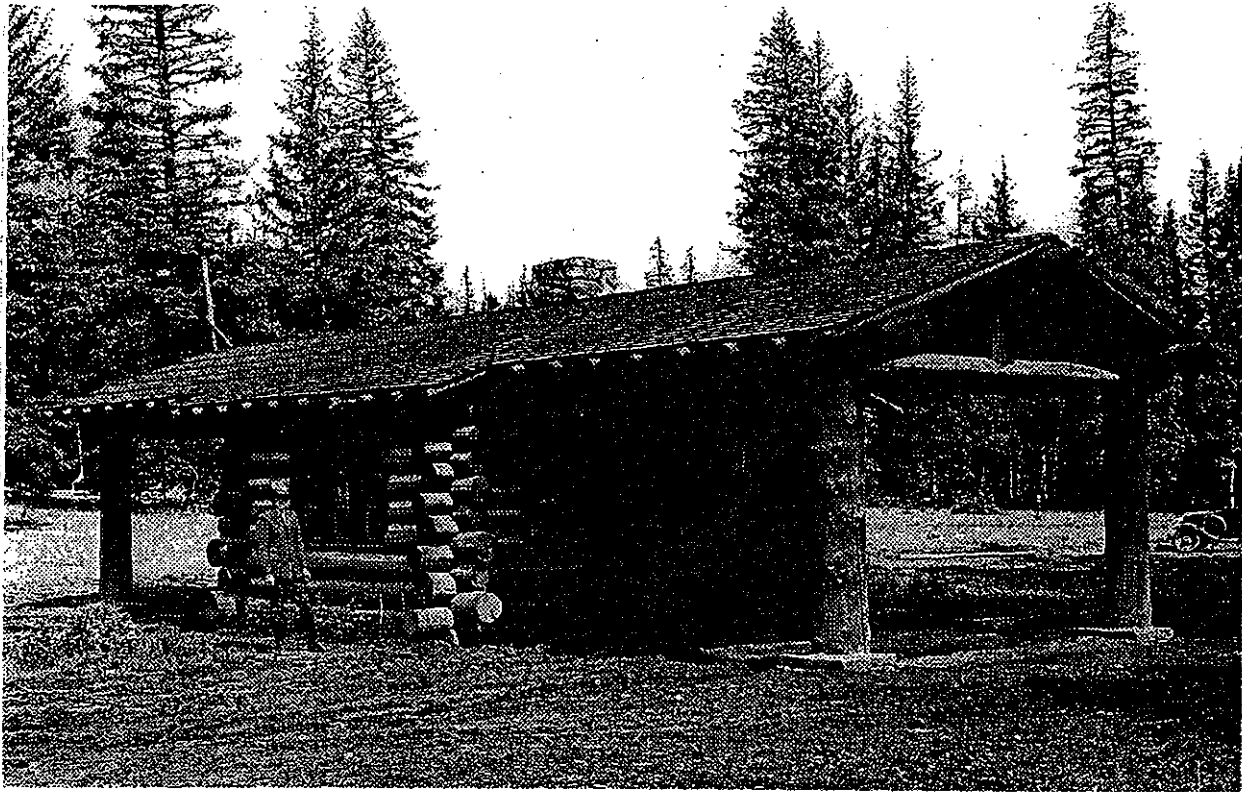


113/D-555
Grand Canyon

North Rim Entrance Station

Historic Structure Report



GRAND CANYON
National Park • Arizona

SCANNED

1/31/2002

RECOMMENDED
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April 23, 2001

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April 30, 2001

Cover: Northeast view 1929, Grand Canyon National Park Archives, photograph 3884

North Rim Entrance Station
Historic Structure Report

prepared for the
National Park Service

prepared by
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GRAND CANYON

National Park • Arizona

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I. EXECUTIVE SUMMARY AND ADMINISTRATIVE DATA

Built in 1928, the North Rim Entrance Station is a classic gateway to the Grand Canyon National Park and an excellent example of the rustic park architecture developed early in National Park Service history. Initially an outstanding example of the checking station building type, the original structure was designed to make a grand architectural statement. Based on a variation of the log cabin, the design was distinguished by elegant gabled wood-shingled canopies that projected over two vehicular lanes entering and exiting the park. The original design used the simple vernacular cabin shape and infused it with Classicism, not only through the use of proportion but also by employing the basic form and function of the Triumphal Arch as the design's inspiration. Perhaps, most significantly, the scale of the entrance station served to convey the overall feeling of the North Rim which is more relaxed and less crowded, smaller in scale and less changed from the early days of tourism at the Grand Canyon. The entrance station is still valued aesthetically as it relates well to the architecture of the North Rim, primarily as expressed through its scale, a trait to be retained in the future treatment of the building. (See **Appendix E, Figures 1-4**).

Of further significance is the building's inherent relationship to its site, its use of materials from the surrounding landscape, and its orientation function as a symbolic introduction to the North Rim. A relatively small structure, the entrance station uniquely commands its location on a knoll as a distant focal point, while offering impressive vistas north and south across both meadows and long views of the undulating approach road to the occupying ranger. The building is constructed of oversized logs, which reflect the mature Ponderosa pine trees surrounding the site.

Both aesthetically and practically, the building plays a key role in the arrival sequence that takes best advantage of the natural topography, landscape, panoramic vistas, and dramatic foliage to indicate the importance of the park. The building has continued to serve in its original capacity as the checking station and first point of contact for visitors to the North Rim since 1928.

The building has been substantially altered over time, most detrimentally through the removal of its most prominent feature, the pair of projecting canopies, sacrificed to allow taller vehicles, recreational coaches, and buses to clear the original 8-foot clearance imposed by the covered roadway. Due to the loss of the canopies, the small scale building exhibits a diminished stature and presence. Maintenance problems and site questions detract from the structure's integrity.

The North Rim Entrance Station is in a dilapidated state. Apart from the run-down appearance of the structure itself, many other aspects associated with the entranceway detract from a prominent park introduction, such as: an unattractive entrance sign at the park boundary, accumulated objects, safety, road

speed and fee signs, temporary traffic pylons, speed bumps, gates, a transmission antenna, uninspired landscaping and deteriorated curbing. Together with addressing the needs of an upgraded structure, the Project Detail Sheet for the North Rim Station for fiscal year 1999 specified the following be completed by May 2001: rehabilitation of the entrance station and visitor orientation sign; restoration of the historic entrance sign; treatment of the road signs; improvement of the cattle guard; realignment of the road, paving and parking areas; installation of a vault toilet, flagpole, bike rack and horse rail; repair of the boundary fence; installation of a back-up power generator; improvement of the entrance gate; and, installation of area lighting. The emphasis of the project is to rectify deferred maintenance. The goal of the project is to address visitor satisfaction and to ease the construction and maintenance backlog at the structure.

Separately, users of the building and park administrators have expressed the need to upgrade mechanical, electrical, and telecommunications systems.

The information presented herein provides the basis for evaluating future alterations that may be proposed for the North Rim Entrance Station and will aid in the rehabilitation of this significant park structure. Little historical information exists for the North Rim Entrance Station; it has not been well-documented in the past. No significant new information regarding the architectural significance of the building has been found. The project team has developed a more thorough analysis of the structure's place within the context of rustic architecture. This report expands upon the desire to improve the conditions at North Rim Entrance, focusing on the building, its site and its history.

The contents of this Historic Structure Report (HSR) are:

- a concise historic context associated with the building and the NPS architects;
- a detailed chronology of building development including alterations and maintenance through time;
- an evaluation of the period of significance, historic integrity, and historic significance of the structure;
- an evaluation of building conditions;
- a list of character-defining features;
- updated existing conditions drawings;
- drawings illustrating options for treatment of the building.

The historical research portion of the report is based primarily on existing historical source material at the Grand Canyon National Park Archives and on other materials made available by NPS. Several NPS staff members of the Engineering and Maintenance divisions of the Grand Canyon National Park were consulted regarding the maintenance history of the building. Additional secondary research was conducted using materials within the libraries of the University of California at Berkeley, the library at the Grand Canyon National Park, the library at the San Francisco office of the National Park Service, at sig-

nificant Bay Area research collections, and in the ARG library. The level of research requested for this report was "thorough" — one of three levels of investigation (exhaustive, thorough, and limited) as described by NPS Director's Order - 28. "Thorough" research is defined by DO-28 as follows:

For historical studies this means research in selected published and documentary sources of known or presumed relevance that are readily accessible without extensive travel and that promise expeditious extraction of relevant data, interviewing all knowledgeable persons who are readily available, and presenting findings in no greater detail than required by the task directive.¹

Administrative Data

Historic Name: North Rim Checking Station

Common Name: North Rim Entrance Station

Other Name: Contact Station

Park Structure Number: NRBO121 Building 121

Location: North Rim, Grand Canyon National Park, Coconino County, Arizona

USGS Map - Little Park Lake Quadrangle

UTM easting 4021780 northing 399850

Cultural Resources

As a cultural resource, the North Rim Entrance Station has not been determined eligible for the National Register of Historic Places or other cultural inventories. Due to the loss of architectural integrity, it is unlikely that the structure would be considered for National Register listing in the present state. With regard to a cultural landscape assessment, the North Rim Entrance Station would be included as a contributing structure due to its historic significance.

The original drawings for this building are on microfiche at the NPS Denver Service Center. If there is not a copy of the drawings in the Grand Canyon National Park Archives at the South Rim, a copy should be placed with that collection. There are a number of historic photographs of this structure within the collection of the Park Archives. The Park Archives collection is an appropriate location for these items.

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II. Historical Background

Developmental History and Context

This section of the HSR outlines the people, events, and historic contexts associated with the structure. Historic contexts are broad patterns of historical development in a community or a region that may be represented by historical resources. Historic contexts can be identified through consideration of the history of individual properties or groupings of properties within the surrounding area. The establishment of historic contexts provides the foundation for decision-making concerning the planning, identification, evaluation, restoration, registration, and treatment of historic properties, based upon comparative significance. Historic contexts can be developed for all types of resources including, but not limited to, buildings, structures, objects, sites and historic districts. The methodology for developing contexts does not vary greatly with the different types of resources, and contexts may relate to any of the four National Register criteria. At the core of historic contexts is the premise that resources, properties, or happenings in history do not occur in a vacuum, but rather are part of larger trends or patterns.

The Canyon's First Inhabitants

Humans have known the Grand Canyon, the major chasm of the Colorado River and its tributaries, for thousands of years. Indigenous people have lived in the Grand Canyon for over 4000 years, with recent evidence suggesting people may have been utilizing the canyon as long as 10,000 years ago. Grand Canyon National Park is rich in cultural resources; the park records include 4,000 prehistoric and historic sites, based upon intensive survey of approximately 2.5% of the entire park. Estimates of archaeological resources within the park top 50,000 archaeological sites, prehistoric and historic, based upon the limited sample survey that currently exists.

For thousands of years, people moved in and out of Grand Canyon, leaving behind evidence of their passing. Thousands of dwellings, shelters, and agricultural terraces have been located, providing evidence of ancestral hunters, gatherers and farmers living on both rims and in the inner canyon. Campsites, rock art, house foundations, pottery, chipped stone, ground stone, and other artifacts remain to help tell the story of these people and their lives within the canyon over the last 10,000 years.

A single portion of a Folsom point provides the only evidence to date of Paleo-Indian hunters within Grand Canyon nearly 10,000 years ago. Although evidence for human occupation is limited, it is well documented that Archaic peoples began utilizing the Grand Canyon over 4000 years ago. Split-twig figurines, projectile points, campsites and rock art attest to archaic populations in and around the Grand Canyon from ca. 3500 B.C. to 1 A.D. Though limited, archaeological materials suggest near continuous occupations through the Archaic and Basketmaker (early A.D. to ca. A.D. 700) periods, moving directly into the Puebloan period occupations (ca. A.D. 800 - 1300). Groups identified as representing both the ancestral Puebloan peoples and Cohonina culture have been identified throughout the Canyon during those time periods, gradually giving way to contemporary peoples. The Hopi, Zuni, Southern Paiute, Havasupai, Hualapai and Navajo all left remains that have become part of the archaeological record. These same people continue to use the canyon today for traditional and religious reasons.

Grand Canyon has been home to various groups of people for thousands of years. These people, both native Americans and more recent Euro-Americans, have utilized the canyon as both a home and a place linked to traditional practices, values and beliefs. To the Hopi and Zuni, the Grand Canyon represents their place of origin into this world. For Hopi, it also represents the place where their spirits come to rest after death. Although the Anasazi (Hisatsinom), or ancestral Puebloan people, migrated from the canyon area, their descendants, the Hopi and Zuni, continue periodic visits.

For the Pueblo people, archaeological remains in the canyon provide evidence for their migration from their place of origin to their present homes. For the Pai people (Hualapai and Havasupai), the canyon and the river are the lands they have been entrusted to care for. The river represents the backbone. For the Southern Paiute, the canyon represents a place given to them from the Creator to protect and manage, including its water and natural resources. To the Navajo people, the Colorado River in Grand Canyon forms a protective boundary on the western border of Navajo land. Many of the tribes who claim ancestral ties to the Grand Canyon continue to use the park. Salt and hematite are collected from the locations along the river by all tribes, and certain plants are collected for traditional and medicinal purposes throughout the park. Pine nuts are still collected by Indians and non-Indians. One small group of Havasupai continues to live approximately one mile west of Grand Canyon Village in Supai Camp.

Havasupai today earn their living from tourism, ranching, and wage labor.

Both spiritually and physically, the canyon remains of great importance to the local native peoples: it is a holy place, an object of pilgrimages, a symbol of legends, and a home place. Today, the reservations of the Hualapai, Havasupai, and Navajo tribes include parts of Grand Canyon National Park; the Paiute and Hopi reservations are nearby. Each of these tribes is linked to the history of the Canyon, from early times to present day involvement.²

European Exploration

During the early Spanish period, both the Hualapai and Havasupai were relatively unaffected. The first few Spanish soldiers and explorers to encounter the canyon were led by Garcia Lopez de Cardenas from Francisco Vasquez de Coronado's expedition of 1540-1542.³ Cardenas and his men arrived at the South Rim of the Grand Canyon in late September of 1540 with the assistance of Hopi guides. Finding the land arid and difficult to traverse, the Spaniards left the canyon and its surrounding plateau lands to native tribes and were not seen again in the immediate area until the 1770s. More concerned with charting the New World and understanding the geography of the region, the Spanish they were awed by the canyon as a barrier, not for its scenic beauty, and focused instead on more easily-habitable regions.

American Westward Expansion and Development at the North Rim

American trappers, fur traders, and frontiersmen scouted the area in the early 19th century, but tended to avoid the treacherous, unforgiving and still uncharted depths of the canyon. Like the Spanish before them, they saw it as an impediment to their hunting and trapping activities. In 1848, much of the territory was still unexplored. The course of the Colorado River had never been surveyed and the canyon did not have an established name. In 1869, Major John Wesley Powell, a geologist and explorer from Illinois, organized several expeditions to charter the river that cut through the canyon. Powell's expedition appears to have been the first organized expedition of white men to successfully navigate the Colorado River and opened the way for further settlement.

Despite Powell's success, the American frontier came late. Rugged topography and a hot, arid climate deterred settlers, especially at the north side of the canyon where access was hampered by insufficient roads, in most cases, rutted wagon trails. The first settlers in the wilderness of the Kaibab Plateau were men without families in search of wealth: ranchers, settlers, and mining prospectors, and families of Mormons who moved south from Salt Lake City. The activities on the north side of the canyon that predated tourism were mining, agriculture, lumbering, ranching and, later, sport hunting.

Ranching east of the Kaibab Plateau in the House Rock Valley began in the 1880s, and cattle continued to range as far south as the North Rim after creation of the national park. Sport hunting on the Kaibab Plateau brought a vigorous seasonal industry to the area and contributed to the rise of North Rim

tourism. Into the 1920s, sport hunting helped the US Forest service control deer populations. The first hunting camps first appeared in the 1920s and operated until the 1960s.

Some mining prospectors eventually saw greater value in tourism than in mining. This realization coincided with escalating settlement of the Southwest and railroad expansion, particularly the Atlantic and Pacific Railroad, which pushed across northern Arizona. The fundamental difference between the development of the two sides of the canyon came down to the railroads. By 1901, visitors could forego horse-drawn stagecoach lines or wagons to arrive directly to the canyon's South Rim by rail from Williams, Arizona. (See Appendix E, Figure 5). By contrast, railroad lines at the North Rim, though planned, were never constructed. Access was gained over settlers wagon trails that crossed two hundred miles of high plateaus and rugged terrain.

Tourism at the North Rim

While a few men and groups of Mormon families populated the wilderness of the Kaibab Plateau at the end of the nineteenth century, no town ever developed at the North Rim. Tourism as an industry lagged more than thirty years behind that at the South Rim. Development of tourism at Bright Angel Point on the North Rim came about through the establishment of small businesses on a scale similar to early development of Grand Canyon Village, but without a major concessionaire such as the Fred Harvey Company. North Rim tourism was promoted by Edwin Dilworth "Uncle Dee" Wooley. In 1903, Wooley formed a multi-purpose enterprise, the Grand Canyon Transportation Company, the main goal of which was to construct regional road improvements. From 1905 to 1909, Wooley's company worked hard to construct a trail from the head of the Bright Angel Canyon to the Colorado River, a cable crossing and trail to link up with the Bright Angel Trail to the South Rim, and a tourist camp near the mouth of Bright Angel Creek. His company stayed in business until 1919 when the National Park Service arrived at the park.

Beginning in the mid-1910s, brochures for campers and tourists were published by the Kaibab Forest noting roads, trails, and scenic attractions. Although information touted "an excellent auto road having only a few grades that exceed 10%," in reality, the Grand Canyon Highway was little more than a crude wagon road.

In 1917, the first North Rim concession sanctioned by the United States Forest Service, Wylie Way Tent Camp, was established by Thomas and Elizabeth Wylie McKee 50 yards north of the extant Grand Canyon Lodge at Bright Angel Point. The camp was comprised of ten tent-cabins and a central kitchen-dining room. The distinguishing feature of the Wylie Way Tent Camp was the tent-cabin itself: a wood-frame floor and wall structure with a peaked, canvas tent roof.

Before the 1920s most visitors reached the North Rim by way of stagecoach from Utah, leaving from Marysville and arriving in Kanab. But as tourism at Bright Angel Point began to catch on in the early 1920s, automotive buses organized by the Parry Brothers, and later in conjunction with the Union Pacific Railroad and Utah Parks Company, brought visitors to the rim. At the same time, the numbers of visitors who traveled to the North Rim by private cars began to surge, necessitating the need for improved roads.⁴

Expansion of the Wylie Way Camp continued to accommodate a growing numbers of visitors. The McKee's organized wagon trips to Point Sublime and Cape Royal later evolved into automobile trips. In 1926, the McKee's built a wood-frame lodge with a lobby, restrooms and general store all connected to the earlier dining room by a new covered passageway. In May 1927 the Utah Parks Company, a large concessionaire, successfully bid for all the existing tourist services at the North Rim, assuming control of the family-run businesses and consolidating management of all the facilities. The National Park Service left concessions to the Utah Parks Company but focused on the reconstruction of the entrance and scenic roads.

The major and defining structure at the North Rim was the Grand Canyon Lodge built by the Utah Parks Company. The North Rim Entrance Station aptly serves as an appropriate introduction to the architecture at the edge of the North Rim. Although vastly different in size and scale, the Grand Canyon Lodge and corresponding guest cabins by Gilbert Stanley Underwood were influential in the design of the North Rim Entrance Station. Underwood, architect of the Union Pacific and designer of park lodges for the National Parks at Bryce, Zion, Yellowstone, and Yosemite, had no desire to design a standard lodge which could be erected in any spot. The Park Service encouraged Underwood's sensitivity to the surrounding environment and the North Rim offered a situation different from that in any other parks. At the North Rim there were no restraints on building right up to the edge of the cliffs, and the site, which overlooked the canyon, offered one of the most expansive views of the American Southwest. Opened in 1928, the rustic-style wood and stone Grand Canyon Lodge surpassed National Park Service expectations. Though imposing, the main lodge was not designed to provide comprehensive services; guest rooms were never intended to be a part of the structure. Instead, hotel guests were lodged in adjacent cabins, deluxe and standard, which were constructed a few at a time. Stretching north along the ridge, one hundred twenty cabins now form the guest accommodations.

Of notched log construction, the more economical standard cabins resemble the North Rim Entrance Station in materials, construction technique, feeling, scale, and architectural expression. (See **Appendix E, Figures 7 & 8, Appendix F Figure 1**). The materials of the standard cabins are whole logs with staggered overlapping log ends of varying lengths, light colored chinking, stone foundations and steps,

operable wood sash mullioned windows and pitched wood shingle roofs. It is likely that Underwood's design of the lodge cabins influenced the National Park Service design for the North Rim Entrance Station; the structures are remarkably similar and complementary. The Grand Canyon Lodge and cabins were built in 1927 and inaugurated in May of 1928. The North Rim Entrance Station was built during the course of the summer of 1928.

The North Rim Lodge cabins were built in 1927, preceding the North Rim Entrance Station by one year. Underwood's design for the Grand Canyon Lodge at the North Rim rivaled that of his most well-known of the concessionaire lodges, Yosemite's Awannee Hotel of 1927. Had it not been for the fire of 1932, Underwood's esteemed Grand Canyon Lodge would undoubtedly have been his most prominent park structure, dramatically poised on the edge of the North Rim. While the Lodge was almost totally ruined by fire in 1932, the cabins were not affected and are still in use today. A second lodge was re-built after a delay of a few years, somewhat reduced in scale and grandeur due to the economic conditions of the Depression. The rebuilt structure was constructed in the same footprint at a cost of \$250,000 and was completed in 1936. While the cost of the first lodge, completed in 1928, was \$350,000, the smaller replacement structure, though less grand and reduced in scale, is still considered to be an architectural success for its materials, siting, and orientation to the landscape.

An Appropriate Style of Architecture for the National Park System

When the Grand Canyon officially became a national park in 1919, the National Park Service Landscape Engineering Department teamed up with the Santa Fe Railroad and the Fred Harvey Company to plan development in the park. Concessionaires like the Fred Harvey Company had created structures in a variety of architectural styles, from buildings inspired by native construction techniques to those that evoked the imposing European chalet tradition. The early National Park Service architects and landscape architects, by contrast, pursued an architectural style that provided greater harmony with the natural surrounding and employed a generally smaller scale. From its inception in 1916, the National Park Service sought to define an appropriate architecture for buildings constructed within parks, some of the most scenic locations in the United States. The first directive issued by the new agency stressed that "particular attention must be devoted always to the harmonizing of these improvements with the landscape."⁵

The directive also stated that the employment of "trained engineers who either possess a knowledge of landscape architecture or have a proper application of the aesthetic value of park lands" was a key item in all programs in park development.⁶ Curiously, none of the Park Service staff had a background in this type of contextual design. As architects, they had been trained to build notable structures that stood out in the landscape. But under the direction of men like Daniel R. Hull, Thomas C. Vint, and Charles P. Punchard, the Park Service architects and landscape architects reconsidered their approach to formal

buildings and instead designed structures that merged with the environment. The designers working for the Park Service “integrated the principles and practices of their profession with the fundamental conservationist philosophy of Park Service directors Stephen T. Mather and Horace M. Albright.”⁷ This new style of architecture, now referred to as “parkitecture,” more fully reflected the goals of the service: the preservation and enhancement of America’s natural heritage.

At the same time, Park Service architects relied heavily upon their educational training and the principles established by earlier designers such as A. J. Downing, Frederick Law Olmsted, Henry Hubbard, Samuel Parsons, and Frank Waugh. Further, they looked to the rustic architectural tradition established in the great camps of the Adirondacks, and to innovative late nineteenth century California designers such as Charles and Henry Green, Bernard Maybeck, Ernest Coxhead, and others. With these models, the early Park Service landscape engineers and architects began to formulate their own architectural vocabulary.

The NPS and the North Rim

Responding to criticism that they had not opened up the northwest side of the park, the National Park Service in 1925 began improvements on the 20-mile long Powell Saddle Trail from the North Rim Checking Station at VT Park to Swamp Point.⁸ Until 1924, the National Park Service had not been permitted to disburse funds to the north side of the park. Congressional appropriation acts eventually sanctioned spending on the North Rim where the first works undertaken were the improvement of obsolete wagon tracks for use as fire roads. This effort was utilitarian in nature, not geared toward tourism. Following road improvements, the first structures built by rangers at the North Rim were an administrative cabin, warehouse, barn, and machine shed near the Wylie Camp. Eventually, Park Service landscape engineers began to survey for scenic automotive highways. Early in 1927, Congress extended the park north of the Colorado River to include fifty-one square miles of the Kaibab National Forest. The boundary was moved to the slight saddle separating VT and Little Parks and the National Park Service began to lay out more evolved plans for the North Rim. The following year, the park service built North Rim Entrance Station, replacing an earlier structure of unknown origin. (See **Appendix E, Figure 9**). The new North Entrance Road built by the Bureau of Public Roads and the NPS followed construction of the log checking station and was completed in 1931.

Design and Function of the North Rim Entrance Station

For NPS Director Stephen T. Mather, gateways held particular importance and he urged that these buildings be the first structures erected in the parks. In his view, gateways were to be simple, dignified, and in harmony with the environment; they were not to be costly structures. The structures were envisioned not only as physical barriers marking park boundaries, but also as points of transition orienting the visitors to an environment where nature predominated. (See **Appendix E, Figure 10**). The gateways

introduced an architectural theme that harmonized with the natural setting of each location and could be carried over into the development elsewhere in the park, giving a consistent identity to park structures; this relationship is evident as the lodge cabins at the North Rim compare favorably with the Entrance Station, resembling its form, style, expression, and scale. In addition, gateway design was meant to inspire nationalistic pride. (See Appendix F, Figure 2). Mather wrote:

[The advantages of entranceways are many], not the least of which are the sense of pride and thrill of pleasure that are inspired in the American tourist as he passes through imposing pillars or arches that announce to him that he is entering a great playground that belongs to him and all America.⁹

In every way the North Rim Entrance Station thoroughly fulfilled each of Mather's ideals. Designed by the National Park Service as a trapper-style log cabin, the type favored by Mather, the one-story structure was built over the summer months of 1928 at a cost of \$2,065.43. Though diminutive, the North Rim Entrance Station, with its canopies intact, made a big architectural statement, giving presence to the building and the site in the clearing. The design was a play of horizontals and verticals: the horizontality of the low one-story structure, and the verticality of the pines that circled the clearing and the prominent flagpole, an heraldic element. Perpendicular to the road, the canopy stretched across the saddle of land from one side of vertical trees to the other to form a type of framing element for the vistas of the bucolic meadows beyond. Strong horizontals of the original design were expressed through oversized log construction, contrasting stripes of light-colored chinking, a coursed masonry foundation of sufficient height to protect the building from snow drifts and add visual interest, rows of wood roof shingles, doubled every six courses to emphasize texture and a lengthened span, and, most notably, the east-west spanning elongated canopy superstructure.

Originally, the building exhibited Classical tripartite proportions, both in plan and in elevation. In plan, the original roof outline covered the 18-foot width of the building and extended a further 18 feet in each direction over the roadways. The roof outline in plan jogged out slightly over the north and south facades of the entrance station, forming eaves that dip down over the windows to provide additional shade and emphasizing the building's shape under the canopy. Again, the tripartite arrangement appears on the north and south elevations where the central building element is flanked by two corresponding openings. The original design acknowledged Classicism, not only through the use of proportion but also by employing the basic form and function of the Triumphal Arch as the design's inspiration.

The building interior was originally divided into two rooms, an office (10 feet x 13 feet) and sleeping quarters (8 feet x 13 feet), and measured 245 square feet in total. (See Appendix E, Figure 11). The projecting canopies brought the total square footage to 715 square feet. Apart from the partition dividing the two rooms, the interior walls were exposed stained logs, and the floors, concrete. Unlike the

lodge cabins at the North Rim that had exposed ceiling rafters and framing, the entrance station originally included a painted ceiling. The central interior element was the massive wood-burning stone fireplace which was placed free of contact with the log walls as a fire-prevention measure. Central windows punctured the north and south facades. At the east and west elevations the window configurations were not uniform and the two door openings were not centered on the facades, but shifted to the north.

The building is an entrance station of the island type which relies on well-defined curbing circling the structure for utilitarian and aesthetic reasons. (See Appendix E, Figure 12). In his 1938, three-volume edition of *Park & Recreation Structures*, Albert H. Good, an architectural consultant to the National Park Service, discussed the entrance station building type:

The simple appeal and mystery of the rural lane denied us, we can seek to beckon by means of an approach road of inviting width.... An island dividing the in-and-out traffic will promote safety and restrain recklessness without suggestion of inhospitality... [while] recalling the familiar tollbridge entrance.¹⁰

The benefits of the island type design are an indication of the building's function to serve vehicles, afford greater protection for rangers, and act as a buffer from traffic. The earliest known photographs of the building from 1929 show the roadway lanes depressed along an elongated triangle of dirt which stretched out in front of each of the north and south elevations. Various curbing treatments have delineated the diamond-shaped piece of ground on which the building is centered, emphasizing the axial arrangement between building and road. Over time the lanes which have become more prominently defined, outlined by built-up ground, logs, and finally concrete curbs. (See Appendix E, Figure 13).

