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Sentinels of the Atomic Dawn:

A Multiple-Property Evaluation of the Remaining Manhattan Project Properties at Los Alamos (1942–1946)

RRES-ECO Cultural Resources Management Team
Risk Reduction and Environmental Stewardship Division
LOS ALAMOS NATIONAL LABORATORY

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Historic Building Survey Report No. 215

Los Alamos National Laboratory

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Los Alamos Site Office

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Introduction

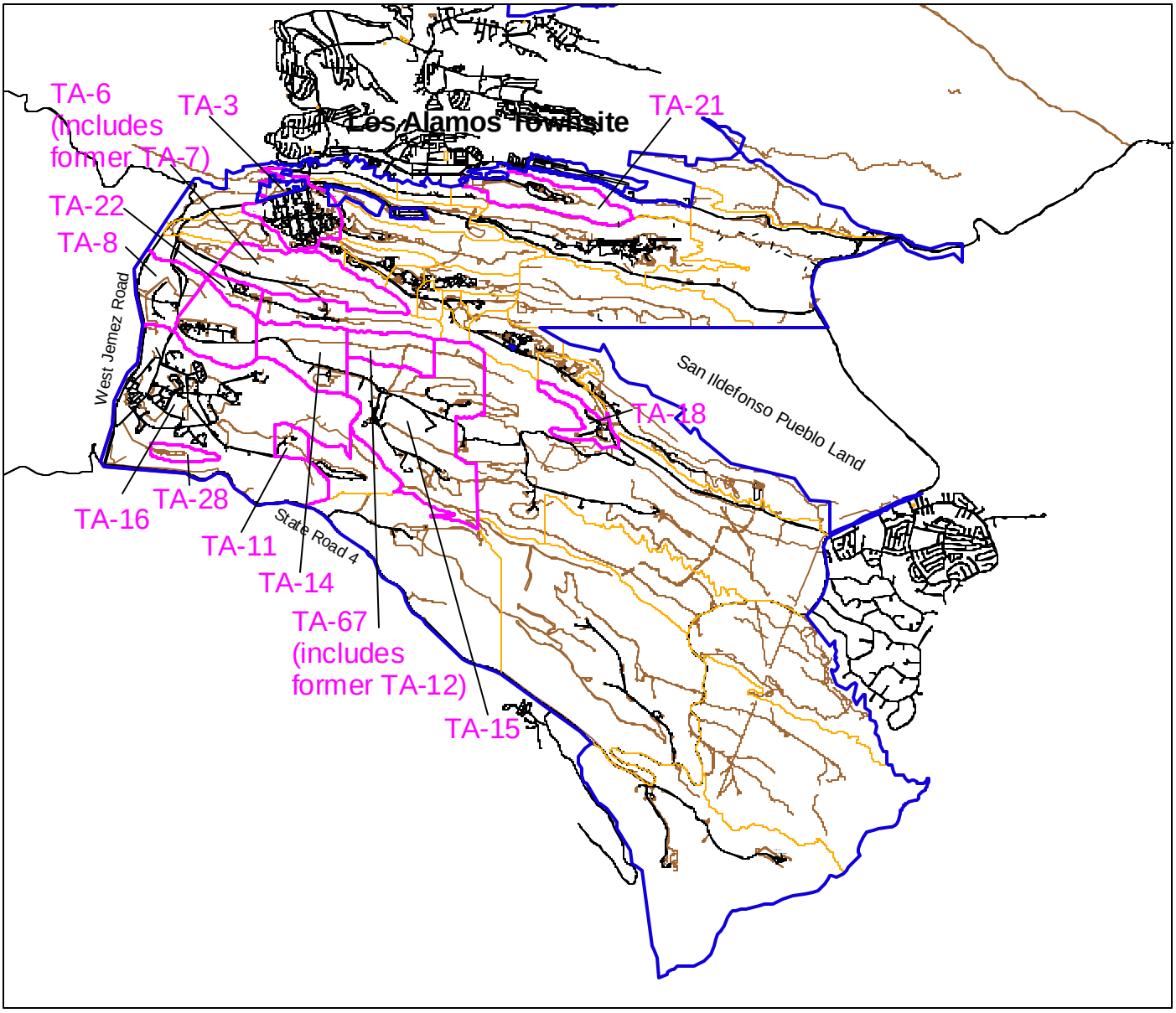
Los Alamos National Laboratory (LANL)'s Cultural Resources Management Team is conducting a multiple-property evaluation of LANL's remaining Manhattan Project era (1942–1946) facilities in support of the Department of Energy/National Nuclear Security Administration's National Historic Preservation Act compliance responsibilities. Short- and long-term planning decisions at LANL—coupled with the scheduled demolition of aging and obsolete facilities—are key factors in the decision to evaluate LANL's historic properties as contextually related groupings of buildings and structures, and not, as has been carried out in the past, on an individual basis.

Fifty-one properties from the Manhattan Project era remain at Los Alamos (Map 1). Of these, 44 retain historical and physical integrity and are eligible for listing on the National Register of Historic Places (12 of the 44 properties have previously been declared eligible). The 44 eligible properties were also assessed in terms of their potential for preservation and public interpretation, with the most historically significant properties being identified for permanent retention. Those eligible properties not slated for preservation will be evaluated on a case-by-case basis in the event they are scheduled for decontamination and decommissioning.

Ten of LANL's Manhattan Project properties are candidates for permanent retention. These properties represent Los Alamos's most important contributions to the history of World War II, including the development and testing of the "Trinity" device (buildings TA-16-516 and TA-16-517 at V Site), the development and testing of the first "Little Boy" bomb (buildings TA-8-1, TA-8-2, and TA-8-3 at the "Gun" Site), and the development and testing of the first "Fat Man" bomb and related implosion and criticality research (buildings TA-18-1, TA-18-29, and TA-22-1 and structures TA-6-37 and LA 131234 C).

A key element of the multiple property documentation format is context. A historical context provides information about historical patterns and trends and has clearly defined themes, geographical areas, and chronological periods (U.S. National Park Service 1999). Due to the complexity of subthemes associated with the main overarching theme of Nuclear Weapons Research and Development during the Manhattan Project, LANL's historic context for this time period is being written in two phases: an initial " umbrella" context (presented in this document), and subsequent in-depth thematic documents. An umbrella context presents general chronological and geographical information, identifies historical trends, and places local activities in a broader national context. The umbrella document also lists properties that are potentially associated with the overall context statement, and, most importantly, identifies the key themes. As currently envisioned, the subsequent thematic documents will be more in-depth historical discussions of the identified themes, emphasizing local historical patterns, trends, and interrelationships. Ultimately, these local themes will also be placed within the broader history of LANL, the DOE, the nation, and the world.

This umbrella context is divided into three main sections. The first section is an overview of the Manhattan Project and includes both national and local developments, concluding with a timeline of important Los Alamos events and a listing of the seven major Manhattan Project



Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

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Los Alamos National Laboratory
Tech Areas with Remaining Manhattan Project Buildings
Tech Areas
Roads
Roaddirt
Parkpave
Parkdirt

LANL Boundary and Technical Areas with Remaining Manhattan Project Properties

Map 1

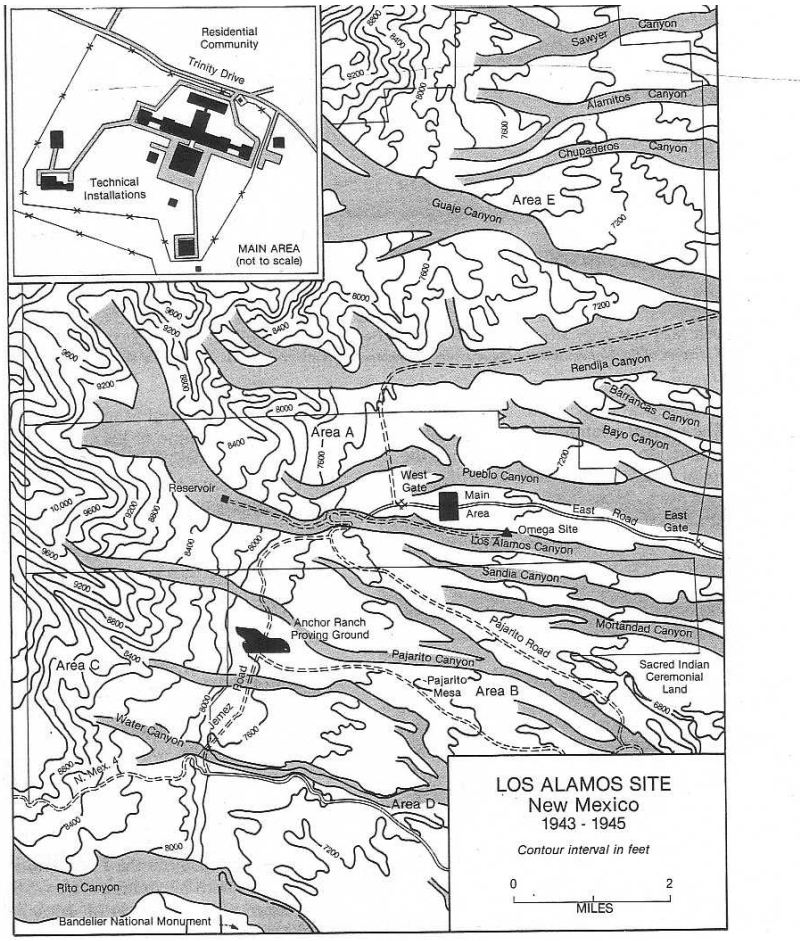
themes. The second section discusses the relationship between testing facilities and the specific scientific and engineering problems that were faced during the weaponization of atomic energy. This section includes descriptions of the various technical areas that were in operation during the Manhattan Project at Los Alamos. The third and final section includes summary information related to the 51 remaining Manhattan Project properties at LANL. A table listing all remaining properties accompanies this section and contains current eligibility information, associated historical themes, and recommendations for National Register of Historic Places eligibility. Manhattan Project properties that are exceptionally significant and are good candidates for permanent retention are also identified in this table. Brief property descriptions and current photographs of LANL's Manhattan Project properties are included in Appendix A. Photographs of other local, non-LANL properties from this time period are included in Appendix B.

Much has been written about the Manhattan Project, at Los Alamos and elsewhere. Several excellent accounts are referenced here for additional reading: Edith C. Truslow's *Manhattan District History: Nonscientific Aspects of Los Alamos Project Y, 1942 through 1946*; David Hawkins, Edith C. Truslow, and Ralph Carlisle Smith's *Project Y: The Los Alamos Story;* Lillian Hoddeson, Paul W. Henriksen, Roger A. Meade, and Catherine Westfall's *Critical Assembly: A Technical History of Los Alamos during the Oppenheimer Years, 1943-1945*; F. G. Gosling's *The Manhattan Project: Making the Atomic Bomb*; LANL's *Los Alamos: Beginning of an Era, 1943-1945*; and, for a broader account of the background and development of the first nuclear weapons, Richard Rhodes's *The Making of the Atomic Bomb*.

Section 1—Historical Context of the Manhattan Project at Los Alamos (Project Y)

Origins of the Manhattan Engineer District

In 1939, Albert Einstein sent a letter to President Franklin Roosevelt advising him that Germany may have started work on developing the atomic bomb.[1] In the same year, University of California physicist, J. Robert Oppenheimer, organized a study conference that concluded that a fission bomb was feasible.[2] However, problems existed: the research efforts of universities and industry needed to be coordinated, and a process to produce sufficient fissionable material needed to be developed.[3] In 1941, President Roosevelt gave approval to pursue the development of an atomic bomb. Brigadier General Leslie Groves ultimately came to head the "Manhattan Project." Groves, in turn, chose Robert Oppenheimer to coordinate the design of the bomb.



Map showing 3 of the 30 wartime technical areas located on the Pajarito Plateau

(from Gosling 2001)

Project Y

A single research and design facility, isolated and secret, was proposed. This would enable top scientists and engineers from all over the country to work together to complete this daunting task. A site had to be chosen. 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.[4] The search for a site began in the fall of 1942. Major John Dudley eventually recommended Jemez Springs, N.M. Oppenheimer, who had visited the Pajarito Plateau as a young man and was familiar with the Los Alamos Ranch School, rejected Jemez Springs and suggested Los Alamos instead.[5]

The school's setting was indeed remote and afforded natural physical barriers for security, i.e., numerous canyons and cliffs. The ranch school had been in operation since 1918, and the 27 school buildings with numerous outbuildings could very easily support the small-scale facility Oppenheimer originally had in mind.[6]

On November 25, 1942, the War Department approved the appropriation of the Ranch School and on December 7, 1942, the school was officially notified.[7] Additional lands were acquired from nearby Government agencies, mostly Forest Service lands, and from the predominantly Hispanic homesteaders.[8] With the graduation of the last class of the Los Alamos Ranch School in 1943, the Pajarito Plateau was balancing on the brink of change; a scientific revolution was in the making.

(Photo Courtesy of the Los Alamos Historical Society)
Homesteaders Working in the Anchor Ranch Fields, Los Alamos, New Mexico

A suitable site selected, Oppenheimer and his staff moved to Los Alamos to begin work. The recruitment of some of the country's "best scientific talent" and the construction of technical buildings were top priorities.[9] The University of California agreed to operate the site, code name "Project Y," under contract with the government.

(RG 227, OSRD, S-1 Files, "MED Reports on Facilities, Los Alamos," NARA, College Park, MD)
Otowi Bridge (1942)

(RG 227, OSRD, S-1 Files, "MED Reports on Facilities, Los Alamos," NARA, College Park, MD)
Ashley Pond and the Jemez Mountains (1942)

Early Construction

The Albuquerque District Office of the Corps of Engineers began planning for the establishment of an installation in northern New Mexico as early as December 1942. Standard Army construction procedures were in force, and the first priority was the construction of technical and office buildings.[10] The architectural style of early Los Alamos was "typical Mid-Twentieth Century Hurry-Up Military, and uniformly hideous."[11]

(LANL, IM-4 Photography)
Early Los Alamos and Main Technical Area

The early Los Alamos town site was a fenced community resembling a military post. The Main Technical Area, later known as Technical Area (TA) 1, was fenced and separated from the rest of town, and only specially badged workers were allowed inside the guarded laboratory area. The Army Corps of Engineers was responsible for the maintenance of buildings and utilities. Contract companies, although ultimately supervised by Army personnel, carried out new construction. The M. M. Sundt Company was the first construction contractor, working at Los Alamos until the end of 1943. For three months in early 1944, the J. E. Morgan Company built some of the early Los Alamos housing. R. E. McKee, the final contractor of the Project, completed much of the wartime construction. The architect-engineer, W. C. Kruger, started developing the plans for the town and technical areas in late 1942 and continued working at Los Alamos throughout the war years.[12]

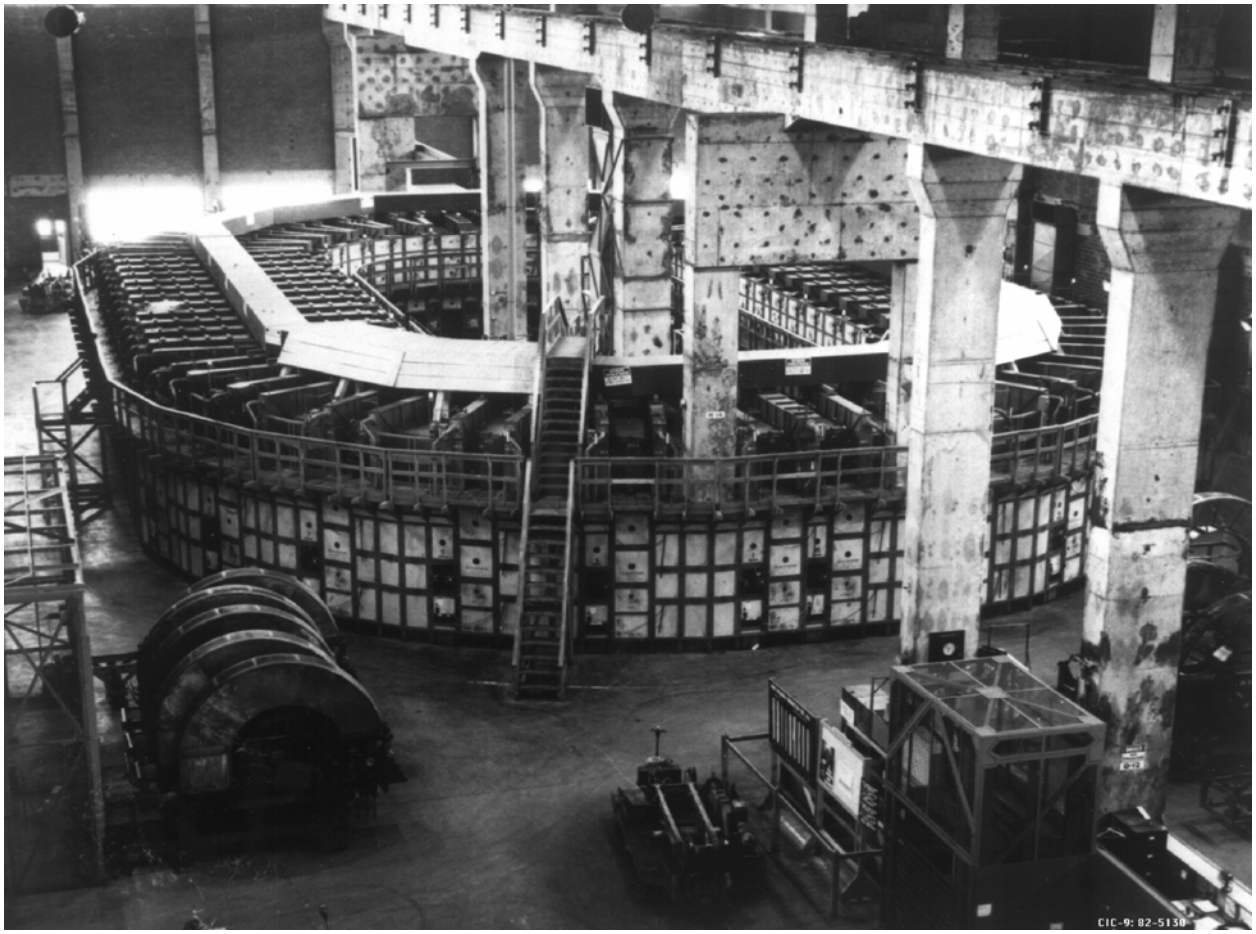
Early Administration

General Groves had overall responsibility for both the military and technical administration of the various Manhattan Project sites. Los Alamos had five commanding officers between 1943 and the end of 1946: Lt. Colonel Harman, Lt. Colonel Ashbridge, Colonel Tyler, Colonel Seeman, and Colonel Gee. These Army officers were responsible for the day-to-day administrative details and for the activities of the military personnel.[13] Robert Oppenheimer was the scientific director and was responsible for the scientific and technical details of Project Y. Oppenheimer reported to General Groves and worked closely with J. B. Conant, Groves's technical advisor.[14]

(LANL, IM-4 Photography)
Los Alamos Main Gate

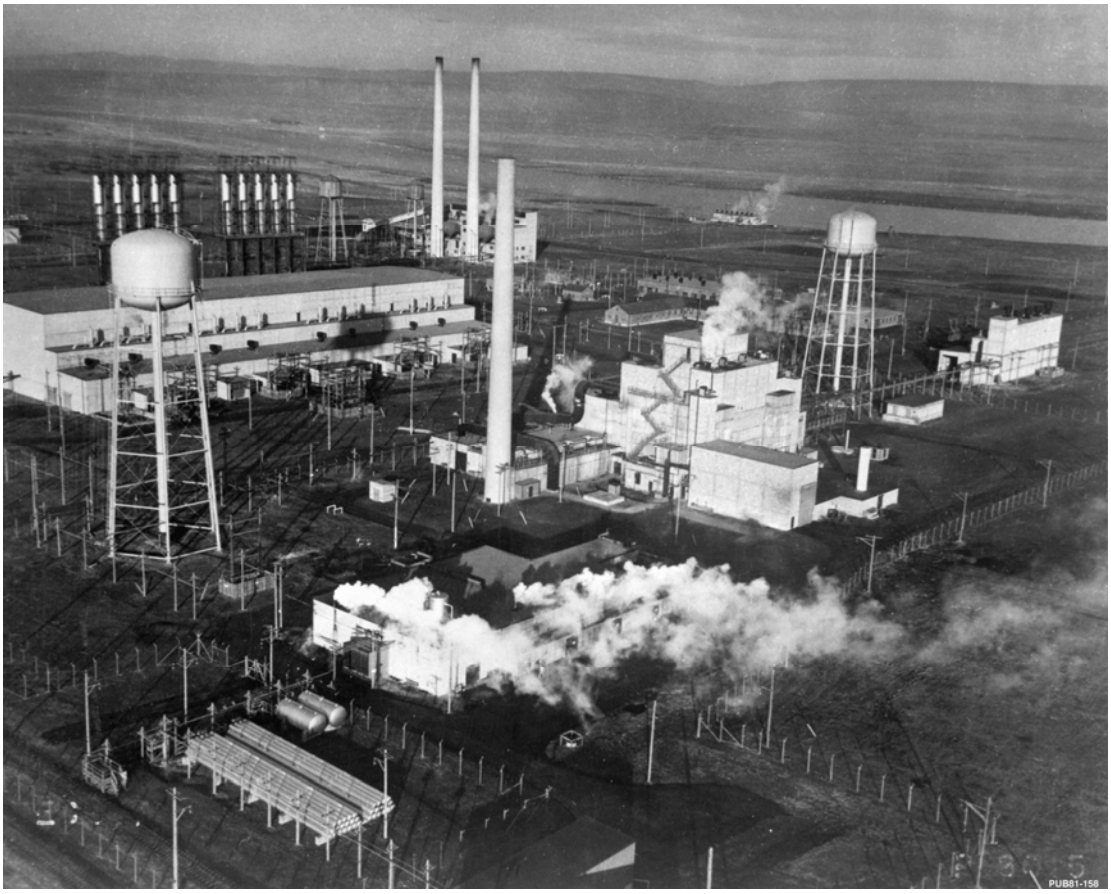
Other Manhattan Engineer District Sites

When President Roosevelt approved the establishment of the Manhattan Project on December 28, 1942, he authorized the construction of facilities that would ultimately produce the fissile material needed for the weapons designed in Los Alamos. By December 1942, plans for the development of the Clinton Engineer Works (Site X, later known as Oak Ridge) in Tennessee were already well underway. Other important facilities associated with the Manhattan Project included the Metallurgical Laboratory in Chicago and the Hanford Engineer Works (Site W) in Washington State. On December 2, 1942, scientists working under the leadership of Enrico Fermi achieved the first self-sustained nuclear chain reaction in Chicago. Fermi's demonstrated production pile design would later be recreated at Oak Ridge.[15]



(LANL, IM-4 Photography)
Y-12 "Racetrack" at Oak Ridge (Clinton Engineer Works)

During the next two years, the preparation of fissionable core materials would be conducted on a parallel time line at Oak Ridge and Hanford. The separation of uranium-235 from uranium-238 could not be done using a chemical process. Two physical separation processes were developed at Oak Ridge: gaseous diffusion separation and electromagnetic separation. Small quantities of plutonium for use at Los Alamos were first produced using the Oak Ridge "pile." However, larger production reactors were needed to produce the necessary volume of plutonium for bomb cores. Hanford reactors were soon producing plutonium nitrate for shipment to Los Alamos. The first plutonium-239 arrived at Los Alamos from Oak Ridge in the fall of 1943. Larger gram amounts—first from Oak Ridge, then from Hanford—started arriving early in 1944. The first kilogram of highly enriched uranium arrived from Oak Ridge in September 1944.[16]



(LANL, IM-4 Photography)
Plutonium Production at Hanford, Washington

Scientific History

Although the fission bomb was conceptually attainable, many difficulties still stood in the way of producing a usable weapon. Technical problems included assembling fissionable material into a supercritical mass, the timing of the release of energy from fissionable material, and the engineering challenges of having the device fit into a "deliverable" bomb casing. Nuclear material and high explosive studies were of immediate importance.[17]

Two bomb designs appeared to be the most promising: a uranium "gun" device and a plutonium "implosion" device. The gun device was conceptually simple and involved shooting one subcritical mass of uranium-235 into another at sufficient speed to avoid pre-detonation. Together, the two subcritical masses would form a supercritical mass, releasing a tremendous amount of nuclear energy.[18] This method led to the development of the "Little Boy" device. Because it was conceptually simple, "Little Boy" was never tested before its use at Hiroshima.

In order to achieve the wartime goal of researching, developing, and testing the first atomic bomb, the chemical and metallurgical properties of various nuclear materials had to be researched. One of the first tasks was to develop methods to purify the plutonium that would be coming to Los Alamos, first from Oak Ridge, Tennessee, and later from Hanford, Washington.

Other early priorities of the radiochemistry program included the development of a neutron initiator for the first nuclear weapons and the preparation of materials for nuclear experiments. Necessary research on the physical properties of uranium and plutonium was conducted—especially research relating to metal alloys.[19]

While the radiochemistry program was developing processes for working with the as yet unreceived plutonium and uranium that would be used in the first bombs, other Los Alamos scientists conducted the first experiments on methods of plutonium purification using other elements as stand-ins. This work was conducted in D Building, a wooden laboratory building located south of Ashley Pond in the Main Technical Area, TA-1. Initial plutonium research, metallurgy, and World War II plutonium core production were carried out in this facility. The world's first significant piece of plutonium metal was produced in the centrifuge at D Building in the spring of 1944.[20]

Of the two earliest weapon designs, the gun method was easier to develop than the implosion method. Furthermore, Los Alamos scientists thought that both uranium and plutonium could be used with the gun design. The implosion design was recognized early on as a technically efficient approach, but was primarily intended to be a back up to the gun device in case unexpected problems arose; initial research on implosion was seen as more of an intellectual challenge. In 1943, Oppenheimer, confident in the success of the gun program, allowed a small number of scientists to pursue this alternative approach.[21]

In 1944, the gun design was determined to be unsuitable for use with plutonium. The main reason being that plutonium produced in nuclear reactors contained an isotope (plutonium-240) that released neutrons. This high-neutron background would cause the nuclear chain reaction to start prematurely if an assembly method as slow as the gun device was used.[22] The realization that plutonium could not be used in the gun device was the cause of a major reorganization at the Laboratory in August 1944.

> A crisis ensued. Groves, wanting to preserve the investment that had been made in plutonium production (hundreds of millions of dollars), ordered a plutonium bomb assembled by other means. The only possible alternative was implosion, an assembly explored thus far at Los Alamos only as a contingency…As a result, Los Alamos was forced to turn its relatively small implosion program into a model "big science" effort involving hundreds of workers.[23]

Fortunately, the development of the gun weapon was well underway. This allowed the Laboratory to mobilize its limited resources and accelerate research on implosion in hopes of developing a plutonium weapon that could be used in addition to the uranium gun device.[24] Scientists were less confident about the implosion design, which used shaped high explosives to compress a subcritical mass of plutonium-239. The symmetrical compression would increase the density of the fissionable material and cause a critical reaction. This approach was much more difficult to perfect.[25]

At least seven diagnostic testing methods were developed to study the inner workings of implosion; the greatest difficulties came from the need to "record events inside an explosive and to time them within an uncertainty of approximately microseconds."[26]

Terminal Observations
This method was one of the first used to study implosions; it involved studying the physical remains of the test shots to diagnose the success of the implosion tests.[27]

Magnetic Method
The basic principle used in the magnetic method has to do with changes in a magnetic field: when metal moves into a magnetic field, the field is changed. The magnetic method was used to study the current produced in a surrounding coil (induced by the inward motion of imploding metal). This diagnostic method gathered important information on the velocity and other characteristics of an implosion.[28]

X-ray
The counter X-ray method was designed to work in combination with the magnetic method. The method used X-rays as a time function on a grid of Geiger counters in an attempt to follow the course of an implosion. The counters produced a pulse when crossed by a charged particle.[29]

Betatron
The betatron method was similar to using flash X-ray as a diagnostic tool; however, this method used gamma radiation from accelerating electrons. The betatron radiation created a record in a cloud chamber after passing through a test implosion.[30]

Flash Photography and Rotating Prism Camera
The flash photography method used X-ray and photographic techniques to gather data about detonation, lenses, and initiators.[31]

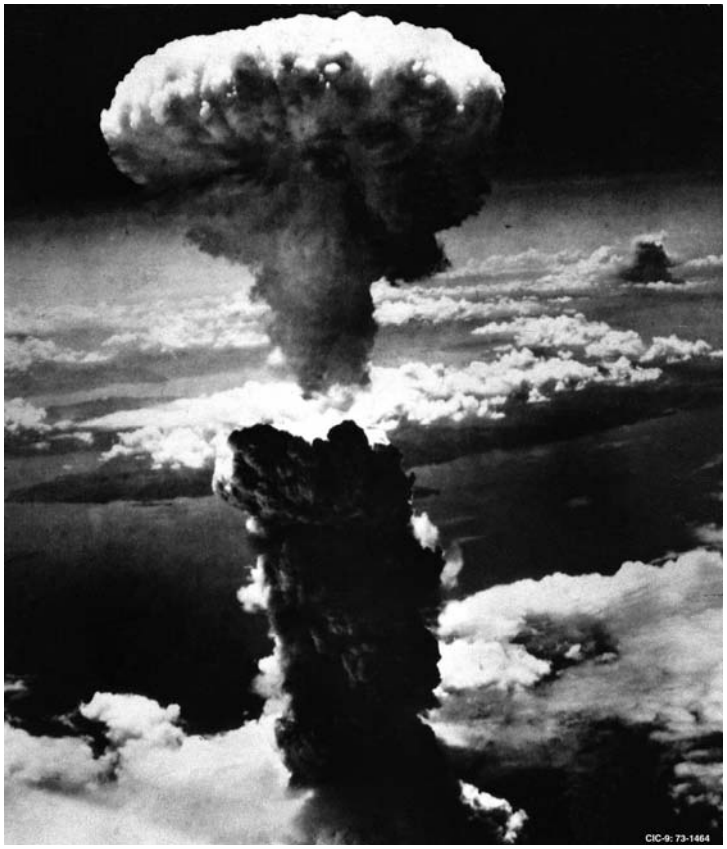
RaLa (Radiolanthanum)
This method was used to determine the compression of imploded metal. A diagnostic radioactive source was inserted into the center of a metal shell and the test assembly was remotely detonated. The results documented compression as a function of time and were invaluable in establishing the final design of the implosion bomb.[32]

Electric Pin
The electric pin method was used to gather information about the shape of implosions. The positions of various points on the liner of a tamper (as a function of time) were determined by using electrical pickups or direct connections.[33]

Final Preparations

In 1944, despite the myriad of diagnostic techniques being used, uncertainties surrounding the implosion design necessitated a search for an appropriate test site for the implosion method. 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.[34] 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."[35] Concurrent airborne operations to test the deliverable weapons casings for the gun and implosion bombs, nicknamed “Pumpkins,” were being conducted at Wendover Field in Utah. By June 1945, preparations for a staging area in the Pacific on the Island of Tinian were well underway.[36] The world's first atomic device was successfully detonated in the early morning of July 16, 1945. "Little Boy," the untested uranium gun weapon, 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. The war with Japan was essentially over.

(LANL, IM-4 Photography)
Trinity Base Camp



(LANL, IM-4 Photography)
"Fat Man" over Nagasaki, Japan

(LANL, IM-4 Photography)
Hiroshima, after "Little Boy"

Post-War Manhattan Project

Los Alamos's role in the Manhattan Project did not conclude with the end of World War II. Refinement and testing of weapon designs continued at Los Alamos, and post-war weapons tests began in 1946 in the Pacific. General Groves remained in charge of the post-war Manhattan Project. His goal was to protect America's nuclear supremacy and to continue operations at key facilities. Some of the fissile material production facilities at Hanford and Oakridge were shut down or put on stand by, but research and development continued at Los Alamos. Groves tasked Los Alamos with the production of the country's first atomic stockpile; components would be produced at Los Alamos, but weapon assembly would be carried out at nearby Sandia Base in Albuquerque.[37]

(Photos from the Department of Energy)

Test Able Target Fleet Test Baker

Actual weapons testing continued during the tail end of the Manhattan Project with "Operation Crossroads," a testing program that led to the detonation of two plutonium "Fat Man"-type bombs in the Pacific. On July 1, 1946, Shot Able was dropped from a B-29 in the area of Bikini Atoll. The blast from Able sank three ships that were part of a target fleet of unmanned ships; two additional ships sank within 27 hours after the test.[38] Shot Baker was the second and final Crossroads weapons test. On July 25, 1946, Baker was detonated underwater—damaging empty ships, shooting water into the air, and leaving radioactive fallout in its wake. These tests inaugurated the atmospheric testing program that started in the spring of 1948 and continued in the Pacific and at the Nevada Test Site during the 1950s and 1960s.[39]

For all practical purposes, the termination of Manhattan Project activities in Los Alamos came in late 1946 with the creation of the Atomic Energy Act and the transfer, in January 1947, of all atomic energy activities from the Manhattan Engineer District to the newly created Atomic Energy Commission.

Manhattan Project Historical Themes and Subthemes

The DOE has identified corporate-level contexts related to its historical operations; significant contexts are associated with DOE's World War II and Cold War weapons programs. Several of the associated themes have little connection to LANL operations, such as Milling and Mining, Fissile Material Production, and Power Administration. DOE-wide themes that have strong associations with LANL's mission include Nuclear Weapon Components and Assembly; Nuclear Weapon Design and Testing; Nuclear Propulsion; Peaceful Uses: Plowshare, Nuclear Medicine, Nuclear Energy, and Nuclear Science; and Energy and Environment.

Key themes associated with the overall Manhattan Project context at Los Alamos are listed below. While this "umbrella" document contains only a brief identification of themes, future facility-specific documents will include more in-depth historical discussions of the Manhattan Project themes, emphasizing local historical patterns, trends, and interrelationships. Ultimately, specific local themes will also be placed within the broader history of LANL, the DOE, the nation, and the world.

There are seven main themes associated with the Manhattan Project at Los Alamos. Although primarily linked to World War II activities, many of the themes and subthemes listed below span both the Manhattan Project and Cold War eras.

1) Weapons Research and Development, Testing, and Stockpile Support – Subthemes include the development of the Atomic Bomb and the Hydrogen Bomb, with related technical developments (High Explosives, Initiators, Detonators, Implosion, Limited Production), and testing (Pacific Testing: Operations Crossroads).

2) Origins of Super Computers – Subthemes include the use of early workers or "Computors," to perform calculations on business machines, and the use of ENIAC support for weapons calculations.

3) Reactor Technology – Subthemes include the early reactors Lopo, Hypo, and Clementine.

4) Biomedical/Health Physics – Subthemes include radiation effects on humans and animals, and the relationship between early fatalities and the development of standards, exposure limits, and remote operations for radioactive materials, chemicals, and explosives.

5) Strategic and Supporting Research – Subthemes include Nuclear Science and Pioneering Physics.

6) Administrative and Social History – Subthemes include the general administration of the Laboratory, the social organization of the Laboratory and town, and security practices.

7) Architectural History – Subthemes include construction history and architectural styles.

Manhattan Project Timeline[40]

1942 (Establishment of Manhattan Engineer District)

November—Groves selects Los Alamos, New Mexico, as the site for a bomb laboratory (codenamed Project Y) and chooses Oppenheimer as scientific director.

December—Construction contractor and architect-engineer firm selected.

1943 (Main Technical Area Developed)

March—Researchers begin arriving at Los Alamos.

April—Bomb design work begins at Los Alamos.

Mid-1943—Pajarito Site (TA-18) used by Radioactivity Group.

September—Anchor Ranch West (TA-8) gun program started.

October—Anchor Ranch East (TA-9) casting room operational.

1944 (Project Y Reorganized)

February—Omega Site (TA-2) developed.

May—Initial water boiler reactor criticality at TA-2 (LOPO Reactor).

May—S Site (TA-16) starts limited high explosives operations.

July—Plutonium gun design is dropped, major reorganization of early Laboratory, shift to implosion research (12 technical areas dedicated to implosion research and development).

Post-July—Magnetic method of implosion study conducted at TA-18.

August—S Site is operational on larger scale.

August—Operations start at TA-13 (flash X-ray implosion diagnostics).

October—RaLa implosion tests begin at Bayo Site (TA-10).

1945 (Finalizing Designs and the End of the War)

Early 1945—Betatron operational (TA-11).

1945—Development of the high-explosive lens system (TA-16). Exploding bridge wire technology concurrently developed to detonate the lens system (TA-6).

1945—Weapons designs frozen (RaLa work at TA-10 plays vital role in final implosion design).

1945—Airborne tests of deliverable weapons casings conducted at Wendover Field in Utah.

June 1945—Preparations well underway for staging area at Tinian Island.

July 16, 1945—Plutonium bomb tested at Trinity Site near Alamogordo, New Mexico.

August 6, 1945—Little Boy (gun model uranium bomb) is dropped on Hiroshima.

August 9, 1945—Fat Man (implosion model plutonium bomb) is dropped on Nagasaki.

August 21, 1945—H. Daghlian fatal accident at Omega Site (TA-2).

Summer—TA-21 (DP Site) plutonium facility starts operations.

1945—Norris Bradbury becomes director of the Laboratory.

1946 (Beginning of Atomic Energy Commission)

1946—Plutonium-fuel reactor called Clementine achieves criticality at TA-2.

April—Critical assembly work begins at TA-18.

May—L. Slotin fatal accident at TA-18.

July—Operation Crossroads conducted in the Pacific; Shot Able is air dropped in the Bikini Island area on July 1st, and Shot Baker is detonated underwater on July 25th.

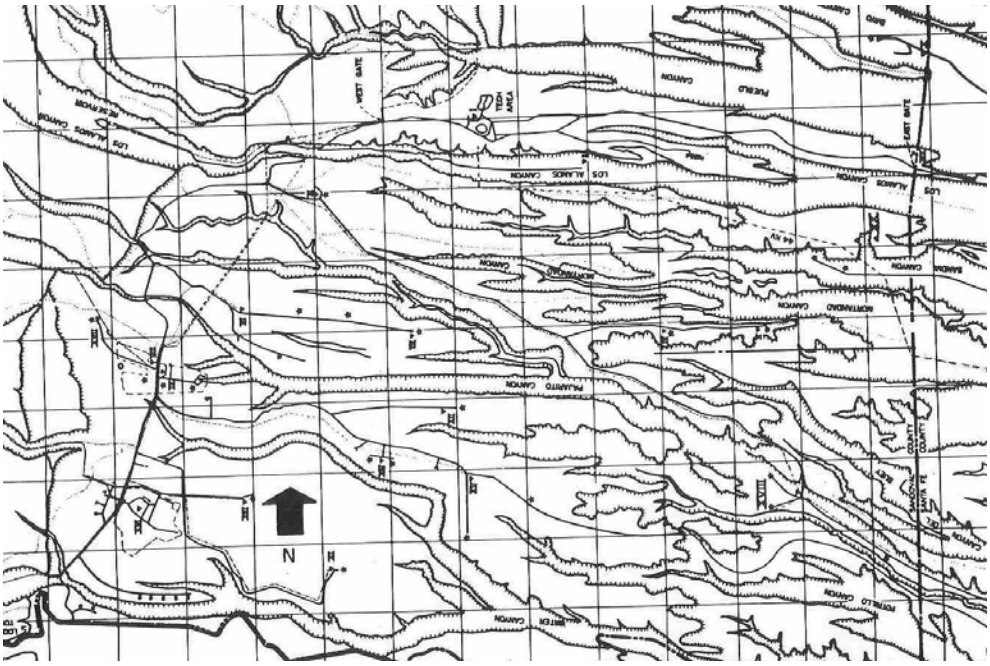
August 1, 1946—President Truman signs the Atomic Energy Act of 1946.

1947 (End of Manhattan Engineer District)

January—All atomic energy activities are transferred from the Manhattan Engineer District to the newly created Atomic Energy Commission.

August—The Manhattan Engineer District is abolished.

Section 2—Descriptions of Manhattan Project Era Technical Areas



(from Hawkins *et al*. 1988)
Map Showing Early Technical Areas

Introduction

Much of the theoretical basis for atomic weapons was well known by the time Oppenheimer started assembling his team of scientists in early 1943. Specific scientific and engineering details still had to be worked out, often through repetitive testing.[41] Many of the outlying facilities were constructed in support of the arduous testing program that the Laboratory mounted in response to very specific research problems; these were problems that had to be solved in order to produce atomic weapons for wartime use.

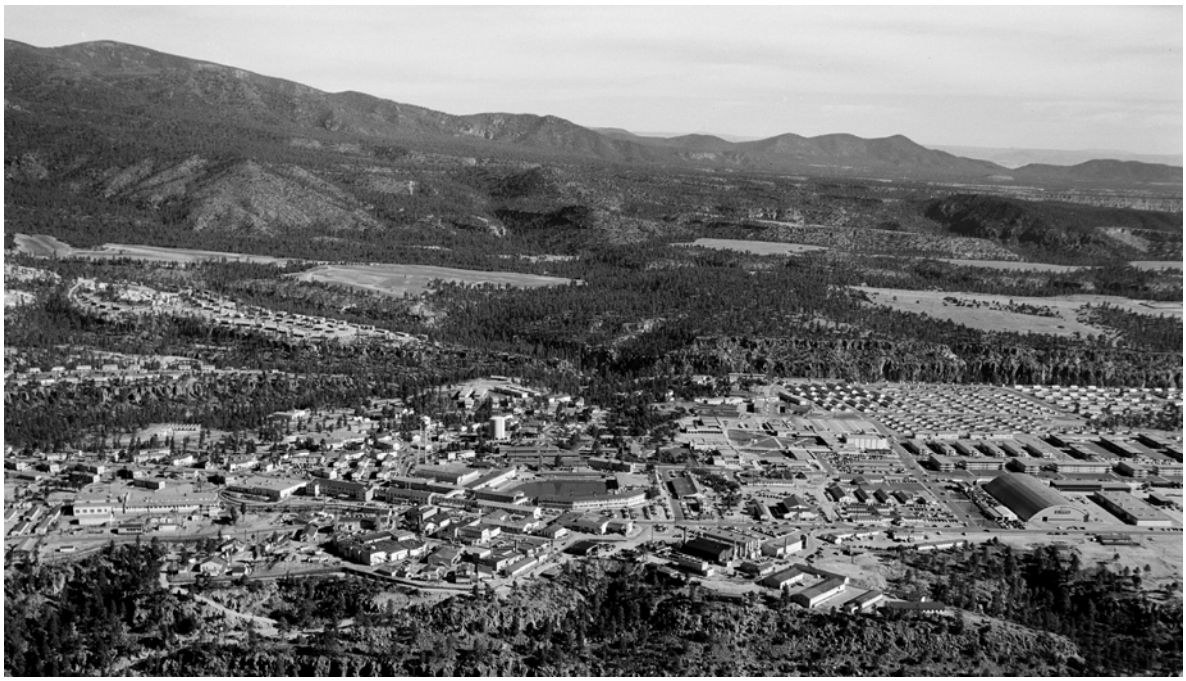
Scientists and workers used many different problem-solving methods to accomplish the technological feats associated with the development of the first atomic weapons. Many of these methods were variations on the "trial and error" approach and were not based on thorough analysis—traditional analytical methods would not produce the rapid results needed under the strict time deadlines. In her introduction to *Critical Assembly*, Lillian Hoddeson presents six different problem-solving methods used at Los Alamos in conjunction with the more traditional scientific methods: the "Edison" approach, trying various materials or systems one after another; the "shotgun" approach, throwing all known techniques and knowledge at a problem; "overlapping" approaches, using multiple approaches at the same time with the hope that incomplete solutions might be combined to solve a problem; the "small-scale model" approach, proving principles on a smaller scale to save time and materials; the "iteration" approach, a fine-tuning of models from repeated testing; and the "numerical analysis" approach, using early computing machines to supplement analytical methods.[42] Indeed, when faced with one of the most critical wartime problems, that of the unsuitability of plutonium for use in the gun device,

the concept of implosion was made into a reality because the Laboratory used every means at its disposal; Los Alamos used its technical knowledge, manpower, and morale to "throw the book" at the "implosion problem."[43]

The practical problem-solving methods used during field testing at the outlying technical areas had direct connections to the ongoing scientific problems at Project Y. The development of diverse and complex engineering methods relating to detonator, initiator, and high explosives research was a primary accomplishment of the wartime Laboratory.

The importance of engineering methods is best illustrated by Los Alamos's response to one of its greatest scientific hurdles: the unsuitability of the plutonium gun device and the need to develop an alternative weapon design. In July 1944, Project Y was reorganized to solve the implosion problem. That the implosion weapon was successfully developed was ultimately related to the diversity of problem-solving methods used at Los Alamos, from the dedicated use of at least 12 outlying technical areas for implosion testing, to the use of overlapping and iterative problem-solving methods exemplified by the simultaneous development of the RaLa, betatron, magnetic, electric pin, and X-ray diagnostic methods. "Throwing the book" at the problem of implosion involved using 100,000 pounds of high-explosives a month during peak wartime testing, producing thousands of detonators for field tests, and sparing no expense in the destructive, but data-rich, RaLa program. These combined engineering approaches came to fruition with the successful Trinity test on July 16, 1945.

TA-1, Main Technical Area



(LANL, IM-4 Photography)
TA-1 (1950)

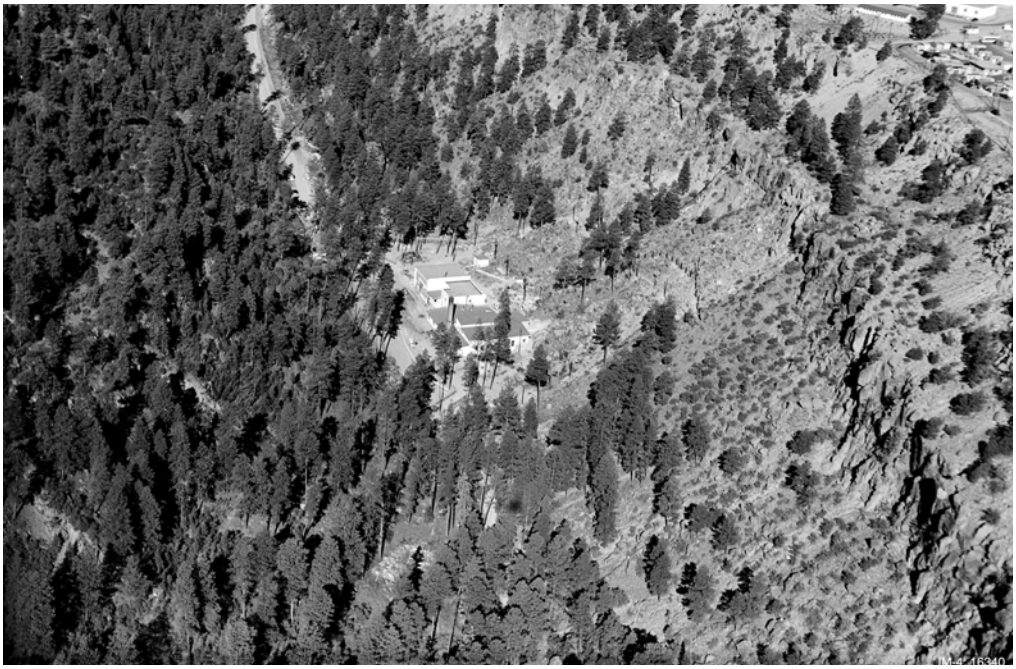
TA-1 was the original core area of the early Laboratory, and scientific work started at the Main Technical Area in early 1943. The laboratory area, although located near housing and administrative areas, was fenced-off from the main portion of the town of Los Alamos. The first laboratory buildings were located in the vicinity of Ashley Pond.

(LANL, IM-4 Photography)
TA-1, Ashley Pond and Early Technical Area Buildings

The initial plans for the early Laboratory, as laid out by Oppenheimer and others, included a scientific staff of about 100 employees along with a greater number of support staff made up of administrative, technical, and shop employees. The Theoretical Administration or "T" Building was the first building constructed in the Main Technical Area. The building contained offices, the technical library, a photographic library, a drafting room, and a classified document vault. Other important early technical buildings included "W" Building, built to house the Van de Graaff accelerator; "X" Building, built to house the cyclotron; "Y" Building, the High Pressure Gas Laboratory; and "Z" Building, a high voltage laboratory built to house the Cockcroft-Walton accelerator.

The Main Technical Area expanded its laboratory, shop, and plant facilities in response to the continued growth of Project Y, stimulated in part by the shift to large-scale operations in 1944. Important later construction included the completion of an annex to "D" Building (the plutonium laboratory), and the completion of the Sigma Building (the Metallurgy and Refractories Laboratories). [44]

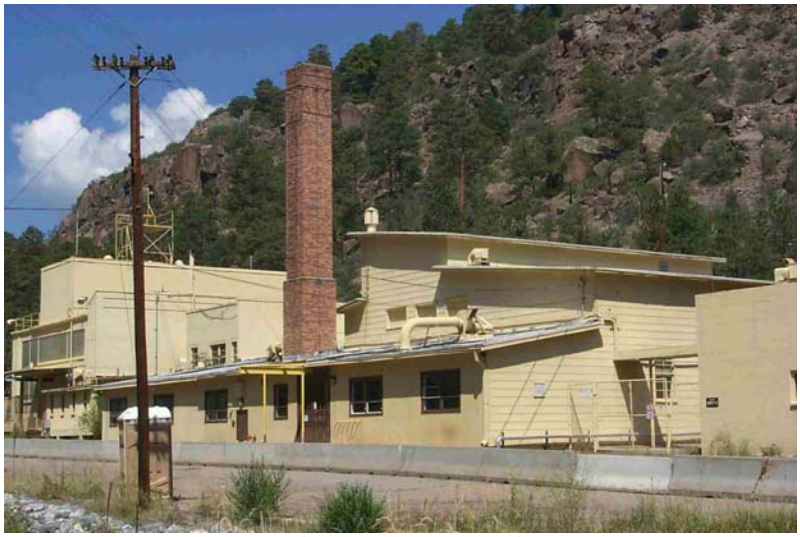
TA-2, Omega Site



(LANL, IM-4 Photography)
TA-2, Omega Site (1950)

The main reactor building at TA-2, completed in February 1944, was built to house the world's first enriched uranium reactor (the Water Boiler Reactor). On May 9, 1944, the Water Boiler produced its first "divergent chain reaction." An adjacent facility, built in 1946, housed one of the earliest plutonium-fuel reactors (the Clementine Reactor). The main reactor building housed the low-powered or "LOPO" Water Boiler Reactor, associated laboratories, and, later, critical assemblies. Perhaps the most important contribution of this early reactor was its role in providing a "general check of theory;" the Water Boiler could be used to investigate a chain-reacting system and to test basic theories of bomb design.[45]

The Water Boiler Reactor Building, TA-2



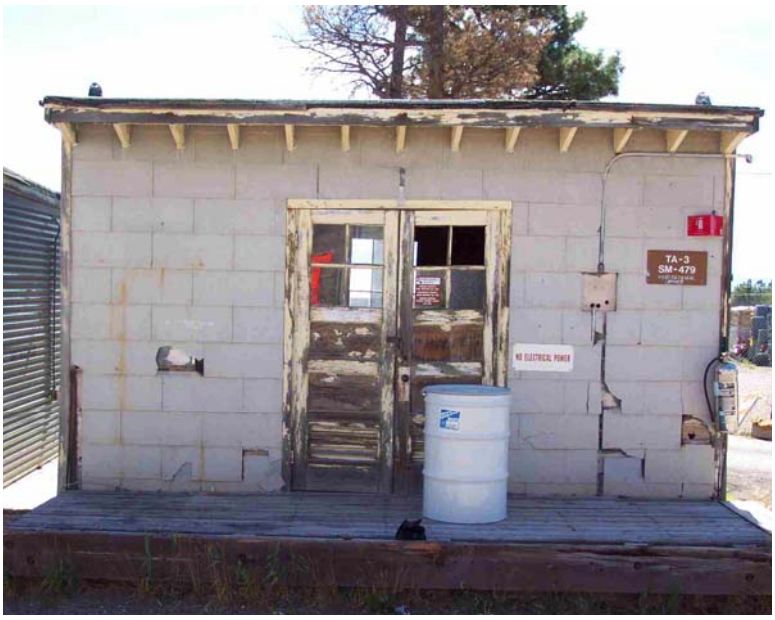
(LANL, RRES-ECO)

TA-2, situated in the bottom of Los Alamos Canyon, was isolated from other laboratory and housing areas for safety reasons. Safety concerns centered on the risk to unprotected people from the possibility of radioactive dispersion into the atmosphere—accident scenarios ranged from a mild explosion to an uncontrolled chain reaction.

The LOPO reactor was redesigned in mid-1944 and rebuilt for higher power operation (the HYPO reactor). At this time, the Critical Assemblies Group joined the Water Boiler Group at Omega Site, and experiments with critical amounts of active materials were conducted at the TA-2 facility. These experiments explored the design of the implosion device's "pit assembly."[46] Preliminary investigations also led to the development of safe handling and fabricating procedures so that uncontrolled nuclear chain reactions could be prevented. An important experiment conducted at TA-2 was known as "tickling the dragon's tail;" "the dragon" experiment created a controlled supercritical reaction using prompt neutrons alone.[47] Critical assembly research continued at TA-2 until August 21, 1945, when staff member Harry Daghlian accidentally received a lethal radiation dose from a brief supercritical arrangement of his critical assembly experiment. As a result of this accident, critical assembly work was transferred to Pajarito Site (TA-18).[48]

In 1946, a new reactor was built at Omega Site in a permanent building immediately adjacent to the wooden Water Boiler building. This reactor, known as "Clementine," was a fast plutonium reactor that used mercury as a coolant.[49]

TA-3, South Mesa (SM) Site

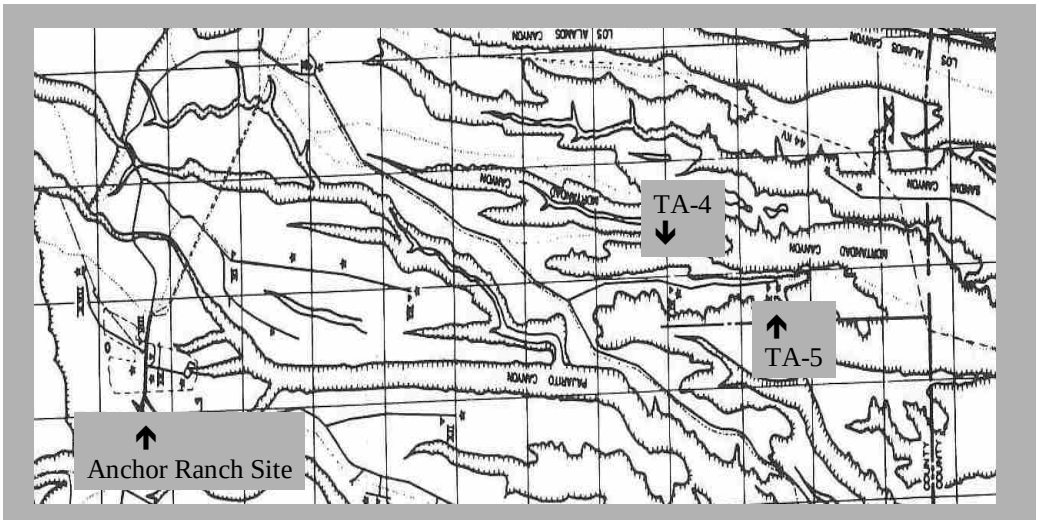


(LANL, RRES-ECO)
Manhattan Project Era Building, TA-3

The original TA-3 was a small testing area located at the present-day site of LANL's main administrative offices. Facilities associated with the technical area included temporary wood-frame structures, a few storage magazines and test chambers, standard prefabricated hutments, and a high explosives burn pad.[50] Beginning in 1943, TA-3 was used for the assembly and testing of detonators. The goal for these experiments was to produce better timing results using electric detonating devices. Standard detonator work was transferred to TA-6 (Two Mile Mesa Site) in April 1946, although experimental detonator loading and testing continued at TA-3 for several years. Most of the early structures and buildings associated with the Manhattan Project use of South Mesa were removed in 1949.[51] The first permanent post-war buildings at TA-3 were constructed in the late 1940s and early 1950s.

TA-4, Alpha Site

TA-4 was a small firing site where the magnetic method was used to study implosions in spheres. Facilities located at the site included a control building, an assembly building, explosives magazines, and a main explosives firing pit. This technical area was abandoned in the late 1940s, and, in 1983, the remaining facilities were removed by LANL.[52]



TA-4 and TA-5

TA-5, Beta Site

TA-5 was another small firing site (located on the same mesa area as TA-4). Like TA-4, this technical area was also used to study implosions; however, the experiments were conducted using the electric method of observation. The technical area facilities included firing pits, a control building, a trimming building, and several explosives magazines.[53]

TA-6, Two Mile Mesa Site (TM)

(LANL, IM-4 Photography)
TA-6 (1950)

TA-6 was used to conduct research on detonators and for engineering tests of high explosives assemblies. The Two Mile Mesa Site was also used to develop methods for recovering active material (plutonium) in the event that the field-test of the implosion device failed. One of the most visible legacies of the testing at TA-6 is the large 200-ft-diameter concrete bowl recovery experiment. A complex of five wooden laboratory buildings and three smaller concrete buildings is also located at TA-6. The concrete buildings were originally used for indoor detonator testing.[54]

(LANL, RRES-ECO)
The Concrete Bowl, TA-6 **Early Laboratory Building, TA-6**

Standard detonator loading was moved to TA-6 in 1946. The importance of using electric detonators for multipoint detonation was apparent early in the development of the implosion device. The simultaneous firing of the detonators and the development of precision timing

systems were major technical problems to work out. Commercially available detonators were not adequate and many tests were conducted to develop models that would produce a small maximum time spread and the fewest failures. Two types of detonators were studied, the bridge wire and the spark gap, and tests were conducted using oscillographic methods and photographic observation. By the spring of 1945, thousands of detonators had been prepared for use in implosion field tests at the other Los Alamos testing areas.[55]

TA-7, Gomez Ranch Site or Two Mile Mesa (lower) Site

Not much is known about the wartime activities conducted at a small storage and firing site identified as TA-7. This site is also referred to as Two Mile Mesa (lower) Site, and it is likely that high explosives and detonator firing tests conducted at TA-7 were similar to the firing tests conducted at TA-6 (Two Mile Mesa Site). The remains of a doghouse-sized hutment and several firing pits are located at this technical area; wooden hutments were used at TA-7 to cover partially assembled weapons.[56]

(LANL, RRES-ECO)

(LANL, RRES-ECO)

**TA-7 Firing Pit (right)
and Hutment remains (above)**

TA-8, Anchor Ranch Site West (AW) - G. S. (Gun Site)

(LANL, IM-4 Photography)
TA-8 (1950)

TA-8, historically known as Anchor West Site, was used during World War II to conduct gun tests in support of the gun device. The buildings at TA-8 included standard proving ground facilities that were designed with a central control area for explosives operations. Three concrete "bombproof" buildings were built into a ravine and were designed to be partially underground. Placing the buildings lower in the ravine allowed for gun emplacements to be positioned above the roof level of the control building. This unique proving ground layout lessened the hazards associated with using high-alloy tubes and with firing the tubes in free recoil.

TA-8, Anchor Ranch,
"Bombproof" Building

(LANL, RRES-ECO)

The Anchor Ranch Proving Ground was completed and in active use by mid-September 1943. Special test guns were ordered from the Naval Gun Factory at the end of 1943 but were not ready until March 1944. During the 4-month waiting period, personnel at TA-8 conducted practice tests, perfected gun testing operations, and established high-speed photographic techniques for documenting the test data.[57] In May 1944, the first industrial-type radiograph was made at Anchor West Site using a medical X-ray unit. This early radiographic work was carried out in one of the log guesthouses that were originally part of the pre-war Anchor Ranch. In August 1944, these operations were moved to T Site, another early technical area (see TA-16 below). Beginning in the fall of 1945, TA-8 was used by Laboratory explosives personnel for high explosives research and development.[58]

TA-9, Anchor Ranch Site East (AE) - H. E. (High Explosives)

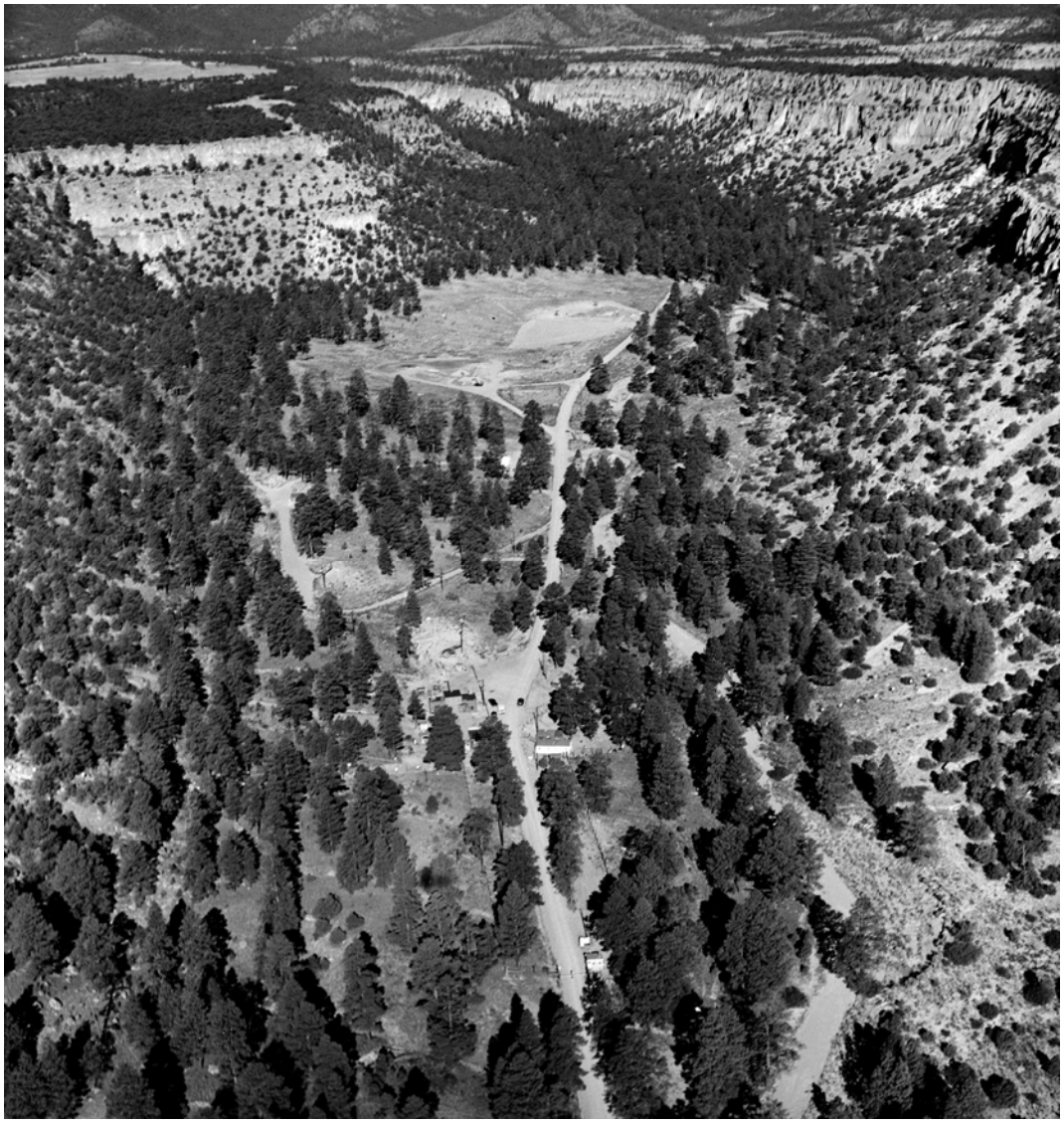
(LANL, IM-4 Photography)
TA-9

Some of the buildings at Anchor Ranch Site East were used to cast the high explosives used in the earliest implosion studies. A small casting room was in operation at the Anchor Ranch Site by October 1943. This facility produced very small castings of Pentolite. In early 1945, the TA-9 casting operations were replaced by the large-scale casting operations taking place at the newly completed S Site high explosives facilities.[59] Photographic studies of sphere implosions were also conducted at TA-9 using a flash X-ray source. This technical area was removed by the Laboratory in the 1960s.[60]

TA-10, Bayo Canyon Site

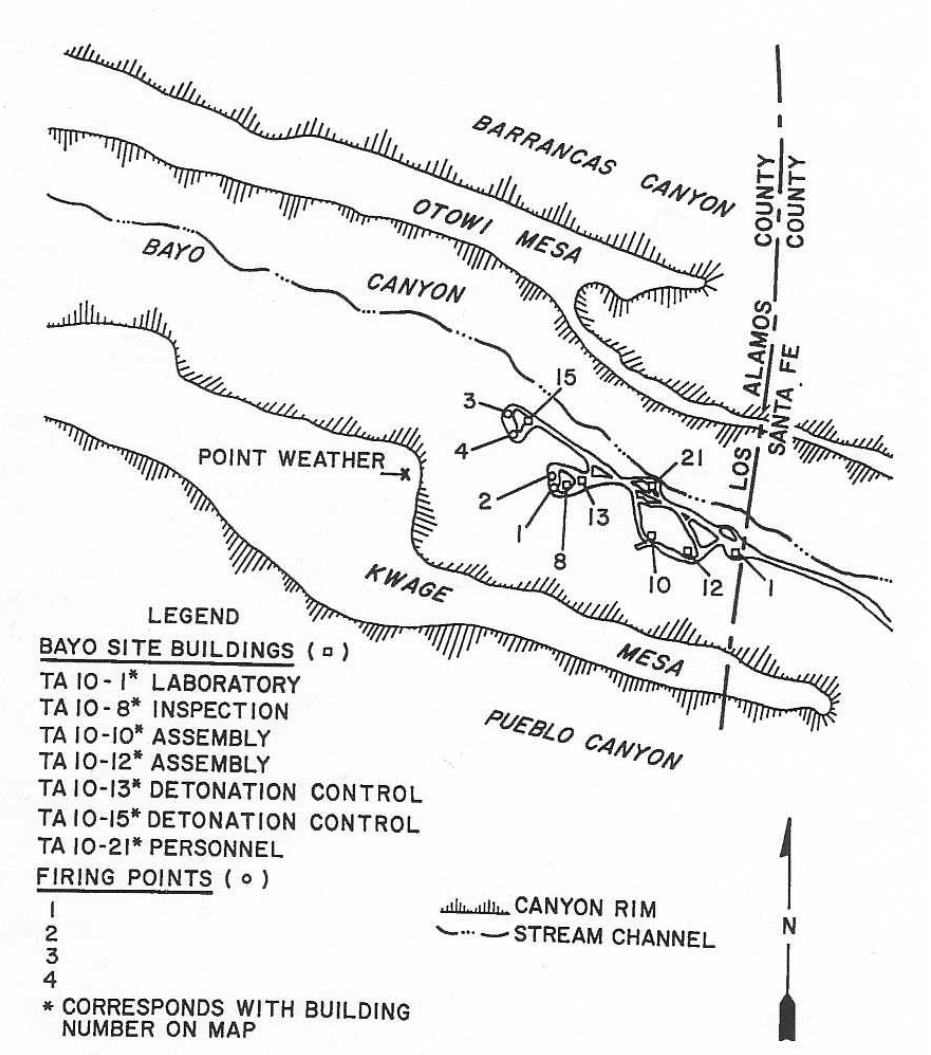
The RaLa firing program located at TA-10 studied implosions using radiation from a radiolanthanum (RaLa) source. Testing started in remote Bayo Canyon in October 1944—the first RaLa trials were observed from sealed army tanks. These precautions were taken because of the lack of knowledge related to the extent and seriousness of the potential radioactive contamination that could result from the RaLa implosion tests. The contamination risks were not

as great as originally feared, and permanent facilities, including the RaLa Chemistry Building, were constructed at TA-10 by November 1944. Laboratory and support buildings in Bayo Canyon included assembly and inspection buildings, a personnel building, control buildings, and firing pads. Radiobarium from the Oak Ridge pile was used as the source of radioactivity for the test shots and prepared in the radiochemistry building at TA-10. During a typical experiment, the source would be inserted into a metal (usually Cadmium) shell and remotely detonated from one of the control buildings.



(LANL, IM-4 Photography)
TA-10 (1950)

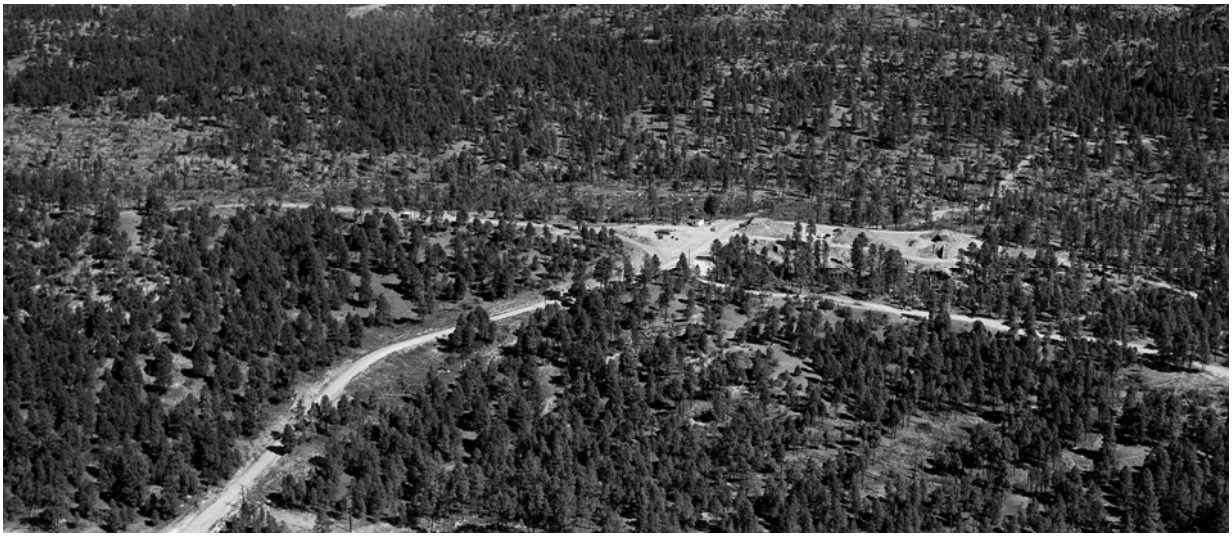
TA-10 in Bayo Canyon



(from Ferenbaugh *et al*. 1982)

Electric detonators were used in the RaLa tests by February 1945 and the test results showed an immediate improvement. RaLa was the one experiment that most affected the final design of the implosion weapon. In fact, the first high-quality, high explosives lenses produced were allocated to the RaLa program in April 1945 so that the final design could be determined as soon as possible. RaLa ionization chambers were destroyed and the associated electronics were rendered unusable after each shot. The success of this program stemmed from Los Alamos's ability to conduct repeated shots regardless of the cost to construct and test the equipment. Several buildings at TA-10 were removed by the Laboratory in 1960. The rest of the technical area was either demolished or burned in 1963, and associated surface debris, utilities, and contaminated waste pits were removed.[61]

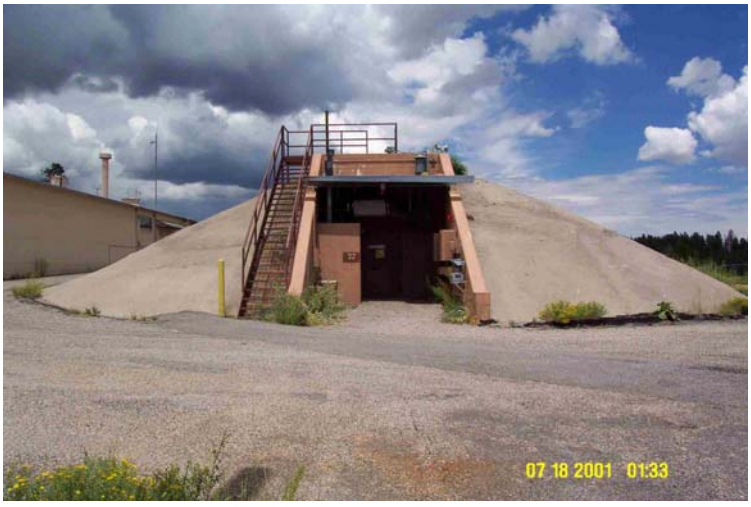
TA-11, K Site



(LANL, IM-4 Photography)
TA-11 (1950)

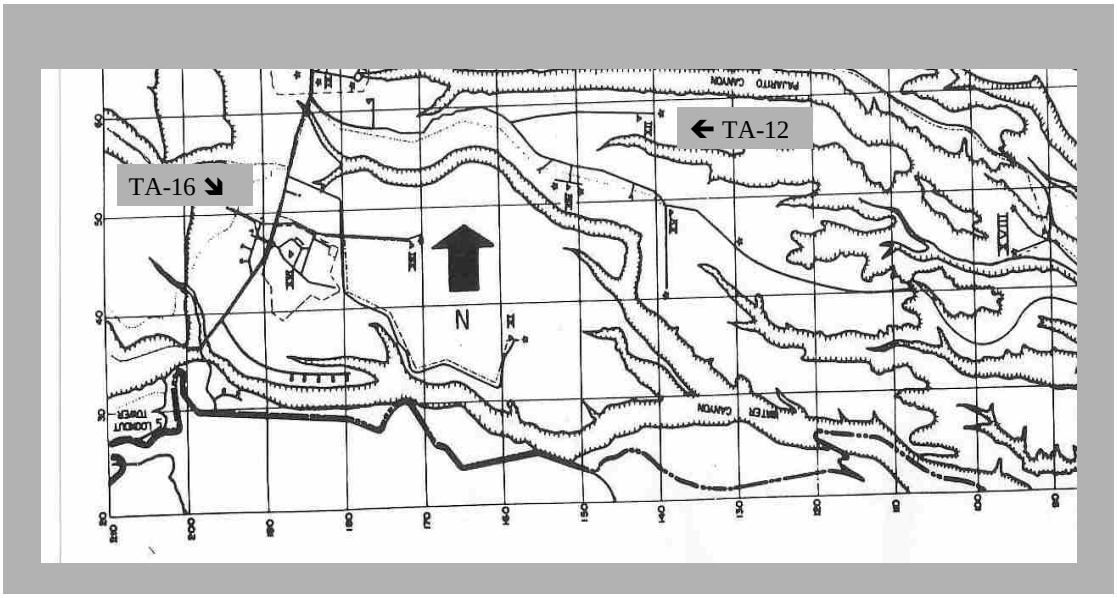
In early 1945, the betatron diagnostic method was used at TA-11 to collect data on the implosion of spheres. A 15-MeV betatron machine (gamma ray source) was used in conjunction with a cloud chamber and flash photography. The diagnostic procedure involved the detonation of a test implosion between two of the buildings, one housing the betatron equipment and the other housing the cloud chamber and associated recording equipment. A control building was also in use at K Site during the Manhattan Project years.[62] Other historical operations at TA-11 included photofission experiments and mortar and air gun firing activities. In the 1950s, mortars and air guns were used to conduct acceleration and impact tests using explosive systems contained in impact-resistant projectiles.[63]

TA-11, Cloud Chamber



(LANL, RRES-ECO)

TA-12, L Site



TA-12

The Terminal Observation Group (X-1B) used TA-12 as an explosives firing site. Site facilities included a hexagonal firing pit, a personnel shelter, a storage building, and two magazines. The firing pit was also used for recovery experiments. The site was abandoned in 1953, and, in 1960, most of the remaining structures were destroyed by the Laboratory.[64]

TA-13, P Site

(LANL, IM-4 Photography)
TA-13 (1950)

Flash X-ray studies of implosions were carried out at TA-13, using both the photographic and counter methods of observation. Flash X-ray was also used to study detonation waves related to the new lens designs. Key developments at P Site included devising protection for the X-ray equipment used near exploding charges and solving problems using the magnetic method combined with the X-ray method. Implosion research at this site also supported the later combining of the betatron (TA-11) and magnetic diagnostic methods. TA-13 was in operation by August 1944, and combined X-ray and magnetic records were obtained by late January 1945. Later in 1945, X-ray studies at TA-13 supported experimental work on initiators. Recovery experiments and an alpha-counting experiment were also carried out at this technical area.

