LA-UR-99-1425

Decontamination and Decommissioning of Buildings TA-3-42, TA-8-27, TA-8-31, and TA-35-1

Historic Building Survey Report No. 167

Los Alamos National Laboratory

February 26, 1999
Survey No. 771

Prepared for the Department of Energy
Los Alamos Area Office

prepared by

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Abstract

In February 1999, historic building surveys were conducted for four buildings proposed for decontamination and decommissioning (D&D). The buildings are situated on Department of Energy managed land at Los Alamos National Laboratory Technical Areas (TAs) -3, -8, and -35.

Building TA-3-42, a Guard House, was built in 1951 to 1953; TA-8-27, a vault, and TA-8-31, an explosives magazine, were built in 1950; and TA-35-1, a Guard House, was built in 1949 to 1951, during the early Cold War years at Los Alamos. All of these buildings are support/ancillary buildings to large laboratory facilities at these TAs. Because these properties were built during this significant time period at Los Alamos, historic building assessments have been included in this report.

Through documentation it has been determined that all four support buildings (TA-3-42, TA-8-27, TA-8-31, and TA-35-1) are eligible for the National Register of Historic under Criterion A, due to their association with events of exceptional importance during the early Cold War years at Los Alamos (criteria consideration G: properties that have achieved significance within the last fifty years) (U.S. Department of the Interior 1991). TA-3-42 is associated with the early technical machine shop. Buildings TA-8-27 and TA-8-31 are associated with the early development of x-ray techniques, some of which involved the use of contained radioactive sources. Building TA-35-1 is associated with the original laboratory and office building at TA-35 where activities involving early source preparation, radionuclide experimentation, and nuclear fission reactor development were being conducted.

The New Mexico State Historic Preservation Officer (SHPO) is requested to concur with the eligibility determinations contained in this report. Additionally, based on the status of the these properties as support buildings and the information included in this report regarding the proposed effects and treatment of effects to the properties, the SHPO is requested to concur with a "Determination of No Adverse Effect." The documentation submitted in this report (New Mexico Historic Building Inventory Form, building plan drawings, and photographs) serves as mitigation of the adverse effects to these properties (TA-3-42, TA-8-27, TA-8-31, and TA-35-1) which will result from the proposed D&D project.

As a result of this historic building survey, this project complies with the National Historic Preservation Act of 1966 (as amended).

Provenience and Environmental Setting

Location: Technical Areas (TAs) -3, -8, and -35 Los Alamos National Laboratory (LANL)

Land Manager: The Department of Energy (DOE)

Legal Description: Township 19 North, Range 6 East,
Section 17
SE ¼, SW ¼, SE ¼
Section 19
SW ¼, NE ¼, SW ¼
NE ¼, SW ¼, SW ¼
Section 22
NW ¼, NW ¼, SE ¼

Maps: USGS Frijoles Mountain 7.5 Minute Series (Appendix A, Maps 1 and 2)

Topography: Townsite Mesa and Mesita del Buey

Nearest Drainage: Two Mile Canyon to the south for TA-3-42; Pajarito Canyon to the north for TA-8-27 and TA-8-31; and Mortandad Canyon to the north for TA-35-1.

Elevation: 2197 to 2336 meters (7208 to 7664 feet)

Current Land Use: Developed TAs-3, 8, and 35

Project Description

As inactive buildings, TA-3-42, TA-8-27, TA-8-31, and TA-35-1, are subject to the DOE mission statement. "The DOE environmental vision and mission are based on operating all facilities in full compliance with applicable laws and regulations and cleaning up inactive sites and facilities so that no unacceptable risk to the public or environmental remains" (U. S. Department of Energy 1994).

LANL proposes to Decontaminate and Decommission (D&D) four buildings. The four buildings are inactive facilities and are on the excess space list. These buildings are located in TA-3, South Mesa Site; TA-8, Anchor West Site; and TA-35, Ten Site. All of these buildings were built during the early Cold War years at Los Alamos. Building TA-3-42, the guard house (former station #328) was built in 1951 to 1953. Buildings TA-8-27, a vault and TA-8-31, an explosives magazine, were built in 1950. Building TA-35-1, a guard house (former station #410) was built in 1949 to 1951. The proposed D&D project activities include the removal of these concrete buildings, foundations, and the capping off and removal of all associated utilities. As a result of the decommissioning phase, the properties will be completely demolished.

Methods

In February 1999, an historic building evaluation was conducted for buildings TA-3-42, TA-8-27, TA-8-31, and TA-35-1 (Appendix A, Maps 3–5) by Kari L. M. Garcia, archaeologist, Environment, Safety, and Health Division, Ecology Group (ESH-20), LANL.

The historic building evaluations were accomplished by first conducting a field visit to TAs -3, -8, and -35. All of the buildings are support buildings for other large laboratory facilities at these TAs. New Mexico Historic Building Inventory Forms were completed for all four buildings and photographs were taken (Appendix B). Records research at LANL was also carried out, and existing drawings were compiled for the buildings.

Culture History Overview

World War II and Early Cold War (1942-1956)

A. Site Selection, Acquisition

In 1942, Albert Einstein wrote a letter to President Franklin Roosevelt warning him of a possible German atomic bomb threat (Rothman 1992). President Roosevelt, acting on Einstein's concerns, gave approval to develop the world's first atomic bomb and appointed Brigadier General Leslie Groves to head the "Manhattan Project." Groves, in turn, chose Robert Oppenheimer to coordinate the design of the bomb.

A single research facility, isolated and secret, was proposed. General Groves had several criteria: security, isolation, a good water supply, an adequate transportation network, a suitable climate, an available labor force, and a locale west of the Mississippi located "at least 200 miles from any international border or the West Coast" (Rothman 1992). Oppenheimer, who had visited the Pajarito Plateau on a horseback trip, suggested the Los Alamos Ranch School.

B. Manhattan Project (1942 – 1945)

A suitable site selected, Oppenheimer and his staff moved to Los Alamos to begin work. The recruitment of the country's "best scientific talent" and the construction of technical buildings were top priorities. The University of California agreed to operate the site, code name "Project Y," under contract with the government (an arrangement that has continued to this day). Although the fission bomb was conceptually attainable, many difficulties still stood in the way of producing a usable weapon. Technical problems included the timing of the release of energy from fissionable material and the engineering aspects of producing a deliverable device. Nuclear material and high explosive (HE) studies were of immediate importance (Los Alamos National Laboratory 1995).

Two bomb designs appeared to be the most promising: a uranium "gun" method and a plutonium "implosion" method. The "gun" method bomb involved bringing fissionable material together to form a critical mass by firing one subcritical mass of uranium-235 at another. This method led to the development of the "Little Boy" device. Scientists were less confident about the second "implosion" method, a design that necessitated the compression of fissionable material using high explosives. The compression action would increase the density of a slightly subcritical mass of plutonium-239 and cause a critical reaction (Los Alamos National Laboratory 1995). In 1944, due to the uncertainties surrounding the second design, the search began for an appropriate test site for the implosion method, later used in the "Fat Man" device. The Alamogordo Bombing Range in south-central New Mexico was selected. A trial run involving 100 tons of TNT was conducted at "Trinity Site" on May 7, 1945. This "dress rehearsal" provided measurement data and simulated the dispersal of radioactive products. The Trinity test was planned for July, and its objectives were "to characterize the nature of the implosion, measure the release of nuclear energy, and assess the damage" (Los Alamos National Laboratory 1995). The HE components of the "Trinity" device were test assembled in building TA-16-516 at Los Alamos in an area known as V-site. Other buildings at V-site were used to prepare and finish the HE components and to run preliminary tests on the "Trinity" bomb (Wilder 1991). The world's first atomic bomb was successfully detonated in the early morning of July 16, 1945. "Little Boy," the untested uranium gun-type bomb, was exploded over the Japanese city of Hiroshima on August 6, 1945. "Fat Man" was exploded over Nagasaki three days later on August 9, 1945, thus essentially ending the war with Japan.

C. Early Cold War Era (1946 – 1956)

The Manhattan Project had come to a close with the end of World War II, and many Los Alamos scientists and site workers went back to their prewar existences. The future of Los Alamos was in question. With the beginning of the Cold War, continued weapons research was a top priority. Norris Bradbury had been appointed director of the Laboratory following Oppenheimer's departure from Los Alamos. Bradbury felt that the nation needed "a laboratory for research into military applications of nuclear energy" (Los Alamos National Laboratory 1993a). In 1945, stockpiling and development of additional atomic weapons was an important mission. In 1946, the Laboratory became involved in the technical direction of the atmospheric testing program in the Pacific, dubbed "Operation Crossroads." Later in 1946, the U.S. Atomic Energy Commission (AEC) was established to act as a civilian steward for the new atomic technology born of WWII. The AEC formally took over the Laboratory in 1947, making a commitment to retain Los Alamos as a permanent weapons research facility. Postwar weapons research revolved around the development of advanced fission weapons and, acting on an idea born in 1942, the development of the hydrogen bomb. The combined work of Edward Teller and Stanislaw Ulam led to the beginning of the Laboratory's thermonuclear research program (Los Alamos National Laboratory 1993a).

In 1952, the first thermonuclear device, known as "Mike," was detonated at Eniwetok atoll in the Pacific (Los Alamos National Laboratory 1993a). The Mike shot used liquefied deuterium fuel. The Castle-Bravo shot, conducted in the Pacific in 1954, was revolutionary in that it contained dry, solid thermonuclear fuel. Other early Cold War weapons-related developments include: (1)

from 1952 to 1956, "improvements to the primary stage of a nuclear weapon" and (2) in 1956, "the first use of plastic-bonded explosives in a nuclear explosion" (Los Alamos National Laboratory 1995).

Technical Area 3 (South Mesa) Historical Background

TA-3, South Mesa Site, is a large developed technical area. It contains the Laboratory's main administration buildings, library, cafeteria, shops, several large laboratories for a wide variety of research and development activities, warehouses, electrical generating plant, sewage treatment plant, and numerous other permanent and temporary buildings, transportable trailers, and transportainers.

TA-3 was originally built as a firing site prior to 1945, containing wooden buildings for administration, a shop, magazines, and fiberboard buildings for storage, minor assembly, and checkout of scientific hardware. There was also a burn pit for destroying explosives. This original TA-3 site was decommissioned and cleared in 1949 (Los Alamos National Laboratory 1993b:5).

Construction began in 1950 at the South Mesa site on the main buildings that were to replace the operational facilities in the current Los Alamos town site. The first buildings including the Van de Graaff accelerator, laboratory and support buildings; the communications building; the large chemistry and metallurgy laboratory, the site of critical chemistry and metallurgy supporting the Laboratory's weapons program; warehouses for general supplies and chemicals; shops; a fire station; and a large physics laboratory and office building became operational between mid 1951 and late 1952.

The Van de Graaff accelerator building at one time housed the world's highest voltage Van de Graaff accelerator (Hawkins et. al. 1983, Los Alamos National Laboratory 1995). The chemistry and metallurgy laboratory conducts "operations involving plutonium, uranium, other radionuclides, metals, inorganic and organic compounds, acids, and solvents of every nature." . . . The physics building at one time "housed two accelerators and a cyclotron" (Los Alamos National Laboratory 1993b:2-5). Radioactive materials including plutonium, uranium, and tritium, and metals and solvents have been used in the building over the years. To serve these facilities a gas-fired electrical generating plant, a waste water treatment plant, a service station and maintenance garage were also constructed.

Building TA-3-42, a guard house for one of the original technical machine shops, was also constructed from 1951 to 1953. This is one of the buildings scheduled for D&D discussed in this report.

A second stage of construction at TA-3 occurred during the mid-to late-1950s. Two major buildings were completed during these years, the Administration Building which houses offices,

laboratories, shop, and photographic facilities and the Sigma Building that houses facilities for metallurgical and ceramics research and fabrication (Los Alamos National Laboratory 1993b:2-6).

New facilities continued to be built during the 1960s and 1970s including office buildings, storage areas, shops, an addition to the waste water treatment plant, a cement batch plant, and numerous transportable buildings. In 1977 the Oppenheimer Study Center was constructed; in 1981 an addition to the Administration Building was constructed, and in the early 1990s a computer facility and several national centers for various scientific research activities were constructed (Los Alamos National Laboratory 1993b:2-6).

Technical Area 8 (New Anchor West) Historical Background

TA-8 is known as New Anchor West, it was part of the original Anchor Ranch homestead that was acquired in 1943 for the Manhattan Project Gun-Firing site, which is referred to as Old Anchor West. The gun-firing site was established, on the west side of Anchor Ranch Road, for the development of the gun-assembled nuclear weapon known as Little Boy. Other "various x-ray and explosives development, production, and testing activities were also conducted in this area by the U.S. Army's Ordnance Division, which was responsible for the gun-assembly as well as the implosion programs" (Los Alamos National Laboratory 1993c:2-8).

Structures built in this area included buried concrete bunkers, which housed control rooms and various laboratory and storage facilities, and wooden structures used for office space, storage space, and a carpenter's shop. Prototypes of the Little Boy gun device were tested at the site in 1945. Gun testing was not resumed after World War II. "The gun weapon although reliable, required large amounts of enriched uranium, and the program was abandoned in favor of the development of implosion weapons" (Los Alamos National Laboratory 1993c:2-10). The gun-firing site, Old Anchor West, was abandoned in 1946, and, the wooden structures were removed between 1949 and 1968.

New construction began in TA-8 at the New Anchor West Site in 1949 and 1950 for a nondestructive test facility. These facilities were for Group X-1 (later GMX-1), which had been developing x-ray techniques at a different location. New buildings were constructed for use as office space; photographic-processing laboratories; laboratories for x-ray work, some involving the use of contained radioactive sources; laboratories for chemical detection of imperfections in parts; and utility buildings and lines, magazines, and support facilities (Los Alamos National Laboratory 1993c:2-10, 2-11). At this time of new construction many of the original buildings, were removed.

Buildings TA-8-27, a vault, and TA-8-31, an explosives magazine were constructed in 1950. These buildings are two of the buildings scheduled for D&D discussed in this report. The vault has always housed sealed fissionable materials and the magazine has always housed HE components and energetic materials used by the radiographic facility at TA-8 in various types of x-ray studies. The radiographic facility used x-ray tests to diagnostically check for imperfections

in fissionable materials and HE components, that had been pressed and machined elsewhere, which were to be parts or components of weapons (Los Alamos National Laboratory 1993c).

During the War, development, manufacture, and testing of HE was conducted at TA-8, Old Anchor West. Melt cast HE formulations were developed and poured into molds, allowed to solidify and then used for stock HE. These cast HE components were used in nuclear weapons. After the War in 1952, plastic-bonded explosives, were pressed and machined for incorporation into weapon components (Los Alamos National Laboratory 1993c:2-13).

Technical Area 35 (Ten Site) Historical Background

TA-35, Ten Site, is a large developed Laboratory technical area. It consists of many permanent and temporary buildings, and transportable storage and office trailers of various construction styles and material types. Buildings include laboratories, office buildings, machine shops, physics and laser laboratories, facilities, and utilities.

"The first laboratories and office [buildings] at TA-35 were completed in 1951". Early "operations involved the preparation of kilocurie sources of radioactive lanthanum ^{140}La" (Los Alamos National Laboratory 1992:3-35). During the 1950s and 1960s operations included experimentation with plutonium and tritium, and nuclear fission reactor development.

The original laboratory and office building, TA-35-2, has been used for a wide variety of research operations. It has housed two experimental nuclear fission reactors (Los Alamos Power Reactor Experiment, LAPRE-1 and Los Alamos Molten Plutonium Reactor Experiment, LAMPRE). It also housed a hot cell used for preparing kilocurie-sources of radioactive lanthanum-140, plutonium research laboratories, and a facility at which lithium tritide components were developed and handled. A third reactor LAPRE-II was operated in a below-grade pit near the southeast corner of TA-35-2. LAPRE -1 operated in 1956, LAPRE-II operated in 1959, and LAMPRE operated from 1960 to 1964. In the basement of TA-35-2, a tritium facility was operated from 1954 until 1974 (Los Alamos National Laboratory 1992:3-23, 3-36).

Building TA-35-1, the guard house for the first laboratory and office building (TA-35-2), was constructed from 1949 to 1951. It is one of the buildings scheduled for D&D discussed in this report.

Currently several laboratory groups are conducting research in this building (TA-35-2) including research in ceramics, robotics, polymer synthesis, lasers, high-speed impact studies, and strain-rate measurements on a variety or materials including plutonium (Los Alamos National Laboratory 1992:3-23).

Other buildings in this TA include laboratories for research and development on various types of lasers, small reactor test pits, target fabrication facilities, and office and utilities.

Most of the work with radioactive materials was phased out by the 1970s and activities were focused on laser operations. As of the late 1980s several different Laboratory Divisions including the Physics (P) Division, Chemistry (CLS) Division, Materials Science and Technology (MST) Division, Applied Theoretical Physics (X) Division, and Energy (Q) Division (now N-Division) were conducting laser research at various laboratory buildings throughout the TA. Research included laser fusion, involving development, fabrication, and operation of lasers and laser targets; and nuclear safeguards research and development of assay instrumentation (Los Alamos National Laboratory 1992:3-23). "Experimentation and development of laser technology continues to the present. Research on optics, robotics, and nuclear safeguards are also ongoing at TA-35" (Los Alamos National Laboratory 1992:3-36).

Description of Buildings

Four buildings, TA-3-42, TA-8-27, TA-8-31, and TA-35-1, are proposed for demolition. Appendix A contains maps showing the locations of the buildings proposed for demolition. Appendix B contains the Historic Building Inventory Forms, plan drawings, and photographs. Appendix C contains black-and-white 35-mm photographs of the eligible properties.

TA-3-42 Guard House

Building Name: TA-3-42 Original Name: South Mesa-42 (SM-42)

Location:

City - Los Alamos, New Mexico

County - Los Alamos

UTMs - Zone 13 Easting 380506 Northing 3970427

Legal Description - Township 19 North, Range 6 East, Section 17

Surroundings - TA-3, is the Laboratory's administrative area. It is a large developed technical area consisting of many permanent and temporary buildings of various construction styles and material types. Buildings include laboratories, office buildings, maintenance shops, medical facilities, and utilities.

Relationship to surroundings – Not similar.

Construction Date: 1951 to 1953

Original Use: Structure TA-3-42 was a former guard house (station #328) for building TA-3-39 which is designated as technical machine shop.

Use History: Structure TA-3-42 served as a guard house, then it was used for storage.

Use at Time of Survey: TA-3-42 is currently abandoned and not in use.

Condition at Time of Survey: Fair condition to good condition

Building Description: (see also Appendix B)

Building style - Concrete masonry unit structure with flat roof

Foundation material - Concrete slab

Wall material/surface - Concrete masonry units

Architectural features - Only floor plans exist for this guard house. However, this building is an example of a standard building type at the Laboratory and is similar in size and design to at least five other guard houses (TA-8-20, TA-15-46, TA-16-1451, TA-22-32, and TA-36-22) with minor differences. Construction material varies between concrete masonry units and reinforced concrete, and the window treatment varies between size and number of glass panes. Elevation drawings for TA-22-32, one of the identical guard houses, are being submitted with the site from for TA-3-42.

The similar guard house, TA-16-1451, has been documented (McGehee 1995) and concurrence received from the State Historic Preservation Office on eligibility status (March 24, 1995). A plan was developed for the mitigation of adverse effects to the property from the Laboratory's D&D project (May 30, 1995).
Per the mitigation plan, measured drawings have been completed and archival 4 by 5 black-and-white photographs have been produced for TA-16-1451. This report has not been submitted because we are still completing all the requirements of the mitigation plan.

TA-3-42 is a 144 ft^2 building with a flat roof constructed of concrete masonry. It has two rooms: a main room and a restroom. The front, east side of the building has two windows each with three glass panes and a metal pedestrian door with a window. The north side has three windows, each with three glass panes. The west side has two windows, one is slightly larger than the other. This larger window is the only difference between this guard house and the other five guard houses built from identical plans. The larger window has three glass panes and the smaller has two glass panes. The smaller window is the window in the restroom. The south side has two windows each with three glass panes. Utility control panels and switch boxes are located on the south side of the building.

The lower portion of the walls from the ground to the top of the door and windows are exposed concrete masonry units where as the upper portion of the wall has a smoothed concrete surface.

