for 1965-1989.

Part I. HISTORICAL INFORMATION

A. Physical History[1]

1. **Date of erection:**
   Building Designed: April 1965
   Building Completed: 1965

2. **Architect:**
   Kenneth S. Clark, Architect, Santa Fe, New Mexico, provided the original building design (Figures 7, 8, 9).

3. **Original and subsequent owners, occupants, uses:**
   The building was built for and has always been used by SNL's TTR. It has always been owned by the U.S. Government as SNL is one of the nuclear weapons laboratories of the U.S. Atomic Energy Commission (AEC) and its successor agencies (currently the U.S. Department of Energy/National Nuclear Security Administration (DOE/NNSA)). Built as a warehouse, Building 03-56 has always been used as a telescope repair and maintenance shop.

4. **Builder, contractor, suppliers:**
   The building was manufactured by Soule Building Systems of Cotati, California. It was installed by Holmes & Narver, Inc. of Albuquerque, New Mexico.

5. **Original plans and constructions:**
   Building 03-56 was originally constructed in 1965 and was referred to as the General Warehouse in the original building drawings. It is a steel-framed, manufactured, rectangular metal building with the east section devoted to office space and the remainder an open high bay for telescope maintenance (Figure 10).

6. **Alterations and additions:**
   Building 03-56 has not undergone major renovation since its original construction in 1965. In 1982, the roll-up door on the building's south side was replaced (Figure 15). In the same year, the east 40' of the building's

[1] The following building drawings were used in determining the dates of the physical history of Building 03-56: "Layout and Grading, Support Facilities, FY65, Sta. 3, Architectural: Building 356 and 357 TTR," Drawing 88184, Sheet 2 of 55, 4/27/1965; "General Warehouse, Sta. 3, Elevations, Architectural: Building 356 TTR," Drawing 88184, Sheet 10 of 55, 4/27/1965; "General Warehouse, Sta. 3, Elevations & Sections, Architectural: Building 356 TTR," Drawing 88184, Sheet 11 of 55, 4/27/1965; "Plot Plan, Tonopah—Area 3, Electrical: Tonopah, Nevada," Drawing 87996, Sheet 1 of 2, 2/2/1966; "General Warehouse, Station #3, Plan & Details, Architectural: Building 356 TTR," Drawing 88184, Sheet 9.1 of 55, 6/15/1982; "General Warehouse Station #3, Reflected Ceiling Plan & Details, Architectural: Building 356 TTR," Drawing 88184, Sheet 9.2 of 55, 6/16/1982.

interior was modified with new walls and a drop ceiling to create an improved office area. Minor cosmetic renovations were included, such as insulating the existing skylights over the office area and installing floor tile (Figure 10). Holmes & Narver, Inc., of Albuquerque did the work.

B. Historic Context

Completed in 1965, Building 03-56 was part of TTR's support function expansion of the mid-1960s. The building housed telescope repair activities—initially for units brought in off of the towers for repair and, ultimately, for repair of the mobile Contraves tracking telescope units. While not a direct part of the activities during a test at TTR, the facility was a key element during test preparation and in ensuring successful data recovery.

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, New Mexico. Oppenheimer moved Z Division from the main site to alleviate crowed conditions at LANL, to work more closely with the military, and to take advantage of the nearby KAFB airfield for testing.

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[2] Los Alamos National Laboratory (LANL) is referred to 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. 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.

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 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

[5] Sandia Corporation became Sandia National Laboratories (SNL) via legislation passed in 1979. It will be referred to as SNL throughout the remainder of this report.

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 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 air activity 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 (Figures 1 and 2). 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 (Figure 1). 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

[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.

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 (Figure 2). Located six miles south of the Pork Lake target, Area 3 is located on a rise on the west side of Cactus Flat Valley, overlooking the entire test area. In 1956, a well was drilled near Area 3. The earliest facilities placed in 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, 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. For Hardtack, SNL's development activities included a rocket system to carry diagnostic instrumentation and to gather radiochemical samples during the high-altitude nuclear test shots. Testing involved both air releases and ground launches. Rocket testing exercised both rocket systems and payloads.

For these tests, SNL created a rocket launch capability in Area 9, northeast of the main target at TTR. The facilities constructed by REECo during the summer of 1957 included two rocket launchers, an air building for assembly activities, and a control bunker.

As rocket research continued at TTR, the site also expanded 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. (The permit has been continuously extended since, with some changes in the site's boundaries over time.) On September 1, 1960, TTR was named Sandia's permanent test range and the Salton Sea Test Base was closed.

In 1960, a machine shop (03-54), welding shop (03-62), and an additional storage structure (03-66) were added, as well as a few miscellaneous small storage facilities. Two approximately 8,000-gallon water tanks (03-32 and 03-33) were installed. A communication lab was built to the south of Area 3. The communication lab included the radio shop (03-65), storage structure (03-66), and a telephone pole tower for mounting communications equipment and antennas (Figure 3).

In Area 9, the General Contracting Company of Salt Lake City, Utah was engaged to install a prefabricated steel-framed assembly building, two smaller Butler-type buildings, and a storage igloo. Also installed in 1960 were a lightning warning system, a public address and warning tower, and an additional assembly building. This round of construction in Area 9 was completed in the fall of 1960, but expansion continued.

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 stations, a Control Tower was added, and the impact area on Pork Lake was supplemented with a concrete hard target.

In the fall of 1961, as operations at the Salton Sea Test Base were winding down, an additional administration building (03-51) and vehicle maintenance building (03-60) were constructed. There was a slight lull in construction in Area 3, but it quickly increased again as the number of tests at the site grew (Figure 4). In 1965, multiple facilities were added, including a generator building (03-53), photo optics building (03-55), a first-aid building (03-69), and Building 03-56 the Telescope Repair and Offices (Figures 4, 5). In 1966, the water tower (03-31) was erected. In 1968, a new carpenter, plumber, and paint shop (03-73) was constructed, and a new control room was added to 03-51.

Telescope Maintenance and Repair

Building 03-56, constructed as part of the expansion of support facilities within Area 3, reflects the rapid growth in testing in the few years since the site's establishment. The number of tests at TTR doubled in the 1965 time frame. Services went from being clustered in a small set of support facilities, or being done in a variety of locations, as needed, to having specific space assigned to them.

The building is in the northeast section of Area 3, along the north fence line of the area (NV-XXXX-5, 6). Its mission has not changed over time. In the early years, it received Contraves cinetheodolite parts and systems for repair, largely devoted to keeping the optics working and reliable.[7] As mobile Contraves systems were introduced and replaced the static towers from 1969 into the 1980s, they were brought into the building as entire units for maintenance and repair (Figure 16).

A cinetheodolite[8] is an instrument for tracking and photographing targets in flight. At TTR, the targets are test units dropped from aircraft or fired from rockets. The

[7] SNL had switched from the earliest Askania tracking telescopes to Contraves prior to Building 03-56's construction. The building does not reflect support for the earlier tracking capability.

[8] A cinetheodolite is basically a theodolite—a surveying instrument—with a movie camera attached to it.

sighting telescope allows the user to focus on the target and while instrumentation captures accurate positioning data for the target by providing angular measurements of the line of site to it. A camera and film assembly records the images. In the early years, film canisters were picked up from each of the Contraves sites after a test. More recently, data is captured and transmitted to the control tower in real time. Tracking the target position through its flight allows calculation of velocity and acceleration data.

The building has not undergone much change since its original construction. In 1982, as part of an overall upgrade project at TTR, the roll-up door on the south side was replaced and the office area was partitioned and received new flooring and a new, dropped ceiling, as well as new furniture (Figures 10, 15). This did not reflect a change in the basic mission of the facility, but a general upgrade of the facilities at the site.

