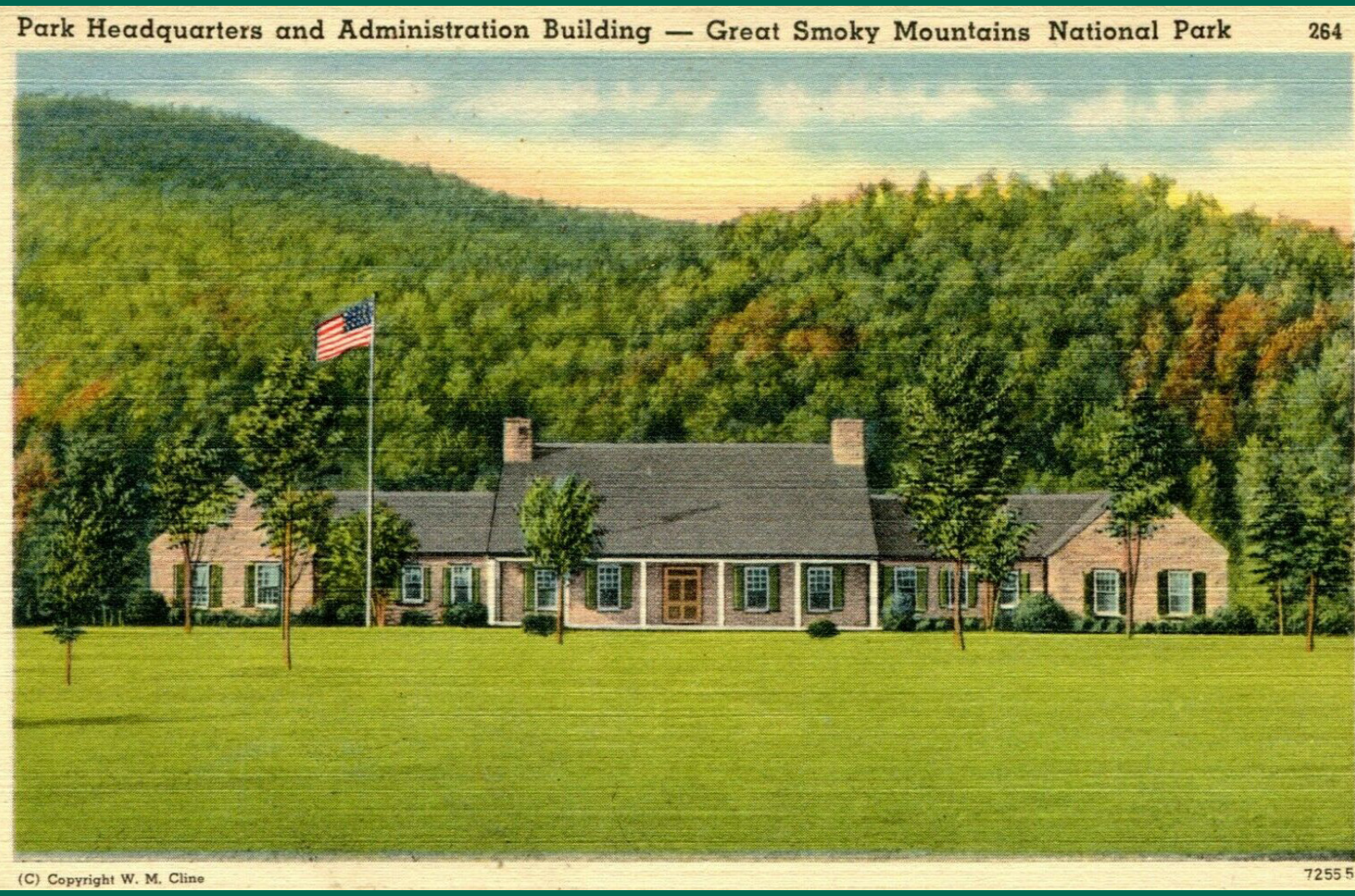
National Park Service
U.S. Department of the Interior

Great Smoky Mountains National Park
Gatlinburg, TN



Historic Structure Report

Sugarlands Headquarters

Final Report December 2019

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Sugarlands Headquarters

Great Smoky Mountains National Park
Gatlinburg, Tennessee

FINAL REPORT

December 2019

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NPS Document Number: GRSM 133 165517

Cover Photo: Postcard circa 1940s (Great Smoky Mountains National Park Archives)

Title Page: South Elevation (Quinn Evans 2018)

FOREWORD

The Great Smoky Mountains National Park was established in the early 1900s. The Headquarters Building stands as an iconic structure illustrating the Federalist Colonial design and the Civilian Conservation Corps craftsmanship with which they built many Park structures. The slate roof and the chiseled stone walls provide an enduring image of life in a time long past, when great care and time was taken to carefully carve each stone to be used in the walls of the symbolic structure. Upon entering the building, the stone fire place and the wagon wheel chandeliers provide a warm greeting to all who enter. The wormy chestnut paneling in the offices reflects the abundance of fine woods used in structures of the day. Sandstone and wood floors add the final touch to the style of the times when the structure was built.

The style, materials and craftsmanship of the Headquarters Building provides a living history of building practices at the time of the establishment of the Great Smoky Mountains National Park. It is incumbent upon the current caretakers of the Park to document the historical significance of the materials and craftsmanship of the building, and to preserve those items that convey a message from the early days of the National Park Service. This Historical Structure Report (HSR) provides a tool to guide the work associated with all modifications, repairs, and updates to the building so that the historical fabric is not irreparably damaged or lost. Design work relative to upgrading the subject building shall take note of the historical elements documented in this text, and shall implement practices and procedures to maintain the integrity of the subject building.

The Great Smoky Mountain National Park appreciates the all the time, effort and care that was put into the development of this document. It will provide a valuable guide for all future repairs and improvements to the Headquarters Building.

Cassius M. Cash
Superintendent
Great Smoky Mountains National Park
2019

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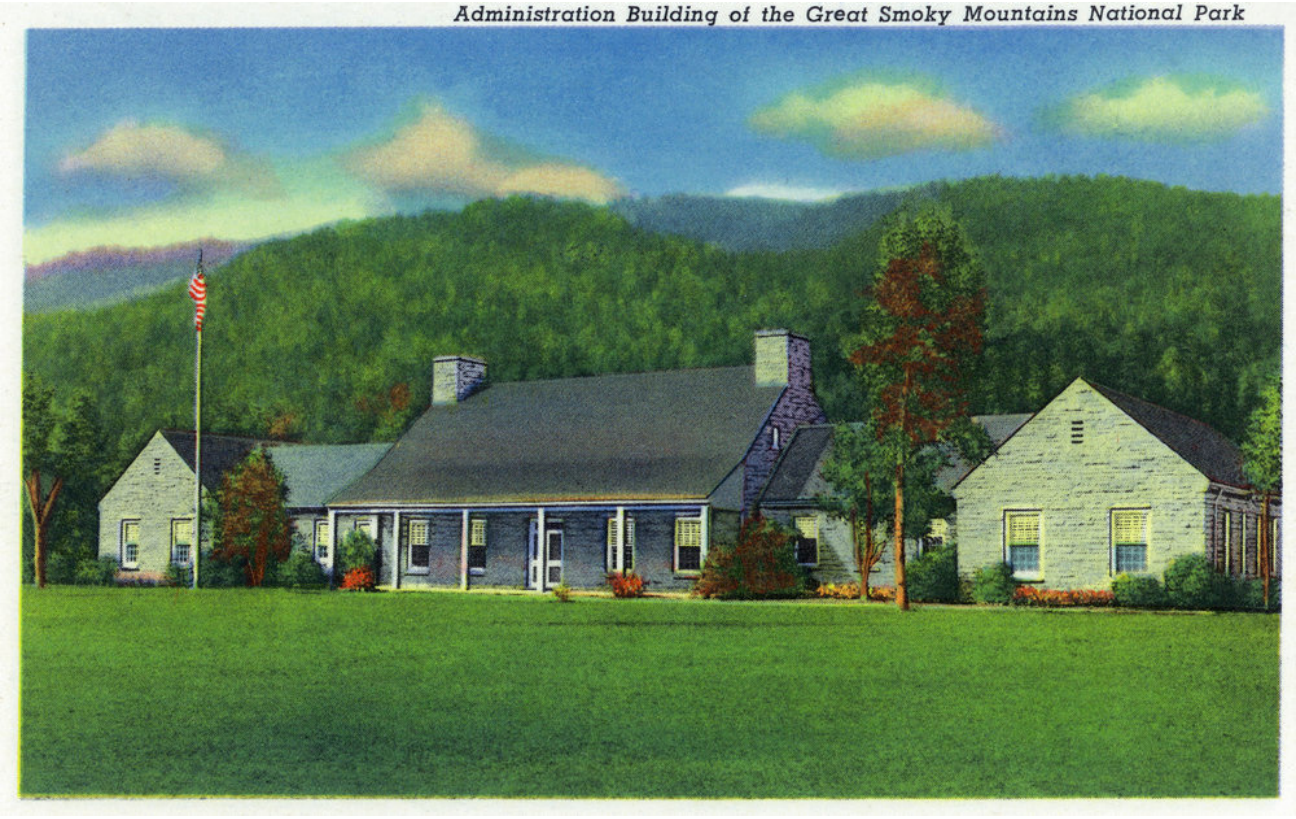


EXECUTIVE SUMMARY AND ADMINISTRATIVE DATA

Section Title Page: Undated Postcard (Source: GRSM Archives)

Chapter 1: Executive Summary

STATEMENT OF PURPOSE AND PROJECT GOALS

The purpose of this Historic Structure Report (HSR) is to guide the rehabilitation of the Sugarlands Headquarters Building at Great Smoky Mountains National Park in Tennessee. As the park's foundation document states, "Great Smoky Mountains National Park preserves a vast expanse of the southern Appalachian Mountains ecosystem including its scenic beauty, extraordinary diversity of natural resources, and rich human history, and provides opportunities for the enjoyment and inspiration of present and future generations." The headquarters building was constructed in 1939-1940 to provide administrative offices for the park, which had been established in 1934. Its design was a collaborative effort between National Park Service (NPS) architects and Knoxville architect Charles Barber. Funded by the New Deal Public Works Administration (PWA) program, the building's foundation and basement were constructed by Civilian Conservation Corps (CCC) workers, while the first and second floor were completed by the Southeast Construction Company of Charlotte, North Carolina. The building was designed in the Colonial Revival style with materials and design elements intended to establish the park's architectural character. Although portions of the interior have undergone periodic remodeling as the needs of the park's administrative staff evolved, the building as a whole retains a high degree of integrity, particularly at the exterior and in the main character-defining interior space, the lobby. While the building has been well maintained over its lifetime, it has a number of functional and mechanical issues including circulation and office space inefficiencies, inadequate lighting, lack of accessibility, and poorly functioning environmental systems. This HSR is being prepared in conjunction with pre-design and schematic design that will wholly restore, rehabilitate, and upgrade the building. The HSR documents the history and chronology of the building in order to understand its evolution and the decision-making processes that led to changes in the past; describes and evaluates existing conditions, including architectural, structural, and building systems; and presents a treatment philosophy and recommendations to ensure that future work preserves the character-defining features of the site and building. The HSR is largely confined to the building itself, with some consideration of the site as it relates to building issues; an assessment of the physical and cultural landscape is not part of this report.

INVESTIGATION HISTORY AND METHODOLOGY

The task of preserving a historic site requires a disciplined approach to analyzing historical evidence, documenting physical conditions, and anticipating the future needs of the property. This is accomplished by utilizing a variety of investigative procedures. These include researching primary and secondary sources, performing detailed physical surveys of the structures and site, consulting with specialists in materials and construction methodology, and employing scientific technology.

The level of documentary research for this project was "thorough," defined by the NPS Denver Service Center Workflows as

> 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 project management plan.[1]

Preliminary research was undertaken in a set of electronic documents provided by the National Park Service. The project historian viewed the archival collections of Great Smoky Mountains National Park at the Collections Preservation Center in Townsend, Tennessee. Copies of materials were made at that facility and relevant historic photographs were later scanned and provided to the HSR team. Limited additional research was undertaken to supplement these collections, which are generally comprehensive but not necessarily exhaustive. Primary research was focused on documenting the building's construction and physical change over time. Secondary research provided additional background and context in which to understand the building's history.

The consultant team, including architectural, structural, and building systems, had previously surveyed the building as part of the pre-design and schematic design contract. Additional survey for the HSR took place in June 2019. Survey was largely visual, with no destructive testing. Photographs were taken and have been used to supplement the narrative where appropriate.

1 "Definitions," Denver Service Center Workflows, https://www.nps.gov/dscw/definitionsdc_l.htm.

PROJECT TEAM MEMBERS

The National Park Service contracted with a team of professionals to complete the HSR. The team consists of:

Quinn Evans (QE), Ann Arbor, Michigan, leading the preparation of the HSR, and providing historic research, architectural evaluation, and architectural drawings.

Patrick Roach, Principal
Ruth E. Mills, Historian
Alexis Galinis, Historical Architect

Baker Design Build, Jacksonville, Florida, providing structural engineering assessment and recommendations.

Apogee Consulting Group PA, Cary, North Carolina, providing mechanical, electrical, and plumbing engineering assessment and recommendations.

The National Park Service team consists of:

Great Smoky Mountains National Park, Gatlinburg, TN

Cassius M. Cash, Superintendent
Alan Sumeriski, Chief of Facilities
Brian Bergsma, Deputy Chief of Facilities
Teresa Cantrell, Program Manager
Joe Ferowich, Civil Engineer
Mark Collins, Environmental Protection Specialist
Randy Hatten, Buildings and Grounds Branch Chief
Rick Killingsworth, Utilities Branch Manager
Ron Lawson, IT Specialist
Matt Poe, IT Specialist
Brad Roberts, Supervisor, Buildings and Grounds
Julia Schultz, Assistant

Denver Service Center, Denver, CO

Rani Guram, Project Manager
Jesse DeCoteau, Project Specialist
Anne LaPorta, Contracting Officer
John Babcock, Contracting Specialist

REPORT ORGANIZATION

The Historic Structure Report provides both a philosophical approach and practical recommendations for treatment of the property, supported by historic research and survey of existing conditions. The report is organized as follows:

Chapter 1: Executive Summary

Presents the statement of purpose and project goals, project team members, investigation methodology, report organization, and a summary of findings.

Chapter 2: Administrative Data

Provides background information including locational data, related studies, and cultural resource data.

PART I: DEVELOPMENTAL HISTORY

Chapter 3: Developmental History and Chronology of Change

Presents and analyzes the site chronology as derived from historical and physical investigations, including site history, a statement of signficance, list of character-defining features, and historic images.

Chapter 4: Physical Description

Presents, analyzes, and evaluates the existing site features and drainage, exterior envelope, interior finishes, structural systems, and mechanical, electrical, and plumbing systems.

PART II: TREATMENT AND USE

Chapter 5: Ultimate Treatment and Use and Requirements for Treatment

Presents the philosophical approach to treatment that guides the treatment recommendations, as well as applicable laws, regulations, and functional requirements that affect treatment.

Chapter 6: Recommendations for Treatment

Presents recommendations for the appropriate treatment and use of the building, including treatment recommendations for the site, exterior envelope, interior finishes, structural systems, and mechanical, electrical, and plumbing systems.

References

Provides a bibliography of sources used in the preparation of this report.

Appendices

Includes drawings and other supplemental materials

MAJOR RESEARCH FINDINGS

Statement of Significance

The Sugarlands Headquarters has not been formally listed in the National Register of Historic Places, despite several draft nominations prepared since 1991. The Historic Resource Study (HRS) for Great Smoky Mountains National Park, published in 2016, recommended the Sugarlands Headquarters Area as eligible for listing in the National Register of Historic Places under Criteria A and C with two periods of significance: "the initial years [of development] facilitated by New Deal public works programs such as the CCC and the PWA, and the later work funded by the system-wide Mission 66 program." Of the headquarters building, the HRS states:

> The headquarters building. . .(is) also significant under Criterion C as a remarkably successful example of 1930s NPS planning and landscape harmonization. The headquarters building was prominently and artfully sited so as to be visible to motorists traveling north through the park. The formality of the proposed U-shaped court behind the building was appropriate for this important symbol of NPS authority. Great care was taken with grading and plantings surrounding the building. Minor alterations to the headquarters building include an exposed steel fire escape at the rear and the paving over of the flagstone walks surrounding the building.[2]

The Tennessee State Historic Preservation Office concurred with this recommendation in 2017. Additionally, a Multiple Property Documentation Form (MPDF) for the "Historic Resources of Great Smoky Mountains National Park" was certified by the Keeper of the National Register of Historic Places in November 2016. According to the registration requirements established by the MPDF, the Sugarlands Headquarters would be eligible for listing under the Multiple Property Submission.

Existing Conditions

The Sugarlands Headquarters is a symmetrical one-and-a-half story, fifteen by six bays wide, 'H' shaped structure with a steeply sloped roof. The building is clad with sedimentary sandstone in a random ashlar pattern and is covered by a slate roof with two rectangular stone chimneys. A covered wood porch extends out from the center five bays of the south main façade, a walk out basement leads to staff parking to the north, and the east and west wings have gable ends on their

2 Public Archaeology Laboratory, "Historic Resource Study: Great Smoky Mountains National Park," National Park Service, U. S. Department of the Interior, 2016, 173-174.

north and south faces. The building features large, multi-light, double-hung wood windows, as well as three dormers on the north elevation. The building is overall in fair condition. Specific areas of concern include

- The slate roof, which is in poor condition and has a significant dip near the east wing on the north side. There is a history of water infiltration from the roof;
- Water infiltration through the basement door on the east wall of the west wing, north elevation;
- Dropped ceilings are in fair to poor condition and at the lower level extend in bulkheads across the windows;
- The presence of asbestos-containing materials in floor tile, door caulking, and sink undercoating and lead paint in the basement and main floor;
- A history of "sick building" syndrome reported in recent decades.

Overall, the building retains a high degree of historic integrity, particularly at the exterior and the character-defining features of the interior, chiefly the lobby, former Superintendent's office, and major circulation corridors. However, the building is not adequate to accommodate the staff and administrative functions required for the park.

Treatment Recommendations

The Sugarlands Headquarters Building is intended to remain as the primary administrative headquarters of Great Smoky Mountains National Park. This HSR is being prepared in conjunction with pre-design and schematic design services to rehabilitate the building for continued use as administrative offices. Proposed work includes repairing the roof and reinstalling the original slates, repairing the stone masonry and exterior porches, improving egress, circulation, and accessibility of the interior and providing for better functionality in the office layout. The work will encompass new building systems, including electrical, lighting, plumbing, mechanical, fire detection and suppression, and insulation to meet current codes. Hazardous materials will be mitigated.

While it has not yet been listed in the National Register of Historic Places, the Sugarlands Headquarters Building is being treated as a historic structure. All work performed will be sensitive to the historic fabric and will conform to the Secretary of the Interior's Standards for Rehabilitation.

Detailed recommendations and descriptions of these improvements, and additional project improvements, are described within the report.

Chapter 2: Administrative Data

LOCATIONAL DATA

The Sugarlands Headquarters is located in Sevier County, south of Gatlinburg, Tennessee, in the north central area of Great Smoky Mountains National Park. According to the park's foundation document, "Great Smoky Mountains National Park is located in the Southern Appalachian Mountains and straddles the border between North Carolina and Tennessee. The park encompasses more than 800 square miles and is dominated by ancient mountains, with elevations ranging from 850 feet to 6,643 feet at Clingmans Dome." The Sugarlands area includes the park's headquarters, a visitor center, and a maintenance yard. The headquarters building is located on Park Headquarters Road just east of US-441 South. Parking for the headquarters is along Park Headquarters Road and behind (north) the building.

PROPOSED TREATMENT

Pre-design and Schematic Design for the complete rehabilitation of the Sugarlands Headquarters is taking place concurrently with the preparation of this HSR. This work will address functional deficiencies in interior circulation and arrangement of work spaces, upgrades to structural, mechanical, electrical, and plumbing systems, mitigation of hazardous materials, and improvements to accessibility. The design is in accordance with the Secretary of the Interior's Standards for Rehabilitation.

RELATED STUDIES

Great Smoky Mountains National Park maintains a number of historic districts, buildings, structures, and areas within the park boundaries. The headquarters building was documented by the Historic American Building Survey (HABS TN-256) in 2011, written by project historian James A. Jacobs and photographed by James Rosenthal. A Historic Resource Study was prepared for Great Smoky Mountains National Park in 2016. Several draft National Register of Historic Places nominations for the headquarters building from the 1990s exist in the archival collections at the Collections Preservation Center (see Chapter 3, Statement of Significance, for further details).

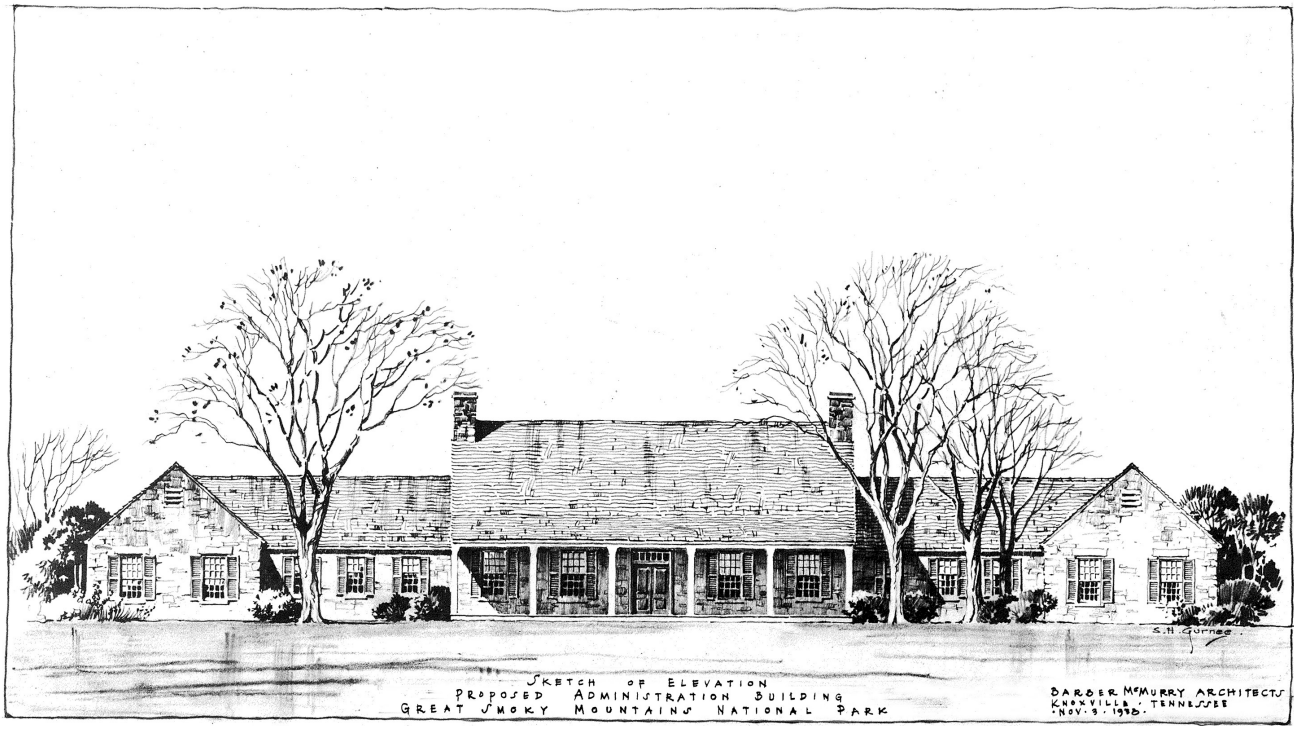
CULTURAL RESOURCE DATA

The Sugarlands Headquarters is not listed in the National Register of Historic Places. As noted above, several draft nominations have been prepared, but they did not result in listing. The 2016 Historic Resource Study recommended that the building be considered potentially eligible as part of a Sugarlands Headquarters area to include the headquarters building, visitor center, and ancillary buildings. The Tennessee State Historic Preservation Office concurred with this recommendation in 2017. A National Register of Historic Places Multiple Property Documentation Form (MPDF) for the "Historic Resources of Great Smoky Mountains National Park" was prepared in 2016 based on the Historic Resource Study. This form, which was certified by the Keeper of the National Register of Historic Places in November 2016, places the Sugarlands Headquarters under the property type of "Administrative and Public Contact Facilities" and associated with the historic context period of "Initial Development of Great Smoky Mountains National Park, 1926-1942." According to the registration requirements established by the MPDF, the Sugarlands Headquarters would be eligible for listing under the Multiple Property Submission. The Sugarlands Headquarters is listed in the National Park Service's Cultural Resource Inventory System for Historic Structures (CRIS-HS, formerly the List of Classified Structures), number 090600.

RECOMMENDATIONS FOR DOCUMENTATION

With the certification of the Multiple Property Submission for the Historic Resources of Great Smoky Mountains National Park, and the concurrence of the Tennessee State Historic Preservation Office that the building is eligible for listing, formal National Register listing should be pursued.

The scope of work for this project did not include hazardous materials testing, paint/finish analysis, mortar analysis, or other testing beyond that already completed for the schematic design phase. This report recommends that paint/finish analysis and mortar analysis should take place before or in conjunction with future planning for the rehabilitation of this building.



PART I: DEVELOPMENTAL HISTORY

Section Title Page: Sketch of South Elevation of Proposed Administration Building, November 1938 (Source: Barber McMurry Architects)

Chapter 3: Historic Background and Context/Chronology of Change

INTRODUCTION

The Sugarlands Headquarters Building, constructed in 1939-40, was the first permanent administrative office for the newly established Great Smoky Mountains National Park. It has remained in that use for eighty years with very few alterations.

HISTORIC BACKGROUND AND CONTEXT[1]

President Calvin Coolidge signed the legislation authorizing Great Smoky Mountains National Park on May 22, 1926. Over the next fifteen years, the National Park Service began to acquire land for the park and identify locations for park facilities. In the early 1930s, Charles E. Peterson, a National Park Service landscape architect and later chief of the Eastern Division of the Branch of Plans and Design, began collaborating with Knoxville architect Charles I. Barber on the establishment of an architectural theme for the new park. After some discussion as to whether the headquarters should be in Tennessee or North Carolina, the park selected the Sugarlands area for the administrative area, and a field study of the proposed area was completed in 1933. Great Smoky Mountains National Park was officially established on June 15, 1934.

The specific location of the administrative headquarters was on the 183-acre Keener Tract, located at the confluence of the West Prong of the Little Pigeon River and Fighting Creek, near Elkmont, Tennessee (figure 3-1). The government acquired this property from the heirs of Nevada Keener following her death in 1935. The Eastern Division of the Branch of Plans and Designs completed a master plan for the administrative area in 1937.

1 Unless otherwise cited, information in this section was adapted from the 2011 Historic American Buildings Survey report by James Jacobs and the 2016 Historic Resource Study.

Figure 3-1. View of future administrative area, looking southeast to Mt. LeConte, ca. 1937 (source: GRSM Archives, GRSM00451).

Design of the headquarters building took place over the next two years. In 1938, the Public Works Administration allocated $65,000 for construction of the building, on the understanding that the Civilian Conservation Corps would furnish the labor.[2] The design of the building was a collaborative effort between the Eastern Division of the Branch of Plans and Designs, which provided the initial plans, Great Smoky Mountains National Parks' resident landscape architect, Frank Mattson, who revised the elevations, and Charles Barber, a Knoxville architect who donated his services to provide the final drawings (see Appendix A for original drawing set).[3] Park Superintendent J. Ross Eakin, architects Thomas Vint and Oliver Taylor of the Eastern Branch, and National Park Service Director Arno Cammerer also had input into the final design.

Site and foundation work began in late 1938. Site work included laying utilities and roads and grading. CCC enrollees quarried and cut the stone, excavated the basement, and laid the foundations in late 1938 and early 1939 (figure 3-2). In the summer of 1939, it was decided to hire a construction company to complete the building from the first floor up. The project was awarded to the Southeast Construction Company of Charlotte, North Carolina, who commenced work in the summer of 1939. Work moved quickly over the next six months, with the

2 Table: Information Extracted from Superintendent's Monthly Reports. Folder 69, Box 22, Resource Management Records, Collection 7000, GRSM 10832, II.E.2.I.7: Newfound Gap Road. Collections Preservation Center, Great Smoky Mountains National Park Archives.

3 Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.

Figure 3-2. Foundation work as of July 15, 1939 (source: GRSM Archives, 2-B-1-13833).

building largely completed by January of 1940 (figures 3-3 to 3-5 and 3-7 to 3-9). President Franklin D. Roosevelt officially dedicated the park on September 2, 1940. CCC workers carried out landscaping work around the building in 1940 and 1941 based on plans developed by the Branch of Plans and Designs in November 1939 (figure 3-6).

Figure 3-3. By October 1939, framing of the upper level was under way (source: GRSM Archives 2-B-1-13849).

Figure 3-4. The completed exterior, January 1940 (source: GRSM Archives, 2-B-1-13877)

Figure 3-5. The completed lobby, January 1940 (source: GRSM Archives, 2-B-1-13886)

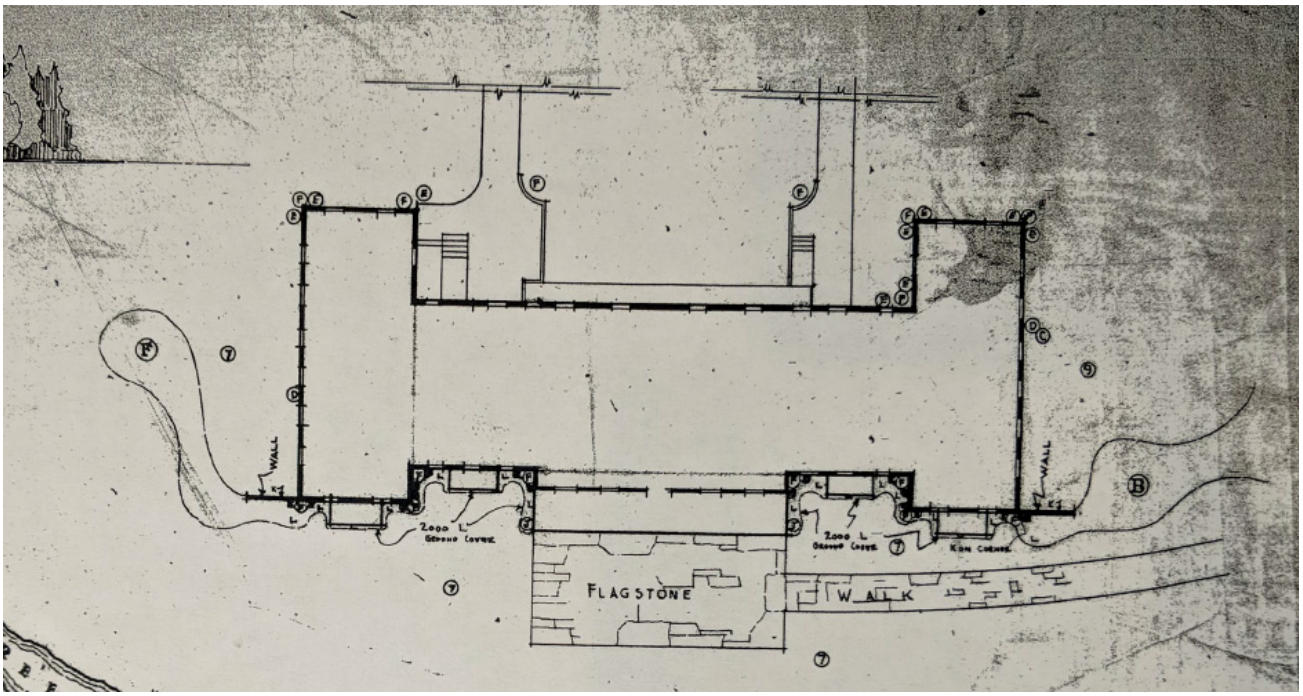


Figure 3-6. Detail of planting plan for headquarters building, November 1939 (source: GRSM Archives, Resource Management Records, Collection 7000, GRSM 108632, II.E.2.I.7: Newfound Gap Road, Box 22, Folder 34)

Built in the Colonial Revival style, the Headquarters Building only lightly references Tennessee architectural precedents, but its siting and materials were very much in the vein of the rustic style of architecture that then predominated in the National Park Service. The goal of rustic architecture was to harmonize with the natural environment around it, with significant use of natural materials like rock, slate, and rough-hewn wood. The rock for the building was sourced from the local Ravensford quarry on the south side of the park, a metamorphosed sedimentary conglomerate that was broadly termed quartzite. The roof slate came from the Buckingham Virginia Slate Quarry, near Richmond, Virginia. The main lobby, the most architecturally significant space on the interior, was reportedly influenced by the living room of the Blount Mansion in Knoxville, the home of the state's first territorial governor. This room was finished with "wormy" chestnut paneling and floored with Tennessee Crab Orchard Sandstone. It also included "wagon wheel" light fixtures built by Frank Headrick, a country blacksmith in Wears Cove, to a design prepared by the park and using parts salvaged from an old lumbering skidder.

Care was also taken in the siting and landscaping of the building. The building was located on Newfound Gap Road, the main road into and through the park in this area. The headquarters, which presented a one-story residential appearance on this side, would have been prominently visible by traffic approaching from the south. As it neared the building, the road split in a Y (the junction of Newfound Gap and Little River Roads) right in front of the building (figure 3-10). The

Figure 3-7. The completed building with landscaping, ca. 1940 (source: GRSM Archives)

building was actually below the level of the road, so a broad dip was created in the open lawn in front of the building to make it appear that it was sited higher. Flagstone was used for the terrace in front of the main entry porch and for a walkway that ran east to a parking area along what is now Park Headquarters Road. Native trees and shrubs, including maples, birches, pines, tulip poplars, dogwood, serviceberry, and holly framed the building on the east and west and shielded the parking and outbuildings on the north side.

The headquarters building was joined in the administrative area by the Sugarlands Visitor Center in 1957-58, when visitor services accommodated in the headquarters building were moved to the new building, built as part of the National Park Service's Mission 66 program to upgrade visitor amenities across the service.

Figure 3-8. North elevation, ca. 1942 (source: GRSM Archives 01466)

Figure 3-9. Undated interior view of part of one of the offices, showing lighting and furnishings (source: GRSM Archives 01467)

Figure 3-10. Birds-eye view of headquarters building looking west, taken from top of the ridge, 1951 (source: GRSM Archives 01469)

CHRONOLOGY OF CHANGE

1940s

Portions of the headquarters building, particularly in the basement and upper floor, remained unfinished when the building was completed and occupied in early 1940 (figure 3-11). While the sequence of completion is not fully documented, records give some indication of when specific work took place. The superintendent's monthly report for March 1941 noted that flooring was being installed on the upper floor for areas to be used as offices and storage of collections. The superintendent wrote that

> Under a CCC project the second story floor of the Administration Building is being laid. This was not done at the time of the construction of the building on account of the depletion of the funds. It is planned to use this second floor for the storing of our plant and animal collections, along with a large part of the mountain culture material, and office space for the tem-

Figure 3-11. Upper level interior during construction, showing open character, December 1939 (source: GRSM Archives 2-B-1-13875)

porary ranger-naturalist staff.[4]

A letter written the following month noted that storing artifacts in the basement was inappropriate because of the potential for mold and mildew. This also indicates that the upper floor was partially in use at this time. The project used joists already present on site, and "good grade" southern pine was used for flooring, which could be used as a subfloor if the area was finished in the future.[5]

4 "Superintendent's Monthly Report, March 1941," Great Smoky Mountains National Park. Copy in the Collections Preservation Center, Great Smoky Mountains National Park.

5 National Park Service Correspondence dated April 7, April 9, and April 16, 1941, in Folder 381, Box 22, Resource Management Records, Collection 7000, GRSM 108632, II.A.1.H: Subject Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

Figure 3-12. First aid class in lobby, undated, but probably circa 1950s-1960s (source: GRSM Archives 04624)

Figure 3-13. First aid class in lobby, undated, but probably circa 1950s-1960s (source: GRSM Archives 04625)

1950s

Ten years after the building opened, three offices and three storage rooms on the upper level were still unfinished.[6] In 1951, the first refinishing projects were recorded, with Charles T. Anderson of Greenville, Tennessee receiving a contract for repainting and refinishing the interior, while Kinzel and Kinzel of Knoxville refinished the building floors. Both contracts were completed in April 1951.[7] It was also around this time that the superintendent's office moved from its original location adjacent to the lobby to the southeast corner room in the east pavilion. This was likely because the office offered more privacy and a better view, and coincided with a change in superintendents, from Blair Ross (who departed in December 1949) to John Prestons (who began September 1951).[8]

In 1957-58, when the Sugarlands Visitor Center was constructed south of the headquarters building, Newfound Gap Road (U.S. Route 441) and Little River Road (formerly Fighting Creek Gap Road; Tennessee State Route 73) were reconfigured, eliminating the Y intersection that provided the dramatic axial view of the headquarters building originally envisioned by its designers.[9]

1960s

In 1962 the basement was remodeled to create a fallout shelter, including the installation of masonry walls, a ventilation system, and associated electrical work. Four of the windows were blocked by plywood and double stacks of concrete blocks (figures 3-14 and 3-15). The work was done by Fort Loudon Construction Company of Madisonville, Tennessee for $9,275 and was completed by the end of September. Also during 1962, a new impoundment area and water reservoir were constructed to supplement the existing water system in the headquarters area.[10]

6 "Administration Building," Evaluation Form dated December 13, 1950 in Folder 98, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

7 L. T. Davenport, letter to Charles T. Anderson, February 1, 1951, and L. T. Davenport, letter to Kinzel and Kinzel, March 13, 1951, both in Folder 381, Box 22, Resource Management Records, Collection 7000, GRSM 108632, II.A.1.H: Subject Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

8 James Jacobs, "Great Smoky Mountains National Park Administration Building (Headquarters Building)," Historic American Buildings Survey, HABS TN-256, 2011.

9 James Jacobs, "Great Smoky Mountains National Park Administration Building (Headquarters Building)," Historic American Buildings Survey, HABS TN-256, 2011, 21.

10 "Completion Report: Modifications to Basement, Headquarters Building," October 1, 1962 in Folder 286, Box 70, Resource Management Records, Collection 7000, GRSM 108632, I.C: Development and Maintenance. Collections Preservation Center, Great Smoky Mountains National Park Archives; "Completion Report: Construction of Utilities and Comfort Stations,

Figure 3-14. Intake fan modifications in the basement, 1962 (source: GRSM Archives, 06638)

The following year, 1963, offices and storage rooms in the upper level of the administration building were completed by workers under the Accelerated Public Works program, a program similar to the Public Works Administration and Civilian Conservation Corps programs of the 1930s and early 1940s. The scope of the work was not recorded, but an estimate of the value was listed as $12,620.03.[11]

Work during that year also included an expansion of the east parking area at headquarters (figure 3-16). The completion report for this project had noted that parking facilities for the building were inadequate, and the project added space for forty cars. The construction consisted of six inch basestone topped with 200-pound plant mix surface. A six-foot-wide sidewalk was installed to parallel one side of the parking area, with a four-foot-wide access walk leading to the

Metcalf Bottoms and Headquarters Area," October 30, 1962, in in Folder 277, Box 70, Resource Management Records, Collection 7000, GRSM 108632, I.C: Development and Maintenance.

11 "Accelerated Public Works Program," summary appended to Superintendent's Monthly Report for June 1963; "Completion Report: Public Works Program," October 31, 1963, in folder 97C-12, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

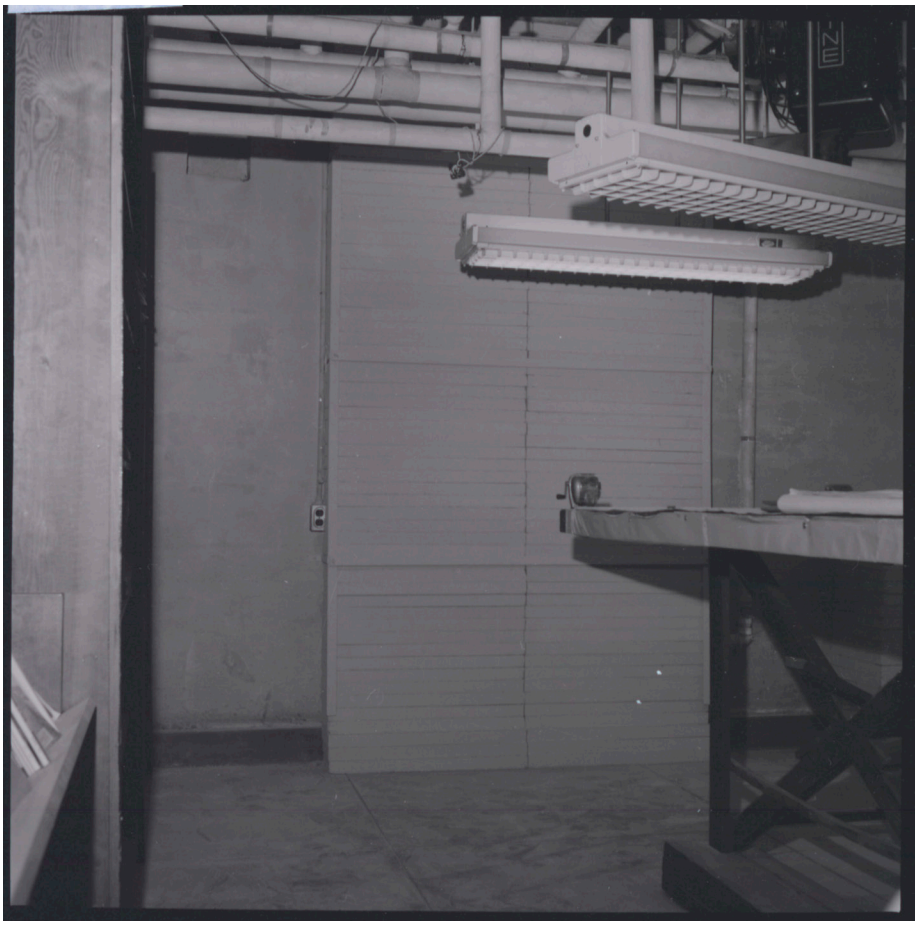


Figure 3-15. Window with concrete planks in place as part of modifications in the basement, 1962 (source: GRSM Archives, 06639)

building. Concrete wheel stops were used in lieu of curbing. This work was done by Hart Construction Company of Sevierville, Tennessee at a cost of $6,301.80.[12]

A number of projects took place from 1966 to 1968. The first was the installation of walkway lights in June 1966, with the work done by King Brothers of Gatlinburg for a cost of $1,699, and interior painting of the first floor of the administration building by K&N Sandblasters and Steel Painting Contractors of Knoxville.[13] The following year, projects included new lighting, paint, and acoustical ceilings in the secretarial offices and court room and the installation of air conditioners in the Superintendent's and Assistant Superintendent's offices. There was also a reference to remodeling of a conference room. The HABS report

12 "Completion Report: Reconstruction of Chimneys Campground and Headquarters Parking Area," November 1963, in Folder 218, Box 68, Resource Management Records, Collection 7000, GRSM 108632, I.C: Development and Maintenance. Collections Preservation Center, Great Smoky Mountains National Park Archives.

13 Purchase Order dated June 30, 1966; Purchase Order dated June 29, 1966, both in folder 97B-4, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

Figure 3-16. Completed parking area, 1963 (source: GRSM Archives, Resource Management Records, Collection 7000, GRSM 108632, I.C: Development and Maintenance (D), Box 68, Folder 217)

suggested this was the conversion of the former drafting room in the east pavilion into what is currently the large conference room, however this could not be confirmed from the sources (reference to work on the upper level drafting room in 1967, below, does tend to support this supposition).[14]

More extensive work took place in 1968. An office/file room was finished on the upper floor, including the construction of a partition to divide the room; framing, insulation, and finishes on the walls and ceiling, laying of vinyl asbestos floor tile, six fluorescent light fixtures, electrical work, and a window air conditioning unit. This work was completed in April.[15] Over the next several months, work included laying vinyl asbestos floor tile in the hall of the basement level, hanging combination storm/screen doors on two basement doors, and the installation of restroom exhaust fans. On the upper level, the drafting room was finished

14 "Special Projects Accomplished—Park Administration Building, 1966-1968," in folder 97C-11, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives; James Jacobs, "Great Smoky Mountains National Park Administration Building (Headquarters Building)," Historic American Buildings Survey, HABS TN-256, 2011.

15 Requests for Quotation and Specifications dated April to June 1968 in folder 97, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

Figure 3-17. Headquarters front door, April 1972 (source: GRSM Archives)

with vinyl asbestos floor tile, paint, fluorescent light fixtures, and a window air conditioning unit, while three rooms in the basement, holding the Bureau of Public Roads offices, were also painted. Utility work included the installation of a pressure-reducing valve and appurtenances. On the exterior, a fire escape from Roberts Ornamental Iron Works was installed on the north wall of the rear elevation.[16]

1970s

The early 1970s were characterized by routine maintenance activities, including installation of carpeting in the superintendent's office in 1970 and another ninety yards of carpet (location not specified) in 1973.[17] The exterior, basement, main floor, and portions of the upper level were painted in 1972.[18] The same year, a pair of aluminum doors were installed in the lobby, possibly as an air lock (the purchase order cites these as five foot high doors, but that may be a typo).[19] 1973 saw the installation of two segments of ducting in the basement, one twenty feet

16 Requests for Quotation and Specifications dated April to June 1968 in folder 97, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

17 Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.

18 Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.

19 Purchase Order dated October 11, 1972, in folder 97, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives; Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.

Figure 3-18. Basement fire control training room, 1974 (source: GRSM Archives, 15922)

long and the other four feet long, both with an inline booster fan and switch,[20] and the creation of a fire control training room in the basement (figure 3-18).[21]

The middle and late 1970s were a period of energy consciousness prompted by the 1973 oil crisis, and National Park Service facilities often performed upgrades to improve energy performance. At the headquarters building, seventy-seven three-track econoline storm windows, supplied by Wilkerson, Inc. of Knoxville, were installed in the building in early 1974.[22] In 1975, the steam boiler system was overhauled, and the park reduced overhead lighting to the minimum requirement to further reduce energy use.[23] Storm doors were installed on the rear (north) doors of the upper floor in 1977, with the work done by Architectural Metals and Glass Company of Knoxville.[24] At the end of this year, the superintendent

20 Purchase order dated May 30, 1973 in folder 97, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.
21 Sketches dated 1973 in folder 97C-7, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.
22 Purchase Order dated January 4, 1974, in folder 97C-6, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.
23 Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.
24 Purchase Order dated July 1, 1977, in folder 97, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files.

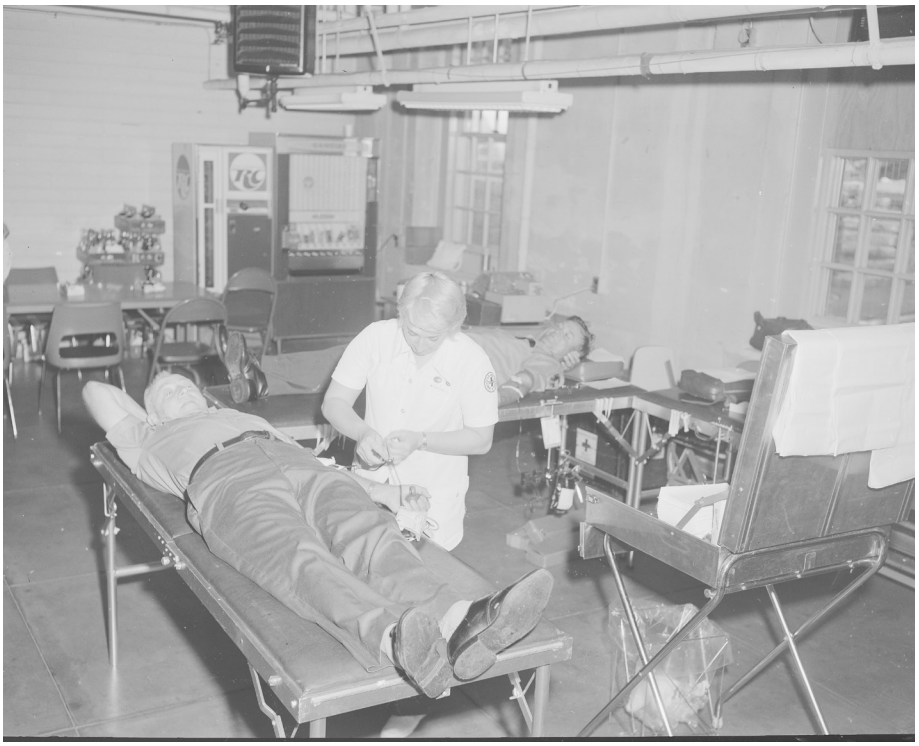


Figure 3-19. Park rangers giving blood in the basement, ca. 1975 (source: GRSM Archives, 15968)

and maintenance were also discussing potential solutions to uneven heating in the building, to avoid staff opening windows in offices overheated because the temperature was turned up to heat colder areas of the building.[25]

A significant alteration in the 1970s was the 1975 installation of two office enclosures in the main lobby, to the west of the entrance doors. The project included the installation of partitions, solid birch doors, room thermostats and steam valves, and gluing carpet on the stone floor. The construction work was performed by Architectural Metal and Glass of Knoxville.[26] The project resulted in the loss of four of the six original chandeliers.[27] A final project in 1979 was the alteration of the men's room on the main floor to permit handicapped use,

Collections Preservation Center, Great Smoky Mountains National Park Archives.

25 Superintendent, Memorandum to Administrative Clerk, Chief Ranger's Office, December 6, 1977, and handwritten memo from "Jim" dated January 5, 1978, in folder 97C-4, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

26 Purchase Orders dated May 1975, in folder 97, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives; Randy Hatten, Buildings and Grounds Branch Manager, phone interview with Patti Babin, May 14, 2019.

27 James Jacobs, "Great Smoky Mountains National Park Administration Building (Headquarters Building)," Historic American Buildings Survey, HABS TN-256, 2011.

Figure 3-20. Superintendent's Secretary Barbara Teaster and her desk, ca. 1983 (source: GRSM Archives 16882)

entailing the removal of one stall and the enlargement of the remaining stall to permit a three foot opening.[28]

1980s

Maintenance staff continued to struggle with the heating system into the early 1980s. In February 1981 the cast iron plates for the original boiler broke and a new boiler was installed. At this time, heat for the building was still provided by steam radiators on the main and upper level and ceiling-hung space heaters in the basement. The entire system was divided into three zones, and the recommendation was to provide control valves on each individual radiator to permit more localized control of the temperature; this would also help to address the uneven heating issue discussed in 1977.[29] Eventually the entire HVAC and

28 "Proposed Changes to Permit Handicapped Use, Men's Room, Main Floor, Headquarters Building," (sketch) in folder 97C-3, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

29 John B. McProud, "Emergency Maintenance Assistance." Memorandum dated February 23, 1981 in folder 97C, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

electrical systems were replaced in 1985-1987. The work was approved in March 1985, with the report noting that the steam heating piping had reached the end of its useful life, and that the window air conditioning units in widespread use were noisy and inefficient. The engineering design for the new systems was accomplished by the Tennessee Valley Authority, Knoxville for $28,640, while the system replacement itself was done by Del-Air Service Company for $241,625. The work, which also included removal of asbestos insulated pipe and the installation of a suspended ceiling in the basement, was completed in June 1987.[30]

During the mid-1980s, the park was also discussing immediate, mid-term, and long-term space needs. To address lack of space, additional offices were created in the basement for the district ranger and his secretary, and a partition space for the printing press and mimeograph machine. This allowed the historian, exhibit specialist, and radio communications to be moved into the vacated space. Renovation of the basement coast $5,330 in labor and materials, including paneling, baseboard molding, drop ceilings, doors, electrical, and heating.[31]

In 1985 the Assistant Superintendent responded to concerns expressed by the park's historian (original memorandum was not found) about alterations to the building potentially compromising its integrity. The building was now forty-five years old, approaching the fifty-year mark at which it could be determined historically significant. The Assistant Superintendent noted the positive impact of the new HVAC system that would remove the window air conditioning units, and that while the work might impact some historic elements, the overall result would be positive for the building's historic integrity.[32]

30 Director, National Park Service, Memorandum to Assistant Secretary for Fish and Wildlife Parks, dated March 22, 1985 in folder 3, Box 33, Resource Management Records, Collection 7000, GRSM 108632, II.B.2B.4.C. Collections Preservation Center, Great Smoky Mountains National Park Archives; "Electrical Wiring and HVAC System," Contracted dated September 13, 1985, in folder 3, Box 33, Resource Management Records, Collection 7000, GRSM 108632, II.B.2B.4.C. Collections Preservation Center, Great Smoky Mountains National Park Archives; Letter of Acceptance, Request for Release of Claims, dated June 30, 1987 in folder 4, Box 33, Resource Management Records, Collection 7000, GRSM 108632, II.B.2B.4.C. Collections Preservation Center, Great Smoky Mountains National Park Archives.

31 North District Facility Manager, Memorandum to Assistant Chief of Maintenance dated June 3, 1983 in folder 97B-18, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

32 David A. Mihalic, Assistant Superintendent, Memorandum to Park Historian dated May 6, 1985, in folder 97B-14, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

Other minor work during the 1980s included asbestos testing, which determined that the air samples contained no detectable fibers and there was no asbestos in the ceiling panels.[33] In 1984, a new exhaust fan with louver was installed, although the location was not specified; it may have been in a restroom.[34] The lobby floor was refinished in 1986, including the removal of old wax and wax buildup on mortar joints, sealing, and rewaxing.[35] In March of the same year, new gutters, downspouts, and splashblocks were requisitioned for the building.[36]

1990s

An inspection report in June 1996 noted a number of minor issues at the building, including repointing need on the stones on the steps and wall at the rear of the building; repair of loose shingles on the dormers and roof; replacement of galvanized downspouts with copper; replacement of aluminum storm windows with wood; and restoration of the left chimney cap to its historic appearance.[37] That year there was also an assessment of the indoor air quality, the first indication of the "sick building syndrome" that would be reported for the next twenty years. A number of measures were recommended to reduce mold and mildew infiltration and accumulation in the building, including removing standing water in the sump and HVAC drain pans, sealing of basement level windows, rebalancing the HVAC system, and upgrading air filters.[38] Two years later, in 1998, the HVAC system was upgraded with a new control system and a forty ton

33 David P. Roberts, Acting Area Director, U.S. Department of Labor Occupational Safety and Health Administration, Letter to Jerry A. Eubanks, Great Smoky Mountains National Park, dated January 13, 1984 in folder 97B-16, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

34 Job Order Request dated January 31, 1984, in folder 97B-15, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

35 Requisition dated February 7, 1986, in folder 97B-13, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

36 Requisition dated March 3, 1986, in folder 97B-12, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

37 "Annual Inspection of Historic Structures," dated June 20, 1996 in folder 22, Box 3, Resource Management Records, Collection 7000, GRSM 108632, II.E.B.2: David Chapman. Collections Preservation Center, Great Smoky Mountains National Park Archives.

38 Donnie R. Butler, Tennessee Valley Authority, letter to Wayne Williams, Great Smoky Mountains National Park, dated August 23, 1996 in folder 98-3, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

Figure 3-21. Undated image showing the view from the west, looking down the original paver walkway to the front door (source: GRSM Archives, 04866)

chiller.[39] A new phone system was also installed in 1996, and another scope of work was issued that year for replacement of the gutters and downspouts; it is unclear if the 1986 replacement never occurred, if there were problems with the installation, or if the replacement was to replicate the original halfround gutters.[40]

39 Trip Report: Engineering Assessment, dated April 7-9, 2004, in folder 98-4, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

40 Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.; Scope of Work to replace gutters, dated November 18, 1996, in folder 97B-7, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

2000s

The 2000s began with an assessment of the roof to determine the source of ongoing leaks in the upper level offices. While the original slate shingles were in good condition, there were issues with deteriorated flashing and the failure of the over coat applied to the sheet metal pan system on the flat roof. [41] In 2002, a new ridge cap was installed between the chimneys to address some of the water leaking,[42] while in 2006 the flashing was repaired and new shingles replaced damaged units.[43]

Air quality continued to be a concern in the building. A 2004 followup to the 1996 report made further recommendations to weatherstrip the basement door outside the Secretary/Resource Management office and install an alarm to prevent all but emergency use (it was a major source of outdoor air infiltration and could not be fitted with an air lock), installing new dampers, cleaning the air handlers, operating the furnace and chiller year round to avoid large swings in temperature and humidity (a report the previous April had also noted issues with the HVAC system maintaining set point temperatures and humidity), installing louvers in select doors to provide interior air circulation when doors were closed, and providing portable ozone generators. Most of these measures were implemented.[44] Nevertheless, reports of "sick building syndrome continued in 2008.[45]

Another major area of work during the 2000s involved upgrades to provide better accessibility. In 2004 records included compliance requests for the installation of automatic door openers on the rear basement entrance and the modification of the security system to accommodate wheelchair users, as well as creating an accessible path to the basement doorway.[46]

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41 "Trip Report, Headquarters Building—Roof Leaks," August 22, 2000, in folder 97B-6, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives.

42 Requested Environmental Compliance Assessment, February 13, 2002, in folder 46, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.E4.0. Collections Preservation Center, Great Smoky Mountains National Park Archives.

43 Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.

44 "Report on Headquarters Heating, Ventilation, and Air Conditioning System Improvements," 2004, in folder 98-2, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives; Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.

45 Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.

46 Request for Environmental Compliance Assessment Dated January 13, 2004, in folder 109, Box 7, Resource Management Records, Collection 7000, GRSM

2010s

Interior alterations in the 2010s included the removal of false walls, old piping, and replacement of drop ceilings in two offices (it is unclear which offices),[47] and the removal of the two offices that had been installed in the lobby in 1975. As part of this work, the adhesive left behind from the carpeting was removed and the stone polished, and additional cast iron lighting fixtures were replicated from the two remaining original ones to replace those removed in 1975.[48] Other work during this period included replacement of the exterior shutters (in kind) in 2002,[49] replacement of an exhaust fan in the women's restroom on the main floor in 2005 (this fan caught fire and caused some smoke damage the following year),[50] routine painting of hallways, some offices, and the conference room in 2009,[51] and boiler repair work in 2007 and 2009.[52]

Accessibility was addressed again in 2011 with a more comprehensive plan to include all approaches to the building. As part of the project, an accessible route, to be used by the public from the exterior to the interior of the building, was added. Work involved altering parking to include two accessible handicap spaces sharing an access path between them, reconstructing a concrete sidewalk 5' x 110" with accessible curb cut, reconstructing the entry to the porch, elevating the 600 sq ft historic porch to the doorway (including numbering the removed stones and reconstructing them to be historically accurate), providing approximately 900 cubic feet of fill to build up the entrance/porch area, and feathering the access

108632, II.E4.0. Collections Preservation Center, Great Smoky Mountains National Park Archives; Request for Environmental Compliance Assessment Dated June 4, 2004, in folder 129, Box 8, Resource Management Records, Collection 7000, GRSM 108632, II.E4.0. Collections Preservation Center, Great Smoky Mountains National Park Archives.

47 Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.

48 Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018; Randy Hatten, Buildings and Grounds Branch Manager, phone interview with Patti Babin, May 14, 2019.

49 Requested Environmental Compliance Assessment, June 4, 2002, in folder 69, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.E4.0. Collections Preservation Center, Great Smoky Mountains National Park Archives.

50 Work Request dated December 28, 2004, with additional handwritten notes, in folder 97b-5, Box 6, Resource Management Records, Collection 7000, GRSM 108632, II.B.1: Individual Building Data Files. Collections Preservation Center, Great Smoky Mountains National Park Archives; Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.

51 Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.

52 Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.