The flat roof has a 4 ft 6 in. overhang/canopy on all four sides of the building. The roof is constructed in several layers. The lower or interior surface of the roof is 1 in. perforated pan type acoustical ceiling. Above the acoustical ceiling is a 1½-in., 20-gauge galvanized steel roof deck and covered with 2 in. rigid insulation. The final exterior surface is three ply tar and gravel roofing. There is galvanized metal flashing around all the edges.

Interior wall surfaces were painted with oil-base lead paint.

Remodeling History: None.

Associated Buildings: TA-3-39 is the technical machine shop that this guard house is associated with. It also was constructed in 1951 to 1953.

District Potential: None. This TA is the administrative area of the Laboratory. It is a conglomeration of a wide variety of permanent and temporary buildings of many different construction styles built throughout the late 1940s to the present.

Contamination Information: There is no record of any contamination existing within building TA-3-42 (Los Alamos National Laboratory 1990 and 1993b).

TA-8-27 Concrete Vault

Building Name: TA-27, Original Name: Anchor West -27 (AW-27)

Location:

City - Los Alamos, New Mexico

County - Los Alamos

UTMs - Zone 13 Easting 377986 Northing 3969098

Legal Description - Township 19 North, Range 6 East, Section 19

Surroundings - TA-8, Anchor West Site, is a developed Laboratory technical area now consisting of buildings for various types of x-ray work, some which involve the use of contained radioactive sources; photographic-processing laboratories; magazines; office space; and utility buildings, lines, and support facilities.

Relationship to surroundings - Similar in construction style to other small nearby buildings (TA-8-25, -26, -28, -29, -30, -31, and -32) magazines, guard stations, laboratories, and utility buildings also built out of reinforced concrete.

Construction Date: 1950

Original Use: Building TA-8-27 was a vault for fissionable materials associated with the radiography facility built at this TA in the early 1950s.

Use History: Building TA-8-27 served as a vault for the radiography facility.

Use at Time of Survey: TA-8-27 is currently abandoned and not in use.

Condition at Time of Survey: Fair condition

Building Description: (See also Appendix C)

Building style - Small reinforced concrete vault with flat roof

Foundation material - Reinforced concrete slab

Wall material/surface - Reinforced concrete, lined with steel plates painted with oil base lead paint

Architectural features - Building TA-8-27 is a small, two-roomed, 189-ft^2 reinforced concrete vault with a flat roof. The interior walls and ceiling are steel lined and the steel is painted with oil base lead paint. Exterior walls were left rough and coated with metallic waterproofing.

Remodeling History: The steel vault door was modified in 1961.

Associated Buildings: TA-8-28, a reinforced concrete guard station located directly to the southeast of the vault.

District Potential: None. Only three original buildings remain at this TA. New construction began in this TA in 1949/1950 and many of the original buildings, from during the war, were removed and one building was relocated within the site and later removed. The new buildings were constructed for use in the development of x-ray techniques, which were being developed at another location.

Contamination Information: "There is no evidence of any contamination associated with this building [TA-8-27]" (Los Alamos National Laboratory 1990 and 1993c:7-46).

TA-8-31 Concrete Magazine

Building Name: TA-8-31, Original Name: Anchor West-31 (AW-31)

Location:

City - Los Alamos, New Mexico

County - Los Alamos

UTMs - Zone 13 Easting 378183 Northing 3969352

Legal Description - Township 19 North, Range 6 East, Section 19

Surroundings - TA-8, Anchor West Site, is a developed Laboratory technical area now consisting of buildings for various types of x-ray work, some which involve the use of contained radioactive sources; photographic-processing laboratories; magazines; office space; and utility buildings, lines, and support facilities.

Relationship to surroundings - Similar, building TA-8-32 is another explosives magazine identical to TA-8-31

Construction Date: 1950

Original Use: Building TA-8-31 is an explosives magazine.

Use History: Building TA-8-31 has always served as an explosive magazine.

Use at Time of Survey: TA-8-31 is currently abandoned and not in use.

Condition at Time of Survey: Fair condition

Building Description: (See also Appendix C)

Building style - Small reinforced concrete magazine with flat roof and earthen berm

Foundation material - Concrete slab

Wall material/surface - Reinforced concrete painted with oil base lead paint

Architectural features - Building TA-8-31 is a small, reinforced concrete magazine. It is 168 ft^2 with earthen fill on three sides. The interior walls are smooth finished and painted with oil-base lead paint. There is a center bar joist on the ceiling. The exterior walls were left rough and waterproofed with three plies of felt and coal tar pitch. The magazine has a steel door on the north side of the structure. There are four steps up from the concrete/asphalt pad east of the magazine to a concrete dock that extends from the north side of the building.

Remodeling History: None

Associated Buildings: TA-8-32, is an identical magazine to TA-8-31.

District Potential: None. Only three original buildings remain at this TA. New construction began in this TA in 1949/1950 and many of the original buildings, from during the war, were removed and one building was relocated within the site and later removed. The new buildings were constructed for use in the development of x-ray techniques, which were being developed at another location.

Contamination Information: "There is no evidence of any contamination associated with this building [TA-8-31]" (Los Alamos National Laboratory 1990 and 1993c:7-45).

TA-35-1 Guard House

Building Name: TA-35-1 Original Name: Ten Site Laboratory –1 (TSL-1)

Location:

City - Los Alamos, New Mexico

County - Los Alamos

UTMs - Zone 13 Easting 383436 Northing 3969348

Legal Description - Township 19 North, Range 6 East, Section 22

Surroundings - TA-35, Ten Site, is a large developed Laboratory technical area. It consists of many permanent and temporary buildings of various construction styles

and material types. Buildings include laboratories, office buildings, machine shops, physics and laser laboratories and facilities, and utilities.

Relationship to surroundings – Not similar

Construction Date: 1949 to 1951

Original Use: Building TA-35-1 was a former guard house (station #410) for building TA-35-2 the original laboratory and office building at TA-35. This support building was the guard station for building TA-35-2, the original laboratory and office building at TA-35, also built in 1951.

Use History: Structure TA-35-1 served as a guard house then it was used for storage.

Use at Time of Survey: TA-35-1 is currently abandoned and not in use.

Condition at Time of Survey: Fair to good condition

Building Description: (see also Appendix B)

Building style - Reinforced concrete guard house with low pitched roof

Foundation material - Concrete slab

Wall material/surface - Reinforced concrete

Architectural features - Only floor plans exist for this guard house. However, this building is almost identical in size and design to at least one other guard house (TA-16-101) at the Laboratory with minor differences. Construction material varies between wood and reinforced concrete and the window treatment varies between size and number of glass panes. Elevation drawings for TA-16-101 are being submitted with the site from for TA-35-1.

Building TA-16-101 has been previously documented (McGehee 1995) and concurrence received from the State Historic Preservation Office on eligibility status (March 24, 1995) and a mitigation plan (May 30, 1995) for the mitigation of adverse effects to the property from the Laboratory's D&D project. Per the mitigation plan measured drawings have been completed and archival 4 by 5 black-and-white photographs have been produced.

Construction material varies between wood frame covered with concrete-filled sand bags for TA-16-101 and reinforced concrete for TA-35-1.

Building TA-35-1 is a 133 ft^2 rectangular building with a low pitched roof constructed of reinforced concrete. The building has two rooms: a main room and a restroom. The front, south side of the building has one window with two glass panes that slide open and a metal pedestrian door with window. The east side has two windows each with two glass panes that slide open. The north side has two windows, one larger than the other, also each with two glass panes that slide open. The smaller window is in the restroom. The west

side has one window with a single glass pane and a pedestrian door that was added sometime between 1959 and 1983.

The windows on the east and north sides are located at the north east corner of the building and the windows on the south and west sides are located at the southwest corner of the building.

The low-pitched roof slopes slightly from the south to north. It has an approximate 5 ft overhang/canopy in the front (south side) and the other three sides have an approximate 2 ft overhang/canopy. The roof construction is similar to that of guard house building TA-3-42. It is appears to be constructed in several layers with a tar and gravel exterior surface. There is galvanized metal flashing around all the edges.

Interior wall surfaces **were most likely** painted with oil-base lead paint as were other structures constructed in the late 1940s early 1950s.

Remodeling History: At sometime between 1959 and 1983 a second pedestrian door was added on the west side of the building in the location where one of the windows was positioned.

Associated Buildings: TA-35-2 is the original laboratory and office building at TA-35. It also was constructed in 1951.

District Potential: None. TA-35 is a conglomeration of a wide variety of permanent and temporary buildings of many different construction styles built throughout the late 1940s to the present.

Contamination Information: There is no record of any contamination existing in building TA-35-1 (Los Alamos National Laboratory 1990 and 1992).

National Register Eligibility Determination

Based on the information gathered during this building survey, properties TA-3-42, TA-8-27, TA-8-31, and TA-35-1 are eligible for nomination to the National Register of Historic Places.

The four buildings are less than fifty years old and as such, must be associated with an event(s) of exceptional importance in order to be eligible for the National Register (criteria consideration G, under Criterion A) (U.S. Department of the Interior 1991).

All four buildings are eligible under Criterion A (criterion consideration G), even though they only functioned as support structures for main laboratory facilities constructed at each of the TAs during the early Cold War years at Los Alamos. TA-3-42 served as the guard house for entry into the technical machine shop located in the main administrative area of the Laboratory. TA-35-1 served as a guard house for the original laboratory building in TA-35. TA-8-27 and TA-8-31 served as a vault and explosives magazine respectively for the facilities that were built at the New Anchor West site for the development of x-ray techniques.

Two of the buildings (TA-8-27 and TA-35-1) had minor modifications during their time of use. The door on TA-8-27, the vault, was modified in 1961 and TA-35-1, a guard house, had an additional door installed sometime between 1959 and 1983.

Currently all of the buildings are abandoned and no future use is designated for these properties; therefore, they are on the Laboratory's surplus space list and scheduled for D&D. The magazine and vault's sole-use construction and small size make them unsuitable for reuse. The two guard houses, after being decommissioned from service, were temporarily used for storage before they were abandoned. The need for guard houses at the two locations, where TA-3-42 and TA-35-1 are situated, has become unnecessary and have therefore been vacated.

Proposed Treatment of Effects

The proposed D&D activities at TAs-3, -8, and -35 will result in the destruction of buildings TA-3-42, TA-8-27, TA-8-31, and TA-35-1. All four buildings are considered eligible for the National Register of Historic Places.

Adverse effects to properties determined to be eligible for the National Register should be mitigated to the fullest extent possible. It is deemed that the documentation submitted as part of this report (New Mexico Historic Building Inventory From, building plan drawings, and photographs) serves as mitigation to the adverse effects to these properties which will result from the proposed D&D project.

Recommendations

As stated above, all four buildings (TA-3-42, TA-8-27, TA-8-31, and TA-35-1) proposed for demolition are considered significant historic properties and are eligible for nomination to the National Register of Historic Places under Criterion A (criterion consideration G). The SHPO is requested to concur with the eligibility determinations contained in this report. Based on the status of these buildings as support structures for main Laboratory facilities and the information regarding the proposed effects and treatment of effects, the SHPO is requested to concur with a "Determination of no Adverse Effect" for the D&D of properties TA-3-42, TA-8-27, TA-8-31, and TA-35-1. It is deemed that the documentation submitted as part of this report serves as mitigation to the adverse effects to the eligible properties that will result from the proposed D&D project.

As a result of this historic building survey, this project complies with the National Historic Preservation Act of 1966 (as amended).

References Cited

Hawkins, David, Edith C. Truslow, and Ralph Carlisle Smith

1983 "Project Y: The Los Alamos Story", Volume II in a series in *The History of Modern Physics, 1800-1950.* Tomash Publishers and the American Institute of Physics.

Los Alamos National Laboratory

1990 *Solid Waste Management Units Report, Los Alamos National Laboratory Environmental Restoration*, LA-UR-90-3400, Los Alamos National Laboratory, Los Alamos, New Mexico.

1992 *RFI Work Plan for Operable Unit 1129: Environmental Restoration Program* LA-UR-92-800, Los Alamos National Laboratory, Los Alamos, New Mexico.

1993a *Los Alamos: Beginnings of an Era 1943-1945.* Los Alamos Historical Society, Los Alamos, New Mexico.

1993b *RFI Work Plan for Operable Unit 1114: Environmental Restoration Program.* LA-UR-93-1000, Los Alamos National Laboratory, Los Alamos, New Mexico.

1993c *RFI Work Plan for Operable Unit 1157: Environmental Restoration Program.* LA-UR-93-1230, Los Alamos National Laboratory, Los Alamos, New Mexico.

1995 *Dateline: Los Alamos, Special Issue, LALP-95-2-6&7.* Los Alamos National Laboratory, Los Alamos, New Mexico.

McGehee, Ellen D.

1995 *Decontamination and Decommissioning of 28 "S Site" Properties: Technical Area 16*, Historic Building Survey Report No. 84, Vols 1-3. LA-UR-95-617. Los Alamos National Laboratory, Los Alamos, New Mexico.

Rothman, Hal

1992 *On Rims and Ridges, The Los Alamos Area Since 1880.* University of Nebraska Press, Lincoln.

U. S. Department of Energy

1994 *Environmental Restoration and Waste Management Five-Year Plan, Fiscal Years 1994-1998.* DOE/S-00097P, U.S. Department of Energy, Washington, D.C.

U.S. Department of the Interior

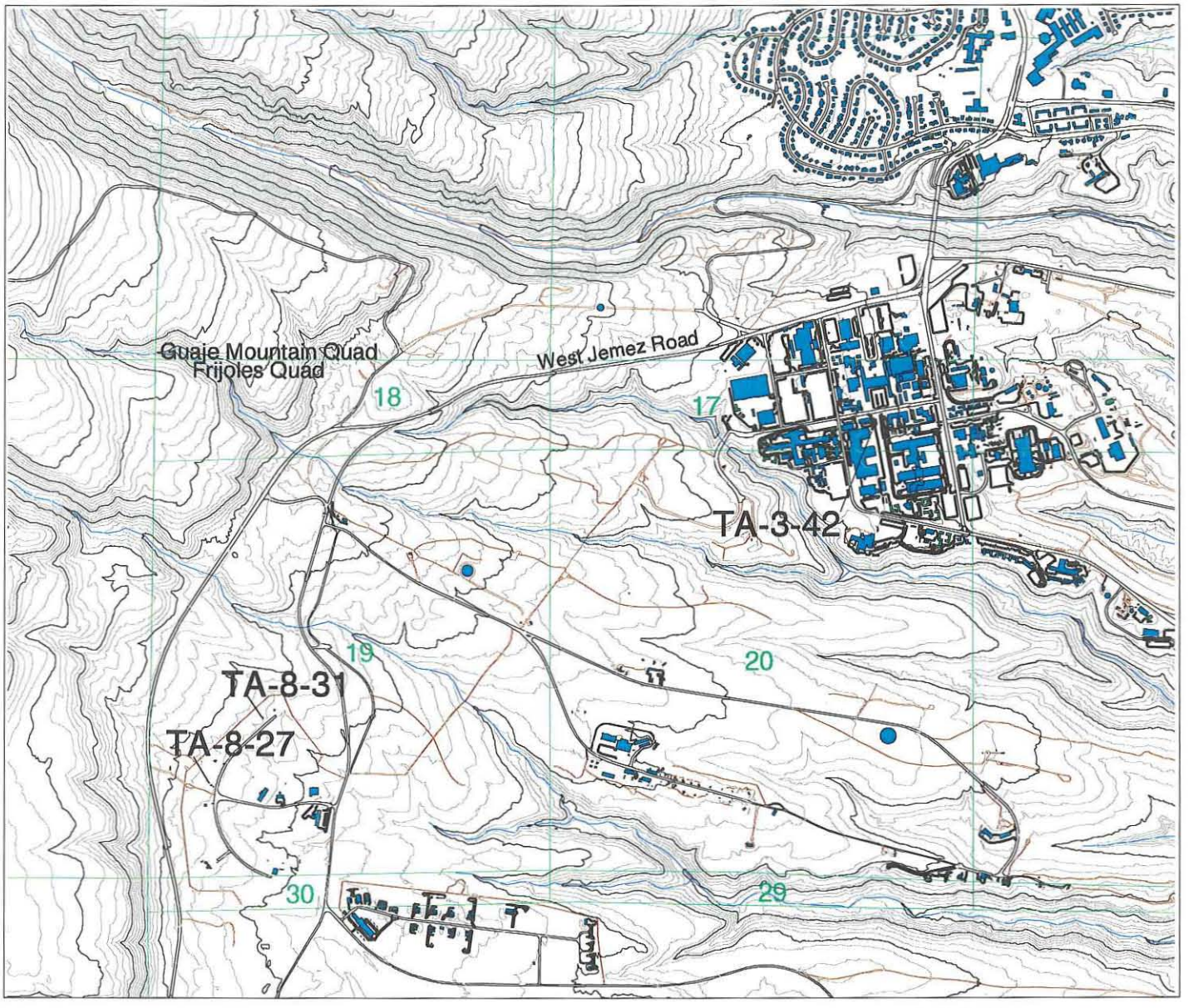
1991 How to Apply the National Register Criteria for Evaluation. In *National Register Bulletin,* No. 15. U.S. National Park Service, Washington, D.C.

Wilder, Edward, Jr.

1991 Early S-site Experiences. In *Manhattan District History: Nonscientific Aspects of Los Alamos Project Y, 1942 through 1946.* Written by Edith C. Truslow, edited by Kasha V. Thayer. Los Alamos Historical Society, Los Alamos, New Mexico.