Part II. ARCHITECTURAL INFORMATION

A. General Statement:

1. Architectural character:
1 ½-story metal steel-framed pre-engineered building on a poured concrete slab foundation. The siding is vertical ribbed metal with no windows; roof is ribbed metal with fiberglass skylight panels. There is a high-bay roll-up door on each of the south and west sides. A metal pedestrian door is located next to each bay door; there is also a metal pedestrian door on the east end. HVAC equipment is located on the north side and on the roof. (NV-XXXX-1, 2, 3)

2. Condition of fabric:
Fair.

B. Description of Exterior:

1. Overall dimensions:
The building is 40' wide x 100' long. It is 20' 11 ¾" high at the roof ridge line and 13' 9 ¾" high at the eave line. (Figures 7, 10)

2. Foundations:
The building is located on land that slopes down from east to west. The foundation is a reinforced poured concrete slab rising approximately 4" above grade on the east end and approximate 2' above grade at the west end. (NV-XXXX-1; Figure 8)

3. Walls:
The exterior walls of the building are vertical ribbed steel panels (Figures 8, 9, 11, 12, 13).

4. Structural system, framing:
This is a steel-framed building. Framing is visible in the high-bay interior (NV-XXXX-6, 7, 8, 9).

5. Porches, stoops, balconies, porticoes, bulkheads:
The building has no porches, stoops, balconies, porticoes, or bulkheads. It does have a poured concrete loading dock on the west end. The area west of the loading dock was graded to bring the soil up to the loading dock level and a poured concrete driveway leads to the dock and the roll-up door on the west end (NV-XXXX-2; Figure14).

6. Stairways:
There is one short set of concrete steps on the south side of the loading dock on the building's west end. A poured concrete footpath leads to the two

steps up to the dock. There is a steel handrail on each side of the steps. (NV-XXXX-2)

7. **Chimneys:**
   The building has no chimneys.

8. **Openings:**
   a. **Doorways and doors:**
      1. **Pedestrian doors:**
         The building has three exterior pedestrian doors; one each on the east, south, and west sides. The doors are metal with glass in the upper half; the glass is covered with metal grating (NV-XXXX-1, 2, 3; Figures 11, 13, 14).

      2. **Equipment doors:**
         The building has two roll-up doors for equipment access—one on the south side and one on the east end, opening to the loading dock (NV-XXXX-1, 2). The doors are metal, approximately 1 ½ stories high, and roll into an interior mechanism. Both open into the high-bay.

9. **Roof:**
   The pitched roof is covered in vertical ribbed metal panels with 10 ribbed fiberglass skylights, five on each side (NV-XXXX-1). The roof ridge line stands 20' 11 ¾" and runs east-west (Figure 8).

C. Description of Interior:

1. **Floor plans:**
   The building's current plan is shown in the drawing from the 1982 office renovation (Figure 10).

   The Building 03-56 floor plan delineates two working spaces. The west section of the building is a 60' long high-bay for maintenance and repair of mobile Contraves telescope units.

   The east 20' section of the building contains partitioned office space. The space is divided into a north (Room 103) and a south (Room 102) section, each containing desks and equipment. The north portion of the office section also has a small mechanical room located just east of the wall dividing the high-bay from the office section.

2. **Stairways:**
   There are no stairways in Building 03-56.

3. **Flooring:**
   a. **High Bay:**
   The high bay floor is poured concrete (NV-XXXX-6, 7, 8, 9).

   b. **Office Area:**
   The flooring in the office area is industrial asbestos tile over concrete (NV-XXXX-10, 11, 12, 13).

4. **Wall and ceiling finish:**
   a. **High Bay:**
   The interior of the outer walls and the ceiling of the building's west section are unfinished, revealing the building's steel framing. The walls and ceiling are lined with insulation, held in place with metal straps on the ceiling (NV-XXXX-6, 7). The wall separating the high bay from the office area is painted gypsum board (NV-XXXX-8).

   b. **Office Area**:
   The walls of the office area are painted gypsum board. There is a wall dividing the north and south sections of the office area that is also painted gypsum board (NV-XXXX-11). In addition, there are movable partitions between some of the desks in the area. And there is one small office space with more permanent partitions in the northwest corner of the south office section (NV-XXXX-10).

   The ceiling of the office area is dropped with 2' x 4' ceiling tiles (NV-XXXX-11). The ceiling is suspended from the interior of the pitched roof of the building's steel frame (Figure 10).

5. **Openings:**
   a. **Doorways and doors:**
   There is a two-leaf metal double door between the high-bay and office sections of the building (NV-XXXX-8, 10). Each door has a narrow glass view panel near the inner edge of the upper half.

   There is a single-leaf metal door into the mechanical room in the north section of the office section.

   b. **Windows:**
   Apart from the glass panels in the doors between the high-bay and office areas and a smoked plastic panel in one office partition, there are no internal windows in Building 03-56.

6. **Decorative features and trim:**
Building 03-56 displays no decorative features or trim.

7. **Hardware:**
The three exterior pedestrian doors are right-hand reverse doors, opening out. Each has three rectangular leaf hinges and one door pull with a cylindrical lock. On the interior, each has a pneumatic door close at the top and a metal panic bar to open the latch for exit.

The double doors between the office and high-bay areas each have a pneumatic door close at the top. There is a door pull on the right-hand (south) leaf on the high-bay (west) side. There are three hinges on each door with the knuckle on the high-bay (west) side. On the east (office) side, each door has a metal panic bar to open the latch.

8. **Mechanical Equipment:**
   a. **Heating, air conditioning, ventilation**:
   There is a large heating/cooling unit on a concrete pad outside of the interior mechanical/storage room (NV-XXXX-3). Ductwork extends from the unit into the building on that side. There are two cooling units attached to the exterior of the north side beneath the eaves, outside of the high-bay area. Ventilation ductwork exits the building through the roof (NV-XXXX-1).

   b. **Lighting:**
   High-Bay: Round metal light fixtures are suspended from the high-bay ceiling. Skylights in the building's roof provide additional lighting. (NV-XXXX-6, 8)

   Office Area: Fluorescent lighting is used throughout office area. It is installed in panels set alongside the acoustical tiles of the drop ceilings. (NV-XXXX-11, 12)

9. **Original Furnishings:**
The original office furnishings are not extant. The frame for the crane and other tools in the high-bay area appear to be date from the building's early years.

D. Site:

1. **Historic landscape design:**
Building 03-56 does not have a historic landscape design. Paved roads lead to the building's west end and a poured concrete sidewalk extends north from the main buildings in Area 3 to 03-56's south pedestrian door. The areas around the sidewalks and roads are cleared and contain no vegetation. Some areas are covered with gravel fill. (NV-XXXX-1, 2; Figures 11, 12)

2. **Outbuildings:**
   There are no outbuildings associated with Building 03-56 the Telescope Repair and Offices Building.

Part III. SOURCES OF INFORMATION

A. Architectural Drawings: Architectural drawings are maintained in the Sandia National Laboratories Facilities Library.

"Support Facilities, FY-65, Station 3, Layout and Grading, Architectural, Buildings 356 and 357, Tonopah Test Range," 88184, 2 of 55, 1965.

"General Warehouse, Station 3, Foundation Plan, Architectural, Building 356, Tonopah Test Range," 88184, 8 of 55, 1965.

"General Warehouse, Station 3, Floor Plan, Architectural, Building 356, Tonopah Test Range," 88184, 9 of 55, 1965.

"General Warehouse, Station 3, Elevations, Architectural, Building 356, Tonopah Test Range," 88184, 10 of 55, 1965.

"General Warehouse, Station 3, Elevations and Sections, Architectural, Building 356, Tonopah Test Range," 88184, 11 of 55, 1965.

"Tonopah—Area 3, Plot Plan, Electrical, Tonopah, Nevada," 87996, 1 of 2, 1966.