Figure 3-22. Undated scene framed by open front door of the headquarters building, showing inward swing of doors prior to their reconfiguration in 2011 (source: GRSM Archives 01470)

path into the landscape/existing trail to the visitor center.[53] Buildings and Grounds Branch Manager Randy Hatten also recalled that this work including reversing the main entry doors to swing outward (see figure 3-22).[54]

Reports of "sick building syndrome" continued into 2012 and 2013. Two of the chestnut corner posts on the front porch were replaced in 2012 due to severe deflection.[55] Additional work in 2013 included installation of a new generator and

53 (PMIS Statement).
54 Randy Hatten, Buildings and Grounds Branch Manager, phone interview with Patti Babin, May 14, 2019.
55 Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.

a dual zone ductless air system in the new IT room, which could be controlled by the Building Management System.[56] A large room between the superintendent's suite and the lobby, on the south side of the east pavilion, was divided into two smaller offices around 2013-2014.[57] The lighting fixtures in the first floor conference room were converted to LEDs, along with the installation of a control system and floor boxes that connected to the tables. Other minor work in 2014 included running a fiber line to the third floor FMD offices, painting of fascia and dormer trim, and repair of loose slates on the roof.[58] That year saw flooding in the basement, which was eventually traced to failure of the copper gutter joints which allowed water runoff into the building. Replacement of the gutters with copper-tinted continuous gutters and downspouts solved the issues.[59]

The only work in 2015 was the replacement of an air handling unit that had failed.[60] However, a number of projects were carried out in 2016-2017. In 2016 replacement of the building's windows was proposed, but rejected by the Southeast Region's historical architect. Instead, the 1970s storm windows were replaced with modern units with operable screens. Lead paint abatement also took place on the windows. A number of HVAC issues were addressed, including rebuilding the boiler burner assembly, repairing the chiller refrigerant, and replacing chiller compressor #2. The breakroom in the basement was remodeled in 2016. Miscellaneous work included interior door hardware replacement, painting of doors, windows, and moldings, window glazing repairs, and weatherstripping. Finally, air quality continued to be an issue in the building, with another air quality study performed in 2016.[61]

Work on the building in 2017 included a new concrete slab at the rear entry door, installation of new hardware on the emergency escape, the addition of security locks, refinishing of the lobby floor, and patching the ceiling in the Chief Ranger's office. The HVAC system continued to be a problem, including diesel intake issues and numerous condensation line leaks; numerous steam valves were replaced.[62]

56 Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.
57 Randy Hatten, Buildings and Grounds Branch Manager, phone interview with Patti Babin, May 14, 2019.
58 Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.
59 Randy Hatten, Buildings and Grounds Branch Manager, phone interview with Patti Babin, May 14, 2019.
60 Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.
61 Randy Hatten, Buildings and Grounds Branch Manager, phone interview with Patti Babin, May 14, 2019.
62 Great Smoky Mountains National Park, "Headquarters Building Rehabilitation Project," (PowerPoint Presentation prepared by park staff), 2018.

STATEMENT OF SIGNIFICANCE

While Great Smoky Mountains National Park maintains a number of historic districts, buildings, structures, and areas within the park boundaries, the headquarters building has not been formally listed in the National Register of Historic Places.

In 1991, a draft nomination was developed for the "National Park Headquarters Building/Garage/Grounds." This nomination recommended listing under Criterion A, for its association with the Civilian Conservation Corps (CCC) , a New Deal program that provided employment for out of work craftsmen and laborers during the depths of the Great Depression; and Criterion C, as a distinctive example of Colonial Revival/Rustic architecture and for its evidence of craftsmanship and the use of local building materials. The period of significance identified in the nomination is from 1940 to "present."[63]

Two historians from the Division of History and National Register in Washington, DC provided comments on the draft nomination in early 1992. Aside from general revisions, the reviewers made several substantive recommendations. Among these were to nominate the building at the local level of significance, although they indicated that a case might be made for statewide significance; adding areas of significance of Social History, Conservation, Entertainment/ Recreation, Architecture, Community Development and Planning, and Landscape Architecture; and not extending the period of significance beyond 1942 (as that was then the fifty year mark). The reviewers also suggested expanding the statement of significance narrative to address the relationship of the building to other buildings constructed at Great Smoky Mountains National Park during the period and placing the design of the building within the context of rustic architecture in the National Park Service.[64]

A revised nomination dated October 1992 incorporated most of these suggestions. The period of significance was identified as 1942, although it is unclear why this particular date was chosen; it was perhaps a misunderstanding of the NPS

63 Edward L. Trout, "National Park Headquarters Building/Garage/Grounds," National Register of Historic Places draft nomination, June 6, 1991, in Great Smoky Mountains National Park Archives, Resource Management Records, Collection 7000, GRSM 108632, II.E.2.D: Historic Sites and Structures, Box 49, Folder 263.

64 Marilyn M. Harper and Linda McClelland, "National Park Headquarters Building-Garage-Grounds, Sevier County, Tennessee, Preliminary Review," December 31, 1991 and January 23, 1992, in Great Smoky Mountains National Park Archives, Resource Management Records, Collection 7000, GRSM 108632, II.E.2.D: Historic Sites and Structures, Box 49, Folder 263.

reviewers comment that the period of significance should not be extended beyond that date unless a case could be made for exceptional significance.[65] This nomination was apparently not pursued for listing, although the research for this HSR did not uncover the reason why.

In 1999, the Southeast Regional Office prepared a draft National Register of Historic Places nomination for the "Park Development District" including the resources developed in accordance with the park's master plan from the 1930s including roads, overlooks, campgrounds, the administrative and visitor contact area at Sugarlands and Oconaluftee, and the Mt. Cammerer Fire Tower. The headquarters building was listed as a contributing resource to this proposed district, arguing that the headquarters area

> contributes to the national significance of the Park Development Historic District under National Register Criteria A and C. The administrative center of the park, the headquarters area is a remarkably successful example of NPS planning and landscape harmonization. The headquarters building was prominently and artfully sited so as to be visible to motorists traveling north through the park. The formality of the proposed U-shaped court behind the building was appropriate for this important symbol of NPS authority. Great care was taken with grading and plantings surrounding the building.

The nomination noted several impacts to the building's integrity, including the installation of an exposed steel fire escape, paving over of the flagstone walks surrounding the building, alterations to the lobby (although reversible, and indeed they have since been removed), and the elimination of the axial approach to the building. The nomination also considered the Visitor Center as incompatible with the headquarters building and garage; at the time, the building was less than 40 years old, and there was no context for evaluating the significance of Mission 66-era resources.[66] Like the individual nomination for the headquarters building, this draft nomination did not result in listing of the proposed district.

65 Edward L. Trout, "Park Administration Building (Grage Building/Grounds)," National Register of Historic Places draft nomination, October 20, 1992, in Great Smoky Mountains National Park Archives, Resource Management Records, Collection 7000, GRSM 108632, II.E.2.D: Historic Sites and Structures, Box 49, Folder 263.

66 Robert W. Blythe, "Great Smoky Mountains National Park, Park Development Historic District," National Register of Historic Places nomination, ca. 1999, in Great Smoky Mountains National Park Archives, Resource Management Records, Collection 7000, GRSM 108632, II.E.2.D: Historic Sites and Structures, Box 49, Folder 263.

The Historic Resource Study (HRS) for Great Smoky Mountains National Park, published in 2016, recommended the Sugarlands Headquarters Area as eligible for listing in the National Register of Historic Places under Criteria A and C under two periods of significance: "the initial years [of development] facilitated by New Deal public works programs such as the CCC and the PWA, and the later work funded by the system-wide Mission 66 program." Of the headquarters building the HRS slightly amended the language of the 1999 nomination to state

> The headquarters building. . .(is) also significant under Criterion C as a remarkably successful example of 1930s NPS planning and landscape harmonization. The headquarters building was prominently and artfully sited so as to be visible to motorists traveling north through the park. The formality of the proposed U-shaped court behind the building was appropriate for this important symbol of NPS authority. Great care was taken with grading and plantings surrounding the building. Minor alterations to the headquarters building include an exposed steel fire escape at the rear and the paving over of the flagstone walks surrounding the building.[67]

The Tennessee State Historic Preservation Office concurred with this recommendation in 2017.

The same team that developed the Historic Resource Study also prepared a National Register of Historic Places Multiple Property Documentation Form (MPDF) for the "Historic Resources of Great Smoky Mountains National Park."[68] In addition to the historic contexts first developed in the HRS, the MPDF also established associated property types and registration requirements for listing under the Multiple Property Submission. The Sugarlands Headquarters is discussed under the property type of "Administrative and Public Contact Facilities" and associated with the historic context period of "Initial Development of Great Smoky Mountains National Park, 1926-1942." The MPDF notes that

> Administrative and Public Contact Facilities may be significant under Criteria A and/or C in areas that may include Conservation, Community Planning and Development, Architecture, and Landscape Architecture. Resources within this property type associated with the initial park devel-

67 Public Archaeology Laboratory, "Historic Resource Study: Great Smoky Mountains National Park," National Park Service, U. S. Department of the Interior, 2016, 173-174.

68 Stephen Olausen, John Daly, and Laura Kline (Public Archaeology Laboratory), "Historic Resources of Great Smoky Mountains National Park," National Register of Historic Places Multiple Property Documentation Form, certified November 28, 2016.

> opment period (1926-1942) and significant under Criterion A represent the efforts of conservationists, state officials, Congress, and the Roosevelt Administration to revive the economy through public works while also conserving natural resources and providing recreational opportunities to the American people... Administrative and Public Contact Facilities that are significant under Criterion C embody the distinctive design philosophy and qualities of craftsmanship perfected by the NPS in the New Deal period...[69]

The Multiple Property Submission was accepted by the Keeper of the National Register on November 28, 2016. According to the registration requirements established by the MPDF, the Sugarlands Headquarters would be eligible for listing under the Multiple Property Submission.

Because the various proposed National Register listings have not been completed, there is no formal period of significance associated with the Sugarlands Headquarters. At the time of the 1992 nominations, an outside limit of 1942 was suggested based on National Register guidance that historic resources are not eligible for listing until they have reached fifty years of age, unless exceptional significance can be documented. The 2016 Historic Resource Study and the 2016 Multiple Property Submission referenced the 1999 nomination's suggestion of a period of significance for the overall district from 1926 to 1942, reflecting the park's initial period of development, but also identified a second significant period of development from 1958 to 1960 associated with the construction of the Mission 66-era Visitor Center.

It is beyond the scope of this HSR formally determine the eligibility and period of significance for this building. Establishing a period of significance is complicated by the fact that the building interior was incomplete when it opened and was finished in a piecemeal fashion over the next decade or so. At a minimum, the period of significance should include the initial construction and completion of the building in 1939-1940.

CHARACTER-DEFINING FEATURES

Site/Landscape

- Large open lawn to the south, providing visibility from US 441-S as it curves southeast to northeast.
- Parking secluded along Park Headquarters Road and at the north side of

69 Olausen, Daly, and Kline, "Historic Resources of Great Smoky Mountains National Park," 136.

the building.

- Sidewalk alignment leading from parking area along Park Headquarters Road to the front entry of the building
- Mature trees framing and shading the building, with minimal foundation plantings
- Flagstone front porch
- Stairs to main level doors at north elevation

Exterior

Massing

- Massing and form reflecting a residential building at the south side
- Staggered grades creating a one-story appearance at the main (south) façade and full two and a half story reveal at the north elevation
- Low horizontal form with different roof heights, pitches, and intersecting gables
- Front porch sheltered under wide shed roof extension
- Paired chimneys at either end of main block
- Upper level dormers

Texture and Materials

- Rough-faced Ravensford quartzite rock laid in irregular ashlar coursing with rock sills
- Wood double-hung windows
- Wood shutters
- Wood fascia and ceiling at front porch
- Wood paneled doors
- Buckingham Virginia Slate roof tiles
- Copper half-round gutters and downspouts

Interior

- Main floor central lobby with double-loaded corridors leading east and west
- Lobby finishes, elements, and furnishings
  - Wormy chestnut paneling

    - Tennessee Crab Orchard sandstone floor
    - Original and replicated lighting fixtures
    - East and west closets
    - Fireplace and surround
    - Concealed door to east office
- Main floor wall plaster with recessed picture rail
- Paneling in original Superintendent's office
- Marble walls and partitions in restrooms
- Safe in west pavilion clerical area
- Main stair in east pavilion

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CHAPTER 4: PHYSICAL DESCRIPTION

PREFACE

The Sugarlands Headquarters is not aligned along cardinal directions. Its primary façade faces south-south-east, rear elevation north-north-west, etc. For simplicity of description, this HSR uses cardinal directions. Thus the primary façade is south, the rear elevation north, and the shorter elevations east and west.

CONDITION ASSESSMENT CRITERIA

The following condition assessment criteria are used to describe the condition of architectural elements. Definitions are based on the National Park Service's Resource Management Plan Guidelines.[1]

Good: The structure and significant features are intact, structurally sound, and performing their intended purpose. There are no cosmetic imperfections. The structure and significant features need no repair or rehabilitation, and only routine or preventative maintenance.

Fair: The structure is in fair condition if either of the following conditions are present:

- there are early signs of wear, failure, or deterioration, though the structure and its features are generally structurally sound and performing their intended purpose; or,
- there is failure of a significant feature of the structure.

Poor: The structure is in poor condition if any of the following conditions are present:

- the significant features are no longer performing their intended purpose; or,

1 *Preserving Historic Structures in the National Park System: A Report to the President*, U.S. Department of the Interior, National Park Service, October 3, 1997, http://npshistory.com/publications/habs-haer-hals/preserving-historic-structures.pdf.

- significant features are missing; or
- deterioration or damage affects more than 25% of the structure; or, the structure or significant features show signs of imminent failure or breakdown.

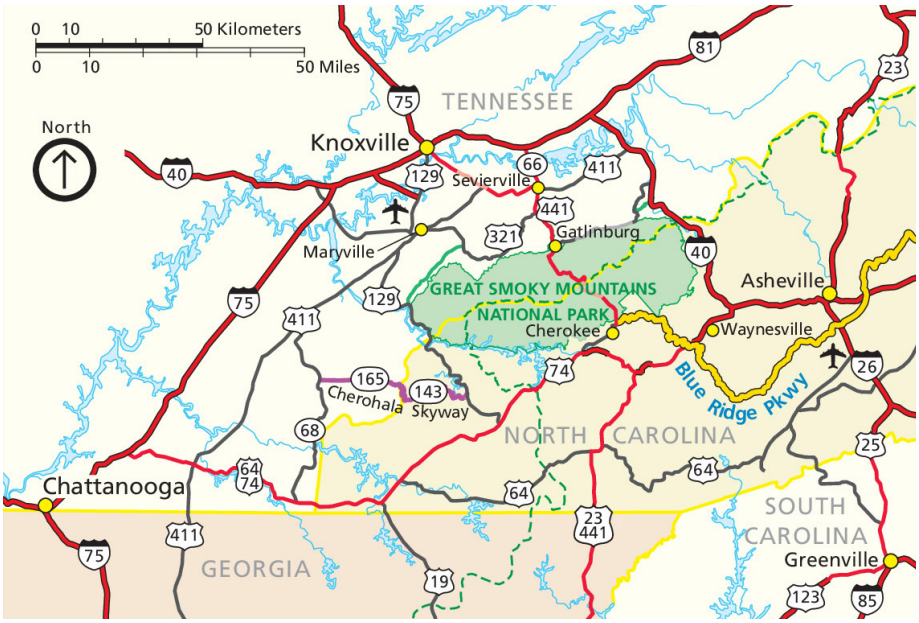
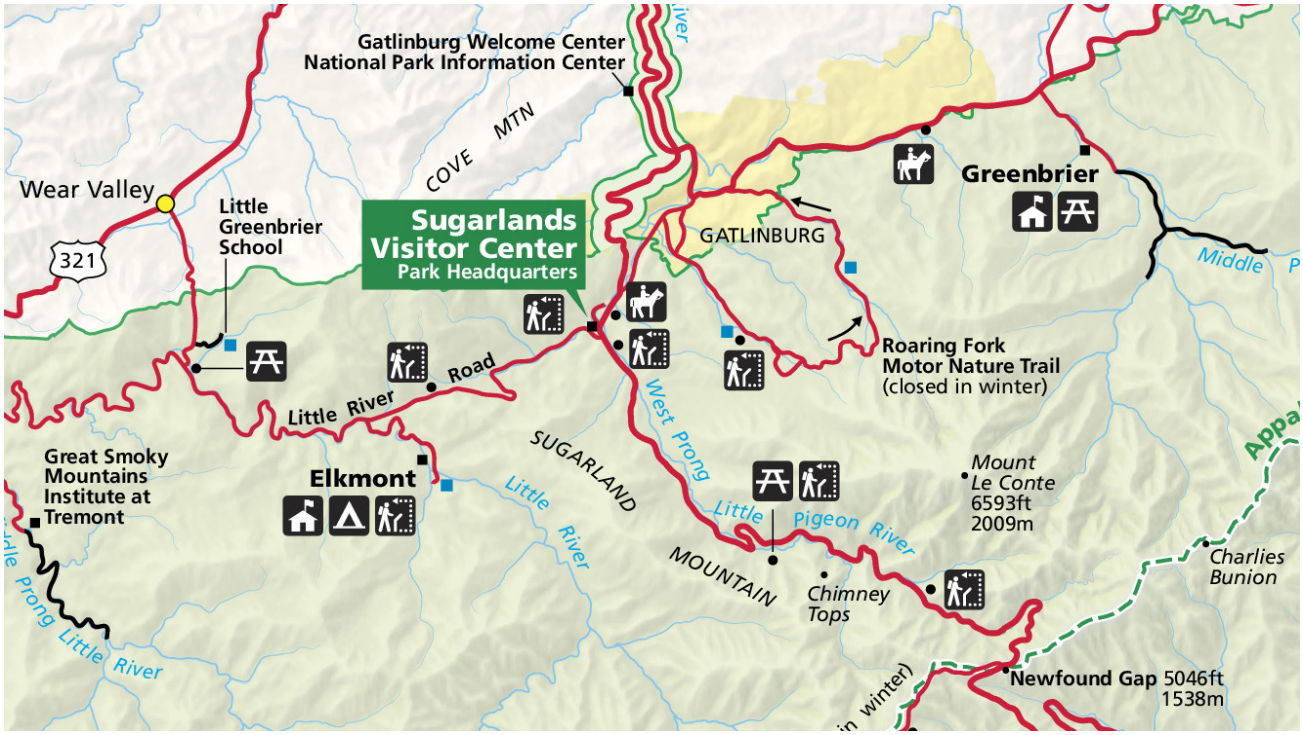


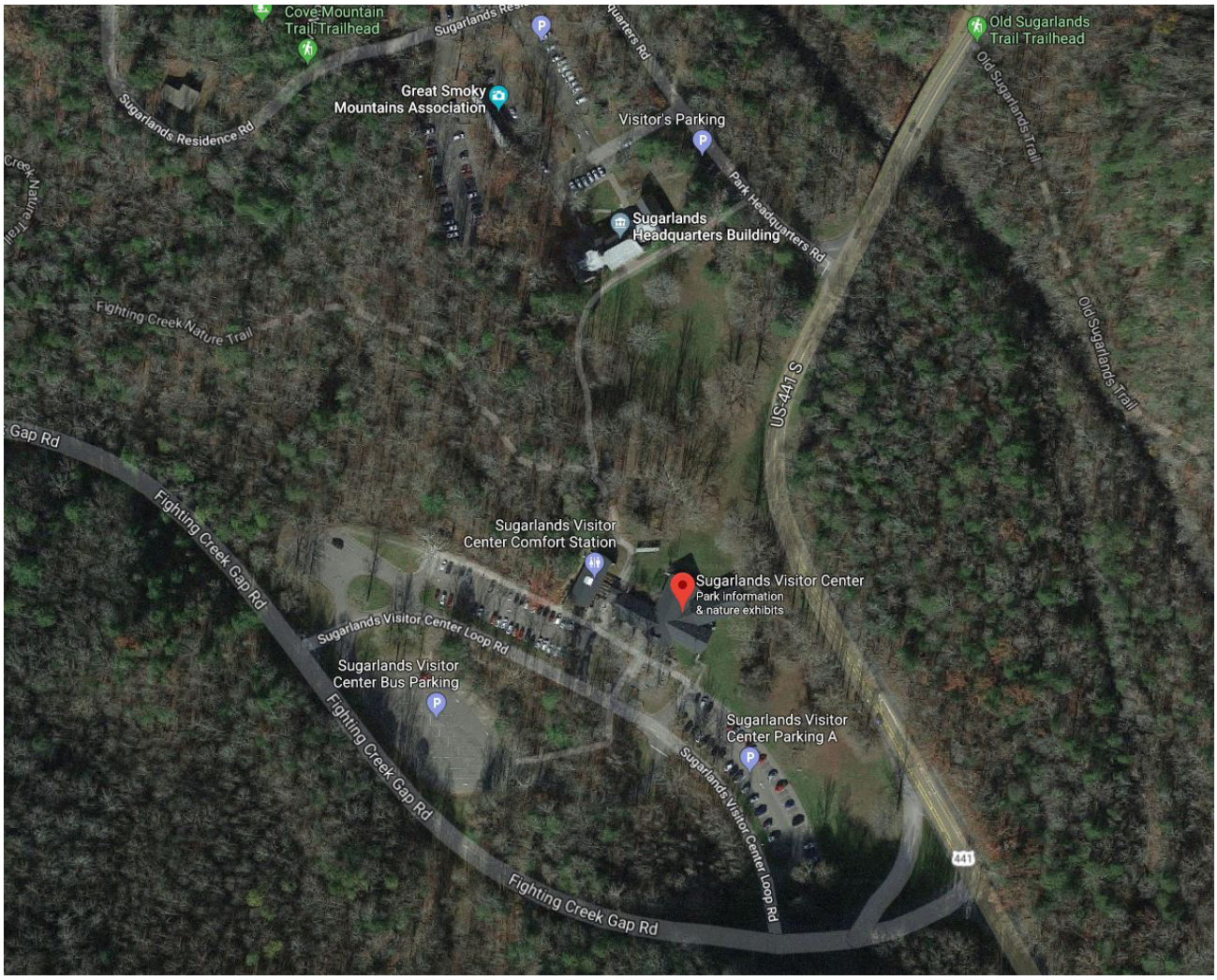
Figure 4-1. Great Smoky Mountains National Park Area Map (above) and detail from the Park Map (below) showing location of the Sugarlands Headquarters area (source: National Park Service)



SITE CONTEXT

The building is sited in an open area with minimal trees or plantings, and is enclosed by thick natural woodland on the east and west, a government parking lot to the north Ifigure 4-5), and US-441 S to the south. Park Headquarters Road runs along the east side of the building, with a small visitor parking area parallel to the road (figures 4-2 and 4-3). The site is generally level and open on the south (front) side of the building (figure 4-4). Two three-foot tall sedimentary sandstone retaining walls project east and west from the south façade (figure 4-6) and from there, the grade continues to slope down towards the north, past the building. Two additional retaining walls with curved decorative stone stairways further lower the finish grade to allow the lower level, which is below grade on the front of the building, to be fully above grade on the north side of the building. A large area drain is provided immediately adjacent to the building on the north side, which is the low point on the site.

Figure 4-2. Aerial photograph of headquarters area. (source: Google Earth)



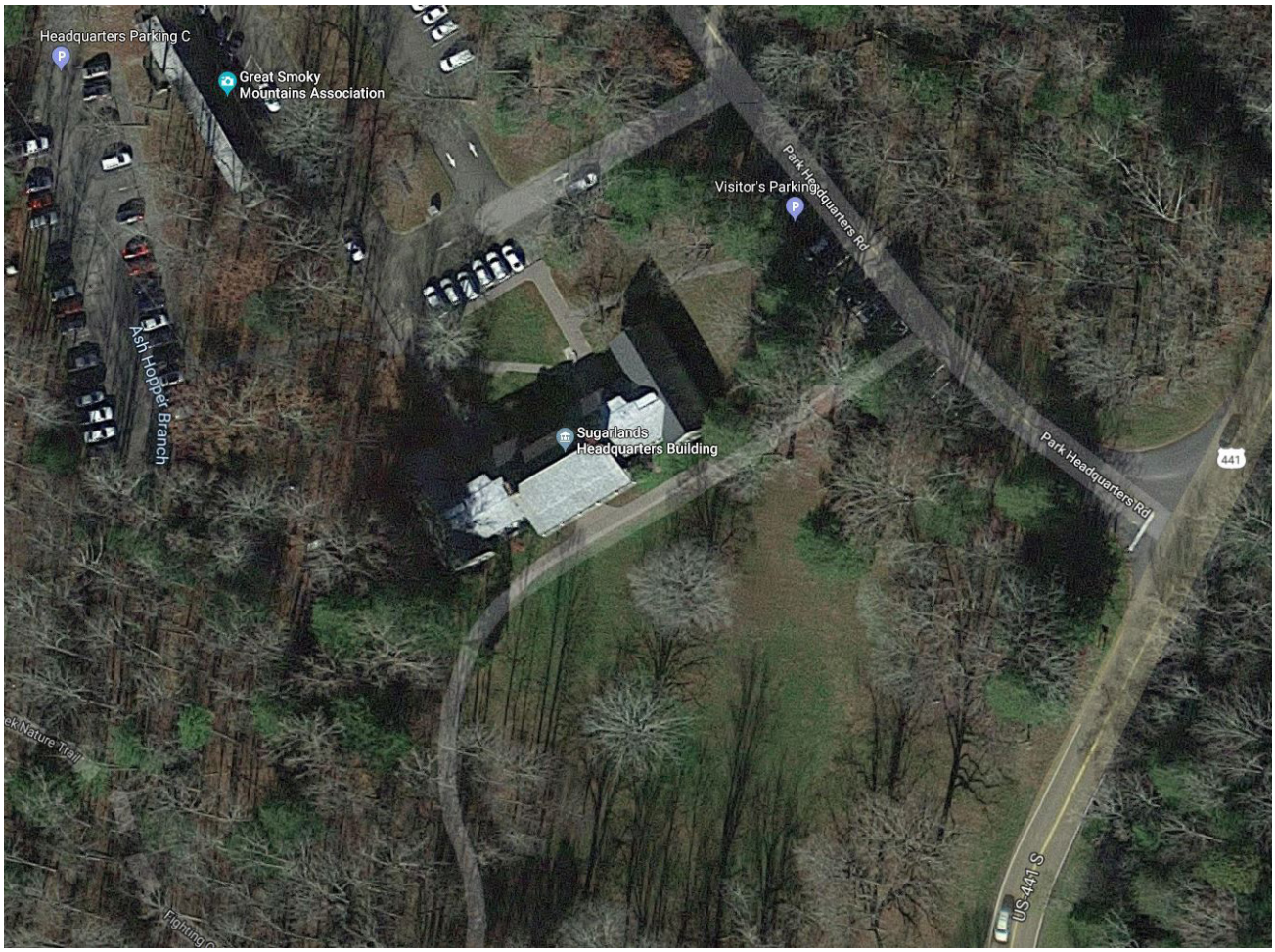


Figure 4-3. Aerial photograph of headquarters building and site context. (source: Google Earth)

Figure 4-4. View of south elevation showing large open lawn in front (source: QEA 2019)

Figure 4-5. View of north elevation across employee parking area (source: QEA 2018)

Figure 4-6. East retaining wall (source: QEA 2019)

EXTERIOR ARCHITECTURE

SUMMARY DESCRIPTION

The exterior of the Sugarlands Headquarters is a symmetrical one-and-a-half story, fifteen by six bays wide, 'H' shaped structure with a steeply sloped roof. The middle five bays of the center portion of the headquarters is roughly ten feet taller than the rest of the building and is flanked on the east and west by large rectangular stone chimneys. The building is clad with sedimentary sandstone in a random ashlar pattern and is covered by a slate roof. A covered wood porch extends out from the center five bays of the south main façade, a walk out basement leads to staff parking to the north, and the east and west wings have gable ends on their north and south faces. Large twelve-over-twelve double-hung windows wrap around the entire main level at regular intervals. The masonry opening size of the basement level windows vary depending on the ground elevation, but align vertically with the main level windows and lie within light wells on the south elevation. A series of six-over-six double-hung windows illuminate the upper level through three dormers on the north elevation.

ROOF AND CHIMNEYS

The central roof forms a cat-slide on the north side and has three dormers with flat roofs (figure 4-8). At the south side, the center five bays of the roof slope down into a shed roof over the porch (figure 4-7) while the three bays on either side of

Figure 4-7. South elevation roof at porch, detail (source: Quinn Evans 2019)

Figure 4-8. North elevation roof detail showing chimney and side of one dormer (source: Quinn Evans 2019)

that are flat at the top and then slope down. The central roof then intersects the two gable end roofs over the east and west wings.

The building's main roof is Virginia Buckingham Slate, attached via wood nailers. According to historic photos and construction details, the nailers are laid over a layer of asphalt roofing paper, over a one-inch layer of indeterminate rigid insulation, on top of a "nailable" concrete deck. Overall the roof is in poor

Figure 4-9. East chimney and roof intersection (source: Quinn Evans 2019)

Figure 4-10. West end of the south elevation (source: Quinn Evans 2019)

condition, intermittent loose or missing slates were observed and maintenance staff indicates that the slates can be easily lifted and removed by hand, suggesting that the fasteners and/or nailers have been compromised.

Ridge and valley flashings are copper. Several ridge caps are missing. Maintenance reports that valley flashings leak frequently. This is confirmed by observation of deterioration in the concrete planks in the attic. Gutters are half-round copper hung gutters with downspouts attached to an underground drain system which daylights at the edge of the site. The gutters and downspouts were fully replaced in 2014. There is significant buildup of leaves and debris in the valleys and gutters. The raked edges of the slate roofing appear to have been pointed with some kind of mortar or grout, which has since dislodged in several locations. A significant dip was observed in the slate roof toward the east wing on the north side, suggesting that the deck or substrate may be compromised in this location.

The chimneys were only observed from the ground, but appear to be in fair condition, with some rust staining, particularly on the west chimney, and loose mortar. The west chimney has a raised metal cap while the east chimney is sealed.

ELEVATIONS

South Elevation

The south façade is the building's primary elevation and faces US-441 S. It features a five-bay-wide wood covered porch over a stone patio and the centrally located main entrance (figure 4-11). Wings to the east and west (figures 4-10 and 4-12) are gable end and project south half a bay, creating the 'H' shaped footprint.

Figure 4-11. South elevation center porch (source: Quinn Evans 2019)

All of the windows on the main level of this elevation have wood shutters. Concrete light wells with stone copings allow light into the basement.

Overall the façade is in good condition with small areas of minor discoloration from rust and biological growth, and minor cracking in portions of the mortar joints. Water damage was observed in the tongue-and-groove plank ceiling of the porch awning, and some of the wood shutters have deteriorated at the corners.

East Elevation

The east elevation (figure 4-13) is six bays wide, topped with a tall slate roof, and features regularly spaced windows that align vertically between the basement and main level. A three-foot-tall sedimentary sandstone retaining wall in a random

Figure 4-12. East end of the south elevation (source: Quinn Evans 2019)

Figure 4-13. East elevation (source: Quinn Evans 2019)

ashlar pattern projects from the south corner of the east elevation. From there, the grade continues to slope down towards the north until it is roughly four feet above the basement finished floor level. Conduit travels from the basement window to the eave in the fifth bay and there are two aluminum rain leaders with drain boots on either end of the elevation that divert water from the aluminum gutter that runs the entire length of the roof.

Overall the sandstone elevation is in good condition with small areas of minor discoloration from rust and biological growth. Some of the parge coat has been damaged and some minor cracking was observed in portions of the mortar joints.

North Elevation

The north elevation (figures 4-14 to 4-16) is fifteen bays wide and displays the buildings full two-and-a-half story height. It features regularly spaced masonry openings that align vertically between the basement and main level. The first and last two bays make up the width of the gable ended east and west wings which project north one bay, creating a sense of a semi-enclosed courtyard. While the grade in the courtyard is level with the basement finish floor level, the grade at the first and last four bays is approximately four feet higher and aligns with the rest of the terrain on the property as it continues sloping down towards the north. Three dormers cut through the roof at the upper level and are spaced evenly between the chimneys. The middle dormer contains three sets of two wood-framed six-over-six double-hung windows connected by a narrow mullion, and the other two dormers contain three wood-framed nine lite casement windows connected by narrow mullions.

Figure 4-14. North elevation, east gable end detail (source: Quinn Evans 2019)

Overall the sandstone elevation is in fair to good condition with some areas of discoloration from rust and biological growth. Some cracking and disintegration of the mortar along the bottom edge of the wall was observed.

Figure 4-15. North elevation, east side (source: Quinn Evans 2019)

Figure 4-16. North elevation, west side (source: Quinn Evans 2019)

West Elevation

The west elevation (figure 4-17) is six bays wide, topped with a tall slate roof, and features regularly spaced windows that align vertically between the basement and main level. A three-foot-tall sedimentary sandstone retaining wall in a random ashlar pattern projects from the south corner of the west elevation. From there, the grade continues to slope down towards the north until it is roughly four feet above the basement finished floor level. A large electrical box is affixed to the

Figure 4-17. West elevation, (source: Quinn Evans 2019)

north corner of the elevation at the basement level with conduit traveling up to the eaves and out to a telephone pole (figure 4-18). Telecommunication conduit coming up from the ground enters the building through the masonry opening in the third bay from the south and the masonry opening south of that has been boarded up and includes a residential type air conditioner. Two aluminum rain leaders with drain boots on either end of the elevation divert water from the aluminum gutter that runs the entire length of the roof.

Overall the sandstone elevation is in good condition with small areas of minor discoloration from rust and biological growth. Some of the parge coat has been damaged and some minor cracking was observed in portions of the mortar joints.

Figure 4-18. Electrical box on the north corner of the west elevation (source: Quinn Evans 2019)

ENTRANCE SYSTEMS

There is one door on the south façade in the eighth bay from the east under the covered porch which is accessible from the sidewalk (figure 4-19). It is a solid-wood six-panel double-door with a six-lite transom, brass hardware and kick plate, and security camera and card reader.

There are five doors on the north elevation. At the basement level, there are doors in the fifth and eleventh bays from the east which are accessed by short stone stairs and slight ramps down (figures 4-15 and 4-16). An additional basement door is located south of the window on the east wall of the west wing and is accessed by going down a stone staircase (figure 4-20). At the main level, there are doors in the fifth and thirteenth bays from the east which are accessed via stone staircases

Figure 4-19. Main entrance on the south facade (source: Quinn Evans 2018)

Figure 4-20. Basement door at east wall of west wing, with drain in center of landing (source: Quinn Evans 2019)

leading up to them. All of the doors are painted six panel solid wood with a four-lite transom above, brass hardware and kick plate, and security card reader.

Overall, all of the doors on the north elevation are in good condition. The sealant around the wood frames has dried and the bottoms of the doors are showing some wear. Similarly, the door on the south façade is in good condition with some minor evidence of wear. The only door that is ADA accessible is the main entrance on the south façade. Park staff have reported repeated issues with water infiltration at the basement door on the east wall of the west wing, likely due to the low elevation there, although there is a drain at the exterior landing.

WINDOWS

South Elevation

At the basement level, all of the windows in the south façade have storm sash and are below grade in concrete light wells with stone copings. They do not align vertically with the windows on the main level above. From west to east there are two wood-frame eight-lite hopper windows divided by a narrow mullion in the center of the west wing (figure 4-21), then a similar sized masonry opening filled with two large louvers divided by a mullion within the fourth bay from the west (figure 4-22). Two more sets of two wood eight-lite hopper windows divided by a mullion are located within the twelfth bay and in the center of the east wing.

Figure 4-21. Typical basement window/light well, south elevation (source: Quinn Evans 2019)

Figure 4-22. Louver coverings at basement windows, south elevation (source: Quinn Evans 2019)

Figure 4-23. Typical twelve-over-twelve window, south elevation (source: Quinn Evans 2019)

Figure 4-24. Six-over-nine window, south elevation (source: Quinn Evans 2019)

At the main floor level, the windows in the portions of the façade that project south, the first, second, sixth, seventh, ninth, tenth, fourteenth, and fifteenth bays from the west, are twelve-over-twelve double-hung units (figure 4-24), while the remaining windows in the third through fifth and eleventh through thirteenth bays are six-over-nine single-hung units (figure 4-25). All of the windows on this level on the south façade have storm sash and wood shutters.

Figure 4-25. East elevation window bay, showing basement window with ducting (source: Quinn Evans 2019)

In general, the basement level windows are in fair condition. One of the storm windows in each of the wings have failed and the mullions show signs of water damage. The louvers and remaining windows are in good condition.

East Elevation

At the basement level, from south to north, there are two wood eight-lite casement windows. Two more similar sized masonry openings north of those are mostly filled with duct supply and return vents but use stippled glass to fill the rest of the opening and allow light in (figure 4-25). The last two windows north of those are larger wood eight-over-eight double-hung units (figure 4-26). The window in the fifth bay does not have a storm window so that pipes from a small air handling unit can enter the building through one of the lites. All of the window lintels on this level are aligned. At the main floor level, all of windows are twelve-over-twelve double-hung units and have storm sash.

The exterior of the main level windows were not observable up close from the ground, but in general appear to be in good condition except for some instances of dried sealant. Most of the windows on the basement level are dirty, but are in fair to good condition except for the window in the fifth bay which has been

Figure 4-26. Northernmost basement windows on east elevation (source: Quinn Evans 2019)

exposed to the elements. That window has damaged glazing and the wood sill has some water damage.

North Elevation

At the lower and main floor levels, all of the windows are twelve-over-twelve double hung units (figure 4-27) except for in the first and last four bays of the lower level where they are eight-over-eight double-hung units. There are also two

Figure 4-27. North elevation typical windows (source: Quinn Evans 2018)

Figure 4-28. Dormer windows, north elevation (source: Quinn Evans 2019)

narrow three-pane picture windows on the main level in the fifth and eighth bays from the west (figure 4-27). At the upper level, there are two sets of three nine-pane casement windows divided by thick mullions, as well as three sets of two six-over-six double-hung windows divided by a thick mullion (figure 4-28). All of the windows have storm sash except for the picture and casement windows.

In general, all of the windows appeared to be in good condition with no obvious evidence of water damage.

West Elevation

At the basement level, from south to north, there is one eight-lite casement window (figure 4-29), then two more similar sized masonry openings north of those which have mostly been boarded over. Although the frame still remains on the interior, the sash has been removed from the masonry opening in the second bay from the south and replaced with a residential air conditioner. The masonry opening in the third bay from the south retains its sash, but is punctured by many telecommunication conduits. The window in the fourth bay is also an eight-lite casement window of the same size. The last two windows north of those are larger eight-over-eight double-hung units (figure 4-30). All of the window lintels on this level are aligned. At the main floor level, all of windows are twelve-over-twelve double-hung and have storm sash except for the two southern most windows.

Figure 4-29. Southernmost window bay, west elevation (source: Quinn Evans 2018)

The exteriors of the main level windows were not observable up close from the ground, but in general appear to be in good condition except for some instances of dried sealant. The two southern most windows may also have water damaged wood sills. Most of the windows on the basement level are in poor condition.

Figure 4-30. West elevation basement windows (source: Quinn Evans 2018)

Aside from the dirt, the wood sills are showing signs of water damage in many locations and it appears the storm window in the fourth bay from the south has failed and left the window open to the elements.

Figure 4-31. Curved retaining wall and steps, north elevation (source: Quinn Evans 2018)

INTERIOR ARCHITECTURE AND FINISHES

GENERAL LAYOUT

Lower Level

When the building was constructed, the basement was sectioned off into very large spaces except for the east wing, which housed six rooms and a men's and women's restroom organized around the straight staircase that leads up to the main level. Today, the east wing remains the same, but many partitions were installed throughout the rest of the basement level to create eighteen additional rooms including fourteen offices (figure 4-32). A narrow central hallway runs through the middle portion of the building and then extends north into both wings along the inner walls. Long enclosed vestibules connect the central hallway to the two exit doors on the north façade.

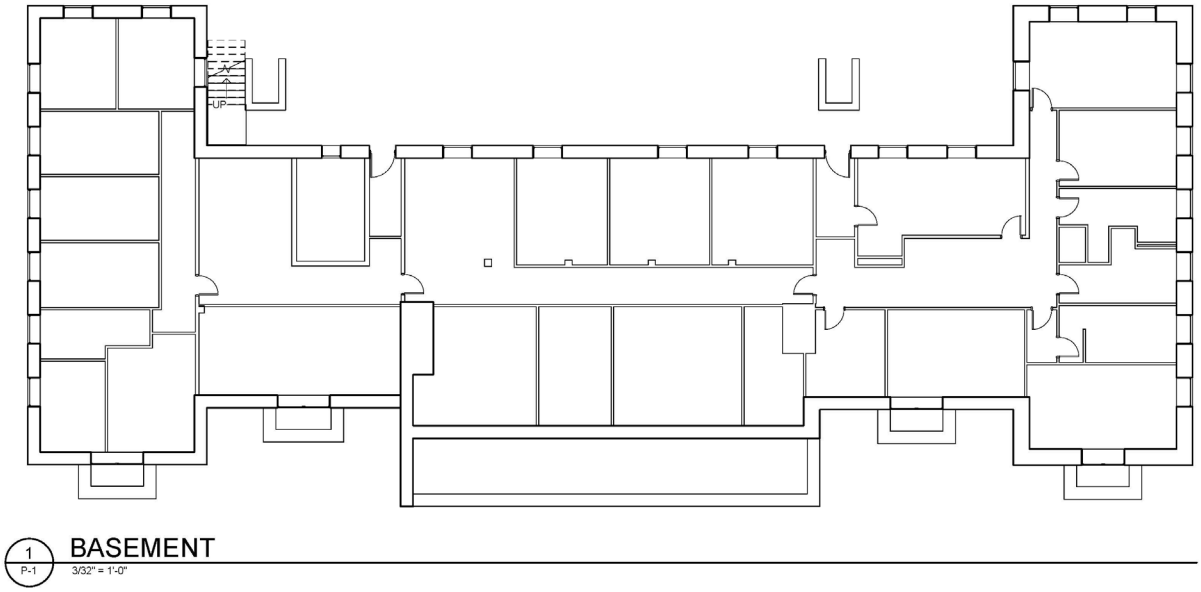
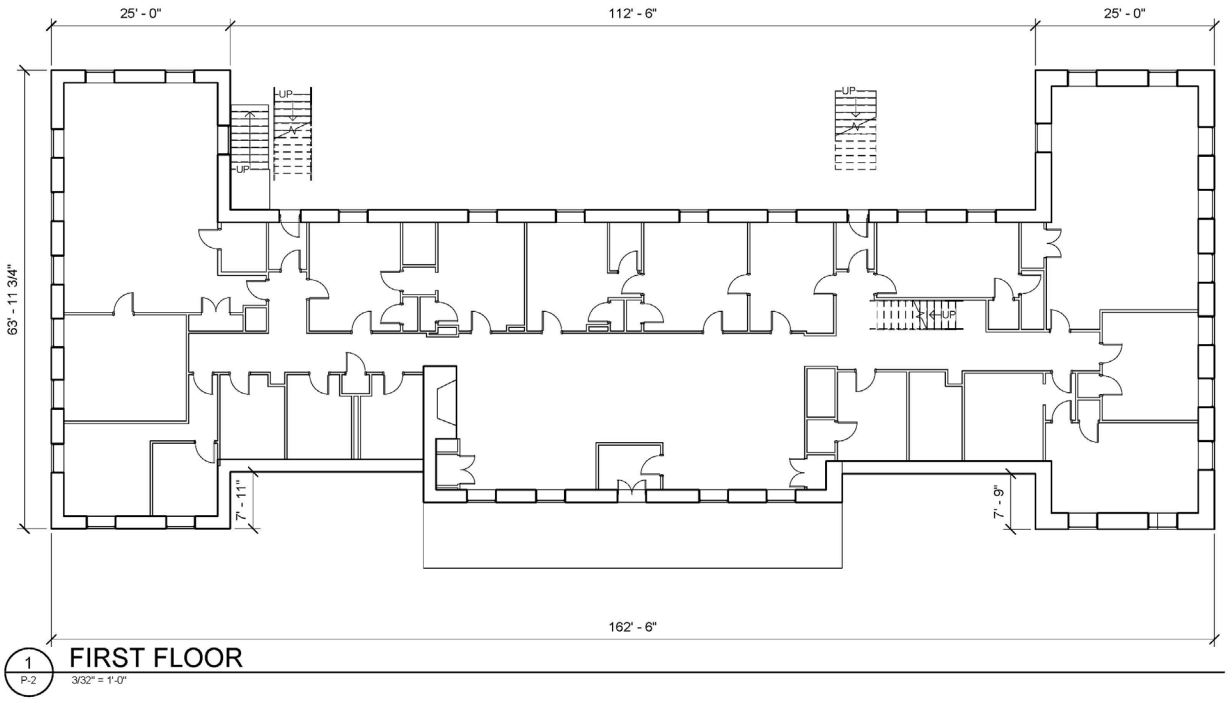


Figure 4-32. Lower level layout (source: Quinn Evans 2018)

Main Level

The main level contains and has retained the most historical integrity in the building (figure 4-33). A large lobby entered from the south main entrance is flanked on the west by a large fireplace and a reception area on the east. Five offices accessed from the lobby abut the north wall and are all connected internally by a series of doors that lead into the neighboring offices. There are also two small restrooms in this suite of offices that have been converted to storage closets. Central short narrow hallways extend to the east and west wings and also north to the exterior exits on the north façade. The east wing still contains the original six rooms and straight staircase that leads to the upper floor and down to



the basement. The west wing houses the men's and women's restrooms, and while the original large rooms still exist, they have been portioned off into smaller rooms or partial height office partitions have been installed.

Figure 4-33. Main level layout (source: Quinn Evans 2018)

Upper Level

Similar to the basement, the upper floor was originally left mostly open. The straight staircase comes up into the floor along the north elevation leading to a narrow hallway that turns south and then west as a central hall that accesses three offices within the central dormer on the north, and a long file room and restroom

Figure 4-34. Upper level layout (source: Quinn Evans 2018)

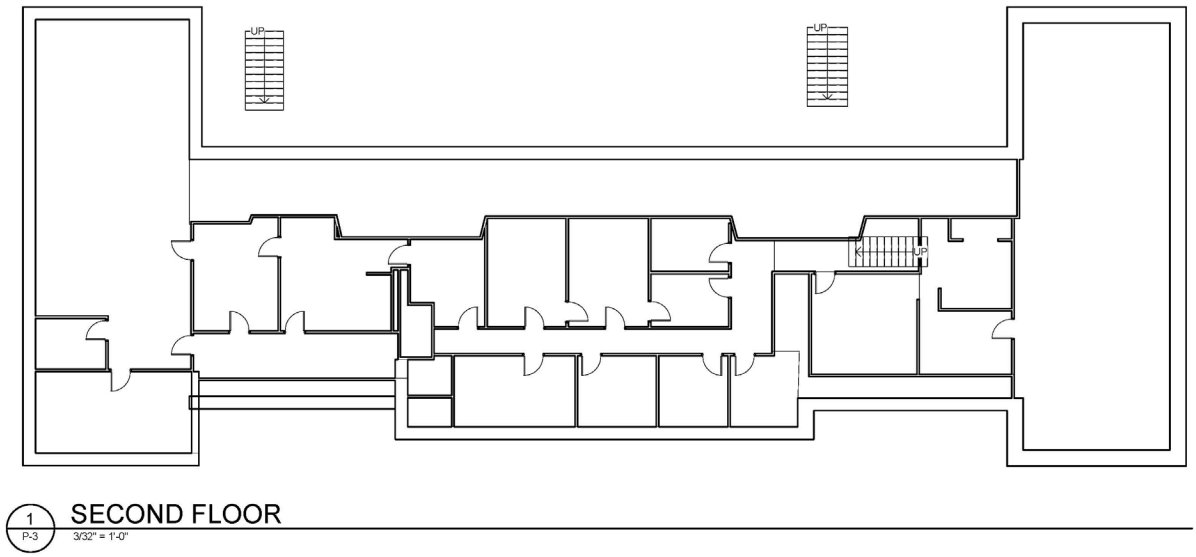


Figure 4-35. Typical six-panel doors, west wing, lower level (source: Quinn Evans 2019)

on the south. The spaces within the east and west wings were not finished and only had a narrow cat walk. Today, the original walls still remain, but similar to the main level, more walls have been added to create more offices, and a floor was added to the wings which now act as storage areas (figure 4-34).

DOORS AND FRAMES

Figure 4-36. Typical hollow core wood door, upper level (source: Quinn Evans 2019)

Lower Level

All of the doors in the west wing are the original solid wood six-panels with decorative trim and are in good condition (figure 4-35). All of the doors anywhere else in the lower level are typically hollow wood with simple wood trim and are in good condition, but of poor quality. Metals doors allow the hallways and coal room to be enclosed and are in good condition despite some chipped paint. A louvered door leads into the mechanical room and is also in good condition.

Main Level

All doors throughout the floor are solid wood six panels with decorative trim and are in good condition (figure 4-37). Some of the closet doors have original hardware, but most doors have new hardware.

Upper Level

All doors are typically hollow core wood with simple wood casing and are in good condition (figure 4-36). One door along the north exterior wall has been tapered at the top to align with the roof slope.

Figure 4-37. Typical six-panel corridor and closet doors, main level (source: Quinn Evans 2019)

WINDOWS

Lower Level

See exterior window section for type descriptions. Except for on the north elevation, all of the windows are seven feet above the finish floor level, but appear to be in fair to good condition, although it was not possible to determine if the windows were operable. All of the windows on the north elevation appear to be in good condition.

Main Level

See exterior window section for type descriptions. All of the windows appear to be in good condition with no signs of water damage or leaking.

Upper Level

See exterior window section for type descriptions. All of the windows appear to be in good condition with no signs of water damage or leaking.

TRIM AND MILLWORK

Lower Level

In general, all of the trim on the original doors, and the casings around all of the windows are decorative, while the trim around the doors added during the renovation in the late 1960s are simple, but all trim and casings are in good condition.

Main Level

In general, all of the trim and millwork around all of the doors and windows is decorative and in good condition. In some instances, the trim was cut to allow electrical conduit to be installed flush against the wall. A decorative chair rail was also applied to all to the original walls and is in good condition, but was cut away in some places to make way for electrical conduit.

Upper Level

All of the trim and casings are simple and are in good condition.

WALLS AND CEILINGS (INCLUDING LIGHTING FIXTURES)

Lower Level

In general, all of the walls in the east wing are original to the building and are made of gypsum block with a plaster board covering and are in good condition. The restrooms have Tennessee pink marble panels along the walls and stall partitions and are in fair condition, but holes remain from changes made over the years (figure 4-39). All of the walls in the center and west wing of the lower level are wood framed with wood panel boards that appear to be in good condition; however, staff have noted mold growth behind the panels. The ceilings throughout the lower level are dropped 2'x2' or 2'x4' ACT and are in poor to fair condition as some have been replaced. The window lintels were constructed to stop just below the floor slab above, but the ceiling hangs roughly two feet below the slab which required a bulk head to be installed at the inside face of the wall at each window.

Figure 4-38. Basement, typical condition showing flat walls, dropped ceilings, and bulkhead over windows (source: Quinn Evans 2019)

Figure 4-39. Basement restroom, typical conditions (source: Quinn Evans 2019)

The lighting fixtures are fluorescent tubes inlaid in the dropped ceiling and are in fair to good condition (figure 4-38).

Main Level

The lobby at the main level retains to most historic significance in the building (figures 4-41 and 4-42). It is covered floor to ceiling with horizontally applied wormy chestnut wood tongue and groove panels of varying widths which blend

Figure 4-40. Basement corridor showing wood-framed paneled walls and dropped ceiling (source: Quinn Evans 2019)

Figure 4-41. Lobby looking west (source: Quinn Evans 2019)

with the chair rails and window casing that are made of the same material. A large concrete and slate fireplace with a tall wormy chestnut wood mantel sits in the west wall while a closet and a secret door leading to an office can be found on the east wall. A store front vestibule was installed to enclose the main front entrance on the south façade, and access to four offices are located on the north. The ceiling in the main lobby is exposed painted concrete that is supported by

Figure 4-42. Lobby looking east (source: Quinn Evans 2019)

Figure 4-43. Original superintendent's office (source: Quinn Evans 2019)

exposed painted concrete beams and lit by six rustic chandeliers, two original and four replications, all of which are in good condition.

Among the offices that are accessed directly from the lobby, the second office to the right, which was the original superintendent's office, features the same wormy chestnut wood panels on its west wall and as chair rails and wainscoting around the entire room, similar to the lobby (figure 4-43). All of the rest of the original

Figure 4-44. Conference room, original drafting room, looking southwest (source: Quinn Evans 2019)

Figure 4-45. Main level corridor and stair in east wing, looking west (source: Quinn Evans 2019)

offices throughout the main level also retain a great amount of historic integrity and in general are enclosed by gypsum block walls with plaster board covering adorned with decorative chair rails, wide decorative window casings, and recessed channels that serve as picture rails along the top of the wall, which are all in good condition. Some additional wood stud walls with plywood panel board have since been added and are also in good condition. The restrooms on this level also have the pink Tennessee marble along the walls and stall partitions are in fair to good

Figure 4-46. Open office in west wing (source: Quinn Evans 2019)

Figure 4-47. Main level, typical restroom (source: Quinn Evans 2019)

condition with some holes remaining from previous renovations (figure 4-47). The ceilings in the east and west wings are dropped gypsum board in fair condition except for in a few rooms where water damage has caused the plaster to bubble and crack, and the lights are ceiling mounted fluorescent strip lights.

Upper Level

In general, all of the walls appear to be wood stud with plywood panels and are in good condition (figures 4-48 to 4-50). Most of the offices and the hallway have dropped 2x4 ACT tile ceilings in poor to fair condition and vary between the spaces. The east and west wings have exposed ceilings where the concrete roof slab can be seen and show some cracking in a few areas.

Figure 4-48. Upper level corridor (source: Quinn Evans 2019)

FLOOR FINISHES

Lower Level

Except for the janitor's closet and mechanical room which are exposed concrete, all of the floors are covered in vinyl tiles in fair condition except for in some areas in the west wing where water infiltration has caused the tiles to warp and buckle.

Main Level

The main lobby floor is original polished stone in good condition and adds to the historical integrity of the space. The surrounding offices and halls have been covered in carpet that is in poor condition and severely worn. None of the closets were carpeted and still show the original wood plank flooring. The restrooms are

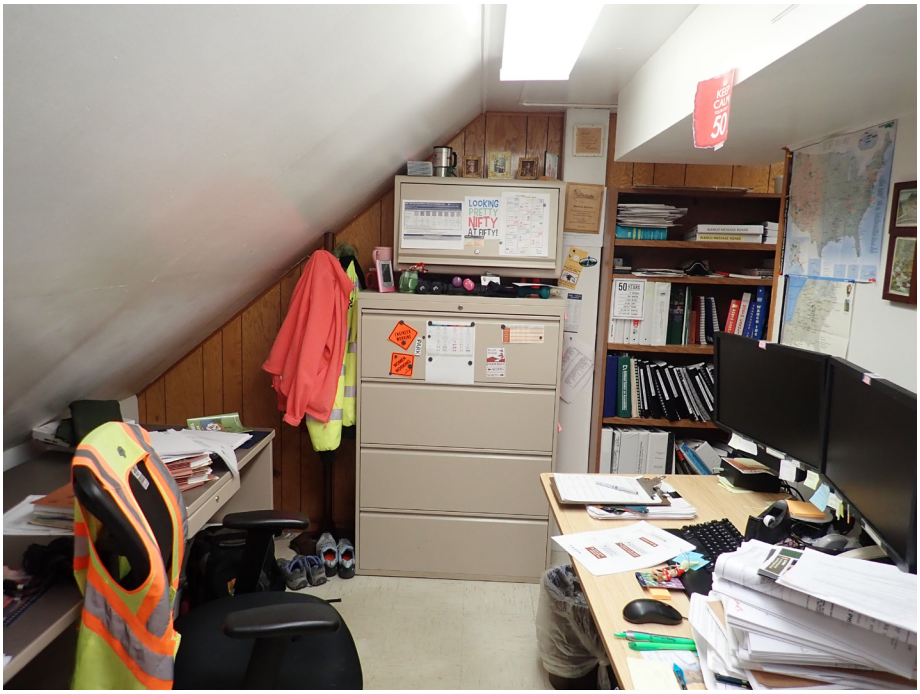


Figure 4-49. Upper level, typical office with slanted roof (source: Quinn Evans 2019)

covered in hexagonal ceramic tile in good condition with no observable cracks or missing pieces.

Upper Level

All of the flooring in the office areas of the upper level is vinyl tile and is generally in fair condition. The storage spaces within the east and west wings are exposed plywood (figure 4-51).

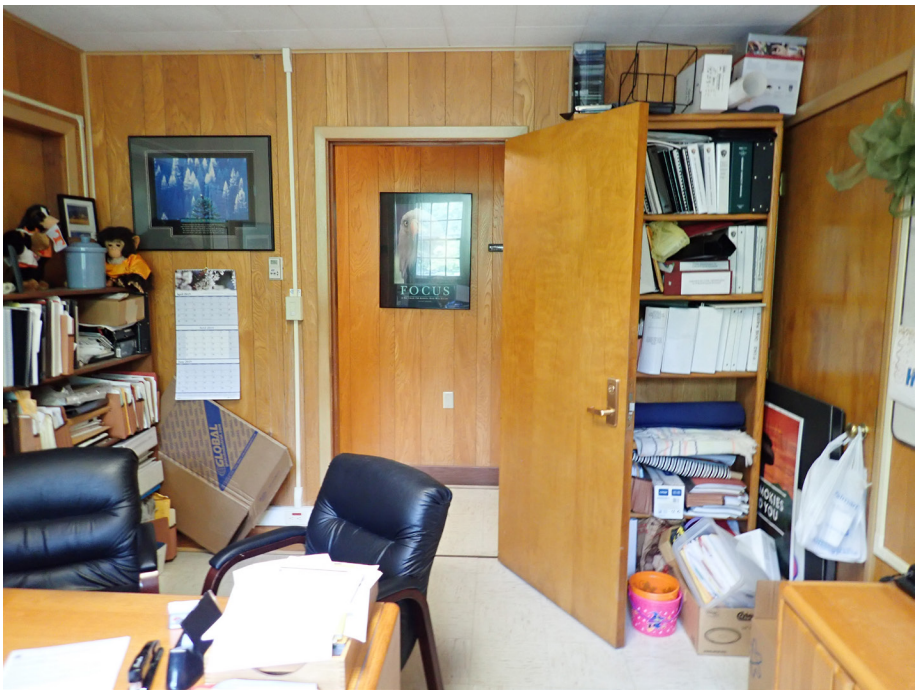


Figure 4-50. Upper level, typical office (source: Quinn Evans 2019)

Figure 4-51. Upper level, unfinished attic storage area (source: Quinn Evans 2019)

STRUCTURAL SYSTEMS

Structural assessment is based on a site visit by Baker Design Build (BDB) on October 30, 2018.. The purpose of the site visit was to visually inspect the building and assess the overall existing structural condition. It should be noted that the inspection was based solely on limited visual observation and what was readily accessible at the time of the site visit. There were no destructive activities performed at this inspection.

The Sugarlands Headquarters is a two-story building with an additional elevated basement originally built in 1939-40. BDB's understanding is that the structure is in good condition and does not appear to be structurally deficient. They observed that the perimeter of the building was reinforced concrete with a stone veneer wall. The interior structural members consist of one-way concrete slabs supported by concrete encased steel beams and columns. The existing roof framing consists of a steel truss system with a suspended ceiling.

In general, minimal structural deterioration or damage was observed at the following locations:

Lower Level

The concrete floor slab is raised/buckling in a couple of small areas close to the bathrooms. Investigation of the source might require removal of areas and replacement. Concrete walls had soil up against the outside surface and the stone steps in the rear of the building have missing mortar.

Main Level

No areas of concern were noted.

Roof

The concrete roof panels showed signs of water damage in the valleys. Several of the concrete panels in the valleys at both ends of the building were noted to have some spalling and cracking. Closer inspection from the outside showed considerable leaf material located in the valleys and could possibly be causing the water to back up and leak into the building. Storage areas within the roof have a large number of boxes and office supplies etc. stacked up on the floor deck. Mechanical AC units are hanging from steel that has been added at the roof trusses and could be possibly overloading the roof system.

Overall, the building appears visually to be in good condition and no major structural concerns were noted. All major structural components that were visible, appear to match in size and location as the existing drawings dated April 11, 1939. BDB found no discrepancies that were visually apparent. This opinion is limited to the observed conditions of the existing building during the site visit and there is no claim, either stated or implied, that all conditions were observed. This opinion does not express or imply any warranty of the structure.