APPENDIX A

Maps



1:24000

Los Alamos
National Laboratory

Cultural Resources Team
ESH-20 Ecology Group

300 0 300 600 900 1200 1500 Meters

1000 0 1000 2000 3000 4000 5000 Feet

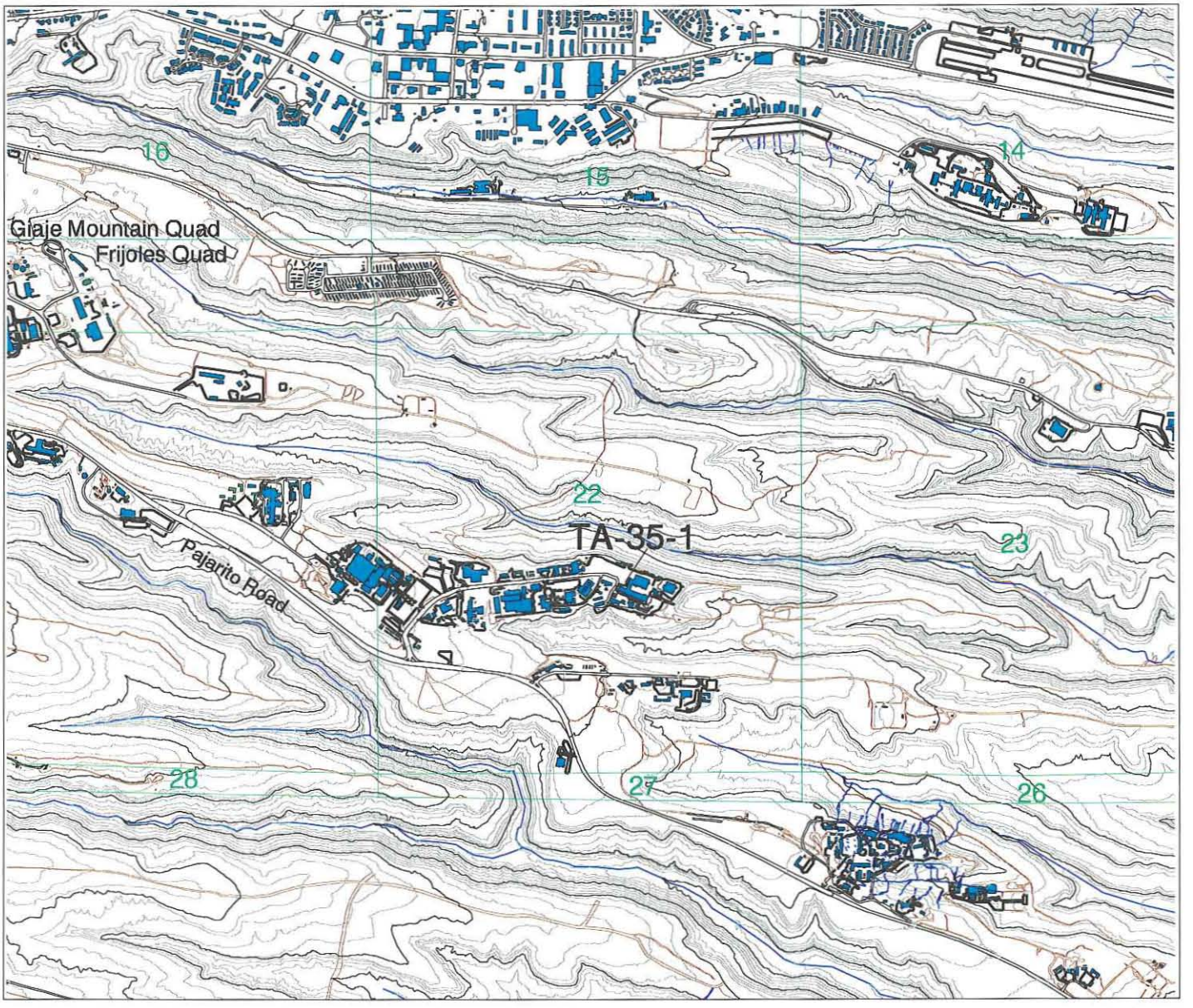
N
W E
S

- Township, Range, Section
- USGS 7.5 Minute Quadrangle
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Roads - Paved
- Roads - Dirt
- Structures - Perm Buildings
- Structures - Temp Buildings

D&D of TA-3-42, TA-8-27, TA-8-31, and TA-35-1

TA-3 and TA-8 Project Locations

Map 1



1:24000

Los Alamos
National Laboratory

Cultural Resources Team
ESH-20 Ecology Group

300 0 300 600 900 1200 1500 Meters

1000 0 1000 2000 3000 4000 5000 Feet

N
W E
S

- Township, Range, Section
- USGS 7.5 Minute Quadrangle
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Roads - Paved
- Roads - Dirt
- Structures - Perm Buildings
- Structures - Temp Buildings

D&D of Buildings TA-3-42, TA-8-27, TA-8-31, and TA-35-1

TA-35 Project Location

Map 2

Frijoles 1984 7.5 Minute Quadrangle

Los Alamos
National Laboratory

Cultural Resources Team
ESH-20 Ecology Group

1:3000

50 0 50 100 Meters

200 0 200 400 Feet

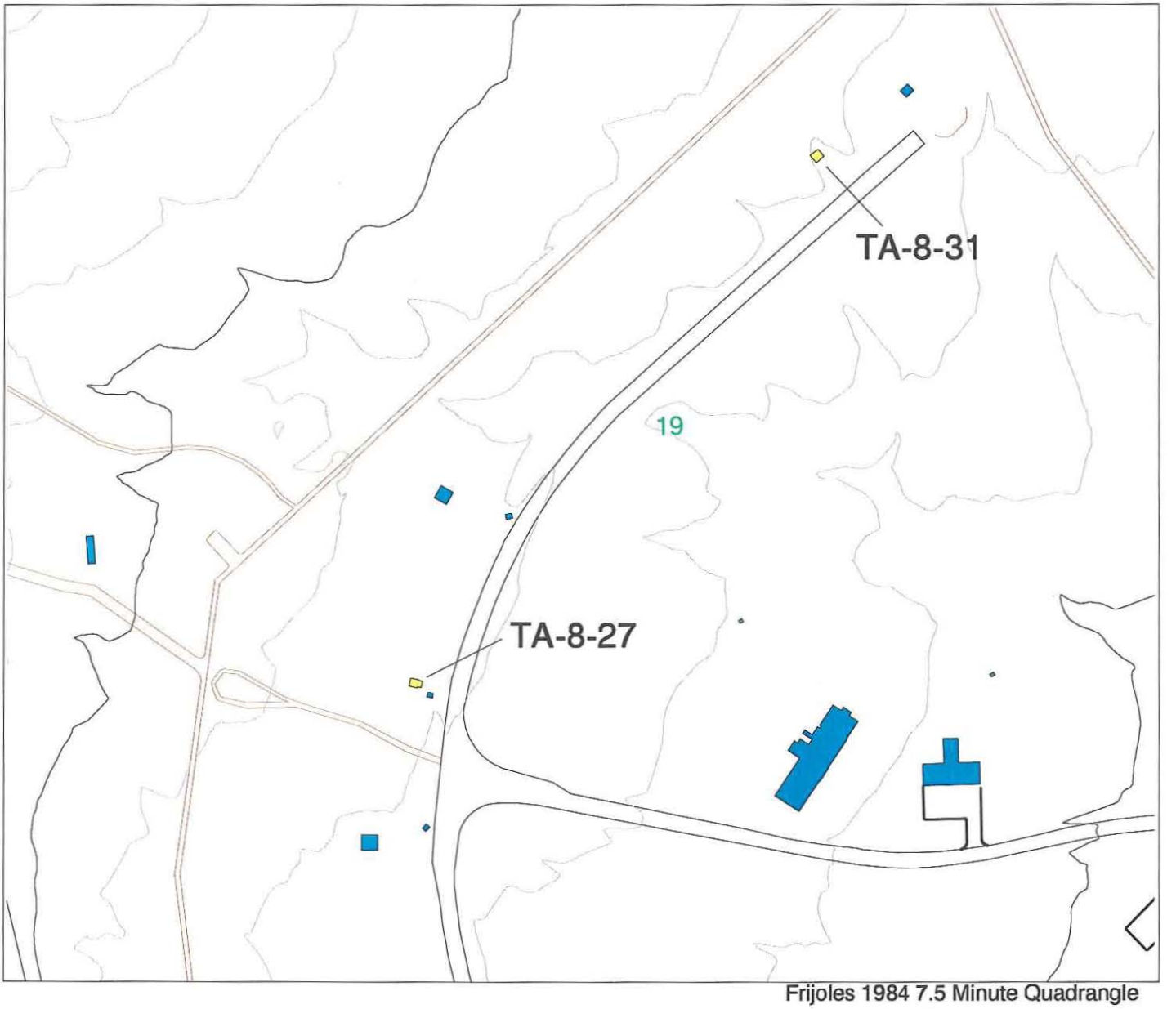
N
W E
S

Township, Range, Section
USGS 7.5 Minute Quadrangle
20 Foot Contours
100 Foot Contours
Drainage
Roads - Paved
Roads - Dirt
Structures - Perm Buildings
Structures - Temp Buildings

D&D of TA-3-42, TA-8-27, TA-8-31, and TA-35-1

TA-3-42 Location

Map 3



Frijoles 1984 7.5 Minute Quadrangle

Los Alamos
National Laboratory

Cultural Resources Team
ESH-20 Ecology Group

1:3000

50 0 50 100 Meters

200 0 200 400 Feet

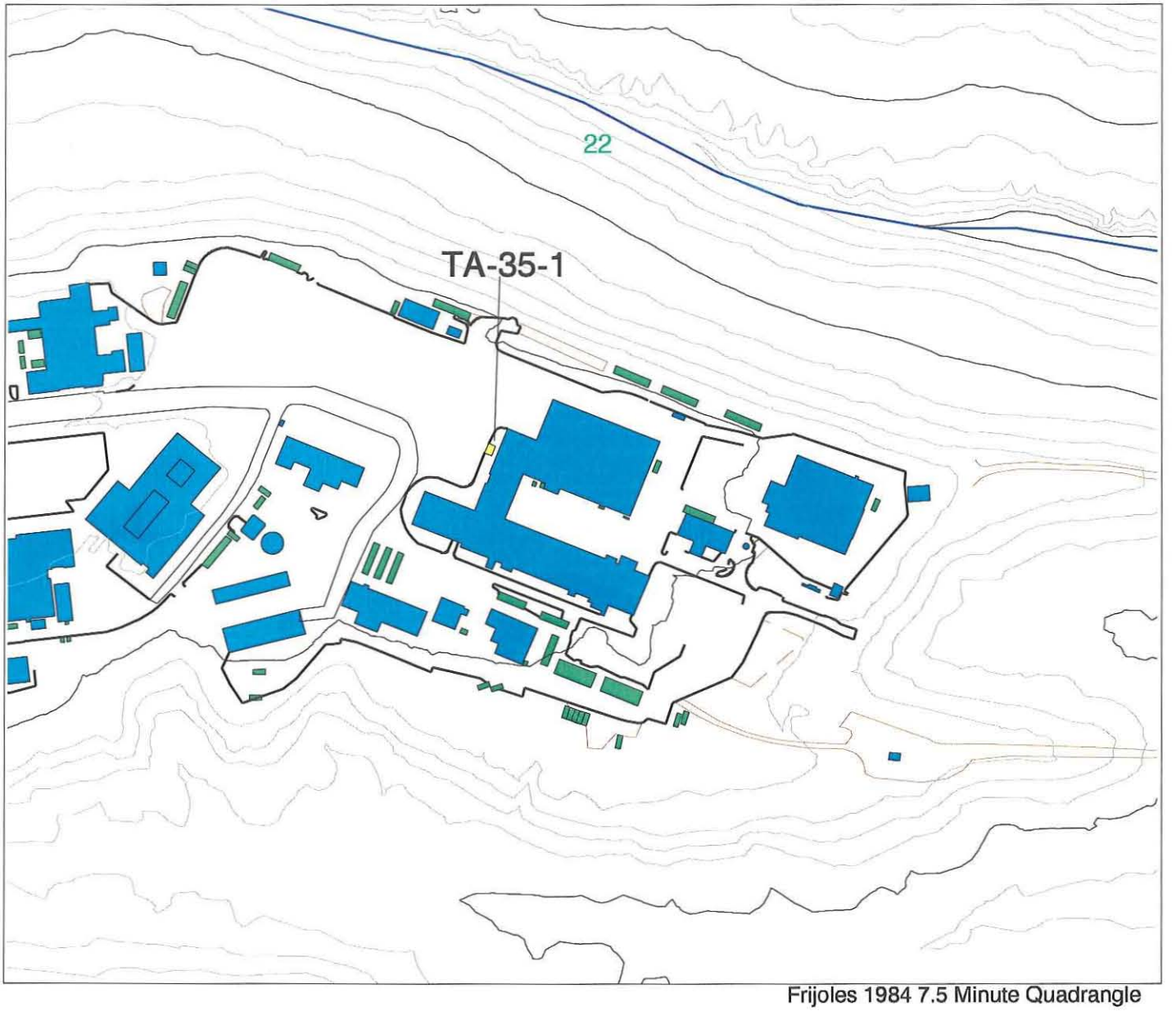
N
W E
S

- Township, Range, Section
- USGS 7.5 Minute Quadrangle
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Roads - Paved
- Roads - Dirt
- Structures - Perm Buildings
- Structures - Temp Buildings

D&D of TA-3-42, TA-8-27, TA-8-31, and TA-35-1

TA-8-27 and TA-8-31 Locations

Map 4



Frijoles 1984 7.5 Minute Quadrangle

Los Alamos
National Laboratory

Cultural Resources Team
ESH-20 Ecology Group

1:3000

50 0 50 100 Meters

200 0 200 400 Feet

N
W E
S

Township, Range, Section
USGS 7.5 Minute Quadrangle
20 Foot Contours
100 Foot Contours
Drainage
Roads - Paved
Roads - Dirt
Structures - Perm Buildings
Structures - Temp Buildings

D&D of TA-3-42, TA-8-27, TA-8-31, and TA-35-1

TA-35-1 Location

Map 5

APPENDIX B

Historic Building Inventory Forms

NEW MEXICO HISTORIC BUILDING INVENTORY FORM

LA#

building threatened? **Yes**	surveyed date **2/9/99** by **K. L. M. Garcia**	County **Los Alamos**	ID no. **TA-3-42**

field map **LANL Orthotopo**	number **Sheet 1**	UTM reference: easting **380506** northing **3970427** zone **13**

location description **Technical Area (TA) 3, South Mesa Site**	city/town **Los Alamos** land grant/reservation **n/a**

building name **TA-3-42,** Original name **SM-42 (South Mesa-42)**	legal description **USGS Frijoles 7.5 Series** tnsp **19N** range **6E** sec **17** **SE¼ SW¼ SE¼**

film roll: **1048** by nos. **ESH-20 Photos on file at ESH-20**	Negative nos. **4A & 6A Also digital photos on file with ESH-20 by building number**	location of neg. **LANL, ESH-20**	date of construction _____ estimate **1951-1953** actual source **Facilities Division Engineering 9 (F-9) records (LANL)**

Style **Concrete masonry units with metal door and flat roof (see below for more information)**	Foundation material **Concrete slab** Wall material/surface **Concrete masonry units. Interior walls painted with lead and oil paint.**	Use Present residential ✔ other **Abandoned** historic residential ✔ other **Guard Station #328**	Condition ___ excellent **X** fair to **X** good ___deteriorating

degree of remodeling ___minor ___ moderate ___major describe: **No apparent modifications**	Surroundings **Developed Laboratory Technical Area 3**	Relationship to surroundings ___similar **X** not similar	district potential ___ yes **X** no

Significance ___Eligible **X** of interest _____none if not eligible, why? **Building TA-3-42 was a former guard house (station #328). This support building was the guard house for TA-3-39, the technical shop/inside machine shop at Technical Area 3. TA-3 is the administrative area of the Laboratory and it consists of a wide variety of permanent and temporary buildings of many different construction styles built throughout the late 1940s to the present.**	Associated buildings? **X** yes what type? **The reinforced concrete technical machine shop this guard house is associated with.** if inventoried, list ID nos. **TA-3-39**	Photos and plan drawings are on following pages **ENG-R 1738 Fire Alarm Equipment Plan Floor Plan March 5, 1959** **ENG-R 3313 Guard House Floor Plan July 14, 1964** **Below is the drawing for identical building (TA-8-20) which shows elevations:** **ENG-C 12393 (sheet 43 of 93) Plan Elevations & Details As Constructed Drawing May 17, 1949** size: **144 ft²**

architectural features: **Only floor plans exist for this guard house. However, this building is identical in size and design to at least five other guard houses (TA-8-20, TA-15-46, TA-16-1451, TA-22-32, and TA-36-22) at the Laboratory with the exception of minor differences. Construction material varies between concrete masonry units and reinforced concrete and the window treatment varies between size and number of glass panes.** **Building TA-16-1451 has been previously documented (McGehee 1995) and concurrence received from the State Historic Preservation Office on eligibility status (March 24, 1995) and a mitigation plan (May 30, 1995). Per the mitigation plan measured drawings have been completed and archival 4x5 black and white photographs have been produced.** **TA-3-42 is a square building constructed of concrete masonry units with a flat roof. It has two rooms, a main room and a restroom. The front, east side, of the building has a metal pedestrian door with a window, and two windows each with three glass panes. The north side has three windows each with three glass panes. The west side has two windows, one is slightly larger than the other. This larger window is the only difference between this guard house and the other five guard houses built from identical plans. The larger window has three glass panes and the smaller has two glass panes. The smaller window is the window in the restroom. The south side has two windows each with three glass panes. Utility control panels and switch boxes are located on the south side of the building.** **The lower portion of the walls from the ground up to the top of the door and windows are exposed concrete masonry units where as the upper portion of the wall has a smoothed concrete.** **The flat roof has a 4'6" overhang/canopy on all four sides of the building. The roof is constructed in several layers. The lower or interior surface of the roof is 1" perforated pan type acoustical ceiling. Then there is a 1½"-20 gauge galvanized steel roof deck and on top of that there is 2" rigid insulation. The final exterior surface is three ply tar and gravel roofing. There is galvanized metal flashing around all the edges.** **Interior wall surfaces were painted with lead and oil paint.**	Comments: **There is no record of any contamination existing within this buildings (Los Alamos National Laboratory 1900 and 1993).**

Los Alamos National Laboratory

1990 *Solid Waste Management Units Report, Los Alamos National Laboratory Environmental Restoration*, LA-UR-90-3400, Los Alamos National Laboratory, Los Alamos, New Mexico.

1993 *RFI Work Plan for Operable Unit 1114: Environmental Restoration Program.* LA-UR-93-1000, Los Alamos National Laboratory, Los Alamos, New Mexico.

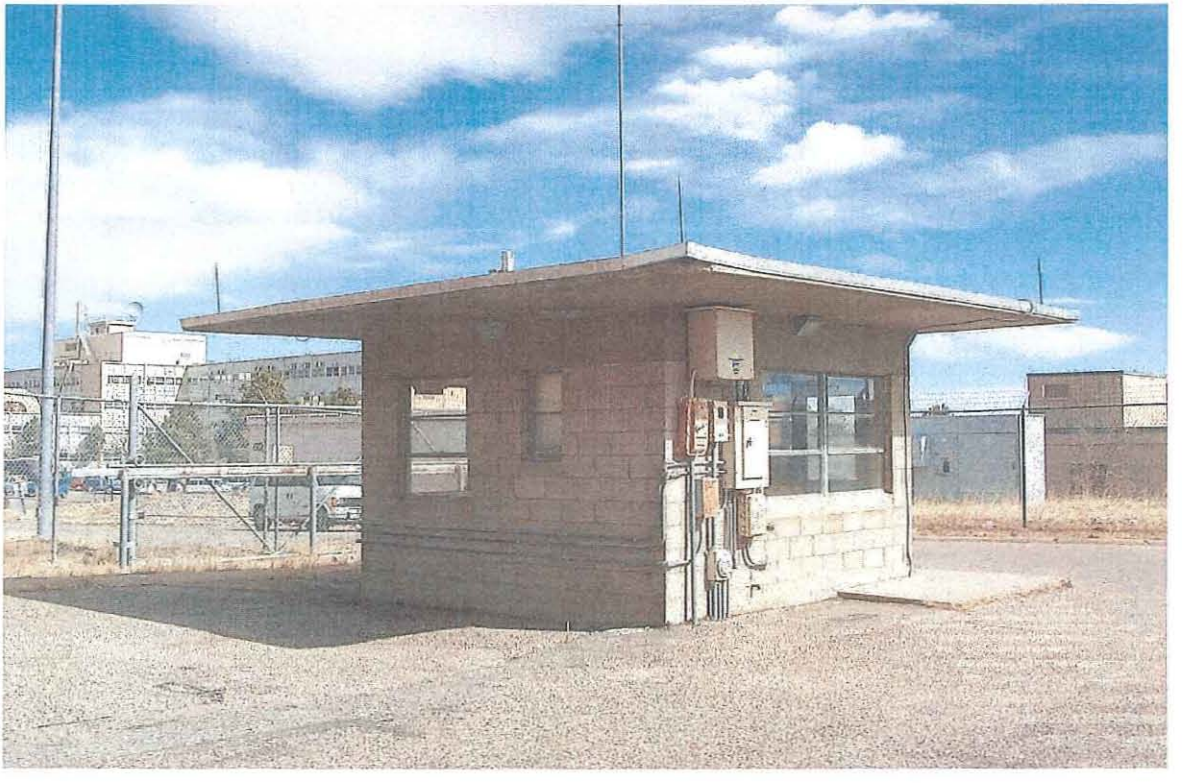
1995 *Dateline: Los Alamos, Special Issue, LALP-95-2-6&7.* Los Alamos National Laboratory, Los Alamos, New Mexico.

McGehee, Ellen D.

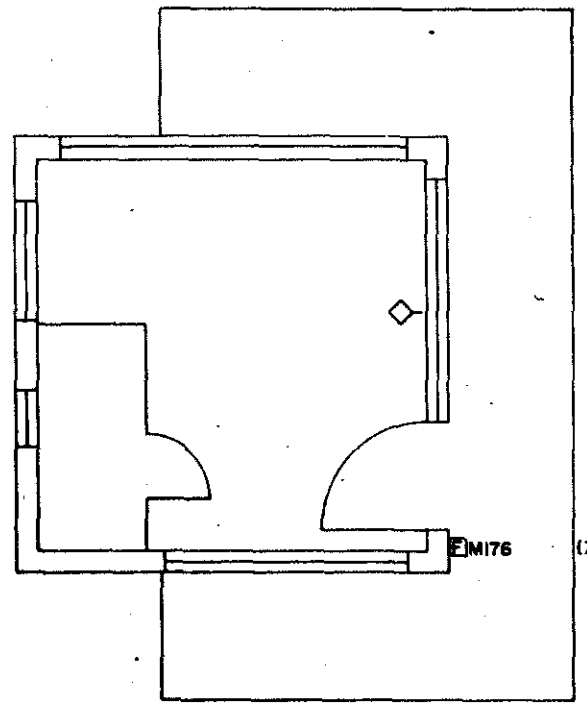
1995 *Decontamination and Decommissioning of 28 "S Site" Properties: Technical Area 16*, Historic Building Survey Report No. 84, Volumes 1-3, LA-UR-95-617, Los Alamos National Laboratory, Los Alamos, New Mexico.