(LANL RRES-ECO)
TA-13

P Site was incorporated into TA-16 (S Site) sometime in the late 1940s or early 1950s. Three of the buildings associated with X-ray and later post-war high explosives research are still located at the former P Site area—a bermed control bunker, a concrete magazine, and a wooden building with an associated concrete bunker.[65]

TA-14, Q Site

(LANL, IM-4 Photography)
TA-14 (1950)

TA-14 was used to observe small-scale implosions. Cylinder implosions were studied using a rotating prism camera. The terminal observation method was also used at this technical area. Q Site facilities included a control building, high explosives magazines, firing chambers, and a shop and darkroom building.[66]

(LANL, RRES-ECO)
TA-14

TA-15, R Site

(LANL, IM-4 Photography)
TA-15 (1950)

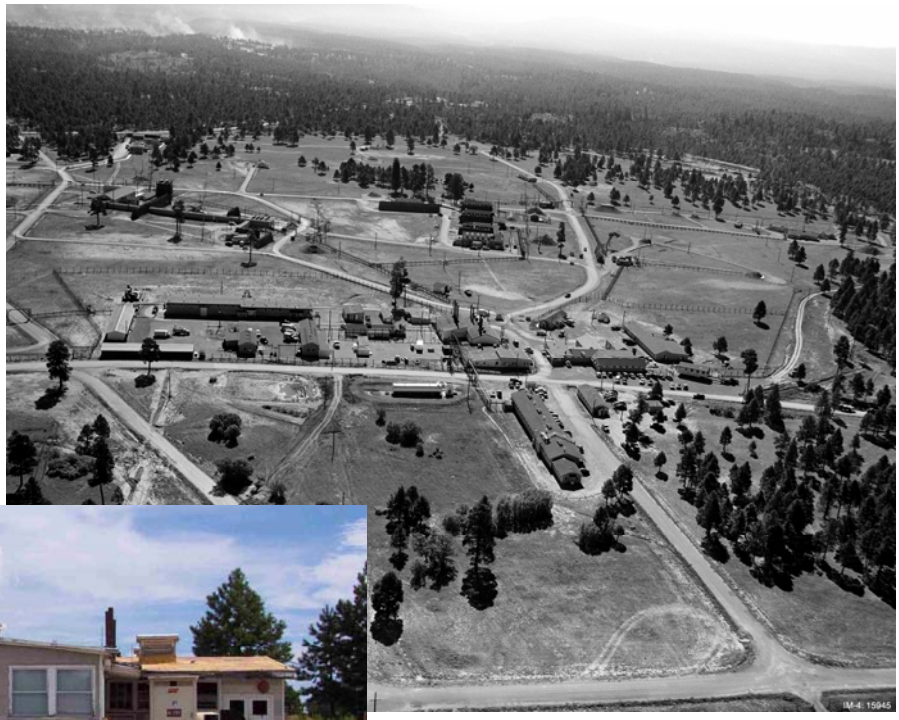
The flash photography method was used at TA-15 to study the implosion of cylinders. The TA-15 facilities included firing pits and control, firing, and observation buildings. Many of these early implosion-testing structures have been removed.[67]

TA-16, Sawmill Site (S Site)

The high explosives components of the implosion design were developed, manufactured, and tested at TA-16 during World War II. Early activities at TA-16 supported the development of the first implosion-type atomic bombs: the "Trinity" device and the Nagasaki bomb ("Fat Man"). TA-16 was the principal site that manufactured high explosives castings and lenses to produce a spherical means of detonating an explosive charge—the lens served to bend the explosion wave as it went through the explosive. A symmetrical implosion was the key component in the critical assembly of the plutonium contained in the Trinity device and the "Fat Man" bomb.

The need for a large casting plant and widely separated test sites was apparent during the winter of 1943. The early S Site facilities included an office building, a steam plant, a casting house, storage magazines, and high explosives preparation buildings. Due to construction delays and difficulty procuring equipment, TA-16 operated only on a limited basis by May 1944 and did not begin steady operation until August of the same year.

Early S Site



(LANL, IM-4 Photography)

One of the remaining S Site buildings

(LANL, RRES-ECO)

Project Y at Los Alamos underwent a massive reorganization in July 1944 after the discontinuation of the plutonium gun bomb design. As a result of this reorganization, implosion work was given a top priority and the development of high explosives at S Site became one of the most important wartime tasks. A major problem facing the scientists working with high explosives was that there were no existing methods for high explosives casting; the military's standards for explosives performance were well below what was needed to develop a symmetrical implosion. The technical problems were eventually overcome, and the S Site facilities produced about 20,000 usable castings over an 18-month period—over 100,000 pounds of high explosives were used per month during S Site's peak operation. Several types of explosive materials were used in the casting process: Composition B, Torpex, Pentolite, Baronal, and Baratol.[68]

TA-16 includes the locations of former Technical Areas 13, 24, and 25. TA-13 (P Site) was constructed in 1944 to conduct flash X-ray studies of the implosion of high explosives test devices. It consisted of an office and shop building, laboratory and test buildings, an experimental chamber, a magazine, and a storage building. By the 1950s, most of the buildings had been removed. The remaining buildings were absorbed into the TA-16 complex, and were renumbered TA-16-476, TA-16-477, and TA-16-478. These buildings were later used for high explosives machining studies. TA-24 (T Site) has been decommissioned. It was used for x-ray examination of high explosives charges during the 1940s. Explosives storage magazines and laboratories were part of the facility. TA-25 (V Site) was constructed in 1944 for experimental work in connection with special assemblies. In 1945, the site was altered and became part of TA-16 to allow process work on explosive charges. Structures at the site included an assembly bay, laboratory buildings, an equipment building, and a warehouse. A trial assembly of the Trinity device was conducted at TA-25 in 1945.[69]

TA-17 (X Site)
Never completed.

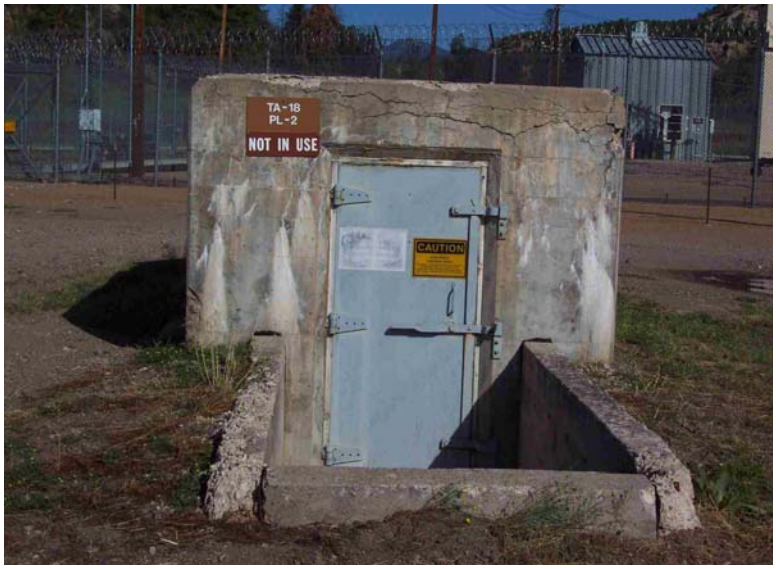
TA-18, Pajarito Laboratory (PL)

(LANL, IM-4 Photography)
TA-18 (circa 1950)

The TA-18 area was the location of several different projects during the Manhattan Project years at Los Alamos. The Radioactivity Group first used Pajarito Canyon in mid-1943. This remote site was selected because of the need to work away from the high-radiation background levels being produced at the Main Technical Area. TA-18 also contained usable buildings associated with Ashley Pond's failed dude ranch, the Pajarito Club (abandoned in 1916). The Radioactivity Group used ionization chambers and amplifiers to study samples of plutonium and to determine counting rates from spontaneous fission. The work at TA-18 by Segrè and others led to the abandonment of the plutonium gun bomb design in July 1944.

(Photo Courtesy of the Los Alamos Historical Society)
Pajarito Club

Later in 1944, Pajarito Canyon was selected as a proving ground for the magnetic method of studying implosions. TA-18's "Battleship Buildings" (earth-covered bunkers) were used to conduct the implosion tests. Full-scale tests of high explosives assemblies were also conducted at this technical area. This field-testing work was abandoned before the end of 1945.

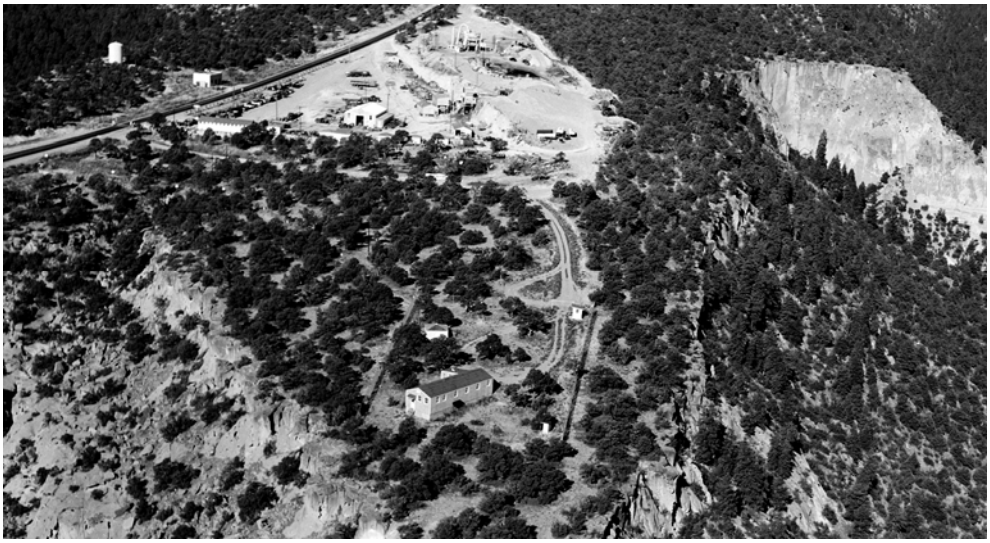


TA-18, Battleship Building

(LANL, RRES-ECO)

Pajarito Laboratory became Los Alamos's main site for critical assembly work in April 1946. The decision to conduct critical assembly work at TA-18 was directly related to Harry Daghlian's death from radiation exposure at Omega Site in 1945. At Pajarito Site, critical assemblies were still operated by hand until Louis Slotin's death in May 1946; like Daghlian, Slotin received a lethal radiation exposure from a critical assembly experiment. After this second fatality, all critical assembly operations were halted until special remote operation facilities were constructed at TA-18.[70]

TA-19, East Gate Laboratory



TA-19 (1950)
(LANL, IM-4 Photography)

TA-19 was specifically established by the Radioactivity Group to study spontaneous fission measurements. This same group had used the abandoned Pajarito Club buildings in Pajarito Canyon to study the properties of plutonium. The laboratory building, hutment, and Military Police post associated with this technical area were removed after 1962.[71]

TA-20, Sandia Canyon Site

TA-20 was primarily used as a proving ground for initiators. Nuclear weapons rely on devices, known as "initiators," to supply a source of neutrons that will quickly enhance the chain reaction at exactly the right moment. During the Manhattan Project at Los Alamos, polonium, a powerful source of alpha particles, was used in conjunction with beryllium in the first initiators.[72] The Initiator Group working at the Sandia Canyon Site focused exclusively on the development of this bomb component. This attention to one task made the work at TA-20 different from the work conducted at the other field-testing areas using a diversity of approaches. TA-20 was abandoned around 1947.[73]

TA-21, DP Site

(LANL, IM-4 Photography)

DP West (1950) **DP East (1950)**

TA-21 was the center of chemical and metallurgical production at Los Alamos for many years. Research and development activities conducted at this technical area included plutonium and uranium processing at DP West and polonium processing at DP East. The importance of this technical area comes from its contributions to weapons-related research and development after the end of World War II—the first plutonium facilities at DP Site were not occupied until the summer of 1945. Fissile material used in the Trinity device and in the "Little Boy" and "Fat Man" bombs was not processed at DP Site; rather, the final processing of the uranium and plutonium used in the wartime devices was completed in buildings located at the Main Technical Area.[74]

(LANL, IM-4 Photography)
Early TA-21 (DP Site)

TA-22, Trap Door Site (TD Site)

(LANL, IM-4 Photography)
TA-22 (1950)

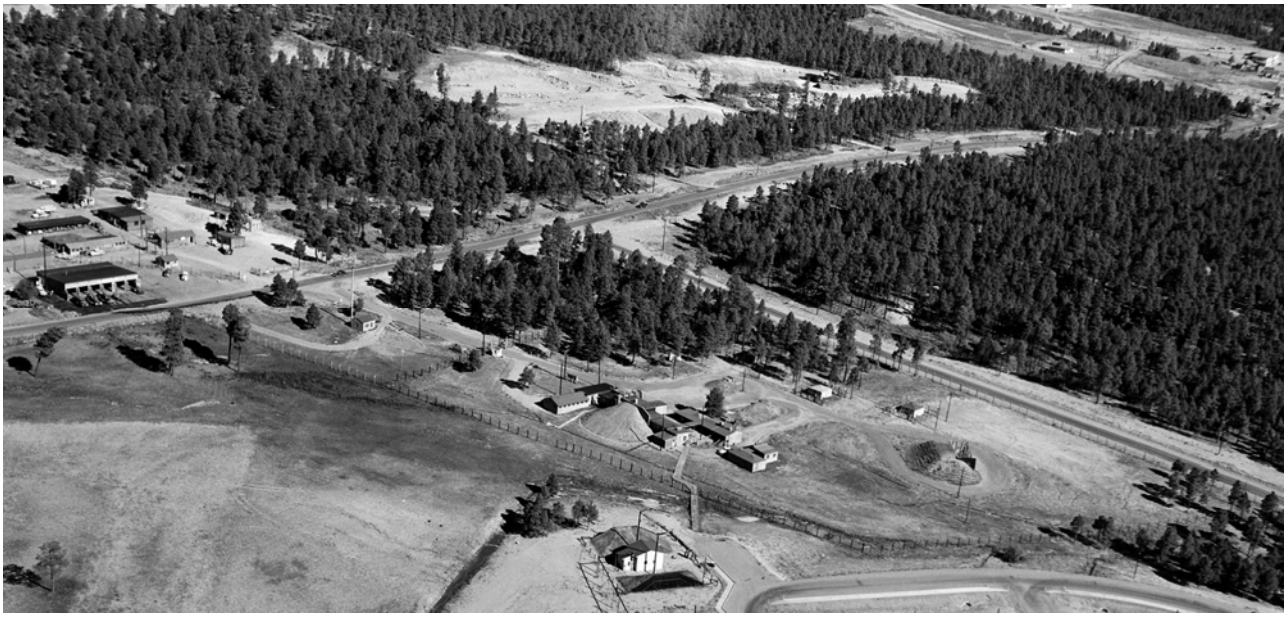
TA-22 was primarily used for detonator research and development. Some test assembly work was also conducted at this technical area, and the high explosives components of the "Fat Man" bomb were assembled in a large Quonset hut.[75]

(LANL, RRES-ECO)
Quonset Hut at TA-22

TA-23, NU Site

TA-23 was used for implosion studies. Observations of cylinder collapse were made using a rotating prism camera. Terminal observations of implosions were conducted in a pit facility at TA-23. Facilities at this small technical area included a concrete camera building, a trimming building, and two magazines. The site was torn down sometime in the late 1940s or early 1950s. It was located on the eastern side of present-day TA-9.[76]

TA-24, T Site



(LANL, IM-4 Photography)
TA-24 (1950)

Facilities at TA-24 were used to perform X-ray inspections of finished explosive castings. Inspection techniques used at TA-24 included radiography and electron microscopy. The laboratory building, explosives magazines, and associated support buildings were removed in the 1960s.[77]

TA-25, V Site

Mockups of both the implosion and gun "gadgets" were tested at TA-25. This technical area, now part of TA-16 (S Site) was used to conduct handling (shake) tests and to investigate the possibility that heating equipment might be needed in the bomb bays of the B-29s used to drop first atom bombs. In addition to the mockup testing, V Site was used to assemble the high explosives components of the Trinity device.[78]

(LANL, IM-4 Photography)
V Site and Implosion Gadget

(LANL, RRES-ECO)
V Site Buildings (TA-25)

TA-26, D Site

(LANL, IM-4 Photography)
TA-26 (1950)

TA-26 was located along the main road to Los Alamos, east of the airport area. Facilities included a concrete vault and several standard guard towers. The site has been removed.[79]

TA-27, Gamma Site

TA-27 was used for testing complete weapon assemblies against bullet impact. The facilities at this technical area included three firing points and a control building. Gamma Site was located just east of Pajarito Canyon Site (TA-18) in the bottom of Pajarito Canyon. Any remaining structures were removed by the Laboratory in 1966.[80]

TA-28, Magazine Area "A"

TA-28 is an ordnance storage area with five small magazine buildings.[81]

TA-29, Magazine Area "B"

TA-29 was abandoned in 1957. The technical area facilities included two magazine buildings and associated earth barricades.[82]

TA-30, Electronics Test Area

The exact use of this site is unknown although it is identified as an electronics testing area. The only Laboratory facility documented at this site was a 16 ft by 16 ft frame building. The building was demolished in 1946 when TA-30 was formally removed.[83]

TA-31, East Receiving Yard

TA-31 was originally set up as a receiving yard for security reasons. Navajo Freight Line trucks were unloaded at TA-31 so that they would not have to enter the Main Technical Area. TA-31's facilities consisted of a receiving dock on pilings, six warehouses, and a drum storage area. Now part of the Los Alamos "Eastern Area" housing, the yard was located between the intersection of Canyon and East Roads, to the west, and the Airport Road turnoff, to the east.[84]

TA-32, Medical Research Laboratory

Figure 50. TA-32 (1950)
(LANL, IM-4 Photography)

TA-32 was the site of the predecessor facilities to TA-43, the present Health Research Laboratory. TA-32 was located in downtown Los Alamos near the Los Alamos County warehouses south of Trinity Drive and west of DP Road. The facilities included three laboratories, an office building, and two other buildings. Research conducted at TA-32 focused on the biological effects of both external irradiation and the inhalation and ingestion of radionuclides.

TA-44, Los Angeles Shop

The Los Angeles Shop was located in Los Angeles, California, on the corner of Barranca Street and North Avenue. TA-44 was an experimental machine shop that provided custom-made,

small- or medium-sized ferrous and nonferrous parts. The materials used were nonclassified and nonhazardous. The original shop building was abandoned in 1958 and was later occupied by a ladder-making company.[85]

TA-47, Bruns Railhead (BR Site)

TA-47 was the receiving point for material shipped to Los Alamos during World War II. The railhead was situated near the present-day Greer Garson Theatre on the campus of the College of Santa Fe in Santa Fe, New Mexico, and was abandoned by the Laboratory in 1959. Several wooden buildings are still located in the area of the railhead. These buildings may be associated with the former Bruns Hospital, located at the same site.[86]

Section 3—Property Summaries and Eligibility Recommendations

All 51 remaining Manhattan Project properties were visited and evaluated for National Register of Historic Places eligibility (see Appendix A for maps and specific property information).

Eligible: 44
The 44 Register-eligible properties were assessed in terms of their potential for preservation and public interpretation, with the most historically significant properties being identified for permanent retention. Those eligible properties not slated for preservation will be evaluated on a case-by-case basis in the event they are scheduled for decontamination and decommissioning. Eleven of the properties had previously been declared eligible for the Register in earlier correspondence with the State Historic Preservation Officer; one had been reviewed but no determination had been made.

Not Eligible: 7
Two of the buildings had been previously declared eligible for the Register: TA-16-16 and TA-21-14. However, based upon the results of the multiple property evaluation, these buildings clearly do not retain the same level of integrity or significance as their historical counterparts and should not be considered eligible for the Register.

TA-BLDG	BLDG NAME	Date Built	Current NRHP Eligibility Status	Associated Theme/ Subtheme	Eligibility Recommendation	Proposed Management Action
3-478	**Storage Shed**	1945	Not Reviewed	?	Not Eligible (portable support bldg.)	N/A
3-479	**Storage Shed**	1946	Not Reviewed	?	Not Eligible (portable support bldg.)	N/A
6-1	**Laboratory & Office Bldg**	1944?	Not Reviewed	Detonators	Eligible, A	None at present
6-2	**Compressor Bldg**	1944?	Not Reviewed	Detonators	Eligible, A	None at present
6-3	**Fabrication Bldg**	1944?	Not Reviewed	Detonators	Eligible, A	None at present
6-5	**Laboratory Bldg**	1945?	Not Reviewed	Detonators	Eligible, A	None at present
6-6	**Laboratory & Office Bldg**	1945?	Not Reviewed	Detonators	Eligible, A	None at present
6-7	**Laboratory Bldg**	1945?	Not Reviewed	Detonators	Eligible, A&C	None at present
6-8	**Laboratory Bldg**	1945?	Not Reviewed	Detonators	Eligible, A&C	None at present
6-9	**Firing Chamber**	1945?	Not Reviewed	Detonators	Eligible, A&C	None at present

TA-BLDG	BLDG NAME	Date Built	Current NRHP Eligibility Status	Associated Theme/ Subtheme	Eligibility Recommendation	Proposed Management Action
6-37 (LA 25284)	**Concrete Bowl/Experimental Area**	1944	Eligible	Implosion (Pu Recovery/ Atomic Bomb)	Eligible, A&C	Retain
TA-6 (LA 131234 C)	**Bomb Cover**	WWII era	Eligible	Stockpile	Eligible, A	Retain
TA-7 (LA 131235 A, B, and C)	**Firing Sites**	WWII era	Un-determined (SHPO)	High Explosives and Detonators	Eligible, A	None at present
8-1	**Laboratory & Shop**	1943	Not Reviewed	Gun Device (Atomic Bomb)	Eligible, A&C	Retain
8-2	**Shop & Storage Bldg**	1943	Not Reviewed	Gun Device (Atomic Bomb)	Eligible, A&C	Retain
8-3	**Laboratory**	1943	Not Reviewed	Gun Device (Atomic Bomb)	Eligible, A&C	Retain
11-1	**Control Laboratory**	1944	Not Reviewed	Implosion (Atomic Bomb)	Eligible, A	None at present
11-2	**Betatron Bldg**	1944	Not Reviewed	Implosion (Atomic Bomb)	Eligible, A&C	None at present
11-3	**Cloud Chamber Bldg**	1944	Not Reviewed	Implosion (Atomic Bomb)	Eligible, A&C	None at present
11-4	**Shop/Implosion Imaging**	1944	Not Reviewed	Implosion (Atomic Bomb)	Eligible, A	None at present
12-4	**Firing Pit**	1945	Not Reviewed	Implosion/ Recovery (Atomic Bomb)	Eligible, A	None at present
14-6	**Shop and Dark Room**	1944	Not Reviewed	Implosion (Atomic Bomb)	Eligible, A	None at present

TA-BLDG	BLDG NAME	Date Built	Current NRHP Eligibility Status	Associated Theme	Eligibility Recommendation	Proposed Management Action
15-23	**Laboratory and Control Bldg**	1945	Eligible	Initiator Research and Explosives Testing	Eligible, A	None at present
16-7	**Steam Plant/Machine Shop**	1944	Not Reviewed	High Explosives	Not Eligible (extensive remodeling)	N/A
16-16	**Cafeteria (now Office)**	1945	Eligible	High Explosives – Admin. Support	Not Eligible (extensive remodeling)	N/A
16-54	**Grinding Bldg**	1946	Eligible	High Explosives	Eligible, A	None at present
16-58	**Magazine**	1944	Not Reviewed	High Explosives	Eligible, A	None at present
16-476 (former 13-2)	**Laboratory/Test Bldg**	1944	Not Reviewed	Implosion (Atomic Bomb)	Eligible, A&C	None at present
16-477 (former 13-3)	**Laboratory/Test Bldg**	1944	Not Reviewed	Implosion (Atomic Bomb)	Eligible, A&C	None at present
16-478 (former 13-4)	**Laboratory and Machine Test Bldg**	1944	Not Reviewed	Implosion (Atomic Bomb)	Eligible, A&C	None at present
16-516	**Process/Inspection Bldg**	1944	Eligible	High Explosives Assembly (Trinity, Gun, and Implosion Devices)	Eligible, A	Retain
16-517	**Process/Inspection/Equipment Bldg**	1944	Eligible	High Explosives (Trinity, Gun, and Implosion Devices)	Eligible, A	Retain
18-1	**Laboratory/Staging Area ("Slotin Bldg")**	1946	Not Reviewed	Implosion and Critical Assembly and BioMed/ Health Physics	Eligible, A	Retain

TA-BLDG	BLDG NAME	Date Built	Current NRHP Eligibility Status	Associated Theme	Eligibility Recommendation	Proposed Management Action
18-2	**Control Bldg ("Battleship Bldg")**	1944	Not Reviewed	Implosion (Atomic Bomb)	Eligible, A&C	None at present
18-5	**Control Bldg ("Battleship Bldg")**	1944	Not Reviewed	Implosion (Atomic Bomb)	Eligible, A	None at present
18-29	**Pond Cabin**	1914	Eligible (State Register)	Early Los Alamos (pre-Lab), and Pu and Implosion, R&D	Eligible, A (greatest significance relates to Early Los Alamos)	Retain
21-1	**Office/Vault Bldg**	1945	Not Eligible	Pu Production (Early Stockpile)	Not Eligible (extensive remodeling)	N/A
21-2	**Laboratory Bldg**	1945	Eligible	Pu Production (Early Stockpile), BioMed/ Health Physics	Eligible, A	None at present
21-5	**Laboratory Bldg**	1945	Eligible	Pu Production (Early Stockpile)	Eligible, A	None at present
21-14	**Diesel Power Plant**	1946	Eligible	Pu Production (Support Bldg.)	Not Eligible (not significant, poor integrity)	N/A
21-21	**Storage Vault**	1946	Eligible	Pu Production (Early Stockpile)	Eligible, A	None at present
21-42	**Pump House**	1945	Not Eligible	Pu/Initiator (Support Bldg.)	Not Eligible (not significant)	None at present
21-152	**Laboratory Bldg**	1945	Eligible	Initiators/ Nuclear Propulsion/ Tritium	Eligible, A	None at present
21-166	**Equipment Bldg**	1945	Eligible	Initiators/ Nuclear Propulsion/ Tritium	Eligible, A (attached to 21-152)	None at present

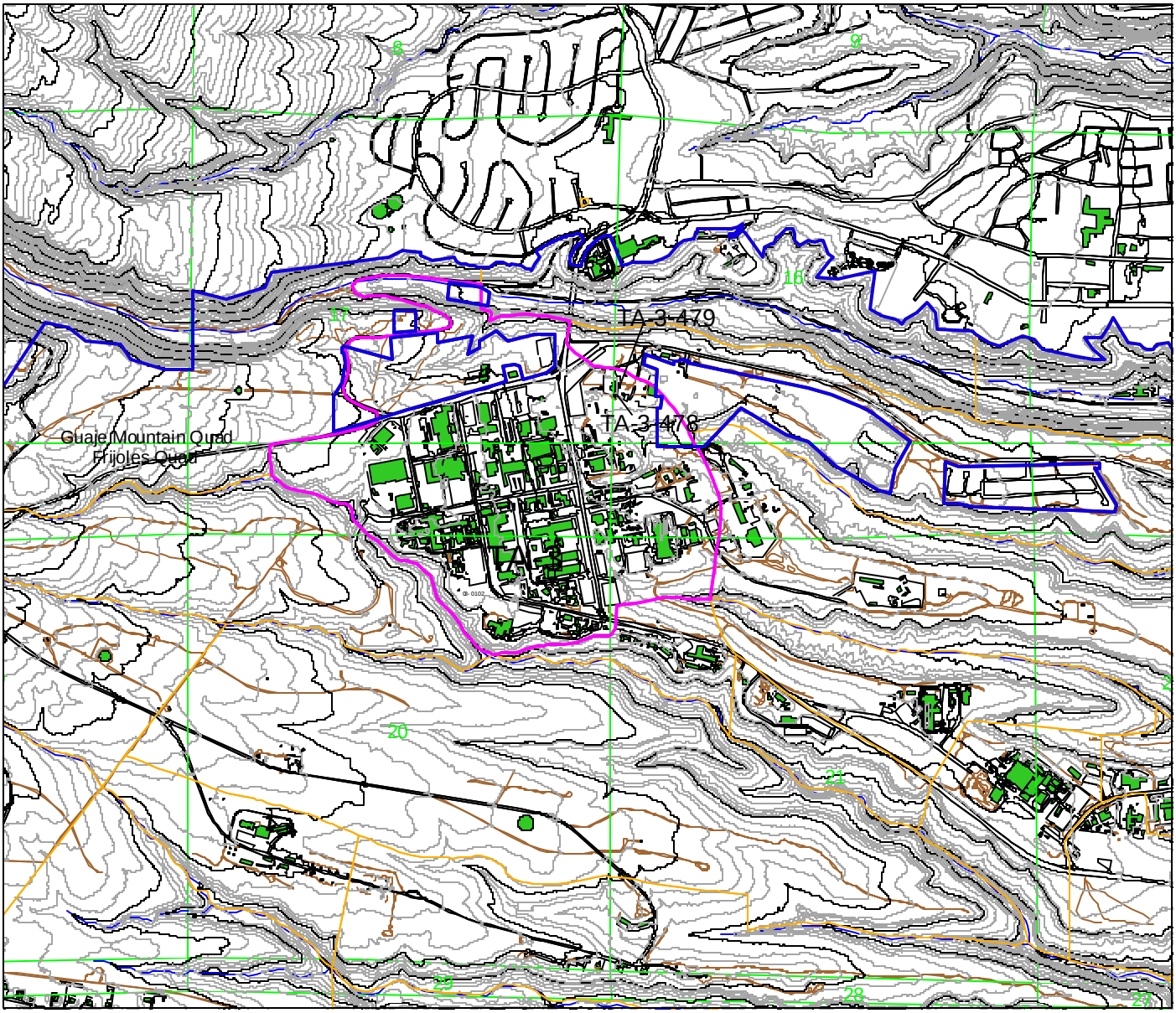
TA-BLDG	BLDG NAME	Date Built	Current NRHP Eligibility Status	Associated Theme	Eligibility Recommendation	Proposed Management Action
21-167	**Equipment Bldg**	1945	Eligible	Initiators/ Nuclear Propulsion/ Tritium	Eligible, A (attached to 21-152)	None at present
22-1	**Assembly and Loading Bldg**	1945	Eligible	Fat Man Assembly/ Implosion	Eligible, A	Retain
28-1	**Magazine**	1944?	Not Reviewed	High Explosives (Atomic Bomb)	Eligible*, A	None at present
28-2	**Magazine**	1944?	Not Reviewed	High Explosives (Atomic Bomb)	Eligible*, A	None at present
28-3	**Magazine**	1944?	Not Reviewed	High Explosives (Atomic Bomb)	Eligible*, A	None at present
28-4	**Magazine**	1944?	Not Reviewed	High Explosives (Atomic Bomb)	Eligible*, A	None at present
28-5	**Magazine**	1944?	Not Reviewed	High Explosives (Atomic Bomb)	Eligible*, A	None at present

* Identical properties: any mitigation or documentation should focus on only the best example of the five.

Appendix A—Location Maps, Photographs, Descriptions, and Drawings of Remaining Manhattan Project Buildings and Structures (LANL)

Prepared by

Sheila McCarthy, Historical Architect, Benchmark Consulting Group
Ken Towery, Architect, LANL Site and Project Planning Group
John Ronquillo, Consulting Engineer, Sigma Science, Inc.
Ellen D. McGehee, Cultural Resource Manager, LANL Ecology Group
Kari L. M. Garcia, Cultural Resource Manager, LANL Ecology Group



Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:24000

900 0 900 1800 2700 3600 Feet

200 0 200 400 600 800 1000 Meters

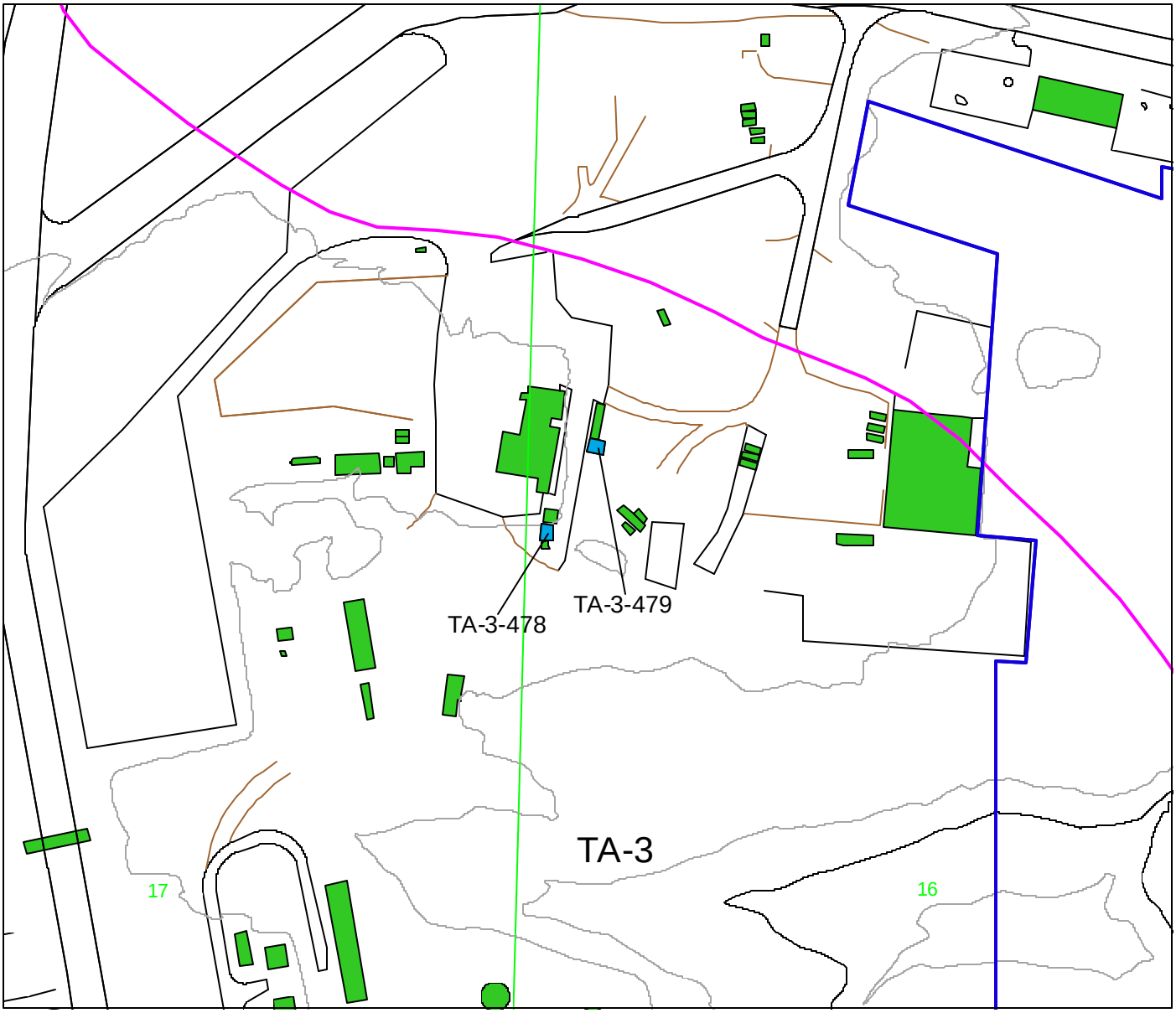
N
W E
S

Manhattan Project Buildings
Los Alamos National Laboratory
Tech Area 3
Tech Areas
20 Foot Contours
100 Foot Contours
Drainage
Township, Section, Range
USGS 7.5 Minute Quad
Roads
Roaddirt
Parkpave
Parkdirt
Buildings/Structures

Manhattan Project Buildings

TA-3

Map 2



Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:2300

100 0 100 200 300 Feet

40 0 40 80 Meters

N
W E
S

Manhattan Project Buildings
Los Alamos National Laboratory
Tech Area 3
Tech Areas
20 Foot Contours
100 Foot Contours
Drainage
Township, Section, Range
USGS 7.5 Minute Quad
Roads
Roaddirt
Parkpave
Parkdirt
Buildings/Structures

Manhattan Project Buildings

TA-3
Closeup

Map 3

TA-3-478

Original Function: Storage Shed
Current Function: Storage Shed
Historical Significance: None

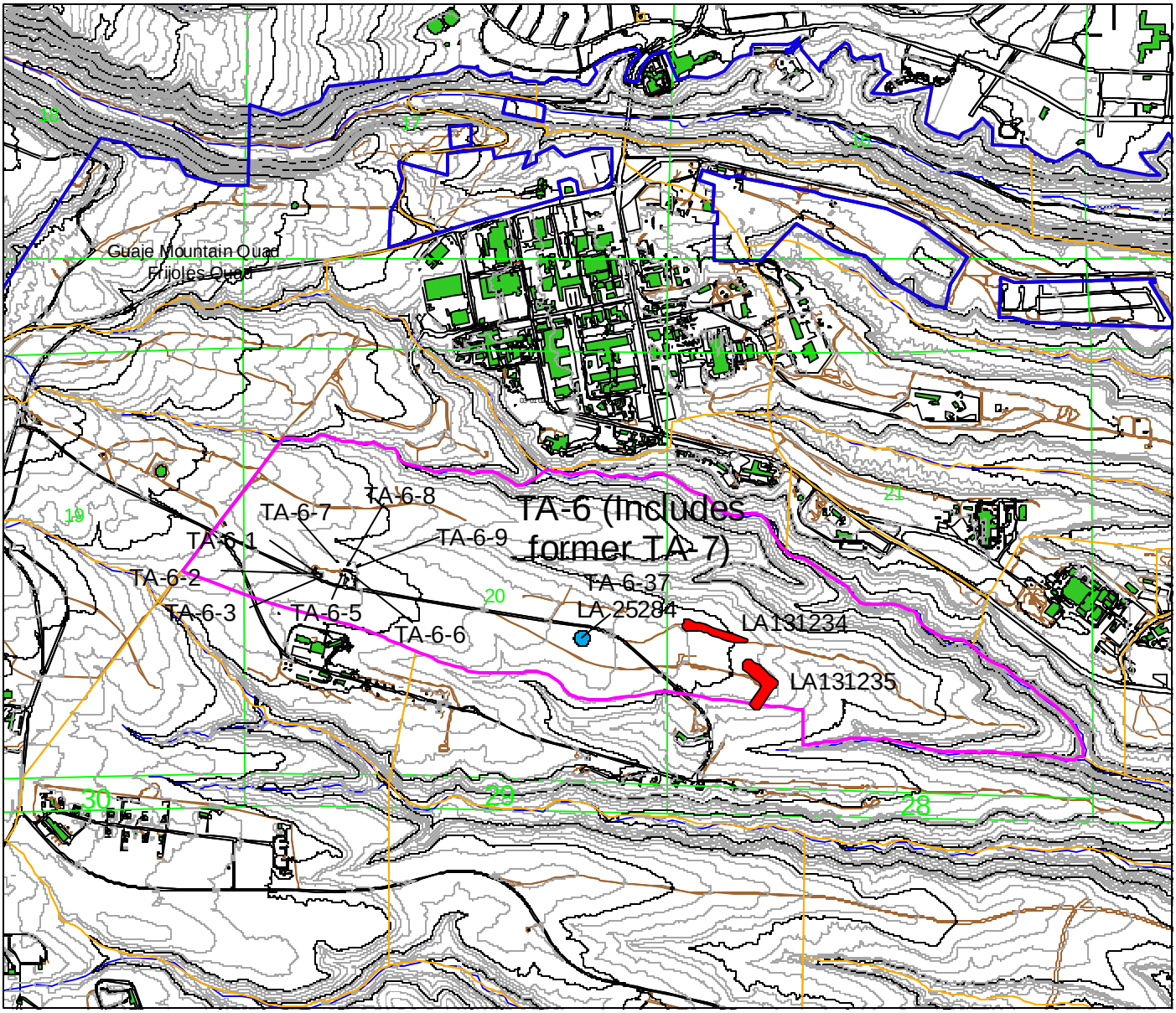
Date Constructed: 1945
Associated Theme: ?
Eligible?: No

Description (no drawings available)**:**
TA-3-478 was built in 1945 and appears to have been used exclusively for storage. This small portable shed, a wood-frame structure, is approximately 12 ft by 16 ft in size. It has a low slope roof with multiple layers of roofing material, the latest being granular-impregnated roll roofing. Exposed joist ends and fascia boards appear to be of original material. The original wall frame is 2x4 frame with 1x6 sheathing. The exterior has recently been covered with a plywood product similar to T-111. The structure currently sits on steel skids that were probably added during one of its relocation moves. There are no apparent window openings, although they could have been covered over when the siding material was added. There is one door on the west elevation.

TA-3-479

Original Function: Storage Shed
Current Function: Storage Shed
Historical Significance: None
Date Constructed: 1946
Associated Theme: ?
Eligible?: No

Description (no drawings available)**:**
TA-3-479 is a small storage shed. Although designed for temporary use (it is typical of military temporary construction), the shed is still being used for storage. The building is a wood structure; original materials are visible and unaltered. The foundation is wood with a wood-frame floor, walls, and roof. The roof is low slope with multiple roofing layers visible. The exterior walls are 2x4 frame with asphalt-impregnated paper and asbestos-containing lap shingles. The front elevation has a small overhang and a porch about five ft wide. The rear elevation also has an overhang extended by the roof rafters. The floor is elevated approximately two ft above grade. The front door appears to be the original double wood-panel door with two-over-two window lights (panes of glass). The other three elevations each contain one wood-frame window with fixed three-over-three window lights.



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Cultural Resources Management Team
RRES-ECO Ecology Group

1:24000

800 0 800 1600 2400 3200 Feet

200 0 200 400 600 800 Meters

N
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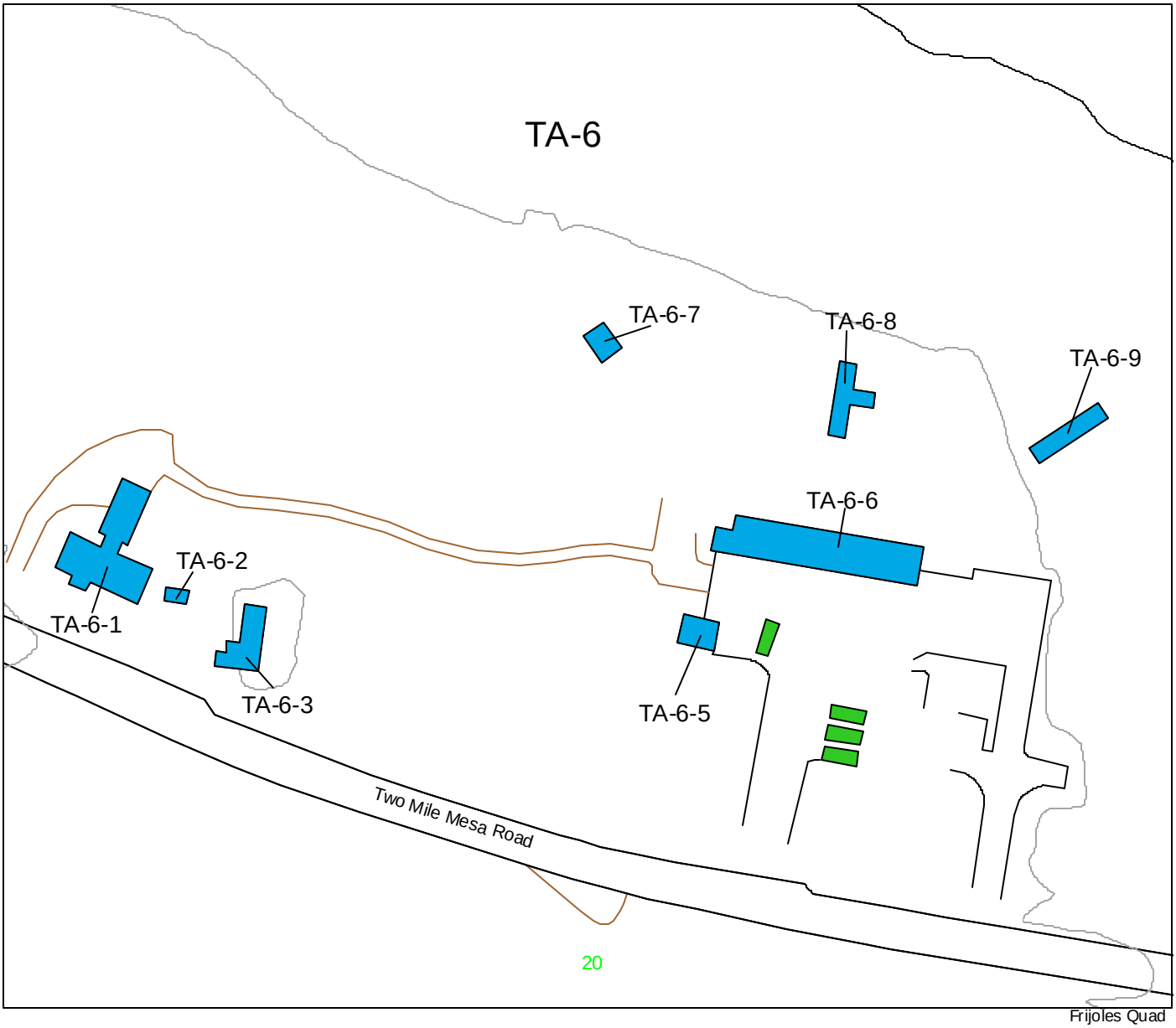
- Manhattan Project Structure Remains
- Manhattan Project Buildings
- Los Alamos National Laboratory
- Tech Area 6
- Tech Areas
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Township, Section, Range
- USGS 7.5 Minute Quad
- Roads
- Roaddirt
- Parkpave
- Parkdirt
- Buildings/Structures

Manhattan Project Buildings

TA-6
(Including Former TA-7)

Map 4



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RRES-ECO Ecology Group

1:1100

N
W E
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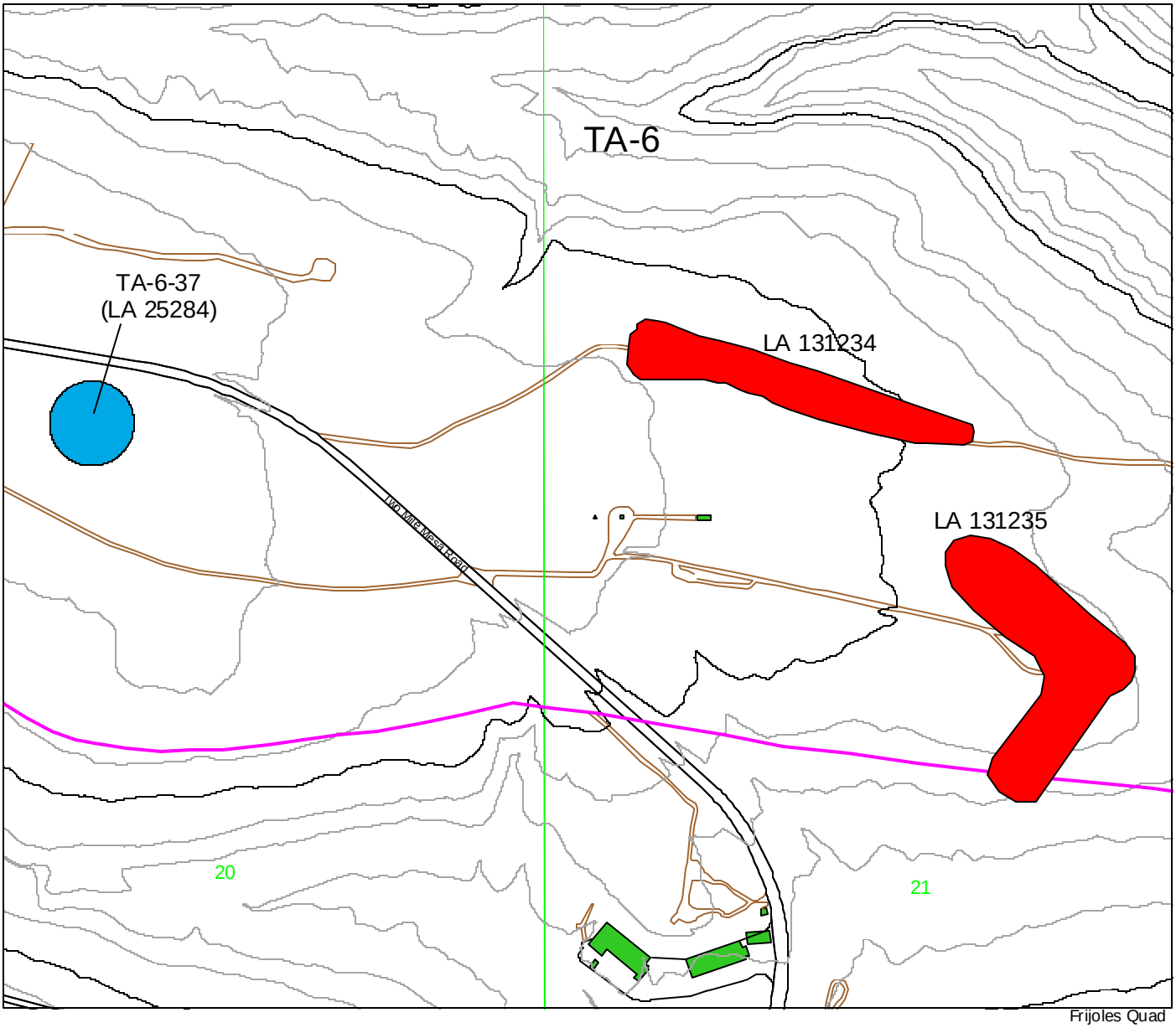
100 0 100 Feet
20 0 20 40 Meters

Manhattan Project Structures
Manhattan Project Buildings
Los Alamos National Laboratory
Tech Area 6
Tech Areas
20 Foot Contours
100 Foot Contours
Drainage
Township, Section, Range
USGS 7.5 Minute Quad
Roads
Roaddirt
Parkpave
Parkdirt
Buildings/Structures

Manhattan Project Buildings

Western TA-6 Closeup

Map 5



Frijoles Quad

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1:4500

300 0 300 600 Feet

100 0 100 Meters

N
W E
S

- Manhattan Project Structures
- Manhattan Project Buildings
- Los Alamos National Laboratory
- Tech Area 6
- Tech Areas
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Township, Section, Range
- USGS 7.5 Minute Quad
- Roads
- Roaddirt
- Parkpave
- Parkdirt
- Buildings/Structures

Manhattan Project Buildings and Structures

Eastern TA-6 Closeup

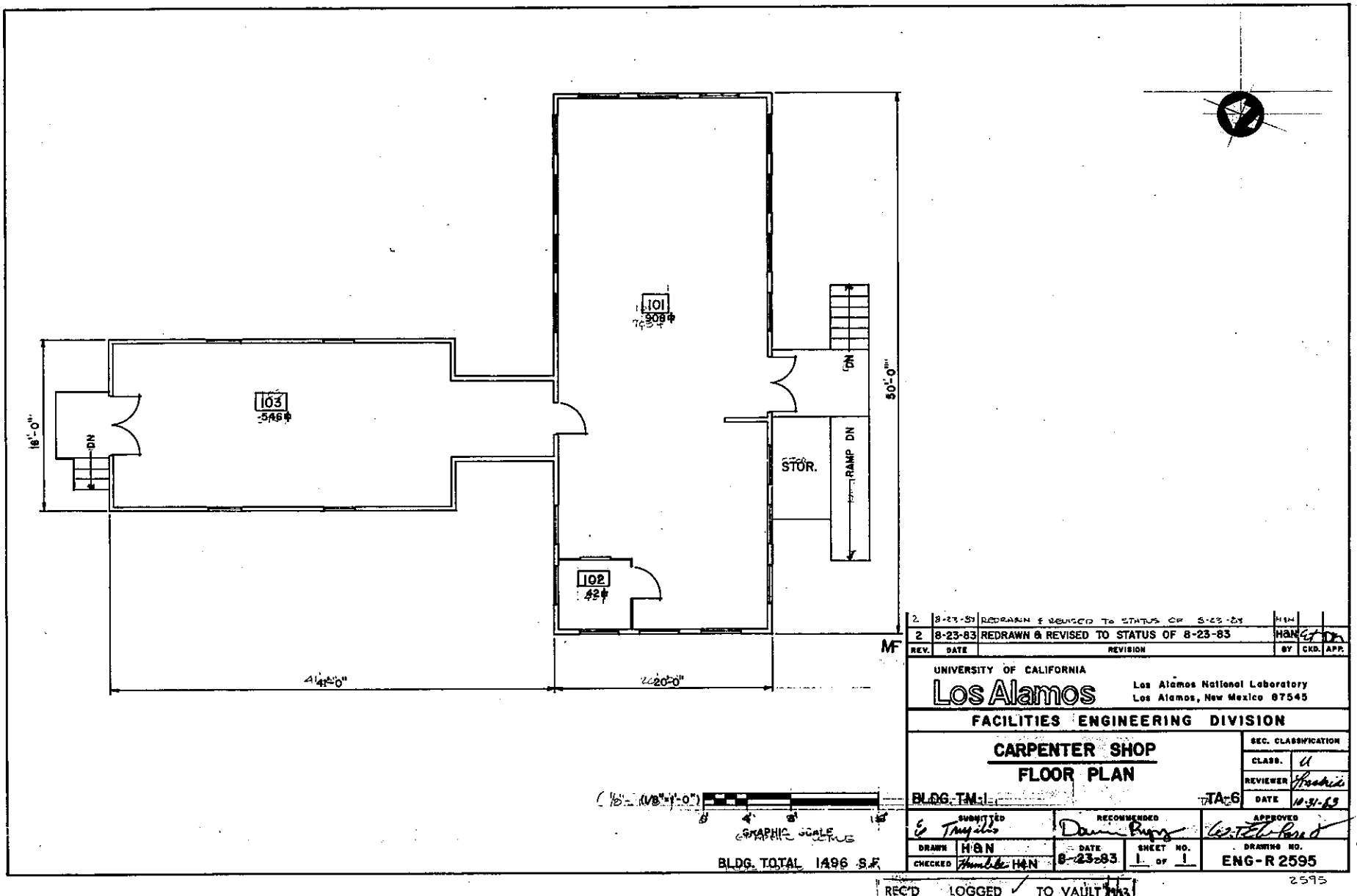
Map 6

TA-6-1

Original Function: Laboratory and Office
Current Function: Vacant
Historical Significance: Detonator research and development in support of implosion device.

Date Constructed: 1944?
Associated Theme: Detonators
Eligible?: Yes – "A"

Description:
TA-6-1 is made up of two barrack-type structures set perpendicular to each other and connected by a small corridor. The structures are wood-frame construction with a low slope roof, asbestos wall shingles, and built up and composite roofing material. Corrugated metal siding has been added up to the wainscot level on the exterior of the office wing and connecting corridor. Numerous windows are visible in the perimeter walls. The windows are wood sash with three-over-three window lights. The foundation is wood post and beam and is elevated about three ft. Wood stairs and platforms provide elevation rise to the floor level. The front door area is covered by a wood porch and canopy, which provides weather protection and some exterior material storage. The two main entry doors are wood double doors with two-over-two window lights.



REV.	DATE	REVISION	BY	CKD.	APP.
2.	8-23-83	REDRAWN & REVISED TO STATUS OF 5-23-83	H&N		
2	8-23-83	REDRAWN & REVISED TO STATUS OF 8-23-83	H&N		

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Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

CARPENTER SHOP
FLOOR PLAN

BLDG. TM-1 TA-6

SEC. CLASSIFICATION: CLASS. U
REVIEWER Frankie
DATE 10-31-83

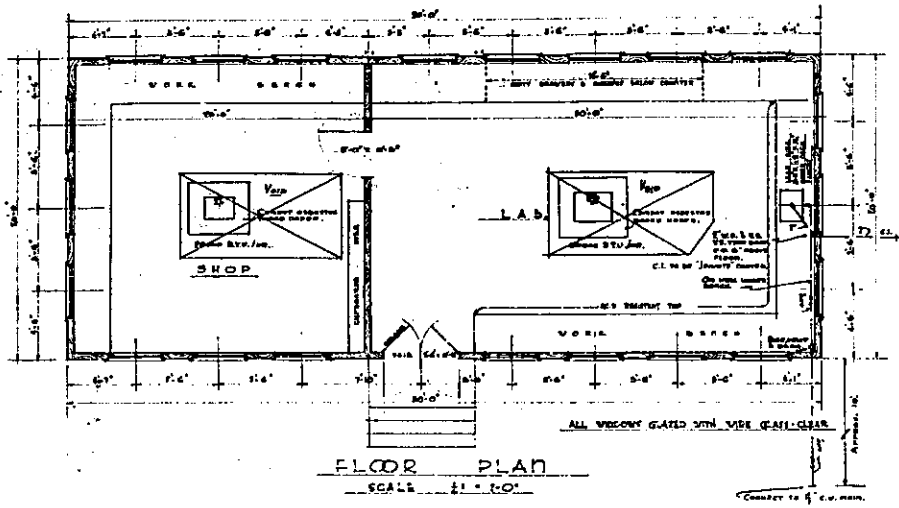
SUBMITTED E. Trujillo
RECOMMENDED Dave Rupp
APPROVED Leo Peterson

DRAWN H&N
CHECKED Thumbs H&N
DATE 8-23-83
SHEET NO. 1 OF 1
DRAWING NO. ENG-R 2595

BLDG. TOTAL 1496 S.F.

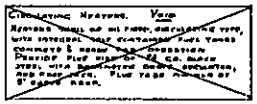
REC'D ____ LOGGED ✓ TO VAULT 2113

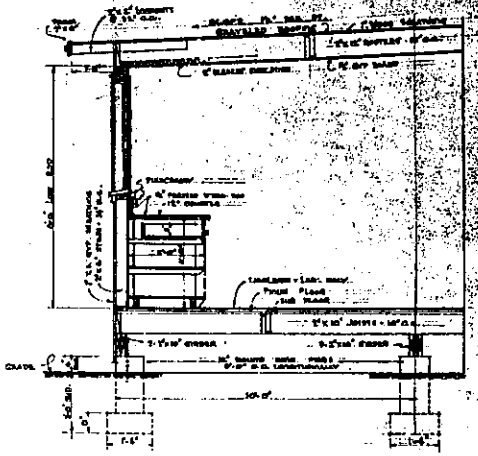
2595



FLOOR PLAN

SCALE 1" = 1'-0"





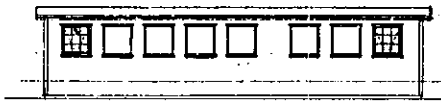
TYPICAL HALF SECTION

SCALE 1½" = 1'-0"

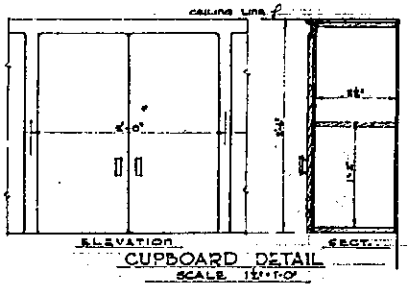
FRONT ELEVATION

SIDE ELEVATION

SCALE ¼" = 1'-0"

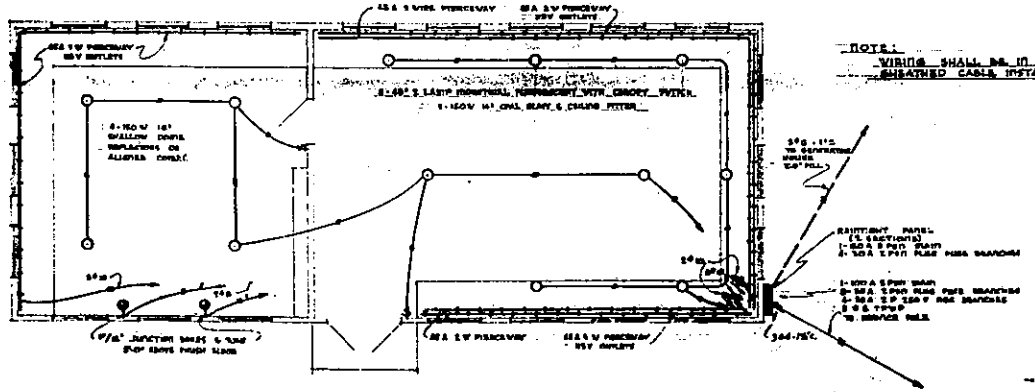


REAR ELEVATION



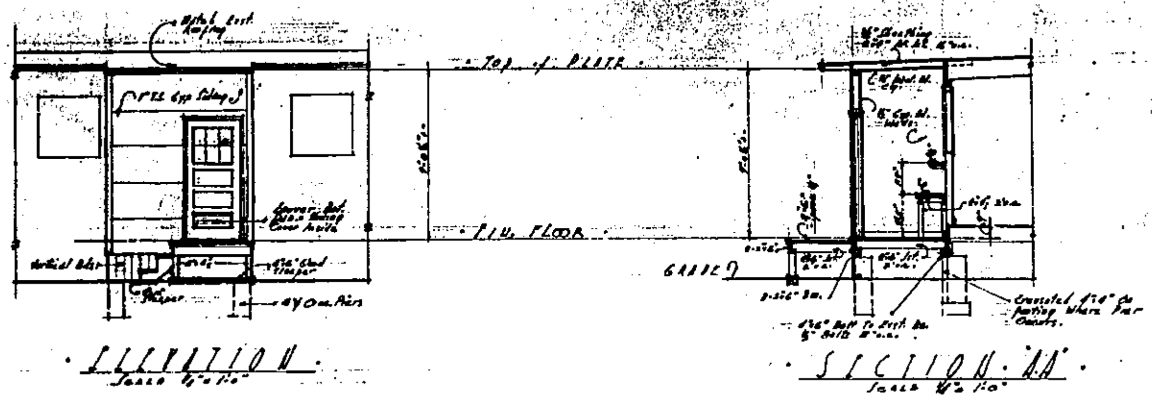
CUPBOARD DETAIL

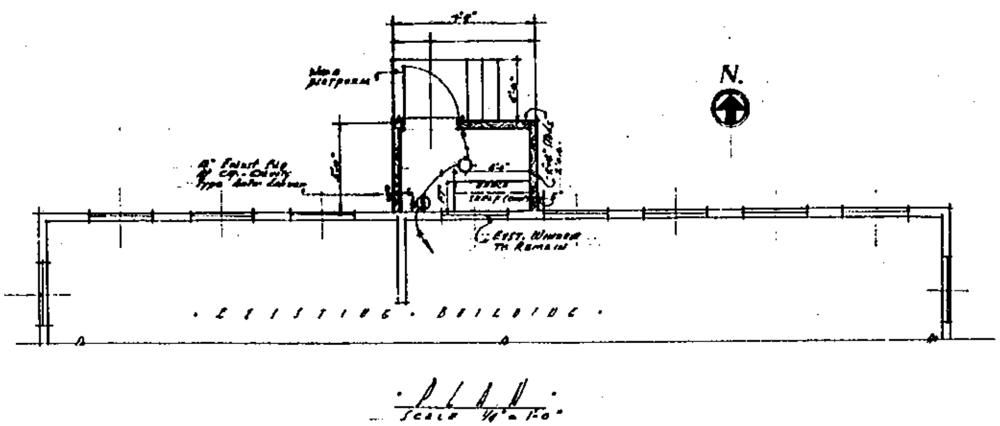
SCALE 1½" = 1'-0"



NOTE:
WIRING SHALL BE IN NON-METALLIC SHEATHED CABLE, INSTALLED CONCEALED.

BLDG. 1 - PLAN - ELEV - SECT - MISCEL. DETAILS	
W.C. KRUGER ARCHITECT	ZIA PROJECT
APPROVED	2 MILE MESA - ZIA
APPROVED	U.S. ENGINEER OFFICE
	SANTA FE NEW MEXICO





GENERAL NOTES:

- Interior Trim 1"x2" - Base 1"x4".
- Ext. Door 2'-8"x6'-8"x1 3/4" - 2 Top Panels Glazed.
- Notch 2x6" Platform Joist over 2x3" Ledger ea end.
- Steps - Support on 3 - 2x10" Risers.
- Lap & Spike 2x6" Roof Joist on Exist 2x10" R.T.
- Provide 1/4"x1 1/4"x12" Bet. Strap Anchors - Piers to 2-2x6" Bm.
- Provide 2x4" Legs at Ends & Center of Bench - 2x4" Cross-Supports - 1 5/8" Top.
- Sub. Fl. 3/4" Fin. Fl. 25/32" T&G. Paper Btwn.

DATE	NO.	REVISIONS	BY	APPROV.

U. S. ENGINEER OFFICE
SANTA FE, NEW MEXICO

ADDITION to BLDG. No. 1
TWO MILE MESA

IN ___ SHEETS ___ SCALE ___ SHEET No.

OFFICE OF POST ENGINEER

SUBMITTED BY — APPROV. RECOM'D — APPROVED BY

DR. BY G.S. — TR. BY — CH. BY

FILE No. PE 156

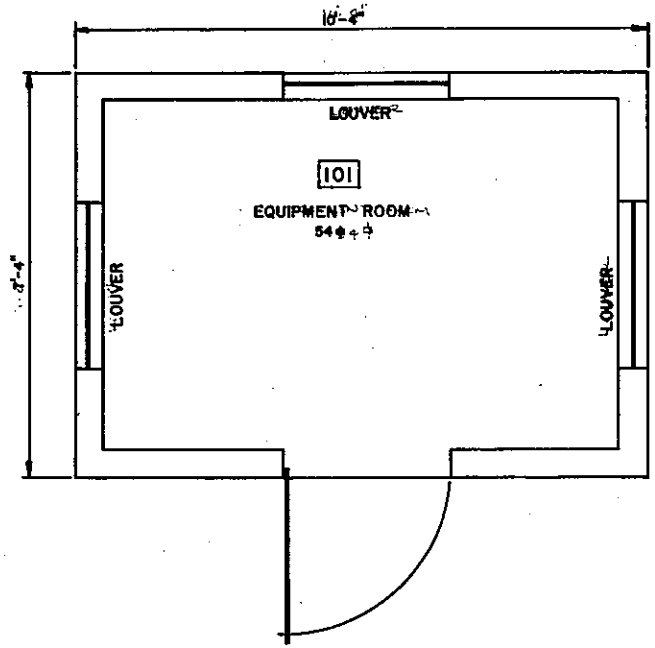
L.A.S.L. DWG. NO. ENG-C 1625

TA-6-2

Original Function: Compressor Building
Current Function: Vacant
Historical Significance: Detonator research and development in support of implosion device.

Date Constructed: 1944?
Associated Theme: Detonators
Eligible?: Yes – "A"

Description:
TA-6-2 is a small mechanical building. The building sits on a concrete slab and foundation. The walls are wood frame with asbestos shingles, and the roof is low slope with composite roof material. The current finishes and exposed materials, such as painted wood and roofing material, have deteriorated. The front elevation has a single door. Several wood louver panels that provide air flow to the original equipment can be seen on the other three walls.



1/4"=1'-0"

0 4'

GRAPHIC SCALE
ORIGINAL SCALE

BLDG. TOTAL 54 S.F.

REV.	DATE	REVISION	BY	CKD.	APP.
2	8-22-83	REDRAWN & REVISED TO STATUS OF 8-22-83	HSN		
2	8-22-83	REDRAWN & REVISED TO STATUS OF 8-22-83	HSN		

MF

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Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

COMPRESSOR BUILDING
FLOOR PLAN

SEC. CLASSIFICATION: UNCLASS.

BLDG. TM-22 TA-6

REVIEWER

DATE 8-22-83

SUBMITTED

RECOMMENDED

APPROVED

DRAWN H S-N

CHECKED HSN

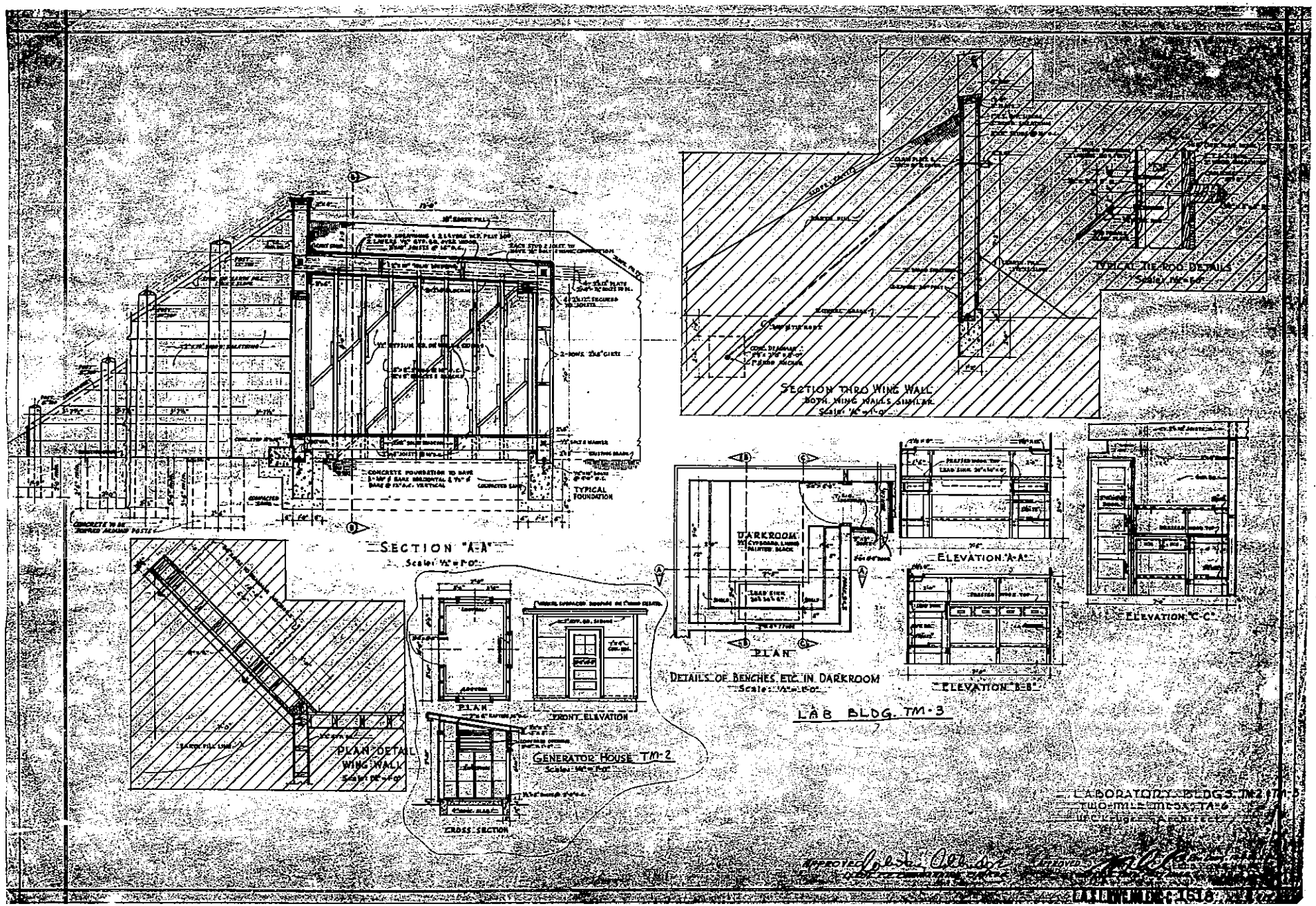
DATE 8-22-83

SHEET NO. 1 OF 1

DRAWING NO. ENG-R 2596

REC'D LOGGED ✓ TO VAULT HSN

2596

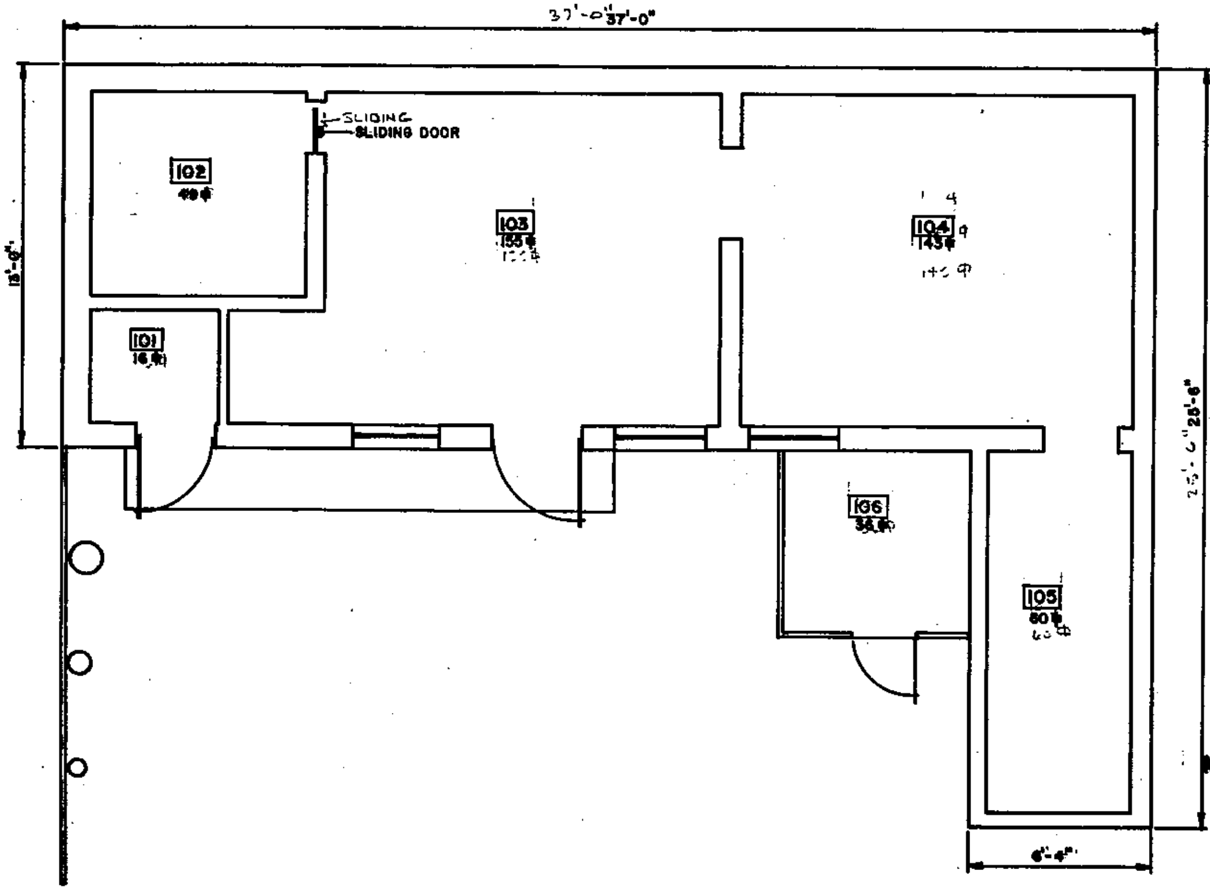

SECTION "A-A"
Scale: 1/4"=1'-0"
TYPICAL FOUNDATION
SECTION THRO WING WALL
BOTH WING WALLS SIMILAR
Scale: 1/4"=1'-0"
TYPICAL TIE ROD DETAILS
Scale: 1/4"=1'-0"
DARKROOM
PLAN
ELEVATION A-A
ELEVATION B-B
ELEVATION C-C
DETAILS OF BENCHES ETC. IN DARKROOM
Scale: 1/4"=1'-0"
LAB BLDG. TM-3
PLAN
FRONT ELEVATION
GENERATOR HOUSE TM-2
Scale: 1/4"=1'-0"
CROSS SECTION
PLAN DETAIL
WING WALL
Scale: 1/8"=1'-0"
LABORATORY BLDGS. TM-2 & TM-3
TWO-MILE MESA TA-6
ARCHITECTURAL

TA-6-3

Original Function: Fabrication Building
Current Function: Vacant
Historical Significance: Detonator research and development in support of implosion device.

Date Constructed: 1944?
Associated Theme: Detonators
Eligible?: Yes – "A"

Description:
TA-6-3 is earth bunkered on one elevation. Earth is piled against a timber retaining structure up to the roof level. The other building elevations are typical of the TA-6 buildings. The building is wood frame on a wood foundation and has asbestos shingle siding and a low slope roof with composite sheet roofing material. The windows are wood sash with three-over-three lights. Several wood doors provide access to the interior of the building; the bathroom is one of the areas that can be accessed from the outside. Two lean-to type structures are attached to the side elevation.



2	8-22-83	REDRAWN & REVISED TO STATUS OF 8-22-83	H&N		DH
REV.	DATE	REVISION	BY	CHK.	APR.

