National Park Service
U.S. Department of the Interior



QUINCY MINE OFFICE
KEWEENAW NATIONAL HISTORICAL PARK
Historic Structure Report

November 1, 2019



Cover Illustration: Quincy Mine Office (Anderson Hallas 2018)

Publication Credits: Information in this publication may be copied and used, with the condition that full credit is given to the authors, their companies, and the National Park Service. Appropriate citations and bibliographic credits should be made for each use.

Notice: This manuscript has been authored by Mundus Bishop under PMIS 237234 with the National Park Service. The United States Government retains and the publishers, by accepting the article for publication acknowledges that the United States Government retains a non-exclusive, paid-up, irrevocable, world-wide license to publish or reproduce the published form of this manuscript, or allow others to do so, for the United States Government purposes.

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

National Park Service Mission Statement: The National Park Service preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

Table of Contents

Table of Contents i

PREFACE: Executive Summary and Administrative Data

Chapter 1. Executive Summary

Historic Structure Report Summary 1-1
Project Purpose and Need 1-1
Methodology and Research 1-2
Summary of Treatment Recommendations and Critical Findings 1-3
Location Data 1-4
Project Team 1-6

Chapter 2. Administrative Data

Administrative Background 2-1
Statement of Significance 2-1
Related Studies 2-1

PART 1: Developmental History & Physical Description

Chapter 3. Historic Background

Historic Context 3-1
Building History 3-15
Building Chronology Summary and Drawings 3-32

Chapter 4. Existing Conditions

Existing Conditions Overview 4-1
Character Defining Features 4-3
Existing Conditions & Condition Assessment 4-5
- Architectural 4-4
- Life Safety and Accessibility 4-42
- Hazardous Materials 4-44
- Structural 4-45
- Mechanical 4-55
- Plumbing 4-62
- Fire Suppression 4-65
- Electrical 4-69
- Site 4-72

PART 2: Treatment and Use

Chapter 5. Treatment Recommendations

Treatment Overview 5-1
Treatment Recommendations 5-3
- Architectural 5-3
- Hazardous Materials 5-8
- Structural 5-9
- Mechanical 5-12
- Plumbing 5-13
- Fire Suppression 5-14
- Electrical 5-14
- Site 5-17

Preferred Alternative Drawings 5-19

APPENDICES

Appendix A Engineering Supplements
Appendix B Bibliography
Appendix C Historic Drawings
Appendix D Existing Conditions Drawings
Appendix E Environmental Survey Findings by Landmark Environmental, Dec 12 2018
Appendix F Condensed VA/CBA Workshop Notes, June 4-5, 2019
Appendix G Cost Estimate

1. Executive Summary

Historic Structure Report Summary

This Historic Structure Report (HSR) presents both a thorough documentation of the Quincy Mine Office and a vision for its future use. By identifying features that convey the historic significance and character of the building and site, evaluating the condition of those features and recommending treatments, the report serves as guide for the preservation of the structure's historic assets and a road map for its rehabilitation.

In 1992, Congress established Keweenaw National Historical Park to commemorate and interpret the rich copper mining heritage on the Keweenaw Peninsula, located on the western side of Michigan's Upper Peninsula. The Keweenaw Peninsula is home to the Lake Superior Copper Range, which held vast deposits of copper that attracted the mining companies which would dominate US copper production from the 1840s to the 1880s.

The park includes two units, Quincy and Calumet, with Quincy focusing on the former properties of the Quincy Mining Company, one of the most productive and longest lasting of the mining interests. Since its construction in 1896, the Quincy Mine Office handled the business concerns of the operation until 1931. It is a contributing structure to the Quincy Mining Company Historic District National Historic Landmark.

Keweenaw National Historical Park is a partnership park, combining limited federal ownership and partnerships with private owners, other public entities, institutions and non-profit organizations. The park acquired the property in 2001 to preserve the structure and the setting as part of the park's presence in the Quincy Unit.

The intent of the HSR is to document the physical evolution of the Quincy Mine Office, to describe the current conditions, and to recommend appropriate treatments. Documentation of the historic significance and the evaluation of integrity provides the framework upon which treatment recommendations are based. All treatment recommendations follow the Secretary of the Interior Standards for the Treatment of Historic Properties.

The present condition and condition assessment for each feature is documented in Part 1. Part 2 describes treatment recommendations for the preservation of these features and the rehabilitation of the structure.

Project Purpose and Need

The purpose of this project is to document and record the history and current conditions of this structure and to propose a road map for its preservation and continued use as part of a technical and multi-disciplinary approach. The recommendations are meant to inform the park and its Keweenaw Heritage Site partners in the Quincy unit as they collaborate on the future successful treatment and reuse of the building.

The Quincy Mine Office maintains a high level of historic integrity but is an underutilized asset for the park. Intended as leased office space, its first floor is only partially occupied; the upper floor not at all. Meanwhile, no structure in the Quincy Unit currently serves as a point of visitor orientation or interpretation. Keweenaw NHP's 2009 Facility Plan envisions continued lease office use with some spaces dedicated for interpretive exhibits related to Quincy Mining

Company business. This project will provide recommendations to preserve and enhance the building's viability as a leased space and interpretive facility.

Methodology and Research

History Methodology

The primary goals of the history section are to provide accurate information regarding the historic context and to clarify the evolution of the building. The park archives provided the bulk of source material for historic research. Extensive historic structure data, drawings and work records already carefully complied by the park staff facilitated further technical exploration. Research also drew on other completed studies of the district, including the 2010 Cultural Landscape Report for the Quincy Mine Historic Landscape. Research, coupled with on-site investigations, verified the accuracy of previous documentation and uncovered new information.

Historic Structures Report Methodology

The HSR presents documentary, graphic, and physical information for the Quincy Mine Office. Study of primary historic documents (original drawings, historic photographs, newspaper articles and company records), preliminary historic structure reports prepared by the park, record rehabilitation and restoration drawings, and park maintenance records laid the foundation for the analysis. A week-long site investigation sought to confirm or challenge this analysis with the goal of accurately documenting both past and current conditions. The assessment process involved a multidisciplinary approach to more fully understand the building and its alterations. Disciplines included architectural, structural, electrical, mechanical, plumbing, environmental , architectural conservation and landscape experts.

Existing Condition

Field observations contributed to descriptions of each extant feature and attendant condition rating. Features observed and analyzed by discipline included the following:

Architecture: roofing system, chimneys, exterior walls, porches, windows, doors, interior finishes, life safety and accessibility in accordance with the Architectural Barriers Act (ABA).

Structure: foundation, floor framing, roof framing, ceiling framing, wall framing, lateral system, seismic resistance and load requirements.

Mechanical: heating, ventilation, air conditioning and cooling systems.

Plumbing: water supply, venting and drain systems, as well as fixtures.

Fire Protection: fire suppression systems.

Electrical Systems: infrastructure, branch circuits, general power outlets and equipment, lighting systems, telecommunications, fire alarm, security systems, and lightning protection.

Environmental: hazardous materials.

Landscape: site accessibility, improvements, vegetation and topography

Condition Assessment

Each feature was evaluated and assigned a condition rating. A general building condition assessment is presented first, followed by

the condition assessment and ratings of each feature or component. The rating system is further described in the Part 1 overview.

Treatment Recommendations
In Part 2, treatment recommendations are provided for each feature to address the conditions previously described and assessed. A rating system identifies priorities for treatment. A preferred alternative has been selected from the three presented in the last draft, and treatment recommendations related to that alternative are now incorporated into this section.

Summary of Treatment Recommendations

Treatment: Rehabilitation
Rehabilitation is the recommended treatment for the Quincy Mine Office. The Department of the Interior defines rehabilitation 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. This treatment allows for altering a building to adapt to continuing or changing uses. Treatment recommendations generally retain existing materials in good condition and repair damaged finishes where needed.

The rehabilitation treatment allows for altering a building to adapt to continuing or changing uses, including code and accessibility improvements and system upgrades. Such treatment aligns with the park's vision for the future use of the building as continued leased office space.

Critical Findings
Treatment recommendations address the issues defined in the Existing Conditions Assessment. The most critical findings of this HSR are:

- Persistent moisture issues at foundation walls and basement
- Continued roofing failure despite remediation efforts
- Open cracks and failed mortar threaten the long term performance of the historic sandstone
- The building is not universally accessible
- Safe egress is hampered by a non-compliant rear stair. There is no second egress route from the second floor
- The structure lacks a fire protection system and fire alarm system
- The existing electrical service is no longer serviceable nor adequate for future use
- The building lacks air conditioning

Park Planning

Keweenaw National Historical Park existing general management planning documents continue to provide relevant guidance, which may be supplemented through development of additional planning documents, such as this one. The Quincy Mine Office Historic Structure Report is a component of the park's planning portfolio and fulfills a park planning for comprehensive documentation on the condition of the property, and appropriate treatment recommendations. This plan is consistent with the general guidance of the 1998 General Management Plan and helps the park to better meet the statutory requirements of 54 USC 100502, specifically the requirement to address measures for preservation of resources, and indications of types and general intensities of development.

Location Data

Keweenaw National Historical Park is located in the western portion of Michigan's Upper Peninsula, northeast of the town of Hancock. The Keweenaw Peninsula extends north into Lake Superior, and is divided in two by Portage Lake and associated canals. The Lake Superior Copper Range forms a spine down the length of the peninsula. The Quincy unit of the park sits along this ridge, south of the town of Calumet and close to Hancock and Portage Lake, as shown on the map below.

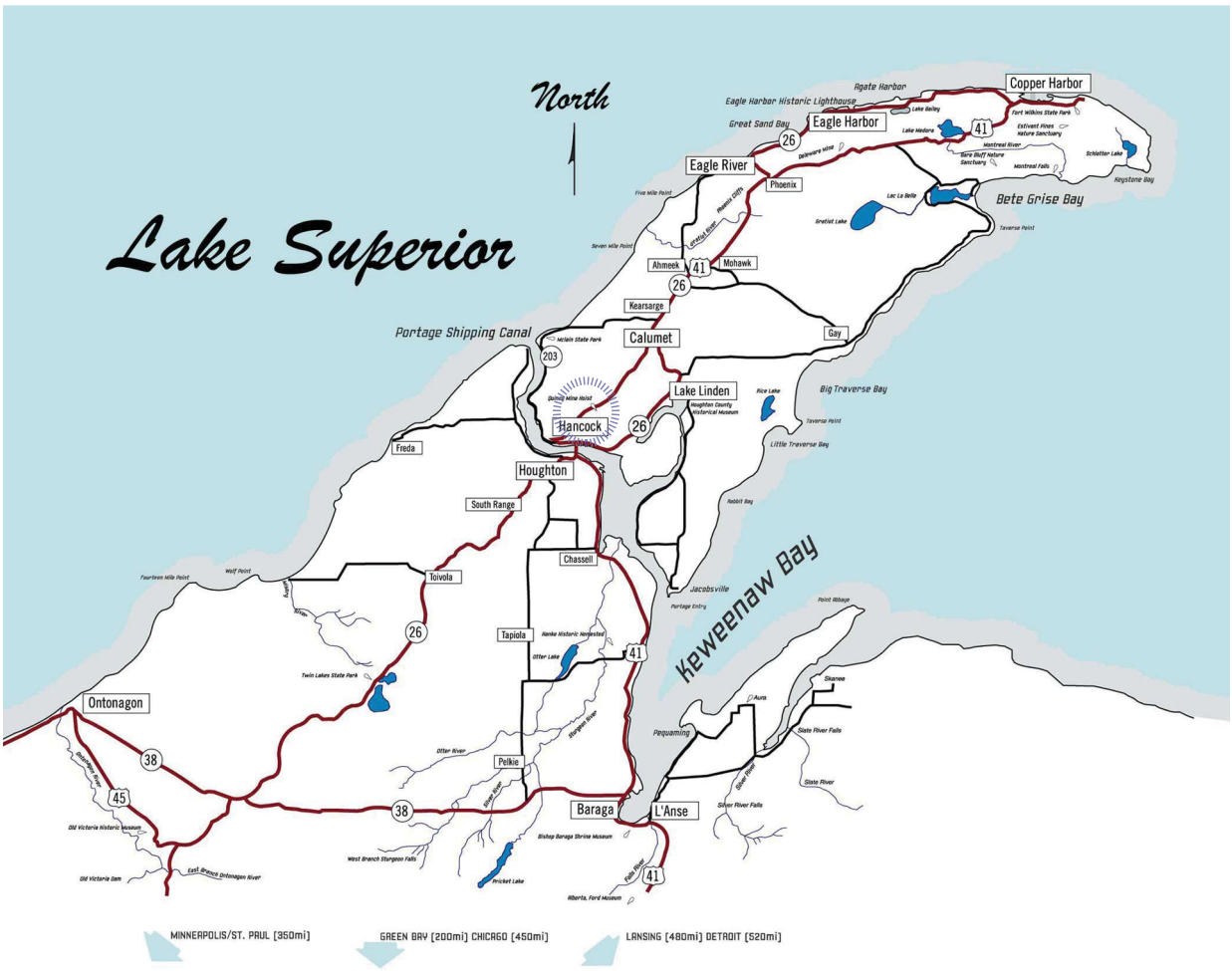


Figure 1-1. Quincy Unit of Keweenaw National Historic Park, location on the Keweenaw Peninsula



Figure 1-2. Quincy Unit of the Keweenaw National Historic Park

Project Team

At Keweenaw National Historical Park

Superintendent	Wyndeth Davis
Historical Architect	John Rosemurgy
Landscape Architect	Steve DeLong
Historian	Jo Holt
Facilities Manager	Chris St. Martin
Chief of Museum and Archival Services	Brian Hoduski
Archivist	Jeremiah Mason

Anderson Hallas Architects PC, Architects

Principal	Elizabeth Hallas, AIA, LEED AP BD+C
Project Architect	Laine McLaughlin, AIA, LEED AP BD+C

Mundus Bishop, Cultural Landscape Architects

Principal	Tina Bishop, ASLA
Senior Planner	Kelly Ream

Quinn Evans Architects, Historical Research

Historian	Ruth Mills, MA, MS

JVA Inc, Structural Engineer

Senior Project Manager	Lawrence Graham, PE
Project Engineer	Christine Britton, PE

360 Engineering, Mechanical Engineer

Principal	Denise Dihle, PE, LEED AP BD+C, HBDP

AE Design, Electrical Engineer

Principal	Jon Brooks, PE, IALD, LEED AP BD+C
Project Engineer	Kit Davidson, PE

Landmark Environmental, Hazmat Assessment

Project Manager	Brandy Howard, CIH, CSP
Site inspector	Don Milner

Architectural Cost Consultants, LLC, Cost Estimator

Estimator	Stan Pszczolkowski
	McCabe Karcher

2. Administrative Data

Administrative Background

Summary

Keweenaw National Historical Park was established by Public Law 102-543 in October 1992. The park is comprised of two geographically separate units, Quincy and Calumet. The Quincy unit focuses on the heritage of the Quincy Mining Company. The National Park Service owns only a small fraction of the park acreage and built assets. The remaining assets are owned and operated by various public, private and institutional entities in a unique partnership program.

In 1989, portions of the Quincy Mining Company were listed as a National Historic Landmark under the themes of Business (extractive or mining industries) and Technology (extraction and conversion of industrial raw material). This listing included the Quincy Mine Office as well as the smelting operations on Portage Lake. The 1989 nomination established a period of significance for the district beginning with the Company's founding in 1846 and ending with its first closure in 1931.

An amended nomination reconsiders the relevant resources of the Quincy Mining Company Historic District, adds further information, and reevaluates the district boundaries within those additional contexts. The revised nomination, currently in review, expands the scope of the nomination to include landscape characteristics and spatial relationships. The amended nomination proposes to revise the period of significance to the years 1856 to 1920 to reflect the period during which the Quincy Mining Company was exceptionally significant in the context of copper mining in the United States. [2.1]

Statement of Significance

The Quincy Mine Office is a contributing structure to the Quincy Mining Company Historic District, a National Historic Landmark (NHL) listed since 1989. The Quincy Mining Company possesses exceptional national significance as the exemplar of the United States copper mining industry in its earliest years. It was at the Quincy Mining Company that copper mining in the United States came of age. Michigan's Keweenaw Peninsula dominated copper production from the first explorations of the 1840s to its eclipse by western mines in the 1880s, and of those operations launched in the 1840s, Quincy survived the longest and produced the most. The structure has retained a high degree of historic integrity.

Related Studies

Previous studies of the Quincy Mine Office and its environs include:

Cultural Landscape Report and Environmental Assessment, Quincy Mine Historic Landscape, May 2010, by Quinn Evans Architects

"Mining Office", Quincy Mining Company Historic American Engineering Record, HAER MI-2 1978.

Please see the bibliography in Appendix B for a full list of references.

2.1 National Historic Landmark Nomination, 2017, prepared by Quinn Evans Architects.

3. Historical Background

Historic Context

Introduction

The Quincy Mining Company Office was built as the third, and last, administrative office of the company on Quincy Hill. Designed by Robert C. Walsh, of Morristown, New Jersey, a neighbor of Quincy's Secretary-Treasurer William R. Todd, the office was planned, designed, and constructed from 1895 to 1897, with the bulk of the construction work taking place in 1896. Quincy's superintendent and his staff moved into the building on December 30, 1896. The building was designed to not only serve the administrative needs of a growing mining operation, but also as a showpiece demonstrating the strength and profitability of the Quincy Mining Company. It was constructed from Jacobsville sandstone, a local outcrop of the red sandstone that was characteristic of the architecture of the Lake Superior region. The mine office continued to house the administrative staff of the company, including the superintendent, clerks, and engineers, until the company finally ceased operations in the late 1960s. The Quincy Mining Company and its successor, the Quincy Development Corporation, leased the building for office use by a number of non-profit organizations before it was acquired by the National Park Service in 2001. Since then, it has remained leased office space.

Copper Mining and the Quincy Mining Company[3.1]

Michigan's Keweenaw Peninsula contains some of the earliest evidence of copper mining in North America, dating back over 7,000 years. The extensive copper deposits in the Peninsula have defined and shaped its history from the earliest copper workings of American Indians, through the height of industrial copper mining in the nineteenth century, to the cultural and physical evidence of that history that continues to characterize the unique cultural landscape of the region.

Indigenous cultures in the Lake Superior region mined the rich copper deposits of the region for thousands of years, working from surface deposits and shallow pits to fashion tools, jewelry, and other items. The copper trade connected inhabitants of the area to a wide-ranging economic network that extended well beyond the Peninsula. Copper also carried spiritual significance for later inhabitants, particularly the Ojibwe, who had settled the region beginning in the late 1400s.

As Europeans and EuroAmericans reached the Lake Superior region in the 17th and 18th centuries, they too recognized the importance of the area's copper resources. However, the remoteness of the region and its harsh climate meant that serious efforts to extract the copper resources of the Keweenaw did not come until the early 1800s. Initial efforts to mine the mass, or fissure, deposits were not particularly lucrative. It was not until the capital, technology, and human resources were available to reach the deeper conglomerate and amygdaloid lodes that the true potential of the Keweenaw's copper resources would be realized.

The combination of a favorable survey of copper deposits by geologist Douglass Houghton in 1841, and the implementation of the first Treaty of La Pointe in 1843, in which the United States government acquired title and mineral rights from the Ojibwe, touched off "copper fever" in Michigan's

3.1 Unless otherwise cited, text in this section is summarized from Quinn Evans Architects, "Quincy Mining Company Historic District," National Historic Landmark nomination (draft), December 2017, and Quinn Evans Architects. "Quincy Unit Cultural Landscape Report/Environmental Assessment." National Park Service, 2010.

Upper Peninsula. Explorers and speculators flocked to the region to stake claims and start digging. Most failed, especially those that had concentrated on easily available and workable, but limited, mass deposits. Eventually, a few massive operations grew to dominate copper mining on the Peninsula.

The Lake Superior region produced the majority of the national copper output (at times more than 90 percent) from the 1840s until it was eclipsed in the 1880s by mines in the western United States. The Quincy Mining Company led Michigan's production of copper in the 1850s and 1860s, and remained a significant national producer of copper through the initial decades of the twentieth century. Incorporated in 1848, the Quincy Mining Company spent most of its first decade developing the infrastructure of a mining operation and searching for a copper source with enough potential to cover its investments. Following the discovery of an amygdaloid deposit at the neighboring Pewabic Mine, Quincy's explorers found evidence of the same lode on its own property. The rich Pewabic lode established Quincy's status as the single largest producer of copper in the world in the 1860s. The company returned its first dividends to investors in 1862, the beginning of over half a century of steady profitability that earned Quincy the nickname, "Old Reliable."

By the 1880s, the Quincy Mining Company was a mature, profitable organization. While the Keweenaw's status as the largest producer of copper in the country was being gradually being overtaken by mines in western states like Montana and Arizona, copper mining in the Lake Superior region was still highly profitable, so much so that the management and directors of the Quincy Mine felt comfortable in undertaking a significant period of investment and expansion in the late 1880s and 1890s. This encompassed the purchase of several neighboring mines, including the Pewabic Mine, reconstruction of the plant and equipment at Quincy's No. 2 shaft, and the construction of new shafts and a surface plant at Pewabic, a new stamp mill on Torch Lake, and a railroad to connect the shafts on Quincy Hill with the stamp mill. The company also continued to invest in new technology, such as the distinctive shaft-rockhouses (where workers were both lowered and raised and rock was delivered to the surface), to reduce the time and costs involved in extracting and processing copper-bearing rock. In all, the company invested over $3 million between 1888 and 1897, as compared to $1.1 million during the previous forty years. This investment permitted the company to remain profitable and even increase its output, even though it had to dig deeper for less-productive rock during this era. It fundamentally transformed the company and resulted in a period of expansion and prosperity.[3.2]

The Business of the Quincy Mine

Much of the Quincy Mining Company's success and longevity is attributable to its corporate leadership, which remained remarkably stable throughout the company's history. Quincy's business organization was divided between the company's corporate headquarters in New York City, where most of its officers and investors were based, and the mine management on Quincy Hill. During the period in which the new office was built, the company was headed by Thomas Fales Mason, who was president from 1858 until

3.2 Charles K. Hyde, "An Economic and Business History of the Quincy Mining Company," in HAER No MI-2, an unpublished report for the National Park Service American Engineering Record. Washington, DC, 1978, 157, 161-162.

his death in 1899, with one short interlude in the early 1870s. Mason was briefly succeeded by his son, Thomas Henry Mason, until the latter's death in 1902. Also in New York was Secretary-Treasurer William Rogers Todd, who had likewise been with the company since about 1859, first as chief clerk before being elected secretary in 1870. Todd succeeded T. H. Mason as president in 1902, serving until his death in 1924, when he was followed in turn by his own son, William Parsons Todd. Thus for almost the entire history of the Quincy Mining Company, over 100 years, it was under the leadership of just four men from two families, and W. R. Todd had been trained by T. F. Mason, resulting in an extraordinary continuity of leadership.