TA-3-42 East and North Sides

TA-3-42 North and West Sides



TA-3-42 West and South Sides



TA-3-42
Fire Alarm Equipment Plan
Floor Plan
March 5, 1959

Rev. to status of 2-20-63 CDF	Rev. to status of 12-14-62 JMD
2-63	12-62
2	1

LOS ALAMOS SCIENTIFIC LABORATORY
ENGINEERING DEPARTMENT
UNIVERSITY OF CALIFORNIA — LOS ALAMOS, NEW MEXICO

FIRE ALARM EQUIPMENT
FLOOR PLAN
BLDG. SM-42 TA-3

APPROVALS:
ENG. GROUP: S SEP
DIVISION:
ENG. DEPT. OFFICE: JWB

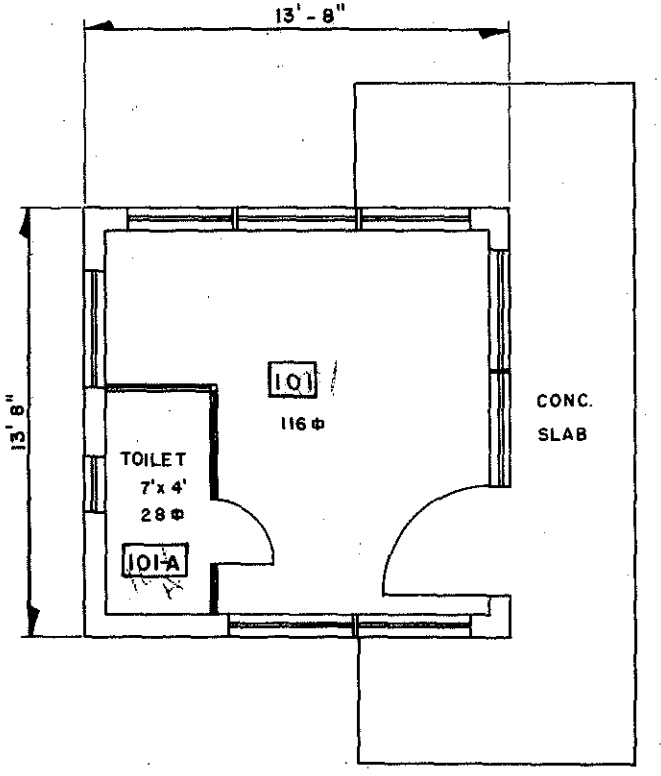
DESIGN:
DESIGNER: S.G.B.
PROJ. ENG.: J.H. Lujan

DATE: 5-5-59
SCALE: 1/4" = 1'-0"
SHEET: 1 OF 1
SKETCH No.: ENG.-R1738

INFO. SHOWN CURRENT AS OF 2-20-63

B. A. NO. _____ J. O. NO. _____ LAB. JOB NO. _____

NO.	DATE	REVISIONS	BY	CHKD	GRP LDR	ENG D. O.
1	8-6-65	REVISED TO STATUS OF 8-6-65	MFM	MB		



TA-3-42
Guard House Floor Plan
July 14, 1964

(1/4"=1'-0")
0' 4' 8'
GRAPHIC SCALE

TOTAL SQ. FT. 144

REV.	DATE	REVISION	BY	CKD.	APP.
2	8-2-83	REVISED TO STATUS OF 8 2 83	HBN		

UNIVERSITY OF CALIFORNIA
Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

GUARD HOUSE
FLOOR PLAN

SEC. CLASSIFICATION: CLASS. U; REVIEWER; DATE 10-5-83

BLDG. SM-42 TA-3

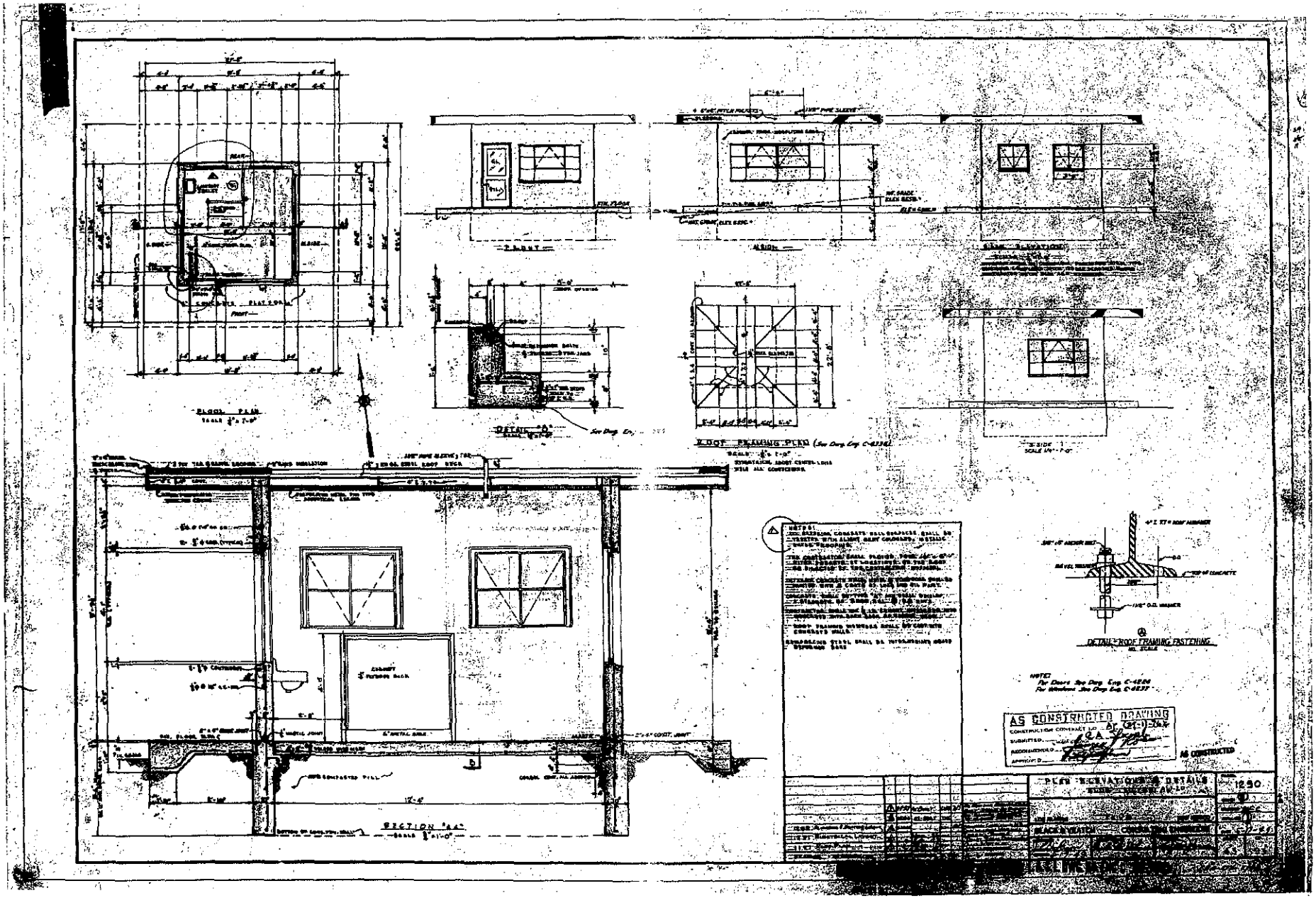
SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo	Dave Rapp	W. T. Edwards

DRAWN HARRISON | DATE 7-14-64 | SHEET NO. 1 OF 1 | DRAWING NO. ENG-R 3313

CHECKED D. Humble HN

REC'D LOGGED ✓ TO VAULT 11-23-83

K+E ALBANENE® LA 0617



TA-8-20
Plan Elevations & Details
As Constructed Drawing
May 17, 1949
(Identical to TA-3-42)

NEW MEXICO HISTORIC BUILDING INVENTORY FORM

LA#

building threatened?	surveyed	County	ID no.
yes	date **2/9/99** by **K. L. M. Garcia**	**Los Alamos**	**TA-8-27**

field map	number	UTM reference: easting **377986** northing **3969098** zone **13**
LANL Orthotopo	**Sheet 2**	

location description	city/town
Technical Area (TA) 8, Anchor Site West	**Los Alamos** land grant/reservation **n/a**

building name	legal description **USGS Frijoles 7.5 Series**
TA-8-27, Original name **AW-27 (Anchor West – 27) (Project B, Building 85)**	tnsp **19N** range **6E** sec **19** **NE¼ SW¼ SW¼**

film roll: **1048** by nos. **ESH-20 Photos on file at ESH-20**	Negative nos. **10A & 12A Also digital photos on file at ESH-20 by building number**	location of neg. **LANL, ESH-20**	date of construction _____ estimate **1950** actual source **Facilities Division Engineering 9 (F-9) records (LANL)**

Style	Foundation material	Use	Condition
Reinforced concrete with flat roof (See below for more information)	**Concrete slab** Wall material/surface **Reinforced concrete with steel lined interior walls and ceiling.**	Present residential ✔ other **Abandoned** historic residential ✔ other **Vault**	___ excellent **X** fair to **X** good ___deteriorating

degree of remodeling	Surroundings	Relationship to surroundings	district potential
X minor ___ moderate ___major describe: **Door modifications**	**Developed** **Laboratory** **Technical Area 8**	**X** similar __ not similar	___ yes **X** no

Significance
___Eligible ____of interest __X__none
if not eligible,
why? **Building TA-8-27 is a storage vault.**

This vault was built in 1950 for fissionable materials associated with the new radiography facility that was built at this TA in the early 1950s.

> **This TA was the original site of the Manhattan Project Gun-Firing Site (Old Anchor West) where prototypes of the Little Boy weapon (a gun-assembled nuclear weapon) were tested in 1945. "Gun testing was not resumed after the War. The gun weapon, although reliable, required large quantities of enriched uranium, and the program was abandoned in favor of the development of implosion weapons" (Los Alamos National Laboratory 1993:2-10).**

In 1949-1950 new construction began at TA-8 at the New Anchor West location. The new buildings were constructed to house the Group X-2 (later GMX-1), which had been developing x-ray techniques at another location. At this same time many of the original buildings were removed and one building was relocated within the site and later removed. These new buildings were for office space, photographic-processing labs, and laboratories for various types of x-ray work, some of which involved the use of contained radioactive sources.

associated buildings? __X__ yes
what type? **A guard station and two magazines**
if inventoried, list ID nos. **TA-8-28, a guard station; TA-8-31 and TA-8-32, magazines**

Photos and plan drawings are on following pages

ENG-C 12478 (sheet 20 of 113)
Project B, TA-8
Structural Layout
As Constructed Drawing
September 8, 1949

ENG-C 19340
Exterior Door Modifications
Plans-Elevations-Section
October 17, 1961

ENG-R 2625
Vault
Floor Plan
August 26, 1983

size: **189 ft²**

Architectural features:

Building TA-8-27 is a vault. It is a roughly rectangular building with a flat roof constructed of reinforced concrete. It has two rooms and a vault door.

The interior walls and ceiling are steel lined. The steel is painted with oil base lead paint. The floor has a smooth monolithic cement finish.

Exterior walls were left rough. The roof and exterior wall were coated with metallic waterproofing.

The exterior door was modified in 1961.

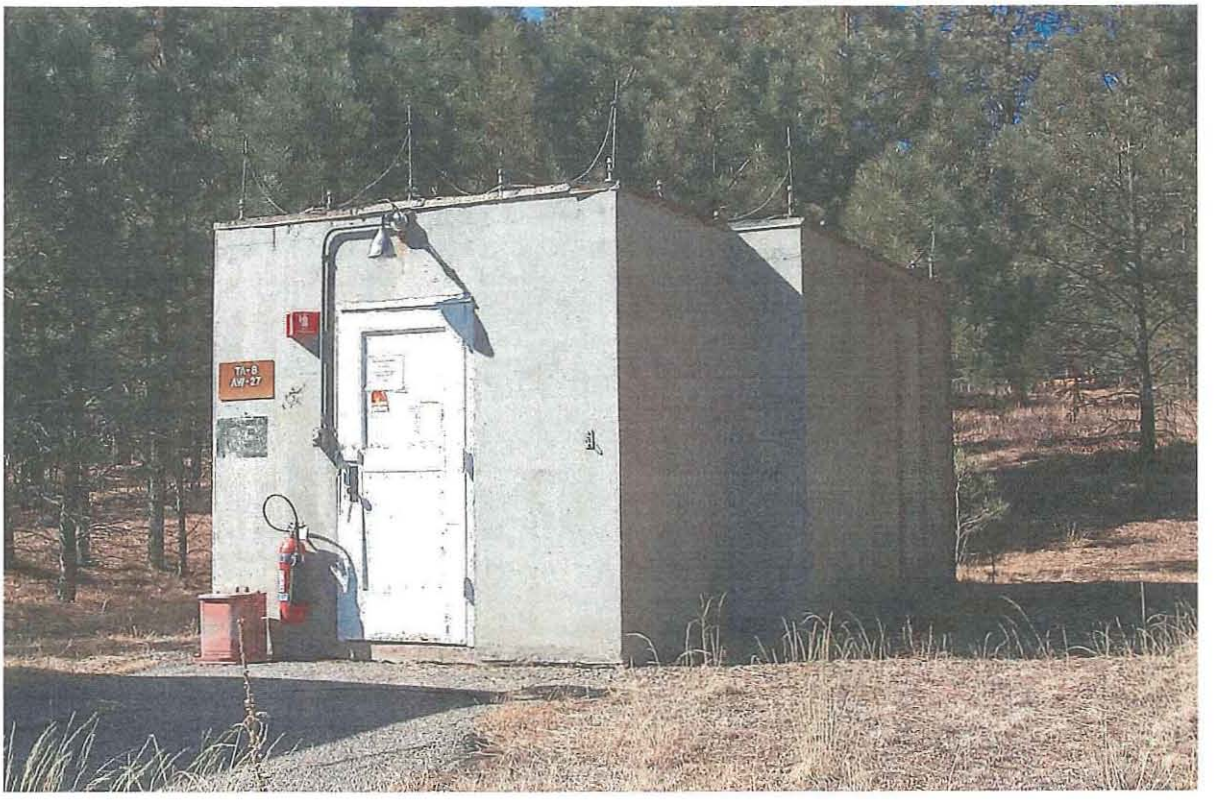
Comments: **There is no evidence of any radioactive contamination associated with this building (Los Alamos National Laboratory 1990 and 1993).**

Los Alamos National Laboratory

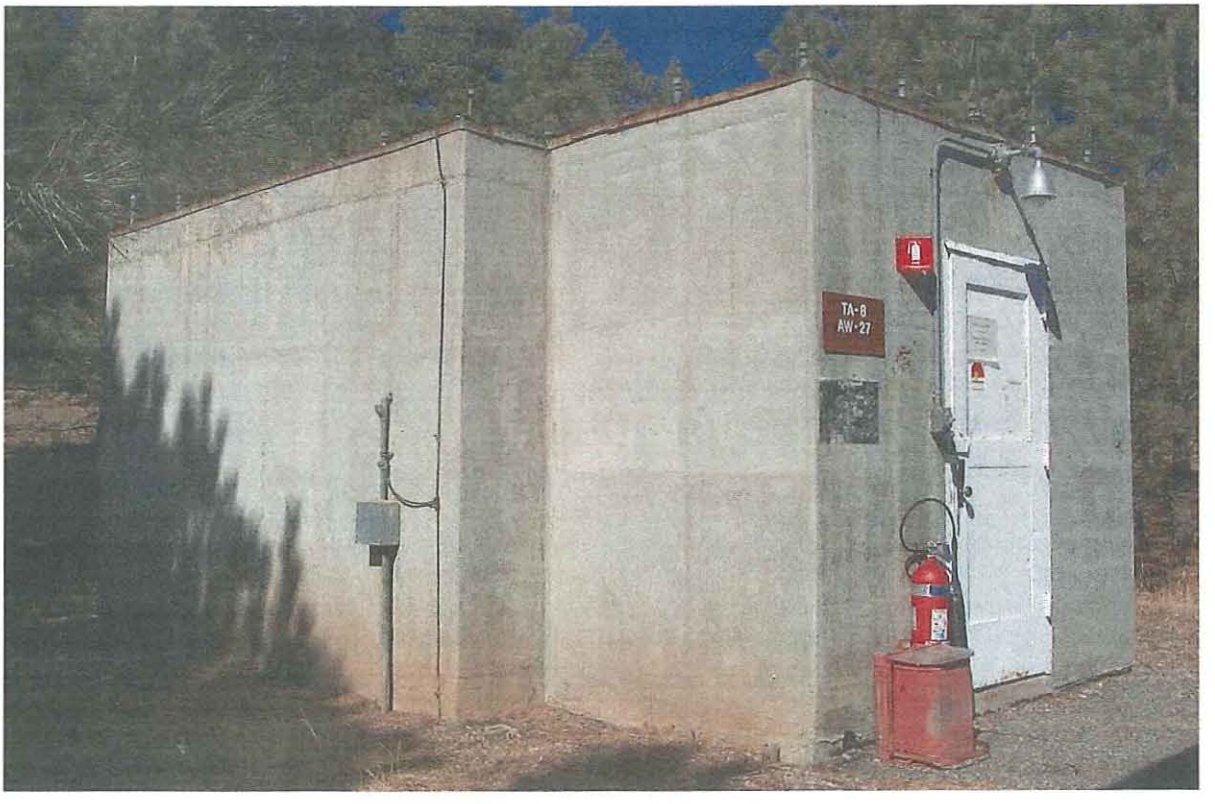
1990 *Solid Waste Management Units Report, Los Alamos National Laboratory Environmental Restoration*, LA-UR-90-3400, Los Alamos National Laboratory, Los Alamos, New Mexico.

1993 *RFI Work Plan for Operable Unit 1157: Environmental Restoration Program.* LA-UR-93-1230, Los Alamos National Laboratory, Los Alamos, New Mexico.