"General Warehouse, Station 3, Plan and Details, Architectural, Building 356, Tonopah Test Range," 88184, 9.1 of 55, 1982.

"General Warehouse, Reflected Ceiling Plan and Details, Station 3, Architectural, Building 356, Tonopah Test Range," 88184, 9.2 of 55, 1982.

B. Early Views:
The SNL Corporate Archives maintains a large collection of historical photographs, including photos of TTR over the years. TTR's photographers have also maintained a collection of site photos. These are managed at the site, although many were digitized and added to the Corporate Archives collections for this project.

C. Interviews:
Jerry Elliston, interviewed by Michael Anne Sullivan, October 19, 2004. Recording and transcript in SNL Corporate Archives.

Jerry McCorkle, interviewed by Michael Anne Sullivan, May 6, 2005. Recording and transcript in SNL Corporate Archives.

D. Bibliography:

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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:
No known sources pertaining directly to Building 03-56 were left uninvestigated. Additional sources on the history of the development of manufactured steel buildings and of the cinetheodolite were not pursued and are likely to be available.

F. Supplemental Material: None.

Part IV. PROJECT INFORMATION

This report was prepared by Rebecca Ullrich of the Sandia National Laboratories[9] 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 sixty buildings located at SNL's Tonopah Test Range were eligible as a district based on the Secretary of the Interior's Criteria for Eligibility. Building 03-56 was one of the buildings identified as part of the district and is a contributing element to it. In 2010, SNL proposed to add a roll-up door to the building's north side. Per SHPO correspondence dated October 11, 2010, this report is the final element in the mitigation of any adverse effects of the addition of a roll-up door to Building 03-56.

Large-format photographs were taken by SNL photographers Jim Galli, Joseph Bonaguidi, and William Suderman. Jerry McCorkle provided detailed information on the tracking radar systems, their modifications, and the maintenance activities that take place in Building 03-56. Robert Sherwood, Roger Smith, Richard Scarine, Jim Galli, Jerry Elliston, and Clair Blackburn provided access to properties, photographs, and documents at TTR. Myra O'Canna, SNL Corporate Archivist, provided research support, access to relevant collections, and copies of historical photographs. Joe Bonaguidi and Jessica Small of the SNL NEPA Program oversaw the project.

[9] 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

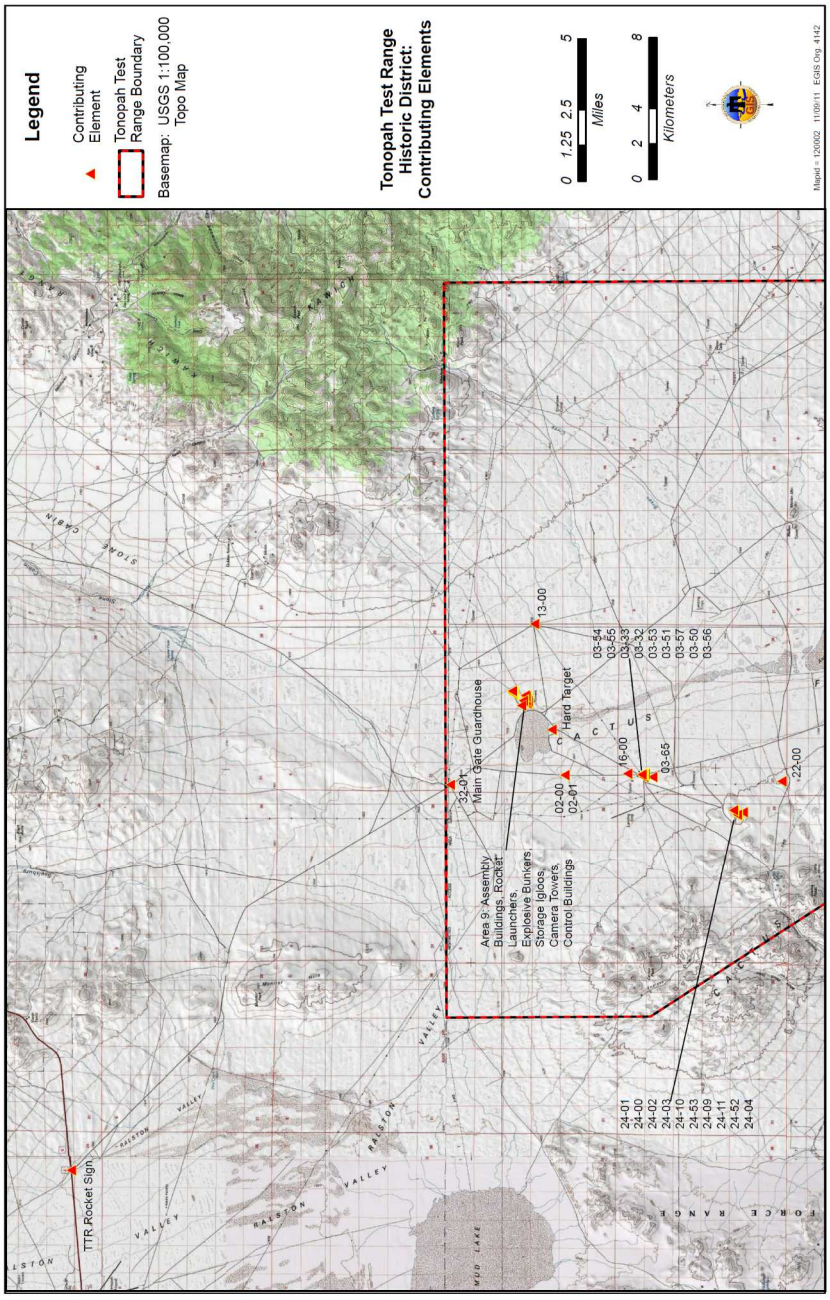

Figure 2 USGS 1:24,000 Topo Map.
USGS TOPO MAP MARKED TO INDICATE CONTRIBUTING ELEMENTS WITHIN THE SANDIA NATIONAL LABORATORIES TONOPAH TEST RANGE HISTORIC DISTRICT; SOUTH PORTION OF TONOPAH TEST RANGE; INCLUDING AREA 3, WITH BUILDING 03-56