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Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

FABRICATION BUILDING
FLOOR PLAN

BLDG. TM-3 TA-6

SEC. CLASSIFICATION — CLASS. U — DATE 8-22-83

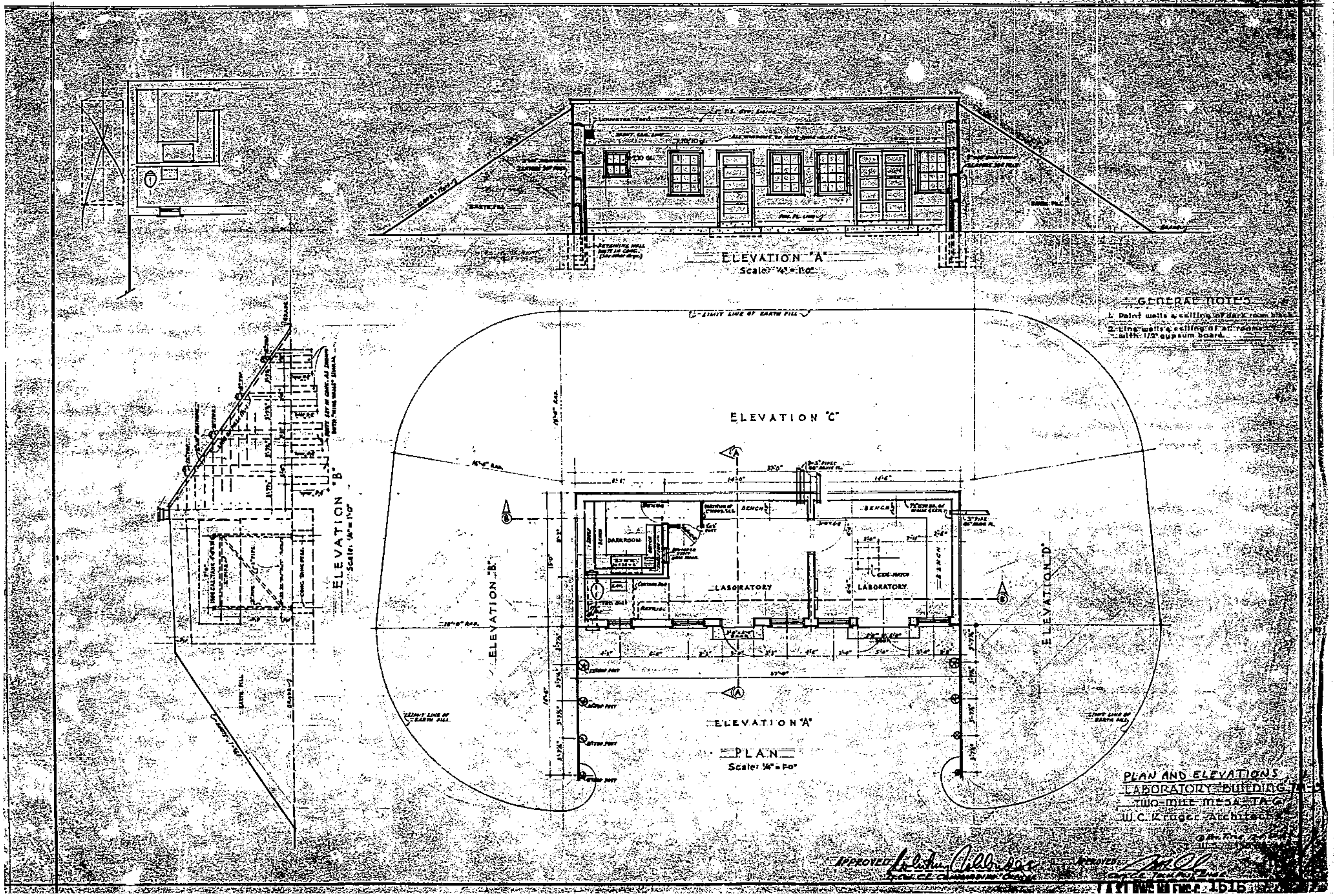
DRAWN H & N — CHECKED H&N — DATE 8-22-83 — SHEET NO. 1 OF 1

DRAWING NO. ENG-R 2597

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

BLDG. TOTAL 450 S.F.

REC'D LOGGED TO VAULT

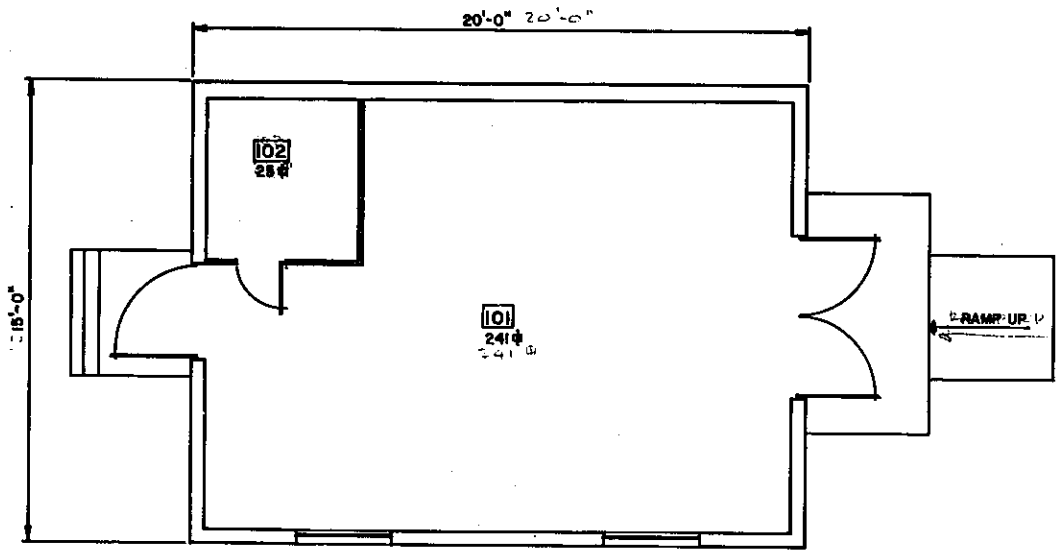

ELEVATION "A"
Scale: 1/4" = 1'-0"
GENERAL NOTES
1. Paint walls & ceiling of dark room black.
2. Line walls & ceiling of all rooms with 1/2" gypsum board.
LIMIT LINE OF EARTH FILL
ELEVATION "C"
ELEVATION "B"
Scale: 1/4" = 1'-0"
ELEVATION "B"
ELEVATION "D"
DARKROOM
LABORATORY
LABORATORY
BENCH
BENCH
BENCH
EARTH FILL
ELEVATION "A"
PLAN
Scale: 1/4" = 1'-0"
PLAN AND ELEVATIONS
LABORATORY BUILDING
TWO-MILE MESA - TA-6
W.C. Kruger Architect
APPROVED
APPROVED

TA-6-5

Original Function: Laboratory Building
Current Function: Vacant
Historical Significance: Detonator research and development in support of implosion device.

Date Constructed: 1945?
Associated Theme: Detonators
Eligible?: Yes – "A"

Description:
TA-6-5 is a small windowless structure, typical of the construction at TA-6. The foundation is wood and concrete with a wood-framed floor. The walls and roof structure are also wood framing. The roof is low slope with metal flashing and rolled roofing material, which has been replaced several times over the years. Two window openings on the backside have been covered over. The wood walls are covered with asbestos shingles. Two wood doors on opposite sides of the building provide access; one door is single leaf and the other is double leaf. Raised platforms and ramps lead to the doorways. An exhaust fan and stack is visible on top of the building.



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

BLDG. TOTAL 266 S.F.

REV.	DATE	REVISION	BY	CKD.	APP
2	8-22-83	REDRAWN & REVISED TO STATUS OF 8-23-83	H&N		

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Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

LABORATORY BUILDING
FLOOR PLAN

SEC. CLASSIFICATION: CLASS. U; REVIEWER; DATE 10-31-83

BLDG. TM-5 TA-6

SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo	Dan Purvis	W. T. Thurber

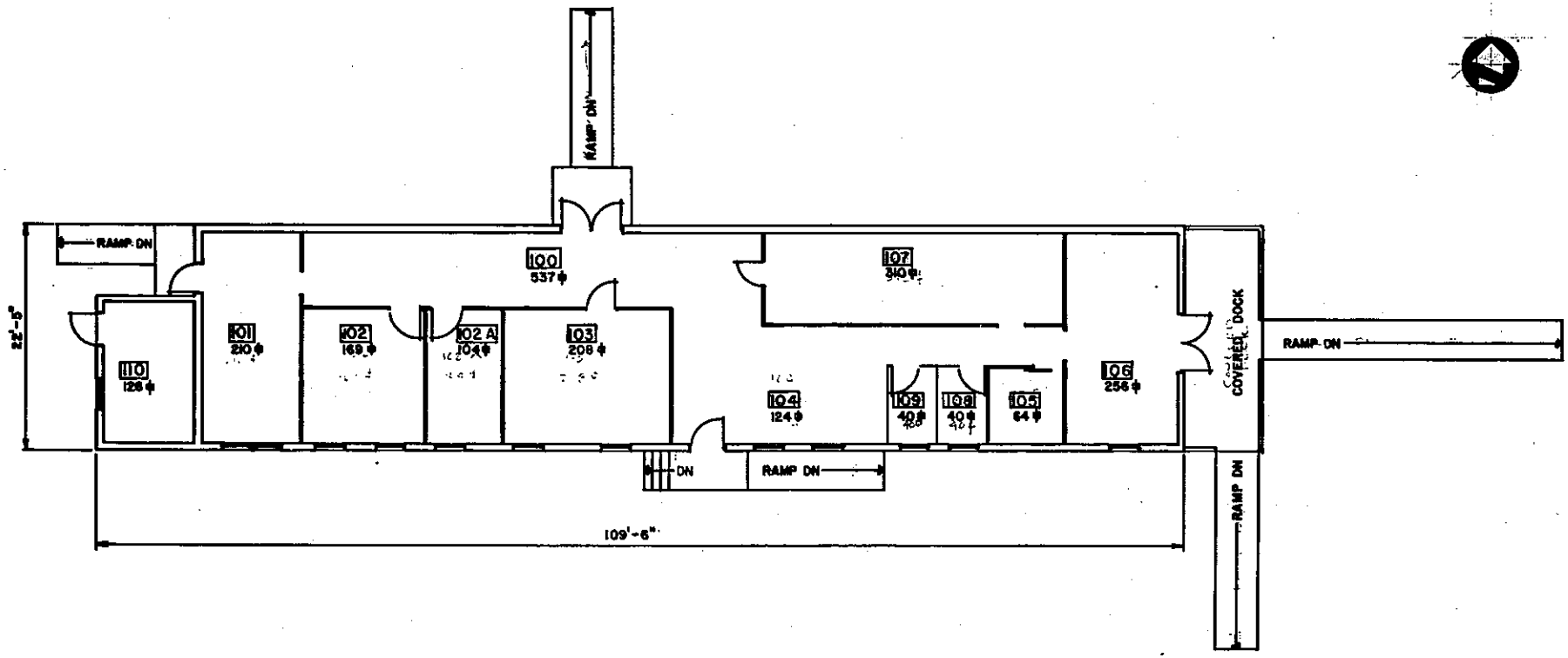
DRAWN	CHECKED	DATE	SHEET NO.	DRAWING NO.
H&N	H&N	8-22-83	1 of 1	ENG-R2599

TA-6-6

Original Function: Laboratory and Office
Current Function: Vacant
Historical Significance: Detonator research and development in support of implosion device.

Date Constructed: 1945?
Associated Theme: Detonators
Eligible?: Yes – "A"

Description:
TA-6-6 is representative of the standard vernacular military type barrack building. It is long and narrow and has a medium slope hip roof with roll type roofing material. The building is wood frame with a wood post and beam foundation on concrete bases or piers. The walls are sheathed with asbestos wall shingles. A corrugated steel skirt has been added to the base at the elevated floor level. Numerous windows penetrate the walls. The wood sash windows are three-over-three panes with bug screens added. A wood door and porch located at the side center of the building serves as the front door. One end of the building has a covered dock type entry and the opposite end of the building joins a lean-to structure that contains the boiler with the expansion tank on a steel stand outside the building.



(3/32"=1'-0")
0 5' 10' 20'
GRAPHIC SCALE

BLDG. TOTAL - 2184 S.F.

MF

REV.	DATE	REVISION	BY	CHK.	APP.
3	8-22-83	REDRAWN & REVISED TO STATUS OF 8-22-83	H&N		

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Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

LABORATORY OFFICE & SHOP BUILDING

FLOOR PLAN

SEC. CLASSIFICATION: CLASS. U

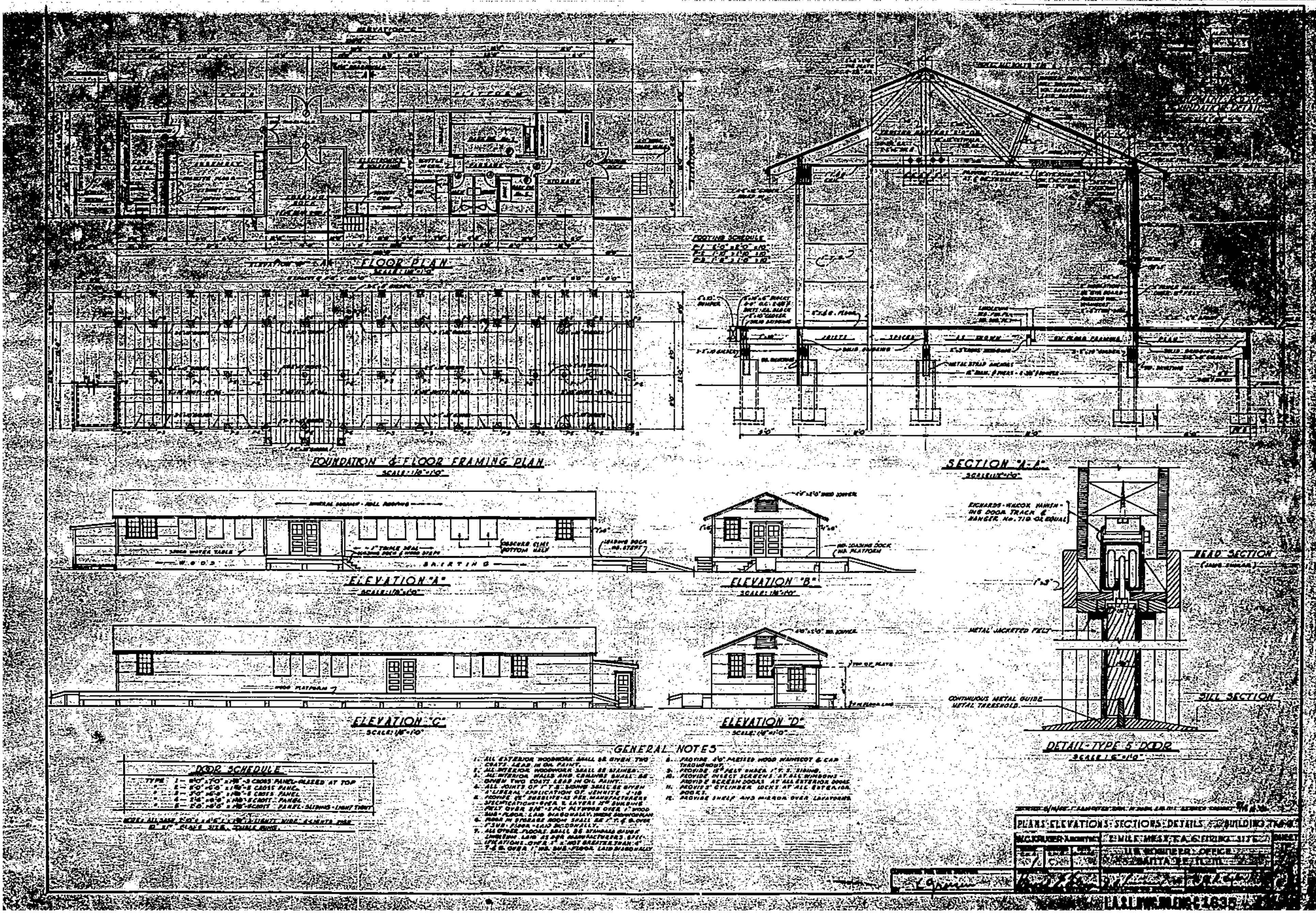
REVIEWER

DATE 10-31-83

BLDG. TM-6 TA-6

SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo	Dennis Rapp	W. T. Richardson
DRAWN H&N	DATE 8-22-83	SHEET NO. 1 of 1
CHECKED H&N		DRAWING NO. ENG-R2600

RECD LOGGED TO VAULT

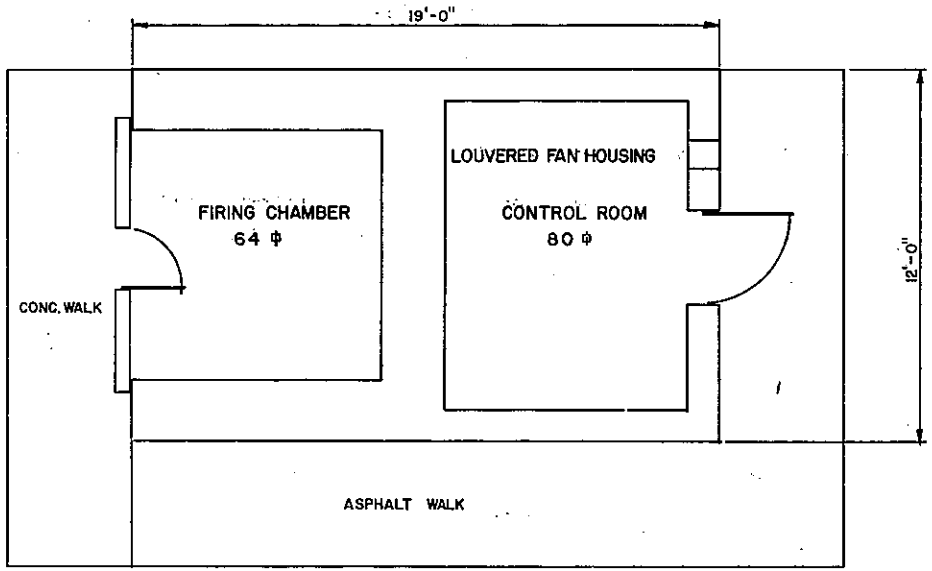

FLOOR PLAN
SCALE: 1/8"=1'-0"
FOOTING SCHEDULE
FOUNDATION & FLOOR FRAMING PLAN
SCALE: 1/8"=1'-0"
SECTION "A-A"
ELEVATION "A"
SCALE: 1/8"=1'-0"
ELEVATION "B"
SCALE: 1/8"=1'-0"
ELEVATION "C"
SCALE: 1/8"=1'-0"
ELEVATION "D"
SCALE: 1/8"=1'-0"
RICHARDS-WILCOX HANGING DOOR TRACK & HANGER No. 710 OR EQUAL
HEAD SECTION
METAL JACKETED FELT
CONTINUOUS METAL GUIDE
METAL THRESHOLD
SILL SECTION
DETAIL-TYPE 5 DOOR
GENERAL NOTES
DOOR SCHEDULE
PLANS-ELEVATIONS-SECTIONS-DETAILS

TA-6-7

Original Function: Laboratory
Current Function: Vacant
Historical Significance: Detonator research and development in support of implosion device.

Date Constructed: 1945?
Associated Theme: Detonators
Eligible?: Yes – "A" and "C"

Description:
TA-6-7 is a small hardened laboratory building. It is a cast-in-place, board form, concrete structure. The flat roof is cast-in-place concrete, and the foundation and floor are also concrete. The ends of the building express the openings, and small concrete porches are visible at the door openings. A steel vault type door and frame are located on one end of the building. The opposite end of the building contains a blast or over-pressure panel constructed of wood frame and corrugated metal. The building contains two rooms. The back room is reinforced with multiple anchor bolts protruding from the sides of the building. The bolts support interior steel panels, which provide explosive protection for the interior of the structure. One exhaust fan is evident on the end of the structure.



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

BLDG. TOTAL 144 S.F.

REV.	DATE	REVISION	BY	CKD.	APP.
1	8-23-83	REDRAWN & REVISED TO STATUS OF 8-23-83	H&N		DP

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Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

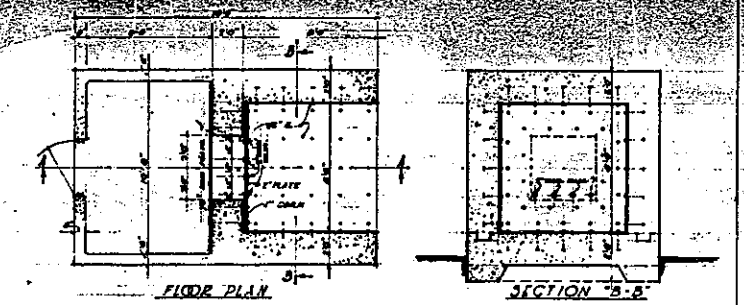
STORAGE BLDG.
FLOOR PLAN

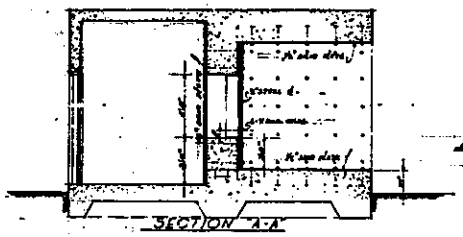
BLDG. TM-7 TA-6

SEC. CLASSIFICATION: CLASS. U
REVIEWED
DATE 3-6-84

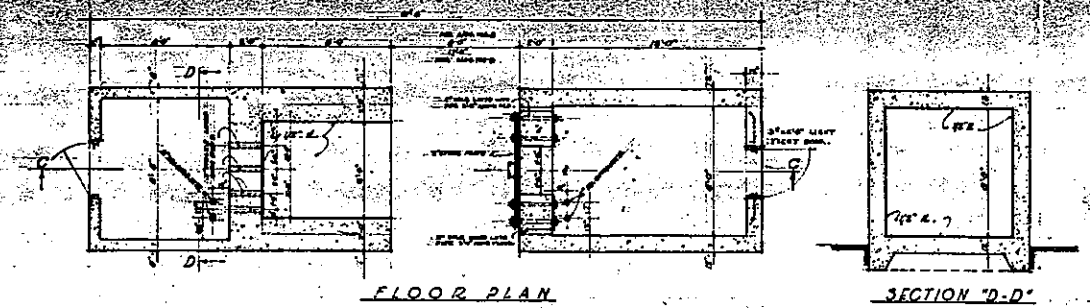
SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo		W. T. Fawcett

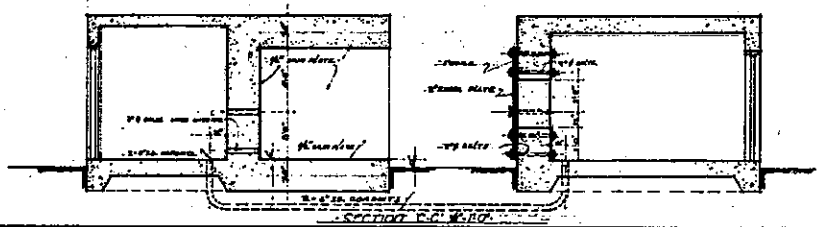
DRAWN	DATE	SHEET NO.	DRAWING NO.
H & N	8-23-83	1 OF 1	ENG-R 2601
CHECKED Humble H&N			



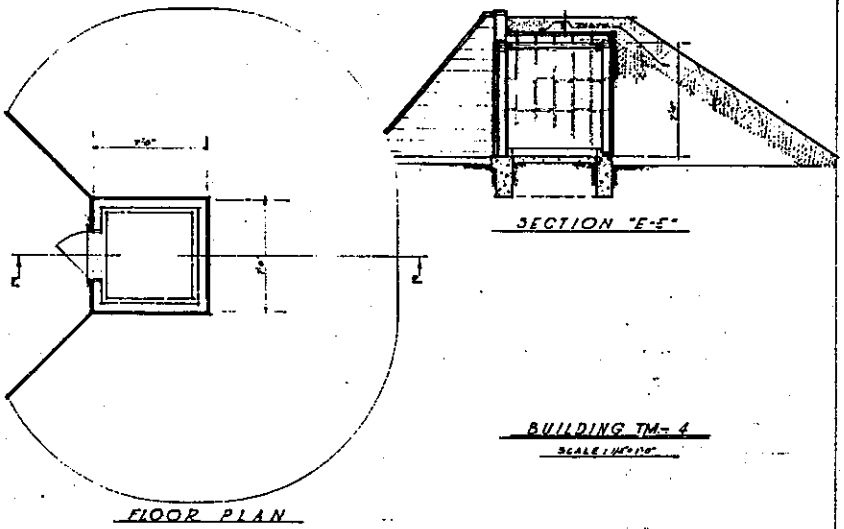


BUILDING TM-7

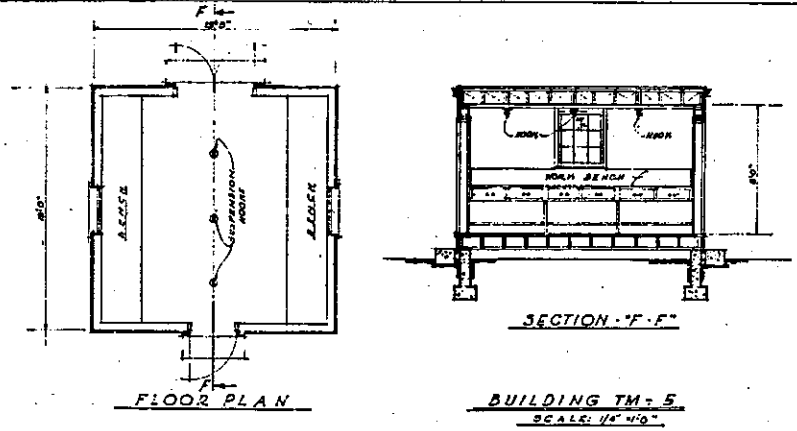




BUILDINGS TM-8 & TM-9



BUILDING TM-4



BUILDING TM-5

PROPOSED BUILDINGS
2 MILE MESA
BUILDINGS TM-7-8-9-4-5

W.C. KRUEGER - ARCH'T.

7-2-45 (REVISED 7/24/45)

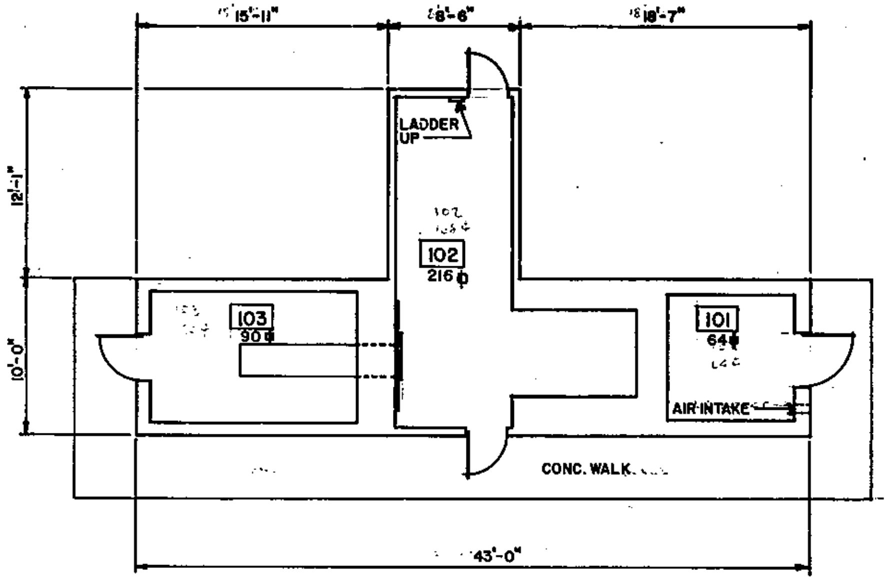
REVISED TITLE 8-19-52 JTH

TA-6-8

Original Function: Laboratory
Current Function: Vacant
Historical Significance: Detonator research and development in support of implosion device.

Date Constructed: 1945?
Associated Theme: Detonators
Eligible?: Yes – "A" and "C"

Description:
TA-6-8 consists of three separate building forms; two concrete structures and a wood-frame two-story connector element. The concrete sections are similar in materials to each other and to the other concrete buildings at TA-6. They have concrete cast-in-place foundations, floors, walls, and roofs. Each concrete building has a steel plate and frame door and a concrete porch at the outside end. One of the concrete structures shows exposed anchor bolts, which attach the interior metal plate to the wall. There are no other windows or openings visible on the exterior walls. The two-story wood-frame connector structure is sheathed with standard asphalt, wood sleepers, and asbestos shingles attached to the sleepers. The roof is flat with a slight overhang and wood fascia boards. Steel structural elements stand off from the two-story structure, supporting equipment inside the building. Wood doors on each side of the wood structure provide access to the laboratory space within. Steam and electric utility connections are visible entering the structure.



(1/8"=1'-0")

GRAPHIC SCALE 0' 5' 10'

FIRST FLOOR 370 S.F.

MF

REV.	DATE	REVISION	BY	CKD.	APR.
3	2-3-84	REVISED TO STATUS OF 2-3-84	H&N		
2	8-23-83	REDRAWN & REVISED TO STATUS OF 8-23-83	H&N		

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Los Alamos

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FACILITIES ENGINEERING DIVISION

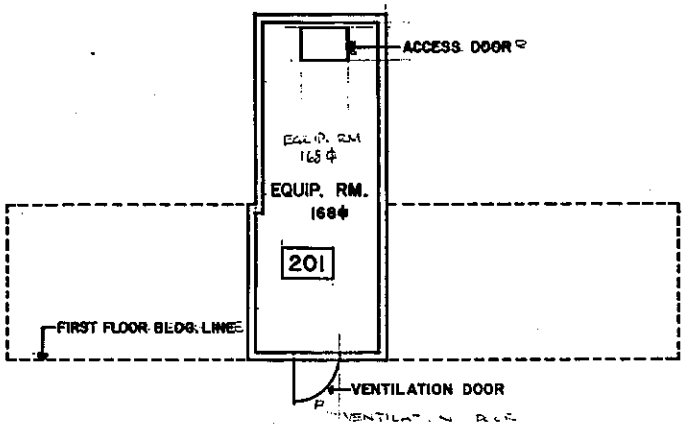
LABORATORY BUILDING
FIRST FLOOR PLAN

BLDG. TM-8 TA-8

SEC. CLASSIFICATION	
CLASS.	U
REVIEWER	
DATE	3-12-84

SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo		

DRAWN	H & N	DATE	SHEET NO.	DRAWING NO.
CHECKED	H&N	8-23-83	1 of 2	ENG-R 2602



REV.	DATE	REVISION	BY	CKD.	APR.
2	8-23-83	REDRAWN & REVISED TO STATUS OF 8-23-83	H&N		

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FACILITIES ENGINEERING DIVISION

LABORATORY BUILDING
SECOND FLOOR PLAN

BLDG. TM-8 TA-8

SEC. CLASSIFICATION: CLASS. U
REVIEWER: Tomasic
DATE: 10-31-83

SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo	Dave Rogers	W. T. Fleharty

DRAWN	CHECKED	DATE	SHEET NO.	DRAWING NO.
H&N	H&N	8-23-83	2 OF 2	ENG-R 2603

(1/8"=1'-0") 0' 8' 16'
GRAPHIC SCALE

FIRST FL. 370 S.F.
SECOND FL. 168 S.F.
BLDG. TOTAL 538 S.F.

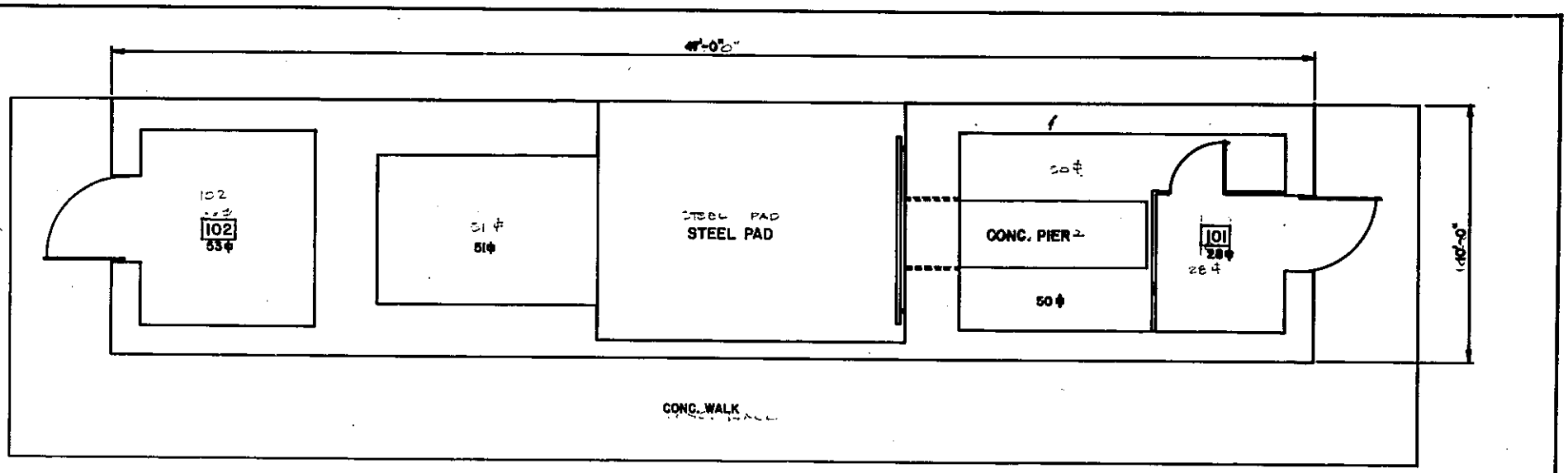
TA-6-9

Original Function: Firing Chamber
Current Function: Vacant
Historical Significance: Detonator research and development in support of implosion device.

Date Constructed: 1945?
Associated Theme: Detonators
Eligible?: Yes – "A" and "C"

Description:

TA-6-9 is a unique two-structure layout characterized by two similar cast-in-place concrete buildings. The west building is similar to building TA-6-7. It has cast-in-place concrete walls, floor, and roof. A wood vault door is located on one end and a framed opening is visible on the other. One interior room is paneled with steel plate and the anchor bolts are visible on the outside. The east building is also a cast-in-place concrete structure. A large expansion tank is mounted on a steel frame adjacent to the structure. The east end contains a steel door; the west end has a lift-away steel plate serving as a door and blast protection. The two buildings face each other end to end and are connected by a steel plate floor and an exposed wood fence structure.



REV.	DATE	REVISION	BY	CHK.	APP.
1	8-23-83	REDRAWN & REVISED TO STATUS OF 8-23-83	HSN		

MF

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Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

FIRING CHAMBER
FLOOR PLAN

BLDG. TM-9 TA-6

SEC. CLASSIFICATION: CLASS. U

REVIEWER

DATE 10.24.83

SUBMITTED	RECOMMENDED	APPROVED

DRAWN HSN
CHECKED HLN
DATE 8-23-83
SHEET NO. 1 OF 1
DRAWING NO. ENG-R 2604

1/4" = 1'-0"
GRAPHIC SCALE

BLDG. TOTAL: 182 S.F.

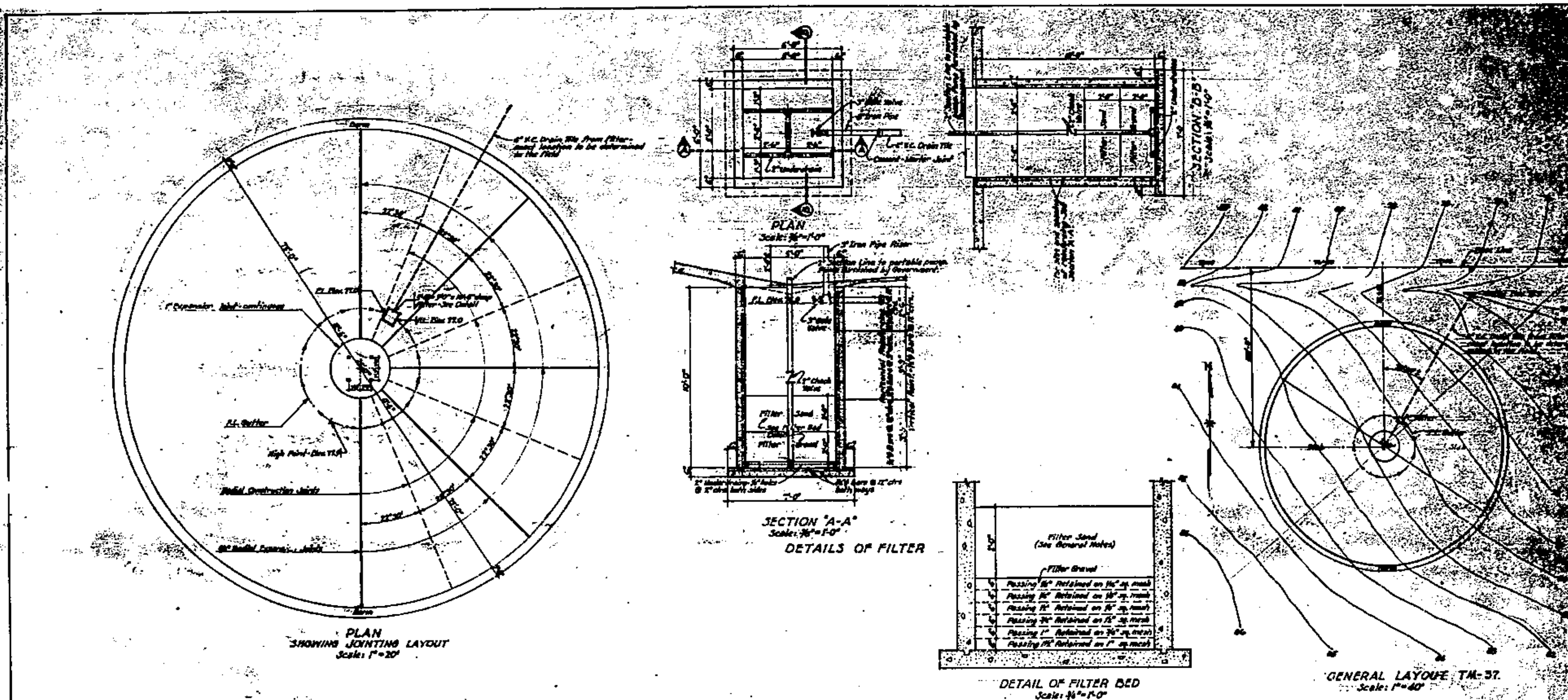
TA-6-37 (LA 25284)

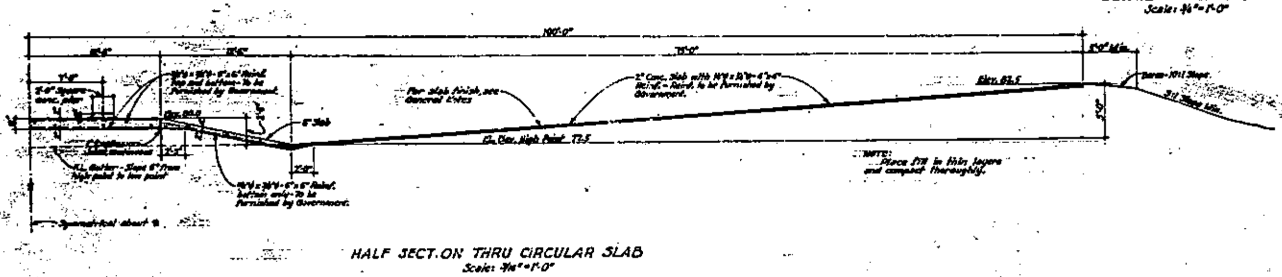
Original Function: Concrete Bowl/ Experimental Area
Current Function: Not in Use
Historical Significance: Plutonium recovery experiment in support of first implosion device.

Date Constructed: 1944
Associated Theme: Implosion (Atomic Bomb)
Eligible?: Yes – "A" and "C"

Description:
TA-6-37 is a large concrete bowl constructed during the Manhattan Project for use as a scaled-down experimentation platform. The bowl consists of a sloping, ground level concrete pad with a drain in the center of the structure. The concrete bowl is 200 ft in diameter; it was poured in 16 pie-shaped wedges. The center of the bowl has a raised dome with a metal cover on top. Near the north side of the bowl is a wood-framed and gravel-filled ramp.

The Manhattan Project scientists toyed with the idea of using a water recovery method in which the bomb, surrounded by air space, would be suspended in a tank of water and fragments would be stopped by a 50 to 1 ratio of water to high explosive mass. The feature was constructed for water recovery tests in late 1944. The water recovery shots used depleted uranium and testing continued until the spring of 1945. Shake tests, probably of explosive assemblies, were also conducted in this structure in 1945. This included the "jumbinos" or smaller versions of Jumbo (a huge steel containment vessel) within which the bomb would be exploded.





GENERAL NOTES

CONCRETE:
All concrete shall be of 3000 lbs/in² compressive strength, with not less than 6 sacks cement per cu. yd. All coarse aggregate in 2" slab shall pass a 1" screen.
All concrete in slabs shall receive a wood trowel finish and be sprayed with curing compound. (Curing compound to be furnished by Project.)

REINFORCING STEEL:
The Government will furnish all steel mesh reinforcing.

EXPANSION MATERIAL:
Expansion material shall be 1/2" and premolded.

FILTER SAND:
Filter sand shall be hard, durable grains, free from loam, clay, dirt and organic matter. The sand shall have an effective size of not less than 0.40 of a millimeter and a uniformity coefficient of not more than 1.65.

FILTER GRAVEL:
Gravel shall be hard, durable particles, free from loam, clay, dirt, organic matter and flat or elongated pieces, of the sizes noted in the Detail of Filter Bed.

WATER STRUCTURE TM-37	
C. KRUGER - ARCHITECT	ZIA PROJECT
	U.S. ENGINEER OFFICE SANTA FE

LA SLUM CLEARANCE 1622

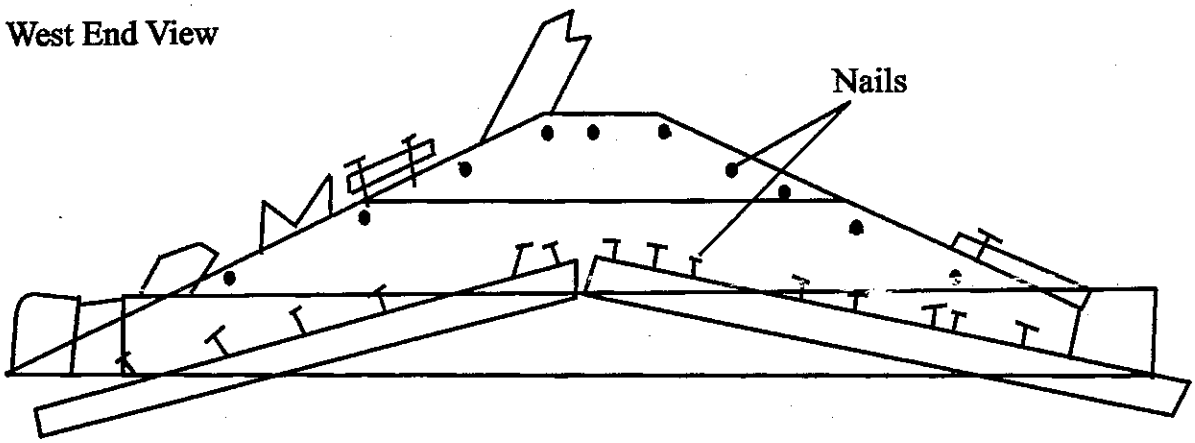
TA-6 Bomb Cover (LA 131234 C)

Original Function: Bomb Cover
Current Function: Not in Use
Historical Significance: Early weapons storage.
Date Constructed: Circa 1943-1946?
Associated Theme: Stockpile
Eligible?: Yes – "A"

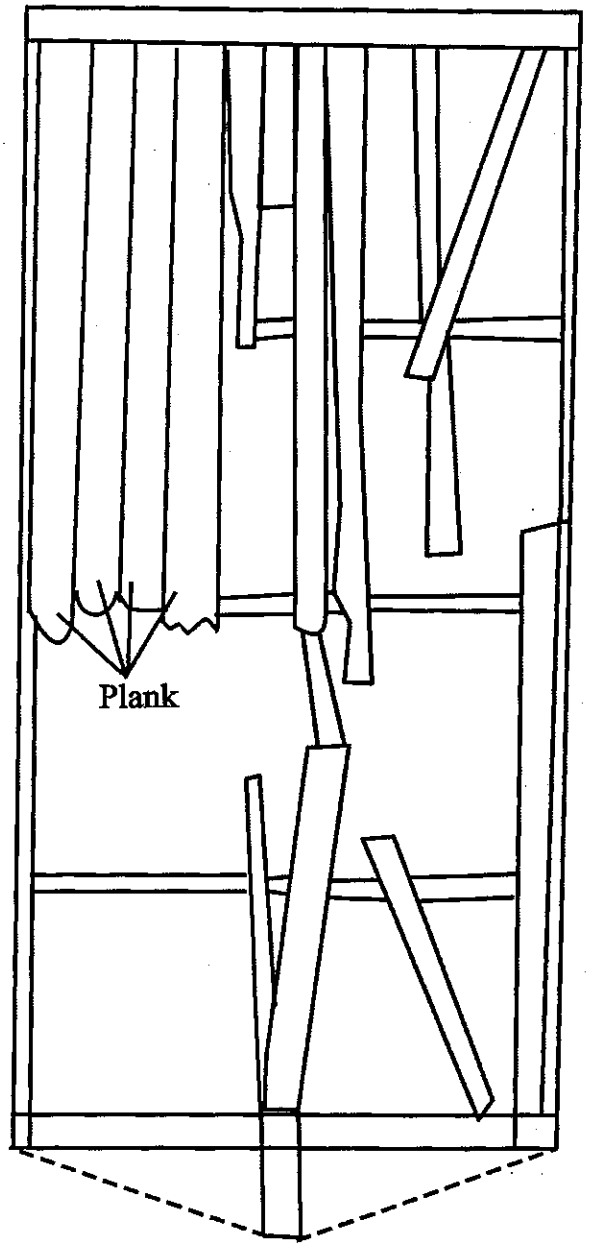
Description:
This is the remains of a wooden storage shed associated with storage of atomic bomb components during the Manhattan Project. The overall configuration of the original shed is similar in size and appearance to a dog house, thus providing the basis to references to this structure as a "dog hut."

LA 131234 C is the only part of four remaining sheds not burned during the Cerro Grande Fire of May 2000. This structure is the top portion of a shed. The cover (top) is ~3.1 m long by ~2.4 m wide. The structure has a pitched roof although some slumping has occurred. A straight galvanized metal pipe and a rusted coiled pipe were noted in the cover debris. The northeast side of the cover is in good shape and shows how the "top" sides were constructed. The "roof" had an overhang and some sort of black roofing paper was nailed to the outer edge.

Profile: West End View



Plan View



N

LA 131234

Structure B
Wooden Storage Structure
8/14/00 B.V., A.M.

Not to Scale

LA 131234 C is similar in construction to LA 131234 B (depicted on this drawing but destroyed by the Cerro Grande Fire).

LA 131235 A

LA 131235 A

TA-7 Firing Sites (LA 131235 A, B, and C)

Original Function: Firing Sites **Date Constructed:** Circa 1943-1946?
Current Function: Not in Use **Associated Theme:** High Explosives and Detonators
Historical Significance: High explosives and detonator field testing in support of implosion device. **Eligible?:** Yes – "A"

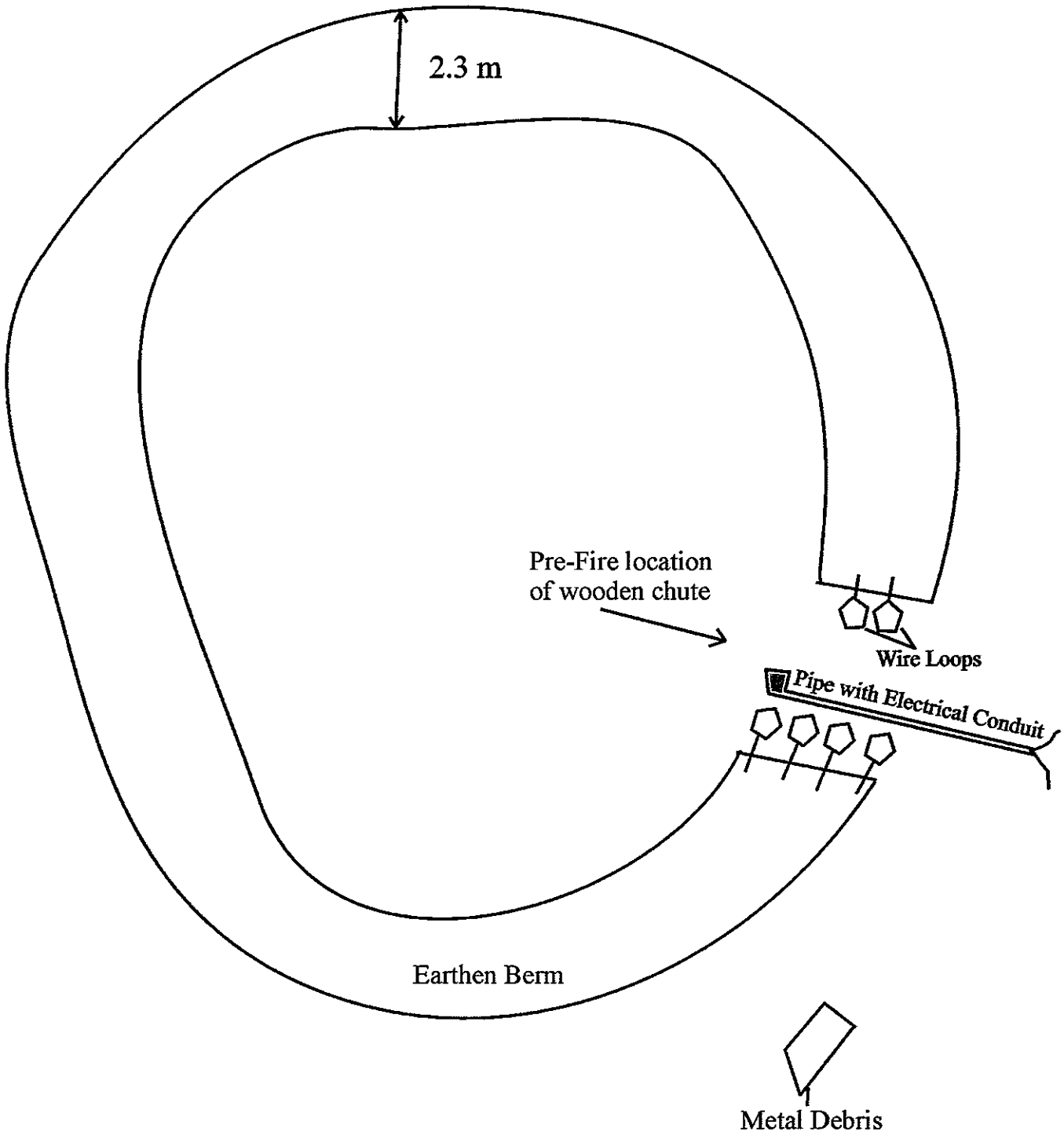
Description:
There are three firing site areas located at TA-7. Most of the wooden components associated with these firing areas burned during the Cerro Grande Fire of May 2000.

The first firing area, LA 131235 A (7-001a), is located on the mesa top at old TA-7, northwest of LA 131235 B (7-001b). The firing site is a circular earthen mound with an opening to the east and measures 22 m by 22 m. Historic experimental debris associated with the firing activities is present. Prior to the fire, a long wooden "chute" was located within the eastern opening of the mound. The chute was constructed out of wooden planks, wire, and nails. An electrical outlet and associated electrical pipe-housing for the wiring extended from the northwest end of the chute to the southeast end, along the southern side of the structure. The May 2000 fire destroyed the wooden chute feature.

The second firing area, LA 131235 B (7-001b), is located on top of Two-Mile Mesa southeast of 7-001a and northwest of area LA 131235 C. The firing site consists of a circular earthen mound with associated cast metal debris. This firing area measures 22 m by 28 m and the mound height is 1.82 to 2.43 m. There is an opening to the mound on the western end. The "ring" (mounded area around the depression) is approximately 3.5 m thick with the mound being approximately 6 to 10 ft high. The southern half of the mound is lower than the rest. Several metal artifacts were found including a cast pipe and gas can. Other items have unknown functions and include

square metal box-like frames with circular holes in the sides. A very large cast iron or metal cover (likely a hood or cover for detonations) was found immediately southwest of the mound. This cover contains cut holes on the end and a small rectangular opening on the side.

The third experimental area, LA 131235 C, consists of five metal pipes sticking out of a human-made mound of tuff rocks and dirt. The experimental area is located on a sloping bank near the edge of a mesa. The area measures 15 m by 11 m. Artifacts in the area include eight pieces of glass (including the base of a large lab bottle), one black slag piece, and one shrapnel fragment. Prior to May 2000, a wooden frame housing the pipes was located on the northern side of the mound, which is built on an embankment. A downed wood and barbed wire fence line was also located in the area. More downed fence line and several long wooden planks with nails were located to the south of the mound. Much of the wooden planking probably served as a form of cover or "roofing" for the southern end of the pipes (one of the pipes had a cover on the northern end). The Cerro Grande Fire destroyed the majority of the wooden planking and fencing materials.



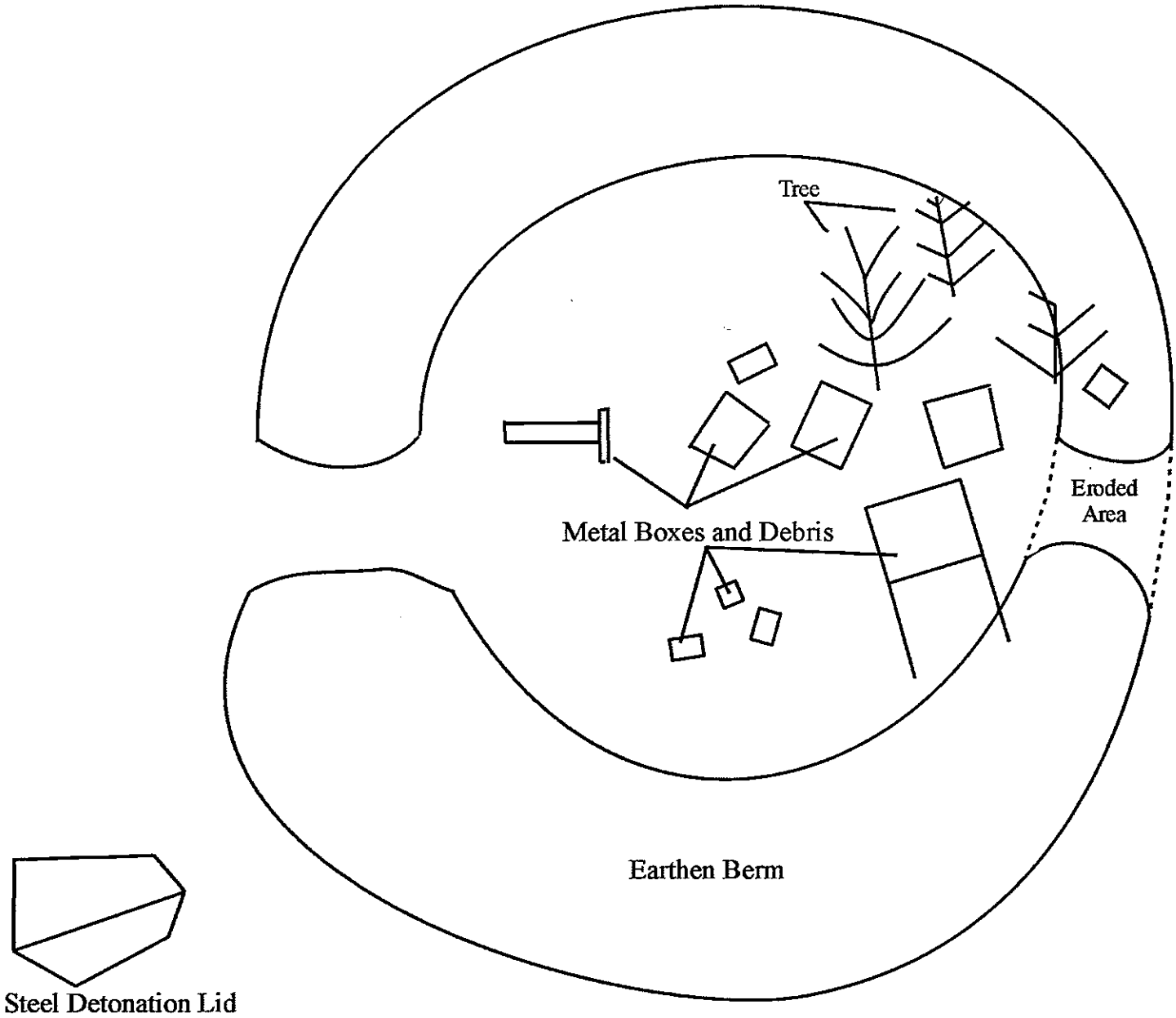
LA 131235-A

Firing Pit

Approximate Scale

0 5m

N



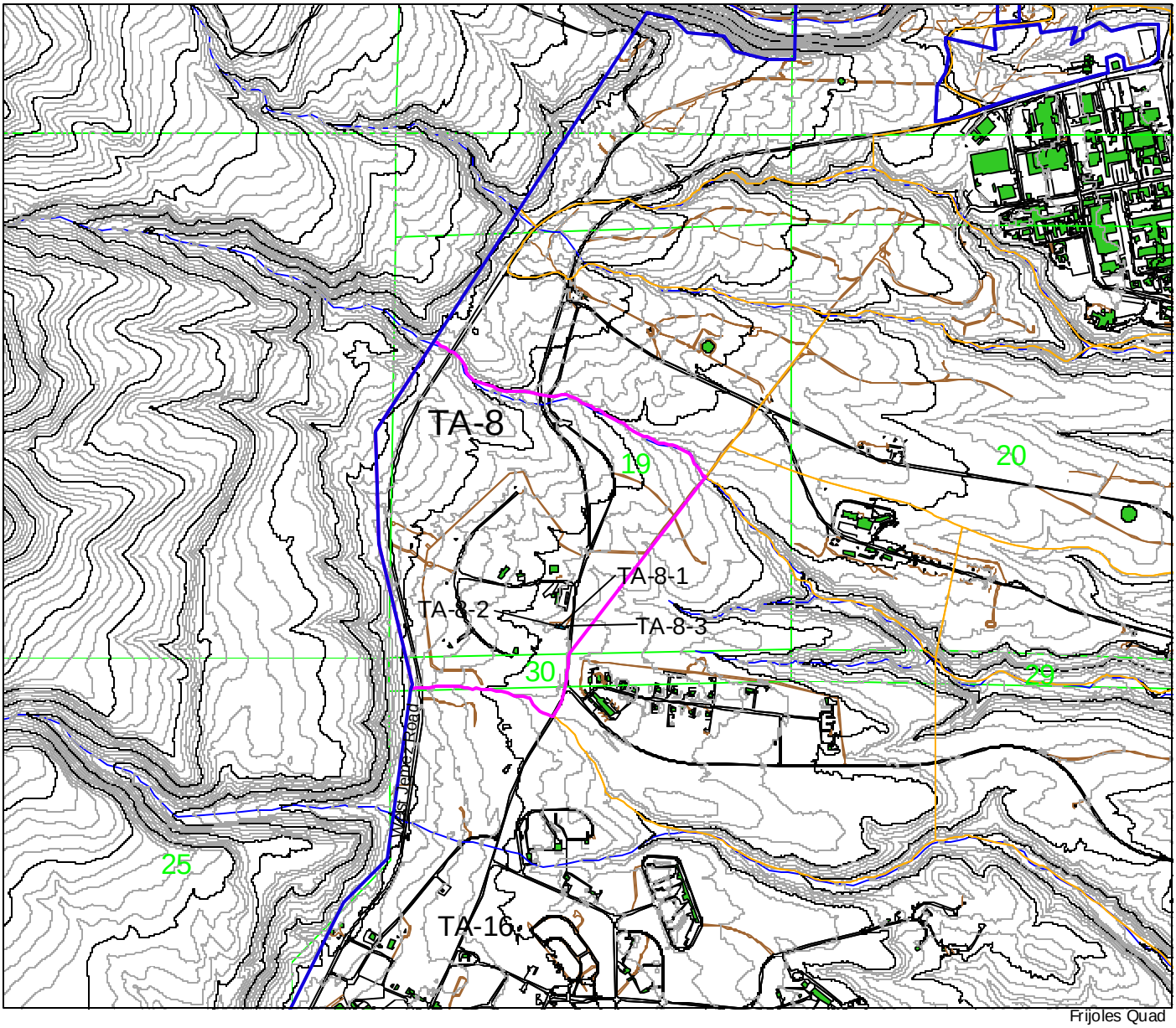
LA 131235-B

Firing Pit

Approximate Scale

0 5m

N



Frijoles Quad

Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:24000

1000 0 1000 2000 3000 4000 Feet

200 0 200 400 600 800 Meters

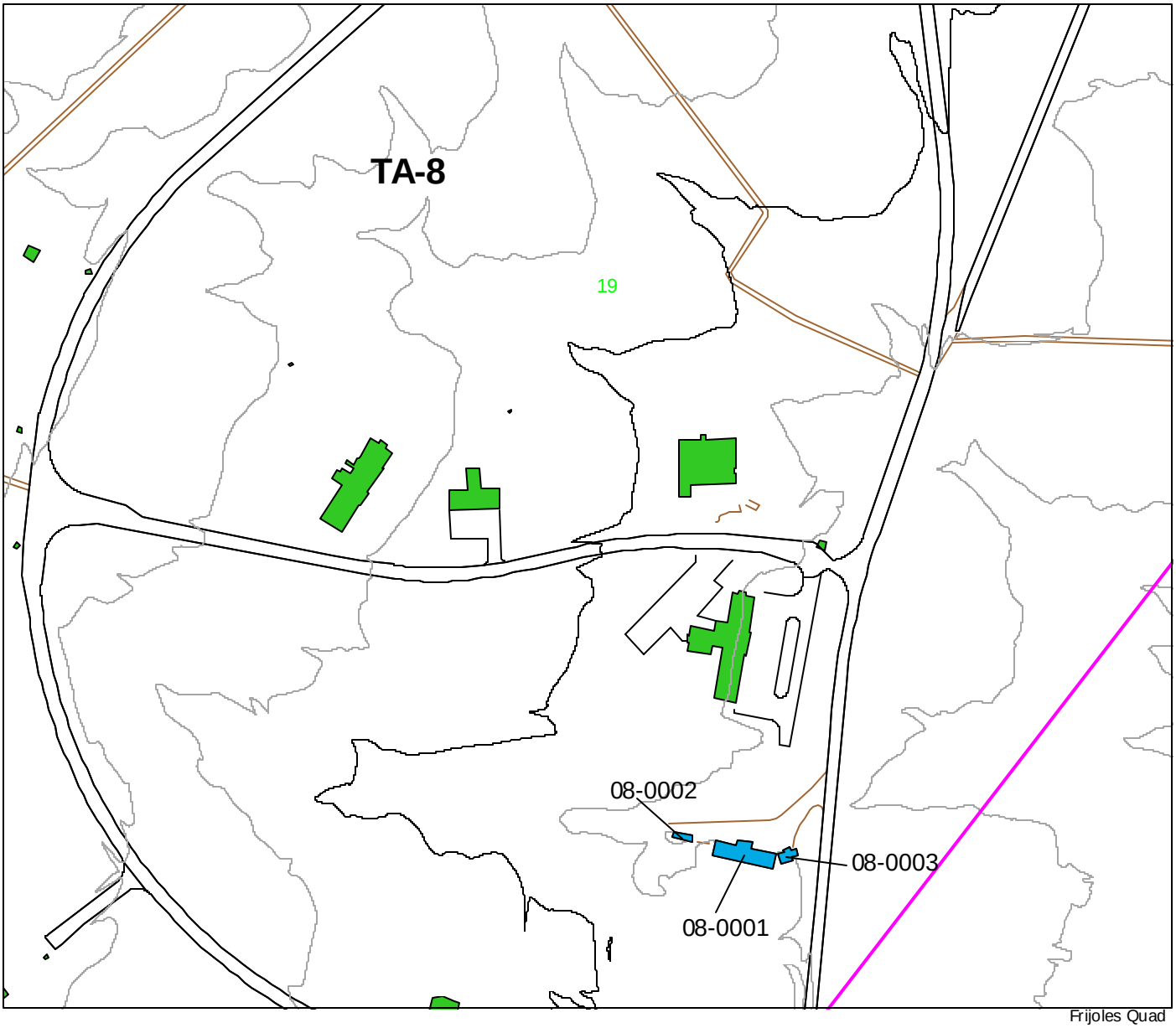
N
W E
S

- Manhattan Project Buildings
- Los Alamos National Laboratory
- Tech Area 8
- Tech Areas
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Township, Section, Range
- USGS 7.5 Minute Quad
- Roads
- Roaddirt
- Parkpave
- Parkdirt
- Buildings/Structures

Manhattan Project Buildings

TA-8

Map 7



Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:3500

200 0 200 400 Feet

70 0 70 140 Meters

N
W E
S

Manhattan Project Buildings
Los Alamos National Laboratory
Tech Area 8
Tech Areas
20 Foot Contours
100 Foot Contours
Drainage
Township, Section, Range
USGS 7.5 Minute Quad
Roads
Roaddirt
Parkpave
Parkdirt
Buildings/Structures

Manhattan Project Buildings

TA-8 Closeup

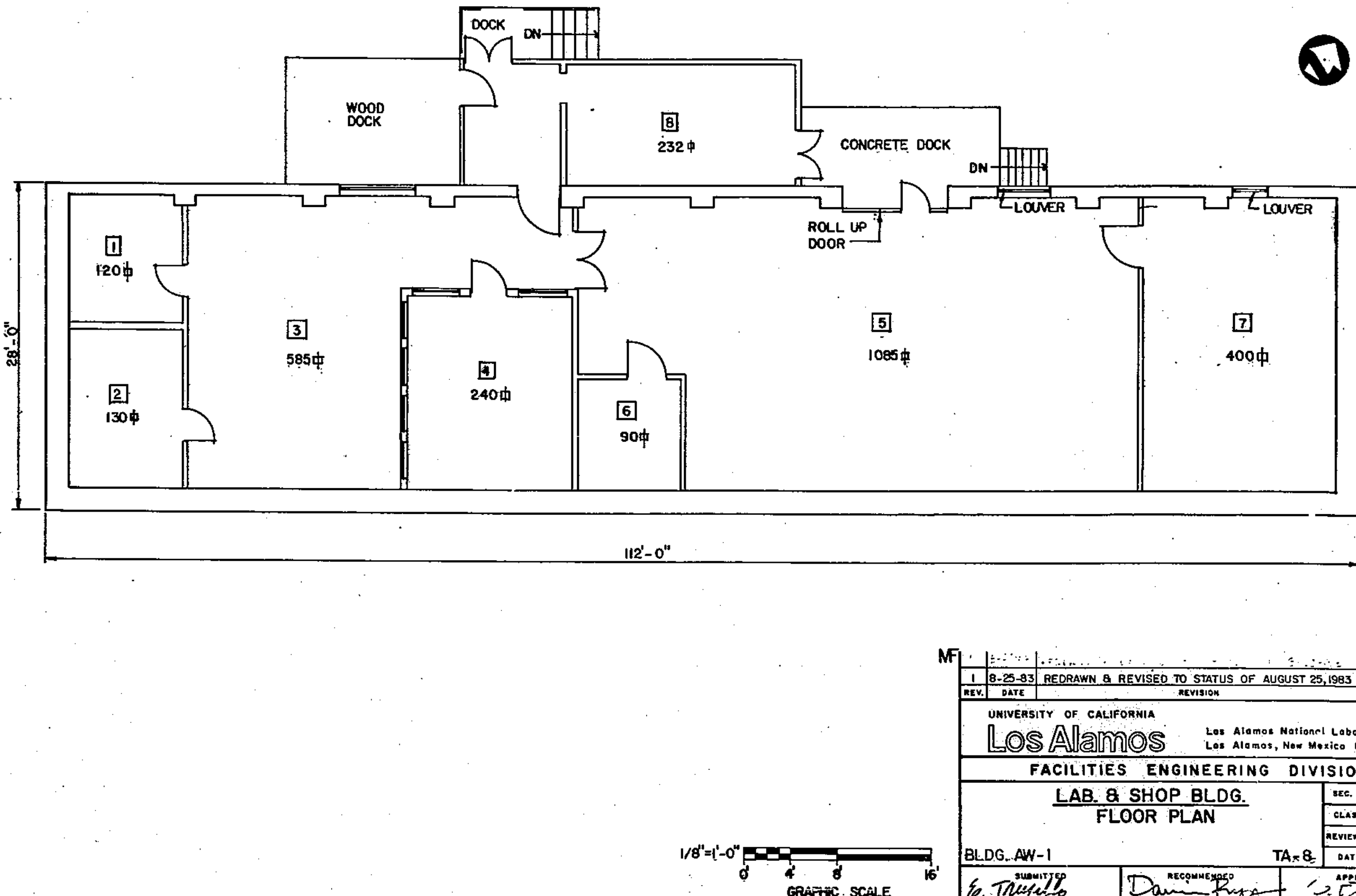
Map 8

TA-8-1

Original Function: Laboratory and Shop
Current Function: Vacant
Historical Significance: Gun Device development and testing in support of "Little Boy" bomb.

Date Constructed: 1943
Associated Theme: Gun Device (Atomic Bomb)
Eligible?: Yes – "A" and "C"

Description:
TA-8-1 is the central structure of a group of three buildings located in the historic Anchor West or "Gun Site" area of TA-8. It is a cast-in-place, board form, concrete building with the south elevation earth-sheltered into a modest hillside and berm. The roof structure is earth-covered concrete. The building is long and narrow with a covered dock and an enclosed dock area on the exposed north side. The finished floor level is elevated three ft above the driveway area. The enclosed dock area is wood frame with asbestos shingles and a sloped roof coincidental with the dock roof. The exterior doors are raised wood panel with two-over-two window lights. The only windows to the outside are the glass panes in the doors.



BLDG. TOTAL 2882 S.F.

REV.	DATE	REVISION	BY	CKD.	APP.
1	8-25-83	REDRAWN & REVISED TO STATUS OF AUGUST 25, 1983	H&N		

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Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

LAB. & SHOP BLDG.
FLOOR PLAN

BLDG. AW-1 TA-8

SEC. CLASSIFICATION — CLASS. U — REVIEWER — DATE 3-6-84

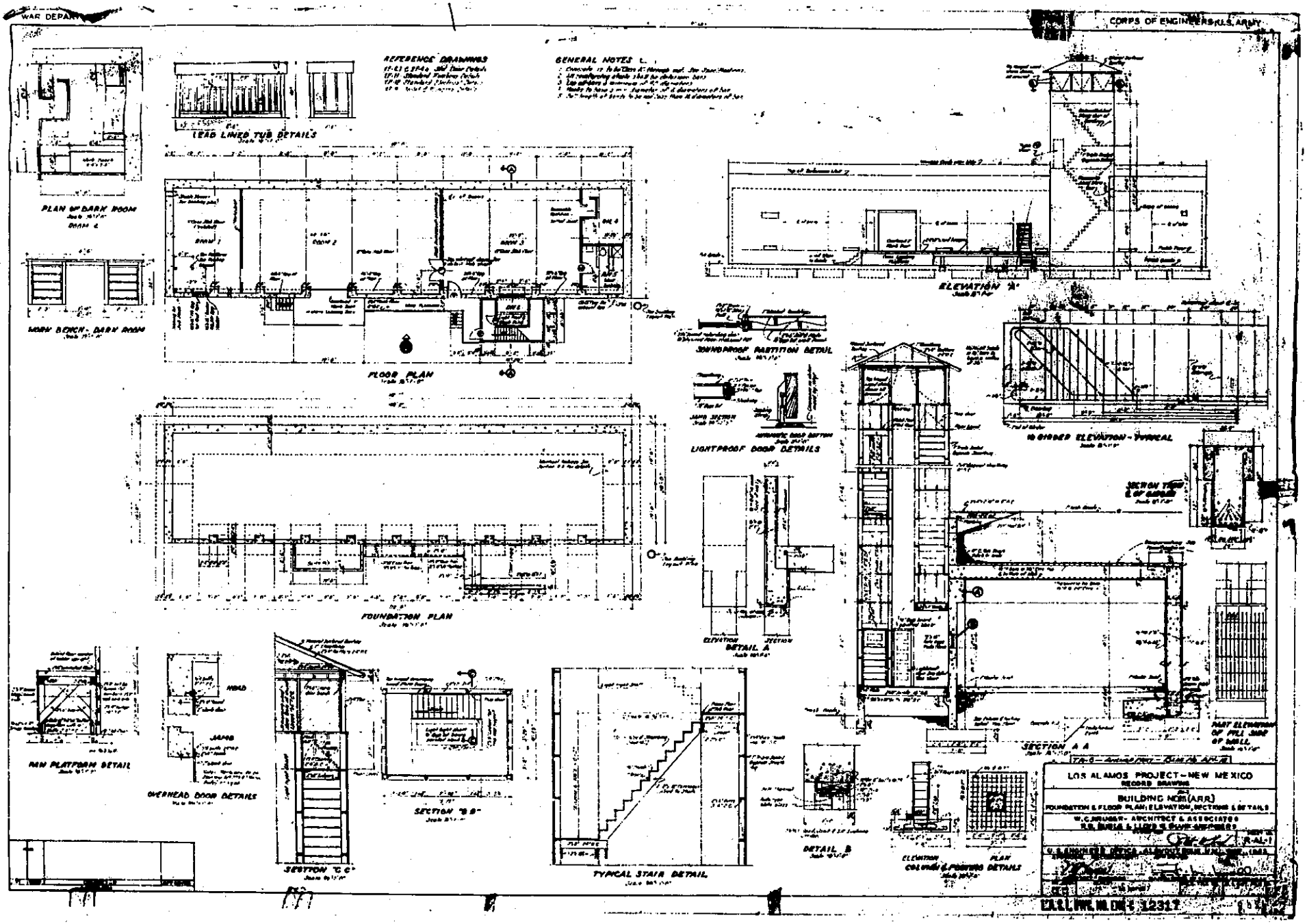
SUBMITTED E. Trujillo — RECOMMENDED — APPROVED

DRAWN H&N — CHECKED H&N — DATE 08-25-83 — SHEET NO. 1 OF 1 — DRAWING NO. ENG-R2610

261C

WAR DEPARTMENT

CORPS OF ENGINEERS, U.S. ARMY

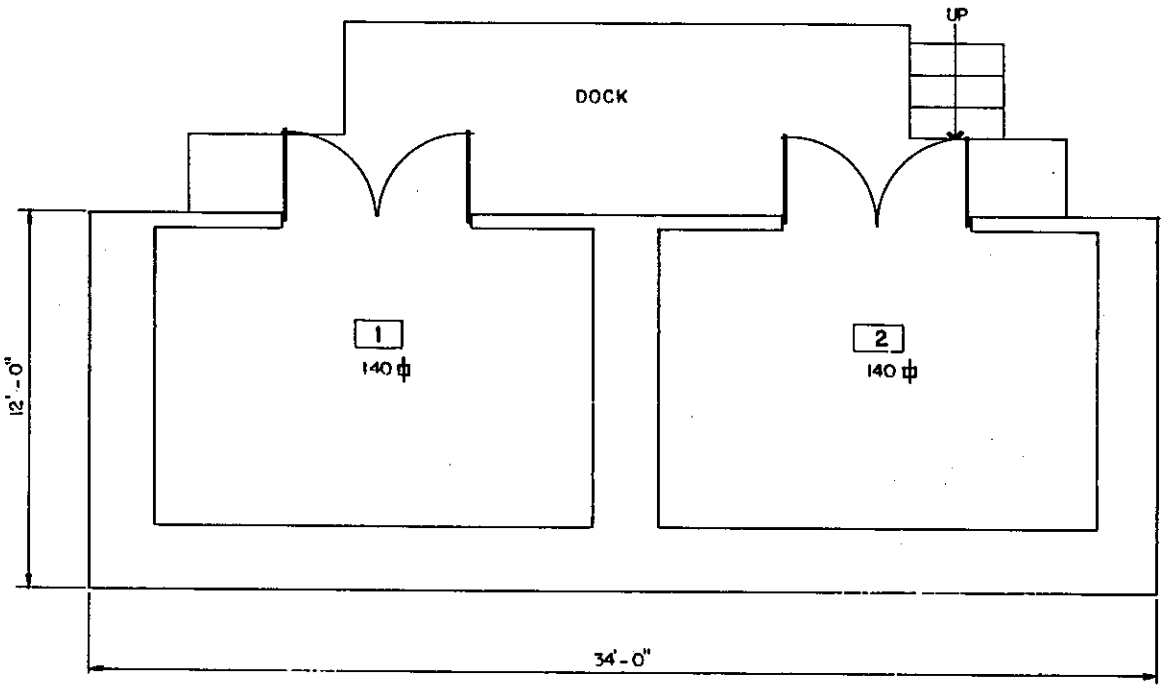


TA-8-2

Original Function: Shop and Storage
Current Function: Vacant
Historical Significance: Gun Device development and testing in support of "Little Boy" bomb.

Date Constructed: 1943
Associated Theme: Gun Device (Atomic Bomb)
Eligible?: Yes – "A" and "C"

Description:
TA-8-2 is at the west end of the "Gun Site" complex. It is a cast-in-place, board form, concrete building. It is earth bermed on the southwest elevation and the roof structure is earth covered with vegetation covering the area. A concrete retaining wall to the west connects to the building and creates the end of the drive pad in front of the group of buildings. Two double metal doors enter the building at ground level. The building is windowless. An exhaust ventilation duct is attached to the outside of the building. A unique feature of this building is the boat-tail (rounded) east elevation wall creating a robust appearance to the facility.



1/4"=1'-0"

0' 2' 4' 8'

GRAPHIC SCALE

BLDG. TOTAL..280 S.F.