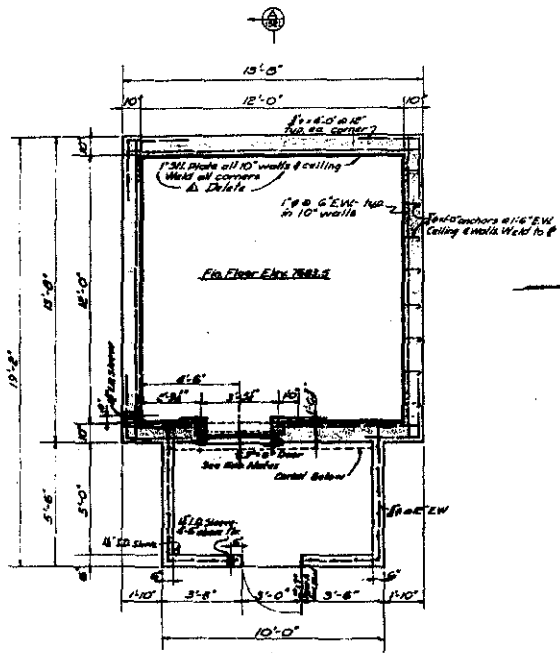
TA-8-27 East Side



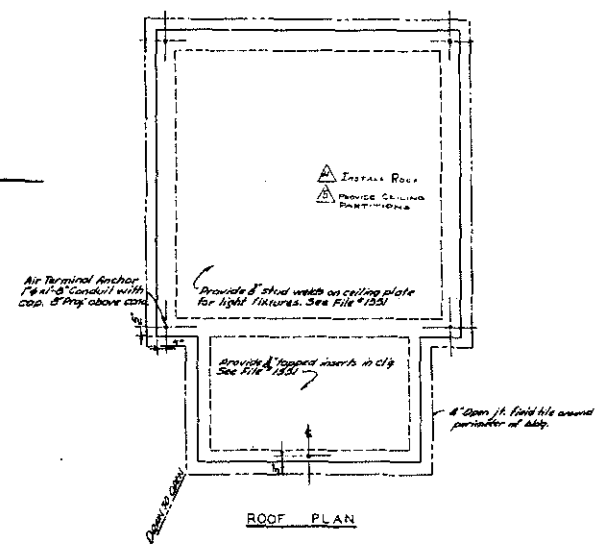
TA-8-27 East and North Sides



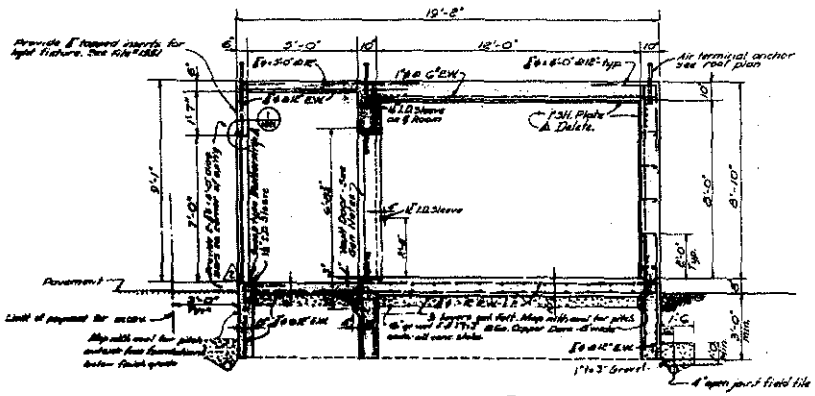
TA-8-27 South and East Sides



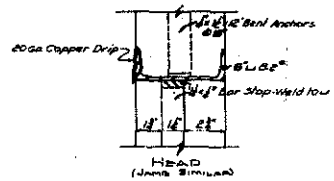
FLOOR PLAN



ROOF PLAN



SECTION



EXTERIOR DOOR FRAME DETAIL

Scale: 3"=1'-0"

GENERAL NOTES

1. All concrete shall be Type A and shall develop a strength of 3,000 p.s.i. @ 28 days.
2. Mix 1 lb cement dispersar with each sack of cement used.
3. Reinforcement shall be intermediate grade deformed bars.
4. Bend reinforcing by welding at 90° intervals in each direction. Bend all other metal to reinforcing steel by direct weld or suitable metal strap.
5. Connect reinforcing to grounding system with #1/0 bare stranded copper cable.
6. All steel plates and anchors shall be mild steel.
7. Steel plate lining shall be cast in place & may be used as forms.
8. Exterior walls may be left rough.
9. Interior steel walls & ceiling shall be given 3 coats of lead and oil paint.
10. All foundations shall be carried to solid bearing with a minimum excavation of 18" into rock (Tuff).
11. Foundation walls 6" below finish grade may be poured without forming provided trenches are cut to size.
12. Floors shall be given a smooth monolithic cement finish.
13. Roof and exterior walls shall be coated with metallic waterproofing.
14. A Class E vault door as rec'd by the National Bureau of Casualty & Security Underwriters shall be furnished & installed by the Contractor where shown on dwg. Install per mfgrs recommendations. Verify masonry opng dimensions. Door shall be operable from the inside.
15. Payment for extra foundation excavation as provided in special conditions shall be limited to 3'-0" outside conc. walls or cols. or heel face of footing whichever is greater.

REFERENCE DRAWINGS

Plot Plan	File # 1444
General Layout	1413
Electrical Layout	1351
Lightning Protection & Grounding Details	1532
Doors See Shop Dwgs	ENG G - 4518

AS CONSTRUCTED DRAWING
CONSTRUCTION CONTRACT NO. AT(29-1)-825
SUBMITTED
RECOMMENDED
APPROVED

VERIFIED UNCLASSIFIED

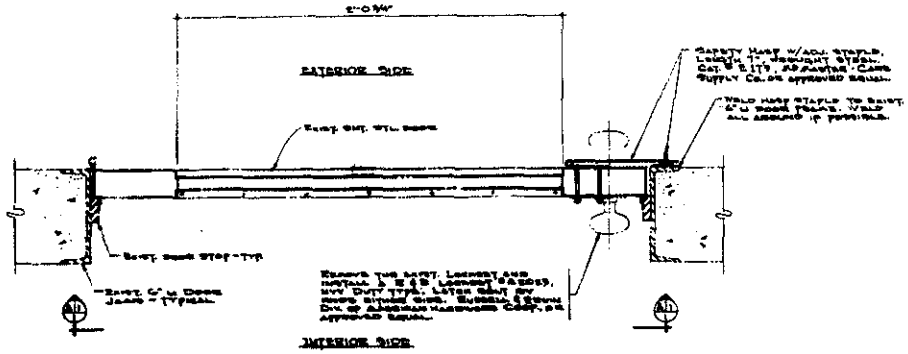
FOR OFFICIAL USE ONLY

Scale 1/8"=1'-0" unless noted

STRUCTURAL LAYOUT (BLDG. 8)
FLOOR PLAN, ROOF PLAN & SECTIONS
PROJECT 8
TA- 8
LOS ALAMOS NEW MEXICO
BLACK & VEATCH — CONSULTING ENGINEERS

File No. 1521
JMD
RWK
RC
9-8-49
40
$84.78 Sec. 16-20

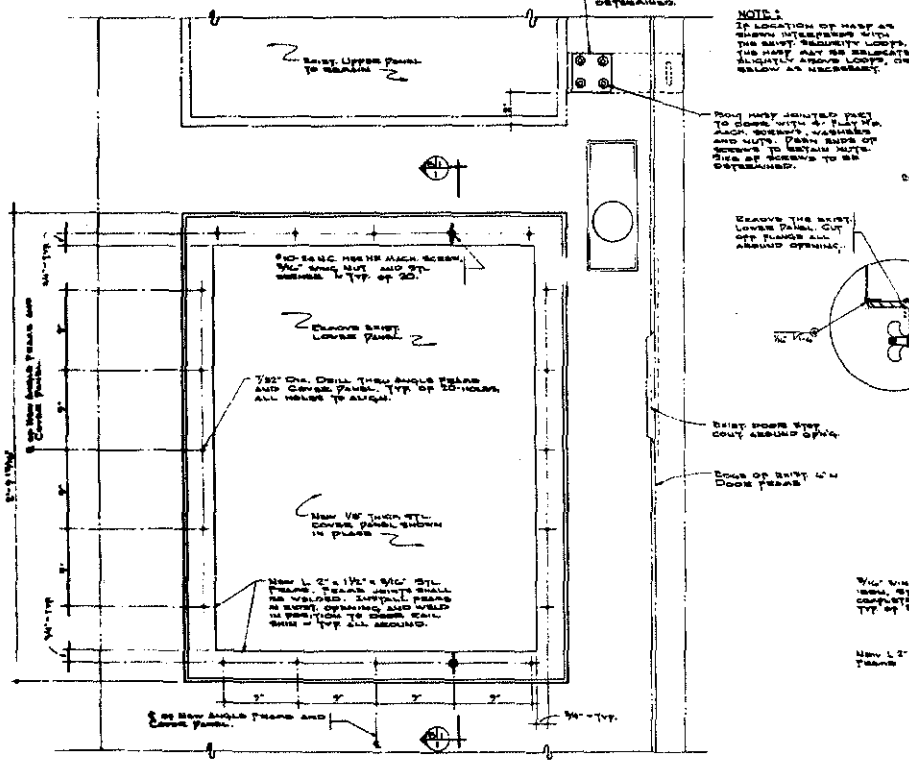
TA-8-27
Structural Layout
As Constructed Drawing
September 8, 1949



EXTERIOR DOOR MODIFICATIONS

PLAN

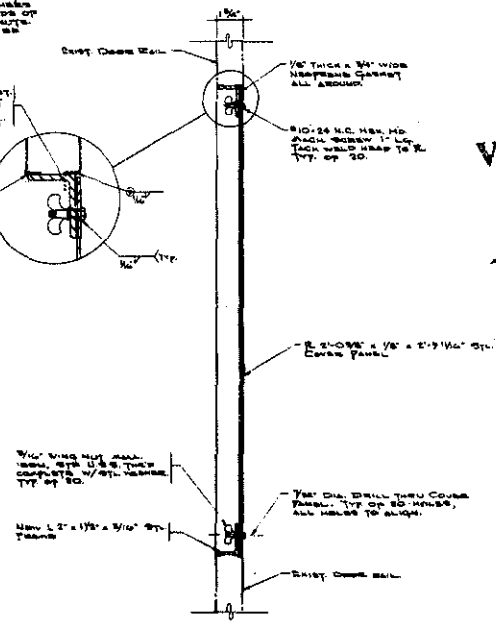
Scale 3/4" = 0'-1"



INTERIOR DOOR ELEVATION

ELEVATION

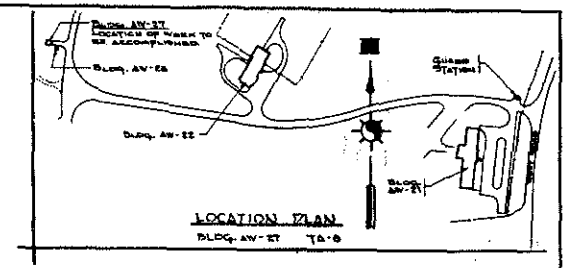
Scale 3/4" = 0'-1"



SECTION THROUGH NEW LOWER DOOR PANEL

SECTION

Scale 3/4" = 0'-1"



LOCATION PLAN

BLDG. AV-27 TA-8

GENERAL NOTES

1. Paint all new work and surfaces damaged during the installation with 1 prime coat of Owens Metal Primer, and two finish coats (interior and exterior) except the hasp and lockset, with 1 finish coat of 911 "Grey Metal Protective Paint." See Cat. of "Paint - L.A.S.L. Std. Types and Colors."
2. Padlock for this exterior door will be furnished by L.A.S.L. contact Credit Engr.

VERIFIED UNCLASSIFIED

Susan Roth

THIS AS BUILT SHALL BE INSPECTED AND ANY CHANGES APPROVED BY ENG-4

ENG Stennings FROM 7-4866

AUTHORIZED FOR	NO.	DATE	REVISIONS
HEALTH N.A.			
SAFETY CAR			
FIRE PROT.			
ENG.			

LOS ALAMOS SCIENTIFIC LABORATORY

ENGINEERING DEPARTMENT

UNIVERSITY OF CALIFORNIA — LOS ALAMOS, NEW MEXICO

EXTERIOR DOOR MODIFICATIONS

PLANS - ELEVATION - SECTION & GEN'L NOTES

BUILDING AV-27 TA-8

DRAWN 8-17-61 APPROVED

DESIGNED

CHECKED

DATE Oct. 17, 1961

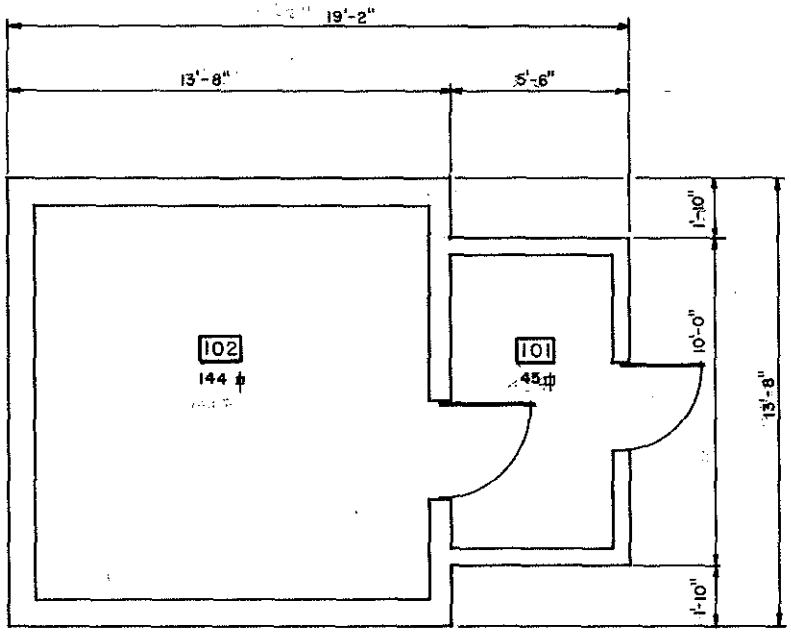
SCALE As Noted SHEET 1 OF 1

ENG-C-19340

B.A. NO. LAB JOB NO. 2604

REC'D ENG-3 LOGGED VAULT

TA-8-27
Exterior Door Modifications
Plans-Elevations-Section
October 17, 1961



TA-8-27
Vault
Floor Plan
August 26, 1983

VAULT
(1/4"=1'-0")
0 1' 2' 4' 8'
GRAPHIC SCALE

BLDG. TOTAL 1989 S.F.

MF

REV.	DATE	REVISION	BY	CKD.	AP
1	8-26-83	REDRAWN & REVISED TO STATUS OF 8-26-83	H&N		

UNIVERSITY OF CALIFORNIA
Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

VAULT
FLOOR PLAN

SEC. CLASSIFICATION
CLASS. U
REVIEWER
DATE 10-12-83

BLDG. AW-27 TA-8

SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo		W.T. Ellis

DRAWN	CHECKED	DATE	SHEET NO.	DRAWING NO.
H&N	Humble H&N	8-26-83	1 OF 1	ENG-R 2625

2625

REC'D ____ LOGGED ✓ TO VAULT 11-23-83

NEW MEXICO HISTORIC BUILDING INVENTORY FORM

LA#

building threatened?	surveyed	County	ID no.
Yes	date **2/9/99** by **K. L. M. Garcia**	**Los Alamos**	**TA-8-31**

field map	number	UTM reference: easting **378183** northing **3969352** zone **13**
LANL Orthotopo	**Sheet 1**	

location description	city/town
Technical Area (TA) 8, Anchor Site West	**Los Alamos** land grant/reservation **n/a**

building name	legal description **USGS Frijoles 7.5 Series**
TA-8-31, Original name **AW-31, Anchor West -31 (Project B, Building 86A)**	tnsp **19N** range **6E** sec **19** **SW¼ NE¼ SW¼**

film rolls: **236 & 1048** by nos. **ESH-20 Photos on file at ESH-20**	Negative nos. **Roll 236 Frame 7; Roll 1048 Frames 14A, 15A, & 17A Also digital photos on file with ESH-20 by building number**	Location of neg. **LANL, ESH-20**	date of construction _____ estimate **1950** actual source **Facilities Division Engineering 9 (F-9) records (LANL)**

Style	Foundation material	Use	Condition
Reinforced concrete magazine with flat roof (See below for more information)	**Concrete slab** wall material/surface **Reinforced concrete**	Present residential ✔ other **Abandoned** historic residential ✔ other **Magazine**	___ excellent **X** fair to **X** good ___deteriorating

Degree of remodeling	Surroundings	Relationship to surroundings	district potential
___ minor ___ moderate ___major describe: **No apparent modifications**	**Developed Laboratory Technical Area 8**	**X** similar ___ not similar	___ yes **X** no

Significance ___Eligible __X__of interest ____none If not eligible, Why? **Building TA-8-31 magazine for High Explosives.** **This magazine was built in 1950, during the early Cold War years at Los Alamos, at the New Anchor West location and is not associated with the testing of the Little Boy weapon during World War II.** **This TA was the original site of the Manhattan Project Gun-Firing Site (Old Anchor West) where prototypes of the Little Boy weapon (a gun-assembled nuclear weapon) were tested in 1945. "Gun testing was not resumed after the War. The gun weapon, although reliable, required large quantities of enriched uranium, and the program was abandoned in favor of the development of implosion weapons" (Los Alamos National Laboratory 1993:2-10).** **In 1949-1950 new construction began at TA-8 at the New Anchor West location. The new buildings were constructed to house the Group X-1 (later GMX-1), which had been developing x-ray techniques at another location. At this same time many of the original buildings were removed and one building was relocated within the site and later removed. These new buildings were for office space, photographic-processing labs, and laboratories for various types of x-ray work, some of which involved the use of contained radioactive sources.**	associated buildings? _X_ yes what type? **A magazine, a vault, and a guard house** if inventoried, list ID nos. **TA-8-32 is an identical magazine, TA-8-27 is a vault, and TA-8-28 is a guard house**	Photos and plan drawings are on following pages **ENG-C 12479 (sheet 21 of 113)** **Project B, TA-8** **Plans and Sections (elevation)** **As Constructed Drawing** **September 8, 1949** **ENG-C 12480 (sheet 22 of 113)** **Project B, TA-8** **Typical Details** **As Constructed Drawing** **September 8, 1949** **ENG-C 12567 (sheet 108 of 113)** **Project B, TA-8** **Door Installation Assembly, ¼" steel door** **As Constructed Drawing** **September 20, 1949** **ENG-C 12568 (sheet 109 of 113)** **Project B, TA-8** **Frame Assembly, ¼" steel door** **As Constructed Drawing** **September 20, 1949** **ENG-C 12569 (sheet 110 of 113)** **Project B, TA-8** **Door Assembly, ¼" steel door** **As Constructed Drawing** **September 20, 1949** **ENG-C 12570 (sheet 111 of 113)** **Project B, TA-8** **Latch Details, ¼" steel door** **As Constructed Drawing** **September 20, 1949** **ENG-C 12571 (sheet 112 of 113)** **Project B, TA-8** **Door, Cover & Insulation Assembly, ¼" steel door** **As Constructed Drawing** **September 20, 1949** **ENG –C 12572 (sheet 113 of 113)** **Project B, TA-8** **Lock Details, ¼" steel door** **As Constructed Drawing** **September 20, 1949** **ENG – R2629** **Magazine AW-31, TA-8** **Floor Plan** **October 14, 1983** Size: **168 ft²**

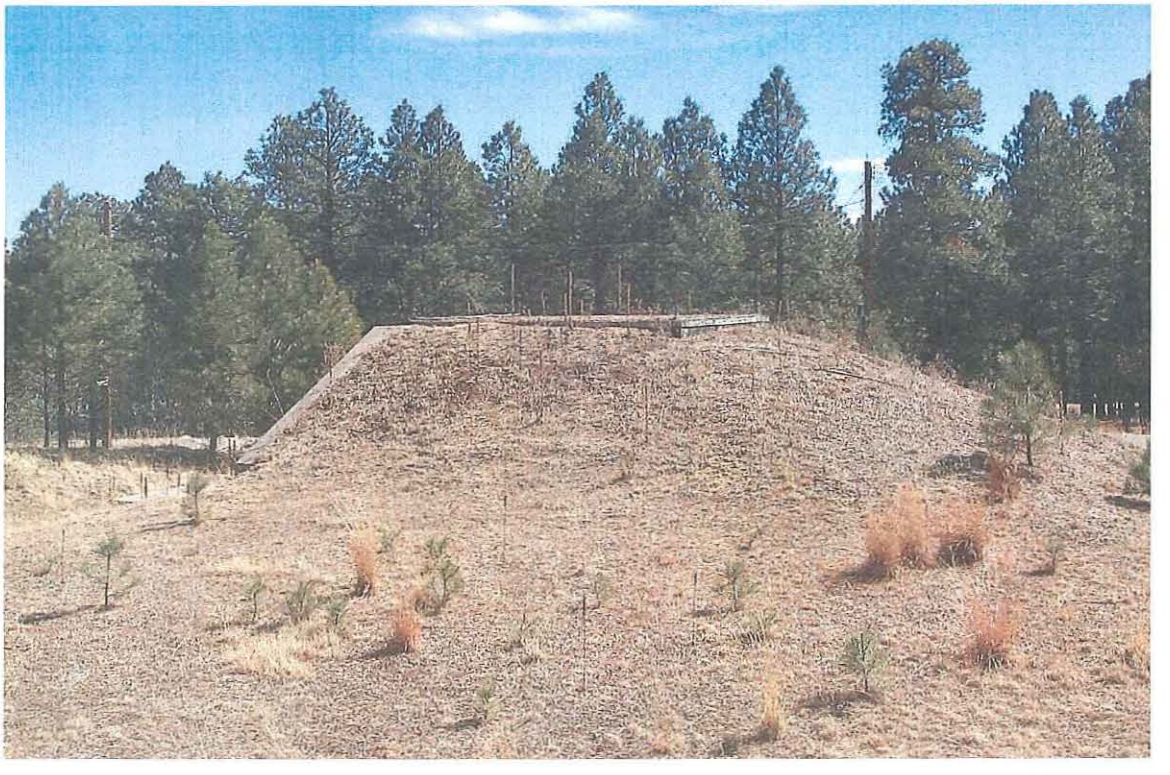
Architectural features:	Comments: **There is no indication that high explosives (HE) contamination ever occurred in this building (Los Alamos National Laboratory 1990 and 1993).**
This building is a reinforced concrete magazine. It is roughly rectangular and has a flat roof. **Interior wall forms are of plywood. The reinforced concrete walls are smooth finished. The interior walls, ceiling and all exposed metal are painted with oil base lead paint. The ceiling has a center bar joist. Floor slabs have a non-sparking conductive finish.** **Exterior walls were left rough. Those surfaces against the earthen fill are waterproofed with 3 piles felt and coal tar pitch.** **The magazine has a ¼" steel door on the north side of the structure. There is a concrete dock with stairs at the front of the magazine on the northeast side.**	