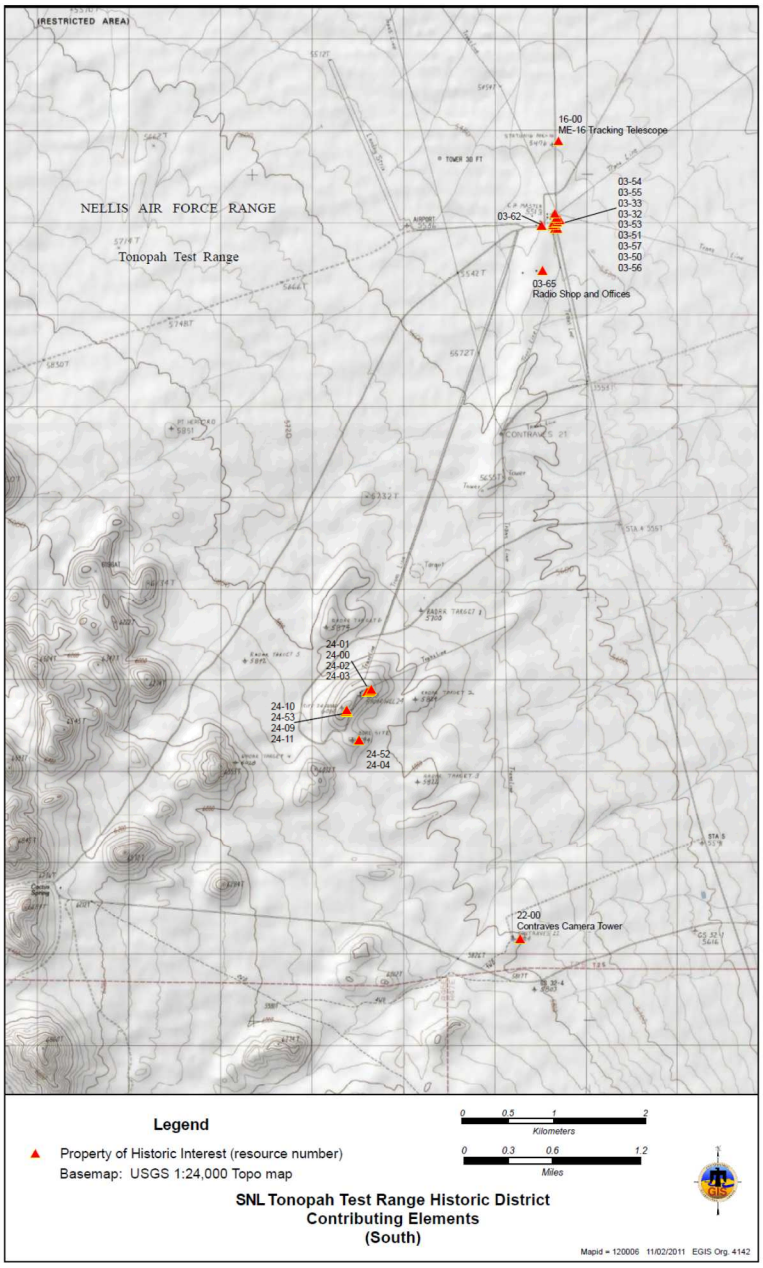

Figure 3 Photographer unknown. 1961
TONOPAH TEST RANGE, CONTROL POINT (AREA 3); AERIAL PHOTOGRAPH WITH NORTH TO RIGHT; BUILDING 03-56 NOT CONSTRUCTED YET, WILL BE LOCATED ON NORTH (RIGHT) EDGE OF AREA

Figure 4 Kenneth S. Clark, Architect, Santa Fe, New Mexico, "Support Facilities FY-65, Sta 3, Layout and Grading, Arch Bldg 356 and 357 TTR," Drawing 88184, sheet 2 of 55, April 27, 1965.
TONOPAH TEST RANGE, CONTROL POINT (AREA 3); ARCHITECTURAL DRAWING INDICATING LOCATIONS OF NEW BUILDINGS TO BE BUILT IN AREA, INCLUDING BUILDING 03-56

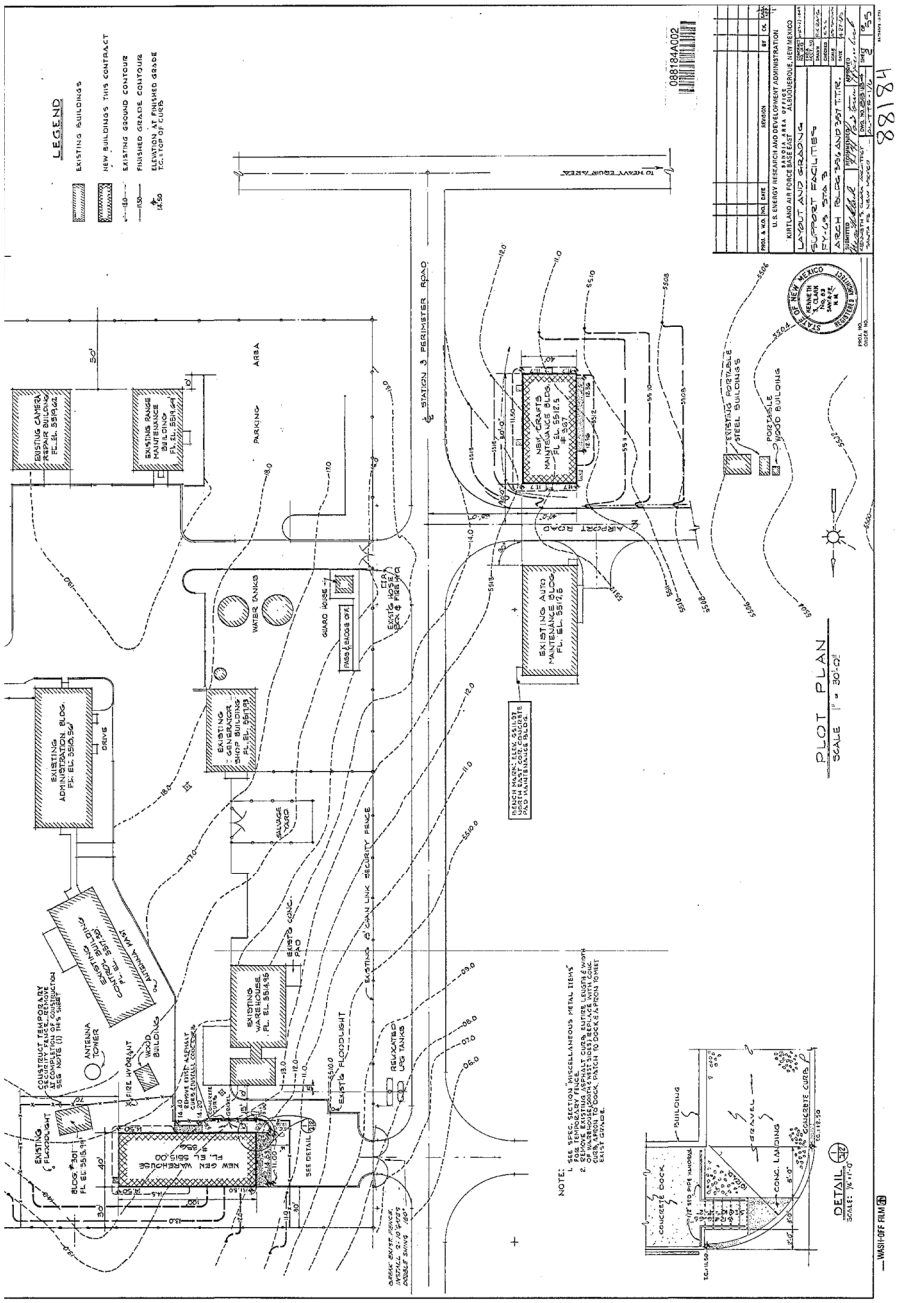

Figure 5 Plot Plan of Tonopah Test Range Area 3, 1966.
TONOPAH TEST RANGE, PLOT PLAN OF CONTROL AREA (AREA 3) LAYOUT; BUILDING 03-56 ON NORTH (LEFT) END OF THE AREA, IDENTIFIED AS WAREHOUSE BLDG #356 ON THE PLAN