REV.	DATE	REVISION	BY	CKD.	APP.
1	8-24-83	REDRAWN & REVISED TO STATUS OF AUGUST 24, 1983	HBN	EJT	DP

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FACILITIES ENGINEERING DIVISION

STORAGE BLDG.
FLOOR PLAN

SEC. CLASSIFICATION: CLASS. U

REVIEWER: Rhodes

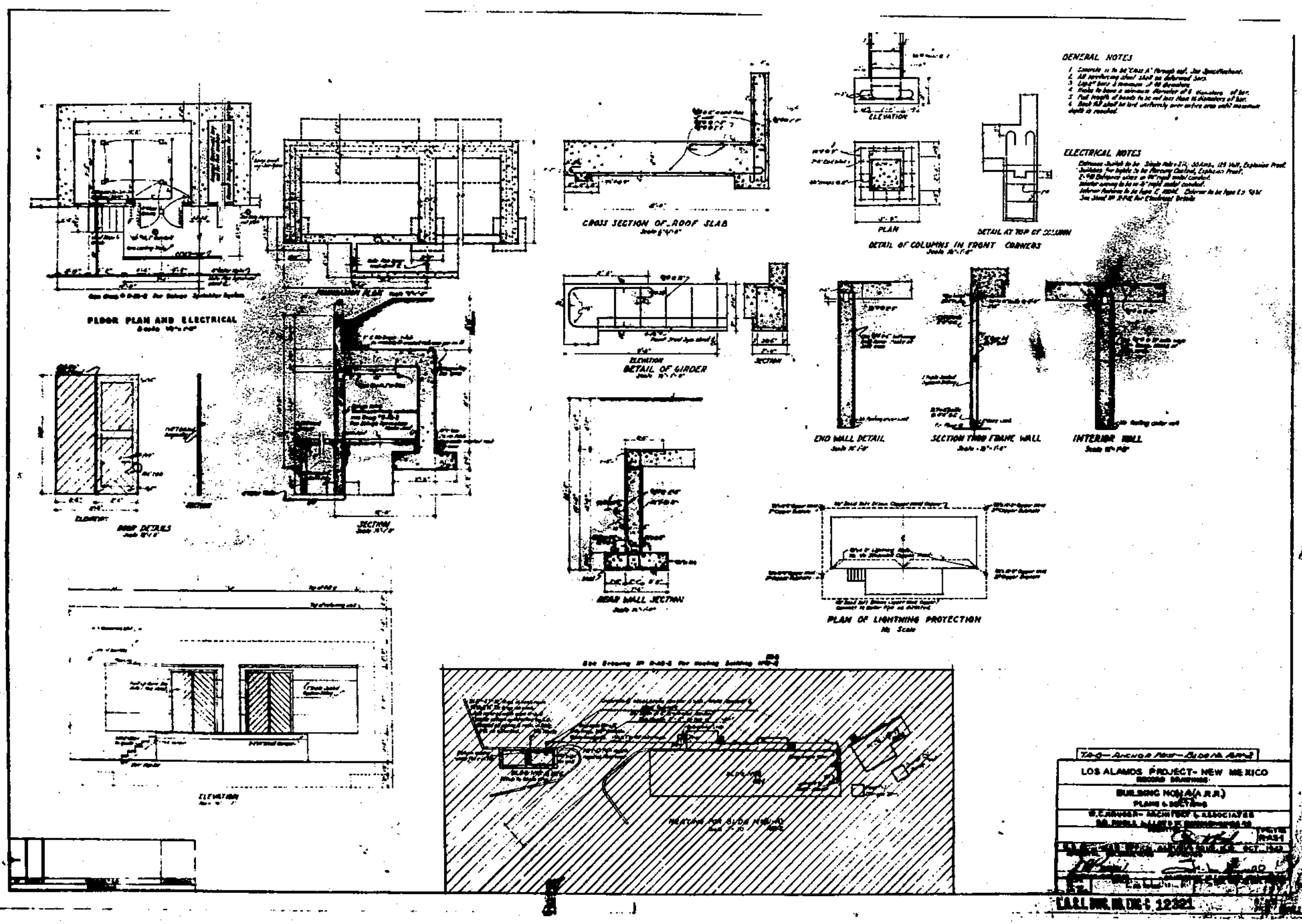
DATE: 9-6-84

BLDG. AW-2 TA-8

SUBMITTED	RECOMMENDED	APPROVED
G Trujillo	Darrin Hugo	C.F. Eldridge

DRAWN	CHECKED	DATE	SHEET NO.	DRAWING NO.
HBN	Humble H&N	08-24-83	1 OF 1	ENG-R2611

TO SHEET 2 OF 4

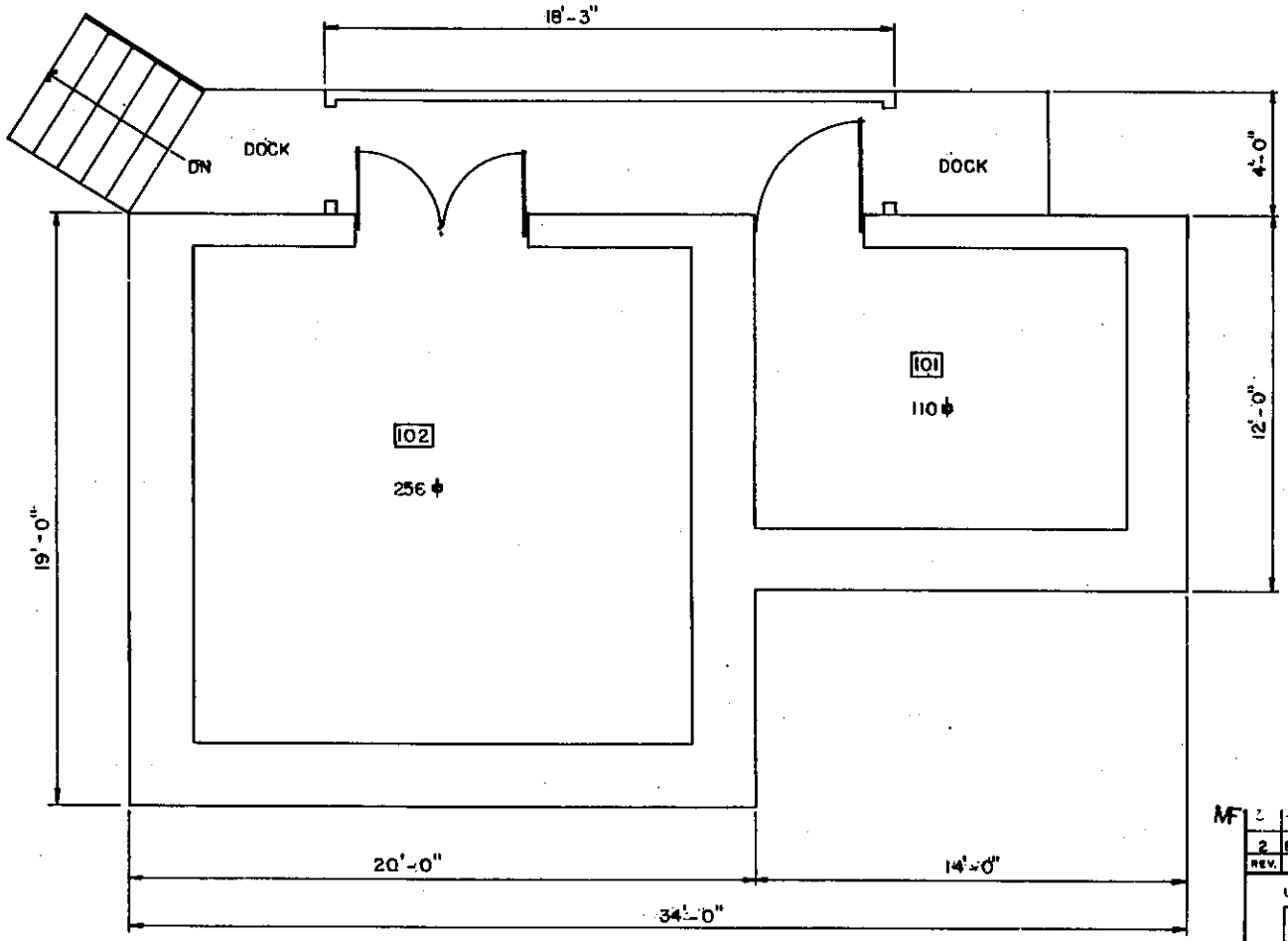

GENERAL NOTES
ELECTRICAL NOTES
FLOOR PLAN AND ELECTRICAL
CROSS SECTION OF ROOF SLAB
ELEVATION
PLAN
DETAIL AT TOP OF COLUMN
DETAIL OF COLUMNS IN FRONT CORNERS
DETAIL OF GIRDER
SECTION
END WALL DETAIL
SECTION THRU FRAME WALL
INTERIOR WALL
DOOR DETAILS
REAR WALL SECTION
PLAN OF LIGHTNING PROTECTION
No Scale
LOS ALAMOS PROJECT- NEW MEXICO
PLANS & SECTIONS

TA-8-3

Original Function: Laboratory
Current Function: Vacant
Historical Significance: Gun Device development and testing in support of "Little Boy" bomb.

Date Constructed: 1943
Associated Theme: Gun Device (Atomic Bomb)
Eligible?: Yes – "A" and "C"

Description:
TA-8-3 is physically attached to the east end of building 8-1; an interior wall partitions the structures. The building is cast-in-place concrete with the original board formwork visible. It is earth-sheltered on the south elevation and the earth continues up onto the structure and creates an earthen roof, topped with vegetation. Entry into the building is on the north side through a wood-frame vestibule attached to the concrete structure. A massive timber and earth filled blast wall stands outside the entry. There are no windows except the light panel in the exterior door. A wood-frame stair leads up the east end of the building onto the dirt roof and provides access to steam utility manholes.



1/4"=1'-0"

0 2 4 8'

GRAPHIC SCALE

BLDG. TOTAL 366 S.F.

REV.	DATE	REVISION	BY	CKD.	APP.
2	8-25-83	REDRAWN & REVISED TO STATUS OF AUGUST 25,1983	H&N		

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Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

LABORATORY BLDG.
FLOOR PLAN

SEC. CLASSIFICATION: CLASS. U; REVIEWER; DATE 9-6-84

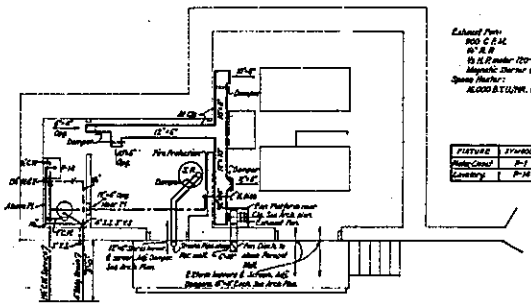
BLDG. AW-3 TA-8

SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo		W. T. Enlow

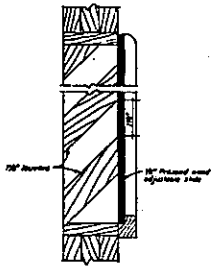
DRAWN H&N
CHECKED H&N
DATE 08-25-83
SHEET NO. 1 OF 1
DRAWING NO. ENG-R2612

WAR DEPARTMENT

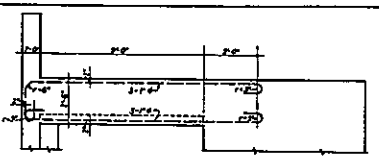
CORPS OF ENGINEERS, U.S. ARMY



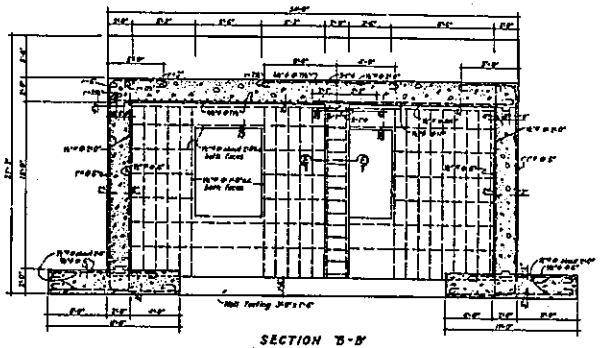
PLAN - VENTIL-NTG. - PLBG.
Scale 1/8" = 1'-0"



DOOR LOUVER SECTION
Scale 6" = 1'-0"

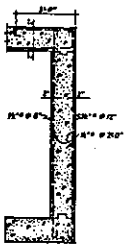


ELEVATION BEAM B-1
Scale 1/4" = 1'-0"

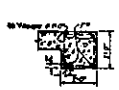


SECTION "B-B"
(Without Floor Slab)
Scale 1/4" = 1'-0"

PART SECTION "D-D"
Scale 1/4" = 1'-0"

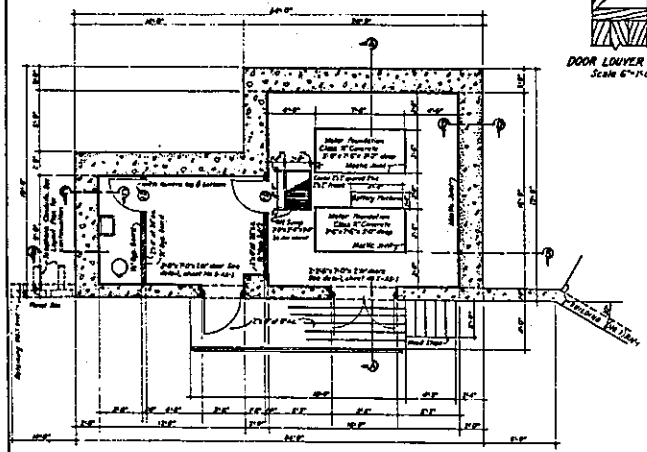


PART SECTION "C-C"
Scale 1/4" = 1'-0"

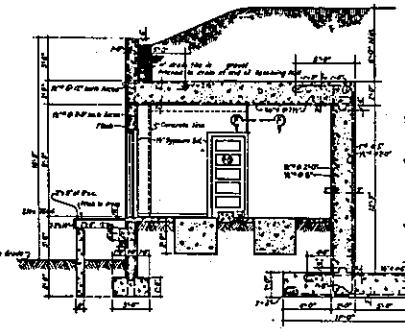


PART SECTION "E-E"
Scale 1/4" = 1'-0"

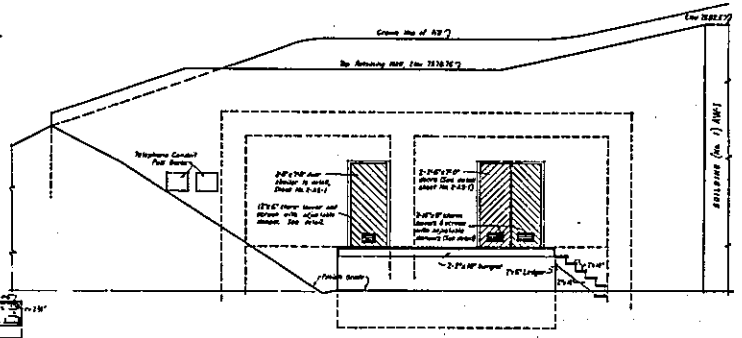
PART SECTION "F-F"
Scale 1/4" = 1'-0"



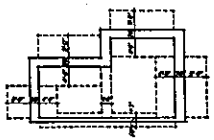
PLAN
Scale 1/4" = 1'-0"



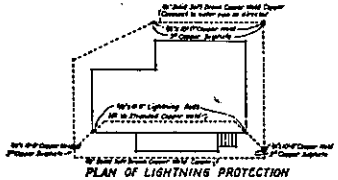
SECTION "A-A"
Scale 1/4" = 1'-0"



FRONT ELEVATION
Scale 1/4" = 1'-0"



FOOTING PLAN
Scale 1/4" = 1'-0"



PLAN OF LIGHTNING PROTECTION
No Scale

GENERAL NOTES

1. Concrete is to be Class "A" throughout. See Specifications.
2. All reinforcing steel shall be deformed bars.
3. Lap all bars a minimum of 40 diameters.
4. Hooks to have a minimum diameter of 6 diameters of bar.
5. Full length of bends to be not less than 16 diameters of bar.
6. Backfill shall be laid uniformly over entire area until maximum depth is reached.

LOS ALAMOS PROJECT - NEW MEXICO

BUILDING (NO. 1 B) (A.R.R.)
PLANS & DETAILS

W.C. KRUGER - ARCHITECT & ASSOCIATES
R.D. RUBLE & LLOYD W. SHANK - ENGINEERS

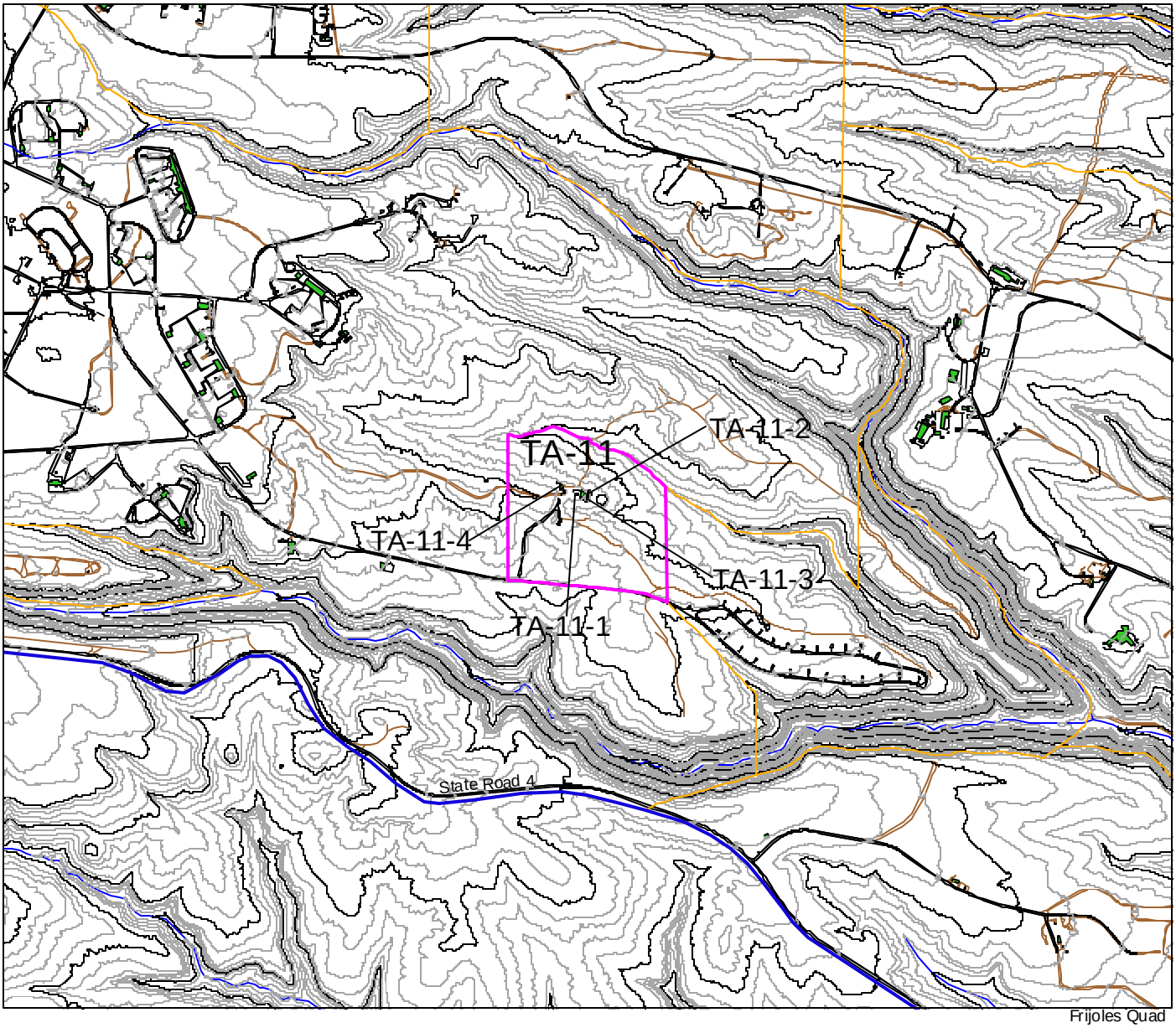
SUBMITTED: [signature] — SHEET NO. X-AT-1

U.S. ENGINEER OFFICE, ALBUQUERQUE, N.M. JUNE, 1943

APPROVAL RECOMMENDED: [signature] — APPROVED: [signature]

L.A.S.L. DWG. NO. ENG-C 1500S

2076



Frijoles Quad

Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:24000

900 0 900 1800 2700 3600 Feet

200 0 200 400 600 800 Meters

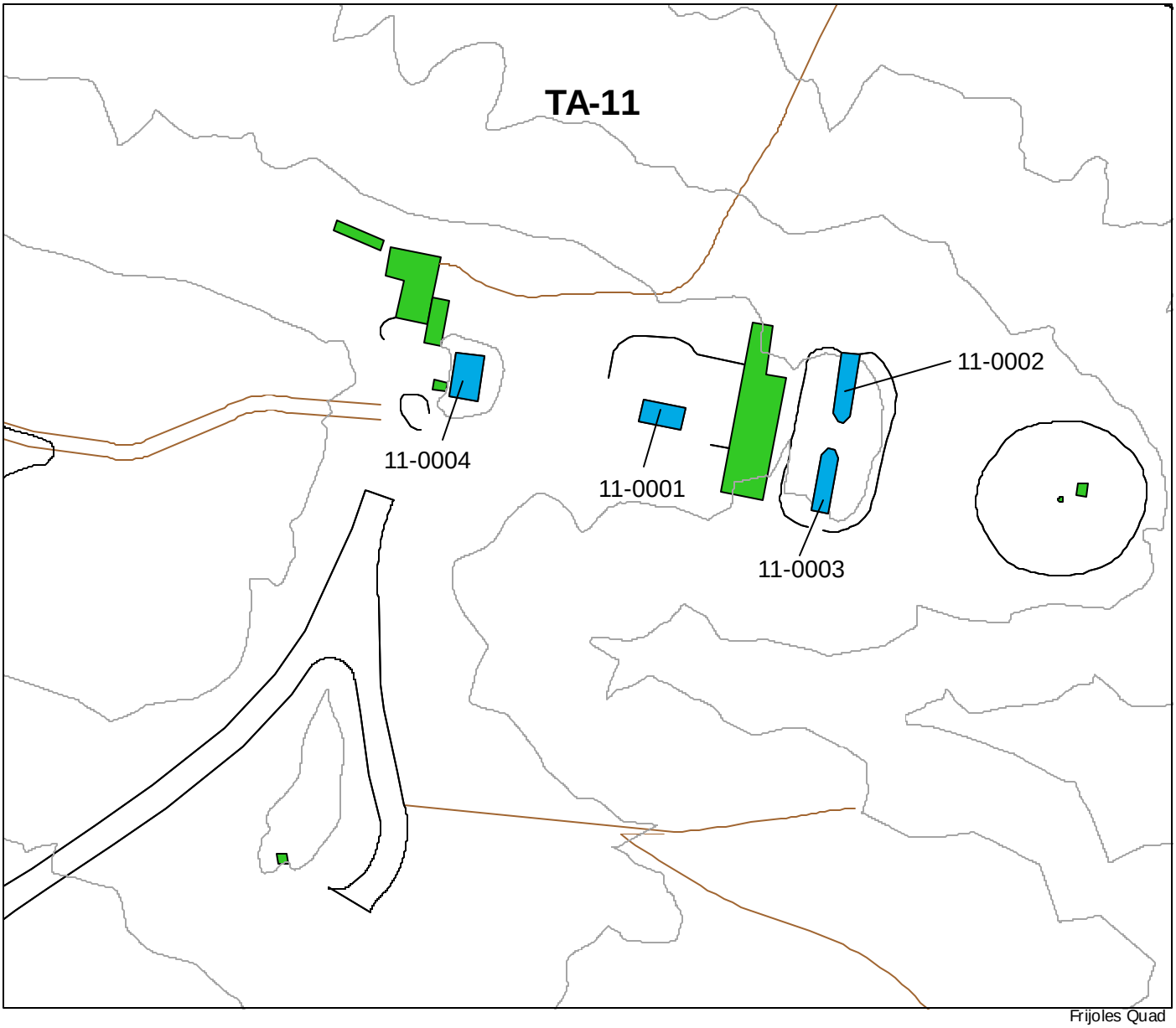
N
W E
S

- Manhattan Project Buildings
- Los Alamos National Laboratory
- Tech Area 11
- Tech Areas
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Township, Section, Range
- USGS 7.5 Minute Quad
- Roads
- Roaddirt
- Parkpave
- Parkdirt
- Buildings/Structures

Manhattan Project Buildings

TA-11

Map 9



Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:1500

60 0 60 120 180 240 Feet

20 0 20 40 60 Meters

N
W E
S

Manhattan Project Buildings
Los Alamos National Laboratory
Tech Area 11
Tech Areas
20 Foot Contours
100 Foot Contours
Drainage
Township, Section, Range
USGS 7.5 Minute Quad
Roads
Roaddirt
Parkpave
Parkdirt
Buildings/Structures

Manhattan Project Buildings

TA-11 Closeup

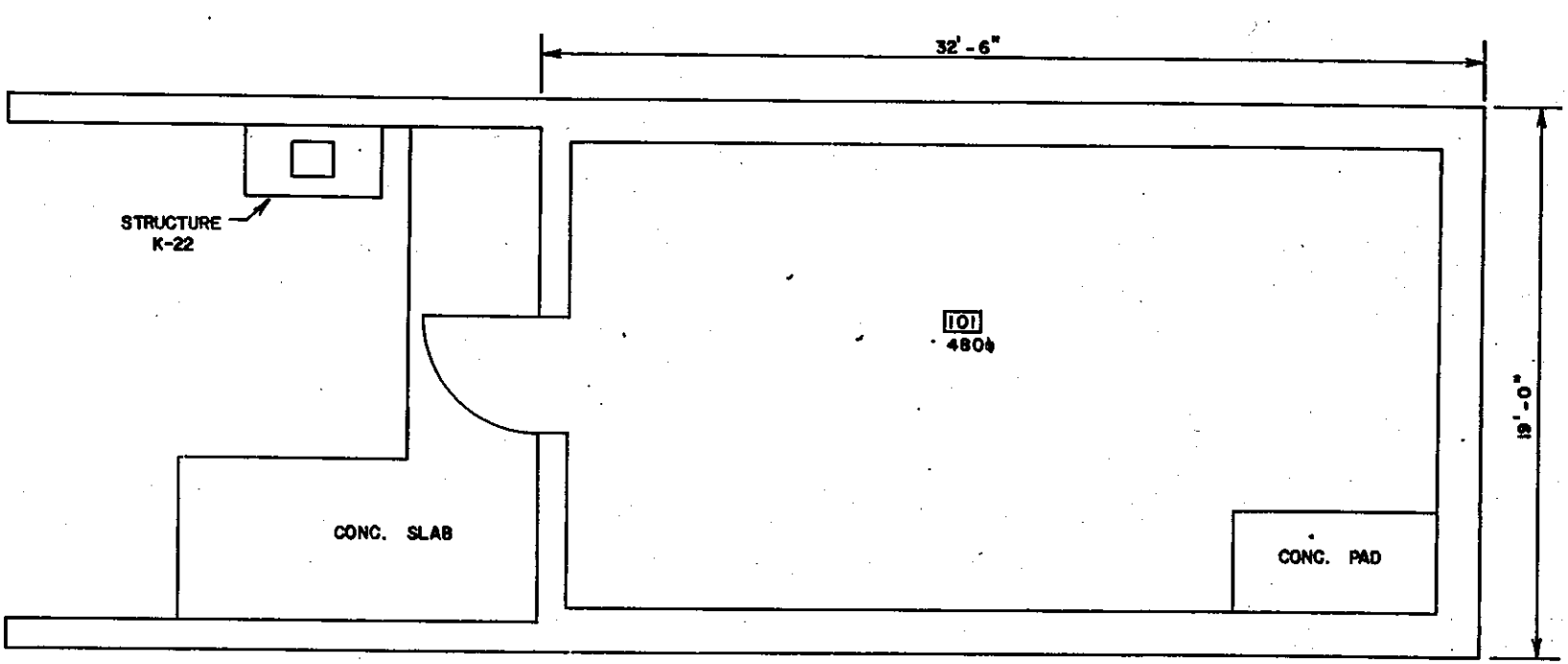
Map 10

TA-11-1

Original Function: Control Laboratory
Current Function: Storage Building
Historical Significance: Betatron diagnostic studies in support of spherical implosion research.
Date Constructed: 1944
Associated Theme: Implosion
Eligible?: Yes – "A"

Description:
Building TA-11-1 is one story in height and rectangular in plan. The structure measures 19 ft by 32 ft 6 in., excluding the protruding wing walls. The single-room interior contains 480 ft^2 of floor space. The structure was constructed with board-formed heavily reinforced concrete walls and flat roof and isolated floor. A compacted earth berm covers the north, east, and south sides and the roof of the building for added protection. A concrete entrance pad, an entry door, and an exhaust vent are located on the exposed west side of the building. The entry door is a steel-frame wood plank door with heavy-duty strap hinges and a steel lever door handle. Reinforced concrete retaining walls with aluminum flashing, constructed perpendicular to the entry wall, angle down from the roof level of the structure to grade level.

The control room floor was constructed with reinforced concrete footings and a 10 in. reinforced concrete slab over a layer of sawdust, sand, and compacted earth. The walls and roof were also constructed of reinforced concrete and finished with two coats of dust-proof enamel. Floor trenches, measuring 8 in. by 12 in., were constructed into the concrete floor and lined with galvanized sheet metal. An isolated concrete pad, located in the northeast corner of the control room, supported the transformer.



1/4" = 1'-0"

0 1 2 3 4 5 6 7 8 9 10

GRAPHIC SCALE

TOTAL SQ. FT. 480

REV.	DATE	REVISION	BY	CKD.	APP.
1	9-30-83	REDRAWN AND REVISED TO STATUS OF 8-30-83	HKN		

MF

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Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

STORAGE BUILDING
FLOOR PLAN

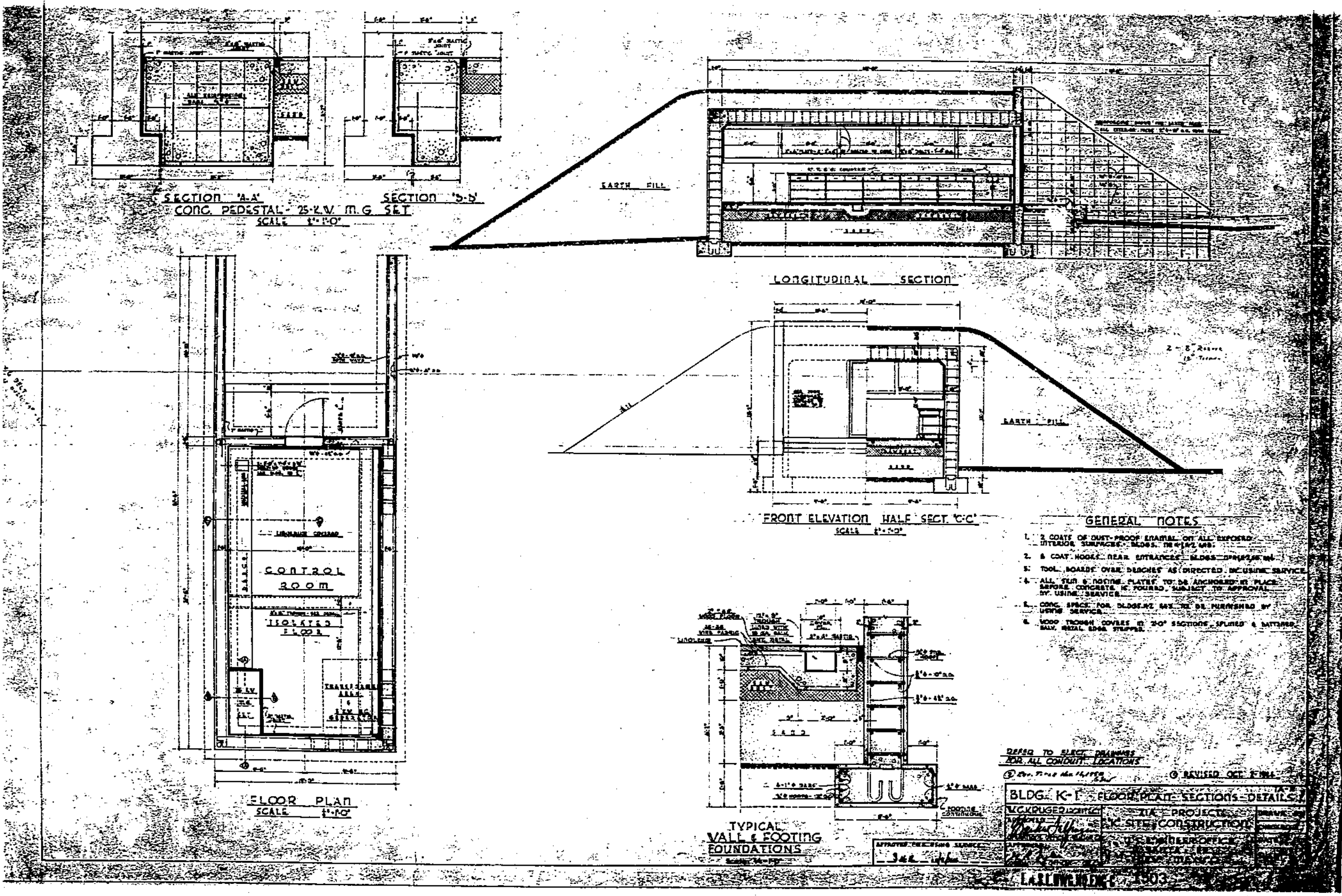
BLDG. K-1 TA-11

SEC. CLASSIFICATION: CLASS. U; REVIEWER; DATE 9-6-84

SUBMITTED	RECOMMENDED	APPROVED
E Trujillo	Dawn Pinto	W.F. Clark

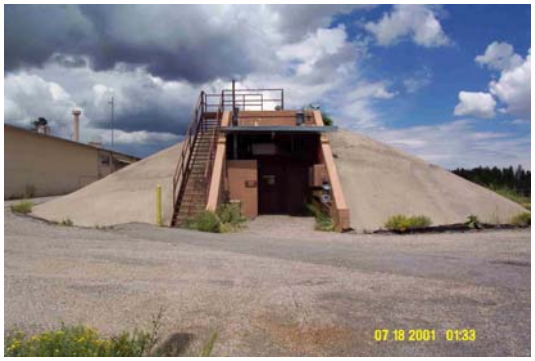
DRAWN	CHECKED	DATE	SHEET NO.	DRAWING NO.
KENNEDY - HKN	HKN	8-30-83	1 OF 1	ENG-R2684

REC'D ..... LOGGED ✓ TO VAULT



SECTION 'A-A'
SECTION 'B-B'
CONC. PEDESTAL - 25-K.V. M.G. SET
SCALE 1" = 1'-0"
EARTH FILL
LONGITUDINAL SECTION
EARTH FILL
FRONT ELEVATION HALF SECT. 'C-C'
CONTROL ROOM
ISOLATED FLOOR
FLOOR PLAN
TYPICAL WALL & FOOTING FOUNDATIONS
GENERAL NOTES
1. 2 COATS OF DUST-PROOF ENAMEL ON ALL EXPOSED INTERIOR SURFACES - BLDGS.
2. COAT HOOKS NEAR ENTRANCES
3. TOOL BOARDS OVER BENCHES AS DIRECTED BY USING SERVICE
4. ALL SILL & FOOTING PLATES TO BE ANCHORED IN PLACE BEFORE CONCRETE IS POURED, SUBJECT TO APPROVAL BY USING SERVICE
5. CONC. SPECS. FOR BLDGS. TO BE FURNISHED BY USING SERVICE
6. WOOD TROUGH COVERS IN 2'-0" SECTIONS, SPLINED & BATTENED, GALV. METAL EDGE STRIPPED.
REFER TO ELECT. DRAWINGS FOR ALL CONDUIT LOCATIONS
REVISED OCT.
BLDG. K-1 FLOOR PLAN - SECTIONS - DETAILS
W.C. KRUGER ARCHITECT
ZIA PROJECT
K SITE CONSTRUCTION
U.S. ENGINEER OFFICE
L.A.S.L. ENG. DWG. C 1903

TA-11-2



TA-11-3

TA-11-2 and TA-11-3

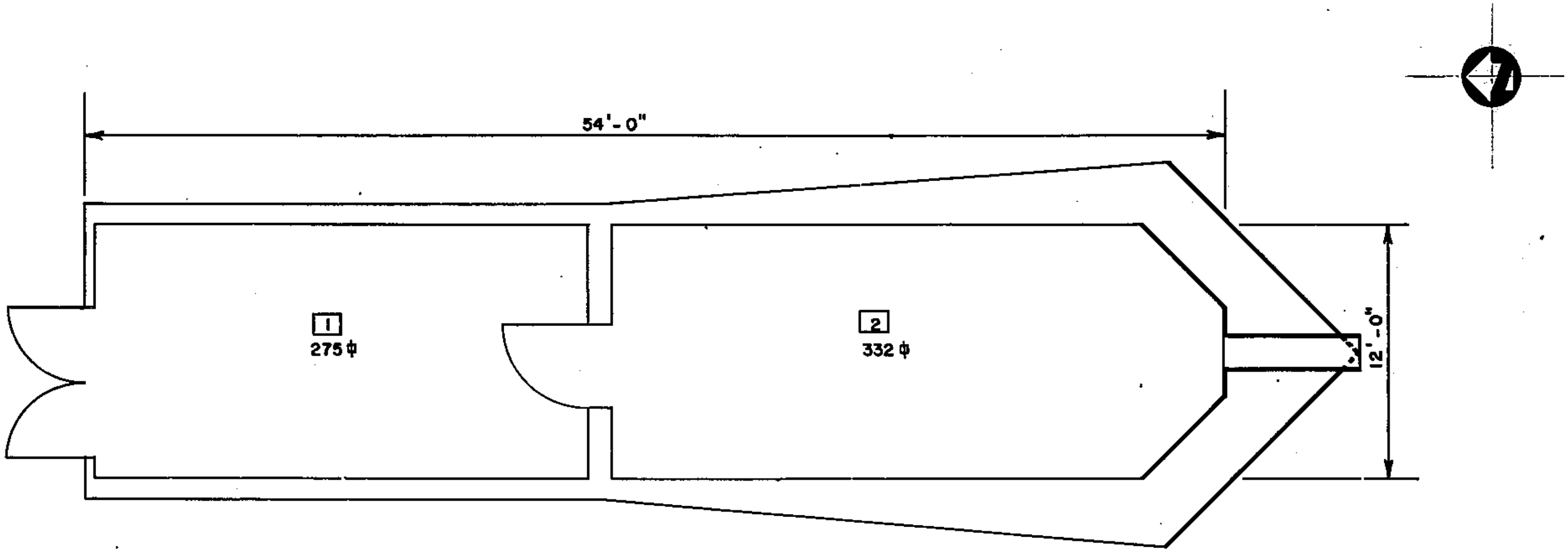
Original Function: Betatron and Cloud Chamber
Current Function: Control Buildings
Historical Significance: Betatron diagnostic studies in support of spherical implosion research.

Date Constructed: 1944
Associated Theme: Implosion
Eligible?: Yes – "A" and "C"

Description:
TA-11-2 and TA-11-3 are two former laboratory buildings located back-to-back at K Site. Both structures are one story in height and rectangular in plan, with a pointed end at the back side of the building. The structures were constructed with a heavily reinforced concrete foundation over sawdust and sand layers, concrete walls, and a flat concrete roof. The sidewalls of both structures thicken from 1 ft to 3 ft along the length until they terminate at a point. A 16 in. outside diameter steel pipe, located at the point, connects the two buildings together. Both the east and west sides and the roofs of the buildings are covered with compacted earth and a layer of asphalt giving the appearance of a single reinforced structure. The interior of both buildings consists of a single open room constructed with a reinforced concrete floor, walls, and ceiling. Both rooms are equipped with surface mounted conduit, HVAC ductwork, and light fixtures. A cable tray was used to house the numerous mechanical, electrical, and communication cables that spanned between the two structures.

Building TA-11-2 (Betatron): The entrance into the building is from the north side. The original steel-frame wood plank entry door was set into the exposed concrete wall flanked by two reinforced concrete angled wing walls. In 1947, the entrance and wing walls into building TA-11-2 were enclosed and equipped with chain-link partitions. A new concrete floor was installed along with 2 in. by 4 in. stud walls and ½ in. gypsum board on the interior. A shed roof was constructed with 2 in. by 6 in. rafters and roofing concrete. The entrance was renovated and the exterior covered with square seam metal siding and the roof was covered with rolled asphalt roofing material. The new entry door consists of a pair of metal doors set flush within the steel frame wall.

Building TA-11-3 (Cloud Chamber): Entry into the building is from the south side. The entrance consists of a steel-frame wood plank entry door, with strap hinges and lever latch, set into the exposed concrete wall and flanked by two reinforced concrete angled wing walls. A small toilet room is located adjacent to the entrance door on the exterior of the structure. A concrete roof extends over the entry area and is equipped with a steel observation tower accessed by steps on the southwest side. A one-ton crane is suspended from a steel crossbeam.



3/16" = 1'-0" 0 1 2 4 6 8 10

GRAPHIC SCALE

TOTAL SQ. FT. 607

MF

REV.	DATE	REVISION	BY	CKD.	APR.
2	8-31-83	REDRAWN AND REVISED TO STATUS OF 8-31-83	H&N		

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Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

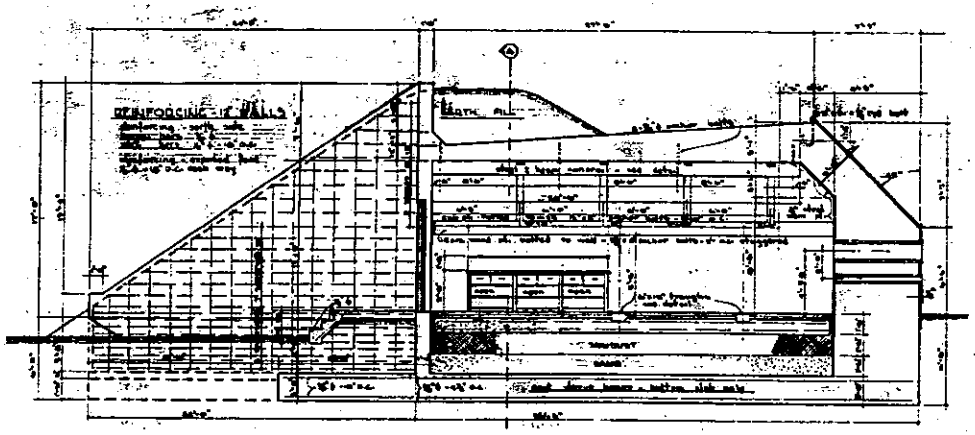
CONTROL BUILDING
FLOOR PLAN

BLDG. K-2 TA-11

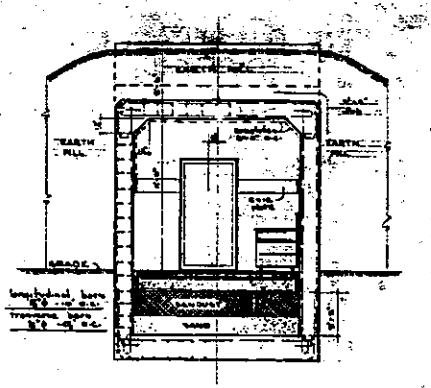
SEC. CLASSIFICATION
CLASS. U
REVIEWER
DATE 9-6-84

SUBMITTED E. Trujillo
RECOMMENDED
APPROVED

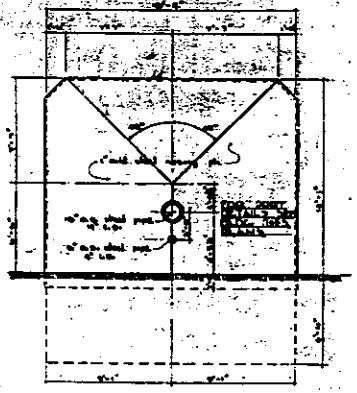
DRAWN KENNEDY · H&N
CHECKED Humble H&N
DATE 8-31-83
SHEET NO. 1 OF 1
DRAWING NO. ENG-R2685



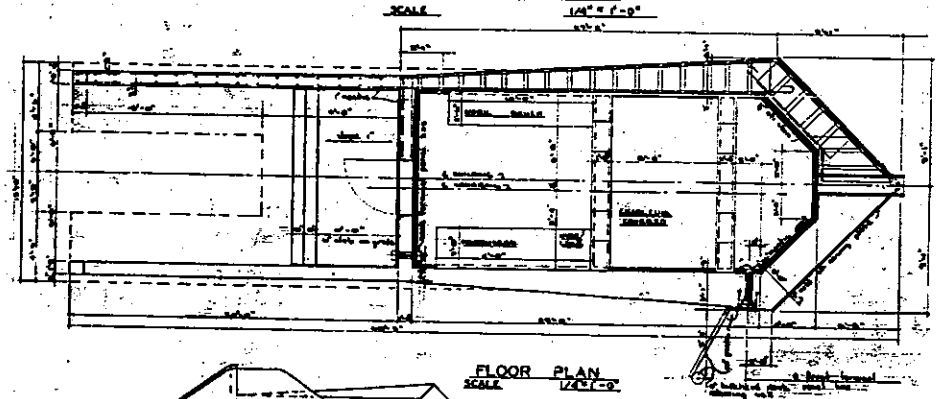
LONGITUDINAL SECTION
SCALE 1/4" = 1'-0"



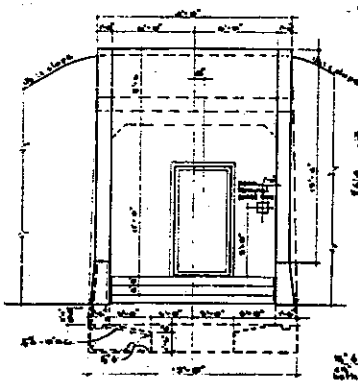
SECTION "A-A"
SCALE 1/4" = 1'-0"



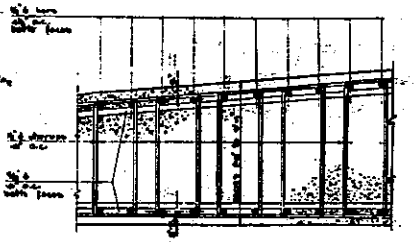
FRONT ELEVATION
SCALE 1/4" = 1'-0"



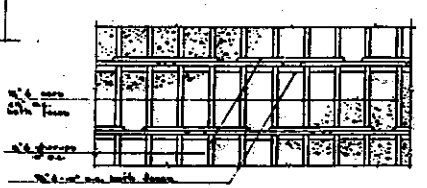
FLOOR PLAN
SCALE 1/4"=1'-0"



REAR ELEVATION
SCALE 1/4"=1'-0"

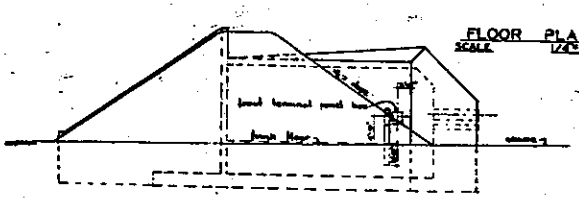


HORIZONTAL SECTION

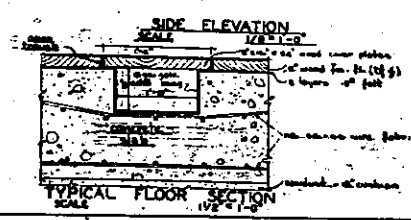


VERTICAL SECTION

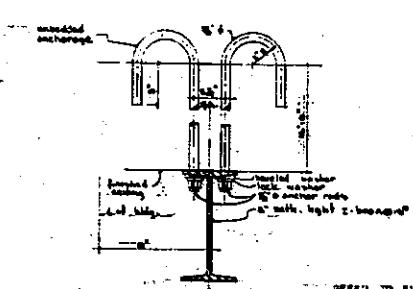
TYPICAL BARREL REINFORCEMENT
FOR WALLS & ROOF SLAB
SCALE 1½" = 1'-0"



SIDE ELEVATION
SCALE 1/8" = 1'-0"



TYPICAL FLOOR SECTION
SCALE 1½" = 1'-0"



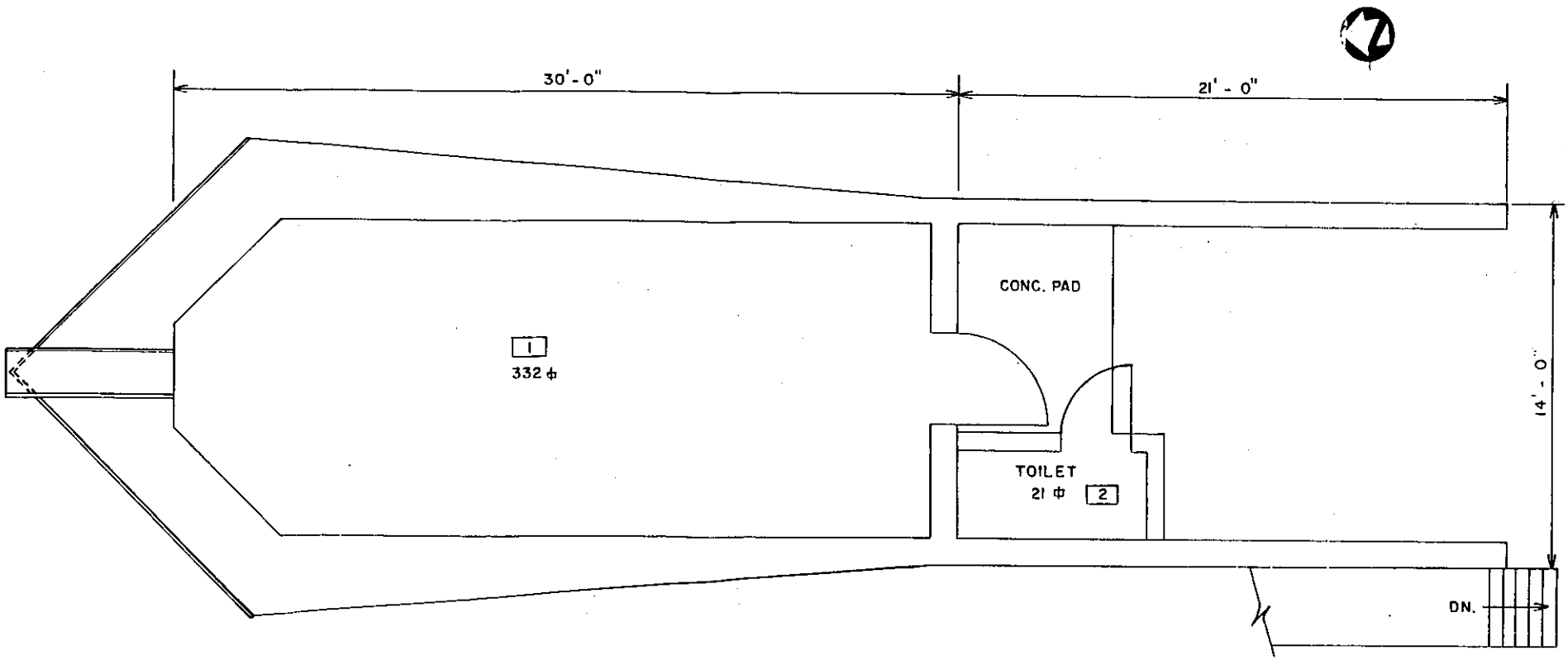
MONORAIL SUPPORT
SCALE 3/4" = 1'-0"

REFER TO ELEC'T. DRAWINGS FOR ALL CONDUIT LOCATIONS

BLDG. - K-2 FLOOR PLAN - ELEV. - SECT. - DETAILS

ARCHITECT	TA-II ZIA PROJECT 'K' SITE CONSTRUCTION	DRAWN
		CHECKED
	U.S. ENGINEER OFFICE SANTA FE NEW MEXICO	DATE 9-4-46
		SHEET NO. 2

L.A.S.L. DWG. NO. ENG-C-150 (1000)



1/4" = 1'-0"

0' 2' 4' 8'

GRAPHIC SCALE

TOTAL $\frac{ft^2}{353}$

MF

REV.	DATE	REVISION	BY	CHD.	APP.
3	2-6-84	REVISED TO STATUS OF 2-6-84	H&N		
2	8-31-83	REDRAWN & REVISED TO STATUS OF 8-31-83	H&N		

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

FACILITIES ENGINEERING DIVISION

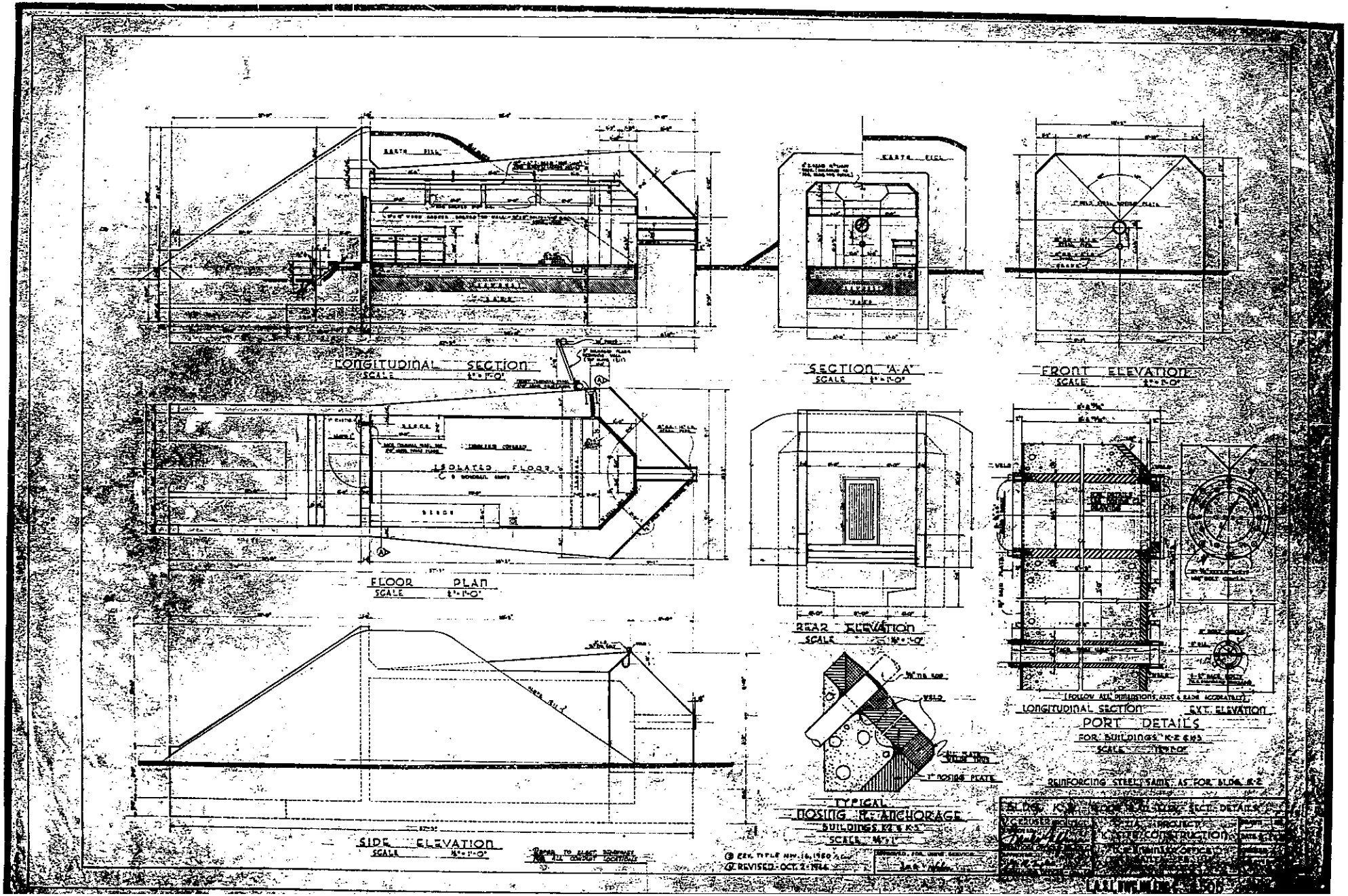
CONTROL BUILDING
FLOOR PLAN

BLDG. K-3 TA-II

SEC. CLASSIFICATION
CLASS. U
REVIEWER
DATE 3-13-84

SUBMITTED	RECOMMENDED	APPROVED
G. Trujillo		R. H. Kocher

DRAWN	CHECKED	DATE	SHEET NO.	DRAWING NO.
G. MARTINEZ	H&N	8-31-83	__ OF 1	ENG-R 2686


LONGITUDINAL SECTION
SCALE 1/8"=1'-0"
SECTION 'A-A'
SCALE 1/8"=1'-0"
FRONT ELEVATION
SCALE 1/8"=1'-0"
ISOLATED FLOOR
FLOOR PLAN
SCALE 1/8"=1'-0"
REAR ELEVATION
SCALE 1/8"=1'-0"
SIDE ELEVATION
SCALE 1/8"=1'-0"
TYPICAL
MOORING RING ANCHORAGE
BUILDINGS K-2 & K-3
SCALE 1/4"=1'
1" MOORING PLATE
(FOLLOW ALL DIMENSIONS, EXACT & SKEW ACCURATELY)
LONGITUDINAL SECTION
EXT. ELEVATION
PORT DETAILS
FOR BUILDINGS K-2 & K-3
SCALE 1/8"=1'-0"
REINFORCING STEEL SAME AS FOR BLDG. K-2
BLDG. K-2 & K-3 FLOOR & ROOFING SECT. DETAILS
PROJECT
CONSTRUCTION
REVISED - OCT. 2 - 1944

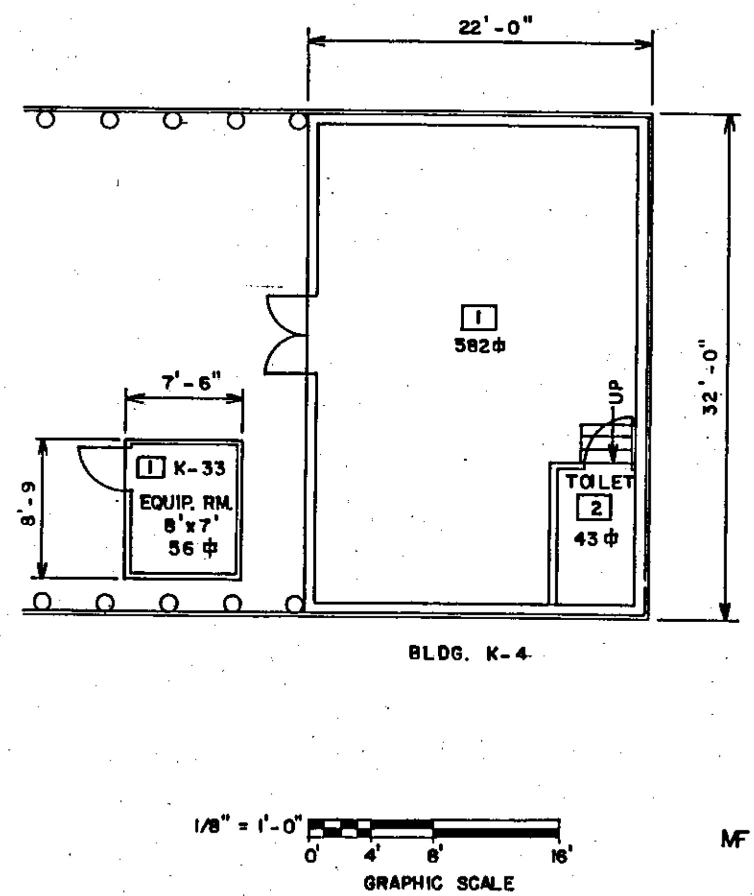
TA-11-4

Original Function: Shop/Implosion Imaging
Current Function: Control Building
Historical Significance: Betatron diagnostic studies in support of spherical implosion research.

Date Constructed: 1944
Associated Theme: Implosion
Eligible?: Yes – "A"

Description:
Building TA-11-4 was constructed as a one-story structure, approximately square in plan, and measuring 32 ft by 22 ft, excluding the protruding retaining walls. The structure was constructed with a reinforced concrete post and pier foundation, 2 in. by 12 in. wood floor joists, 2 in. by 10 in. wood stud walls, and slightly pitched 2 in. by 12 in. wood rafter shed roof. All exterior surfaces are covered with 2 in. wood sheathing and two layers of asphalt-mopped felt. Three sides of the structure and the roof are covered with compacted earth for added blast protection. The double-door entrance is located on the west side and framed with wood studs and sheathing. Ten-inch-diameter posts and angled 2 in. by 10 in. bulkhead planks were used to construct the two retaining walls. The interior was originally divided into a shop area, a dark room with light lock, and a toilet room.

In 1958, the building was converted into a control room for the High Explosives Vibration Test Facility (TA-11-30). The shop area, dark room, and light lock were removed, and new control panels and power supplies were installed. The original wood floor was removed and a 6 in. concrete slab floor installed. The original double metal doors with transom were reused during the renovation process. In 1962, the building underwent a second renovation. The original interior wood columns were removed and the top of the original floor piers removed. A new steel frame structure was installed around the original building and back-filled with earth. The entry area was re-sheathed with square seam metal siding on 3 ft concrete stem walls. The entry doors were replaced with a pair of hollow metal doors with small lights. The interior was equipped with surface mounted conduit, HVAC ductwork, and light fixtures. New control equipment and air handling units were installed in the mid 1980s.



BLDG. K-33 TOTAL $\frac{ft^2}{56}$

BLDG. K-4 TOTAL $\frac{ft^2}{625}$

MF

REV.	DATE	REVISION	BY	CKD.	APP.
2	8-30-83	REDRAWN & REVISED TO STATUS OF 8-30-83	HBN		

UNIVERSITY OF CALIFORNIA

Los Alamos — Los Alamos National Laboratory, Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

CONTROL BLDG. & EQUIPMENT RM.

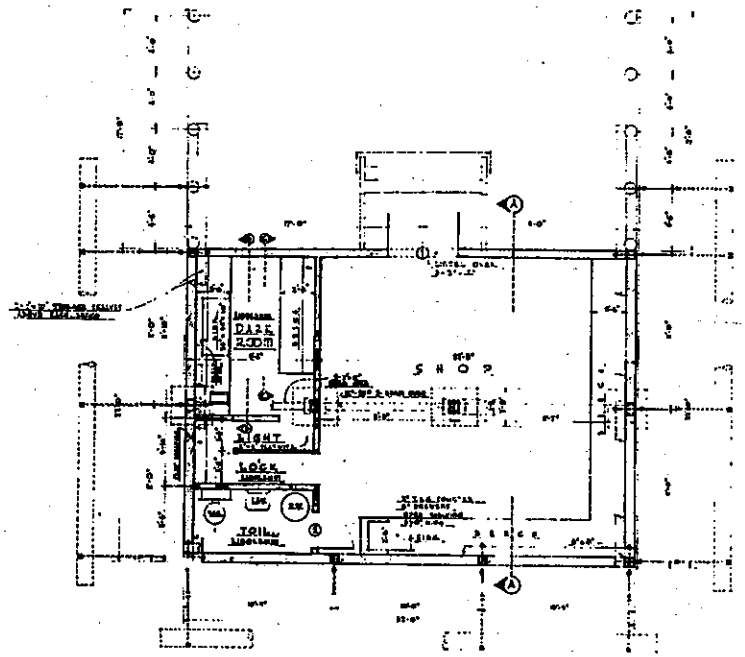
FLOOR PLAN

BLDG. K-4 & K-33 TA-II

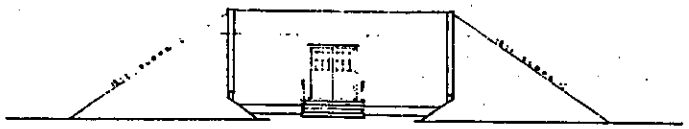
SEC. CLASSIFICATION — CLASS. U — REVIEWER — DATE 3-6-86

SUBMITTED E. Trujillo — RECOMMENDED — APPROVED

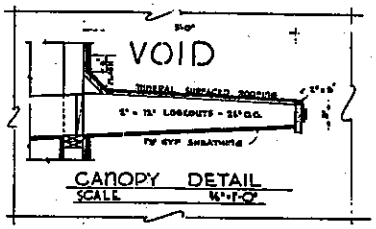
DRAWN G. MARTINEZ — CHECKED H&N — DATE 8-30-83 — SHEET NO. 1 OF 1 — DRAWING NO. ENG-R 2687



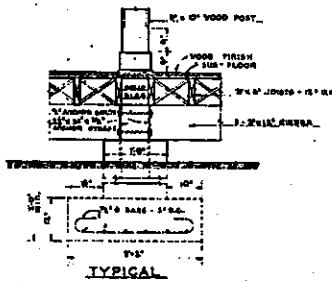
FLOOR PLAN
SCALE



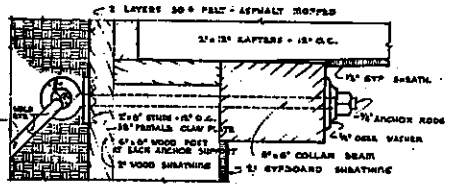
FRONT ELEVATION
SCALE



CANOPY DETAIL
SCALE



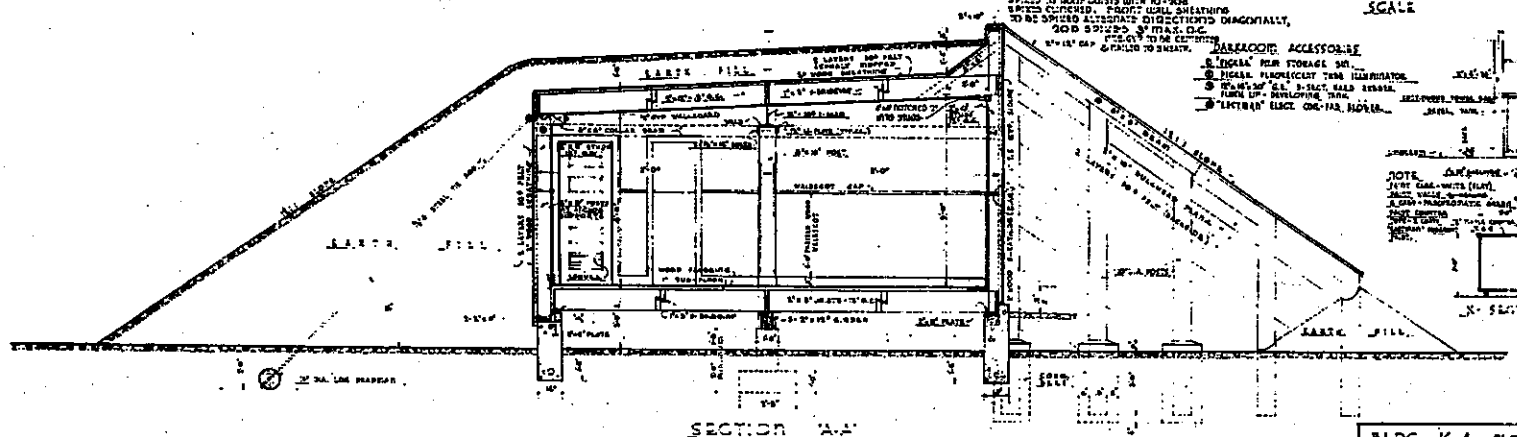
TYPICAL
COL. FOOTING DETAIL
SCALE



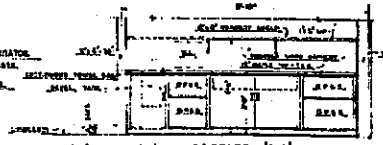
TIE-ROD COLLAR BEAM ANCHOR
SCALE

NOTE:

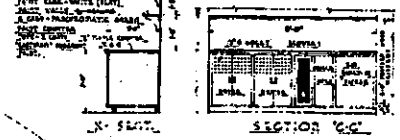
DARKROOM ACCESSORIES



SECTION "A-A"
SCALE



SECTION 'B-B'



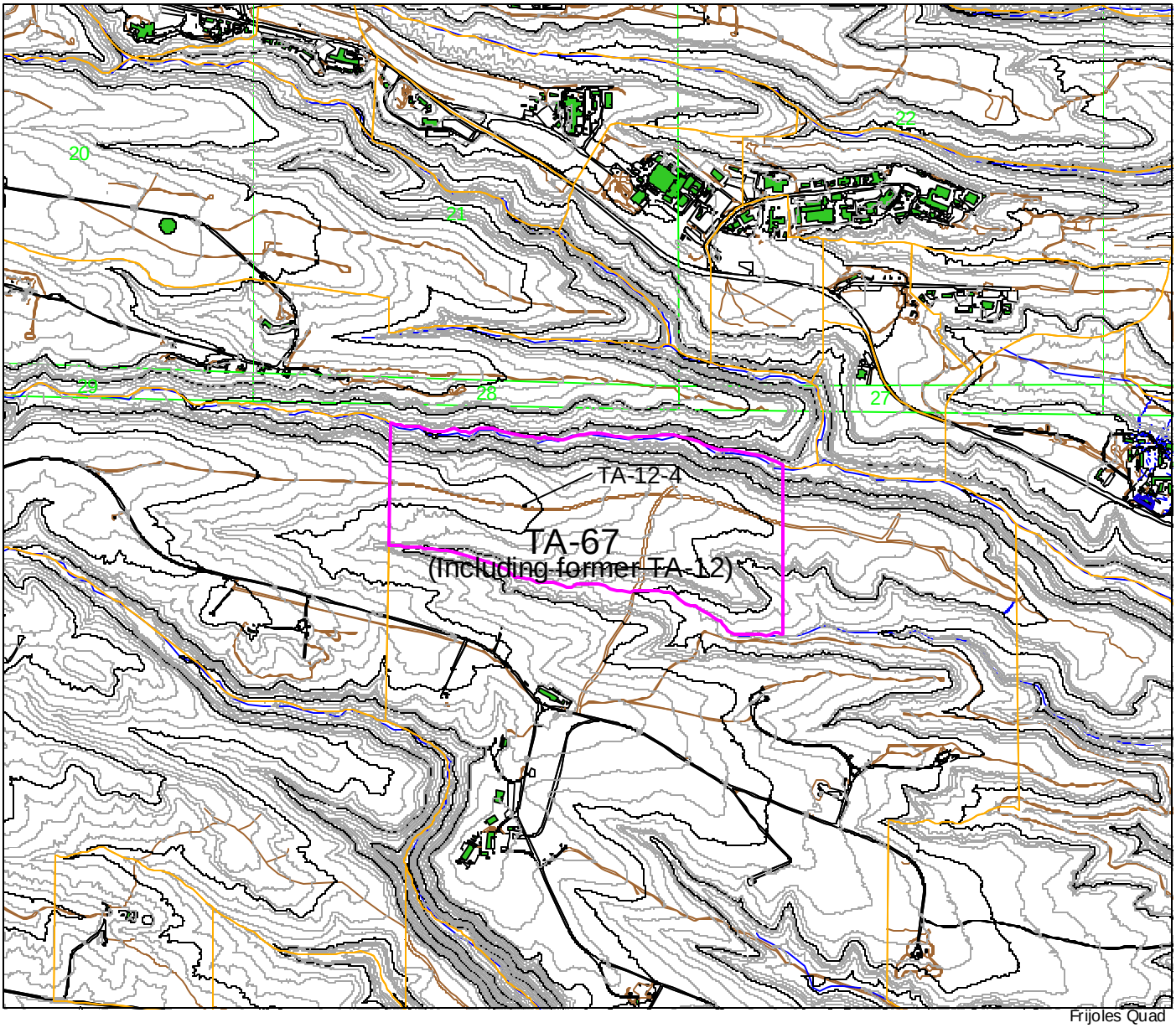
SECTION 'C-C'

DARKROOM CABINET DETAILS
SCALE

3) REV. TITLE Nov. 16, 1954
4) REVISED OCT. 6, 1966

BLDG. K-4 FLOOR PLAN - ELEV - SECTIONS - DET.		
MCKRUGER ARCHITECT	ZIA PROJECT "K" SITE CONSTRUCTION	DRAWN
		CHECKED
APPROVED FOR USING SERVICE	U.S. ENGINEER OFFICE, SANTA FE, NEW MEXICO	DATE
APPROVED		SHEET

LA-LOWENDENG-C 1506



Frijoles Quad

Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:24000

1000 0 1000 2000 3000 4000 Feet

200 0 200 400 600 800 Meters

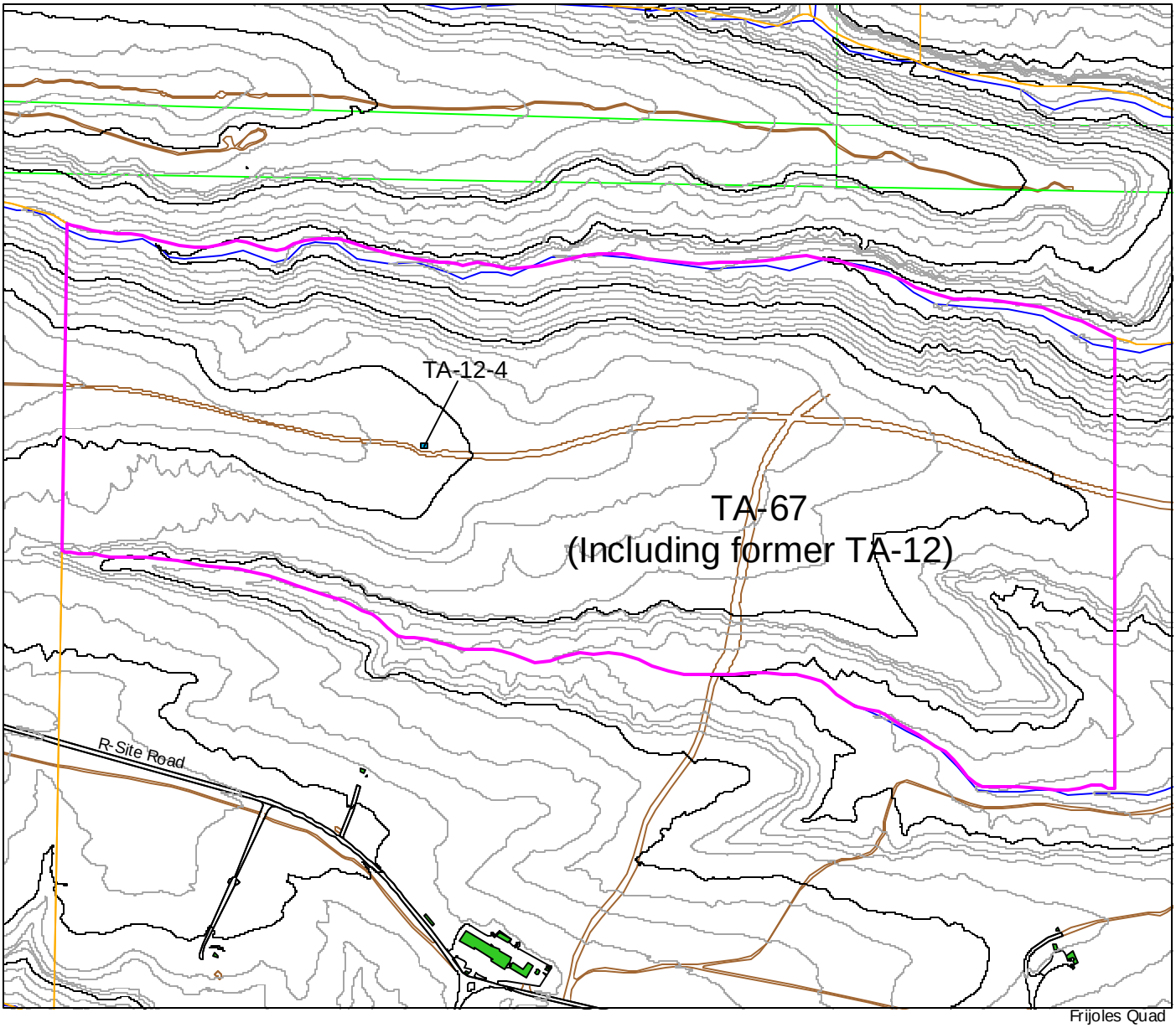
N
W E
S

- Manhattan Project Structures
- Los Alamos National Laboratory
- Tech Area 67
- Tech Areas
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Township, Section, Range
- USGS 7.5 Minute Quad
- Roads
- Roaddirt
- Parkpave
- Parkdirt
- Buildings/Structures

Manhattan Project Buildings

TA-67
(Includes Former TA-12)

Map 11



Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:9000

N
W E
S

300 0 300 600 900 1200 1500 Feet
100 0 100 200 300 400 Meters

Manhattan Project Structures
Los Alamos National Laboratory
Tech Area 67
Tech Areas
20 Foot Contours
100 Foot Contours
Drainage
Township, Section, Range
USGS 7.5 Minute Quad
Roads
Roaddirt
Parkpave
Parkdirt
Buildings/Structures

Manhattan Project Buildings

TA-67 (Including former TA-12) Closeup

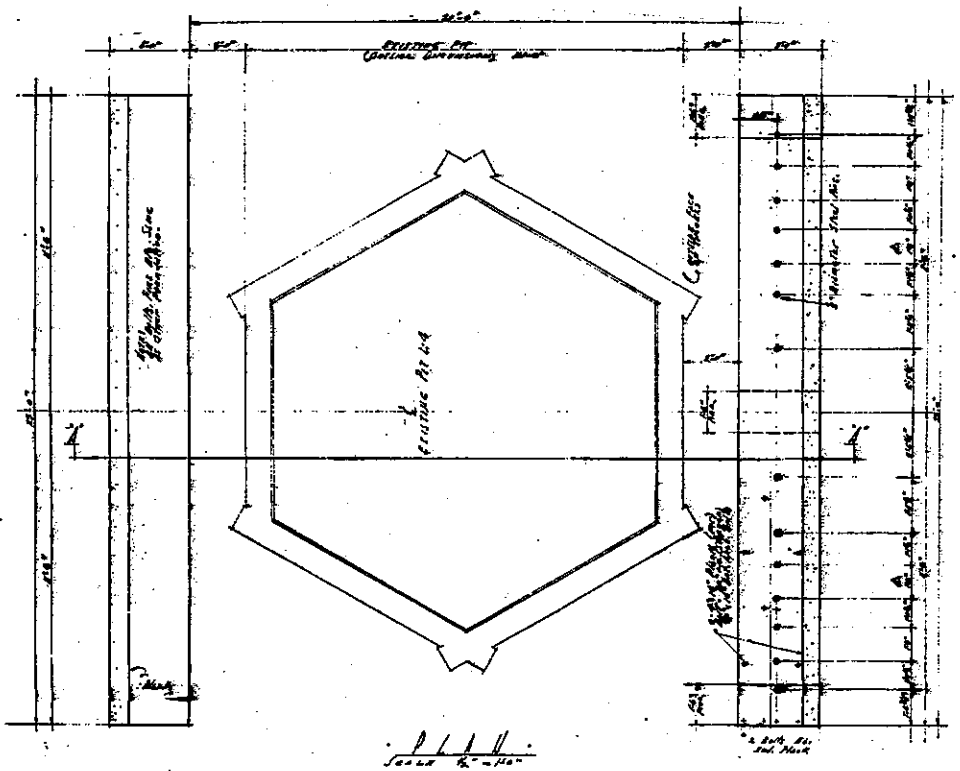
Map 12

TA-12-4

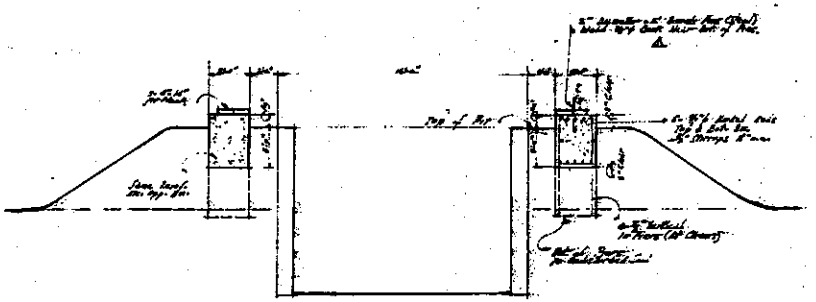
Original Function: Firing Pit
Current Function: Not in Use
Historical Significance: High explosives testing in support of implosion (atomic bomb) research.