The mine management on-site at Quincy included the superintendent (also sometimes known as the agent or general manager), who was the chief administrative officer and reported directly to the president, one or more clerks, and the mine captains, who directed all mine work above and below ground and reported only to the superintendent.[3.3] During the planning and construction of the new mine office, the superintendent of the Quincy Mine was Samuel B. Harris, a native of Cornwall, England, who served from 1884 to 1902. While the Quincy Hill-based management in theory had control over day-to-day operations, in practice the corporate officers kept a close watch on all aspects of the mining operations. This would eventually become a source of conflict between Harris and the New York leadership, and W. R. Todd in particular, leading to Harris' forced resignation in May 1902, just a few months before Todd succeeded as president.

3.3 Hyde, "An Economic and Business History of the Quincy Mining Company," 18-20.

The expansion of company operations led to both an increase in the number of workers, and changes in the way management and workers interacted. Employment at the mine rose from about 450 workers in 1887, just before the period of expansion, to about 1700 in 1905.[3.4] At around the same time, in 1888, the company altered the way it paid workers. Previously, the company had served as a banker of sorts, allowing workers to maintain a ledger account that served as a defacto checking account; a worker could take partial payment in cash, or use the credit balance to pay local stores or landlords. This arrangement had been necessary particularly in the early years of the company, when banking institutions and stores were scarce, and it was in line with other instances of corporate paternalism that were practiced in the Keweenaw copper mining region. In 1888, however, Quincy eliminated the individual ledger accounts, although some merchants did continue to bill workers through the company until 1914. It may be simply that increasing numbers of workers made maintaining the ledger accounts impractical. However, one accounting historian has suggested that this accounting change was also symptomatic of a wider change in relations between labor and management, from a collaborative, shareholder model in the early decades to a more adversarial, employee model in subsequent decades.[3.5]

A New Mine Office

By the mid-1890s, Quincy's existing office was outdated and impractical. This was likely the company's second office on Quincy

3.4 Hyde, "An Economic and Business History of the Quincy Mining Company," 157.

3.5 Rodney R. Michael, "A Labor-Based Explanation for Accounting Innovation in a Late Nineteenth Century American Corporation," *The Accounting Historians Journal*, June 1998; Hyde, "An Economic and Business History of the Quincy Mining Company," 543.

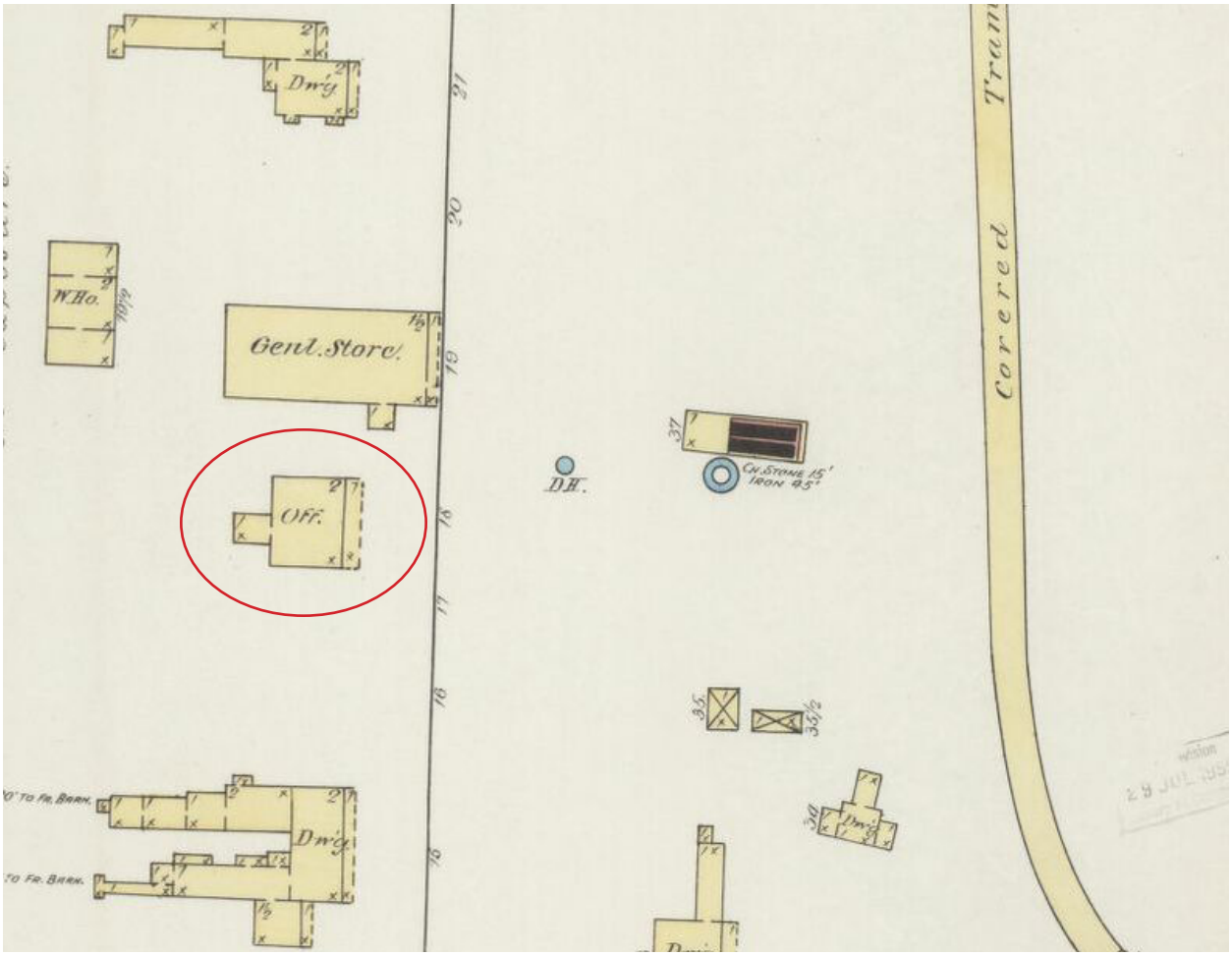


Figure 3-1. Mine Office (circled), North's store (directly north of the office), and context, detail taken from 1888 Sanborn Fire Insurance Map.

Hill, as an 1859 company building inventory listed an office, valued at $1,000, owned by the company.[3.6] In 1864-65, the company built a new office on the west side of the county road, just south of the existing office. The building cost around $6,000; annual reports show the bulk of the expense for the building, about $4,000, was expended in 1864, with the remaining money spent the following year.[3.7] At around the same time, the company built a store north of the mine office (Figure 3-1). Like the ledger accounts, this was designed to assist company workers during a period when services were scant in the area. While this is another example of the corporate paternalism that characterized the early years of the copper mining industry on the Peninsula, it was relatively benign. Goods were sold to workers at wholesale prices, and

3.6 Hyde, "An Economic and Business History of the Quincy Mining Company," 91

3.7 "Mining Office," Quincy Mining Company Historic American Engineering Record, HAER MI-2, 547.



Figure 3-2. Second mine office, detail from 1896 third office construction photograph (source: Library of Congress Historic American Engineering Record).

workers were not required to shop there, so it was not an attempt to tie workers to the company through debt. Indeed, the company lost money on the venture and quickly sold the store to Seth North in 1866, although North was permitted to bill Quincy employees through the company.[3.8]

The second mine office is visible in two photos taken during the construction of the third mine office in 1896 (Figures 3-2 and 3-9). It was a two-story, side-gabled frame building with wood clapboard siding. The photographs show the building with two entrances; the north entrance door had a deeper jamb and a small hood over the door, while the south entry was shallower with no hood. The windows were double-hung, six-over-six wood sash and the roof was covered with wood shingles. The building was very simple in character, with virtually no decorative elements, reflecting the priorities of the company when it was built, a period when the mine had only recently begun returning dividends to investors, and when the company's investment priorities were concentrated on building the infrastructure to profitably extract and process copper.

Thirty years later, the company had both the means and the desire to build something entirely different. By this time, the old mine office was functionally inadequate. It had been overhauled several times, first after a fire damaged it in 1872, and again in 1886 after it had become extremely dilapidated.[3.9] However, the mine's administrative staff was now larger, and included not only the superintendent and chief clerk, but also assistant clerks and engineers. In addition, the mine office was at this time the location where every mine worker was paid. This made sense, as workers were paid in cash, and the company's vault was installed in the mine office, so paying workers at the office meant large sums of cash were not being moved to a different location. This multi-purpose office was a common feature of mining companies across the Keweenaw Peninsula, with similar functional arrangements ranging from Quincy's chief rival, the Calumet and Hecla Mining Company, to smaller mines like the Copper Range Company in Painesdale.

The first reference to a new mine office came in November of 1894, when Superintendent Harris wrote to Secretary-Treasurer Todd. The New York office had recently moved into enlarged rooms, and Harris wrote to congratulate Todd, noting that "The change to your new quarters must be very agreeable and we should profit by the example here next summer by putting up a new habitable

3.8 Hyde, "An Economic and Business History of the Quincy Mining Company," 542-3.

3.9 *Report of the Director to the Stockholders of the Quincy Mining Company for the year 1872*. Boston, MA: Press of Rand, Avery, and Company, 1873.



Figure 3-3. Front/rear elevation of Robert Walsh's design for the new mine office, 1895 (source: Library of Congress).

mine office."[3.10] Harris had already clashed with Mason and Todd over his authority in choosing his clerical staff, and this may have been another way of demonstrating his autonomy from the officers in New York.[3.11] Mason and Todd appeared to grant that independence at first. In March 1895 Harris reported to Mason that plans for the new office were being prepared (presumably locally, perhaps by the company engineers). Two months later, Mason asked Harris for an update, and Harris replied that Seth North's store, which would be in the way of the new office, should be removed first. Between that, and the need to order materials, construction would be delayed until 1896, to which Mason agreed.[3.12] In July, Mason returned to New York from a visit to the Quincy Mine, bearing Harris' preliminary plans for the

3.10 S. B. Harris to W. R. Todd, November 20, 1894, QMC Correspondence, Box 337, Folder 5, 158.

3.11 Hyde, "An Economic and Business History of the Quincy Mining Company," 185-187.

3.12 T. F. Mason to S. B. Harris, May 16, 1895, QMC Correspondence, Box 338, Folder 9; S. B. Harris to T. F. Mason, May 20, 1895, QMC Correspondence, Box 337, Folder (?); T. F. Mason to S. B. Harris, May 31, 1895, Box 338, Folder 9.



Figure 3-4. Side elevation of Robert Walsh's design for the new mine office, 1895 (source: Library of Congress).

new office. In a subsequent letter to Harris, Todd expressed that he presumed the plans to be "all right if it suits you" and confined himself to making a few minor suggestions, including "a window at your office like clerks for men to come that wanted to see you" and a recommendation to slope the grade from the street so there would only be a few steps at the entrance.[3.13]

In this letter, Todd expressed his wish that "you will get up a nice building that will be ornamental with enough ground in front to set it off nicely and a place in the rear to drive into so that fellows won't hitch their horses at the front door." However, two days after Todd had given guarded approval of the Harris' plan, he wrote again to Harris to say that he and Mason had decided to recruit an architect friend of Todd's to revise the plans and to wait before proceeding.

3.13 W. R. Todd to S. B. Harris, July 12, 1895, QMC Correspondence, Box 338, Folder 9.

Whether the new mine office was another point of subtle contention between Harris and his superiors in New York is debatable, as on the surface the correspondence was cordial and there is no record of the verbal conversations on either side. However, it seems that one reason why the office design may have been taken out of Harris' hands was that it did not adequately reflect the status of the mining company at this time. Todd's request for an ornamental building, combined with a remark of Mason's in sending Harris the architect-designed plans in August, that among the improvements were "especially the elevation," supports this. Up to this time, Quincy's buildings were largely utilitarian in character, reflecting the functional needs of a massive industrial mining operation. Now, towards the end of a period of significant expansion and investment, Quincy not only had the profits to pay for an imposing office, but also may have seen it as a visual expression of an established and profitable business in a location that could no longer be characterized as the frontier. In short, the new office could be a showpiece for the company.

The company certainly had a prominent location for a highly visible and architecturally striking administrative office (Figure 3-5). It was within the boundaries of the company's original land purchase in 1848 of section 26, township 55 North, Range 34 West of Houghton County.[3.14] Quincy's surface plant was aligned along a southwest/northeast line that matched the underground copper deposits, which formed the geological spine of the Keweenaw Peninsula. The main road through the area, modern-day US-41, also tracked along this alignment. Built in stages between 1864 and 1873, it was originally a military road, deemed necessary



Figure 3-5. View of Quincy Hill from Houghton, ca. 1910. The new mine office is prominent at the center top-left of the image (source: Quincy Mining Company Annual Report, 1910).

because the copper mining sites, which were supplying metal for the Civil War, depended on a land link to Wisconsin for supplies and mail. The military road stretched from Fort Howard, near Green Bay, Wisconsin, to Fort Wilkins, at Copper Harbor near the tip of the Keweenaw Peninsula. The Houghton County portion had been completed around 1871. Most of the surface plant related to extraction and processing of the mining was located on the east side of the military road, while the office, store, and most of the housing locations were west of the road. In addition, the office was relatively close to the town of Hancock. It would have been visible not only to traffic coming up the road, but, since Quincy Hill was much less heavily vegetated than it is today, the office was also highly visible from both Hancock and its neighboring city of Houghton across Portage Lake.

W. R. Todd's "architect friend" who designed the new office was Robert Correa Walsh, a neighbor of Todd's in Morristown, New Jersey. Morristown was about 30 miles from the company's headquarters on Broadway in Lower Manhattan, and Todd likely

3.14 Warranty Deed.



Figure 3-6. The Mills Street School designed by Robert Walsh (source: Google Streetview).

commuted by train from Morristown, as his son's obituary in 1976 mentioned that the younger Todd had done so for 72 years. Walsh was born in 1855 in Washington, DC, and it is unclear when he moved to Morristown, although city directories show him there as early as 1885, and he was certainly practicing architecture by the early 1890s. Walsh's body of work was relatively modest and appeared to be largely confined to the Morristown area. Many of the public buildings he designed there, including commercial buildings, banks, and schools, have been demolished or heavily altered, although two schools, the Liberty Street and Mills Street schools (Figure 3-6), are still standing. The Quincy Mine Office may represent the most intact and best example of his work. Walsh also designed some of the larger houses in the area. He died suddenly of a heart attack in 1911, aged 57.[3.15] There is no evidence to suggest that Walsh ever visited the mine location in Michigan or had a hand in overseeing construction, so the plans (of which only four sheets survive; see Figures 3-4, 3-5, 3-7, and 3-8) and specifications (which do not survive) may have been all he contributed to the building.

Todd sent Walsh's plans to Harris in August 1895. Throughout the following correspondence between Mason, Todd, and Harris, the three men appeared to cordially discuss the details of the design and defer to each other. In early August, Mason referred to the plans as something that Harris can "compare and adapt…and are only sent that you may get some new ideas." Harris replied that he thought the "whole plan seems to be excellent" and "finely designed." [3.16]

One of the first items that Harris brought up was the material for the exterior, asking for Mason's opinion on the stone for the front. Later in the month, Harris expressed his preference for "Portage Lake red sandstone… the body of the stone rough, instead of cut smooth…"[3.17] Harris was referring to a local stone from the Lake Superior region, geologically known as the Jacobsville formation and found on the Keweenaw Peninsula southeast of the Keweenaw fault. Similar stone formed in belts of outcrops along the southern shore of Lake Superior in Michigan and Wisconsin, and iron oxide in the rock caused its distinctive color, which came in both pure red and in variegated bands. Jacobsville sandstone was often called Portage Entry after the location of one of the larger quarries on Keweenaw Bay near the mouth of the Portage River. Lake Superior sandstone was extremely popular from the 1870s to the 1890s. It was introduced in the early 1870s, with its first major use in the Milwaukee County Courthouse in Wisconsin

3.15 "Robert C. Walsh," (Obituary), *The Jerseyman* (Morristown), October 6, 1911, 5. Aldus H. Pierson, "Prominent Architects Have Been Residents of Town," *Morristown Daily Record*, October 1, 1938, 3.

3.16 T. F. Mason to S. B. Harris, August 7, 1895, QMC Correspondence, Box 338, Folder 9; S. B. Harris to T. F. Mason, August 12, 1895, QMC Correspondence, Box 337, Folder 5.

3.17 S. B. Harris to T. F. Mason, August 30, 1895, QMC Correspondence, Box 337, Folder 5

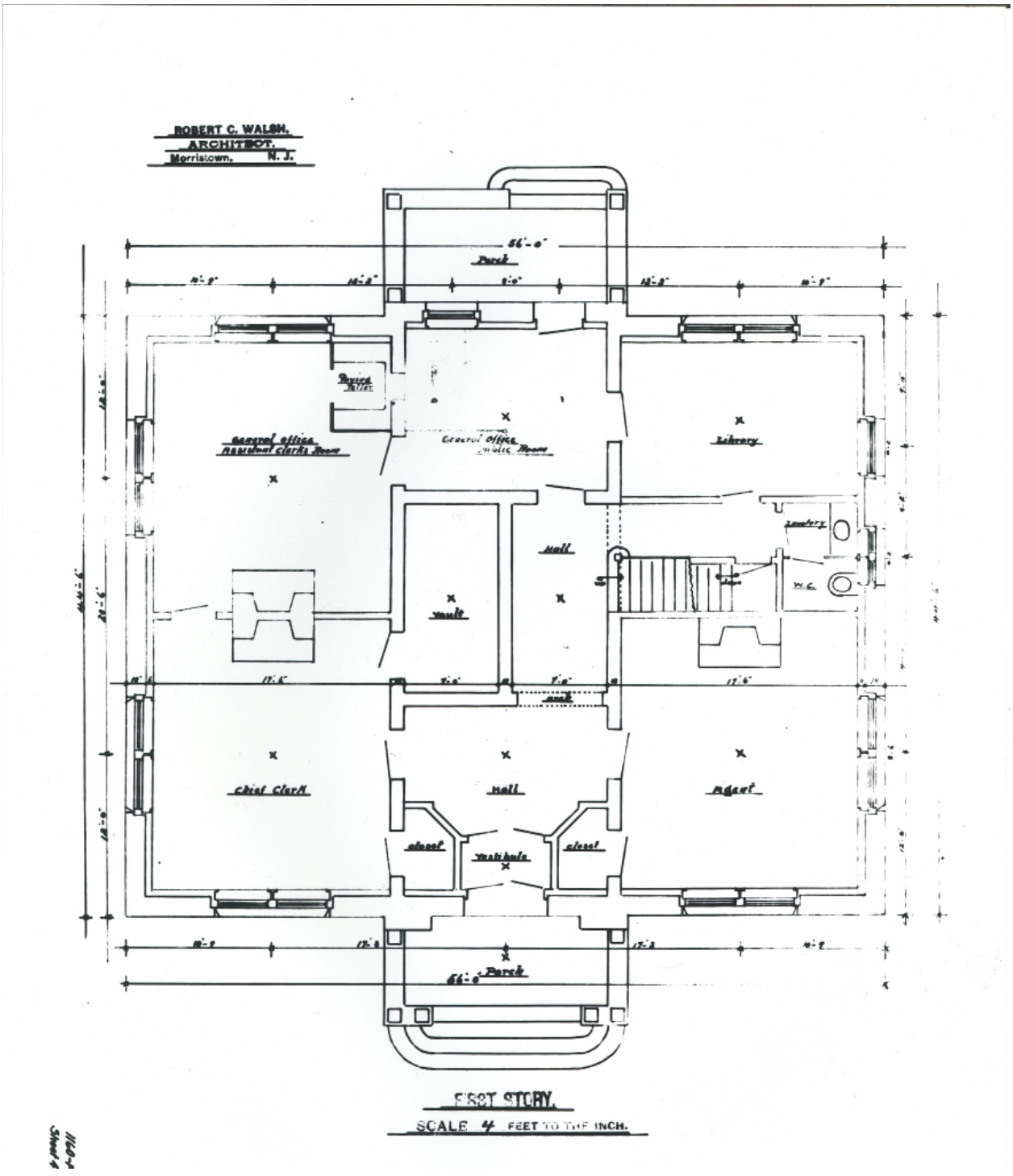


Figure 3-7. First floor plan of Robert Walsh's design for the new mine office, 1895 (source: Library of Congress).