Los Alamos National Laboratory

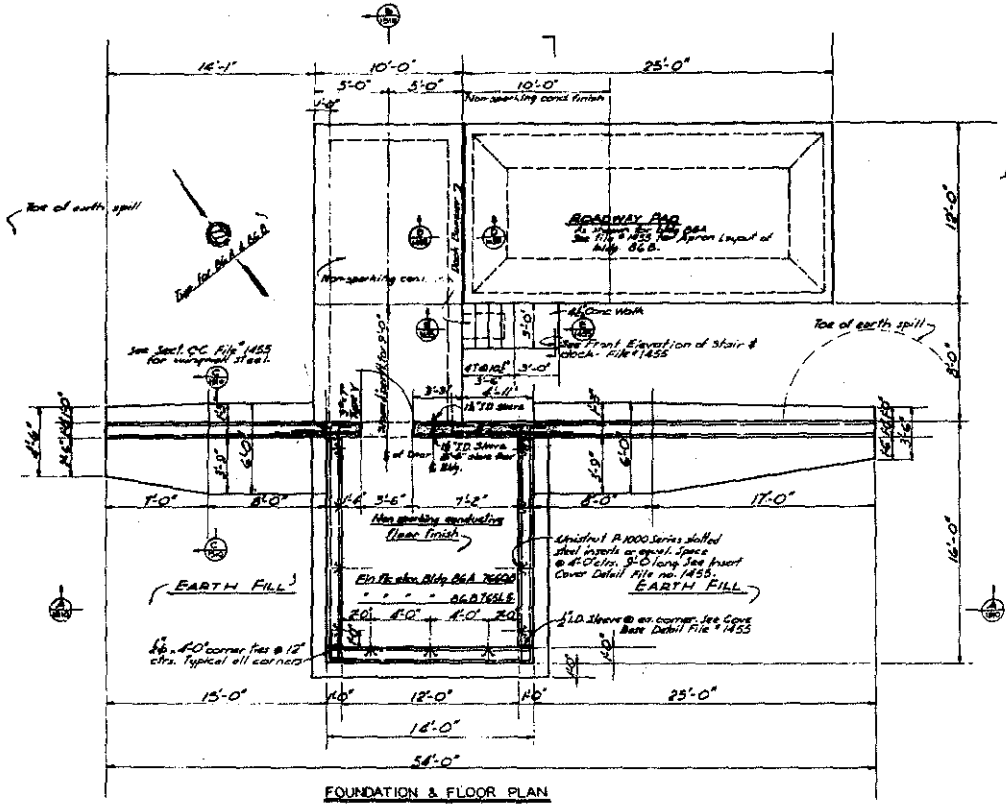
1990 *Solid Waste Management Units Report, Los Alamos National Laboratory Environmental Restoration*, LA-UR-90-3400, Los Alamos National Laboratory, Los Alamos, New Mexico.

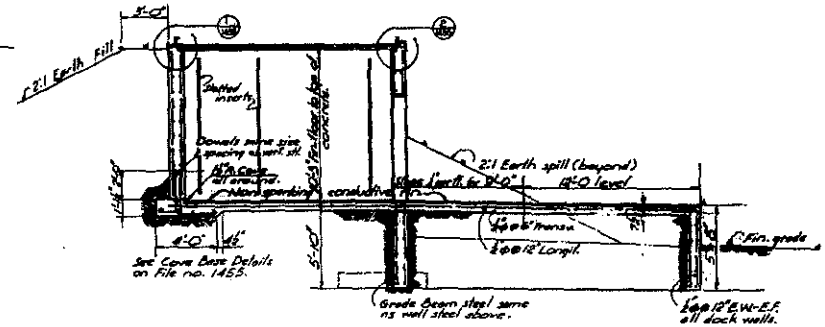
1993 *RFI Work Plan for Operable Unit 1157: Environmental Restoration Program.* LA-UR-93-1230, Los Alamos National Laboratory, Los Alamos, New Mexico.

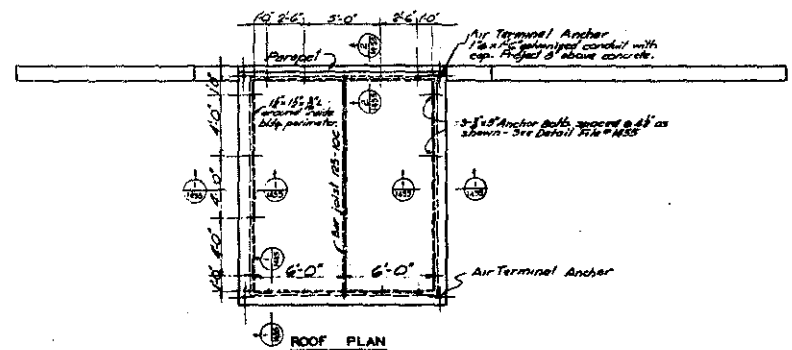
TA-8-31 East and North Sides

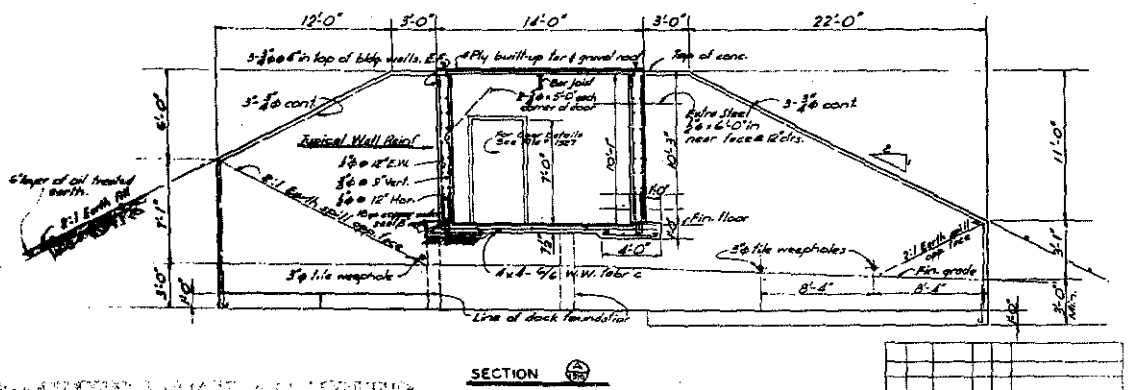


TA-8-31 West and South Sides









REFERENCE DRAWINGS

Plot Plan	File no. 1488
General Layout	1413
Typical Details	1455
Door Assembly	1527
Lightning Protection & Grounding Details	1532
Electrical Layout	1534
Steel Drawings	ENG C-6188

NOTES

1. All concrete shall be Type A, shall develop a strength of 3000 psi @ 28 days.
2. Mix 5 lb. cement dispersion with each sack of cement used.
3. Reinforcement shall be of intermediate grade deformed bars.
4. Weld all reinf. bars @ 8'-0" intervals in each direction for bond.
5. Bond all other metal to reinf. steel by direct weld or suitable metal straps.
6. Connect reinf. to grounding system with 4/0 bare stranded copper cable.
7. Where shown on plans, Slabs shall be given a red colored non-sparking conductive finish. Slabs shall be placed in two courses. Top course 1" thick including conductive finish.
8. Interior wall forms shall be of plywood and walls shall be finished smooth; Exterior walls may be left rough.
9. Interior walls, ceiling & all exposed metal shall be given 3 coats lead & oil paint.
10. Exterior building walls against fill, except waterwalls, shall be waterproofed with 3 plies felt & coal tar pitch.
11. All foundations shall be carried to solid bearing with a min. excavation of 8" into Tuff.
12. Foundation walls 6" below fin. grade may be poured without forming provided trenches are cut to sizes shown.
13. Fill shall be carried up each side of waterwalls simultaneously.
14. Compacted surface of all imported earth shall be applied over earth fill above original ground.
15. Payment for extra foundation excavation as provided in special conditions shall be limited to 3'-0" outside conc. walls or cols. or neat face of footing whichever is greater.

SCALE: 1/4"=1'-0" See also, File no. 1455

AS CONSTRUCTED DRAWING

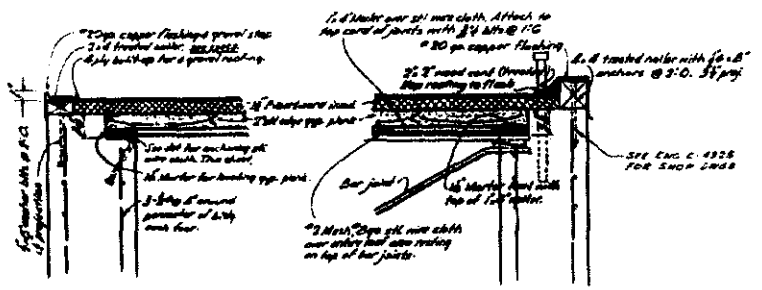
Construction Contract No.	1-1 Spec. Sect.
Submitted	
Recommended	
Approved	

STRUCTURAL LAYOUT BLDGS NO 65, A & B PLANS & SECTIONS	File No. 1510
PROJECT B TA-8 LOS ALAMOS NEW MEXICO	Drawing No. ENG C-12479
BLACK & VEATCH — CONSULTING ENGINEERS	Date 9-8-49

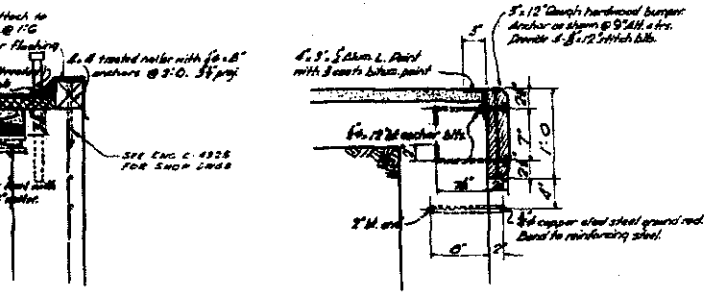
SFD-FB-21

VERIFIED UNCLASSIFIED
Susan Roth

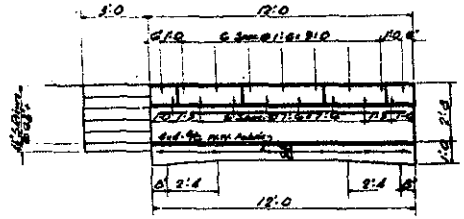
TA-8-31
Plans and Sections (elevation)
As Constructed Drawing
September 8, 1949



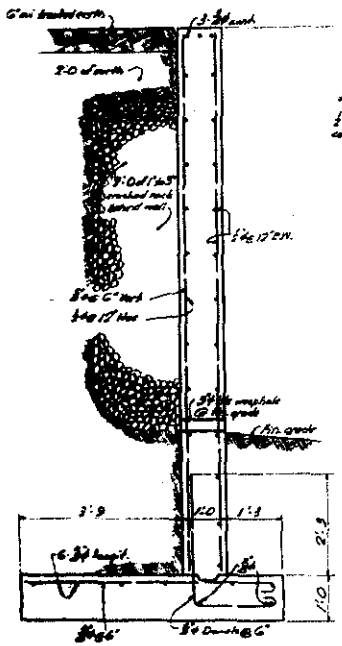
DETAIL
Scale 1"=1'-0"



SECTION
Scale 1"=1'-0"
SEE ENG C-4925 & 4917 FOR SHOP DWGS.



FRONT ELEVATION OF STAIR AND DOCK
Scale 1"=1'-0"



SECTION
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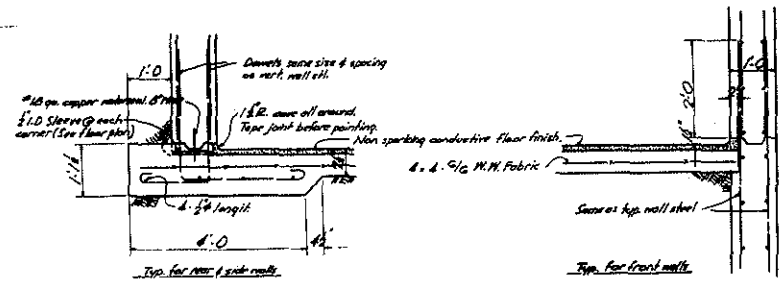
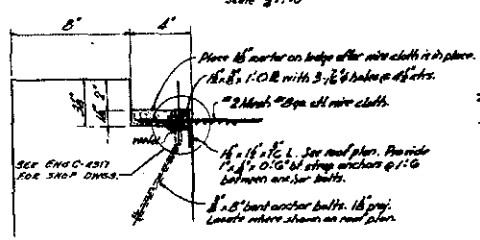
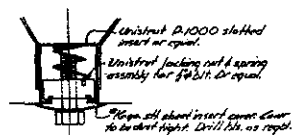


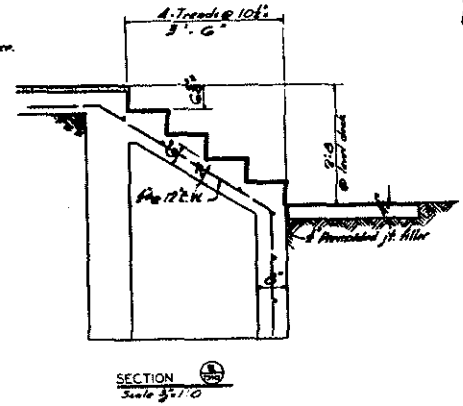
COVE BASE DETAILS
Scale 1"=1'-0"



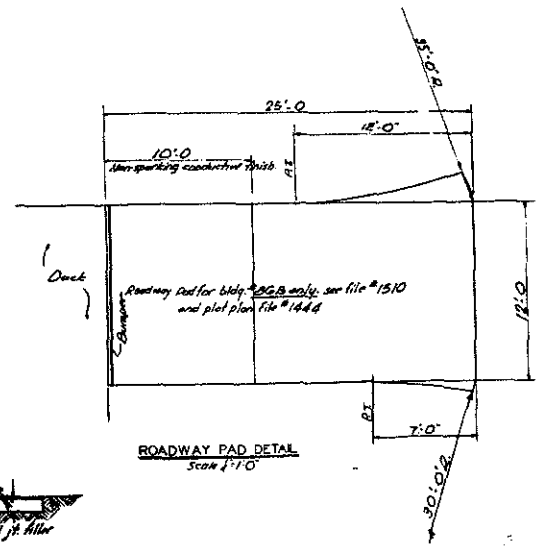
DETAIL OF ANCHORING STEEL WIRE CLOTH
Scale 1"=1'-0"



INSERT COVER DETAIL
No Scale



SECTION
Scale 1"=1'-0"



ROADWAY PAD DETAIL
Scale 1"=1'-0"

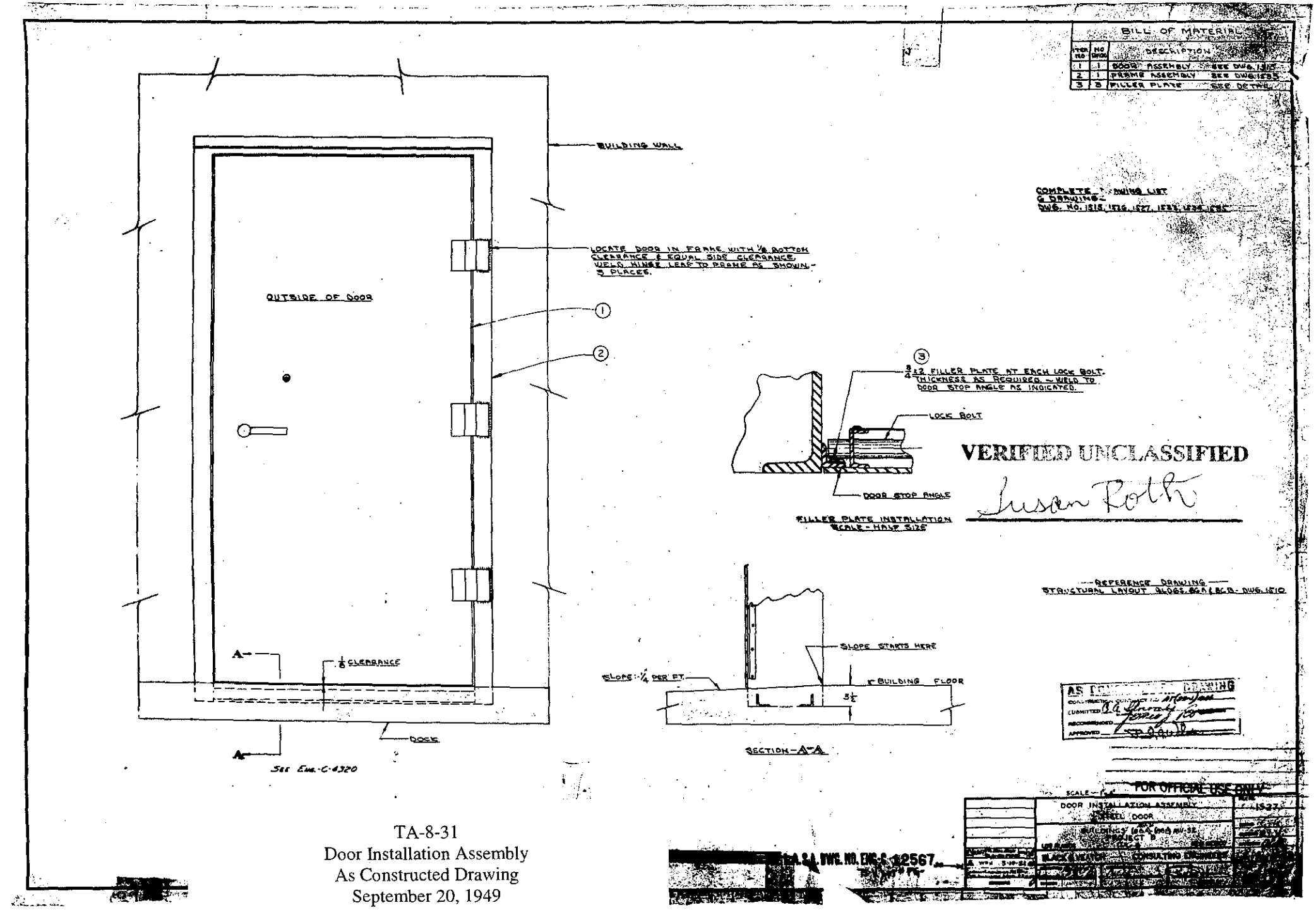
AS CONSTRUCTED DRAWING
CONSTRUCTION CONTRACT NO. AFOE-3 APP.
SUBMITTED
RECOMMENDED
APPROVED

VERIFIED UNCLASSIFIED

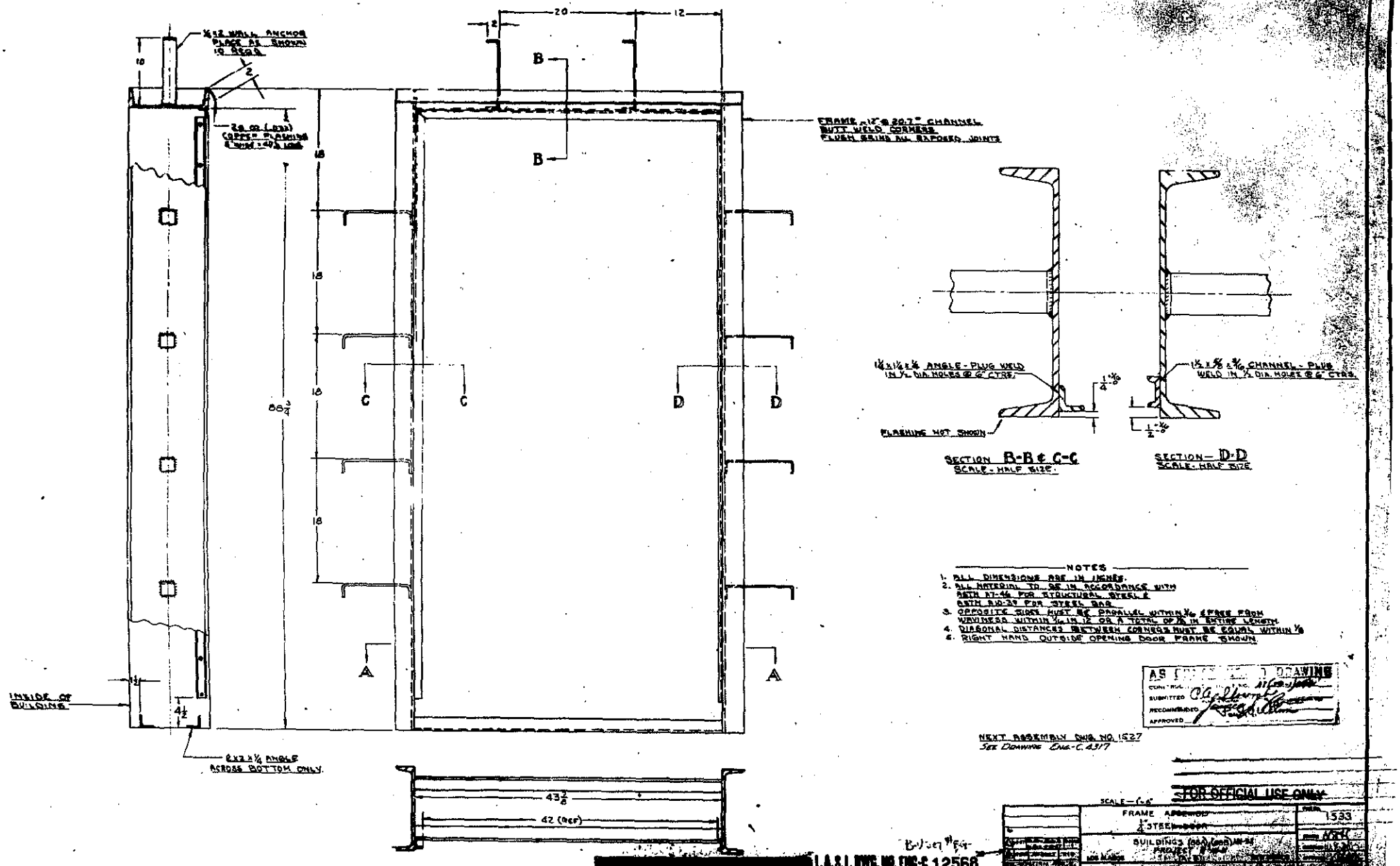
Scale - As Noted See also File #610

STRUCTURAL LAYOUT BLDGS (65A/A66B)
TYPICAL DETAILS
PROJECT B
TA-8
LOS ALAMOS NEW MEXICO
BLACK & VEATCH — CONSULTING ENGINEERS
FILE NO. 1455
9-8-49
SHT. 2 OF 5 SHTS.