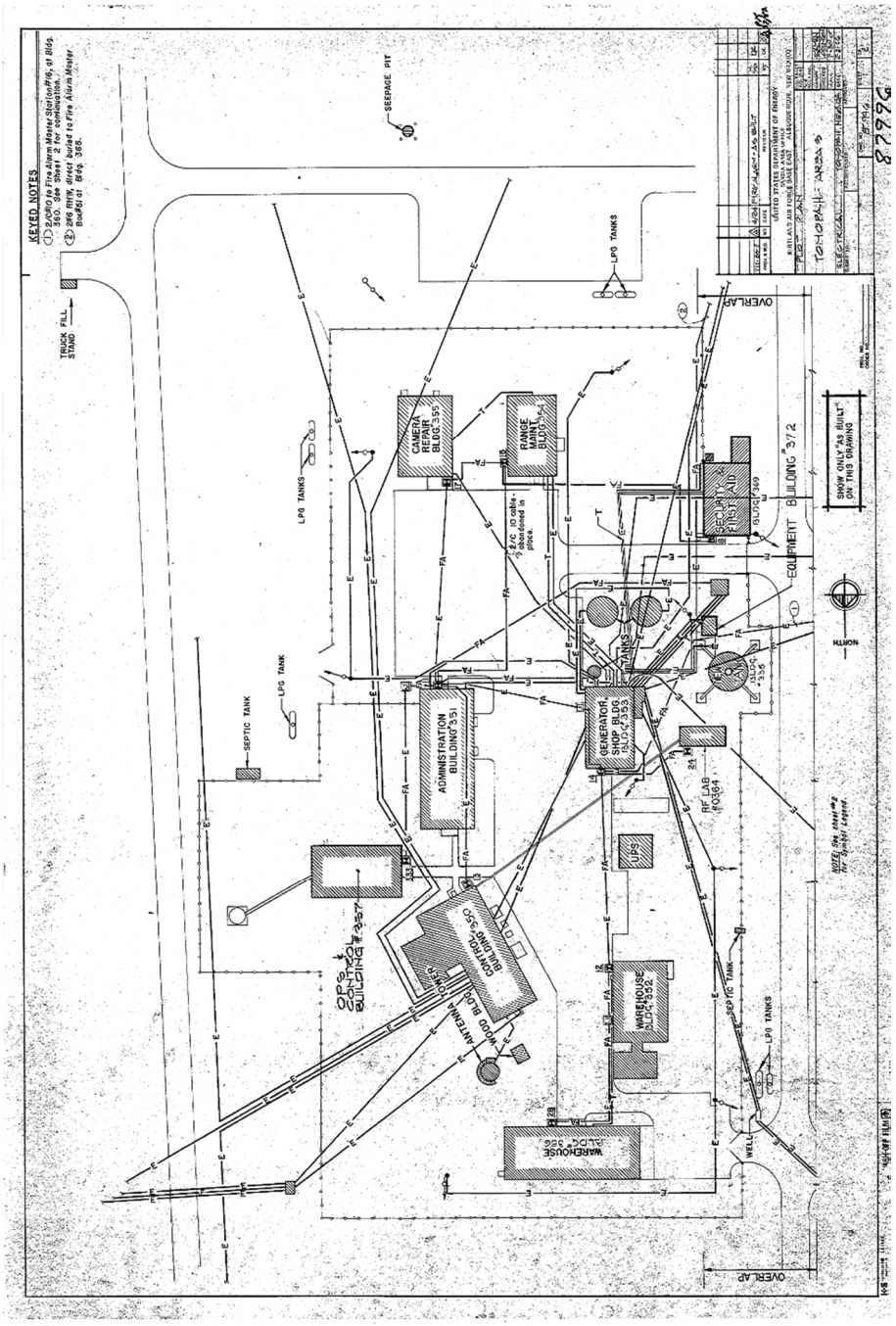

Figure 6 Photographer unknown. Ca. 1967.
TONOPAH TEST RANGE, AREA 3; AERIAL PHOTOGRAPH WITH SOUTH AT TOP LEFT; BUILDING 03-56 LOCATED ALONG NORTH (BOTTOM) EDGE OF AREA; LARGE METAL BUILDING APPEARING WHITE IN THE PHOTOGRAPH

Figure 7 "Plan and Details, General Warehouse, Sta 3, Floor Plan, Arch, Bldg 356, TTR," Drawing 88184, Sheet 9 of 55, April 27, 1965.
BUILDING 03-56; ORIGINAL FLOOR PLAN