Date Constructed: 1945
Associated Theme: Implosion/Recovery
Eligible?: Yes – "A"

Description:
TA-12-4 is a hexagonal firing pit that was constructed of heavy timber for use in explosives testing and recovery experiments. The structure has 8 ft wide sides and is 12 ft deep. The sides and top of the firing structure are lined with three-quarter in. steel plate. The structure stands alone with no supporting buildings and is situated on a human-made earthen mound. TA-12-4 was abandoned in 1953.



PLAN



SECTION-AA

OBSOLETE
DEAD STORAGE

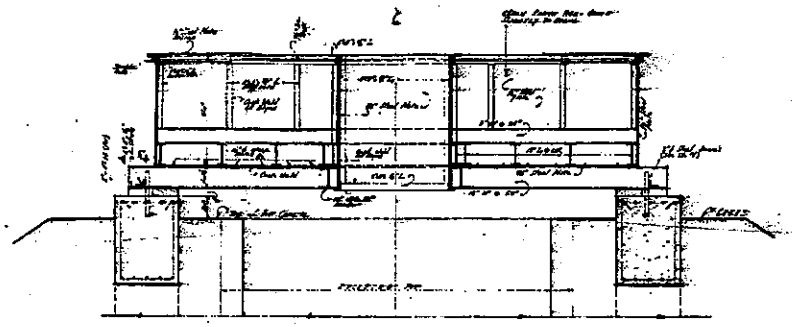
U. S. ENGINEER OFFICE
SANTA FE, NEW MEXICO

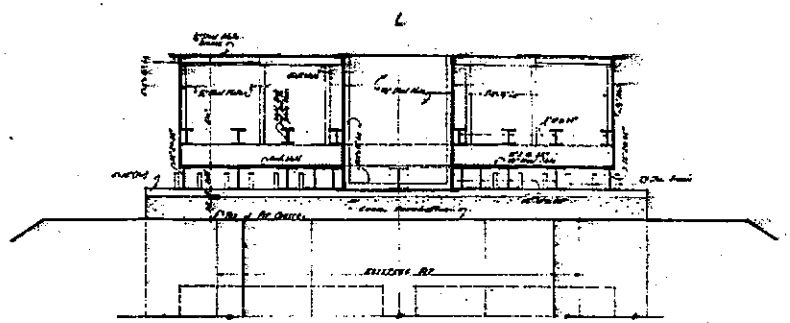
CONDITION at PIT L-4
COVER - "L" SITE TA-12

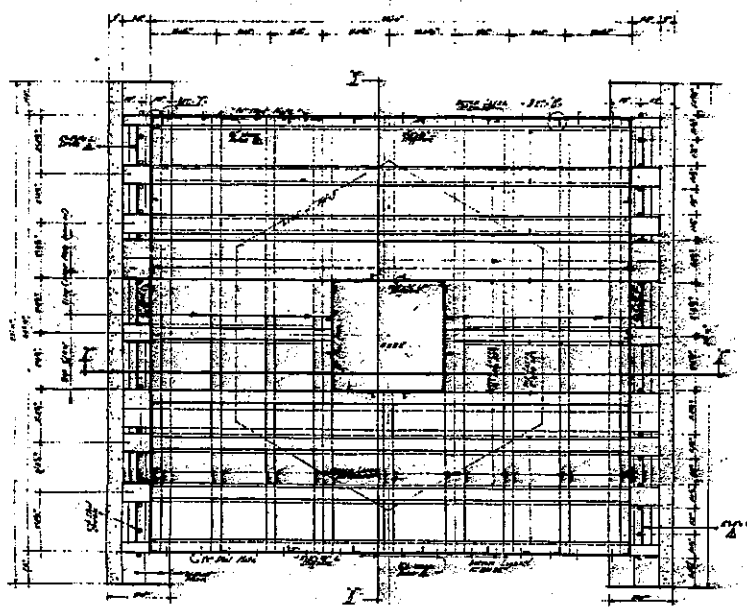
OFFICE OF POST ENGINEER

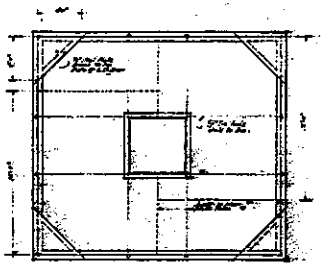
FILE NO. 190

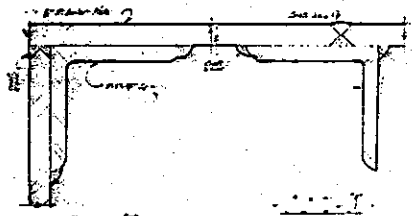
L.A.S.L DWG. NO. ENG-C 1533









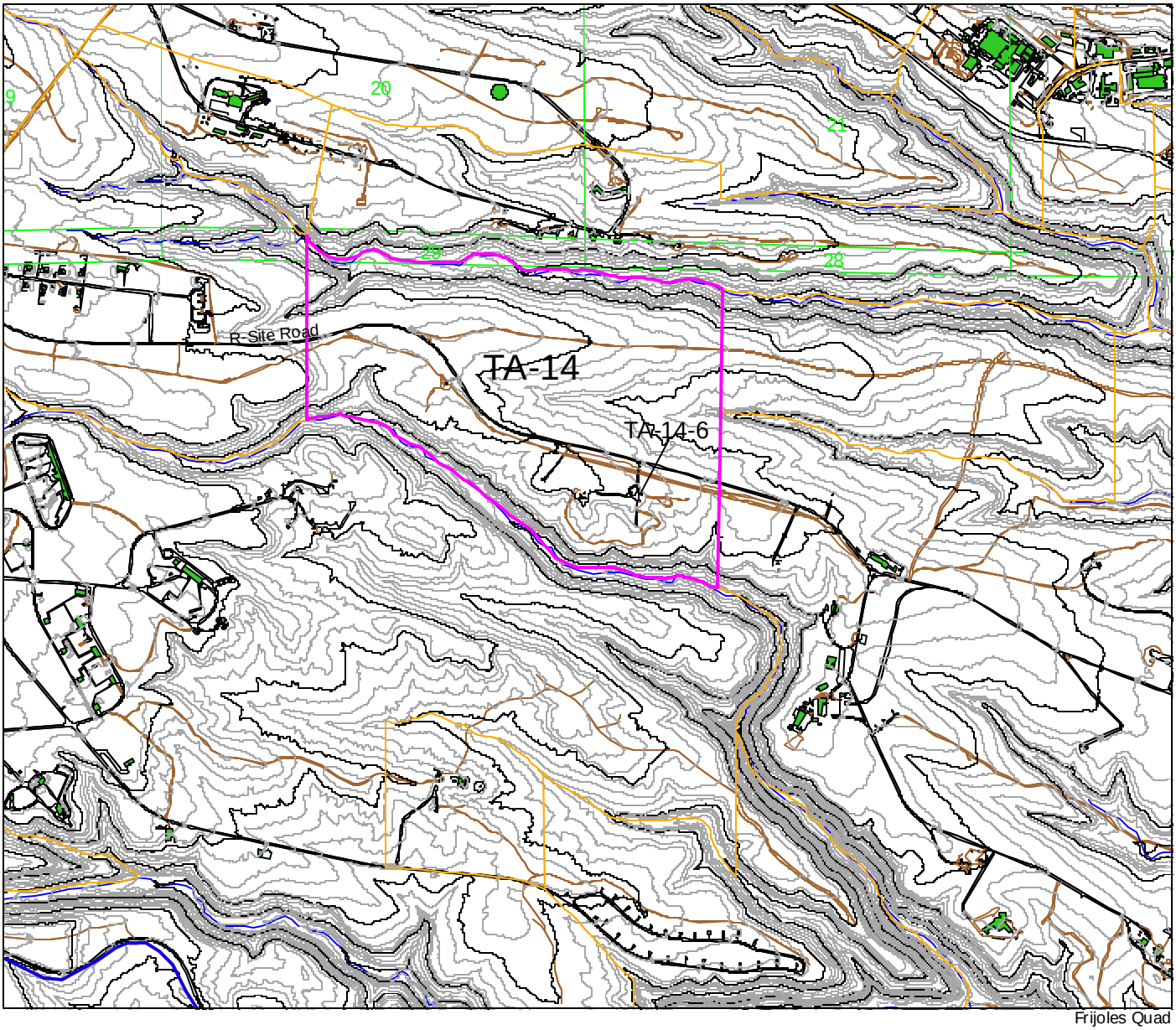


OBSOLETE
DEAD STORAGE

U. S. ENGINEER OFFICE
SANTA FE, NEW MEXICO

FILE NO. PE 170

L.A.S.LOWE HOLDING 1534



Frijoles Quad

Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:24000

800 0 800 1600 2400 3200 4000 Feet

200 0 200 400 600 800 Meters

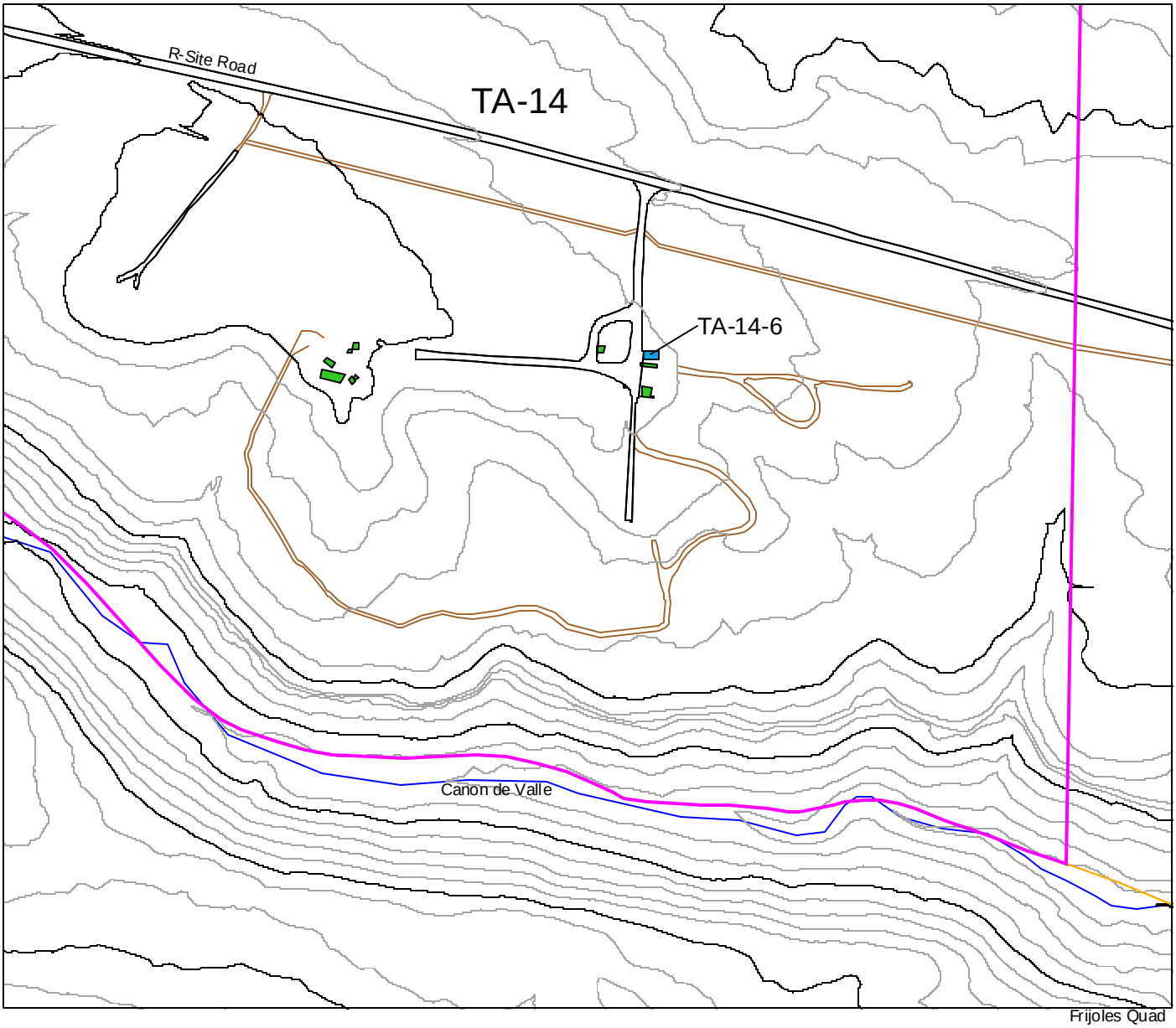
N
W E
S

Manhattan Project Buildings
Los Alamos National Laboratory
Tech Area 14
Tech Areas
20 Foot Contours
100 Foot Contours
Drainage
Township, Section, Range
USGS 7.5 Minute Quad
Roads
Roaddirt
Parkpave
Parkdirt
Buildings/Structures

Manhattan Project Buildings

TA-14

Map 13



Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:4440

300 0 300 600 Feet

100 0 100 Meters

N
W E
S

Manhattan Project Buildings

TA-14 Closeup

- Manhattan Project Buildings
- Los Alamos National Laboratory
- Tech Area 3
- Tech Areas
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Township, Section, Range
- USGS 7.5 Minute Quad
- Roads
- Roaddirt
- Parkpave
- Parkdirt
- Buildings/Structures

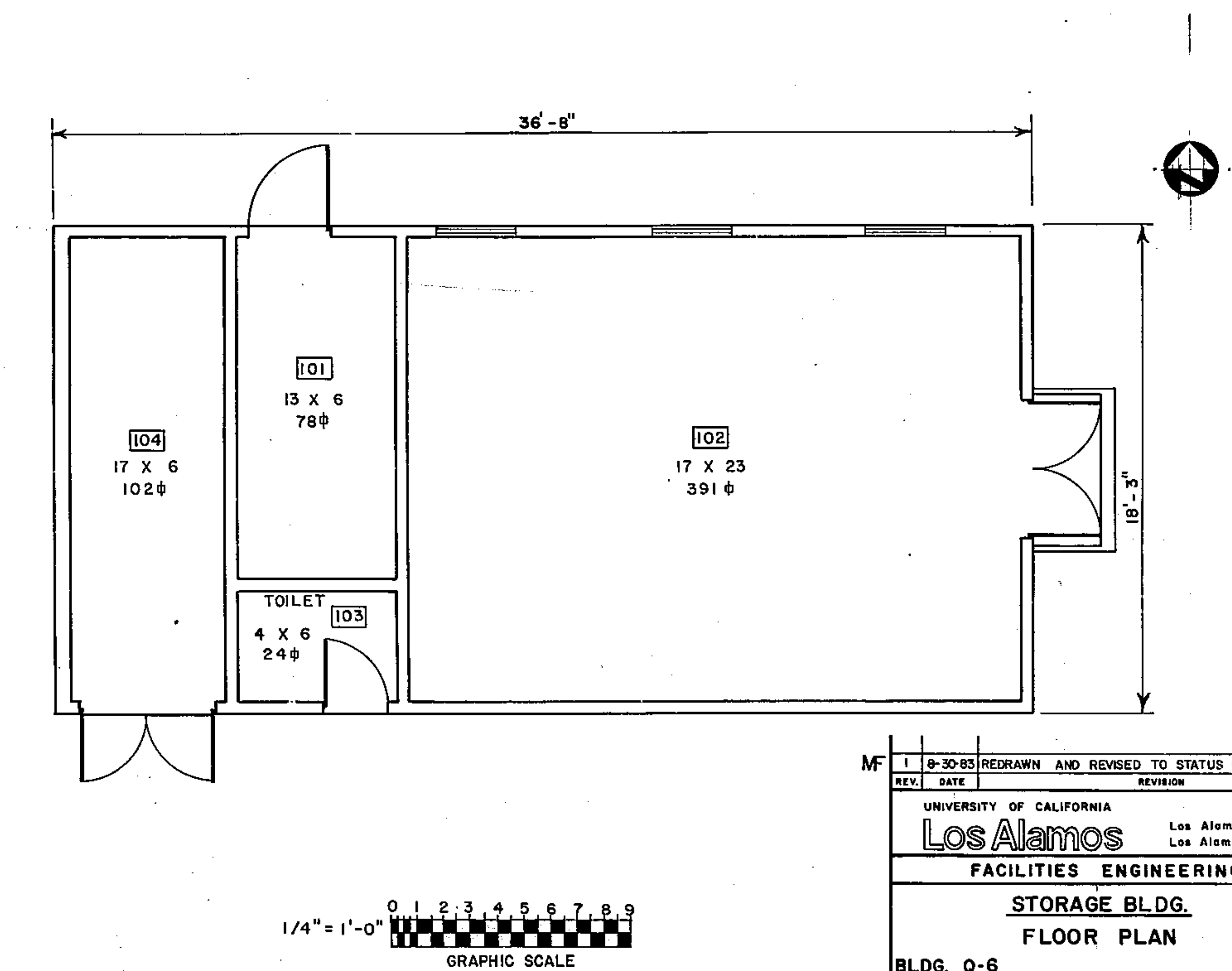
Map 14

TA-14-6

Original Function: Shop and Dark Room
Current Function: Storage Building
Historical Significance: Small-scale implosion studies supported implosion bomb, "Fat Man" research.

Date Constructed: 1944
Associated Theme: Implosion
Eligible?: Yes – "A"

Description:
TA-14-6 is a small, wood-frame building built on a concrete foundation and slab. The wood structure incorporates asphalt impregnated paper with wood sleepers and asbestos shingles. The roof is wood frame, low slope with numerous layers of rolled roofing material. The north elevation shows three wood-frame, hopper-style windows with four-over-four window lights. The entry door is raised panel wood in a wood frame. Two double doors, which are modern replacements, are seen on two other elevations.



TOTAL SQ. FT. 595

MF

REV.	DATE	REVISION	BY	CKD.	APP.
1	8-30-83	REDRAWN AND REVISED TO STATUS OF 8-30-83	H&N		

UNIVERSITY OF CALIFORNIA

Los Alamos

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

STORAGE BLDG.

FLOOR PLAN

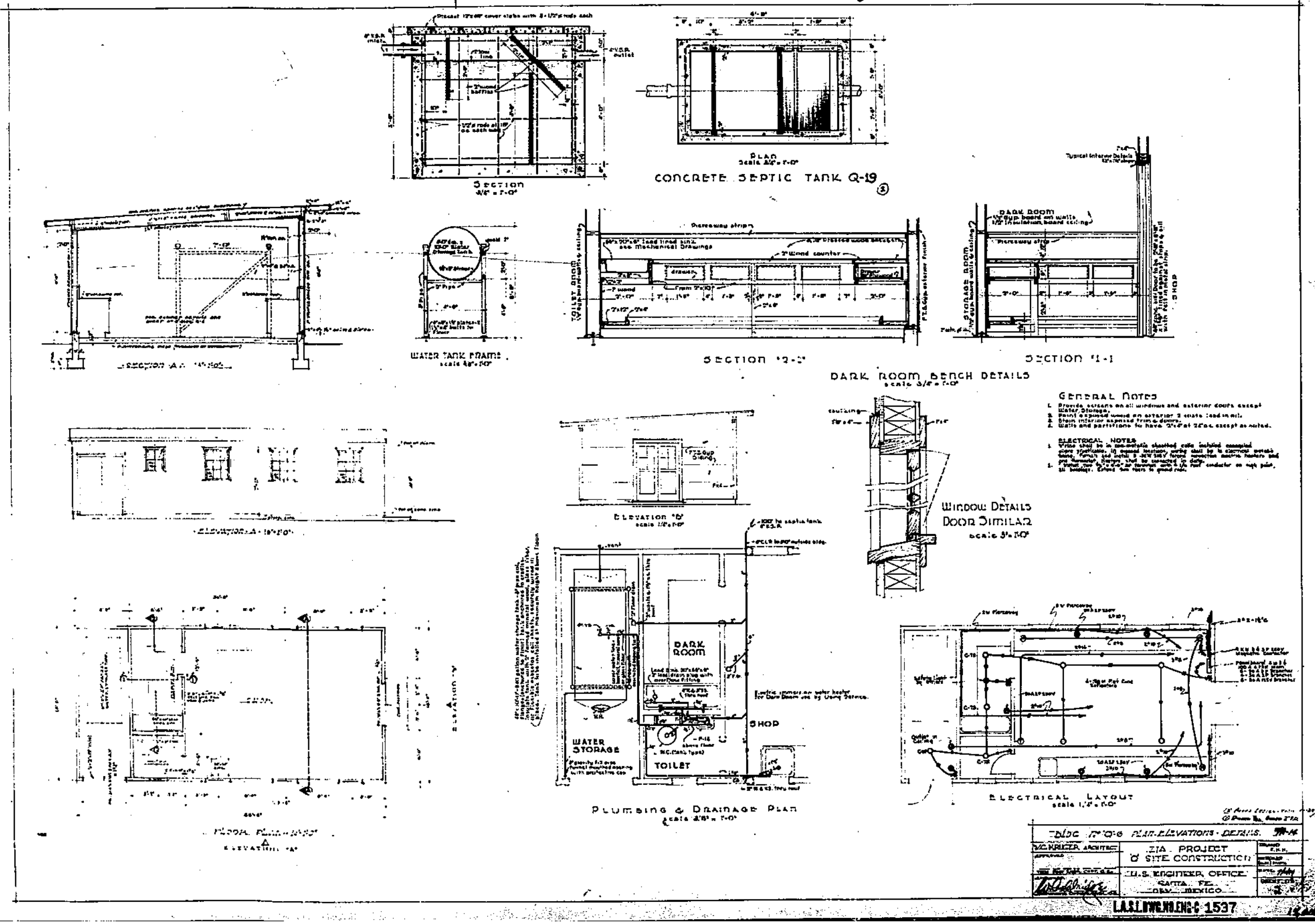
BLDG. Q-6 TA-14

SEC. CLASSIFICATION — CLASS. U — REVIEWER — DATE 10-7-83

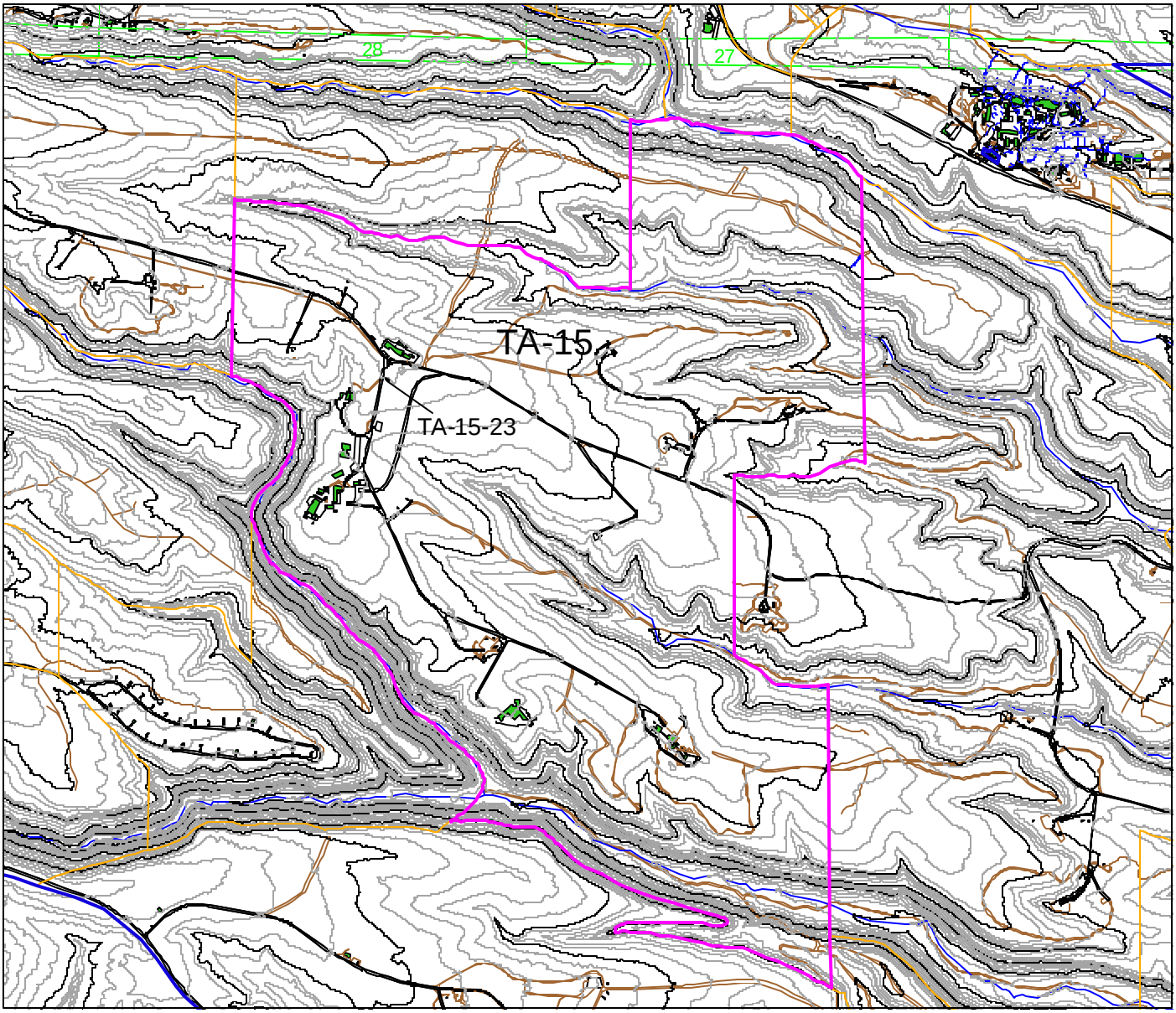
SUBMITTED E. Trujillo — RECOMMENDED Dan Ross — APPROVED

DRAWN BRANDENBERGER — CHECKED Humble H&N — DATE 8-30-83 — SHEET NO. 1 OF 1 — DRAWING NO. ENG-R 2693

REC'D ...... LOGGED ✓ TO VAULT 11-22-83



Section
3/4" = 1'-0"
Plan
scale 3/8" = 1'-0"
CONCRETE SEPTIC TANK Q-19
Section A-A 1/4" = 1'-0"
WATER TANK FRAME
scale 3/8" = 1'-0"
TOILET ROOM
SECTION "2-2"
STORAGE ROOM
DARK ROOM
SHOP
SECTION "1-1"
DARK ROOM BENCH DETAILS
scale 3/4" = 1'-0"
GENERAL NOTES
1. Provide screens on all windows and exterior doors except Water Storage.
2. Paint exposed wood on exterior 2 coats lead in oil.
3. Stain interior exposed trim & doors.
4. Walls and partitions to have 2"x4" at 24" o.c. except as noted.
ELECTRICAL NOTES
ELEVATION A 1/8" = 1'-0"
ELEVATION "B"
scale 1/2" = 1'-0"
WINDOW DETAILS
DOOR SIMILAR
scale 3" = 1'-0"
DARK ROOM
WATER STORAGE
TOILET
SHOP
PLUMBING & DRAINAGE PLAN
scale 3/8" = 1'-0"
FLOOR PLAN 1/8" = 1'-0"
ELEVATION "A"
ELECTRICAL LAYOUT
scale 1/4" = 1'-0"
BLDG. "Q-6" PLAN-ELEVATIONS-DETAILS.
W.C. KRUGER, ARCHITECT
APPROVED
ZIA PROJECT
& SITE CONSTRUCTION
U.S. ENGINEER OFFICE
SANTA FE
NEW MEXICO
L.A.S.L. DWG. NO. ENG-C-1537



Freijoles Quad

Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:24000

900 0 900 1800 2700 3600 Feet

200 0 200 400 600 800 1000 Meters

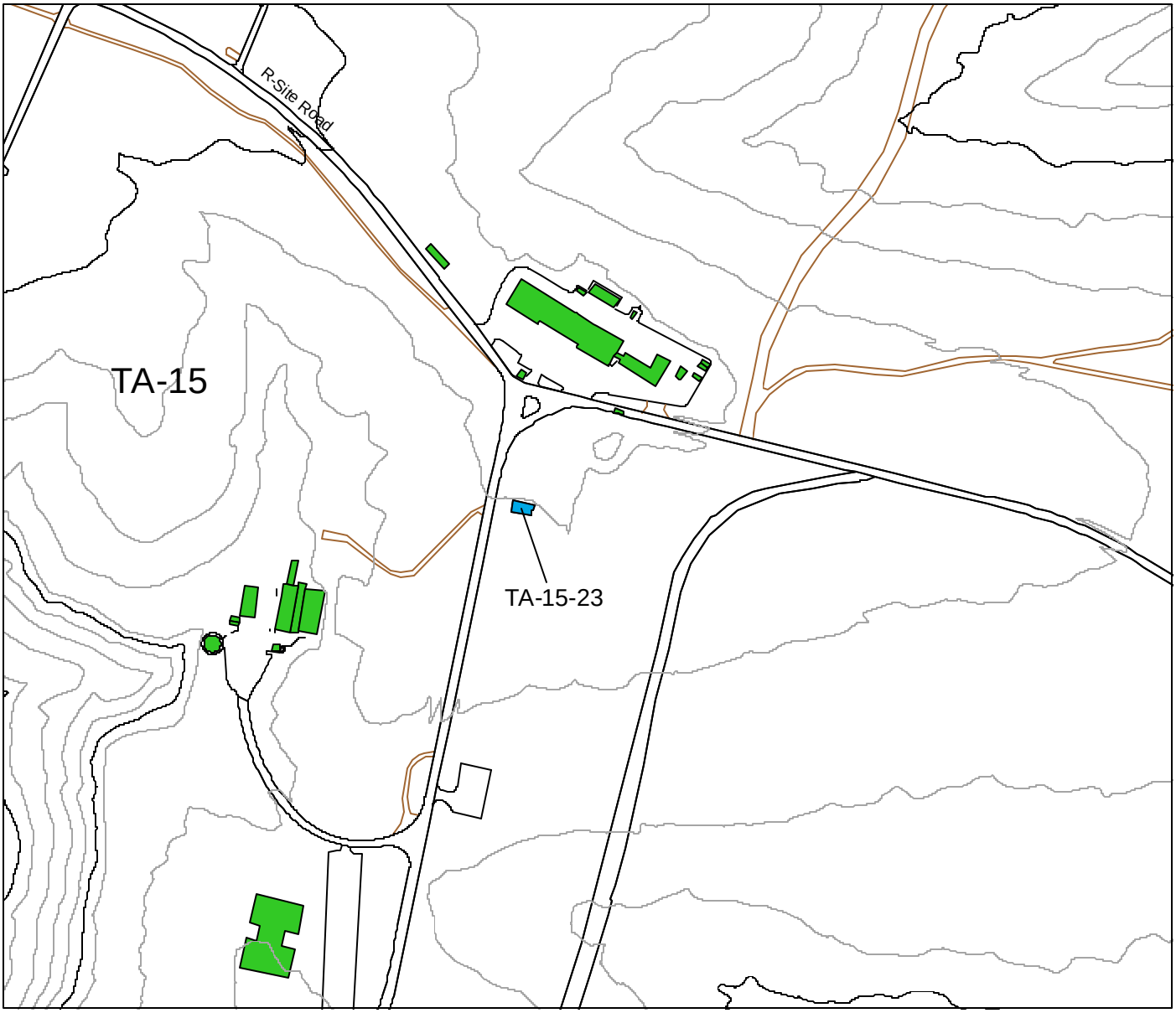
N
W E
S

Manhattan Project Buildings
Los Alamos National Laboratory
Tech Area 15
Tech Areas
20 Foot Contours
100 Foot Contours
Drainage
Township, Section, Range
USGS 7.5 Minute Quad
Roads
Roaddirt
Parkpave
Parkdirt
Buildings/Structures

Manhattan Project Buildings

TA-15

Map 15



Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:4000

200 0 200 400 600 Feet

70 0 70 140 Meters

N
W E
S

Manhattan Project Buildings
Los Alamos National Laboratory
Tech Area 15
Tech Areas
20 Foot Contours
100 Foot Contours
Drainage
Township, Section, Range
USGS 7.5 Minute Quad
Roads
Roaddirt
Parkpave
Parkdirt
Buildings/Structures

Manhattan Project Buildings

TA-15 Closeup

Map 16

TA-15-23

Original Function: Initiator Laboratory
Current Function: Storage Building
Historical Significance: Initiator Research (while at TA-20); later, "GMX Manor" Control Building, Chemical Laboratory, and Assembly Area (while at TA-15).

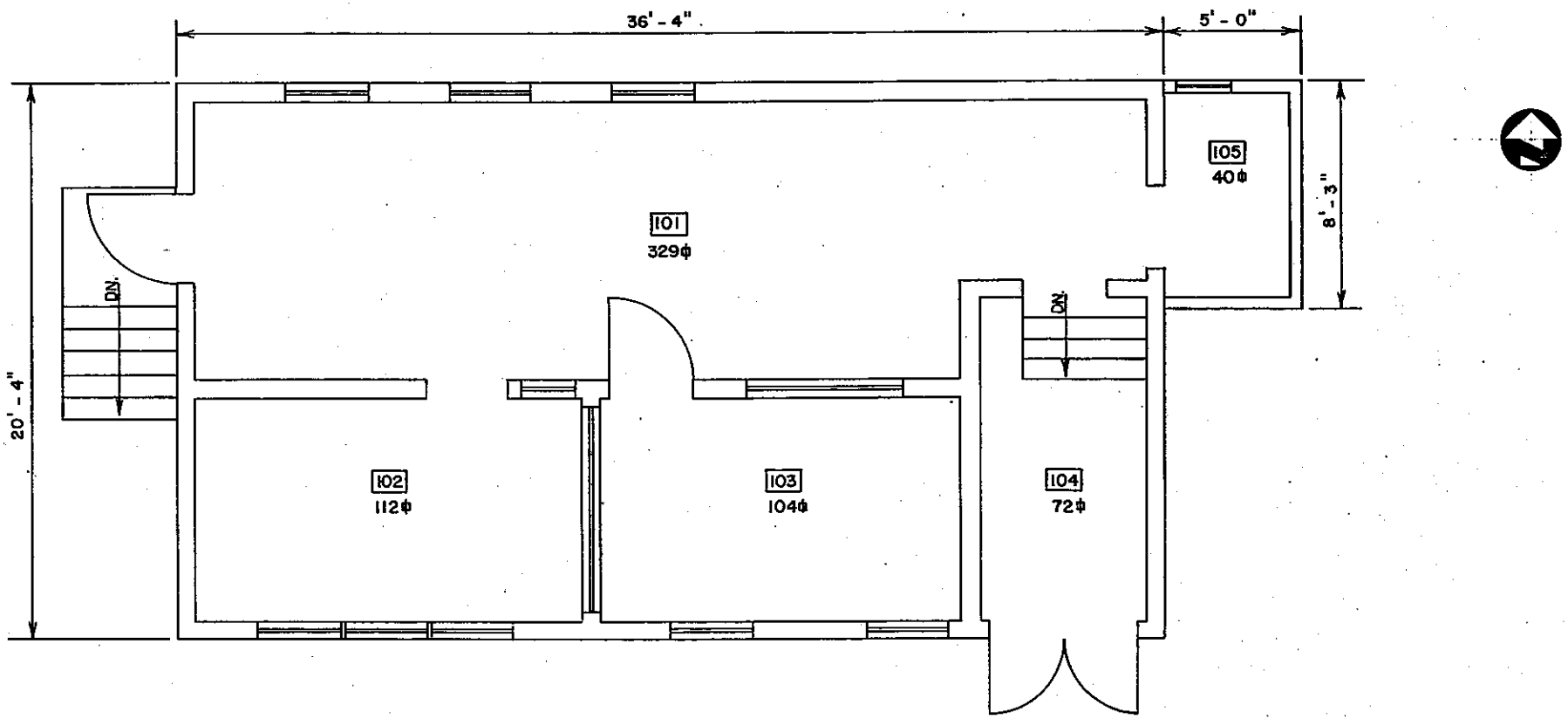
Date Constructed: 1945
Associated Theme: Initiator Research and Explosives Testing
Eligible?: Yes – "A" (for its role at TA-15)

Description:

TA-15-23 is a wood frame structure (657 ft^2 in size) that has a slanted asphalt roof. There are five, three-over-three sash windows located along the south elevation of the building, which also has a set of wooden double doors. Three additional sash windows are located on the north elevation of TA-15-23. These windows have an eight-over-eight light pattern. Steps and a personnel door are located on the west elevation of the building.

TA-15-23 (formerly TA-20-1) was built in 1945 during the Manhattan Project for use as a laboratory building at TA-20 (Sandia Site). TA-20, situated in Sandia Canyon, was abandoned in the late 1940s so that East Jemez Road could be built. TA-20 had been used to test initiators—devices used to add neutrons to nuclear explosions. In 1948, building TA-20-1 was relocated to R Site and renumbered TA-15-23. Various alterations were made to the building in 1949, including the relocation of the lavatory, the removal of partitions, and the removal of an exterior door along the south elevation. A personnel door leading to a new deck and steps was also added at that time. In 1951, the building was moved to its current location in TA-15. The original crane and hoist were both removed in 1951, and in 1957, a restroom was added.

While at TA-15, building TA-15-23 received the designation "GMX Manor" and the building was used in a variety of capacities supporting early Cold War high explosives testing activities: as a firing site control building, as a chemistry laboratory, as an assembly building for the non-explosives components of high explosives experiments, and as a main shop building. As a moved building, its ultimate significance is linked to its historical role at TA-15.



1/4"= 1' - 0" 0 1 2 4 6 8 10

GRAPHIC SCALE

TOTAL $\frac{ft^2}{657}$

REV.	DATE	REVISION	BY	CKD.	APP.
2	8-31-83	REDRAWN TO STATUS OF 8-31-83	H&N		

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Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

LABORATORY BLDG.
FLOOR PLAN

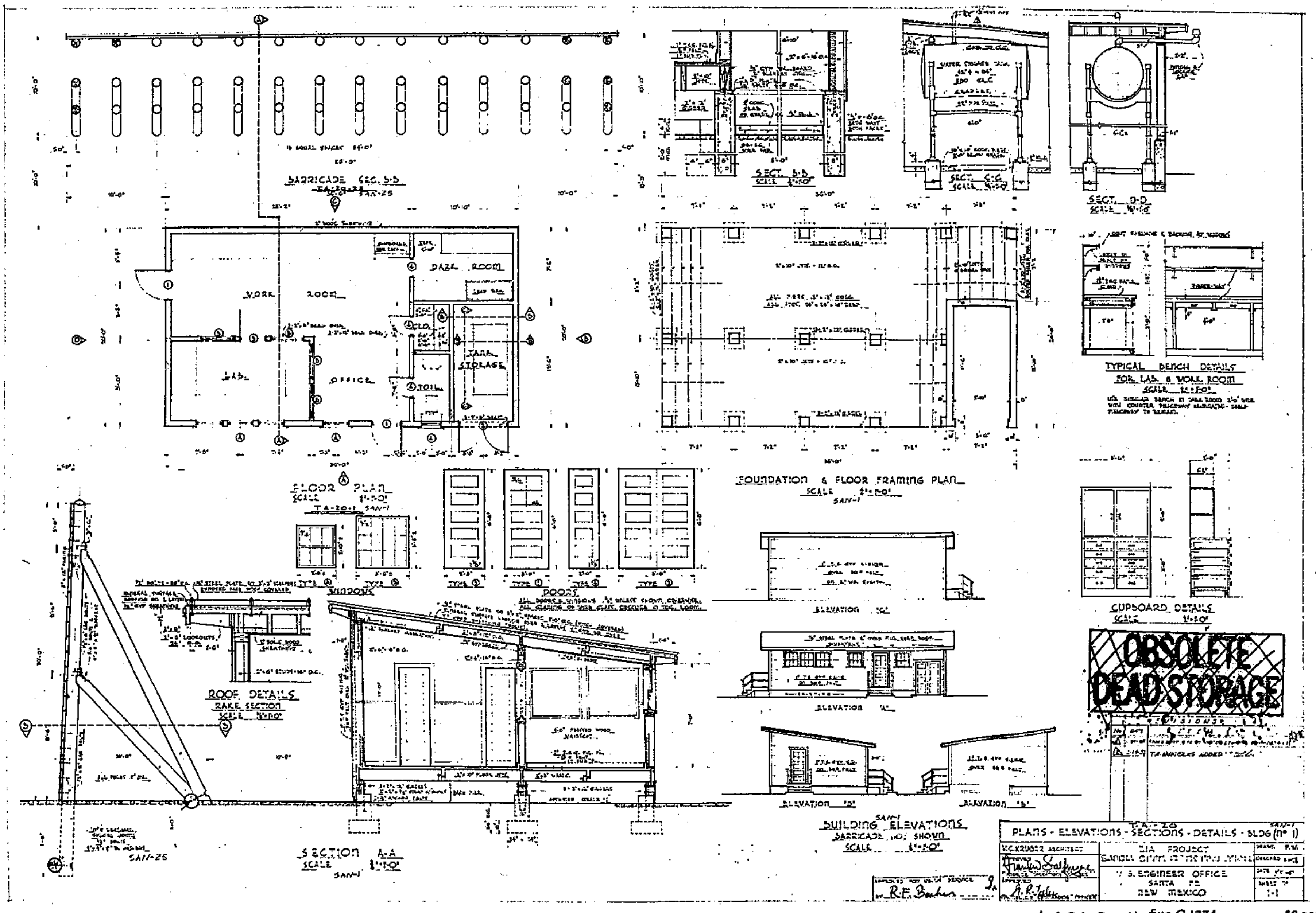
BLDG. R-23 TA-15

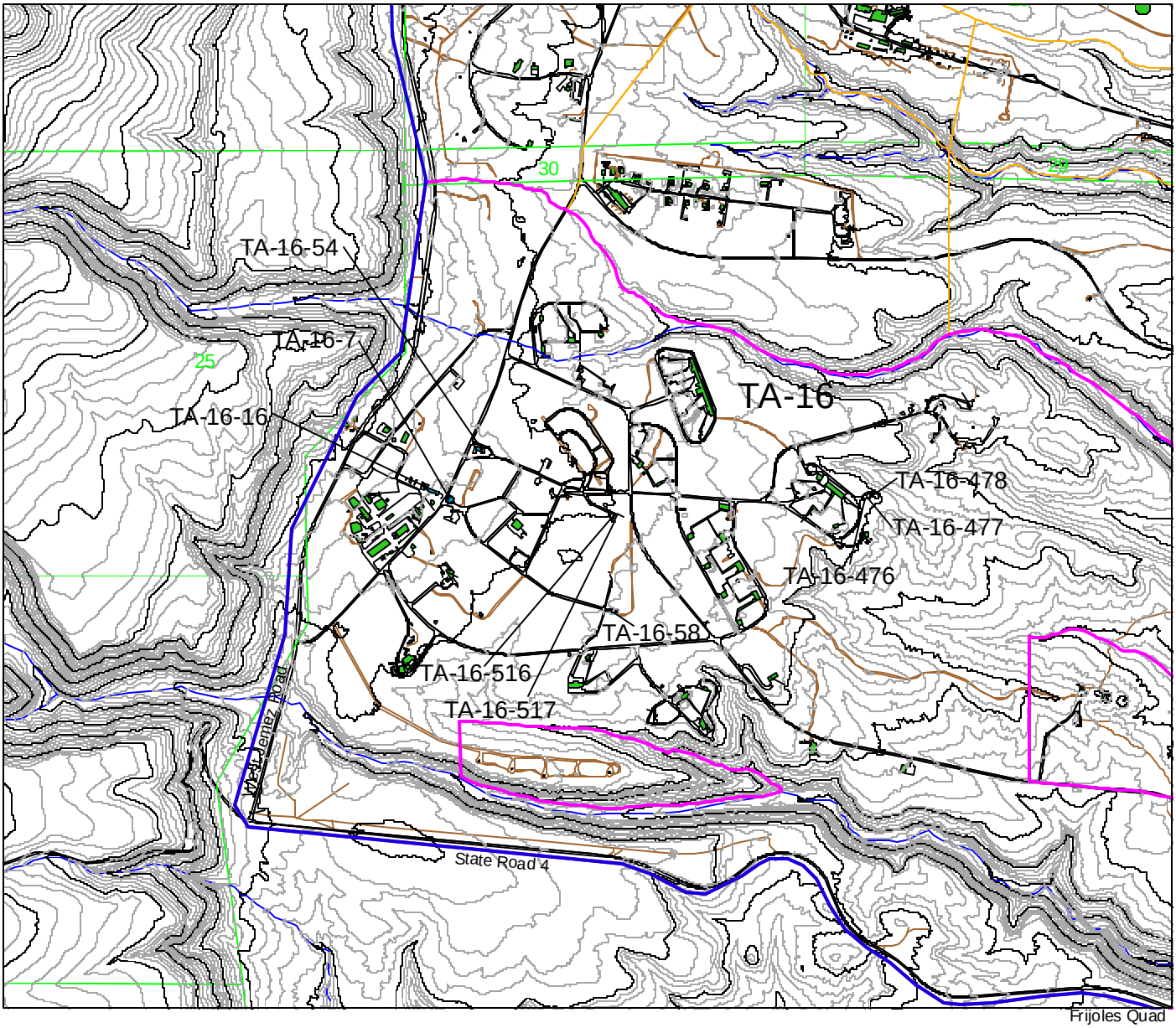
SEC. CLASSIFICATION
CLASS. U
REVIEWER
DATE 10-17-83

SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo		

DRAWN KENNEDY H&N
CHECKED H&N

DATE 8-31-83
SHEET NO. 1 OF 1
DRAWING NO. ENG-R2712


BARRICADE SEC. B-B
FLOOR PLAN
SCALE 1/4"=1'-0"
DARK ROOM
WORK ROOM
LAB.
OFFICE
TOIL.
TANK STORAGE
FOUNDATION & FLOOR FRAMING PLAN
SCALE 1/4"=1'-0"
SECT. B-B
SECT. C-C
SECT. D-D
TYPICAL BENCH DETAILS FOR LAB. & WORK ROOM
WINDOWS
DOORS
ROOF DETAILS
RAKE SECTION
SECTION A-A
ELEVATION "C"
ELEVATION "A"
ELEVATION "D"
ELEVATION "B"
BUILDING ELEVATIONS
CUPBOARD DETAILS
OBSOLETE
DEAD STORAGE
PLANS - ELEVATIONS - SECTIONS - DETAILS - BLDG (Nº 1)
U.S. ENGINEER OFFICE
SANTA FE
NEW MEXICO
L.A.S.L. Dwg. No. ENG-C 1774



Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:24000

900 0 900 1800 2700 3600 Feet

200 0 200 400 600 800 1000 Meters

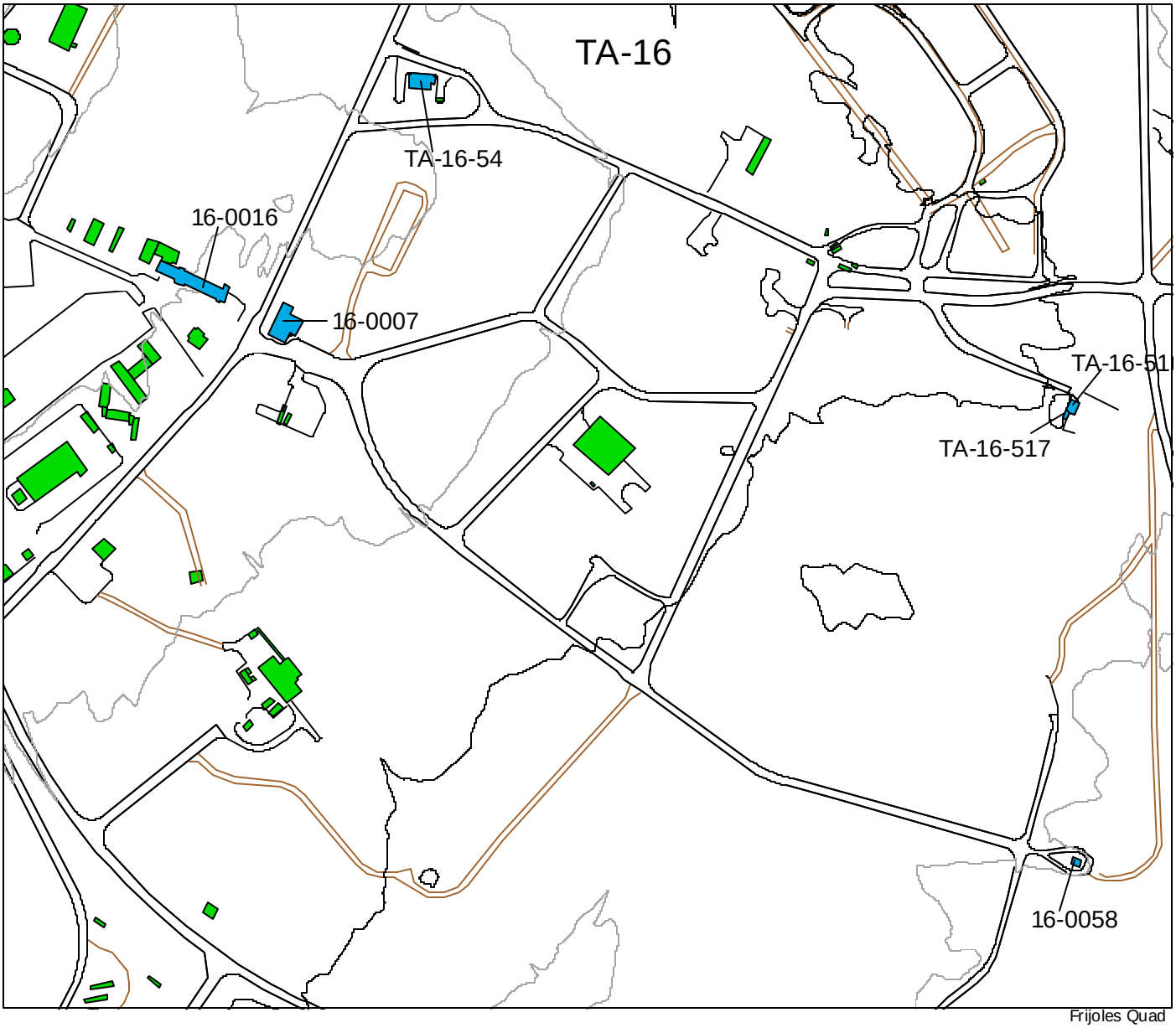
N
W E
S

- Manhattan Project Buildings
- Los Alamos National Laboratory
- Tech Areas 3, 8, 11, & 16
- Tech Areas
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Township, Section, Range
- USGA 7.5 Minute Quad
- Roads
- Roaddirt
- Parkpave
- Parkdirt
- Buildings/Structures

Manhattan Project Buildings

TA-16

Map 17



Frijoles Quad

Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:5000

200 0 200 400 600 800 Feet

50 0 50 100 150 200 Meters

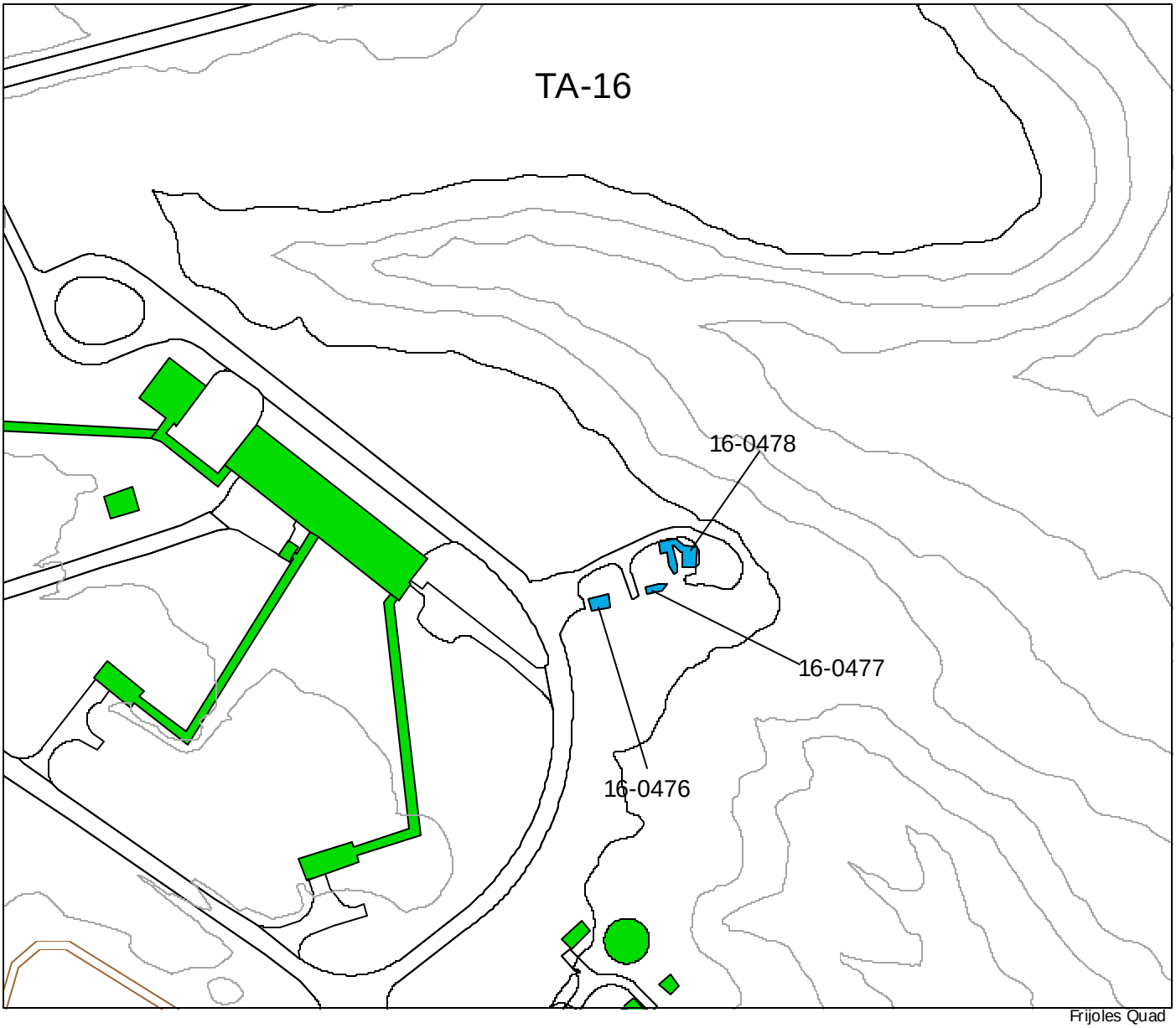
N
W E
S

- Manhattan Project Buildings
- Los Alamos National Laboratory
- Tech Area 16
- Tech Areas
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Township, Section, Range
- USGS 7.5 Minute Quad
- Roads
- Roaddirt
- Parkpave
- Parkdirt
- Buildings/Structures

Manhattan Project Buildings

Western TA-16 Closeup

Map 18



Frijoles Quad

Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:2500

100 0 100 200 300 400 Feet

30 0 30 60 90 Meters

N
W E
S

Manhattan Project Buildings
Los Alamos National Laboratory
Tech Area 16
Tech Areas
20 Foot Contours
100 Foot Contours
Drainage
Township, Section, Range
USGS 7.5 Minute Quad
Roads
Roaddirt
Parkpave
Parkdirt
Buildings/Structures

Manhattan Project Buildings

Eastern TA-16 Closeup

Map 19

TA-16-7

Original Function: Steam Plant/Machine Shop **Date Constructed:** 1944
Current Function: Storage (not in use) **Associated Theme:** High Explosives
Historical Significance: Support building for TA-16 (S Site) activities. **Eligible?:** No (extensive renovation)

Description:
Building TA-16-7 was originally constructed as a steam plant that measured 90 ft wide by 40 ft deep and contained an open two-story boiler room, a one-story generator room, and a shop area. An oil storage shed and coal storage bin were constructed on the north side of the building. The building was constructed with reinforced concrete footings, 6 in. concrete floor slab, 2 in. by 6 in. wood-frame walls with triple sealed gypsum siding exterior on the exterior and one-half in. gypsum board on the interior. A medium pitched wood truss gable roof with four ridge ventilators covered the boiler room while the remaining areas were covered by a low-pitched gable roof. Oversized double wood doors, on the north side, provided access into the boiler room. The room was also equipped with wood-frame double-hung windows. The generator room was equipped with wood paneled double doors, wood-frame hopper-style windows, two roof ventilators, and wood wall louvers. The generator room was also equipped with an *I*-shaped fuel oil service floor trench. The oil storage shed contained a 4000-gallon oil storage tank. The concrete coal storage bin was approximately 6 ft tall, equipped with a hinged 6 ft by 8 ft cover, and bermed with compacted earth on three sides. The shop area was constructed with wood fixed frame windows to provide visual access into the adjacent generator room.

In 1945, a 54 ft by 40 ft boiler room addition was constructed on the east side of the original boiler room. The open two-story boiler room was constructed with concrete footings and 6 in.

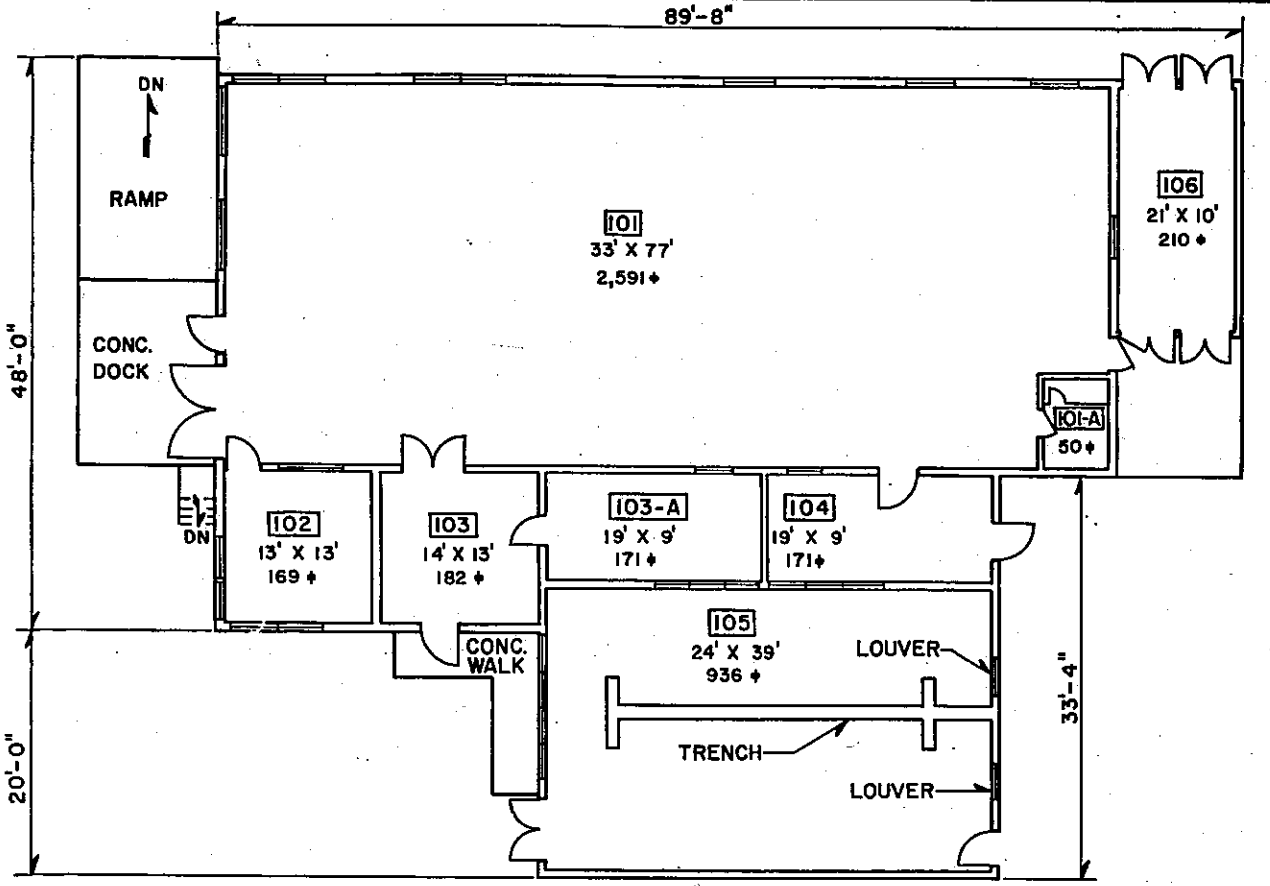
slab floor, wood-frame walls, and wood roof trusses to match the roofline of the original boiler room. A one-story shop with shed roof was constructed on the east end of the new boiler room. At this time, a one-story addition was also constructed on the west side of the original shop area. A welding booth was included in the new machine shop area. Construction was similar to the existing building in that it had concrete footings and floor slab, wood-frame walls, and a low-pitched gable roof matching the original roofline. Wood doors and double-hung windows were also installed.

The original boiler room underwent a second expansion in 1948 with the addition of a 32 ft by 64 ft boiler room on the north side. The new two-story boiler room contained three boiler pads with a fourth pad for future expansion. The second addition was constructed with concrete footings, 6 in. concrete slab floor and 30 in. concrete stem wall, 2 in. by 6 in. wood studs walls sheathed with asphalt shingles, and a wood truss shed roof.

In 1950, the machine shop was enlarged with a 41 ft 6 in. by 28 ft addition constructed on the south side. The addition contained the expanded shop area and two offices. The expansion was constructed with concrete footings and slab floor, 2 in. by 10 in. stud walls, 4 in. diameter pipe columns, and a low-pitched shed roof with a full-width clerestory. The original shop roof was modified to allow for a higher clearance height and the installation of a one-ton hoist and trolley. Double doors on the south side accessed a concrete dock and ramp. The interior walls of the building were sheathed with both horizontal 1 in. by 4 in. and 1 in. by 12 in. wood planks.

Demolition of the boiler rooms and east end shop area occurred in 1953. As of 1953, the generator room and adjacent shop area was all that remained of the original building construction. The machine shop and expansion continued to be used. In 1969, the existing concrete dock was enlarged and a new ramp installed. One office was converted into a tool crib and the original welding room was converted into a spare parts crib. Wire mesh security doors enclosed the spare parts crib.

The building was originally constructed as a steam plant for the area. Once the boilers and supporting equipment were removed, the remaining shop areas were converted for the maintenance and repair of high explosives equipment within TA-16. This function has since been transferred to building TA-16-54. The building is not in use.



3/32" = 1'-0"

0 5 10 15 20 25

GRAPHIC SCALE

TOTAL SQ. FT. 4,480

REV.	DATE	REVISION	BY	CKD.	APP.
6	8-29-83	REVISED TO STATUS OF 8-29-83	H&N		

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Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

STORAGE BUILDING
FLOOR PLAN

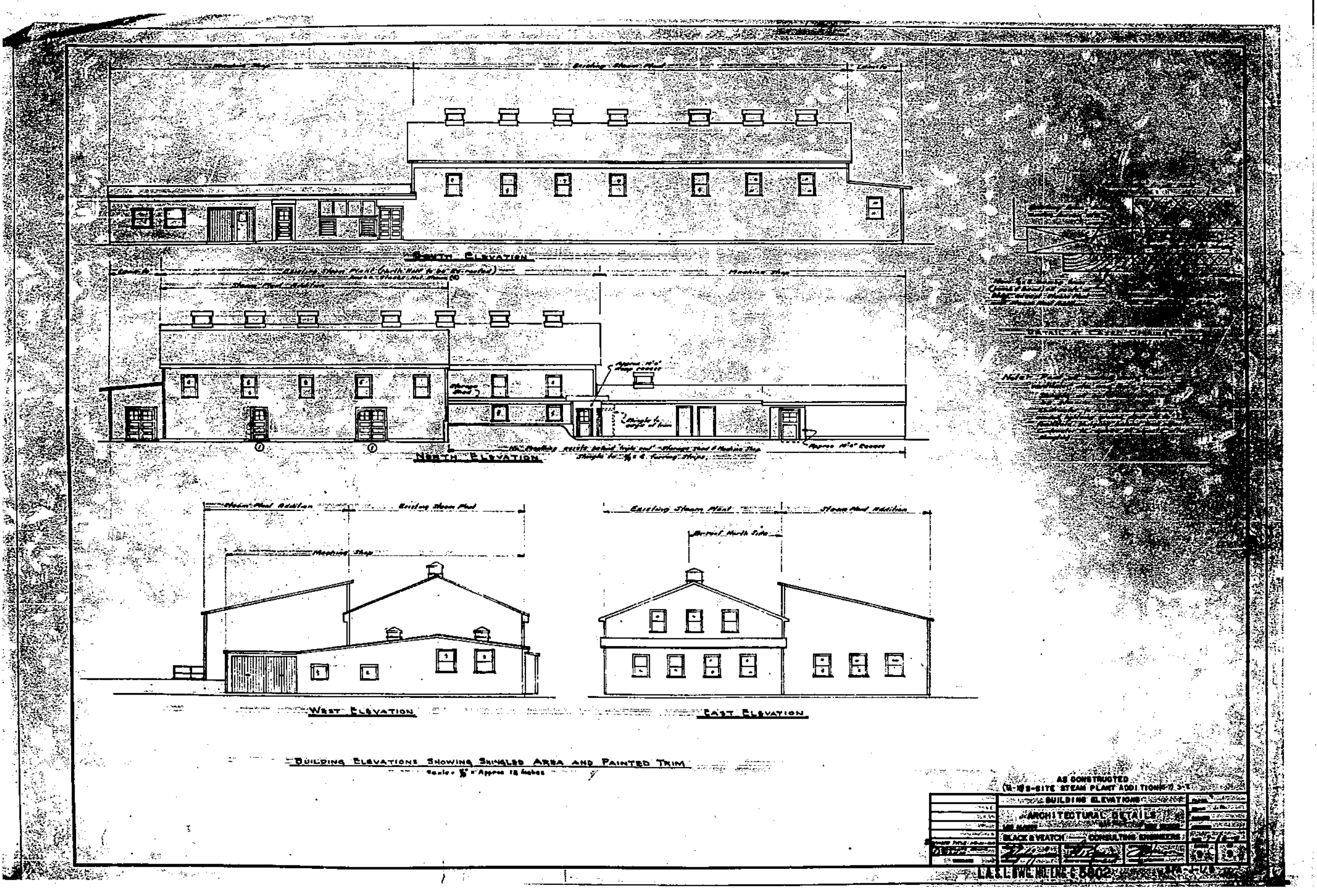
BLDG.-7 TA-16

SEC. CLASSIFICATION: CLASS. U; REVIEWER Smalrid; DATE 9-29-83

SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo	Dennis Rigg	

DRAWN	CHECKED	DATE	SHEET NO.	DRAWING NO.
J.R. NARANJO	H&N	11-12-73	1 OF 1	ENG-R2742

REC'D ____ LOGGED ← TO VAULT 11-22-83


South Elevation
North Elevation
West Elevation
East Elevation
Existing Steam Plant
Steam Plant Addition
Machine Shop
Building Elevations Showing Shingled Area and Painted Trim
AS CONSTRUCTED
BUILDING ELEVATIONS
ARCHITECTURAL DETAILS
BLACK & VEATCH CONSULTING ENGINEERS

TA-16-16

Original Function: Cafeteria
Current Function: Office Building
Historical Significance: Support building for TA-16 (S Site) activities.

Date Constructed: 1945
Associated Theme: High Explosives/Admin. Support
Eligible?: No (extensive renovation)

Description:
Building TA-16-16 is one story in plan and measures 30 ft 4 in. by 193 ft 2 in. A 7 ft 10 in. deep covered dock area is located near the northwest end of the building. The building was originally constructed over a crawl space with concrete perimeter foundation with interior posts and piers supporting wooden floor joists. The building was constructed with wood stud walls and a medium-pitched gable roof. The main roof continued past the eave line to shelter the 15 in. high concrete dock area on the northwest side.

Two walk-in refrigerators, each with their own compressor rooms, were located on the west side of the building. Both refrigerators could be accessed from a small hall off of the kitchen area, which also exited to the outside. The south-side refrigerator had a concrete floor and wood tongue and groove walls and ceiling. The north-side refrigerator floor was wood, and plywood covered the walls and ceiling. The north end of the building was devoted to the kitchen and serving line areas. The remaining space was allocated to customer seating. A partially below grade mechanical room, with shed roof, was located on the southeast corner of the building and accessed by a pair of doors.

The primary cafeteria entrance was located near the southwest corner of the building. Due to the change in grade from the north to the south ends, this entrance was raised approximately 5 ft

above grade and accessed by exterior stairs. A single door was also located at the north end of the building and served as a second exit from the kitchen area.

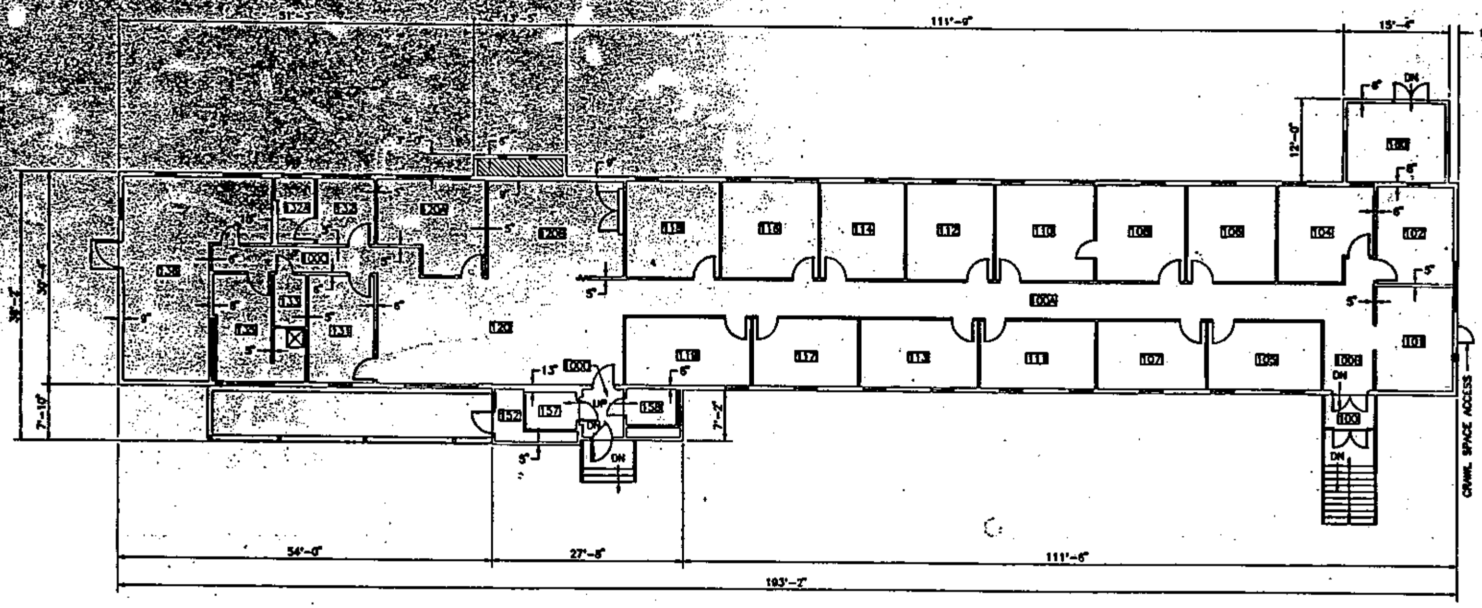
The building was renovated into office space in the early 1990s. The original shingle roof was removed and a standing seam metal roof applied. The asbestos wall shingles were also removed and the exterior walls covered with an exterior insulation finish system. New double-hung and sliding aluminum windows were installed down the length of the building on both sides. The walls on the interior were finished with drywall and painted, and acoustical tile was applied to the ceilings. The floors have been carpeted.

ROOM INFORMATION CHART

RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE
100	[illegible]	110	201	131	135
100A	[illegible]	111	[illegible]	132	[illegible]
100B	76	112	[illegible]	132A	[illegible]
100C	177	113	[illegible]	133	[illegible]
100D	[illegible]	114	[illegible]	135	[illegible]
101	[illegible]	116	[illegible]	136	[illegible]
102	[illegible]	117	[illegible]	152	[illegible]
104	[illegible]	118	191	157	[illegible]
105	[illegible]	119	[illegible]	158	57
106	[illegible]	120	[illegible]	160	168
107	[illegible]	120A	191	UTILITY 1	42
108	78	120B	[illegible]		

TOTAL ROOM NET SQUARE FOOTAGE (BUILDING) = 6,026

GROSS SQUARE FOOTAGE (BUILDING) = 6,323



LEGEND

- LOUVER
- UTILITY SPACE
- WINDOW
- WOOD OR METAL STUD
- COLUMNS

RECORD FLOOR PLAN

SCALE: 1/8" = 1'-0"

8 6 4 2 0 8 16 32
GRAPHIC SCALE

N

NOTES

1. ALL EXTERIOR WALLS ARE 6" THICK UNLESS OTHERWISE NOTED.
2. ALL INTERIOR WALLS ARE 4" THICK UNLESS OTHERWISE NOTED.
3. REFERENCE DRAWING ENG-R2744.
4. ROOM NET SQUARE FOOTAGE IS COMPUTED BY MEASURING FROM THE INSIDE FACE OF EXTERIOR WALLS TO THE CENTERLINE OF ALL OTHER WALLS. AREAS SHOWN ARE ROUNDED TO THE NEAREST SQUARE FOOT.
5. GROSS SQUARE FOOTAGE IS EQUAL TO ALL FLOOR AREA (INCLUDING ALL OPENINGS IN FLOOR SLABS) MEASURED TO THE OUTER SURFACES OF EXTERIOR OR ENCLOSING WALLS, AND INCLUDES ALL FLOORS, MEZZANINES, HALLS, VESTIBULES, STAIRWELLS, SERVICE AND EQUIPMENT ROOMS, PENTHOUSES, VAULTS, AND ENCLOSED PASSAGES.
6. DIMENSIONS SHOWN ARE ROUNDED TO THE NEAREST INCH.