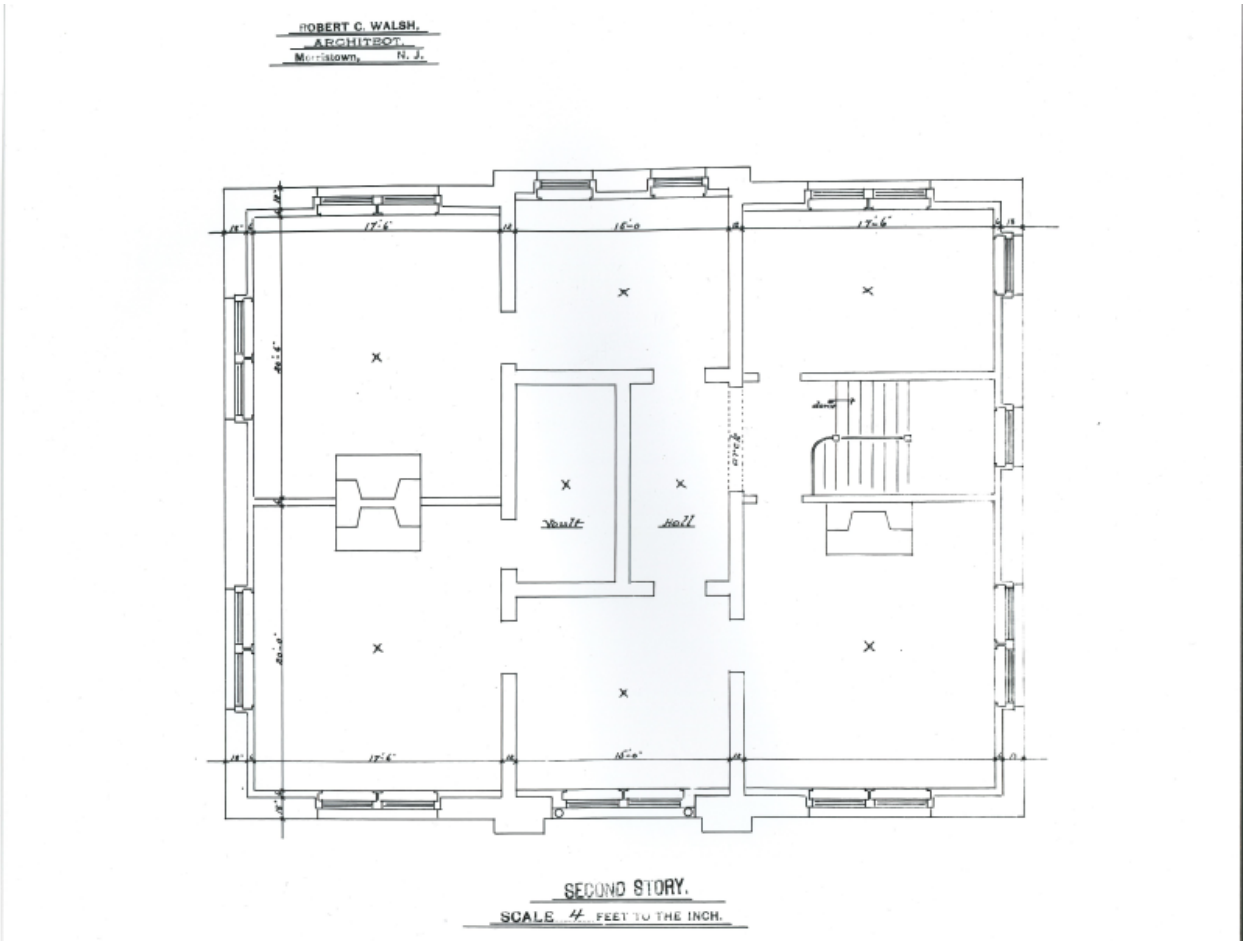


Figure 3-8. Second floor plan of Robert Walsh's design for the new mine office, 1895 (source: Library of Congress).

(built 1870-1873, razed 1976). At the time, just after the devastating Chicago fire of 1871, fire was a growing concern. Stone was thought to be fireproof, and Lake Superior sandstone was considered both beautiful and distinctive, as well as being durable and relatively easy to carve. With Michigan's Upper Peninsula thriving due to copper and iron mining and lumbering, the Great Lakes were already part of an extensive water and rail transportation network. It was thus relatively easy and inexpensive to ship the stone, and the sandstone quarries marketed the stone widely. While it was most extensively used in the Lake Superior region, Jacobsville sandstone appears in late nineteenth century buildings from Kansas City to the East Coast. It was particularly fashionable for civic buildings, until the World's Columbian Exposition in Chicago in 1893 popularized the White City and more delicate Beaux Arts architectural styles, which relied on lighter colored stone and materials.[3.18] Jacobsville sandstone was recognized in May 2019 as a Global Heritage

3.18 Kathryn Bishop Eckert, *The Sandstone Architecture of the Lake Superior Region* (Detroit, MI: Wayne State University Press, 2000), 15-29.

Stone Resource, awarded by the International Union of Geological Sciences and UNESCO's International Geoscience Programme. It is one of fifteen Global Heritage Stone Resources in the world, and the first in the United States.

Although Harris and Mason talked about using pure red sandstone for the front and sides of the new office, and ordinary or variegated sandstone for the rear, in the end it was built entirely of the higher grade red sandstone. According to the Quincy Mining Company's ledgers, the stone came largely from the Kerber-Jacobs Quarries, with some additional stone from the Portage Entry Quarries. The Kerber-Jacobs Quarry was begun fairly late, in 1892, but its founder, John H. Jacobs, had been a pioneer in the development of the Lake Superior sandstone industry. Jacobs worked in the stone quarries of Ohio before being hired as a foreman in a Marquette, Michigan sandstone quarry. Jacobs eventually acquired financial stakes in several quarries. Kerber-Jacobs was founded to develop a sandstone quarry north of Portage Entry, several miles up the coast of Keweenaw Bay from its intersection with Portage Lake. When Harris ordered the stone for the office from Kerber-Jacobs, it was the second largest producer of stone in the Keweenaw Bay area, although Jacobs himself would sell out of the company in 1897.[3.19]

Jacobsville sandstone was well-suited for the Romantic architectural styles popular in the late nineteenth century, such as the heavy rusticated masonry, large irregular forms, and massive round arches distinctive of the Richardsonian Romanesque style. Whether it was as successful in the case of the Quincy Mine Office has been more questionable.

Kathryn Bishop Eckert, in her 1982 dissertation on Lake Superior's sandstone architecture, noted that the building lacks the "vigor and vitality" of the region's churches, banks, and commercial blocks, attributing it to the fact that Walsh had never experienced "the ruggedness of the place." However, she later reconsidered, and by the time she had revised and published the dissertation as a monograph in 2000, she argued the opposite: "the building matches in skill the designs of the region's vigorous and vital churches, banks, and commercial blocks."[3.20] Alison K. Hoagland, in 2010's *Mine Towns: Buildings for Workers in Michigan's Copper Country,* agreed with Eckert's earlier conclusion, writing that "Walsh's Colonial Revival design would have been more appropriate with red brick or a smooth-faced, lighter colored stone" than the rough-faced Jacobsville sandstone.[3.21] Nevertheless, the decision to use Jacobsville sandstone in the Quincy Mine Office resulted in a handsome building that is a distinctive expression of the history and geology of the Keweenaw region enabled by East Coast capital .

The details of the design and specifications were largely complete by the end of September 1895. Todd wrote to Harris that Mason was bringing the plans and specifications to the mine in person, and hoped that "they may prove satisfactory… it will certainly make a handsome and commodious office and when finished imposing enough to make us all take off our hats and be on our best behavior when we come to see you."[3.22] Hoagland suggests the

3.19 Eckert, *The Sandstone Architecture of the Lake Superior Region*, 63, 76-78.

3.20 Eckert, *The Sandstone Architecture of the Lake Superior Region*, 179.

3.21 Alison K. Hoagland, *Mine Towns: Buildings for Workers in Michigan's Copper Country* (Minneapolis, MN: University of Minnesota Press, 2010), 205-213.

3.22 W. R. Todd to S. B. Harris, September 26, 1895, QMC Correspondence, Box 338, Folder 9.

"best behavior" quip was another dig at the power struggle between Harris and Todd, with Todd subtly reminding Harris that Todd had the superior position.[3.23]

The materials for the building were delivered in late 1895, and construction took place over the next year. Harris was able to move his staff into the building at the end of 1896, although it took a few more months to complete the building. The final cost was just over $29,000 – more than Harris had initially expected, but there is no evidence to suggest that the company did not think the money well spent. As Hoagland has noted, the Quincy Mining Company didn't "expend much architectural energy on community institutions" like its neighbor Calumet and Hecla to the north, but it did splash out on a "showpiece office building." The new office conveyed a "solid and respectable image."[3.24]

Later History of the Quincy Mine Office

Quincy's new mine office served the company for over seventy years with relatively few alterations. In part, this is due to the fact that the company's prosperity began to decline in the early decades of the twentieth century and the company focused its capital expenditures on land acquisition and infrastructure improvements to extract more copper. That the few alterations made during those years were relatively minor suggests that the office was functionally well-designed for its purpose and only needed to be changed when functions changed.

The most significant alterations to the office in the early 1900s were related to one such functional change to the company's timekeeping system. By this time, Charles L. Lawton had replaced Samuel Harris as superintendent (Lawton signed his letters and memos as "general manager"). In early 1913, Lawton wrote to now-President W. R. Todd that he had been "mulling over" a rearrangement of the floor plan of the office and that "the distribution and handling of the time in the office is what has been troubling us."[3.25] The exact nature of the problem was not cited, but it may have been related to accommodating the increased numbers of workers in the pay office, and to the fact that the state of Michigan had enacted a law requiring mining employers (among others) to pay wages at least semi-monthly.[3.26] The new system introduced time cards and stationed time-keepers at each shaft during shift-changes to clock workers in and out, and a time-keeping and waiting room was built at each shaft to accommodate workers while they waited. The new system was tested in August 1913 and implemented in all the underground departments by the end of the year.[3.27]

The new system also made a major change to payment – workers were now paid at the shaft to save them the trip to the office, as well as saving time in the office. What isn't clear is why this change would require alterations to the mine office. These are discussed in more detail in the chronology, below, but in short, the original circulation had workers entering the building through a rear entry into a lobby, picking up their pay, and circulating back out through a second door. In the new arrangement, the open back porch was enclosed and a window built so

3.23 Hoagland, *Mine Towns,* 205-213.
3.24 Hoagland, *Mine Towns*, 205-213.
3.25 C. L. Lawton to W. R. Todd, February 20, 1913, QMC Correspondence; C. L. Lawton to W. R. Todd, March 19, 1913, QMC Correspondence.
3.26 "Wages: Public Employment," *The American Labor Legislation Review*, Volume III, 1913, 428.
3.27 *Report of the Quincy Mining Company for the Year 1913*, 20.

that workers never had to enter the building. Certainly not all workers would be paid at the shaft, since not all worked underground, so the alterations to the rear entry may have been related to other functional issues with the new system, or may have been a means for recapturing the pay window space in the general office once it was not needed.
Just as the new timekeeping changes were being implemented, the Quincy Mine was engulfed in a strike that would have far-reaching implications for the mining industry. Following a series of labor disputes, the workers of the Keweenaw's major copper mines, including the Quincy Mine, the Calumet and Hecla Mining Company, and the Copper Range Mining Company, called a strike in July 1913. With the mine office located on Quincy Hill, the mine administrative staff were often in the heart of strike activities. In September 1913, two weeks into the strike, Lawton reported to Todd that "Friday last… we had no end of striking men, women, and children on the Hill on the main highway, all mixed with the militia men and the cavalrymen – the whole air was surging with excitement…"[3.28] The following March, Lawton wrote again that "…we had a strikers' parade on the hill yesterday afternoon, of 882 men, women, and children – 810 men and boys, and 72 women..."[3.29] The same month, Lawton met with a group of miners in his office to discuss the terms of a potential settlement, although the strike did not end until April.

The demand for copper increased shortly after the conclusion of the strike, as a result of the outbreak of World War I, keeping the company relatively proftable. However, the conclusion of the war and the general economic collapse of 1920-21 spelled the end of the company's long record of economic stability. The company nicknamed "Old Reliable" paid its last consecutive dividend in 1920; it would be nearly 30 years before its investors saw payment from the company. The company started closing facilities in the early 1920s, and workers began leaving the area in search of better employment. The company closed for several years in the early 1930s before reopening on a limited basis in 1937. Following a brief resurgence in demand due to World War II, the mine closed permanently in 1945. Processing activities continued at a reclamation plant on Torch Lake until 1967, while the smelter facility processed scrap metal until 1971.

With all operations closed, the company no longer needed the mine office. It began leasing the building's first floor for office space in 1971 to the Community Action Agency. In 1986, the Quincy Mining Company sold all its land and premises in Houghton County to the newly incorporated Quincy Development Corporation for $82,000.[3.30] The Quincy Development Corporation continued the lease with Community Action Agency until 1998, when it ended that lease and signed another with the Quincy Mine Hoist Association for the basement and first floor. The Quincy Mine Hoist Association is a non-profit founded by the Quincy Mining Company to preserve and interpret the history of copper mining in Michigan, and specifically the buildings and equipment associated with the No. 2 shaft, the second to be sunk on the Pewabic lode in 1857. The rent for the property was nominal, with the Association agreeing to pay for utilities, insurance, taxes, and routine maintenance. The Association leased the space in turn to the George Wright

3.28 C. L. Lawton to W. R. Todd, September 26, 1913, QMC Correspondence.
3.29 C. L. Lawton to W. R. Todd, March 23, 1914, QMC Correspondence.
3.30 Indenture dated December 1, 1986.

Society and the Isle Royale Natural History Association.

On April 13, 2001, the Quincy Mine Office (then known as the Paymaster's Office or Pay Office) was purchased by the United States Government on behalf of the National Park Service to be part of Keweenaw National Historical Park (KNHP).[3.31] Founded in 1992, KNHP is a partnership park formed to preserve and interpret the history and culture of the copper mining districts of the Keweenaw Peninsula. The park continued to lease the office to the George Wright Society and the Isle Royale and Keweenaw Parks Association (then known as the Isle Royale Natural History Association). For a time it housed staff from Isle Royale National Park and the Pine Mountain Music Festival. The building will eventually be used for interpretation of the business history of Keweenaw Copper Mining as well as continuing to serve as leased office space.

Building History

Planning and Construction 1894-1897

As noted previously, planning for a new mine office began in late 1894 and continued for nearly a year, until architect Robert C. Walsh issued the final plans and specifications in late September 1895. This left little time for construction work to begin, due to the early onset of winter weather in the Keweenaw Peninsula. However, some preparation work did take place in late 1895, including the demolition of Seth North's old store to the north of the existing office.[3.32] In October, Quincy workers began initial site work and Harris ordered the sandstone, which was loaded on scows and floated to Hancock on Portage Lake and Waterway by Joseph Croze, who was based in Houghton. The stone was cut and dressed in Hancock by cut stone contractor William Scott, before being hauled up to the building site by Sidney Bates, a teaming and trucking contractor based in Hancock, where it was delivered in November.[3.33] In addition to the red sandstone, the buff-colored sandstone forming the front porch steps was from a stone quarry in Ohio, while the slate for the roof came from the Arvon slate quarry in the Upper Peninsula. Harris was also considering ordering the material for the interior over the winter, and thought it would be more efficient and inexpensive to order it from factories, rather than having Quincy workers make it on site.[3.34]

Site work resumed in April of 1896. At that time, a local newspaper, the *Copper Country Evening News*, reported that the old office was moved slightly to the south, as the new office would occupy part of the site of the old office and part of the site of the old North store.[3.35] A report based on archeological investigations of the site in 2017 suggested that the new office was not built within the footprint of the old office, which was reportedly built on piers.[3.36] An 1896 photograph of the new mine office under construction, taken from in front of the old office, shows the old office set on a temporary foundation (Figure 3-9). This indicates either that the old office had recently been moved to accommodate

3.31 Corporate Warranty Deed, April 13, 2001.

3.32 The company built a new store, also using Portage Entry red sandstone, a little to the north, across from the No. 7 Engine House, and leased it to North.

3.33 S. B. Harris to W. R. Todd, December 5, 1895, QMC Correspondence, Box 337, Folder 5.

3.34 S. B. Harris to W. R. Todd, December 13, 1895, QMC Correspondence, Box 337, Folder 5.

3.35 *Copper Country Evening News*, April 24, 1896.

3.36 Dawn Bringelson and Adam Wiewel, Trip Report, Archaeological Investigations at Quincy Mine Office, July 2017.



Figure 3-9. New mine office under construction, 1896, with old office to the left (source: Library of Congress Historic American Engineering Record).

construction of the new office, or that it was being prepared to be moved off the site once staff had moved into the new office. In the summer of 2018 construction crews uncovered several foundation walls off the northeast corner of the front porch. Archeologists from Michigan Technological University assessed the foundations and concluded that they were likely related to a basement entry to the original North store.

Work progressed quickly during the spring and summer of 1896, with Quincy Mining Company laborers performing most of the work, from general labor to carpentry and blacksmiths. Harris reported that cellar work began in May, and by August the slate roofing was on and interior plastering had begun.[3.37] Exterior work was largely completed by October, but work slowed in the late fall, after "somebody blundered" and the plaster fell, "causing much chagrin, and not a little profanity."[3.38] In the final stages of construction, Harris expressed his frustration with the slow pace, hoping that the staff would be able to occupy the office

3.37 S. B. Harris to W. R. Todd, May 4, 1896, QMC Correspondence, Box 337, Folder 5; S. B. Harris to W. R. Todd, August 18, 1896, QMC Correspondence, Box 337, Folder 5.

3.38 S. B. Harris to W. R. Todd, October 12, 1896, Box 337, Folder 5.; S. B. Harris to W. R. Todd, November 6, 1896, Box 337, Folder 5.



Figure 3-10. New mine office under construction, 1896 (source: Library of Congress Historic American Engineering Record).

by Christmas day.[3.39] However, it was not until a few days later, on Wednesday, December 30, that Harris was able to report to the New York office that they had moved into the new office and "feel greatly rejoiced therat, for the old dungeon was killing the whole of us. Our new quarters are very fine, but we need a little new furniture to brighten it up and be in respectable keeping with the old building."[3.40]

Little over a week later, the local *Portage Lake Mining Gazette* carried a description of the still-partially finished building, including the office layout and some of the architectural details:

> (The Quincy Mine Office)…is now completed so far as the first floor is concerned and only the finishing remains to be done in the second story. The building is of Portage Entry sandstone. The doorway opens into a wide hall on the north side of which is the private office of Supt. S. B. Harris and on the south side that of the clerk, E.D. Johnson, in the rear of Mr. Johnson's office is the general office occupied by Assistant Clerk McLeod and assistant. On the north side is a good sized room to be occupied by the township library, the stairs to the story above also lead from this side. On the second story is the private office of Engineer J. C. Harris, a large draughting room and two spare rooms, one of which will be used as a photographic room. The building is finished entirely in oak with oak floors. In each of the important rooms there is an open fire place. It is heated by both direct and indirect radiant heat and lighted with electricity. A fireproof vault starts in the basement and extends through each of the two stories. Take it altogether it is one of the most complete office buildings in the Upper Peninsula.[3.41]



AGENT'S AND CLERK'S OFFICE, QUINCY MINE, HANCOCK, LAKE SUPERIOR, MICH.

Figure 3-11. Quincy Mine Office, ca. 1900 (source: Keweenaw National Historical Park, Curto Collection, Album 12, #062).

3.39 S. B. Harris to T. F. Mason, December 21, 1896, Box 337, Folder 5.

3.40 S. B. Harris to T. F. Mason, December 31, 1896, Box 337, Folder 5.

3.41 "Quincy," *Portage Lake Mining Gazette*, January 7, 1897, 1.

Over the next several months, the final touches were added to the office, including details like brass stair nosing and furnishings such as a letter press and stand, floor mats and rugs, window blinds, and fire screens. Quincy employees received their first pay packets from the office in January 1897, with the *Portage Lake Mining Gazette* noting that the "…newer arrangements are more expeditious."[3.42] With everyone moved into the new office, the old mine office was removed in March.[3.43] In late spring and early summer, landscaping around the office was completed, including a picket fence.[3.44] Harris wrote his final opinion to the corporate headquarters in New York, praising the new building as "… the best office building in this part of Michigan, and tho' it cost a little more than we anticipated yet it is money well spent…"[3.45] The final cost of the building was $29,247.

QMC Use and Alterations 1897-1968

The mine office was utilized by the company for over 70 years with relatively few alterations. One of the earliest may have been the installation of a telephone system. The annual report for 1903 notes that a private telephone system was installed that year, connecting the buildings at the mine and stamp mill. While telephone connections between some Quincy buildings, including the office, had been mentioned as early as the 1879 annual report, it is possible that this was a new system. A ca. 1913-1914 drawing of an unrealized plan to add to the office (discussed below), did show that the closet to the south of the main entry vestibule had been enlarged and was labeled as the "telephone board" so the new system may have required larger equipment. A telephone booth was also added to the southwest office on the first floor, but this may have occurred later.

The most significant alterations took place around 1913, based on the above-referenced discussion about changes to the timekeeping system during this year. The annual report for 1913 mentions changes and alterations made to the main office building, and the mine office construction account records $2,743 in labor expenses. However, they may have taken place later. In November 1915, Lawton wrote to Todd that he proposed changes to the lower level of the office, which was "congested" and not "as efficient as it should be." The "addressograph makes too much noise" and the "settlement and employment room, because of the talking with the men in different languages, attracts a great deal of attention." Lawton thought both should be in an enclosed room by itself, and referred to a blueprint with the proposed changes, including a suggestion to build an addition on the back of the building. This would be a "flat lean-to affair, but invisible from outside the office yard." The north side would be built of concrete so that if an addition was necessary, the wall would become an inner partition.[3.46] It remains unclear if this addition was merely proposed or actually built.

An undated blueprint, possibly from around this time, does show a much more extensive addition than what was originally planned (Figure 3-15). This addition, which is only shown in a plan of the first floor, would have added another entire bay to the west (back) side of the building. Two new large offices were proposed, one in the northwest

3.42 *Portage Lake Mining Gazette*, January 21, 1897, 1.
3.43 S. B. Harris to W. R. Todd, March 4, 1897, Box 337, Folder 5.
3.44 S. B. Harris to W. R. Todd, May 4, 1897.
3.45 S. B. Harris to T. F. Mason, February 17, 1897, Box 337, Folder 5.
3.46 C. L. Lawton to W. R. Todd, November 4, 1915, QMC Correspondence.