Exemplifying the National Park Service design philosophy for park architecture, the North Rim Entrance Station scheme was based on a unifying use of materials and siting to highlight the building's relationship to its natural surroundings. The log detailing was scaled to match the trunks of the surrounding forest. Other materials reflecting the surrounding environment are native Kaibab limestone for the masonry foundation and chimney, wood shingles, rafters, outlookers, rough-hewn canopy supporting corner posts (no longer extant). The building features are distinctly rustic in feeling.

Although the original building scheme was based on a simple variation of the log cabin type, its program, function, and the demands made upon it created a complicated architectural problem that required a thoughtful architectural design solution. Albert H. Good fully understood the complexities of the simple entrance building type when he wrote in 1935:

In its simplest and, theoretically, its most desirable expression, the park entranceway is merely a trail or a roadway taking off from a highway and leading into an area dedicated

to public use and enjoyment. But it is not long permitted to retain so simple a form. Immediately demands for traffic safety, through elimination of the hazards of steep grades, sharp turns, and obstructions to vision, assert themselves, and the simple unobtrusive entranceway is doomed.¹¹

Good precisely foretold the circumstances at the North Rim Entrance Station. The entrance station predates the 13-mile park entrance road of 1930-31 by three years. Since that time, continual changes in the road and roadway and treatment of the entrance, together with concessions made to accommodate to visitors' vehicles, have wrought changes in the site and structure, such as: accumulated makeshift and piecemeal road signage (See **Appendix F, Figure 3**), an uneven and rising road surface, and, most detrimentally, the removal of the projecting canopies to allow RV's and tourist coaches to clear the entrance. Over time, the building has been made to defer to the demands of vehicles. (**Appendix E, Figure 14**).

The Architect

The North Rim Entrance Station was built by the National Park Service. Although historical records do not provide the exact name of the architect of the North Rim Entrance Station, the building's date and location coincide with the involvement of NPS landscape architect Thomas Vint. In 1928 Vint was charged with overseeing architectural works and landscape design at both the North Rim and the South. As his "staff [had recently] perfected the design of log and stone structures,"¹² Vint was pleased with the results at the North Rim. Linda Flint McClelland writes:

...To Vint, the lodges at Glacier and Zion represented the best of park architecture. He was extremely satisfied with the developments at Bryce and the North Rim of the Grand Canyon as well. In December 1930, the Department of the Interior issued a press release that praised the variety of facilities at the North Rim and named the development the best all-around public utility development in the national parks.¹³

The building's design resonates with Vint's philosophy, shares characteristics of the work of Vint's friend, G. S. Underwood, and exhibits the fundamental principles of Park Service design in 1928, which held that new structures were to be as unobtrusive as possible, sensitive to the unique natural surroundings of each park. Linda Flint McClelland states that while the early 1920s were a period of experimentation with forms, materials, and architectural themes, the years 1927 to 1932 were the era when principles and practices borrowed from Downing, Vaux, Olmstead, and Hubbard and a variety of architectural styles coalesced to form a mature ethic of rustic and naturalistic design.¹⁴ Park Service designers carefully studied the natural elements of the surrounding landscape including color, scale, massing, and texture, and then integrated those elements into their designs. This was achieved at the North Rim Entrance Station where the architects' intentions and various influences melded to yield a well-conceived and appealing architectural solution for a checking station.

III. SIGNIFICANCE AND INTEGRITY EVALUATION

Statement of Significance

Built as a classic gateway to the Grand Canyon National Park, the North Rim Entrance Station of 1928 was an excellent example of the rustic park architecture developed early in National Park Service history before substantial alterations, specifically the removal of its prominent projecting canopies, compromised the building's significance. Integral to the building's design, symbolism, and setting, is its relationship to the site, environment, orientation into the landscape and road. The building is totally incorporated into and fully, but sensitively, exploits its site to make an architectural statement. Perhaps most significantly, the building is valued aesthetically for its scale as it relates to the architecture of the North Rim; it serves to introduce the visitor to the architecture of the North Rim thirteen miles ahead.

In relationship to the road, the building is the mid-point of a well-conceived entrance sequence. The undulating road offers, not a constant long view of the building as one approaches, but rather a series of disconnected views, each bigger than the last until one arrives at the building. The checking station offers long vistas to the rangers, north to oncoming traffic and south into the park.

The building is a representative example of the park service's desire for a singular and aesthetically appropriate architecture for the national park system, reflecting the park service's philosophy of incorporating elements of the natural landscape into building design. The logs (compared to those used in typical building construction) reflect the mature Ponderosa pine trees that surround the site and are scaled to match the trunks of the surrounding forest.

In addition, the original design is an outstanding example of the checking station building type, especially in the singular way it fused the island type and the covered entrance concept. The covered lane building type at the North Rim was unique to the Grand Canyon National Park until the construction of the South Rim entrance station in 1988. The canopy type entrance station was implemented by the Park Service in other parks, as at Yellowstone National Park. (See Appendix E, Figure 10) In the words of Albert H. Good:

The truly successful entranceway will be contrived to be the simple essence of the characteristic of the park to no resultant interference with the basic and material functions of ingress, egress, and barrier.¹⁵

The entrance station fills the essential requirements of monitoring entry and exit, while simultaneously, by its scale and original arrangement, acquainting the visitor with the architecture of the North Rim.

Evaluation Of Integrity / Condition

Integrity is the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Integrity involves several aspects including location, design, setting, materials, workmanship, feeling, and association. These aspects closely relate to the resource's significance and must be primarily intact for eligibility.

The location of the North Rim Entrance Station has remained unchanged since construction; the building sits in its original footprint and the forested natural environment is largely as it was at the time of construction; no other structures impinge on the building. However, the design no longer reflects the architect's original intention due to the highly detrimental removal of the buildings canopies. Negatively impacting the building aesthetically, functionally and practically, the canopies were cut back to eliminate the 8-foot height clearance to accommodate larger vehicles, recreational coaches, and buses. The most prominent feature of the building was removed and the setting ruined; other road conditions and excess signage have further damaged the site.

The building has been altered and materials adversely impacted, specifically with regard to the loss of the stone chimney and fireplace, loss of the canopies, loss of the wood-shingled roof in favor of corrugated metal, and loss of the character-defining protruding rafter ends. Consequently, the workmanship of the original structure has been compromised. The building is significant still for its association with the log cabin building type and for its role in the development of rustic park architecture.

Now, the building appears more like a rustic cabin and serves to introduce the visitor to the predominant building type of the North Rim, though that was not the original design intention. The small intimate scale is in keeping with the scale of tourist facilities at the North Rim, and striking contrast to the dramatic and expansive landscape that greets the visitor at the edge of the Canyon. The overall feeling at the North Rim is more relaxed and less crowded, smaller in scale, and less changed from the early days of tourism at the Grand Canyon. In materials, scale, and architectural expression, the entrance station serves as the perfect introduction to the North Rim, and is in alignment with its less commercial and more serene atmosphere.

The interior design has been compromised by the major repair campaign of the mid-1950s and by unsympathetic interventions over time. Some materials, such as the log rafter ends and decorative log work, an important character-defining feature of the building, have been thoughtlessly altered, changing the feeling and texture of the building. The quality of workmanship has not remained high during subsequent works. The present feeling of the building does not reflect the rustic character that the original design intended.

Although the North Rim Entrance Station is in sound structural condition, the exterior does not retain a high degree of integrity. Though the structure retains its association with important historic contexts, particularly with the development of rustic style architecture within the National Park Service, its current condition does not convey its original importance nor stature.

Period of Significance

The years 1928 through 1954 mark the period of significance for the North Rim Entrance Station. Designed and built in 1928 by the Park Service, construction was completed over the summer. The building continues to serve its intended original use as a checking station, but the changes wrought upon it in the 1950s, beginning with its modern interior update in 1954, terminating with the loss of the canopies sometime later, resulted in a grave loss of architectural integrity.

The North Rim Entrance Station is included on the NPS List of Classified Structures but was excluded from the National Register of Historic Places North Rim Historic District nomination because of a lack of structural integrity.

Character-Defining Features

The following paragraphs summarize significant building elements, contributing to the building's rustic character, both extant and lost. Many are typical elements that came to define NPS rustic park architecture and are taken from the surrounding landscape. The singular feature of the North Rim Entrance Station which most defined the building's imposing character was the set of projecting gabled wings or canopies that have been removed.

Exterior character-defining features: extant

- Single-story, wood-frame log cabin building type, of classic rustic design
- Chinking, extant but altered, overpainted
- Coursed rubble masonry foundation of native Kaibab limestone, now painted
- Exterior whole round log construction, horizontally laid
- Staggered overlapping log ends running north-south
- Position and orientation of the building on its site, at the crown of a knoll
- Roof covered in wood shingles, laid in courses, doubled every 6th course to add interest
- Extended rafters and deep eaves on the north and south elevations
- Wood-framed, casement windows

Exterior character-defining features: lost

- Projecting gabled wings or canopies which contributed to the singular and imposing character of the structure and functioned as a porte cochere
- Stone of the exterior foundation (obscured by finished grade)
- Gabled roof ends of the canopies
- Staggered overlapping log ends running east-west
- Chinking, originally light colored to contrast with horizontal logs, now over-painted so that the strong horizontals of the building have been eliminated
- Rough hewn supporting corner posts
- Coursed rubble masonry chimney

Interior character-defining features: extant

- Log siding (obscured by paneling) and roof framing, rafters
- Doors
- Window frames

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Interior character-defining features: lost

- Stone fireplace
- Celotex finishes with varnished or dark painted battens

Character-defining features of the site: extant

- Road configuration
- Island-type entrance station with curbing
- Flagpole

canopies diminished the sense of the building's purpose and stature and left it less protected from the elements. Changes in the road surface over time have had direct, usually negative, impacts on the entrance station, as the grade of the road has risen, obscuring the stone base.

Four inch high concrete curbing has replaced the original logs used to outline the diamond-shape of the island. Additional curbing, forming a dog-bone shape, outlines a raised area to the east of the building, separating the outbound traffic from a mini-rest area and informal parking spot. The island-divider, measuring approximately 200 feet in length, is grassy, but not landscaped or intentionally planted, just weedy over loose gravel, giving a rather neglected impression. The landscaping treatment of the divider could better contribute to the appearance of the site.

Chronology

- 1928 Construction completed over the summer months.
- 1935 Whole peeled logs used as curbing to form an island around the building and outline the lanes; flagpole installed; oil-mixed gravel road surface.
- 1939 Entrance sign installed at the park boundary.
- 1954-55 Entrance station rehabilitation, including interior alterations and upgrade:
- Removal of center partition wall, changing the building significantly in plan and from two rooms to one;
 - Removal of wood floor, fireplace and masonry chimney;
 - Installation of new cement floor;
 - Ceiling lowered, new rafters and gypsum ceiling installed;
 - New window installed in east elevation near south corner;
 - Finishes painted;
 - New sectional doors installed;
 - New wiring and electrical outlets installed;
 - Oil stove installed;
 - Metal stove pipe chimney installed; and,
 - Roof jack installed.
- 1954-64 Canopies removed.
Temporary pylons employed to direct traffic.
- 1973-83 Corrugated metal roof overlaid.

Undated Alterations

- Window in north elevation changed: two casements 2-over-3, one fixed, one operable, removed, single pane installed, set forward.
- Window opening created in east elevation.
- Log curbing replaced with concrete curbing.
- Sectional door replaced in east elevation with utilitarian door, probably in the 1990s.
- Antenna installed on the east elevation sometime in the 1990s.

V. PHYSICAL DESCRIPTION AND ANALYSIS

Site

The North Rim Entrance Station sits just inside the Grand Canyon National Park boundary on the North Entrance Road thirteen miles north of the edge of the North Rim, Bright Angel Point and the Grand Canyon Lodge. The building is sited intentionally atop the slight, wooded saddle separating Demotte Park from Little Park. The approach road from Jacob Lake to the entrance station and on to the North Rim covers long, undulating stretches and steep slopes with corresponding grades and curves over 40 miles. Several miles north of the entrance station, the road opens to a wide grassy meadow with a thick forest of trees along both edges. As the traveler crosses the meadow nearing the park, the length of road dips and rises, revealing the distant entrance station to the viewer in stages. Approaching the park boundary, the trees again close in upon the station to create a narrow portal to the park. Traffic is funneled through the entrance passage toward the south to another wide meadow, almost a mirror image of the meadow to the north. The building's elevated position on the crown of a knoll provides commanding views north and south across both meadows, allowing the ranger to see oncoming traffic. (See Appendix F, Figures 5 and 6.) From a distance the building's transparency is apparent as it is possible to see blue sky beckoning through the station's windows on the north and south sides. The transparency lends an interesting detail, but is not an original feature as the old stone fireplace stood in the center of the structure, blocking the view through the building. (See Appendix F, Figure 7.)

Both aesthetically and practically, it was designed as a well-considered arrival sequence that takes advantage of the natural topography, landscape, panoramic vistas, and dramatic foliage, to signal to visitors the importance of the place.

The lanes, integral to the building design, have been treated differently over time, as road surfaces changed. The first photographs of the building in 1929 show the lanes depressed along an elongated triangle of dirt which stretched out in front of each of the north and south elevations. Different curbing treatments have delineated the lozenge-shaped piece of ground on which the building is centered, emphasizing the axial arrangement between building and road. Over time the lanes have become more prominently defined, outlined by built-up ground, then logs, and finally by concrete curbs. Though the island extending out from the north and south elevations of the building looks as though it is a planting bed, it is actually a weedy gravel patch that looks a bit ragged, mostly due to deteriorated, crumbling concrete curbing.

Construction

The building is of typical hand-notched timber-framed log cabin construction over a stone foundation. It is well-crafted and constructed of whole hand-peeled logs separated by a mortar chinking. The roof framing is intact and visible from the interior above the dropped gypsum ceiling. Though somewhat

neglected and exhibiting signs of deferred maintenance, the building is structurally sound. The rafter loads support a considerable amount of snow load. The performance of the building over time testifies to a high level of craftsmanship.

Exterior General - Typical Features

The facades are comprised of:

- rough-hewn whole round logs of varying lengths, laid horizontally and overlapping at each of the buildings four corners;
- staggered log ends running north-south;
- rows of chinking in between the log courses;
- a pitched corrugated metal roof over wood shingles with extended rafters;
- symmetrical north and south facades with centered window openings and eaves;
- symmetrical east and west facades with off-center door openings;
- exposed log faces of the ridge log and purlin logs (2) on the east and west facades at attic level; these truncated structural elements formerly supported the extended canopies;
- operable wood sash mullioned casement windows; and,
- a masonry base less exposed than when constructed and covered with glossy brown paint that obscures the golden Kaibab limestone.

The four elevations of the entrance station are similar and for the most part share the typical features as explained above, except as noted below.

Exterior West (Front) Elevation Description

The west elevation exhibits most of the typical features as outlined above, with some exceptions. The facade has two original window openings. It is a mostly symmetrical facade with an off-center door opening and three exposed purlin log faces at attic level, and staggered log ends. The grade of the site slopes down slightly toward the north. Some of the original stone foundation is visible.

West Elevation Alterations

Because the canopies protected the east and west elevations and usually cast them in shade, historic photographs do not reveal the configuration of the elevation. The placement of the window openings are original, but the window on the southern side has been removed and replaced with plywood which is punctured by holes due to the wires connected to the electronic traffic sensor. The Dutch door is a replacement. The glass-fronted display box that serves as a notice board has been attached and a light fixture, painted brown, has been added over the door. Though stated above, it is important to reiterate the level to which the building's expression was disfigured by the removal of the faces of the log ends on the east and west facades.

West Elevation Condition

This elevation receives greater exposure to sun and the elements, consequently, larger amounts of chinking are missing than other elevations; peeling of the painted surface of logs is more severe, particularly at the lower level. On the south side of the west elevation at the upper level, gaps and missing chinking have left three distinct openings around the purlin log into the attic, though this condition does not appear to be problematic. There is no sign of water infiltration and the openings may be beneficial for attic ventilation.

The sloping grade, the rising road surface and the installation of concrete curbing all serve to obscure the building's masonry base, once a prominent character-defining feature.

A piece of the roof sheathing and fascia is missing at the northwest corner of the roof where cars have hit the building. The remaining material is damaged; corrugated metal is crumbled.

Exterior East (Rear) Elevation Description

Like the west elevation, the east elevation has two window openings and is mostly symmetrical with an off-center door opening and three exposed rafter faces at attic level. The window openings are not symmetrical. The building profile is distinguished by the staggered log ends, one of the significant character-defining features.

East Elevation Alterations

The widow opening on the south side of the elevation is not part of the original construction and is now infilled with a plywood panel in place of glazing. The solid door is a replacement.

East Elevation Condition

For the most part, the east elevation exhibits standard conditions consistent with the rest of the building. Here the chinking is mostly intact and in somewhat better condition than on other parts of the exterior, though overpainted. Some wood shingles beneath the metal sheathing are exposed where roof material is missing. A severe split in the second log from the bottom on the south side of the door, runs the length of the log and measures an inch in width; however, it is likely that the split has been present since construction. The log is stable and the elevation in good condition. Peeling painted surfaces are consistent with the rest of the building.

This side of the building suffers from an accumulation of attachments that have been affixed to the building: a transmission antenna, obsolete hardware, a utilitarian spotlight, painted brown, over the door, and a service box below the ridge log. The east elevation has been affected by a greater concentration of moth cocoons.

Exterior North (Side) Elevation

The north elevation exhibits the same typical features of the rest of the building, such as the rough-hewn logs and pitched metal roof. Because of the depth of the extended rafters and the northern exposure, this elevation is often in shade. The defining feature of this elevation is the transparency of the elevation through operable wood sash mullioned casement windows to the south side of the site. Little evidence is visible of the Kaibab limestone masonry base on this elevation.

North Elevation Alterations

A fixed single glass pane replaced one fixed and one operable casement window at an unknown date. The glass pane is set forward in the frame plane. Insulation has been used liberally to fill in holes and gaps. This elevation is marred by a number of electrical conduits, boxes and telephone equipment that has been affixed.

North Elevation Condition

The log condition is consistent with the standard where peeling is more prevalent closer to ground level, with the exception of a large gouge in the lower east corner. The roof condition is consistent with rest of building but the seam along the corrugated ridge cap is open.

Exterior South (Side) Elevation

The south elevation is similar to the other elevations. One deviation is the height of the ground level which totally conceals the limestone foundation.

South Elevation Alterations

The windows are operable and have been well maintained. New wood strips have been pieced in.

South Elevation Condition

The most severe example of log deterioration and rotting occurs at the southern elevation where the log nearest the ground is in poor shape. Snow drifts and sun exposure have had detrimental effects here. This elevation also suffers from the most serious loss of chinking and exposed wire mesh backing.

Roof Description

The roof is sheathed in corrugated metal. The gable of the roof runs east-west. Wood shingle ends of irregular lengths are visible below metal sheathing. The flue punctures the south side of metal roof. The roof has no vents or gutter system.

Roof Condition

The corrugated metal roof is weathered. The overcoat of brown paint is peeling and the metal is exposed in some areas. Seams of the sheathing are curling and nails are raised up, rusting and exposed. The scalloped roofing edge over the rafters is folded down in places. Wood shingle ends of irregular lengths are exhibiting splits and curling at the ends. The northwest corner metal roof is damaged where

vehicles have run into the structure; the metal is crinkled. The west elevation of the roof has a hole through the metal and the decking below is damaged where an antenna was punched through and later removed.

Interior Attic

The attic space exhibits the structural framing of exposed rafters and decking. The attic is laid with pink fiberglass insulation. Wood joists support a gypsum board ceiling. Based on photographic documentation, joists appear to be 2 x 6 minimum. They may be larger but are obscured by insulation. (See Appendix F, Figure 8.) The attic framing is structurally sound. Evidence of pieced-in new wood is visible. Although gaps around the purlin log have formed openings to the exterior, there is no sign of water infiltration.

Interior Description and Condition

Although the exterior of the entrance station is quite dilapidated and with pressing repair needs, the interior, by contrast, is in good condition, structurally sound and lacks signs of water infiltration. While the interior has not retained its historic appearance, it is functional, utilitarian, compactly organized, and spacious enough for one person to work efficiently. (See Appendix F, Figure 9.) The interior of the building is currently one open room, though the 1928 plan of the building (See Appendix E, Figure 11) shows that the interior was divided into two approximately equal rectangular rooms, an office and sleeping quarters. Windows on all four walls and one door on each of the west and east facades gives a very open feeling to the room. The building's location at the center of a traffic island lends to a feeling of airy lightness, as does its elevated position on the crown of a knoll.

Many original interior finishes and features have not survived previous building upgrades or are concealed by laminated wood paneling. The walls are covered in non-original paneling dating from a 1954 renovation, the same year the gypsum ceiling was installed. The hatch to the attic space above is removable and allows a view of the roof decking, framing, ridge pole, and rafters. Three ceiling mounted fluorescent panels light the interior. The floor is concrete with linoleum square floor tiles. The floor is level. A heavy-duty rubber mat stretches across the floor from door to door. Three inch wood baseboards line the room.

A key feature is the wood-burning stove located in the center of the room. It replaced a rustic stone fireplace, of rough hewn masonry, that stood in the same position. (See Appendix E, Figure 15 and Appendix F, Figure 10.) The stove sits on a 4 inch concrete base.

The room makes efficient use of limited space. In addition to the exterior boards and display boxes which provide visitor information when the building is unstaffed, the entrance station provides a range

of functions besides fee-taking and contains:

- an electric traffic counter with an exterior sensor
- an electric generator
- an electric cash register (soon to be replaced)
- a telephone
- desk space
- a 6 circuit electrical box
- a fire extinguisher
- a Simplex alarm system: a wall mounted box; window sensors; and, an emergency kick box below the cash register
- a safe in good working order
- an obsolete concrete encapsulated safe
- storage space for the printed materials (maps, park news, guides) distributed to every entrant
- space for chopping and storing wood
- amenities for employee comfort: a refrigerator; a microwave
- miscellaneous storage space in a tall metal cabinet

The building does not provide restroom facilities. A portable toilet located in the trees approximately 110 feet east of the entrance station serves both the public and park employees. The existing arrangement requires the fee collector to lock the entrance station to use the facilities, allowing vehicles to enter the park without being greeted and without paying the entrance fee.

The building does not have, nor has ever had, a running water connection.

Entrance sign

Designed and installed in 1939, the original sign introducing the Grand Canyon National Park is extant but has been recently altered. The sign sits at the actual boundary of the park, a short distance to the north of the checking station. The original 1939 panel has been retained and reused; it now hangs from a new horizontal beam resting on massive peeled whole log posts and is held with heavy metal straps with oversized rivets. The panel is painted brown (though was probably stained natural wood originally) with white painted lettering, and a scalloped edge around the perimeter. The lower left corner of the panel is cut back, contoured to follow the line of the masonry base below which, though extant, is partially obscured by the grade. Altered in the 1990s, the new design retains the original carved hanging sign but clunky new posts and unsympathetic landscaping make it less successful than the original. (See Appendix E, Figure 16.)

VI. CONDITIONS ASSESSMENT

Exterior Conservation Issues - Typical Problems

Exterior conditions and conservation problems are generally the same for each elevation. These include:

- deteriorated extended log rafters; rafter end deterioration and loss of wood material; splits are fairly uniform in length and width;
- weathering and peeling of painted surface of logs, particularly severe on the top half that is exposed to the sun;
- over-painting of all exterior surfaces (original light colored chinking, natural colored stained logs, natural splits in logs, and natural stone foundation) with glossy brown paint over white latex primer undercoat;
- masonry base of building has been over-painted; the natural stone at the base is now obscured as the road level has been raised over time;
- chinking missing, wire mesh backing exposed and in some areas overpainted;
- faces of the staggered log ends running east-west have been trimmed up to 24 inches to pull the logs back out of the line of cars in the roadway;
- cracking and splitting over lengths of whole logs; splits to a width of 2 inches maximum, uniform at all four facades;
- loss of log material at lower levels due to rotting, weathering, exposure to snow drifts;
- wide open gaps under gables, especially visible from inside attic space;
- water ingress is at ground level on the south elevation and at the thresholds of the doors;
- standing water pools near the building;
- peeling paint at window frames;
- excessive and obsolete wiring over all surfaces of the exterior of the building;
- window frames in fair to good repairable condition where new strips of wood have been pieced in, but window hardware is uniformly in need of replacement;
- organic growth; and,
- pest-related damage: wood eating beetles, cocooning moths, and porcupines.

Conservation Issues and Recommendations

The condition of the logs, removal of the canopies, and sawing off of the staggered ends does not appear to have affected the building's structure adversely. It is in good structural condition. Logs are plumb

and sound. For an area on a high plateau that is exposed to severe weather conditions, the building has withstood the elements very well and is in incredibly good condition. The area receives a heavy amount of snow. A typical weathering pattern occurs at the south side which has more sun damage but also melts the snow more quickly. The north side typically has 12 foot snow drifts that remain into the summer months.

Logs

The condition of hand-peeled whole round logs on the exterior is:

- overall splitting and cracking;
- some rotting at southern elevation;
- loss of material due to rotting, gouges;
- weathered, peeling paint, over-painting of building with glossy brown paint;
- rafter deterioration below the eaves; and,
- varying lengths of staggered east and west facing log ends sheared off to create a plumb and to accommodate passing traffic.

Log elements such as rafter tails, and extended brackets are showing severe deterioration. These elements should be replaced, in kind, with Ponderosa pine. As much as possible, deteriorated log ends should receive Dutchman repair instead of complete replacement. All log elements, both old and new, should be treated with a boracic preservative prior to painting to deter future biological growth.

The natural texture of the logs, exhibiting seams and splits running the length of the logs, has been a feature since construction. Over time gaps occur due to log shrinkage. Splits in the logs do not necessarily indicate that they should be replaced. An exception is at ground level where some number of the logs may be in need replacement. (See Appendix F, Figures 11 and 12.)

Maintenance

There are two protracted problems due to maintenance:

- coats of glossy brown paint over a rubbery white primer undercoat over all exterior surface, including, original light colored chinking, natural colored stained logs, natural splits in logs, and natural stone foundation; and,
- staggered log ends running east-west have been trimmed up to 24 inches to pull the logs back out of the line of cars in the roadway, negatively impacting a character-defining feature. (See Appendix F, Figures 13 and 14.)

Paint

The use of brown paint, characterized as "Wosky brown" and named for John B. Wosky, assistant to Thomas Vint in the landscape Division during the 20s and 30s, has been preferred as a device to assist designers with the NPS goal of harmonizing structures with the natural surroundings. This paint has been used extensively throughout the park system and is the color at the North Rim Entrance Station.

Chinking

Chinking generally refers to the mortar material between the logs in typical log construction. At the North Rim Entrance Station, the chinking deterioration is extensive. The wire mesh is exposed and visible, courses of material are missing, and there has been over-painting with glossy brown paint.

Windows

The windows are operable. Some windows exhibit repair in the form of new strips of wood pieced in. The windows should have their delaminating and flaking paint surfaces sanded and scraped. All sash and frames should be repainted and repaired to operable condition. The installation of double-glazing and weather-stripping or whether to retain single glazing should be considered.

Foundation

There should be re-grading to expose the original stone foundation and the cleaning of exterior stonework with a restoration cleaner to remove paint, biological growth and efflorescence. The concrete curbing around the island is deteriorated and broken, and in need of replacement.

Roof

The corrugated metal roof has been nailed over the wood shingles and decking. The corrugated metal roof is in a weathered condition. The metal was previously painted brown and this painted surface has worn off in spots. Holes in the metal sheeting have been made for a previous antenna which has now been removed. Some gaps and openings between seams are visible. The seams are curling. The shingle ends below the metal sheathing are split, curled and weathered. The metal edge of the sheathing forms an overhang, but this has been folded down in places. Rusted nails are loose and poking up through the metal sheathing. A stove pipe rises through the roof and sheathing. The northwest corner of the roof is mangled from vehicle damage. Surprisingly, the roof does not leak water into the building. There are no signs of water infiltration on the underside of the roof. The roof is in need of replacement. (See Appendix F, Figure 15.)

Entrance Sign

The original sign introducing the Grand Canyon National Park is extant but has been altered. The

entrance sign incorporates elements from the original. Its 1939 panel has been retained and reused but is over-painted with glossy brown paint. The lower left corner of the panel is cut back, contoured to follow the line of the masonry base below which is no longer extant. The entrance sign should be re-designed to replace the out-of-scale log posts and restore the masonry base. The original panel should be retained, but excess paint should be removed, the panel sanded, scraped and repainted.