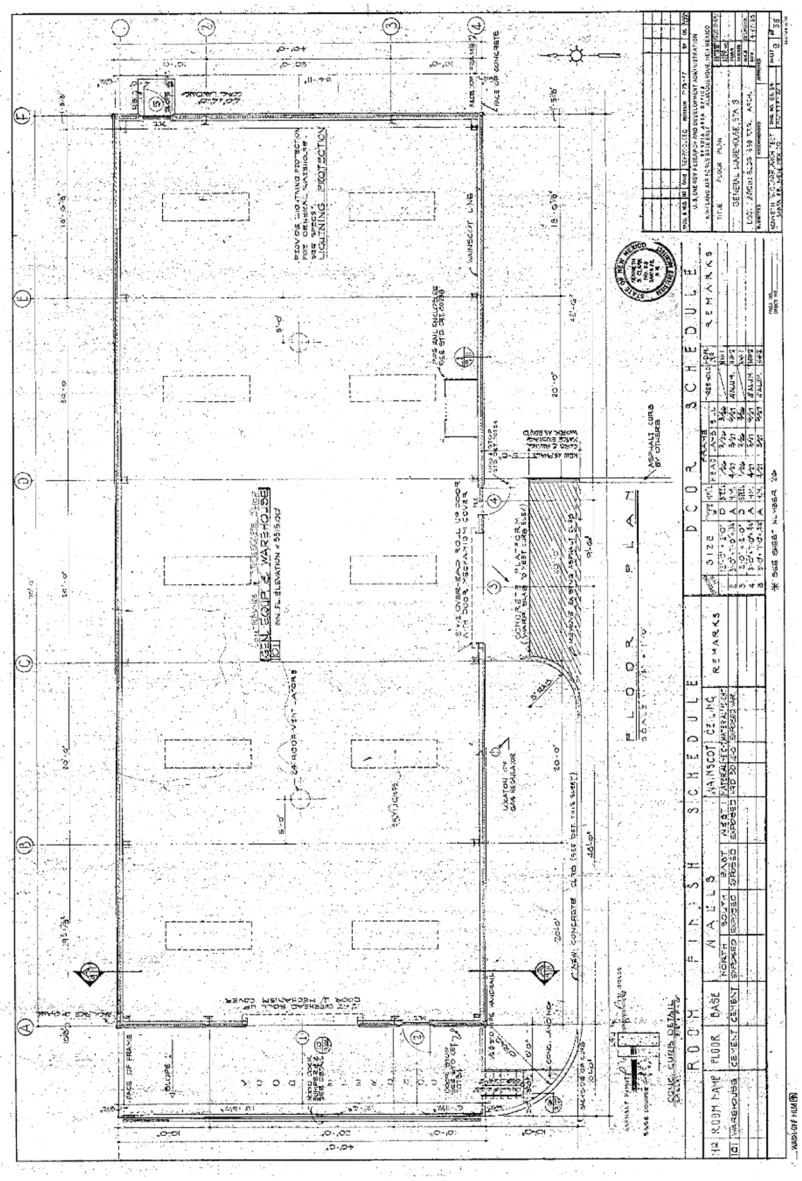

Figure 8 Kenneth S. Clark, Architect, Santa Fe, New Mexico, "General Warehouse, Sta 3, Elevations, Arch Bldg 356 TTR," Drawing 88184, Sheet 10 of 55, April 27, 1965.
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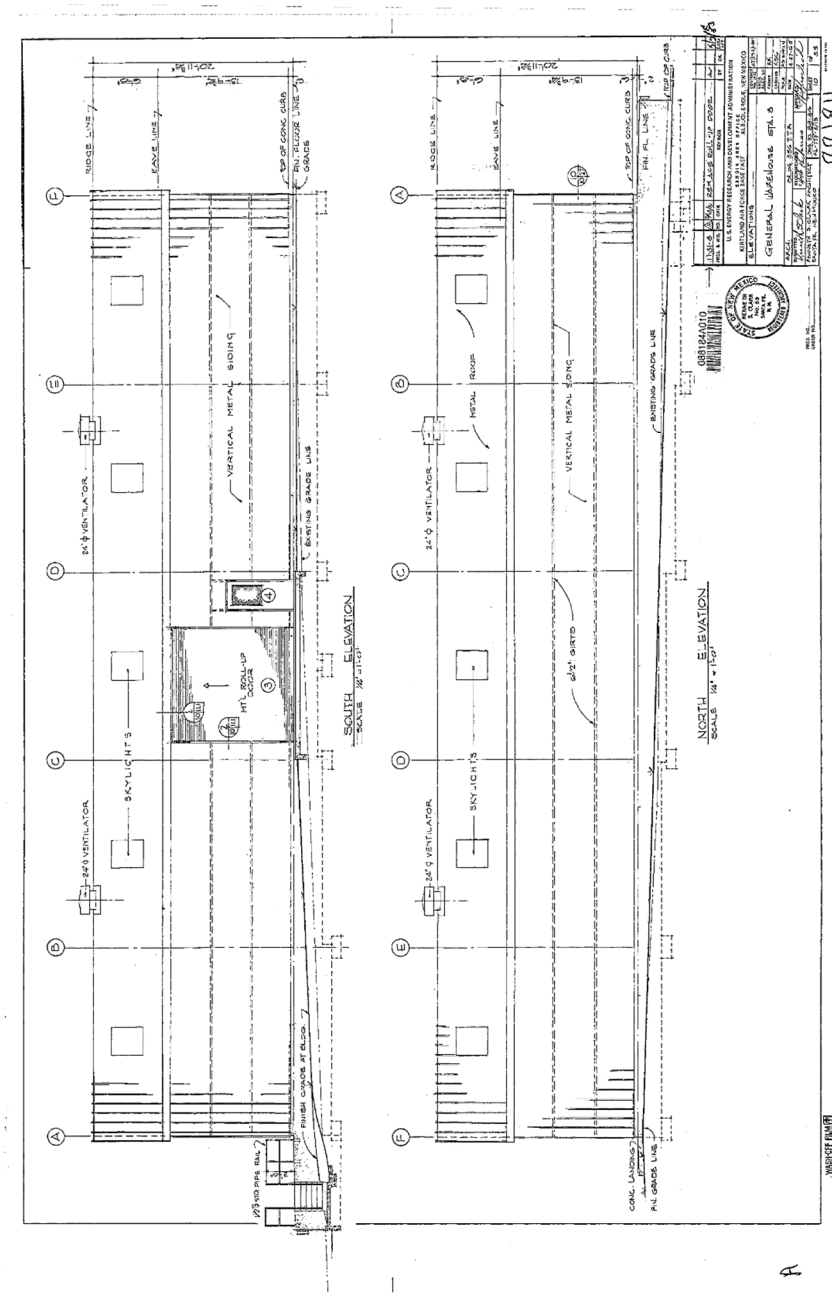

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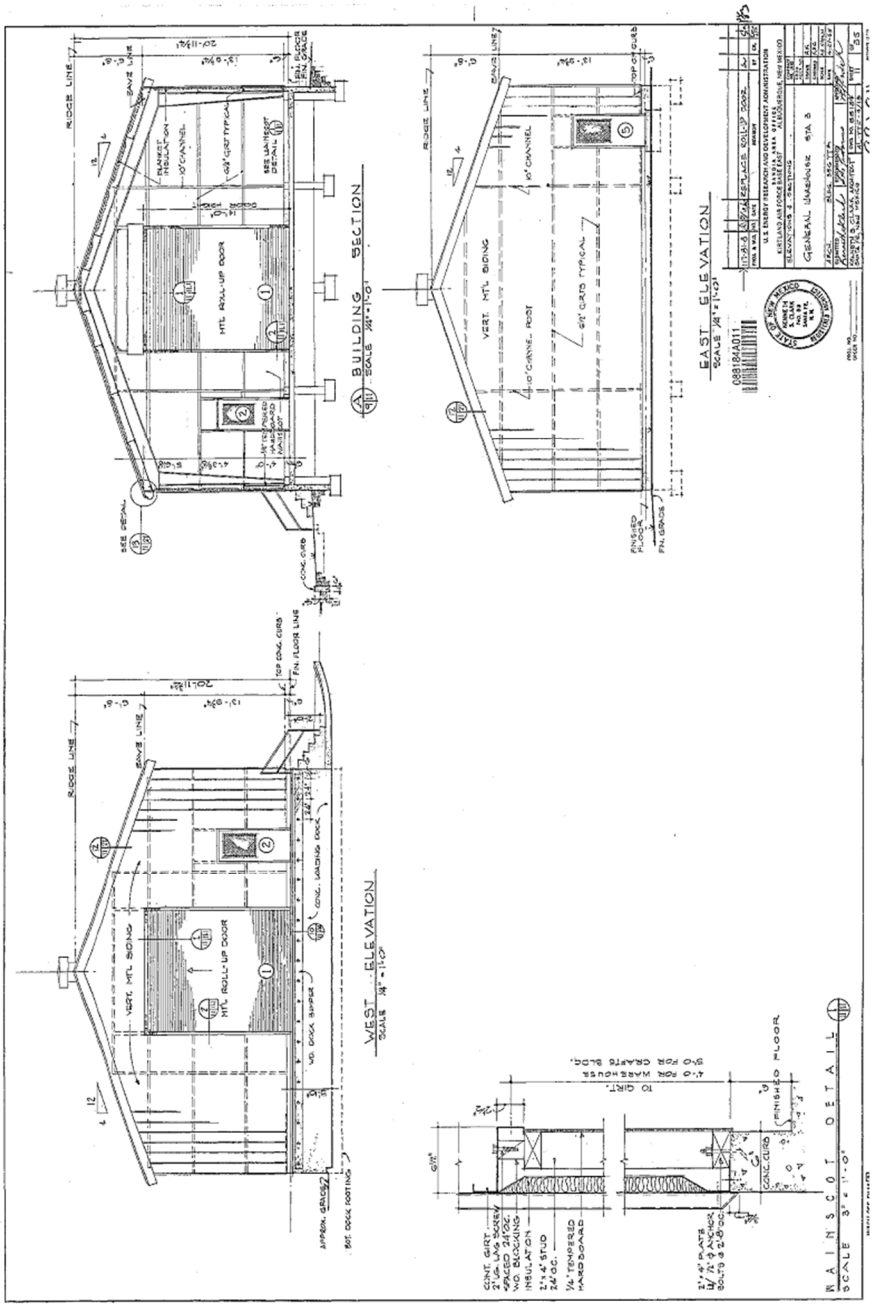