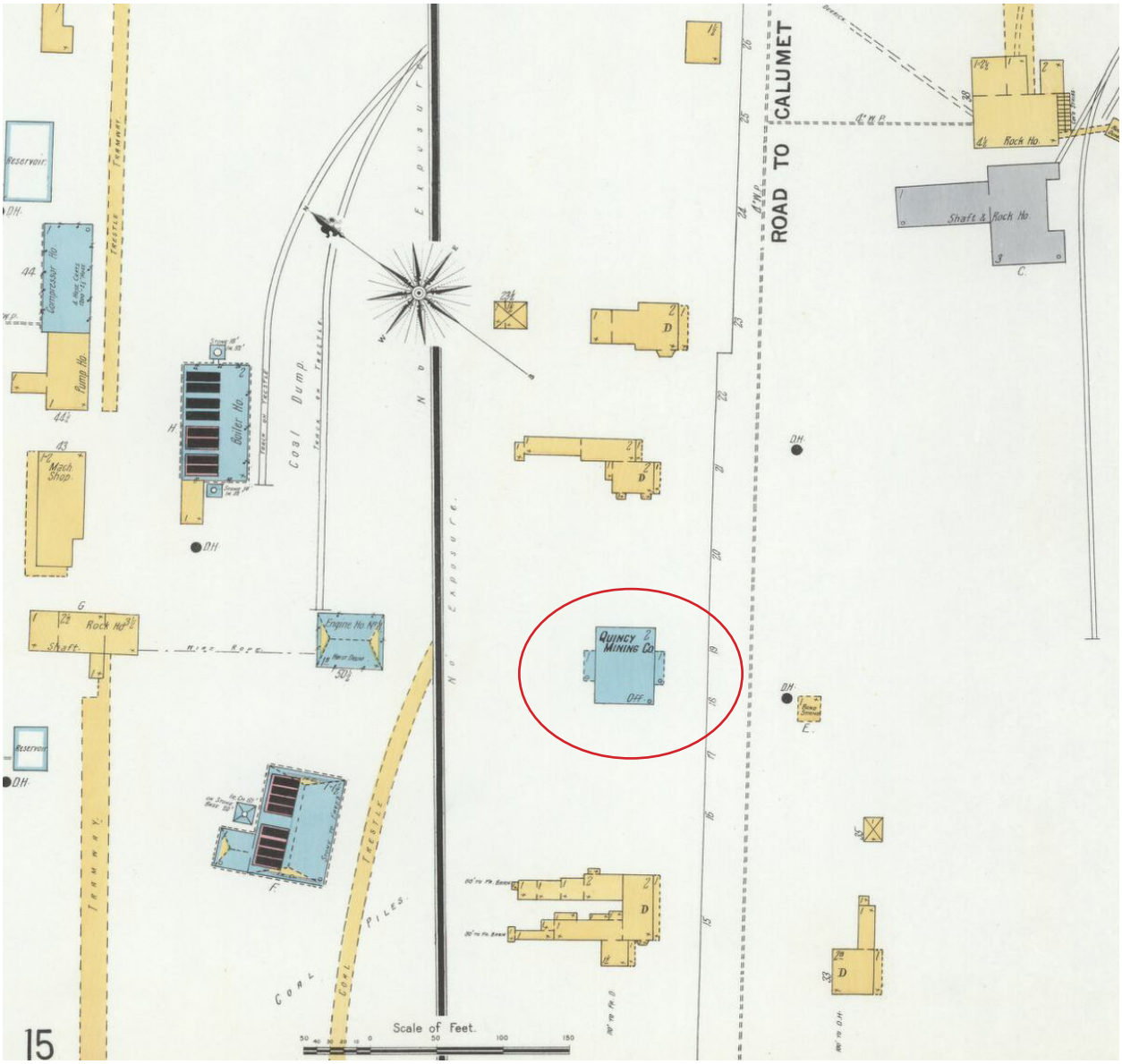


Figure 3-12. Detail of 1900 Sanborn Fire Insurance Map showing new office (circled).

corner for the "safety and efficiency" office (perhaps related to the passage of a worker's compensation law in Michigan in 1912), and one in the southwest corner for the timekeeping office. The space between the two new offices contained an extension of the main hallway, a vestibule for the back door, two closets, and two sinks. The toilet room previously under the stairwell on the north side of the building was also to be relocated to this area. Attached to the south elevation was an addition with two windows, one leading into the southwest corner of the original building, re-designated



Figure 3-13. Quincy Mine Office, ca. 1900s (source: Michigan Technological University Archives).

as the accounting office, and labeled "pay window" while another window in the southeast corner of the timekeeping office was labeled pay window. The addition had two doors to the exterior, one on the west side leading to an exterior porch and steps, and another on the south side leading inside the addition, which also had a stair leading up to a raised platform adjacent to the pay and time windows. It appears that it was meant to establish an exterior circulation pattern in which employees entered the addition by one door, visited the time and pay windows in turn, and then exited, without having to enter the building.

This major addition was never carried out, but its goals were somewhat realized in the changes that were implemented. The back porch was enclosed with wood, and the porch roof was reframed from a flat roof like that in the front porch to a hip roof (ghosting of the original flat roof exists on the sandstone, demonstrating that it was carried out as drawn in the original plans). Another change that may have been made during this period



Figure 3-14. Interior image of the mine office showing one of the fireplaces; the date on the calendar on the mantel is 1902 (source: Michigan Technological University Archives).

was the addition of an interior frame and glass partition dividing the chief clerk's office (rooms 104 and 105).

In 1914, Superintendent Lawton discussed installing a vacuum heating system to serve all the buildings south of the No. 2 shaft house, including the office. Lawton believed that the upfront investment needed to implement the plan would be balanced by the advantages of reducing coal heating costs and the ability to pump the condensed water at the end of the system back to the water tank at the roundhouse, where it would keep the tank from freezing in the cold weather.[3.47] It does not appear this was ever implemented, likely because the outbreak of World War I in late summer 1914 immediately impacted the company, which deferred new construction work until "a more favorable season."[3.48]

3.47 C. L. Lawton to W. R. Todd, September 28, 1914, QMC Correspondence.

3.48 *Report of the Quincy Mining Company for the Year 1914.*

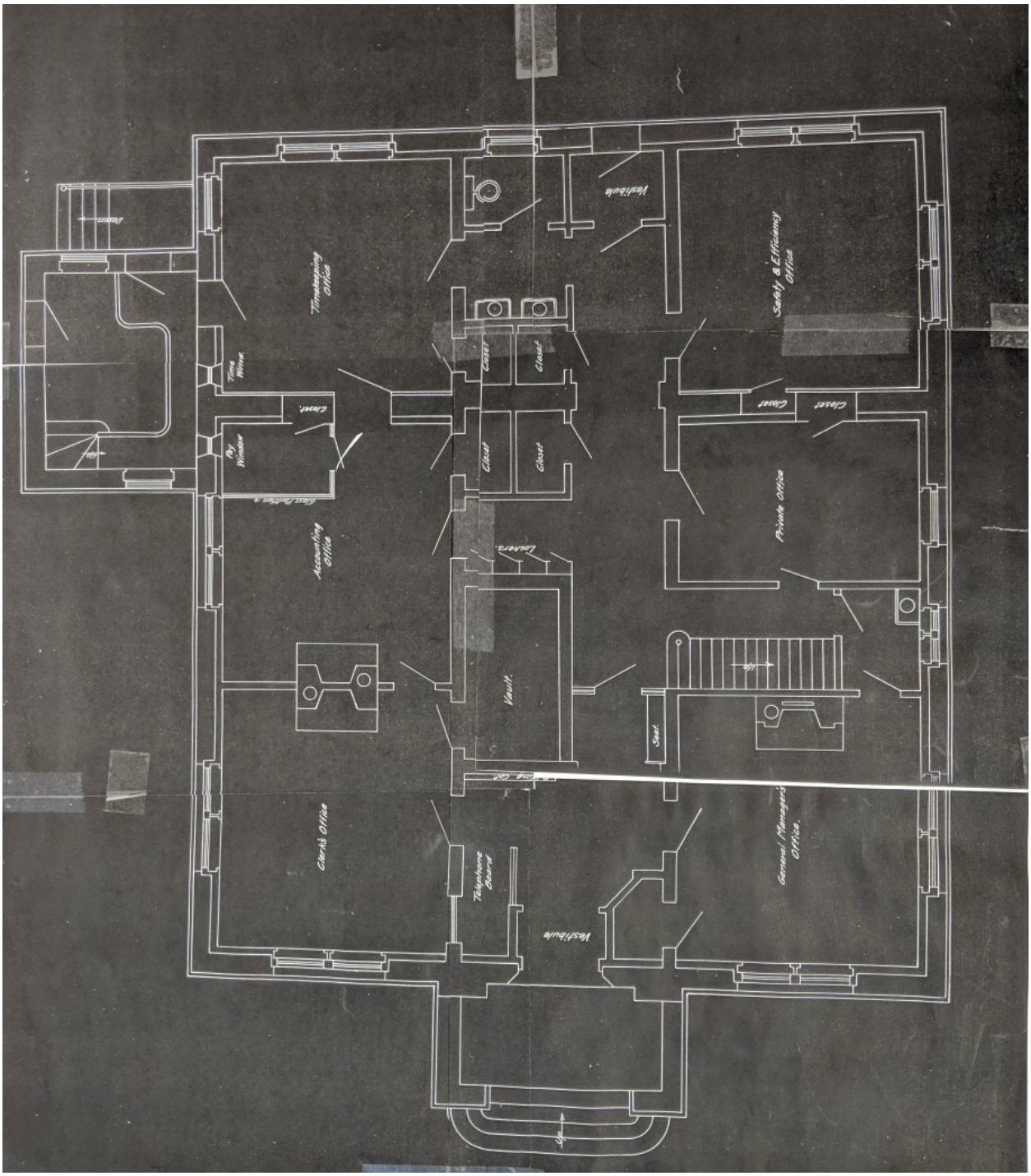


Figure 3-15. Undated blueprint showing addition that was not implemented (source: Michigan Technological University Archives).



Figure 3-16. Quincy Mine Office, ca. 1915 (source: Keweenaw National Historical Park, Petermann Glass Plate Negative #508).

Although the new heating system was not implemented, the company did install a new water works system in the summer and fall of 1916. The mine office was supplied from a 100,000 gallon steel tank set on a fifty-foot high tower at the Limerick housing location, which was supplied by underground springs that fed into storage dams on the third and fourth levels of the No. 9 shaft.[3.49] Also this year, company ledgers showed an expense of $837 for "vault equipment and storage," possibly for installation of storage cabinets or similar equipment in the vaults. By this time, the company had an administrative staff of 32, up from only eight in 1900. Staff members included eight clerks, three timekeepers, ten general office workers, three telephone operators, and eight assayers/engineers (the count did not include the superintendent). Given the space constraints, it is likely that not all administrative staff worked in the mine office; they may have been stationed in offices elsewhere on Quincy Hill.[3.50]

3.49 *Report of the Quincy Mining Company for the Year 1916.*

3.50 Hyde, "An Economic and Business History of the Quincy Mining Company," 226.



Figure 3-17. Quincy Mine Office exterior, ca. 1925 (source: Keweenaw National Historical Park, Koepel Collection, N. A. Eilertson photographs, 1-13).

As the Quincy Mining Company reduced operations and struggled to maintain profitability following World War I, there seems to have been little investment in the mine office. The most significant alterations still evident in the office appear to have been implemented prior to 1920. However, the mine office continued to be used by the administrative staff until the company gradually shut down operations in the late 1960s.

Quincy Mining Company and Quincy Development Corporation Ownership and Leasing, 1968-2001

Following the shutdown of operations, the company leased the office to the Community Action Agency (CAA), a non-profit that distributed food and other essentials to local impoverished residents. During CAA's tenure, the mining company made a few alterations for their tenants. Because the oil furnace was expensive to operate, the company installed a wood-burning furnace for regular use, with an oil furnace used as a backup. CAA removed the original lighting fixtures and installed fluorescent lights on the first floor, as well as suspended acoustical ceiling systems positioned above the picture rail. The rear porch may also have been reclad during this period. A CAA employee remembered that the picket fence and gates (Figure 3-21) were removed around 1979, as they had caused snow to pile up and block the parking in front of the building. The arched windows were also partially infilled with wood panels covering the upper sash and wood storm windows below around this time to reduce heat loss. Window sash and trim were repainted a light tan/beige color. CAA kept trailers on the grounds to store food.[3.51]

There appear to have been few alterations related to the later leasing of the office to the Quincy Mine Hoist Association, George Wright Society, and the Isle Royale National History

3.51 Nancy Beth Fisher, "Quincy Mining Company Office, 1895-1994," Research Paper dated November 5, 1994.



Figure 3-19. Purchasing agent R. D. Blackburn in the Quincy Mine Office, ca. 1925 (source: Keweenaw National Historical Park, Koepel Collection, N. A. Eilertson photographs, 2-13).



Figure 3-20. Unidentified office interior location, ca. 1925 (source: Keweenaw National Historical Park, Koepel Collection, N. A. Eilertson photographs, 2-11).

Association (later to become Isle Royale and Keweenaw Parks Association). A 2000 property appraisal recorded the installation of a propane forced air system in 1999, which replaced the previous oil and wood systems.

National Park Service Ownership

In April 2001, the United States Government purchased the Quincy Mine Office for Keweenaw National Historical Park. The property, designated as Tract 102-04 (Figure 3-22), encompassed 4.36 acres in the northwest quarter of the southeast quarter of



Figure 3-18. The Eilertson brothers in the Quincy Mine Office, ca. 1925 (source: Keweenaw National Historical Park, Koepel Collection, N. A. Eilertson photographs, 2-12).

Section 26.[3.52] Although the first floor was still leased, National Park Service staff found that the second floor was largely intact and filled with original furniture and personal effects dating back to the 1930s (Figure 3-23), along with many archival records not collected during a previous Michigan Technological University project to assess

3.52 U.P. Engineers and Architects, "NPS Level I, II, and III Survey for Proposed Real Estate Acquisition of Tract 102-04," Keweenaw National Historical Park, January 9, 2001.



Figure 3-21. The mine office under Community Action Association lease, 1978 (source: Jett Lowe, Library of Congress Historic American Engineering Record).

and remove archival documents, now in the Michigan Tech archives. Keweenaw National Historical Park staff catalogued and stored the remaining materials in September 2001. A cache of Quincy Mining Company business records from the late nineteenth century were also found in the basement vault. They were removed from the vault in May 2007 by Keweenaw National Historical Park staff.

During the latter part of 2001 and into 2002, the park undertook a series of repairs and upgrades designed to support continued use of the building as leased space. This included cleaning of finishes on the second floor, rehabilitating the second floor bathroom, and stabilization of the slate roof. The second floor electrical wiring, fixtures, and power outlets were abandoned and replaced by temporary surface-mounted conduit and outlets for power, data, and phone lines. New period lighting fixtures were installed in circulation areas. The old boiler was also removed and replaced with a new natural gas

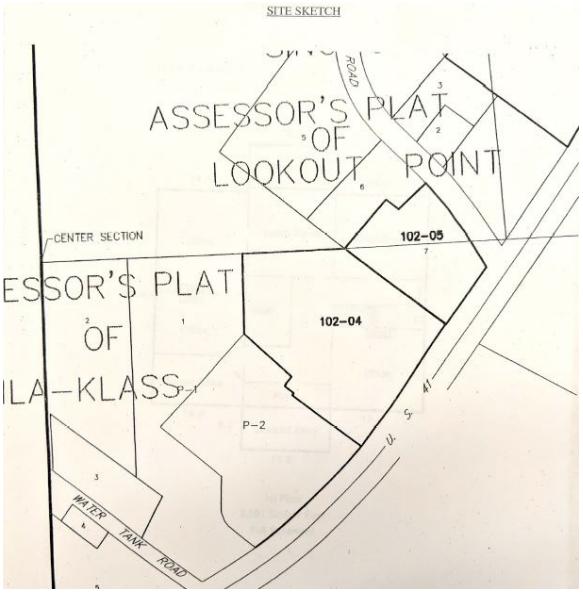


Figure 3-22. Map of Tract 102-04 from 2000 Appraisal (source: Keweenaw National Historical Park).

boiler.[3.53] Most of the work was done in-house by Keweenaw National Historical Park and Isle Royale National Park staff, although the boiler installation was contracted out.

Further work was undertaken from 2005 to 2009. A scope of work document from 2005 addressed the repair of the chimneys, which had historically served both the fireplaces and the steam boiler in the basement, and repointing of exterior masonry. Restoration of the front porch was also specified, as roof leaks had compromised the structural integrity of the rafters and porch columns. The scope of work called for removing the

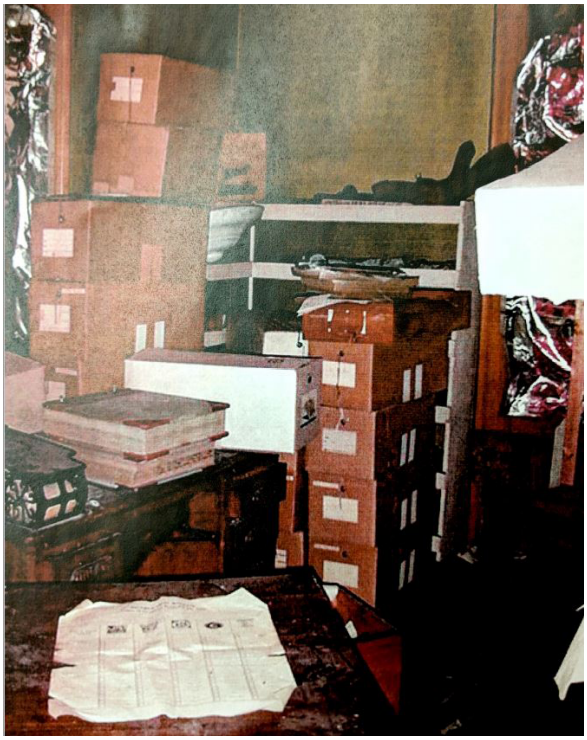


Figure 3-23. A second floor room documented during the removal of furnishings and records, 2001 (source: Keweenaw National Historical Park).

porch roof to the rafters, upgrading it for snow loads, and recreating the built-in gutter as well as other repairs.[3.54] The masonry repointing and chimney work was carried out in 2005 and 2006. In 2007-2008, the slate roof was replaced, including new slate to match the historic slate, restoration of the iron roof cresting, rebuilding of the built-in gutter system, and restoration of the associated woodwork, trim, and gable ends. The front porch restoration was also completed at this time, with all work being done by the J. Clark Construction Company. Other work during this period included sandstone masonry repair and the restoration

3.53 Scope of work, Quincy Paymaster House Interior Modifications, National Park Service, November 2001; Scope of Work, Quincy Paymaster House 2nd Floor Oak Floor Refinishing, National Park Service, March 1, 2002; Standard Operating Procedures, Keweenaw National Historical Park Quincy Paymaster's Office, September 25, 2002; Request for Quotes, Purchase and Installation of New Natural Gas Boiler, National Park Service, October 26, 2001.

3.54 Charles Marsten (NPS), email to Bruce Kozlowski, Scope of Work for Quincy Pay Office work, June 1, 2005.



Figure 3-24. The Quincy Mine Office, ca. 2007 (source: Keweenaw National Historical Park).

of some window sash.[3.55] In 2009, the park installed window roller shades to match the surviving examples of the dark green cloth shades found on site.

Keweenaw National Historical Park staff considered the use of the Quincy Mine Office in its 2009 Facility Plan workshop. The office was considered as one alternative for a park-wide visitor center. While the office was in a good location relative to Houghton/Hancock and its proximity to historic sites on both sides of US-41, and the National Park Service already owned the building, staff considered that access to the building from US-41 was potentially unsafe for vehicles and pedestrians. Furthermore, the changes needed to convert the building to a visitor center would compromise the building's high historic integrity. The Facility Plan concluded that the proposed use of the office should be for interpretation of the "Business of Mining" and historic leasing.[3.56]

In the fall of 2017, the park converted the existing steam heating system to a hot water

3.55 Solicitation Form, July 23, 2007; National Park Service, PMIS Statement 77492, October 22, 2008.

3.56 Keweenaw National Historical Park, Facility Plan, January 2009.



Figure 3-25. The Quincy Mine Office, ca. 2007 (source: Keweenaw National Historical Park).

heating system, painted the exterior, and rehabilitated 55 original windows on the mine office. While the original cast iron radiators were still in place, testing had determined that they were unfit for reuse and, after consulting with the Michigan State Historic Preservation Office, suitable new cast iron radiators were specified and installed. The heating system rehabilitation also included the removal of the existing steam boiler and all associated piping and controls and their replacement with two new hot water boilers, and new copper piping.[3.57]

Exterior painting encompassed the roof eaves and soffits, the front entrance portico and balustrade, the east and west gable siding and trim, and the rear porch, as well as minor wood repairs and the replacement of plywood security panels covering the rear porch windows.[3.58] The original window sash and frames were restored including removing lead-based painted window finishes, installing new bronze weather stripping, refurbishment of hardware, and the fabrication of new custom wood storm windows.[3.59]

3.57 National Park Service, PMIS 191833, Completion report dated October 20, 2017.

3.58 National Park Service, PMIS 238255, December 15, 2017.

3.59 National Park Service, PMIS 161164, Completion report dated October 20, 2017.



Figure 3-26. Front elevation launder, 2017 (source: National Park Service Midwest Archeological Center).