VII. TREATMENT AND USE

Ultimate Treatment and Use

This narrative discusses and analyzes the ultimate treatment and use of the structure as defined by the Grand Canyon National Park. Recommended treatment in general is to preserve the extant historic materials and features, but not to arbitrarily restore missing features unless they are highly characteristic and in need of treatment for other reasons, such as severe deterioration. Any proposed rehabilitation associated with new use will be carefully considered so that existing character-defining features of the site and buildings are maintained.

From its construction in 1928 to the present day, the North Rim Entrance Station has continuously served as a gateway to the park. Once part of a grand entry sequence to the park, the building has suffered from alterations and deferred maintenance which have lessened the entrance experience. The most significant loss is that of the canopies, which were removed in response to the increasing height of vehicles entering the park. The North Rim Entrance Station also fails to provide a safe working environment for employees. Additionally, long lines of cars frequently form in the single entry lane, and no by-pass lane is provided for park employees. Few amenities are provided for visitors entering the park when the station is closed.

It is desired that the building remain in use as a checking station. However, program and safety deficiencies must be addressed. The building must also be able to accommodate any future growth in the number of visitors to the park. Finally, the building and site should once again make a grand entry statement, befitting the magnificence of the canyon beyond.

Functional Deficiencies of the Site and Programmatic Requirements

Although this building retains its original function and has been in continuous use as an entrance station since 1928, it is deficient in a variety of ways:

- **Ranger Safety/Security**

Rangers are required to step directly into the roadway to exit the building, creating a safety hazard. Rangers also step into the roadway during many visitor transactions. Other security concerns are: a building staffed by one employee; the isolated location of the station thirteen miles from the Rim; the storage of daily fees, as much as \$6000; and an insufficient alarm system without cameras.

- **Vehicle Safety**

Drivers often approach the entranceway at too great a speed. Consequently, there is a need to slow traffic as it approaches the building and to keep fast-moving traffic away from building. Other

attempts to slow traffic have included: rumble strips, grooves cut in the asphalt, and temporary orange construction pylons.

- Appearance

Neither the entrance station nor the visitor orientation sign convey the appropriate NPS image. The elements that detract from an improved appearance of the park entrance are: re-designed historic entrance sign and adjacent unlandscaped pullouts; cattle guard; rising grade of the roadway around building, concealing stone foundation on all elevations; dilapidated flagpole; battered boundary fence; insufficient entrance gate; excessive road signs; and an uneven road surface.

- Circulation

Both pedestrian and vehicle circulation are poor. Visitors who arrive after the station is closed often stop to pay fees and pick up information such as maps. The only place to stop and park is the pull over area east of the building, which is difficult to reach from the entry lane. These visitors must cross the high speed traffic exit lane to access maps at the entrance station. The single entry lane also causes traffic problems. Park employees and service vehicles are often must wait in lines that form at the entry station.

- Grading and Drainage

The grade level has risen over time. Consequently, the site now slopes down at the doors to meet the building floor level, causing water to pool at the doors and enter the building. In addition, the grade has risen to the level of the logs, obscuring most of the stone foundation. These logs are more vulnerable to water damage.

- Amenities for visitors and convenience

As noted above, many visitors enter the park after the entry station is closed. There is no dedicated display area for information for these visitors. Also, work is underway on the Arizona Trail, which will bring hiking, biking, and horse riding visitors to the park. The trail will intersect the park near the entrance station. The trail users will also need to stop to pay entrance fees and obtain park information. There are no amenities for these trail users. Overall, the site lacks area lighting.

- Interior Deficiencies

The interior of the building does not provide the following: sufficient storage for paper guides, maps and newspapers (currently stored on pallets creating a fire hazard); running water; a sink; ventilation and protection from idling car fumes; a small refrigerator, a microwave; a permanent back-up power generator; and, a wood storage area.

Recommendations Regarding Programmatic Improvements

- Recommendations for improved ranger safety/security

Alter configuration of the island curbing, creating lanes so rangers do not step directly into the roadway to exit the building; provide a lean-out window at the entry side for visitor transactions so that rangers do not have to step into the roadway; improve alarm system; add security cameras; and initiate a non-architectural solution for retrieving moneys from the building several times a day.

- Recommendations for vehicle safety

Slow traffic and keep fast-moving traffic away from building by creating a more prominent entrance, elongating the lines of the curbed island in plan, and adding speed bumps.

- Recommendations for improved appearance

Rehabilitate entrance station and the visitor orientation sign; restore the historic entrance sign and landscape or better delineate adjacent pullouts; move cattle guard; improve landscaping; improve the curbing outlining the island; re-grade around building, exposing stone foundation on all elevations in keeping with original appearance; re-pave and realign the roadway and parking areas; upgrade flagpole; repair boundary fence; improve entrance gate; study and implement improvements for road signs.

- Recommendations for improved circulation

Provide a dedicated information area for late arrivals, located at the curbed island of the building or east of the entry lane; provide a pull over lane adjacent to this area so that pedestrians do not cross traffic lanes; create a by-pass or express lane for park employees and service vehicles.

- Recommendations for improved grading and drainage

Re-grade site to drain water away from entry doors and expose stone foundations.

- Recommendations for amenities for visitors and convenience

Provide an information plaza area; replace portable toilet with a public accessible vault toilet; install bike racks and horse rails for users of the Arizona Trail; install area lighting.

• Recommendations for interior deficiencies

Provide the following: sufficient storage for printed materials, either within the building or off-site; ventilation and protection from idling car fumes; a permanent back-up power generator; a sink with running water supplied by a well and vertical pump; a small refrigerator, a microwave; and a wood storage closet within the building or at a covered outdoor area adjacent to the building.

General Rehabilitation Recommendations

The NPS List of Classified Structures form for the North Rim Entrance Station states that the structure should be preserved and maintained. General rehabilitation of the structure should be carried out regardless of which of the five options outlined below are ultimately implemented. Exterior rehabilitation should be undertaken to restore all of the damaged exterior surfaces that contribute to and define the building's historic character. Exterior elements that detract from the historic character should be removed and replaced with features more in keeping with the original design, as evidenced by historic drawings and photographs. Other exterior work should be limited to maintenance and replacement, in kind, of deteriorated historic fabric. This work has been outlined more specifically in Section VI "Conditions Assessment." General rehabilitation should include:

- re-grade the site for improved lane configuration and to expose the stone foundation of the building
- repair log exterior
- restore chinking, replicate original light color to assert strong horizontals of the original design
- remove doors and replace with doors that complement the design of the building
- repair and repaint windows
- window hardware should be rehabilitated and windows that are painted shut should be unstuck
- replace picture window at north elevation with casement windows to match original design
- remove corrugated sheet metal roofing and deteriorated original wood shingles; replace with fire-treated wood shingles in same pattern as originals
- remove the transmission antenna from the building and relocate in tree line adjacent to the building; the antenna should be painted to blend with the tree line
- interior upgrade, including removal of the wall paneling and refinishing of the concrete floor

Additional measures needed to make the structure comply with current building codes are described under "Requirements for Treatment" below.

Requirements for Treatment

In concise terms, this text outlines applicable laws, regulations, and functional requirements. Specific attention should be given to issues of human safety, fire protection, energy conservation, abatement of hazardous materials, handicapped accessibility, and historic preservation.

The rehabilitation shall conform to NPS cultural policies and guidelines. It will be reviewed for compliance with the GMP, NEPA, Section 106 of the NHPS, and all applicable codes and standards required by law and NPS policy. The building codes used for analysis include the 1997 Uniform Building Code (UBC), 1997 Uniform Code for Building Conservation, and Uniform Federal Accessibility Standards.

The treatments recommended in this report will have effects on the cultural resource; however, it is intended that the treatments will result in benefits giving a higher level of resource preservation than is now provided. Some proposed work will include actions that could be considered to have negative effects. One of the most important design criteria, however, is that the modifications be designed to minimize these effects, both physically and visually. Those negative effects will be mitigated by providing an improved environment for the building preservation and the safety of the users. Further evaluation will be necessary when the recommendations are developed to a level of design detail specific enough to definitively identify particular building fabric impacts.

Human Safety (Egress)

Neither the east nor west door provides the required exiting width and height. At least one door should be made wider to meet code requirements. If the building is deemed eligible for a cultural inventory and meets the qualifications for a historic structure as defined by the code, the existing door height can remain. As the building has a low occupant load and the door is just 4" short of the height requirements, this is the most desirable solution. It will maintain the door head alignment with adjacent window head heights. (For further discussion, refer to the code analysis in Appendix C.)

Fire Protection

The building is not protected by an automatic sprinkler system; however, it is equipped with wall mounted fire extinguishers. The installation of a sprinkler system is not required by code. NPS Director's Orders 50B and 58 require buildings undergoing renovation to be equipped with an automatic fire sprinkler system, unless the cost of the system exceeds 20% of the total renovation cost. The intent is to protect both the historic structure and human life.

There is currently no water supply to the building. A sprinkler system could be installed with a storage tank and pump for distribution; however, this solution may be cost prohibitive. Another option for a remote location is a pressurized tank with freeze protection additives. Although these tanks are relatively small, location and maintenance in the small, seasonably occupied structure may still pose a problem. If a sink is installed in the building, it is possible to tap into the sink's supply line with a NFPA 13D sys-

tem; but this will not provide any protection during the winter months when the water supply is shut off. The sprinkler system will merit further research in the design development stages of the project. Due to the remote location, the building may qualify for an exemption from Director's Order 50B for "extremely impractical conditions." In this case, wall mounted fire extinguishers could continue to be used for fire protection. Adding smoke detectors would provide additional fire protection.

Energy Conservation

The building was originally heated by a centrally located rustic stone fireplace. The fireplace was replaced by a wood burning stove with a sheet metal flue. The wood burning stove provides more than adequate heat for the building. When park employees do not wish to tend the fire, portable electric space heaters provide alternate means of heat. GMP policy calls for the elimination of wood stoves and fireplaces in the park due to their polluting effects, except where the ambiance is part of the historic character of the structure. Although the wood burning stove is not original, it marks the location of the original fireplace. Park officials have determined that the structure would be eligible for an exemption from the policy, and the stove can continue to provide the main source of heat. Electric heating elements should also remain as alternate heat sources, although they should be wall mounted to eliminate tripping hazards. If an air handling unit is installed for better ventilation (see discussion in below paragraph), this unit could provide alternate heat rather than the electric heaters. Insulation is visible in the attic space, preventing heat loss in the winter and heat gain in the summer.

The existing windows are single-glazed and are not weather-stripped. Although the building is closed during the winter months, more energy efficient windows would be useful in both spring and autumn. There are several options. The existing sashes could be double glazed, although this will change the appearance of the windows. Special attention must also be given to the ability of the sash to carry the weight of additional glazing. The installation of storm sashes is another possibility. These options should be studied during design development. In any case, the windows should be weather-stripped. Summer cooling does not seem to pose a problem. Window coverings and plywood panels provide shade. These panels should be removed and replaced with blinds or shades. Treatment alternatives that call for the reinstatement of the canopies will provide additional shading. The doors and casement windows provide the only means of ventilation. Many of the sashes are painted shut and should be made operable. However, opening these windows will not solve the ventilation problem. Exhaust from idling cars often pollutes the indoor air. A small air handling unit with a carbon filter would eliminate fumes and pressurize the building. The unit could be placed in the attic space or adjacent to the building at grade. The unit could also provide cooling or additional heating if desired.

In general the utilities are aged and in need of replacement. The current electrical service is provided by underground conduits by APS at 120/240V, 1-phase, 3-wire. The existing service capacity is adequate

for the existing structure. However, the load capacity will need to be reviewed when the air conditioning and other loads are more fully established or if a treatment alternative proposing expansion is pursued. The structure falls outside of the area covered by the park's backup generator. Thus, during the frequent power outages, the structure must rely on its own portable generator. There is a considerable amount of down time during the set up of this generator, which hampers security and interrupts fee collections. This portable unit should be replaced with a permanent back-up generator, located near the building. All light fixtures should be replaced with new energy efficient lighting systems where possible. The telephone system should also be upgraded.

Abatement of Hazardous Materials

Asbestos-based elements and lead based paints are most likely found throughout the interior and exterior of the building. A Level I HAZMAT testing program is recommended for the entire building. All existing magnetic ballasts should be assumed to contain PCBs and disposed of in accordance with all applicable rules and regulations.

Accessibility

In addition to the noted governing codes, NPS Director's Order 28 (release 5, 1997) requires all historic structures to be made accessible to the highest degree for visitors and employees. To meet accessibility requirements, a paved, accessible path of travel shall be provided from the adjacent parking area to the building entry. This path shall include level paving at accessible entry doors. Accessible entry doors shall have a clear width of 32". In the current configuration, the east and west doors provide a clear width of 29.5". One door should be widened to meet requirements; this is also necessary to meet safety requirements noted above. In most treatment alternatives, it is preferable to widen the east door, as the west door will be modified for a lean-out transaction window. The east door is also closer to the parking area and portable toilet. Some treatment alternatives call for a considerable lowering of the grade. In these cases, access will need to be provided via a ramp and a new door at the south elevation.

A non-accessible portable toilet is located on the site, northeast of the entrance station. The toilet should be replaced with an accessible vault toilet in the same location, reached via a paved path. Space limitations and the cost of providing plumbing and sewer service to the building exclude a toilet room within the building. However, park employees have expressed an interest in providing a sink within the entrance station. If a sink is provided, it should meet all accessibility requirements. Employee work areas should also be made accessible. The existing cash register station currently exceeds height limitations. The existing station should be modified or a new work station provided. Finally, many of the treatment alternatives call for a lean-out transaction window. The design of this window should comply with all ADA guidelines.

Many of the treatment alternatives provide an information plaza. The design of the plaza should conform with ADA guidelines for paving, seating, and signage.

Refer to the code analysis located in Appendix C for further discussion of these issues.

Other

The building is currently equipped with Simplex 3001 security system. The system appears to be in good working order and can be reused. It can also be extended to cover areas of new expansion. If desired, security cameras can be added.

A plywood panel covers a casement window at the west elevation. This panel provides privacy and security at the desk and safe where money is counted and stored. All treatment alternatives call for the removal of this panel. Security should be maintained with a window covering. Several of the treatment alternatives provide a separate areas for fee handling and storage. The design of these areas should be sensitive to the security needs of the task at hand.

Alternatives for Treatment

This section presents and evaluates alternative approaches to realization of the ultimate treatment. Alternatives are presented in both text and graphic form. (See Drawings at Appendix B.) Analysis addresses the adequacy of each solution in terms of impact on historic materials, effect on historic character, compliance with National Park Service policy, and other management objectives. The section concludes with elaboration on the recommended course of action.

A range of treatment alternatives have been studied for the North Rim Entrance Station and are presented below, listed by degree of intervention, beginning with the least involved or invasive treatment. The five treatment alternatives are as follows:

A. Preservation of Existing Structure, Partial Rehabilitation + Minimal Intervention (no drawings presented)

This option principally addresses the dilapidated condition of the existing structure and calls for the rehabilitation of the structure to preserve the building's remaining physical integrity and return the park entrance to a presentable state for maximum functionality at the lowest cost. It does not address returning the structure to its historic appearance which is a priority for the NPS building users. Alternative A proposes:

- *upgrading the exterior of the structure, leaving the interior as is:*
 - re-grading the roadway to improve drainage, expose and conserve the stone foundation and restore the foundation in keeping with original appearance;
 - carrying out sitework to improve traffic circulation and minimize road signage;
 - incorporating a by-pass lane for employees and vendors to be controlled by an electronic gate;
 - replacing Dutch door with lean-out window in existing doorway for improved ranger safety; and,
 - no significant change to design or orientation of building.

Alternative A achieves the following:

- partially improves safety for rangers by use of lean-out window;
- retains existing historic fabric of the building as is;
- minimizes wait time for users of by-pass lane;
- improves drainage; and,
- maintains economical cost but does little to improve functionality.

B. Canopy Restoration, Structure Rehabilitation + Gatehouse Addition (see Drawing titled Alt. B)

This option comes closest to capturing the most accurate historic configuration, appearance, and expression of the original canopy superstructure, while improving the entire experience of the park entrance, addressing the dilapidated condition of the existing structure, and providing greater safety, visitor amenities, and future flexibility. Alternative B proposes:

- restoring the canopy to its original footprint and appearance;
- rehabilitating the exterior of the structure;
- adding a new element in the form of the gatehouse for functionality and ranger safety;
- expanding the configuration of the island for safety while creating space for a covered information plaza;
- re-using the existing traffic lanes as a gated, gravel-paved buffer between roadway and structure;
- incorporating a by-pass lane for employees and vendors to be controlled by an electronic gate; and,
- re-grading the roadway to improve drainage, expose and conserve the stone foundation and restore the foundation in keeping with original appearance.

Alternative B achieves the following:

- improves the aesthetic experience of the North Rim;
- reinstates the historic footprint of the canopy in plan;
- improves ranger safety as doors open into car-free zone;
- improves security and safekeeping for moneys by storing money in a locked area separate from the transaction area;
- new gatehouse element design minimizes intrusive impact on overall scheme;
- improves circulation and minimizes wait time for users of by-pass lane;
- increases interior space and storage capabilities;
- expands landscaped car-free exterior space for ranger activities, i.e. woodchopping;
- gains a sense of the original design with the canopy;
- allows for future flexibility and potential for additional lane and additional gatehouse;
- facilitates air in-take system, concealed in canopy roof structure;
- achieves a larger presence for the building to slow traffic and announce the park;
- retains the existing historic fabric of the building;
- improves drainage; and,
- improves weather and sun protection.

C. Modified Reinstatement of Canopy, Rehabilitation of Structure + Dropped Roadway (see Drawings Alt. C1 and Alt. C2)

This alternative goes the farthest to retain the original checking station function within the 1928 structure, but requires a more invasive treatment of the building, roadway, and reinstated canopies to do so. The impracticality of the depth of the road level, poor accessibility to roadway requiring steps from the existing floor level inside the ranger station, and deeper foundations to support higher base and re-grading of site make this the least workable of treatments. In addition, Alternative C1 would require altering the window on the southern elevation to create a door for safety and accessibility.

Alternative C1 proposes:

- restoring the canopy to its original footprint;
- rehabilitating the exterior of the structure;
- further lowering existing road level around the building more than other alternatives, not simply to re-grade the roadway to improve drainage and to expose and conserve the stone foundation, but to create a canopy clearance of 14 feet for all vehicles passing beneath the canopy;
- incorporating a by-pass lane for employees and vendors to be controlled by an electronic gate; and,
- replacing Dutch door of existing building with lean-out window.

Alternative C2 proposes:

- the above and,
- expanding the configuration of the island for safety by re-using the existing exit lane as a gated, gravel-paved buffer between roadway and structure and dropping the level of the roadway only on the in-bound entry lane.

Alternative C1 achieves the following:

- restores footprint of canopy but not appearance, configuration, expression or proportion;
- provides maximum clearance in one covered lane;
- retains functionality of the original building while accommodating vehicles of all heights in one lane
- improves ranger safety;
- improves circulation and minimizes wait time for users of by-pass lane;
- improves weather and sun protection;
- facilitates air in-take, concealed in canopy roof structure; and,

- retains the existing historic fabric of the building.

Alternative C2 achieves the following:

- the same as C1 and,
- makes exit lane a gated, gravel-paved buffer between roadway and structure;
- further improves ranger safety as door opens into car-free zone; and,
- expands car-free zone exterior space for ranger activities, i.e. woodchopping.

D. Inversion Scheme - Rehabilitation of Existing Structure + Addition (see Drawing titled Alt. D)

This treatment refers to the philosophy of the original design to construct a building across the portal of the park while 'inverting' the original design and doubling interior space. The scheme seeks to improve the park entrance with an innovative solution that defers to the 1928 structure and intent, while adding interior space, providing greater safety, and visitor amenities. Alternative D proposes:

- retaining the building in its original site;
- constructing new building, replicating massing and proportions but not historic appearance;
- restoring historic footprint of canopy to cover existing building and new, without re-creating historic expression;
- incorporating a by-pass lane for employees and vendors to be controlled by an electronic gate;
- replacing Dutch door of existing building with lean-out window;
- expanding the configuration of the island while creating space for a covered information plaza; and,
- re-grading the roadway to improve drainage, expose and conserve the stone foundation and restore the foundation in keeping with original appearance.

Alternative D achieves the following:

- a sense of massing and presence of the original by inverting the original form;
- a gateway feeling;
- improves safety;
- improves security and safekeeping for moneys by storing money in a locked area separate from the transaction area;
- doubles interior space, allowing enough space for accessible toilet inside new building, if desired;
- expands exterior space for ranger activities, i.e. woodchopping;
- creates a covered area that can be used as an information plaza and for visitor amenities; and,
- improves weather and sun protection.

E. Re-Cycle Scheme: Building Re-Use + Construction of New Entrance Station (no drawings presented)

This treatment calls for the removal of the 1928 North Rim Entrance Station out of its original location to another area within the boundaries of the entrance site. The 1928 structure would be re-sited and re-used to achieve another function at the entrance of the park, such as storage, contact point, information distribution center, rest stop or pedestrian walk-up station for the Arizona Trail. Removal of the existing structure would free the prominent site on the slight saddle separating VT and Little Parks from the constraints presented by the existing building and allow maximum flexibility for the construction of a new park entrance that is more vehicle friendly. Though wholly detrimental to the physical and historic integrity of the 1928 entranceway (moving a building usually implies the loss of more historic fabric than when rehabilitating it in place) and in conflict with NPS goals for retaining buildings on the List of Classified Structures, Alternative E allows for maximum freedom for new construction and presents the opportunity to re-design a new station with all amenities. The most negative aspect of this alternative is the loss of the building's site context, one of its most significant character-defining features. Alternative E proposes:

- removing the building from original site for another use;
- rehabilitating existing building extensively, including roof replacement, foundation work;
- constructing a new entrance station; and,
- extensive sitework and traffic flow re-design.

Alternative E achieves the following:

- allows maximum freedom for incorporating all requirements;
- retains some historic fabric but makes compromises;
- improves appearance of the entranceway and portal to park;
- improves ranger safety; and,
- improves security and safekeeping for moneys.

Additional Space to Use in Conjunction with Any Alternative

Another option for providing additional storage space for the entrance station is to move excess materials off site and out of the building. Building 122A, a garage ancillary to the employee residence (Building 122) is located approximately 440 feet to the east of the entrance station. While the building appears to be used by the employees who reside nearby, it does seem somewhat underutilized. Though in need of rehabilitation and water-proofing, the building could provide additional storage space for printed materials, pallets, etc. (See Appendix F, Figure 16).

Preferred Alternative

Alternative B, "Canopy Restoration, Structure Rehabilitation + Gatehouse Addition," is the preferred treatment alternative because it most closely captures the original design of the structure while correcting functional and safety deficiencies. These reasons are for this are explained below:

- The scheme most closely captures the structure's original design.

While the proposed scheme does not allow the building to function exactly like the original, as vehicles would not pass under the covered roof area, the reinstatement of the canopies captures the original expression, footprint, and appearance. The scheme improves the aesthetic experience of the North Rim entrance. A negative aspect is that the ranger does not perform duties in the building at all times, in the same way that it has historically been done.

- The design improves ranger safety.

The building entry is covered entry and rangers do not step into the roadway to exit the building, rather into a car-free zone. The design of the new gatehouse would be arranged so that ranger does not have to step outside for visitor transactions. Money can be kept in a secure area outside of cash register area.

- The design provides ranger amenities.

The scheme provides more space for kitchen area and sink, storage of paper goods. Wood can be chopped outside under canopies and stored. The canopies serve to shelter both entries. Other park employees can enter through the by-pass lane. The design facilitates a clean air in-take system, concealed in the roof structure.

- The design provides visitor amenities.

The new information plaza is easily accessible from the pull-over lane.

- The design is easily adaptable for future expansion and flexibility by adding further entrance lanes and a potential for an additional gatehouse on the west side of the structure.
- The design of the gatehouse pleasing, compatible with the original, and is totally in keeping with the design objectives of the Park Service since its inception.

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IX. ENDNOTES

- 1 Director's Order 28.
- 2 Information on the native inhabitants of the Canyon is summarized from Michael F. Anderson's *Living on the Edge*.
- 3 Information on Spanish exploration of the Canyon is summarized from Michael F. Anderson's *Living on the Edge*.
- 4 Information on North Rim development at the Canyon is summarized from Michael F. Anderson's *Living on the Edge*.
- 5 Tweed, Wm. C., Soulliere, Laura E., and Law, Henry G., *National Park Service Rustic Architecture: 1916-1942*, NPS Western Regional Office, 1977. p. 23.
- 6 *ibid.*
- 7 McClelland, Linda Flint, *Building the National Parks*, p. 11.
- 8 VT Park, referred to on some maps as Demotte Park, abuts the northernmost boundary of the Grand Canyon National Park at the North Rim. Michael F. Anderson, author of *Living at the Edge*, notes that most sources agree that VT stood for Valley Tan or Valley Tannery, a brand or distinguished trademark for skins prepared by the United Order of Orderville tannery in Long Valley, Utah, affiliated with the Mormon Church.
- 9 McClelland. p. 150.
- 10 Good. p. 9.
- 11 *ibid.*
- 12 McClelland. p. 246.
- 13 *ibid.*
- 14 McClelland. p. 247.
- 15 Good, p. 9.

X. APPENDICES

Appendix A. Existing Conditions Drawings of Site Plan and Elevations by Architectural Resources Group, dated April 13, 2001.

Appendix B. Alternative Treatment Drawings Illustrating Site Plans, Plans and Elevations by Architectural Resources Group, dated April 13, 2001.

Appendix C. Code Analysis.

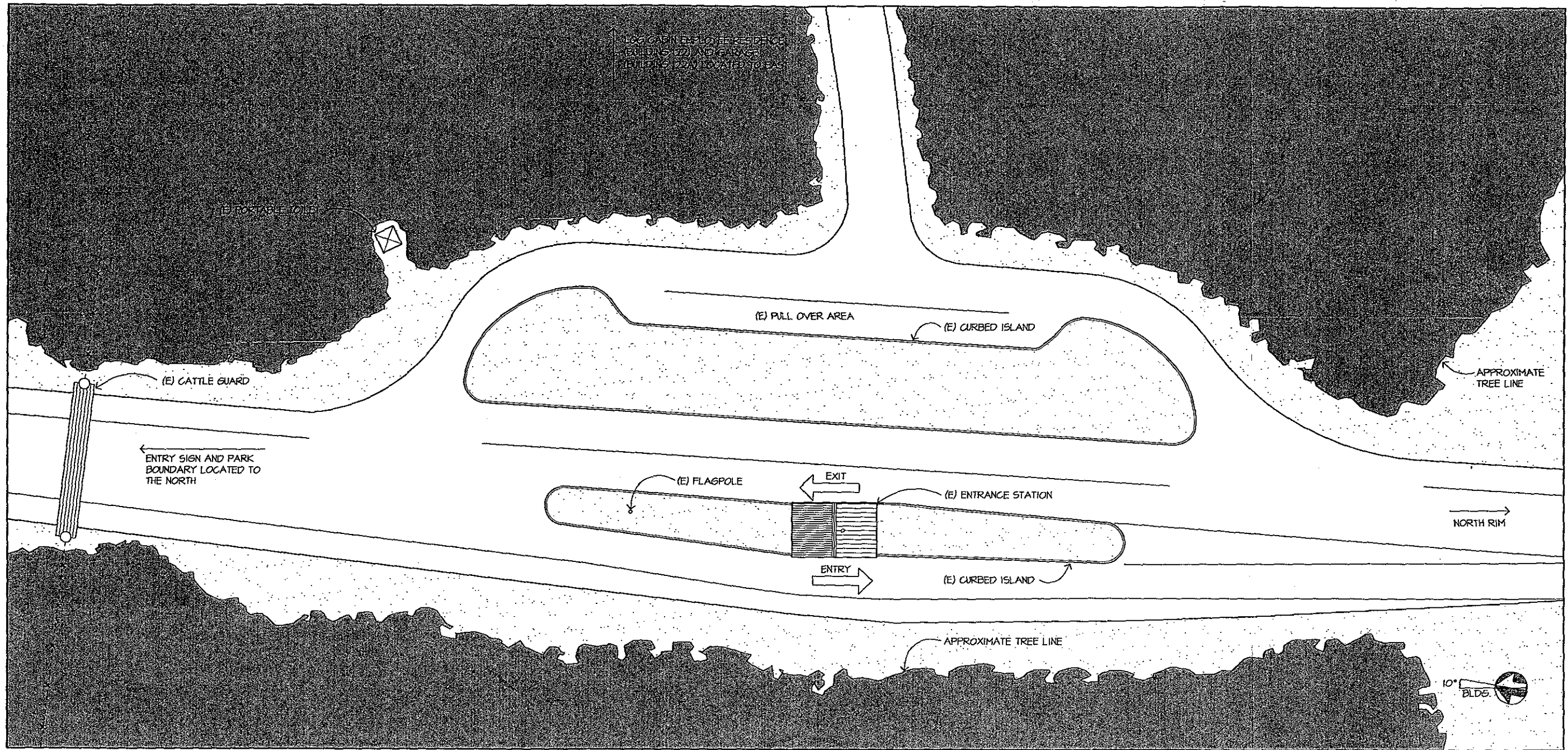
Appendix D. NPS LCS Form for North Rim Entrance Station

Appendix E. Historic Photographs in Chronological Order.