FIELD VERIFIED 11-28-95

NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP

JOHNSON CONTROLS

AS-BUILT RECORD FLOOR PLAN
OFFICE BUILDING
ARCH: RECORD FLOOR PLAN

BLDG 16 — TA-16

SUBMITTED: JERRY FORTE

APPROVED FOR RELEASE: FRED ... 2/29/96

DRAWN / VERIFIED / CHECKED: SANDOVAL

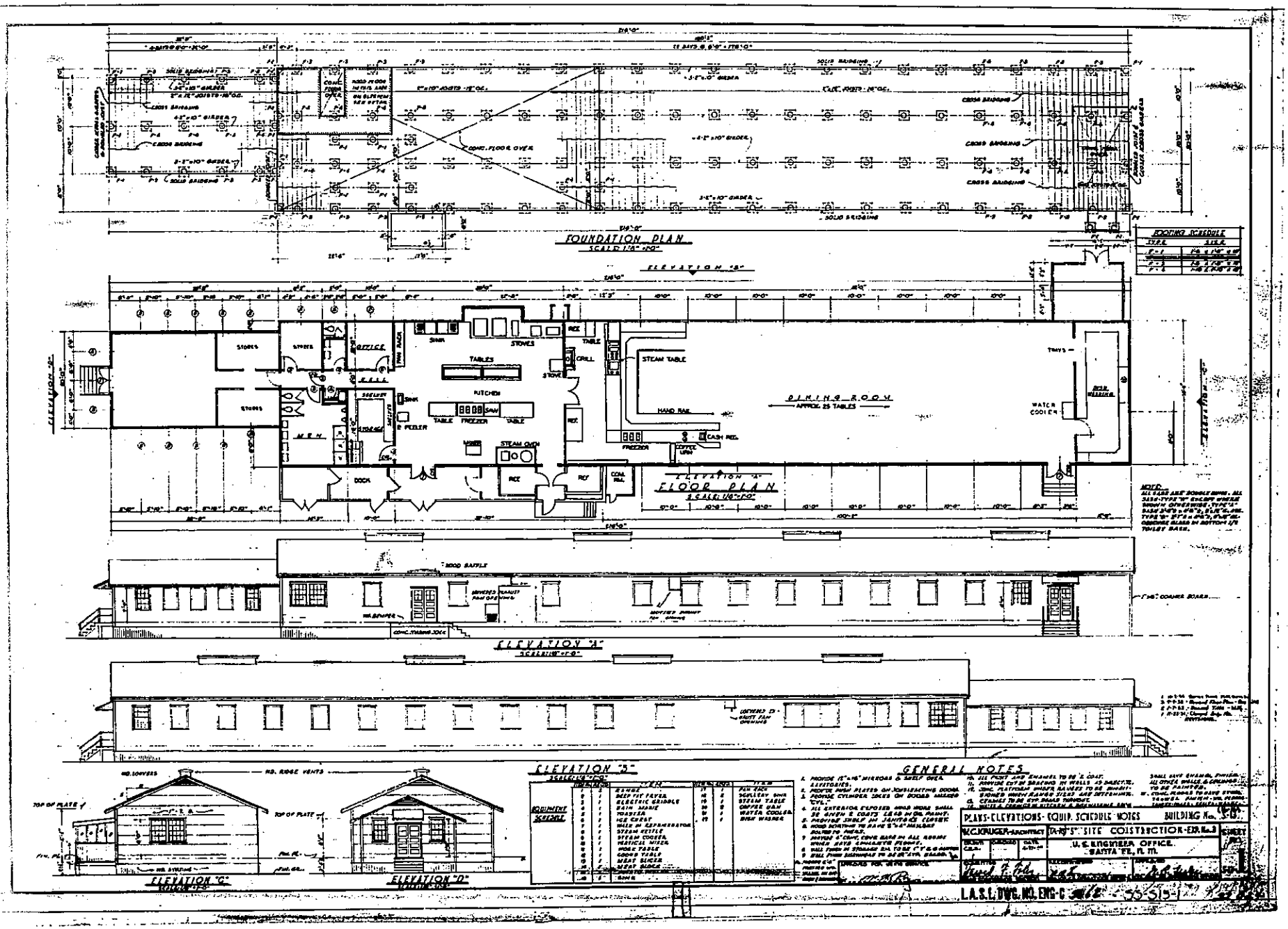
DATE: 12-12-95

Los Alamos — Los Alamos National Laboratory, Los Alamos, New Mexico 87545

SHEET 1 OF 1

CLASSIFICATION: U — REVIEWER: T. GUSDORF — DATE 1-11-96

PROJECT ID: 016523 — DRAWING NO: AB582

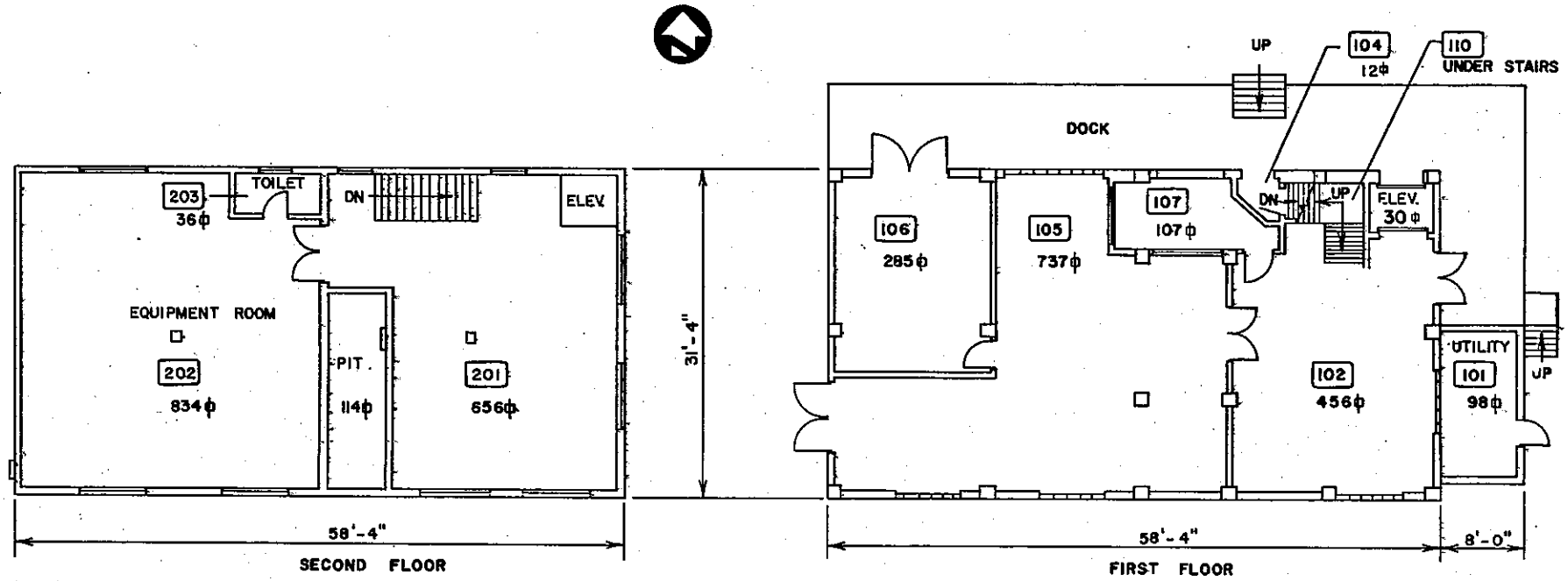

FOUNDATION PLAN
SCALE 1/4"=1'0"
ELEVATION "B"
FLOOR PLAN
SCALE 1/4"=1'0"
DINING ROOM
APPROX. 25 TABLES
KITCHEN
STEAM TABLE
TABLES
STORES
OFFICE
MEN
DOCK
ELEVATION "A"
SCALE 1/4"=1'0"
ELEVATION "C"
ELEVATION "D"
ELEVATION "B"
EQUIPMENT SCHEDULE
GENERAL NOTES
PLANS-ELEVATIONS-EQUIP. SCHEDULE-NOTES
BUILDING No. 5-0
W.C.KRUGER-ARCHITECT
U. S. ENGINEER OFFICE.
SANTA FE, N. M.
L.A.S.L. DWG. NO. ENG-C

TA-16-54

Original Function: Grinding Building
Current Function: Plastics/Shop Building
Historical Significance: Process building for early high explosives research and development.

Date Constructed: 1946
Associated Theme: High Explosives
Eligible?: Yes – "A"

Description:
TA-16-54 was built in 1946 and was used for grinding operations. It is currently used as a plastics building and machine shop. The 3,790 ft^2 building is two stories high with a covered loading dock on the north side and a small basement mechanical room with outside access on the southeast corner. The first story is concrete post and beam with concrete (CMU) block infill. The second story is wood and metal frame with asbestos-containing corrugated siding. The roof is flat with a built up roof subsequently covered with a single ply roofing material. There is a roof overhang of about 18 in. on all sides of the building. The overall structure has been re-stuccoed and painted several times over the years. The windows are metal commercial-grade windows with divided lights. The entry door is wood plank resembling original construction material. The building is currently in use as a shops building similar to its original use and activity.



(1"=10'-0")

0 10 20 30

GRAPHIC SCALE

		FT²
FIRST	FLOOR	1725
SECOND	FLOOR	1640
TOTAL		3365

MF

REV.	DATE	REVISION	BY	CKD.	APP.
3	9-7-83	REDRAWN & REVISED TO STATUS OF 9-7-83	H&N		

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Los Alamos
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

GRINDING BUILDING
FIRST & SECOND FLOOR PLAN

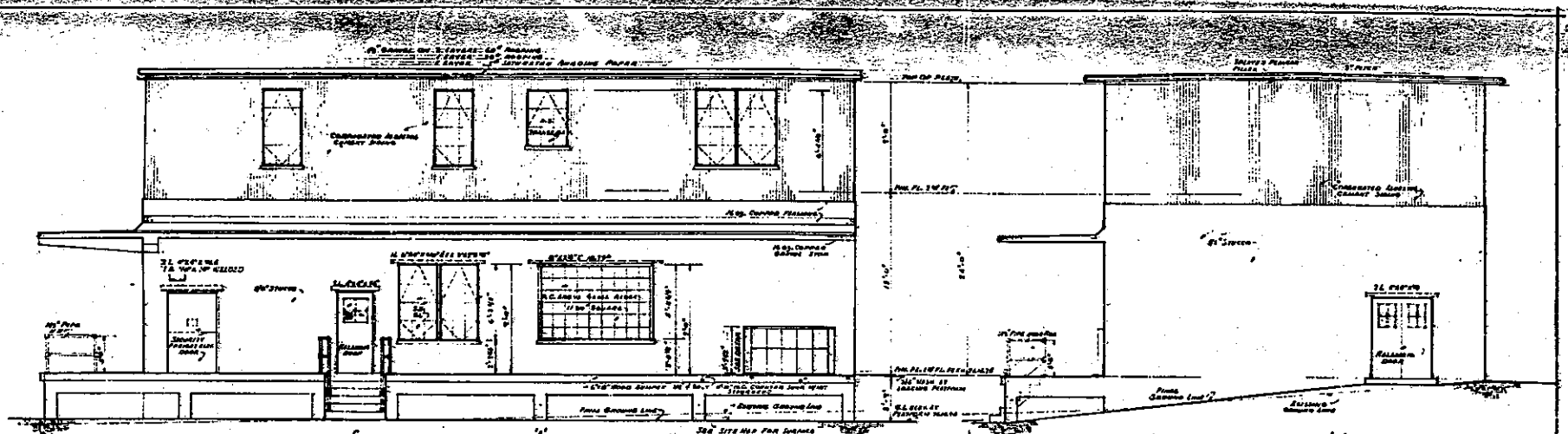
BLDG. 54 TA-16

SEC. CLASSIFICATION: CLASS. U
REVIEWER: [illegible]
DATE: 10-4-83

SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo	[illegible]	[illegible]

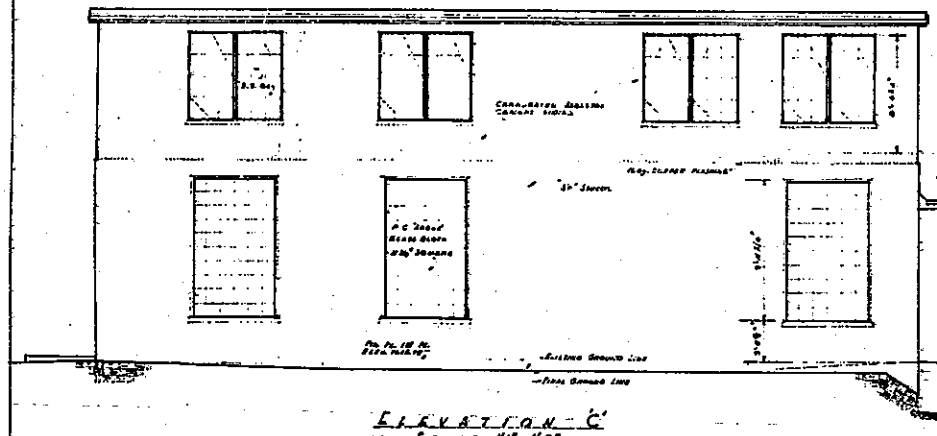
DRAWN	CHECKED	DATE	SHEET NO.	DRAWING NO.
MARSH H&N	H&N	9-7-83	1 OF 1	ENG-R2749

[illegible] D ___ LOGGED ✓ TO VAULT 11-21-83

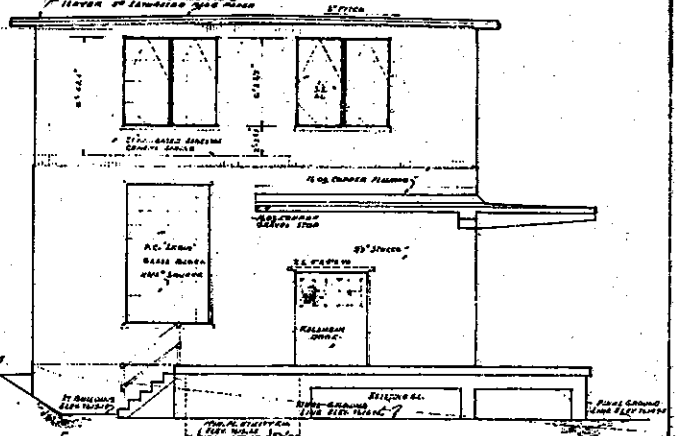


ELEVATION 'A'
SCALE 1/4"-1'-0"

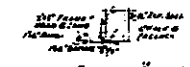
ELEVATION 'B'
SCALE 1/4"-1'-0"



ELEVATION 'C'
SCALE 1/4"-1'-0"



ELEVATION 'D'
SCALE 1/4"-1'-0"



SECTION 'J'
SCALE 1"-1'-0"

HEAD & JAMB SINGLER

UTILITY ROOM DOOR DETAIL

U. S. ENGINEER OFFICE
SANTA FE, NEW MEXICO

(7-40) S - SITE - EXPANSION No 4
BUILDING - (S - 45) 1658
ELEVATIONS

NO.	SHEETS	SHEET NO. 3
OFFICE OF POST ENGINEER		26 FEB. 1941

APPROVED FOR USING SERVICE

FILE NO. PE 425

L.A.S.L. DWG. NO. DIC-65717 55-515-2

24 035-B

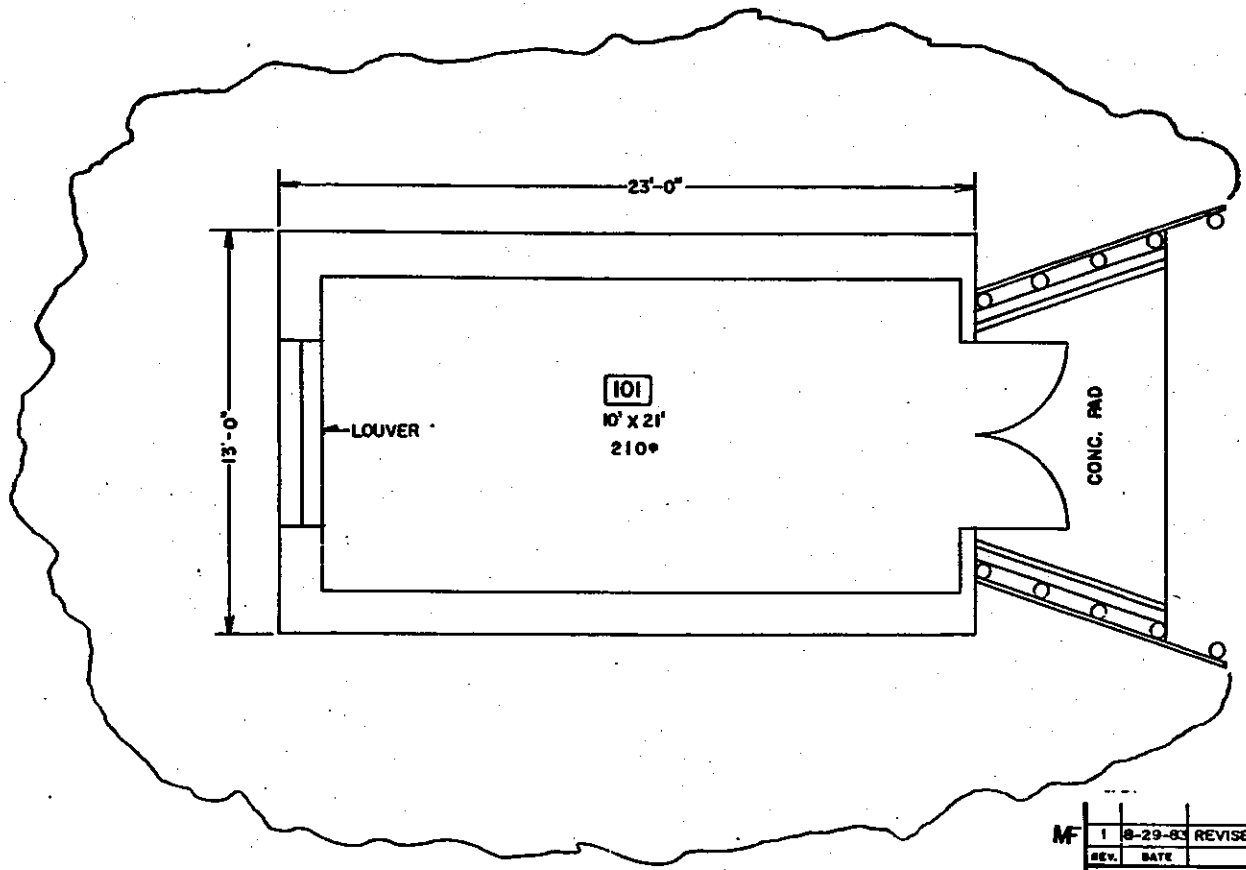
TA-16-58

Original Function: Magazine
Current Function: Vacant
Historical Significance: Explosives process storage building in support of TA-16 (S Site) activities.

Date Constructed: 1944
Associated Theme: High Explosives
Eligible?: Yes – "A"

Description:
Building TA-16-58 is a one-story, single-room structure measuring 13 ft by 23 ft with an interior floor area of 210 ft^2. The structure was constructed with a reinforced concrete foundation, floor, and walls. The concrete walls were left exposed to approximately three-quarter height of the wall then covered with asbestos shingles over wood framing. A medium-pitched wood-framed gable roof with exposed rafter ends and rolled roofing cover the structure. Both gable ends contain metal louvers with screen transoms for ventilation. A lightning rod is located on the roof and grounded.

An earthen berm to three-quarter height of the walls surrounds the magazine on the south, west, and north sides. The east side was left exposed and contains double steel doors, the only access into the building. Square wooden posts and wood plank wing walls extend out from the face of the east wall and are used as retaining walls for the earthen berm surrounding the building.



(1/4"=1'-0")

0' 1' 2' 3' 4' 5' 6' 7' 8' 9' 10'

GRAPHIC SCALE

TOTAL SQ. FT. 210

REV.	DATE	REVISION	BY	CHK'D	APP'D
1	8-29-83	REVISED TO STATUS OF 8-29-83	HSH	HSH	DR

MF

UNIVERSITY OF CALIFORNIA

Los Alamos

Los Alamos National Laboratory
Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

FLOOR PLAN

BLDG. 58 TA-16

SEC. CLASSIFICATION: CLASS. U

REVIEWER: [signature]

DATE: 4-29-85

SUBMITTED	RECOMMENDED	APPROVED
E Trujillo	Dennis Ruge	[signature]

DRAWN	CHECKED	DATE	SHEET NO.	DRAWING NO.
WIMBERLEY	[signature] HH	8-11-64	1 OF 1	ENG-R2750

TA-16-476 (former TA-13-2)

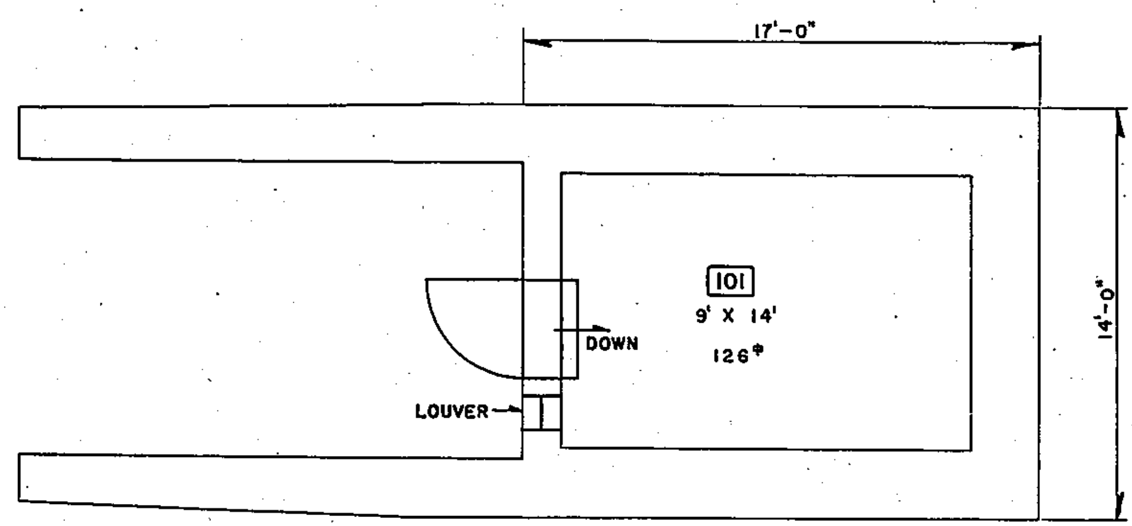
Original Function: Laboratory/Testing Building
Current Function: Control Room
Historical Significance: Supported flash X-ray studies of implosions leading to the development of the implosion device.

Date Constructed: 1944
Associated Theme: High Explosives
Eligible?: Yes – "A" and "C"

Description:
Building TA-16-476 is a single-story structure containing 126 ft^2. The load-bearing structure was constructed with a reinforced concrete foundation, 18 in. thick reinforced concrete walls, flat roof, and two forward protruding wing-walls on the west side. The single entrance into the control room is through a wood door located on the west wall. The remaining three walls are heavily bermed with compacted earth. The flat roof is also covered with earth but to a lesser depth. The interior of the control room contains a single 9 ft by 14 ft room. Interior ventilation is provided through exterior ductwork located adjacent to the entry door.

The building was originally constructed as a laboratory to support flash X-ray studies during the Manhattan Project. This building was later used for high explosives machining studies. The building is now vacant.

NO.	DATE	REVISIONS	BY	CHKD	GRP. LDR.	ENG. D.O.
1	8-30-65	REVISED TO STATUS OF 8-19-65	DRK	B	SER	JB



(1/4" = 1'-0")

0 1 2 3 4 5 6

GRAPHIC SCALE

TOTAL SQ. FT. 126

REV.	DATE	REVISION	BY	CKD.	APP.
2	8-30-83	REVISED TO STATUS OF 8-30-83	HBN	Ct	TB

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Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

FLOOR PLAN

BLDG. 476

TA-16

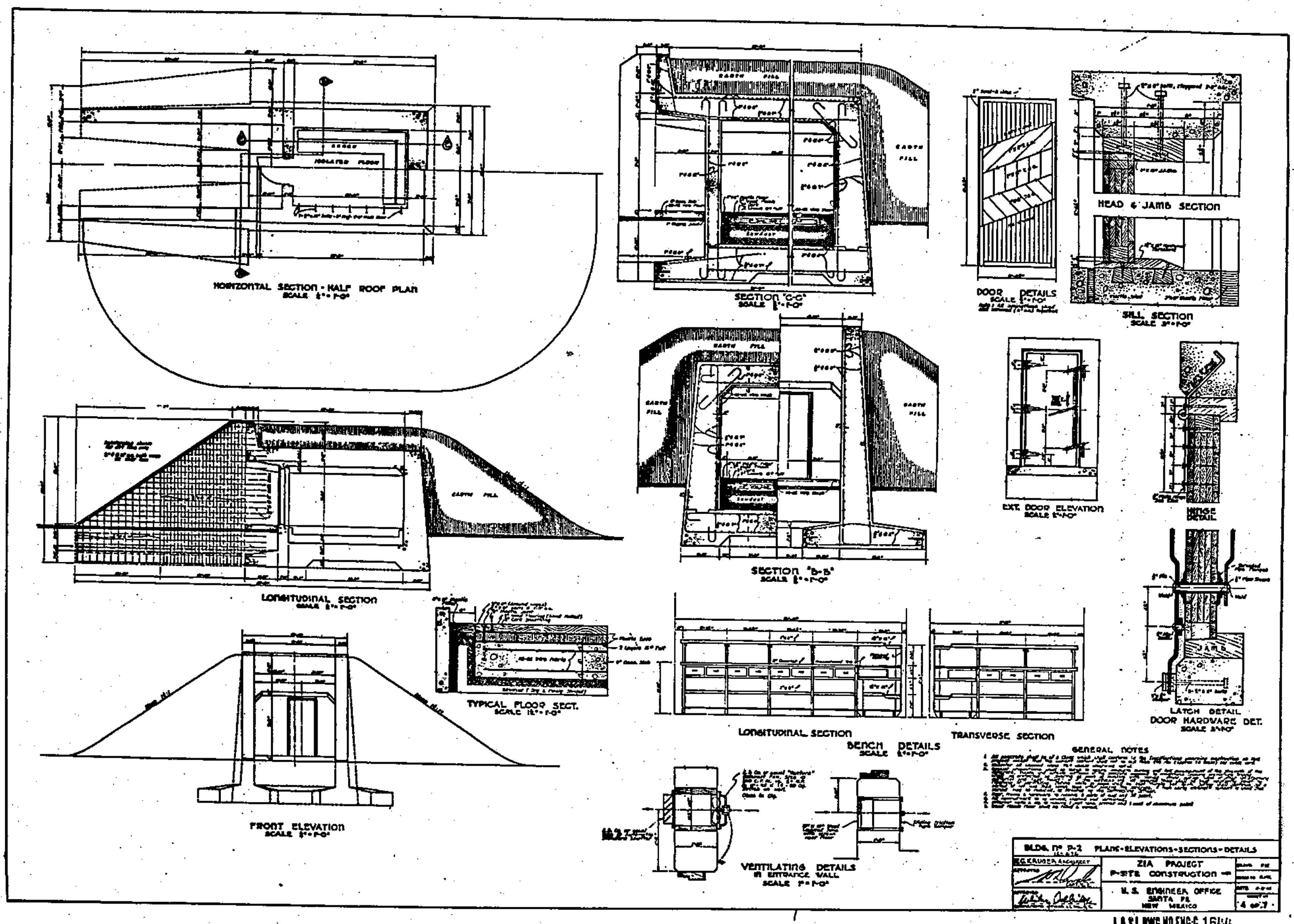
SEC. CLASSIFICATION — CLASS. U — REVIEWER [signature] — DATE 9-29-83

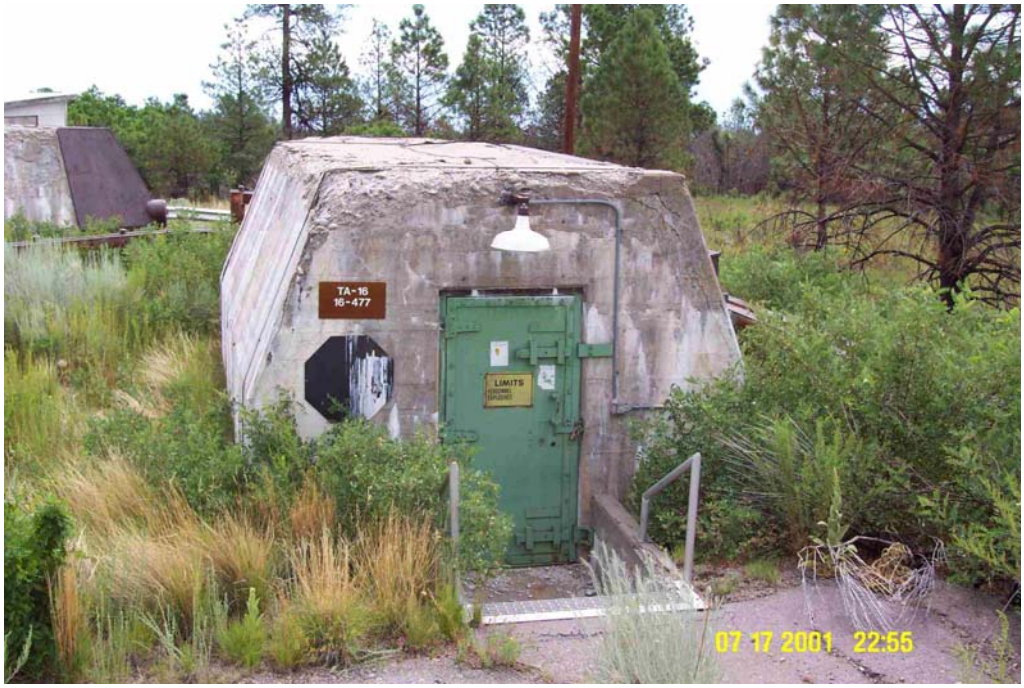
SUBMITTED E. Trujillo — RECOMMENDED [signature] — APPROVED [signature]

DRAWN LEMON — CHECKED [signature] H&N — DATE 6-17-63 — SHEET NO. 1 OF 1 — DRAWING NO. ENG-R2883

MF

RECD — LOGGED ✓ TO VAULT 11-23-83


HORIZONTAL SECTION - HALF ROOF PLAN
ISOLATED FLOOR
SECTION "C-C"
EARTH FILL
DOOR DETAILS
HEAD & JAMB SECTION
SILL SECTION
SECTION "B-B"
EXT. DOOR ELEVATION
HINGE DETAIL
LONGITUDINAL SECTION
EARTH FILL
FRONT ELEVATION
TYPICAL FLOOR SECT.
LONGITUDINAL SECTION
TRANSVERSE SECTION
BENCH DETAILS
LATCH DETAIL
DOOR HARDWARE DET.
JAMB
GENERAL NOTES
VENTILATING DETAILS
IN ENTRANCE WALL
BLDG. No P-2 PLANS-ELEVATIONS-SECTIONS-DETAILS
ZIA PROJECT
P-SITE CONSTRUCTION
U. S. ENGINEER OFFICE
SANTA FE
NEW MEXICO
4 of 7
LASL DWG. NO. ENG-C 1614



TA-16-477 (former TA-13-3)

Original Function: Laboratory/Testing Building
Current Function: Rest House/Storage
Historical Significance: Supported flash X-ray studies of implosions leading to the development of the implosion device.

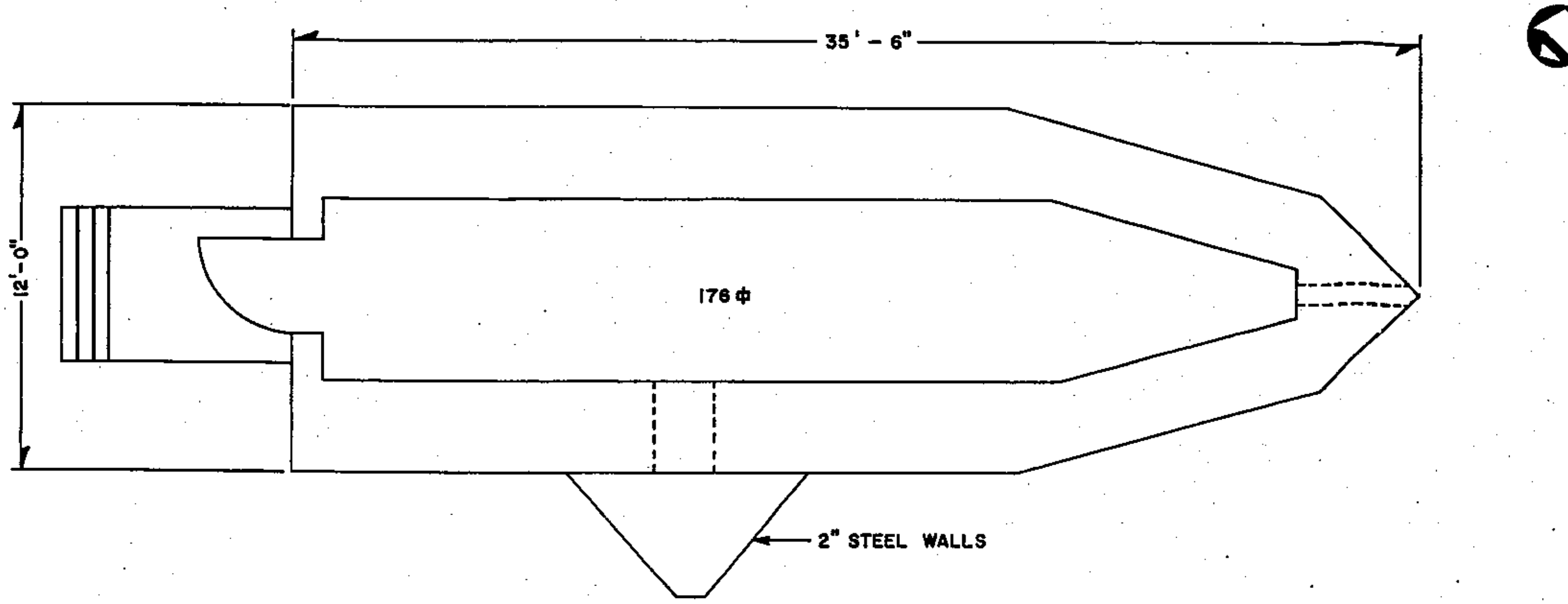
Date Constructed: 1944
Associated Theme: High Explosives
Eligible?: Yes – "A" and "C"

Description:
Building TA-16-477 is torpedo-like in shape and measures 12 ft by 35 ft 6 in. The building was constructed of heavily reinforced concrete foundation and floor slab, tapered walls, and a flat roof. The thickness of the walls allows for only 176 ft^2 of floor space within the building.

The entire structure is located approximately two ft below grade. The single access point is through a reinforced steel door with bolt locks and heavy strap hinges on the west side. The tapered end of the building, located on the east side, was designed to shoot X-rays through a tube. The tapered end, covered with steel plates, was also designed to deflect shrapnel should an explosion occur.

The building was originally constructed as a laboratory building to support flash X-ray studies during the Manhattan Project. This building was later used for high explosives machining studies. The building is currently vacant.

NO.	DATE	REVISIONS	BY	CHKD	GRP. LDR.	ENG. D.O.
1	8-30-65	REVISED TO STATUS OF 8-19-65	DRK			



(1/4" = 1'-0")

0 1 2 3 4 5 6

GRAPHIC SCALE

TOTAL SQ. FT. 176

REV.	DATE	REVISION	BY	CKD.	APP.
2	9-1-83	REVISED TO STATUS OF 9-1-83	H&N	H&N	

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FACILITIES ENGINEERING DIVISION

FLOOR PLAN

BLDG. 477 TA-16

SEC. CLASSIFICATION — CLASS. U — REVIEWER — DATE 9-27-83

SUBMITTED — RECOMMENDED — APPROVED

DRAWN: BREMER — CHECKED: H&N — DATE: 6-17-63 — SHEET NO. 1 OF 1 — DRAWING NO. ENG-R2884

H-E ALBANENE 100L

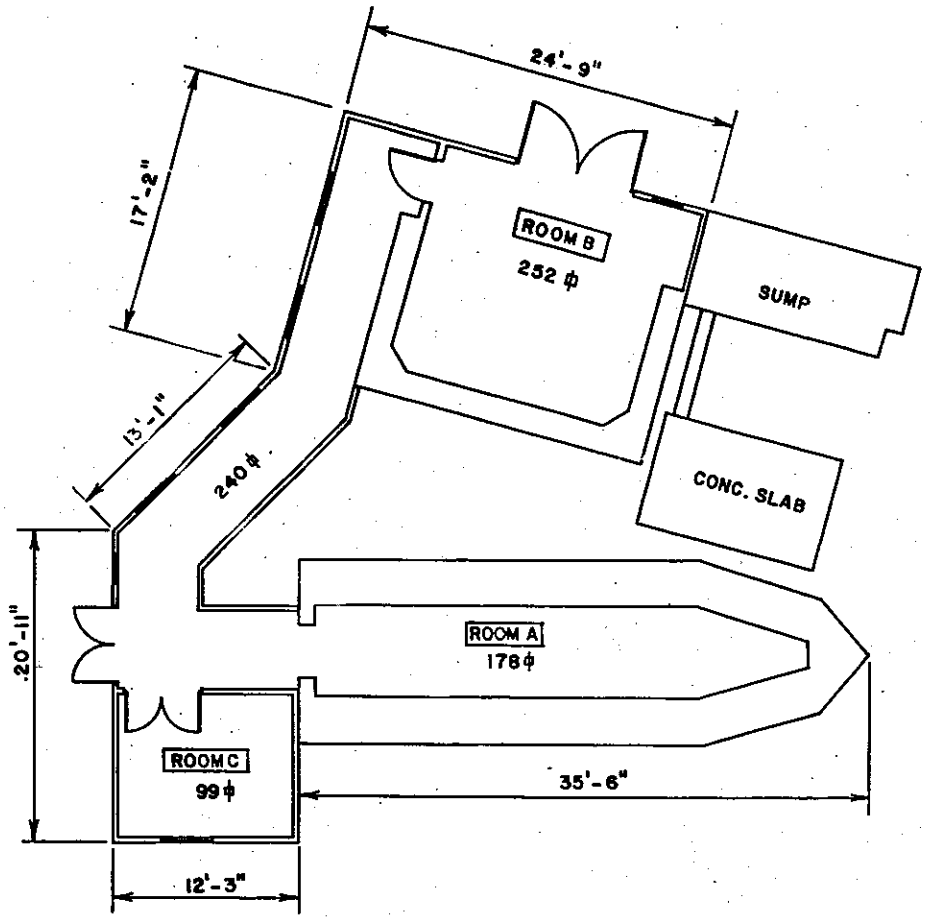
REC'D LOGGED ✓ TO VAULT 11-23-83

TA-16-478 (former TA-13-4)

Original Function: Laboratory and Machine Test Building
Current Function: Vacant
Historical Significance: Supported flash X-ray studies of implosions leading to the development of the implosion device.

Date Constructed: 1944
Associated Theme: Implosion
Eligible?: Yes – "A" and "C"

Description:
TA-16-478 was constructed as two separate buildings connected by an enclosed corridor. Room A, like building TA-16-477, is torpedo-like in shape and measures 12 ft by 35 ft 6 in. The building was constructed of heavily reinforced concrete foundation and floor slab, tapered walls, and a flat roof. The thickness of the walls allows for only 178 ft^2 of floor space within the building. The only entry into Room A is from the north side within the corridor structure. The pointed end of the building is also covered with metal plates to protect the building from explosive testing. Room C is located adjacent to the north end of Room A. Room C, 99 ft^2 in size, is a wood-frame structure with asbestos shingle siding and a flat roof. Room C housed a lathe and is accessed from the shared corridor through a pair of wooden doors. The main corridor is accessed by way of a pair of exterior wooden doors with four lights each. These doors are located on the north side of the building. Room B contains 252 ft^2 and measures 2 ft 9 in. by 17 ft 2 in. The north, west, and south walls of Room B were constructed with a reinforced concrete foundation and floor slab, thick reinforced concrete walls, and a flat roof. The east wall is framed with 2 in. by 4 in. wood studs and covered with asbestos shingle siding. Both a concrete pad and sump pit are located to the south of Room B. A raised metal cable tray spans the length of Rooms C and A to the west. The cable tray housed signal, power, and electrical cables.



(1/8"=1'-0") 0 5 10 GRAPHIC SCALE

TOTAL $\frac{ft^2}{769}$

REV.	DATE	REVISION	BY	CKD	APP.
2	9-7-83	REDRAWN & REVISED TO STATUS OF 9-7-83	H&N	H&N	

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FACILITIES ENGINEERING DIVISION

FLOOR PLAN

SEC. CLASSIFICATION: CLASS. U; REVIEWER; DATE 9-8-83

BLDG. 478 TA-16

SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo	Dan Rox	

DRAWN	CHECKED	DATE	SHEET NO.	DRAWING NO.
MARSH H&N	Humble H&N	9-6-83	1 OF 1	ENG R 2885

REC'D ___ LOGGED ✓ TO VAULT 11-22-83

TA-16-517 TA-16-516

TA-16-516 and TA-16-517

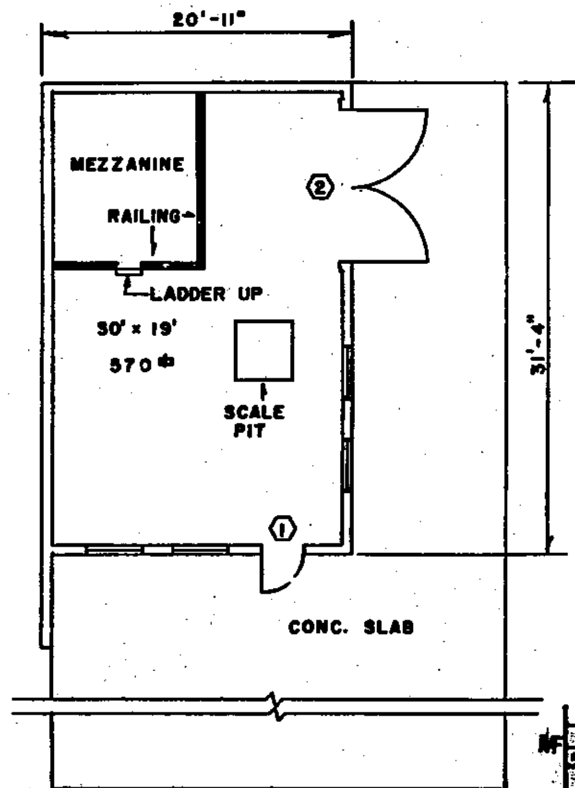
Original Function: Processing /Inspection
Current Function: Vacant
Historical Significance: Supported implosion, gun, and Trinity device assembly and shake tests.

Date Constructed: 1944
Associated Themes: Implosion/Gun Device/Trinity Test
Eligible?: Yes – "A"

Description:
TA-16-516 is a wood-frame building with a concrete foundation and a flat roof. The building has a 16-ft ceiling with an overhead hoist mounted on an I-beam track. TA-16-516 is fairly small, approximately 570 ft^2 in size. A "kettle" platform and scale pit were added in the early 1950s. TA-16-517 is located next to TA-16-516. Like its adjacent building, TA-16-517 is of wood-frame construction with a concrete foundation and a flat roof. TA-16-517 is much smaller than TA-16-516, with an approximate floor area of 318 ft^2. An earthen barricade containing tie rods, cables, and log "deadmen" encloses the triangular-shaped building on two of three sides.

Building TA-16-517 was originally used as a processing/inspection building. It was later used as an equipment room for TA-16-516. The high explosives components for the "Trinity" device were assembled in TA-16-516 in the summer of 1945. Building TA-16-516 was later used for inert storage.

NO.	DATE	REVISIONS	BY	CHKD	GRP LDR	ENG D.O.
1	9-1-65	REVISED TO STATUS OF 8-19-65	JAS			



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

TOTAL SQ. FT. 570

REV.	DATE	REVISION
2	9-2-83	REVISED TO STATUS OF 9-2-83
2	9-2-83	REVISED TO STATUS OF 9-2-83

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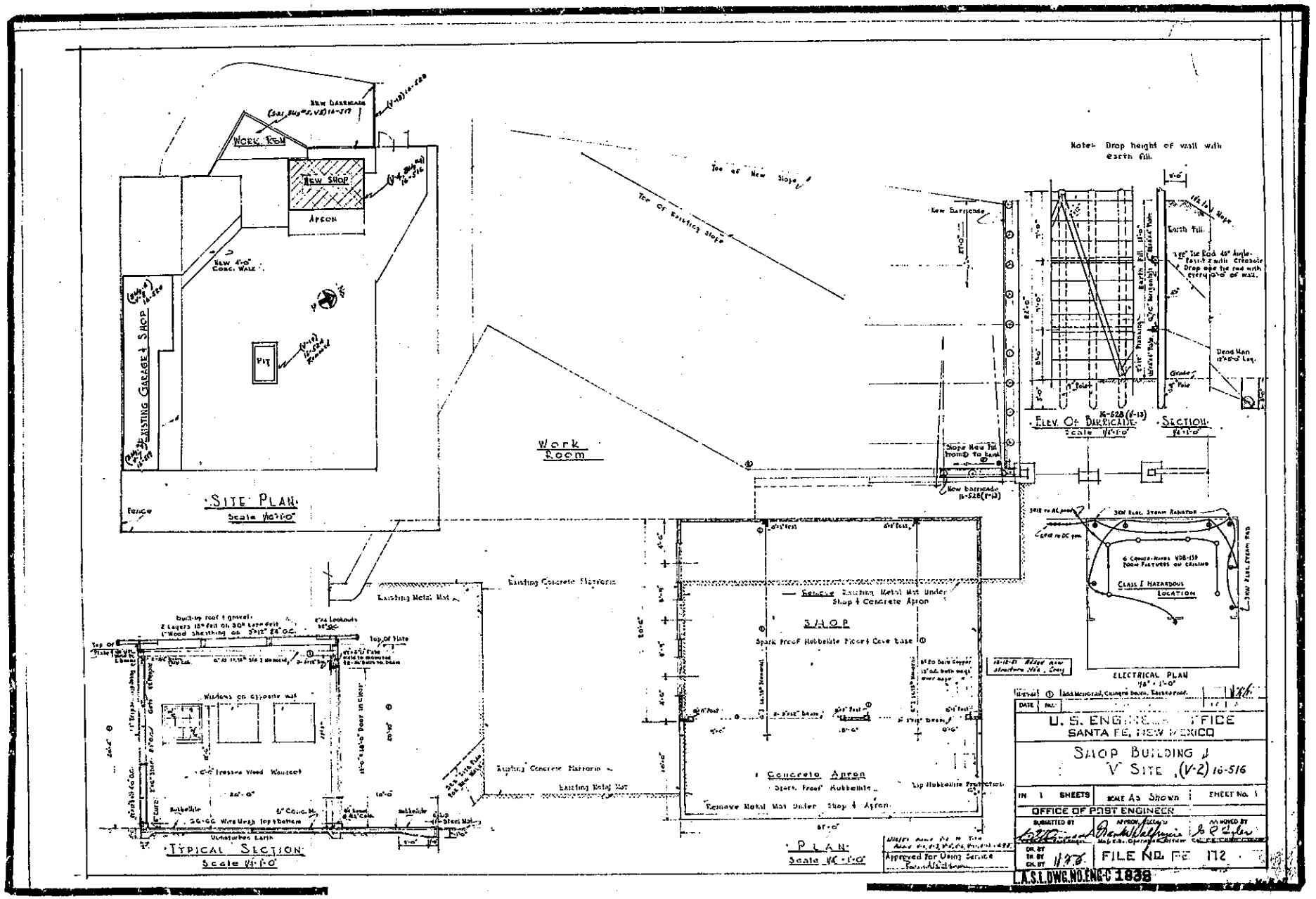
FLOOR PLAN
BLDG. 516 TA-16
ENG-R 2887

REC'D LOGGED ✓ TO VAULT 11-23-83

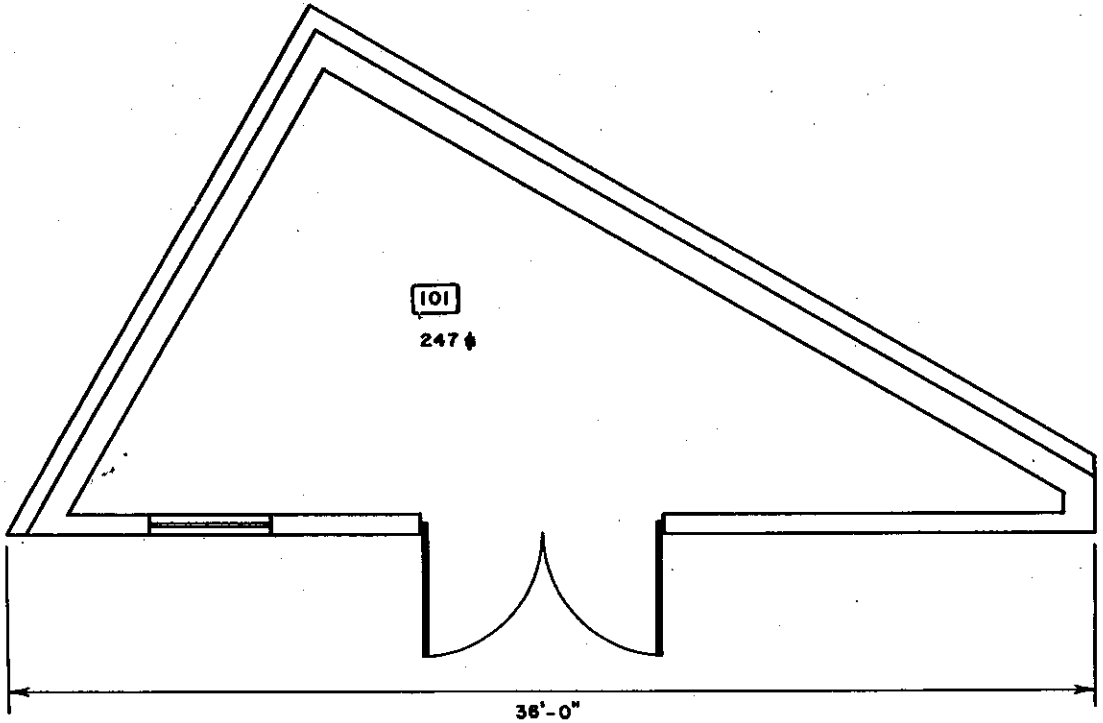
Building TA-16-516

LANL DWG. R 2887 (1964)



Building TA-16-516

LANL DWG. C 1838 (1944)



(1/4"=1'-0") 0 1 2 3 4 5 10

GRAPHIC SCALE

TOTAL $\frac{ft^2}{247}$

REV.	DATE	REVISION	BY	CHK.	APP.
2	8-17-83	REDRAWN & REVISED TO STATUS OF 8-17-83	H&N	H-NEP	

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Los Alamos, New Mexico 87545

FACILITIES ENGINEERING DIVISION

FLOOR PLAN

SEC. CLASSIFICATION: CLASS. U

BLDG. 517 TA-16

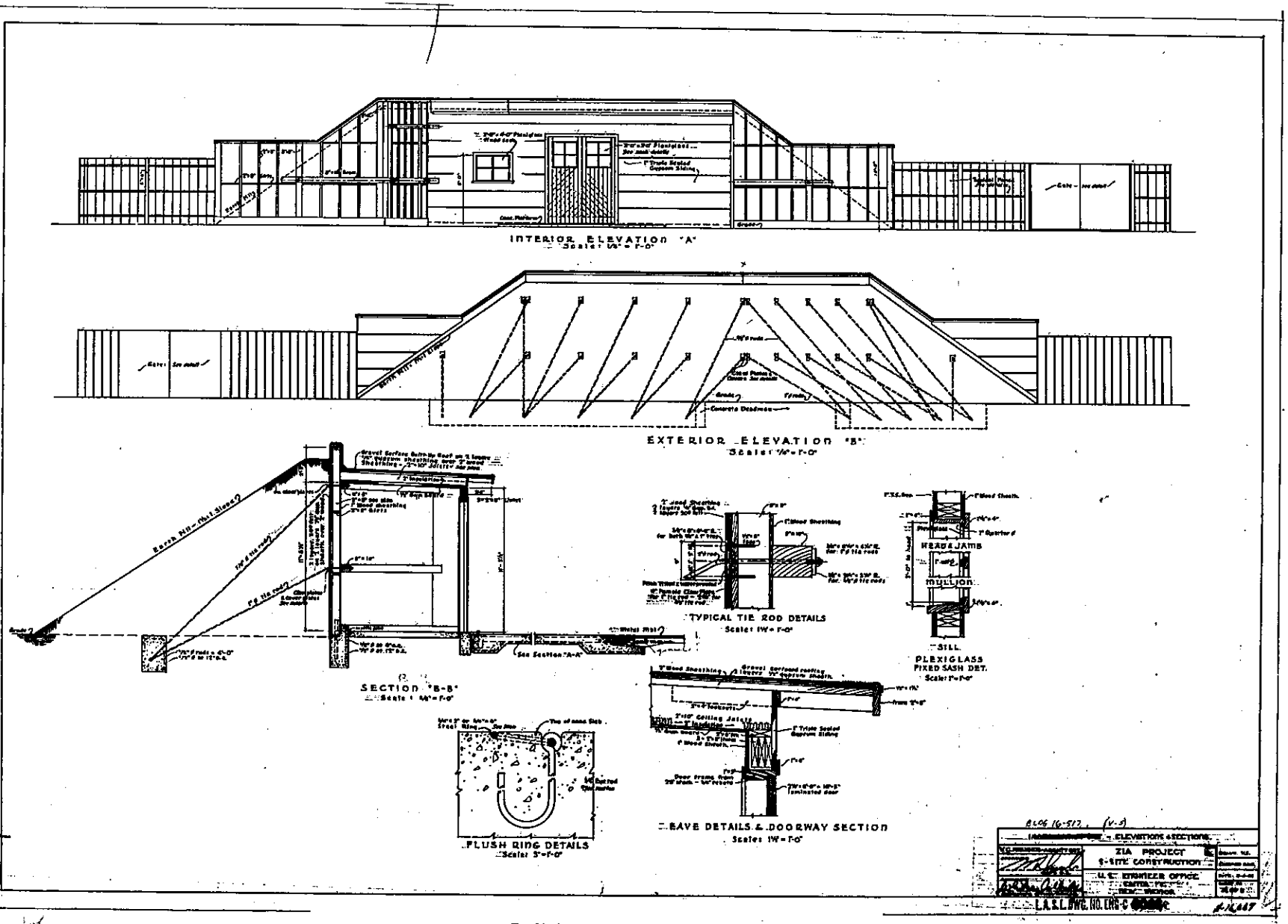
SUBMITTED E. Trujillo
RECOMMENDED Don Fox
APPROVED E. Stephens

DRAWN MARSH H&N
CHECKED Thimble H&N
DATE 8-17-83
SHEET NO. 1 OF 1
DRAWING NO. ENG-R 2888

REC'D ___ LOGGED ✓ TO VAULT 12-8-83

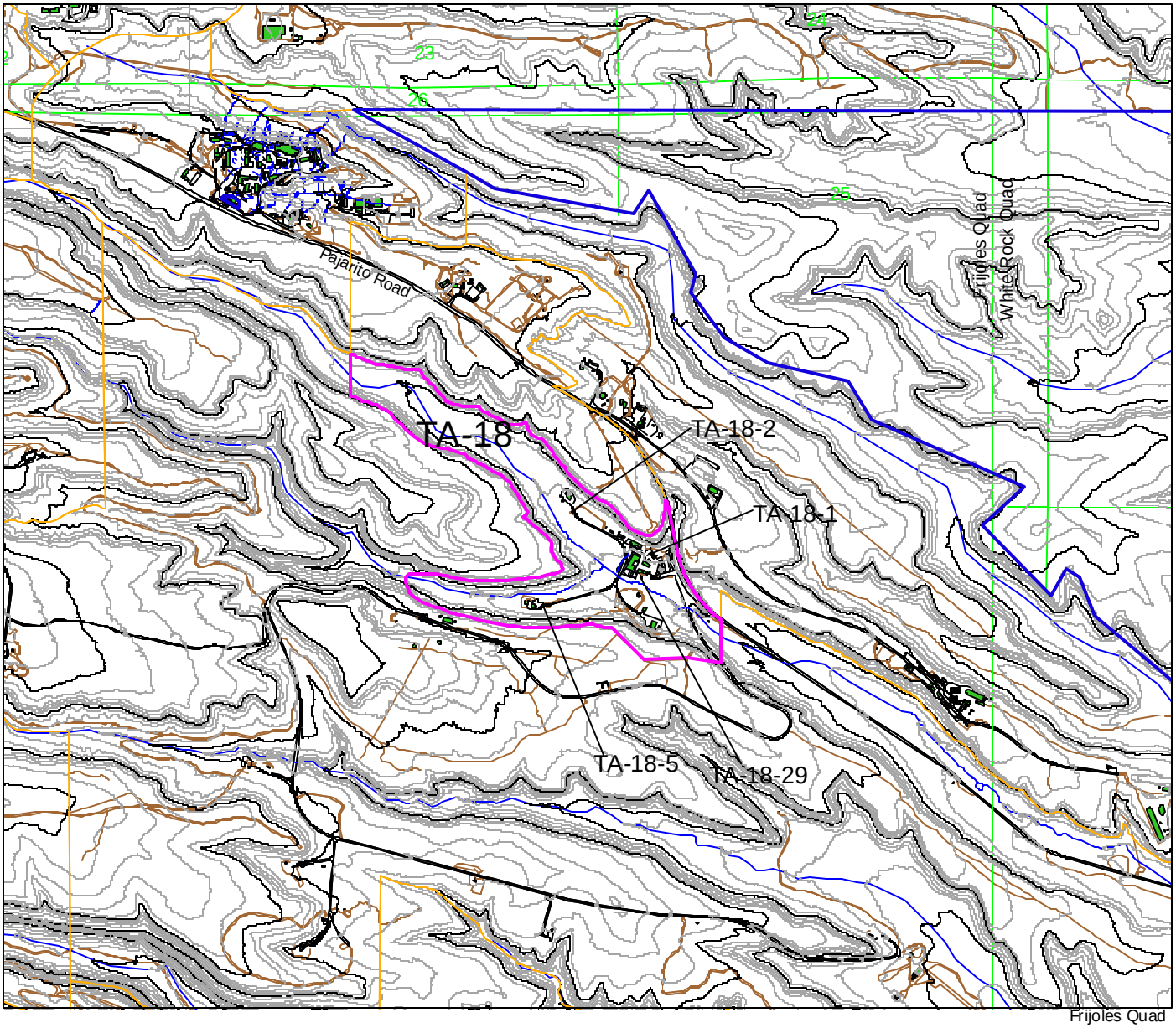
Building TA-16-517

LANL DWG. R 2888 (1983)



Building TA-16-517

LANL DWG. C 6026 (1944)



Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:24000

1000 0 1000 2000 3000 4000 Feet

200 0 200 400 600 800 Meters

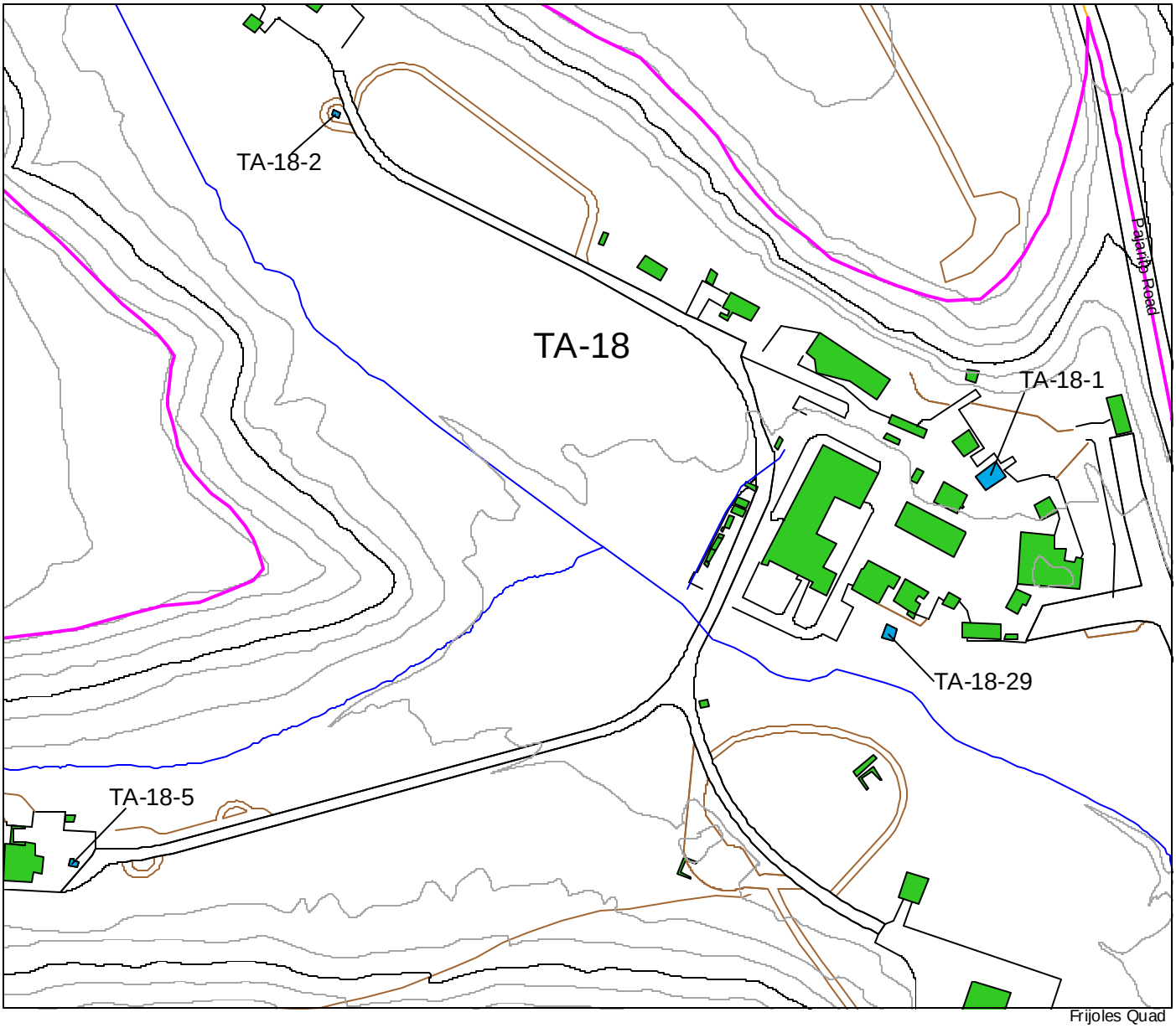
N
W E
S

- Manhattan Project Buildings
- Los Alamos National Laboratory
- Tech Area 18
- Tech Areas
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Township, Section, Range
- USGS 7.5 Minute Quad
- Roads
- Roaddirt
- Parkpave
- Parkdirt
- Buildings/Structures

Manhattan Project Buildings

TA-18

Map 20



Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:3000

200 0 200 400 Feet

50 0 50 100 Meters

N
W E
S

- Manhattan Project Buildings
- Los Alamos National Laboratory
- Tech Area 18
- Tech Areas
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Township, Section, Range
- USGS 7.5 Minute Quad
- Roads
- Roaddirt
- Parkpave
- Parkdirt
- Buildings/Structures

Manhattan Project Buildlings

TA-18 Closeup

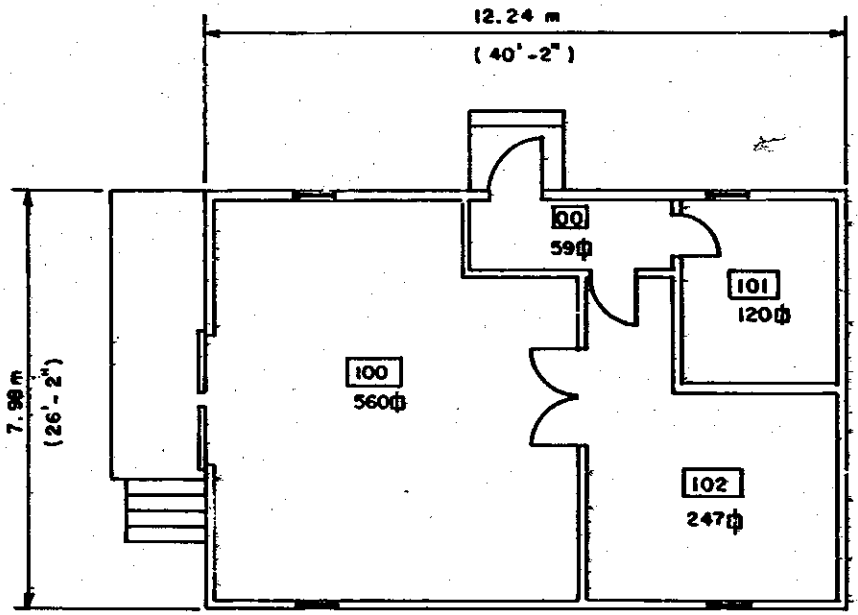
Map 21

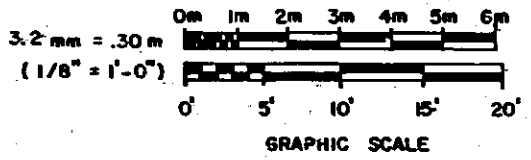
TA-18-1

Original Function: Laboratory/Staging Area
Current Function: Vacant
Historical Significance: Laboratory work supported implosion testing and criticality research. Slotin accident led to important safety changes.

Date Constructed: 1946
Associated Theme: Implosion/Critical Assembly/Biomedical and Health Physics
Eligible?: Yes – "A"

Description:
TA-18-1 is one and a half stories tall on a small footprint and appears like a loft building. It is a wood-frame building with asphalt impregnated paper and wood sleepers with asbestos shingles. The roof is basically flat with an 8 in. high ridge in the center to provide runoff. A portion of the north elevation is sheathed with corrugated metal siding over the asbestos shingles. The floor slab is elevated to dock height, about 3 ft above the surrounding grade. The concrete stem wall is visible above grade. A concrete dock with access stairs, a double sliding door, and frame and rail for an overhead crane are in place at the south elevation. The windows are wood sash double hung with three-over-three window lights and are situated on the east and west elevations only. The windows are set half way up in the wall space adding the loft image.





	m^2	SQ. FT.
TOTALS	91.6	(986)

REV.	DATE	REVISION	BY	CKD.	APP.
4	9-1-83	REVISED AND REDRAWN TO STATUS OF 9-1-83	HHN		DR

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FACILITIES ENGINEERING DIVISION

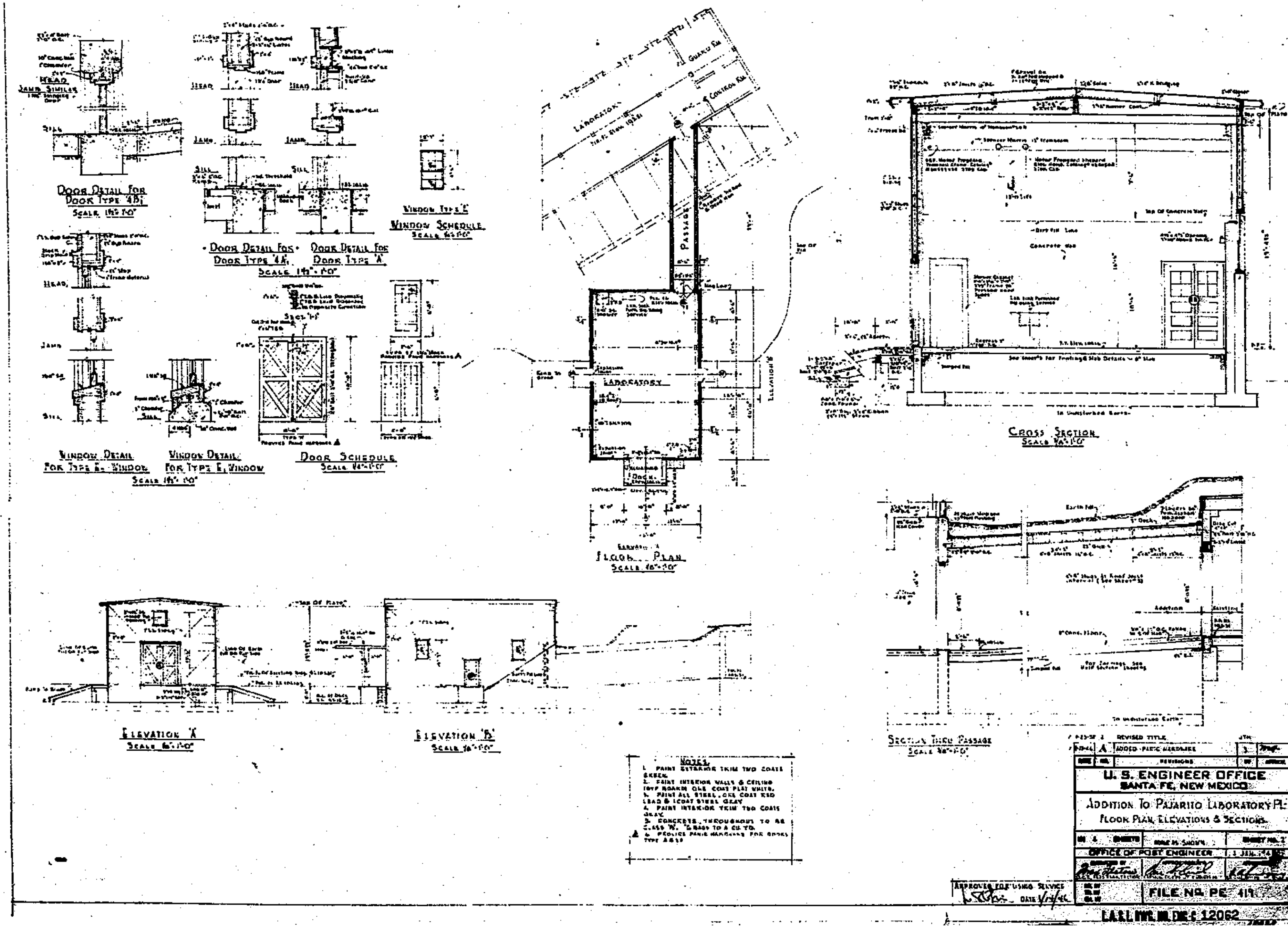
LABORATORY BUILDING
FLOOR PLAN

BLDG. PL-1 TA-18

SEC. CLASSIFICATION: CLASS. U
REVIEWER: [illegible]
DATE: 10-28-83

SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo	Dennis Ross	W. T. Thurber

DRAWN	CHECKED	DATE	SHEET NO.	DRAWING NO.
B. HANNEMAN	HHN	9-1-83	1 OF 1	ENG-R2893



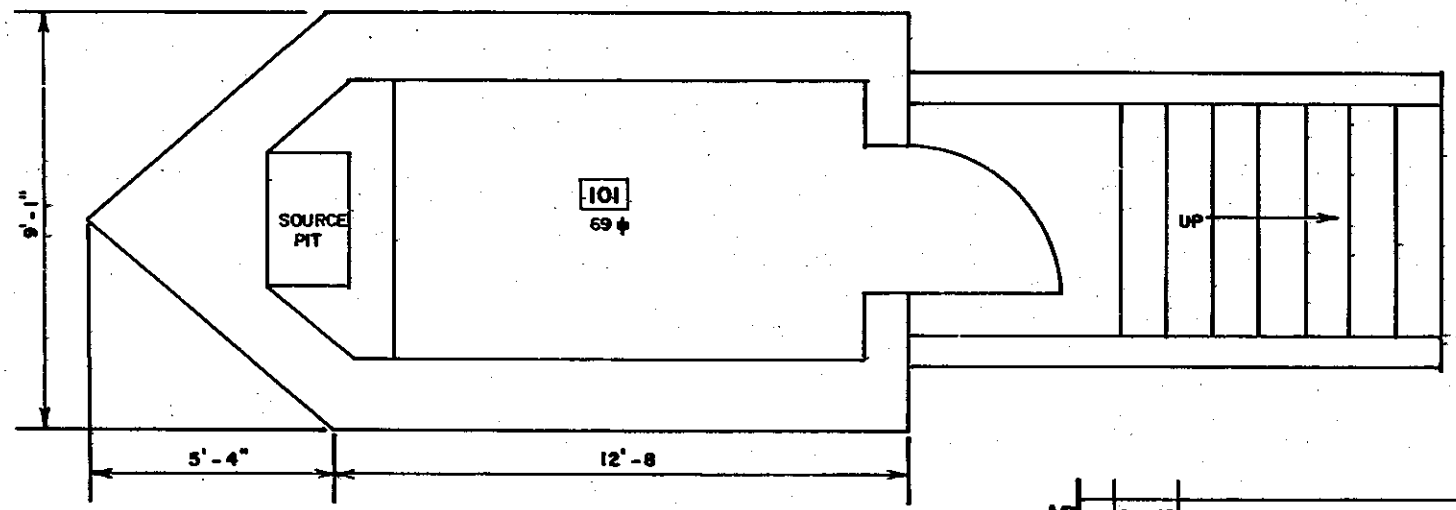
Door Detail For Door Type 'B'
Scale 1½"=1'-0"
Head
Jamb Similar
Sill
Jamb
Door Detail For Door Type 'A'
Door Detail For Door Type 'A'
Scale 1½"=1'-0"
Window Type 'E'
Window Schedule
Window Detail For Type E₁ Window
Window Detail For Type E, Window
Scale 1½"=1'-0"
Door Schedule
Passage
Laboratory
Laboratory
Guard Rm.
Control Rm.
Dock
Elevation 'B'
Elevation 'A'
Floor Plan
Scale ⅛"=1'-0"
Cross Section
Scale ¼"=1'-0"
To Undisturbed Earth
Earth Fill
Concrete Slab
Section Thru Passage
Elevation 'A'
Scale ⅛"=1'-0"
Elevation 'B'
Scale ⅛"=1'-0"
Notes:
1. Paint exterior trim two coats green.
2. Paint interior walls & ceiling (gyp board) one coat flat white.
3. Paint all steel, one coat red lead & 1 coat steel gray.
4. Paint interior trim two coats gray.
5. Concrete, throughout to be class 'B'.
6. Provide panic hardware for doors type A & B.
Revised Title
A Added Panic Hardware
Revisions
U. S. ENGINEER OFFICE
SANTA FE, NEW MEXICO
Addition To Pajarito Laboratory PL-1
Floor Plan, Elevations & Sections
Scale As Shown
Sheet No. 2
Office of Post Engineer
Approved for Using Service
FILE NO. PE 419
LA&L DWG. NO. DE-C 12062

TA-18-2

Original Function: Control Bunker/Battleship Bldg.
Current Function: Vacant
Historical Significance: Supported tests of the magnetic method of studying implosions.

Date Constructed: 1944
Associated Theme: Implosion
Eligible?: Yes – "A" and "C"

Description:
TA-18-2 is a robust cast-in-place concrete building. The bunker is semi-recessed into the ground and there are no openings other than a blast resistant steel door on the east elevation. The sunken door is accessed down a concrete stair and stairwell. The roof is exposed concrete and no roofing material is apparent. TA-18-2 is also referred to as a "Battleship" building: the west end of the building is bow shaped and shielded with steel plate.



3/8" = 1'-0"

0 1 2 3 4 5 6 7 8 9 10

GRAPHIC SCALE

TOTAL SQ. FT. 69

REV.	DATE	REVISION	BY	CHK.	APP.
1	9-1-93	REDRAWN & REVISED TO STATUS OF SEPTEMBER 1, 1993	MF		

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FACILITIES ENGINEERING DIVISION

BATTLESHIP BUILDING
FLOOR PLAN

SEC. CLASSIFICATION: CLASS. U

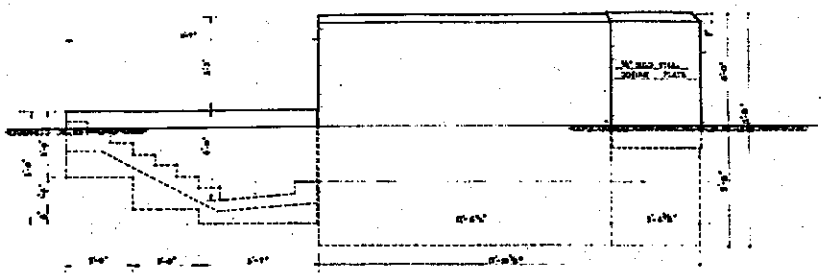
BLDG. PL-2 TA-18

REVIEWER: DATE 10-31-83

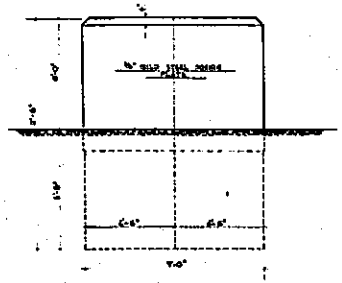
SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo	Dennis Ross	W. F. Edwards

DRAWN	DATE	SHEET NO.	DRAWING NO.
H&N	9-1-83	1 of 1	ENG-R2895
CHECKED			

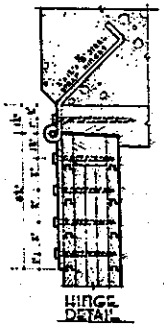
REC'D ___ LOGGED ___ TO VAULT ___



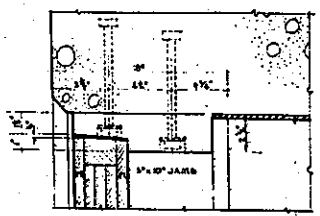
SIDE ELEVATION
SCALE



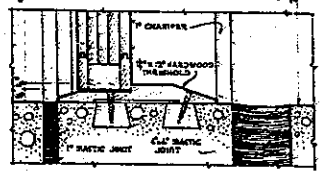
FRONT ELEVATION
SCALE



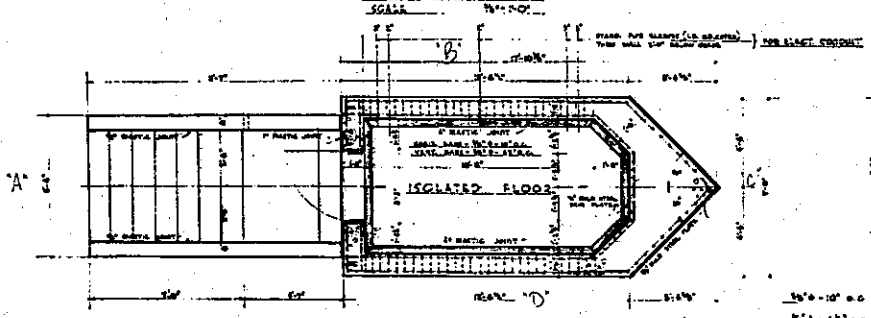
HINGE DETAIL



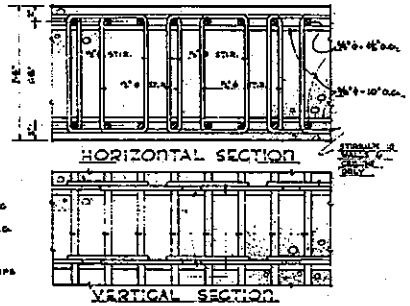
HEAD & JAMB SECTION



SILL SECTION
SCALE

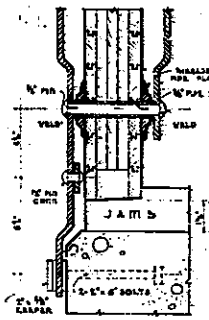


FLOOR PLAN
SCALE



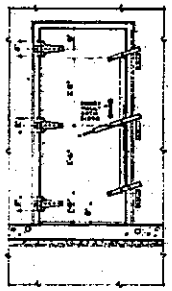
HORIZONTAL SECTION

VERTICAL SECTION
TYPICAL BARREL REINFORCEMENT
SCALE

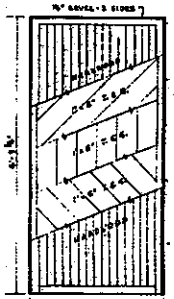


LATCH DETAIL

DETAIL OF DOOR HARDWARE
SCALE

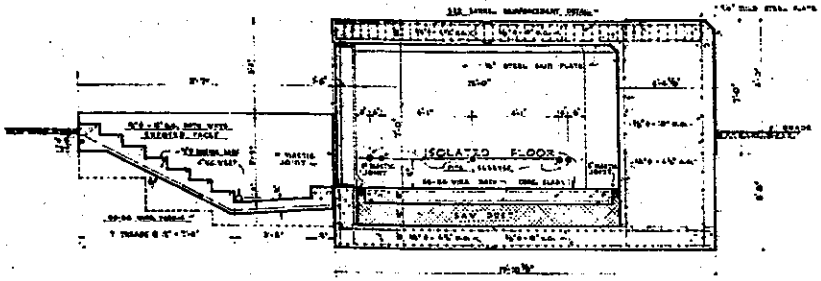


EXT. DOOR ELEVATION
SCALE

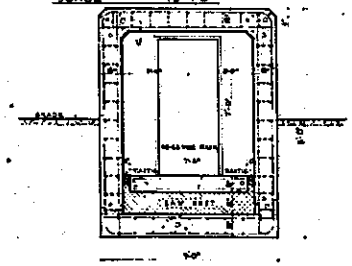


DOOR DETAILS
SCALE

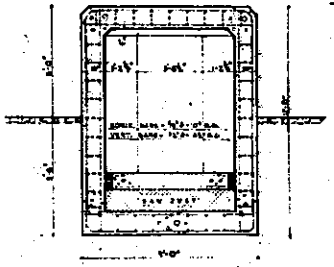
NOTE: ALL LAMINATIONS GLUED & DOWELED [illegible]



LONGITUDINAL SECTION
SCALE



SECTION 'A-A'
SCALE



SECTION 'B-B'
SCALE

△ REVISED TITLE 7-22-52 JTH

BLDG # 265 PLAN-ELEVATIONS-SECTIONS-DETAILS

V.C. KRUGER ARCHITECT	ZIA PROJECT PAJARITO CONSTRUCTION	DRAWN EK
APPROVED		CHECKED
APPROVED	U. S. ENGINEER OFFICE SANTA FE NEW MEXICO	DATE 7/6/50
APPROVED FOR USING SERVICE		SHEET NO.