Also undertaken in 2017 was archeological investigation in preparation for landscape improvements planned in 2018. This included the use of magnetic gradiometry, ground-penetrating radar, and electromagnetic induction to survey the site prior to any excavation. This was followed by targeted excavation to examine specific features (Figure 3-26). The investigation's findings regarding the location of the 1864 mine office are discussed on pages 3-15 and 3-16. The investigation also found evidence of several building locations to the west of the office, one of which had already been documented, but others that were previously unknown. The team also noted linear anomalies that might indicate the locations of roads, sidewalks, utilities, and walls, some of which might be associated with the North store. One pit site north-northwest of the mine office may be related to early mining exploration. Finally, the area around the 1864 mining office yielded food-related domestic debris suggesting that



Figure 3-27. Cellar wall uncovered in 2018 (source Michigan Technological University).

it had been used as living quarters or had food service of some type.[3.60]

Further archeological work was undertaken in July 2018 when workers digging a trench off the northeast corner of the front porch uncovered two foundation walls (Figure 3-27). Archeologists from Michigan Technological University suggested they might be cheek walls for a basement entry to the old North store. The team also found a well west of the Quincy Mine Office, and launders (underground trenches) at the east and west elevations. The work associated with the discovery was part of a landscape improvement project carried out in the summer and fall of 2018. In addition to the replacement of failed subsurface drainage, repair of the sandstone retaining wall, and the replacement of the two front entrance sidewalks, the project also recreated the historic wooden fence at the front entrance, restoring an important historic feature to the property.[3.61]

3.60 Dawn Bringelson and Adam Wiewel, Trip Report, Archaeological Investigations at Quincy Mine Office, July 2017.

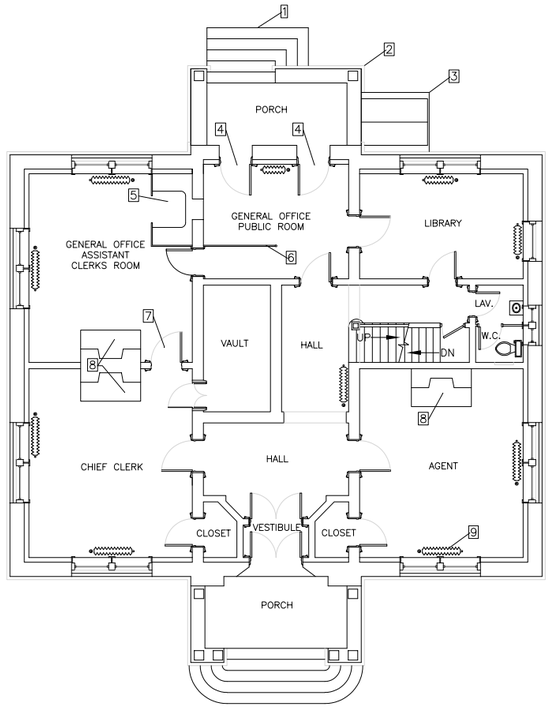
3.61 National Park Service, PMIS 227904, Interim report dated July 16, 2018.

The Quincy Mining Office remains remarkably intact, a testament to the strength of its design and its continuity of use as an office throughout its entire working life. The alterations that were made responded to the changes in functional needs of the company and to later maintenance demands. Even the later alterations were made for the most part with sensitivity to the historic character of the building, and were easily reversible. In recent years, the National Park Service has reversed many of these alterations and addressed the changes that have naturally occurred over time through wear and exposure to extreme weather.

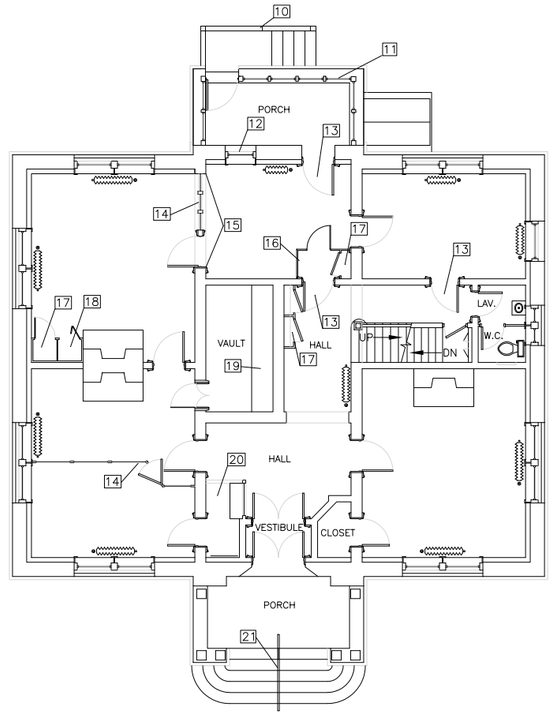
QUINCY MINE OFFICE CHRONOLOGY SUMMARY

YEAR	EVENT
1846	Founding of Quincy Mining Company (QMC)
1856	Amended start of QMC Period of National Significance
1896	Construction and completion
1903	Telephone system installed
1913	(ca.) West porch enclosure
1913	(ca.) Interior partitions
1916	New water supply
1916	Vault equipment purchase
1920	Amended end of QMC Period of National Significance
1931	QMC ceased operations
1968	Community Action Agency tenure began
1970	(ca.) Wood burning furnace
1970	(ca.) Dropped ceilings and new lighting
1979	Picket fences removed
1979	Infill of window arches
1989	National Historic Landmark nomination
1999	Propane forced air system
2001	Keweenaw NHP acquisition of property
2001	Surface conduit installed on 2nd Floor
2001	Reproduction fixtures installed
2001	Renovation of 2nd floor restroom
2002	Boiler replacement (natural gas)
2002	Roof leakage and temp stabilization
2005	Masonry restoration + south chimney
2005	Basement sump pumps installed
2006	North chimney work
2008	Roof replacement and woodwork
2008	Front porch restoration ('05 documents)
2008	Electrical upgrade
2008	Reproduction light fixtures
2009	Reproduction window shades
2017	Archaeological investigation
2017	Window rehabilitation
2017	Hot water radiators replace steam
2017	New boiler and copper piping
2017	Exterior painting
2018	Landscape work, fence
2018	Drainage and foundation work

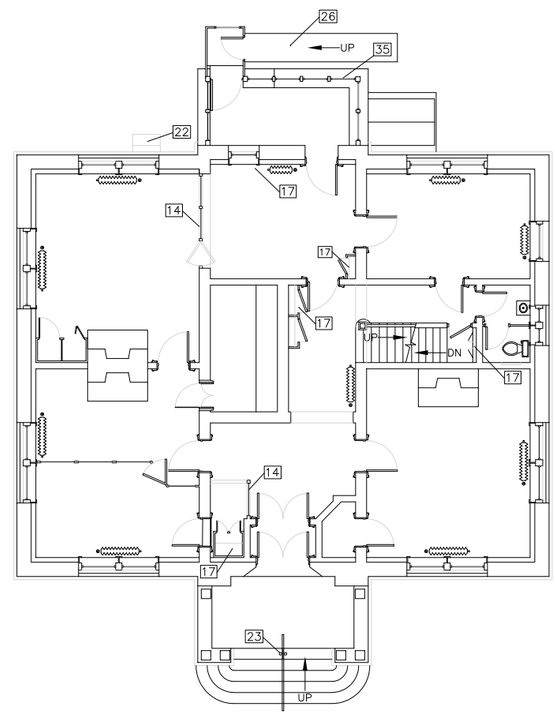
Chronology Drawings



1 CH1.1 QUINCY MINE OFFICE – FIRST FLOOR PLAN, 1897 AS BUILT
SCALE A



2 CH1.1 QUINCY MINE OFFICE – FIRST FLOOR PLAN, AS OF 1931
SCALE A



3 CH1.1 QUINCY MINE OFFICE – FIRST FLOOR PLAN, AS OF 2012
SCALE A

NOTES:

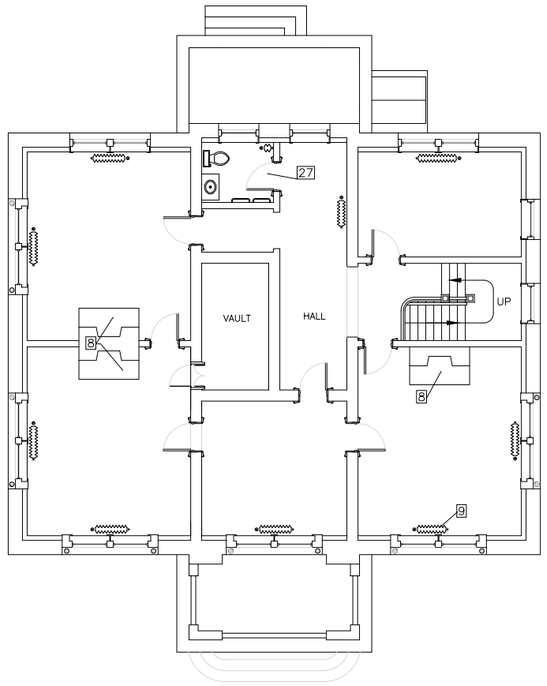
* Not shown on Walsh plan; presumed as–built feature
** Differs from Walsh plan; presumed as–built feature
*** Shown on Walsh plan; presumed as–built feature

1. Original stair configuration is unknown but is depicted based on remaining physical evidence **
2. Open porch with a flat roof, cornice, square columns, and stone wall ***
3. Basement bulkhead enclosure *
4. Pay lobby, workers' entry **
5. "Paying Teller" workstation ***
6. Partition wall of unknown construction type ***
7. Office suite door **
8. Glazed ceramic tile hearth ***
9. Cast iron radiators for steam heating system *
10. Wood stair and railing
11. Hip roof west porch with double–hung wood windows constructed on top of the sandstone wall
12. Door opening repurposed for use as a payment window
13. Original door swing changed
14. Partition wall with glazing
15. Portions of the original masonry wall removed and replaced by an arched opening
16. Wire–work enclosure with door
17. Storage cabinet
18. Telephone booth
19. Metal storage unit
20. Closet reconfigured for use as telephone switchboard workstation
21. Metal handrail
22. Vent for boiler
23. Pipe column
24. Fin tube radiator
26. Wood ramp
35. West porch wrapped in painted plywood

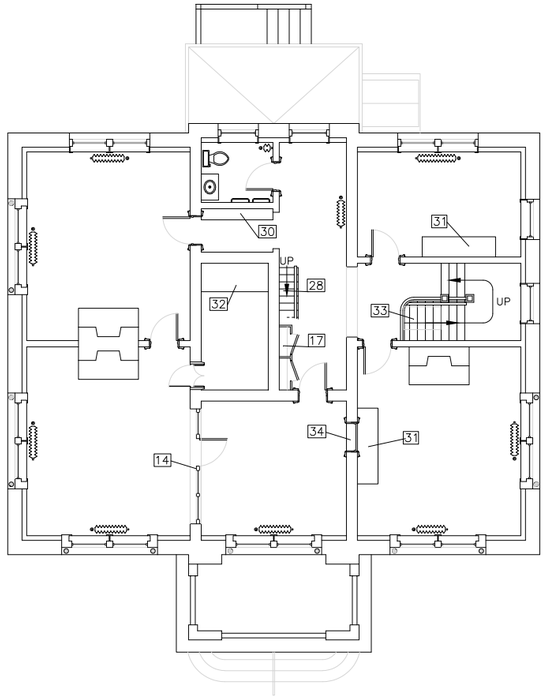
SCALE A 16 0 16 32
SCALE OF FEET

NOT FOR CONSTRUCTION

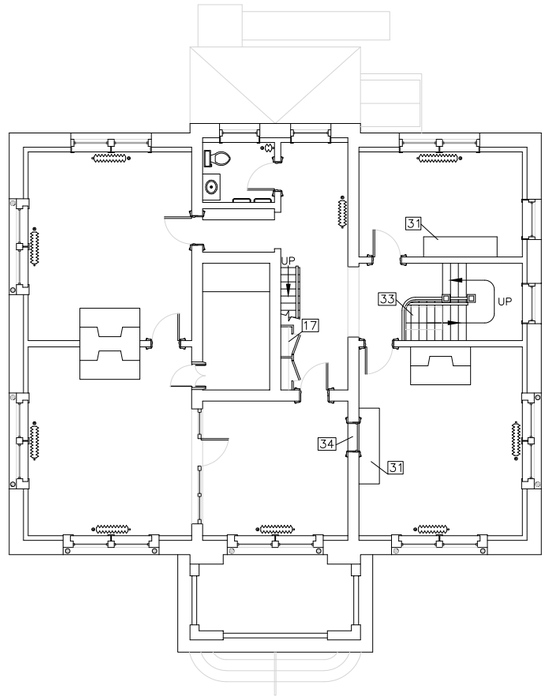
DESIGNED: LHM / DADD / EV; TECH. REVIEW: EMH; DATE: 11/1/2019	SUB SHEET NO. CH1.1	TITLE OF SHEET: PART 1–CHRONOLOGY PLANS 1ST FLOOR PLAN; QUINCY MINE OFFICE, KEWEENAW NATIONAL HISTORICAL PARK	DRAWING NO. X / XX; PMIS/PKG NO. 237234; SHEET 1 OF 4



1 CH2.1 QUINCY MINE OFFICE – SECOND FLOOR PLAN, 1897 AS BUILT
SCALE A



2 CH2.1 QUINCY MINE OFFICE – SECOND FLOOR PLAN, AS OF 1931
SCALE A



3 CH2.1 QUINCY MINE OFFICE – SECOND FLOOR PLAN, AS OF 2012
SCALE A

NOTES:

* Not shown on Walsh plan; presumed as–built feature

9. Cast iron radiators for steam heating system *
14. Partition wall with glazing
17. Storage cabinet
27. Toilet room *
28. Stair to attic
29. Arched opening
30. Wood bench
31. Wood desk attached to wall
32. Wood storage unit
33. Attic access hatch above
34. Wood shelving in door frame

SCALE A 16 0 16 32
SCALE OF FEET

NOT FOR CONSTRUCTION

DESIGNED: LHM / DADD / ev; TECH. REVIEW: EMH; DATE: 11/1/2019	SUB SHEET NO. CH2.1	TITLE OF SHEET: PART 1–CHRONOLOGY PLANS 2ND FLOOR PLAN; QUINCY MINE OFFICE, KEWEENAW NATIONAL HISTORICAL PARK	DRAWING NO. X / XX; PMIS/PKG NO. 237234; SHEET 2 OF 4



1 CH3.1 QUINCY MINE OFFICE – WEST ELEVATION, 1897 AS BUILT
SCALE A



2 CH3.1 QUINCY MINE OFFICE – WEST ELEVATION, AS OF 1931
SCALE A



3 CH3.1 QUINCY MINE OFFICE – WEST ELEVATION, AS OF 2012
SCALE A

NOTES:

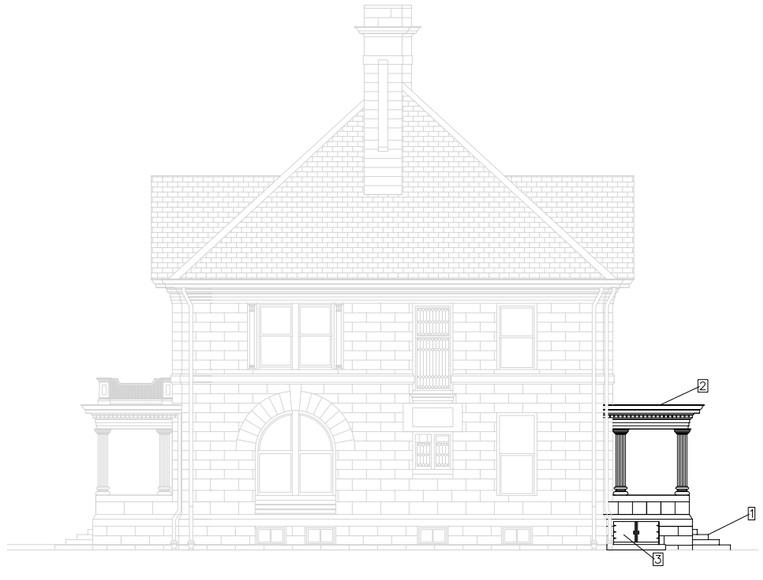
* Not shown on Walsh plan; presumed as–built feature
** Differs from Walsh plan; presumed as–built feature
*** Shown on Walsh plan; presumed as–built feature

1. Original stair configuration is unknown but is depicted based on remaining physical evidence **
2. Open porch with a flat roof, cornice, square columns, and stone knee wall ***
3. Basement bulkhead enclosure *
4. Pay lobby, workers' entry **
10. Wood stair and railing
11. Hip roof west porch with double–hung wood windows constructed on top of the sandstone wall
26. Wood ramp
35. West porch wrapped in painted plywood
36. Rolled asphalt roofing on west porch

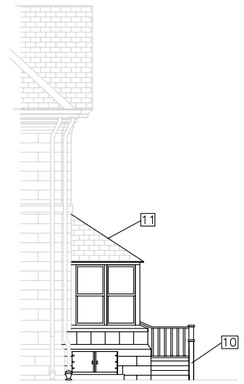
SCALE A 16 0 16 32
SCALE OF FEET

NOT FOR CONSTRUCTION

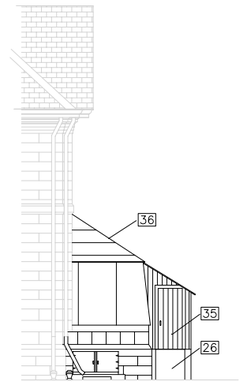
DESIGNED: LHM / DADD / EV	SUB SHEET NO. CH3.1	TITLE OF SHEET: PART 1–CHRONOLOGY PLANS WEST ELEVATION	DRAWING NO. X / XX
TECH. REVIEW: EMH		QUINCY MINE OFFICE KEWEENAW NATIONAL HISTORICAL PARK	PMIS/PKG NO. 237234
DATE: 11/1/2019			SHEET 3 OF 4



1 CH3.2 QUINCY MINE OFFICE – NORTH ELEVATION, 1897 AS BUILT
SCALE A



2 CH3.2 QUINCY MINE OFFICE – NORTH ELEVATION, AS OF 1931
SCALE A



3 CH3.2 QUINCY MINE OFFICE – NORTH ELEVATION, AS OF 2012
SCALE A

NOTES:

* Not shown on Walsh plan; presumed as–built feature
** Differs from Walsh plan; presumed as–built feature
*** Shown on Walsh plan; presumed as–built feature

1. Original stair configuration is unknown but is depicted based on remaining physical evidence **
2. Open porch with a flat roof, cornice, square columns, and stone knee wall ***
3. Basement bulkhead enclosure *
10. Wood stair and railing
11. Hip roof west porch with double–hung wood windows constructed on top of the sandstone knee wall
26. Wood ramp
35. West porch wrapped in painted plywood
36. Rolled asphalt roofing on west porch

SCALE A 16 0 16 32
SCALE OF FEET

NOT FOR CONSTRUCTION

DESIGNED: LHM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
DRAWN: EV	CH3.2	PART 1–CHRONOLOGY PLANS NORTH ELEVATION	X XX
TECH. REVIEW: EMH		QUINCY MINE OFFICE KEWEENAW NATIONAL HISTORICAL PARK	PMIS/PKG NO. 237234
DATE: 11/1/2019			SHEET 4 OF 4

4. Existing Conditions and Assessment Overview

Building Existing Conditions & Assessments - Introduction

Existing Conditions

The Existing Conditions section describes the current conditions, by discipline and by component, as observed on site during the October 2018 site visit. As orientation, please refer to the existing condition drawings in Appendix D for floor plans and building elevations.

Condition Assessment

Immediately following the Existing Condition, each feature/system is evaluated and assigned an attendant condition rating. The condition rating system is as follows. (Note: Buildings are rated by evaluating the combined condition of all features/systems.)

Good - The feature is intact, structurally sound and performing its intended purpose. The feature needs no repair or rehabilitation, but only routine or preventative maintenance.

Fair - The feature is in fair condition if either of the following conditions is present:

- There are early signs of wear, failure, or deterioration though the feature is generally structurally sound and performing its intended purpose - or -
- There is failure of a portion of the feature.

Poor - The feature is in poor condition if any of the following conditions is present:

- The feature is no longer performing its intended purpose - or -
- Significant elements of the feature are missing - or -
- Deterioration or damage affects more than 25% of the feature - or -
- The feature shows signs of imminent failure or breakdown.

Unknown - Not enough information is available to make an evaluation.

NA - The feature is not present within the building.

Applicable Codes

Code Overview

The following is a master list of building codes and guidelines consulted to inform the condition assessment for all structures by all disciplines:

2018 International Building Code (IBC)

2018 International Existing Building Code (IEBC)

2018 International Fire Code (IFC)

2018 International Mechanical Code (IMC)

2018 International Plumbing Code (IPC)

2018 International Fuel and Gas Code (IFGC)

2018 International Energy Conservation Code (IECC)

ASCE 7-10 Minimum Design Loads for Buildings and Other Structures

National Fire Protection Administration (NFPA) - NFPA 13 and NFPA 13D

Secretary of the Interior's Standards for Rehabilitation of Historic Buildings

Architectural Barriers Act Accessibility Standards (ABAAS)

Character Defining Features

Mass and Form
The tight rectangular and symmetric form with minimal articulation is character-defining. The symmetry of the hipped roof, dormer gables and chimneys is likewise significant.