Appendix F. Photographs of Existing Conditions.

Appendix G. Consultant Reports.

Appendix A. Existing Conditions Drawings of Site Plan and Elevations by
Architectural Resources Group, dated April 13, 2001.

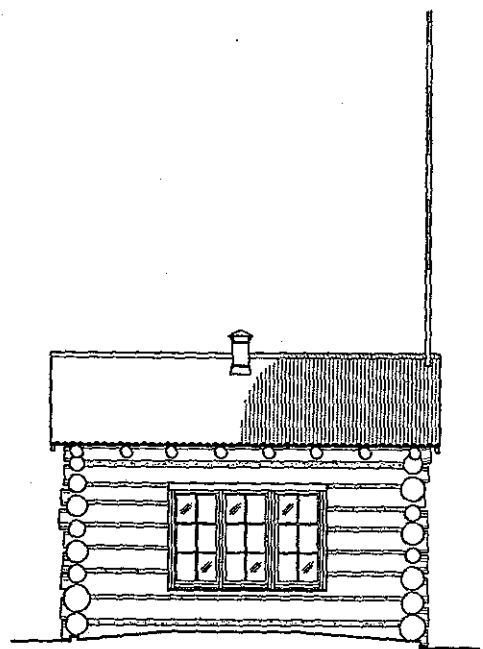


EXISTING CONDITIONS - SITE PLAN ①

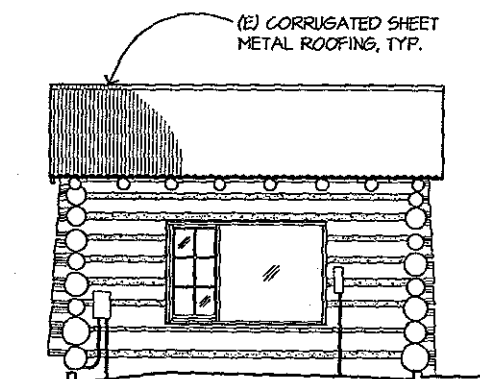
ARCHITECTURAL RESOURCES GROUP



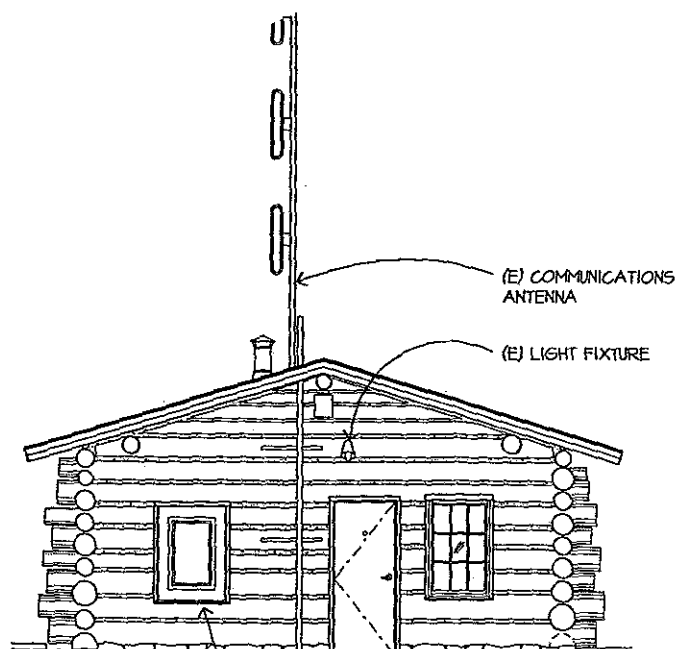
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DATE: 13 APRIL 01		GRAND CANYON NATIONAL PARK	OF ---



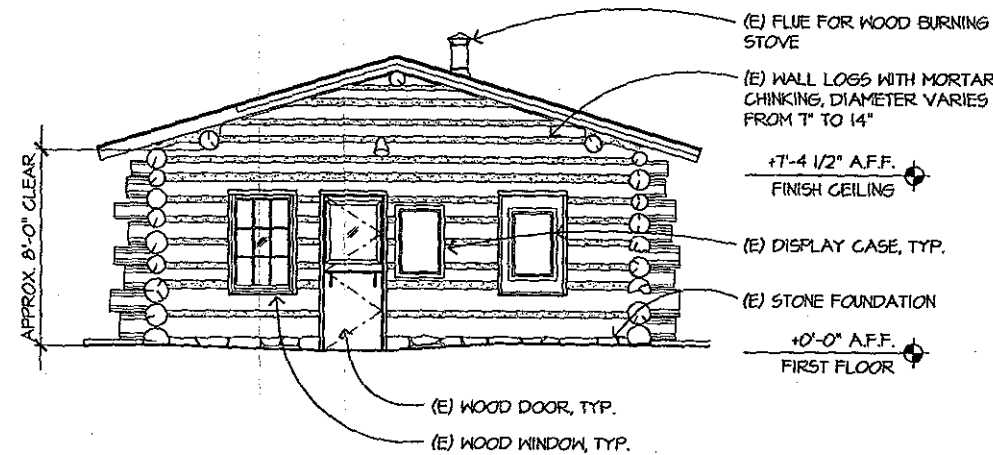
EXISTING CONDITIONS
SOUTH ELEVATION ⑥



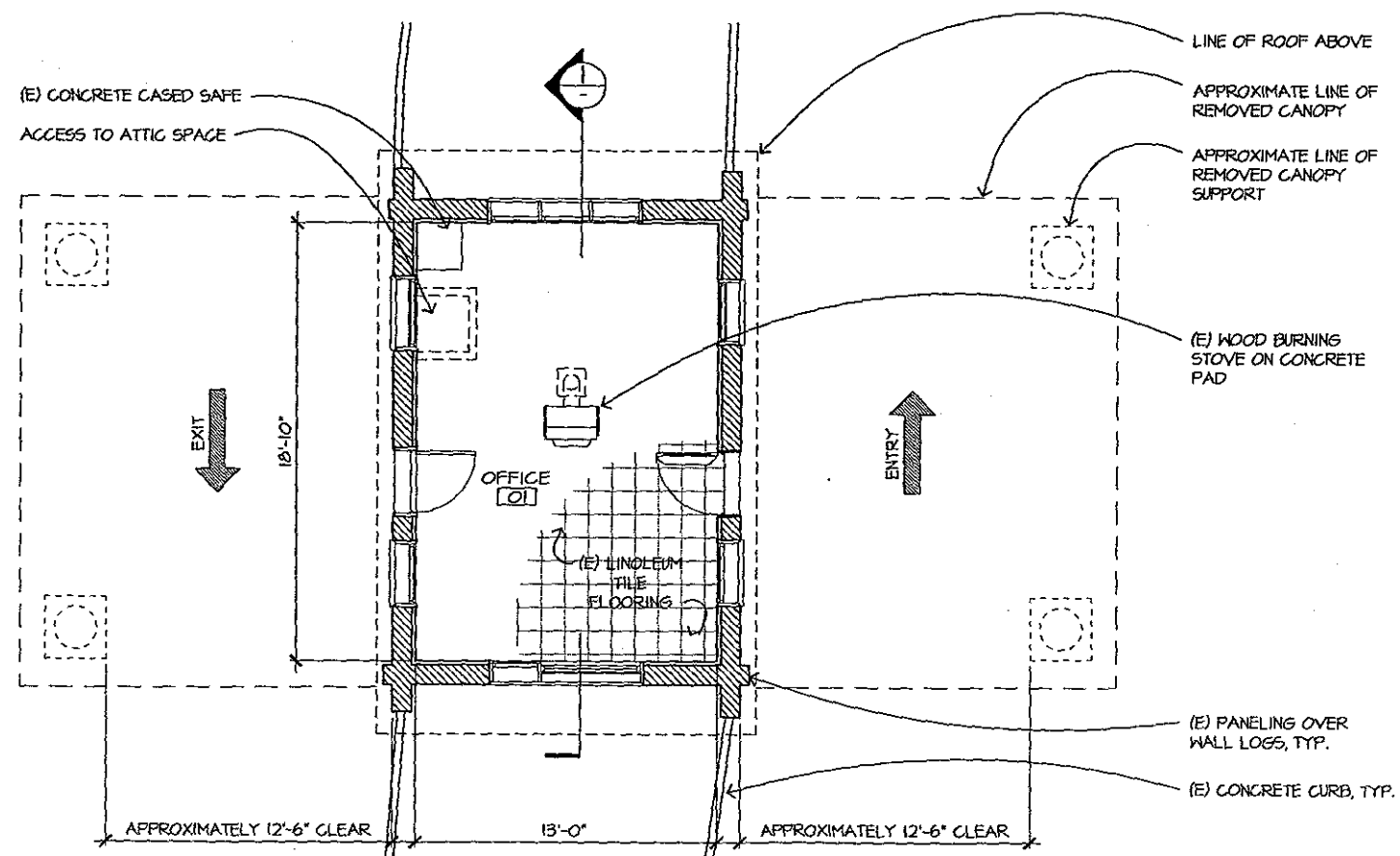
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NORTH ELEVATION ⑤



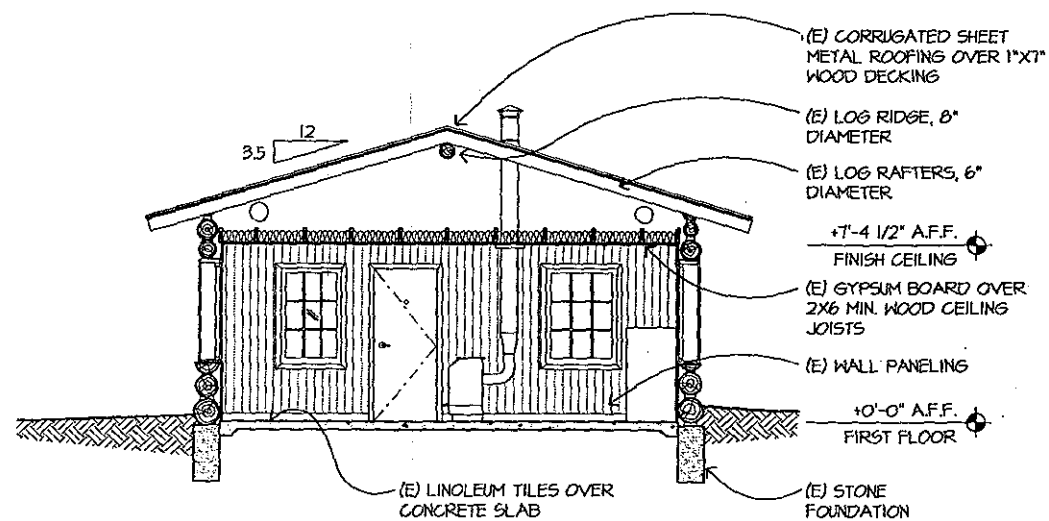
EXISTING CONDITIONS - EAST ELEVATION ④



EXISTING CONDITIONS - WEST ELEVATION ③



EXISTING CONDITIONS - PLAN ②

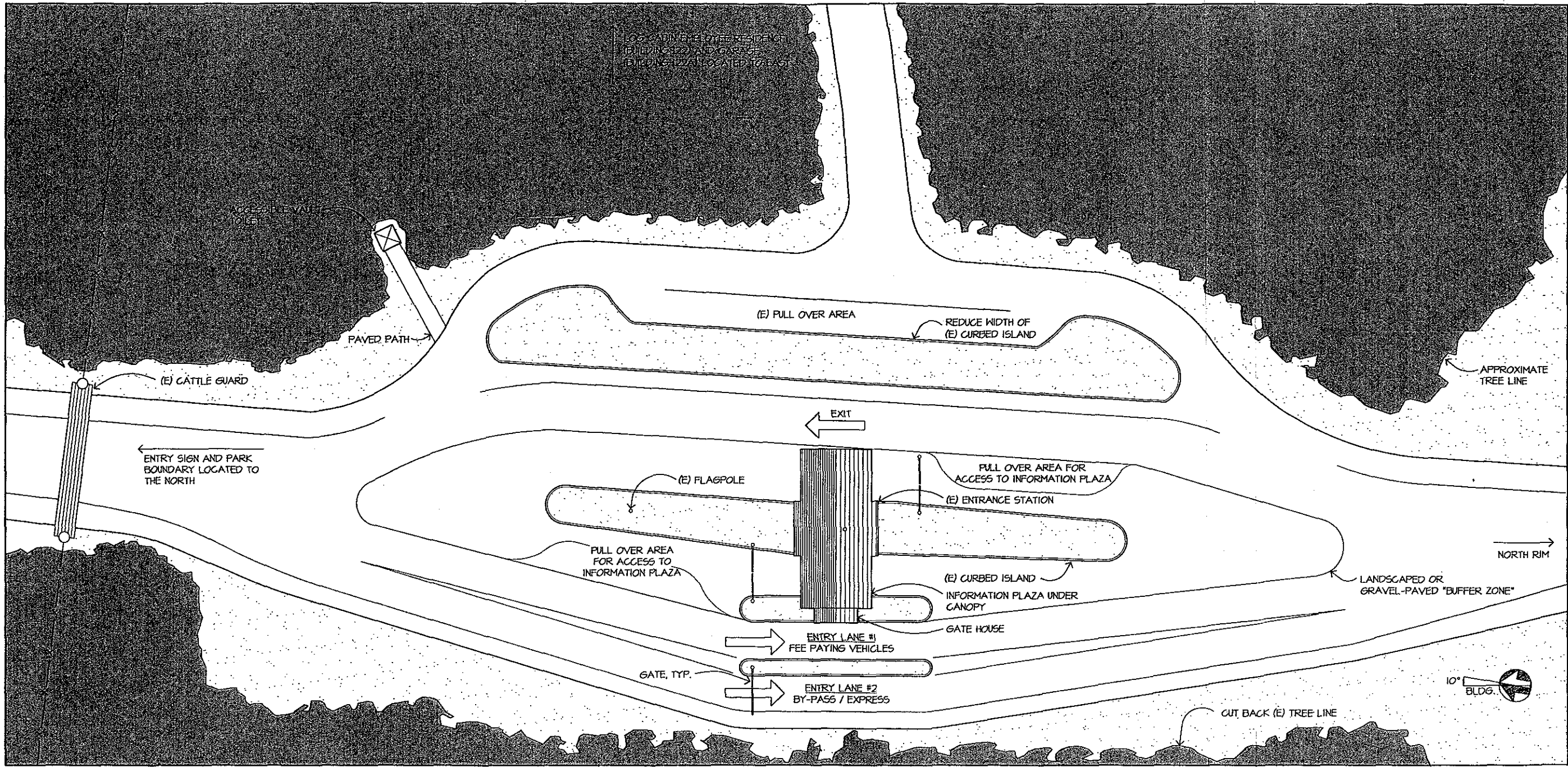


EXISTING CONDITIONS - SECTION ①

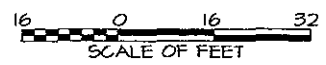
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TECH. REVIEW: SF			PKG. NO. ---
DATE: 13 APRIL 01			SHEET --- OF ---



Appendix B. Alternative Treatment Drawings Illustrating Site Plans, Plans and Elevations by Architectural Resources Group, dated April 13, 2001.

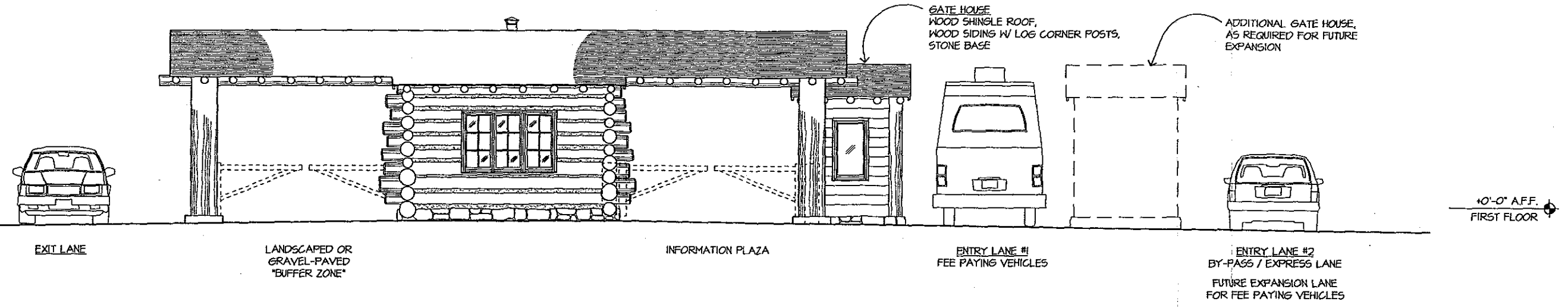


ALTERNATIVE B - SITE PLAN ①

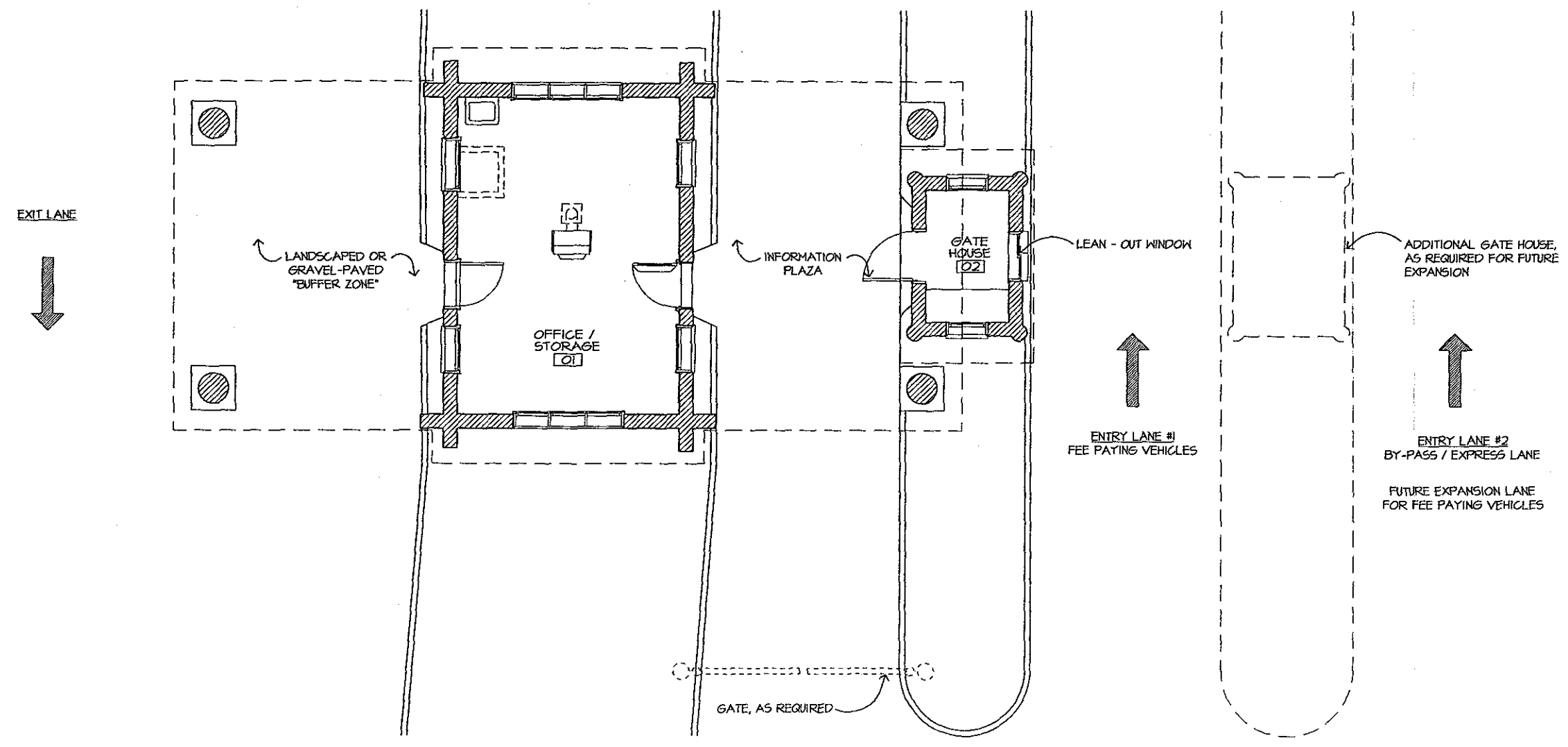


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DATE: 13 APRIL 01		GRAND CANYON NATIONAL PARK	OF —

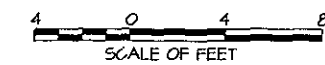
ARCHITECTURAL RESOURCES GROUP



ALTERNATIVE B - NORTH ELEVATION ②

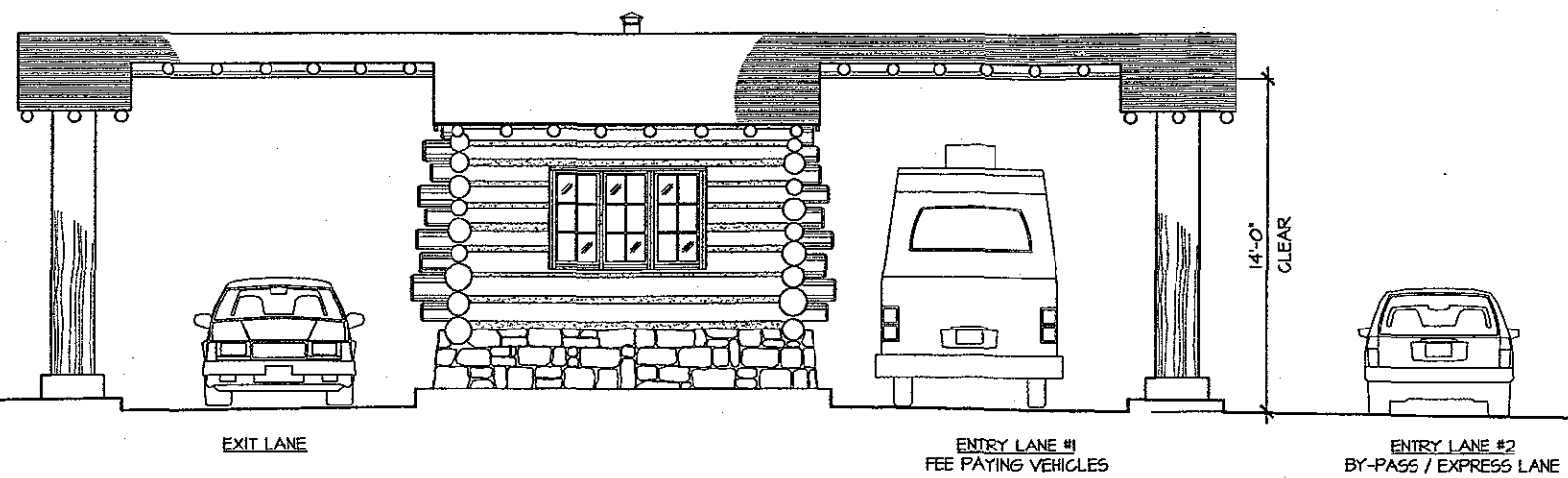


ALTERNATIVE B - PLAN ①



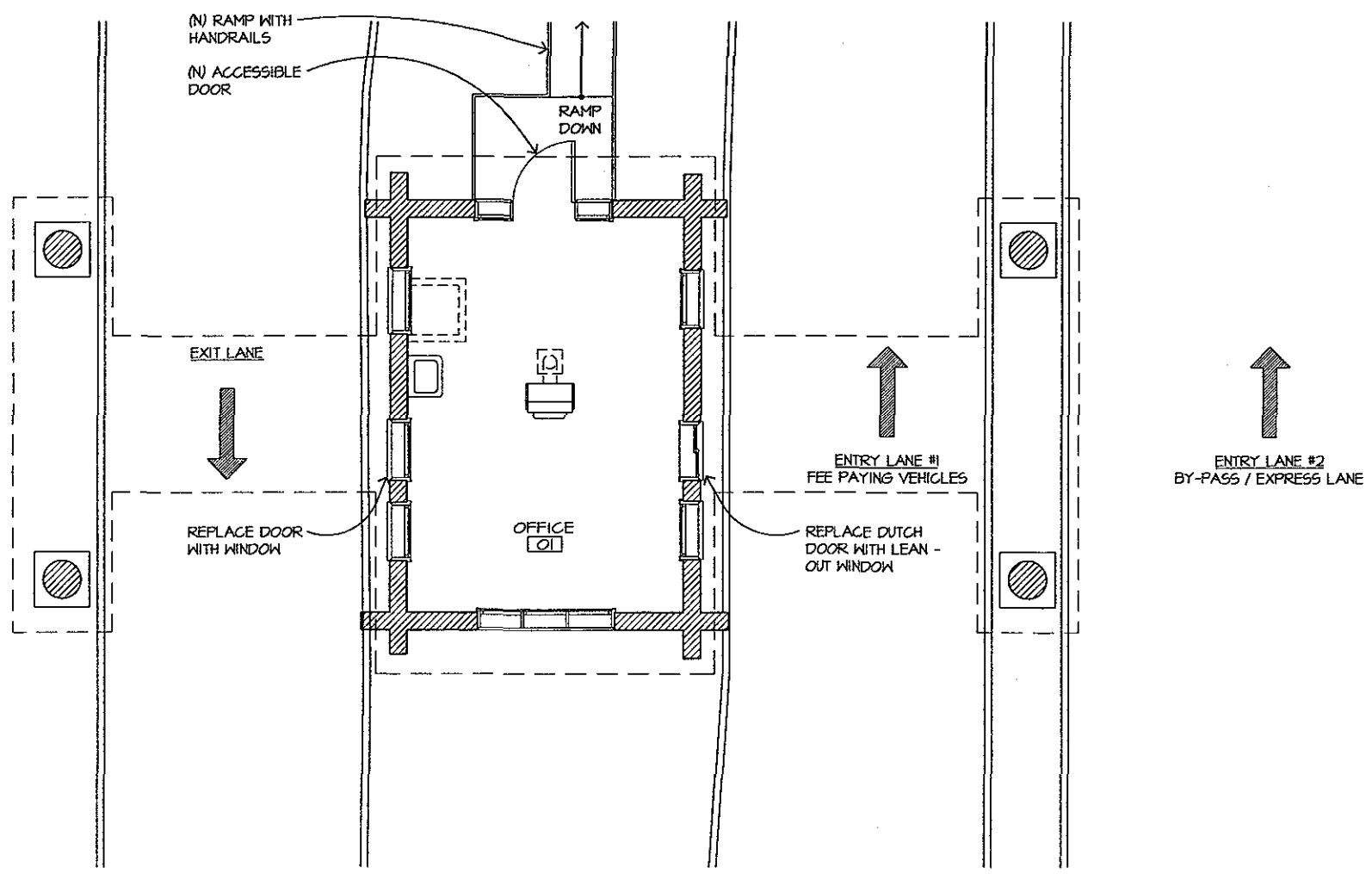
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DATE:		NORTH RIM ENTRY STATION	SHEET []
13 APRIL 01		GRAND CANYON NATIONAL PARK	OF []