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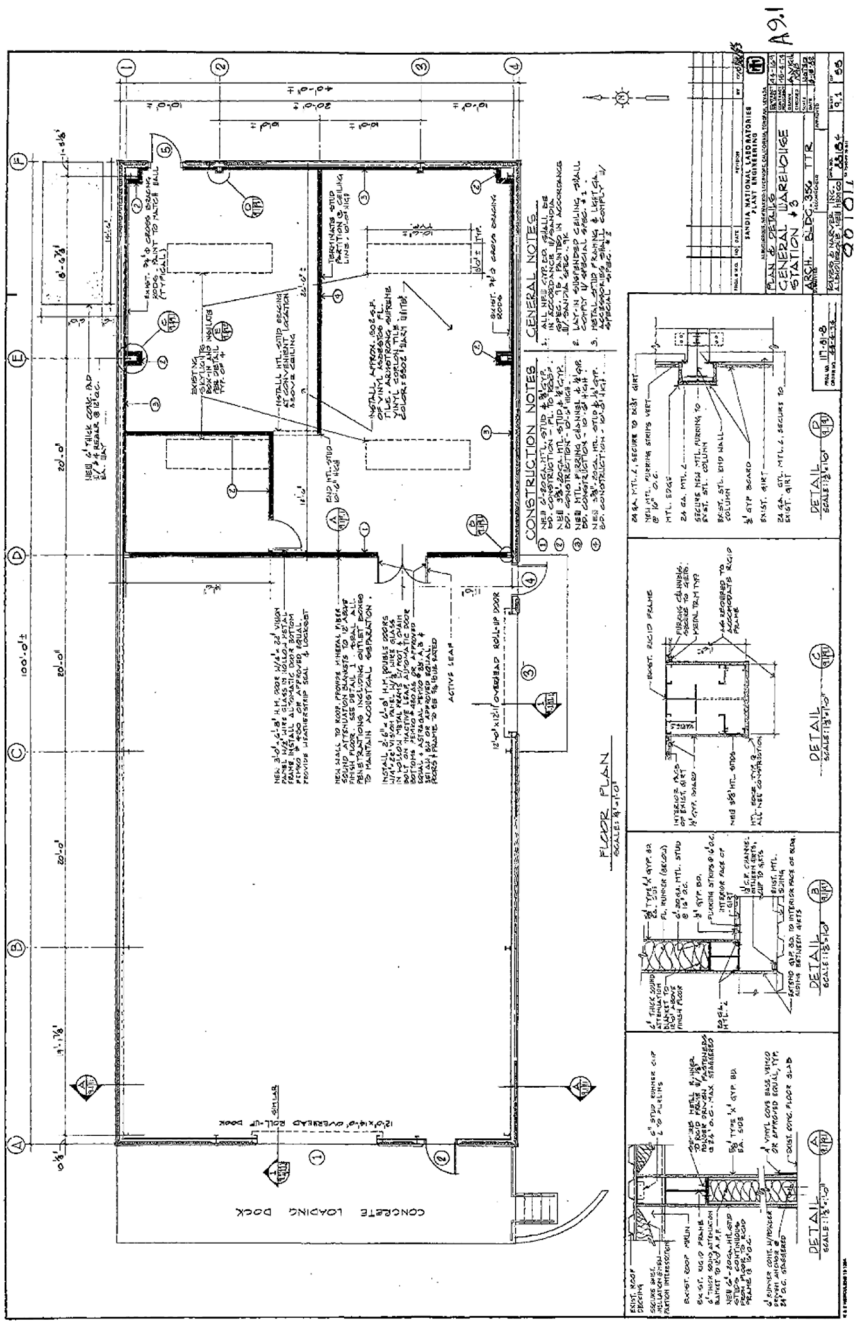

Figure 11 Claire Blackburn, photographer. March 25, 2009.
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Figure 12 Claire Blackburn, photographer. March 25, 2009.
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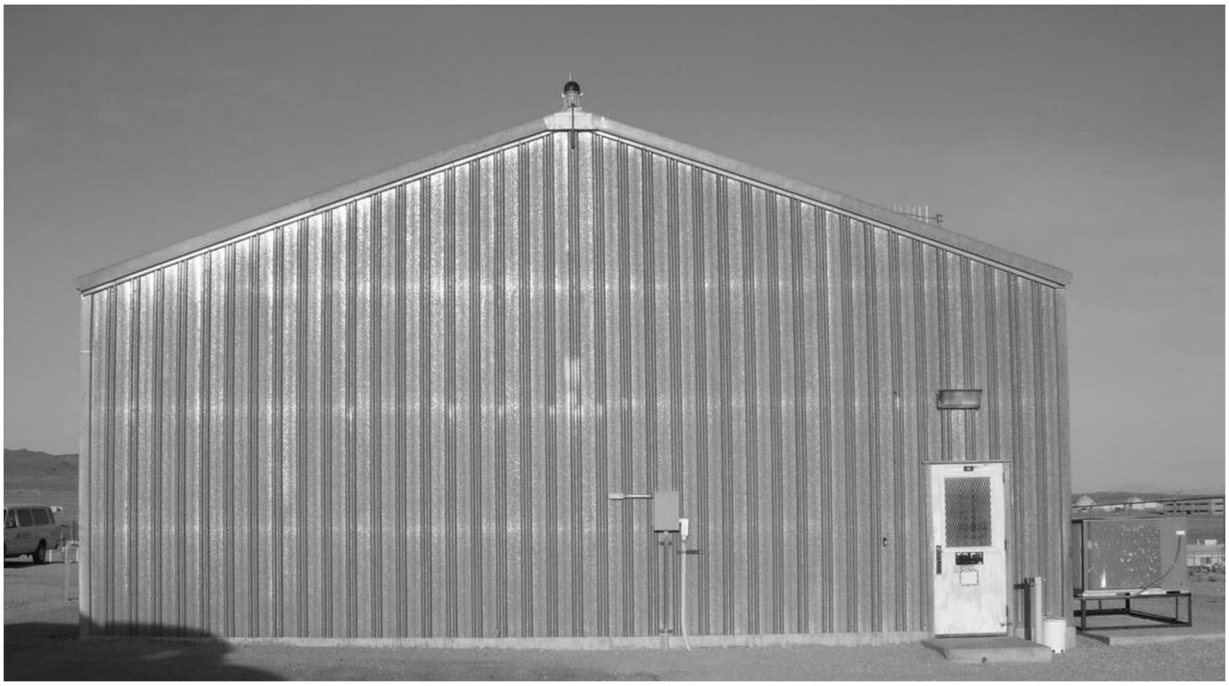
BUILDING 03-56; EAST END OF BUILDING WITH PEDESTRIAN DOOR INTO OFFICE SECTION; LIGHTNING WARNING SYSTEM LIGHT ON ROOF; FACING EAST



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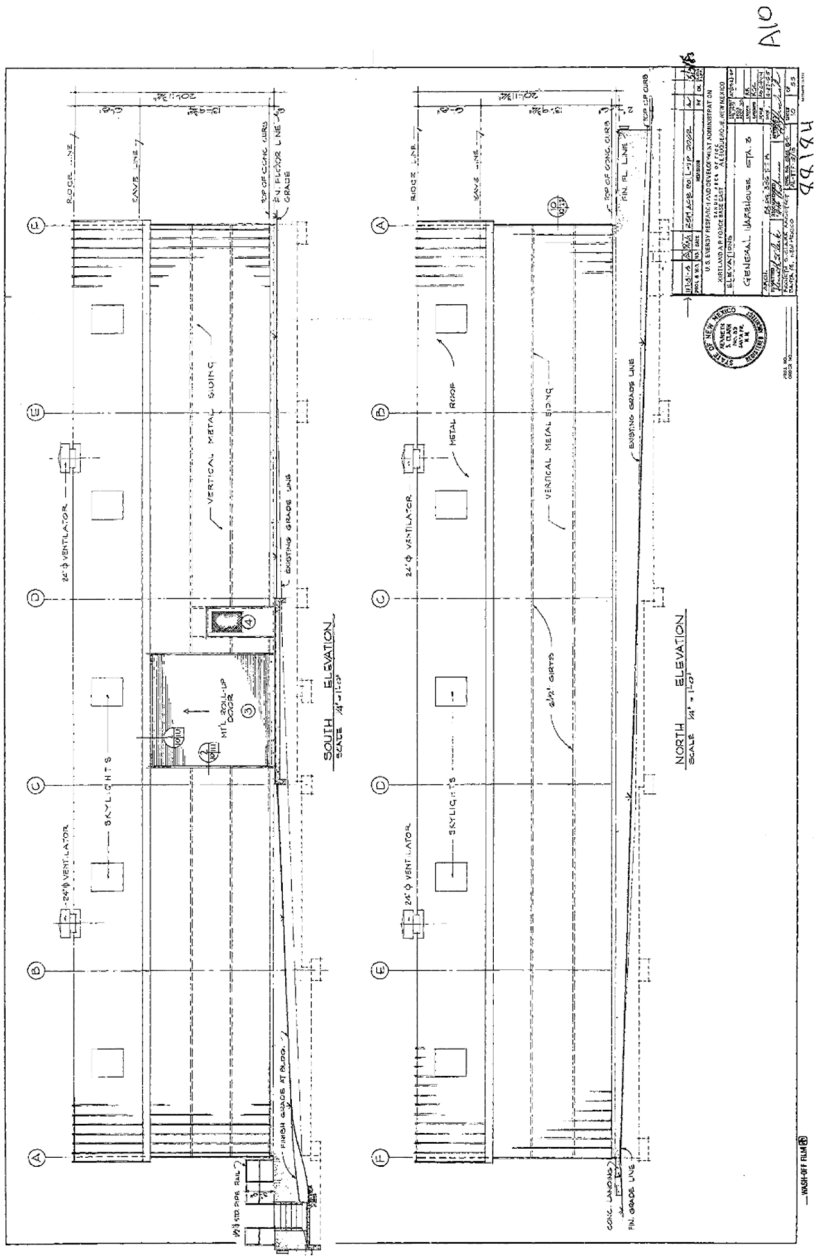