Design Parameters & Reference Data

1. 1. IBC 2015
2. 2. AISC
3. 3. TMS 402/602-16

Soils

Estimated Design Soil Bearing Capacity of 2,000 psf.

Assumed Criteria:

Design Loads:

1. Live Load:
   a. Roof……..20 PSF
   b. Floor……50 PSF
   c. Lobby……100 PSF
2. Dead Loads:
   a. Roof……..20 PSF
   b. Floor
      i. Lobby……50 PSF
      ii. Rooms……..15 PSF
   c. Self-weight of structural members
      i. AHU ……..4600 lbs
      ii. Boiler……..280 lbs

BUILDING SYSTEMS

MECHANICAL

The existing systems consist a 42.5 ton air-cooled chiller on grade, four (4) chilled water air handling units, one (1) 1,200 MBH biofuel boiler, and hot water radiators throughout the building. Bathrooms are exhausted with individual exhaust fans.

ELECTRICAL

The existing electrical service entrance to the building is an 800A 208Y/120V 3 phase, 4 wire Westinghouse CDP type panel designated as P231-A1, served via an 800 Amp Westinghouse Heavy Duty fused safety switch located on the exterior corner of the building. The grounding of the service entrance appeared visible, but no ground rod connection could be identified in the initial survey. It is possible that the ground rod exists and is buried. Both the main electrical panel and the existing service entrance rated fusible disconnect switch have exceeded their usable life but appear functional.

The building power is served by Sevier County Electric, located in Sevierville TN (Meter # 50 410 421) with the meter base being building mounted and located immediately adjacent to the exterior service entrance disconnect switch. The electrical service comes in to the building overhead with a weather head located at the eaves of the building.

PLUMBING

All existing plumbing fixtures, piping, domestic water heaters, and recirculation pumps will be removed. No portion of the existing plumbing systems will be retained.

HAZARDOUS MATERIALS

ASBESTOS

Based on the results of laboratory analyses, the following materials were determined to be asbestos-containing:

- Bottom layer of floor tile (5% Chrysotile) (associated black mastic negative) under non-ACM 12”x12” top floor tile, non-ACM yellow mastic and non-ACM leveling compound throughout the basement (HA-1)
- Door caulking (5% Chrysotile) around exit door frames (HA-20)
- Sink undercoating (3% Chrysolite) on breakroom sink (HA-23)

It is recommended that the asbestos containing materials be removed from the building before any activity begins that would break up, dislodge, or similarly disturb the material. Once removed, the above ACMs must be manifested and disposed at a classified landfill (Tennessee) or a landfill that is certified to accept non-RACM or RACM materials (other states). It should be noted that suspect materials, other than those identified in the October 29-31, 2018 site visit, may exist within areas of the project scope. While every attempt was made to identify the suspect materials, concealed materials may still be present. Should material other than that which was identified be uncovered during the renovation process, those materials should be assumed asbestos-containing until sampling and analysis can confirm or refute asbestos content.

LEAD-CONTAINING PAINT

Based on the results of the XRF results and paint chip analysis, the following painted surfaces were determined to be lead-containing:

- Basement areas (doors, trim, masonry, walls)
- Main Level / 1st Floor areas (doors, trim, walls)

During renovation activities, undamaged lead-containing paint may remain on the various substrates and the material may be disposed as construction and demolition debris in a Class III and/or IV landfill. Should painted surfaces be damaged to extent that the surfaces are peeling, blistered or cracked, the surfaces must be stabilized prior to renovation. This may be accomplished using hand tools and/or a removal solvents.

OTHER HAZARDOUS MATERIALS

The following observations were made during the October 29-31, 2018 site visit regarding the absence and/or presence of other potential hazardous materials in the building:

- There is potential CFC-containing HVAC equipment located adjacent to the eastern and western elevations of the building and within the mechanical room. In addition, there was a split refrigerator/freezer unit in the breakroom. At the time of the site visit, Terracon was unable to identify a label indicating the refrigerant type used in the equipment. Therefore, the HVAC units and the refrigerator/freezer should be assumed as CFC-containing and should have the refrigerant reclaimed by a licensed HVAC contractor.
- Terracon observed approximately 150 fluorescent light fixtures within the building (assumed mercury-containing lamps and assumed PCB ballasts).
- Terracon observed the thermostats within the building; however, none of the thermostats were mercury containing thermostats.
- Terracon observed exit signs within the building; however, none of the sigs were tritium exit signs.

RADON

Based on the findings, one of the radon concentrations (T769964) was detected above the USEPA action level of 4.0 pCi/L. However, according to a U.S. Department of Energy environmental assessment, radon is much less of a concern in commercial buildings than in residential buildings as these buildings usually have mechanical ventilation and occupants are typically not in the buildings as many hours a week as they are in their homes. No action level has been established for commercial buildings or occupational exposure.

See Appendix C for full Hazardous Materials Report.

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Part II: Treatment and Use

Section Title Page: Undated image of the south elevation from the southwest, early spring (Source: GRSM Archives 01464)

CHAPTER 5: ULTIMATE TREATMENT AND USE/ REQUIREMENTS FOR TREATMENT

ULTIMATE TREATMENT AND USE

APPROACH TO TREATMENT

The Secretary of the Interior has established standards and guidelines for the appropriate treatment of historic properties. These standards identify three approaches that might be considered for treatment and use of the Sugarlands Headquarters: preservation, restoration, and rehabilitation (the fourth approach, reconstruction, is not an applicable treatment approach for this site).

Preservation

Preservation is defined as "the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project." Under Preservation, the Sugarlands Headquarters would be maintained in more or less its present state, with the minimal maintenance necessary to continue it in its present condition. It would continue to display the additions and alterations that have occurred. Simply repairing and preserving the building in its current state would not meet the mandates of the enabling legislation or the needs of the park, and therefore Preservation is not an appropriate approach.

Restoration

Restoration is defined as "the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a

restoration project." This approach as applied to the Sugarlands Headquarters would likely mandate its restoration to the period of significance; it would not address ongoing issues with accommodating modern administrative use or correcting ongoing functional issues in the building. Restoration is therefore not a viable approach.

Rehabilitation

Rehabilitation is defined as "the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values." A rehabilitation approach to treatment would provide the most flexibility in the use of the Sugarlands Headquarters. This approach emphasizes the retention and repair of historic materials, but more latitude is provided for replacement because it is assumed the property is more deteriorated prior to work. Like those for Preservation, the standards for Rehabilitation focus attention on the preservation of those materials, features, finishes, spaces, and spatial relationships that, together, give a property its historic character. Therefore, Rehabilitation is the recommended approach to treatment for the Sugarlands Headquarters.

PROPOSED USE

The Sugarlands Headquarters Building was constructed as the administrative headquarters of Great Smoky Mountains National Park and has served in that capacity since its completion in 1940. It is intended to remain in that use. No other alternative uses have been identified for this building, and it is most appropriate for it to remain as administrative offices. This HSR Is being prepared in conjunction with pre-design and schematic design services to rehabilitate the building for continued use as administrative offices. Among the options being considered is the construction of a building to provide additional office space for the administrative functions of the park. The historic headquarters building will remain the primary administrative office, and this HSR is being prepared to guide its rehabilitation with that assumption.

The scope of work for the rehabilitation of the headquarters building reads as follows:

> This project is intended to perform the complete design of the restoration, rehabilitation and upgrades to the Sugarlands Headquarters located in the Great Smoky Mountains National Park. This building's rehabilitation is to be addressed as a whole.

The proposed work includes: stabilize the foundation, bridge voids beneath the structure and repoint stone masonry, repair roof leaks and damaged historic fabric, and repair the exterior porches. Upgrade wiring, plumbing, air conditioning, heating and ventilation, and insulation to meet current codes, and install fire detection and suppression system. Mitigate asbestos, radon, lead paint, flammable surfaces and egress problems, and adaptive restoration to provide handicap access to the lower and main floors.

A primary project requirement is to upgrade the building HVAC system. Current boiler presents on-going maintenance challenges and, even when working, the system fails to provide adequate heating or cooling to building occupants. Project will include a new HVAC system that is effective, dependable, and efficient.

The project will also replace obsolete and hazardous electrical service panels and components in the Park Headquarters. The rehabilitation of the facility's electrical system will meet National Electrical Code requirements for safety and reduce the current maintenance commitment. All work performed will be sensitive to the historic fabric.

The project will include reconfiguration of office spaces on the lower, main and upper levels. Design will provide improved circulation, egress and office layout on both floors: upgrades for better daylighting in the basement; upgraded workspace lighting throughout.

The building will not be occupied during construction. For the purpose of this report, the Sugarlands Headquarters Building is being treated as a historic structure. While it has not yet been determined eligible for the National Register, the Historic Resource Study identifies the building as potentially eligible for listing, an evaluation that the Tennessee State Historic Preservation Office has concurred with. This HSR is written with the assumption that the building is eligible and makes recommendations accordingly.

REQUIREMENTS FOR TREATMENT AND USE

A number of laws, regulations, and functional requirements delineate treatment and use of the historic structures in National Parks. In addition to protecting the cultural resource, these requirements also address issues of human safety, fire protection, energy conservation, abatement of hazardous materials, and handicapped accessibility. Some of these requirements may contradict or be at cross purposes with one another if they are rigidly interpreted. Any treatment must be carefully considered in order that the historic fabric of the structure is preserved.

AUTHORIZING LEGISLATION

Great Smoky Mountains National Park was authorized by legislation passed by the United States Congress and signed into law by President Calvin Coolidge on May 22, 1926.Acquisition of land for the park and development of facilities for the park took place over the next ten years, and the park was officially dedicated by President Franklin D. Roosevelt on September 2, 1940.

FOUNDATION DOCUMENT

The Foundation Document was prepared for Great Smoky Mountains National Park in October 2016 and it identifies the fundamental resources and values associated with the park as well as the park significance and interpretive themes. Preparation of the Foundation Document included an assessment of planning and data needs, other important resources and identification of key park-wide and major issues. All of these were prioritized and connected with stewardship priorities.

Purpose Statement

The Purpose Statement for the park reinforces the foundation for future park management and use decisions. The following is the Purpose Statement for the park:

> "Great Smoky Mountains National Park preserves a vast expanse of the southern Appalachian Mountains ecosystem including its scenic beauty, extraordinary diversity of natural resources, and rich human history, and provides opportunities for the enjoyment and inspiration of present and future generations."

Park Significance

Significance statements express why Great Smoky Mountains National Park resources and values are important enough to merit national park unit designation. Statements of significance describe why an area is important within a global, national, regional, and system wide context. These statements are linked to the purpose of the park unit and are supported by data, research, and consensus. Significance statements describe the distinctive nature of the park and inform management decisions, focusing efforts on preserving and protecting the most important resources and values of the park unit. The following significance statements have been identified for the park:

Close to Home. Great Smoky Mountains National Park is the largest mountainous park east of the Mississippi River and is one of the most visited national park units. The park lies within a day's drive of more than half the U.S. population and thus offers the opportunity for tens of millions of people to have a national park experience close to home while also drawing visitors from around the world.

Scenic Qualities. The Great Smoky Mountains exhibit the finest example of the ruggedness, magnitude, height, and scenic grandeur of the southern Appalachian Mountains, including 16 peaks over 6,000 feet. Visitors are drawn to a variety of park features, including waterfalls, historic landscapes, panoramic mountain vistas, and the changing of the seasons.

Biodiversity and Science. The Great Smoky Mountains are world-renowned for the diversity of plant and animal species found in the park due to the variety of elevations, landforms, climates, and vegetation communities—representing forest types such as those that exist from North Georgia to Maine. Old growth, ancient forests, outstanding natural waters, and rare species found only in the park are some of the unique natural attributes of the park. This makes it an exemplary outdoor laboratory for the study of and education about the ecosystem processes of the southern Appalachian Mountains. And consequently, the park is one of the most researched in the national park system.

Vestiges of Human History. Humans have lived in and around the park for more than 9,000 years. The park preserves a significant number of archeological sites, historic structures, and other vestiges of human interaction with the land. The time periods represented by these resources include American Indian, Appalachian mountain settlement, and early National Park Service / Civilian Conservation Corps (CCC) eras.

Philanthropy and Stewardship. The park was established through the efforts of private philanthropists, local residents, and community leaders. The park was stitched together through the sacrifices of families from

North Carolina and Tennessee whose private lands were acquired to create a new kind of "National Park in the East." Their connections to the land endure and are demonstrated by strong advocacy and stewardship of the park today.

NATIONAL HISTORIC PRESERVATION ACT

The National Historic Preservation Act of 1966, as amended (NHPA), mandates federal protection of significant cultural resources, including buildings, landscapes, and archeological sites listed in or eligible for listing in the National Register of Historic Places.

Section 106

A routine step in the park's planning process for the treatment of cultural resources is compliance with Section 106 of the NHPA. This requires that prior to any undertaking involving National Register or National Register-eligible historic properties, federal agencies "take into account the effect" of the undertaking on the property and give the Advisory Council on Historic Preservation (Advisory Council) "a reasonable opportunity to comment with regard to such under-taking." To satisfy the requirements of Section 106, regulations have been published (36 CFR Part 800, "Protection of Historic Properties") that require, among other things, consultation with local governments, State Historic Preservation Officers, and Indian tribal representatives. They also establish criteria under which the Advisory Council may comment, but as a practical matter, the vast majority of Federal undertakings do not involve review by the Advisory Council. The point of Section 106 review is to ensure that all interested parties have a voice in the treatment of the nation's cultural heritage.

THE SECRETARY OF THE INTERIOR'S STANDARDS

The Secretary of the Interior's Standards for the Treatment of Historic Properties (Standards) provide a philosophy to underpin historic preservation that is widely understood and almost universally accepted in the United States. By separate regulation, the Secretary has required the application of the Standards in certain programs that the Secretary administers through the National Park Service. They have also been widely adopted by state and local governments and by the private sector, and are intended to be applied to a wide variety of resource types, including buildings, sites, structures, objects, and districts. The Standards, revised in 1992, are codified as 36 CFR Part 68 in the 12 July 1995 Federal Register (Vol. 60, No. 133). The revision replaced the 1978 and 1983 versions of 36 CFR 68 entitled "The Secretary of the Interior's Standards for the Treatment of Historic Properties". The Standards are neither technical nor prescriptive, but are intended to promote responsible preservation practices that help protect the nation's

irreplaceable cultural resources. For example, they cannot, in and of themselves, be used to make essential decisions about which features of the historic building should be saved and which can be changed. But once a treatment is selected, the Standards provide philosophical consistency to the work.

The Standards describe four broad approaches to the treatment and use of historic properties. These are, in hierarchical order:

- **Preservation**, which places a high premium on the retention of all historic fabric through conservation, maintenance and repair. It reflects a building's continuum over time, through successive occupancies, and the respectful changes and alterations that are made.
- **Rehabilitation**, which emphasizes the retention and repair of historic materials, but provides more latitude for replacement because it is assumed the property is more deteriorated prior to work. (Both Preservation and Rehabilitation standards focus attention on the preservation of those materials, features, finishes, spaces, and spatial relationships that, together, give a property its historic character.)
- **Restoration**, which focuses on the retention of materials from the most significant time in a property's history, while permitting the removal of materials from other periods.
- **Reconstruction**, which establishes limited opportunities to re-create a non-surviving site, landscape, building, structure, or object in all new materials.

Regardless of treatment approach, the Standards put a high priority on preservation of existing historic materials and not just the architectural form and style. The Standards also require that any alterations, additions, or other modifications be reversible, i.e., be designed and constructed in such a way that they can be removed or reversed in the future without the loss of existing historic materials, features, or character.

Rehabilitation has been identified as the most appropriate overall approach to the treatment of the Sugarlands Headquarters Building (see above). Within the overall approach, treatments adhering to other standards may be deemed appropriate; for example, restoration of the lobby may be considered an appropriate treatment for that specific space even under the overall approach of rehabilitation.

ARCHITECTURAL BARRIERS ACT (ABA)

Passed in 1968, the ABA is one of the first laws to address access to the built environment. The law applies to federal buildings, including post offices, social security offices, federal courthouses and prisons, and national parks. Coverage is limited to those funding programs that give the federal agency awarding grants or loans the authority to establish facility standards. As of May 9, 2006, the National Park Service's implementing standard for accessibility in new construction and alterations is the Architectural Barriers Act Accessibility Standard (ABAAS).

The Headquarters Building does provide a level of universal accessibility from the south entrance and on the main level, but does not meet the specific requirements from the north entrances or on the lower and upper levels. The park has done an excellent job of identifying the range of problems, prioritizing them and determining funding requirements. See below for specifics.

INTERNATIONAL BUILDING CODE

Building codes are generally applicable to all buildings whether they are historic or not. As a matter of policy, the NPS and the State of Tennessee are guided by the International Building Code (IBC), which includes this statement regarding codes and historic buildings:

> 3406.1 Historic Buildings. The provisions of this code related to the construction, repair, alteration, addition, restoration and movement of structures, and change of occupancy shall not be mandatory for historic buildings where such buildings are judged by the building official to not constitute a distinct life safety hazard.

Threats to public health and safety should always be eliminated, but because the Sugarlands Headquarters has not yet been determined to be historic, alternatives to full code compliance are unlikely to be granted. Therefore, all work proposed as part of a renovation should comply with all building code requirements.

NFPA CODE 914

The National Fire Protection Association (NFPA) has promulgated codes for historic buildings, most notably NFPA 909, "Code for the Protection of Cultural Resources Properties - Museums, Libraries, and Places of Worship," and NFPA 914, "Code for Fire Protection of Historic Structures."

NATIONAL PARK SERVICE MANAGEMENT POLICIES

The NPS General Management Policies (2006) guide overall management of historic properties, especially Chapter 5 "Cultural Resource Management." Based

upon the authority of some nineteen Acts of Congress and many more Executive orders and regulations, these policies require planning to ensure that management processes for making decisions and setting priorities integrate information about cultural resources, and provide for consultation and collaboration with outside entities. These policies also support good stewardship to ensure that cultural resources are preserved and protected, receive appropriate treatments (including maintenance), and are made available for public understanding and enjoyment.

Chapter 5 of the NPS Policies Manual describes Cultural Resources Management.

> The Service's cultural resource management program involves research to identify, evaluate, document, register, and establish basic information about cultural resources and traditionally associated peoples; planning to ensure that management processes for making decisions and setting priorities integrate information about cultural resources and provide for consultation and collaboration with outside entities; and stewardship to ensure that cultural resources are preserved and protected, receive appropriate treatments (including maintenance) to achieve desired conditions, and are made available for public understanding and enjoyment. (Official U.S. Government edition 0-16-076874-8 ISBN for U.S. Government Printing Office)

The appearance and condition of resources before treatment, and changes made during treatment, will be documented. Such documentation will be shared with any appropriate state or tribal historic preservation office or certified local government, and added to the park museum cataloging system. Pending treatment decisions reached through the planning process, all resources will be protected and preserved in their existing states. The management policies lay out rules for use of historic properties under the control of the National Park Service. Chapter 5 of this document directs that "compatible uses for structures will be found whenever possible [to] help prevent the accelerated deterioration of historic structures due to neglect and vandalism," but goes on to warn against uses of structures that would "threaten the…character of a structure…or that would entail alterations that would significantly compromise its integrity."

DIRECTOR'S ORDER-28

Also circumscribing treatment and use of historic properties in National Parks is Director's Order 28, Cultural Resource Management Guideline. It requires that the NPS plan for the protection of cultural resources such as the Sugarlands Headquarters and reinforces the requirement to use existing buildings for NPS purposes. In Chapter 8, "Management of Historic and Prehistoric Structures," observes that "[t]he primary preservation issue…is the compatibility of the use

with the structure." DO-28 also requires that no historic structure be rehabilitated or restored without an appropriate historic structure report.

BUILDING CODE SUMMARY

The recommendations in this document are in accordance with the International Code Council (ICC) Model Codes and Standards, 2015 editions and the NFPA National Fire Codes, including but not limited to the following:

Building

- 2018 ICC International Building Code (IBC) with appendices;
- 2018 ICC International Existing Building Code (IEBC) with appendices;
- ANSI/ASSEZ117.1, Safety Requirements for Confined Spaces
- 2015 NFPA Life Safety Code (NFPA 101) use where IBC is silent – the most restrictive requirement will dictate

Mechanical

- 2015 ICC International Mechanical Code (IMC)

Plumbing

- 2015 ICC International Plumbing Code (lPC)

Fire

- 2016 International Fire Code (IFC)
- NFPA National Fire Codes, Including Annexes (except NFPA 5000)

Other Guidelines, Codes, Regulations, and Local Utility Requirements

- National Fire Protection Association (NFPA) 70
- 2017 National Electrical Code

Federal Government Legislation, Regulations, Standards and Guidelines:

- 2004 Architectural Barriers Act and ABAAS Guidelines
- Americans with Disabilities Act (ADA) 2010 Design Guidelines
- ANSI A117.1 2003
- Uniform Federal Accessibility Standards (UFAS)
- Occupational Safety and Health Administration (OSHA)

The authority having jurisdiction (AHJ) for the Southeast Region is Jimmy Stewart.

CODES INTRODUCTION

The following summary is an initial analysis to inform alternatives that might be explored during the design of any proposed renovation work. This analysis is not comprehensive and needs to continue to be updated and expanded throughout the design process. Additional information regarding code requirements and fire life safety for National Parks Service projects can be found at https://www.nps.gov/dscw/ds-safety-fire.htm#bcis. The final code analysis should include all elements listed on this site.

Occupancy Type:

(Chapter 3 IBC: Use and Occupancy classification):

- B - Business (staff support spaces).

Construction Type:

Type IIIB

Fire-Resistance Ratings

Building Element	*Type IIIB*
Primary structural frame	0
Bearing walls - Exterior	2
Bearing walls - Interior	0
Nonbearing walls and partitions - Exterior	0
Nonbearing walls and partitions – Interior	0
Floor construction and associated secondary members	0
Roof construction and associated secondary members	0

Occupancy Load Factor

(Chapter 10, 2018 IBC):

- Business areas = 100(sf/person) gross (Table 1004.1.2) As many as 193 people.
- Exits shall be sufficient for simultaneous occupancy of both the assembly

occupancy and the other parts of the building, except where the AHJ determines that the conditions are such that simultaneous occupancy will not occur (12.1.3.3 2015 NFPA 101).

Egress

Egress element requirements are based on the prescriptive provisions of the 2015 NFPA Life Safety Code.

Means of Egress

- The number of means of egress from any balcony, mezzanine, story, or portion thereof shall be not less than two, except under one of the following conditions (7.4.1.1)
- The number of means of egress from any story or portion thereof, other than for existing buildings as permitted in Chapters 11 through 43, shall be as follows (7.4.1.2):
- Occupant load more than 500 but not more than 1000 – not less than 3.
- Occupant load more than 1000 – not less than 4.
- It is not the intent to require four means of egress from each level of an assembly occupancy building having a total occupant load of more than 1000 where, individually, the floors have occupant loads of less than 1000 (A.12.2.4).

Arrangement of Means of Egress

- Where two exits, exit accesses or exit discharges are required, they shall be located at a distance from one another not less than one-half the length of the maximum overall diagonal dimension of the building or area to be served, measured in a straight line between the nearest edge of the exits, exit accesses, or exit discharges, (7.5.1.3.2).
- Areas accessible to people with severe mobility impairment, other than existing buildings, shall have not less than two accessible means of egress, unless otherwise provided in 7.5.4.1.2 through 7.5.4.1.4 (7.5.4.1).
- Common path limit for unsprinklered building (Table A7.6): Business 75 ft
- Dead End Corridor limit for unsprinklered building (Table A7.6): Business 20 ft
- Travel Distance Limit for unsprinklered building (Table A7.6): Business 200 ft.
- In assembly occupancies, other than those listed in 12.2.3.6.2(1), the main entrance/exit shall be of a width that accommodates one-half of the total

occupant load (12.2.3.6.2(2)).

- Where the main entrance/exit from an assembly occupancy is through a lobby or foyer the aggregate capacity of all exits from the lobby or foyer shall be permitted to provide the required capacity of the main entrance/exit, regardless of whether all such exits serve as entrances to the building (12.2.3.6.5).
- In assembly occupancies where there is no well-defined main entrance/exit, exits shall be permitted to be distributed around the perimeter of the building provided that the total exit width furnishes not less than 100% of the width needed to accommodate the permitted occupant load. (12.2.3.6.6).

Egress Components

- Per Table 7.3.3.1, the capacity factor for stairways is 0.3 inches/person. The capacity factor for level components and ramps is 0.2 inches/person.

Limited Access or Underground Buildings

- The lowest level of the building is less than 30 ft below the level of exit discharge, therefore the Lower level is not considered a limited access or underground building per 2015 NFPA 101 (12.4.3.1).

The main level has the required number of exits and is arranged to meet current requirements. The lower level does not currently have any exits that meet requirements for egress out of the building.

Accessibility

Existing Access Issues

Although the main level of the headquarters does meet ABAAS standards, the lower and upper levels do not. The lower level is only accessible by the stairway on the interior, or by a sidewalk that is too steeply sloped on the north into entrances that are too small to meet code. The upper level is also only accessible by stair, and does not meet the common path of egress distance requirement. An effort has been made to make the restrooms throughout the building accessible, but do not meet current standards.

Proposed Access Improvements

A new elevator should be a very high priority for any funds that become available. It will enable the headquarters to meet all national and local codes for accessibility by providing access to the lower level of the building. An excellent location for the elevator is found in west wing of the building where the overhead requirements

will not disturb the roof. The upper level will also be abandoned so accessibility requirements will not need to be met.

The existing restrooms do not meet current accessibility standards or the needs of the staff and visitors. The bathroom doorways are not wide enough and there are no staff or family restrooms.

Additionally, some changes to doors and hardware should be made to ensure compliance with ABAAS and universal design requirements.

Chapter 6: Recommendations for Treatment

INTRODUCTION

The recommendations below are adapted from the pre-design and schematic design being undertaken concurrently with preparation of this HSR.

SITE RECOMMENDATIONS

The most significant site recommendation is to mitigate moisture migration into the lower level. The finish grades should be adjusted to create positive slope and drainage away from the building while aligning with any existing sidewalks. Curb cuts and additional accessible parking spaces should meet code in the existing parking area to the east along Park Headquarters Road. In addition, the mortar joints in the four retaining walls and two curved decorative stone stairways, as well as the stone copings, should be repointed.

EXTERIOR ENVELOPE RECOMMENDATIONS

EXTERIOR MASONRY

To further mitigate moisture migration into the lower level, waterproofing should be applied to the excavated and exposed foundations along the east & west wings. Work on the stone façade should primarily include selective repointing and parge coat reapplication, cleaning of biological growth and rust, and removal and replacement of old sealants around masonry openings and roof edges. Any unneeded metal attachments should be removed and the remaining holes repaired and patched, the metal emergency stairway on the north façade removed, and the stone stairways on the north elevation that lead up to the main level completely repointed.

EXTERIOR CARPENTRY

Paint the existing wood trim and ceiling of the front porch and repair the water-damaged portion of the tongue-and-groove plank ceiling. Repair the water-damaged wood shutters on the south façade.

ROOF SYSTEMS

Remove the existing slate roof system down to the existing roof deck and store slates for reinstallation. The park has an attic stock of original slates available to allow for replacement of broken or missing units. Install new insulation and new underlayment membrane with wood nailers and reinstall the existing slate tiles with new valley and ridge flashing. Additional rigid insulation should be provided at the interior face of the concrete roof deck. The existing copper half-round gutters will need to be removed to accommodate the roof replacement, but should be stored and then reinstalled. In addition, repoint the existing mortar joint at the edge of slate roofing along each gable end to match original detail.

At the flat roofs, the existing flat-lock seam metal roofing, underlayments and insulation should be removed and replaced with tin-coated copper flat-lock seam roofing over slip sheet and self-healing, self-adhering underlayment on 1-inch rigid polystyrene insulation over the existing concrete plank decking.

DOORS

Provide new power operators and new hardware to meet code. Unneeded signage should be removed and any dried sealant should also be carefully removed and replaced.

WINDOWS

Repair water damaged wood frames and sashes with consolidant, repair or replace damaged or missing storm windows, and remove and replace dried sealants around the masonry openings.

ACCESSORIES

The railings on the north stairways may be loose and should be reattached and stripped, repainted, and reattached. Remove the existing fire escape and repair and patch any resulting holes in the masonry as needed.

INTERIOR RECOMMENDATIONS

SELECTIVE DEMOLITION

Complete rehabilitation of the interior will require removal of all existing lighting, wiring and wiring devices, distribution panels, HVAC ductwork, piping, equipment, fans, grilles and diffusers, and plumbing fixtures. Plumbing and HVAC piping that is cast into existing concrete will be abandoned and capped. Salvage the Tennessee Marble toilet partitions and wall panels from the lower level and

main floor toilet rooms. Openings may be cut in the existing floor slabs for a new elevator enclosure and duct chases.

Lower Level

All existing wood-framed paneled partitions, gypsum block partitions, furred surfaces, and floor finishes throughout the lower level will be removed.

Main Level

The rehabilitation plan specifies only selective demolition of gypsum block partitions within the west wing to accommodate revisions to design layout, and within non-historically significant areas in the east wing. Remove all of the existing carpet.

The main lobby is a significant character-defining element of the building and great care should be taken in treatment. Remove the non-historic aluminum and glass storefront in the main lobby. Otherwise, retain the historic flooring, wall and ceiling finishes, fireplace, and historic light fixtures. Provide protection of this area and its finishes and furnishings during construction. If finishes or fixtures must be removed as part of the work, carefully document their condition and placement so they can be replaced at the end of construction.

Upper Level

The rehabilitation plan calls for removing all existing wood-framed paneled partitions, furred surfaces, and floor finishes in order to accommodate the new mechanical and plumbing equipment.

NEW WORK

Lower Level

The rehabilitation plan calls for the retention of the existing hallway configuration, but the installation of new walls will create better circulation and space utilization. New restrooms will be constructed in the vicinity of the current restrooms in order to reuse plumbing but meet accessibility.

Main Level

The rehabilitation plan calls for modifications to the west wing in order to allow for circulation to the new elevator as well as create better space utilization. A new unisex restroom will be added, but the existing restrooms will remain except for relocating the janitor's closet. The center and east wing will have very minor modifications to the existing layout.

Upper Level

No work will be done on this level except for the elevator overrun and any work needed to accommodate relocation of all new mechanical equipment to this level. It is intended that this area will not be occupied

NEW FINISHES

Walls

New walls will be metal framed with gypsum board finish and insulated as needed. Porcelain ceramic wall tiles will be provided on the wet walls of all toilet rooms unless noted otherwise.

Doors

At the main level, stile and rail panel doors suitable to receive painted finishes to match existing will be installed where needed, and new casings will be custom-milled to match existing profiles. At the lower and upper level, prefinished hardwood faced solid wood flush doors with hollow metal frames will be installed unless otherwise noted. Utility rooms will have hollow metal doors and frames.

Flooring

Carpet tile will be installed throughout the lower and main level except in the lobby. Walk-off carpeting will be installed at the north side vestibules, and rubber sheet flooring in janitor closets and electrical and telecomm closets. The existing concrete floor in the lower mechanical and electrical rooms and the wood tongue-and-groove decking in upper level mechanical attic spaces will be retained. New hex mosaic ceramic tile flooring will be installed in the restrooms.

Ceilings

At the lower level, 2x2 lay-in acoustical panel ceilings will be installed in the corridors, and the exposed or original ceilings in the office areas will be repaired and painted. At the main level, the existing plaster ceilings will be repaired as needed, the non-original soffits created for HVAC distribution will be removed and any resulting damage to the ceiling patched. New ceiling diffusers and openings for new HVAC distribution will be provided throughout the building, and gypsum board on grid suspension in all toilet rooms.

FURNISHINGS

Casework

For the break rooms and kitchenette areas, base and wall cabinets will be plastic laminate exterior finish with stainless steel pulls, hinges and hardware, melamine interior finish surfaces, and quartz countertops. Provide undermount installation for kitchenette sinks.

Plumbing Fixtures

Provide ultra-low-flow plumbing fixtures, as follows:

a. Lower Level:
    i. Women: 2 water closets, 1 lavatory.
    ii. Men: 1 Water Closet, 1 Urinals, 1 lavatory
b. Main Level:
    i. Single Occupancy: 1 Water Closet, 1 Lavatory.
    ii. Women: 2 Water Closets, 1 lavatory
    iii. Men: 1 Water Closet, 1 Urinal, 1 lavatory

Specialties

Window treatments, toilet partitions, toilet accessories, mail cubbies, and fire extinguishers will all be replaced.

RESTORATION

Stairways

Paint existing exposed stairway metalwork, including treads and risers, and railings. Existing bronze rail caps to remain.

Wood and Plastics

Existing wormy chestnut paneling and wainscoting in the main lobby and the historic Superintendent's Office will remain and should be protected from damage during construction. Any new wood trim and casings should be poplar or similar hardwood, free of knots and checks, to receive painted finish.

Wall Finishes

Protect, patch, clean and restore the Tennessee Marble wall panels and partitions wall finishes which will remain in place at the main floor toilet rooms. The existing Tennessee marble wall panels and toilet partitions at the lower level toilet rooms will be removed and salvaged.

STRUCTURAL RECOMMENDATIONS

LOWER LEVEL

This report suggests possible waterproofing to address dampness issue inside and re-pointing the stone steps on the north.

ROOF

Maintenance should be carried out on a regular schedule to remove the debris. The alternatives for treatment of the roof are either replacement of the entire roof fixing the concrete panels from below. At this time, the recommended treatment is to repair from below. Address the live load of the bottom chord of the trusses to confirm the design loads and future intent of storage space.

Site design elements consist of adaptive restoration to provide handicap access to the lower and main level and upgrade HVAC, heating and ventilation system. Interior terra cotta walls will be removed for space reconfiguration. “Coal Storage” concrete walls at the lower level are anticipated to be removed. Based on a review of the historic drawings (dated April 11, 1939), it appears that the coal storage walls are not bearing but have a structural steel column encased at the corner.

A new elevator shaft will be added to the west wing area of the building and it is proposed to be constructed of filled cell CMU wall and supported by a monolithic slab-on-grade. The elevator shaft will go through the existing main and upper level concrete one-way floor slabs all the way to the top steel roof trusses. The elevator shaft is intended to be connected to the existing concrete floor system. The main and upper level concrete slabs will be saw-cut to allow for the new CMU elevator shaft to pass through. New connections will be provided as required along the perimeter of the elevator shaft to the existing concrete slab. An existing steel truss girder will be cut and modified to provide space for the elevator shaft. Truss reinforcement will be provided with steel angles at the top and bottom chords and the webs that will be cut.

New HVAC system and boiler equipment are anticipated to be installed on the existing upper level and bear on a mounted frame supported by the existing concrete slab and concrete encased steel beams and columns. An analysis to evaluate the capacity of the existing concrete slab, concrete encased beams and columns has been provided to verify if it can support the new loads from the new equipment.

ANALYSIS

Based upon the existing drawings dated April 11, 1939, the area where the new equipment will be placed was originally designed for offices, files and general storage. The members analyzed consist of a structural one-way concrete slab supported by encased steel beams and columns. The structural analysis was calculated for gravity loads only with the assumed criteria and the weight of the new equipment per manufacturer's specifications. BDB evaluated the load carrying capacity of the existing members and floor system to determine if the structure can adequately support the new gravity loads applied by the new equipment and to point out any area that may need structural rehabilitation.

Based on BDB's analysis, the upper level concrete floor slab and the concrete encased steel beams and columns are adequate to support the assumed loads specified above. However, given the assumed criteria, the lack of original design specifications, and the age of the building, BDB recommends that additional reinforcement be provided underneath the slab directly below the new mounted frame that will support the new equipment to control future deflection.

BUILDING SYSTEMS RECOMMENDATIONS

MECHANICAL

Demolition

The existing system should be completely removed.

New System

The design team has compared a geothermal heat pump system, a variable refrigerant flow system, and a four-pipe VAV system for the new mechanical system to serve the building. A value analysis session was done at the headquarters on March 6, 7 and 8, 2018 where these three options were compared and discussed in detail. The result of the value analysis session was that four-pipe VAV was the preferred system. (This system is very similar to the existing

system.) A new 40-ton air-cooled chiller will be mounted on grade. Heating will be provided by two (2) 400 MBH gas-fired condensing boilers in an upper level mechanical room. Heating water would be delivered to the building by two (2) redundant variable speed heating water pumps, controlled by VFDs. Boiler combustion air intake vents and flue vents would be extended directly to the exterior. Expansion tanks, air separators, and chemical feeders would be provided for both chilled and heating water systems.

A variable air volume (VAV) air handling unit will be provided in the upper level mechanical space. In addition to an air handling unit, there will be a variable speed return fan, controlled by a VFD. A ducted modulating relief air damper would be interlocked with the air handling unit's outside air and return air dampers to provide 100% airside economizer operation. Attic gable louvers would be provided for outside air and relief air. Medium pressure supply air ductwork would be ducted throughout the building to approximately (36) shut-off style VAV terminal boxes with heating water reheat coils serving each room/zone. The VAV terminals will each be controlled by a thermostat. Low pressure ductwork and diffusers/registers will be installed downstream of the terminals. Return air will be directly ducted from each room through grilles and registers. Inline or ceiling exhaust fans will exhaust the restrooms, housekeeping rooms, storage rooms, electrical rooms, mechanical rooms, and attic spaces. Horizontal unit heaters would provide heat to the mechanical rooms and attic spaces. Cabinet unit heaters will provide heat to entry vestibules and stairwells.

Data/IT Rooms

Each data/IT room will be cooled by 1.5-ton ductless split systems consisting of an indoor wall-mounted fan coil unit and an outdoor condensing unit.

Controls

A centralized DDC system will be required to control the operation of the pumps, air handling units, boiler, chiller, and VAV terminals. Each VAV terminal unit will be controlled by a wall-mounted adjustable thermostat.

Ductwork, Piping and Insulation

All new systems will be installed to meet code. All piping will be insulated.

ELECTRICAL

Existing/New Work

The existing systems will be retained and extended. Obsolete panels will be replaced and relocated out of corridors wherever possible. Any identified NEC code violations will be noted and corrected. The sizing of conductors will be considered to limit the voltage drop for feeders to 2% or less, and to limit the voltage drop for branch circuits to 3% or less to ensure compliance with ASHRAE 90.1. Electrical distribution system panels servicing the building will be reviewed and evaluated for demand loading and service feeders/overcurrent protection verified. All feeders and branch circuit conductors will be copper.

Lighting

New lighting will be provided utilizing (LED) type fixtures. Where applicable, existing fixtures installed under previous projects will be retained and reused. Lighting controls and light fixture features will include dimming and facilitate the usage of the space that they serve. Where safety permits, rooms will have occupancy sensors to further decrease power consumption in periods of low or no occupancy, where the lighting controls are being changed.

Emergency Lighting

Emergency lighting will be provided for emergency egress fixtures through the generator. Circuits serving the exit and emergency lighting will be added to the emergency panel. Existing surface mounted raceways used throughout the building will be, wherever possible, replaced with concealed conduit and recessed devices. Due to the nature of some of the historic walls, this solution will require further investigation of options and methods to conceal conduits in walls of this type.

Data

The existing two data rooms will be consolidated into one room with two-post data racks and served by a separate AC unit.

Telephone

Accommodations to implement the new Park Service Voice Over IP Telephone system will be in place.

Safety and Security

New PACS system will be put in place including door controllers and card readers throughout spaces as needed. Evaluation of the buildings video surveillance system will determine if new cameras are needed to support existing cameras. A

new electronic personal protection system will be provided and be tied into the PACS system.

ELEVATOR

Elevator to be a machine-room-less electric traction service elevator with a weight capacity of 3500 lbs, stainless steel interior finishes, and manufacturer's standard signals and controls.

PLUMBING

Demolition

All existing plumbing fixtures, piping, domestic water heaters, and recirculation pumps will be removed. No portion of the existing plumbing systems will be retained, except existing sanitary waste piping under the building if in good condition and adequately sized for new systems.

The design team has compared instantaneous electric water heaters, central gas-fired water heater with storage, and a water source heat pump water heater with storage. A value analysis session was done at the headquarters on March 6, 7 and 8, where these three options were compared and discussed in detail. The result of the value analysis session was that instantaneous electric water heaters are the preferred option.

New Fixtures

Low flow urinals, lavatories and water closets will be provided. Break rooms and kitchenette areas will be provided with residential-style dishwashers and stainless-steel counter-mounted sinks. New floor-mounted mop sinks will be provided in all housekeeping closets. For existing portions of the building, storm drainage would be provided by downspouts.

Domestic water heating equipment: An instantaneous electric water heater will be provided at each sink and lavatory. In break rooms and kitchenettes with dishwashers, one water heater would serve both the sink and the dishwasher.

Piping and Insulation: Interior domestic hot and cold-water and underground water service piping will be copper. All domestic hot and cold water will be insulated. Underground and above ground sanitary waste and vent piping and storm piping will be no-hub cast iron pipe. Above ground waste and vent piping and storm piping may also be copper tube.

References and Appendices

Section Title Page: Undated view of headquarters building from the south (Source: GRSM Archives 01457)

References

Primary Sources

Collections Preservation Center, Great Smoky Mountains National Park Archives, Townsend, Tennessee.

Headquarters Construction Series Photographs

Resource Management Records, Collection 7000, GRSM 10832

I.C: Development and Maintenance.

II.A.1.H: Subject Files.

II.B.1: Individual Building Data Files.

II.E.B.2: David Chapman

II.E.2.I.7: Newfound Gap Road.

Superintendent's Monthly Reports, Great Smoky Mountains National Park, 1931-1967.

Secondary Sources

Hatten, Randy. Buildings and Grounds Branch Manager, phone interview with Patti Babin, May 14, 2019.

Jacobs, James. "Great Smoky Mountains National Park Administration Building (Headquarters Building)." Historic American Buildings Survey, HABS TN-256, 2011.

Great Smoky Mountains National Park. "Headquarters Building Rehabilitation Project." (PowerPoint Presentation prepared by park staff), 2018.

Olausen, Stephen ,John Daly, and Laura Kline (Public Archaeology Laboratory). "Historic Resources of Great Smoky Mountains National Park." National Register of Historic Places Multiple Property Documentation Form, certified November 28, 2016.

Public Archaeology Laboratory. "Historic Resource Study: Great Smoky Mountains National Park." National Park Service, U. S. Department of the Interior, 2016.

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Appendix A: Historic Drawings

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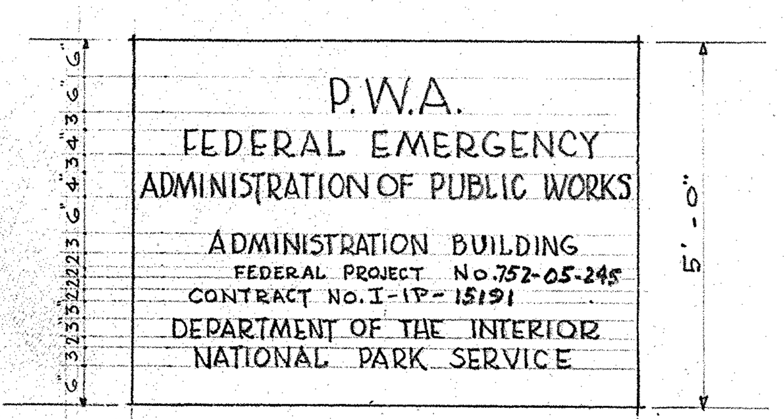
TRIM LINE



- DETAIL OF SIGNBOARDS -
TO BE ERECTED AT SITE
SEE SPECIFICATIONS
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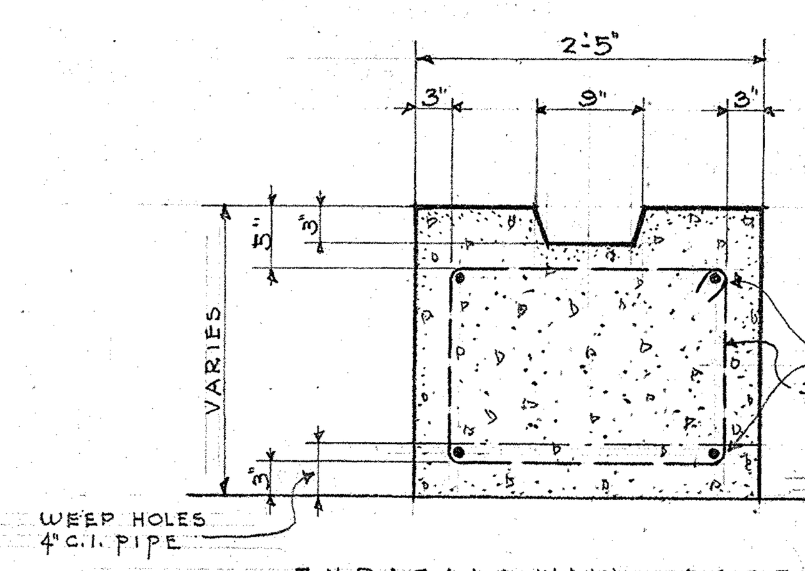
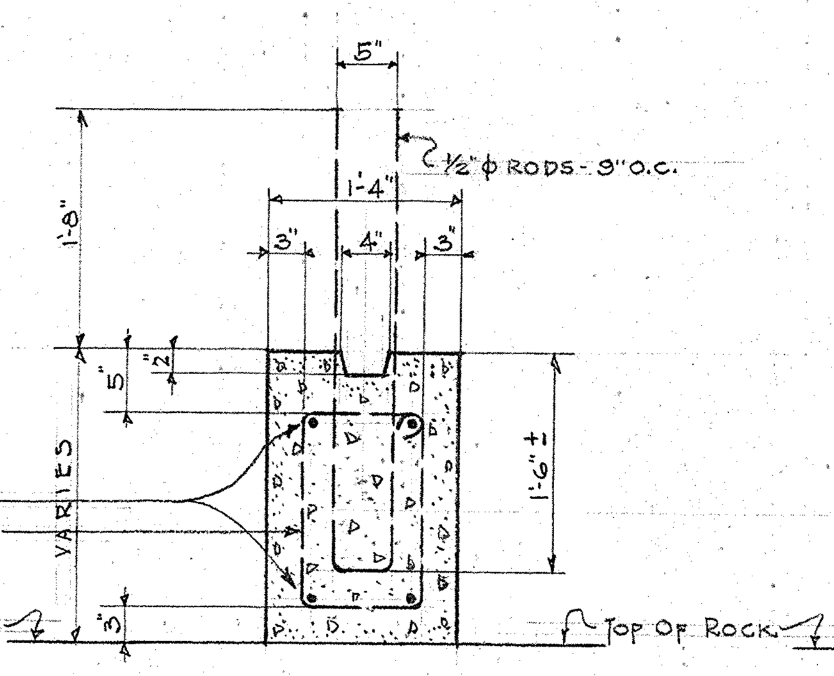
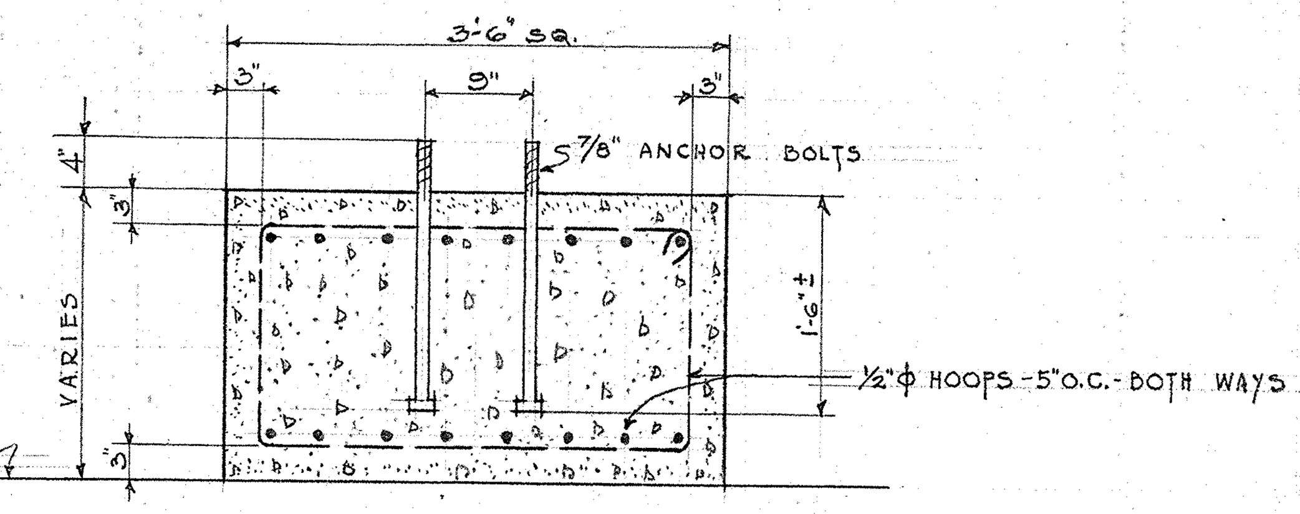


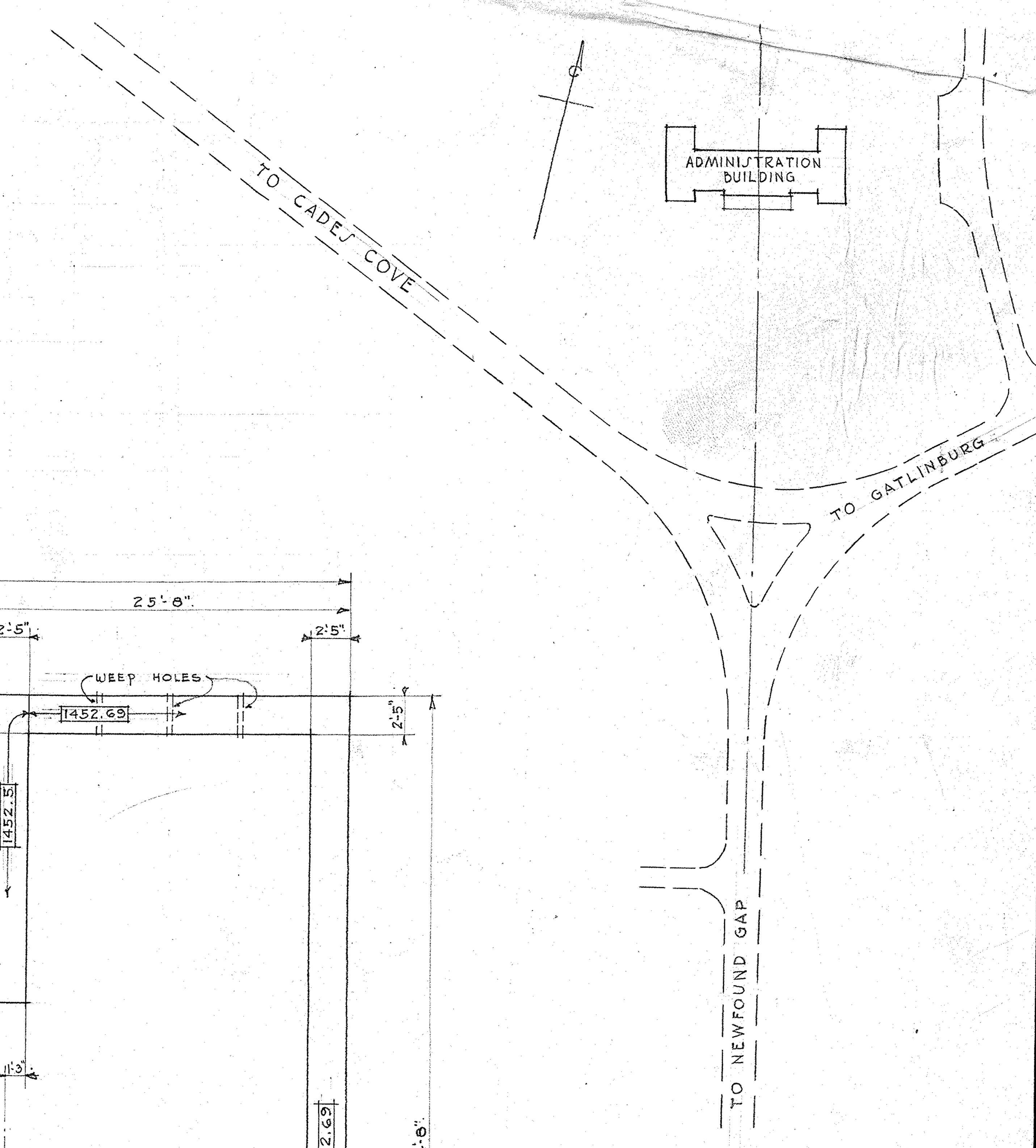
TYPICAL · WALL · FOOTING



SECTION 'A'-'A'



TYPICAL · COLUMN · FOOTING



LOCATION PLAN
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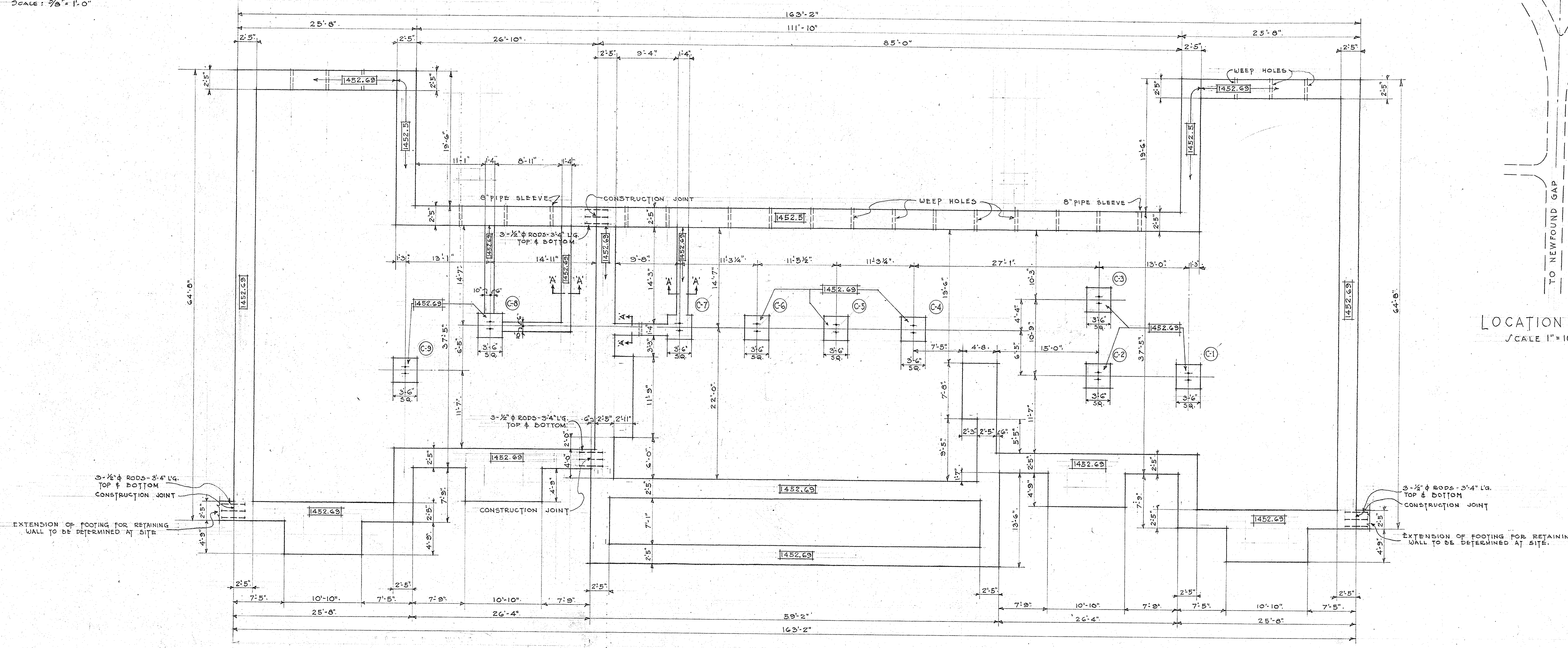
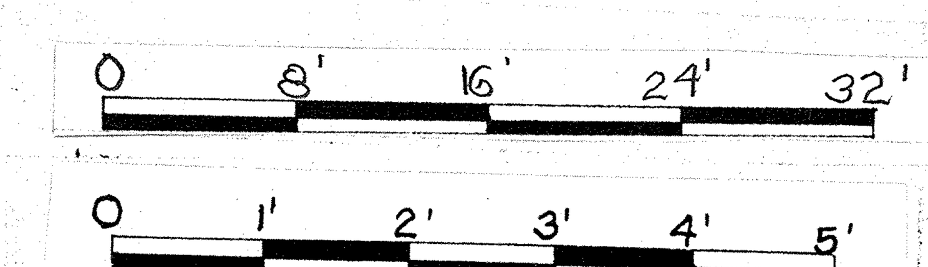


FOOTING PLAN



REVISED - 1-23-39
REVISED - 1-7-39

SCALE PLANS - 1/8" = 1'-0"
DETAILS - 3/4" = 1'-0"

M

CONCRETE MIX - 1·2·4
[1452.5] - INDICATES · LEVEL · OF · TOP · OF · FOOTINGS.
(C-5) - INDICATES · COLUMN · NUMBERS.