ARCHITECTURAL RESOURCES GROUP

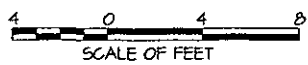


+0'-0" AFF.
FIRST FLOOR

ALTERNATIVE C1 - NORTH ELEVATION ②

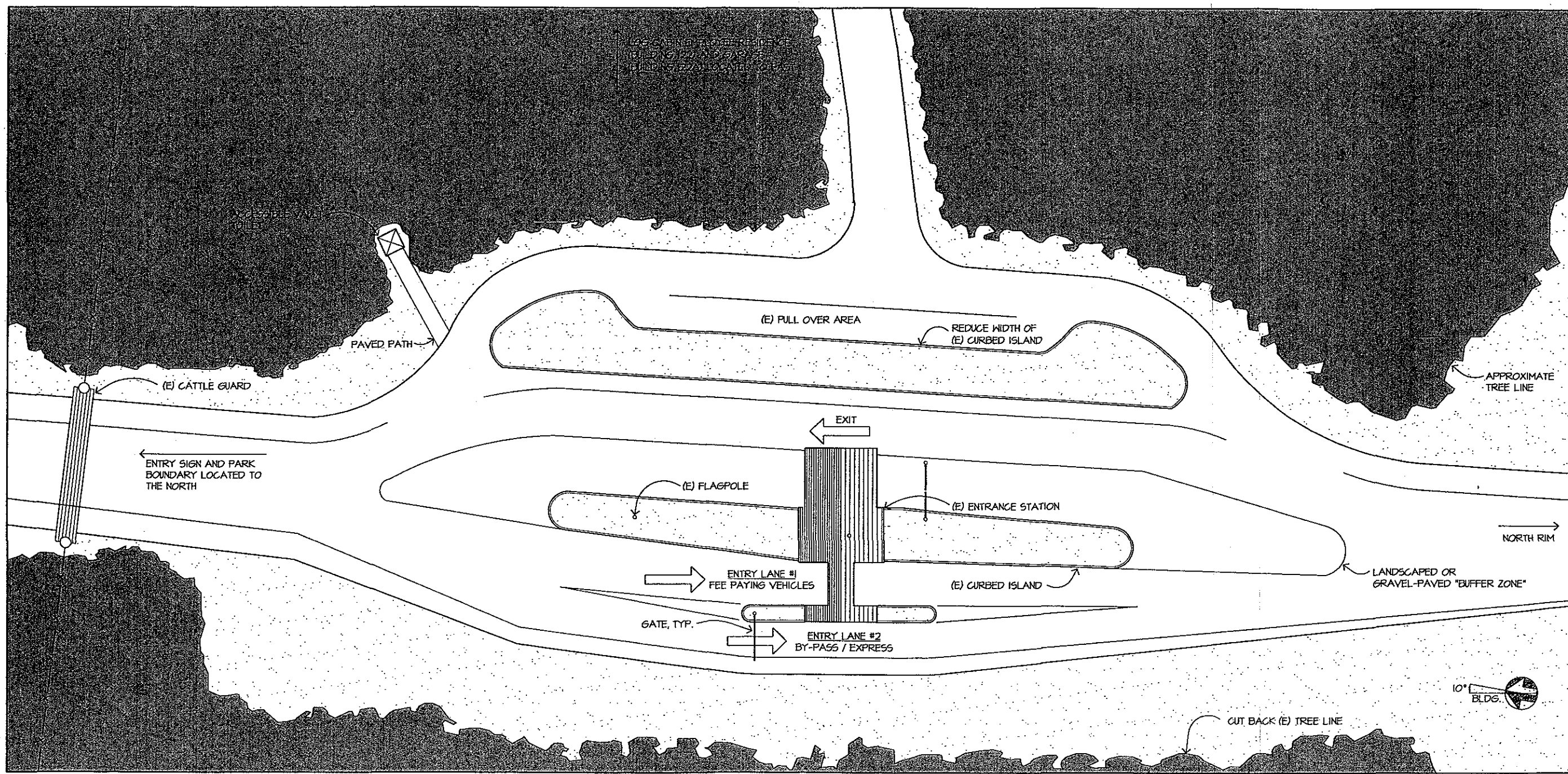


ALTERNATIVE C1 - PLAN ①

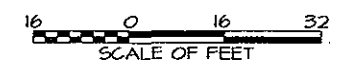


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DATE: 13 APRIL 01		GRAND CANYON NATIONAL PARK	OF

ARCHITECTURAL RESOURCES GROUP

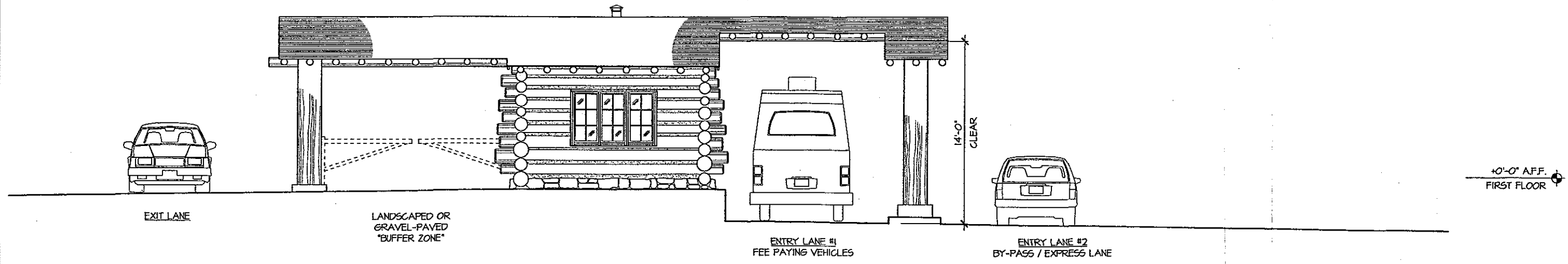


ALTERNATIVE C2 - SITE PLAN ①

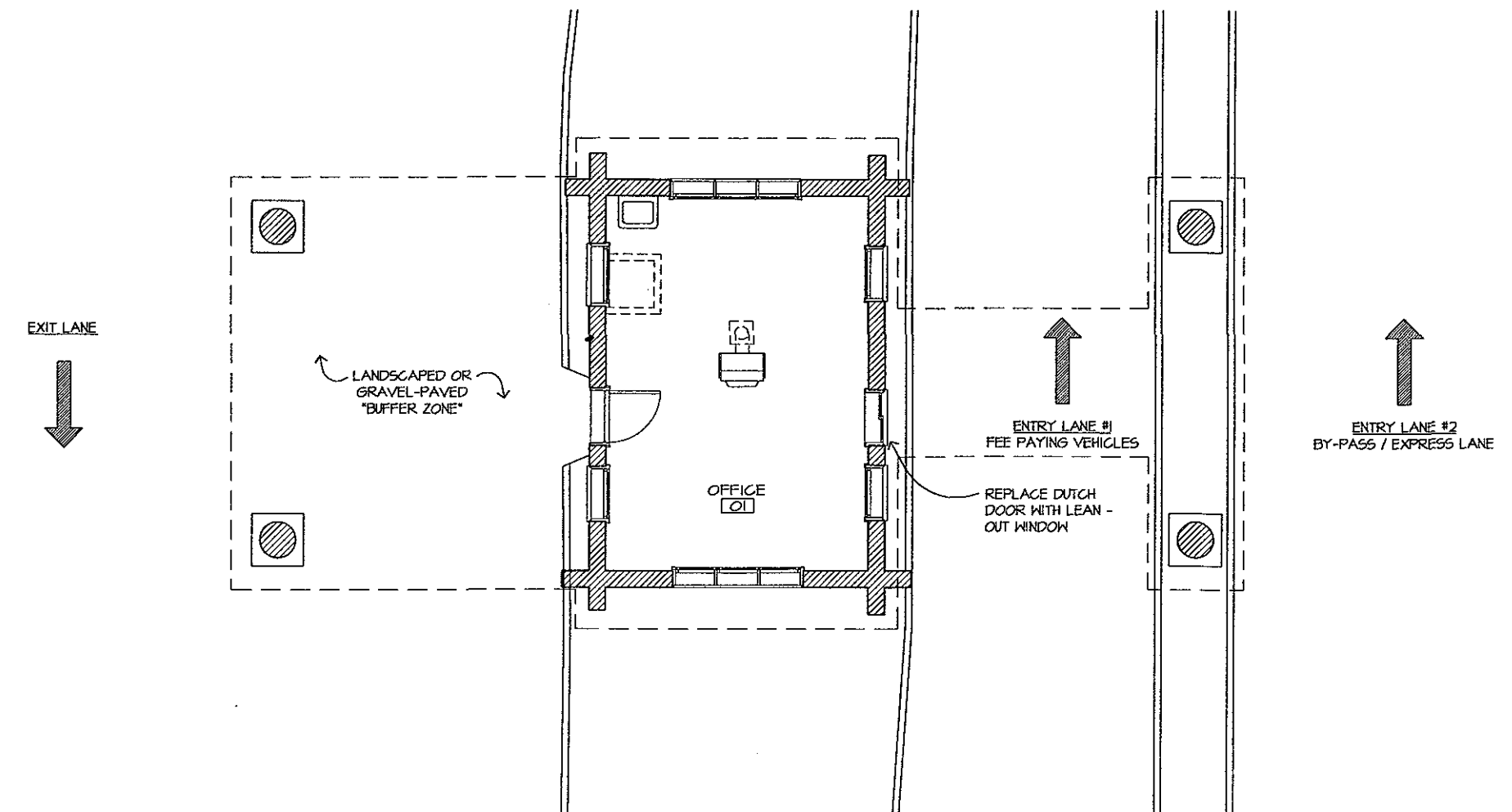


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DATE: 13 APRIL 01		GRAND CANYON NATIONAL PARK	

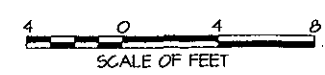
ARCHITECTURAL RESOURCES GROUP



ALTERNATIVE C2 - NORTH ELEVATION ②

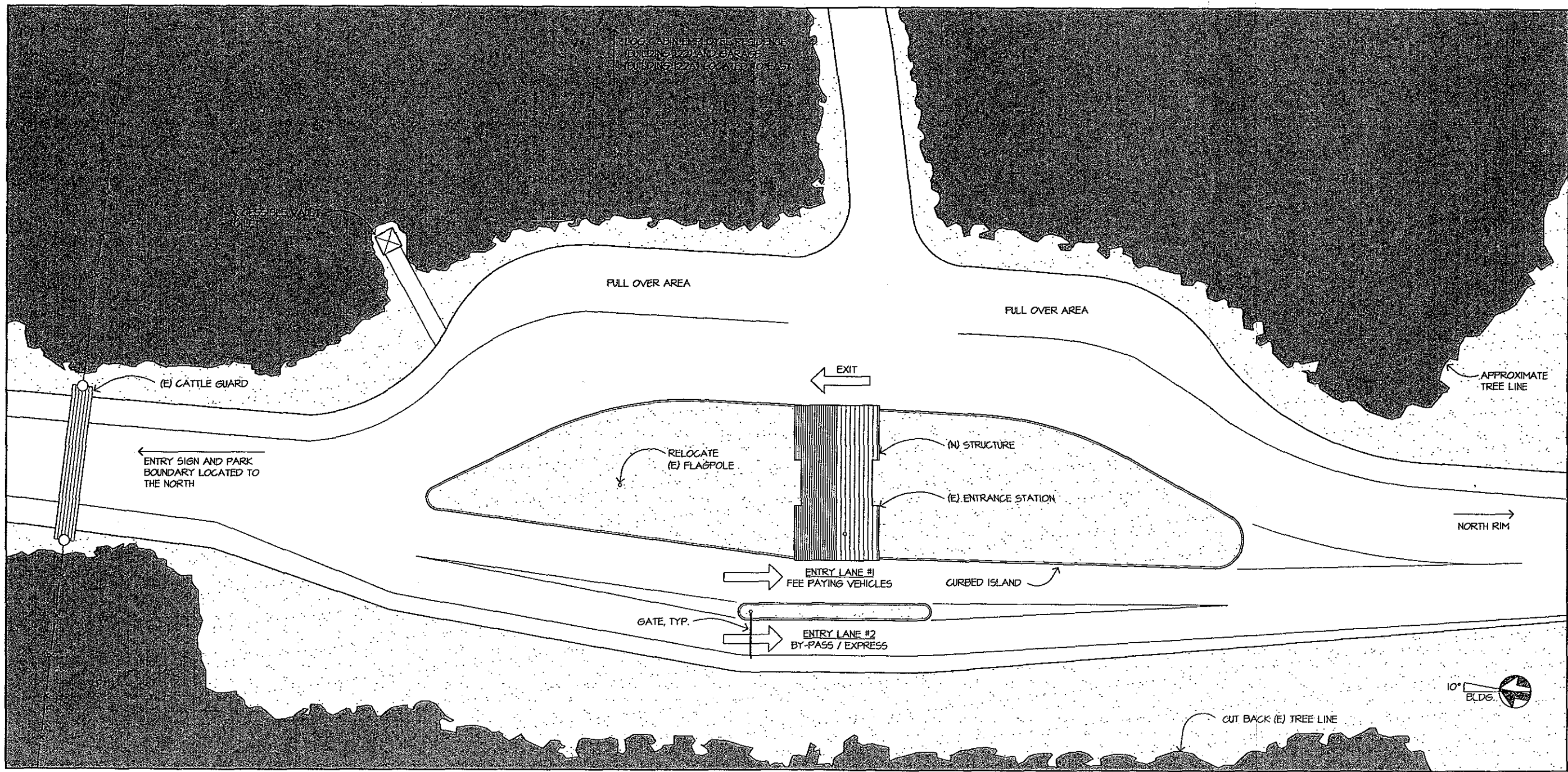


ALTERNATIVE C2 - PLAN ①



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DATE: 13 APRIL 01		GRAND CANYON NATIONAL PARK	OF <input type="checkbox"/>

ARCHITECTURAL RESOURCES GROUP

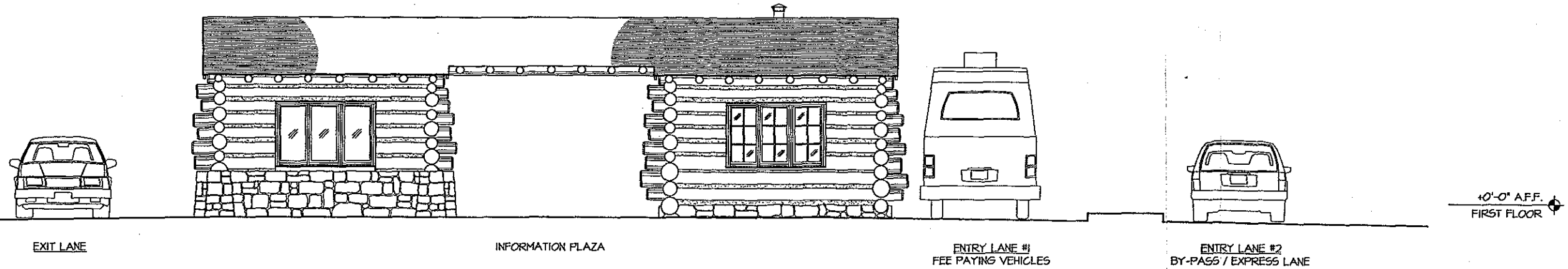


ALTERNATIVE D - SITE PLAN ①

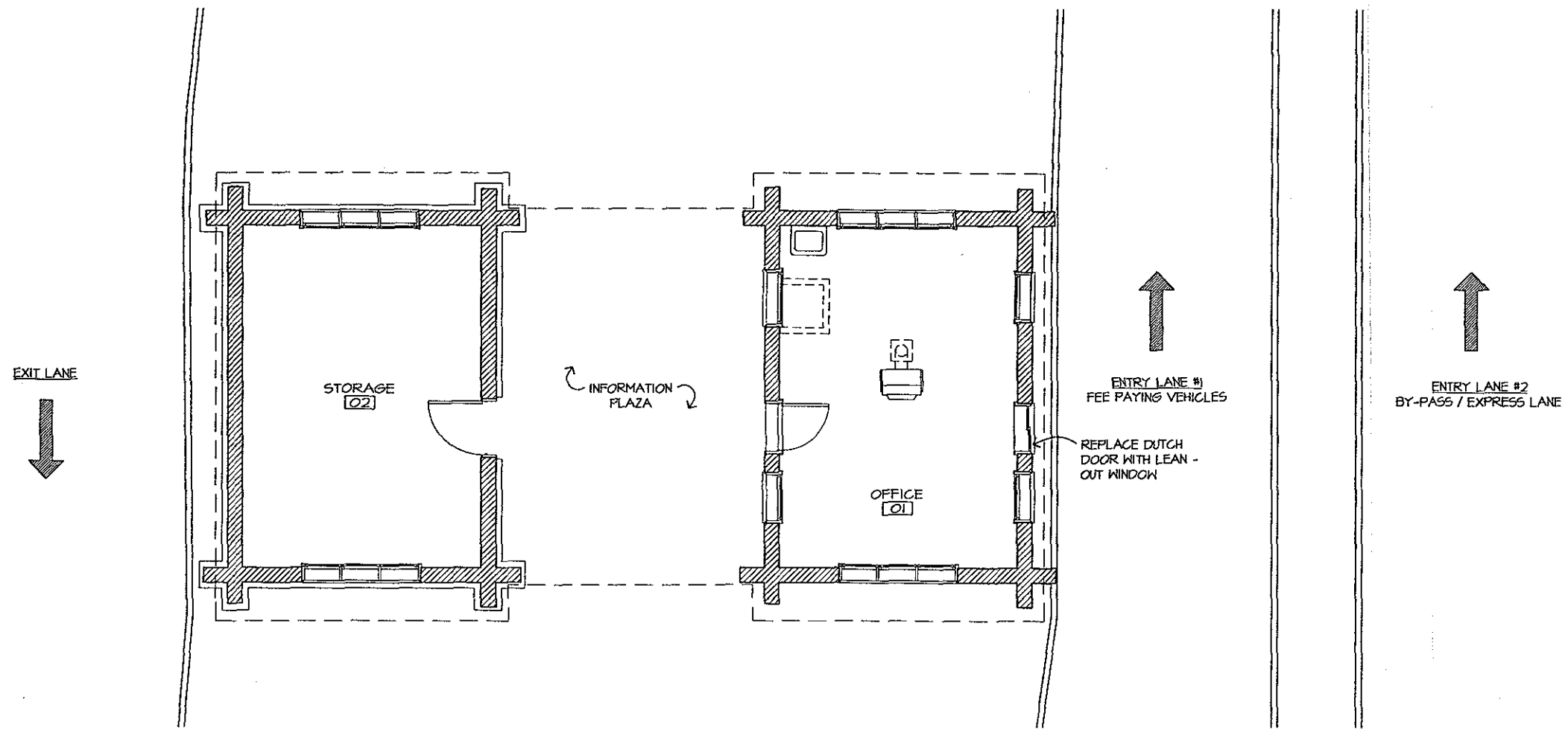


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DATE: 13 APRIL 01		NORTH RIM ENTRY STATION	--- OF ---
		GRAND CANYON NATIONAL PARK	

ARCHITECTURAL RESOURCES GROUP



ALTERNATIVE D - NORTH ELEVATION ②



ALTERNATIVE D - PLAN ①



DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
DRAWN: SAL	ALT. D	HISTORIC STRUCTURES REPORT	—
TECH. REVIEW: SF		TREATMENT ALTERNATIVES	PKG. NO. —
DATE: 13 APRIL 01		NORTH RIM ENTRY STATION	SHEET —
		GRAND CANYON NATIONAL PARK	OF —

ARCHITECTURAL RESOURCES GROUP

Appendix C. Code Analysis.

Preliminary Code Analysis and Accessibility Evaluation

The following codes have been referenced for this analysis: the 1997 edition of the Uniform Building Code; the 1997 Uniform Mechanical Code; the 1996 Uniform Electrical Code; the 1994 Uniform Plumbing Code; and the 1997 Uniform Fire Code. The 1997 Uniform Code for Building Conservation (UCBC) has also been referenced to determine alternative code compliant solutions for historic buildings.

Although not a building code, the Americans with Disabilities Act (ADA) is a federal civil rights law that governs accessibility to buildings for the disabled. National Park Service (NPS) Director's Order 28 requires all historic structures to be made accessible to the highest degree for visitors and employees. Because the intent of the ADA is not necessarily addressed in the building code, a review of a project pursuant to ADA requirements is included in the following preliminary code analyses. The following standards have been referenced for this analysis: ADA Accessibility Guidelines for Buildings and Facilities (ADAAG), amended January 1998, and the Uniform Federal Accessibility Standards (UFAS). Where there is a discrepancy between ADAAG and UFAS, the NPS is required to follow the guidelines that provide equal or greater accessibility.

The classification of historic buildings as qualified historic buildings is typically an important step in the long-term preservation of historic character. Building codes, such as the UBC, prescribe solutions to conditions based on new construction models. When conformance with prevailing codes - such as the UBC - would adversely affect the historic character of a qualified historic building, the UCBC may be invoked as a means to preserve historic fabric and explore solutions that meet the intent, but not necessarily the letter, of the UBC.

As indicated above, the following code analysis is preliminary. To facilitate future design work, this code analysis attempts to cite all major ways in which the building does not comply with prevailing codes. If the UBC and UCBC suggest that a condition may remain subject to verification with the building official, the non-compliant condition is typically noted and qualified.

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The classification of program elements (uses) are as follows:

1) Occupancy Classification: Chapter 10 of the UBC establishes the available number of occupants in the building, (a ratio referred to as occupant load) and Chapter 3 outlines occupancy requirements. The following matrices show area calculations and occupancies, as well as allowable areas per the construction type. The room discussed below is shown on the building plan. Per the tables on the following pages, the total occupant load for the entrance station is 1 occupant.

Area and Occupancy Matrix

ROOM(S)	OCCUPIED AREA (SQ. FT)	USE	OCC. LOAD (SQ. FT / OCC.)	NO. OF OCCS.	OCCU- PANCY
Office	245	office	245 /100	2	B

Allowable Area / Height Matrix

BUILDING	OCCUPANCY	ACTUAL AREA	ALLOWED AREA (Type V-N Const.)	ALLOWED HEIGHT / (Type V-N Const.)	PERMITTED OR NOT IN BUILDING
North Rim Entrance Station	B	272	8000	2	Permitted

2) Type of Construction: The existing construction is type V, non-rated, as defined in Chapter 6 of the UBC.

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The following is a preliminary code analysis of North Rim Entrance Station, addressing only major code issues that have a bearing on facility planning issues and including suggested resolutions to broad code issues:

UBC INCLUDING LIFE SAFETY/DISABLED ACCESS REQUIREMENTS	RESOLUTION OF CODE ISSUES
<p>Per UBC Section 1003.3.1.1 requirements for exits serving 10 or more occupants, at least one exterior door shall be a minimum of 3'-0" wide and 6'-8" tall, providing a clear width of 32". Although the entrance station only serves 2 occupants, it should comply with the intent of providing an adequate dimension for safe exiting. The 32" clear width is also necessary for conformance with accessibility requirements (UBC 1104.1.1 and ADAAG 4.135.5).</p>	<p>Doors at both the east and west elevations are 2'-8" wide and 6'-4" tall, with a clear width of 30.5". UCBC A304.3.5, UFAS, and ADAAG require a 31-3/8" clearance (5/8" maximum projection into the required clear width) for accessibility in historic structures. Only one means of egress is required by code for this occupant load. At a minimum, one door should be made wider to provide clearance. Should the building be deemed eligible for a cultural resource listing that meets the UCBC qualifications for a historic structure, Chapter 6 can be used to maintain the existing door height. UCBC 605.2 allows for exit door openings less than specified elsewhere in the code, if in the building official's opinion there is sufficient height for exiting. This would be desirable, so as to maintain the alignment of the door head height with the windows. If the building does not meet the qualifications for a historic structure and is required to conform with the requirements for a higher occupant load, at least one door should be made taller, to provide 6'-8" of exit height.</p>
<p>Per exiting and accessibility requirements, a level floor landing shall be provided on either side of a door. Exterior landings may provide a 2% slope for drainage away from the building. (UBC 1003.3.1.6, 1103.2.3).</p>	<p>The exterior paving at the doors landings is buckled and the slope exceeds the amount allowed by code. At accessible means of egress, exterior paving should be replaced to provide a level landing.</p>
<p>ADA requires that employee work areas be accessible. Counters should be no more than 32" above the ground, and a knee clearance well should be provided at that counter (27"h x 30"w x 19"d).</p>	<p>The existing cash register work station exceeds these requirements. An addition to the existing station or an entirely new station should be provided.</p>
<p>UBC Section 2902.3 requires one unisex water closet, conveniently located in an adjacent building on the same property. Section 1105.2.2 requires this fixture to be accessible.</p>	<p>A non-accessible portable toilet is located on the site, northeast of the entrance station. It is reached via a non-accessible dirt path. This toilet should be replaced with an accessible portable toilet. It can remain in the same location, as it seems convenient to the building while being obscured by the tree line. However, an accessible paved path should be provided.</p>

Appendix D. NPS LCS Form for North Rim Entrance Station

North Rim Entrance Station

Identification

Preferred Structure Name: North Rim Entrance Station
 Structure Number: NRB0121
 Park: Grand Canyon National Park
 Park District: Grand Canyon-North Rim Unit
 Historic District: (Empty)
 Structure State: Arizona
 Structure County: Coconino
 LCS ID: 009443
 Approval Level: Waso

Other Structure Name(s)

Other Structure Name(s)
Contact Station
Building 121

UTM(s)

None.

Historical Significance

National Register Status: Undetermined
 National Register Date: (Empty)
 National Historic Landmark? No
 National Historic Landmark Date: (Empty)
 Significance Level: Not Evaluated
 Short Significance Description: Rustic log building of same construction as and similar in size to the historic cabins on the North Rim.
 Long Significance Description: (Empty)
 Construction Period: Historic

Chronology

Physical Event	Begin Year	End Year	Designer	Designer Occupation
Built (BU)	1928	(Empty.)	NPS	Other (O)

Altered (AL)	1950	1970	NPS	Other (O)
--------------	------	------	-----	-----------

Function and Use

Primary Historic Function: Entrance Station (Guardhouse)
 Primary Current Use: Entrance Station (Guardhouse)
 Structure Contains Museum Collections? No

Other Function(s) and Use(s)

None.

Physical Description

Structure Type: Building
 Volume: 2,000 - 20,000 cubic feet
 Square Feet: (Empty)
 Short Physical Description: One story approx 15x18. Logs chinked with mortar, saddled notched at corners. Dark brown paint, gable roof perp. to road. Concrete floor w/ linoleum. Fireplace and roof extensions over split road have been removed. Wood shingles under corr metal.
 Long Physical Description: (Empty)

Materials

Structural Component(s)	Material(s)
Foundation (1)	Stone (40)
Walls (3)	Log (23)
Roof (4)	Metal (50)

Condition and Impacts

Structure Condition: Fair
 Year Condition Assessed: 1994
 Impact Level: Moderate
 Primary Impact: Biological Degradation (Mold)

Other Impact(s)

Other Impact Type
Animal/Pest Infestation (PIN)
Weather (WEA)

Management - Legal

Legal Interest: Fee Simple
 Fee Simple Life: 0

Fee Simple Reservation (Empty)
 Expiration Date:

Federal Government Owner (if (Empty)
 owned by other Federal Agency):

Local Government Owner (if (Empty)
 any):

Management Agreement: None

Management Agreement (Empty)
 Expiration Date:

Management Category: Should Be Preserved and Maintained

Management Category Date: 11/13/96

Ultimate Structure Treatment: No Treatment Documented

Ultimate Treatment Document: No Documentation Available

Ultimate Treatment Document (Empty)
 Date:

Was Ultimate Treatment No
 Approved?

Was Ultimate Treatment No
 Completed?

Ultimate Treatment National Park Service
 Responsibility:

Ultimate Treatment Cost: 0

Ultimate Treatment Cost (Empty)
 Estimate Date:

Estimate Level: Similar Facilities

Estimator: Regional Office

Interim Treatment National Park Service
 Responsibility:

Interim Treatment Cost: 27000

Interim Treatment Cost Estimate 3/1/94
 Date:

Routine Maintenance National Park Service
 Responsibility:

Cyclic Maintenance National Park Service
 Responsibility:

Short Management Text: Interior good cond, with worn floor. Sill logs, some lower logs, crowns & rafter ends rotted, need replacement. Repair chinking. Excavate to clear grade. Corr metal roof & E door need repair. Regrout wdws, replace screens.

Long Management Text: (Empty)

Documentation Level: Poor

Last Updated By: JMD

Last Updated: 3/20/94

Other Reference(s)

Source	Reference Number
Cultural Landscapes Automated Inventory Management (CLI)	CPSO
Cultural Landscapes Automated Inventory Management (CLI)	WRO

Cultural Landscapes Automated Inventory Management (CLI)	IMFA
Other (OTH)	NPS Building Files

Graphic(s)

None.

Appendix E. Historic Photographs in Chronological Order.