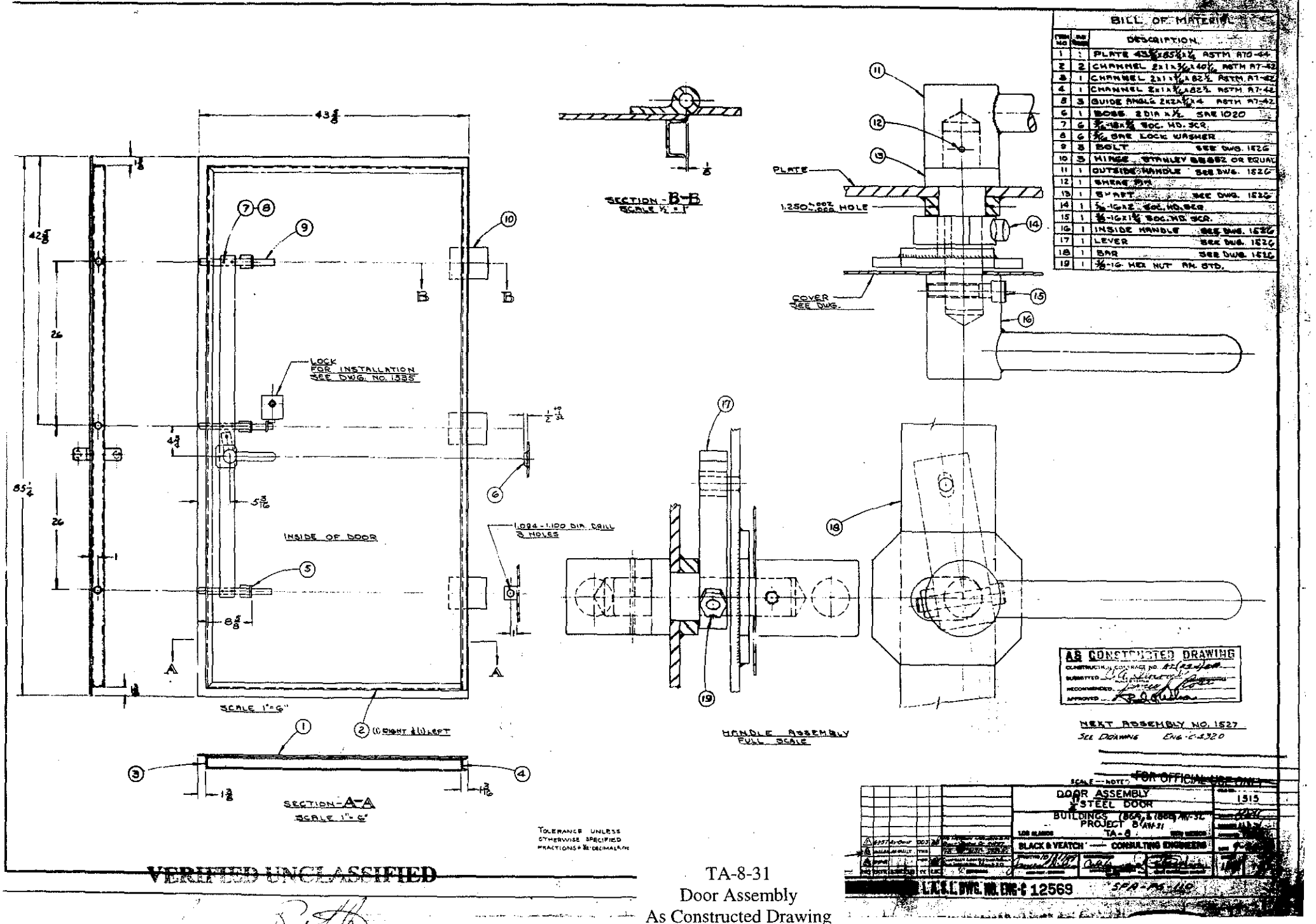
TA-8-31
Typical Details
As Constructed Drawing
September 8, 1949



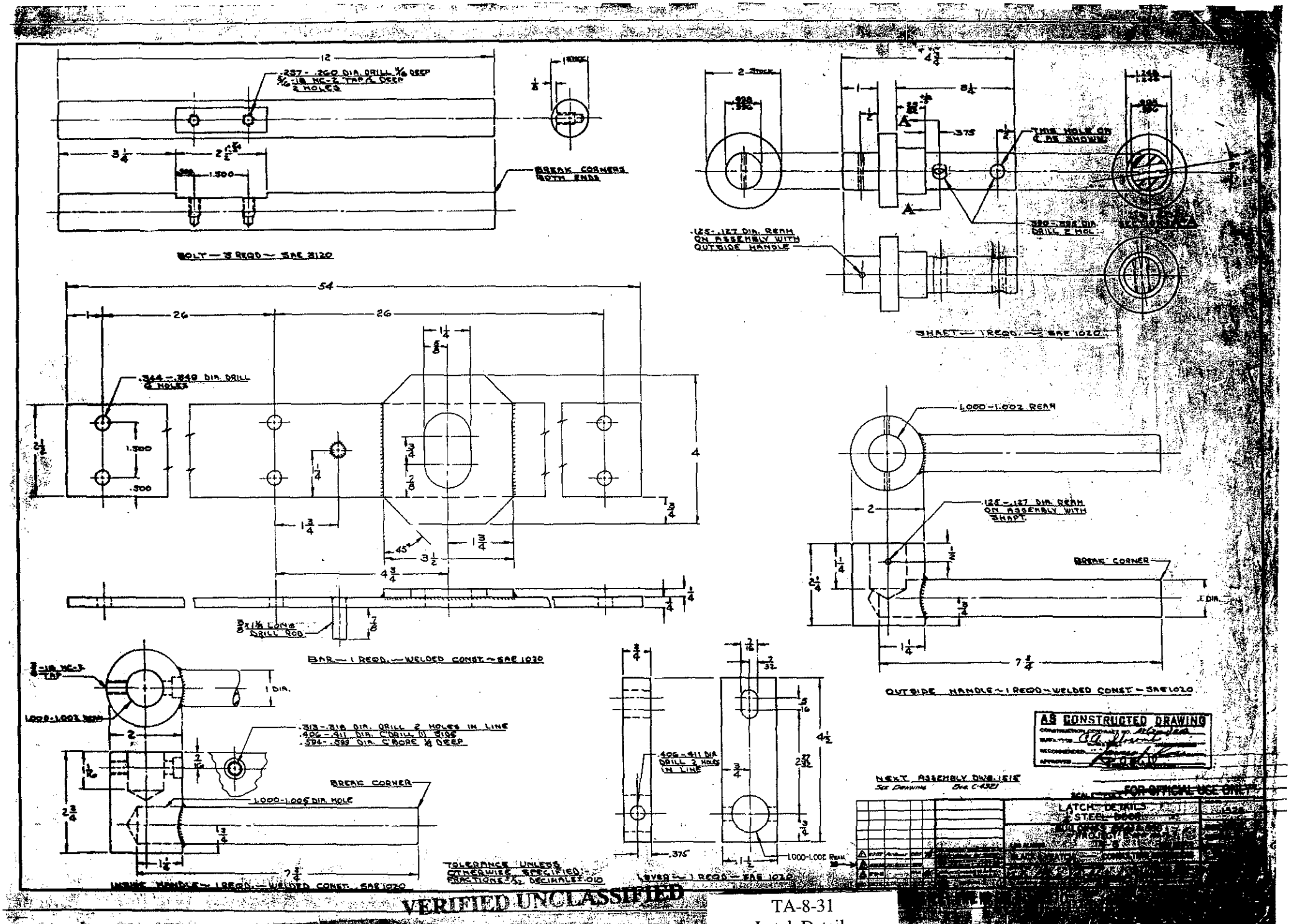
TA-8-31
Door Installation Assembly
As Constructed Drawing
September 20, 1949



TA-8-31
Frame Assembly
As Constructed Drawing
September 20, 1949



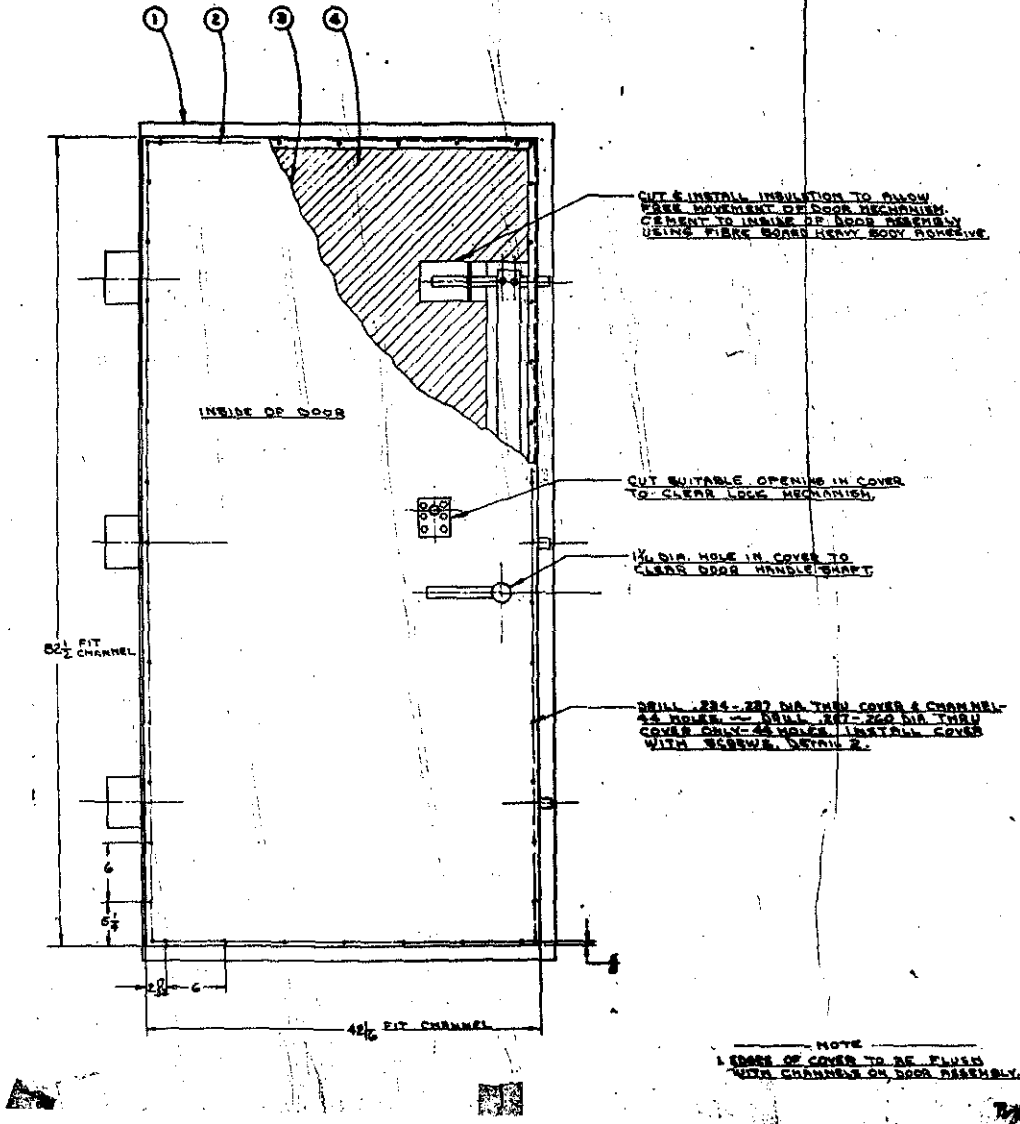
TA-8-31
Door Assembly
As Constructed Drawing
September 20, 1949



VERIFIED UNCLASSIFIED

Susan Roth

TA-8-31
Latch Details
As Constructed Drawing
September 20, 1949

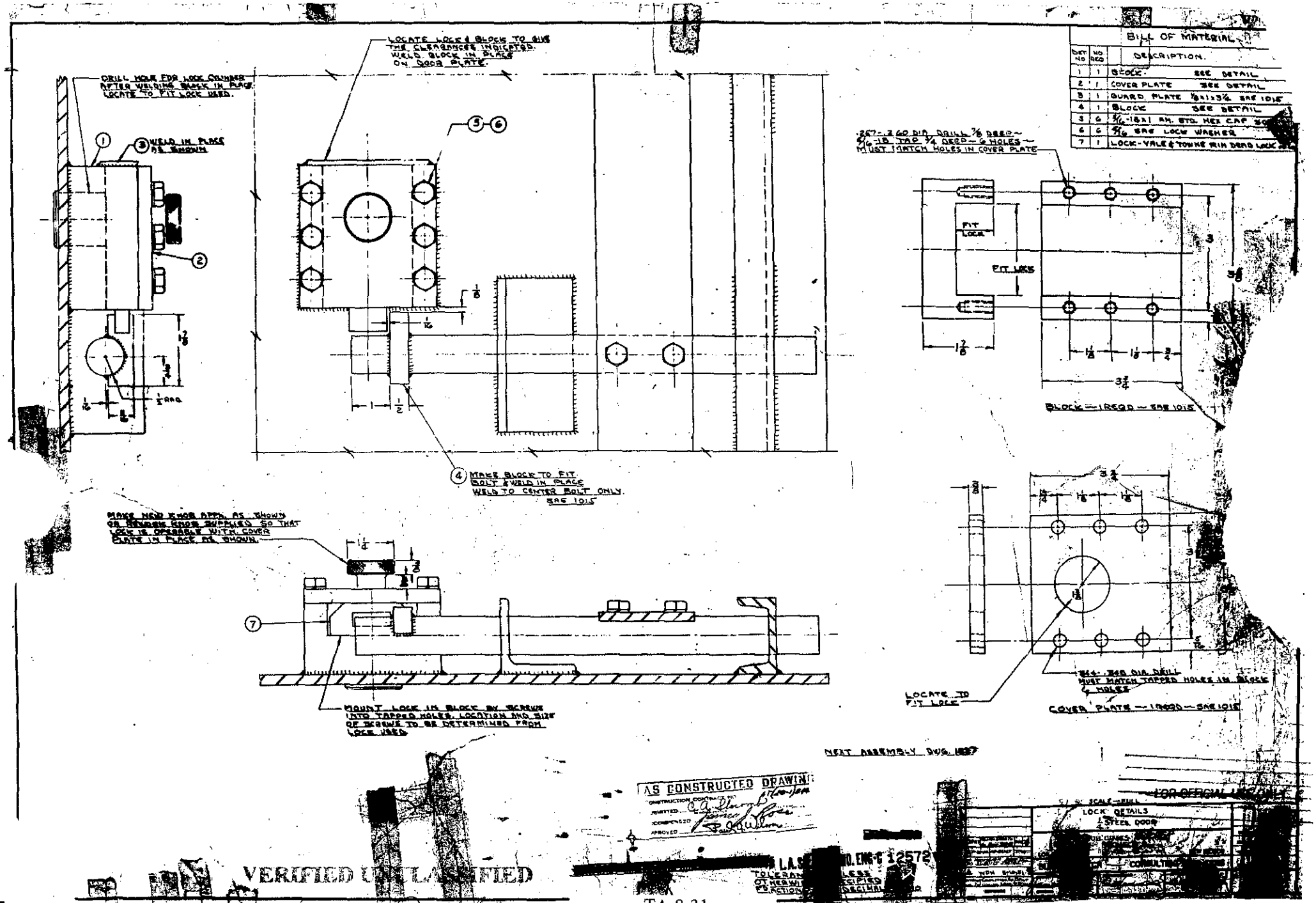


NEXT ASSEMBLY DWG. 1227

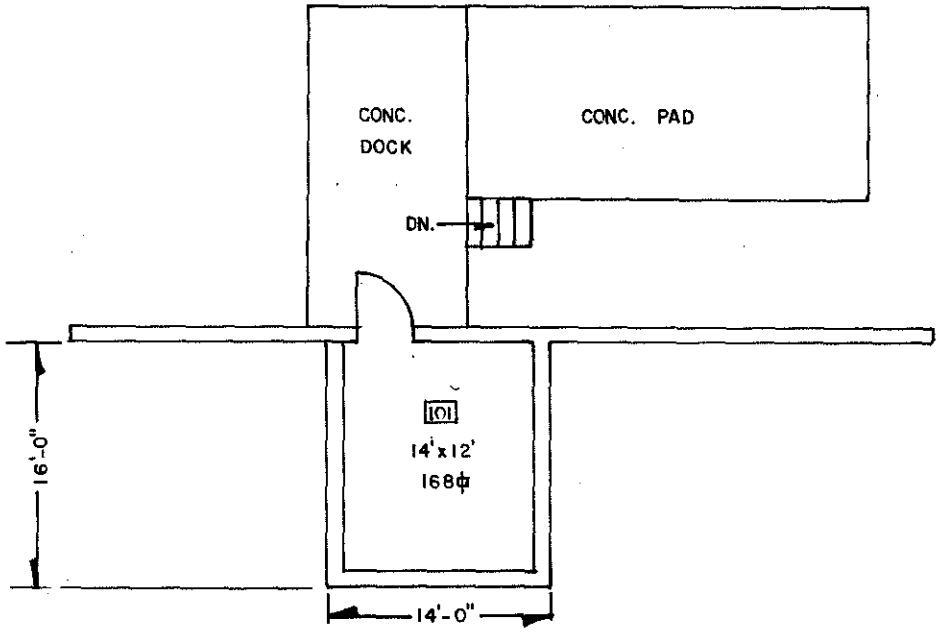
AS CONSTRUCTED DRAWING

NOTE
1 EDGES OF COVER TO BE FLUSH WITH CHANNELS ON DOOR ASSEMBLY.