Exterior materials and features
The majority of the materials and features are original or have been replaced in kind. Defining features include:

- Slate shingle roofing
- Rusticated red Portage Entry (Jacobsville) sandstone blocks
- Dressed sandstone watertables
- Sandstone arches with prominent keystones at arched windows
- Sandstone window sills
- Wood cornice with integrated gutter and stepped frieze at all eaves with profiles repeated in gable of dormers
- Wood colonettes in window openings
- Wood work columns and balustrade at entry porch
- Iron cresting at roof
- Rusticated stone chimneys with dressed stone panels and cornices

Openings
Defining features include:

- Regularly spaced, symmetrically arranged window and door openings including size, scale and proportion
- The arched windows at each elevation tie the structure to the Romanesque architectural style.
- Wood windows including trim, sashes, glazing and hardware. Windows are predominately one-over-one double hung and typically paired.
- Wood stile and rail doors including trim, glazing and hardware

Interior materials and features
Room layout and most original finishes have been retained. Significant features include:

- Three-story brick vault
- Oak baseboards and beadboard wainscot
- Tiled fireplaces and hearths
- Ornate wood mantelpieces at fireplaces
- Wood grand stair and balustrade
- Plaster crown molding at first floor ceilings
- Paneled and louvered wood shutters
- Wood trim profiles repeated at all windows and doors
- Transom windows above most interior doors
- Painted vault doors
- Painted metal storage system, in 1st floor vault
- Wood storage cases, 2nd floor vault
- Partition walls, constructed of wood and glass with doors, subdividing interior office spaces between Rooms 104 and 105, Rooms 107 and 108, and Rooms 203 and 204
- First floor wood toilet partition
- Built-in wood storage cabinets with paneled doors in Rooms 107, 108, 116 and 210
- Built-in wood and glass telephone booth in Room 107
- Wood desks in Rooms 202 and 208
- Attic staircase including risers, treads, balustrade and ceiling opening

Integrity
The Quincy Mine Office has retained remarkable integrity of design, materials and feeling inside and out.

The period of significance for the Quincy Mine Office is from the date of construction (1896) to 1931; this latter date has been recommended for revision to 1920.

4. Existing Conditions and Assessment

Existing Conditions & Assessment - General

General Building Description

The Quincy Mine Office is a two-story masonry office building with a rectangular floor plan and a hipped roof with two gabled dormers. A covered porch is centered on the front (east) facade. A rear porch was enclosed since the original construction in 1897. The structure has a full basement.

With a defined base, rusticated stone and Roman arches, the structure is essentially Richardsonian Romanesque in style. Symmetry is rigidly enforced on the exterior, except at the west facade where the stair is expressed.

The outer wythe of the exterior walls is constructed from large rusticated blocks of red Portage Entry sandstone. The exposed foundation is also sandstone and sits proud of the primary walls below a dressed sandstone water table. The main roof is clad in slate shingles. A substantial wood cornice runs the perimeter of the roof and is repeated at the entry porch and at the dormers. Masonry arches top large paired windows on the first floor. Colonettes at the rectangular upper window openings further connect the structure to the Richardsonian tradition.

The interiors feature substantial oak trim and wainscoting. A three-story vault with custom painted doors bears witness to the structure's history as a finance office.

Condition: *Fair*

The historic features of the original Quincy Mine Office remain remarkably unaltered. Recent maintenance and restoration campaigns intended to preserve character defining architectural fabric. Time and wear



Figure 4-1. Quincy Mine Office looking north from Highway 41 (DA 10/30/2018)



Figure 4-2. Quincy Mine office looking south from Highway 41 with morning sun (DA 10/31/2018)

still threaten vulnerable exterior elements like the naturally soft sandstone, and moisture issues at the foundations persist. Interior wood finishes have been neglected in anticipation of a future use. The structure is not universally accessible and has no fire protection system.

Existing Conditions & Assessment - Architecture

Architecture - Roofing System

The main roof is hipped with two prominent dormers to the north and south.

Roofing was replaced in 2008 as part of a comprehensive restoration project. The main roof received new slate shingles over roofing felt with lead-coated copper flashing throughout, including the ridges and valleys. Ice and water shield was indicated at a three-foot perimeter at the eaves and at valleys. A note on the contract scope of work called for any damaged roof sheathing (wood decking) to be replaced, but only estimated the necessary amount at five percent.

An ornate iron cresting tops the ridge of the hip roof. The cresting was reconditioned and reinstalled during the roof restoration project. A metal attic vent extends through the west facing slope close to the ridge. This vent was purportedly replaced in 2008 and soldered to the roof flashing (Figure 4-3). On the same slope, a modern roof hatch added during the restoration extends above the roofing by about a foot (Figure 4-4). The roof also received new lead-coated copper flashing at the two chimneys and their upslope crickets.

Ridge flashing on top of the front (east) dormer is a lead-coated copper rounded cap flashing. A finial with sphere and



Figure 4-3. Copper flashing, ridge line cresting and attic vent on western roof slope (DA 10.30.2018)



Figure 4-4. Slate shingles and ridge flashing beyond newly added roof hatch (DA 10/31/2018)

fleche tops the front of the dormer. The restoration drawings suggest that this finial is a reconstruction of a lost historic element. The rear dormer has the same rounded cap flashing as the front dormer with no finial.

An internal gutter runs around the perimeter of the hip roof's eave, integrated with the cornice and fascia. The gutter is lined with a lead-coated copper flashing. In 2008, gutter expansion joints were added at valleys and midpoints. Four open-faced, square downspouts extend from the corners of the gutters on the north and south façades to conductor boots that drain into the ground and connect to a perimeter drain that daylights near the south edge of the property. The connection of downspouts to underdrains was part of a comprehensive 2018 drainage and landscape project.

Roofing at the front (east) porch consists of a newly installed EPDM roofing material with lead-coated copper flashing. The flashing turns up the historic wall and the counterflashing is surface mounted to the masonry joint. The porch roof also has an internal gutter, which was lined with lead-coated copper during the restoration. The gutters serve open faced downspouts on the north and south sides close to the masonry wall. The downspouts extend into conductor boots going down into the ground.

The roofing over the rear (west) porch was not included in the restoration project. The roofing consists of rolled asphalt roofing material with an asphalt shingle ridge cap (Figure 4-5) There is no reglet at the masonry wall; instead, ghosting evidence of roofing tar or other sealant is visible where roofing meets the stone wall (Figure 4-6). There is also a roof over the small porch entry addition on the back of the porch. That roofing is a



Figure 4-5. Asphalt and metal roofs at the rear appendages (DA 10/31/2018)



Figure 4-6. Flashing removed at rear porch roof intersection with masonry wall (RK 10/30/2018)



Figure 4-7. Broken shingles at dormer valley (image courtesy of KNHP)

soldered sheet-metal roofing and appears to be original to the addition.

Condition: *Fair*
The flashing appears to be in good condition throughout. The slate roofing has several shingles that are missing or cracked, especially at the valleys adjacent to the dormers (Figure 4-7). Dislodgement of these shingles is attributed to ice buildup in the roof valleys. The fractured and dislodged slates are likely caused by water migrating under the slates and freezing. When the water freezes, it expands causing the slates to fracture (this mechanism is also known as ice jacking). The underlying cause of the ice buildup requires further study. but the migrating water may be attributable to heat loss through the attic.



Figure 4-8. Repair at deteriorated outrigger that supports the interior gutter framing (image courtesy of KNHP)

Ice accumulation is also the likely culprit at a recurring condition at the integral gutters, where standing water is a problem (most noted at the north and south eaves). Snow loads and ice damming are causing excessive deflection at the gutter, which in turn has resulted in a loss of positive drainage to the downspouts. This may be caused by a shortcoming in a repair to the adjacent rafter tails during the 2008 roof work. This effort included installation of new rafter tails that were fastened to deteriorated existing tails (outriggers). A 2017 project attempted to address this condition, but in a temporary manner (Figure 4-8). Refer to the Structural section of this HSR for the nature for these repairs.



Figure 4-9. South chimney with environmental staining (EH 8.22.2018)

Architecture - Chimneys
Two stone chimneys extend through the north and south facing hip slopes. The chimneys consist of both cut and rusticated stone. The main body of each chimney is rusticated stone in regular coursing. Each of the four sides of each chimney has a recessed section of

dressed stone up to a belt course near the top of the chimney. There is a cornice line above that belt course that has copper flashing on top, and then two more courses of rough stone and cap flashing above that. Chimney repointing and new flashing was included in the scope of the 2005 exterior restoration, but work on the north chimney was delayed until the following year. Each chimney received a lead-coated copper coping cap over the masonry and a vented cap over the flue. The chimneys were flashed to the roof with a lead-coated copper flashing that is let into the chimney stones with a sawcut reglet.

Condition: *Good*
The chimneys are in good condition and stones do not appear to be damaged. To the interior, both chimneys received custom stainless steel flue liners prior to the masonry work described above; their condition was not assessed. There is fairly thick black staining on most of the south chimney (Figure 4-9). Park staff noted anecdotally that the black stain does not come off with mild solutions or techniques.

Architecture - Exterior Walls
The four masonry walls consist predominantly of rusticated Portage Entry/ Jacobsville sandstone blocks laid in coursed ashlar pattern. Most blocks are between ten and eleven inches high and vary between approximately two and five feet in length. A dressed sandstone water table and second floor sill course encircle the perimeter (Figure 4-10). At the east and west facades, the central bay, which culminates above at the dormer, protrudes to the exterior to the depth of one stone. Outside corners have a dressed (rubbed) stone band or draft line down the full length. The base mortar for the stones is a white cementitious mortar with an extruded grapevine effect at the face of the



Figure 4-10. Typical arrangement of rusticated and dressed sandstone elements on display at the south elevation (EH 8/22/2018)



Figure 4-11. Relationship of stone header and sill elements, north elevation (LM 10.31.2018)

joints using a local reddish sand in the mortar mix.

The typical masonry opening at the lower floor are topped in a Roman (semicircular) sandstone arch (Figure 4-11). The keystone of each arch extends through the next course of masonry to the underside of the second floor sill course. The lower water table serves as the header for the smaller rectangular basement windows. Rectangular windows on the lower floor at the north facade have rusticated sandstone lintels, the underside of which is dressed. Likewise, all window jambs have a dressed face at the openings. There is a serrated, sloped stone sill underneath the large arched openings on the first floor. These sills are dressed stone with small lugs on each side of a sloped center section. The upper floor sills are slim and rectangular in profile, sitting just above the water table. The sills below paired windows have a crevice mid sill for drainage (Figure 4-12).

The centrally located and recessed front entry porch is flanked on both sides by two-story dressed sandstone pilasters (Figure 4-13). The recessed wall around the door is constructed from similarly coursed and dressed sandstone. These long blocks are angled in plan. A dressed sandstone lintel spans the door opening.

Extending outward from the face of the east wall, L-shaped rusticated sandstone knee walls support the wood porch canopy and bookend six curved, buff-colored sandstone steps. The floor at the porch consists of three large buff-colored sandstone slabs, and there is a sandstone step up to the main entry.

At the north facade, the window above the stair (W218) extends below the sill course. It has a protruding, molded stone sill that is not



Figure 4-12. Crevice at typical upper sill, W210 and 211 shown (DA 10.31.2018)



Figure 4-13. Variety of sandstone at the east entry porch (DA 10.31.2018)



Figure 4-14. Protruding sill and inset panel between W218 and W123/124 (DA 10/31/2018)

observed elsewhere but is consistent with the original building facades drawn by Walsh.. A dressed sandstone panel inset into an otherwise rusticated stone acts as a spandrel between the stair window and the smaller bathroom window below (Figure 4-14).

At the west facade, the rear porch has a stone knee wall around its historic perimeter. These walls echo the basement walls, including a continuation of the lower water table. Rusticated stone continues for one course above the water table.



Figure 4-15. Sandstone knee wall at the base of the rear porch (DA 10/31/2018)

Condition: *Fair*
Typically, the sandstone is in fair condition with several major cracks that have been repaired previously. There are also minor cracks subject to a varying degree of repair, cracks that have not been repaired and cracks that have been repaired but have re-opened. Areas of concentration for cracking activity at each facade are discussed below.



Figure 4-16. Unfilled crack in lintel above Window 002 (DA 10/31/2018)

Particular and persistent cracking is occurring at opening heads and sills. Above several basement windows, the stone lintels, which are also part of the water table, are cracked through. This cracking aligns with the outside edges of the arched window above. There is evidence of erosion at some of the sill stones under the wood columns on the second floor. Holes remain where fasteners have been removed.



Figure 4-17. Some fill in cracked lintel at W003 (DA 10/31/2018)

The mortar is in overall fair to poor condition with considerable evidence of past repointing projects as well as missing and eroded mortar. There are cracks in the mortar and some places where the mortar is not adhering to the stones, either on the side joint or on the bedding planes. The color of the repair mortar varies from red to brown to a light gray, indicating it is not well matched to the

historic.

At the east facade, stone lintels in the water table above three basement windows (W002, W003 and W004) are cracked. The masonry restoration documents called for these cracks to be repaired with a stitching anchor, but this work was not completed. The crack at W002 does not appear to have been filled (Figure 4-16), that at W003 partially so (Figure 4-17). Open cracks invite moisture to penetrate the stone. The crack above W004 has been filled, though the color is not a good match. (Figure 4-18) Two cracks through the stones below this joint indicate continued stress along that axis.



Figure 4-18. Filled crack at W004 and additional cracking in stones below (DA 10/31/2018)

Above, the sandstone sill at W101 and W102 has pulled apart at the center crevice and no longer drains toward the crevice. Just below, the water table is cracked through and the mortar at the arch keystone has eroded (Figure 4-19).



Figure 4-19. Separated sill stone, cracked water table at eroded mortar at keystone below W001 (DA 10/31/2018)

At the south end of the east wall, cracking within the stones and in adjacent mortar joints was treated during the masonry restoration. Many of these cracks have reopened and the new mortar is separating from the stones.

At the east porch, both cheek walls were heavily patched to prevent water infiltration and further damage to the sandstone . The dressing on the corners of the cheek wall stones is starting to erode and are no longer crisp. Several of the stones are deteriorating and delaminating - both on the bedding plane and across the face (Figure 4-20). At the south-facing wall, stone has been chipped away to accommodate a downspout or other feature that has since been removed. The tender exposed stone has been subject to pitting and erosion (Figure 4-21).



Figure 4-20. Mortar patching and stone delamination at the south cheek wall of the entry porch (DA 10/31/2018)



Figure 4-21. South facing cheek wall with failing mortar patch and altered stone (DA 10/31/2018)



Figure 4-22. Eroding mortar joints at sandstone steps (DA 10/31/2018)



Figure 4-23. Extensive patching at steps and landing (DA 10/31/2018)



Figure 4-24. Missing curved segment at sandstone step with crumbled mortar (DA 10/31/2018)

The lighter sandstone steps and landing show considerable weathering. Repairs to the mortar joints have been made to extend the service life of the steps until a more comprehensive repair is feasible (Figure 4-22). The steps are eroded at the edges. There is a major patch at the leading edge of the center stone, likely at the point of an earlier handrail attachment (Figure 4-23). A curved edge to one of the steps has been removed, exposing a ragged edge (Figure 4-24). At the front door, the stone threshold is heavily weathered.

At the south facade none of the basement lintels are cracked, but stones are pulling apart at joints that have previously been repointed. The sill stone of W008, which sits at ground level is cracked in two places. Both serrated sill elements have pulled away from the outer wall and have been heavily patched. The serrated sills below the arched windows are stained - possibly by cleaning agents, which can have a bleaching effect on red sandstones (Figure 4-25). A sizable patch has been made to the corner of a large stone between the arched windows. The patch is incompatible in color but otherwise seems sound.

Otherwise, the considerable repointing effort undertaken at this south wall during the restoration is not readily distinguished. Generally, there is dark staining behind the two open-faced downspouts, and at the lower stretch of the eastern spout, corrosion has spread to the stone.

At the west facade, the lintel is cracked through above W010, and the sill stone is cracked as well (Figure 4-26). These cracks have not been repaired; the restoration documents indicate that a piece of equipment



Figure 4-25. Stained and patched serrated sill at W107 and W108; cracked sill below at W008 (DA 10/31/2018)



Figure 4-26. Cracked lintel and sill at W010 (LM 10/31/2018)



Figure 4-27. Repeated maladies in header at W012 and W013 (LM 10/31/2018)

previously covered this area, explaining the lack of attention. Adjacent to this window, two stones have been defaced to accommodate a downspout that has also been removed.

Above W009, the lintel is not cracked in the usual place, but the stones above and to the right both have open cracks. Patching at the side of the serrated sill above is separating from the sill. These same conditions at the lintels and sills are mirrored on the other side of the porch at W012 and W013 (Figure 4-27). Higher on the main facade, there is evidence of tar that was not fully removed where the porch roof attached. The sills at the upper window are intact, but several face joints in the upper water table need repointing.

At the rear porch itself, masonry problems abound. These issues are likely caused or at least exacerbated by the sloped plywood shroud over the upper stretches of the porch. The shroud channels water to wash unabated over the stone. The biological growth that envelopes the rear porch walls and continues along the west façade is concentrated here. Some material loss is discernible at stones near the ground. Mortar joints are generally failing, and previous repointing efforts have been unsuccessful. Stones at the former porch entry are broken and unpatched. At either side of the porch, a stone that sits just below the shroud corner and above the water table corner is stressed, cracked and pitted.

At the north facade, the header stone above basement window W014 is cracked. Patching mortar is visible, but the crack is largely open and mortar is cracking at adjacent joints. Likewise, joints are open at both sills of the stairwell windows.



Figure 4-28. Growth, broken stones and eroded mortar at former porch opening (DA 10/31/2018)



Figure 4-29. Porch wall intersection with west facade (DA 10/31/2018)



Figure 4-30. Crack in lintel and sill at W014 on the north elevation (DA 10/31/2018)

Architecture - Exterior Woodwork

A heavy wood cornice element runs the entire perimeter of the roof. The top of this entablature is a coved cornice trim with a flat fascia board below that conceals an internal gutter. These elements protrude beyond the face of the wall and are covered underneath by a wood soffit. Below this soffit and closer to the masonry walls run a row of dentils with cove trim below, and then four fascia boards that step back to the masonry wall (Figure 4-31). Behind the lowest fascia, a wood ledger runs the perimeter of the top of the masonry walls and is visible at the upper level openings.



Figure 4-31. Cornice, fascia and soffit, with colonettes at windows below (DA 10/31/2018)

At the dormer gables on the east and west facades, verge boards echo the profile of the cornice. The gable ends consist of horizontal wood siding with an arched opening for a window. The siding changes to a radial pattern around the arched window (Figure 4-32).



Figure 4-32. Verge boards and siding at dormer (DA 10/31/2018)

At all facades except the west, the paired windows on the upper floor are flanked by turned wood colonettes that line the jamb of the opening. The columns are not fluted and have a simplified acanthus leaf motif at the capital.

At the east entry porch, six rectangular wood columns support a heavy cornice that matches the detailing of the roof cornice but with a shallower soffit. The stepped fascia element is repeated on the interior perimeter of the porch, stepping up to a wood beadboard ceiling. This combined fascia conceals an engineered lumber section that was added for structural reinforcement of the porch roof during a 2008 restoration (note: porch work was included in the earlier 2005 exterior restoration documents, but was not



Figure 4-33. Cornice entablature repeated at the entry porch (DA 10/31/2018)

executed until 2008). A wood railing tops the edge of the porch roof. The railing features wood panels at the corners and a balustrade between. The balustrade was rebuilt during the restoration project to include a new sloped cap above the turned wood balusters. The wood columns, also a subject of the restoration, have fluted shafts and ogee profiles at the capital and base. Where the top of the capitals are exposed beyond the fascia, they are protected by sheet metal flashing. Metal flashing is likewise visible at the rim of the cornice.



Figure 4-34. Entry porch columns and woodwork (DA 10/31/2018)

The west rear porch is enclosed in a sloping painted plywood shroud covering up the c.1913 wood post and window assembly that encloses the porch above the masonry knee wall. A secondary structure, serving as a vestibule to the west porch, consists of vertical tongue and groove wood siding beneath the shed roof. A wood door occupies the north wall of this appendage. A set of steps leads down from that door to the north; the stair and enclosure are not historic.



Figure 4-35. Wood appendages to the rear porch (DA 10/31/2018)

All these exterior woodwork elements are painted red-brown. Exterior paint colors are based on paint analysis performed by Architectural Conservator Steven C. Seebohm in his report "Paint Analysis Documentation, dated December 30, 2016.

Condition: *Good*
In general, all the painted woodwork is in good condition. The front porch has recently been rebuilt with both new material and salvaged materials from the original. Porch elements were repainted in 2017. The painted surface appears to be showing signs of bubbling and some of the replacement wood paint surface is very rough. The plywood enclosure around the west porch is in good condition but incompatible to the historic

building. The vestibule is in fair condition with rough paint. Stairs leading to the back door are in fair condition but were meant to be a temporary measure and are incompatible to the building

Architecture - Windows
Each facade hosts four basement windows, rigorously aligned with the windows above (Figure 4-36). Sitting just above grade, these diminutive single-pane, three-lite wood windows function as awnings. Each of these awning windows are 3'-2" x 2'-0". These windows were included in the 2016 window rehabilitation, discussed below (Figure 4-37). Windows 007, 008, 009, 010 and 017 had previously been filled with plywood panels to the exterior; these panels were reconditioned along with the glass sash to the interior.



Figure 4-36. Typical basement and first floor window combination as viewed from the exterior (DA 10/31/2018)

Fourteen windows on the first floor are paired double hung wood windows separated by a wood stile. Each of these double hung windows is 3'-7" x 8'-5". The masonry opening forms a semi-circular arch in front of the window pair. The new one-over-one storm windows, added during a 2017 window rehabilitation project, conform to the arch, but the window proper is rectangular behind the arch. The project included rehabilitation of historic wood sashes and rehabilitation of wood stops and the interior sills (discussed in interior finishes section). Hardware for each includes two brass lifts and a thumb turn latch. All hardware and chains were replaced during the rehabilitation, and a channel was routed through the sash to receive new bronze weatherstripping (Figure 4-38). The new storms sit proud of the original frame assembly.



Figure 4-37. Basement storm window with original window visible behind it (LM 10/31/2018)

On the north facade, three first floor windows do not follow this design (Figure 4-39). Window 122, also 3'-7" x 8'-5", is wood

double hung in similar proportion to those just described but without the arch feature. Windows 123 and 124 are a pair of small windows that serve the bathroom below the stair. These each measure 1'-8" x 3'-4" in overall dimension. Window 123 has a slim hopper sash over a patterned fixed pane below while window 124 is of the same proportions but double hung.