April 13, 2001

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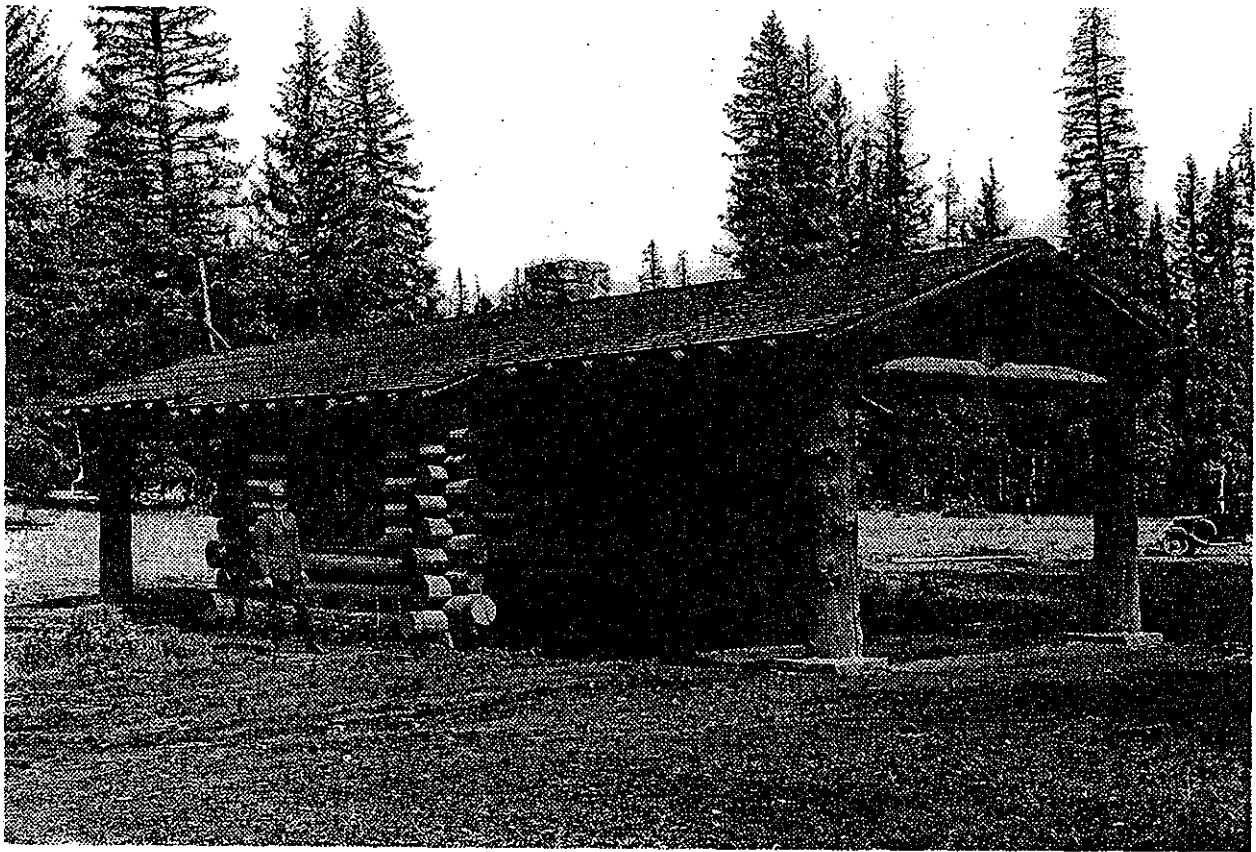


Figure 1. The image illustrates the north elevation of the North Rim Entrance Station. Note the masonry chimney, the height of the exposed native stone masonry base and the doubling of every sixth roof shingle course as a decorative element. Photo is dated 1929. GCNPA Number 3884.

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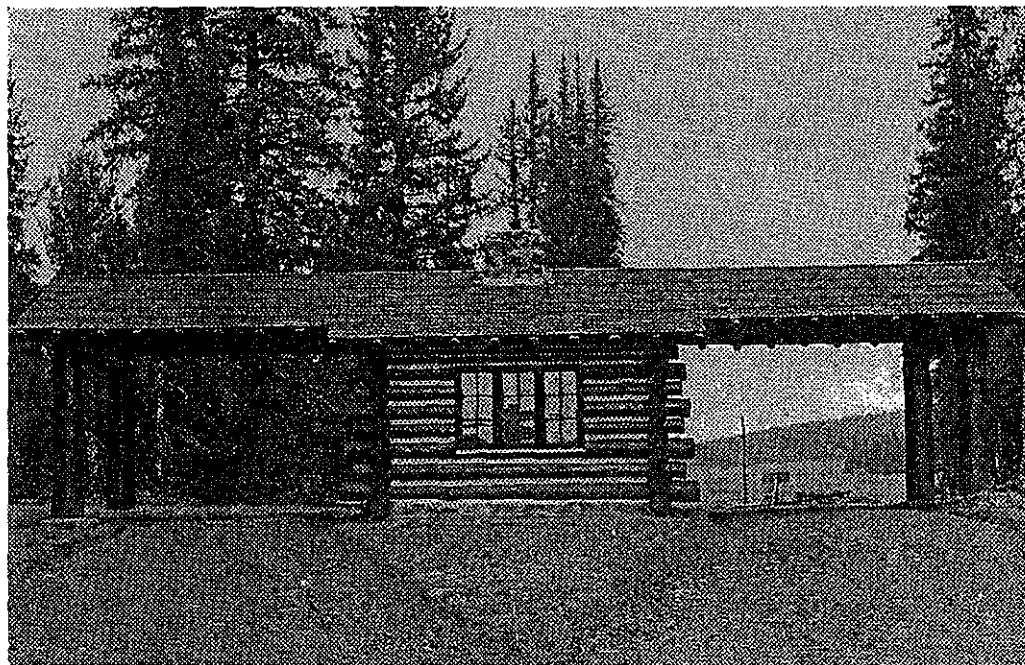


Figure 2. The image illustrates the south elevation of the North Rim Entrance Station. The curbing forming the island had not yet been laid but the configuration was marked by a depression in the road-way. Photo is dated 1929. GCNPA Number 15173.

April 13, 2001

Architectural Resources Group

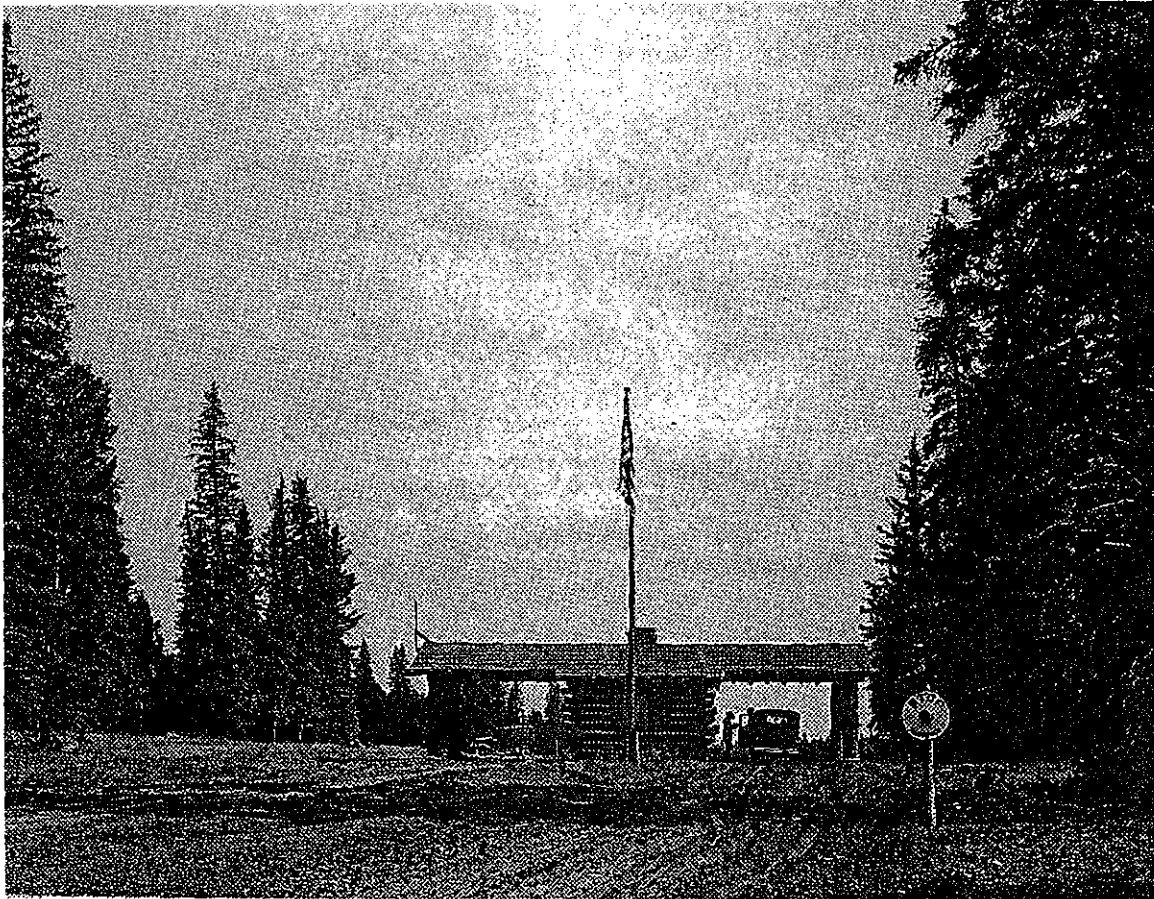


Figure 3. This early image of the North Rim Entrance Station illustrates how the building and canopies functioned at the time of construction. Though the canopies are no longer extant, the way that the ranger approaches arriving vehicles, by stepping into the roadway, is unchanged. Photo is dated 1930. GCNPA Number 9937.

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Architectural Resources Group

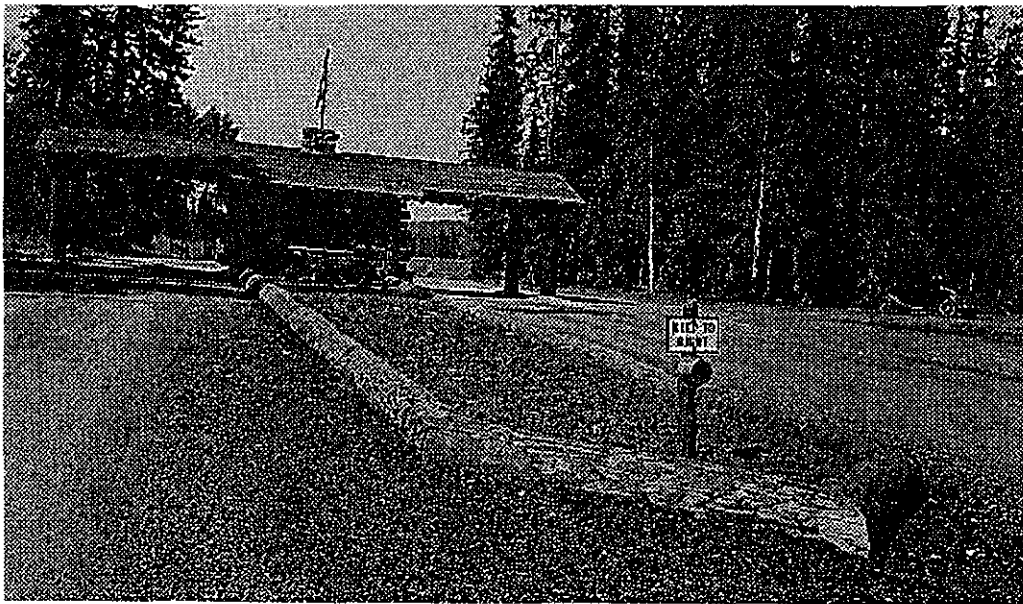
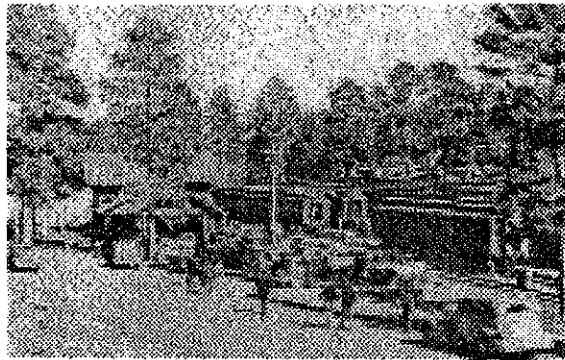


Figure 4. The image illustrates the log barrier curbing treatment at the south side of the North Rim Entrance Station which was installed in August 1935. Photo is dated 1935. GCNPA Number 13052.

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*Figure 5. The image illustrates trains arriving at the Grand Canyon Village on the South Rim. Although similar service was planned for the North Rim, it was never constructed. Image from Manns, T., *A Guide to the Grand Canyon Village Historic District*.*

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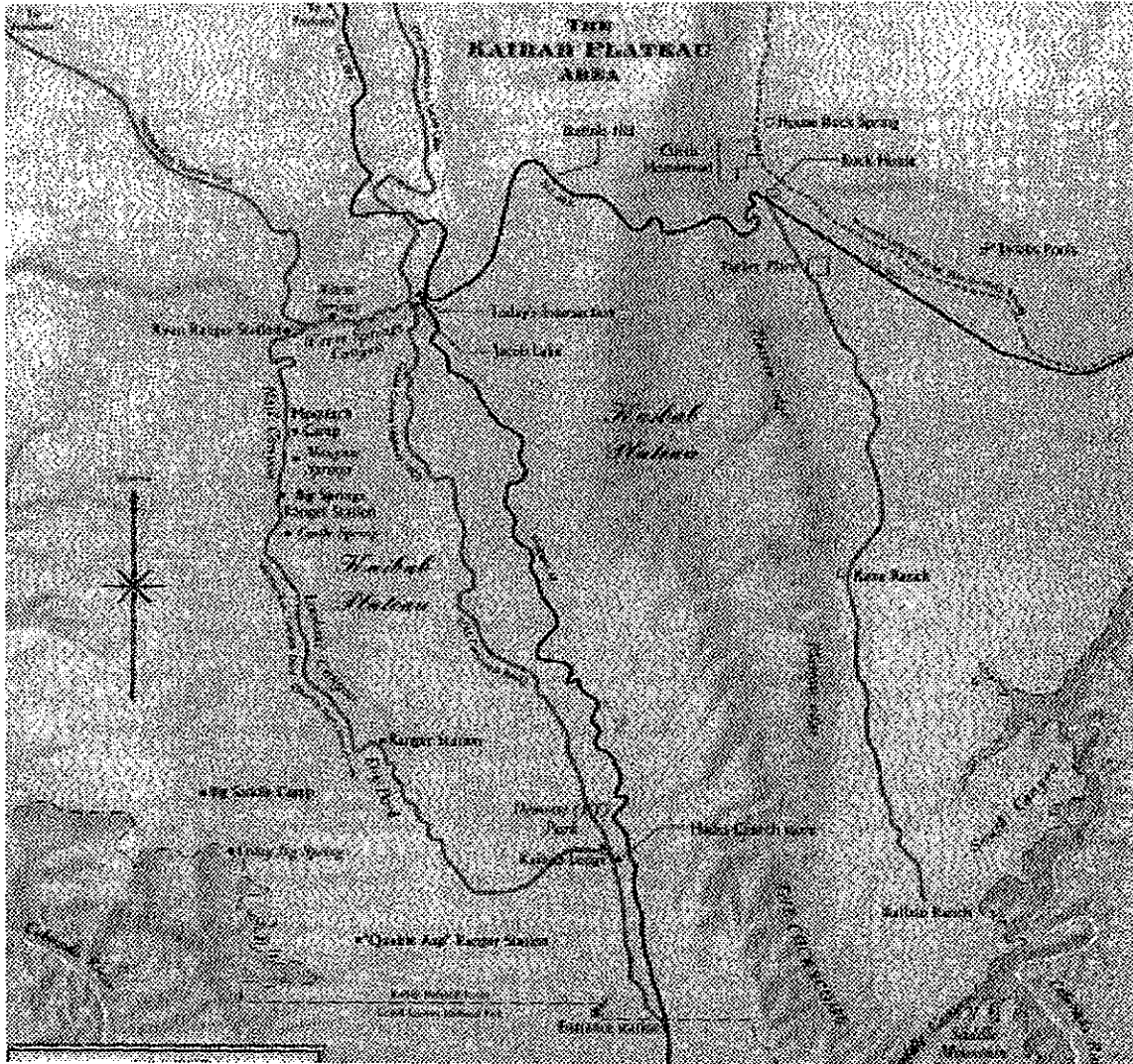


Figure 6. The map illustrates the relationship of the North Rim Entrance Station to the Kaibab Plateau. Image from Michael F. Anderson's *Living at the Edge*, 1998, p. 131.

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Architectural Resources Group

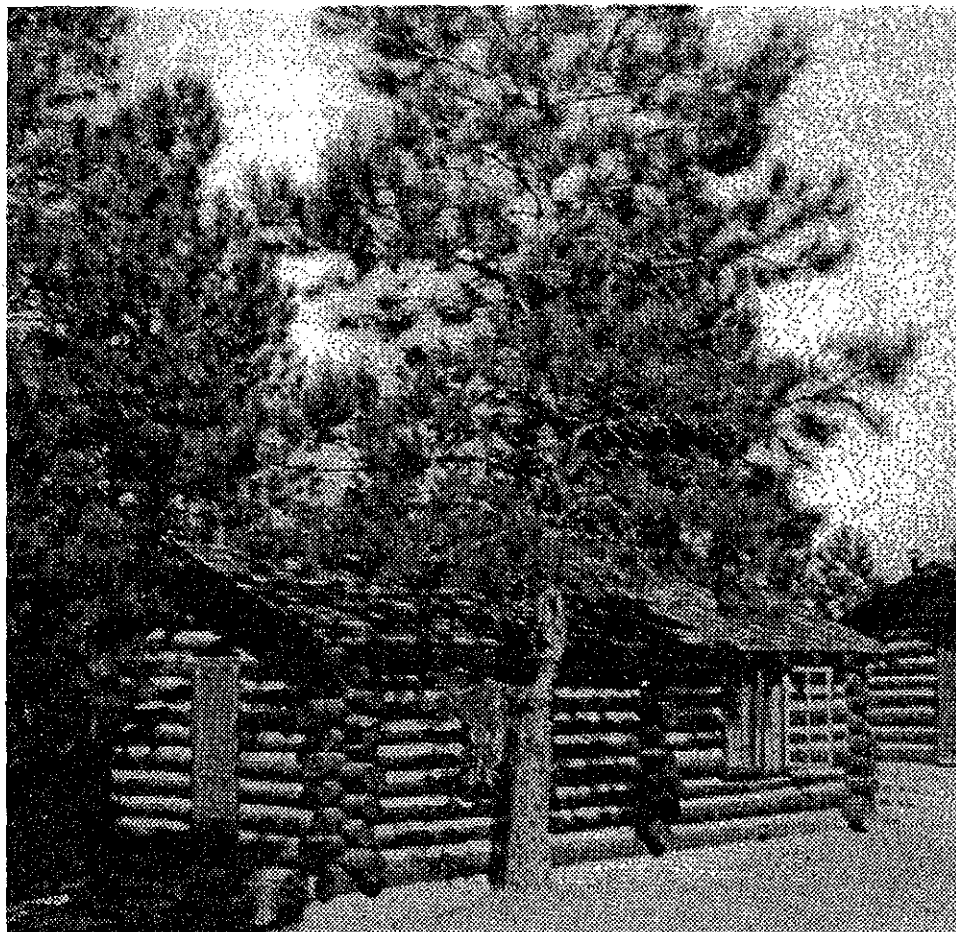


Figure 7. The image illustrates a standard cabin at the Grand Canyon Lodge, North Rim, at the time of construction, 1928. The structure parallels the North Rim Entrance Station in almost every aspect. Image from: Joyce Zaitlin's Underwood: His Rustic, Art Deco and Federal Architecture, 1989. p. 97.

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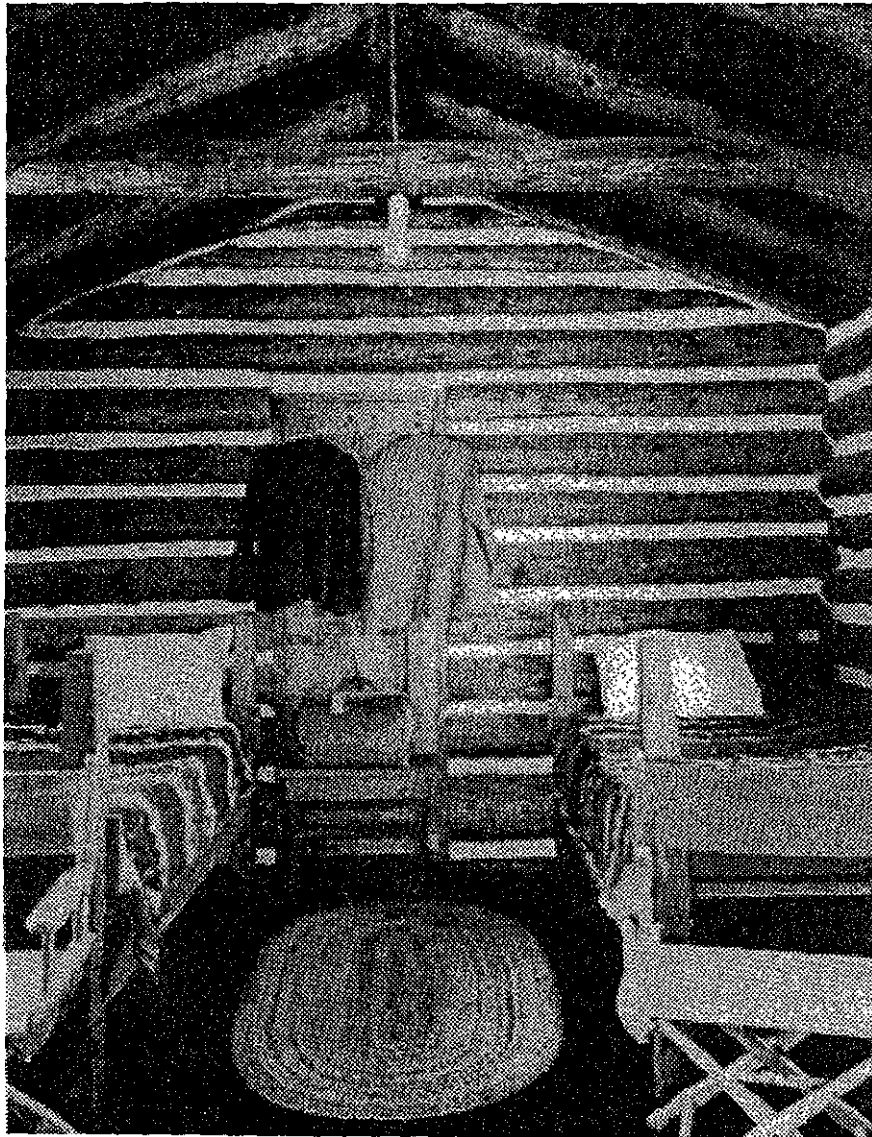


Figure 8. The image illustrates the interior of a standard cabin at the Grand Canyon Lodge, North Rim, at the time of construction, 1928. Note the exposed roof framing and elements. It is unclear as to whether or not the North Rim Entrance Station had exposed framing members or if there was a ceiling. Image from: Joyce Zaitlin's Underwood: His Rustic, Art Deco and Federal Architecture, 1989. p. 99.

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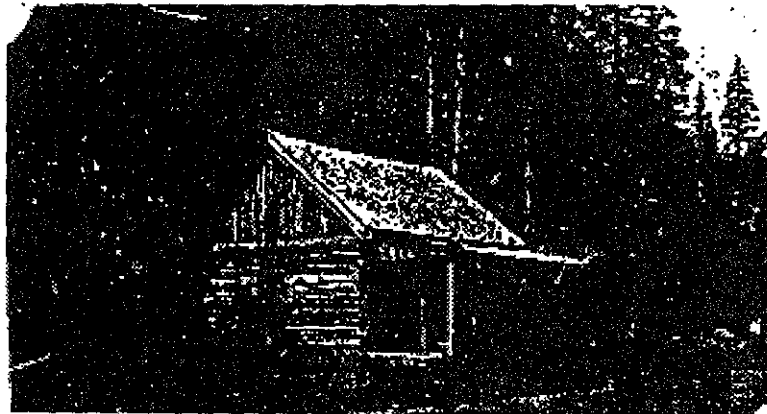


Figure 9. The illustration depicts the original North Rim Entrance Station. Details of the structure are unknown. Photo from the Grand Canyon National Park Archives and Maintenance Records.

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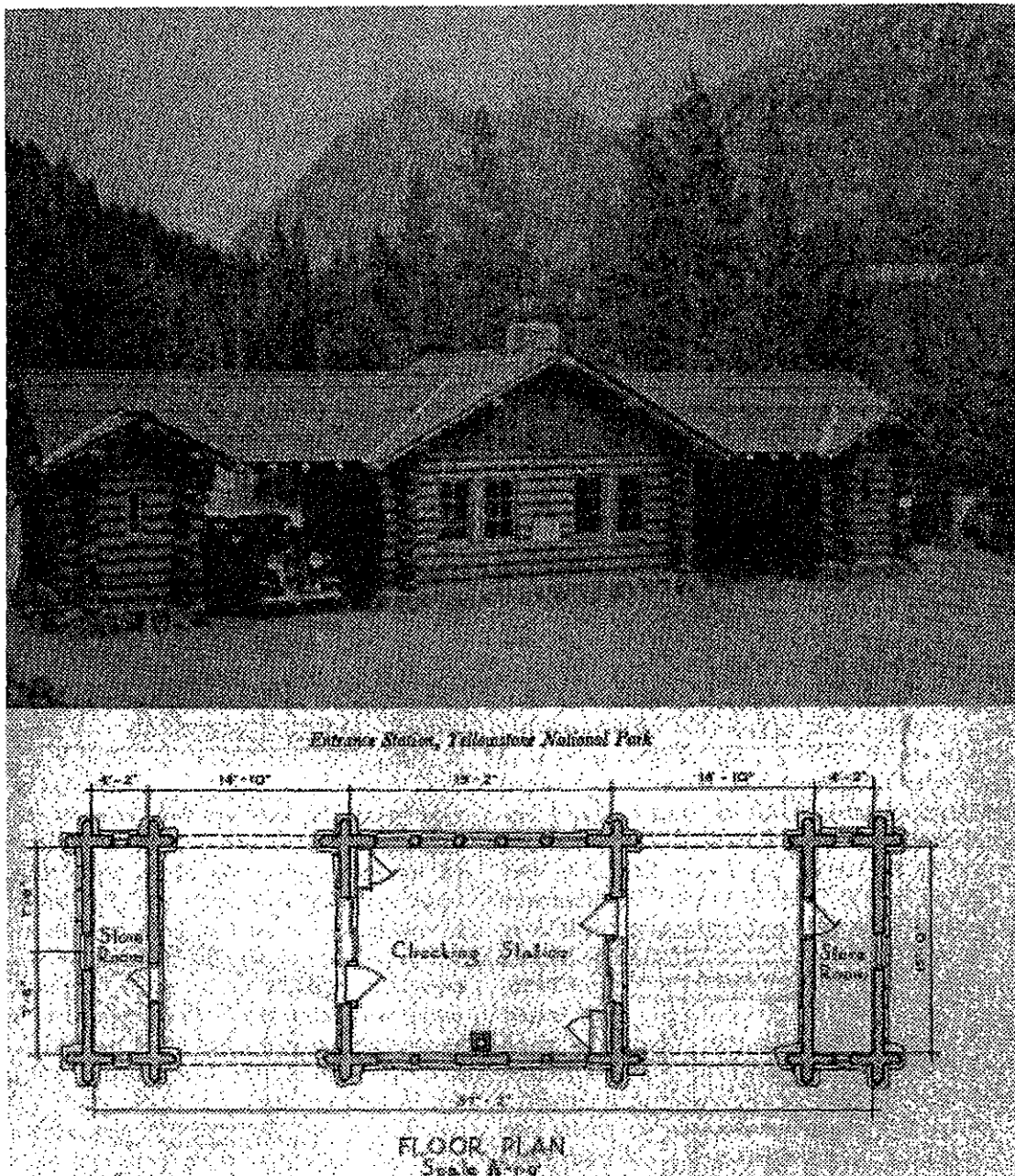


Figure 10. The image illustrates the Entrance Station at Yellowstone National Park, an example of the covered roadway checking station, noted as beneficial for giving shelter to the ranger. Note the height of the masonry foundation, both aesthetically pleasing and functional, the prominent foundation protects the log construction against snow drifts and vehicle damage. Like the North Rim, Yellowstone is located in a region of heavy snowfall. Unlike the North Rim, this entranceway does not employ a curbed island for traffic channelization. Image from: Good, Albert H. *Park and Recreation Structures*, 1938. p. 29.