BASIC DATA

CLEARED BY WIRE 4-13-39 ROBERTS ACTING REGIONAL DIRECTOR

REVIEWED
PLANNING AND STA...
RESEARCH AND EDUCATION
SANITATION
FORESTRY
HISTORY
PLANS AND DESIGN Albert H. Good 4/11/39
ENGINEERING John S. Cross 4/12/39

DESIGNED BY DAMSBO
KANKA
DATE DEC. 10, 1938
4/11/39 DS

RECOMMENDED [signature] CHIEF OF PLANNING DATE 4/12/39
CONCURRED J. R. Eakin SUPERINTENDENT DATE 4/15/39
APPROVED [signature] DIRECTOR DATE 4-15-39

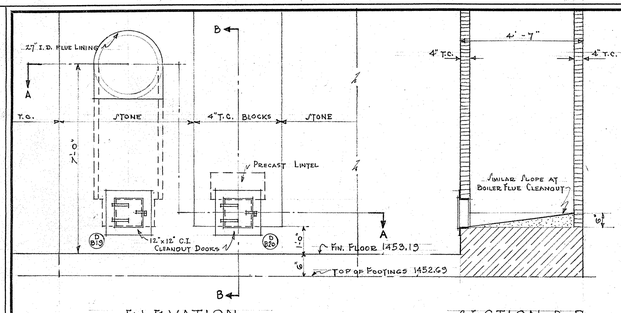
UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGN
PREPARED BY
WASHINGTON
OFFICE

ADMINISTRATION · BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAIN NATIONAL PARK
NAME OF PARK OR MONUMENT

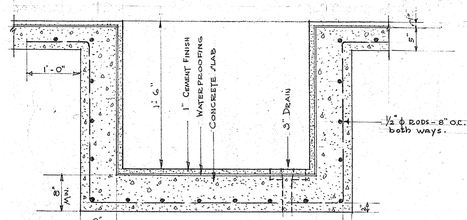
REGION 1
SHEET 1 OF 27
DRAWING NO. NP-GSM 2003-C

TRIM LINE

U. S. GOVERNMENT PRINTING OFFICE 6—9710



ELEVATION — SECTION B-B



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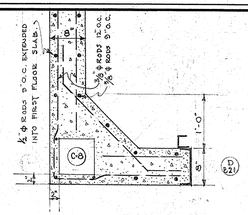

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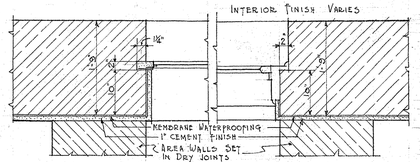
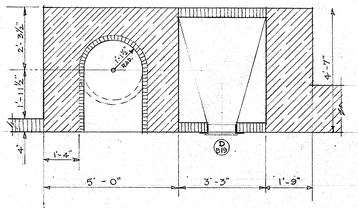


DETAIL 'F'
SCALE ¾"=1'-0"

DETAIL 'E'
SCALE ¾"=1'-0"

INTERIOR FINISH SCHEDULE

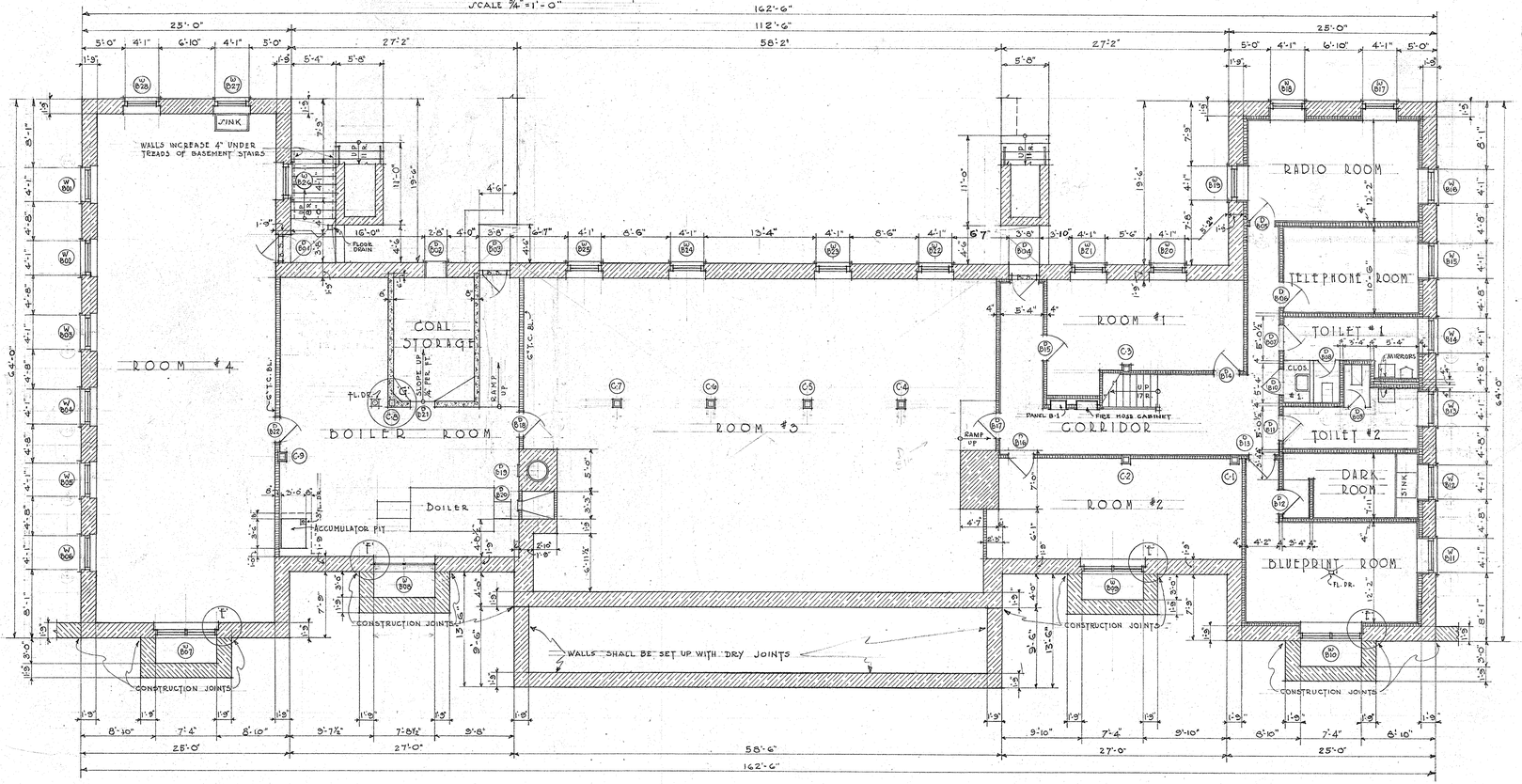
ROOM NAME	FLOOR	WALLS	CEILING	BASE	PIC. MLD
RADIO ROOM	CEMENT	PLASTER	PLASTER	¢CEM. COVE	METAL
TELEPHONE ROOM	"	"	UNFINISHED	"	"
DARK ROOM	"	"	"	"	"
BLUEPRINT ROOM	"	"	"	"	"
ROOM #1	"	UNFINISHED	UNFINISHED	"	—
ROOM #2	"	"	"	"	—
ROOM #3	"	"	"	"	—
ROOM #4	"	"	"	"	—
COAL STORAGE	"	"	"	—	—
BOILER ROOM	"	"	"	—	—
TOILET #1	TILE	MARBLE 6'0" H. & PLASTER ABOVE	"	MARBLE COVE	—
TOILET #2	"	"	"	"	—
CLOSET #1	"	"	"	"	—



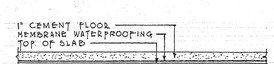
PLAN A-A

DETAILS of CHIMNEY

SCALE: ⅜"=1'-0"

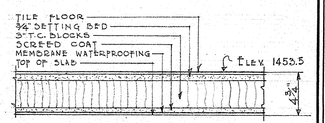


BASEMENT — PLAN



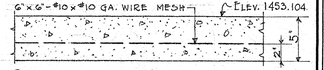
CEMENT FLOORS IN ROOMS #3 & #4, BOILER ROOM & COAL STORAGE.

CEMENT FLOORS IN ROOMS #1 & #2, CORRIDOR, RADIO, TELEPHONE, DARK & BLUEPRINT ROOMS.



TILE FLOORS

FLOOR CONSTRUCTION



REINF. STD. CONCR. FL. SLAB (THROUGHOUT)

SYMBOLS

- = STONE
- = TERRA COTTA BLOCKS
- = CONCRETE
- C-7 = COLUMN NUMBERS
- W.B.08 = WINDOW NUMBERS
- D.B.12 = DOOR NUMBERS
- D.S. = BRONZE SADDLES
- M.S. = MARBLE SADDLES
- Fl. Dr. = FLOOR DRAINS

GENERAL NOTES

1. AREA WALLS AT WINDOWS WB10, WB09, WB08, AND WB07 SHALL BE SET UP WITH DRY JOINTS.
2. WALL FURRING SHALL BE 3" TERRA-COTTA BLOCKS, EXPOSED FACE 4" FROM STONE WALL.
3. ALL PARTITIONS, UNLESS OTHERWISE SHOWN, SHALL BE 4" TERRA-COTTA BLOCKS.
4. STEEL COLUMNS SHALL BE ENCASED IN 2" CONCRETE.
5. RADIO ROOM — NO. 16 MESH .0113 COPPER BRONZE WIRE SCREEN, AS SPECIFIED, SHALL BE APPLIED TO TERRA-COTTA FURRING ON FLOORS, CEILINGS AND WALLS AND SHALL BE RETURNED AT JAMBS, SILLS AND HEADS OF WINDOWS. METAL LATH AND PLASTER SHALL BE APPLIED OVER THE COPPER BRONZE WIRE SCREEN ON WALLS AND CEILING. FLOOR SHALL HAVE 1" CEMENT ON METAL LATH OVER COPPER BRONZE SCREEN. SCREEN SHALL BE WELL GROUNDED AND SPOT SOLDERED EVERY 6". SCREEN SHEETS SHALL BE OVERLAPPED 2".

0 8' 16' 24' 32'

SCALE ⅛"=1'-0"

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____
SEE SHEET NO. 1 FOR SIGNATURES

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGN
PREPARED BY
WASHINGTON
OFFICE

ADMINISTRATION — BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAIN NATIONAL PARK
NAME OF PARK OR MONUMENT

REGION 1
SHEET 2 OF 27
DRAWING NO. NP-GSM 2003-C

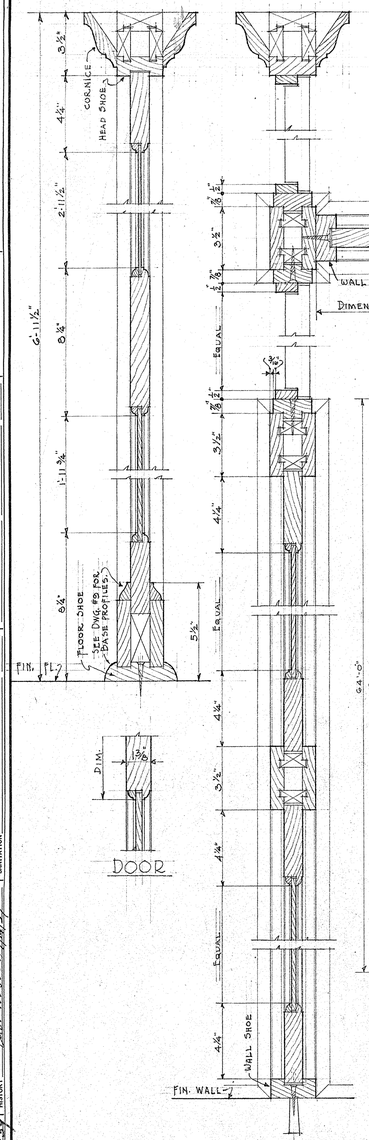
BASIC DATA

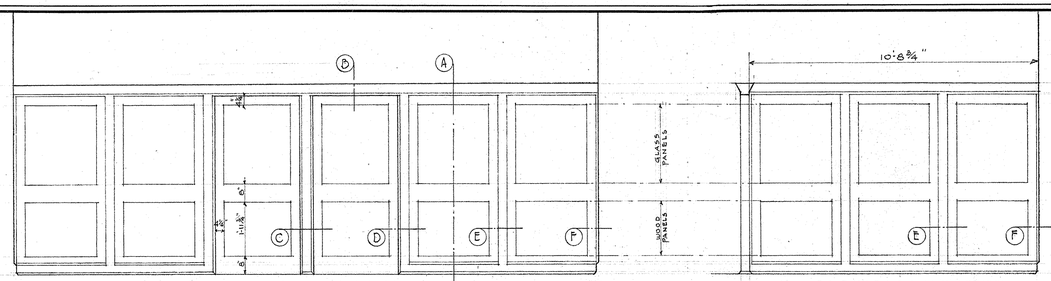
CLEARED
BY USER 4-13-39
ROBERTS
ACTING
REGIONAL DIRECTOR

REVIEWED
RECREATIONAL PLANNING AND STATE COOPERATION
PLANNING
RESEARCH AND EDUCATION
SANITATION
FORESTRY
HISTORY
ENGINEERING
PLANS AND DESIGN
4/10/39
DESIGNED BY
KANKA
DATE
2-20-39

TRIM LINE

TRIM LINE

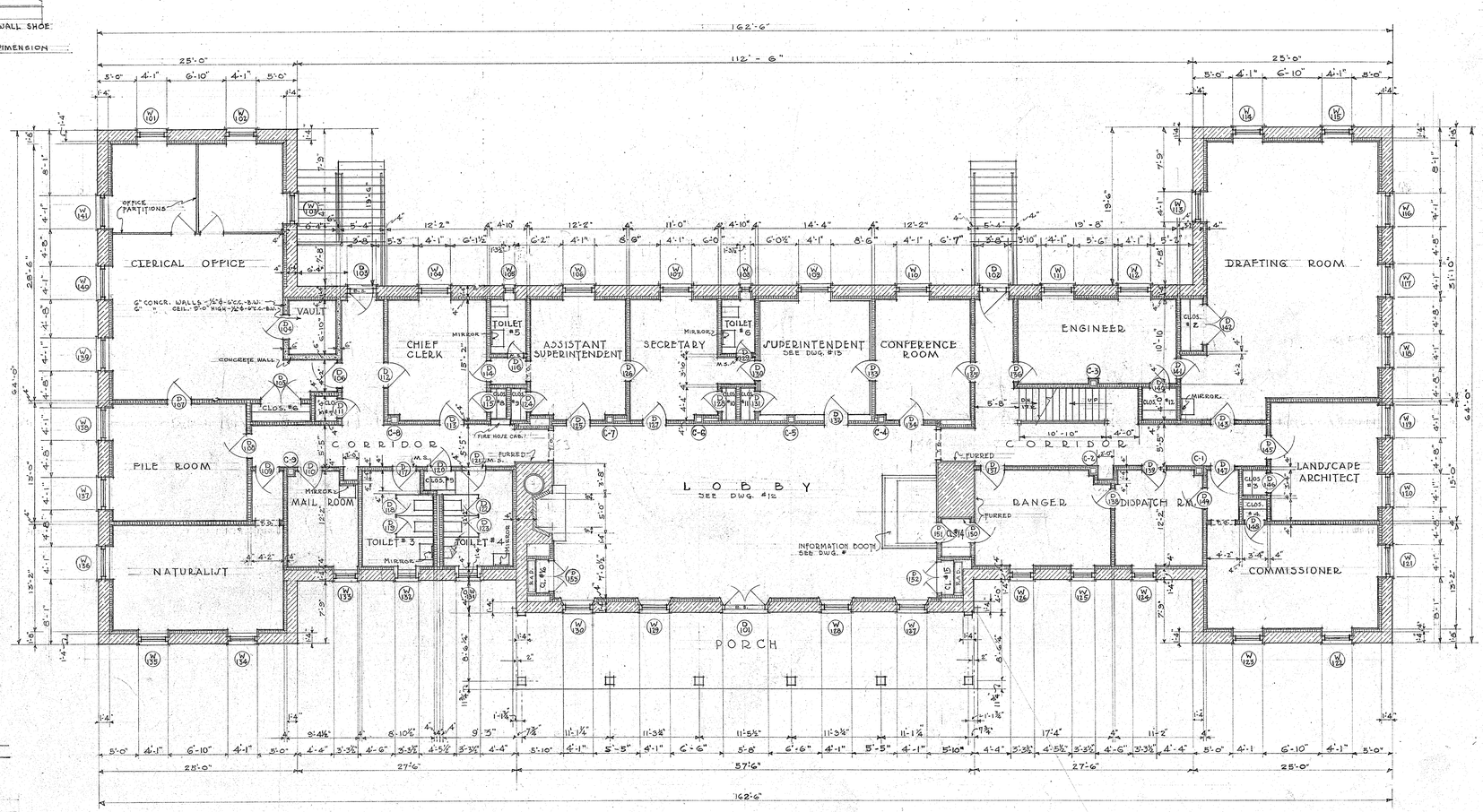




OFFICE PARTITIONS

SCALE 3"=1'-0"

1. ALL STILES, RAILS, WALL & FLOOR & HEAD SHOES AND DOOR JAMBS SHALL BE OF 1¼" STOCK.
2. ALL POST FACES, BASE FACIA AND CORNICE SHALL BE OF 1" STOCK.
3. ALL PANELS SHALL BE ¼" TH. 3-PLY PLYWOOD.
4. DOOR STOPS SHALL BE HARDWOOD.
5. DOOR JAMBS & FLOOR & WALL SHOES SHALL BE SCREWED IN PLACE.
6. ALL SQUARE EDGES SHALL BE SLIGHTLY ROUNDED.
7. GLASS SHALL BE 'A' QUALITY, DOUBLE STRENGTH, CLEAR.
8. STILES & RAILS OF DOORS SHALL BE 1⅜" TH. PANELS SHALL BE ⅝" TH. 3-PLY PLYWOOD.



FIRST FLOOR PLAN

SCALE ⅛" = 1'-0" (AND AS SHOWN)

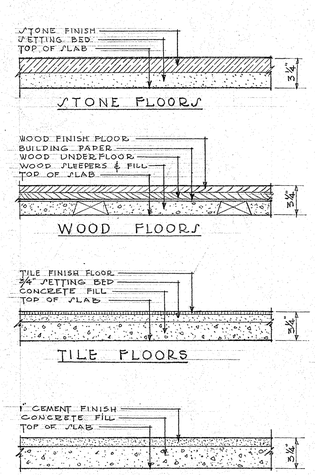
0 8' 16' 24' 32'

GENERAL NOTES:

1. ALL CLOSETS EXCEPT CLOSETS #1, #2 AND #5 SHALL HAVE ONE SHELF 14" WIDE AND ONE CLOTHES ROD. CLOSET #2 SHALL HAVE FOUR SHELVES 14" WIDE, THE BOTTOM SHELF SHALL BE 5'-6" ABOVE FLOOR.

INTERIOR FINISH SCHEDULE

ROOM NAME	FLOOR	WALLS	CEILING	BASE	PICTURE MOLD
LOBBY	STONE	WOOD	PLASTER	WOOD	—
SUPERINTENDENT	WOOD	"	"	"	—
CONFERENCE	"	PLASTER	"	"	METAL
ASST. SUPERTDT	"	"	"	"	"
SECRETARY	"	"	"	"	"
CHIEF CLERK	"	"	"	"	"
CLERICAL OFF.	"	"	"	"	"
FILE ROOM	"	"	"	"	"
NATURALIST	"	"	"	"	"
MAIL ROOM	"	"	"	"	"
RANGER	"	"	"	"	"
DISPATCH RM.	"	"	"	"	"
COMMISSIONER	"	"	"	"	"
LANDSCAPE ARCH.	"	"	"	"	"
DRAFTING RM.	"	"	"	"	"
ENGINEER	"	"	"	"	"
CORRIDORS	"	"	"	"	—
TOILET #3	TILE	MARBLE 6'0" HIGH PLASTER ABOVE	"	MARBLE COVE	—
TOILET #4	"	"	"	"	—
TOILET #5	"	"	"	"	—
TOILET #6	"	"	"	"	—
CLOSET #5	"	"	"	"	—
CLOSET #6	WOOD	PLASTER	"	WOOD	—
CLOSET #7	"	"	"	"	—
CLOSET #8	"	"	"	"	—
CLOSET #9	"	"	"	"	—
CLOSET #10	"	"	"	"	—
CLOSET #11	"	"	"	"	—
CLOSET #12	"	"	"	"	—
CLOSET #2	"	"	"	"	—
CLOSET #3	"	"	"	"	—
CLOSET #4	"	"	"	"	—
VAULT	CEMENT	"	"	6" CEM. COVE	—
CLOSET #14	WOOD	"	"	WOOD	—
CLOSET #15	"	WOOD	WOOD	"	—
CLOSET #16	"	"	"	"	—



FLOOR CONSTRUCTION

SCALE 3"=1'-0"

CLEARED
BY WIRE 4-19-39
ROBERTS
ACTING
REGIONAL DIRECTOR

RECREATIONAL PLANNING AND STATE COOPERATION

REVIEWED
RESEARCH AND EDUCATION
SANITATION
FORESTRY
HISTORY
Alberta Gilman 4/12/39
Mrs. M. Cobb Wiggs

DESIGNED BY KANKA MAY DATE 3-1-39
D5 PLANS AND DESIGN 4/11/39
ENGINEERING Albert Reed 4/11/39
Jas. S. Cross 4/11/39

BASIC DATA

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____
SEE SHEET NO. 1 FOR SIGNATURES

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
PREPARED BY BRANCH OF PLANS AND DESIGN
OFFICE WASHINGTON

REGION 1
SHEET 3 OF 27
DRAWING NO. NP-GSM 2003-C

ADMINISTRATION — BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAIN NATIONAL PARK
NAME OF PARK OR MONUMENT

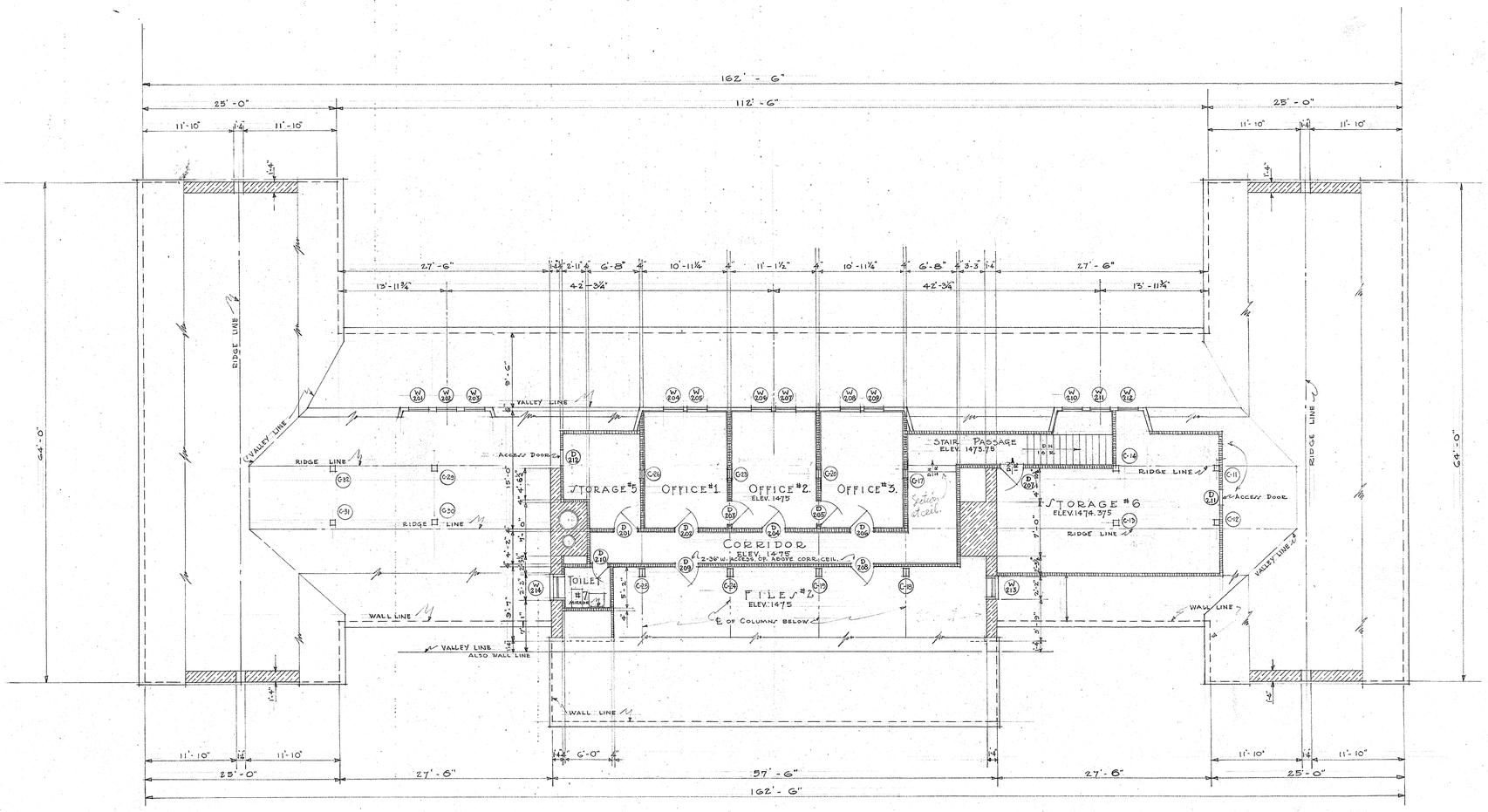
U. S. GOVERNMENT PRINTING OFFICE 0—9710

TRIM LINE

TRIM LINE

TRIM LINE

INTERIOR FINISH SCHEDULE					
ROOM NAME	FLOORS	WALLS	CEILING	BASE	PICTURE MOLD
OFFICE #1	LINOLEUM	PLASTER	PLASTER	LINOLEUM	METAL
OFFICE #2	"	"	"	"	"
OFFICE #3	"	"	"	"	"
CORRIDOR	CEMENT	"	"	6" CEMENT	——
FILES #2	"	UNFINISHED	UNFINISHED	"	——
STORAGE #5	"	"	"	"	——
STORAGE #6	"	"	"	"	——
TOILET #6	TILE	MARBLE 6'-0" HIGH PLASTER ABOVE	PLASTER	MARBLE COVE	——
STAIR PASSAGE	CEMENT	PLASTER	"	6" CEMENT	——



SECOND FLOOR PLAN

0 8' 16' 24' 32' SCALE : 1/8" = 1'-0"

RECOMMENDED _____ DATE _____

CONCURRED _____ DATE _____

APPROVED _____ DATE _____

SEE SHEET NO. 1 FOR SIGNATURES.

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGN
PREPARED BY
WASHINGTON, D.C.
OFFICE

REGION 1

SHEET 4 OF 27

DRAWING NO. NP-GSM 2003-C

ADMINISTRATION BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAIN NATIONAL PARK

CLEARED
BY WIRE 4-13-39
DOD 275
ACTING
REGIONAL DIRECTOR

RECREATIONAL PLANNING AND STATE COOPERATION

REVIEWED

	FORESTRY	RESEARCH AND EDUCATION	
	HISTORY	SANITATION	

SIGNED BY			
	4/11/39		
D.S.	PLANS AND DESIGN	Albert Good	4/12/39
May	ENGINEERING	John L. Cress	4/12/39
DATE			

BASIC DATA

TRIM LINE

DETAIL OF THRU WALL FLASHING
SCALE: ¾"=1'-0"

FRONT ELEVATION
scale: 1/8"=1'-0"

REAR ELEVATION
scale: 1/8"=1'-0"

NOTE: Slip sills for all door & windows on Basement and First Floor

0 8' 16' 24' 32'
SCALE 1/8"=1:0"

M

BASIC DATA

RECOMMENDED	DATE	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE PREPARED BY BRANCH OF PLANS & DESIGN WASHINGTON OFFICE	REGION 1
CONCURRED	DATE		SHEET 5 OF 27
APPROVED	DATE	NAME OF JOB: ADMINISTRATION BUILDING; LOCATION: ADMINISTRATIVE AREA; NAME OF PARK OR MONUMENT: GREAT SMOKY MOUNTAINS NATIONAL PK	DRAWING NO. NP-GSM 2003-C

SEE SHEET NO. 1 FOR SIGNATURES

CLEARED BY WIRE 4-13-39 ROBERTS ACTING REGIONAL DIRECTOR
RECREATIONAL PLANNING AND STATE COOPERATION

REVIEWED
ENGINEERING 4/11/39 — RESEARCH AND EDUCATION
PLANS AND DESIGN 4/11/39 — SANITATION
FORESTRY — 4/13/39
HISTORY — 4/13/39

DESIGNED BY Nicholas Hausman 1 DATE 2-25-39

TRIM LINE

TRIM LINE

CLEARED
BY WIRE 4-13-39
ROBERTS
ACTING
REGIONAL DIRECTOR

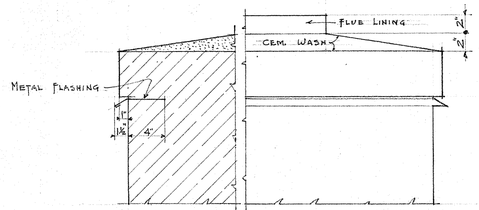
RECREATIONAL
PLANNING AND STATE COOPERATION

REVIEWED

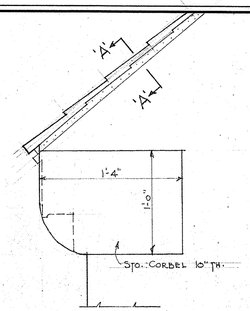
ENGINEERING	PLANS AND DESIGN	FORESTRY	HISTORY	RESEARCH AND EDUCATION	SANITATION
4/11/39	4/11/39	4/12/39	4/12/39	4/12/39	

DESIGNED BY
NICHOLS
KANKA
DATE
2-23-39

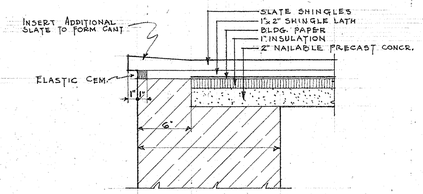
CHIMNEY



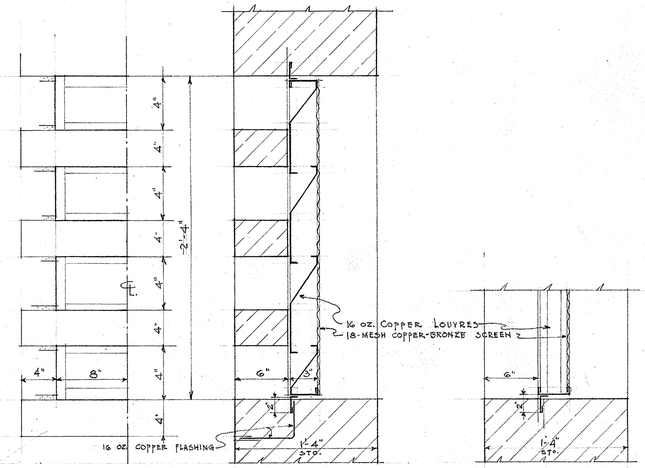
SECTION PART ELEVATION



STO. CORBEL AT GABLE ENDS
END WINGS

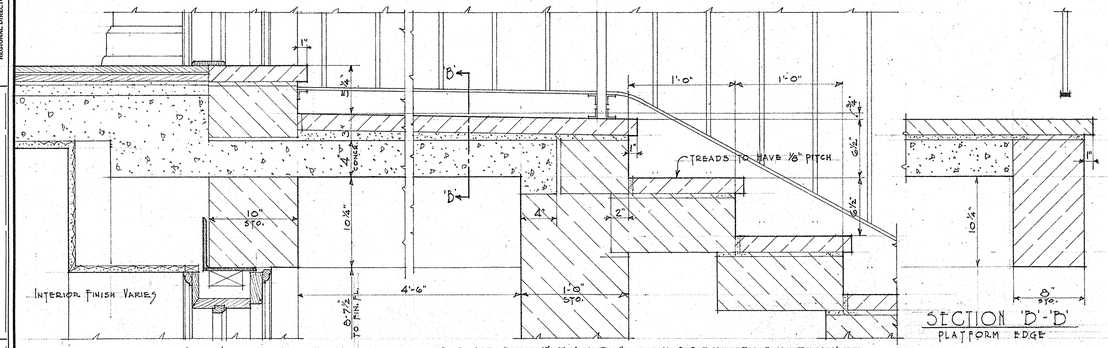


SECTION 'A'-'A'



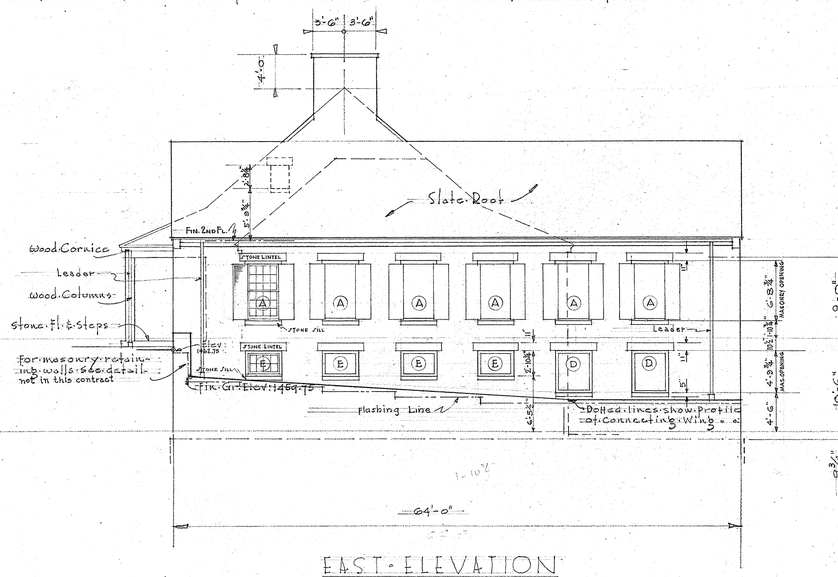
HALF ELEVATION | VERT. SECTION | PLAN SECTION

LOUVRES IN GABLE ENDS
END WINGS

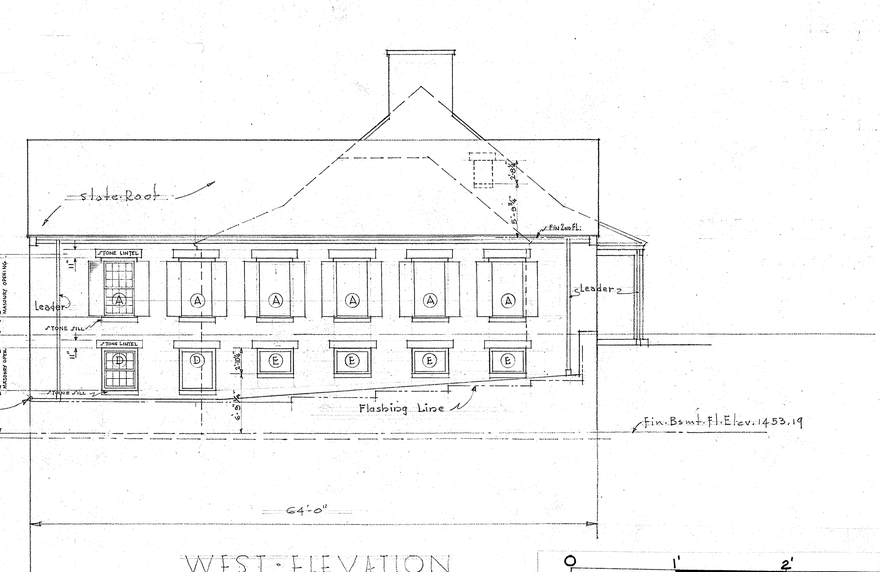


SECTION THRU EXTERIOR STAIRS - NORTH ELEVATION

SECTION 'D'-'D'
PLATFORM EDGE



EAST ELEVATION
scale: ⅛"=1'-0"



WEST ELEVATION
scale: ⅛"=1'-0"

0 8' 16' 24' 32'

0 1' 2' 3'

SCALE ELEVATIONS ⅛"=1:0"
DETAILS 1½"=1:0"

M

BASIC DATA

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____
SEE SHEET NO. 1 FOR SIGNATURES

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS & DESIGN
PREPARED BY
WASHINGTON
OFFICE

NAME OF JOB: ADMINISTRATION - BUILDING
LOCATION: ADMINISTRATIVE AREA
NAME OF PARK OR MONUMENT: GREAT SMOKY MOUNTAINS NATIONAL PARK

REGION 1
SHEET 6 OF 27
DRAWING NO. NP-GSM 2003-C

TRIM LINE

U. S. GOVERNMENT PRINTING OFFICE 6—9710

TRIM LINE

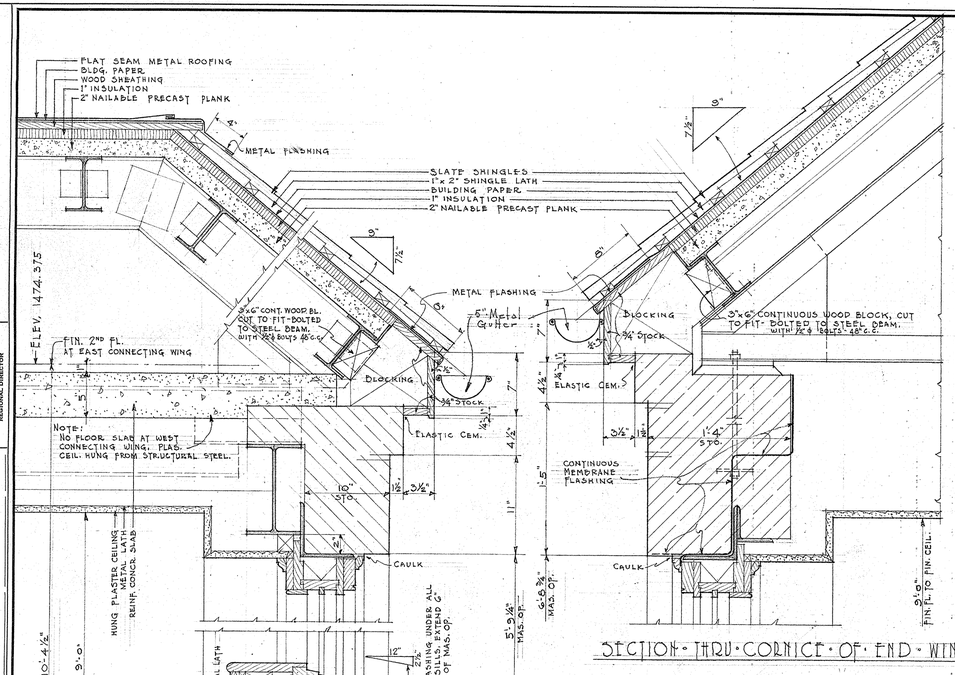
TRIM LINE

CLEARED
BY MYRE 4-13-39
ROBERTS
FIELD DIRECTION
RECREATIONAL
PLANNING AND STATE COOPERATION

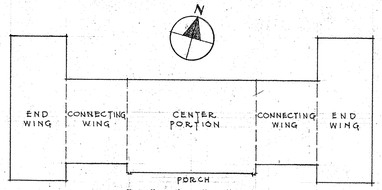
REVIEWED
RESEARCH AND EDUCATION 4/12/39
SANITATION

DESIGNED BY	4/11/39		
K A N K A	DS		
DATE	PLANS AND DESIGN	FORESTRY	HISTORY
2-20-39	ENGINEERING	4/11/39	4/12/39

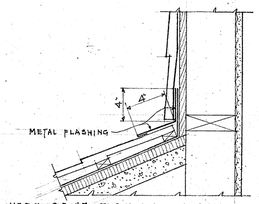
SECTION · THRU · CORNICE · OF · END · WINGS



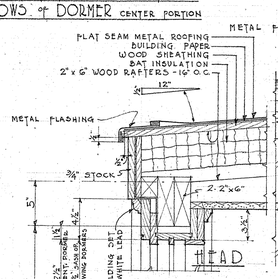
LEGEND



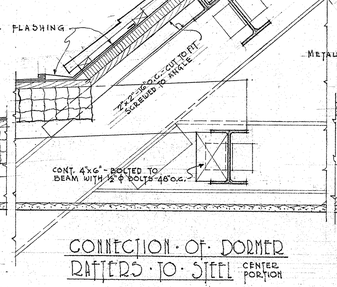
VERT. SECT. THRU WALL BETWEEN WINDOWS of DORMER CENTER PORTION



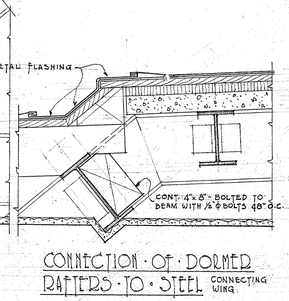
HEAD



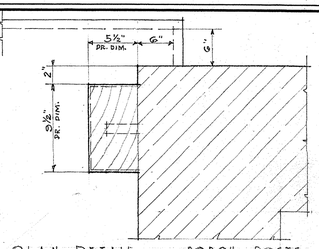
CONNECTION · OF · DORMER RAFTERS · TO · STEEL CENTER PORTION



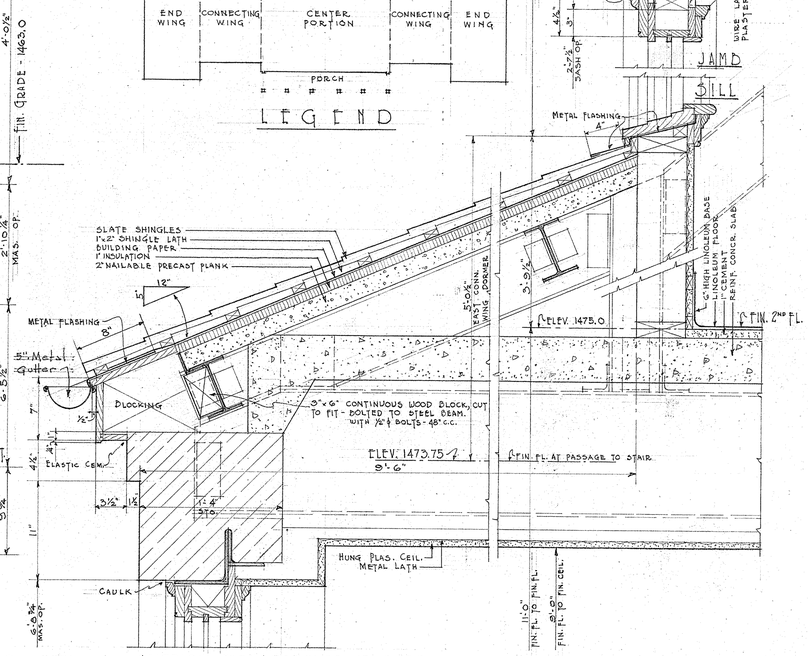
CONNECTION · OF · DORMER RAFTERS · TO · STEEL CONNECTING WING



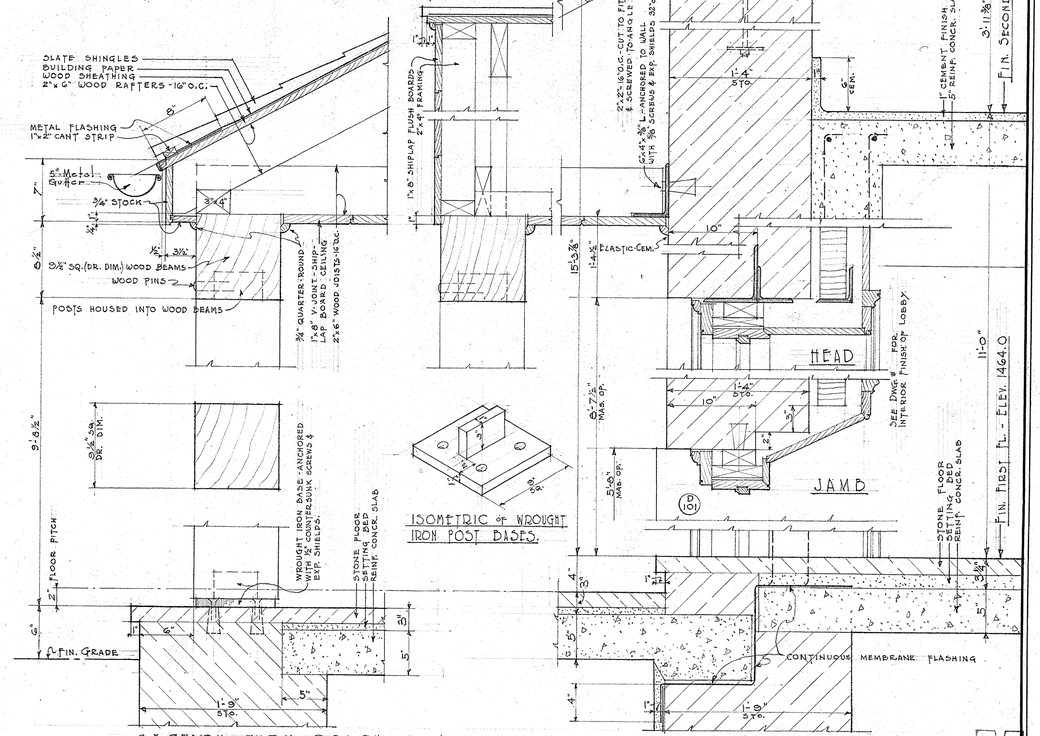
PLAN · DETAIL · of · PORCH · POSTS AT · BLDG. · WALL



SECTION · THRU · CORNICE · AT · NORTH · WALL · OF · CENTER · PORTION AND · DORMER.



SECTION · THRU · PORCH & SOUTH WALL of CENTER PORTION AT CENTER LINE



ISOMETRIC of WROUGHT IRON POST BASES.

SCALE 1½" = 1'-0"

BASIC DATA

SECTION · THRU · SOUTH · WALL OF · EAST · CONNECTING · WING.

HEAD, JAMB & SILL CONSTRUCTION OF DORMER WINDOWS IN CONNECTING WINGS SIMILAR TO ABOVE. INTERIOR FINISH & FRAMES VARY. SEE DWG. #

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____
SEE SHEET NO. 1 FOR SIGNATURES

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGN
PREPARED BY
WASHINGTON
OFFICE

ADMINISTRATION - BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAINS NATIONAL PARK
NAME OF PARK OR MONUMENT

REGION 1
SHEET 7 OF 27
DRAWING NO. NP-GSM 2003-C

TRIM LINE

U. S. GOVERNMENT PRINTING OFFICE 6—9710

TRIM LINE

CLEARED
BY NPSRE 4-15-39
ACTING REGIONAL DIRECTOR

RECREATIONAL PLANNING AND STATE COOPERATION

REVIEWED
RESEARCH AND EDUCATION — SANITATION
FORESTRY — HISTORY
4/12/39

DESIGNED BY — DATE 4/11/39
DRAWN BY — DATE 3-1-39
PLANS AND DESIGN — ENGINEERING

CONT. MEMBRANE FLASHING ON OPG. NOS. W-101-102-103-104-105-106-107-108-109-110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141.

HEAD SECTION
OPG. NOS. W-101, 102, 103, 104, 106, 107, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 133, 134, 135, 136, 137, 138, 139, 140, 141

HEAD SECTION
OPG. NOS. W-B15, W-B16 W-B17, W-B18, W-B19,

CONT. MEMBRANE FLASHING OVER OPG. NO. W-214

HEAD SECTION
OPG. NOS W-131, W-132

HEAD SECTION
OPG.NOS. W-105, W-108, W-214

HEAD SECTION
OPG. NOS. W-204, W-205, W-206, W-207, W-208, W-209

JAMB SECTION
OPG. NOS. W-101, 102, 103, 104, 106, 107, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 133, 134, 135, 136, 137, 138, 139, 140, 141

JAMB SECTION
OPG. NOS. W-B15, W-B16 W-B17, W-B18, W-B19

JAMB SECTION
OPG. NOS. W-131, W-132

JAMB SECTION
OPG. NOS. W-105, W-108, W-214

JAMB SECTION
OPG. NOS. W-204, W-205, W-206, W-207, W-208, W-209

SILL SECTION
OPG. NOS. W-101, 102, 103, 104, 106, 107, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 133, 134, 135, 136, 137, 138, 139, 140, 141.

SILL SECTION
OPG. NOS. W-B15, W-B16, W-B17, W-B18, W-B19

SILL SECTION
OPG. NOS. W-131, W-132,

SILL SECTION
OPG. NOS, W-105, W-108, W-214

MULLION SECTION
OPG. NOS. W-204-05, W-206-07 W-208-09

HEAD SECTION
OPG. NOS. W-B03, W-B04 W-B05, W-B06

HEAD SECTION
OPG. NOS. W-B11, WB12

HEAD SECTION
OPG. NOS. W-B07, W-B09

HEAD SECTION
(JAMB SECTION SAME WITHOUT STEEL ANGLES)
OPG. NO. W-213

HEAD SECTION
OPG.NOS. W-B01, W-B02, W-B20, W-B21 W-B26, W-B27, W-B28 W-B22, W-B23, W-B24, W-B25

SILL SECTION
OPG. NOS. W-204, W-205, W206 W-207, W-208, W-209

JAMB SECTION
OPG. NOS. W-B03, W-B04, W-B05, W-B06

JAMB SECTION
OPG. NOS. W-B11, W-B12

JAMB SECTION
OPG. NOS. W-B07, W-B09

SILL SECTION
OPG.NO. W-213

JAMB SECTION
OPG. NOS. W-B01, W-B02, W-B20, W-B21 W-B26, W-B27, W-B28 W-B22, W-B23, W-B24, W-B25

SILL SECTION
OPG. NOS. W-B01, W-B02, W-B20, W-B21, W-B26, W-B27, W-B28 W-B22, W-B23, W-B24, W-B25

SILL SECTION
OPG. NOS. W-B03, W-B04, W-B05, W-B06

1" CEM. PROTECTIVE COAT & MEMBRANE WATERPROOFING ON OPG. NO. W-B10

SILL SECTION
OPG. NOS. W-B10, W-B11, W-B12

SILL SECTION
OPG. NOS. W-B07, W-B09

BASIC DATA

SCALE: 3" = 1'-0"

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____
SEE SHEET NO 1 FOR SIGNATURES

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGN
PREPARED BY
WASHINGTON D.C.
OFFICE

ADMINISTRATION BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAINS NATIONAL PARK
NAME OF PARK OR MONUMENT

REGION I
SHEET 8 OF 27
DRAWING NO. NP-GSM 2003-C

TRIM LINE

U. S. GOVERNMENT PRINTING OFFICE 0—9720

TRIM LINE

CLEARED
BY OHS 4-13-39
ROBERTS
REGIONAL DIRECTOR

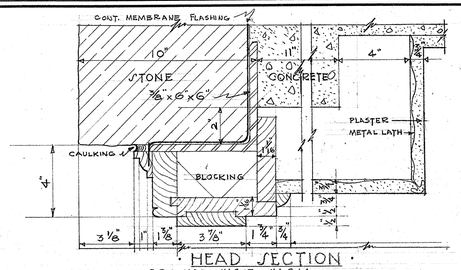
RECREATIONAL
PLANNING AND STATE COOPERATION

REVIEWED
RESEARCH AND EDUCATION
SANITATION
FORESTRY
HISTORY
PLANS AND DESIGN
ENGINEERING
4/11/39

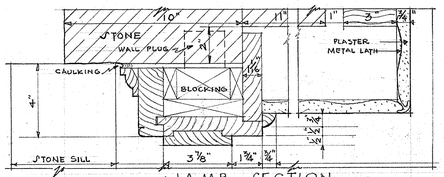
DESIGNED BY
DRAWN BY
TRACED BY
CHECKED BY
3-1-39

BASIC DATA

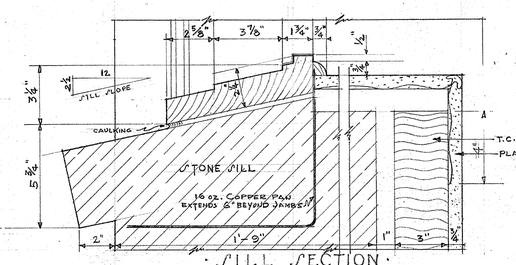
NOTE: FOR SECTIONS OF LOBBY AND SUPERINTENDENT'S ROOM OPG. NOS. W-109, W-127, W-128, W-129, W-130 SEE SHEET NO. ___.



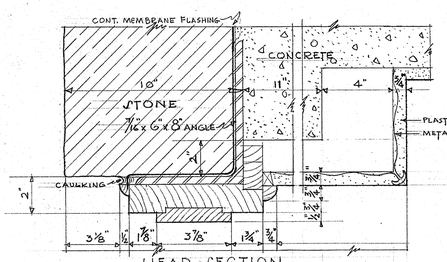
· HEAD SECTION ·
OPG. NOS. W-B13, W-B14



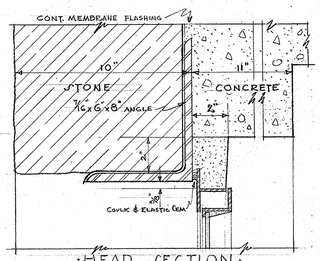
· JAMB SECTION ·
OPG. NOS. W-B13, W-B14



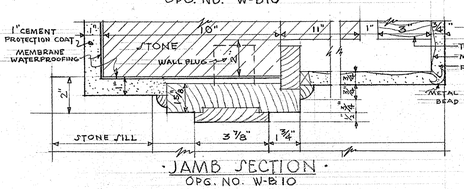
· SILL SECTION ·
OPG. NOS. W-B13, W-B14



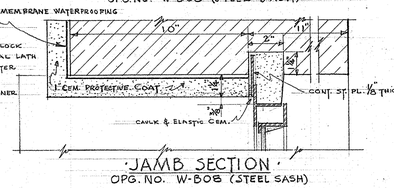
· HEAD SECTION ·
OPG. NO. W-B10



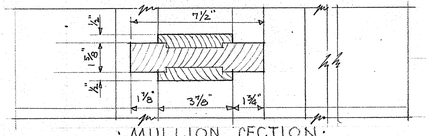
· HEAD SECTION ·
OPG. NO. W-B08 (STEEL SASH)



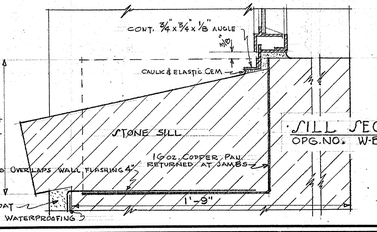
· JAMB SECTION ·
OPG. NO. W-B10



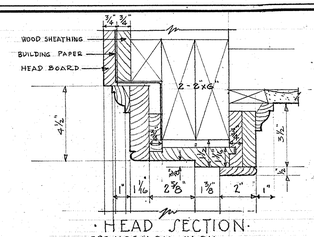
· JAMB SECTION ·
OPG. NO. W-B08 (STEEL SASH)



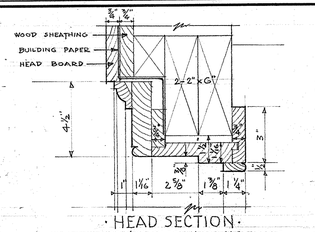
· MULLION SECTION ·
OPG. NO. W-B10



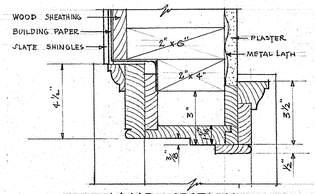
· SILL SECTION ·
OPG. NO. W-B08 (STEEL SASH)



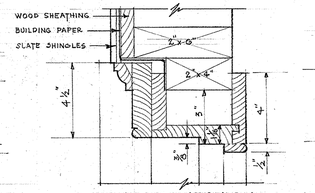
· HEAD SECTION ·
OPG. NOS. W-210, W-211



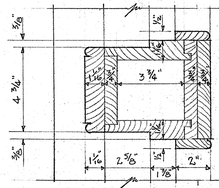
· HEAD SECTION ·
OPG. NOS. W-201, W-202, W-203, W-212

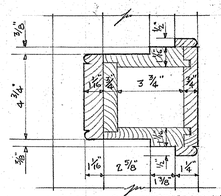


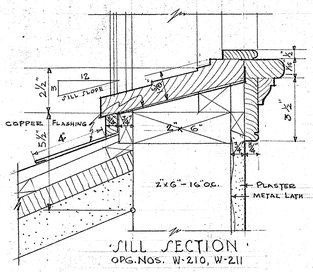
· JAMB SECTION ·
OPG. NOS. W-210, W-211



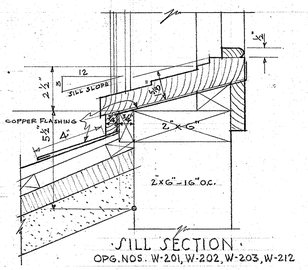
· JAMB SECTION ·
OPG. NOS. W-201, W-202, W-203, W-212


· MULLION SECTION ·
OPG. NOS. W-210, W-211


· MULLION SECTION ·
OPG. NOS. W-201, W-202, W-203, W-212

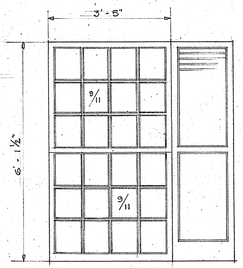


· SILL SECTION ·
OPG. NOS. W-210, W-211

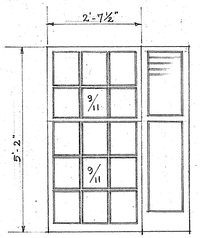


· SILL SECTION ·
OPG. NOS. W-201, W-202, W-203, W-212

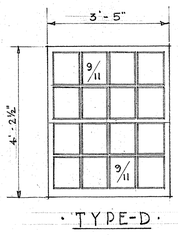
NOTE:
SASH IN OPG. NOS. W-B13, W-B14, W-131, W-132 W-105, W-108 SHALL HAVE OBSCURE GLASS. ALL OTHER SASH SHALL HAVE CLEAR GLASS. SEE SPECIFICATIONS.



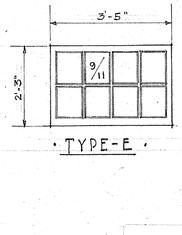
· TYPE-A ·



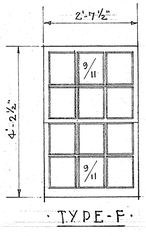
· TYPE-C ·



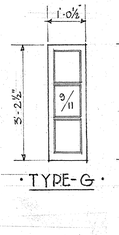
· TYPE-D ·



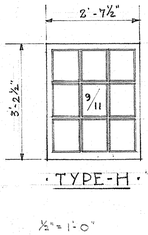
· TYPE-E ·



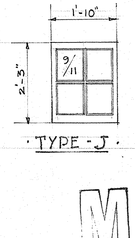
· TYPE-F ·



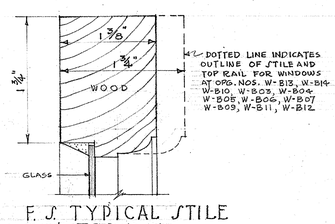
· TYPE-G ·



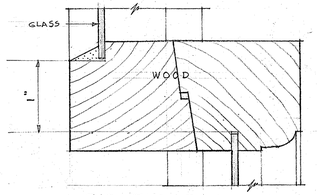
· TYPE-H ·



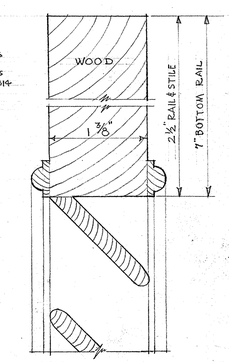
· TYPE-J ·



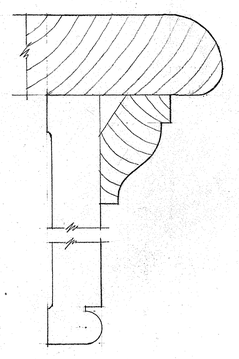
F. S. TYPICAL STILE & TOP RAIL

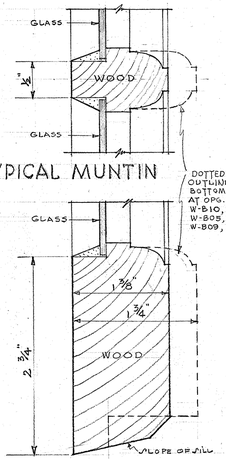


F.S. TYPICAL MEETING RAIL



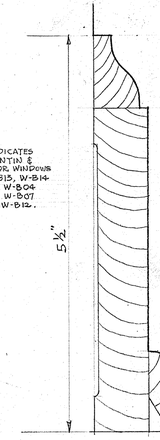
F.S. SECTION OF SHUTTER RAIL


F. S. APRON DETAIL

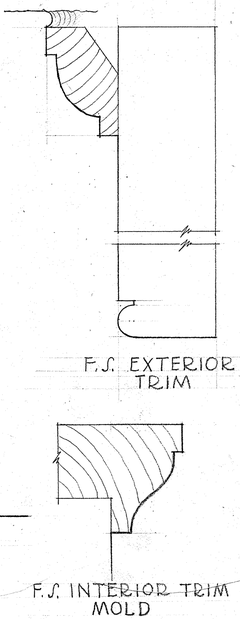


F.S. TYPICAL MUNTIN

F.S. TYPICAL BOTTOM RAIL



F.S. TYPICAL BASEBOARD


F.S. EXTERIOR TRIM

F.S. INTERIOR TRIM MOLD

SCALE ½"=1'-0" 3"=1'-0"

CONCURRED _____ DATE _____
APPROVED _____ DATE _____
SEE SHEET NO. 1 FOR ___

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS & DESIGN
PREPARED BY
WASHINGTON, D.C.
OFFICE

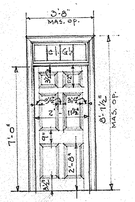
ADMINISTRATION BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAINS NATIONAL PARK
NAME OF PARK OR MONUMENT

REGION I
SHEET 5 OF 27
DRAWING NO. NP-GSM 2005-C

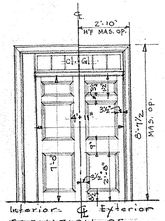
TRIM LINE

U. S. GOVERNMENT PRINTING OFFICE 0—9710

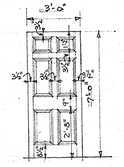
TRIM LINE



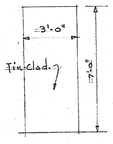
ELEVATION · DOORS NO. D01 · D03 · D04, 102 & 103 · · ·



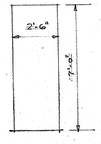
ELEVATION · OF · DOOR · NO · 101 · ·



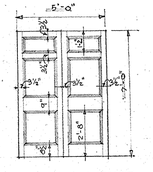
ELEVATION · DOORS B05 · B06 · B07 · B10 · B11, B12 · B13 · B14 · B15 · B16 · B17 · 106 to 114 inc. 117, 120 · 121 · 126 · 130 · 133 · 135 to 139 inc. 141 · 143 · 145, 149 · 144 · 150 & 152 · · ·



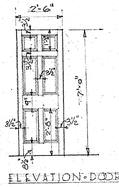
ELEVATION NO. B18 · B22
1 hour fire test door. See Spec.