NOTE: DRAWINGS NOT TO SCALE — USE DIMENSIONS

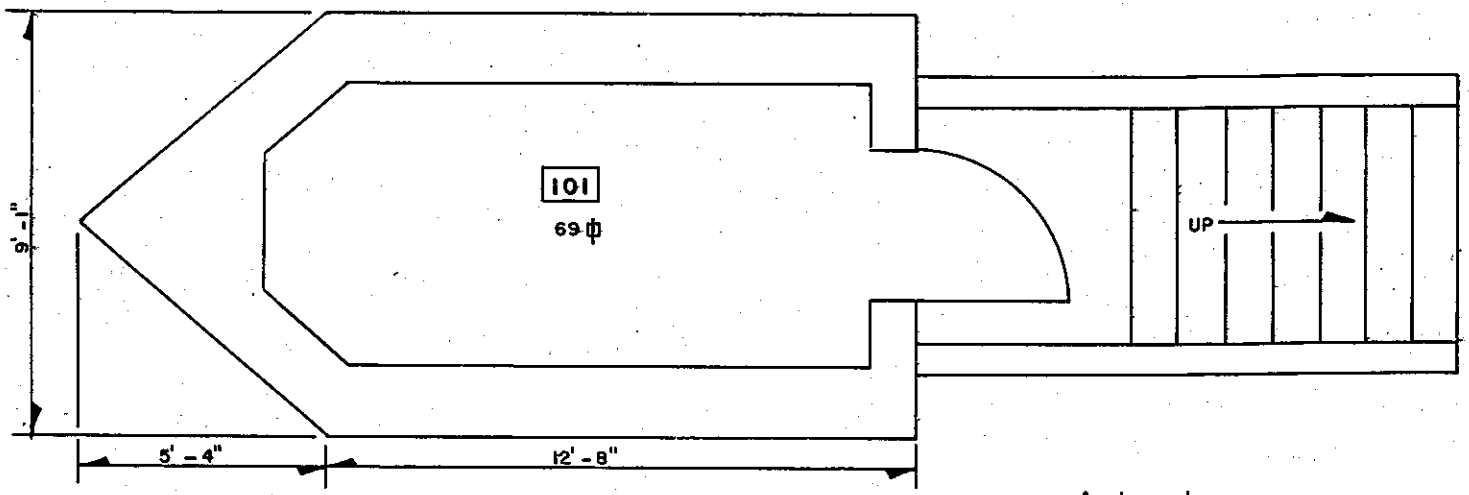
L.A.S.L. DWG. NO. ENG-C 12050 REV 1

TA-18-5

Original Function: Control Bunker/Battleship Bldg.
Current Function: Vacant
Historical Significance: Supported tests of the magnetic method of studying implosions.

Date Constructed: 1944
Associated Theme: Implosion
Eligible?: Yes – "A"

Description:
TA-18-5 is another "Battleship" building and is similar in many respects to TA-18-2. The structure is semi-recessed into the ground with a steel door and exposed concrete roof. The west end of the building is bow shaped and shielded with steel plate. A steel plate access hatch is located on top of the structure's west end.



3/8" = 1'-0"

0 1 2 3 4 5 6 7 8 9 10

GRAPHIC SCALE

TOTAL SQ. FT. 69

REV.	DATE	REVISION	BY	CKD.	APP.
1	9-1-83	REDRAWN & REVISED TO STATUS OF SEPTEMBER 01, 1983	HBN		

MF

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

FACILITIES ENGINEERING DIVISION

BATTLESHIP BUILDING
FLOOR PLAN

SEC. CLASSIFICATION
CLASS. U
REVIEWER Fowler
DATE 10-31-83

BLDG. PL-5 TA-18

SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo	Dain Root	

DRAWN	DATE	SHEET NO.	DRAWING NO.
H B N	9-1-83	1 OF 1	ENG-R2896
CHECKED H&N			

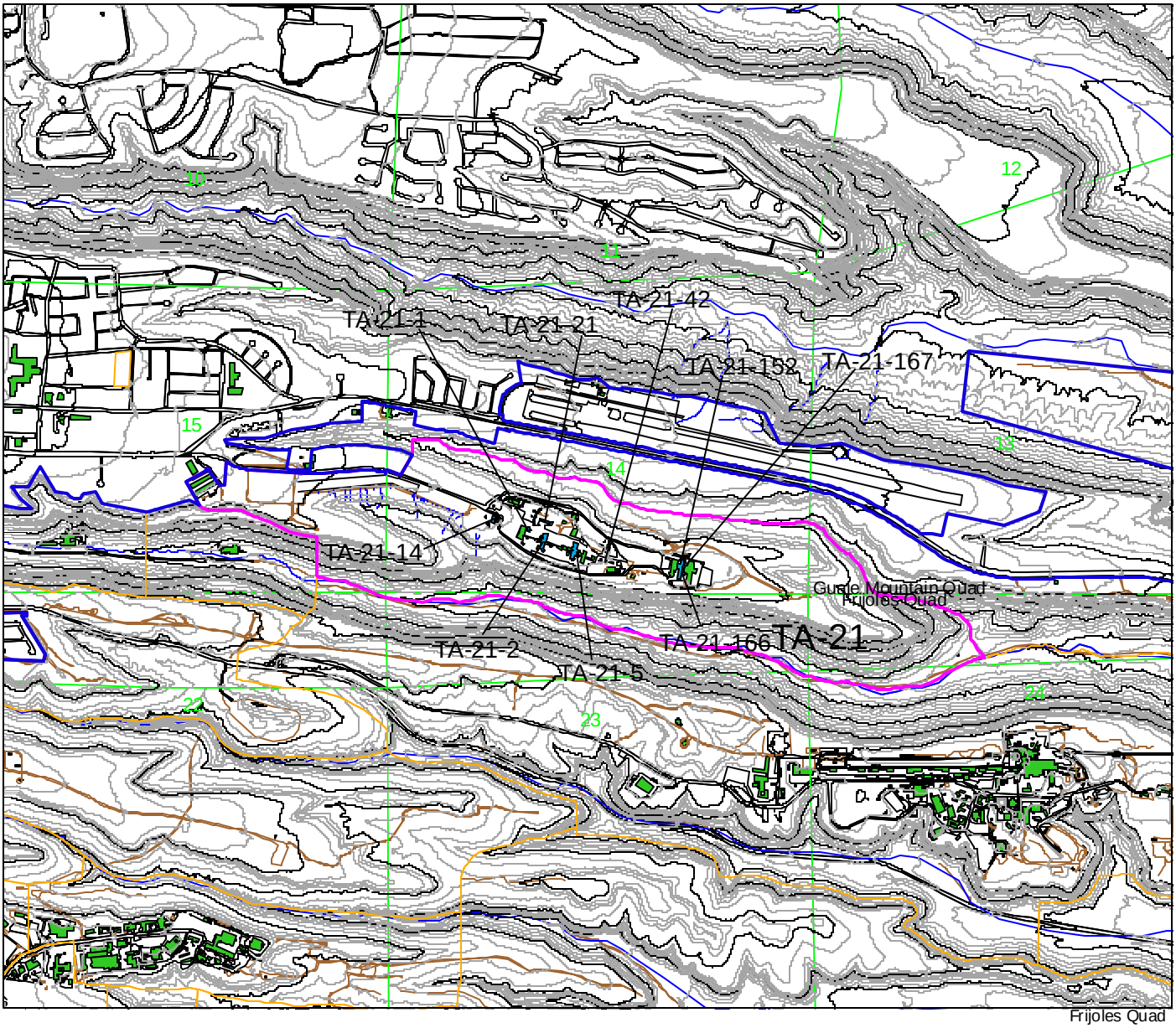
REC'D ____ LOGGED ____ TO VAULT 11-23-83

TA-18-29

Original Function: Ranch Cabin
Current Function: Vacant
Historical Significance: Ashley Pond's office and library. Also served as support building for fission and early implosion research.

Date Constructed: 1914
Associated Theme: Early Los Alamos (Pre-Lab), and Plutonium and Implosion Research
Eligible?: Yes – "A" (although greatest significance lies with its association with Early Los Alamos history)

Description (no drawings available)**:**
TA-18-29 is also known as the Pond Cabin. Built in circa 1913 by Ashley Pond and first used as part of Pond's failed dude ranch, this building was later used to support early Manhattan Project research activities at Pajarito Site (TA-18). The cabin measures 16 ft by 24 ft with an 8 ft high gable roof. The building occupies approximately 384 gross ft^2. The cabin is rustic in appearance with log walls and a corrugated metal pitched roof. It has three fixed, three-over-three wood windows and one wood door that all appear to be original. One of the original window openings is boarded up. There is one indigenous stone fireplace and chimney. A round metal flue for a wood stove protrudes from the interior through the roof. There are no utility connections to this structure. The condition of the structure is fair with the roof appearing to be in poor but appropriate condition (the building was stabilized in 1986-1987). Some of the metal roof panels have been replaced but others are aged and rusted. Concrete barricades and sand bags surround the structure to divert the threat of flooding; these were placed around the building after the May 2000 Cerro Grande Fire.



Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:24000

700 0 700 1400 2100 2800 Feet

200 0 200 400 600 800 Meters

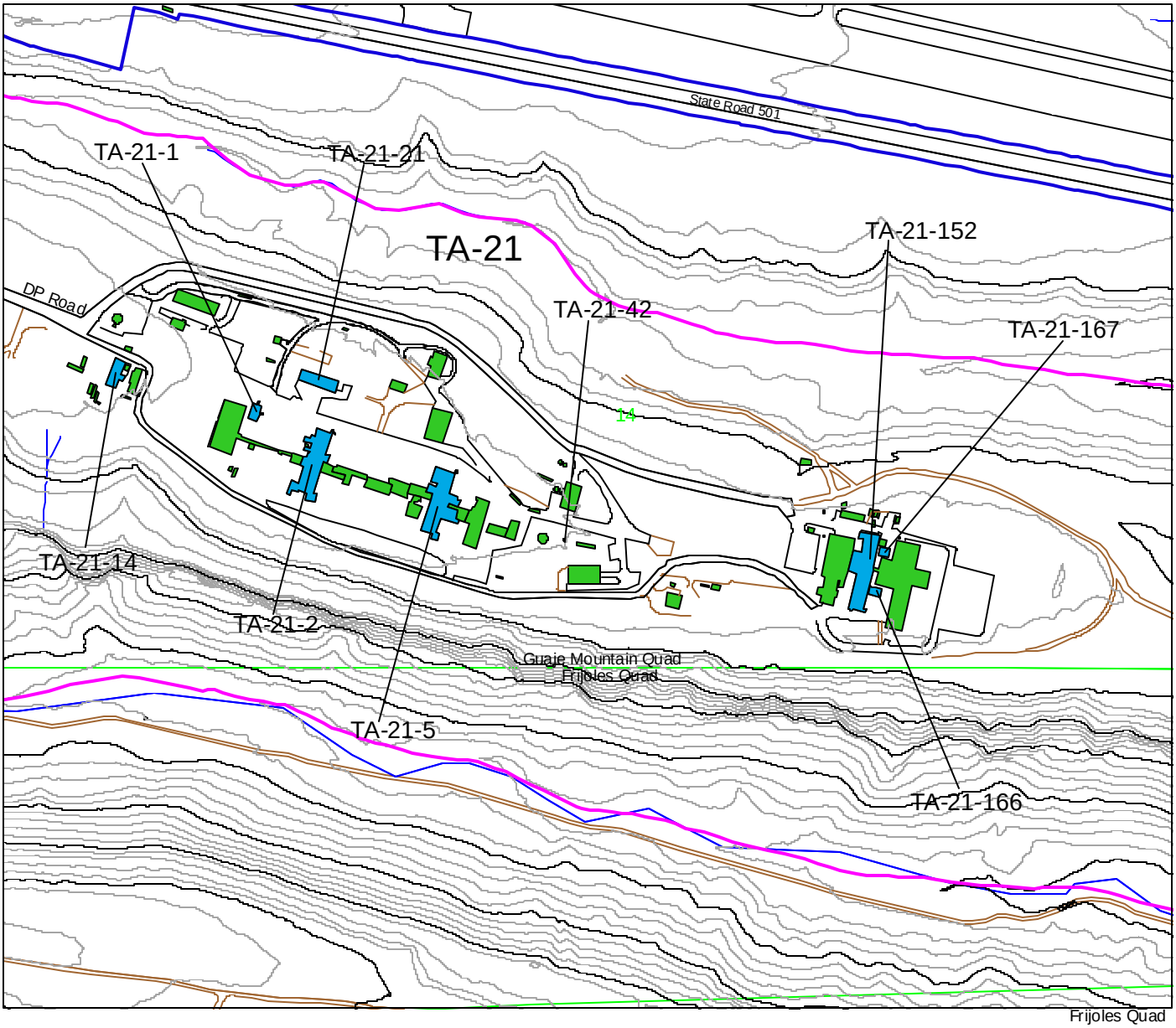
N
W E
S

- Manhattan Project Buildings
- Los Alamos National Laboratory
- Tech Area 21
- Tech Areas
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Township, Section, Range
- USGS 7.5 Minute Quad
- Roads
- Roaddirt
- Parkpave
- Parkdirt
- Buildings/Structures

Manhattan Project Buildings

TA-21

Map 22



Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:6000

200 0 200 400 600 800 1000 Feet

50 0 50 100 150 200 250 300 Meters

N
W E
S

- Manhattan Project Buildings
- Los Alamos National Laboratory
- Tech Area 21
- Tech Areas
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Township, Section, Range
- USGS 7.5 Minute Quad
- Roads
- Roaddirt
- Parkpave
- Parkdirt
- Buildings/Structures

Manhattan Project Buildings

TA-21 Closeup

Map 23

TA-21-1

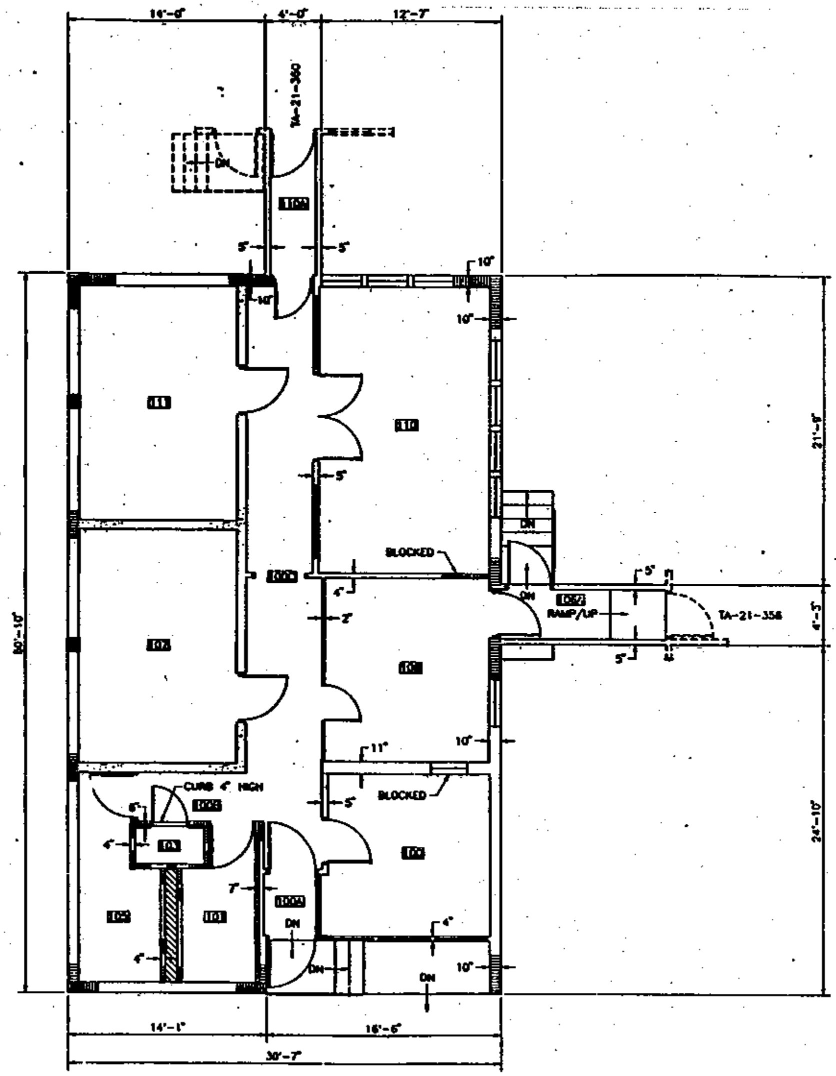
Original Function: Office/Vault Bldg.
Current Function: Vacant
Historical Significance: Supported early plutonium production in support of stockpile.

Date Constructed: 1945
Associated Theme: Plutonium Production
Eligible?: No (extensive remodeling)

Description:
The original building TA-21-1 was the main administrative office building for the plutonium research and processing facility (DP West). The building had a lunch room, lockers, change room, and showers. The original TA-21-1 has been removed; what is present today are two additions: one built in 1949 and one built in 1968. The 1949 addition housed a vault, a records vault room, a quality control office, and the Section Head's office. The 1968 addition consisted of an office and restrooms.

The original building was constructed of metal lath covered with plaster. The 1949 addition was constructed using wood stud walls and steel tube frame filled in with plaster. Exterior wall surfaces are concrete masonry units with stucco finish. Interior walls are gypsum board and some painted concrete masonry units.

ENG-AB 487
Office Vault Building
Arch: As Built Record Floor Plan
September 25, 1995



RECORD FLOOR PLAN
SCALE: 1/4" = 1'-0"
4 3 2 1 0 4 8 16
GRAPHIC SCALE

N

ROOM INFORMATION CHART					
RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE
100	145	103	16	110	261
100A	70	105	64	110A	37
100B	20	106	163	111	207
100C	240	106A	47	UTILITY-1	19
101	61	107	205		

TOTAL ROOM NET SQUARE FOOTAGE (BUILDING) = 1,517

GROSS SQUARE FOOTAGE (BUILDING) = 1,585

LEGEND

- CONCRETE BLOCK
- LOUVER
- UTILITY SPACE
- WINDOW
- WOOD OR METAL STUD

NOTES

1. ALL EXTERIOR WALLS ARE 8" THICK UNLESS OTHERWISE NOTED.
2. ALL INTERIOR WALLS ARE 4" THICK UNLESS OTHERWISE NOTED.
3. REFERENCE DRAWING ENG-R2918.
4. ROOM NET SQUARE FOOTAGE IS COMPUTED BY MEASURING FROM THE INSIDE FACE OF EXTERIOR WALLS TO THE CENTERLINE OF ALL OTHER WALLS. AREAS SHOWN ARE ROUNDED TO THE NEAREST SQUARE FOOT.
5. GROSS SQUARE FOOTAGE IS EQUAL TO ALL FLOOR AREA (INCLUDING ALL OPENINGS IN FLOOR SLABS) MEASURED TO THE OUTER SURFACES OF EXTERIOR OR ENCLOSING WALLS, AND INCLUDES ALL FLOORS, MEZZANINES, HALLS, VESTIBULES, STAIRWELLS, SERVICE AND EQUIPMENT ROOMS, PENTHOUSES, VAULTS, AND ENCLOSED PASSAGES.
6. DIMENSIONS SHOWN ARE ROUNDED TO THE NEAREST INCH.

NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHK	SUB	APP

JOHNSON CONTROLS

AS-BUILT RECORD FLOOR PLAN
OFFICE VAULT BUILDING
ARCH: RECORD FLOOR PLAN

BLDG 1 TA-21

SUBMITTED JERRY CORTE
APPROVED FOR RELEASE 8/25/95

Los Alamos — Los Alamos National Laboratory, Los Alamos, New Mexico 87545

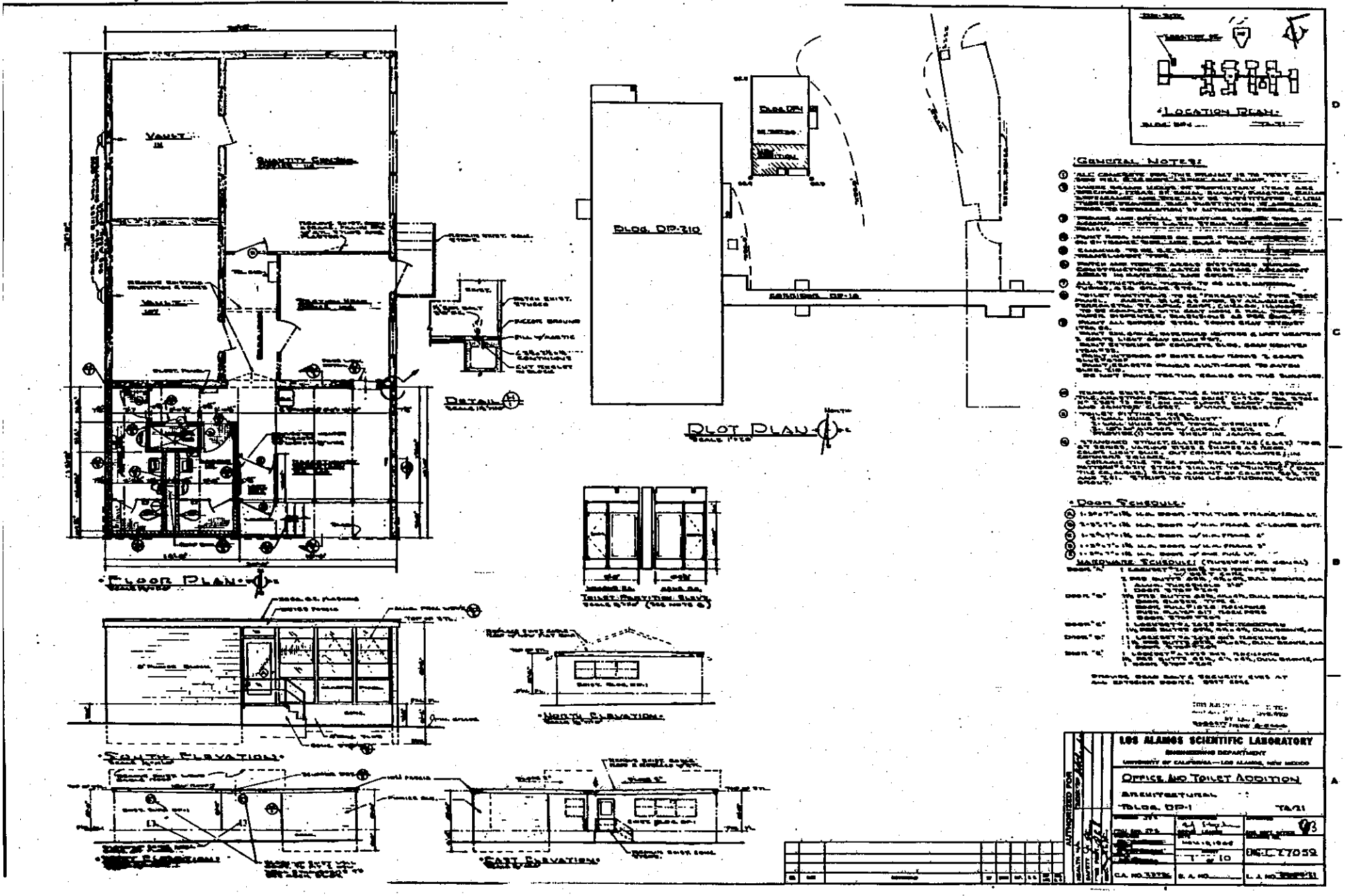
SHEET 1 of 1

CLASSIFICATION U — REVIEWER T. OUSOOE — DATE 8-21-95

PROJECT ID 7556 — DRAWING NO AB487

DRAWN — VERIFIED — CHECKED — DATE 07-26-95

ENG-C 27059 (sheet 1 of 10)
Office and Toilet Addition
Architectural (Floor Plan, Elevations, & Plot Plan)
November 19, 1968



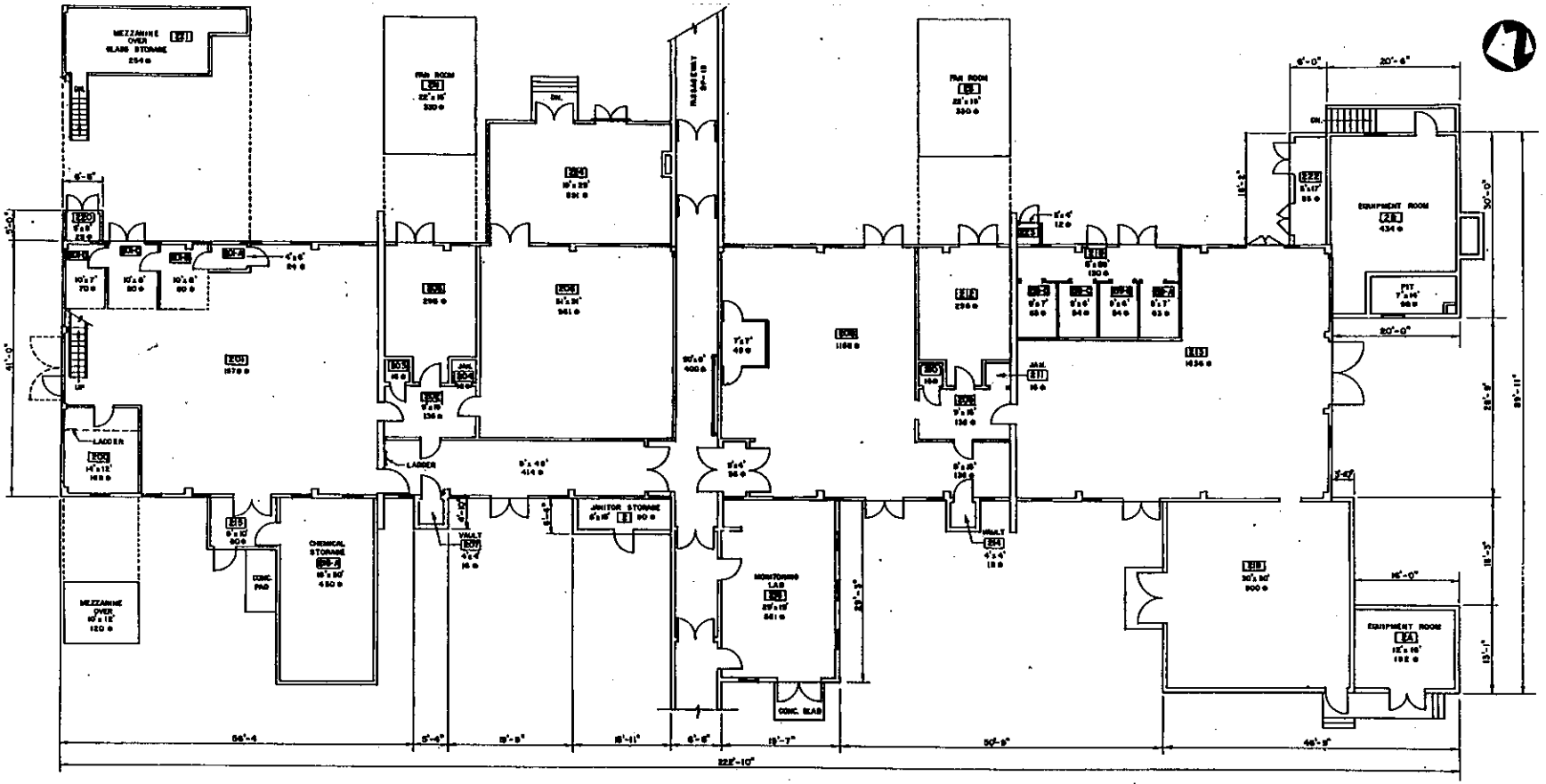
TA-21-2

Original Function: Laboratory Building
Current Function: Vacant
Historical Significance: Supported early plutonium production in support of stockpile. Kelley accident led to safety changes and provided radiation worker dose information.

Date Constructed: 1945
Associated Theme: Plutonium Production/ Biomedical and Health Physics
Eligible?: Yes – "A"

Description:
TA-21-2 is a pre-engineered, steel framed, rectangular warehouse type building with exterior ribbed metal panel siding. The building was used as a plutonium processing and recovery laboratory from 1945 to the 1970s. Ether extraction operations, plutonium-239 and plutonium-241 processing operations, and americium-241 recovery operations were conducted in this building. The Cecil Kelley criticality accident occurred in the south part of TA-21-2 in December of 1958.

ENG-R 2919
Laboratory Building, DPW-2, TA-21
First Floor Plan
October 3, 1983



GRAPHIC SCALE

TOTAL SQ. FT. 12,814

REV	DATE	REVISION	BY	CHK	APR
3	3-22-84	REDRAWN TO STATUS OF 3-22-84			

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

FACILITIES ENGINEERING DIVISION

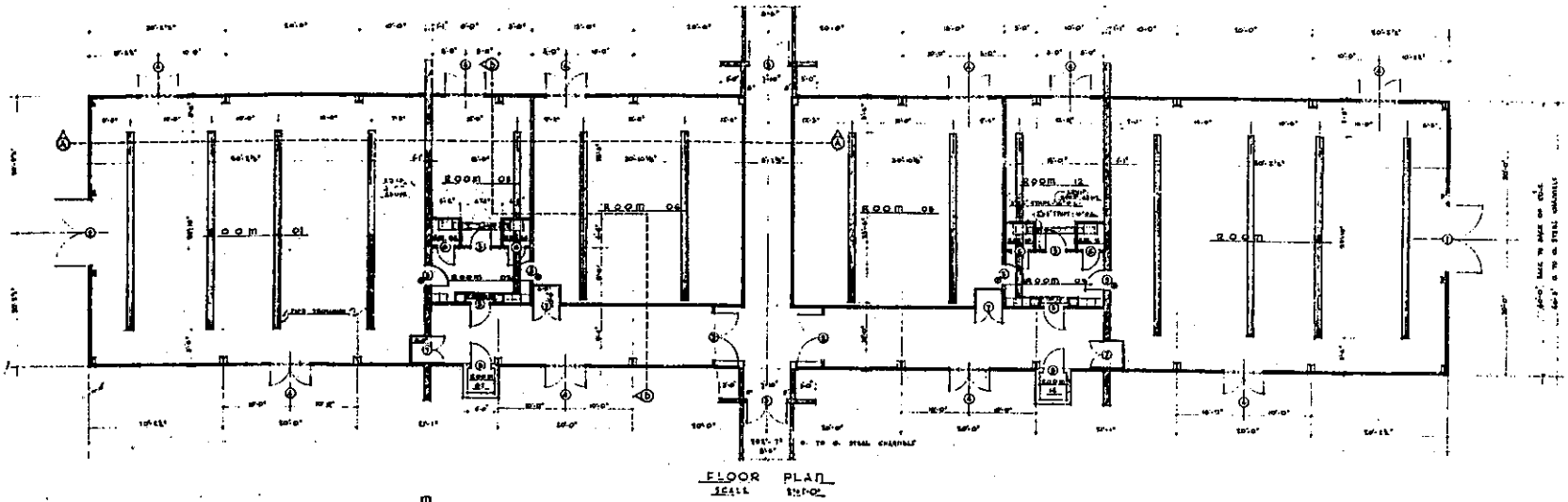
LABORATORY BUILDING
FIRST FLOOR PLAN

BLDG. DPW-2 TA-21

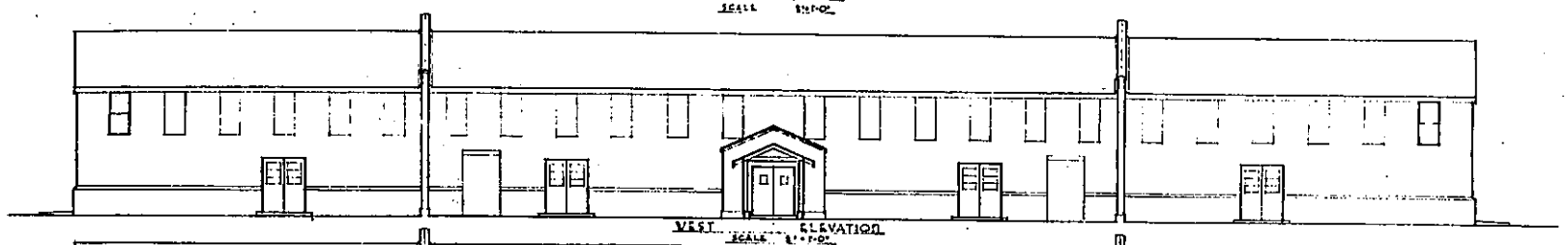
SUBMITTED	RECOMMENDED	APPROVED
G. Tompkins		

DRAWN J. SAY H&N
CHECKED H&N
DATE 10-3-83
SHEET NO. 1 OF 1
DRAWING NO. ENG-R2919

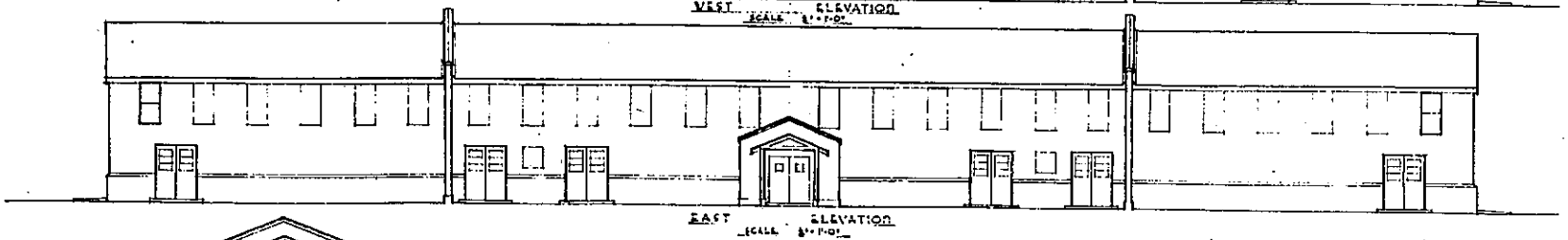
ENG-C 2083 (sheet 3)
DP Site Construction
Bldgs –2, -4, -5 Floor Plan & Elevations
March 18, 1945



FLOOR PLAN
SCALE 1/8"=1'-0"



WEST ELEVATION
SCALE 1/8"=1'-0"



EAST ELEVATION
SCALE 1/8"=1'-0"

END ELEVATION SCALE 1/8"=1'-0"

BLDGS. -2-4-5 FLOOR PLAN & ELEVATIONS

'DP' SITE CONSTRUCTION

U. S. ENGINEER OFFICE
SANTA FE, N. MEX.

SHEET DP 3

ENCLOSURE TO ENG-C 2083

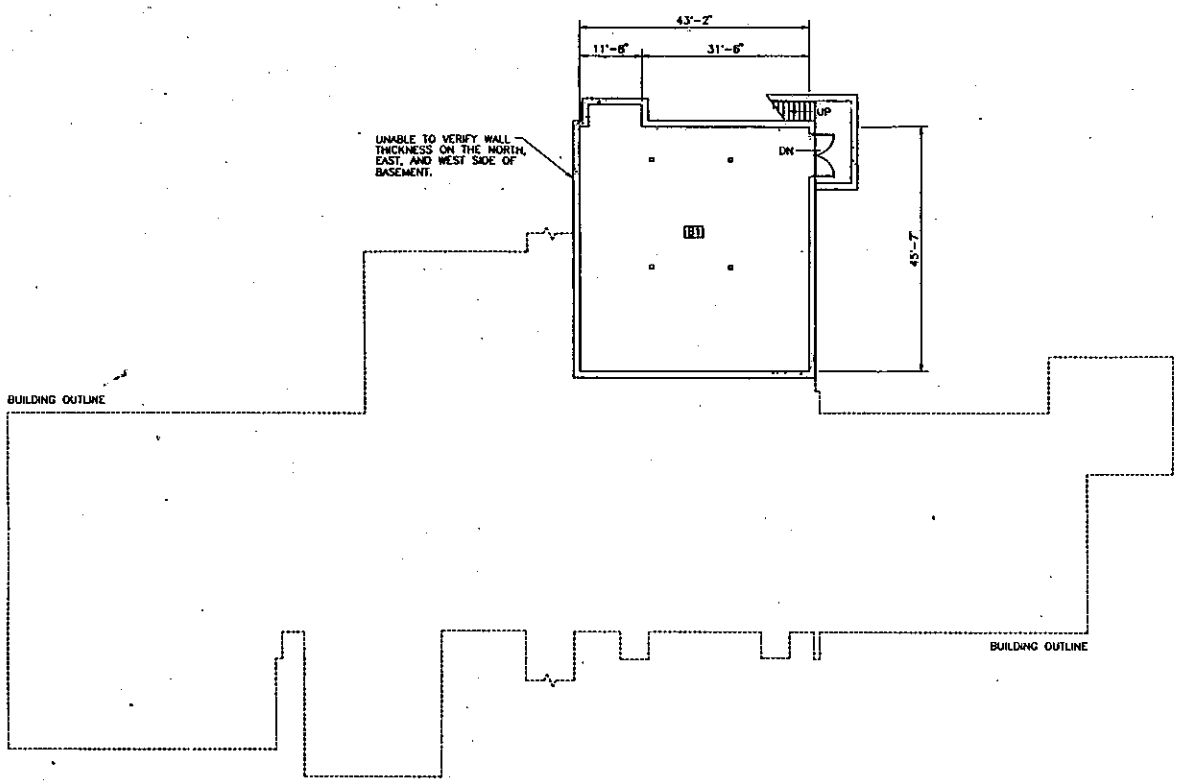
TA-21-5

Original Function: Laboratory Building
Current Function: Vacant
Historical Significance: Supported early plutonium production in support of stockpile.

Date Constructed: 1945
Associated Theme: Plutonium Production
Eligible?: Yes – "A"

Description:
TA-21-5, like TA-21-2, was part of the first large-scale plutonium processing facility at Los Alamos (known as DP West). Similar in construction to TA-21-2, this building is a steel-framed, rectangular warehouse type building with exterior ribbed metal panel siding. TA-21-5 is still connected to TA-21-2 by way of an umbilical corridor.

The activities conducted in this part of the plutonium processing line included fluoride reduction, metal casting, and machining. In later years, uranium operations were conducted in this building and research on Pu-238 fuels was also carried out.



ROOM INFORMATION CHART

RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE
01	2009	–	–	–	–

TOTAL ROOM NET SQUARE FOOTAGE (THIS SHEET) = 2,009

GROSS SQUARE FOOTAGE (THIS SHEET) = 2,238

TOTAL ROOM NET SQUARE FOOTAGE (BUILDING) = 26,068

GROSS SQUARE FOOTAGE (BUILDING) = 27,039

LEGEND

COLUMNS

CONCRETE

NOTES

1. ALL EXTERIOR WALLS ARE 14" THICK UNLESS OTHERWISE NOTED.
2. ROOM NET SQUARE FOOTAGE IS COMPUTED BY MEASURING FROM THE INSIDE FACE OF EXTERIOR WALLS TO THE CENTERLINE OF ALL OTHER WALLS. AREAS SHOWN ARE ROUNDED TO THE NEAREST SQUARE FOOT.
3. GROSS SQUARE FOOTAGE IS EQUAL TO ALL FLOOR AREA (INCLUDING ALL OPENINGS IN FLOOR SLABS) MEASURED TO THE OUTER SURFACES OF EXTERIOR OR ENCLOSING WALLS, AND INCLUDES ALL FLOORS, MEZZANINES, HALLS, VESTIBULES, STAIRWELLS, SERVICE AND EQUIPMENT ROOMS, PENTHOUSES, ENCLOSED PASSAGES AND WALKS, FINISHED USABLE SPACE WITH SLOPING CEILINGS (SUCH AS ATTIC SPACES) HAVING 5 FEET OR MORE HEADROOM, AND APPENDED COVERED SHIPPING OR RECEIVING PLATFORMS AT TRUCK OR RAILROAD CAR HEIGHT. ALSO INCLUDED IN GROSS FLOOR AREA, BUT CALCULATED ON ONE-HALF OF ACTUAL FLOOR AREA, ARE COVERED OPEN PORCHES, PASSAGES AND WALKS, WITH APPENDED UNCOVERED RECEIVING AND SHIPPING PLATFORMS AT TRUCK AND RAILROAD HEIGHT.
4. DIMENSIONS SHOWN ARE ROUNDED TO THE NEAREST INCH.

ENG-AB 286 (sheet 1 of 3)
Laboratory Building
Architectural- Basement Floor Plan
As-Built Record Floor Plan
July 20, 1994

BASEMENT FLOOR PLAN

SCALE: 3/32" = 1'-0"

GRAPHIC SCALE 12 9 6 3 0 12 24 48

N

FIELD VERIFIED 05-24-94

MF	NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	REL	SUB	REC	APP

JOHNSON CONTROLS WORLD SERVICES INC.

AS-BUILT RECORD FLOOR PLAN
LABORATORY BUILDING
ARCH: BASEMENT FLOOR PLAN

DRAWN: LOS ALAMOS J. MARTINEZ
VERIFIED: LOS ALAMOS J.M. / A.G.
CHECKED: J.C. CARDENAS
RELEASED: J.C. CARDENAS
DATE: 07-20-94

BLDG 05 TA-21

SUBMITTED: JERRY FORTE
RECOMMENDED: FRED [illegible]
APPROVED: FRED THORNE

Los Alamos — Los Alamos National Laboratory, Los Alamos, New Mexico 87545

SHEET 1 OF 3

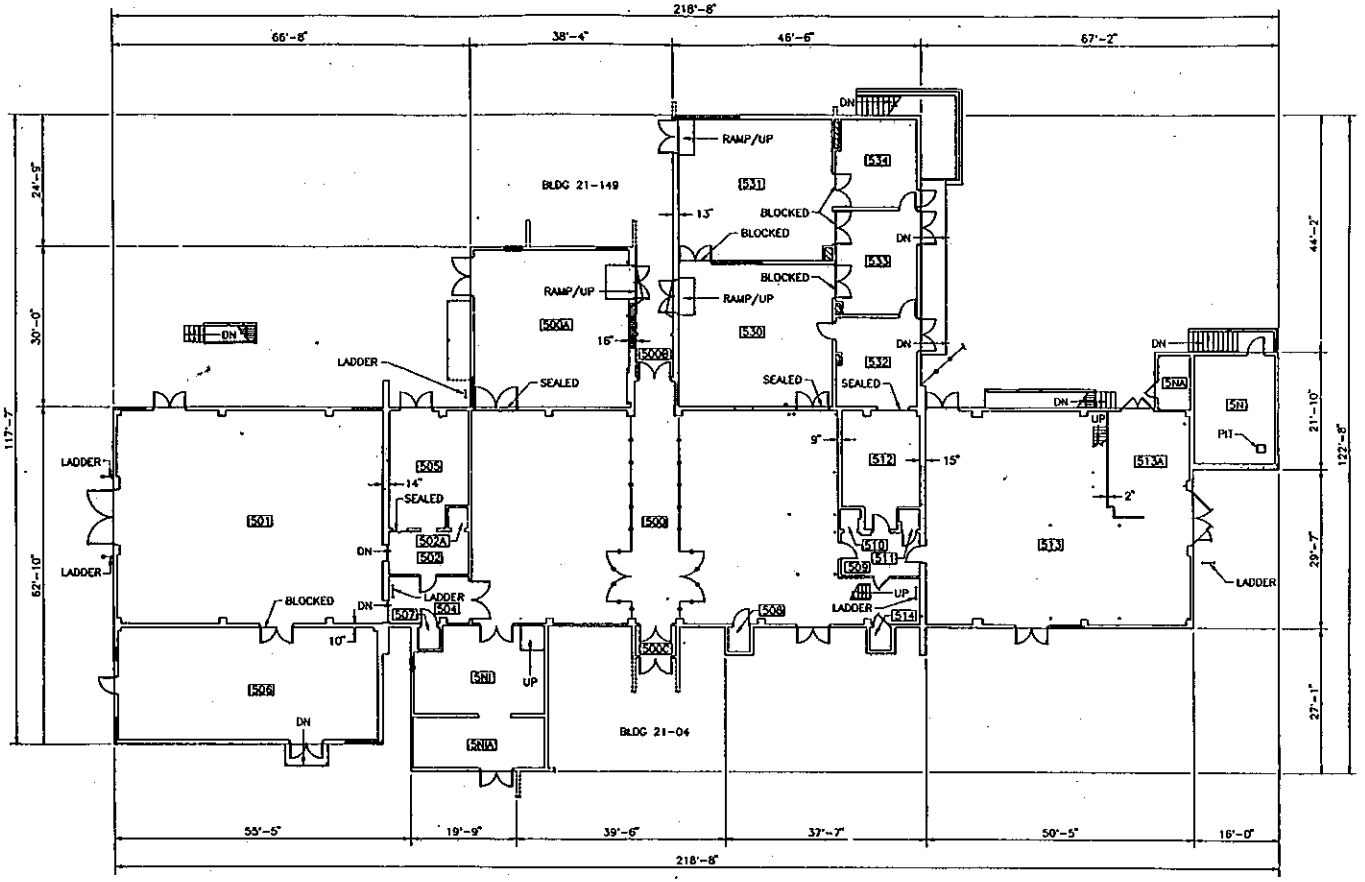
CLASSIFICATION: U REVIEWER: T. GUSDORF DATE: 10-26-94

PROJECT ID: 7556

DRAWING NO: AB286

REV

JCI WO 91-011



ROOM INFORMATION CHART

RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE
5N	533	507A	19	513	1695
5NA	66	504	142	513A	309
5NI	398	505	328	514	19
5NIA	248	506	1036	514A	810
500	2980	507	20	515	501
500A	691	508	97	515A	484
500B	69	509	133	516	304
500C	50	510	19	517	751
501	2013	511	20	UTILITY	18
502	132	512	314	--	--

TOTAL ROOM NET SQUARE FOOTAGE (THIS SHEET) = 13,689

GROSS SQUARE FOOTAGE (THIS SHEET) = 14,120

TOTAL ROOM NET SQUARE FOOTAGE (BUILDING) = 26,068

GROSS SQUARE FOOTAGE (BUILDING) = 27,039

LEGEND

- COLUMNS
- CONCRETE
- CONCRETE BLOCK
- CHAIN LINK FENCE
- LOUVER
- UTILITY SPACE
- WINDOW
- WOOD OR METAL STUD

NOTES

1. ALL EXTERIOR WALLS ARE 8"" THICK UNLESS OTHERWISE NOTED.
2. ALL INTERIOR WALLS ARE 8" THICK UNLESS OTHERWISE NOTED.
3. ROOM NET SQUARE FOOTAGE IS COMPUTED BY MEASURING FROM THE INSIDE FACE OF EXTERIOR WALLS TO THE CENTERLINE OF ALL DITHER WALLS. AREAS SHOWN ARE ROUNDED TO THE NEAREST SQUARE FOOT.
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5. DIMENSIONS SHOWN ARE ROUNDED TO THE NEAREST INCH.

FIRST FLOOR PLAN

SCALE: 3/32" = 1'-0"

12 9 6 3 0 12 24 48

GRAPHIC SCALE

N

FIELD VERIFIED 05-24-94

NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	REL	SUB	REC	APP

JOHNSON CONTROLS WORLD SERVICES INC.

AS-BUILT RECORD FLOOR PLAN
LABORATORY BUILDING
ARCH: FIRST FLOOR PLAN

DRAWN J. MARTINEZ
VERIFIED J.S. / A.G.
CHECKED
RELEASED
DATE 07-20-94

BLDG 05 TA-21

SUBMITTED JERRY FORTE
RECOMMENDED FRED THOMPSON
APPROVED FRED THOMPSON

Los Alamos — Los Alamos National Laboratory, Los Alamos, New Mexico 87545

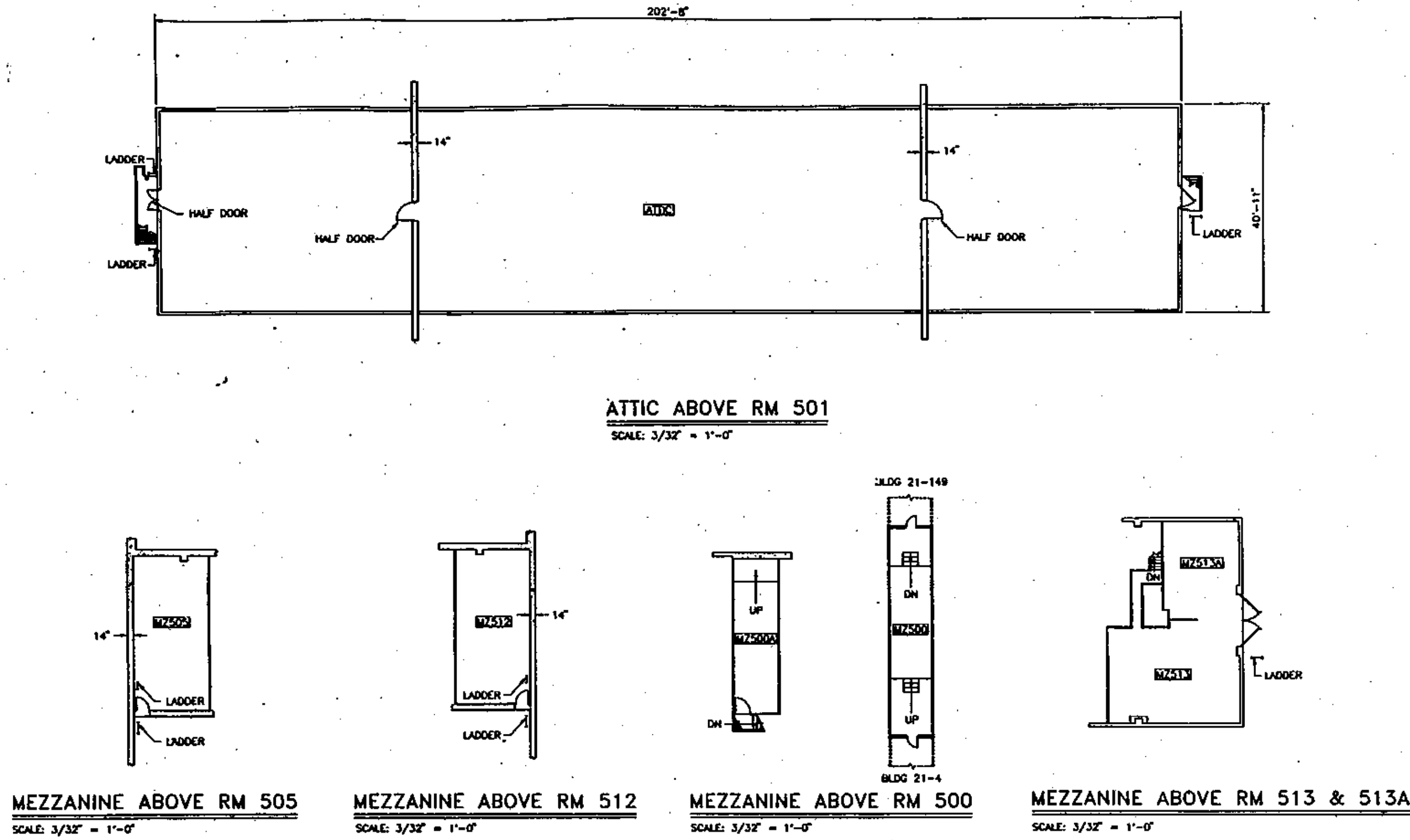
SHEET 2 OF 3

CLASSIFICATION U REVIEWER T. DUSSORD DATE 10-26-94

PROJECT ID 7556 DRAWING NO AB286 REV

JCI NO 91-011

ENG-AB 286 (sheet 2 of 3)
Laboratory Building
Architectural- Mezzanine and Attic
Floor Plan
As-Built Record Floor Plan
July 20, 1994



ROOM INFORMATION CHART					
RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE
M2500	336	M2512	477	ATTIC	7989
M2500A	283	M2513	531	–	–
M2505	467	M2513A	285	–	–

TOTAL ROOM NET SQUARE FOOTAGE (THIS SHEET) = 10,370

GROSS SQUARE FOOTAGE (THIS SHEET) = 10,681

TOTAL ROOM NET SQUARE FOOTAGE (BUILDING) = 26,068

GROSS SQUARE FOOTAGE (BUILDING) = 27,039

LEGEND

- COLUMNS
- CONCRETE
- CONCRETE BLOCK

NOTES

1. ALL EXTERIOR WALLS ARE 8" THICK UNLESS OTHERWISE NOTED.
2. ALL INTERIOR WALLS ARE 2" THICK UNLESS OTHERWISE NOTED.
3. ROOM NET SQUARE FOOTAGE IS COMPUTED BY MEASURING FROM THE INSIDE FACE OF EXTERIOR WALLS TO THE CENTERLINE OF ALL OTHER WALLS. AREAS SHOWN ARE ROUNDED TO THE NEAREST SQUARE FOOT.
4. GROSS SQUARE FOOTAGE IS EQUAL TO ALL FLOOR AREA (INCLUDING ALL OPENINGS IN FLOOR SLABS) MEASURED TO THE OUTER SURFACES OF EXTERIOR OR ENCLOSING WALLS, AND INCLUDES ALL FLOORS, MEZZANINES, HALLS, VESTIBULES, STAIRWELLS, SERVICE AND EQUIPMENT ROOMS, PENTHOUSES, ENCLOSED PASSAGES AND WALKS, FINISHED USABLE SPACE WITH SLOPING CEILINGS (SUCH AS ATTIC SPACES) HAVING 5 FEET OR MORE HEADROOM, AND APPENDED COVERED SHIPPING OR RECEIVING PLATFORMS AT TRUCK OR RAILROAD CAR HEIGHT. ALSO INCLUDED IN GROSS FLOOR AREA, BUT CALCULATED ON ONE-HALF OF ACTUAL FLOOR AREA, ARE COVERED OPEN PORCHES, PASSAGES AND WALKS, WITH APPENDED UNCOVERED RECEIVING AND SHIPPING PLATFORMS AT TRUCK AND RAILROAD HEIGHT.
5. DIMENSIONS SHOWN ARE ROUNDED TO THE NEAREST INCH.

NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	REL	SUB	REC	APP

JOHNSON CONTROLS WORLD SERVICES INC.

AS-BUILT RECORD FLOOR PLAN
LABORATORY BUILDING
ARCH: MEZZANINE AND ATTIC FLOOR PLAN

BLDG 05 TA-21
DRAWN A. MARTINEZ
VERIFIED
CHECKED C. SANDOVAL
RELEASED C. SANDOVAL
DATE 07-20-94
SUBMITTED JERRY FORE
RECOMMENDED FRED THOMPSON
APPROVED FRED THOMPSON

Los Alamos — Los Alamos National Laboratory, Los Alamos, New Mexico 87545

SHEET 3 of 3

CLASSIFICATION U REVIEWER T. GUSDORF DATE 10-26-94

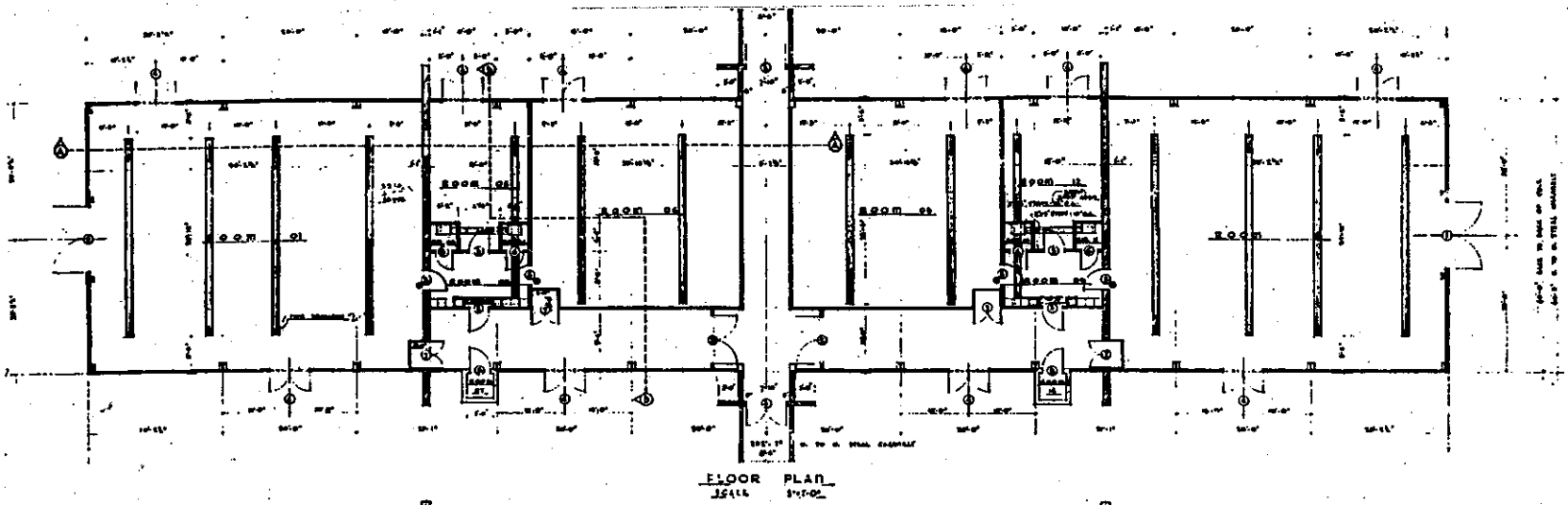
PROJECT ID 7556 DRAWING NO AB286 REV

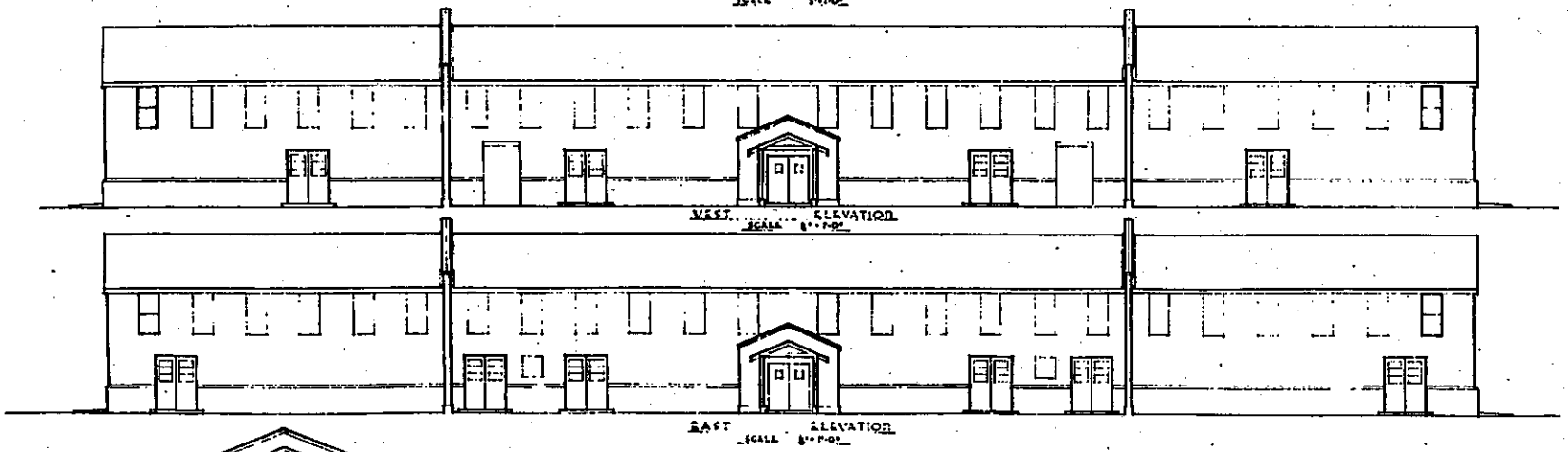
FIELD VERIFIED 05-24-94

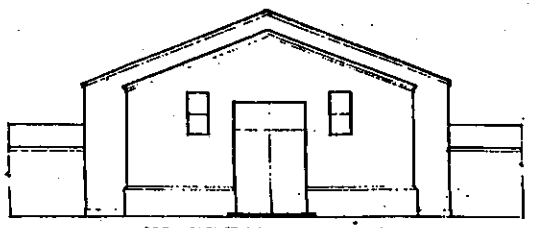
N

ENG-AB 286 (sheet 3 of 3)
Laboratory Building
Architectural- Mezzanine and Attic Floor Plan
As Built Record Floor Plan
July 20, 1994

ENG-C 2083 (sheet 3)
DP Site Construction
Bldgs –2, -4, -5 Floor Plan & Elevations
March 18, 1945







BLDGS. 2-4-5 FLOOR PLAN & ELEVATIONS
'DP' SITE CONSTRUCTION
U. S. ENGINEER OFFICE
SANTA FE, N. MEX.
3
ENG-C 2083

TA-21-14

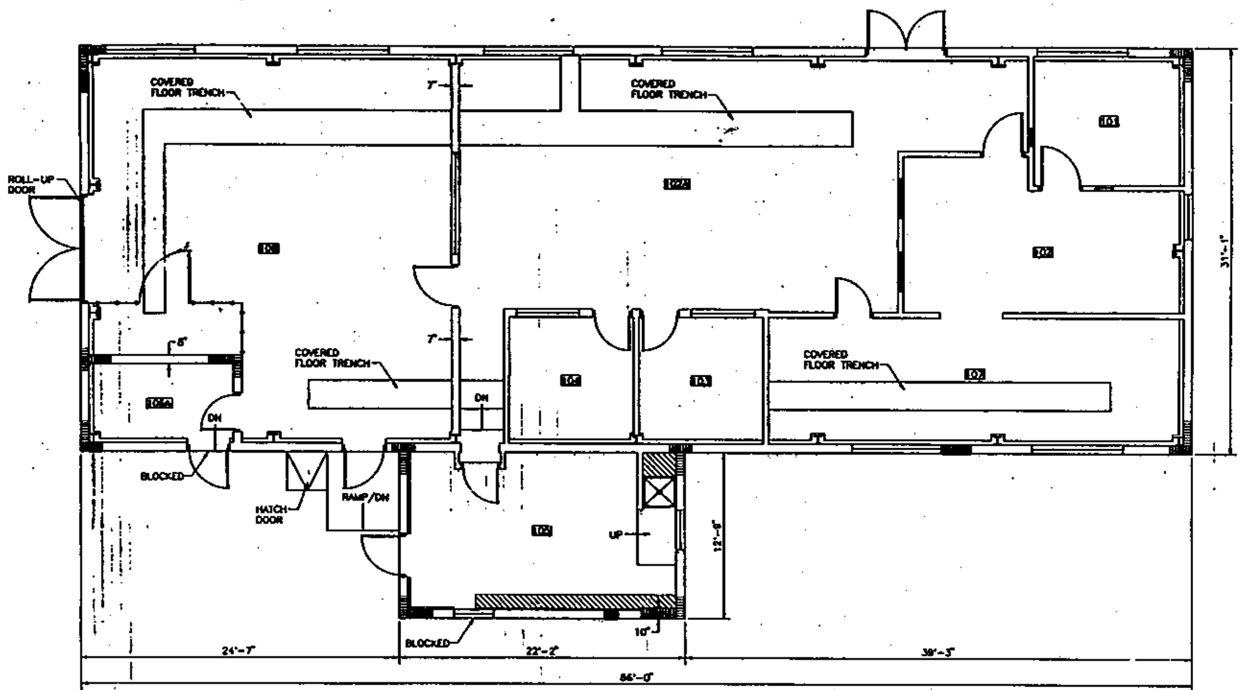
Original Function: Diesel Power Plant
Current Function: Archaeology Laboratory
Historical Significance: Utility support

Date Constructed: 1945
Associated Theme: Plutonium Production
Eligible?: No (not significant/ poor integrity)

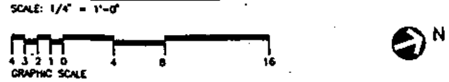
Description:
TA-21-14 was constructed of a steel post and beam structural framework. The building has an asphalt and gravel roof that is sloped slightly from the east to the west for water drainage. The foundation is concrete slab, stem walls, and footings. The walls are constructed of concrete masonry units that have been stuccoed on the exterior surface.

TA-21-14 served as a diesel power plant in support of DP West plutonium processing operations. The building contained engines, fuel oil transfer pumps, fuel unloading pumps, compressors, and other equipment. The building was later used as a general maintenance shop.

ENG-AB 655
DP Zia Shop
As-Built Record Floor Plan
Arch: Record Floor Plan
September 27, 1996



RECORD FLOOR PLAN
SCALE: 1/4" = 1'-0"



ROOM INFORMATION CHART

RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE
101	119	103	101	106	767
102	241	104	103	106A	73
102A	805	105	253	107	319
UTILITY-1	23				

TOTAL ROOM NET SQUARE FOOTAGE (BUILDING) = 2,805

GROSS SQUARE FOOTAGE (BUILDING) = 2,956

LEGEND

- CONCRETE BLOCK
- LOUVER
- UTILITY SPACE
- WINDOW
- WOOD OR METAL STUD
- CHAIN LINK FENCE
- COLUMNS

NOTES

1. ALL EXTERIOR WALLS ARE 8" THICK UNLESS OTHERWISE NOTED.
2. ALL INTERIOR WALLS ARE 5" THICK UNLESS OTHERWISE NOTED.
3. ROOM NET SQUARE FOOTAGE IS COMPUTED BY MEASURING FROM THE INSIDE FACE OF EXTERIOR WALLS TO THE CENTERLINE OF ALL OTHER WALLS. AREAS SHOWN ARE ROUNDED TO THE NEAREST SQUARE FOOT.
4. GROSS SQUARE FOOTAGE IS EQUAL TO ALL FLOOR AREA (INCLUDING ALL OPENINGS IN FLOOR SLABS) MEASURED TO THE OUTER SURFACES OF EXTERIOR OR ENCLOSING WALLS, AND INCLUDES ALL FLOORS, MEZZANINES, HALLS, VESTIBULES, STAIRWELLS, SERVICE AND EQUIPMENT ROOMS, PENTHOUSES, VAULTS, AND ENCLOSED PASSAGES.
5. DIMENSIONS SHOWN ARE ROUNDED TO THE NEAREST INCH.

NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP

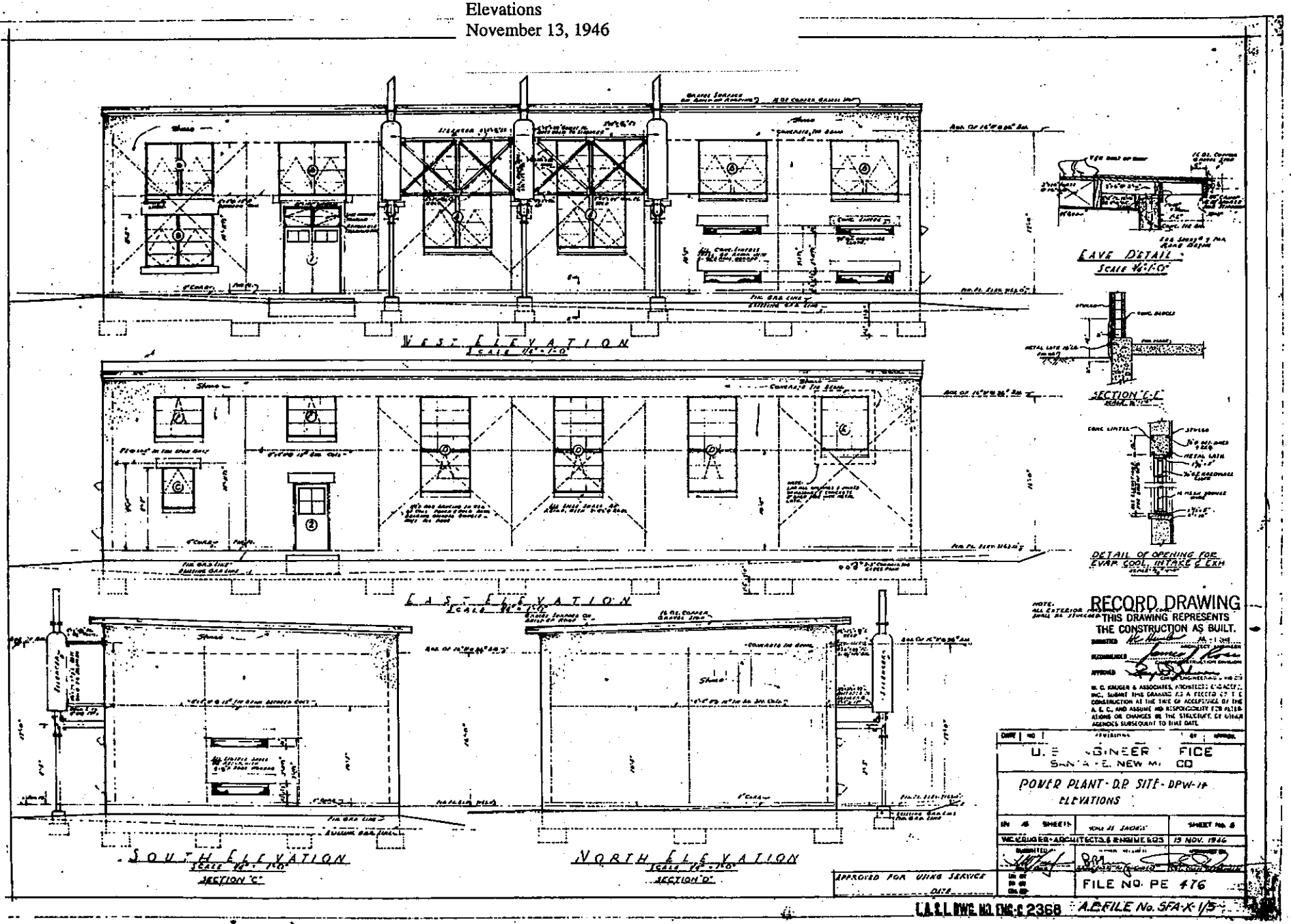
JOHNSON CONTROLS

AS-BUILT RECORD FLOOR PLAN
DP ZIA SHOP
ARCH: RECORD FLOOR PLAN

BLDG 14 TA-21
SUBMITTED: DUANE VIGIL
APPROVED FOR RELEASE: LARRY BAYS
DRAWN / VERIFIED / CHECKED
DATE 9-27-96
SHEET 1 of 1
Los Alamos — Los Alamos National Laboratory, Los Alamos, New Mexico 87545
CLASSIFICATION U   REVIEWER   DATE 10-30-96
PROJECT ID 7556
DRAWING NO AB655
JO NO 91-011

FIELD VERIFIED 3-19-96

ENG-C 2368 (sheet 5 of 16)
Power Plant - DP Site (DPW-14)
Elevations
November 13, 1946



TA-21-21

Original Function: Storage Vault
Current Function: Vacant
Historical Significance: Supported early plutonium and uranium production in support of stockpile.

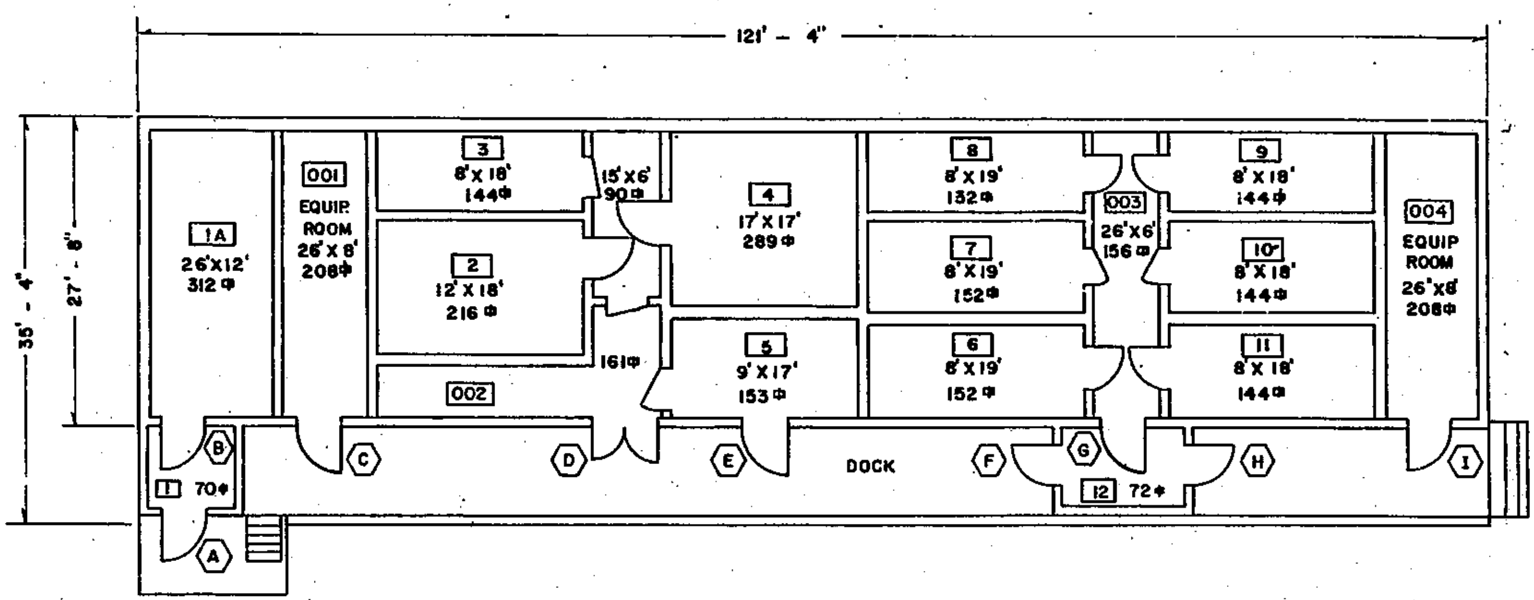
Date Constructed: 1946
Associated Theme: Plutonium Production/Stockpile
Eligible?: Yes – "A"

Description:
Building TA-21-21 stored special fissile material produced in the main plutonium processing facility, DP West. It is a 2,967 ft^2 concrete building, void of window openings, with a flat roof. The roof is constructed on multi-ply composite roofing material (felt, tar, and gravel). There is galvanized steel flashing around the roof. The foundation and walls are reinforced concrete.

ENG-R 2936
Vault
Floor Plan
October 31, 1983

NO.	DATE	REVISIONS	BY	CHKD	GRP LDR	ENG D
1	8-18-65	REVISED TO STATUS OF 8-11-65	MFM			
2	10-2-74	REVISED AS OF ENG. DWG. C-41127	B.H.			