Window 144 was added around 1913, when the back porch was enclosed. The window, also one-over-one double hung but in squatter proportions, was placed into a former door opening. A specialized sill included a pass-through for payments so that the window could remain closed, described further in the interiors assessment.

Windows 112 through 119 were also added when the porch was enclosed and are now covered in plywood to the outside. The identical windows are wood single pane one-over-one double hung with narrow stiles and rails.

Above each pair of first floor windows is a pair on the upper floor of the same width but shorter in height. These windows are rectangular double hung and are separated by a wood stile. The upper sash is not arched. Another such pair occurs above the front entry. Above the back porch, Windows 213 and 214 are also double hung, but slightly wider and not paired side-by-side but each within a separate opening measuring 3'-8" x 6'-5". Window 218 is a tall double hung window above the stair, measuring 3'-8" x 8'-5". The bottom sash is much taller than the upper. The glazing is etched. Hardware for these windows is the same as described as above.

Two casement windows look out from the



Figure 4-38. Rehabilitated window and storm with brass weatherstripping (LM 10/31/2018)



Figure 4-39. Atypical window sizes near the stair on the north elevation (LM 10/31/2018)

attic, centered in the front and rear facing gables. These windows have a full Roman arch at top. The bottom sash were fitted with wood louvered and screened vents during the rehabilitation.

Condition: *Good*
Recently rehabilitated, the windows overall are in good condition. The several basement windows that are covered in plywood were, according to the rehabilitation documents, to be resealed at the perimeter and at each penetration. Windows 112 though 119 were not included in the project and are in poor condition. Several of these windows were obscured behind plywood and not fully observed, but generally suffer from broken panes, deteriorated stiles and rails, and missing cords (Figure 4-40) .


Figure 4-40. Plywood covered windows at enclosed rear porch (LM 10/31/2018)

Architecture - Exterior and Vestibule Doors
Door 101 is the main entry and consists of an oak stile and rail double door, measuring 10'-8" x 8'-5" (Figure 4-41). The right-hand leaf is active. Each leaf has glazing in the upper panel. The inward swinging doors are painted on the exterior and stained to the inside. Hardware consists of a historic knob and back plate and a modern deadbolt on the active leaf, which also has a newer closer. The inactive leaf has a wood astragal, a strike plate and two bolts that fix the door in place.

To the interior of entry vestibule, Door 102 is nearly identical to Door 101 and functions in the same manner. It has a historic knob and back plate on the active leaf (there is no back plate at the inside) and a newer deadbolt and closer. The inactive leaf has a wood astragal, a strike plate and two bolts that fix the door in place (Figure 4-41). Door 102 is the same size as Door 101.


Figure 4-41. Door 101 open to vestibule with Door 002 beyond (LM 10/31/2018)

Door 109 was once an exterior door but now opens to the rear porch. It is wood stile and

rail with a half lite. The lite has been painted. The door has historic knob and back plate hardware.

Door 110 from the rear porch is also stile and rail with a half-lite. It has historic knob and back plate hardware as well as an older deadbolt. Door 110 measures 3'-4" x 8'-3".

Door 111 is temporary door from the shed enclosure to the exterior, measuring 2'-8" x 6'-5". It is a wood flat panel door made from vertical planks. It has modern pulls on both sides.

Condition: *Poor*
At Door 101, metal weatherstripping is damaging the door leaf. The bolts on the inactive leaf are fixed in the locked position so that the door cannot open. Two hinge pins are missing ball tips. Door 102 has worn finishes and some deterioration at the base. Door 109 is worn at the lower jamb, where the door sticks seasonally. The finish of D110 is completely worn at the outside and the wood has begun to deteriorate. D111 does not close tightly.

Architecture - Interior Doors
Doors in the unfinished basement level vary widely. The most notable is Door 007 to the vault. It is a sturdy steel door with three heavy hinges and a large bolt and hasp, but daintily faux-painted to the exterior to look like a four panel door. The top of the door is arched, but a section has been removed to allow for piping.

Doors 001 and 006 are constructed from beaded tongue and groove planks reinforced with three 1x8 wood rails. These two doors measure 3'-3" x 7'-7" and 3'-2" x 6'-4", respectively. D006 has a porcelain knob set, a keyhole, and a deadbolt at the exterior. D001,


Figure 4-42. Type 1 door with operable transom, Door 201 shown (LM 10/31/2018)


Figure 4-43. Type 2 door with transom, Door 206 shown (LM 10/31/2018)

which has been removed from its opening and sits in the vault, has metal knobs with a back plate that includes a keyhole. Other doors have not been so modified. Doors 004 and 005 are larger, six-panel wood doors. Doors 004 and 005 measure 3'-6" x 7'-5" and 3'-5" x 7'-2", respectively. D004 had lites in the upper four panels, D005 in the upper two. Plywood now covers these sections to the interior. Both have porcelain knobs; D005 which can be accessed via the cellar hatch, also has a deadbolt.

Doors 002 and 003 are modern expediencies and are not discussed here.

On the first floor, interior doors generally fall into two types. Type 1 is an oak stile and rail door with a glazed upper panel and a wood lower panel. The glazing is typically figured glass. A transom with an operable hopper window completes the assembly (Figure 4-42). An exception to this Type 1 door is Door 117. Instead of the figured glass, Door 117 has etched glazing with the words "GENERAL MANAGER". Doors have a clear varnish finish. Type 1 is typically 3'-0" x 6'-9" on the first floor, with the exception of D114 at 2'-8" x 6'-9" and D112, D117 and D119 at 3'-4" x 6'-9".

Type 2 is a six-panel stile and rail varnished oak door. Both types have three hinges and a brass knob and back plate and are stained inside and out (Figure 4-43). Type 2 is typically 3'-0" x 6'-9" on the first floor, with the exception of D115, which measures 2'-8" x 6'-9".

Type 3 doors are found in later glazed partition walls. They resemble a Type 1 door but are thinner ($1^{1/2}$ inches thick vs the $1^{3/4}$ typical) and the glazing matches that of the partition wall rather than that of the typical



Figure 4-44. Door 106 to the first floor vault (LM 10/31/2018)


Figure 4-45. Vault door 205 as viewed from the interior (LM 10/31/2018)

door. Door 104 has two-way hinges. Type 3 doors are typically 2'-8" x 6'-9" on the first floor.

Door 106 is the historic vault door in painted steel. It has a combination lock and a lever that throws four bolts as well as two large but ornamental hinges. The door is painted black and features a vignette painting of a pastoral cottage. Lettering below reads "National Safe & Lock Co Cleveland, O." The steel frame has lettering reading "Quincy Mining Co." above the door (Figure 4-44)

On the second floor, all the doors leading from the central hallway are the same Type 1 as discussed above, but measure 3'-0" x 7'-0". Doors between rooms are Type 2 but, on this floor, include a hopper transom window above. Type 2 doors on the second floor all measure 3'-0" x 7'-0". Door 204 is a Type 3 door, measuring 3'-0" x 7'-0". It has three large hinges and a knob that throws a floor bolt.

Door 205 is the historic second floor vault door set, measuring 2'-3" x 6'-2". The outer door is painted steel but with embossed trim and painted accents to resemble a paneled door. A pair of inner steel doors have a similar motif and open to fit inside the wall depth (Figure 4-45).

Condition: *Good*
Interior doors are in overall good condition with most problems relating to worn finishes or aged hardware. Door 203 and 206 have split panels, and the lites in D114 and D201 are broken. D112, D113 and D119 have holes in the frames showing the swing has been reversed. Basement doors are generally much more worn and two have broken lites. None of the doors have ABAAS-compliant hardware.



Figure 4-46. Moisture issues beyond the peeling coating at masonry foundation walls, Room 001 (LM 10/31/2018)


Figure 4-47. Wear on wood stair and typical moisture issues at the basement slab (KC 10/31/2018)

Architecture - Interior Finishes - *Basement*
The basement level is essentially unfinished. This discussion of interior elements focuses on the conditions observed.

The floor in the basement, to include the vault, is the exposed concrete slab on grade. An elevated plywood floor has been added to Room 005.

The exterior stone masonry walls are covered to the inside with various coatings. Much of the coating has peeled off, allowing for views of the masonry walls and the transition from red sandstone to poor rock rubble below grade (see Structural). Interior brick masonry walls are also covered in a similar coating (Figure 4-46). A few non-structural walls have been added; these are wood framed with painted plaster on lath.

The stair down to the basement has wood treads, risers, carriages and railing. The outside carriage is exposed and stained. The underside of the stair is covered plaster on lath that is secured to the carriages. The railing consists of a stock profile top rail and turned wood balusters with square bases. The railing terminates at a turned newel post with a square base and a ball cap (Figure 4-47).

The ceiling typically consists of plaster on a wood lath attached to the underside of the first floor joists. Room 005, below the west porch, has no ceiling. The vault has a brick barrel vault ceiling (see Structural).

Condition: *Poor*
The concrete floor has extensive water staining that can be attributed to long term water infiltration in the basement slab precipitated by the high water table, which sits just below the slab in some areas, and moisture penetration through the walls



Figure 4-48. Rising damp at an interior brick foundation wall, Room 003 (LM 10/31/2018)



Figure 4-49. Gap and cracking in ceiling plaster, Room 006 shown (KC 10/31/2018)

(Figure 4-47).

The coatings on the foundation walls do not allow the walls to breathe to the inside (see Structural for a full discussion of water migration). Moisture issues in the walls are manifesting as staining, peeling or erosion of the coating (which at least helps breathability), and disintegration of the sandstone blocks at areas of prolonged saturation. Interior walls also exhibit moisture penetration in the form of rising damp; the brick essentially sucks up moisture from the high water table just below the slab into the walls, where it again cannot dry out due to the coatings (Figure 4-48).

Most of the varnish has worn off the treads of the stair (Figure 4-47).

The ceiling has considerable expanses of missing plaster, revealing the lath beyond. (Figure 4-49). In some cases, the lath has also been removed for access to mechanical systems.

Architecture - Interior Finishes - *Room 101*
The flooring in the vestibule consists of 2¼-inch oak tongue and groove running north to south. Any previous finish has worn off and a rug covers most of the floor.

The walls are finished with varnished oak beadboard with beads 3¼ inches on center. Double doors dominate the east and west walls. The ceiling has the same beadboard finish.

Condition: *Poor*
Any former finish has worn off the wood floor. Where visible, the flooring shows water staining but little sign of material deterioration. The walls are in fair condition, with considerable water damage at the south



Figure 4-50. Surface mounted conduit and water damage at the ceiling of Room 101 (KC 10/31/2018)



Figure 4-51. Room 102 with partition forming Room 103 (KC 10/31/2018)



Figure 4-52. Crown molding and latent plaster cracks at Room 102 ceiling (KC 10/31/2018)

wall where the beadboard meets the wood floor. Surface mounted conduit is highly visible on three walls. The ceiling is in fair condition with wear in the finish. The outline of a previous light fixture is visible and there are two holes from former penetrations near the corners (Figure 4-50).

Architecture - Interior Finishes - *Rooms 102 and 103*
Room 103 is a portion of Room 102 that has been partitioned off. Flooring is varnished 2¼-inch oak tongue and groove running north to south.

The walls have a varnished oak beadboard wainscot with beads 3¼ inches on center. The wainscot is 4'-1" high including its oak cap. The cap is eight-inch high built-up molding. Quarter round trim is the only baseboard. Above the wainscot, a painted plaster finish extends to the ceiling, where painted plaster crown molding runs the perimeter. A wood partition wall , circa 1913, extends from floor to ceiling just south of Door 102. The wood partition is constructed essentially as stile and rail, with inset panels below a glazing panel (Figure 4-51). At the west side, a similar wood construction forms a header stretching to the ceiling above but is open below. The crown molding terminates at the partition. A cast bronze tablet mounted on the west wall is dated June 15, 1917 and honors William R. Todd. The plaque is marked "Tiffany Studio, NY". The ceiling is painted plaster.

Condition: *Fair*
The floors are in poor condition. Most of the finish is worn, and there is staining likely from a prior mastic throughout and water stains in a few areas. The walls are in fair condition with some staining at floor level and scuff marks above on the wainscot. The


Figure 4-53. Glazed partition dividing Room 104 and 105 (KC 10/31/2018)


Figure 4-54. Partition dividing window pair W105 and W106; window trim is otherwise typical (KC 10/31/2018)

partition is in good condition. The plaster wall finish and the crown molding are in good condition, except where patched when the closet was removed. The plaster finish of the ceiling is in fair condition but shows a network of fine cracks (Figure 4-52).



Figure 4-55. Change in ceiling condition at partition between 104 and 105 (KC 10/31/2018)

Architecture - Interior Finishes - *Rooms 104 and 105*

Room 104 and 105 were once one room that was partitioned circa 1913 (Figure 4-53). The original oak floor of both is covered in carpet.

The devising partition consists of wood panels below two rows of glazing. Wood stiles divide the partition into five bays; the fourth bay is at a diagonal and contains a thin wood door with a half-lite. The partition bisects windows 105 and 106 at the meeting stile (Figure 4-54).

The other, original walls are painted plaster with a 14-inch varnished oak base, a varnished oak picture rail, and painted plaster crown molding. The crown molding is not visible in Room 104 due to the dropped ceiling.

The typical varnished oak trim at the heads and jambs of both windows and doors is seven inches wide and consists of flat trim with a cove profile at the outside perimeter and a beveled profile to the inside (Figure 4-54). Window sills have a beveled edge with wood inset panels below; the panels extend from the floor to the sill. The inside of each window jamb hosts two thin doors that pull out, accordion style, to reveal wood shutters with operable slats.

The west wall of Room 105 features a fireplace covered around the firebox and at the hearth with 2-inch by 4-inch brown and white tiles in running bond pattern. Larger



Figure 4-56. Fireplace, mantelpiece and damaged hearth at Room 105 (KC 10/31/2018)

tiles with a scroll motif band the perimeter of the hearth. The fireplace is encased with flat 1x oak trim. Two fluted brackets support a similar wood mantel. Above the mantel, a more elaborate varnished oak mantelpiece includes inset mirrors, two candle shelves with turned posts, and spindle rail atop a second shelf.

Room 105 has a plaster ceiling but in Room 104, a dropped ceiling consisting of 2x4 acoustic tiles in a metal grid, hangs flush with the window header (Figure 4-55).

Condition: *Fair*
The carpet is in poor condition. It is worn, stained and cut out around the radiator. The condition of the wood floor below is unknown. The plastered walls are in fair condition with cracks in the plaster. The oak base is stained and worn, and the crown molding is cracked.

At the south wall, there is a patched hole in the crown molding. The wood trim is in good condition overall but with unequal wear in the varnish coat. Most of the interior shutters are no longer fully operational. Typically, the shutters stick in the opening and, once extended, exhibit several broken louvers. Because of this fragility, the shutters were not fully assessed for this draft.

The fireplace is in poor condition. The metal firebox trim is gone, and tiles are missing at the hearth and around the firebox. A piece of plexiglass has been affixed over the firebox (Figure 4-56). The painted plaster ceiling in Room 105 has hairline cracks and is in fair condition.

Architecture - Interior Finishes - *Room 106*
Room 106 is the first floor vault. Its finishes differ considerably from those elsewhere


Figure 4-57. Vault shelving in Room 106 (KC 10/31/2018)


Figure 4-58. Crack over door in Room 106 (KC 10/31/2018)

on the floor. The concrete floor is covered in sheet vinyl.

A thick coating of plaster covers the brick walls of the vault. The plaster is painted and there is no trim or base of any kind.
A free standing but heavy historic system of metal cabinets, drawers and shelves line the north wall. A label shows that the shelves were manufactured by the Baker – Vawter Company, Benton Harbor, Michigan, USA (Figure 4-57).

The underside of the brick arch system at the ceiling is also plastered and painted. The bottom of the steel support beams at the spring of each arch of each arch are also covered in this manner. The tie rod that spans between the arches is painted the same color as the ceiling.

Condition: *Fair*
The sheet vinyl floor is in good condition. The wall plaster is in fair condition There are hairline cracks throughout, and the paint is chipped and worn. The west wall is marred and gouged. There is a sizable diagonal crack over the vault door. (Figure 4-58) The metal shelving system has scratches and wear in the paint but is functional. The paint on the ceilings is also quite worn, though cracks in the plaster are less frequent. Separation of the plaster occurs frequently at the change of substrate (from steel to brick, Figure 4-59).

Architecture - Interior Finishes - Room 107
The original wood floor is covered in carpet. Transitions at the door threshold and hearth are brass.

The walls are finished in painted plaster with a 14-inch wood base and a stained wood picture rail. The paint color changes from pink to white above this picture rail. The



Figure 4-59. Separation of plaster at the steel plates and spring of the brick arches (KC 10/31/2018)



Figure 4-60. Picture rail at fireplace projection, Room 107 (KC 10/31/2018)

picture rail does not continue around the projection for the fireplace on the east wall, but the color change is continuous (Figure. 4-60). The crown molding is not visible in this room due to the dropped ceiling.

The wood trim at the two pairs of windows is as described for 103/104 and what will from here on be referred to as typical trim for this building. The window head trim in this room is partially obscured by the dropped ceiling. Trim at the head and jambs of Door 107 follows the same description.

A section of the north masonry wall was removed circa 1913 and replaced with a wood and glass partition. The partition is arched in the corners to follow the profile of the masonry opening, which is similar in profile to the original openings in the structure. The partition is one inch thick. Wood framing elements of flat stock about six inches wide divide the partition into bays. Beadboard wainscot is found below four feet and two rows of glazed openings above. Door 108 occupies one bay.

The east wall features a projection for the fireplace. The firebox and the hearth are finished with 2-inch by 4-inch brown and orange tiles. Larger tiles with a scroll motif band the perimeter of the hearth. The fireplace is encased with flat 1x wood trim. Two fluted brackets support a similar wood mantel. Above the mantel, this simpler wood mantelpiece includes one inset mirror and three shelves with wood bracket supports.

Next to the fireplace is a wood telephone booth and storage cabinet, added around 1913. Both elements are encapsulated in millwork, but the variation in the style and finish of the two suggest that they are not contemporary. The offset bifold door of the

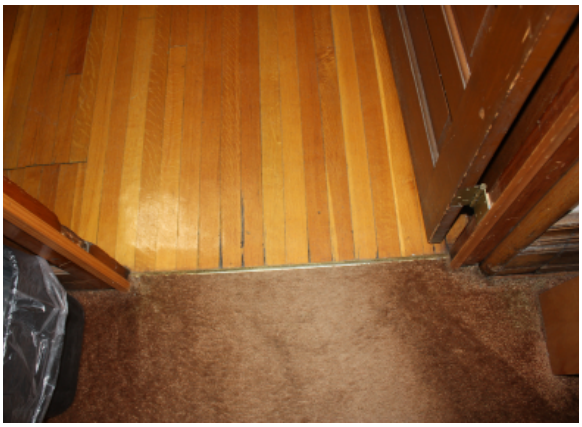


Figure 4-61. Floor transition at the wood partition between Rooms 107 and 108 (KC 10/31/2018)



Figure 4-62. Stained ceiling tiles in dropped ceiling above windows 109 and 110 (KC 10/31/2018)

telephone door has two glazed panels. The room has a dropped, 2x4 acoustic tile ceiling, likely concealing the original plaster ceiling.

Condition: *Fair*
The carpet is in fair condition, showing wear and visible seams. The condition of the wood floor below is unknown. The walls are in fair condition with minor cracking in the plaster. The fireplace is in fair condition. The metal fire box surround is loose on north end and there is some wear on the hearth tiles, though none are missing. The wood and glass partition is in good condition with some gouging near the door (Figure 4-61) The acoustic ceiling is in fair condition with holes in a few panels and dark staining at two panels by south window (Figure 4-62). The condition of the plaster ceiling was not observed.

Architecture - Interior Finishes - *Room 108*
The flooring in Room 108 is the typical wood tongue and groove running north to south with a stained finish.

The south wall contains the wood and glass partition shared with Room 107. The north, east and west walls have the same stained beadboard wainscot and quarter round base as described for Room 102. Above the wainscot cap, a painted plaster finish extends to the dropped ceiling, which sits just above the picture rail in this room. The original crown molding was observed above the dropped ceiling (Figure 4-63). The door trim is typical. The trim at Window 144, which looks to the enclosed porch and infills a former door location, has the same typical trim profile and head and jamb, but with a simple flat apron and no panels below. A custom millwork cabinet with coat hooks at the interior occupies the northeast corner of



Figure 4-63. Arched opening in Room 108 with glazed partition, original crown molding above dropped ceiling and altered trim at Window 144 (KC 10/31/2018)



Figure 4-64. Patched flooring at the partition in Room 108 (KC 10/31/2018)

the room.

The dropped ceiling, 2x4 acoustic panels in a metal frame, is lower here than in the adjacent room 207, concealing the historic plaster ceiling.

Condition: *Fair*
The floor is in fair condition with a patched area at the south end. The walls are also in fair condition. The wainscot is stained along the west wall. The plaster finish is intact despite a few penetrations, but the paint is patched at the east wall. The ceiling is in fair condition. There are a few broken corners on the tiles. Copper pipe penetrates the ceilings in three locations The plaster ceiling and crown molding were observed in part in this room and seem to be in good condition.

Architecture - Interior Finishes - Room 109
The flooring in Room 109 is the typical wood tongue and groove running north to south with no discernible finish.

The north, south and west walls consist of an original masonry knee wall with the circa 1913 porch enclosure above. This enclosure consists of wood framing elements between eight double hung windows and a door. The windows sit on a continuous wood sill that also caps the masonry wall. The window header is a continuous 4x10 that also serves as the plate for the hipped roof framing. Below the sill, the inside of the masonry wall is covered in a beadboard wainscot with no base trim at the floor (Figure 4-65). The walls are shrouded in plywood to the outside.