ELEVATION DOOR NO. 131

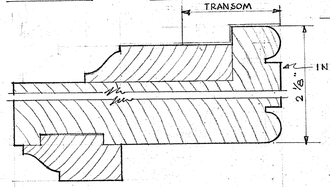


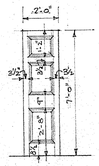
ELEVATION · OF · DOOR · NO. 105 · 142



ELEVATION · DOORS NO. 111 · 115 · 124 · 126 · 146 · 148 · · ·

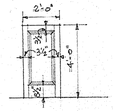
E.S. TRANSOM BAR · OPG. NO. D-101 ·



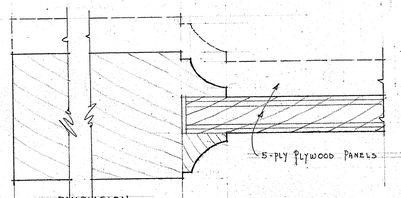


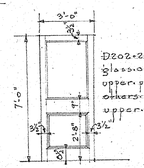
ELEVATION · DOORS NO. 116 · 129 · 210

ELEVATION · DOORS B08 · B09 · B118 · B119, B122 · B123 · · ·



ELEVATION · DOORS NO. 211 · 212 · · ·



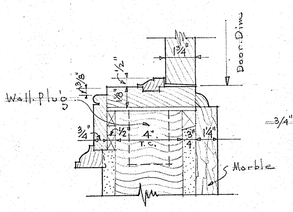


D202 · 209 · 206 · glass obscure · upper panel · all others wood · · · upper panel · ·

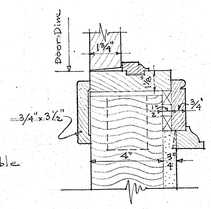
ELEVATION · DOOR D.201 to 209 incl.

NOTE: See Dwg. #10 for detail of frame for opening #'s D-D21 · Doors & frames for D-B02 - D-B19 & D-B20 not in this contract · · For full size profiles see Drawing No. 9 · See Drawing No for detail of frames for openings #151 to #155 incl. · ·

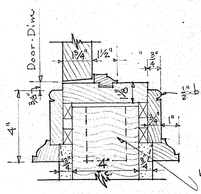
E.S. DETAIL · TYPICAL · DOOR · MOULD



TYPICAL · JAMB
For Doors No. B07 · B10 · B11 · 116 · 117 · 120 · 129 · 210 · · ·

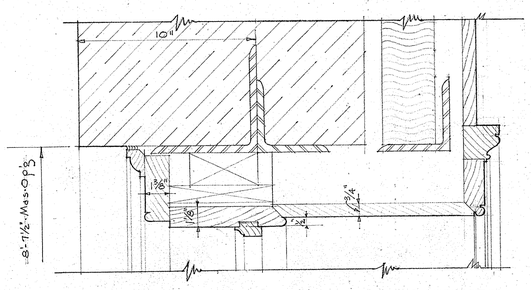


TYPICAL · JAMB
For Doors No. D14 · B15 · B16 · D17

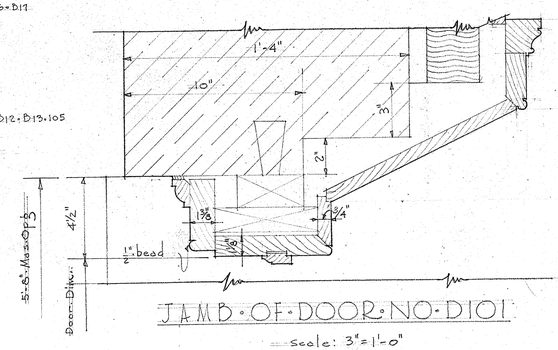


For Doors Nos: D05 · B06 · D12 · D13, 105 · D106 to D114 inc. 115, 124 · D126, D128, D133, D135 to D139 inc. D141, D143 to 149 inc. · D201 to D209 inc. & D150.

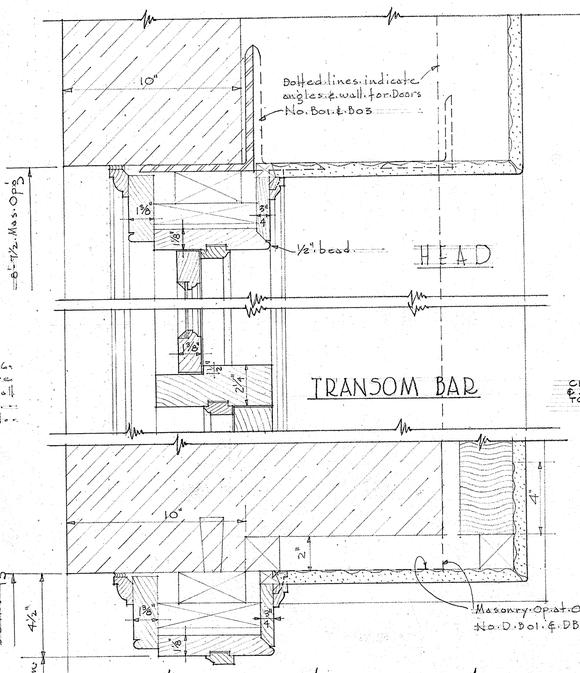
TYPICAL · DOOR · JAMB
Scale: 3" = 1'-0"



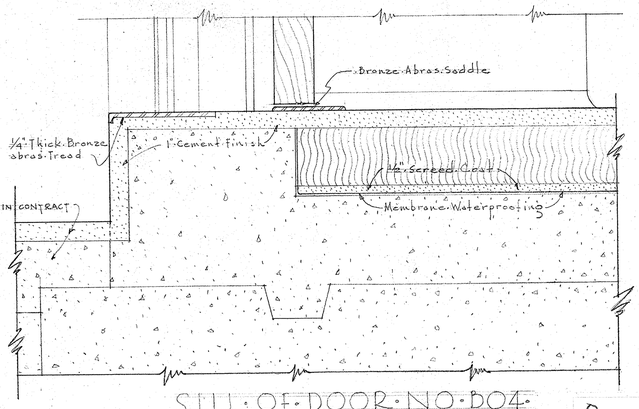
HEAD · OF · DOOR · NO · D101
Scale: 3" = 1'-0"



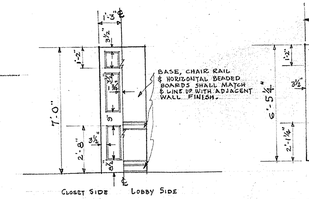
JAMB · OF · DOOR · NO · D101
Scale: 3" = 1'-0"



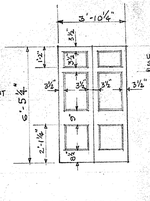
JAMB · OF · DOOR · NO · B04 · 102 · 103 ·
Scale: 3" = 1'-0"



SILL · OF · DOOR · NO · B04 ·
Scale: 3" = 1'-0"
See Dwg. No. 6 for sill of openings No. 102 & 103 · ·

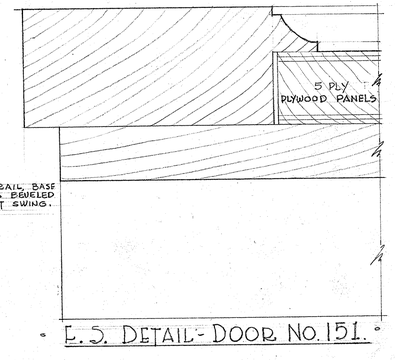


ELEVATIONS OF DOOR · NO. D151 ·

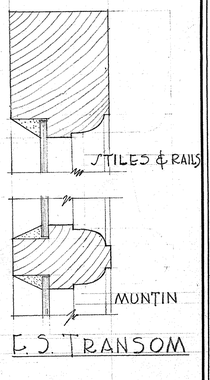


ELEVATION OF · DOOR NOS. D-152 · D-153 ·

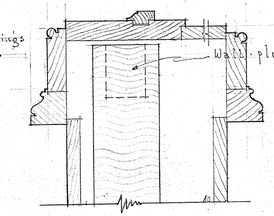
NOTE: FOR JAMB & HEAD SECTIONS ON OPG. NOS. D-151, D152 & D-153 SEE SHEET NO. 12



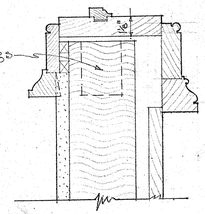
E.S. DETAIL · DOOR NO. 151.



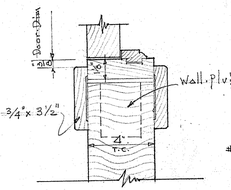
E.S. TRANSOM



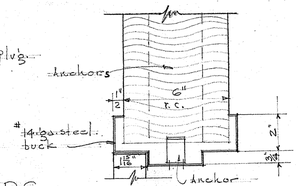
JAMB · OF · DOOR · NO. 132 ·



JAMB · OF · DOOR · NO. 125 · 127 · 134



JAMB · OF · DOORS · NO. 211 · & 212 ·
Scale: 3" = 1'-0"



JAMB · OF · DOORS · NO. B10 - B22
Scale: 3" = 1'-0"

SCALE 0 1/3' 2/3' 1' 1⅓'

M

RECOMMENDED _____ DATE _____	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE BRANCH OF PLANS & DESIGN PREPARED BY WASHINGTON OFFICE
CONCURRED _____ DATE _____	ADMINISTRATION BUILDING — NAME OF JOB; ADMINISTRATIVE AREA — LOCATION; GREAT SMOKY MOUNTAINS NAT'L PARK — NAME OF PARK OR MONUMENT
APPROVED _____ DATE _____	REGION 1 · SHEET 10 OF 27 · DRAWING NO. NP-GSM 2003-C

SEE SHEET NO. 1 FOR SIGNATURES

CLEARED by DSC 4-13-39 — ROBERTS, ACTING, REGIONAL DIRECTOR

REVIEWED — RECREATIONAL, PLANNING AND STATE COOPERATION; RESEARCH AND EDUCATION; SANITATION; FORESTRY; HISTORY; ENGINEERING

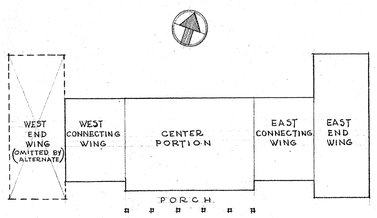
DESIGNED BY NICHOLS — DATE 3/8/39

BASIC DATA

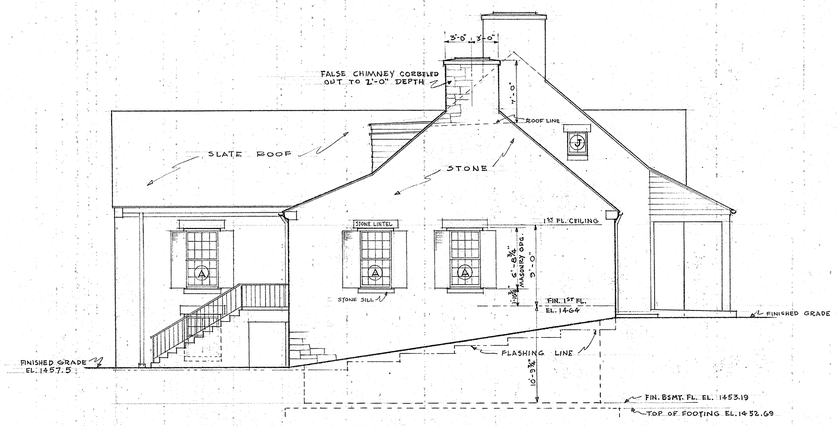
TRIM LINE

TRIM LINE

TRIM LINE

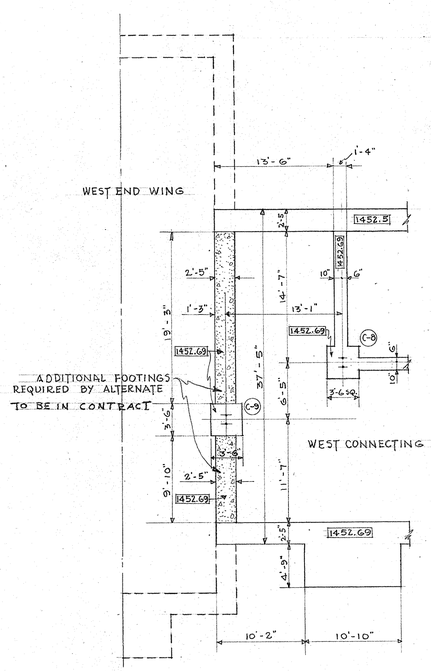


LEGEND



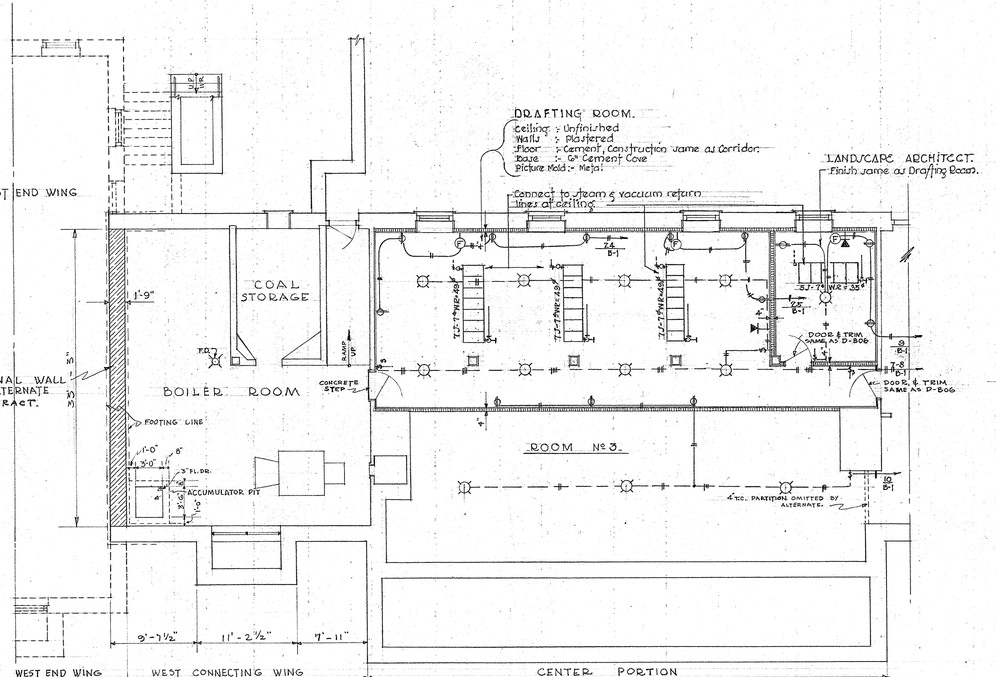
WEST ELEVATION

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



PART FOOTING PLAN

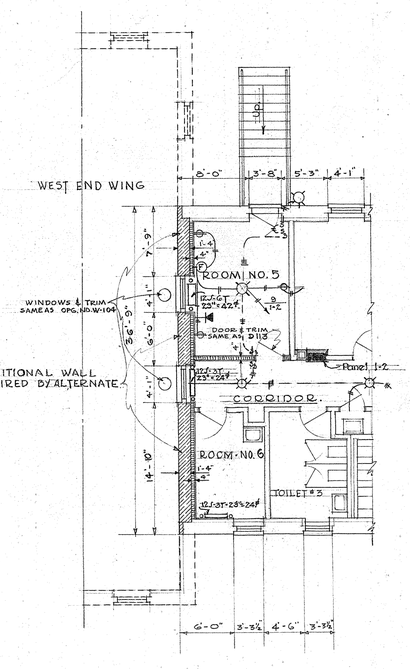
SCALE: 1/8"=1'-0"



PART BASEMENT PLAN

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

NOTE:-
Heating, Plumbing & Electrical Work not shown to be as shown on original sheets.
Electric receptacles in Drafting Room & Landscape Arch. to 18 inches above the floor.



PART 1ST FLOOR PLAN

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

NOTE

This sheet is applicable to 'ALTERNATIVE BID'S' only, see Specifications.

M

SCALE 0 8' 16' 24' 32'

RECOMMENDED _____ DATE _____	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE	REGION 1
CONCURRED _____ DATE _____	PREPARED BY BRANCH OF PLANS & DESIGN WASHINGTON OFFICE	SHEET 1 OF 27
APPROVED _____ DATE _____	ADMINISTRATION BUILDING NAME OF JOB / ADMINISTRATIVE AREA LOCATION / GREAT SMOKY MOUNTAIN NATIONAL PARK NAME OF PARK OR MONUMENT	DRAWING NO. NP-GSM. 2003-C.

SEE SHEET NO 1 FOR SIGNATURES

CLEARED BY WRB 4-13-39 ROBERTS Acting REGIONAL DIRECTOR

REVIEWED — RECREATIONAL PLANNING AND STATE COOPERATION — PLANNING — RESEARCH AND EDUCATION — SANITATION — FORESTRY — HISTORY — PLANS AND DESIGN — ENGINEERING

DESIGNED BY [illegible] DRAWN BY [illegible] TRACED BY [illegible] CHECKED BY [illegible] DATE 4-7-39.

BASIC DATA

TRIM LINE

TRIM LINE

CLEARED
BY OFFICE 4/13/39
ROBERTS
ACTING REGIONAL DIRECTOR

REVIEWED
RECREATIONAL PLANNING AND STATE COOPERATION — 4/10/39
RESEARCH AND EDUCATION — A. O. Collins — 4/13/39
SANITATION
ENGINEERING
PLANS AND DESIGN — Albert H. Good — 4/11/39
FORESTRY
HISTORY — Geo. Wuerthner — 4/11/39

DESIGNED BY
K.S.N.C.A.
DATE 2-7-39

4/11/39 DS — John S. Chase — 4/11/39

FIN. SECOND FL. AT STORAGE

ELEV. - 1474.375

FIN. CEIL.

FIN. FIRST FL.

FIN. BASEMENT FL.

ELEV. 1464.0

ELEV. - 1464.0

ELEV. - 1453.5

ELEV. 1453.5

TOP OF SLAB

BRONZE HANDRAIL

C.I. CAP

3" SQ. NEWEL

WALL STRINGER EXTENDED TO MEET WOOD BASE

11 GA. ST. RISERS

⅜" C.I. ABRASIVE

C.I. DROP

WELL STRINGER

⅝" Ø BALUSTERS 3'-7⅜"

BRAUN #2008 ⅝" SQ. ST. PT.

FIN. SECOND FL. AT STAIR PASSAGE ELEV. - 1473.75

STRINGER TO EXTEND TO MEET CEM. BASE & BE FLUSH WITH SAME.

6" x ⅜" BENT STIFFENERS

⅜" TH. C.I. ABRAS.

STRINGER TO TERMINATE HERE AT EAST WALL.

METAL LATH

⅜" ϕ

SEE DWG. # FOR INTERIOR FINISH OF LOBBY

ELEV. 1475.0

CONFERENCE RM. SIDE — LOBBY SIDE

STAIRS BETWEEN STAIR PASSAGE & CORRIDOR

STEEL HANDRAIL

1½" x 1"

POSTS - 1" x 1"

BALUSTERS - ½" x ½"

½" x ¾"

POSTS SET IN HOT LEAD.

1½" SCALE DET. OF EXT. STAIR RAILS.

F.S. BRONZE HANDRAIL.

F.S. STEEL HANDRAIL

CAST MALLEABLE BRACKETS FOR WALL HANDRAILS

ELEV. 1464.0

ELEV. 1457.5

HANDRAIL

ELEV. 1450.0

ELEVATION 'A'-'A'

ELEVATION OF RAILINGS FOR DOORS AT D102 SIMILAR

SCALE ¼"=1'-0"

WELD

⅜" TH. CONT. ST. PL. WELDED TO CHANNEL.

5" [- 11.5#

⅜" TH. x 2" W. x 12" L. BENT ST. ANCHORS WELDED TO CHANNEL - 3 TO EACH JAMB.

JAMB

FIN. FL.

½ ELEVATION OF FRAME AT D-B21

ALL EXPOSED WELDS DRESSED SMOOTH.

DOWN

BRACKETS

'A'

D B26

D B01

D 103

D 102

PLAN OF EXTERIOR STAIRS AT NORTH WALL.

SEE DWG. #6 FOR CONSTRUCTION DETAILS.

SCALE ¼"=1'-0"

0 4' 8' 12' 16'

0 1' 2' 3'

SCALE 1½" = 1'-0" (AND AS SHOWN)

M

STEEL STAIR DETAILS

BASIC DATA

STAIR NOTES:-

ALL STRINGER CONNECTIONS SHALL BE CONCEALED.

WHERE STRINGER CONNECTS WITH NEWEL, MOLDING SHALL BE RETURNED TO FORM A PANEL EFFECT.

NO EXPOSED ANGLE OR LUG CONNECTIONS.

CARRIAGE & CLIP ANGLES SHALL BE WELDED TO STRINGERS.

NO RIVETS OR BOLT HOLES TO SHOW ON FACE OF STRINGS.

BALUSTRADES SHALL BE ⅝" SQ., APPROX. 3" O.C., WELDED TO TOP & BOTTOM CHANNELS.

ALL EXPOSED WELDS DRESSED SMOOTH.

RECOMMENDED _____ DATE _____

CONCURRED _____ DATE _____

APPROVED _____ DATE _____

SEE SHEET NO. 1 FOR SIGNATURES

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
PREPARED BY
BRANCH OF PLANS & DESIGN
OFFICE
WASHINGTON

REGION 1

SHEET 11 OF 27

ADMINISTRATION - BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAIN NATIONAL PARK
NAME OF PARK OR MONUMENT

DRAWING NO.
NP-GSM
2003-C

TRIM LINE

U. S. GOVERNMENT PRINTING OFFICE 0—9710

TRIM LINE

CLEARED
by wire 4-15-39
ROBERTS
ACTING REGIONAL DIRECTOR

RECREATIONAL PLANNING AND STATE COOPERATION

REVIEWED

	RESEARCH AND EDUCATION	SANITATION
	FORESTRY	HISTORY

DESIGNED BY
K.A.N.K.A.
DATE
3-20-39

	PLANS AND DESIGN	ENGINEERING
1	D.S. 4/11/39	
2	Alfred Hoxsey 4/10/39	
3	Alfred Hoxsey 4/12/39	
4	Lewis A. Grant 4/12/39	

BASIC DATA

HALF SOUTH ELEVATION

HALF NORTH ELEVATION

SEE DWG. 411 FOR THIS SECTION

WEST ELEVATION

EAST ELEVATION

See Dwg. 413 for Details of Counter

F.S. MANTEL PROFILES

HALF PLAN OF FIREPLACE

SECTION THRU FIREPLACE

F.S. PROFILE AT 'A'

LOBBY DETAILS

All wood finish, unless otherwise marked, shall be of 1" stock.
See Dwg. #13 for F.S. Profiles.

SCALE 3/8" & 1½" = 1'-0"

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____
SEE SHEET NO 1 FOR SIGNATURES.

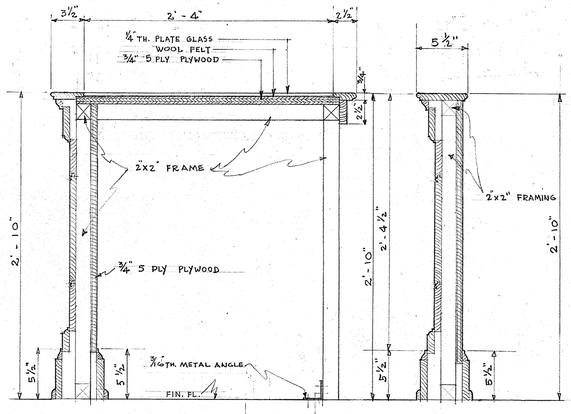
UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS & DESIGN
PREPARED BY
WASHINGTON
OFFICE

ADMINISTRATION • BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAINS NATIONAL PARK
NAME OF PARK OR MONUMENT

REGION 1
SHEET 12 OF 27
DRAWING NO. NP-GSM 2003-C

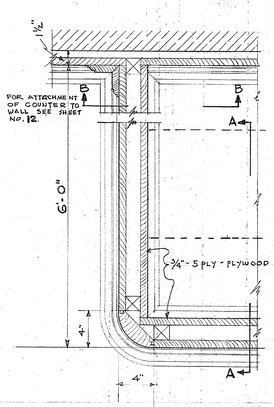
TRIM LINE

U. S. GOVERNMENT PRINTING OFFICE 6—2710

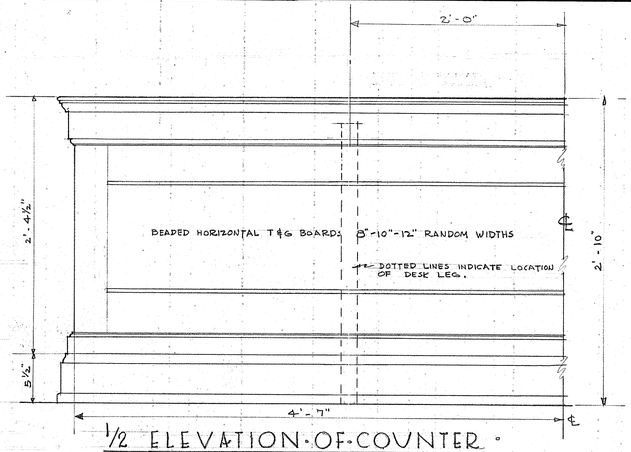


SECTION A-A

SECTION B-B



PART PLAN

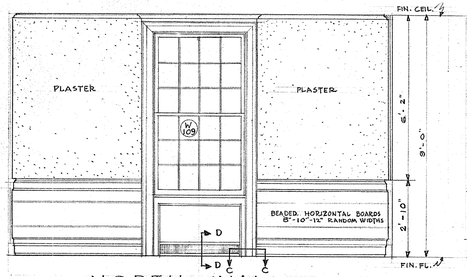


½ ELEVATION OF COUNTER

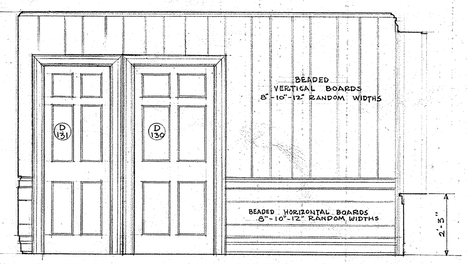
DETAILS OF LOBBY COUNTER

SCALE: 1½" = 1'-0"

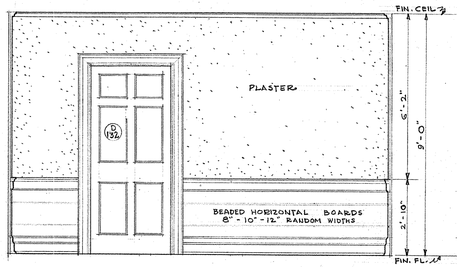
NOTE:
ALL FINISH BOARDS SHALL BE OF 1" STOCK THICKNESS UNLESS OTHERWISE INDICATED.



NORTH WALL



WEST WALL



SOUTH WALL

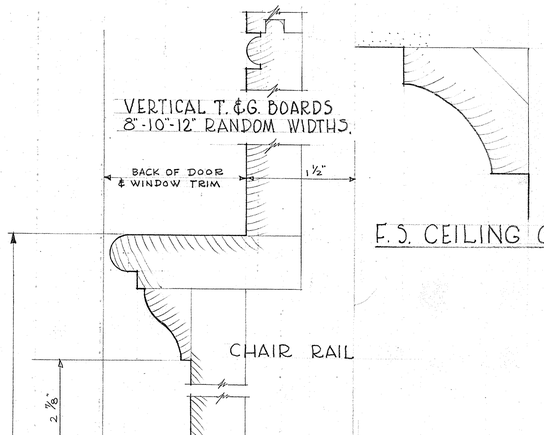
EAST WALL

INTERIOR FINISH SUPERINTENDENT'S OFFICE

BASIC DATA

SCALE: ⅜" = 1'-0"

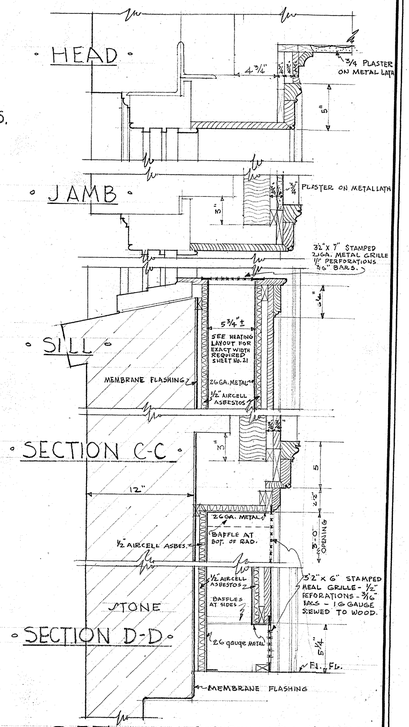
0 1' 2' 3' 4' 5' 6'



F. S. CEILING COVE

F. S. DADO

F. S. DOOR AND WINDOW TRIM



DETAILS OPG. NO. W-109

SCALE: 1½" = 1'-0"

0 1' 2' 3'

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____
SEE SHEET NO 1 FOR SIGNATURES

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGN
PREPARED BY
WASHINGTON D.C.
OFFICE

ADMINISTRATION BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY NATIONAL PARK
NAME OF PARK OR MONUMENT

REGION 1
SHEET 13 OF 27
DRAWING NO. NP-GSM 203-C

CLEARED
By Wash. Office 4-15-35
ROBERTS
ACTING
REGIONAL DIRECTOR

RECREATIONAL
PLANNING AND STATE COOPERATION

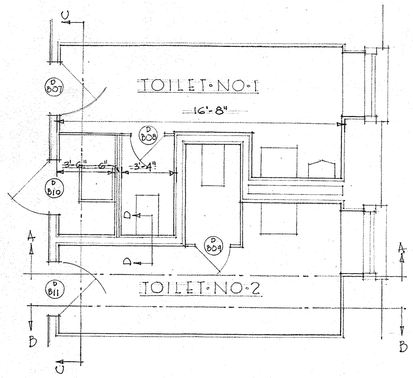
REVIEWED
RESEARCH AND EDUCATION
SANITATION
FORESTRY
HISTORY
ENGINEERING

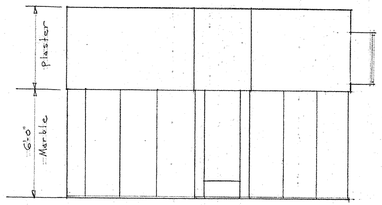
DESIGNED BY
NICHOLS
MAY
3-30-39

DRAWN BY
DS
PLANS AND DESIGN
4/1/39

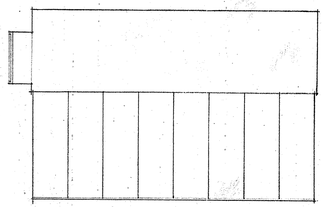
Albert H. Good 9/1/39
4 D Collum 4/13/35
Thos. W. Mills 4/17/35
Irvin L. Evans 11/1/39

TRIM LINE

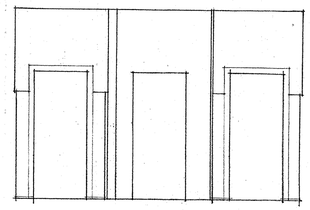




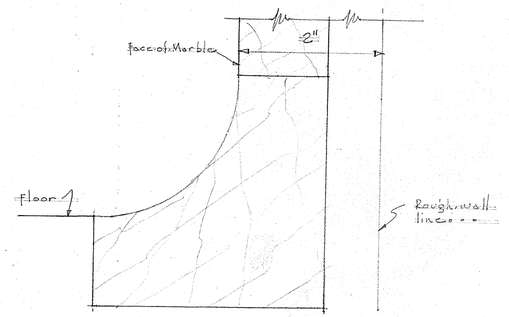
SECTION·ON·A-A



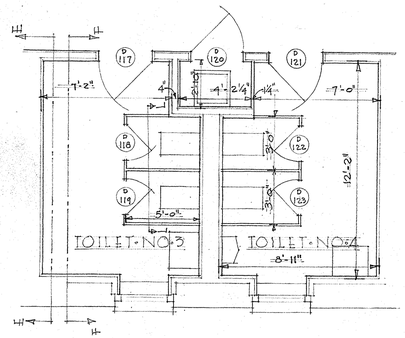
SECTION·ON·B-B

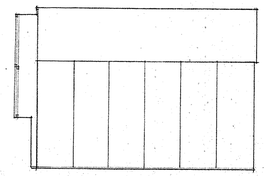


SECTION·ON·C-C

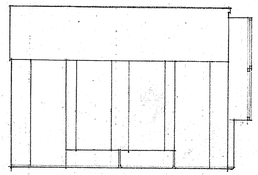


SECTION·ON·D-D
THRU·BASE
FULL·SIZE

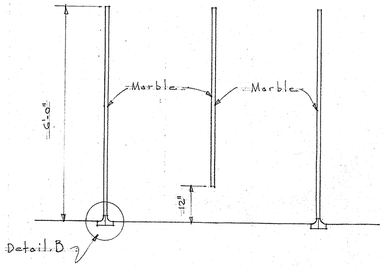




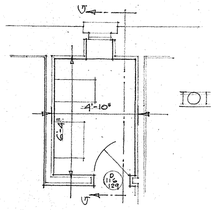
SECTION·ON·E-E

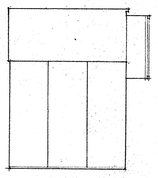


SECTION·ON·H-H



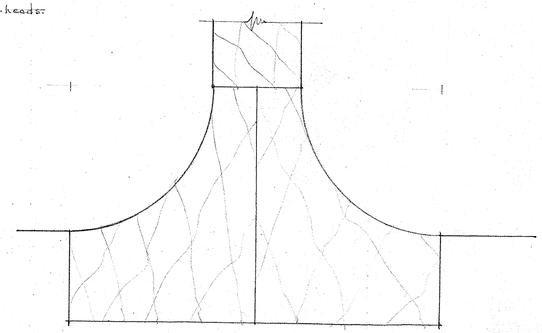
SECTION·ON·L-L
scale: ½"=1'-0"



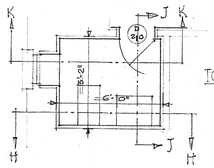


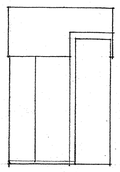
SECTION·ON·G-G

General·Notes:
All·marble·shall·be·1¼"·thick,
outside·face·2"·from·rough·
wall·. . .
See·dwg.#·· for·details·of·door·jambs,·&·heads.
See·dwg.#·· for·details·of·window·jambs,·&·heads.

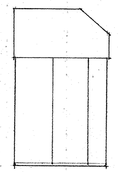


FULL·SIZE·DETAIL·D

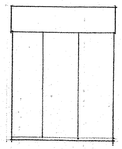




SECTION·ON·K-K



SECTION·ON·J-J



SECTION·ON·H-H

0 4' 8' 12' 16' SCALE ¼"=1'-0"

M

CLEARED
by WIRE 4-15-39
ROBERTS
Acting
REGIONAL DIRECTOR

REVIEWED
RESEARCH AND EDUCATION
SANITATION
ENGINEERING
PLANS AND DESIGN
FORESTRY
HISTORY
RECREATIONAL
PLANNING AND STATE COOPERATION

DESIGNED BY NICHOLS
DATE 4/10/39
ENGINEERING
PLANS AND DESIGN 4/10/39 Albert Stancil
FORESTRY 4/10/39 A. C. Cowan
HISTORY 4/10/39 Miss M. C. D. Billings
RECREATIONAL PLANNING AND STATE COOPERATION
RESEARCH AND EDUCATION 4/12/39 A. C. Cowan
SANITATION

BASIC DATA

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____
SEE SHEET NO.1 FOR SIGNATURES

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS & DESIGN
PREPARED BY
WASHINGTON.
OFFICE

REGION 1
SHEET 14 OF 27
DRAWING NO. NP-GSM 2003-C

ADMINISTRATION·BUILDING
NAME OF JOB
ADMINISTRATIVE·AREA
LOCATION
GREAT·SMOKY·NATIONAL·PARK
NAME OF PARK OR MONUMENT

TRIM LINE

U. S. GOVERNMENT PRINTING OFFICE 0—9720

TRIM LINE

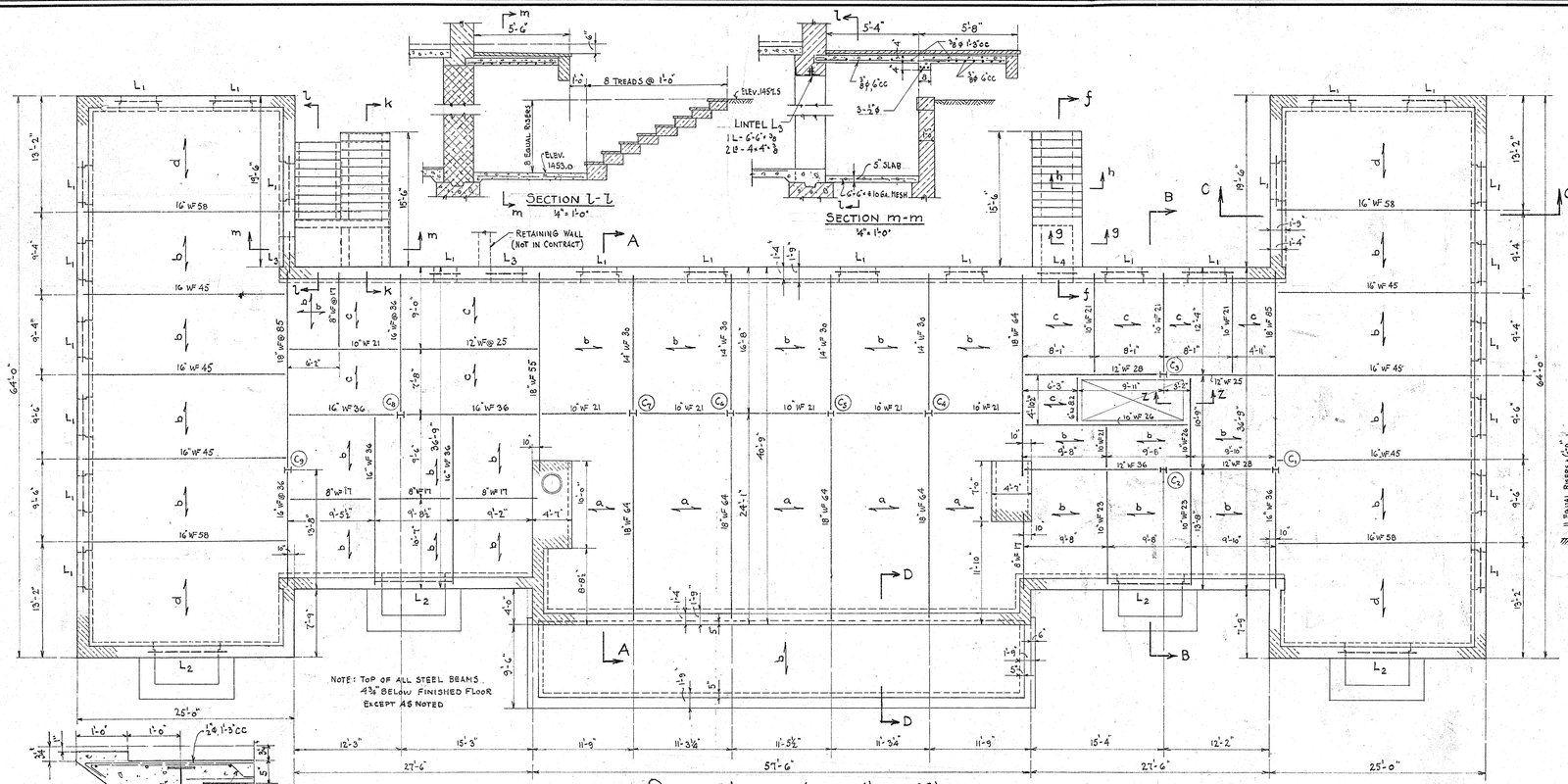
CLEARED
BY WPA. 4-12-39
ROBERTS
ACTING
REGIONAL DIRECTOR

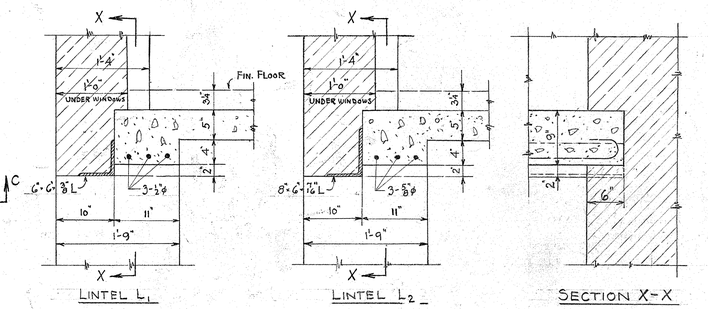
RECREATIONAL PLANNING AND STATE COOPERATION

REVIEWED
4/12/39
RESEARCH AND EDUCATION
SANITATION
FORESTRY
HISTORY
PLANS AND DESIGN
ENGINEERING

DESIGNED BY
4/11/39
D.S.
P.B. DAMSON
DATE
FEB. 11, 1939

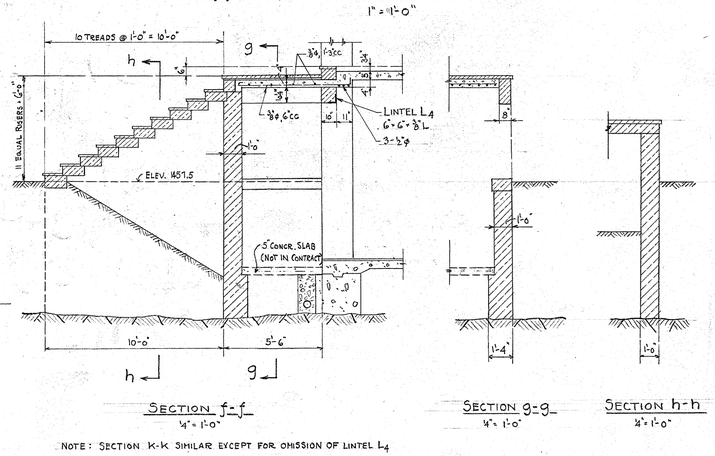
BASIC DATA





NOTE: FOR LINTEL L_3 SEE SECTION m-m
FOR LINTEL L_4 SEE SECTION f-f

DETAIL OF LINTELS
1" = 1'-0"



NOTE: SECTION K-K SIMILAR EXCEPT FOR OMISSION OF LINTEL L_4

GENERAL NOTES:
STRUCTURAL STEEL — ALL DETAILS SHALL BE DESIGNED IN ACCORDANCE WITH THE SPECIFICATIONS FOR STRUCTURAL STEEL FOR BUILDINGS OF THE A.I.S.C.
STEEL BEAM SECTIONS ARE NOTED THUS:
WF FOR WIDE FLANGED SECTIONS
LB FOR LIGHT BEAM SECTIONS
ANCHOR ANGLES AT ENDS OF 8" OR LARGER BEAMS RESTING ON MASONRY SHALL BE $2 L 3-6"\times 4"\times \frac{3}{8}"$ AND 0'-5" MIN. LONG WITH THE 6" LEG OUTSTANDING. FOR SMALLER BEAMS USE $2 L 3-6"\times 6"\times \frac{3}{8}"$ AND 0'-3" MIN. LONG. CONNECT ANCHOR ANGLES TO BEAMS WITH 2 RIVETS OR BOLTS.
BEARING PLATES FOR WALL BEARING BEAMS SHALL BE PROVIDED UNLESS OTHERWISE NOTED. THESE PLATES SHALL BE PROPORTIONED FOR A BEARING OF 300 #/SQ.IN. ON STONE WALLS.
ALL SHOP CONNECTIONS SHALL BE RIVETED AND ALL FIELD CONNECTIONS SHALL BE RIVETED OR BOLTED; THE SIZE OF RIVETS OR BOLTS SHALL BE AT THE CONTRACTORS OPTION SUBJECT TO THE APPROVAL OF THE CONTRACTING OFFICER.
ALL DETAILS AND CONNECTIONS SHOWN ARE BASED ON THE USE OF $\frac{3}{4}"\phi$ RIVETS AND IF ANY OTHER SIZE IS USED THE NUMBER OF RIVETS SHALL BE CHANGED TO OBTAIN DETAILS AND CONNECTIONS OF EQUAL VALUE SUBJECT TO THE APPROVAL OF THE CONTRACTING OFFICER.
HOLES FOR STONE ANCHORS, WOOD BLOCKS AND PLATES WHERE REQUIRED ON ARCHITECTURAL OR STRUCTURAL PLANS SHALL BE PROVIDED IN STUCTURAL STEEL.

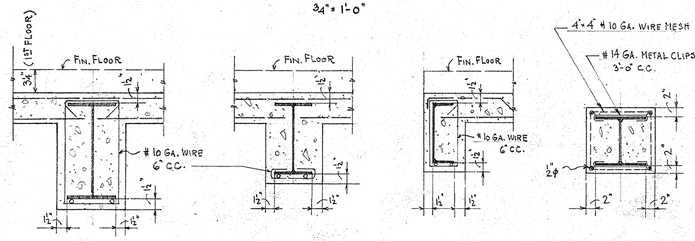
SLAB SCHEDULE

MARK	DEPTH	REINFORCING BARS		
		SIZE	SPACING	BENT BARS
a	5"	$\frac{1}{2}"\phi$	6"	ALTERNATE BARS BENT
b	5"	$\frac{1}{2}"\phi$	7½"	"
c	5"	$\frac{1}{2}"\phi$	9"	"
d	5"	$\frac{1}{2}"\phi$	5"	"

COLUMN SCHEDULE

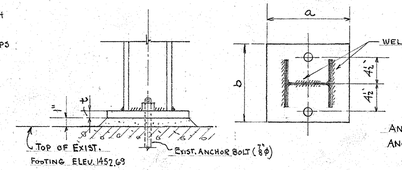
COLUMN MARK	SIZE	BASE		
		a	b	t
C_1 TO C_9 INCL.	8"-8" WF @ 31	16"	14"	1½"

TYPICAL DETAILS OF CONCRETE SLAB ~ 1ST AND 2ND FLOOR
3/4" = 1'-0"



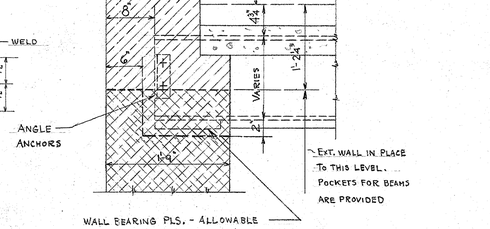
BEAMS — GREATER THAN 14" | BEAMS — 14" OR LESS | BEAMS OR CHANNELS — WITH SLAB ON ONE SIDE ONLY | COLUMNS — ALL COLS. BELOW 2ND FL.

DETAILS OF FIREPROOFING - BEAMS & COLUMNS
1" = 1'-0"



ELEVATION — PLAN

DETAIL OF COLUMN BASE
1" = 1'-0"



DETAIL OF WALL BEARING PLATES
1" = 1'-0"

NOTE: PROVIDE BEARING PLATES UNDER ALL BEAMS AND LINTELS OF TYPE L_7 SUPPORTED ON WALLS

STRUCTURAL: 1ST FLOOR FRAMING

SCALE: AS NOTED

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGN
PREPARED BY WASHINGTON OFFICE

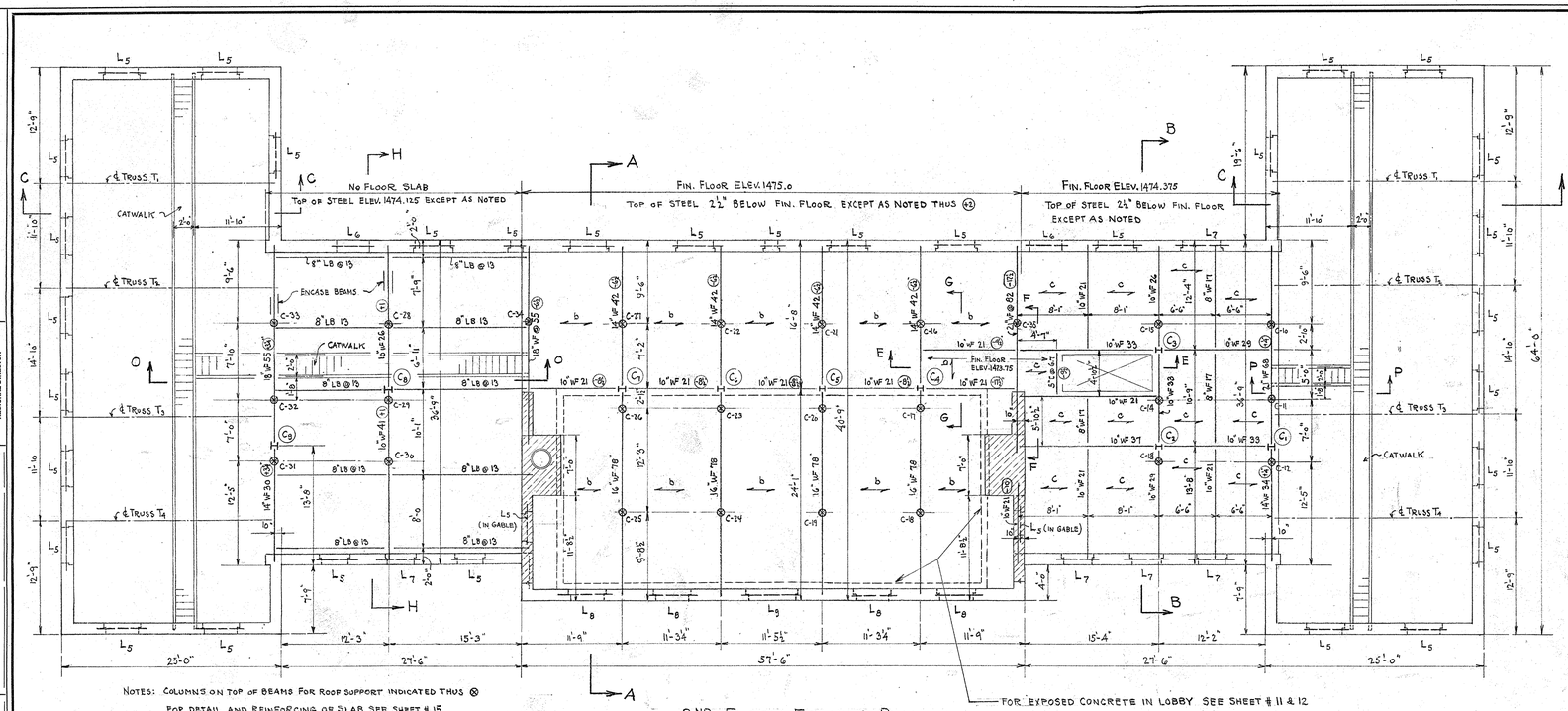
ADMINISTRATION ~ BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAIN NATIONAL PARK
NAME OF PARK OR MONUMENT

REGION 1
SHEET 15 OF 27 SHEETS
DRAWING NO. NP-GSM 2003-C

TRIM LINE

U. S. GOVERNMENT PRINTING OFFICE 0—9710

TRIM LINE



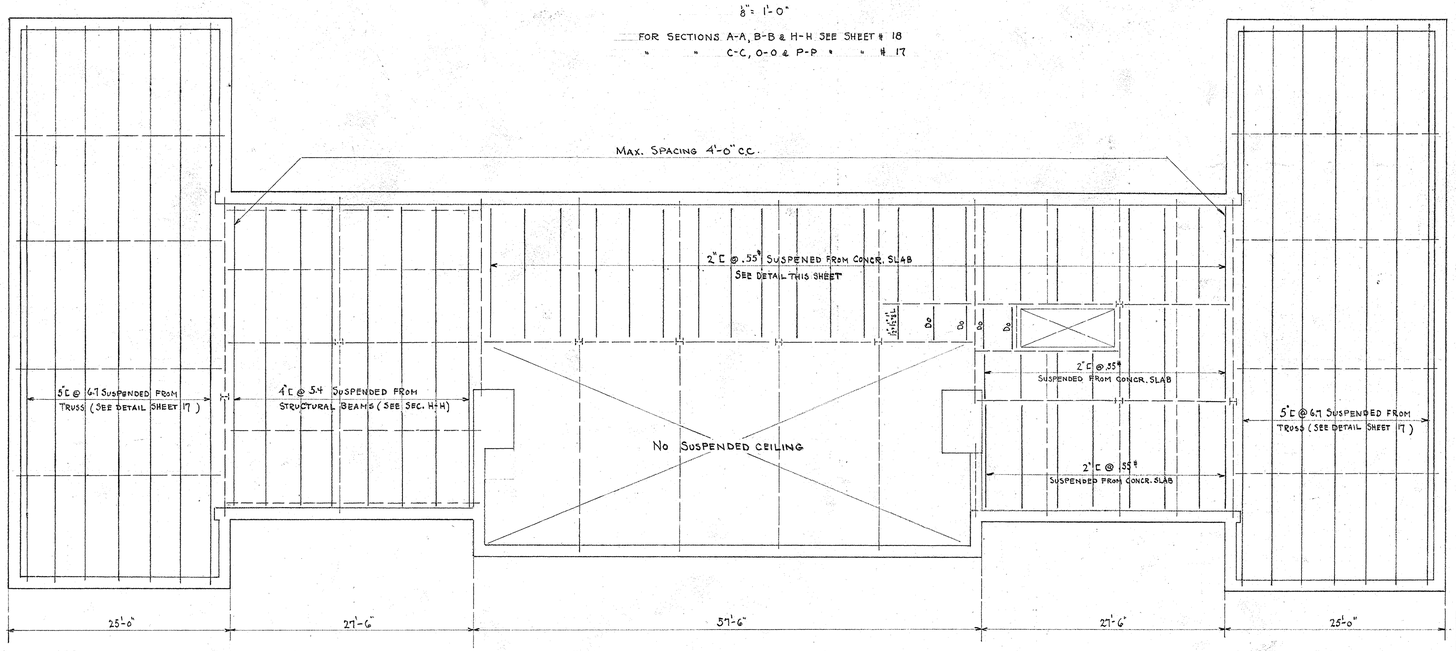
NOTES: COLUMNS ON TOP OF BEAMS FOR ROOF SUPPORT INDICATED THUS ⊗
FOR DETAIL AND REINFORCING OF SLAB SEE SHEET # 15

FOR EXPOSED CONCRETE IN LOBBY SEE SHEET # 11 & 12

2ND FLOOR FRAMING PLAN

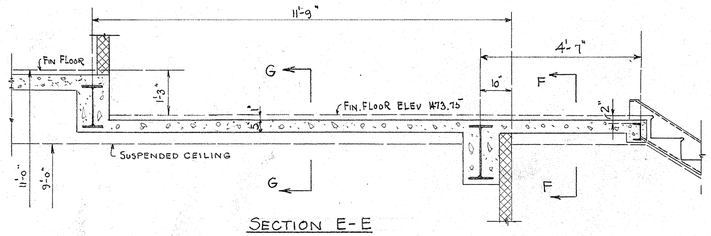
⅛" = 1'-0"

FOR SECTIONS A-A, B-B & H-H SEE SHEET # 18
" " C-C, O-O & P-P " " # 17



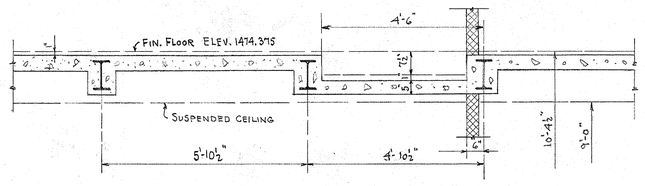
PLAN OF SUSPENDED CEILING - 1ST FLOOR

⅛" = 1'-0"



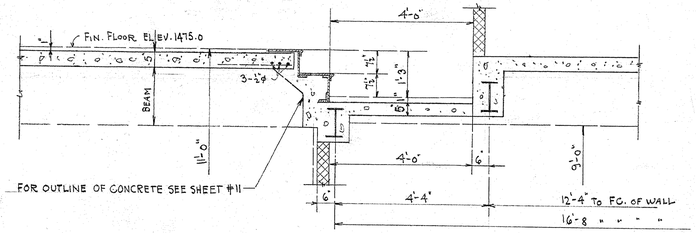
SECTION E-E

½" = 1'-0"



SECTION F-F

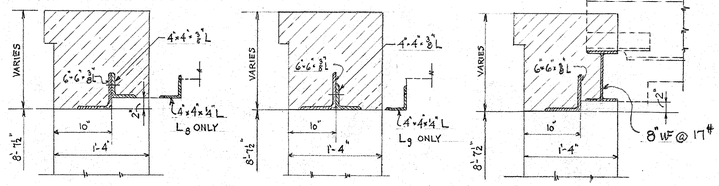
½" = 1'-0"



FOR OUTLINE OF CONCRETE SEE SHEET #11

SECTION G-G

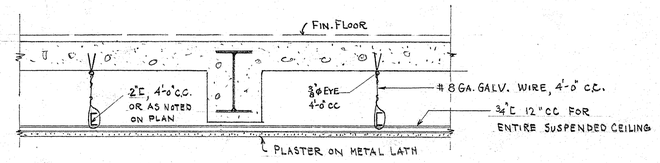
½" = 1'-0"



LINTEL L5 & L8 | LINTEL L6 & L9 | LINTEL L7

DETAILS OF LINTELS

1" = 1'-0"



DETAIL OF SUSPENDED CEILING

1" = 1'-0"

SCALE: AS NOTED

STRUCTURAL:
2ND FLOOR FRAMING

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGN
PREPARED BY
WASHINGTON
OFFICE

REGION 1
SHEET 16 OF 27
DRAWING NO. NP-GSM 2003-C

ADMINISTRATION - BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAIN NATIONAL PARK
NAME OF PARK OR MONUMENT

BASIC DATA

DESIGNED BY P. B. DAMSBO DATE FEB. 11, 1939
PLANS AND DESIGN — ENGINEERING
RECREATIONAL PLANNING AND STATE COOPERATION
FORESTRY — HISTORY
RESEARCH AND EDUCATION — SANITATION
REVIEWED 4/13/39 — 4/14/39 — 4/18/39
CLEARED BY: [illegible] DATE: 4-15-39 — ACTING REGIONAL DIRECTOR