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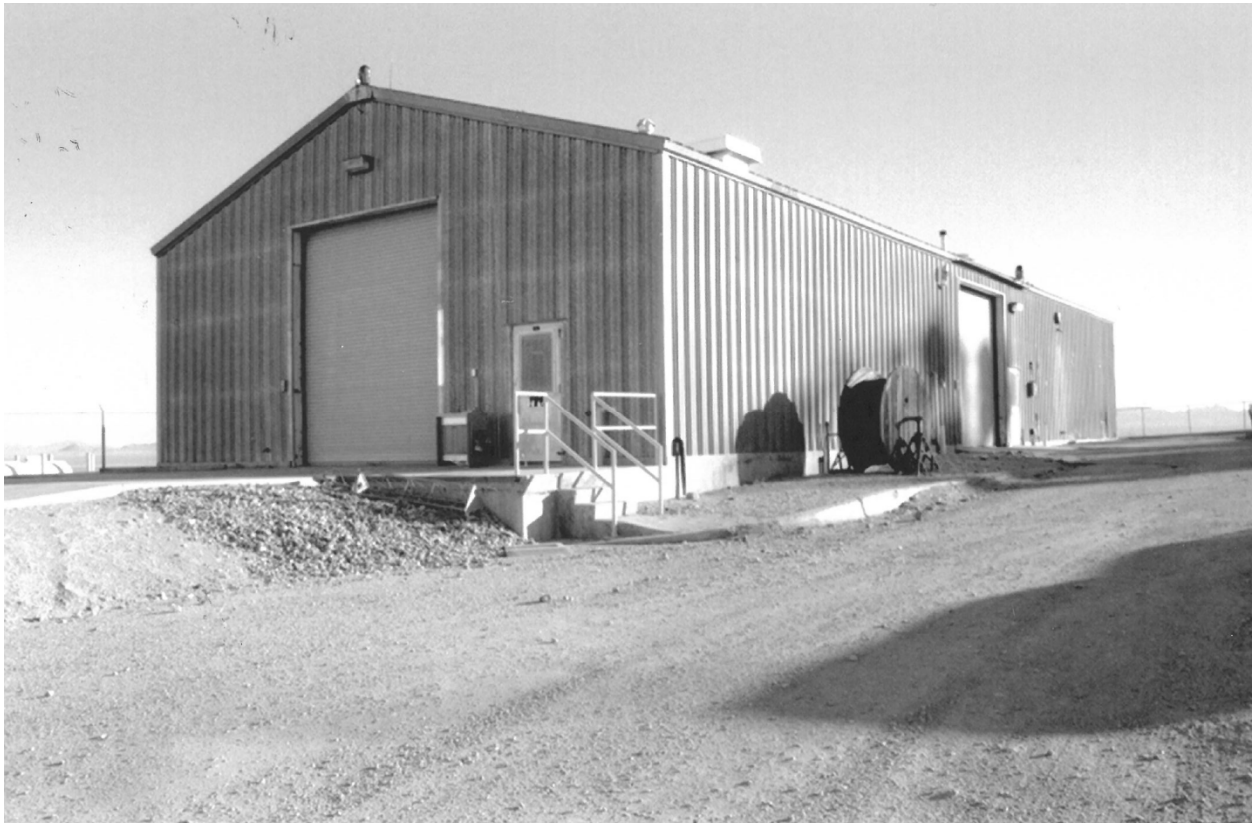

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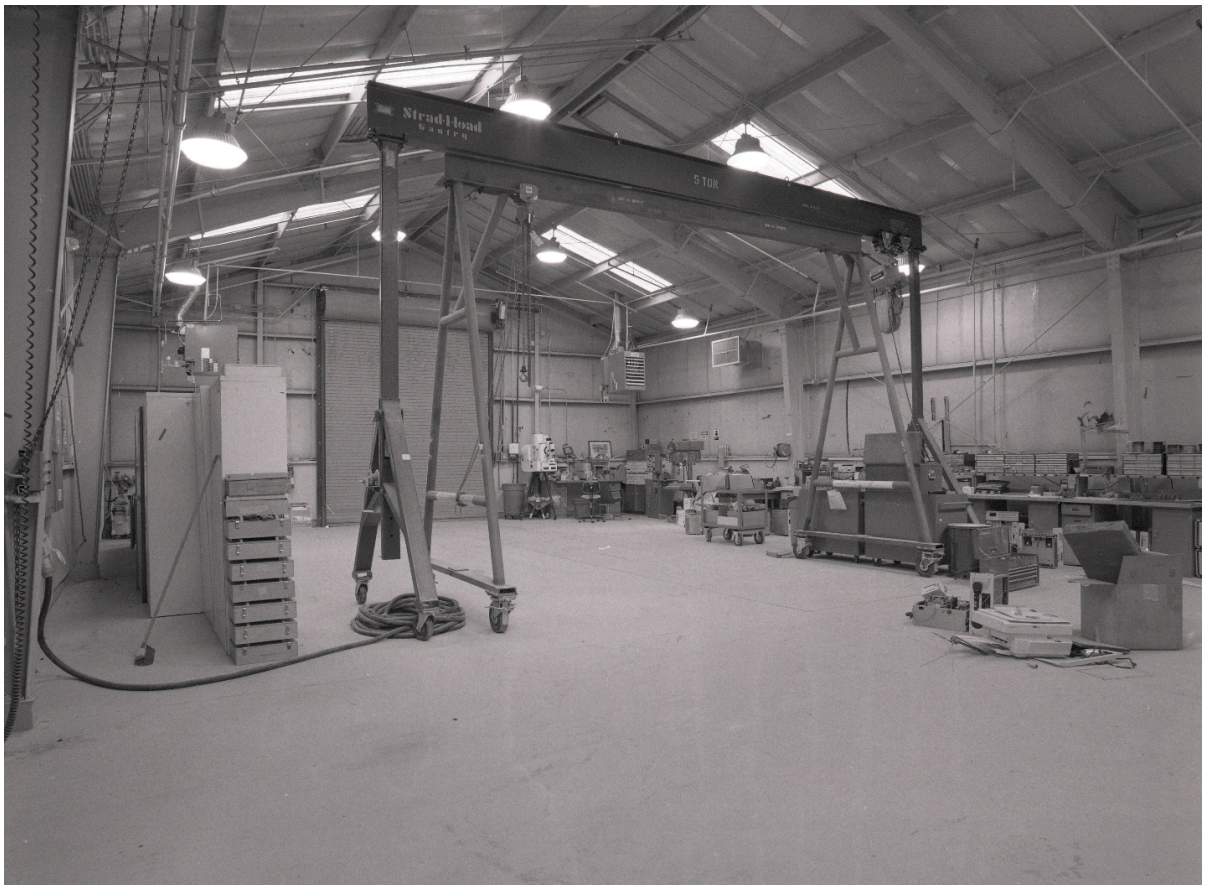

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