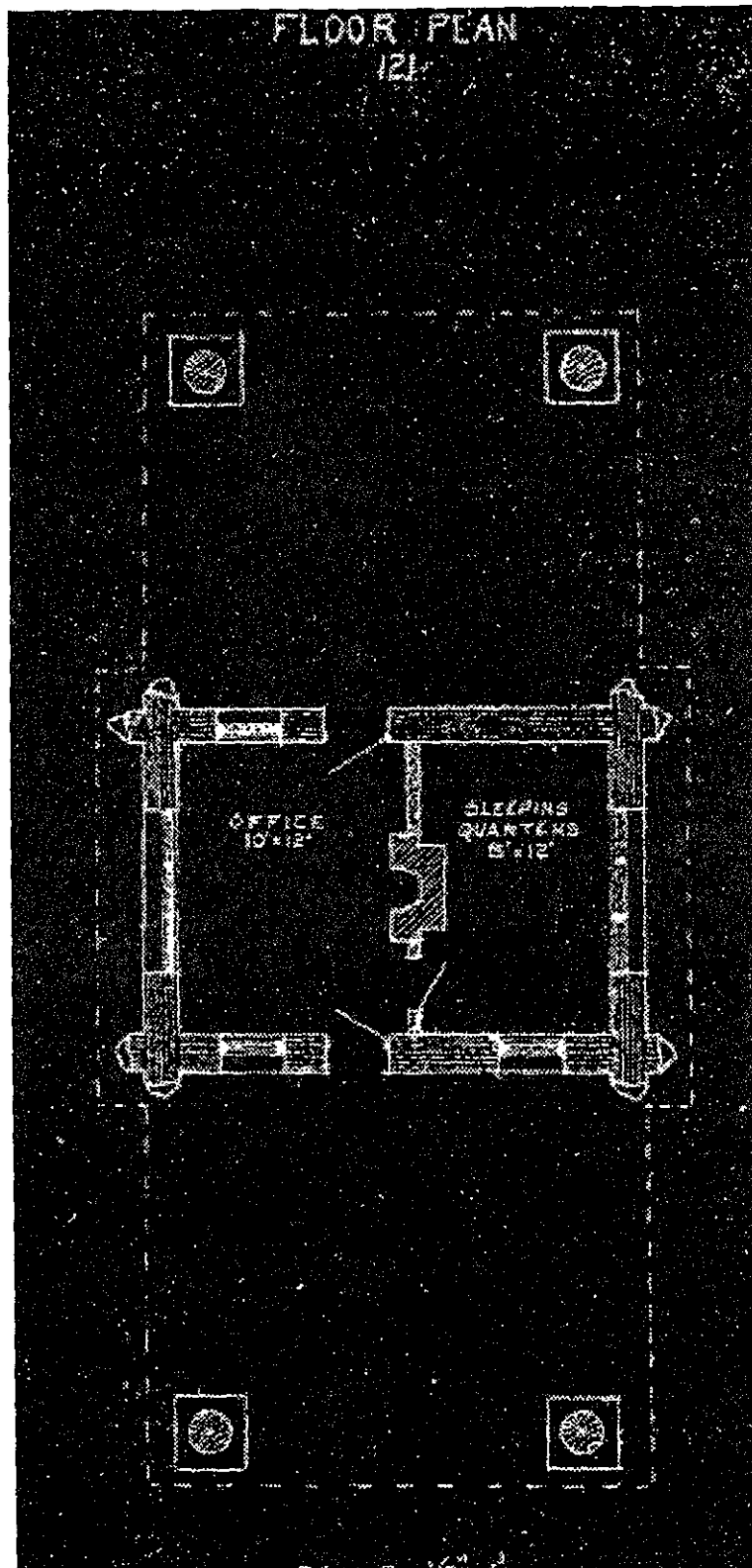


Figure 11. The image illustrates the floor plan of the North Rim Entrance Station, c. 1928. Image from Grand Canyon National Park Archives and Maintenance Records.

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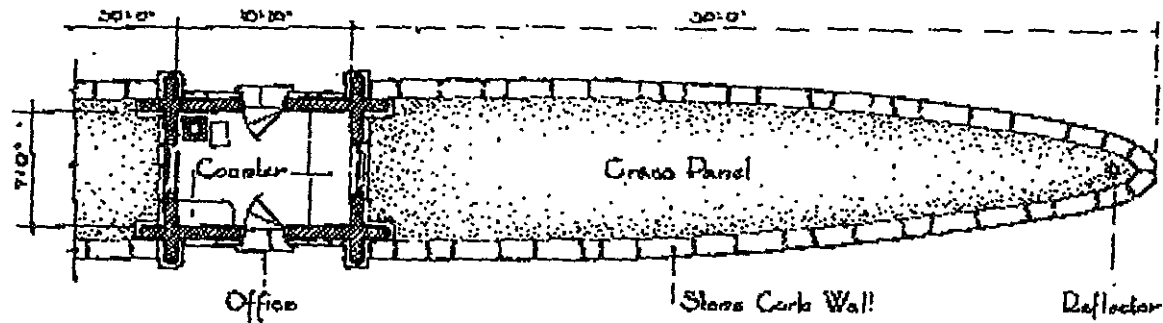


Figure 12. The illustration depicts the plan of the island-type entrance checking station at Bryce Canyon National Park. Note the elongated, tapered curbing for traffic channelization and to protect the structure. Like the 1928 design of the North Rim Entrance Station, the structure rests on a functional, prominent foundation that serves to protect the log construction against snow drifts and vehicle damage. From: Good, Albert H. *Park & Recreation Structures*, 1938. p. 26.

April 13, 2001

Architectural Resources Group

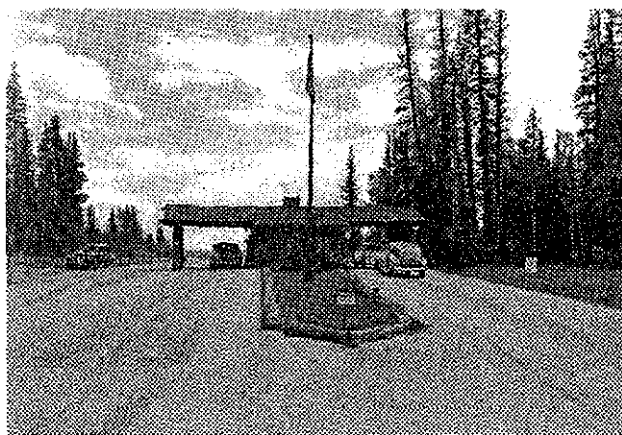


Figure 13. The image illustrates the North Rim Entrance Station as seen from the north. Note the change in road surface, log curbing, increased traffic and ever-present flag-pole. Photo is dated circa 1948. Unnumbered image from the Grand Canyon National Park Archives and Maintenance Records.

April 13, 2001

Architectural Resources Group

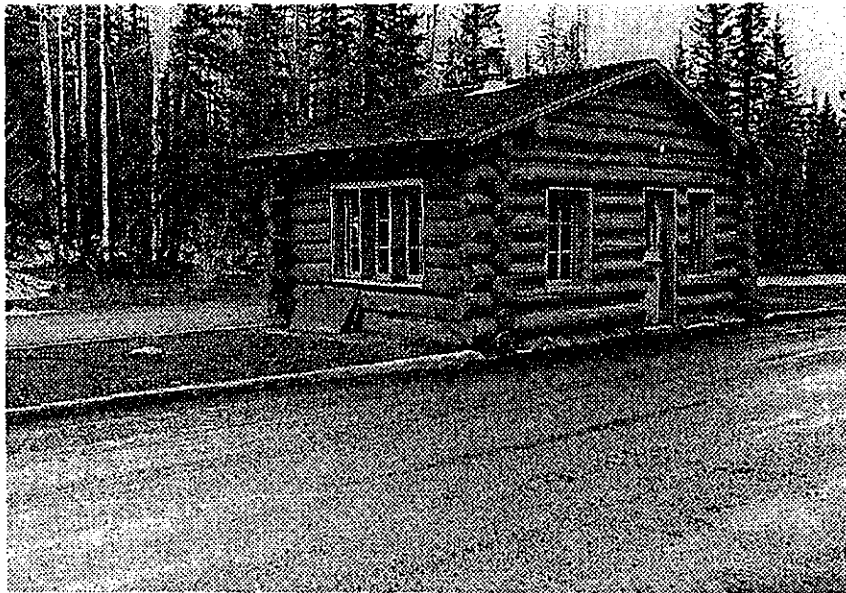


Figure 14. The image illustrates the North Rim Entrance Station after removal of the canopies that covered the roadway. The works significantly altered the architectural expression of the building. Photo is dated 1973. GCNPA Number 10018.

April 13, 2001

Architectural Resources Group

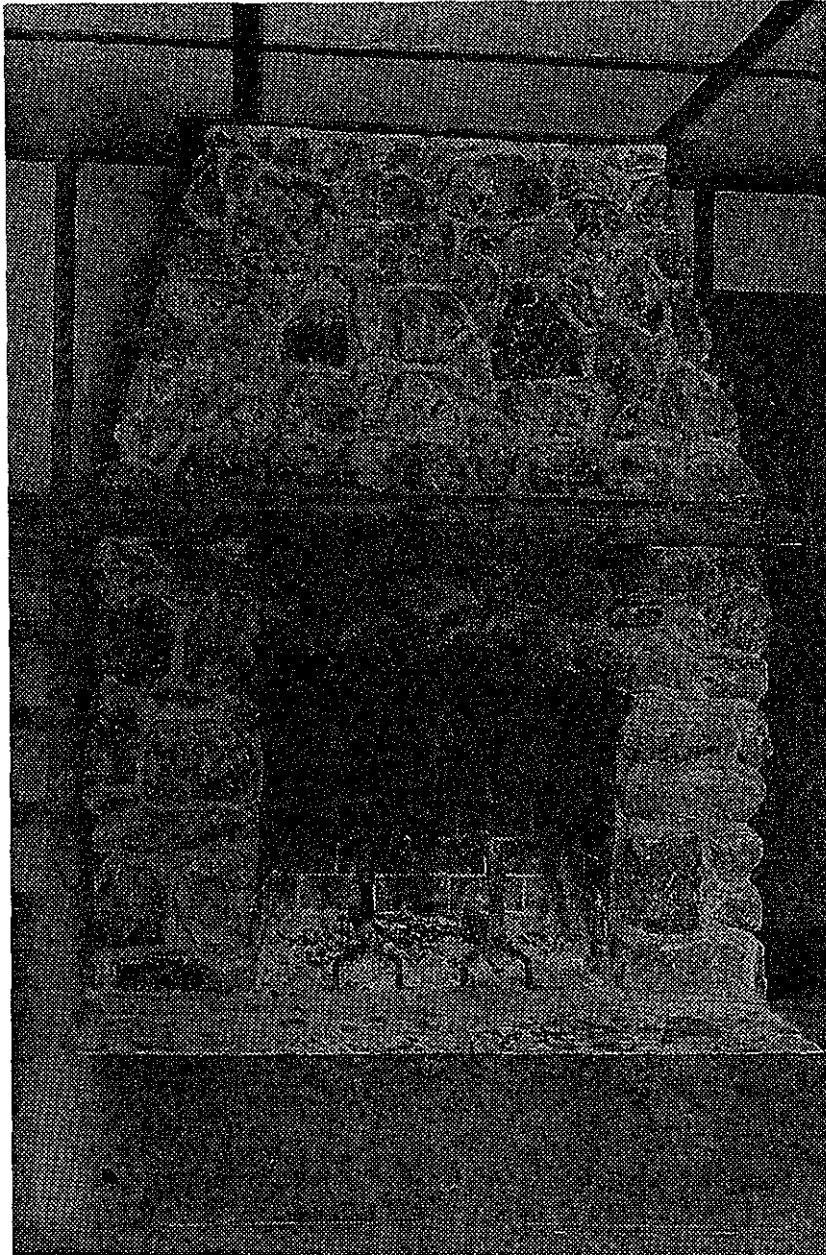


Figure 15. The image illustrates the original fireplace on the interior of the North Rim Entrance Station. The original interior finishes appear to be celotex panels with varnished or dark painted battens. The stone fireplace was removed during the rehabilitation campaign of 1954-55. Other works at that time included the removal of the interior partition wall, masonry chimney, and wood floor. The works significantly altered the character of the building's interior. Photo is undated. GCNPA Number 8048.

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Figure 16. The image is a drawing of the North Rim Entrance sign, 1938. Note that the panel is cut back at the lower left hand corner to follow the contour of the rocks and landscaping. The hanging sign has been refurbished and reused but the landscaping no longer retains the original configuration.

Appendix F. Photographs of Existing Conditions.

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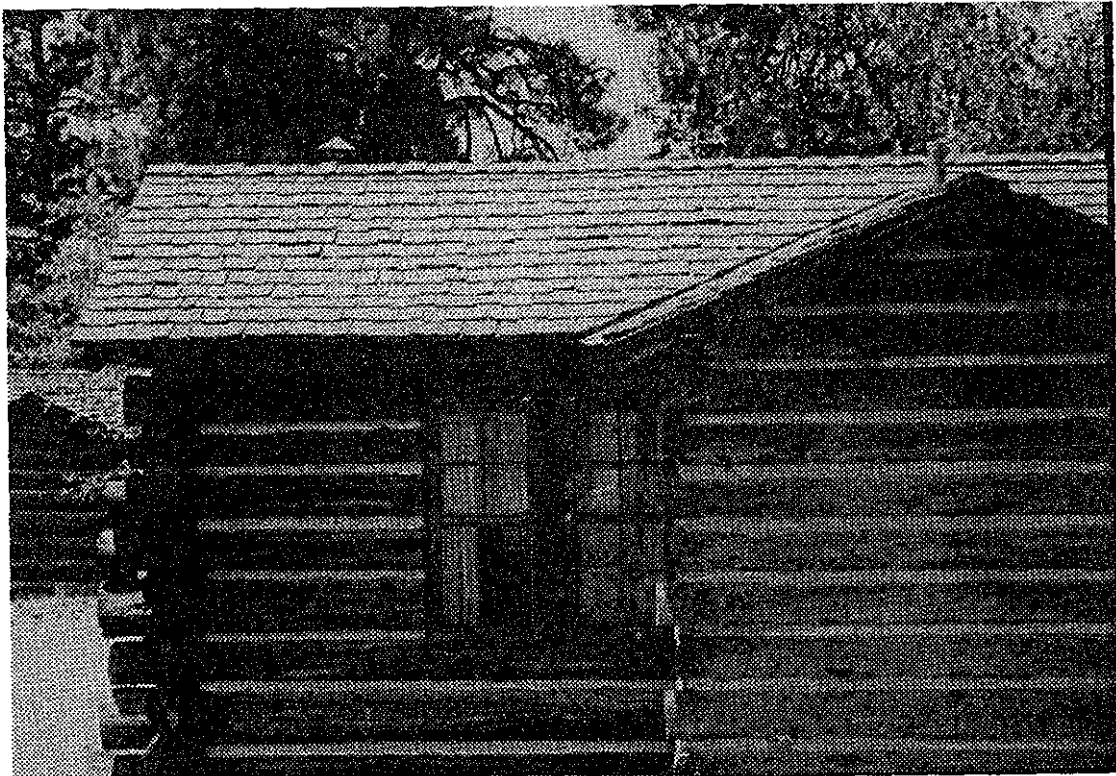


Figure 1. The image illustrates a standard cabin at the Grand Canyon Lodge at the North Rim. Similarities to the original design of the North Rim Entrance Station include: strong horizontals of light-colored chinking alternating with darker colored logs; window treatment; pitched gabled roof of wood shingles; and, a stone foundation. ARG Photo dated June, 2000.

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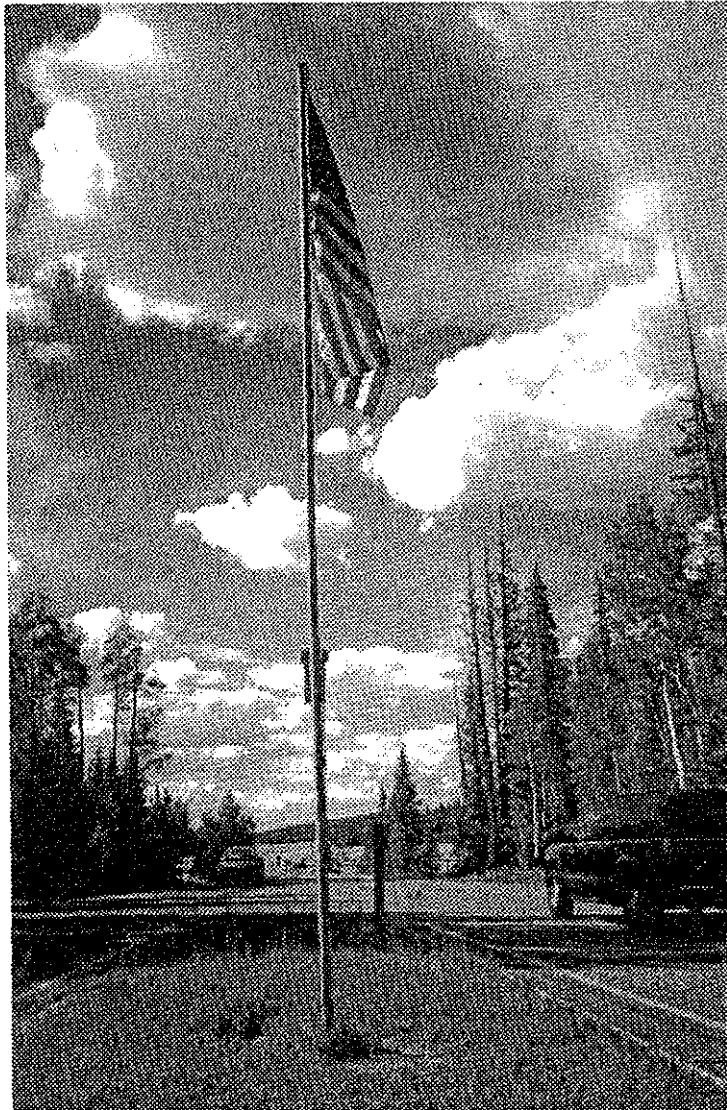


Figure 2. The image illustrates the prominent flagpole that stands in front of the North Rim Entrance Station. A key component of Park Service gateway design, the flagpole was meant to act as a heraldic element signaling the entrance of the park, and, in the view of Stephen T. Mather, inspire nationalistic pride. ARG Photo dated June, 2000.

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Figure 3. The image illustrates the type of piecemeal signage that clutters the site. ARG Photo dated June, 2000.

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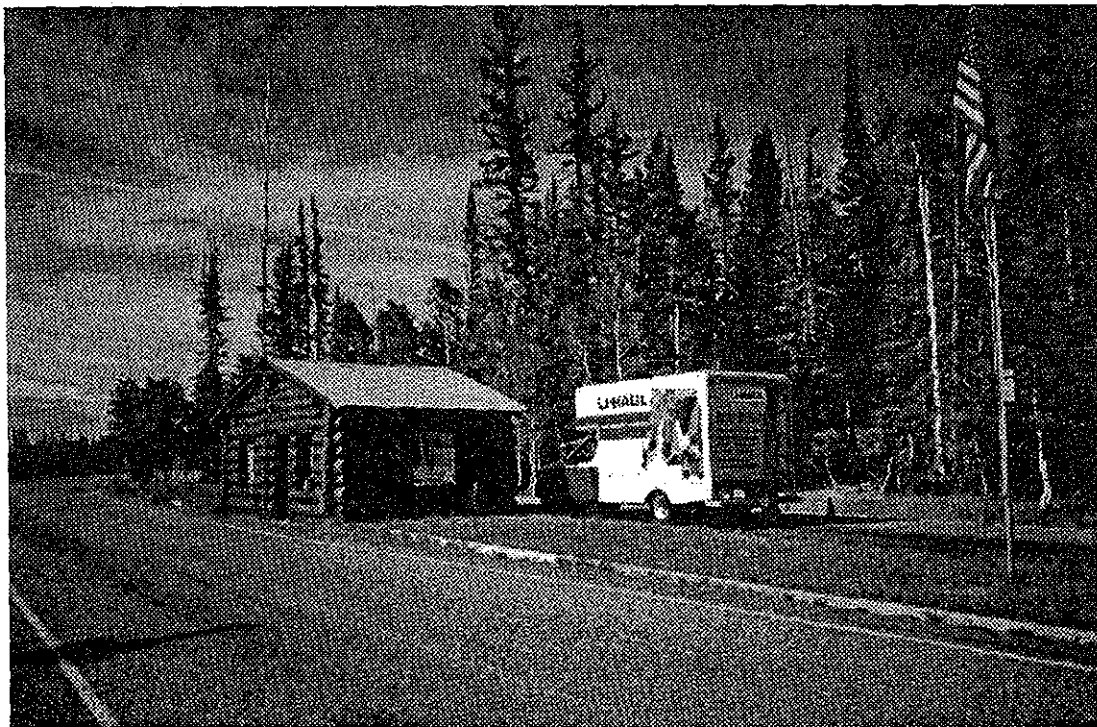


Figure 4. The image illustrates the relationship between the North Rim Entrance Station and the type of larger vehicles that could not access the North Rim when the canopies were extant. Removal of the canopies allowed passage into the park of the recreational vehicles and trucks which gained popularity in the decades after WWII. The exact date of the removal of the canopies is unknown, but probably dates to the late 1950s or 60s. ARG Photo dated June, 2000.

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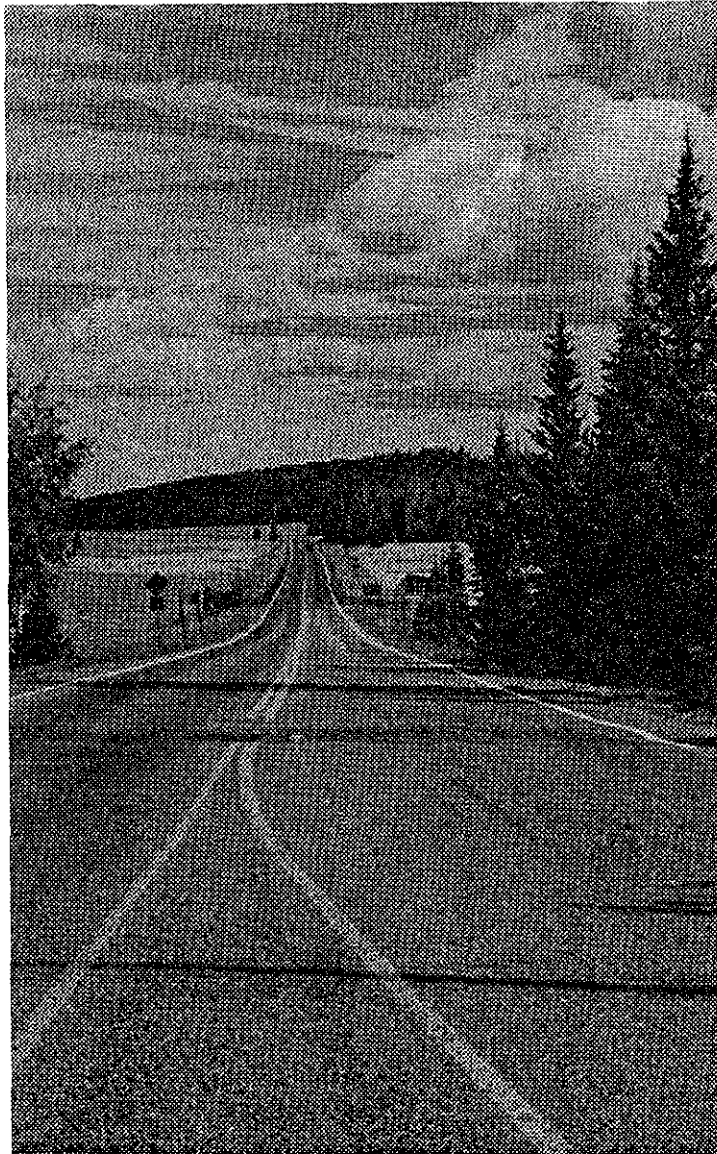


Figure 5. The image illustrates the stretch of road to the north of the North Rim Entrance Station. The vista represents the ranger's view from the building. The position of the building at the crest of the knoll affords the ranger long views from the interior of the entrance station to monitor oncoming traffic and changing weather patterns. ARG Photo dated June, 2000.

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Figure 6. The view of of the stretch of road to the north of the North Rim Entrance Station just past the park boundary. The image illustrates the command of the diminutive entrance station over the road and landscape as it sits astride the "saddle" in the topography. The view is looking toward the south. ARG Photo dated June, 2000.

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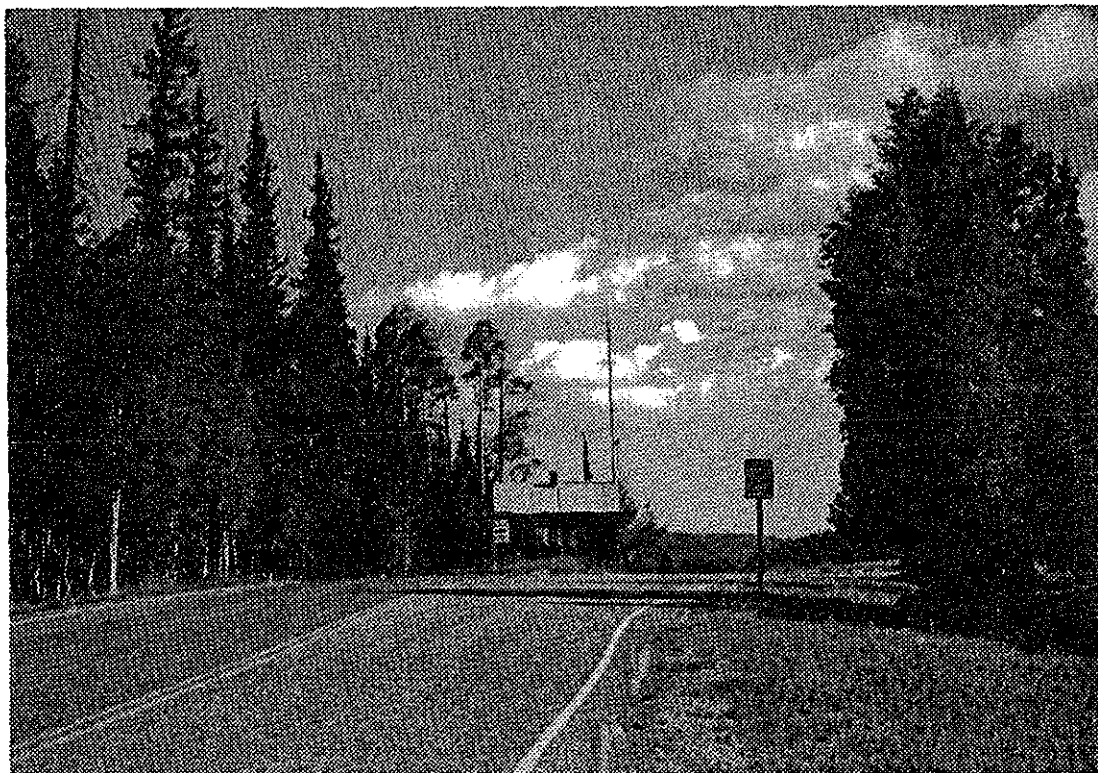


Figure 7. The image illustrates the south approach to the site. ARG Photo dated June, 2000.

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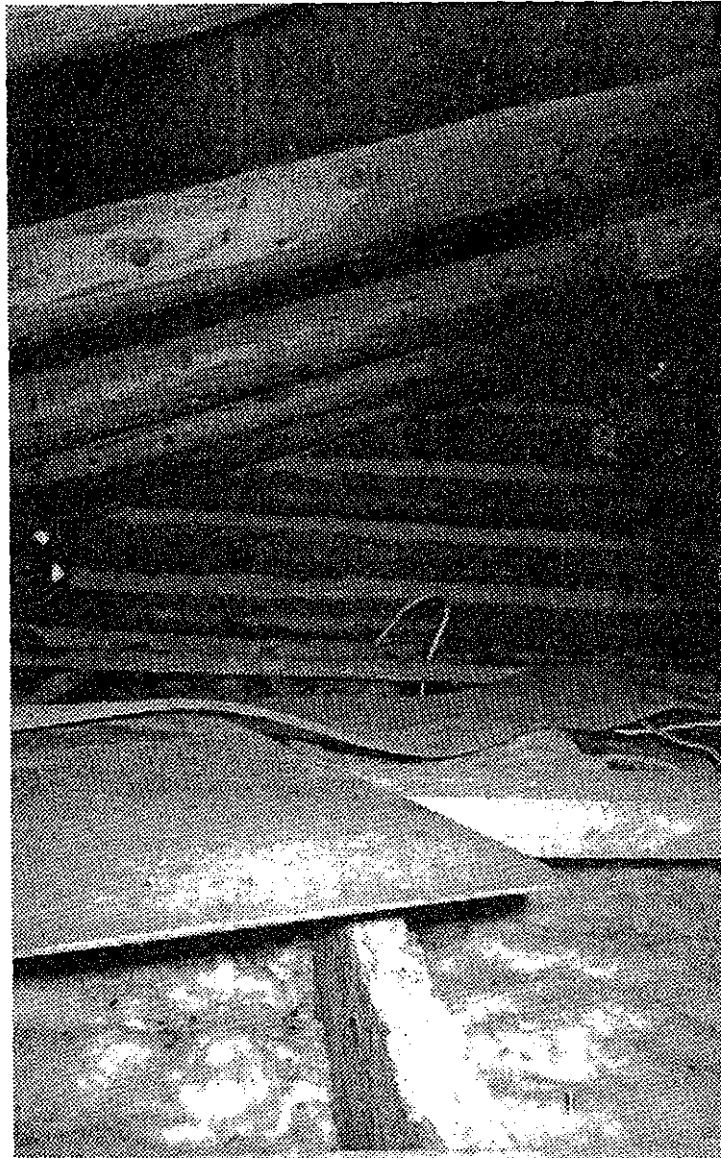


Figure 8. The image illustrates the interior of the attic showing the original color of the chinking and framing members. Note three openings around purlin log on left indicating log shrinkage. ARG Photo dated June, 2000.