TRIM LINE

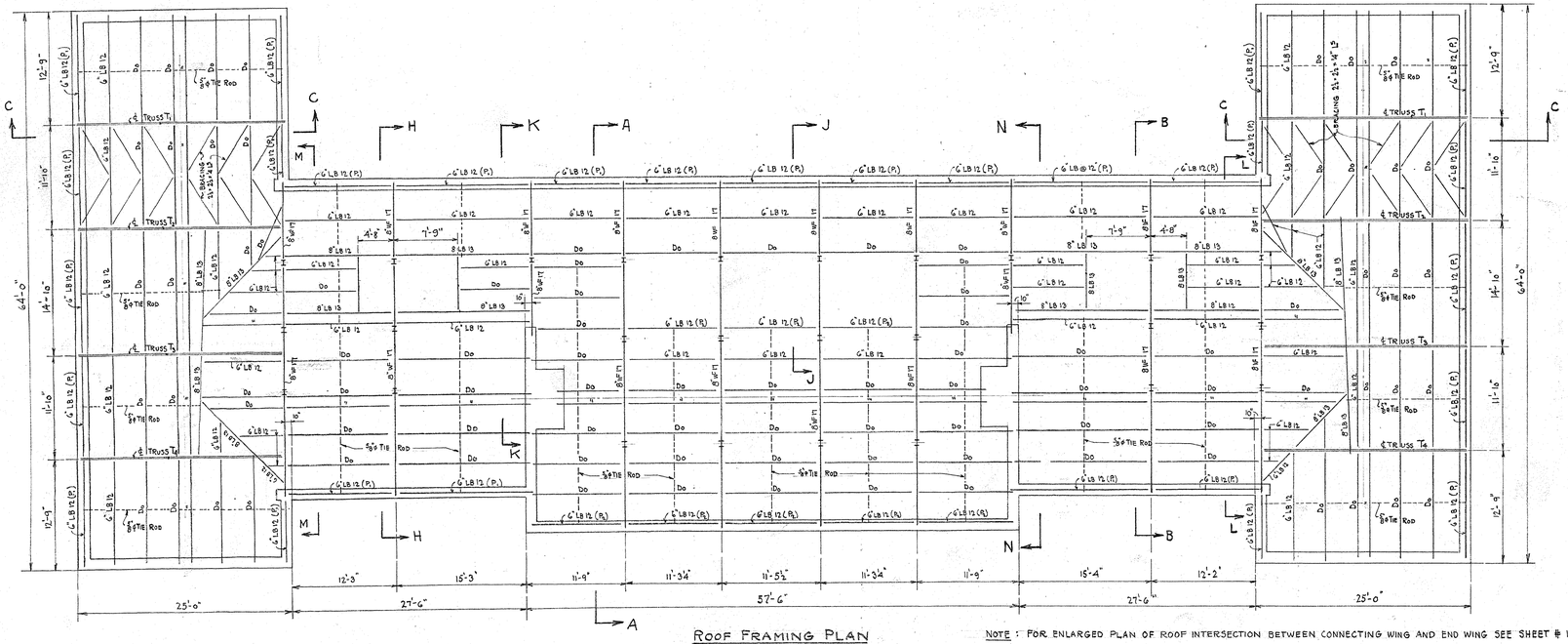
TRIM LINE

CLEARED
By USFS 4-15-35
RODEO 5
ACTING
REGIONAL DIRECTOR

RECREATIONAL
PLANNING AND STATE COOPERATION

REVIEWED
D. W. Cole 4/12/35
FORESTRY
Jas. W. Kerr 4/11/35
HISTORY
Albert H. Good 4/10/35
RESEARCH AND EDUCATION
Engineering Assistant
SANITATION

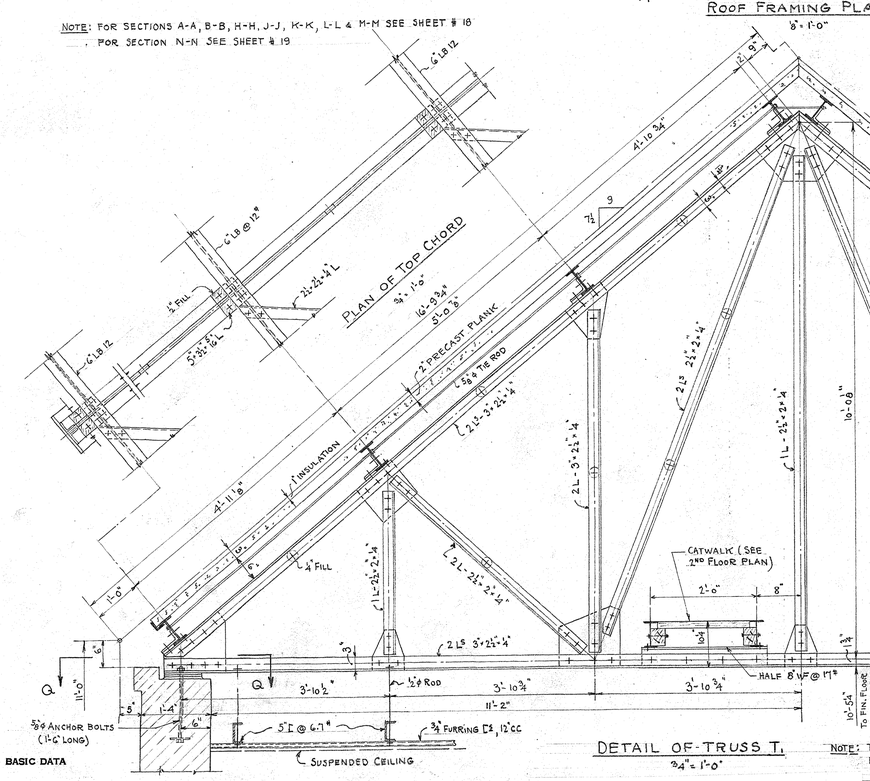
DESIGNED BY 4/4/35 DS
P. B. DAVIS 80
DATE FEB. 21, 1938
PLANS AND DESIGN
ENGINEERING



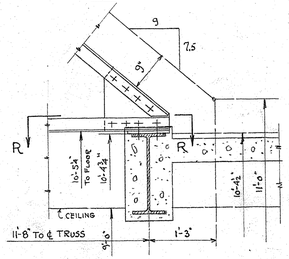
ROOF FRAMING PLAN
8" = 1'-0"

NOTE: FOR SECTIONS A-A, B-B, H-H, J-J, K-K, L-L & M-M SEE SHEET # 18
. FOR SECTION N-N SEE SHEET # 19

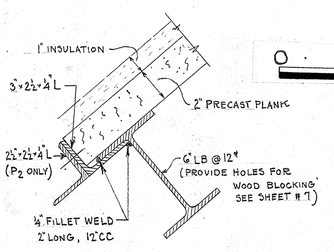
NOTE: FOR ENLARGED PLAN OF ROOF INTERSECTION BETWEEN CONNECTING WING AND END WING SEE SHEET # 19



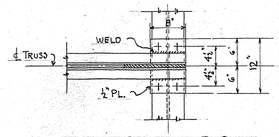
BASIC DATA



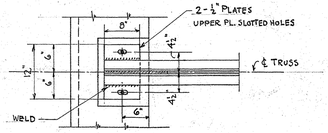
DETAIL OF END OF TRUSS AT BEAM
¾" = 1'-0"



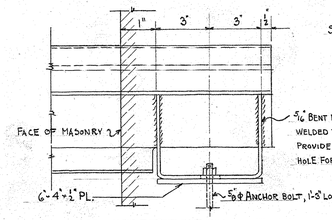
DETAIL OF LOWER PURLIN (P1) & (P2)
3" = 1'-0"



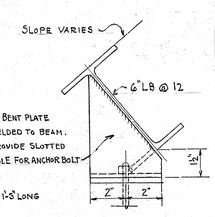
SECTION R-R
¾" = 1'-0"



SECTION Q-Q
¾" = 1'-0"



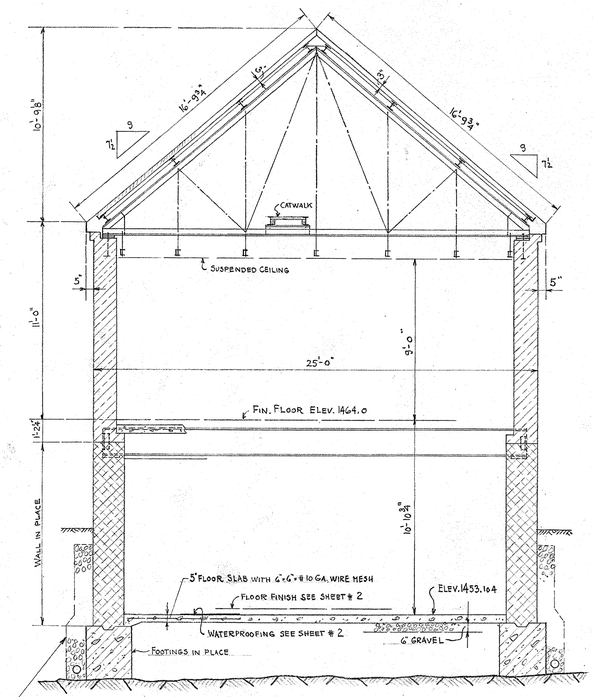
SIDE ELEVATION



END ELEVATION

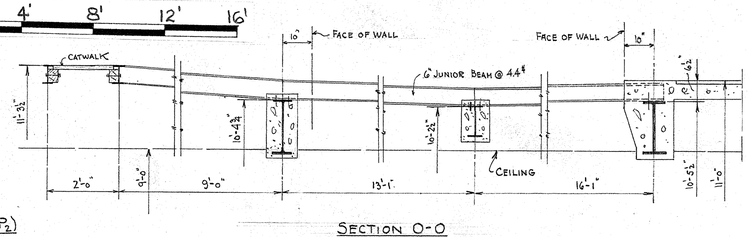
DETAILS OF "MASONRY BEARING" PURLIN
3" = 1'-0"

0 1/3' 2/3' 1' 1 1/3'



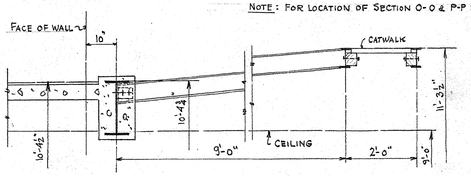
SECTION C-C
¼" = 1'-0"

0 4' 8' 12' 16'

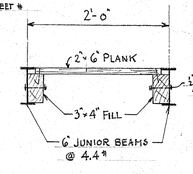


SECTION O-O
½" = 1'-0"

NOTE: FOR LOCATION OF SECTION O-O & P-P SEE SHEET #



SECTION P-P
½" = 1'-0"



DETAIL OF CATWALK
1" = 1'-0"

0 2' 4' 6' 8'

STRUCTURAL: ROOF FRAMING

0 1' 2' 3' 4'

SCALE AS NOTED

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
_____ DATE _____

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGN
PREPARED BY
WASHINGTON
OFFICE

ADMINISTRATION — BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAIN NATIONAL PARK
NAME OF PARK OR MONUMENT

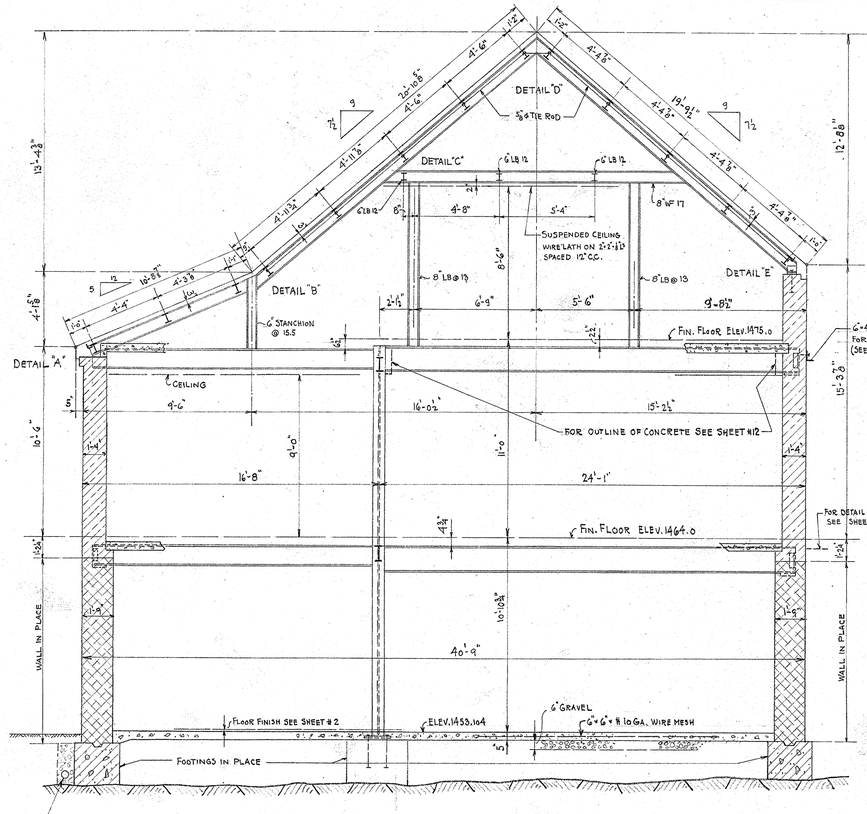
REGION 1
SHEET 17 OF 27
DRAWING NO. NP-GSM 2003-C

M

TRIM LINE

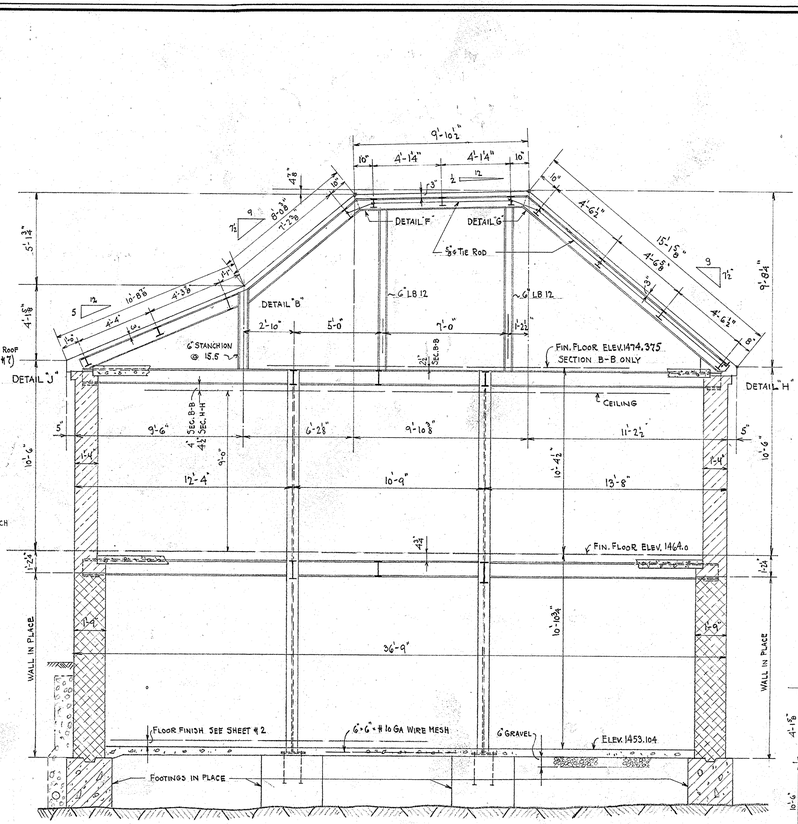
U. S. GOVERNMENT PRINTING OFFICE 0—9720

TRIM LINE



SECTION A-A

¼" = 1'-0"

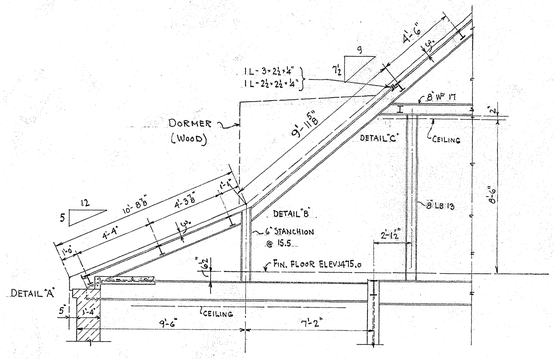


SECTION B-B

¼" = 1'-0"

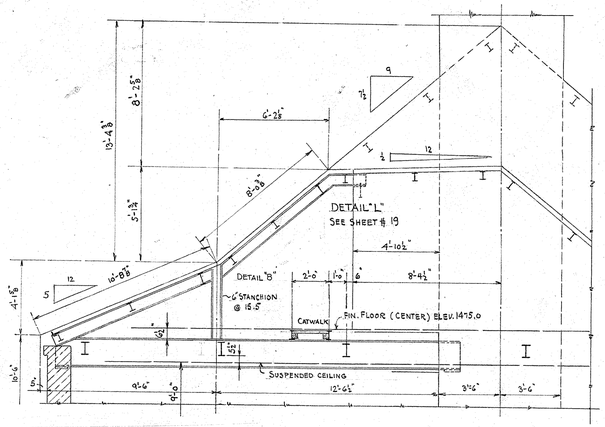
NOTE: FOR LOCATION OF SECTION A-A, B-B, H-H, J-J, K-K, L-L & M-M SEE SHEET # 15

NOTE: SECTION H-H SIMILAR EXCEPT FOR OMISSION OF 2ND FLOOR SLAB AND AS NOTED ON FRAMING PLANS AND THIS SECTION



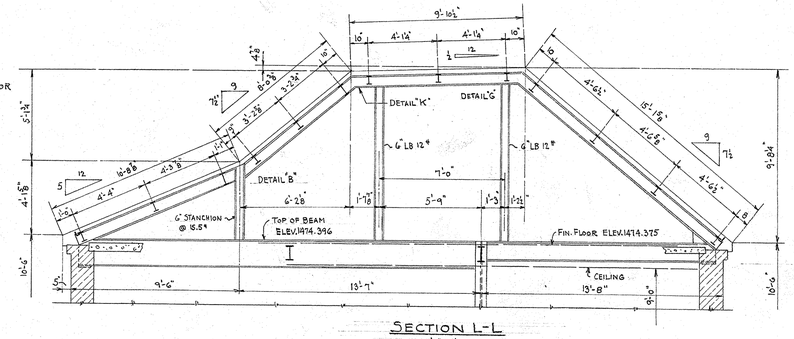
SECTION J-J

¼" = 1'-0"



SECTION K-K

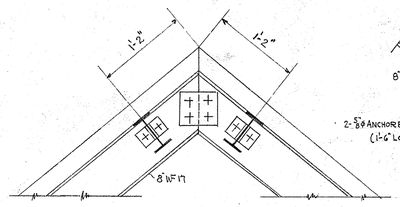
¼" = 1'-0"



SECTION L-L

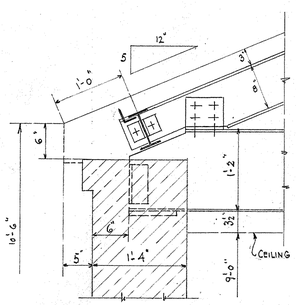
¼" = 1'-0"

NOTE: SECTION M-M SIMILAR BUT OPPOSITE HAND EXCEPT AS NOTED ON FRAMING PLANS



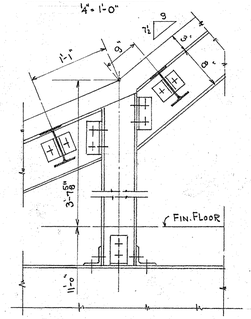
DETAIL "D"

1" = 1'-0"



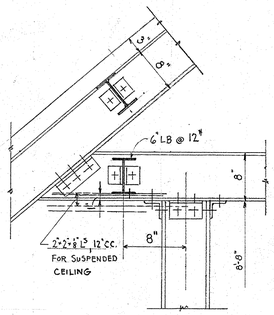
DETAIL "A"

1" = 1'-0"



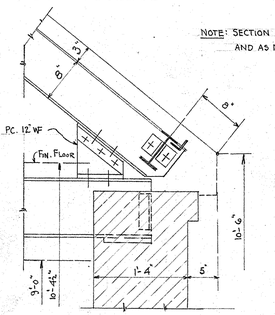
DETAIL "B"

1" = 1'-0"



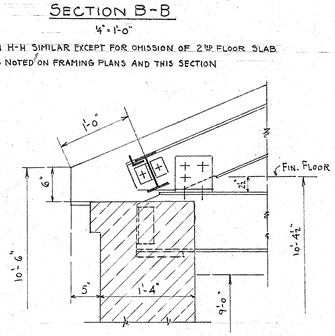
DETAIL "C"

1" = 1'-0"



DETAIL "H"

1" = 1'-0"

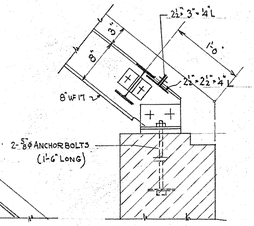


DETAIL "J"

1" = 1'-0"

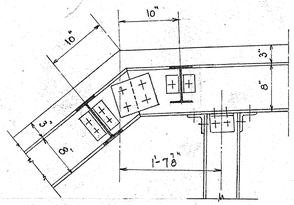
DETAIL "D"

1" = 1'-0"



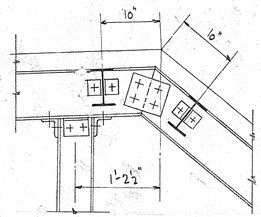
DETAIL "E"

1" = 1'-0"



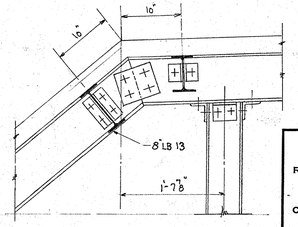
DETAIL "K"

1" = 1'-0"



DETAIL "G"

1" = 1'-0"



DETAIL "F"

1" = 1'-0"

SECTION L-L

¼" = 1'-0"

NOTE: SECTION M-M SIMILAR BUT OPPOSITE HAND EXCEPT AS NOTED ON FRAMING PLANS

STRUCTURAL : SECTIONS & DETAILS

SCALE: AS NOTED

M

BASIC DATA

DESIGNED BY P. B. DAMSO DATE FEB. 17, 1939

PLANS AND DESIGN 2.5 4/19/39

ENGINEERING

REVIEWED

RESOURCE AND EDUCATION — SANITATION

PLANNING AND STATE COOPERATION — RECREATIONAL

FORESTRY — HISTORY

CLEARED by WIRE 4-13-39 ROBERTS ACTING REGIONAL DIRECTOR

RECOMMENDED _____ DATE _____

CONCURRED _____ DATE _____

APPROVED _____ DATE _____

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGN
PREPARED BY OFFICE
WASHINGTON

REGION 1

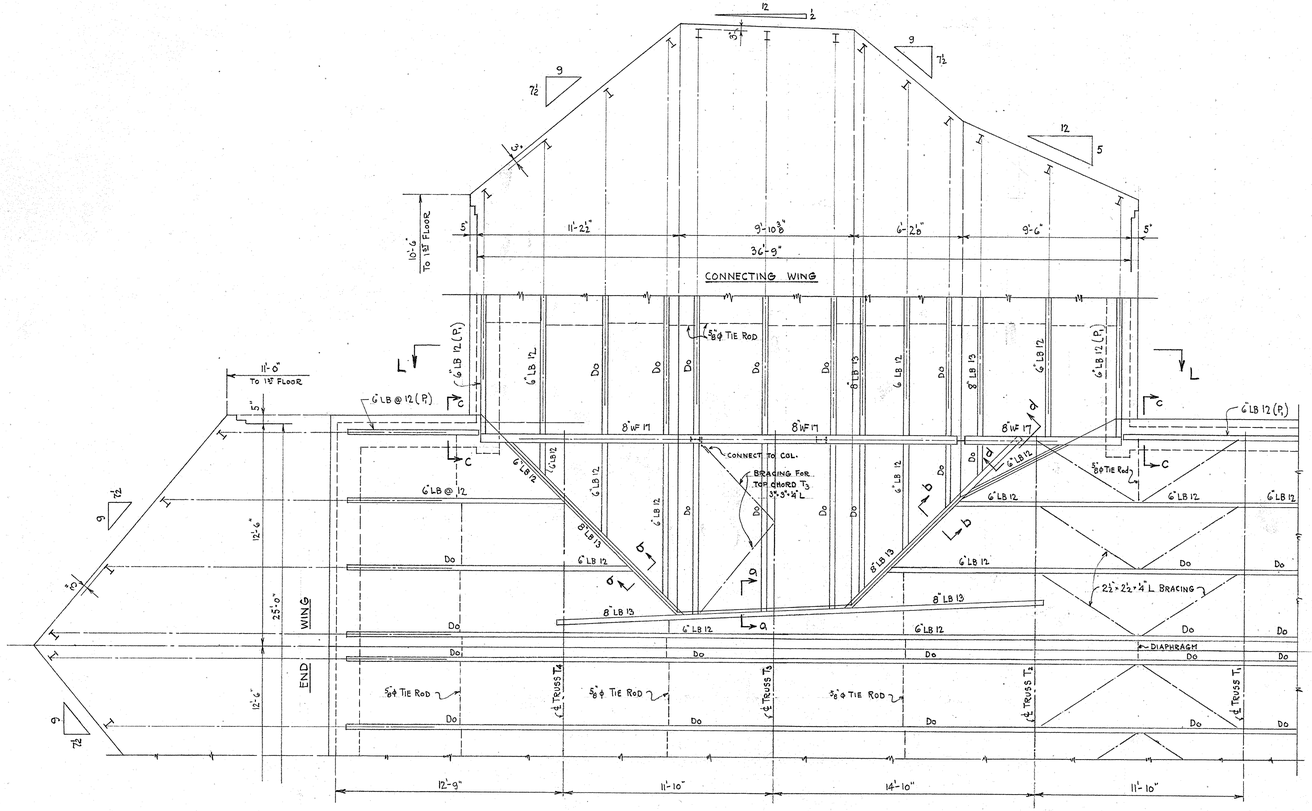
SHEET 18 OF 27

ADMINISTRATION ~ BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAIN NATIONAL PARK
NAME OF PARK OR MONUMENT

DRAWING NO. NP-GSM 2003-C

TRIM LINE

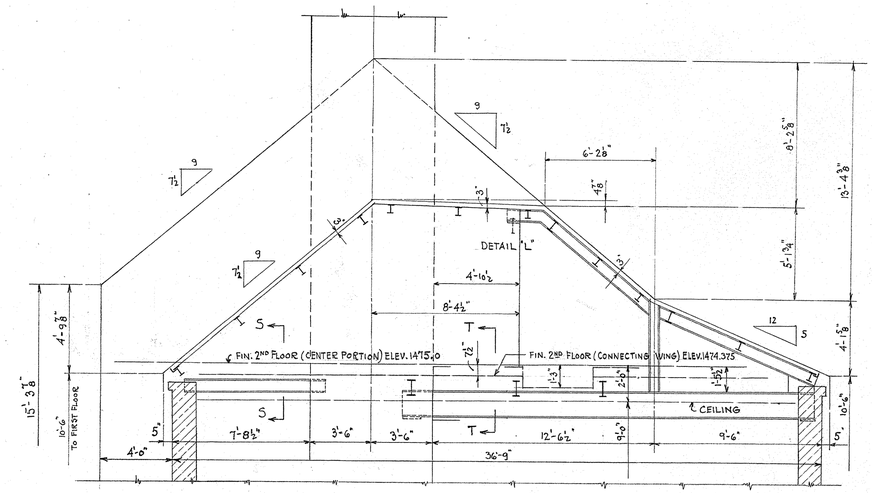
TRIM LINE



PART PLAN OF ROOF FRAMING

SHOWING INTERSECTION BETWEEN CONNECTING WING AND END WING

¼"= 1'-0"

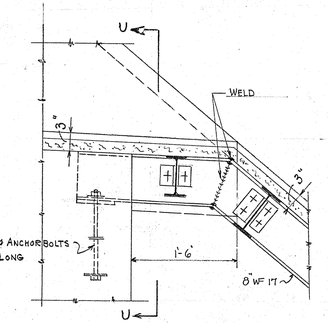


SECTION N-N

FOR LOCATION OF SEE SHEET #

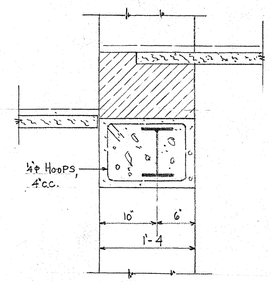
¼"= 1'-0"

0 4' 8' 12' 16'



DETAIL "L"

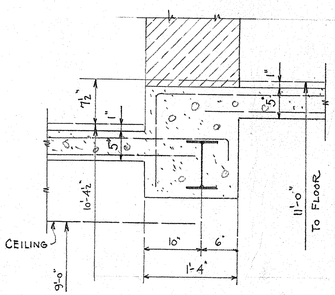
1"= 1'-0"



SECTION U-U

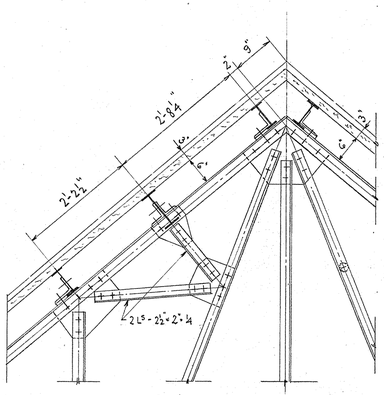
1"= 1'-0"

0 1' 2' 3' 4'



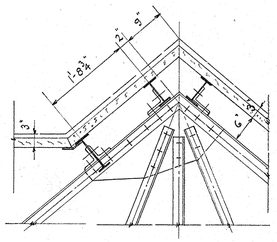
SECTION S-S

1"= 1'-0"



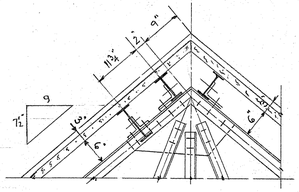
DETAIL OF TRUSS T2

¾"= 1'-0"



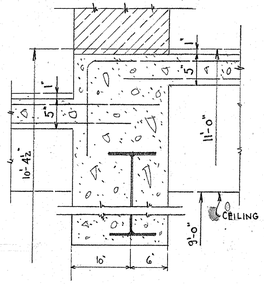
DETAIL OF TRUSS T3

¾"= 1'-0"



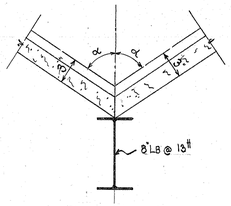
DETAIL OF TRUSS T4

¾"= 1'-0"



SECTION T-T

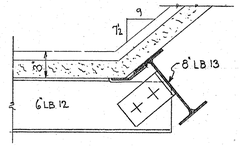
1"= 1'-0"



SECTION b-b

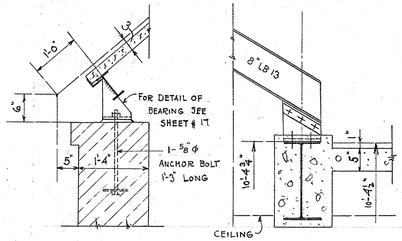
1½"= 1'-0"

0 1' 2' 3'



SECTION a-a

1½"= 1'-0"



SECTION c-c

¾"= 1'-0"

SECTION d-d

¾"= 1'-0"

0 1' 2' 3' 4' 5'

NOTE: FOR PART OF TRUSSES NOT SHOWN SEE SHEET # 17

BASIC DATA

STRUCTURAL : DETAILS OF ROOF FRAMING

SCALE: AS NOTED

M

RECOMMENDED _____ DATE _____	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE
CONCURRED _____ DATE _____	BRANCH OF PLANS AND DESIGN PREPARED BY WASHINGTON OFFICE
APPROVED _____ DATE _____	ADMINISTRATION ~ BUILDING NAME OF JOB; ADMINISTRATIVE AREA LOCATION; GREAT SMOKY MOUNTAIN NATIONAL PARK NAME OF PARK OR MONUMENT

REGION 1

SHEET 19 OF 27

DRAWING NO. NP-GSM 2003-C

CLEARED
For WPB 4-15-39
ROBERTS
ACTING REGIONAL DIRECTOR

REVIEWED
RECREATIONAL PLANNING AND STATE COOPERATION
RESEARCH AND EDUCATION
SANITATION
FORESTRY
HISTORY
ENGINEERING

DESIGNED BY 4/6/39
P.B. DAWSON
DATE FEB. 25, 1938
PLANS AND DESIGN
Albert H. Good 4/11/39
Wayne D. Wells 4/12/39

TRIM LINE

TRIM LINE

U. S. GOVERNMENT PRINTING OFFICE 6—9710

TRIM LINE

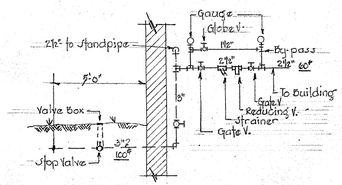
CLEARED
BY WIRE 4-15-39
ROBERTS
REGIONAL DIRECTOR

REVIEWED
RECREATIONAL, PLANNING AND STATE COOPERATION
RESEARCH AND EDUCATION
SANITATION
FORESTRY
HISTORY

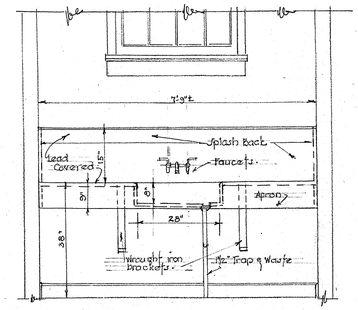
DESIGNED BY
PLANS AND DESIGN
ENGINEERING
DATE 3-31-39

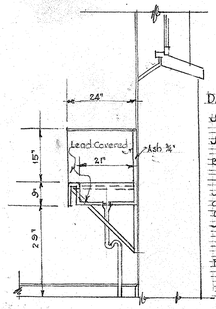
D.S. 4/10/39
A. D. Cotton 4/12/39
Wm. Hubbard Jones 4-17-39
John S. Wood 4/17/39

WATER PRESS. REDUC. VALVE.
No Scale.



UNIT HEATER SCHEDULE.							
	c.f.m.	Total B.T.U.	Outlet Temp.	Motor H.P.	R.P.M.	Supply Valve	Trap
Heater #1	406	36700	145°	1/50	1550	1¼"	½"
" #2	406	36700	145°	1/50	1550	1¼"	½"
" #3	527	47700	134°	1/30	1620	1¼"	½"
" #4	527	47700	134°	1/30	1620	1¼"	½"





DARK ROOM SINK.—
Splash back ends and apron to be ¾" finished ash.
Sink and drain boards to be 1" finished ash.
Brackets to be ⅜"-2" wrought iron, each bracket secured to walls with 3 toggle bolts.
Splash back ends, apron, sink and drain boards to be covered with 4# per sq. ft. (⅛") lead.
Strainer with stopper, trap, and waste line to be of approved acid resisting iron.
Faucets to be similar to Fig. 54 Fed. Spec. WW-P-541 with hose thread on spout.

- DARK ROOM SINK -
Scale ½"=1'-0"

0 2' 4' 6' 8'

NOTES:
The terra cotta (T.C.) stormwater and sanitary sewers are not in the contract.
The cast iron footing drain line shall be installed as a part of the Contract.
Each radiator valve on this floor shall have a ⅜" hole drilled thru the seat to permit passage of condensation.
All radiators on this floor to be 3 Col. 32" high unless noted otherwise.
Column radiator to be legless and hung from the walls with steel radiator brackets.
All riser and radiator connection to be taken from top of steam mains.

BASEMENT PLAN
PLUMBING & HEATING

0 8' 16' 24' 32'
SCALE: ⅛"=1'-0"

MECHANICAL
M

BASIC DATA

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____
For signatures, see sheet #1

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGN
PREPARED BY OFFICE
WASHINGTON, D.C.

ADMINISTRATION BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAIN NATIONAL PARK
NAME OF PARK OR MONUMENT

REGION 1
SHEET 20 OF 27
DRAWING NO. NP-GSM 2003-C

TRIM LINE

U.S. GOVERNMENT PRINTING OFFICE 0—9710

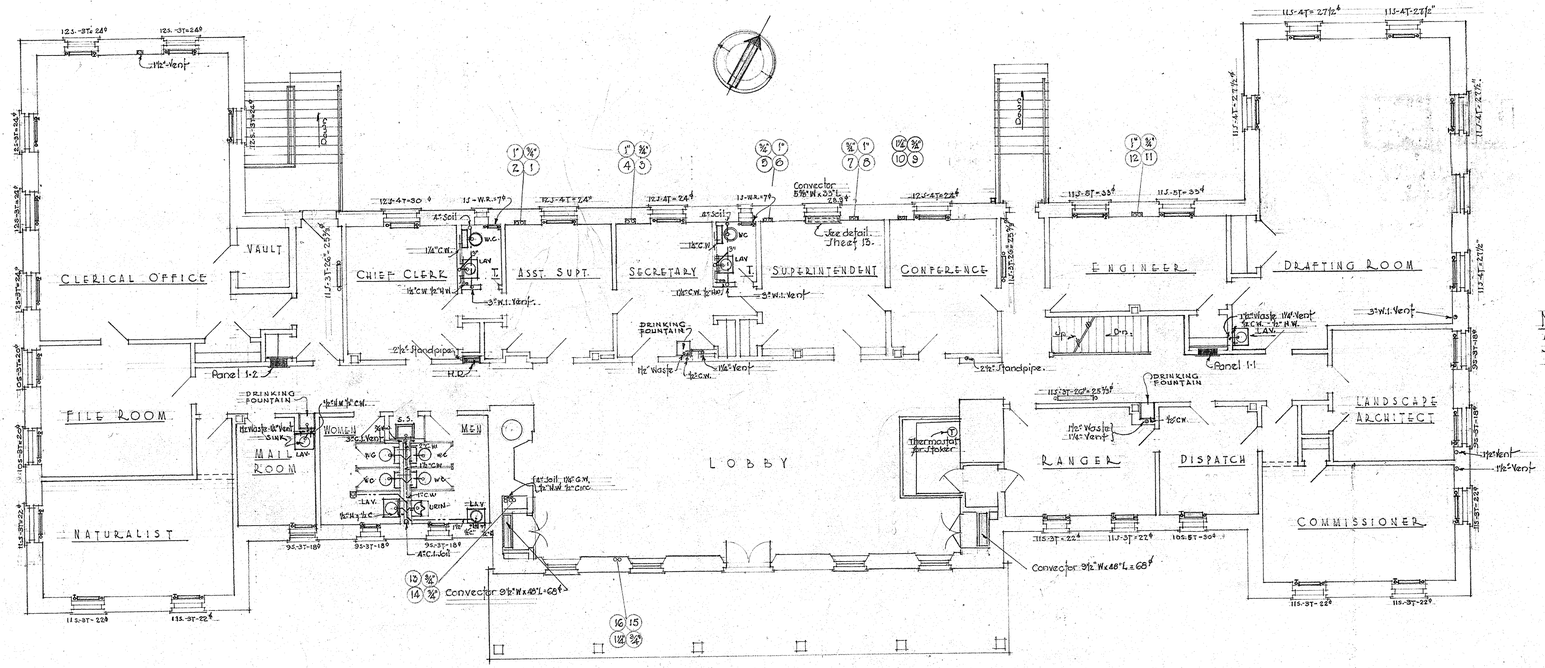
TRIM LINE

CLEARED
by WPR 4-10-39
ROBERTS
Acting
REGIONAL DIRECTOR

RECREATIONAL
PLANNING AND STATE COOPERATION

REVIEWED

		RESEARCH AND EDUCATION	
			SANITATION
	FORESTRY	HISTORY	
DESIGNED BY	4/10/39		
DS			
PLANS AND DESIGN	Albert McCord 4/11/39		
ENGINEERING	Chas. S. Cass 4/12/39		
ANDRAE			
DATE	3-21-39		



NOTE:
All radiators on this floor to be 23" high unless noted.
Soil, waste and water piping shown on this plan to be run on basement ceiling.

FIRST FLOOR PLAN

PLUMBING & HEATING

BASIC DATA

0 8' 16' 24' 32'
SCALE 1/8" = 1'-0"

MECHANICAL

M

RECOMMENDED _____ DATE _____	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE	REGION 1
CONCURRED _____ DATE _____	PREPARED BY OFFICE BRANCH OF PLANS AND DESIGN WASHINGTON, D.C.	SHEET 21 OF 27
APPROVED _____ DATE _____	NAME OF JOB ADMINISTRATIVE AREA LOCATION GREAT SMOKY MOUNTAIN NATIONAL PARK NAME OF PARK OR MONUMENT	DRAWING NO. NP-GSM 2003-C

FOR SIGNATURES, SEE SHEET #1.

TRIM LINE

U. S. GOVERNMENT PRINTING OFFICE 0—9710

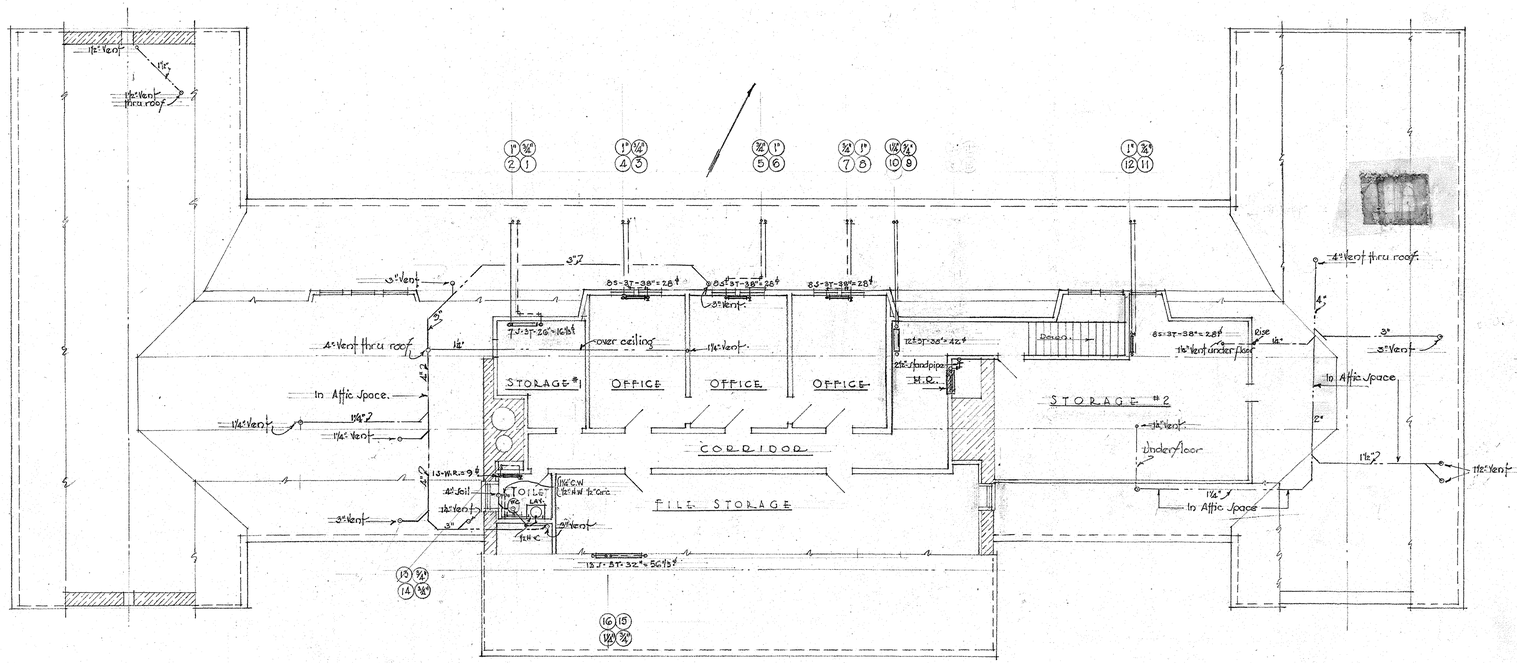
TRIM LINE

CLEARED
by DJSE 4-13-39
ROBERTS
Acting
REGIONAL DIRECTOR

RECREATIONAL PLANNING AND STATE COOPERATION

REVIEWED
RESEARCH AND EDUCATION 4/13/39
SANITATION
FORESTRY 4/11/39
HISTORY 4/10/39

DESIGNED BY 4/11/39
DRAWING
PLANS AND DESIGN 4/11/39
APPROVED
DATE 3-31-39



NOTE:
Each 3 Tube 38" radiator to have one approved bracket secured to wall to prevent tilting of radiator.

SECOND FLOOR PLAN

PLUMBING & HEATING

MECHANICAL.

M

0 8' 16' 24' 32'

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

BASIC DATA

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____
FOR SIGNATURES SEE SHEET 1

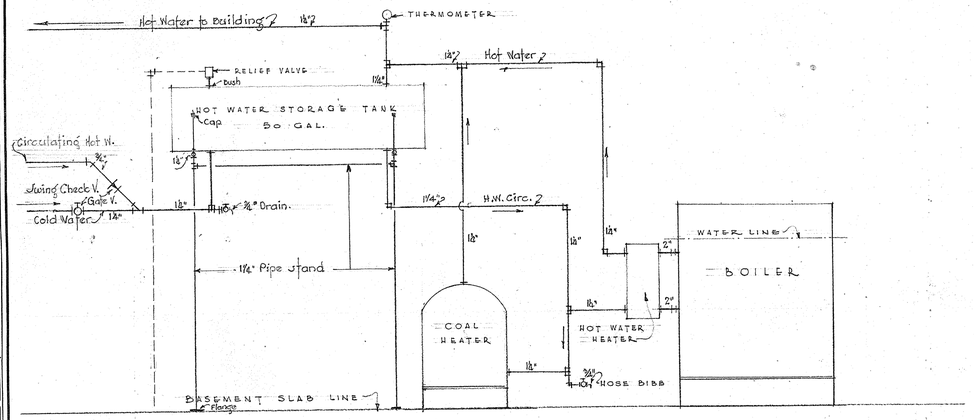
UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
PREPARED BY
BRANCH OF PLANS AND DESIGN
OFFICE
WASHINGTON, D.C.

REGION 1
SHEET 22 OF 27
DRAWING NO. NP-GSM 2003-C

NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAIN NATIONAL PARK
NAME OF PARK OR MONUMENT

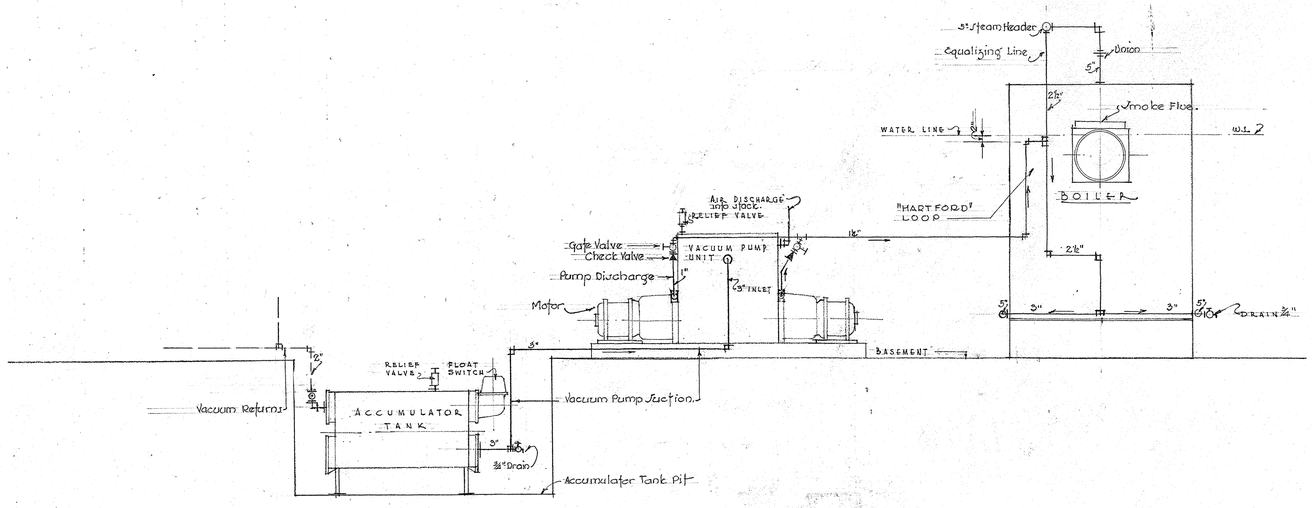
TRIM LINE

U. S. GOVERNMENT PRINTING OFFICE 0—9720



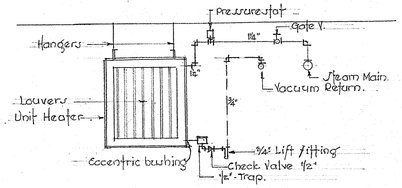
DOMESTIC HOT WATER PIPING DIAGRAM

No Scale.



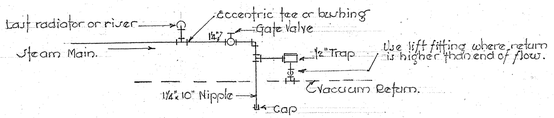
BOILER PIPING DIAGRAM

No Scale.



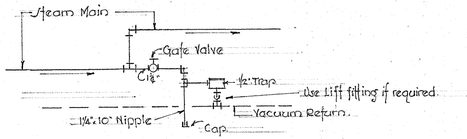
UNIT HEATER PIPING

No Scale.



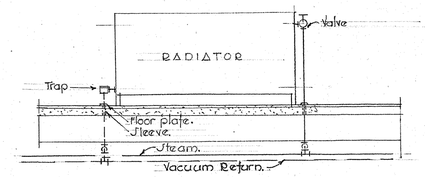
DRIP CONNECTION

No Scale.



RISE IN STEAM MAIN

No Scale.



RADIATOR CONNECTIONS

No Scale.

SYMBOLS.

	Radiator.
	Gate Valve.
	Check Valve.
	Steam Main.
	Vac. Return.
T	Thermostat.
	Cold Water.
	Hot Water.
	Circulating Water.
	Soil and waste lines.
W.H.Y.	Wall Hydrant.
H.R.	Hose Rack.
C.I.	Cast Iron.
W.I.	Wrought Iron.
T.C.	Terra Cotta.
C.W.	Cold Water.
H.W.	Hot Water.
Circ.W.	Circulating Water [Hot]

MECHANICAL DETAILS.

SCALE AS NOTED.

M

CLEARED
By MIKE ROBERTS 4-10-38
Acting REGIONAL DIRECTOR

REVIEWED
RECREATIONAL PLANNING AND STATE COORDINATION
RESEARCH AND EDUCATION
FORESTRY
HISTORY
ENGINEERING
4/11/38 Albert Stafford 4/11/38
4/12/38 W. D. Cuffman 4/12/38
4/11/38 Ernest J. Reed 4/11/38
4/11/38 W. R. D. Hughes

DESIGNED BY ANDRAE
DRAWN BY DS
TRACED BY
CHECKED BY
DATE 3-31-38.

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____
FOR SIGNATURES SEE SHEET #1

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
PREPARED BY BRANCH OF PLANS AND DESIGN
OFFICE WASHINGTON, D. C.

REGION 1

SHEET 25 OF 27

NAME OF JOB ADMINISTRATION BUILDING
LOCATION ADMINISTRATIVE AREA
NAME OF PARK OR MONUMENT GREAT SMOKY MOUNTAIN NATIONAL PARK

DRAWING NO. NP-GSM 2003-C

BASIC DATA

TRIM LINE

CLEARED
by WIRE 4-13-39
ROBERTS
ACTING REGIONAL DIRECTOR

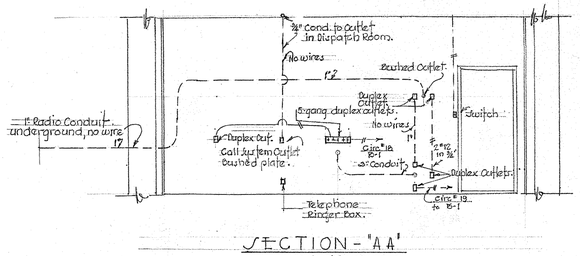
REVIEWED

PLANNING AND STATE COORDINATION			RESEARCH AND EDUCATION		SANITATION
RECREATIONAL PLANNING		FORESTRY		HISTORY	

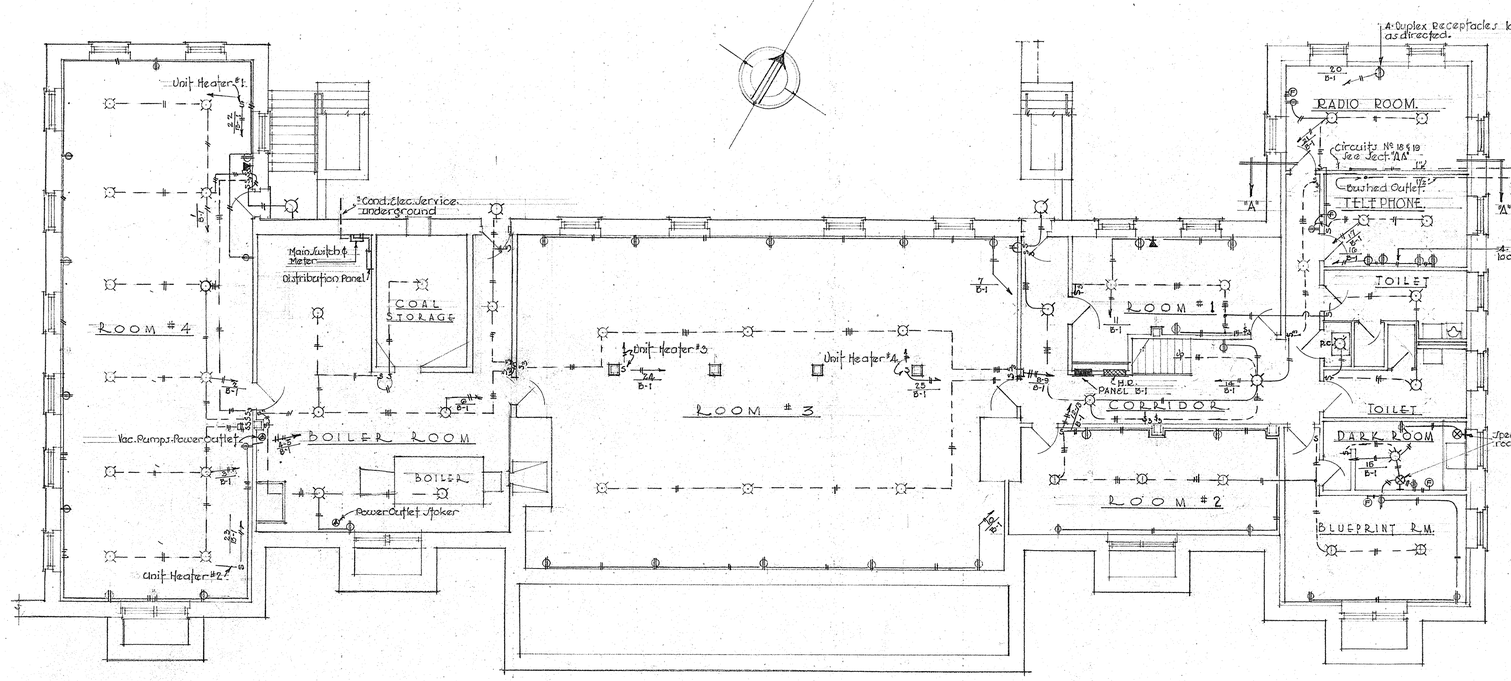
DESIGNED BY

	4/11/39				
PLANS AND DESIGN	[illegible]	4/12/39			
ENGINEERING	[illegible]	4/13/39			

DRAWN BY A.W.D. & A.E.
DATE 3-31-39.



SECTION - "AA"
Scale 1/2"=1'0"



BASEMENT PLAN

ELECTRICAL

NOTES:-
For exposed and concealed conduit see specifications and room finish schedule on Sheet No 2.

MECHANICAL

M

0 8' 16' 24' 32'
SCALE: 1/8" = 1'-0"

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____
FOR SIGNATURES, SEE SHEET 1

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGN
PREPARED BY OFFICE
WASHINGTON, D.C.

REGION 1
SHEET 24 OF 27.
DRAWING NO. NP-GSM 2003-C

ADMINISTRATION BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAIN NATIONAL PARK
NAME OF PARK OR MONUMENT

BASIC DATA

TRIM LINE

U. S. GOVERNMENT PRINTING OFFICE 6—9719

TRIM LINE

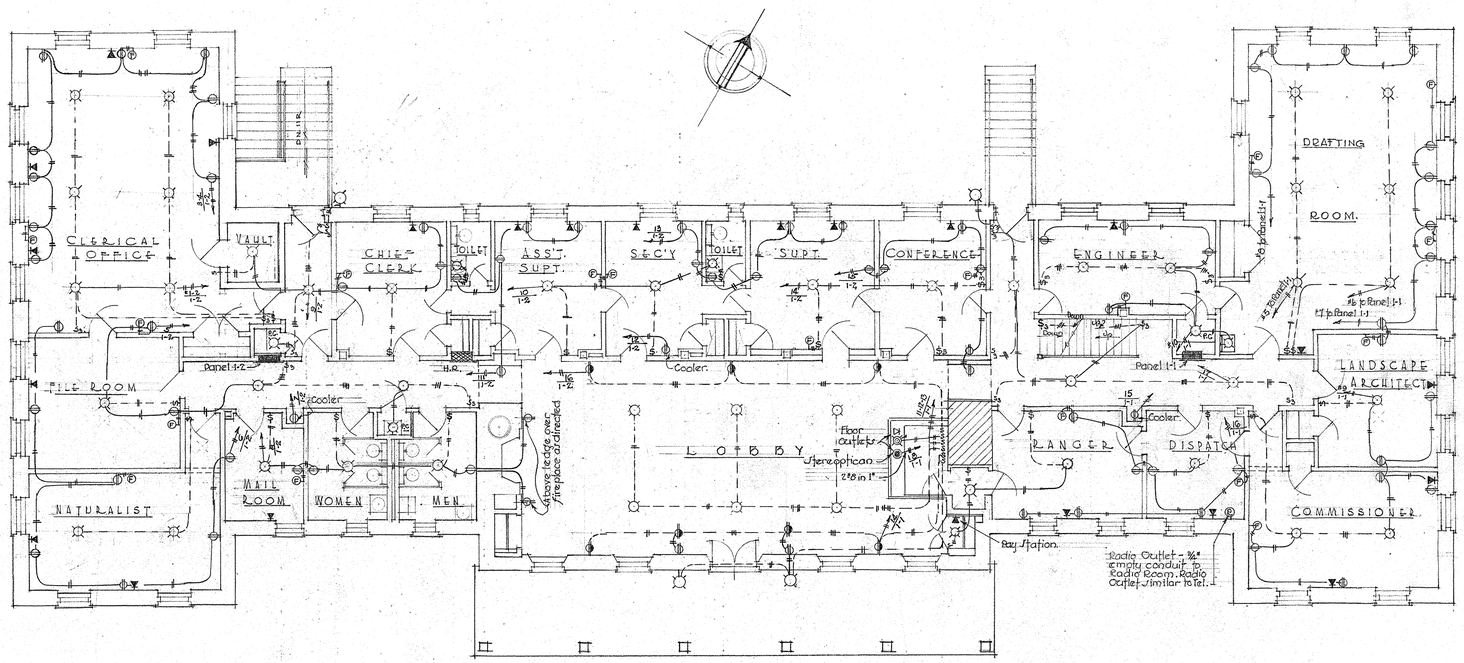
CLEARED
BY MISS ROBERTS 4-19-39
ACTING REGIONAL DIRECTOR

RECREATIONAL PLANNING AND STATE COOPERATION

REVIEWED

DESIGNED BY	PLANS AND DESIGN	FORESTRY	HISTORY	ENGINEERING
4/10/39	4/10/39			
ANDREAE	Alfred Tingwall			
DATE	DATE			
3-31-39.	4/10/39	4/10/39	4/10/39	

RESEARCH AND EDUCATION — 4/13/39
SANITATION — 4/13/39



NOTE—
Receptacles shown thus ⊕ to be set near ceiling as directed.

FIRST FLOOR PLAN

ELECTRICAL

MECHANICAL

M

0 8' 16' 24' 32'

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

BASIC DATA

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____
FOR SIGNATURES, SEE SHT 1.