TA-8-31
Door, Cover & Insulation Assembly
As Constructed Drawing
September 20, 1949



TA-8-31
Lock Details
As Constructed Drawing
September 20, 1949



1/8" = 1' - 0" 0 5 10 15 20

GRAPHIC SCALE

TA-8-31
Magazine AW-31, TA-8
Floor Plan
October 14, 1983

TOTAL SQ. FT. 168

MF

REV.	DATE	REVISION	BY	CKD.	APP.
1	8-31-83	REVISED TO STATUS OF AUGUST 31, 1983	H&N		

UNIVERSITY OF CALIFORNIA
Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

MAGAZINE
FLOOR PLAN

BLDG. AW-31 TA-8

SEC. CLASSIFICATION
CLASS. U
REVIEWER [illegible]
DATE 10-14-83

SUBMITTED	RECOMMENDED	APPROVED
[illegible]	[illegible]	[illegible]

DRAWN	CHECKED	DATE	SHEET NO.	DRAWING NO.
H&N	[illegible] H&N	8-31-83	1 OF 1	ENG-R2629

NEW MEXICO HISTORIC BUILDING INVENTORY FORM

LA#

building threatened?	surveyed	County	ID no.
yes	date 2/9/99 by K. L. M. Garcia	Los Alamos	TA-35-1

field map number: LANL Orthotopo Sheet 1

UTM reference: easting 383436 northing 3969348 zone 13

location description: Technical Area (TA) 35, Ten Site

city/town: Los Alamos

land grant/reservation: n/a

building name TA-35-1

Original name TSL-1 (Ten Site Laboratory-1)

legal description: USGS Frijoles 7.5 Series

tnsp 19N range 6E sec 22 NW¼ NW¼ SE¼

film roll: 1048 by nos. ESH-20 Photos on file at ESH-20	Negative nos. 0A, 1A, & 2A Also digital photos on file with ESH-20 by building number	location of neg. LANL, ESH-20	date of construction _____ estimate 1949-1951 actual source Facilities Division Engineering 9 (F-9) records (LANL)

Style	Foundation material	Use	Condition
Reinforced concrete with steel door and low pitched roof	concrete slab wall material/surface Reinforced concrete.	Present residential ✔ other Abandoned historic residential ✔ other Guard House	___ excellent __X__ fair to __X__ good ___ Deteriorating

degree of remodeling	Surroundings	Relationship to surroundings	district potential
__X__ minor ___ moderate ___major describe: An additional exterior door was added to the west side of the building sometime between 1959 and 1983.	Developed Laboratory Technical Area 35	___similar __X__not similar	____ yes __X__ no

Significance

____Eligible __X__of interest _____none

If not eligible,

Why? **Building TA-35-1, was a former Guard house (station #410). This support building was the guard station for building TA-35-2, the original laboratory and office building at TA-35, also built in 1951.**

> **"The initial operations at TA-35 involved the preparation of kilocurie sources of radioactive lanthanum ^{140}La. This was preformed in a hot cell located in the basement at the east end of TA-35-2" (Los Alamos National Laboratory 1992:3-35 & 3-36). Experimentation with plutonium and tritium was conducted in the 1950s and 1960s. Additionally, three experimental nuclear fission reactors were developed and operated for short periods between 1956 and 1964. By the 1970s most of the work at this TA is on research and development of laser operations (Los Alamos National Laboratory 1992:3-36).**

associated buildings? __X__ yes

what type? **The original TA-35 laboratory and office building**

if inventoried, list ID nos.

TA-35-2

Photos and plan drawings are on following pages

ENG-R 1927
Fire Alarm Equipment
Floor Plan
March 5, 1959

ENG-R 3044
Floor Plan
August 15, 1983

Below is the drawing for an almost identical building (TA-16-101) which shows elevations:

ENG-C 21862
Relocate Guard House
Station 635
Location, Plot and Foundation Plans
September 22, 1961

size: **133 ft²**

Architectural features:

Only floor plans exist for this guard house. However, this building is almost identical in size and design to at least one other guard station (TA-16-101) at the Laboratory with the exception of minor differences. Construction material varies between reinforced concrete and wood and the window treatment varies between size and number of glass panes.

> **Building TA-16-101 has been previously documented (McGehee 1995) and concurrence received from the State Historic Preservation Office on eligibility status (March 24, 1995) and a mitigation plan (May 30, 1995). Per the mitigation plan measured drawings have been completed and archival 4x5 black and white photographs have been produced.**

Building TA-35-1 is slightly smaller (12'x15') where as TA-16-101 is (12'2" x 15'2"). Construction material varies between wood frame covered with concrete-filled sand bags for TA-16-101 and reinforced concrete for TA-35-1.

Building TA-35-1 is a rectangular building with a low pitched roof. The building has two rooms, a main room and a restroom. The front, south side, of the building has a metal pedestrian door with window, and one window with two glass panes that slide open. The east side has two windows each with two glass panes that slide open. The north side has two windows, one larger than the other, also each with two glass panes that slide open. The smaller window is in the restroom. The west side has one window with a single glass pane and a pedestrian door that was added sometime between 1959 and 1983.

> **The windows on the east and north sides are located at the northeast corner of the building and the windows on the south and west sides are located at the southwest corner of the building.**

The roof is low pitched and slopes slightly from the south to north. It has an approximate 5' overhang/canopy in the front (south side) and the other three sides have an approximate 2' overhang/canopy.

The roof is similar to that of guard house building TA-3-42. It is appears to be constructed in several layers with a tar and gravel exterior surface. There is galvanized metal flashing around all the edges.

Interior wall surfaces were most likely painted with oil base lead paint as were other structures constructed in the late 1940s early 1950s.

Comments: **There is no indication that this building was ever contaminated (Los Alamos National Laboratory 1990 and 1992).**

Los Alamos National Laboratory

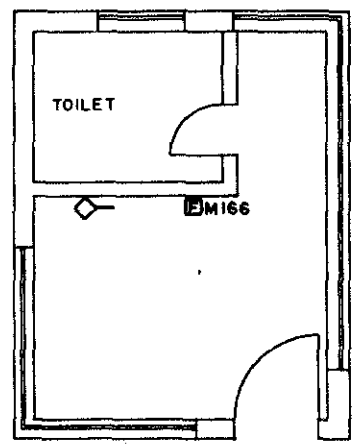
1990 *Solid Waste Management Units Report, Los Alamos National Laboratory Environmental Restoration*, LA-UR-90-3400, Los Alamos National Laboratory, Los Alamos, New Mexico.

1992 *RFI Work Plan for Operable Unit 1129: Environmental Restoration Program* LA-UR-92-800, Los Alamos National Laboratory, Los Alamos, New Mexico.

McGehee, Ellen D.

1995 *Decontamination and Decommissioning of 28 "S Site" Properties: Technical Area 16*, Historic Building Survey Report No. 84, Volumes 1-3, LA-UR-95-617, Los Alamos National Laboratory, Los Alamos, New Mexico.

TA-35-1 South Side



LEGEND

A D T SYSTEM

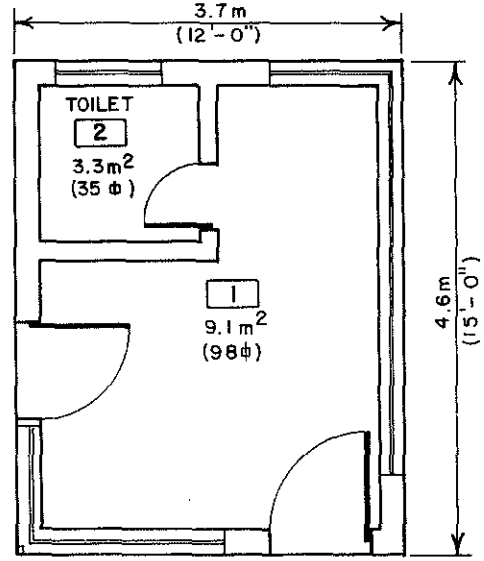
FM	MANUAL TRANSMITTER
FTEL	TELETHERM TRANSMITTER
FS	SUPERVISORY TRANSMITTER
FRET	RETARD TRANSMITTER
FWF	WATER FLOW TRANSMITTER
FAT	AERO TRANSMITTER
FSDR	DETECTOR RELAY
	POWER UNIT
	ANNUNCIATOR
	RECORDER
	EVACUATION HORN OR BELL
	BATTERY CHARGER
D	FIRE DETECTOR
S	SWITCH

TA-35-1
Fire Alarm Equipment
Floor Plan
March 5, 1959

LOS ALAMOS SCIENTIFIC LABORATORY ENGINEERING DEPARTMENT UNIVERSITY OF CALIFORNIA — LOS ALAMOS, NEW MEXICO		FIRE ALARM EQUIPMENT FLOOR PLAN BLDG. TSL-1 TA-35	
APPROVALS: ENG. GROUP: S SER DIVISION: ENG. DEPT. OFFICE: JB	DESIGN: DESIGNER: S.G.B. PROJ. ENG.: J.L. Eggen	DATE: 3-5-59 SHEET: 1 OF 1	SCALE: 1/4 = 1'-0" SKETCH NO.: ENG.-R 1927

INFO. SHOWN CURRENT AS OF 12-14-62

B. A. NO. J. O. NO. LAB JOB NO.



(1/4"= 1'-0") 0 1 2 3 4 5 6 7 8 9 10

GRAPHIC SCALE

TOTAL $\frac{\text{ft}^2}{133}$

TA-35-1
Floor Plan
August 15, 1983

REV.	DATE	REVISION	BY	CKD.	APP.
2	8-15-83	REDRAWN AND REVISED TO STATUS OF 8-15-83	H&N		

MF

UNIVERSITY OF CALIFORNIA
Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

FLOOR PLAN

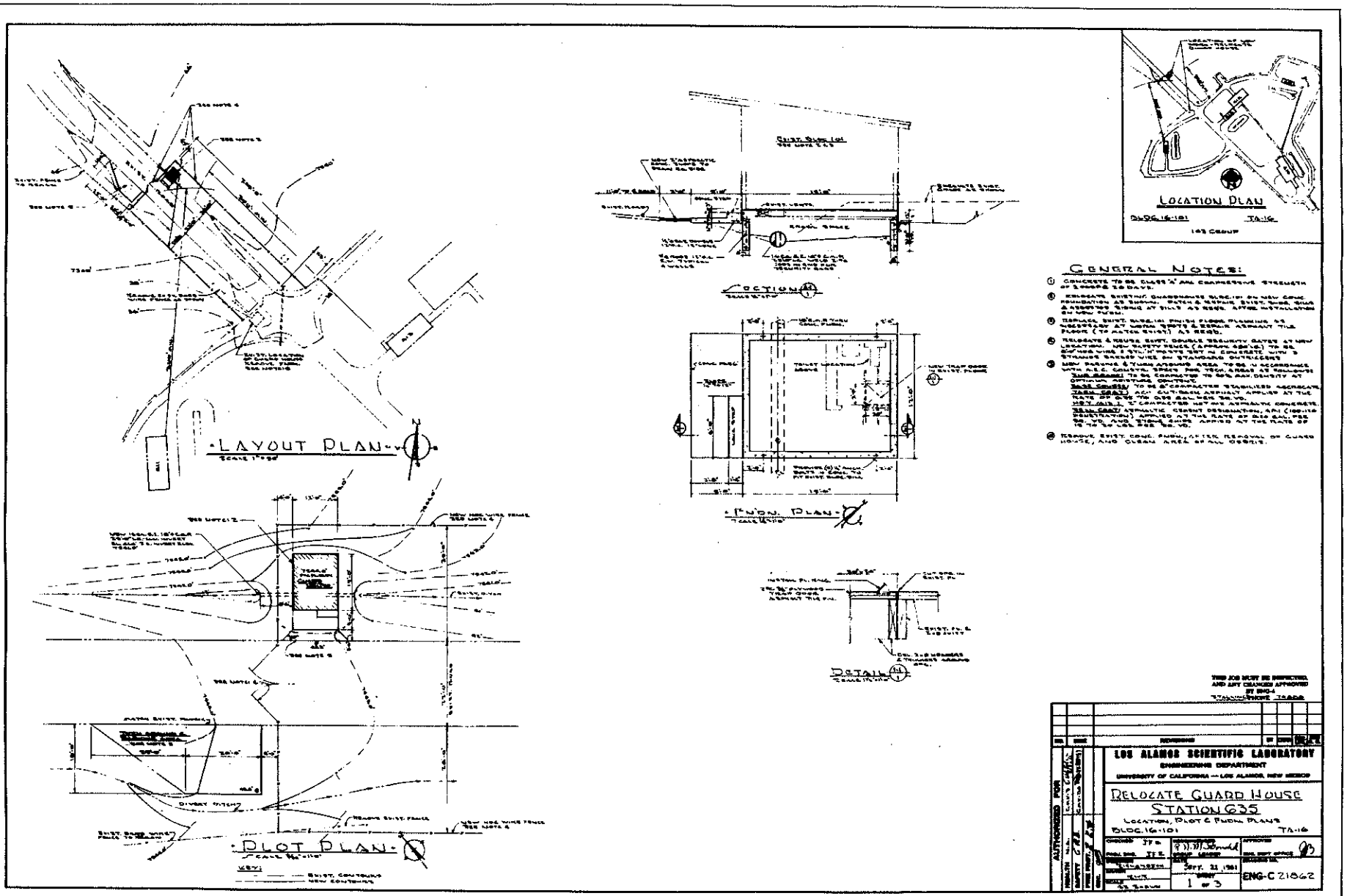
BLDG. TSL-1 TA-35

SEC. CLASSIFICATION
CLASS. U
REVIEWER
DATE 10-4-83

SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo	Dorin Ross	

DRAWN	CHECKED	DATE	SHEET NO.	DRAWING NO.
BRANDENBERGER	H&N	8-15-83	1 OF 1	ENG-R3044

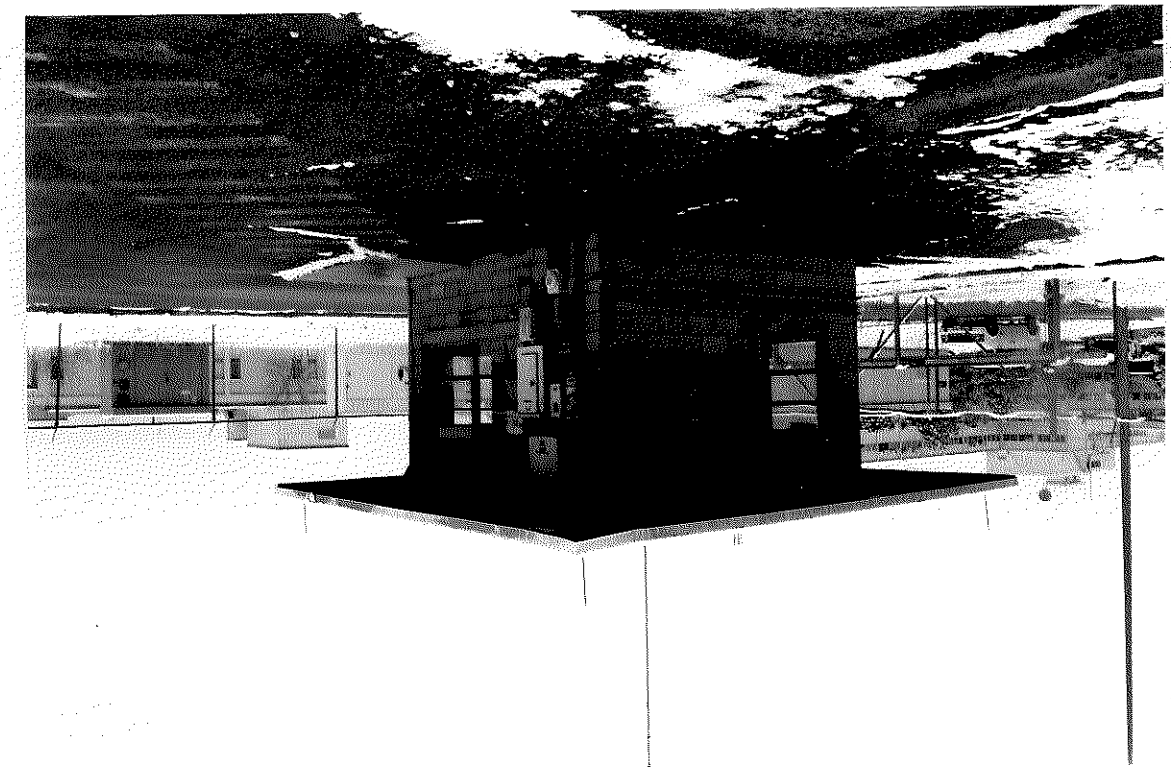
REC'D ..... LOGGED ✓ TO VAULT 9/29/83



TA-16-101
Relocate Guard House Station 635
Location, Plot and Foundation Plans
September 22, 1961
(Identical to TA-35-1)

APPENDIX C

Black-and-White Photographs of Buildings



S006NOR F00[illegible]

TA-3-42
West and South Sides

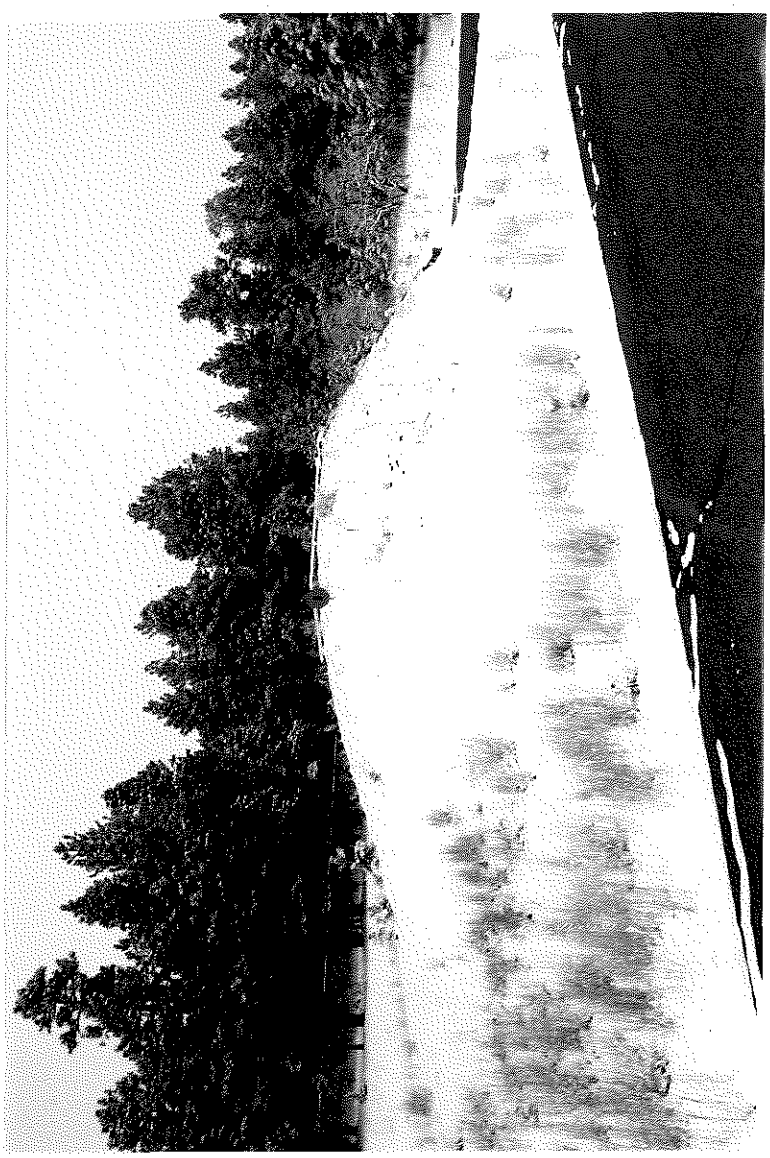
S006NOR F00[illegible]

TA-3-42
East and North Sides

TA-6
AW-27

TA-8-27
South and East Sides

TA-8-27
North and West Sides



TA-8-31
North and West Sides

TA-8-31
East and North Sides

TA-8-31
North Side

TA-35-1
East and North Side

TA-35-1
North Side

TA-35-1
West and South Sides