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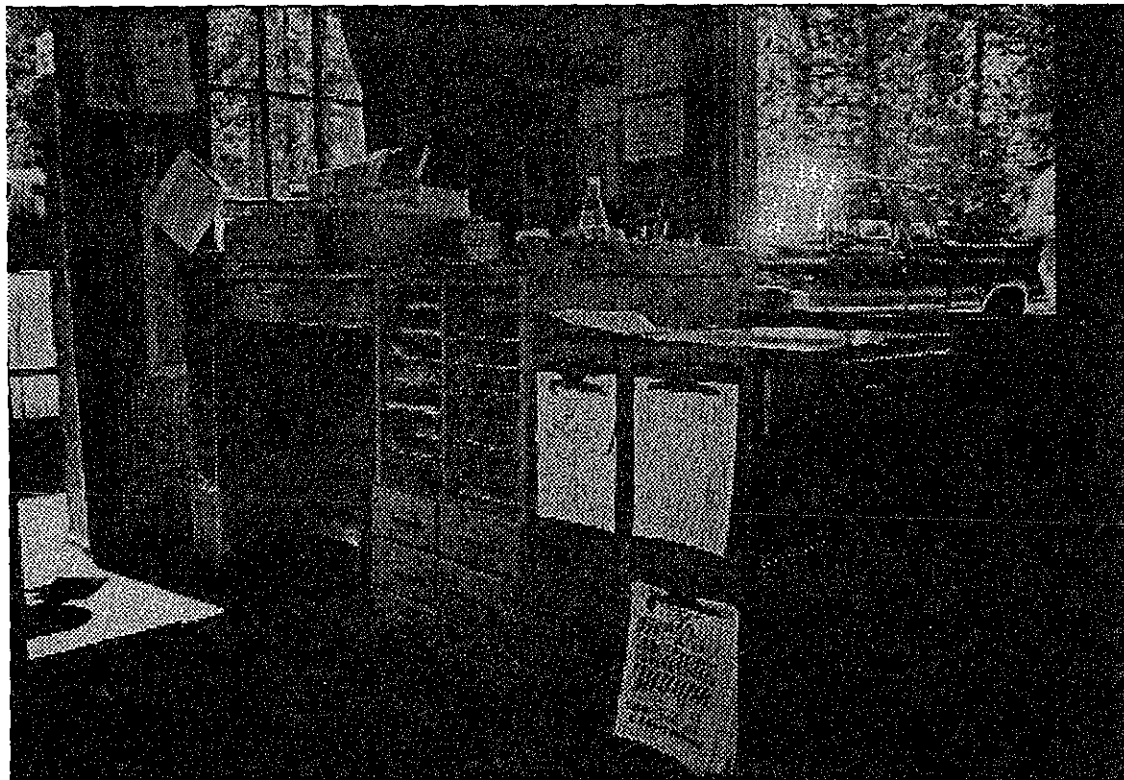


Figure 9. This image shows the northwest interior corner of the building with the ranger's desk in the foreground. The images also illustrates the relationship between the arriving vehicles and their proximity to the ranger's principal workspace. ARG Photo dated June, 2000.

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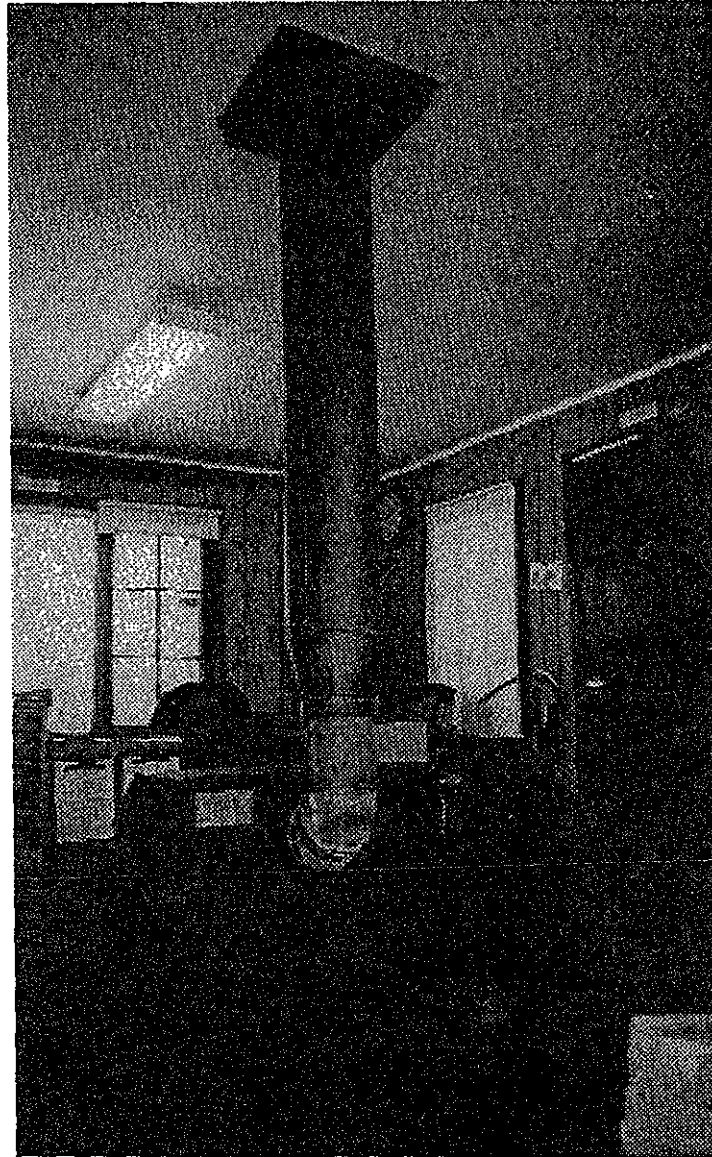


Figure 10. The image illustrates the wood-burning stove in the center of the interior of the North Rim Entrance Station. The stove replaced a stone chimney and fireplace that was removed in the 1950s. ARG Photo dated June, 2000.

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Figure 11. The image illustrates the east elevation of the entrance station. Typical conditions are splitting and cracking of the logs, peeling paint on the log surfaces, antenna support pole, and moth cocoons. ARG Photo dated June, 2000.

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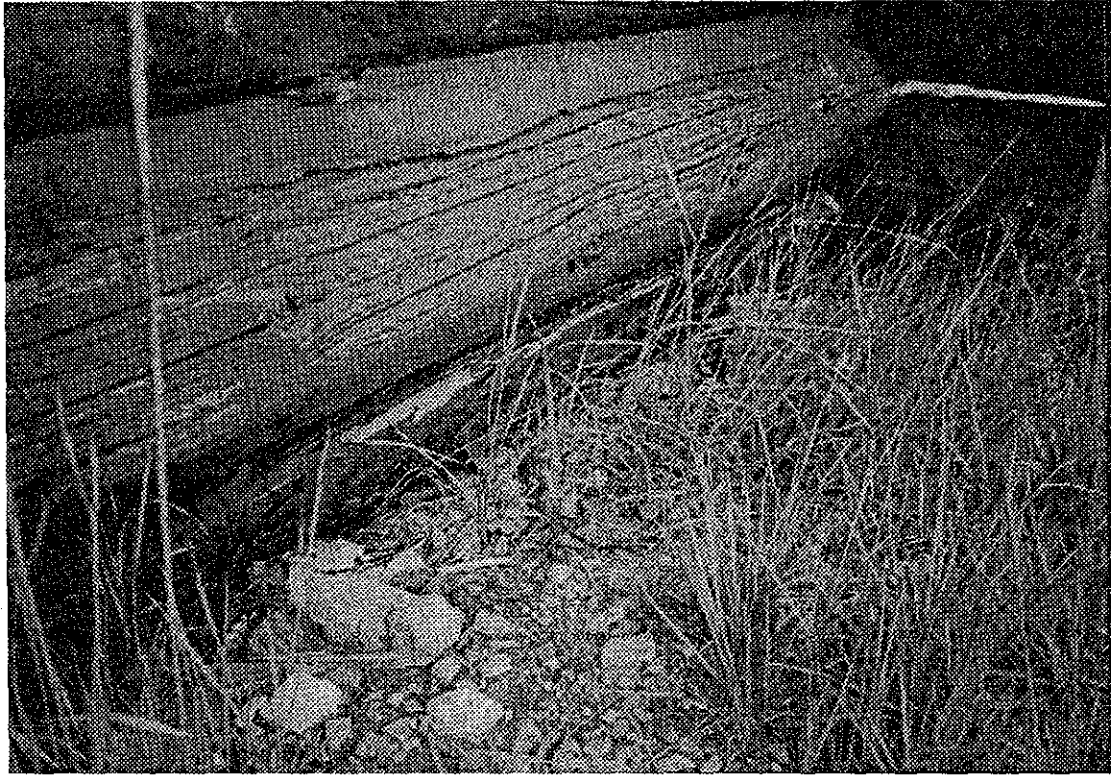


Figure 12. The image illustrates log deterioration at the North Rim Entrance Station. Deterioration on the lower level of the south elevation is particularly severe due to sun exposure and snow drifts in winter. ARG Photo dated June, 2000.

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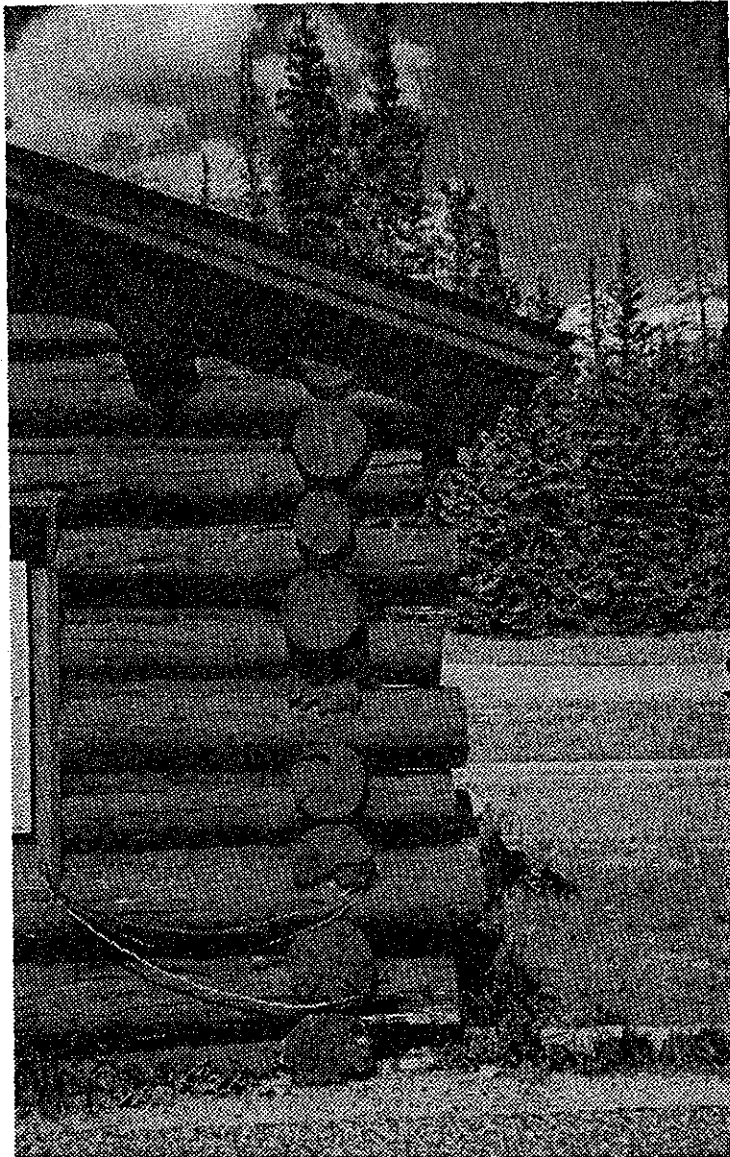


Figure 13. Staggered log ends are a character-defining feature of the North Rim Entrance Station. The north-south running logs retain their original configuration. The east-west running logs (ends facing viewer) have been altered to form an even vertical line to accommodate vehicles that pass closely by the structure. ARG Photo dated June, 2000.

April 13, 2001

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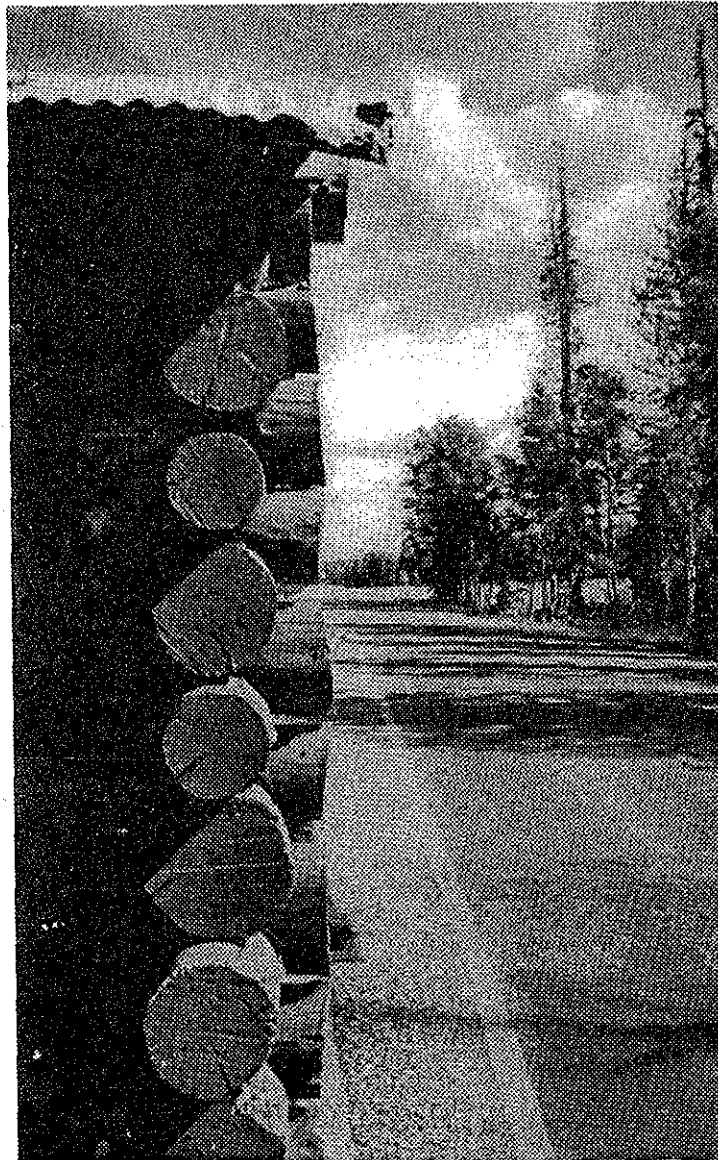


Figure 14. The east-west running logs have been altered to form an even vertical line to pull the log ends back from the roadway to accommodate vehicles. ARG Photo dated June, 2000.

April 13, 2001

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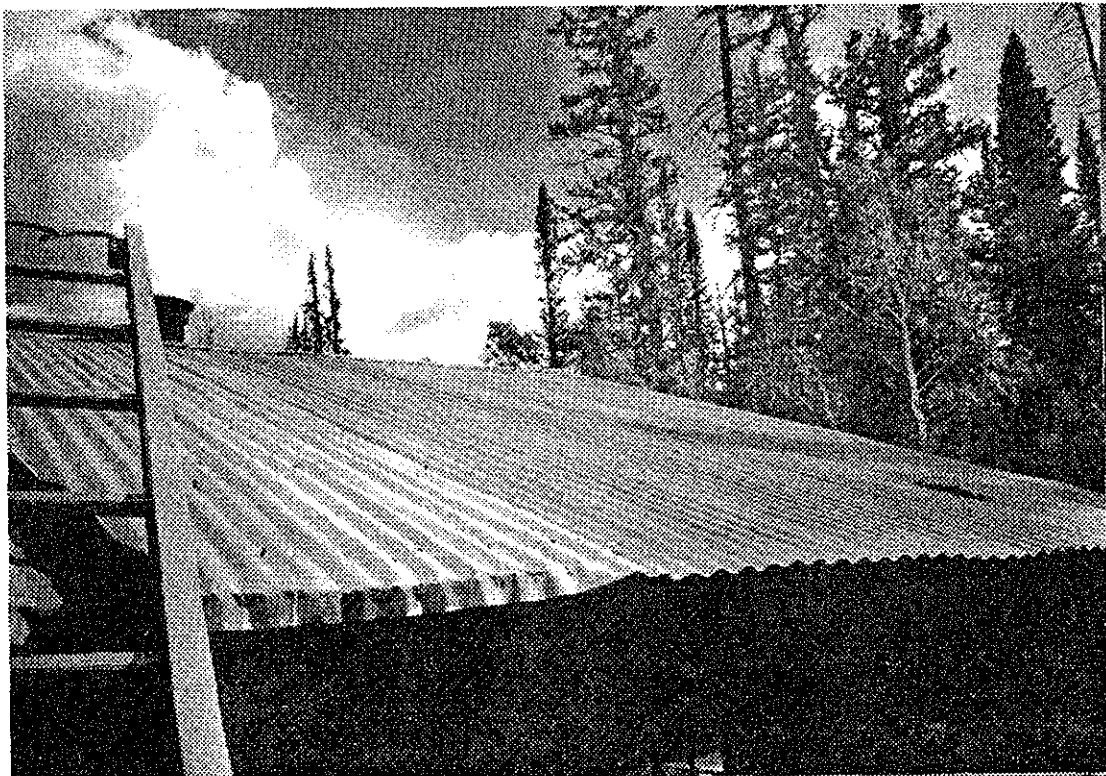


Figure 15. The image illustrates the weathered corrugated metal roof of the building. Characteristics of the roof are: peeling brown paint exposing the metal; curling seams of the sheathing; rusted nails; splitting and curling wood shingle ends of irregular lengths below the metal sheathing; gaps and openings in the seams of the sheathing; and crinkled metal sheathing with holes. ARG Photo dated June, 2000.

April 13, 2001

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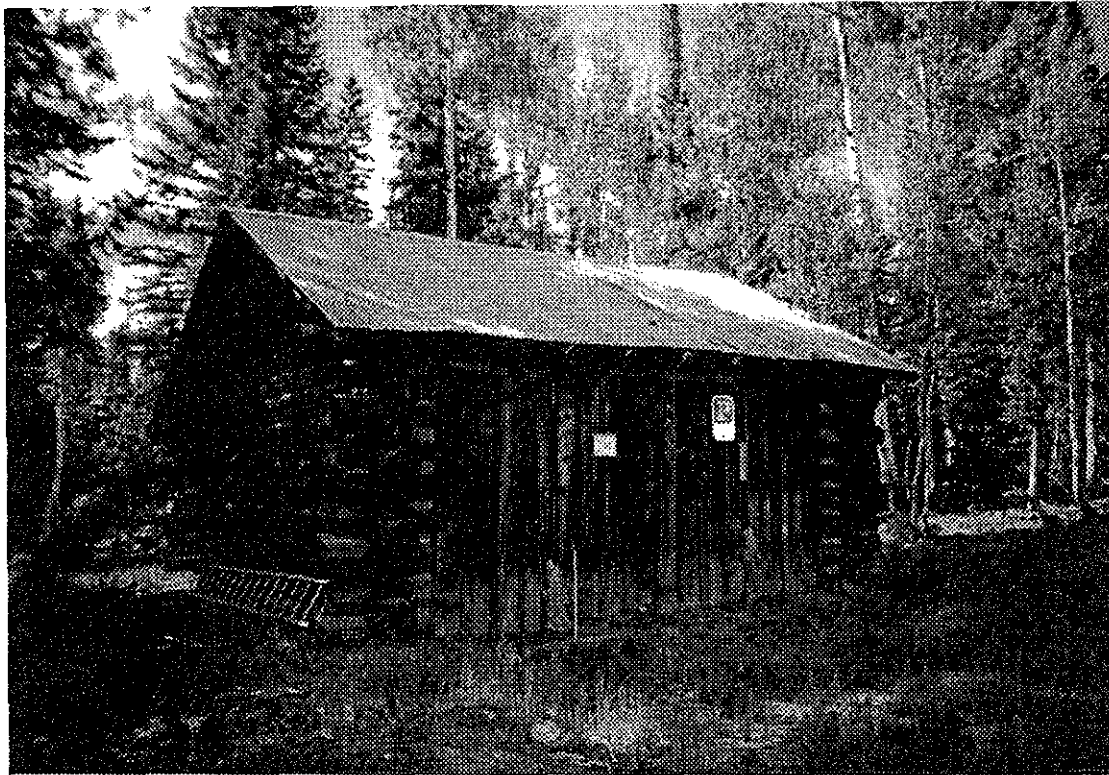


Figure 16. The structure in this image is Building 122A, a garage ancillary to the employee residence near the park entrance. This underutilized structure is located approximately 400 feet from the North Rim Entrance Station. Though in need of rehabilitation and waterproofing, the shed could provide additional storage space for the entrance station. See the Treatment and Use Section of the HSR for further discussion of this structure. ARG Photo dated June, 2000.

Appendix G. Consultant Reports.

Flack + Kurtz Inc.

North Rim Entrance Station
Grand Canyon National Park, Arizona

BUILDING ASSESSMENT REPORT

Prepared for:
Architectural Resources Group
Pier 9, The Embarcadero
San Francisco, CA 94111

Prepared by
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A WSP Group Company
343 Sansome Street
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November 7, 2000

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I. INTRODUCTION**A. GENERAL**

The North Rim Entrance Station is located at the north entry to Grand Canyon National Park. The site elevation is approximately 8,500 feet above sea level.

The building was originally constructed in 1928. Since then it has been modified by removing the original covered entries on both sides. The plan is to renovate and restore the building to continue to serve as the north entry station for park visitors.

This report provides a basic assessment of the building's HVAC, plumbing, fire protection and electrical systems. The report is based on a review of available building drawings, pictures provided by ARG and a verbal description of existing conditions by ARG based on their site visit in May, 2000. The estimation of the future viability of existing systems is based solely on the information provided above. The walk through was limited to the observation of visible equipment only. Equipment was not tested or operated for functionality, nor were hidden areas exposed or inspected.

Recommendations related to code issues are based on the current versions of the Uniform Building, Electrical, Fire, Mechanical, and Plumbing codes.

II. HEATING, VENTILATING AND AIR CONDITIONING**A. GENERAL DESCRIPTION**

In general the heating, electrical and phone systems seem to be in good working order and have been fairly well maintained over their operational lifetime. There is no mechanical ventilation currently provided and there are no plumbing systems.

B. AIR CONDITIONING SYSTEM**1. Existing Conditions**

Originally there appears to have been a wood burning fireplace with a stone chimney. The fireplace and chimney have since been replaced with a wood fired stove for heating only. A relatively new flue vent remains in place. There is insulation in the attic, however the walls are probably not insulated. Operable windows currently provide natural ventilation. Portable electric space heaters are sometimes used when employees do not wish to tend the wood burning stove.

2. Recommendations

Currently there are complaints by the park staff of fumes from the visitor's motor vehicles entering the building. One option would be to install a small air handling unit (located on grade or in the attic) with a carbon filter. The filter would remove fumes and other contaminants from the outside air and pressurize the building. This would prevent outside air from entering the building through windows or doors except during a strong wind. Cooling and/or heating could also be added to the air handling unit. The new air handling unit would require regular maintenance (i.e. changing filters) which could be performed by park maintenance staff.

If all of the heating requirements can not be met by the make-up air unit, or it is decided the make-up air unit is not required, then supplementary heating (to the wood burning stove) could be provided by wall mounted permanent electric resistance heating elements. These would replace the portable units currently in use.

III. PLUMBING**A. DOMESTIC WATER SYSTEM****1. Existing Conditions**

There is no water service for this building.

2. Recommendations

Water service would be difficult to add to this building due to it's remote location. One possible option would be to install a well with a small vertical pump. A small sink would also be added.

However, there is no desire to add a toilet to the structure since there is no space for an ADA sized toilet room anywhere within the building.

B. FIRE PROTECTION SYSTEM**1. Existing Conditions**

There currently is no permanent fire protection in the building. Wall mounted fire extinguishers are currently in place.

2. Recommendations

Per the NPS Director's Order #50B there is a desire for all renovated buildings to be retrofitted with an automatic sprinkler system. This could be accomplished through a well system with a storage tank and a pump with a sprinkler distribution system.

C. SANITARY AND STORM SYSTEM**1. Existing Conditions**

There currently is no sanitary or storm service to this building.

2. Recommendations

No recommendations.

IV. ELECTRICAL**A. ELECTRIC SERVICE****1. Existing Conditions**

Electrical service to the building is provided via underground conduits by APS at 120/240V, 1-phase, 3-wire.

2. Recommendations

The existing service equipment appears to be in fair condition but is a candidate for replacement due to its age. Recommend replacement.

The existing service capacity is adequate for the planned renovation.

B. EMERGENCY POWER**1. Existing Conditions**

This structure falls outside of the area covered by the park's emergency back-up generator. Power outages are frequent in this area. When an outages occur a portable generator is brought outside and set up by the employee operating the entrance station. During this time the building is left unattended.

2. Recommendations

A small permanent generator with a 3 to 8 hour supply of fuel could be placed near the building to provide almost immediate power service when normal power service fails.

B. POWER DISTRIBUTION**1. Existing Conditions**

A single panelboard for lighting and receptacle circuits is located in the building. Service to the panelboard is via overhead conduit routing. The panelboard is rated at 120/240V, 1-phase.

2. Recommendations

The existing panelboard should be replaced with a new panel during the renovation phase.

C. LIGHTING AND RECEPTACLES**1. Existing Conditions**

Lighting consists mainly of surface mounted fluorescent light fixtures.

Receptacles and telephone outlets are located at various wall locations to satisfy current equipment locations.

2. Recommendations

Light fixtures should be replaced with new energy efficient lighting systems where possible. Magnetic ballasts should be assumed to contain PCB's and disposed of in accordance with all applicable rules and regulations

D. FIRE ALARM SYSTEM**1. Existing Conditions**

There is no fire alarm system currently installed.

2. Recommendations

The current occupancy use group does not require a full fire alarm signaling system. Smoke detectors should be provided for spot coverage and life safety protection.

E. SECURITY SYSTEM

1. **Existing Conditions**

An existing Simplex 3001 panel is provided for alarm monitoring and notification.

2. **Recommendations**

The existing security system is in good shape and can be reused in the renovation work. The existing system can be extended to new areas of work.



North Rim Entrance Station

Existing Conditions

The North Rim Entrance Station is a log-cabin style structure built in 1928. The current building has plan dimensions of roughly 13' x 19' at the interior face of the walls.

Debarked round timbers, alternately stacked at each of the building corners, make up the main structural system of log-cabin framing. The wall timbers are leveled and solidly caulked with mortar. Smaller round timbers exist as sloped roof rafters. Straight sheathing comprised of 1x7 boards form the roof diaphragm. Presently, the finished roof material is corrugated metal deck. A ceiling is supported by 2x wood ceiling joists. The attachment of the ceiling joists to the timber walls could not be determined.

The ends of the wall timbers at the two roadway sides have been trimmed to a condition roughly flush with the sides of the building, such that the timber ends do not greatly protrude into the roadway. There is evidence of some wood deterioration at the outside edges of the timbers directly at grade.

Based on historic photographs, the building originally had two "wings" on each side – a roofed area over an open "drive-through." Round timber frames supported the outer roof edges. The roof extensions were of the same timber construction as the enclosed portion of the building. Both winged roof areas have been removed face of the enclosing side walls.

Recommendations

Based on its age, construction, and historic status, the North Rim Entrance Station would fall under the provisions of the Uniform Code for Building Conservation. Because the building is in seismic zone 2B, and since no change in occupancy has occurred, the structure does not require strengthening for seismic loads. This is no exposed portion of the structure that exhibits any structural strength deficiencies.

The deterioration of the timber at grade should be repaired. This may be accomplished by removing the eroding wood and sealing the remaining wood against further deterioration. As an alternate, a portion of the member could be removed and replaced, to maintain the historic appearance.



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