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGN
PREPARED BY
WASHINGTON, D. C.
OFFICE

ADMINISTRATION BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAIN NATIONAL PARK
NAME OF PARK OR MONUMENT

REGION 1
SHEET 25 OF 27
DRAWING NO. NP-GSM 2003-C

TRIM LINE

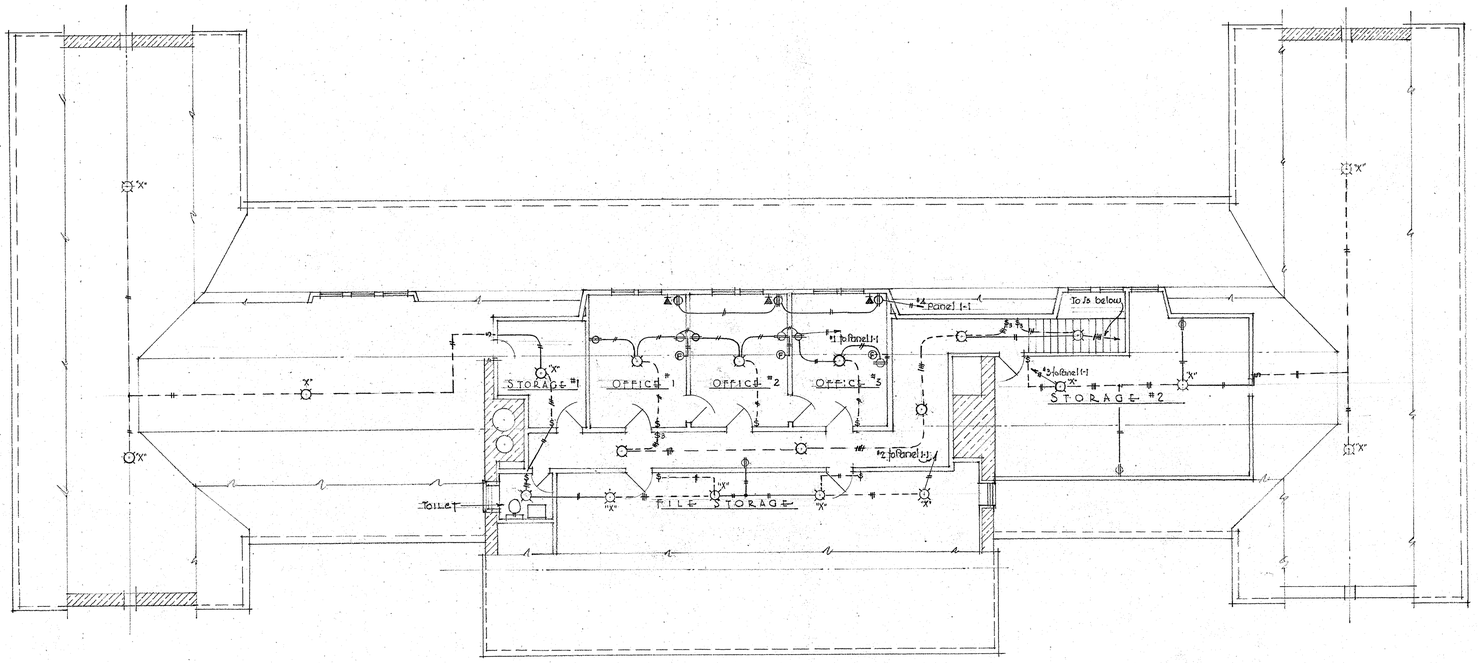
U. S. GOVERNMENT PRINTING OFFICE 0—9710

TRIM LINE

CLEARED
by WRE 4-13-39
ROBERTS
ACTING
REGIONAL DIRECTOR

REVIEWED
RECREATIONAL PLANNING AND STATE COOPERATION
PLANNING
PLANS AND DESIGN
ENGINEERING
RESEARCH AND EDUCATION
SANITATION
FORESTRY
HISTORY

DESIGNED BY
4/10/39
D.S.
PLANS AND DESIGN
ANDREE
DATE
3-31-39.
ENGINEERING



NOTE
Outlets marked 'X' to have keyless porcelain socket and outlet cover.

SECOND FLOOR PLAN

ELECTRICAL

MECHANICAL

M

0 8' 16' 24' 32'

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

BASIC DATA

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____
FOR SIGNATURES - SEE SHEET #1.

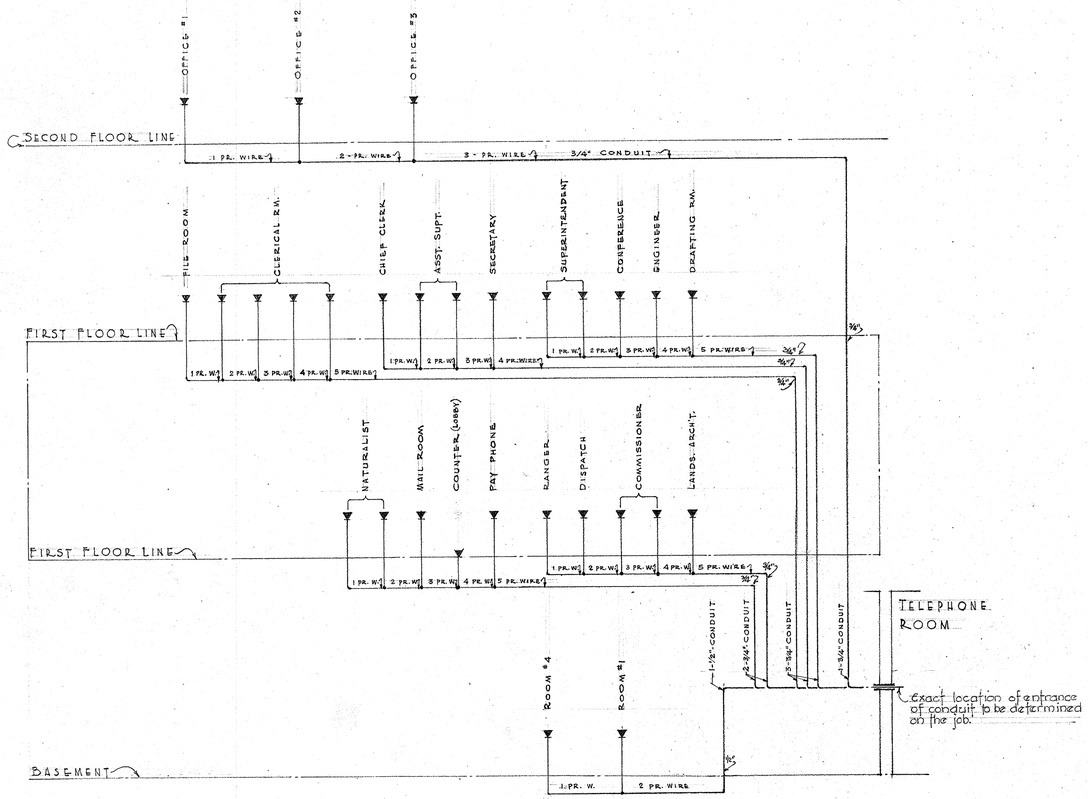
UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
PREPARED BY
BRANCH OF PLANS AND DESIGN
WASHINGTON, D. C.
OFFICE

NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAIN NATIONAL PARK
NAME OF PARK OR MONUMENT

REGION
1
SHEET 26 OF 27
DRAWING NO.
NP-GSM
2003-C

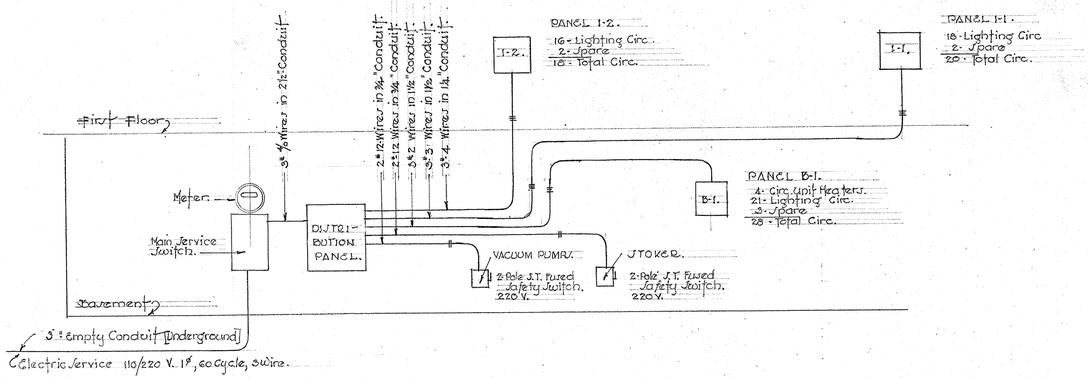
TRIM LINE

U. S. GOVERNMENT PRINTING OFFICE 0—9713



TELEPHONE WIRING DIAGRAM

(NO SCALE)



WIRING DIAGRAM

No Scale.

BASIC DATA

SYMBOLS

	Ceiling Outlet.
	Wall Outlet.
P.C.	Pull chain outlet.
	Floor receptacle.
	Telephone Outlet.
F	Fan Outlet & Switch.
R	Radio Outlet
	Stereoptican Outlet.
	Power Outlet.
S_1	Single Pole Switch.
S_3	Three Way Switch.
	Duplex Receptcacle.
	Conduit and number of wires.
	Switch leg and number of wires.
15	Circuit numbers

MECHANICAL WIRING DIAGRAMS

SCALE: AS NOTED.

M

CLEARED
by WIRE 4-15-35
ROBERTS
ACTING REGIONAL DIRECTOR

RECREATIONAL PLANNING AND STATE COOPERATION

REVIEWED
RESEARCH AND EDUCATION 4/13/35
SANITATION
FORESTRY 4/10/35
HISTORY 4/17/35
ENGINEERING 3-21-35

DESIGNED BY 4/10/35
DRAWN BY
TRACED BY
CHECKED BY
QUANTITIES BY
PLANS AND DESIGN
DATE

RECOMMENDED _____ DATE _____
CONCURRED _____ DATE _____
APPROVED _____ DATE _____
FOR SIGNATURES, SEE SHEET #1

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGN
PREPARED BY
WASHINGTON, D.C.
OFFICE

REGION 1

SHEET 27 OF 27

ADMINISTRATION BUILDING
NAME OF JOB
ADMINISTRATIVE AREA
LOCATION
GREAT SMOKY MOUNTAIN NATIONAL PARK
NAME OF PARK OR MONUMENT

DRAWING NO.
NP-GSM
2003:C

Appendix B: Natural Hazards Checklist

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Addressing Climate Change and Natural Hazards

Facility Planning and Design Considerations
January 2015

Stop 1: Natural Hazard Checklist

Excerpt: Level 3 Handbook

STOP 1. Natural Hazard Checklist

The checklist below is a screening tool to be used at the earliest stages of facility planning to determine the most likely natural hazards a project may confront. This general information may help project teams assess which natural hazards may be applicable for a particular project early in the facility planning and design process. As the effort continues site specific information may be required to make a determination for any of the hazards.

The checklist should be completed with input from appropriate Park personnel and specialists. If considerable questions remain about the applicability of specific hazard, contact the appropriate Region or WASO specialist.

For each of the natural hazards listed below, the person(s) completing the checklist should indicate whether the hazard:

1) Is applicable and could pose a risk to the project and/or needs more information for a determination.

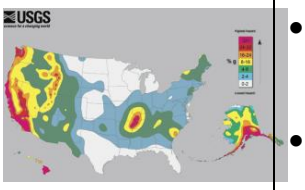
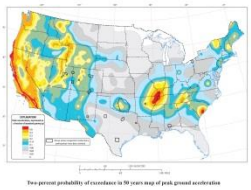
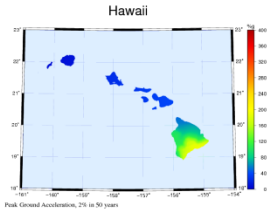
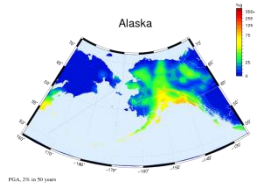
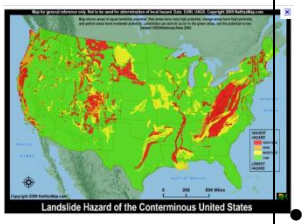
2) Is not applicable to the project for the following reason(s)

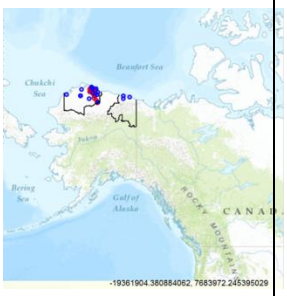
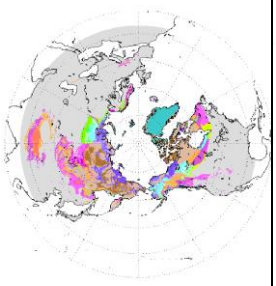
    a) Hazard does not occur due to geologic setting (e.g., no volcanoes or permafrost are present in Florida).

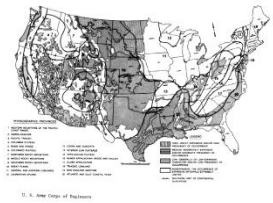
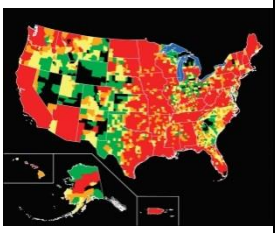
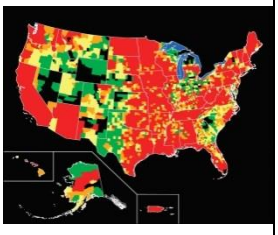
    b) A previous hazard assessment concluded this hazard was not applicable at this location.

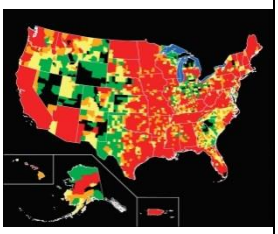
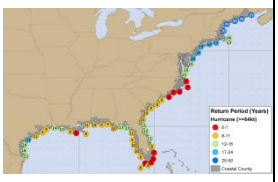
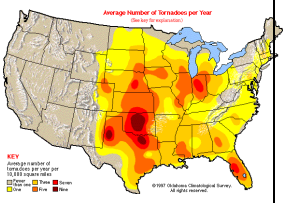
The project's checklist can be updated at various project milestones as more information is developed. By the time a team completes the schematic design phase the natural hazards applicable to the project should be identified and the checklist should no longer reflect uncertainty associated with any of the hazards listed. To achieve this level of understanding natural hazard assessment(s) may be needed for the project site.

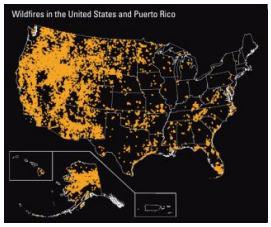
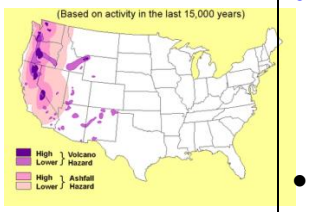
Future versions of this handbook may address additional hazards.

Natural Hazard Checklist				
Potential Natural Hazard	Risk or secondary hazard	Sources of General Non-site specific Data	Sources for Site Specific Data	Best Professional Judgment
Earthquake	• Falling objects. • Collapsing structures. • Inoperability of major building systems e.g. power, sewer, water. • Liquefaction; loss of strength to foundations, silt deposition, standing water. • Trigger to other hazards e.g. landslides, debris flows.	   	• International Building Code • USGS: 2009 Earthquake Probability Mapping • State based mapping e.g. WA liquefaction susceptibility and site class maps. • NPS Technical Support	Potential Hazard [X] Not applicable [ ]
Landslide/ Avalanche	• Rockfall. • Mud or debris slides or flows onto structures. • Mud or debris slides or flows from under structures. • Snow avalanche.		• State geological surveys e.g. CA landslide mapping. • NPS Technical Support	Potential Hazard [X] Not applicable [ ]

Natural Hazard Checklist				
Potential Natural Hazard	Risk or secondary hazard	Sources of General Non-site specific Data	Sources for Site Specific Data	Best Professional Judgment
Permafrost	• Melting. • Surface collapse. • Increased landslide susceptibility.	 	• Global Permafrost Zonation Index Map • NPS Technical Support	Potential Hazard ☐ Not applicable ☒
Cave/Karst (sinkholes)	• Surface collapse • Contamination • Abandoned Mineral Lands (AML) features	 	• State geological hazards maps. • AML features • NPS Technical Support – Cave and Karst; Abandoned Mineral Lands	Potential Hazard ☒ Not applicable ☐

Natural Hazard Checklist				
Potential Natural Hazard	Risk or secondary hazard	Sources of General Non-site specific Data	Sources for Site Specific Data	Best Professional Judgment
Shrink/ Swell soils	• Damage to structure • "heaving" of ground beneath structure • Increased landslide susceptibility		• State geological survey site-specific information • NPS Soil Resources Inventory • NPS Technical Support	Potential Hazard [X] Not applicable [ ]
Coastal Storm Surge	• Rising Sea Levels • Rising Water – Wind Driven (i.e. hurricane, nor'easter)		• FEMA Map Service Center • NPS Technical Support	Potential Hazard [ ] Not applicable [X]
Tsunami	• Coastal area inundation associated with earthquakes or undersea landslides.		• State Tsunami Inundation Mapping e.g. OR Tsunami Clearinghouse • National Tsunami Watch Center • NPS Technical Support	Potential Hazard [ ] Not applicable [X]
Riverine Flood	• Flooding (i.e. snowmelt, rainfall, etc.) • Destruction of infrastructure. • Stream channel migration. • Stream bank erosion.		• FEMA Map Service Center • NPS Technical Support	Potential Hazard [X] Not applicable [ ]

Natural Hazard Checklist				
Potential Natural Hazard	Risk or secondary hazard	Sources of General Non-site specific Data	Sources for Site Specific Data	Best Professional Judgment
Flash Flood	• Sudden rising water (i.e. dry wash) • Loss of life due to unexpected flooding.		• May require a special flood study • NPS Technical Support	Potential Hazard ☒ Not applicable ☐
Hurricane	• High wind speed. • Flying debris. • Storm Surge.		• Wind Speed data – from local codes • International Building Code • FEMA Map Service Center • NPS Technical Support	Potential Hazard ☐ Not applicable ☒
Tornado	• Extreme wind speed • Flying debris		• International Building Code • Limited Data for Local Application • NPS Technical Support	Potential Hazard ☒ Not applicable ☐

Natural Hazard Checklist				
Potential Natural Hazard	Risk or secondary hazard	Sources of General Non-site specific Data	Sources for Site Specific Data	Best Professional Judgment
Wildfire	• Fire and Heat. • Smoke.		• International Wildland-Urban Interface Code • Limited Data for Local Application • NPS Technical Support *Note: This link routes to an NPS intranet site which is only accessible within the NPS network.*	Potential Hazard ☐ Not applicable ☒
Volcanic Eruption	• Lava Flows • Fire • Volcanic Secondary Hazards *Note: This link routes to an NPS intranet site which is only accessible within the NPS network.* • Toxic gas releases		• USGS Volcano Hazards Program • NPS Technical Support	Potential Hazard ☐ Not applicable ☒
Hydro-thermal Activity (e.g., geysers	• Toxic gas release. • Explosion. • Boiling water • Steam. • Surface collapse into void.	TBD	• Air quality issues and monitoring, including real-time for select locations. • NPS Technical support	Potential Hazard ☐ Not applicable ☒

Natural Hazard Checklist				
Potential Natural Hazard	Risk or secondary hazard	Sources of General Non-site specific Data	Sources for Site Specific Data	Best Professional Judgment
Pest Infestation	• Historic/ Facility Fabric Loss • Vegetation Loss • Fauna Impacts • Infection • Injury	TBD	• Integrated Pest Management • NPS Technical Support	Potential Hazard [X] 1-14% Not applicable [ ]

Appendix C: Hazardous Materials Report

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Environmental Consulting Services
Hazardous Materials Survey

Sugarlands Headquarters Rehabilitation
Great Smoky Mountains National Park
107 Park Headquarters Road
Gatlinburg, Sevier County, Tennessee
PMIS GRSM 149368

December 12, 2018
Terracon Project No.: E2187166

Prepared for:
National Park Service – Denver Service Center
Contract: NPS SE Region IDIZ 2016-2020

&

Quinn Evans Architects
Ann Arbor, Michigan

Prepared by:
Terracon Consultants, Inc.
Chattanooga, Tennessee

December 12, 2018

Quinn Evans Architects
In care of the National Park Service
219½ North Main Street
Ann Arbor, MI 48104

Attention: Mr. Patrick M. Roach
Email: proach@quinnevans.com

RE: Environmental Consulting Services
Hazardous Materials Survey
Sugarlands Headquarters Rehabilitation
Great Smoky Mountains National Park
107 Park Headquarters Road
Gatlinburg, Sevier County, Tennessee
PMIS GRSM 149368
Terracon Project No.: E2187166

Dear Mr. Roach:

The purpose of this report is to present the results of a hazardous materials survey performed at the National Park Service Sugarlands Headquarters building in the Great Smoky Mountains National Park located at 107 Park Headquarters Road in Gatlinburg, Sevier County, Tennessee. This survey was conducted in general accordance with Terracon Proposal No. PE2187166, dated August 3, 2018, and Client-authorized on October 10, 2018. We understand that this survey was requested due to planned renovation of the building.

This report contains the findings from our survey. Please refer to the attached report for details.

Terracon Consultants, Inc. (Terracon) appreciates the opportunity to provide this service to National Park Service & Quinn Evans Architects. If you have any questions regarding this report, or if you need assistance with project observation and sampling during abatement prior to renovation of the building, please contact the undersigned at 423-499-6111.

Sincerely,

Terracon

Brian W. Watson
Senior Environmental Scientist
State of Tennessee Accreditation A-I-48492-64206
Expiration Date: January 31, 2019

Joseph A. Tussey, CHMM
Authorized Project Reviewer
Sr. Associate / Group Manager

TABLE OF CONTENTS

Page No.

LIST OF APPENDICES

HAZARDOUS MATERIALS SURVEY
Sugarlands Headquarters Rehabilitation
107 Park Headquarters Road
Gatlinburg, Sevier County, Tennessee
PMIS GRSM 149368
Terracon Project No. E2187166
December 12, 2018

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) conducted a hazardous materials survey at the National Park Service Sugarlands Headquarters building in the Great Smoky Mountains National Park located at 107 Park Headquarters Road in Gatlinburg, Sevier County, Tennessee. The sampling was conducted on October 29-31, 2018, in general accordance with Terracon Proposal No. PE2187166, dated August 3, 2018, and Client-authorized on October 10, 2018. Terracon understands that this survey was requested due to the planned renovation of the building.

At the time of the site visit, Terracon personnel utilized a drawing of the Headquarters from the Great Smoky Mountains National Park (Drawing No. GRSM 133 60113, dated August 19, 2014). The drawing is provided in Appendix I. The drawing is schematic in nature, and is only for the use with this report, and may or may not match the plans of National Park Service & Quinn Evans Architects.

Interior and exterior building components and surfaces were inspected for homogeneous areas of suspect asbestos-containing materials (ACM) and lead-containing paint and/or stain (LCP). A homogeneous area consists of building materials and surfaces which appear similar throughout in terms of color, texture and date of application. Although reasonable effort was made to survey accessible suspect materials and surfaces, additional suspect but un-sampled materials and surfaces could be located in walls, in voids or in other concealed areas.

Other hazardous materials were also assessed and documented. For the purpose of this report, other hazardous materials consist of: potential polychlorinated biphenyl (PCB)-containing equipment such as pre-1979 magnetic lighting ballasts and transformers, mercury-containing equipment such as fluorescent light bulbs, high intensity discharge lamps, switches, thermostats, and manometers; air conditioning equipment which contain chlorofluorocarbons (CFCs); tanks, piping, and sumps associated with chemical and petroleum storage; batteries; and, chemical based fire suppression systems. In addition, stock items (stored goods) will also be inventoried if present. Stock items may include, but are not limited to: ballasts, mercury containing thermometers and switches, fire-fighting chemicals, paints, oils, lubricants, etc. that

are stored in central locations. Terracon also conducted short-term radon testing to evaluate the potential for radon at the site.

1.1 Project Objective

Terracon understands that the Sugarlands Headquarters building will be renovated. The objective of this survey is to determine the presence or absence of hazardous materials that may be impacted by the impending renovation project. Only the Sugarlands Headquarters building was assessed for this report.

1.1.1 Asbestos:

Environmental Protection Agency (EPA) regulation 40 Code of Federal Regulations (CFR) 61.140, National Emission Standards for Hazardous Air Pollutants (NESHAP), prohibits the release of asbestos fibers to the atmosphere during renovation or demolition activities. The asbestos NESHAP requires that potentially regulated asbestos-containing materials be identified, classified and quantified prior to planned disturbances or demolition activities.

Suspect ACM samples were collected in general accordance with the sampling protocols outlined in EPA regulation 40 CFR 763 (Asbestos Hazard Emergency Response Act, AHERA). Samples were delivered to an accredited laboratory for analysis by polarized light microscopy (PLM).

1.1.2 Lead-Containing Paint:

The Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1926.62 established airborne lead concentration limits for the construction industry. OSHA has not established limits for lead content in bulk materials. Their interpretation on this issue is that any amount of lead may cause airborne concentrations above the established limits. Therefore, during renovation or demolition activities, which may disturb lead, employees must be protected from lead exposures.

Suspect LCP samples were collected to meet informational needs to comply with OSHA requirements for lead-in-air content during disturbance of the leaded materials. The survey was not designed to meet the requirements of the U.S. Department of Housing and Urban Development (HUD).

1.1.3 Other Hazardous Materials:

OSHA, EPA, and the Department of Transportation (DOT) govern the handling, removal, transporting and disposal of materials/equipment containing mercury, batteries, CFCs and PCBs during renovation or demolition projects.

Other hazardous materials were visually assessed in the Sugarlands Headquarters building. Fluorescent, sodium, high intensity, and mercury vapor lamps, as well as in thermostats and electrical switches, if present, were observed for potential mercury-content. Fluorescent light fixtures and transformers were observed for potential PCB-containing ballasts. Additionally, PCBs may be present in items such as caulking and glazing materials; if present, a representative bulk sample was collected for PCB analysis. Air conditioning and refrigeration units were observed for potential CFC-content.

1.1.4 Radon:

Radon is a naturally occurring radioactive gas produced through the natural decay of uranium to stable lead. It is odorless, tasteless, and invisible. Elevated concentrations of radon can be found in soils and rocks containing uranium, granite, shale, phosphate, and pitchblende. Locations of these materials are highly unpredictable. Elevated levels of radon may also be found in soils containing certain types of industrial wastes, such as the by-products from uranium or phosphate mining. Radon can accumulate inside structures at concentrations that may pose risks to human health. Indoor radon levels are influenced by building construction and the concentration of radon in the underlying soil.

Short-term radon testing was conducted at the site to determine actual radon concentrations.

2.0 BUILDING DESCRIPTION

The Sugarlands Headquarters is a multi-story building (3 levels) that was initially constructed between 1939 and 1940 with various renovations performed over the intervening years. The three levels consist of a basement, the main level (1st Floor), and the 2nd Floor (attic).

The basement level consists of 7,000 square feet, containing numerous offices, restrooms, a breakroom, a utility room, and a hallway corridor. The main level consists of 7,000 square feet, containing a lobby, conference room, numerous offices, restrooms, human resources, and a hallway corridor. The 2nd Floor consists of 2,800 square feet containing, mechanical/storage areas, a vault, a breakroom, a restroom, and numerous offices.

The roof system of the building appears to be sloped slate roof over a gypsum and wood fiber deck. There is one individual condenser unit located on the eastern façade of the building and one window mounted heating, ventilation, and air conditioning (HVAC) unit on the western façade of the building. The HVAC mechanical systems are located in the basement and 2nd Floor of the building. The exterior of the building is stone with wood framed windows and doors.

The flooring in the interior of the building consists of vinyl composite tile (VCT), ceramic tile, carpet, marble, and unfinished concrete. The interior walls of the building consist of painted concrete block, plaster, plywood paneling, and gypsum board over wood studs. Ceilings in the building consist of plaster, gypsum board, and ceiling tile.

3.0 FIELD ACTIVITIES

Terracon representative Mr. Steve Akins, a trained and Tennessee-accredited asbestos building inspector, conducted the hazardous materials survey. The asbestos portion of the survey was conducted in general accordance with the protocols established by EPA regulation 40 CFR 763, the Asbestos Hazard Emergency Response Act (AHERA). The lead-containing paint survey was conducted to meet informational needs to comply with OSHA requirements with the Lead in Construction Standard (29 CFR 1926.62). The lead paint survey was not designed to meet the requirements of the HUD. The survey of other hazardous materials was conducted to meet informational needs to comply with OSHA, EPA, State, and Local requirements. A summary of the field activities is described below.

3.1 Visual Assessment

Our survey activities began with a visual observation of the accessible interior locations of the building, which will be impacted by the impending renovation project, to identify asbestos-containing materials, lead-containing paint, and other hazardous materials. Building materials that were not identified as concrete, glass, wood, masonry, metal or rubber were considered suspect ACM. All painted surfaces were suspected of containing lead. A visual assessment of each painted surface was conducted to assess its condition. The painted surfaces were assessed as good, fair or poor condition depending on degrees of cracking, peeling or chipping. Fluorescent lamps and thermostats were observed for potential mercury-content. Fluorescent light fixtures were also observed for potential PCB-containing ballasts (observations for potential PCB-containing materials such as caulking and glazing were also included). A visual assessment was also conducted for tritium exit signs. Any existing air conditioning units and refrigerators were observed for potential CFCs.

3.2 Physical Assessment

3.2.1 Asbestos:

A physical assessment of each homogeneous area of suspect ACM was conducted to assess the friability and condition of the materials. A friable material is defined by the EPA as a material which can be crumbled, pulverized or reduced to powder by hand pressure when dry. Friability was assessed by physically touching suspect materials.

3.2.2 Lead-Containing Paint:

A physical assessment was conducted to identify painted areas. Surface-by-surface visual inspection of the painted surfaces throughout the building was performed to determine which painted surfaces components are deteriorated.

Based on our physical assessment, the painted components sampled were determined to be “intact” and/or in “good” condition at the time of our inspection.

3.2.3 Other Hazardous Materials:

Where necessary, the equipment was partially disassembled to gain access to labels that may indicate the presence or absence of hazardous constituents. No other physical assessment was performed.

3.2.4 Radon

Terracon reviewed the United States Geological Society (USGS) Preliminary Geologic Radon Potential Assessment of Tennessee (Open-file Report 93-292-D) to identify the site location in terms of potential for average indoor radon concentrations. Sevier County, Tennessee is located in USEPA Radon Zone 2, which is defined as an area with an average indoor radon concentration between 2.0 to less than 4.0 pCi/L of air. Testing was conducted at the site to determine actual radon concentrations.

3.3 Sample Collection

3.3.1 Asbestos:

Based on results of the visual observation, bulk samples of suspect ACMs were collected. The Terracon representative collected bulk samples using wet methods as applicable to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker. Seventy-eight (78) bulk samples were

collected from twenty-six (26) homogeneous areas of suspect ACM. A summary of suspect ACM samples collected during the survey is included as Appendix A

3.3.2 Lead-Containing Paint:

Based on results of the visual observation, Terracon conducted non-destructive testing with a RMD LPA-1 Lead Paint Spectrum Analyzer to detect the presence of lead in paint by X-Ray Fluorescence (XRF). As a means of supplementing XRF results, paint chip samples of painted substrates were collected from the interior surfaces of the building and were sent for analysis by a laboratory accredited under the Environmental Lead Laboratory Accreditation Program (ELLAP). OSHA considers that surface coatings or materials that contain lead at concentrations exceeding the laboratory detection limit demonstrate the presence of lead surface coatings or material may constitute a health hazard to employees engaged in lead-related construction work. A negative exposure assessment should be conducted to determine if exposure during construction activities are below the required OSHA action and permissible levels. In addition to the XRF testing, four (4) paint chip samples were collected from the building components. The suspect LCP testing is tabulated in Appendix D.

3.3.3 Other Hazardous Materials:

A visual assessment was also performed to identify potential materials and equipment that may contain mercury, PCBs, and CFCs. Based on the visual assessment, a window caulking sample and a window glazing sample were collected and sent for PCB-content analysis.

3.3.3 Radon:

On October 29, 2018, Terracon placed six passive charcoal radon test canisters in various offices in the basement and main floor of the building. Radon sample collection and analysis was consistent with the procedures included in EPA's *Protocols for Radon and Radon Decay Product Measurements in Homes.* The radon test canisters were placed in areas where they were less likely to be disturbed on the lowest level suitable for occupancy (basement and main floor) of the site building. The canisters were placed between 2 feet and 6 feet above the floor surface, in areas of normal air circulation, and away from air vents, fireplaces, doors, and windows.

3.4 Sample Analysis

3.4.1 Asbestos:

Bulk material samples were submitted under chain of custody to Moody, Inc. (Moody) of Farmers Branch, Texas for analysis by PLM with dispersion staining techniques per EPA's

Method for the Determination of Asbestos in Bulk Building Materials (600/R-93-116). The percentage of asbestos, where applicable, was determined by microscopic visual estimation. Moody is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP Accreditation No. 102056).

3.4.2 Lead-Containing Paint:

Bulk paint samples were submitted under chain of custody to Pace Analytical (Pace) of Mount Juliet, Tennessee for analysis by lead metals (ICP) by Method 6010B. When evaluating this report, it is assumed that if one testing combination (ex. window sill/wall/baseboard) in an interior or exterior room equivalent is found to be positive/negative for LCP, then all other similar testing combinations in that room equivalent are also assumed to be positive/negative for LCP. The paint sample summary sheet is provided as Appendix D.

3.4.3 Other Hazardous Materials:

Window caulking and window glazing bulk samples were submitted under chain of custody to Shealy Environmental Services, Inc. of West Columbia, South Carolina for PCB analysis by Method 8082A. Samples of other hazardous materials were not collected; therefore, laboratory analysis of other materials was not performed in that regard.

3.4.3 Radon:

The radon test cannisters were submitted under chain of custody and were analyzed by Radiation Data, of Skillman, New Jersey, (Radon Laboratory License #18017).

4.0 REGULATORY OVERVIEW

4.1 Asbestos:

The asbestos NESHAP (40 CFR Part 61) regulates asbestos fiber emissions and asbestos waste disposal practices. It also requires the identification and classification of existing building materials prior to demolition or renovation activity. Under NESHAP, asbestos-containing building materials are classified as either friable, Category I non-friable or Category II non-friable ACM. Friable materials are those that, when dry, may be crumbled, pulverized or reduced to powder by hand pressure. Category I non-friable ACM includes packings, gaskets, resilient floor coverings and asphalt roofing products. Category II non-friable ACM are any materials other than Category I materials that contain more than 1% asbestos.

Friable ACM and Category I and Category II non-friable ACM which is in poor condition and has become friable or which will be subjected to drilling, sanding, grinding, cutting or abrading and which could be crushed or pulverized during anticipated renovation or demolition activities are considered regulated ACM (RACM). RACM must be removed prior to renovation or demolition activities. If the amount of RACM exceeds 260 linear feet of pipe insulation or more than 160 square feet in other building components, the owner or operator must provide the Tennessee Department of Environment and Conservation – Division of Air Pollution Control (TDEC-APC) with written notification of planned removal activities at least 10 working days prior to the commencement of asbestos abatement activities. Removal of RACM should be conducted by an accredited and appropriately licensed asbestos abatement contractor.

The OSHA Asbestos standard for the construction industry (29 CFR 1910.1101) regulates workplace exposure to asbestos. The OSHA standard requires that employee exposure to airborne asbestos fibers be maintained below 1 f/cc for a 30-minute excursion limit and 0.1 f/cc for an 8-hour permissible exposure limit. The OSHA standard classifies construction and maintenance activities, which could disturb ACM, and specifies work practices and precautions which employers must follow when engaging in each class of regulated work.

According to USEPA and the Occupational Safety and Health Administration (OSHA) regulations, an asbestos-containing material (ACM) is considered any material or product containing more than one percent (>1%) asbestos. Per the USEPA, a material with asbestos content ranging from <1% to 10% by PLM, must be analyzed by point count method or must be presumed asbestos-containing. Materials confirmed to be <%1 asbestos by point count analysis are considered by OSHA to be materials of concern. OSHA's concern is that a material, when disturbed, may emit fiber concentrations greater than 1 f/cc for a 30-minute excursion limit and 0.1 f/cc for an 8-hour permissible exposure limit. Therefore, the renovation/demolition contractor is required to comply with OSHA worker protection regulations during any disturbance or removal of these materials.

4.2 Lead-Containing Paint:

OSHA regulation 29 CFR 1926.62 (Lead in Construction) established an "Action Level" for lead concentrations "in air" of 30 micrograms per cubic meter of air (µg/m^3) and a "Permissible Exposure Limit" for lead concentrations "in air" of 50 µg/m^3. At this time, OSHA has not established limits for lead content in bulk paint (non-airborne). Their interpretation on this issue is that any amount of lead may cause airborne concentrations above the established limits.

4.3 Other Hazardous Materials:

All hazardous materials are regulated under OSHA regulations 29 CFR 1926.59, Hazard Communication, 29 CFR 1910.134 Respiratory Protection, 29 CFR 1920.20, Subpart C, General Safety and Health Provisions, 29 CFR 1910.120, Hazardous Waste Operations and

Emergency Response and 29 CFR 1910.145, Accident Prevention Tags, as well as DOT 49 CFR 172, 173, 178 and 179 Regulations for Labeling, Mailing and Transporting Hazardous Waste.

Specifically, mercury is regulated under EPA 40 CFR 261.24, Toxicity Characteristic and 273, Standard of Universal Waste Management. CFCs are regulated under 40 CFR Part 82, Refrigeration Recycling Regulation for Venting Prohibition. PCBs are regulated under 40 CFR 761, Polychlorinated Biphenyl Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions.

4.3 Radon:

The EPA recommends a guideline action level of 4.0 pCi/L for annual average indoor radon concentrations in residential properties. The action level is based on an exposure of 18 hours per day for 40 years. Radon concentrations within the same living unit can vary based on seasonal weather changes, water table levels, and building conditions (i.e. cracks developing in the foundation over time, installation of new ventilation systems, etc.). Additionally, radon concentrations between different units of the same building can vary significantly depending on the subsurface geology of the building area, and structural integrity of the building.

5.0 FINDINGS AND RECOMMENDATIONS

5.1 Asbestos:

Based on the results of laboratory analyses, the following materials were determined to be asbestos-containing:

- Bottom layer of floor tile (5% Chrysotile) (associated black mastic negative) under non-ACM 12”x12” top floor tile, non-ACM yellow mastic and non-ACM leveling compound throughout the basement (HA-1)
- Door caulking (5% Chrysotile) around exit door frames (HA-20)
- Sink undercoating (3% Chrysolite) on breakroom sink (HA-23)

The confirmed ACM, material locations, NESHAP classification, material condition, and estimated quantities are listed in Appendix B. The Asbestos Laboratory Analytical Report is provided as Appendix C. Photographs of the identified ACMs are located in Appendix H.

If impacted by renovation plans, the following steps should be taken for the removal of the potential RACMs (Category I Non-friable materials):

1. Notify (written) TDEC-DAPC officials of the impending abatement project at Asbestos.NESHAP.Program@TN.gov or at the following address:

   Department of Environment and Conservation
   Division of Air Pollution Control
   Nashville Environmental Field Office
   711 R.S. Gass Boulevard
   Nashville, Tennessee 37216

1. Remove the potential RACMs from the building before any activity begins that would break up, dislodge, or similarly disturb the material.

Once removed, the above ACMs must be manifested and disposed at a classified landfill (Tennessee) or a landfill that is certified to accept non-RACM or RACM materials (other states).

A Tennessee-accredited asbestos abatement firm should be contracted to perform the asbestos-containing material removal. The work should be performed in compliance with federal, state and local guidelines.

It should be noted that suspect materials, other than those identified in the October 29-31, 2018 site visit, may exist within areas of the project scope. While every attempt was made to identify the suspect materials, concealed materials may still be present. Should material other than that which was identified be uncovered during the renovation process, those materials should be assumed asbestos-containing until sampling and analysis can confirm or refute asbestos content.

5.2 Lead-Containing Paint:

Based on the results of the XRF results and paint chip analysis, the following painted surfaces were determined to be lead-containing:

- Basement areas (doors, trim, masonry, walls)
- Main Level / 1st Floor areas (doors, trim, walls)

The XRF data is provided as Appendix D and the Lead Laboratory Analytical Report is provided as Appendix E. During renovation activities, undamaged lead-containing paint may remain on the various substrates and the material may be disposed as construction and demolition debris in a Class III and/or IV landfill. Should painted surfaces be damaged to extent that the surfaces are peeling, blistered or cracked, the surfaces must be stabilized prior to renovation. This may be accomplished using hand tools and/or a removal solvents.

Should stabilization of the painted surfaces be necessary, the abatement firm shall provide written notification of impending abatement activities to the Tennessee Department of Environment and Conservation, Lead-based Paint Program at the following address:

Tennessee Department of Environment & Conservation
Division of Solid Waste Management
Lead-based Paint Program
Fifth Floor, L & C Annex
401 Church Street
Nashville, Tennessee 37243-1535

Contractor must follow applicable sections of 29 CFR 1926.62 when disturbing paints containing lead. Care must be taken by the contractor to not exceed the OSHA established Action Level of 30 $\mu g/m^3$ during the demolition or re-finishing process. Detection of these levels can be accomplished by personal air monitoring during the renovation activities that impact the lead-containing painted surfaces. The confirmed lead-containing painted surfaces are included in Appendix D.

5.3 Other Hazardous Materials:

Based on the results of laboratory analyses, sampled window caulking and window glazing materials were determined to not contain PCBs. The PCB Analytical Report is provided as Appendix F.

The following observations were made during the October 29-31, 2018 site visit regarding the absence and/or presence of other potential hazardous materials in the building:

- There is potential CFC-containing HVAC equipment located adjacent to the eastern and western facades of the building and within the mechanical room. In addition, there was a split refrigerator/freezer unit in the breakroom. At the time of the site visit, Terracon was unable to identify a label indicating the refrigerant type used in the equipment. Therefore, the HVAC units and the refrigerator/freezer should be assumed as CFC-containing and should have the refrigerant reclaimed by a licensed HVAC contractor.

- Terracon observed approximately 150 fluorescent light fixtures within the building (assumed mercury-containing lamps and assumed PCB ballasts).

- Terracon observed the thermostats within the building; however, none of the thermostats were mercury containing thermostats.

§ Terracon observed exit signs within the building; however, none of the sigs were tritium exit signs.

5.3 Radon:

The following table presents the laboratory results and testing locations for radon sampling conducted on the site.

Summary of Radon Testing

Canister No.	Building and Unit	Radon Concentration (pCi/L)
T796935	Publications Office	1.4
T796961	Budget & Finance Office	0.9
T796962	Lobby	2.4
T796963	Kitchen Area (Breakroom)	3.1
T796964	Resource Education -Room 2	4.3
T796965	Wildlife Management	3.5

Based on the findings noted above, one of the radon concentrations (T769964) was detected above the USEPA action level of 4.0 pCi/L. The laboratory analytical results are included in Appendix G.

According to a U.S. Department of Energy environmental assessment, radon is much less of a concern in commercial buildings than in residential buildings as these buildings usually have mechanical ventilation and occupants are typically not in the buildings as many hours a week as they are in their homes. No action level has been established for commercial buildings or occupational exposure.

6.0 GENERAL COMMENTS

This hazardous materials survey was conducted in a manner consistent with the project scope of work outlined in our contract with Quinn Evans Architects. It should be noted that this survey was limited, and no attempts were made to demolish wall or ceiling systems to find hidden painted surfaces or hidden suspect ACM in the building. The results, findings, conclusions and recommendations expressed in this report are based on conditions observed during our survey of the building. The information contained in this report is relevant to the date on which the site observations were made, and should not be relied upon to represent conditions at a later date. This report has been prepared on behalf of and exclusively for use

by the National Park Service & Quinn Evans Architects for specific application to their potential project, as discussed. This report is not a bidding document. Any contractor or consultant reviewing this report must draw their own conclusions regarding quantities and any further investigation or remediation deemed necessary. Terracon does not warrant the work of regulatory agencies, laboratories or other third parties supplying information, which may have been used in the preparation of this report. No warranty, expressed, or implied is made.

APPENDIX A

ASBESTOS SAMPLE SUMMARY SHEET

APPENDIX A
ASBESTOS SURVEY SAMPLE SUMMARY
SUGARLANDS HEADQUARTERS REHABILITATION
107 PARK HEADQUARTERS ROAD
GATLINBURG, SEVIER COUNTY, TENNESSEE
Terracon Project No. E2187166

HA	Sample No.	Description	Sample Location
		Interior	
01	01-FT2-01	12"X12" Light gray with gray and white blotches	Resource Education Rm 1 bsmt
	01-FT2-02	12"X12" Light gray with gray and white blotches	Breakroom bsmt
	01-FT2-03	12"X12" Light gray with gray and white blotches	Room 16 bsmt
02	02-MG3-04	Black cove base with mastic	Hallway – west end – bsmt
	02-MG3-05	Black cove base with mastic	Exit – northwest – bsmt
	02-MG3-06	Black cove base with mastic	Hallway – east end - bsmt
03	03-SC6-07	Gray sink undercoating	Breakroom - bsmt
	03-SC6-08	Gray sink undercoating	Breakroom – bsmt
	03-SC6-09	Gray sink undercoating	Breakroom - bsmt
04	04-MA2-10	Gray CMU with white paint	Room 8a – bsmt
	04-MA2-11	Gray CMU with white paint	Hallway – east end – bsmt
	04-MA2-12	Gray CMU with white paint	Hallway – west end - bsmt
05	05-CT4-13	White with lesions	Room 8 bsmt
	05-CT4-14	White with lesions	Room 8a bsmt
	05-CT4-15	White with lesions	Room 4 bsmt
06	06-CT4-16	White Textured	Hallway – west end – bsmt
	06-CT4-17	White Textured	Hallway – middle – bsmt
	06-CT4-18	White Textured	Hallway – east end - bsmt
07	07-FT5-19	Various sized red tile with white paint	Wall – room 1a – bsmt
	07-FT5-20	Various sized red tile with white paint	Wall – room 1a – bsmt
	07-FT5-21	Various sized red tile with white paint	Wall – room 1a – bsmt
08	08-PI4-22	White – small	Boiler room – bsmt
	08-PI4-23	White – small	Boiler room – bsmt
	08-PI4-24	White – small	Boiler room – bsmt
09	09-PI4-25	White – medium – 6"	Boiler room – bsmt
	09-PI4-26	White – medium – 6"	Boiler room – bsmt
	09-PI4-27	White – medium – 6"	Boiler room – bsmt
10	10-PI4-28	White – Large	Boiler room – bsmt
	10-PI4-29	White – Large	Boiler room – bsmt
	10-PI4-30	White – Large	Boiler room – bsmt
11	11-PI4-31	White – small elbow	Boiler room – bsmt
	11-PI4-32	White – small elbow	Boiler room – bsmt
	11-PI4-33	White – small elbow	Boiler room – bsmt
12	12-PI4-34	White – medium – 8" elbow	Boiler room – bsmt
	12-PI4-35	White – medium – 8" elbow	Boiler room – bsmt
	12-PI4-36	White – medium – 8" elbow	Boiler room – bsmt
13	13-PI4-37	White – large T	Boiler room – bsmt
	13-PI4-38	White – large T	Boiler room – bsmt
	13-PI4-39	White – large T	Boiler room – bsmt
14	14-MI4-40	Silver	Boiler room – bsmt
	14-MI4-41	Silver	Boiler room – bsmt
	14-MI4-42	Silver	Boiler room – bsmt
15	15-MG7-43	Carpet mastic	Budget finance – 1st Fl
	15-MG7-44	Carpet mastic	Human resourced – 1st Fl
	15-MG7-45	Carpet mastic	Public affairs – 1st Fl
16	16-WB2-46	Wall board	Budget finance – 1st Fl
	16-WB2-47	Wall board	Human resourced – 1st Fl
	16-WB2-48	Wall board	Public affairs – 1st Fl

HA	Sample No.	Description	Sample Location
17	17-CA2-49	Caulk	Budget finance – 1st Fl
	17-CA2-50	Caulk	Human resourced – 1st Fl
	17-CA2-51	Caulk	Public affairs – 1st Fl
18	18-SC4-52	Beige coating	Budget finance – 1st Fl
	18-SC4-53	Beige coating	Human resourced – 1st Fl
	18-SC4-54	Beige coating	Public affairs – 1st Fl
19	19-SC5-55	White ceiling coating	Budget finance – 1st Fl
	19-SC5-56	White ceiling coating	Human resourced – 1st Fl
	19-SC5-57	White ceiling coating	Conference room – 1st Fl
20	20-CA2-58	Caulk	Northwest exit – 1st Fl
	20-CA2-59	Caulk	Northwest exit – bsmt
	20-CA2-60	Caulk	Northeast exit - bsmt
21	21-FT2-61	12”X12” beige with brown and white blotches	West end attic entrance – 2nd Fl
	21-FT2-62	12”X12” beige with brown and white blotches	Breakroom 2nd Fl
	21-FT2-63	12”X12” beige with brown and white blotches	East end attic entrance – 2nd Fl
22	22-CT1-64	12”X12” white	Breakroom – 2nd Fl
	22-CT1-65	12”X12” white	Hallway – 2nd Fl
	22-CT1-66	12”X12” white	East end office – 2nd Fl
23	23-SC6-67	Black undercoating	Breakroom – 2nd Fl
	23-SC6-68	Black undercoating	Breakroom – 2nd Fl
	23-SC6-69	Black undercoating	Breakroom – 2nd Fl
24	24-CP1-70	Gray roof decking	West end attic
	24-CP1-71	Gray roof decking	West end attic
	24-CP1-72	Gray roof decking	East end attic
Exterior			
25	25-CA1-73	Caulk	Southern façade
	25-CA1-74	Caulk	Southern façade
	25-CA1-75	caulk	Southern facade
26	26-SC1-76	Window glazing	Southern façade
	26-SC1-77	Window glazing	Western façade
	26-SC1-78	Window glazing	Eastern facade

APPENDIX B

CONFIRMED ASBESTOS-CONTAINING MATERIALS

CONFIRMED ASBESTOS-CONTAINING MATERIALS
SUGARLANDS HEADQUARTERS REHABILITATION
5960 PINEHUST AVENUE
GATLINBURG, SEVIER COUNTY, TENNESSEE
Terracon Project No. E2187166

IDENTIFIED ASBESTOS-CONTAINING MATERIALS BY HOMOGENEOUS AREA (HA)

HA No.	Description	Material Location	% and Type Asbestos**	NESHAP Classification	Condition	Estimated Quantity*
1	12”x12” Floor Tile (Light Gray with White Blotches)	Basement	ND – Top Floor Tile ND – Yellow Mastic 5% C – Bottom Floor Tile ND- Black Mastic	Cat. I Non-friable	Good (No Damage)	7,000 Sq ft
20	White Caulking	Around Exit Door Frames	5% C – Caulking	Cat. II Non-friable	Good (No Damage)	100 Linear ft
23	Sink Undercoating	Break Room	3%C – Sink Undercoating	Cat. II Non-friable	Good (No Damage)	1 sink

Quantities are estimates only
C = Chrysotile asbestos
ND = Not detected
Sq ft = Square Feet

APPENDIX C

ASBESTOS LABORATORY ANALYTICAL REPORT

PLM Summary Report

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Terracon - Chattanooga
Project : Sugarlands Headquarters
Project # : E2187166
Identification : Asbestos, Bulk Sample Analysis
Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
EPA Method 600 / R-93 / 116

Lab Job No. : 18B-14249
Report Date : 11/08/2018
Sample Date : 10/30/2018 - 10/31/2018

On 11/2/2018, seventy eight (78) bulk material samples were submitted by Brian Watson of Terracon - Chattanooga for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
01-FT2-01	12" x 12" Floor Tile (Light Gray with White Blotches), Resource Education Room 1, Basement	None Detected - Floor Tile None Detected - Yellow Mastic None Detected - Leveling Compound None Detected - Black Mastic
01-FT2-02	12" x 12" Floor Tile (Light Gray with White Blotches), Break Room, Basement	None Detected - Top Floor Tile None Detected - Yellow Mastic 5% Chrysotile - Bottom Floor Tile None Detected - Yellow Mastic
01-FT2-03	12" x 12" Floor Tile (Light Gray with White Blotches), Room 16, Basement	None Detected - Top Floor Tile None Detected - Yellow Mastic None Detected - Leveling Compound 5% Chrysotile - Bottom Floor Tile None Detected - Black Mastic
02-MG3-04	Cove Base (Black) with Mastic, Hallway, West End, Basement	None Detected - Cove Base None Detected - Tan Mastic
02-MG3-05	Cove Base (Black) with Mastic, Exit, Northwest, Basement	None Detected - Cove Base None Detected - Tan Mastic
02-MG3-06	Cove Base (Black) with Mastic, Hallway, East End, Basement	None Detected - Cove Base None Detected - Tan Mastic
03-SC6-07	Sink Undercoating, Break Room, Basement	None Detected - Sink Undercoating
03-SC6-08	Sink Undercoating, Break Room, Basement	None Detected - Sink Undercoating
03-SC6-09	Sink Undercoating, Break Room, Basement	None Detected - Sink Undercoating
04-MA2-10	CMU (Gray), Paint (White), Room 8A, Basement	None Detected - CMU None Detected - Paint
04-MA2-11	CMU (Gray), Paint (White), Hallway, East End, Basement	None Detected - CMU None Detected - Paint
04-MA2-12	CMU (Gray), Paint (White), Hallway, West End, Basement	None Detected - CMU None Detected - Paint

PLM Summary Report

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Terracon - Chattanooga
Project : Sugarlands Headquarters
Project # : E2187166
Identification : Asbestos, Bulk Sample Analysis
Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
EPA Method 600 / R-93 / 116

Lab Job No. : 18B-14249
Report Date : 11/08/2018
Sample Date : 10/30/2018 - 10/31/2018

On 11/2/2018, seventy eight (78) bulk material samples were submitted by Brian Watson of Terracon - Chattanooga for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
05-CT-13	2' x 4' Ceiling Tile (White with Lessions), Room 8, Basement	None Detected - Acoustic Tile None Detected - Vinyl Facing
05-CT-14	2' x 4' Ceiling Tile (White with Lessions), Room 8A, Basement	None Detected - Acoustic Tile None Detected - Vinyl Facing
05-CT-15	2' x 4' Ceiling Tile (White with Lessions), Room 4, Basement	None Detected - Acoustic Tile None Detected - Vinyl Facing
06-CT4-16	2' x 4' Ceiling Tile (White Textured), Hallway, West End, Basement	None Detected - Acoustic Tile None Detected - Vinyl Facing
06-CT4-17	2' x 4' Ceiling Tile (White Textured), Hallway, Middle, Basement	None Detected - Acoustic Tile None Detected - Vinyl Facing
06-CT4-18	2' x 4' Ceiling Tile (White Textured), Hallway, East End, Basement	None Detected - Acoustic Tile None Detected - Vinyl Facing
07-FT5-19	Tile (Various Size Red) with Paint (White), Wall, Room 1A, Basement	None Detected - Tile None Detected - Mortar None Detected - Paint
07-FT5-20	Tile (Various Size Red) with Paint (White), Wall, Room 1A, Basement	None Detected - Tile None Detected - Mortar None Detected - Paint
07-FT5-21	Tile (Various Size Red) with Paint (White), Wall, Room 1A, Basement	None Detected - Tile None Detected - Mortar None Detected - Paint
08-PI4-22	Fiberglass Pipe Insulation (White, Small), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Paper / Foil Wrap
08-PI4-23	Fiberglass Pipe Insulation (White, Small), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Paper / Foil Wrap
08-PI4-24	Fiberglass Pipe Insulation (White, Small), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Paper / Foil Wrap
09-PI4-25	6" Fiberglass Pipe Insulation (White, Medium), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Paper / Foil Wrap

PLM Summary Report

2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Terracon - Chattanooga
Project : Sugarlands Headquarters
Project # : E2187166
Identification : Asbestos, Bulk Sample Analysis
Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
EPA Method 600 / R-93 / 116

Lab Job No. : 18B-14249
Report Date : 11/08/2018
Sample Date : 10/30/2018 - 10/31/2018

On 11/2/2018, seventy eight (78) bulk material samples were submitted by Brian Watson of Terracon - Chattanooga for asbestos analysis by PLM/DS. The PLM Detail Report is attached; additional information may be found therein. The results are summarized below:

Sample Number	Client Sample Description / Location	Asbestos Content
09-PI4-26	6" Fiberglass Pipe Insulation (White, Medium), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Paper / Foil Wrap
09-PI4-27	6" Fiberglass Pipe Insulation (White, Medium), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Paper / Foil Wrap
10-PI4-28	Fiberglass Pipe Insulation (White, Large), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Paper / Foil Wrap
10-PI4-29	Fiberglass Pipe Insulation (White, Large), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Paper / Foil Wrap
10-PI4-30	Fiberglass Pipe Insulation (White, Large), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Paper / Foil Wrap
11-PI4-31	Fiberglass Pipe Insulation Elbow (White Small), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Vinyl Wrap None Detected - White Mastic
11-PI4-32	Fiberglass Pipe Insulation Elbow (White Small), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Vinyl Wrap None Detected - White Mastic
11-PI4-33	Fiberglass Pipe Insulation Elbow (White Small), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Vinyl Wrap None Detected - White Mastic
12-PI4-34	8" Fiberglass Pipe Insulation Elbow (Medium), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Vinyl Wrap
12-PI4-35	8" Fiberglass Pipe Insulation Elbow (Medium), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Vinyl Wrap
12-PI4-36	8" Fiberglass Pipe Insulation Elbow (Medium), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Vinyl Wrap
13-PI4-37	Fiberglass Pipe Insulation (White, Large T), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Paper / Foil Wrap None Detected - White Mastic

PLM Summary Report

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Sample Number	Client Sample Description / Location	Asbestos Content
13-PI4-38	Fiberglass Pipe Insulation (White, Large T), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Paper / Foil Wrap None Detected - White Mastic
13-PI4-39	Fiberglass Pipe Insulation (White, Large T), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Paper / Foil Wrap None Detected - White Mastic
14-MI4-40	Duct Insulation (Silver), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Paper / Foil Wrap
14-MI4-41	Duct Insulation (Silver), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Paper / Foil Wrap
14-MI4-42	Duct Insulation (Silver), Boiler Room, Basement	None Detected - Thermal Insulation None Detected - Paper / Foil Wrap
15-MG7-43	Carpet Mastic, Budget Finance, 1st Floor	None Detected - Tan Mastic
15-MG7-44	Carpet Mastic, Human Resources, 1st Floor	None Detected - Tan Mastic
15-MG7-45	Carpet Mastic, Public Affair, 1st Floor	None Detected - Tan Mastic
16-WB2-46	Wallboard, Budget Finace, 1st Floor	None Detected - Base Plaster None Detected - Top Plaster
16-WB2-47	Wallboard, Human Resources, 1st Floor	None Detected - Base Plaster None Detected - Top Plaster
16-WB2-48	Wallboard, Public Affairs, 1st Floor	None Detected - Base Plaster None Detected - Top Plaster
17-CA2-49	Caulk, Budget Finaces, 1st Floor	None Detected - Caulking
17-CA2-50	Caulk, Human Resources, 1st Floor	None Detected - Caulking
17-CA2-51	Caulk, Public Affairs, 1st Floor	None Detected - Caulking
18-SC4-52	Coating (Beige), Budget Finaces, 1st Floor	None Detected - Coating
18-SC4-53	Coating (Beige), Human Resources, 1st Floor	None Detected - Coating

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Test Method : Polarized Light Microscopy / Dispersion Staining (PLM/DS)
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Sample Number	Client Sample Description / Location	Asbestos Content
18-SC4-54	Coating (Beige), Public Affairs, 1st Floor	None Detected - Coating
19-SC5-55	Ceiling Coating (White), Budget Finance, 1st Floor	None Detected - Coating
19-SC5-56	Ceiling Coating (White), Human Resources, 1st Floor	None Detected - Coating
19-SC5-57	Ceiling Coating (White), Conference Room, 1st Floor	None Detected - Coating
20-CA2-58	Cauk, Northwest Exit, 1st Floor	5% Chrysotile - Caulking
20-CA2-59	Cauk, Northwest Exit, Basement	5% Chrysotile - Caulking
20-CA2-60	Cauk, Northeast Exit, Basement	5% Chrysotile - Caulking
21-FT2-61	12" x 12" Floor Tile (Biege with Brown and White Blotches) and Mastic, West End Attic Entrance, 2nd Floor	None Detected - Floor Tile None Detected - Yellow Mastic
21-FT2-62	12" x 12" Floor Tile (Biege with Brown and White Blotches) and Mastic, Break Room, 2nd Floor	None Detected - Floor Tile None Detected - Yellow Mastic
21-FT2-63	12" x 12" Floor Tile (Biege with Brown and White Blotches) and Mastic, East End Attic Entrance, 2nd Floor	None Detected - Floor Tile None Detected - Yellow Mastic
22-CT1-64	1' x 1' Ceiling Tile (White), Break Room, 2nd Floor	None Detected - Acoustic Tile None Detected - Painted Facing
22-CT1-65	1' x 1' Ceiling Tile (White), Hallway, 2nd Floor	None Detected - Acoustic Tile None Detected - Painted Facing
22-CT1-66	1' x 1' Ceiling Tile (White), East End Office, 2nd Floor	None Detected - Acoustic Tile None Detected - Painted Facing
23-SC6-67	Sink Undercoating (Black), Break Room, 2nd Floor	3% Chrysotile - Sink Undercoating
23-SC6-68	Sink Undercoating (Black), Break Room, 2nd Floor	3% Chrysotile - Sink Undercoating
23-SC6-69	Sink Undercoating (Black), Break Room, 2nd Floor	3% Chrysotile - Sink Undercoating
24-CP1-70	Roof Decking (Gray), West End Attic	None Detected - Decking Material
24-CP1-71	Roof Decking (Gray), West End Attic	None Detected - Decking Material