MF



3	9-9-83	REVISED TO STATUS OF 9-9-83	HBN		
REV.	DATE	REVISION	BY	CKD.	APP.

MF

REVIEWER ________

CLASS. U DATE 10/31/83

0 5 10 20
GRAPHIC SCALE
(3/32"=1'-0")

TOTAL SQ. FT. 2967

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

FACILITIES ENGINEERING DIVISION

VAULT
FLOOR PLAN

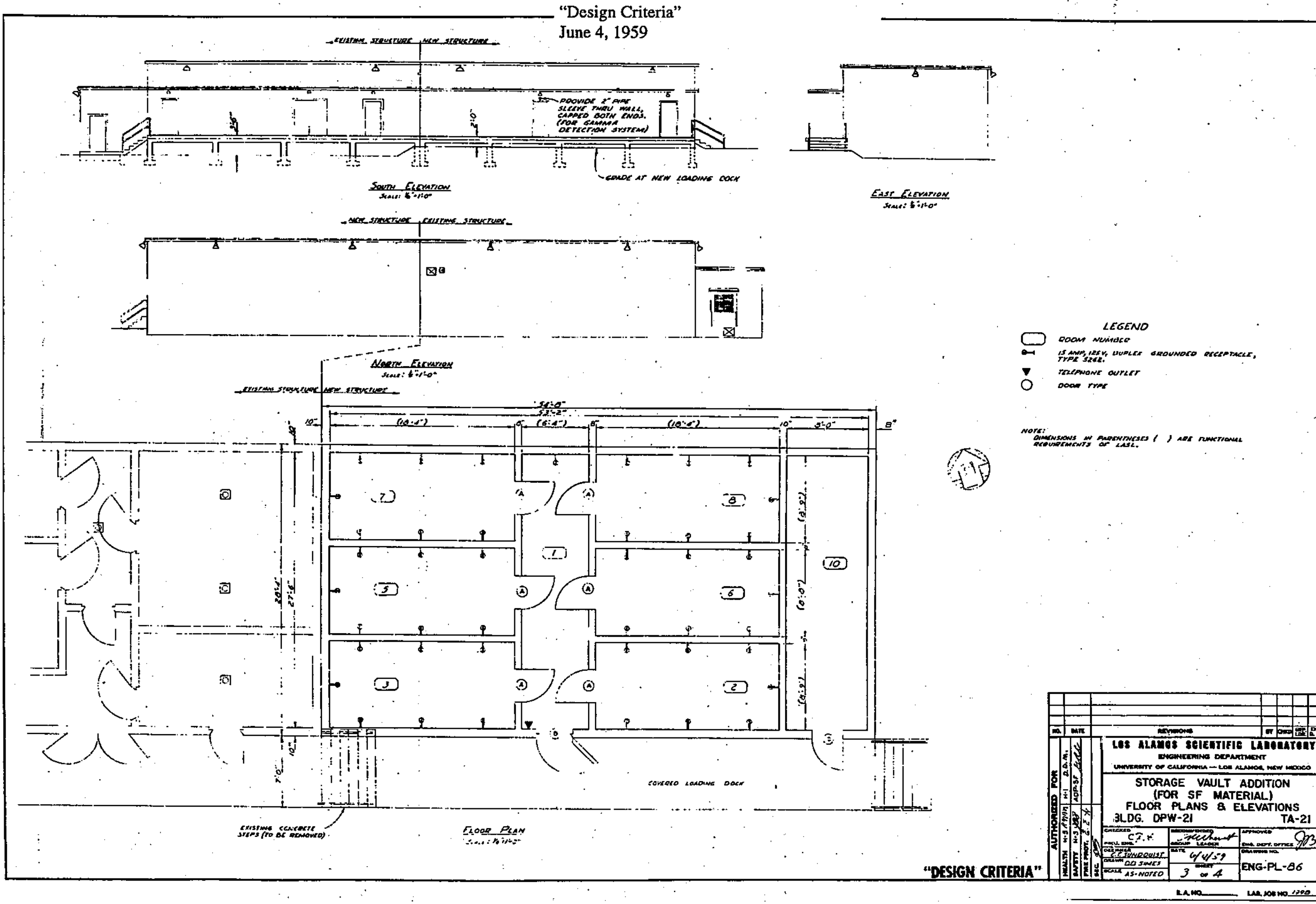
BLDG. DP 21 TA-21

SEC. CLASSIFICATION
CLASS. 4
REVIEWER
DATE 10-31-83

SUBMITTED E. Trujillo
RECOMMENDED
APPROVED
DRAWN LEMON
CHECKED HBN
DATE 1-22-63
SHEET NO. 1 OF 1
DRAWING NO. ENG-R2936

REC'D. ...... LOGGED ✓ TO VAULT 11-__-83

ENG-PL 86 (sheet 3 of 4)
Storage Vault Addition (For SF Material)
Floor Plans & Elevations
"Design Criteria"
June 4, 1959



TA-21-42

Original Function: Pump House
Current Function: Same (in use?)
Historical Significance: Utility support for TA-21 operations.

Date Constructed: 1945
Associated Theme: Plutonium Production/ Initiator Development (Support)
Eligible?: No (not significant)

Description (no drawings available)**:**
TA-21-42 is an oil pump house that supports the TA-21 steam plant. The pump house is a utilitarian, concrete masonry unit and wood-frame building with a flat, slightly pitched roof. The foundation is concrete slab and footings, and the exterior walls are covered with stucco. TA-21-42 is approximately 64 ft^2 in size and has a pedestrian door with a two-over-two window.

TA-21-152

Original Function: Laboratory Building
Current Function: Laboratory Building
Historical Significance: Supported initiator research and development, high-temperature chemistry research, and tritium research.

Date Constructed: 1945
Associated Theme: Initiator Development, Nuclear Propulsion, Tritium R&D
Eligible?: Yes – "A"

Description:
TA-21-152 was originally a laboratory for polonium initiator research and production. High-temperature chemistry work continued at this building in support of Project Rover, a nuclear rocket program. Since 1977, tritium research has been conducted in this building. TA-21-152 is an industrial, pre-engineered metal lath and plaster building with ribbed metal siding and a pitched roof. All doors and window frames are metal.

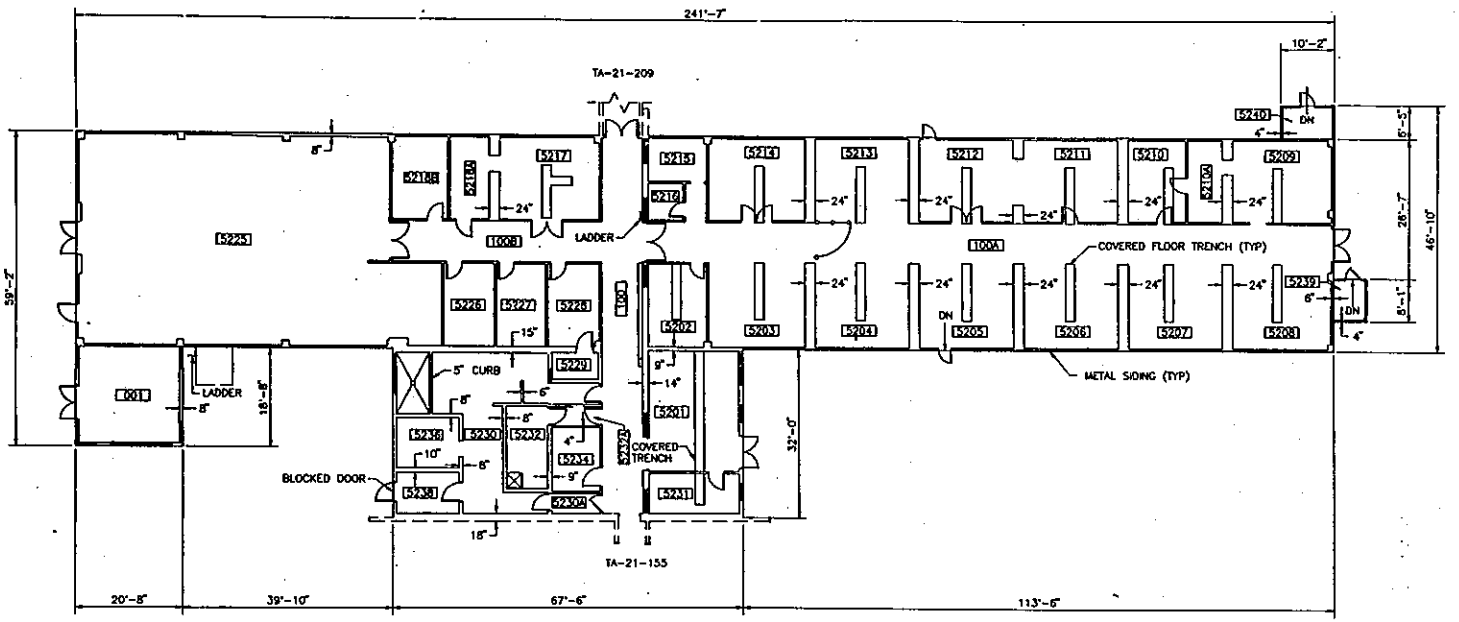
ENG-AB 628
Laboratory Building
Architecture: Record Floor Plan
As-Built Record Floor Plan
May 15, 1996

ROOM INFORMATION CHART

RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE
001	352	5210	192	5227	163
100	606	5210A	128	5228	171
100A	1085	5211	140	5229	55
100B	392	5212	116	5230	652
5201	341	5213	116	5231	652
5202	424	5214	116	52 32A	40
5203	200	5215	315	5233	141
5204	117	5216	101	5234	142
5205	116	5217	56	5235A	40
5206	116	5218	56	5235B	40
5207	116	5218A	132	5236	175
5208	116	5218B	176	5237	99
5209	116	5219	2524	5238	48
5210	116	5225	166	5240	59

TOTAL ROOM NET SQUARE FOOTAGE (BUILDING) = 12,133

GROSS SQUARE FOOTAGE (BUILDING) = 12,451



LEGEND

BRICK
CONCRETE BLOCK
LOUVER
WINDOW
WOOD OR METAL STUD
CHAIN LINK FENCE
COLUMNS

RECORD FLOOR PLAN

SCALE: 3/32" = 1'-0"

12 9 6 3 0 12 24 48
GRAPHIC SCALE

N

NOTES

1. ALL EXTERIOR WALLS ARE 6" THICK UNLESS OTHERWISE NOTED.
2. ALL INTERIOR WALLS ARE 5" THICK UNLESS OTHERWISE NOTED.
3. REFERENCE DRAWING ENG-R2936
4. ROOM NET SQUARE FOOTAGE IS COMPUTED BY MEASURING FROM THE INSIDE FACE OF EXTERIOR WALLS TO THE CENTERLINE OF ALL OTHER WALLS. AREAS SHOWN ARE ROUNDED TO THE NEAREST SQUARE FOOT.
5. GROSS SQUARE FOOTAGE IS EQUAL TO ALL FLOOR AREA (INCLUDING ALL OPENINGS IN FLOOR SLABS) MEASURED TO THE OUTER SURFACES OF EXTERIOR OR ENCLOSING WALLS, AND INCLUDES ALL FLOORS, MEZZANINES, HALLS, VESTIBULES, STAIRWELLS, SERVICE AND EQUIPMENT ROOMS, PENTHOUSES, VAULTS, AND ENCLOSED PASSAGES.
6. DIMENSIONS SHOWN ARE ROUNDED TO THE NEAREST INCH.

FIELD VERIFIED 02-23-96

MF	NO	DATE	CLASS REV	DESCRIPTION	DWN	VER	CHKD	SUB	APP

JOHNSON CONTROLS

AS-BUILT RECORD FLOOR PLAN
LABORATORY BUILDING
ARCH: RECORD FLOOR PLAN

DRAWN
VERIFIED
CHECKED
DATE 04-29-96

BLDG 152 TA-21

SUBMITTED JERRY FORTE

APPROVED FOR RELEASE FRED THOMPSON 5/15/96

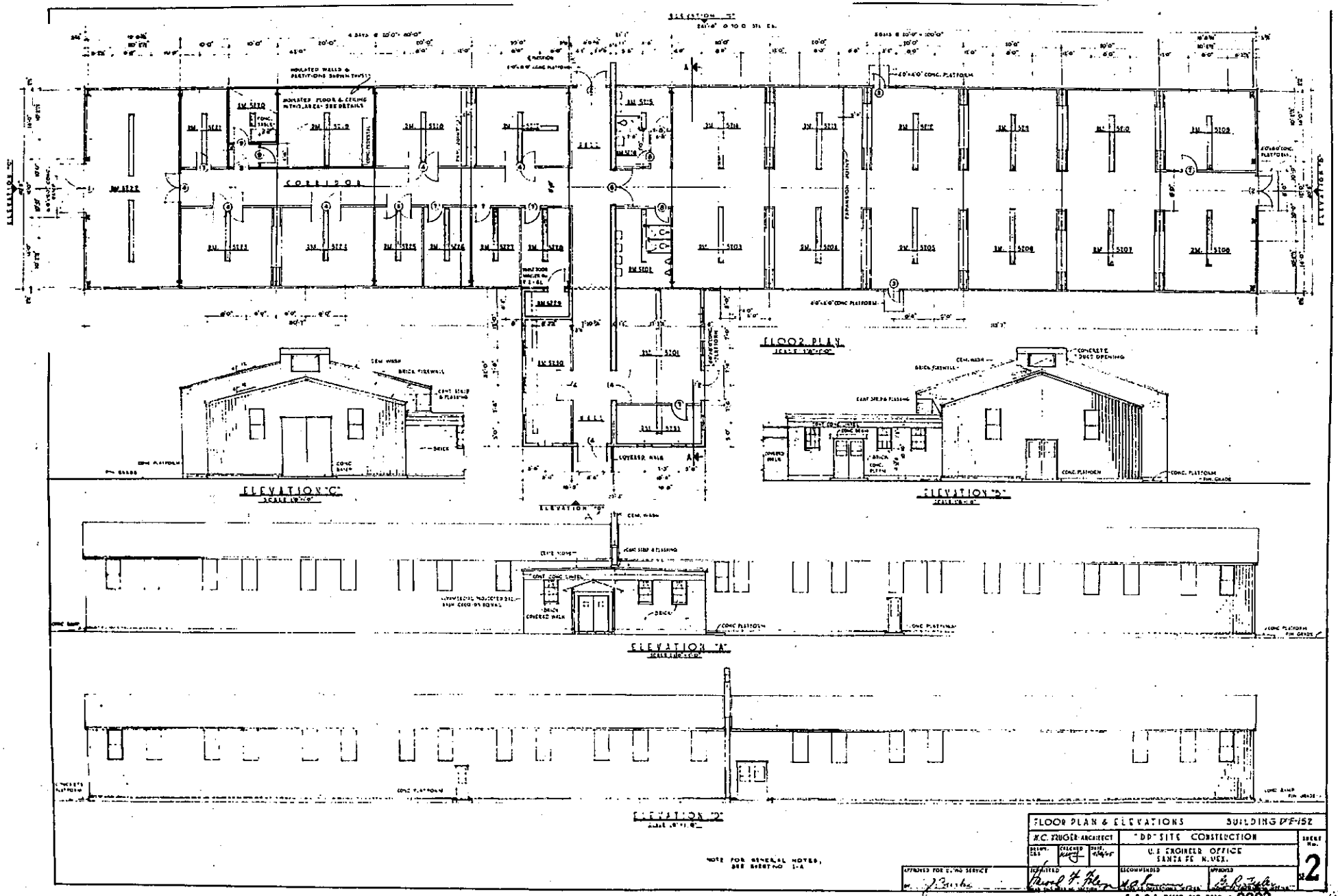
Los Alamos — Los Alamos National Laboratory, Los Alamos, New Mexico 87545

SHEET 1 OF 1

CLASSIFICATION U REVIEWER T. DUSCOMB DATE 5-14-96

PROJECT ID 7556
DRAWING NO AB628
REV
JCI NO. 81-011

ENG-C 2223 (sheet 2)
Building DPE-152
Floor Plan & Elevations
April 13, 1945

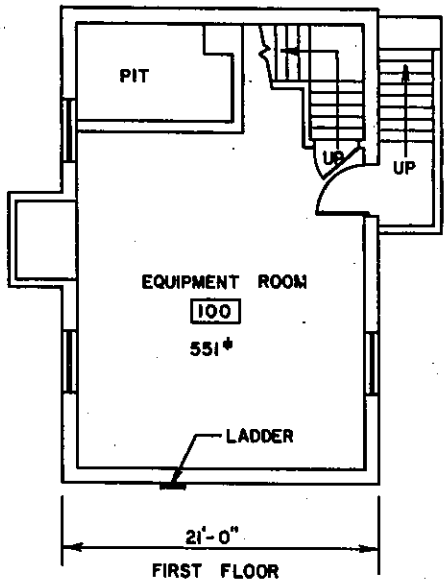


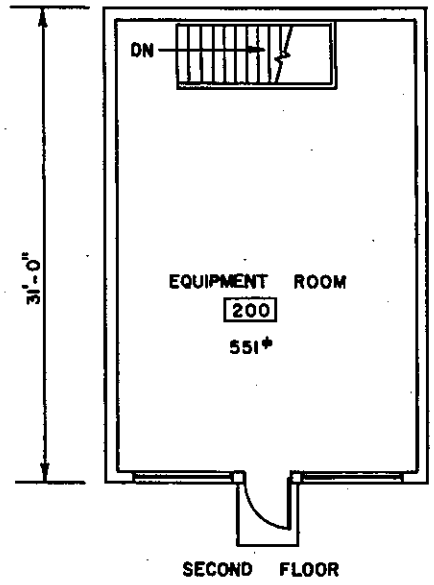
TA-21-166

Original Function: Equipment Building
Current Function: Equipment Building
Historical Significance: Supported initiator research and development, high-temperature chemistry research, and tritium research.

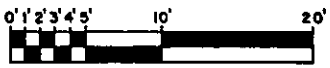
Date Constructed: 1945
Associated Theme: Initiator Development, Nuclear Propulsion, Tritium R&D (Support)
Eligible?: Yes – "A" (due to its association with TA-21-152)

Description:
TA-21-166 is a two-story equipment building that is attached to TA-21-152 and serves the south wing of that building. Building TA-21-166 is 1,102 ft^2 in size and was built of gypsum board siding and concrete masonry units. The first floor contains a pipe tunnel, a pit, an opening in the foundation for mechanical work, and an open area. A wooden staircase, situated along the north elevation, continues up along the west wall to the second story of the building. The foundation is concrete slab and beam.





(1/8" = 1'-0")



GRAPHIC SCALE

TOTAL $\frac{ft^2}{1102}$

REV.	DATE	REVISION	BY	CKD.	APPR.
3	2-6-84	REVISED TO STATUS OF 2-6-84	H&N		
2	9-16-83	REDRAWN & REVISED TO STATUS OF 9-16-83	H&N		

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

FACILITIES ENGINEERING DIVISION

EQUIPMENT BUILDING
FIRST & SECOND FLOOR PLANS
BLDG. DP-166 TA-21

SEC. CLASSIFICATION: CLASS. U; REVIEWER; DATE 9-12-84

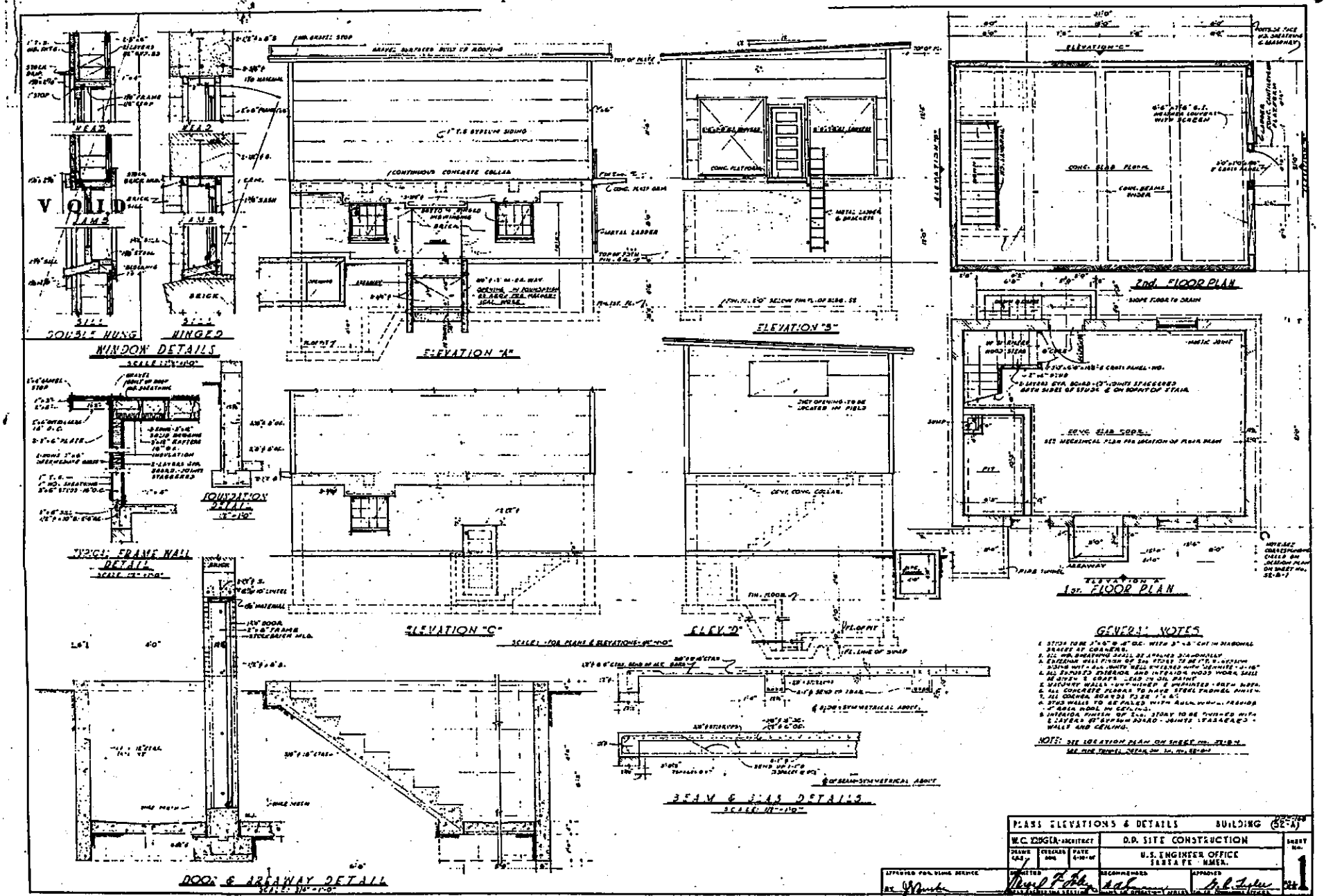
SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo		

DRAWN MARSH H&N
CHECKED H&N
DATE 9-16-83
SHEET NO. 1 OF 1
DRAWING NO. ENG-R2961

REC'D ..... LOGGED ✓ TO VAULT

ENG-R 2961
Equipment Building, DP-166, TA-21
First & Second Floor Plans
September 16, 1983

ENG-C 2254
Building DPE-166 (52-A)
Plans, Elevations, & Details
April 19, 1945



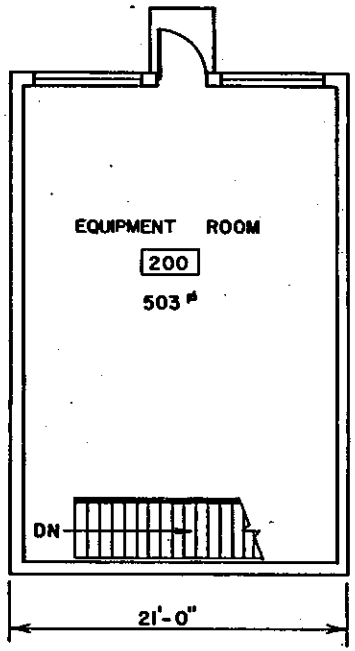
TA-21-167

Original Function: Equipment Building
Current Function: Equipment Building
Historical Significance: Supported initiator research and development, high-temperature chemistry research, and tritium research.

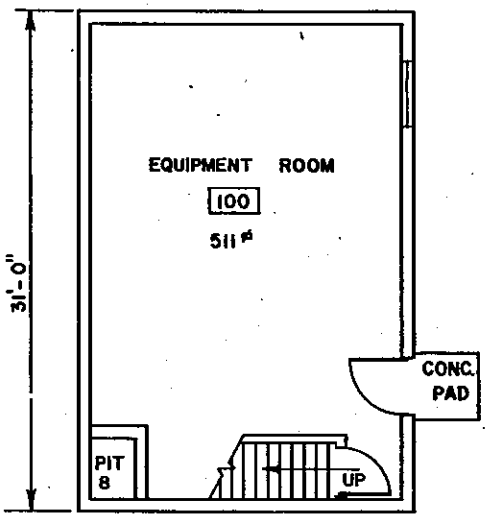
Date Constructed: 1945
Associated Theme: Initiator Development, Nuclear Propulsion, Tritium R&D (Support)
Eligible?: Yes – "A" (due to its association with TA-21-152)

Description:
TA-21-167 is almost identical to TA-21-166: it is a two-story equipment building connected to TA-21-152. TA-21-167, also 1,102 ft^2 in size, provides HVAC support for the north wing of the main laboratory building. The equipment building's second-story exterior walls are made of gypsum board siding, and the interior walls are constructed of concrete masonry units covered with two layers of gypsum board. The foundation is concrete slab and beams. The first floor of the building contains a pit in the northwest corner, and a wooden staircase is situated along the west interior wall.

ENG-R 2962
Equipment Building, DPE-167
First & Second Floor Plans
September 19, 1983

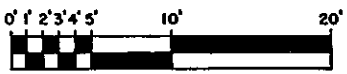


SECOND FLOOR



FIRST FLOOR

(1/8"= 1'-0")



GRAPHIC · SCALE

TOTAL $\frac{ft^2}{1102}$

REV.	DATE	REVISION	BY	CKD.	APP.
2	2-6-86	REVISED TO STATUS OF 2-6-84	H&N	EJ	DP

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

FACILITIES ENGINEERING DIVISION

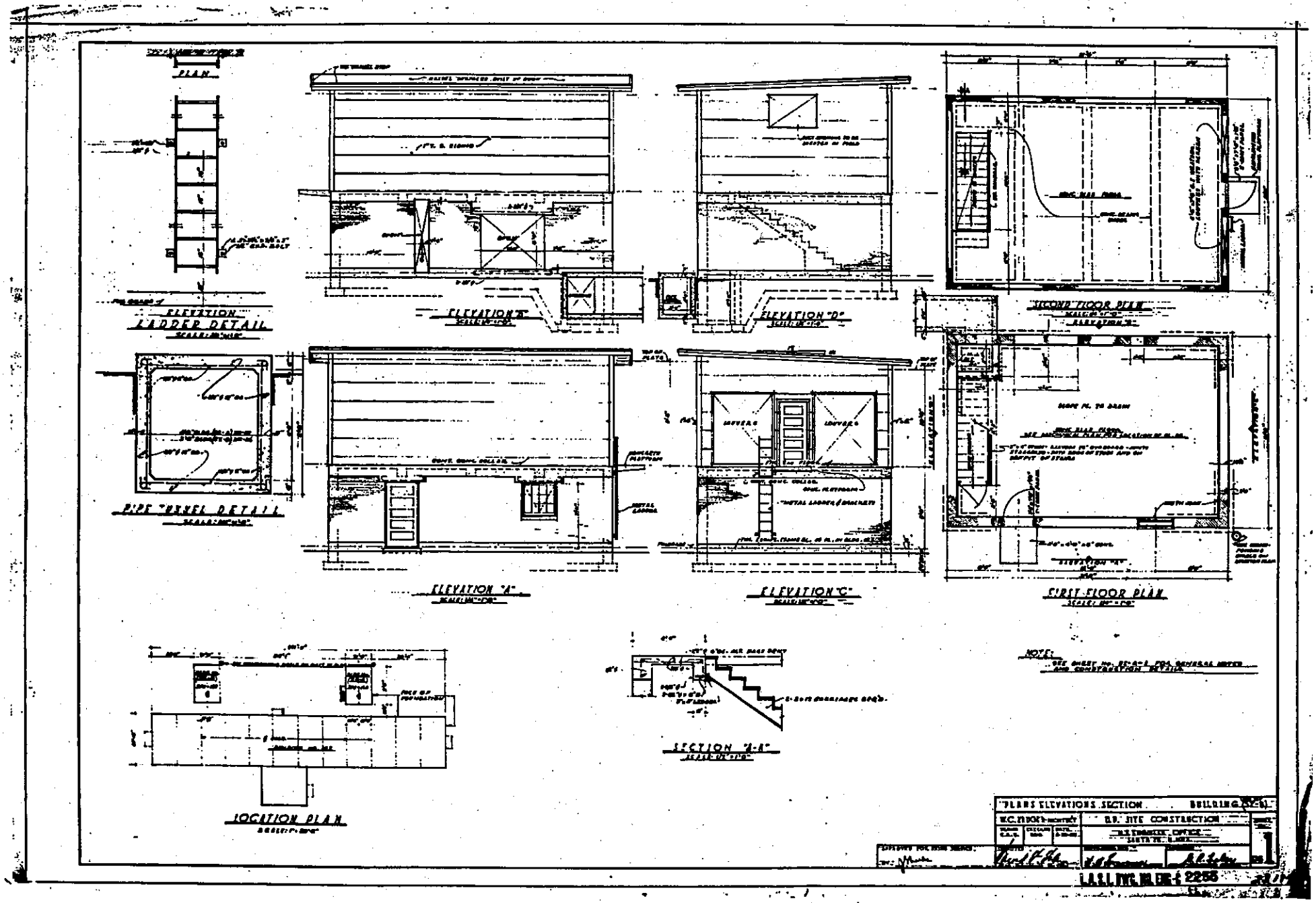
EQUIPMENT BUILDING
FIRST & SECOND FLOOR PLANS
BLDG. DP- 167 TA-21

SEC. CLASSIFICATION
CLASS. U
REVIEWER Sandia
DATE 9-12-84

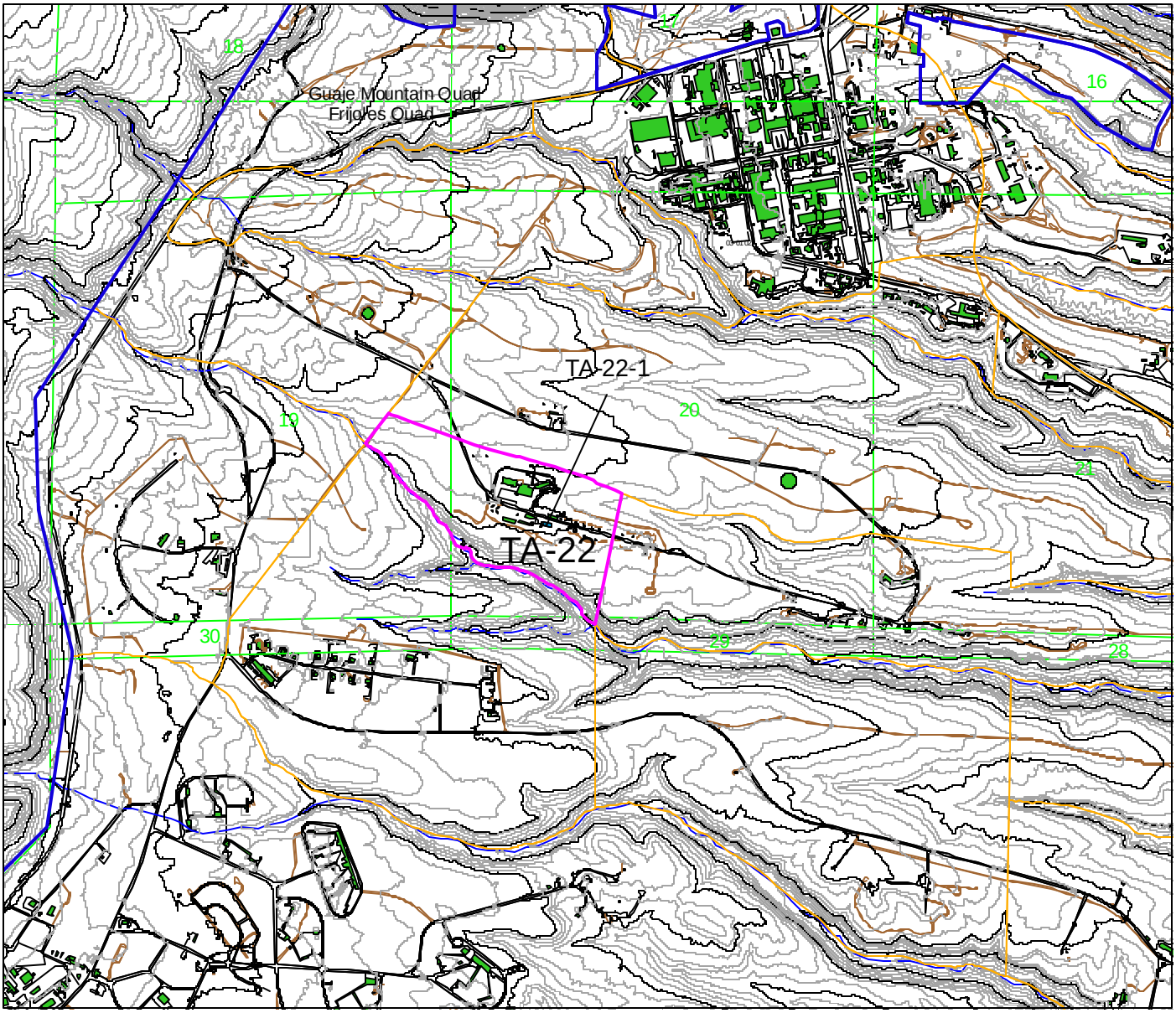
SUBMITTED E. Tafoya
RECOMMENDED Dennis Byrne
APPROVED R. N. Rockhold

DRAWN MARSH H&N
CHECKED H&N
DATE 9-19-83
SHEET NO. 1 OF 1
DRAWING NO. ENG-R2962

3/20/84



ENG-C 2255
Building DPE-167 (52-B)
Plans, Elevations, Details
April 19, 1945



Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:24000

900 0 900 1800 2700 3600 Feet

200 0 200 400 600 800 1000 Meters

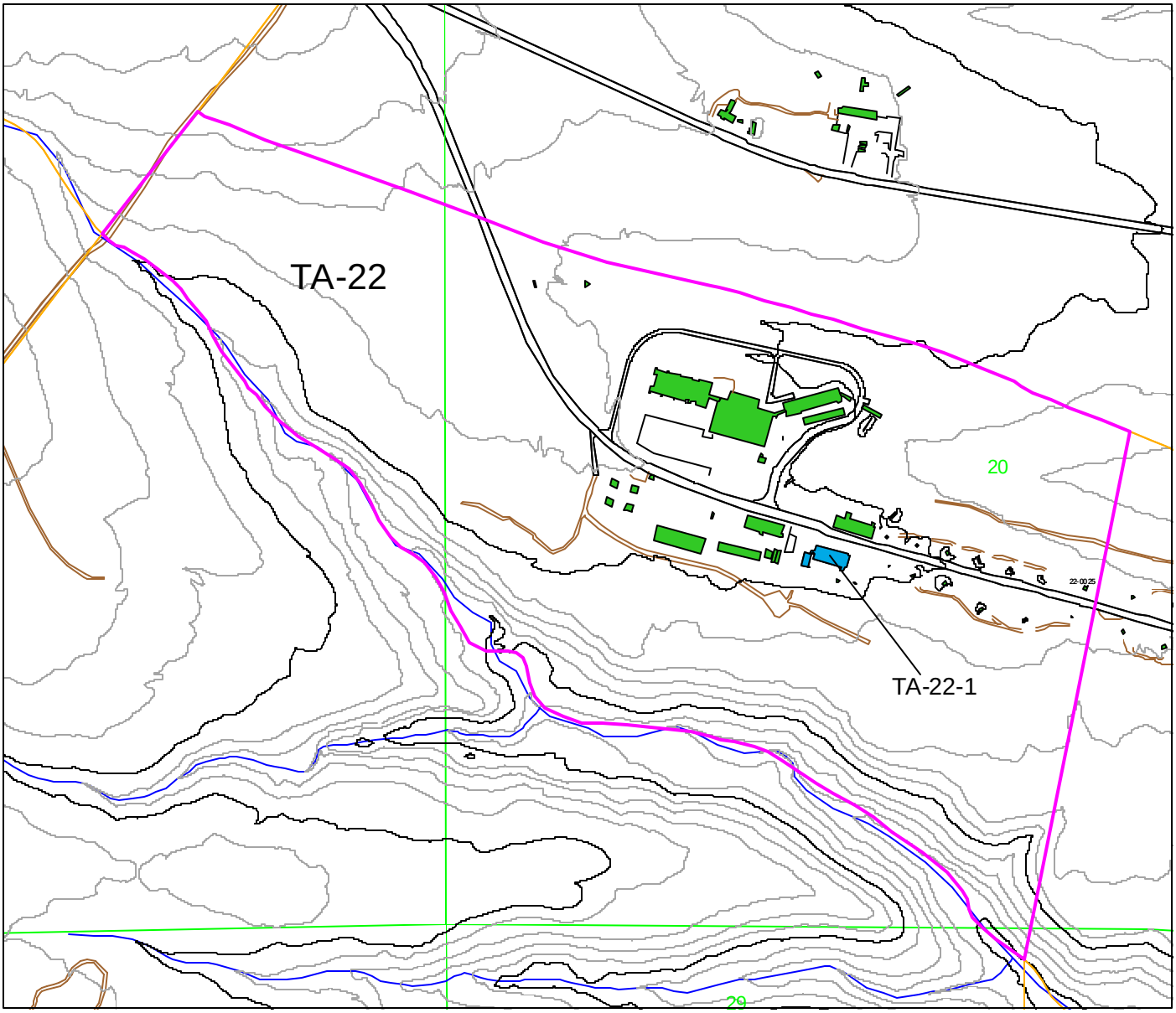
N
W E
S

- Manhattan Project Buildings
- Los Alamos National Laboratory
- Tech Area 22
- Tech Areas
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Township, Section, Range
- USGS 7.5 Minute Quad
- Roads
- Roaddirt
- Parkpave
- Parkdirt
- Buildings/Structures

Manhattan Project Buildings

TA-22

Map 24



Frijoles Quad

Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:6000

200 0 200 400 600 800 Feet

70 0 70 140 210 Meters

N
W E
S

Manhattan Project Buildings
Los Alamos National Laboratory
Tech Area 22
Tech Areas
20 Foot Contours
100 Foot Contours
Drainage
Township, Section, Range
USGS 7.5 Minute Quad
Roads
Roaddirt
Parkpave
Parkdirt
Buildings/Structures

Manhattan Project Buildings

TA-22 Closeup

Map 25

TA-22-1

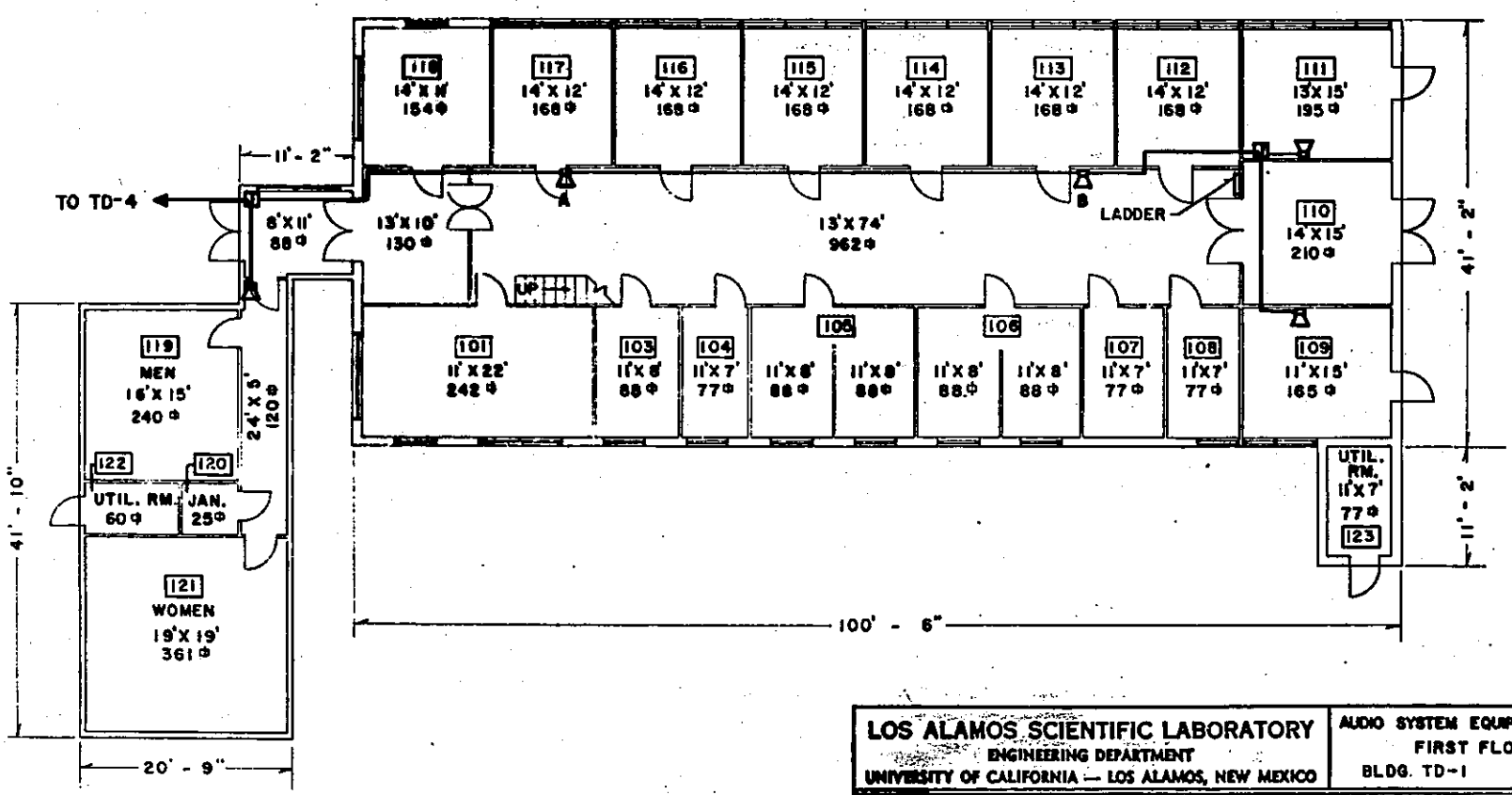
Original Function: Assembly and Loading Building
Current Function: Vacant
Historical Significance: Explosive components for the "Fat Man" bomb were tested and assembled in TA-22-1.

Date Constructed: 1945
Associated Theme: Implosion
Eligible?: Yes – "A"

Description:
TA-22-1 is a true quonset hut, often referred to as a Pacific-style hutment facility. It sits on a concrete foundation, which is visible at the stem wall level just below the metal siding. The building is covered with heavy gauge, corrugated siding arching over the frame. The siding has several coats of aluminized silver paint. Numerous steel casement windows line each side of the building. Due to the arch shape of the building, the windows rest at a slight angle. The windows are three-over-three, awning type windows. The east and west ends of the building have wood-frame additions, which serve as entrances to the building. The additions are covered with corrugated metal siding and have flat roofs.

During World War II, Los Alamos scientists assembled and tested explosive components for the world's second atomic implosion bomb in this building. The "Fat Man" bomb was detonated over Nagasaki, Japan, on August 9, 1945.

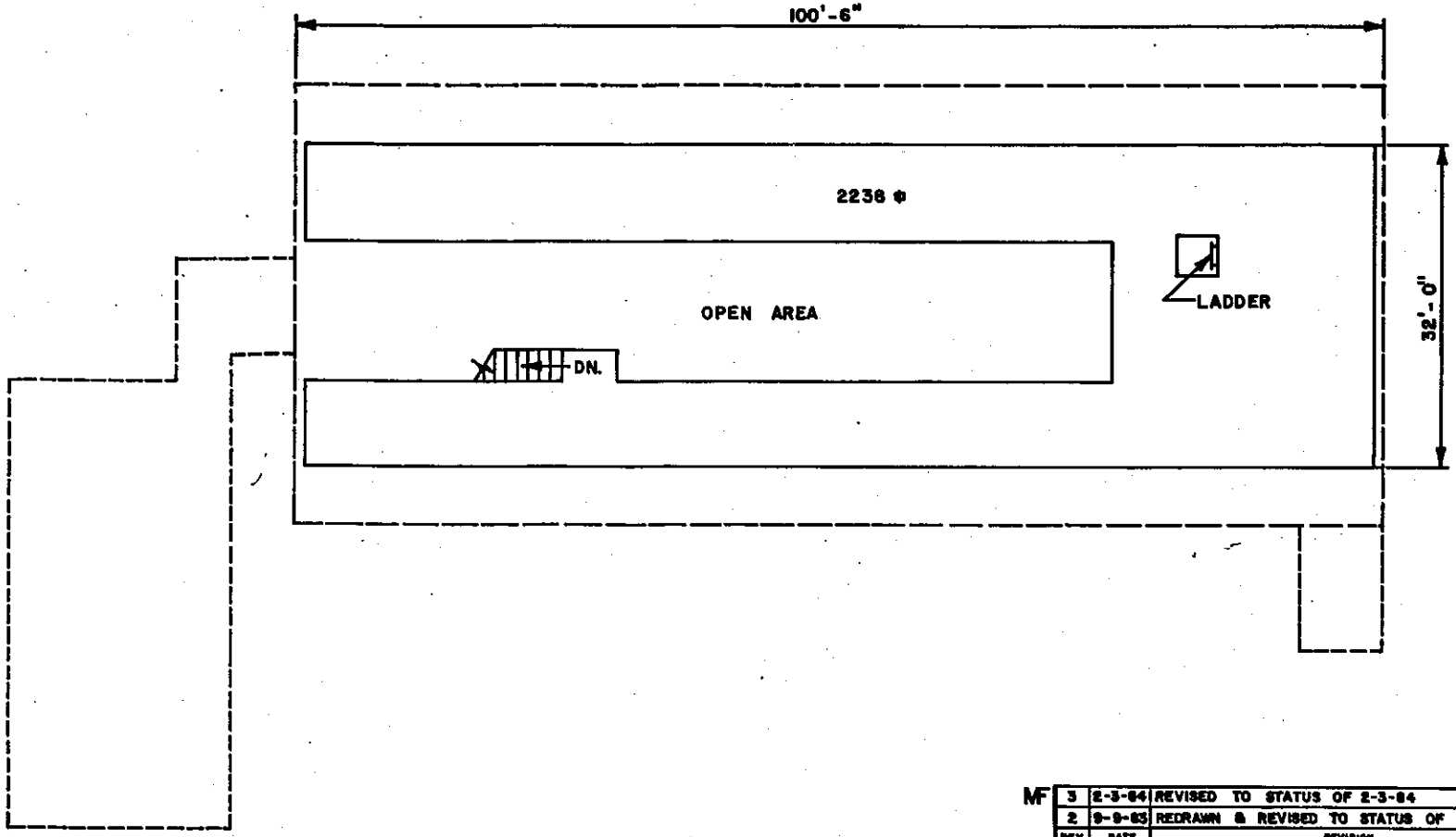
NO.	DATE	REVISIONS	BY	CHKD	GRP. LDR	ENG. D.O.



MEZZANINE TOTAL SQ. FT. 2238
FIRST FLOOR TOTAL SQ. FT. 4708
TOTAL SQ. FT. 6946

LOS ALAMOS SCIENTIFIC LABORATORY ENGINEERING DEPARTMENT UNIVERSITY OF CALIFORNIA — LOS ALAMOS, NEW MEXICO		AUDIO SYSTEM EQUIPMENT LOCATION FIRST FLOOR PLAN BLDG. TD-1 TA-22	
APPROVALS: ENG. GROUP: DIVISION: ENG. DEPT. OFFICE:	DESIGN: DESIGNER: LEMON PROJ. ENG.: KPK WB	DATE: 9/7/67 SHEET: 1 OF 1	SCALE: 3/32" = 1'-0" SKETCH NO.: ENG. R4286

INFO. SHOWN CURRENT AS OF _____ B. A. NO. _____ J. O. NO. _____ LAB. JOB NO. _____



(3/32" = 1'-0") 0' 5' 10' 15' 20'

GRAPHIC SCALE

MEZZANINE TOTAL SQ. FT. 2238

REV.	DATE	REVISION	BY	CKD.	APR
3	2-3-84	REVISED TO STATUS OF 2-3-84	HBN		
2	9-9-83	REDRAWN & REVISED TO STATUS OF 9-9-83	HBN		

MF

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

FACILITIES ENGINEERING DIVISION

LOADING BUILDING
MEZZANINE FLOOR PLAN

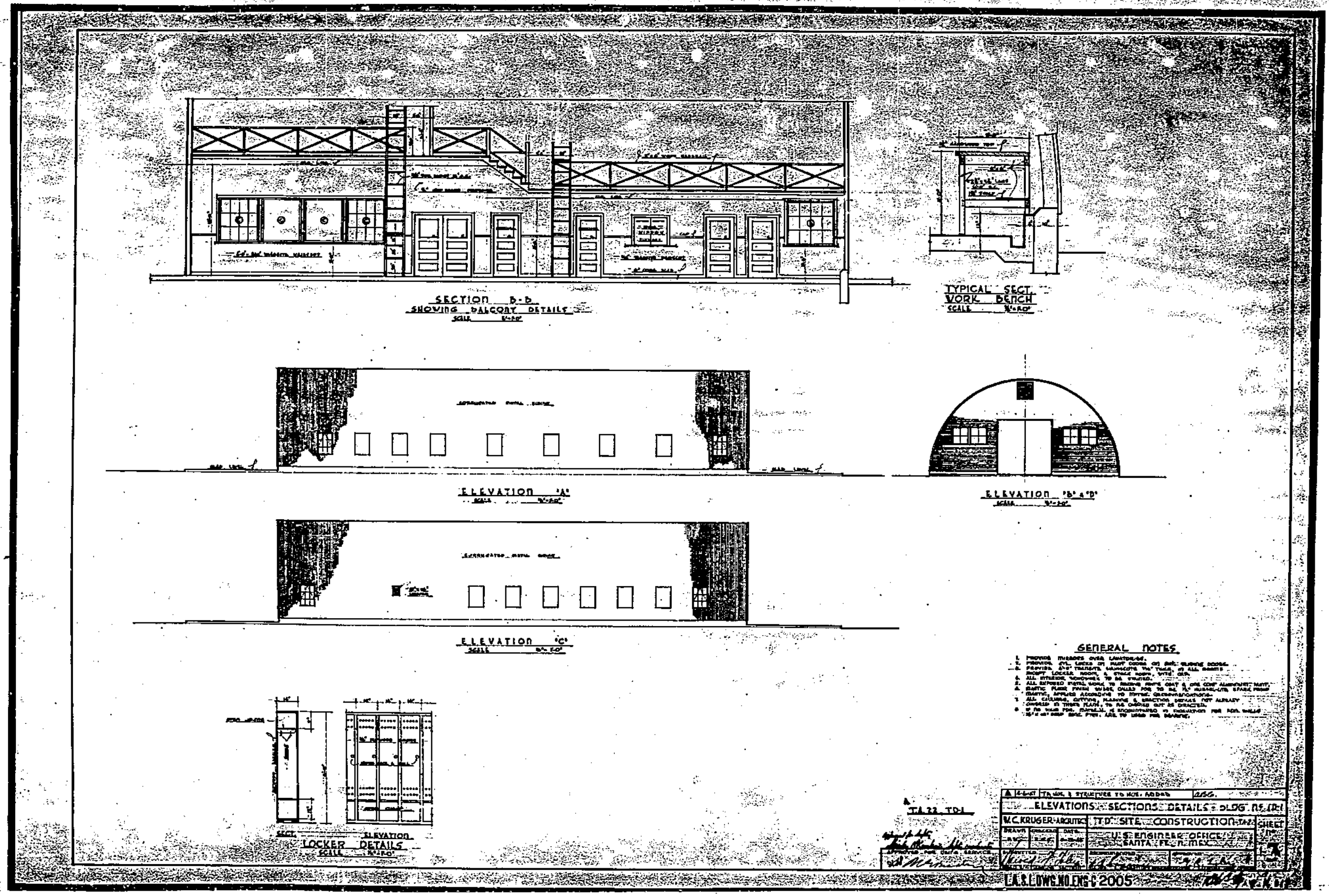
SEC. CLASSIFICATION: CLASS. U

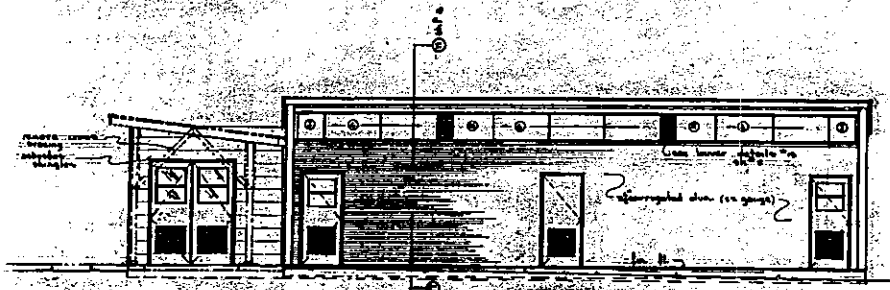
REVIEWER

BLDG. TD-1 TA-22 DATE 5-12-84

SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo		

DRAWN	CHECKED	DATE	SHEET NO.	DRAWING NO.
J. SAM HBN	HBN	9-9-83	2 of 2	ENG-R2968


SECTION B-B
SHOWING BALCONY DETAILS
TYPICAL SECT.
WORK BENCH
ELEVATION "A"
ELEVATION "B" & "D"
ELEVATION "C"
GENERAL NOTES
SECT.
ELEVATION
LOCKER DETAILS
TA 22 TD-1
ELEVATIONS - SECTIONS - DETAILS
W.C. KRUGER - ARCHITECT
T.D. SITE CONSTRUCTION
U.S. ENGINEER OFFICE
SANTA FE, N. MEX.
SHEET
L.A.S.L. DWG. NO. ENG-C 2005



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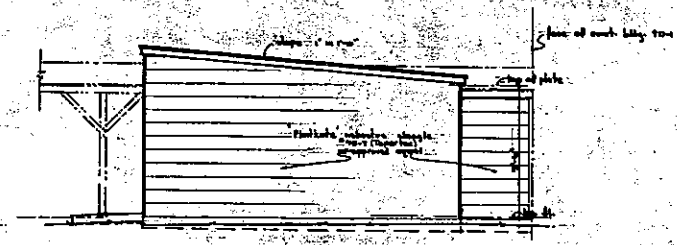

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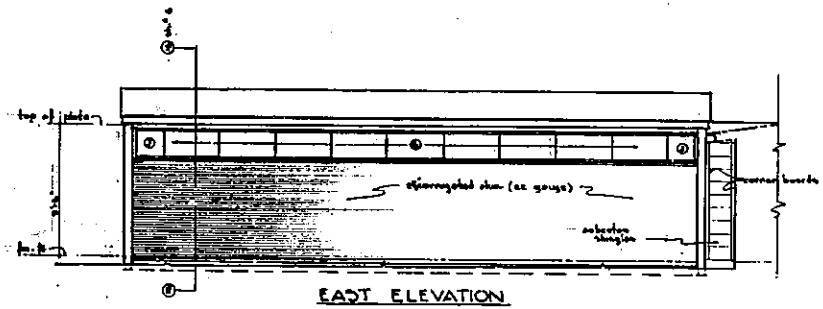

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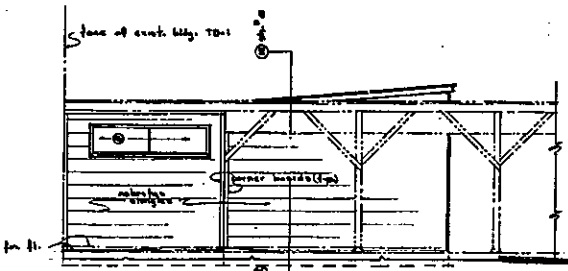


NORTH ELEVATION

OFFICIAL USE ONLY

GLAZING SCHEDULE			
SYMBOL	SIZE	TYPE	NO. REQ.
G			21
H			3
J			4

UNCLASSIFIED

RECORD DRAWING - AS BUILT CONSTRUCTION

SUBMITTED	RECOMMENDED	APPROVED
FOR THE LASL DIV.	A.E.C.	A.E.C.

THIS MAP MUST BE INSPECTED AND ANY CHANGES APPROVED BY

U. S. ATOMIC ENERGY COMMISSION
LOS ALAMOS, NEW MEXICO

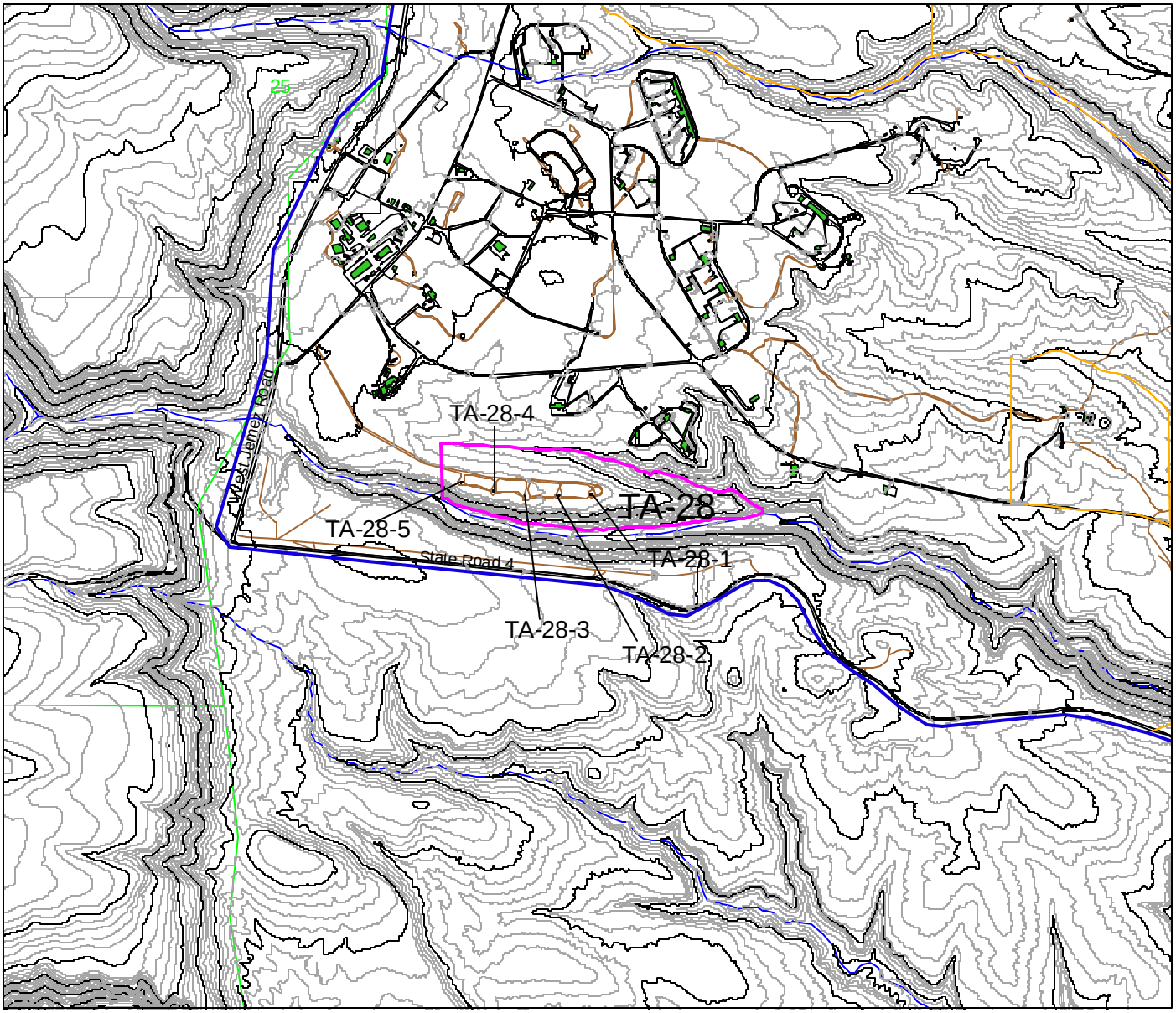
CHANGE HOUSE ADDITION
BLDG. TD-1 — TA-22

ELEVATIONS — TD-SITE

LOS ALAMOS SCIENTIFIC LABORATORY
DEPARTMENT OF ENGINEERING

E-34 3

4 12



Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:24000

800 0 800 1600 2400 3200 4000 Feet

200 0 200 400 600 800 Meters

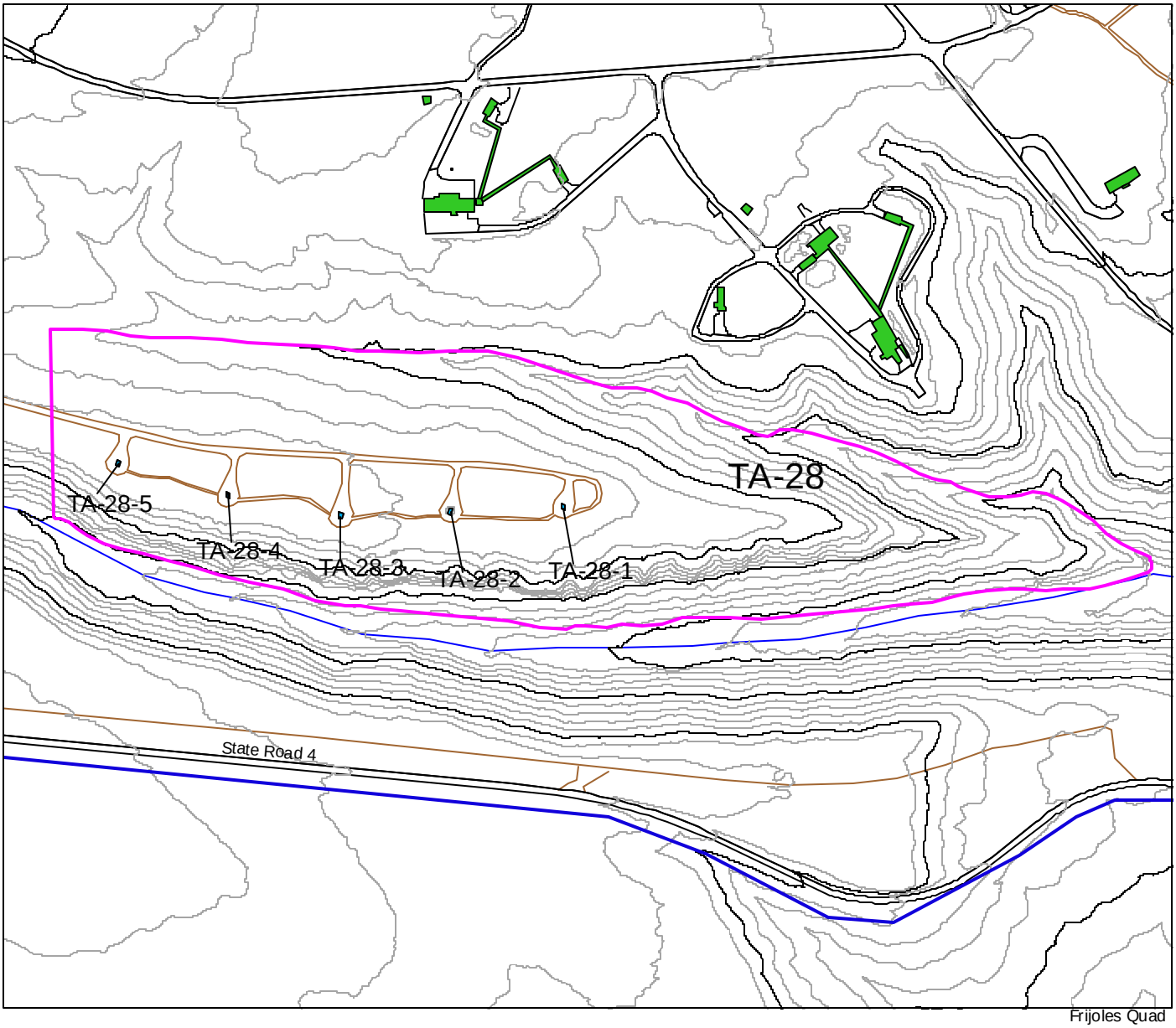
N
W E
S

- Manhattan Project Buildings
- Los Alamos National Laboratory
- Tech Area 28
- Tech Areas
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Township, Section, Range
- USGS 7.5 Minute Quad
- Roads
- Roaddirt
- Parkpave
- Parkdirt
- Buildings/Structures

Manhattan Project Buildings

TA-28

Map 26



Frijoles Quad

Los Alamos
National Laboratory

Cultural Resources Management Team
RRES-ECO Ecology Group

1:7000

500 0 500 1000 Feet

100 0 100 200 Meters

N
W E
S

Manhattan Project Buildings

TA-28 Closeup

- Manhattan Project Buildings
- Los Alamos National Laboratory
- Tech Area 28
- Tech Areas
- 20 Foot Contours
- 100 Foot Contours
- Drainage
- Township, Section, Range
- USGS 7.5 Minute Quad
- Roads
- Roaddirt
- Parkpave
- Parkdirt
- Buildings/Structures

Map 27

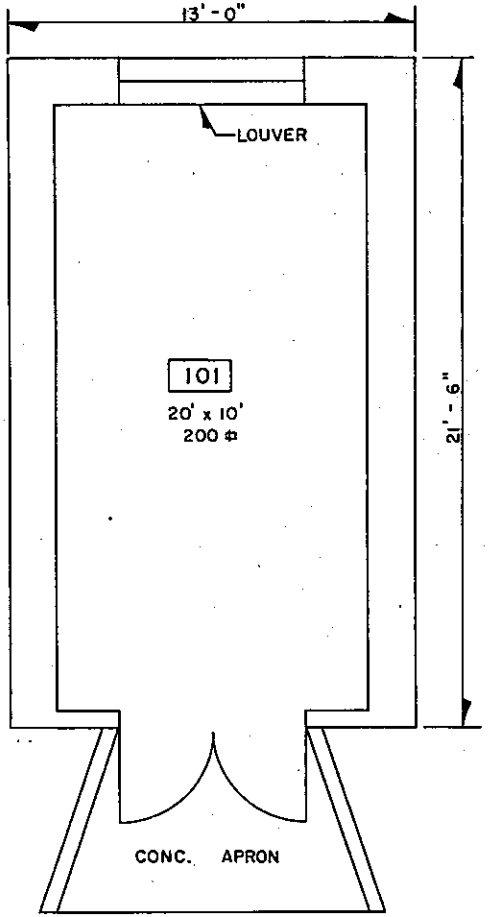
TA-28-1

TA-28-1, -2, -3, -4 and -5

Original Function: Magazines
Current Function: Same (vacant?)
Historical Significance: Explosives storage support for high explosives operations**.**

Date Constructed: 1944?
Associated Theme: High Explosives
Eligible?: Yes – "A"
(although only one example of these five identical properties would need to be documented)

Description:
These five magazine structures are similar in purpose and construction to each other. Each facility is approximately 12 ft by 24 ft in size. The foundation slab and wall structure for each magazine is cast-in-place concrete. The concrete walls extend up to about 6 ft and act as a retaining wall against the earth berm adjacent to each building. The upper 2 ft portion of each structure is wood frame with asbestos shingles. Each roof is wood frame with a low slope asphalt granular roofing material. Most of the entry doors are on the south elevation. The doors are hollow metal in metal frames. Earth berms surround the structures on three sides and are covered with vegetation.



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1/4"=1'-0"
GRAPHIC SCALE

TOTAL SQ. FT. 200

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1	9-19-83	REVISED TO STATUS OF 9-19-83	H&N		

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FACILITIES ENGINEERING DIVISION

MAGAZINE
FLOOR PLAN

BLDG. MAA-1 TA-28

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REVIEWER: Gradnik
DATE: 3-12-84

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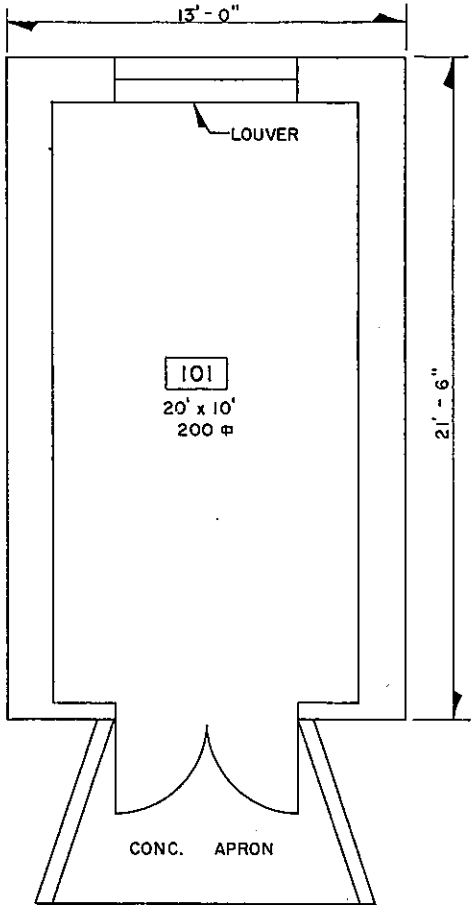

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1/4"=1'-0"
GRAPHIC SCALE

TOTAL SQ. FT. 200

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1	9-20-83	REVISED TO STATUS OF 9-20-83	H&N		

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SEC. CLASSIFICATION
CLASS. U
REVIEWER
DATE 3-12-84

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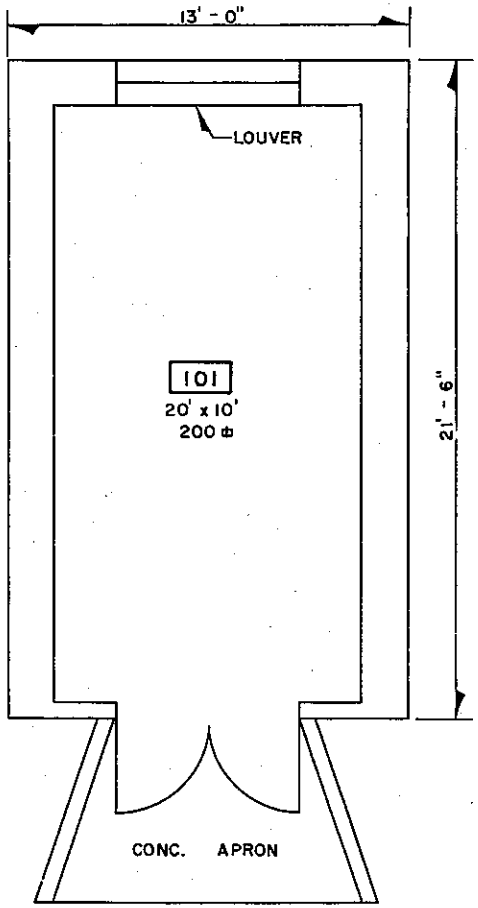

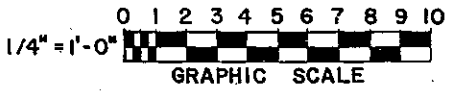

TOTAL SQ. FT. 200

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MAGAZINE
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BLDG. MAA-3 TA-28

SEC. CLASSIFICATION: CLASS. U; REVIEWER [illegible]; DATE 3-12-84

SUBMITTED	RECOMMENDED	APPROVED
E. Trujillo	[illegible]	R.H. Rochow

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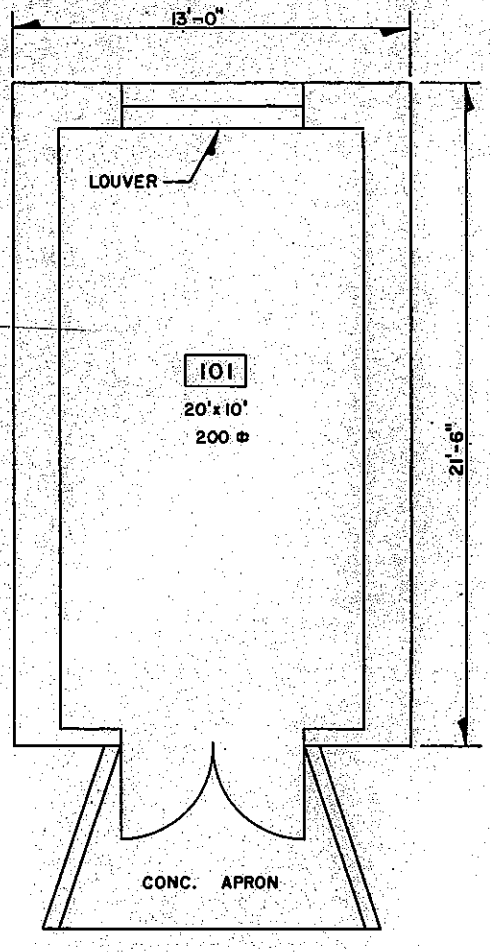

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1/4"=1'-0"

GRARHIC SCALE

TOTAL SQ. FT. 200

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Los Alamos, New Mexico 87545

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CLASS. U
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DATE 6-11-84

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RECOMMENDED Dan Rapp
APPROVED Curt Fleischer

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DATE 8-19-64
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DRAWING NO. ENG-R3015

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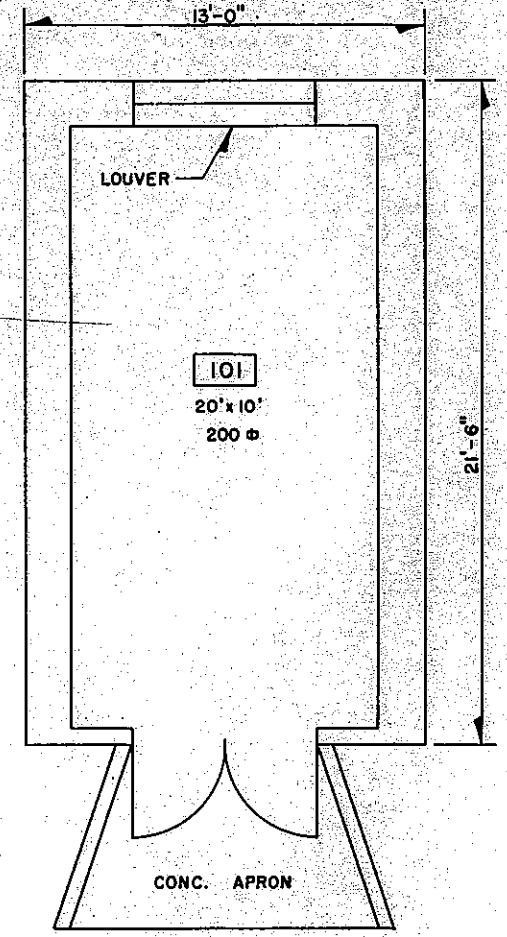

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1/4"=1'-0"

GRAPHIC SCALE

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Appendix B—Photographs of Remaining Manhattan Project Buildings and Structures (Los Alamos County/Privately Owned)

Fuller Lodge, Former Los Alamos Ranch School and Manhattan Project Dining Room and Residence (built 1928), Direction Southwest

Fuller Lodge, Direction Southeast

Los Alamos Historical Museum Building, Former Los Alamos Ranch School and Manhattan Project Guest Cottage (built circa 1918), Direction Northeast

The Baker House, Former Los Alamos Ranch School Chief Mechanic's Residence (built 1925), Also Manhattan Project Staff Residence, Direction Northeast

Example of Bathtub Row House, Former Los Alamos Ranch School and Manhattan Project Staff Residence (built circa 1920s), Direction Northwest

The Red Cross Building, Former Los Alamos Ranch School Power House and Manhattan Project Residence (built early 1930s), Direction Northwest

The Hill Diner, Possible Former Manhattan Project Veterinary Hospital, T-323 (built early 1940s, extensively remodeled?), Direction Northeast

Unitarian Church, Former Manhattan Project Dormitory, T-102 (built early 1940s), Direction Northeast

Christian Science Building, Former Manhattan Project 20-Men Capacity Dormitory (built early 1940s), Direction Northwest


The Last Sundt Building (2nd Phase Flat Roof Quadruplex), Former Manhattan Project Housing (built circa 1943), Direction North

Performing Arts Building, Former Manhattan Project "East Cafeteria" then "Rec Hall" (built early 1940s), Direction Southeast

Performing Arts Building, Direction North

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[10] F. G. Gosling, *The Manhattan Project: Making the Atomic Bomb* (Washington, DC: U.S. Department of Energy, 2001), DOE/MA-0002, David Hawkins, Edith C. Truslow, and Ralph Carlisle Smith, *Project Y: The Los Alamos Story*, The History of Modern Physics, 1800-1950, vol. II (Tomash Publishers and the American Institute of Physics, 1988).

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[27] Hoddeson, *Critical Assembly: A Technical History of Los Alamos during the Oppenheimer Years, 1943-1945*.

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[29] Ibid. and Hoddeson, *Critical Assembly: A Technical History of Los Alamos during the Oppenheimer Years, 1943-1945*.

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[58] U.S. Department of Energy 1986

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