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Sample Number	Client Sample Description / Location	Asbestos Content
24-CP1-72	Roof Decking (Gray), East End Attic	None Detected - Decking Material
25-CA1-73	Caulk, Southern Façade, Exterior	None Detected - Caulking
25-CA1-74	Caulk, Southern Façade, Exterior	None Detected - Caulking
25-CA1-75	Caulk, Southern Façade, Exterior	None Detected - Caulking
26-SC1-76	Window Glazing, Southern Façade, Exterior	None Detected - Window Glazing
26-SC1-77	Window Glazing, Western Façade, Exterior	None Detected - Window Glazing
26-SC1-78	Window Glazing, Eastern Façade, Exterior	None Detected - Window Glazing

NVLAP LAB #102056-0

Analyst(s): Willie Pruitt
Lab Manager : Heather Lopez
Lab Director : Bruce Crabb

Approved Signatory : Heather Lopez
Approved Signatory : Bruce Crabb

Moody Labs
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PLM Detail Report

Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Terracon - Chattanooga
Project : Sugarlands Headquarters
Project # : E2187166

Lab Job No. : 18B-14249
Report Date : 11/08/2018

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
01-FT2-01	Floor Tile (Light Grey)	85%	Calcite / Vinyl Binders	100%	11/07	WP
	Yellow Mastic (Yellow)	3%	Glue Binders	100%		
	Leveling Compound (Off-White)	10%	Calcite / Binders	100%		
	Black Mastic (Black)	2%	Cellulose Fibers	5%		
			Tar Binders	95%		
01-FT2-02	Top Floor Tile (Light Grey)	70%	Calcite / Vinyl Binders	100%	11/07	WP
	Yellow Mastic (Yellow)	2%	Glue Binders	100%		
	Bottom Floor Tile (Beige)	27%	Chrysotile	5%		
			Calcite / Vinyl Binders	95%		
	Yellow Mastic (Yellow)	1%	Glue Binders	100%		
01-FT2-03	Top Floor Tile (Light Grey)	60%	Calcite / Vinyl Binders	100%	11/07	WP
	Yellow Mastic (Yellow)	3%	Glue Binders	100%		
	Leveling Compound (Off-White)	5%	Calcite / Binders	100%		
	Bottom Floor Tile (Green)	30%	Chrysotile	5%		
			Calcite / Vinyl Binders	95%		
	Black Mastic (Black)	2%	Cellulose Fibers	5%		
			Tar Binders	95%		
02-MG3-04	Cove Base (Black)	97%	Calcite / Vinyl Binders	100%	11/07	WP
	Tan Mastic (Tan)	3%	Glue Binders	100%		
02-MG3-05	Cove Base (Black)	97%	Calcite / Vinyl Binders	100%	11/07	WP
	Tan Mastic (Tan)	3%	Glue Binders	100%		
02-MG3-06	Cove Base (Black)	97%	Calcite / Vinyl Binders	100%	11/07	WP
	Tan Mastic (Tan)	3%	Glue Binders	100%		
03-SC6-07	Sink Undercoating (Grey)	100%	Calcite / Talc	50%	11/07	WP
			Binders / Fillers	50%		
03-SC6-08	Sink Undercoating (Grey)	100%	Calcite / Talc	50%	11/07	WP
			Binders / Fillers	50%		
03-SC6-09	Sink Undercoating (Grey)	100%	Calcite / Talc	50%	11/07	WP
			Binders / Fillers	50%		

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Client : Terracon - Chattanooga
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Project # : E2187166

Lab Job No. : 18B-14249
Report Date : 11/08/2018

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
04-MA2-10	CMU (Grey)	98%	Aggregate	65%	11/07	WP
			Cement Binders	35%		
	Paint (Off-White)	2%	Pigment / Binders	100%		
04-MA2-11	CMU (Grey)	98%	Aggregate	65%	11/07	WP
			Cement Binders	35%		
	Paint (Off-White)	2%	Pigment / Binders	100%		
04-MA2-12	CMU (Grey)	98%	Aggregate	65%	11/07	WP
			Cement Binders	35%		
	Paint (Off-White)	2%	Pigment / Binders	100%		
05-CT-13	Acoustic Tile (Yellow)	98%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Vinyl Facing (White)	2%	Vinyl Binders	100%		
05-CT-14	Acoustic Tile (Yellow)	98%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Vinyl Facing (White)	2%	Vinyl Binders	100%		
05-CT-15	Acoustic Tile (Yellow)	98%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Vinyl Facing (White)	2%	Vinyl Binders	100%		
06-CT4-16	Acoustic Tile (Yellow)	98%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Vinyl Facing (White)	2%	Vinyl Binders	100%		
06-CT4-17	Acoustic Tile (Yellow)	98%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Vinyl Facing (White)	2%	Vinyl Binders	100%		
06-CT4-18	Acoustic Tile (Yellow)	98%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Vinyl Facing (White)	2%	Vinyl Binders	100%		

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Client : Terracon - Chattanooga
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Lab Job No. : 18B-14249
Report Date : 11/08/2018

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
07-FT5-19	Tile (Red)	90%	Sintered Clays	100%	11/07	WP
	Mortar (Grey)	9%	Aggregate	65%		
			Cement Binders	35%		
	Paint (White)	1%	Pigment / Binders	100%		
07-FT5-20	Tile (Red)	90%	Sintered Clays	100%	11/07	WP
	Mortar (Grey)	9%	Aggregate	65%		
			Cement Binders	35%		
	Paint (White)	1%	Pigment / Binders	100%		
07-FT5-21	Tile (Red)	90%	Sintered Clays	100%	11/07	WP
	Mortar (Grey)	9%	Aggregate	65%		
			Cement Binders	35%		
	Paint (White)	1%	Pigment / Binders	100%		
08-PI4-22	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Paper / Foil Wrap (White / Silver)	10%	Cellulose Fibers	60%		
			Glass Wool Fibers	20%		
			Metal Foil	20%		
08-PI4-23	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Paper / Foil Wrap (White / Silver)	10%	Cellulose Fibers	60%		
			Glass Wool Fibers	20%		
			Metal Foil	20%		
08-PI4-24	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Paper / Foil Wrap (White / Silver)	10%	Cellulose Fibers	60%		
			Glass Wool Fibers	20%		
			Metal Foil	20%		

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Lab Job No. : 18B-14249
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Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
09-PI4-25	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Paper / Foil Wrap (White / Silver)	10%	Cellulose Fibers	60%		
			Glass Wool Fibers	20%		
			Metal Foil	20%		
09-PI4-26	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Paper / Foil Wrap (White / Silver)	10%	Cellulose Fibers	60%		
			Glass Wool Fibers	20%		
			Metal Foil	20%		
09-PI4-27	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Paper / Foil Wrap (White / Silver)	10%	Cellulose Fibers	60%		
			Glass Wool Fibers	20%		
			Metal Foil	20%		
10-PI4-28	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Paper / Foil Wrap (White / Silver)	10%	Cellulose Fibers	60%		
			Glass Wool Fibers	20%		
			Metal Foil	20%		
10-PI4-29	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Paper / Foil Wrap (White / Silver)	10%	Cellulose Fibers	60%		
			Glass Wool Fibers	20%		
			Metal Foil	20%		
10-PI4-30	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Paper / Foil Wrap (White / Silver)	10%	Cellulose Fibers	60%		
			Glass Wool Fibers	20%		
			Metal Foil	20%		

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Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
11-PI4-31	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Vinyl Wrap (White)	8%	Vinyl Binders	100%		
	White Mastic (White)	2%	Cellulose Fibers	5%		
			Binders / Fillers	95%		
11-PI4-32	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Vinyl Wrap (White)	8%	Vinyl Binders	100%		
	White Mastic (White)	2%	Cellulose Fibers	5%		
			Binders / Fillers	95%		
11-PI4-33	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Vinyl Wrap (White)	8%	Vinyl Binders	100%		
	White Mastic (White)	2%	Cellulose Fibers	5%		
			Binders / Fillers	95%		
12-PI4-34	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Vinyl Wrap (White)	10%	Vinyl Binders	100%		
12-PI4-35	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Vinyl Wrap (White)	10%	Vinyl Binders	100%		
12-PI4-36	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Vinyl Wrap (White)	10%	Vinyl Binders	100%		

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Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
13-PI4-37	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Paper / Foil Wrap (White / Silver)	8%	Cellulose Fibers	60%		
			Glass Wool Fibers	20%		
			Metal Foil	20%		
	White Mastic (White)	2%	Cellulose Fibers	5%		
			Binders / Fillers	95%		
13-PI4-38	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Paper / Foil Wrap (White / Silver)	8%	Cellulose Fibers	60%		
			Glass Wool Fibers	20%		
			Metal Foil	20%		
	White Mastic (White)	2%	Cellulose Fibers	5%		
			Binders / Fillers	95%		
13-PI4-39	Thermal Insulation (Yellow)	90%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Paper / Foil Wrap (White / Silver)	8%	Cellulose Fibers	60%		
			Glass Wool Fibers	20%		
			Metal Foil	20%		
	White Mastic (White)	2%	Cellulose Fibers	5%		
			Binders / Fillers	95%		
14-MI4-40	Thermal Insulation (Pink)	85%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Paper / Foil Wrap (Tan / Silver)	15%	Cellulose Fibers	60%		
			Glass Wool Fibers	20%		
			Metal Foil	20%		

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Lab Job No. : 18B-14249
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Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
14-MI4-41	Thermal Insulation (Pink)	85%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Paper / Foil Wrap (Tan / Silver)	15%	Cellulose Fibers	60%		
			Glass Wool Fibers	20%		
			Metal Foil	20%		
14-MI4-42	Thermal Insulation (Pink)	85%	Mineral Wool Fibers	95%	11/07	WP
			Resin Binders	5%		
	Paper / Foil Wrap (Tan / Silver)	15%	Cellulose Fibers	60%		
			Glass Wool Fibers	20%		
			Metal Foil	20%		
15-MG7-43	Tan Mastic (Tan)	100%	Glue Binders	100%	11/07	WP
15-MG7-44	Tan Mastic (Tan)	100%	Glue Binders	100%	11/07	WP
15-MG7-45	Tan Mastic (Tan)	100%	Glue Binders	100%	11/07	WP
16-WB2-46	Base Plaster (Grey)	50%	Aggregate	65%	11/07	WP
			Calcite / Binders	35%		
	Top Plaster (White)	50%	Calcite / Binders	100%		
16-WB2-47	Base Plaster (Grey)	50%	Aggregate	65%	11/07	WP
			Calcite / Binders	35%		
	Top Plaster (White)	50%	Calcite / Binders	100%		
16-WB2-48	Base Plaster (Grey)	15%	Aggregate	65%	11/07	WP
			Calcite / Binders	35%		
	Top Plaster (White)	85%	Calcite / Binders	100%		
17-CA2-49	Caulking (White)	100%	Calcite	50%	11/07	WP
			Binders / Fillers	50%		
17-CA2-50	Caulking (White)	100%	Calcite	50%	11/07	WP
			Binders / Fillers	50%		
17-CA2-51	Caulking (White)	100%	Calcite	50%	11/07	WP
			Binders / Fillers	50%		
18-SC4-52	Coating (Beige)	100%	Pigment / Binders	100%	11/07	WP

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report

Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Terracon - Chattanooga
Project : Sugarlands Headquarters
Project # : E2187166

Lab Job No. : 18B-14249
Report Date : 11/08/2018

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
18-SC4-53	Coating (Beige)	100%	Pigment / Binders	100%	11/07	WP
18-SC4-54	Coating (Beige)	100%	Pigment / Binders	100%	11/07	WP
19-SC5-55	Coating (White)	100%	Calcite / Binders	100%	11/07	WP
19-SC5-56	Coating (White)	100%	Calcite / Binders	100%	11/07	WP
19-SC5-57	Coating (White)	100%	Calcite / Binders	100%	11/07	WP
20-CA2-58	Caulking (Black)	100%	Chrysotile	5%	11/07	WP
			Calcite	45%		
			Binders / Fillers	50%		
20-CA2-59	Caulking (Black)	100%	Chrysotile	5%	11/07	WP
			Calcite	45%		
			Binders / Fillers	50%		
20-CA2-60	Caulking (Black)	100%	Chrysotile	5%	11/07	WP
			Calcite	45%		
			Binders / Fillers	50%		
21-FT2-61	Floor Tile (Beige / Brown)	98%	Calcite / Vinyl Binders	100%	11/07	WP
	Yellow Mastic (Yellow)	2%	Glue Binders	100%		
21-FT2-62	Floor Tile (Beige / Brown)	99%	Calcite / Vinyl Binders	100%	11/07	WP
	Yellow Mastic (Yellow)	1%	Glue Binders	100%		
21-FT2-63	Floor Tile (Beige / Brown)	99%	Calcite / Vinyl Binders	100%	11/07	WP
	Yellow Mastic (Yellow)	1%	Glue Binders	100%		
22-CT1-64	Acoustic Tile (Tan)	98%	Wood Fibers	100%	11/07	WP
	Painted Facing (White)	2%	Pigment / Binders	100%		
22-CT1-65	Acoustic Tile (Tan)	98%	Wood Fibers	100%	11/07	WP
	Painted Facing (White)	2%	Pigment / Binders	100%		
22-CT1-66	Acoustic Tile (Tan)	98%	Wood Fibers	100%	11/07	WP
	Painted Facing (White)	2%	Pigment / Binders	100%		

Moody Labs
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

PLM Detail Report

Supplement to PLM Summary Report

NVLAP Lab Code 102056-0
TDSHS License No. 30-0084

Client : Terracon - Chattanooga
Project : Sugarlands Headquarters
Project # : E2187166

Lab Job No. : 18B-14249
Report Date : 11/08/2018

Sample Number	Layer	% Of Sample	Components	% of Layer	Analysis Date	Analyst
23-SC6-67	Sink Undercoating (Black)	100%	Chrysotile	3%	11/07	WP
			Calcite / Talc	42%		
			Tar Binders	55%		
23-SC6-68	Sink Undercoating (Black)	100%	Chrysotile	3%	11/07	WP
			Calcite / Talc	42%		
			Tar Binders	55%		
23-SC6-69	Sink Undercoating (Black)	100%	Chrysotile	3%	11/07	WP
			Calcite / Talc	42%		
			Tar Binders	55%		
24-CP1-70	Decking Material (White)	100%	Wood Fibers	5%	11/07	WP
			Gypsum / Binders	95%		
24-CP1-71	Decking Material (White)	100%	Wood Fibers	5%	11/07	WP
			Gypsum / Binders	95%		
24-CP1-72	Decking Material (White)	100%	Wood Fibers	5%	11/07	WP
			Gypsum / Binders	95%		
25-CA1-73	Caulking (Grey)	100%	Binders / Fillers	100%	11/07	WP
25-CA1-74	Caulking (Grey)	100%	Binders / Fillers	100%	11/07	WP
25-CA1-75	Caulking (Grey)	100%	Binders / Fillers	100%	11/07	WP
26-SC1-76	Window Glazing (Off-White)	100%	Calcite	60%	11/07	WP
			Binders / Fillers	40%		
26-SC1-77	Window Glazing (Off-White)	100%	Calcite	60%	11/07	WP
			Binders / Fillers	40%		
26-SC1-78	Window Glazing (Off-White)	100%	Calcite	60%	11/07	WP
			Binders / Fillers	40%		

APPENDIX D

PAINT SAMPLE SUMMARY SHEET / XRF DATA
AND
CONFIRMED LEAD-CONTAINING PAINT

Table 1 - XRF Paint Data Summary

Sugarlands Headquarters Rehabilitation
Great Smoky Mountains National Park
Gatlinburg, Sevier County Tennessee
Terracon Project Number: E2187166

Reading No	Component	Location	Substrate	Pb	Pb Error
1	Calibration	Calibration	Calibration	1.00	0.00
2	beige	Basement	wood door	1.69	0.11
3	white	Basement	masonary walll	< LOD	0.08
4	white	Basement	wood door	33.13	0.43
5	beige	Basement	wood door	0.05	0.01
6	brown	Basement	metal door frame	5.78	0.29
7	cream	Basement	gypsum wall	6.30	0.26
8	beige	Basement	gypsum wall	7.88	0.31
9	white	Main floor	wood door frame	24.67	0.44
10	beige	Main floor	gypsum wall	12.00	0.35
11	cream	Main floor	wood door	25.67	0.45
12	beige	Main floor	wood door	25.92	0.58
13	beige	Main floor	gypsum wall	12.75	0.37
14	white	Main floor	wood door frame	27.95	0.47
15	white	Upstairs	wood door frame	0.01	0.00
16	white	Upstairs	wood panels	< LOD	0.00
17	white	Upstairs	wood panels	< LOD	0.00
18	tan	Upstairs	wood door frame	< LOD	0.00
19	beige	Upstairs	wood door frame	< LOD	0.00
20	white	Upstairs	gypsum wall	< LOD	0.00
21	brown	Upstairs	wood door frame	< LOD	0.00

Pb = Lead
<1 = Lead containing paint
<LOD = Less than Limit of Detection
Note: Raw XRF Data Available Upon Request
Pb readings were recorded as mg/cm²

APPENDIX E

LEAD ANALAYTICAL REPORT

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 09, 2018

Terracon - Chattanooga, TN

Sample Delivery Group:	L1040594
Samples Received:	11/02/2018
Project Number:	E2187166
Description:	National Park Service Sugarlands Headquarters

Report To:

Mr. Brian Watson
51 Lost Mound Dr, Ste 135
Chattanooga, TN 37406

Entire Report Reviewed By:

Heather J Wagner
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

DOOR FRAME 2ND FLOOR WHITE L1040594-01 PAINT

Collected by: Steve Akins
Collected date/time: 10/30/18 11:15
Received date/time: 11/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1191808	1	11/08/18 16:48	11/09/18 13:10	TRB

WOOD PANELING 2ND FLOOR WHITE L1040594-02 PAINT

Collected by: Steve Akins
Collected date/time: 10/30/18 11:20
Received date/time: 11/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1191808	1	11/08/18 16:48	11/09/18 13:13	TRB

DOORFRAME 2ND FLOOR TAN L1040594-03 PAINT

Collected by: Steve Akins
Collected date/time: 10/30/18 11:25
Received date/time: 11/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1191808	1	11/08/18 16:48	11/09/18 13:16	TRB

DORRFRAME 2ND FLOOR BROWN L1040594-04 PAINT

Collected by: Steve Akins
Collected date/time: 10/30/18 11:30
Received date/time: 11/02/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1191808	1	11/08/18 16:48	11/09/18 13:18	TRB

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Heather J Wagner
Project Manager

Sample Handling and Receiving

Sample quantity was not sufficient to complete analysis per recommended method guidelines for the following samples.

Lab Sample ID	Project Sample ID	Method
L1040594-03	DOORFRAME 2ND FLOOR TAN	6010B

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	ND		45.3	1	11/09/2018 13:10	WG1191808

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	ND		42.8	1	11/09/2018 13:13	WG1191808

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Lead	ND		53.6	1	11/09/2018 13:16	WG1191808

Metals (ICP) by Method 6010B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Lead	ND		35.8	1	11/09/2018 13:18	WG1191808

Method Blank (MB)

(MB) R3358501-1 11/09/18 10:59

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Lead	U		16.3	50.0

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3358501-2 11/09/18 11:02 • (LCSD) R3358501-3 11/09/18 11:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Lead	4980	5390	4820	108	96.8	80.0-120			11.3	20

L1042119-19 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1042119-19 11/09/18 11:08 • (MS) R3358501-6 11/09/18 11:16 • (MSD) R3358501-7 11/09/18 11:18

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lead	500	305000	351000	317000	9420	3570	1	75.0-125	E V	E V	10.3	25

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

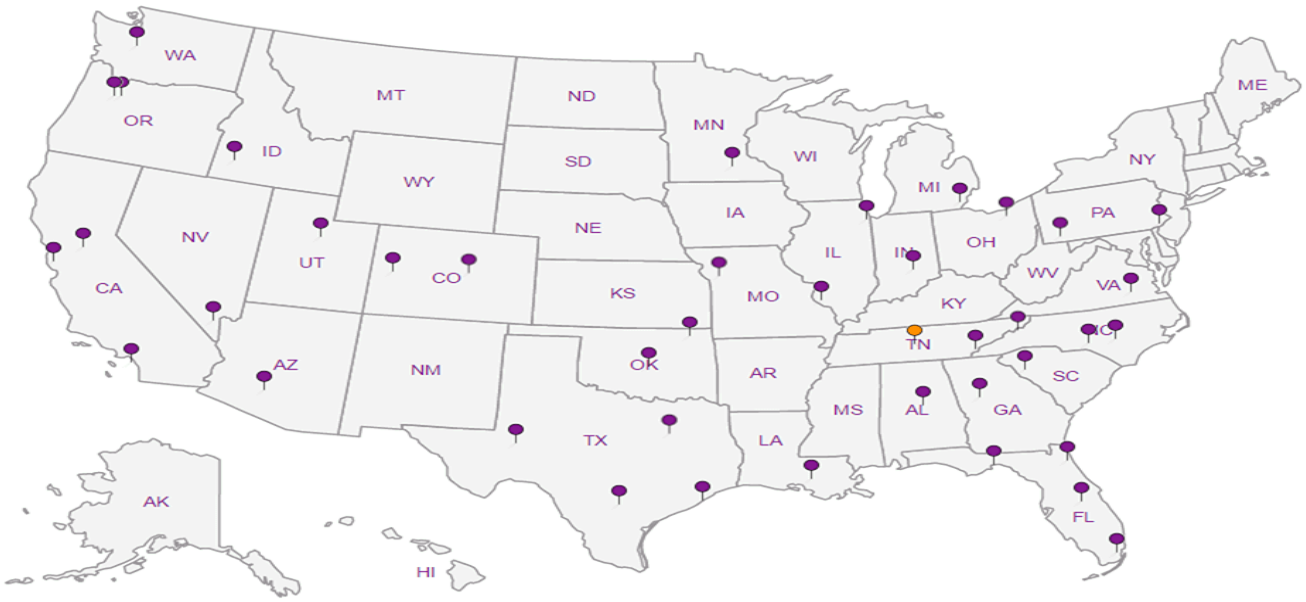
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Terracon Consultants, Inc.
51 Lost Mound Drive, Suite 135
Chattanooga, TN 37406

Billing Information:
Terracon Consultants, Inc.
Attn: Lisa Dewaard
51 Lost Mound Drive, Suite 135
Chattanooga, TN 37406

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1040594

F039

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Report to: **Brian W. Watson**

Email To: **bwwatson@terracon.com**

Project Description: **National Park Service Sugarlands Headquarters**

City/State Collected: **Gatlinburg, TN**

Phone: **423-499-6111**
Fax: **423-499-8099**

Client Project # **E2187166**

Lab Project #

Collected by (print): **Steve Akins**

Site/Facility ID #

P.O. # **E2187166**

Collected by (signature):

Immediately Packed on Ice N ___ X ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day X 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Lead Paint Chip Analysis 6010	Remarks	Sample # (lab only)
Door frame 2nd floor White	Grab	OT	Surface	10-30-2018	1115	1	X		-01
Wood Paneling 2nd floor White	Grab	OT	Surface	10-30-2018	1120	1	X		02
Door frame 2nd floor Tan	Grab	OT	Surface	10-30-2018	1125	1	X		03
Door frame 2nd Floor Brown	Grab	OT	Surface	10-30-2018	1130	1	X		04
	Grab	OT	Surface	10-30-2018		1	X		
	Grab	OT	Surface	10-30-2018		1	X		
	Grab	OT	Surface	10-30-2018		1	X		
	Grab	OT	Surface	10-30-2018		1	X		
	Grab	OT	Surface	10-30-2018		1	X		
	Grab	OT	Surface	10-30-2018			X		

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other Paint

Remarks:

pH ___ Temp ___
Flow ___ Other ___

Samples returned via:
___ UPS X FedEx ___ Courier ___

Tracking # 4269 9203 4325

Sample Receipt Checklist
COC Seal Present/Intact: ___NP ___Y ___N
COC Signed/Accurate: X ___N
Bottles arrive intact: X ___N
Correct bottles used: X ___N
Sufficient volume sent: X ___N
If Applicable
VOA Zero Headspace: ___Y ___N
Preservation Correct/Checked: ___Y ___N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
Steve Akins	11-1-18	1500			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4mb °C Bottles Received: 4	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 11/2/18 Time: 845	Hold: Condition: NCF / OK

APPENDIX F

PCB ANALYTICAL REPORT

SHEALY ENVIRONMENTAL SERVICES, INC.

Report of Analysis

Terracon Consultants, Inc.
72 Point Circle
Greenville, SC 29615
Attention: Brian Watson

Project Name: National Park Services, Sugarlands

Project Number: E2187166

Lot Number:**TK05045**

Date Completed:11/13/2018

11/13/2018 4:08 PM
Approved and released by:
Lab Director - Greenville: Lucas Odom

The electronic signature above is the equivalent of a handwritten signature.

Shealy Environmental Services, Inc.
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Case Narrative
Terracon Consultants, Inc.
Lot Number: TK05045

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" qualifier

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

PCBs by GC

Due to insufficient sample received, the initial sample amount used for the following sample(s) deviated from the standard procedure:TK05045-001, TK05045-002. The LOQ has been adjusted accordingly.

The following sample was diluted due to the nature of the sample matrix: TK05045-002. The LOQ has been elevated to reflect the dilution.

Due to the nature of the sample matrix, a % solids was not performed on samples -001 and -002. The reported results are in wet weight.

Sample Summary

Terracon Consultants, Inc.

Lot Number: TK05045

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	Exterior Window Caulk	Solid	10/31/2018 0900	11/05/2018
002	Exterior Window Glazing	Solid	10/31/2018 0915	11/05/2018

(2 samples)

Detection Summary

Terracon Consultants, Inc.

Lot Number: TK05045

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page

(0 detections)

Client: **Terracon Consultants, Inc.**
Description: **Exterior Window Caulk**
Date Sampled: **10/31/2018 0900**
Date Received: **11/05/2018**

Laboratory ID: **TK05045-001**
Matrix: **Solid**

PCBs by GC

Run	Prep Method	Cleanup	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3546	3660B/3665A	8082A	1	11/07/2018 1852	SCD	11/06/2018 1120	88742

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Aroclor 1016	12674-11-2	8082A	ND		43	ug/kg	1
Aroclor 1221	11104-28-2	8082A	ND		43	ug/kg	1
Aroclor 1232	11141-16-5	8082A	ND		43	ug/kg	1
Aroclor 1242	53469-21-9	8082A	ND		43	ug/kg	1
Aroclor 1248	12672-29-6	8082A	ND		43	ug/kg	1
Aroclor 1254	11097-69-1	8082A	ND		43	ug/kg	1
Aroclor 1260	11096-82-5	8082A	ND		43	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Decachlorobiphenyl	N	0.00	41-132
Tetrachloro-m-xylene		86	35-106

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

Shealy Environmental Services, Inc.
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Client: **Terracon Consultants, Inc.**
Description: **Exterior Window Glazing**
Date Sampled: **10/31/2018 0915**
Date Received: **11/05/2018**

Laboratory ID: **TK05045-002**
Matrix: **Solid**

PCBs by GC

Run	Prep Method	Cleanup	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3546	3660B/3665A	8082A	10	11/09/2018 1539	SCD	11/06/2018 1120	88742

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Aroclor 1016	12674-11-2	8082A	ND		170	ug/kg	1
Aroclor 1221	11104-28-2	8082A	ND		170	ug/kg	1
Aroclor 1232	11141-16-5	8082A	ND		170	ug/kg	1
Aroclor 1242	53469-21-9	8082A	ND		170	ug/kg	1
Aroclor 1248	12672-29-6	8082A	ND		170	ug/kg	1
Aroclor 1254	11097-69-1	8082A	ND		170	ug/kg	1
Aroclor 1260	11096-82-5	8082A	ND		170	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Decachlorobiphenyl		72	41-132
Tetrachloro-m-xylene		74	35-106

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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QC Summary

PCBs by GC - MB

Sample ID: TQ88742-001
Batch: 88742
Analytical Method: 8082A
Matrix: Solid
Prep Method: 3546
Prep Date: 11/06/2018 1120
Cleanup: 3660B/3665A

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
Aroclor 1016	ND		1	10	ug/kg	11/07/2018 1825
Aroclor 1221	ND		1	10	ug/kg	11/07/2018 1825
Aroclor 1232	ND		1	10	ug/kg	11/07/2018 1825
Aroclor 1242	ND		1	10	ug/kg	11/07/2018 1825
Aroclor 1248	ND		1	10	ug/kg	11/07/2018 1825
Aroclor 1254	ND		1	10	ug/kg	11/07/2018 1825
Aroclor 1260	ND		1	10	ug/kg	11/07/2018 1825

Surrogate	Q	% Rec	Acceptance Limit
Decachlorobiphenyl		81	41-132
Tetrachloro-m-xylene		75	35-106

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PCBs by GC - LCS

Sample ID: TQ88742-002
Batch: 88742
Analytical Method: 8082A
Matrix: Solid
Prep Method: 3546
Prep Date: 11/06/2018 1120
Cleanup: 3660B/3665A

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Aroclor 1016	67	67		1	100	70-130	11/07/2018 1839
Aroclor 1260	67	71		1	107	70-130	11/07/2018 1839

Surrogate	Q	% Rec	Acceptance Limit
Decachlorobiphenyl		93	41-132
Tetrachloro-m-xylene		82	35-106

LOQ = Limit of Quantitation
DL = Detection Limit
LOD = Limit of Detection
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Shealy Environmental Services, Inc.
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Chain of Custody
and
Miscellaneous Documents

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

Chain of Custody Record

Number

Client	Report to Contact	Telephone No. / E-mail	Quote No.
Terracon	Brian Watson	(423)498-6111 / brian.watson@terracon.com	
Address: 51 Lost Mound Drive	Sampler's Signature: x Steve Akins	Analysis (Attach list if more space is needed): PCBs	Page ___ of ___
City: Chattanooga / State: TN / Zip Code: 37406	Printed Name: Steve Akins		
Project Name: National Park Service, Sugarlands			TK05045 CSD
Project Number: E2187166	P.O No.: E2187166		

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	PCBs	Remarks / Cooler I.D.
Exterior Window Caulk	10-31-18	0900	G		1								X	
Exterior Window Glazing	10-31-18	0915	G		1								X	

Turn Around Time Required (Prior lab approval required for expedited TAT)	Sample Disposal	Possible Hazard Identification (List any known hazards in the remarks)	QC Requirements
[X] Standard [ ] Rush (Please Specify)	[ ] Return to Client [X] Disposal by Lab	[ ] Non-Hazardous [ ] Flammable [ ] Skin Irritant [ ] SDS provided [X] Unknown	

	Date	Time		Date	Time
1. Relinquished by: Steve Akins	11-2-18	1200	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by: FedEx	11-5-18	0927	4. Laboratory Received by	11-5-18	0927

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Check) [ ] Y [X] N [ ] Ice Pack
Receipt Temp 20.1 °C

Document Number: ME002OW-01

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc
Document Number: ME0318C-14

Page 1 of 1
Effective Date: 8/2/2018

Sample Receipt Checklist (SRC)

Client: Terracon Cooler Inspected by/date: ECC / 11.5.18 Lot #: TK05045

Means of receipt: ☐ SESI ☐ Client ☐ UPS ☒ FedEx ☐ Other: _____

☐ Yes	☒ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☒ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: _____ Chlorine Strip ID: _____ Tested by: _____

Original temperature upon receipt / Derived (Corrected) temperature upon receipt: %Solid Snap-Cup ID: _____

20.1 / 20.1 °C ____ / ____ °C ____ / ____ °C ____ / ____ °C

Method: ☐ Temperature Blank ☒ Against Bottles IR Gun ID: 6e IR Gun Correction Factor: 0 °C

Method of coolant: ☐ Wet Ice ☐ Ice Packs ☐ Dry Ice ☒ None

☒ Yes	☐ No	☐ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☐ Yes	☐ No	☒ NA	4. Is the commercial courier's packing slip attached to this form?
☒ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☒ Yes	☐ No		6. Were sample IDs listed on the COC?
☒ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☒ Yes	☐ No		8. Was collection date & time listed on the COC?
☒ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☒ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☒ Yes	☐ No		11. Were tests to be performed listed on the COC?
☒ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? _____
☒ Yes	☐ No		13. Was adequate sample volume available?
☐ Yes	☒ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☒ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☒ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☒ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☒ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☒ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☒ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☒ No		21. Was the quote number listed on the container label? If yes, Quote # _____.

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # _____.
Time of preservation _____. If more than one preservative is needed, please note in the comments below.

Sample(s) _____ were received with bubbles >6 mm in diameter.

Samples(s) _____ were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: _____.

SR barcode labels applied by: ETB Date: 11.5.18

Comments: No % solid due to matrix

APPENDIX G

RADON ANALYTICAL REPORT

Radiation Data
PO Box 150
Skillman, NJ 08558
(609) 466-4300
Fax (609) 466-4302

NJDEP Radon Laboratory License 18017
NJDEP Radon Measurement Business License MEB 90016

Radon Test Result:

Mon Nov 05 14:21:02 EST 2018

SERVICE-SUGARLANDS, NATIONAL PARK
107 PARK HEAD QUARTERS
GATLINBURG, TN 37738

Test Number:	**T796935**	
Exposure Start Time & Date:	10-29-18	12:29
Exposure Stop Time & Date:	10-31-18	12:30
Measurement Time & Date:	11-05-18	13:11
Counting Efficiency:	0.158	
Gross Counts:	1233.0	
Counting Time:	600.0	
Radon Concentration:	1.4 pCi/l (picocuries per liter)	

(LAB USE ONLY)
Comments: 1;N;S;CH;B;
H;;PUBLICATIONS OFFICE;

This notice is provided to you by an organization or individual certified by NJDEP to perform radon gas or radon progeny testing measurements. NJSA 26-2D-73 requires that no certified person disclose to anyone except the DEP or the Dept. of Health the address or owners of a nonpublic building that the person has tested or treated for the presence of radon gas or radon progeny, unless the owner of the building waives in writing this right of confidentiality. In the case of a prospective sale of a building that has been tested for radon gas or progeny, the seller shall provide the buyer, at the time the contract of sales is entered into, with a copy of the results of that test and evidence of any subsequent mitigation or treatment. Any prospective buyer who contracts for the testing shall have the right to receive the results of that testing. Any questions, comments or complains regarding the person performing these measurements, or related mitigation, or safeguarding services, should be directed to the NJDEP, Attn: Radon Section, Bureau of Environmental Radiation, at 1-800-648-0394.

LIMITATION OF LIABILITY: While we at Radiation Data, and all of our licensed professional technicians, make every effort to maintain quality control (including duplicate canister tests, blanks, and "spiked" detectors), we make no warranty of any kind, either express or implied, for the consequences of false test results. Before any remediation action is taken, it is important that follow-up tests be conducted in accordance with USEPA protocols and NJDEP regulations. It is well known that radon concentrations fluctuate greatly under changing weather conditions. Furthermore, radon tests cannot be CERTIFIED, since there is no chain of custody of the test kit, and the "closed-house" conditions cannot be monitored continuously.

Radiation Data
PO Box 150
Skillman, NJ 08558
(609) 466-4300
Fax (609) 466-4302

NJDEP Radon Laboratory License 18017
NJDEP Radon Measurement Business License MEB 90016

Radon Test Result:

Mon Nov 05 14:21:03 EST 2018

SERVICE-SUGARLANDS, NATIONAL PARK
107 PARK HEAD QUARTERS
GATLINBURG, TN 37738

Test Number:	**T796961**	
Exposure Start Time & Date:	10-29-18	12:35
Exposure Stop Time & Date:	10-31-18	12:37
Measurement Time & Date:	11-05-18	13:38
Counting Efficiency:	0.158	
Gross Counts:	1122.0	
Counting Time:	600.0	
Radon Concentration:	0.9 pCi/l (picocuries per liter)	

(LAB USE ONLY)
Comments: 1;N;S;CH;B;
H;;BUDGET & FINANCE OFFICE;

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Skillman, NJ 08558
(609) 466-4300
Fax (609) 466-4302

NJDEP Radon Laboratory License 18017
NJDEP Radon Measurement Business License MEB 90016

Radon Test Result:

Mon Nov 05 14:21:03 EST 2018

SERVICE-SUGARLANDS, NATIONAL PARK
107 PARK HEAD QUARTERS
GATLINBURG, TN 37738

Test Number:	**T796962**	
Exposure Start Time & Date:	10-29-18	12:31
Exposure Stop Time & Date:	10-31-18	12:33
Measurement Time & Date:	11-05-18	13:36
Counting Efficiency:	0.158	
Gross Counts:	1363.0	
Counting Time:	600.0	
Radon Concentration:	2.4 pCi/l (picocuries per liter)	

(LAB USE ONLY)
Comments: 1;N;S;CH;B;
H;;LOBBY;

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Skillman, NJ 08558
(609) 466-4300
Fax (609) 466-4302

NJDEP Radon Laboratory License 18017
NJDEP Radon Measurement Business License MEB 90016

Radon Test Result:

Mon Nov 05 14:21:01 EST 2018

SERVICE-SUGARLANDS, NATIONAL PARK
107 PARK HEAD QUARTERS
GATLINBURG, TN 37738

Test Number:	**T796963**	
Exposure Start Time & Date:	10-29-18	12:21
Exposure Stop Time & Date:	10-31-18	12:20
Measurement Time & Date:	11-05-18	13:10
Counting Efficiency:	0.158	
Gross Counts:	1412.0	
Counting Time:	600.0	
Radon Concentration:	3.1 pCi/l (picocuries per liter)	

(LAB USE ONLY)
Comments: 0;N;S;CH;B;
H;;KITCHEN AREA;

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Skillman, NJ 08558
(609) 466-4300
Fax (609) 466-4302

NJDEP Radon Laboratory License 18017
NJDEP Radon Measurement Business License MEB 90016

Radon Test Result:

Mon Nov 05 14:21:00 EST 2018

SERVICE-SUGARLANDS, NATIONAL PARK
107 PARK HEAD QUARTERS
GATLINBURG, TN 37738

Test Number:	**T796964**	
Exposure Start Time & Date:	10-29-18	12:16
Exposure Stop Time & Date:	10-31-18	12:15
Measurement Time & Date:	11-05-18	13:10
Counting Efficiency:	0.158	
Gross Counts:	1588.0	
Counting Time:	600.0	
Radon Concentration:	4.3 pCi/l (picocuries per liter)	

(LAB USE ONLY)
Comments: 0;N;S;CH;B;
H;;RESOURCE EDUCATION-ROOM 2;

RESULTS EXCEED DEP GUIDELINES PLEASE CALL 1-800-325-3579 FOR FREE ADVICE ON MITIGATION

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Fax (609) 466-4302

NJDEP Radon Laboratory License 18017
NJDEP Radon Measurement Business License MEB 90016

Radon Test Result:

Mon Nov 05 14:21:01 EST 2018

SERVICE-SUGARLANDS, NATIONAL PARK
107 PARK HEAD QUARTERS
GATLINBURG, TN 37738

Test Number:	**T796965**	
Exposure Start Time & Date:	10-29-18	12:23
Exposure Stop Time & Date:	10-31-18	12:24
Measurement Time & Date:	11-05-18	13:11
Counting Efficiency:	0.158	
Gross Counts:	1591.0	
Counting Time:	600.0	
Radon Concentration:	3.5 pCi/l (picocuries per liter)	

(LAB USE ONLY)
Comments: 0;N;S;CH;B;
H;;WILDLIFE MANAGEMENTS;

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APPENDIX H

PHOTOGRAPHS

Photo #1 View of the exterior of the building (southern most corner) looking northwest from sidewalk.

Photo #2 View of southern façade of building looking north-northwest.

Photo #3 View of the exterior of the building (southeastern most corner) looking north.

Photo #4 View of the eastern façade of the building looking northwest.

Photo #5 View of the exterior of the building (northeastern most corner) looking southwest.

Photo #6 View of the exterior of the building looking south from the parking lot.

Photo #7 View of the exterior of the building looking south from the parking lot.

Photo #8 View of the western façade of the building looking south.

Photo #9 View of the interior lobby area on the main floor (1st level).

Photo #10 View of the interior lobby area on the main floor (1st level).

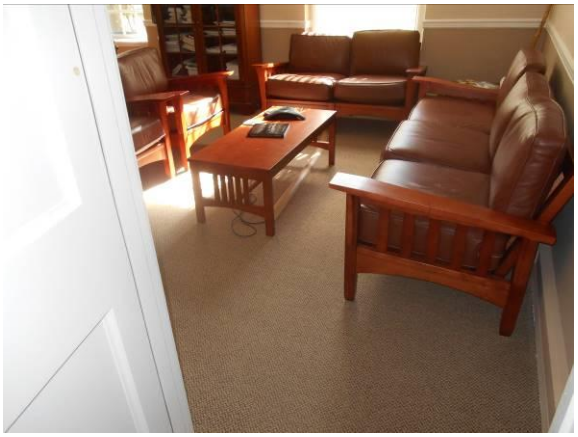


Photo #11 View of the interior of the building on the main level (1st level).

Photo #12 View of the interior of the building on the main level (1st level).

Photo #13 View of the Conference Room on the main level (1st level).

Photo #14 View of the hallway on the main level (1st level).

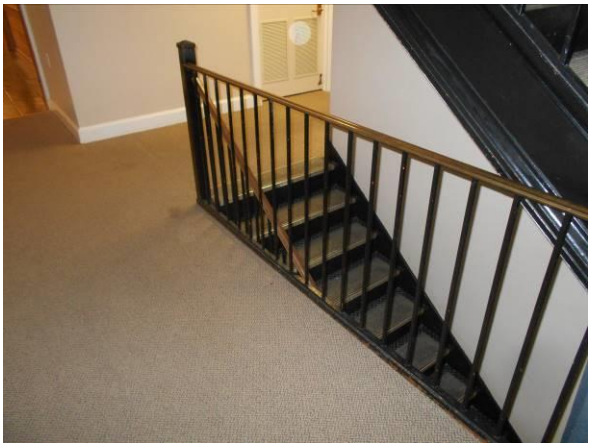


Photo #15 View of the stair case to the basement from the main level (1st level).

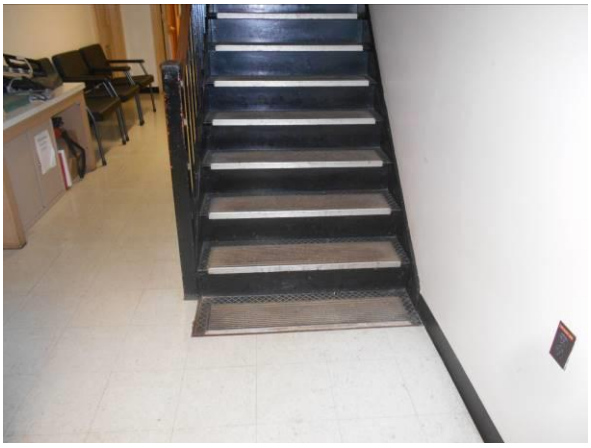


Photo #16 View of the stair case from the basement area.

Photo #17 View of an office in the basement.

Photo #18 View of an office in the basement.

Photo #19 View of the restroom in the basement.

Photo #20 View of the restroom in the basement.

Photo #21 View of the mechanical utility room.

Photo #22 View of the mechanical utility room.

Photo #23 View of the grey sink undercoating in the basement.

Photo #24 View of the drop ceiling tile in the basement.

Photo #25 View of the hallway on the 2nd level (attic).

Photo #26 View of an office ceiling on the 2nd level (attic).

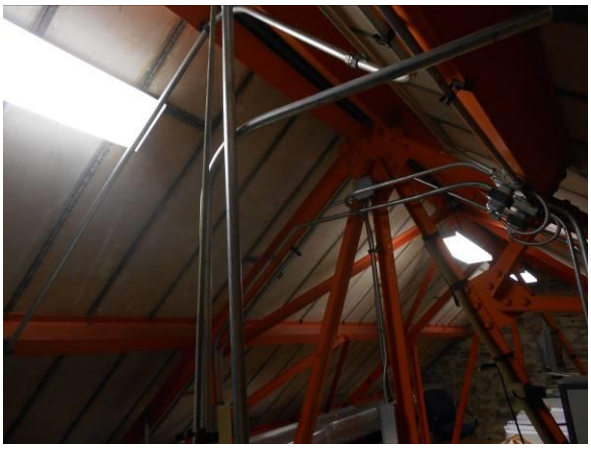


Photo #27 View of the mechanical storage room on the 2nd level (attic).

Photo #28 View of the mechanical storage room on the 2nd level (attic).

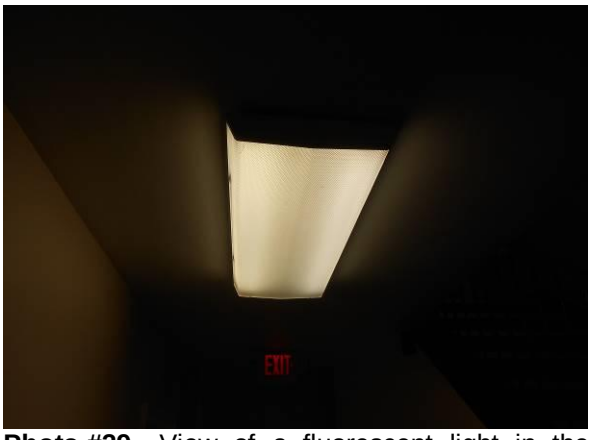


Photo #29 View of a fluorescent light in the building.

Photo #30 View of a thermostat in the building.

Photo #31 View of a thermostat in the building.

Photo #32 View of the asbestos black sink undercoating on the 2nd level of the building.

Photo #33 View of the asbestos bottom floor tile in the basement of the building.

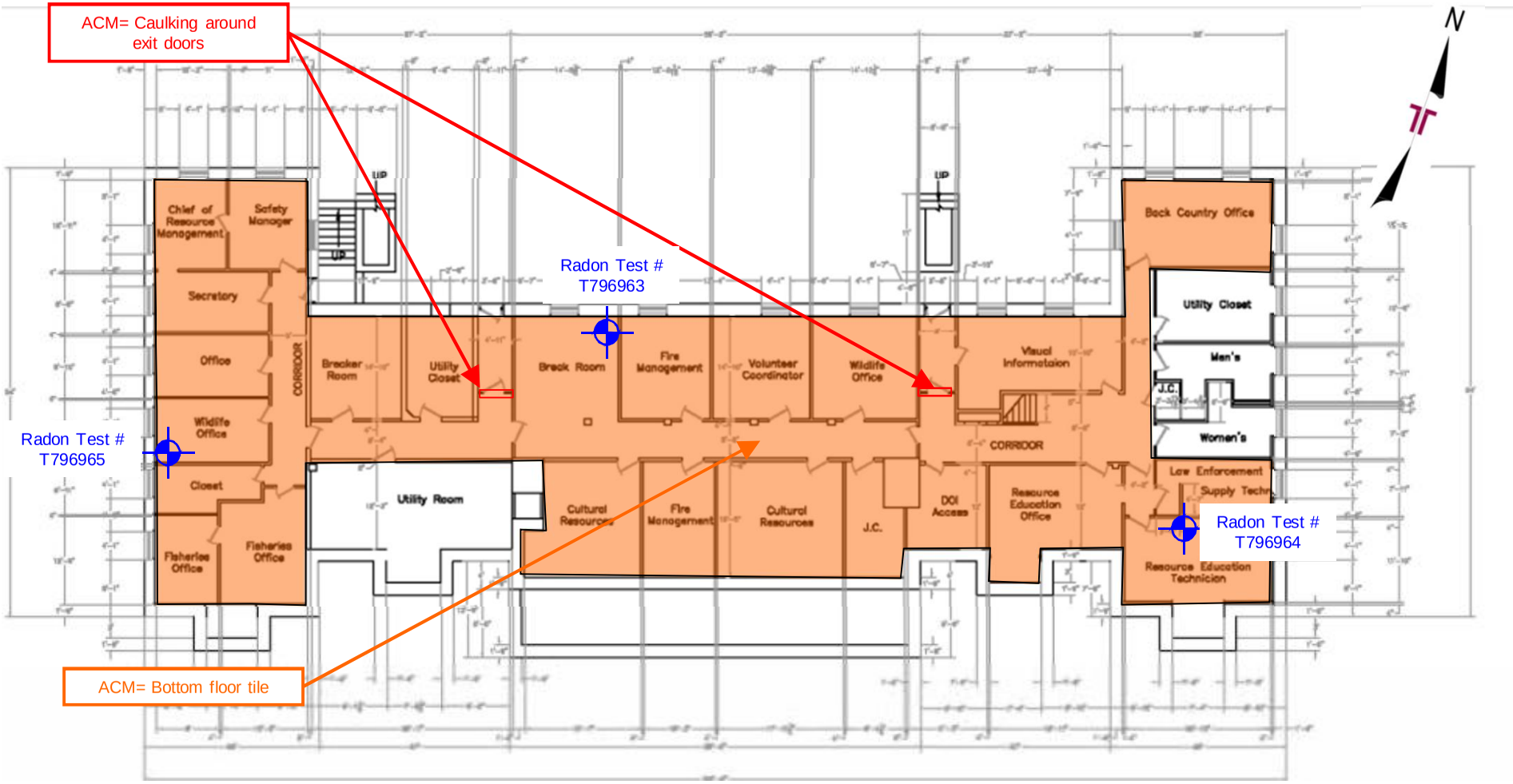
Photo #34 View of the asbestos caulking around the exit doors of the building.

Photo #35 View of the emergency lights and exit sign in the interior of the building.

Photo #36 View of the carpet glue over hardwoods in the interior of the building.

APPENDIX I

EXHIBITS



Asbestos was identified in the following:
Bottom floor tile in the basement.
Caulking around the entrance/exit doors.

Lead containing paint was identified in the following:
Basement areas (doors, trim, masonry, walls).

Radon:
Radon was detected ranging from 0.9 picoCuries per liter of air (pCi/L) to 4.3 pCi/L.

PCB:
PCBs were not detected in caulking.
PCBs were not detected in the glazing.

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

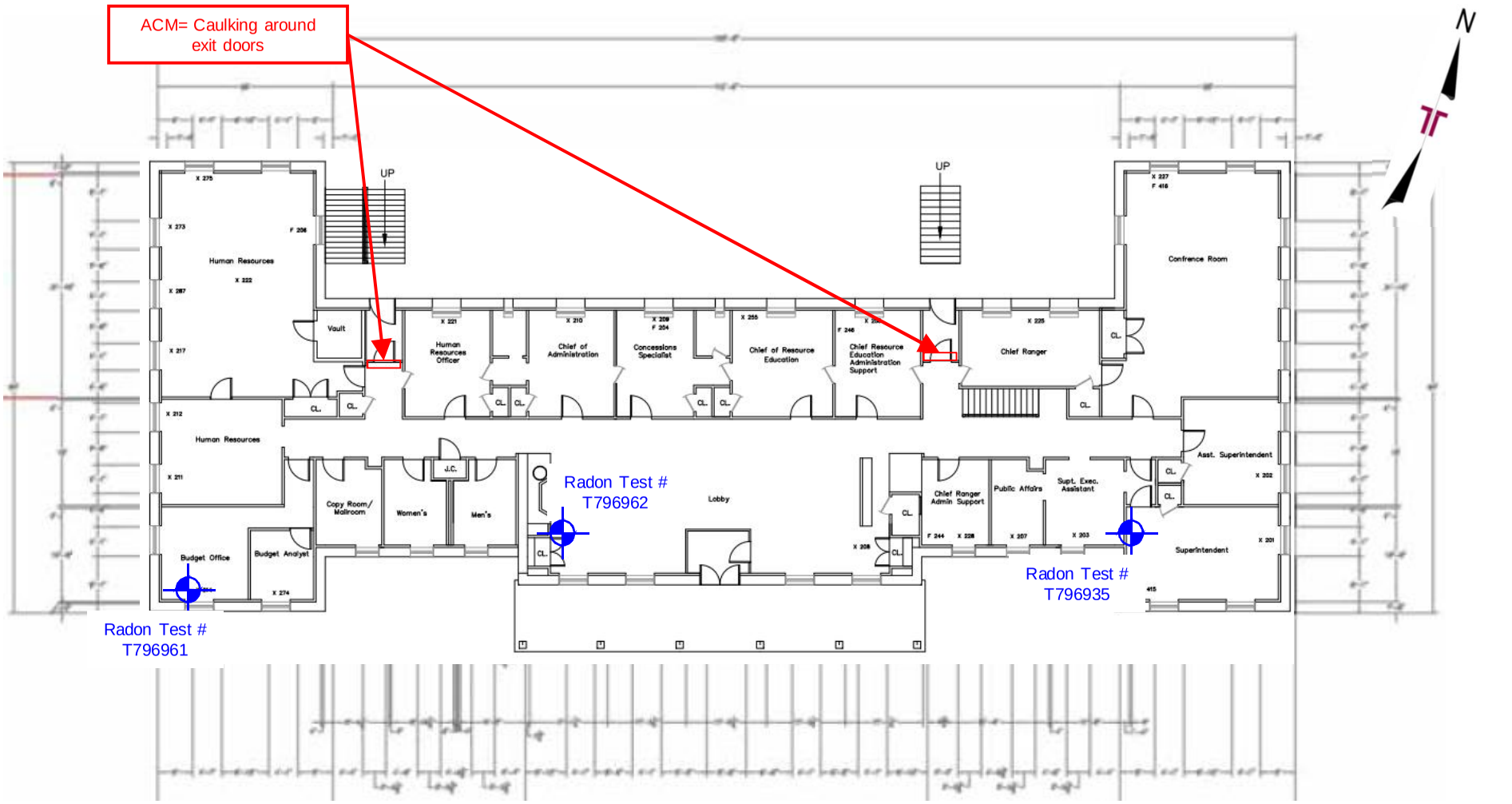
Project Manager:	BWW
Drawn by:	BWW
Checked by:	SA
Approved by:	GF
Project No.	E2187166
Scale:	N.T.S.
File Name:	N:/2018
Date:	11/30/2018

Terracon
Consulting Engineers & Scientists
3601 Mojave Court, Suite A Columbia, Missouri 65202
PH. (573) 214-2677 FAX. (573) 214-2714

BASEMENT DIAGRAM

Sugarland's Headquarters Rehabilitation
Great Smoky Mountains National Park
107 Park Headquarters Road
Gatlinburg, Sevier County, Tennessee

Exhibit 1



Asbestos was identified in the following:
Caulking around the entrance/exit doors.

Lead containing paint was identified in the following:
1st Floor areas (doors, trim, walls).

Radon:
Radon was detected ranging from 0.9 picoCuries per liter of air (pCi/L) to 4.3 pCi/L.

PCB:
PCBs were not detected in caulking.
PCBs were not detected in the glazing.

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager: BWW	Project No. E2187166
Drawn by: BWW	Scale: N.T.S.
Checked by: SA	File Name: N:/2018
Approved by: GF	Date: 11/30/2018

Terracon
Consulting Engineers & Scientists
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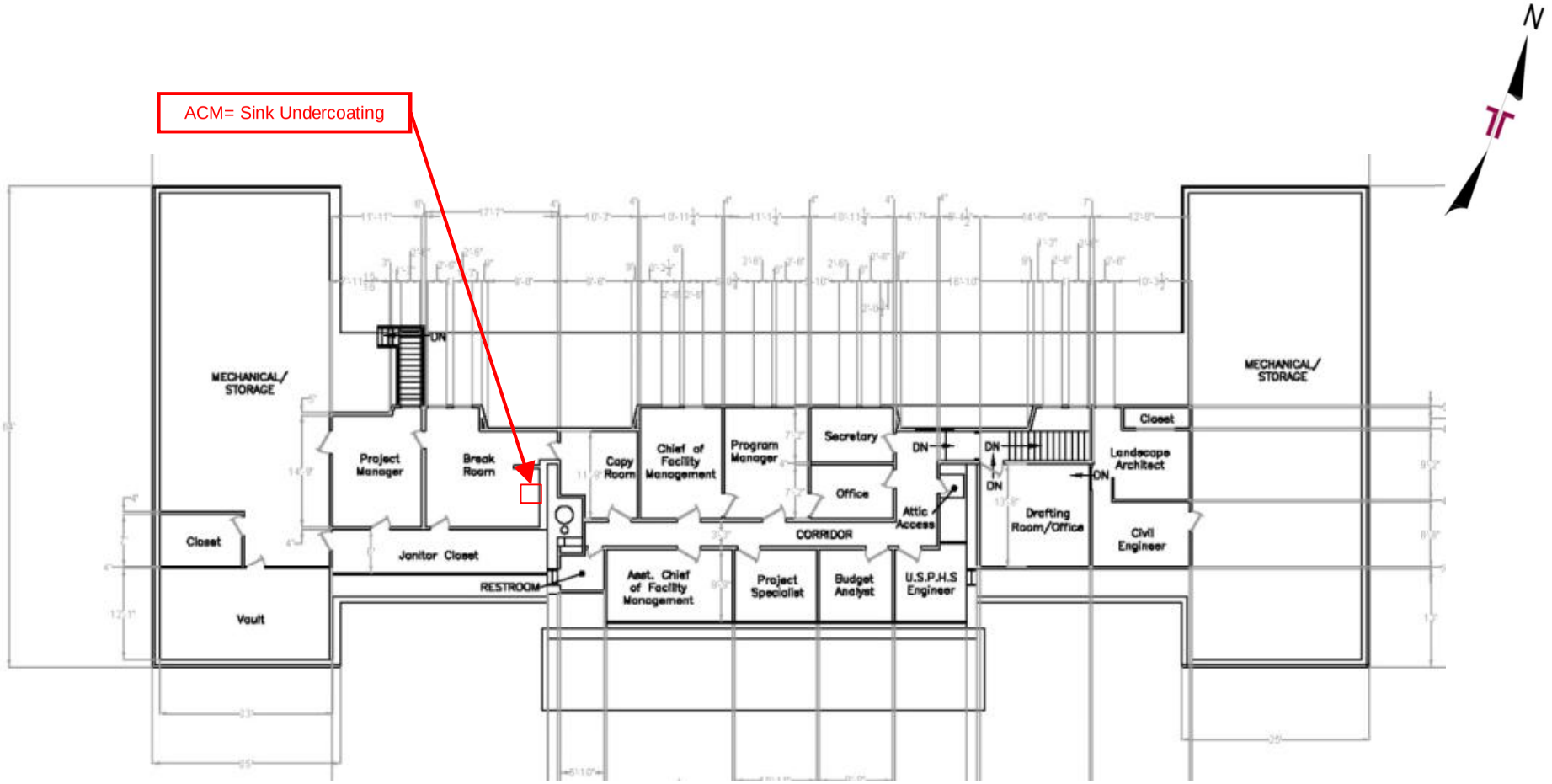
MAIN LEVEL (1st Floor) DIAGRAM

Sugarland's Headquarters Rehabilitation
Great Smoky Mountains National Park
107 Park Headquarters Road
Gatlinburg, Sevier County, Tennessee

Exhibit 2



Asbestos was identified in the following:
Sink undercoating in the breakroom 2nd Floor.

Lead containing paint was identified in the following:
Lead containing paint was not detected on the 2nd Floor.

Radon:
Radon cannisters were not located on the 2nd Floor.

PCB:
PCBs were not detected in caulking.
PCBs were not detected in the glazing.

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	BWW
Drawn by:	BWW
Checked by:	SA
Approved by:	GF
Project No.	E2187166
Scale:	N.T.S.
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UPPER LEVEL / ATTIC (2nd Floor) DIAGRAM

Sugarland's Headquarters Rehabilitation
Great Smoky Mountains National Park
107 Park Headquarters Road
Gatlinburg, Sevier County, Tennessee

Exhibit
3

National Park Service
U.S. Department of the Interior

Great Smoky Mountains National Park
107 Park Headquarters Road
Gatlinburg, TN 37738

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