The east wall is the original exterior masonry wall. The stone is exposed, including in the gable. The area beneath the sill of Window 114 (previously a door opening) is on this side covered in unfinished gypsum board



Figure 4-65. Wood flooring, boarded windows and sill conditions in Room 109 (KC 10/31/2018)



Figure 4-66. Incompatible joint sealant at masonry wall, Room 109 (KC 10/31/2018)

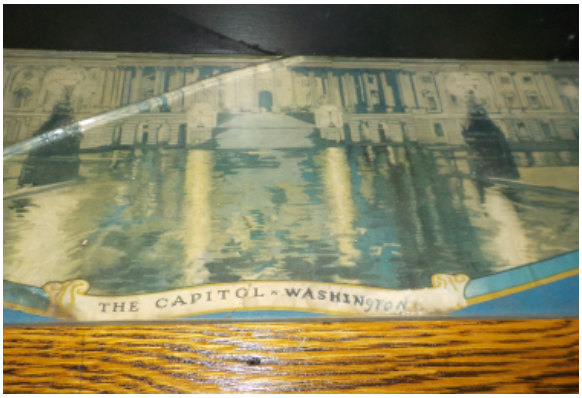


Figure 4-67. Cracked glass at sill insert for Window 114 (KC 10/31/2018)

below a wood sill. The sill has a piece of glass recessed into its horizontal surface, which may speak to the evolution of the pay window at this structure.

The ceiling is the painted underside of the hipped roof framing and roofing boards.

Condition: *Poor*
The floor is in poor condition. Boards are chipped and broken, and there are water stains throughout, indicative of the structural issues below. The window walls are in poor condition. Window condition is discussed in that section. The wainscot is water damaged at the floor, particularly at the south wall. The wood sill is worn at the bullnose edge. The masonry at the east would be considered in good condition except for the application of an incompatible substance, perhaps a sealant, at several joints in the gable (Figure 4-66). The glass inlay in the wood sill is cracked (Figure 4-67). The ceiling is in fair condition. The finish is well worn, but the framing elements and the roof boards show little damage or decay.

Architecture - Interior Finishes - *Room 110*
Room 110 is temporary enclosure serving as a vestibule for the wood porch. The floor level is some three inches higher than that of the porch; flooring is unfinished wood tongue and groove (Figure 4-68).

The south and west walls are vertical wood plank, covered with a beadboard wainscot below chair rail trim. The west wall contains a fixed pane window, and the south wall is covered in graffiti, some dated to the 1930s and 1940s (Figure 4-69). The north wall consists entirely of the door to the exterior.

The ceiling is the exposed underside of the shed roof, which was once painted white like



Figure 4-68. Elevated wood floor and wood plank walls in Room 110 (DA 10/30/2018)



Figure 4-69. Sample of graffiti on south wall of Room 110 (KC 10/31/2018)

the upper walls.

Condition: *Poor*
The flooring is in poor condition with extensive water damage and wood deterioration. The walls and ceiling are in fair condition. The finishes are faded but the boards show only minor deterioration.

Architecture - Interior Finishes - *Room 111*
The flooring in Room 111 is the typical wood tongue and groove running north to south with a stained finish.

All walls are finished in painted plaster with the stained 14-inch wood base. Stained picture rail trim runs from the door on the south wall to the window on the north wall, but does not continue around the room. Trim at windows and doors is typical. The dropped ceiling, 2x4 acoustic panels in a metal frame, site just above the window head trim. The historic plaster ceiling above was not observed.

Condition: *Fair*
The flooring is in fair condition. It does not align with the floor in Room 108; there is a visible joint at the threshold. The swing of the door here (D112) has been reversed.; perhaps further work was involved. The wall plaster is in good condition, but the wood base shows wear and fading. Near a new radiator at Window 122, the floor is patched and the window trim stained (Figure 4-66). The dropped ceiling is in good condition; the historic ceiling was not observed.

Architecture - Interior Finishes - *Rooms 112 and 116*
These two halls collectively house the stair. Flooring is a continuation of the wood tongue and groove found in Room 102.



Figure 4-70. Water stains on floor below Window 122, Room 108 (KC 10/31/2018)



Figure 4-71. Wood stair, rail and newel post; note paint stains at upper risers (KC 10/31/2018)

The walls have the typical stained beadboard wainscot with built-up cap and quarter round base. Above the wainscot, a painted plaster finish extends to the ceiling, where painted built-up crown molding runs the perimeter of each room. A plastered flat arch spans the opening in the masonry wall between the two rooms. Millwork electrical cabinets line the south wall of Room 116, and a vintage fire extinguisher is installed at the east end. On the north wall, a built-in wood shelf covers the radiator. In Room 112, the beadboard wainscot extends to the underside of the stair carriage on the open side of the stair. On the closed side the wainscot follows the path of stair.

The stair features wood risers and treads. These elements have a darker stain finish than the flooring and have applied rubber tread covers with metal nosings. An ornate wood newel post, square in section, anchors the railing at each landing. The lower newel post rises from a curved extension of the first stair tread. The upper newel post extends down beyond the top landing into the space of the lower stair. The railing is 32 inches high with a wide profile at the top rail and turned wood balusters with squared bases below (Figure 4-71).

The ceilings are painted plaster.

Condition: *Fair*
The floors are in poor condition. Most of the finish is worn, and there is staining likely from a prior mastic throughout and water stains in a few areas. Walls are in fair condition with worn finish on the wainscot, particularly at each stair tread (Figure 4-72). Wall plaster is in fair condition with a large gouge in the corner by the stair. The stair is in fair condition. The finish is worn on wood risers and treads, particularly on the upper



Figure 4-72. Cracks in plaster and wear in wainscot finish at each tread (KC 10/31/2018)



Figure 4-73. Wainscot and cap at sills, Rooms 113 and 114 (KC 10/31/2018)

run. Dripped paint mars treads and risers at the lower run. The ceiling plaster and crown molding are in overall good condition.

Architecture - Interior Finishes - *Rooms 113 and 114*
These rooms form a restroom below the stair landing. The flooring is non-historic 12 x12 vinyl composition tile.

At the walls, the familiar beadboard wainscot extends to five feet and has the typical cap, except at the thin partition wall between the two rooms which have full beadboard with wood trim. The wood sills of windows 123 and 124 sit just above the cap. The partition wall divides the windows, which otherwise have the typical trim including the interior shutters. The partition wall also houses a wood damper, operable on the 114 side. On the west wall of 113, a tongue and groove of flat wood trim supports hooks and lighting fixtures. The ceiling is finished in painted plaster.

Condition: *Fair*
The vinyl flooring is in good condition, but the condition of the wood flooring below is unknown but likely poor. The walls are in overall fair condition. The wainscot behind and adjacent to the sink is water stained; it looks as though the base trim has recently been replaced (Figure 4-74). The ceiling shows significant cracks near the partition wall.

Architecture - Interior Finishes - *Room 115*
The floor is covered in carpet, concealing the original wood floor. Transitions at the door threshold and hearth are brass.

The walls are finished in painted plaster with a 14-inch wood base and a stained wood picture rail. The picture rail does not continue



Figure 4-74. Water stains below the lavatory in Room 113 (KC 10/31/2018)



Figure 4-75. Picture rail and fireplace projection, Room 115 (KC 10/31/2018)



Figure 4-76. Detail of woodworking at mantelpiece in Room 115 (KC 10/31/2018)

around the projection for the fireplace on the west wall (Figure 4-75). The crown molding is not visible in this room due to the dropped ceiling. The wood trim at the two pairs of windows and the two doors is typical.

The west wall features a projection for the fireplace. The firebox and the hearth are finished with slimmer tiles than those seen elsewhere, about 1x6 in a mottled brown, green and white. The hearth is the same tile with a 3x6 border tile. The fireplace is encased with flat 1x wood trim below an ornate mantelpiece. Two fluted columns run from the hearth past the curved mantel to a pair of candle shelves (Figure 4-76). From each shelf, a trio of turned spindles support an upper shelf with an ornately carved apron. The curve of the apron is repeated in the mirror inset into the backboard.

The room has a dropped, 2x4 acoustic tile ceiling, likely concealing the original plaster ceiling, that interrupts the window header trim.

Condition: *Fair*
The carpet is in fair condition, showing wear and visible seams. The condition of the wood floor is unknown. The walls are in fair condition with significant cracking in the plaster at the east wall near a historic wall register. The fireplace is in good condition. The acoustic ceiling is in fair condition with a tear at one penetration, but the condition of the plaster ceiling was not observed (Figure 4-77).

Architecture - Interior Finishes - *Room 201*
The flooring at the second-floor landing is stained 2¼" wood tongue and groove running east to west. Modern carpet rugs cover most of the flooring along the circulation path.



Figure 4-77. Plaster patch and cracking near register and hole in ceiling tile, Room 115 (KC 10/31/2018)



Figure 4-78. Railing and arched opening at landing (KC 10/31/2018)

Generally, the walls have a painted plaster finish that extends to the ceiling. On the west wall, the wainscot cap typical at the stair continues horizontally to the door opening, with six inches of the beadboard wainscot continuing below it to form a sort of baseboard. Past the door, a 12-inch baseboard typical of this floor takes over; its upper six inches matches the profile of the chair rail cap. At the north wall, the wainscot crosses the intermediate landing, but the cap is interrupted by Window 218. This window, taller than typical, is trimmed with the same trim profiles discussed for first floor windows, including the interior shutters. The trim at interior doors is also as typical for the first floor. A guard rail of the same type found on the stair curves from the newel post at the top of the stair to the east wall. The south wall is mostly open to the hall, cased in an arched plastered opening. Each corner of the arched opening features a four-foot high turned wood spindle for protection (Figure 4-78) .

The ceiling is painted plaster. An attic hatch is visible but inaccessible above the stair.

Condition: *Fair*
The flooring is in fair condition with some wear on the wood and fading around rug locations. The walls are in poor condition in the area of the stair, with plaster cracks at floor level on the east wall and water stains on the wainscot wherever it meets the treads (Figure 4-79). The ceiling is in good condition.

Architecture - Interior Finishes - *Room 202*
The flooring is typical wood tongue and groove largely covered by modern carpet rugs.

Walls are painted plaster above a 12-inch wood base. A wood picture rail runs the perimeter of the room about a foot below


Figure 4-79. Transition of wainscot to baseboard at top of stair and typical staining at edge of tread (KC 10/31/2018)


Figure 4-80. Wall configuration near fireplace, Room 202 (KC 10/31/2018)


Figure 4-81. Tile damage at hearth, Room 202 (KC 10/31/2018)

ceiling height, except at the projection for the fireplace. The paint color changes to white above the picture rail (Figure 4-80). The wood trim at the windows and interior doors is the typical profile, but a built-in wood desk blocks the door on the south wall.

On the west wall, the fireplace surround and hearth have 1x2 mottled green and cream tiles with larger 2x6 green tiles and then 1" x 6" red tiles at the hearth perimeter. A sloped 3" piece of wood trim eases the transition from hearth to floor level. The decorative metal firebox in intact. The wood mantelpiece is relatively simple, with an inset mirror below a simple shelf and two candle shelves to either side. The mantel itself is of a simple wood profile; the brackets below extend in part to the floor. The ceiling is painted plaster with no crown molding.

Condition: *Fair*
The flooring is in good condition where visible with a few larger cracks between boards near the east window. Wall plaster is in good condition, but exposed conduit runs across every wall. Many tiles at the hearth and lower stretches of the surround are severely worn or missing (Figure 4-81). The metal firebox is split in one corner and separating from the wall. The ceiling is cracked near the fireplace.

Architecture - Interior Finishes - *Room 203*
The flooring is stained 2¼" wood tongue and groove running north to south, but is so much lighter than that in the hall and elsewhere that it might be of a different material. Modern carpet rugs cover most of the flooring.

Walls are painted plaster above the typical 12-inch wood base. A wood picture rail runs the perimeter of the room about a foot



Figure 4-82. Glazed partition at south walls of Room 203 (KC 10/31/2018)



Figure 4-83. Lighter floor color with gaps at edge of wall, Room 203 near D203 (KC 10/31/2018)

below ceiling height except along the south wall, where a wood partition wall infills a flat-arched opening presumably cut circa 1913. The partition is one inch thick. Wood flat stock framing elements divide the lower partition into four bays, with beadboard wainscot below and glazed openings with figured glass above. Door 204, similarly glazed, occupies one bay. Wood spindles like those discussed earlier protect the corners of the arched opening (Figure 4-82). Window and door trim elsewhere is typical; wood shelves fill in the opening at blocked door 103. The ceiling is painted plaster.

Condition: *Fair*
The flooring is in fair condition with some gaps at room edges and between boards. (Figure 4-83). Walls are in good condition despite some cosmetic scuffs on plaster and the exposed conduit found throughout this level. One lite in the glazed partition is partially covered in plywood and may be broken. The wood baseboards are typically water stained near the floor. The ceiling is in good condition.

Architecture - Interior Finishes - *Room 204*
This room has the same flooring as Room 203. It runs unabated through the arched opening between the two rooms, and was perhaps replaced prior to the addition of the partition. The north wall contains the wood and glass partition shared with Room 203; the arched opening has the same spindle corner guards above the typical 12-inch base board. Elsewhere, walls are plastered with the typical stained picture rail, except at the projection for the fireplace.

The fireplace and mantel have the same configuration as that described for Room 203, but the tiles are yellow in color, expect for the same red border. This fireplace, too,


Figure 4-84. Flooring patch below Window 208, Room 204 (KC 10/31/2018)


Figure 4-85. Water staining at trim below Window 206, Room 204 (KC 10/31/2018)


Figure 4-86. Wear on outer hearth tiles, good condition elsewhere, Room 204 (KC 10/31/2018)

has retained its metal firebox. The ceiling is painted plaster.

Condition: *Fair*
The flooring is in fair condition with some gaps between boards. Flooring below the east windows is water stained, while some flooring at the south windows has been patched with new boards (Figure 4-84). The walls are in fair condition. Plaster is in good condition, but the woodwork is affected. Baseboards are typically water stained at floor level. There is significant visible water damage on panels below the sills of the windows on the east wall, though the sills themselves have been refinished (Figure 4-85) The fireplace is in overall good condition with some finish wear on the larger hearth tiles and the firebox intact (Figure 4-86).

Architecture - Interior Finishes - *Room 205*
The flooring is 2¼" wood tongue and groove running north to south; it seems be the same as that installed in 203 and 204.

Walls are painted plaster above the 12-inch wood base. A wood picture rail runs the perimeter of the room about a foot below ceiling height, except at the projection for the fireplace. The paint color changes to white above the picture rail.

The fireplace and mantel have again the same configuration as that described for Room 203, but the tiles are orange in color and of thinner proportions, about 1 x 6. The metal firebox and grate are intact. The ceiling has a plaster finish.

Condition: *Fair*
The floors are stained near the radiator below the west window and otherwise occasionally gapped (Figure 4-87). Field and border tiles



Figure 4-87. Stained floor at radiator, Room 205 (KC 10/31/2018)



Figure 4-88. Missing hearth tiles and separating firebox in Room 205 (KC 10/31/2018)



Figure 4-89. Spindles at wall corners, Room 206 and 210 (KC 10/31/2018)

are missing at the southwest corner of the hearth; wall tiles are in better condition (Figure 4-88). The firebox is separating at one corner. The plaster walls are in good condition, but the wood base is stained as typical. A section of picture rail is missing on the north wall. Ceiling plaster is in good condition.

Architecture - Interior Finishes - *Rooms 206 and 210*
The wood tongue and groove flooring from Room 201 continues into these corridors.

The plastered walls have the typical wood base but no picture rail. Arched openings in the north and south walls are protected by the wood spindles at the corners (Figure 4-89). The south wall of 210 hosts the stair to the attic and built-in electrical cabinets below. The wood base continues behind the electrical cabinets, which were a later addition. Along the stair, a six-inch trim piece follows the wood stringer, creating an effect similar to the baseboards. Window and door trim is typical.

The stair has an exposed wood carriage to the outside and a wood stringer to the inside, as well as wood treads, risers and railing. The top rail, at 34 inches high, has a slimmer profile than that at the grand stair, and the turned balusters are circular at the base. The rail anchors to a newel post with a square base and top, turned middle, and ball cap. The plaster ceiling has wood trim at the stair opening.

Condition: *Fair*
The floor is fair condition with some staining. Plaster is good condition at walls, except where damaged inside the west cabinet. The baseboards show the typical wear. The stair treads have no covers and are quite worn


Figure 4-90. Worn finish on the stair to the attic, Room 210 (KC 10/31/2018)


Figure 4-91. Wainscot in bathroom, Room 207(KC 10/31/2018)

(Figure 4-90). The risers are scuff-marked. Ceiling plaster is in fair condition with cracks running north – south at the area of intersection of the two corridors.

Architecture - Interior Finishes - *Room 207*
This small bathroom has 12" x 12" vinyl composition tile flooring. Floor height is slightly higher than in the hallway, suggesting that the wood floor may remain below.

Walls feature plaster above a beadboard wainscot with a wood cap at four feet above floor level (Figure 4-91). The base is a simple quarter round. Trim at the door and the lone window are typical, including the wood panel below the sill. The ceiling is painted plaster.

Condition: *Fair*
The current flooring is in good condition; the condition of the wood flooring below is unknown but likely poor. The walls are in fair condition with some staining to the wainscot above the baseboard. Outlines of previous fixture locations are visible on the wainscot of the south wall. The ceiling is in fair condition with water damage at the southwest corner.

Architecture - Interior Finishes - *Room 208*
The flooring is the typical wood tongue and groove running north-south and largely covered by a rug.

Walls are painted plaster above the typical 12-inch wood base. A wood picture rail runs the perimeter of the room about a foot below ceiling height. The wood trim at the windows and doors is the typical profile. A wood desk is attached to the east wall. The ceiling is painted plaster with no crown molding (Figure 4-92).



Figure 4-92. Typical trim in Room 208, note also historic lighting fixture (KC 10/31/2018)



Figure 4-93. Cracking plaster above door in Room 209 (KC 10/31/2018)



Figure 4-94. Separation of plaster and staining at vault ceiling (KC 10/31/2018)

Condition: Fair
The flooring is in good condition. Wall plaster is in good condition, but exposed conduit runs across every wall. The base trim is stained in the typical fashion, though to a lesser degree than seen in other rooms. The painted plaster ceiling is in good condition.

Architecture - Interior Finishes - *Room 209*
Room 209 is the upstairs vault. The floor is concrete largely covered by a loose rug. A thick coating of plaster covers the brick walls of the vault. A stained wood picture rail runs the perimeter, terminating at the shelving on the west wall. A piece of wood flat stock, also stained, crosses the room just above the picture rails. A built-in system of wood cubbies and drawers occupies the west wall.

The underside of the brick arch system at the ceiling is also plastered and painted. The bottom of the steel support beams at the spring of each arch are also covered in this manner. The tie rod that spans between the arches is painted the same color as the ceiling.

Condition: Fair
The floor where visible is cracked and chipped. Walls show significant cracks throughout, worst above the door, where the plaster slopes out to meet the metal frame (Figure 4-93). The ceiling is also cracked, particularly at the spring of the arches. Paint is stained, peeling and crackling across the ceiling (Figure 4-94).

Architecture - Life Safety and Egress
As a National Park Service project, any proposed rehabilitation of the structure is subject to the Denver Service Center workflows. As such, work is governed by the 2018 International Code Council family of codes.

The following general classifications proscribed in the 2018 International Building Code (IBC) have been applied to this study:

Area (within walls): First Floor 2203 sq ft, Second Floor 2113 sq ft. The basement (2170 sq ft) is considered as an occupied space with a storage and maintenance function; the attic is not considered occupied.

Fire Suppression: This study is based on the addition of an automatic sprinkler system as part of the scope of work. Decision to eliminate that system from the project would require a new code study.

Occupancy Classification: Group B Business. The proposal to open portions of the Quincy Mine Office to the public as a museum opens the consideration of a mixed occupancy with the public part considered A-3 Assembly, which has stricter code requirements. It may prove beneficial to design teams to limit the extent of that assembly occupancy so that exceptions that allow small assembly spaces to be considered as Group B (303.1) might apply. This is discussed more below.

Type of Construction: The size of this structure allows it to be considered a Type VB construction, which means that any new walls, floors or partitions would not require a fire rating unless specifically required elsewhere in the code.

The 2018 International Existing Building

Code (IEBC) is the primary reference for this work. While there are three paths for compliance under this code, this discussion will assume the work area compliance method. The extent of rehabilitation recommended in this report would qualify as a Level 2 alteration, in which the proposed reconfiguration of space would not exceed fifty percent of the building area. The area that is affected is known as the work area, and the requirements of the code are generally limited to the work area. Requirements for Level 2 Alterations are covered in Chapter 8 of the IEBC. Chapter 12, Historic Buildings, further refines these requirements. Partially opening the building to the public as a museum also requires the consideration of Chapter 10, Changes in Occupancy. All chapters typically refer extensively to the IBC, indicating which elements of that new building code must be followed to protect life safety and where variances are reasonable due to the confines of the existing space or to preserve the historic character of the structure. Key points are discussed here.

Section 801.3 stipulates that new construction shall comply with the IBC except where indicated otherwise. Section 802.2 requires a fire resistance rated enclosure at vertical openings such as that at the stairway. Exception 5 applies here for a Group B occupancy not exceeding 3000 sq ft per floor.

Section 805 specifies when stories may have one exit. For B occupancies, a single exit from the second story above grade plane is allowed given the occupant load of the floor does not exceed 35 people. Assembly occupancies require multiple exits regardless of the occupant load.

Per 805.4, doors on the egress path must swing in the direction of travel when serving an occupant load greater than 50. In A occupancies only, doors must have panic hardware. Section 805.5 discusses requirements for doors and openings into corridors; these do not apply to QMO as the corridors are excepted from rating in the IBC (Table 1020.1).

Per 805 handrails must be provided on at least one side of an existing stair.

Per 809, if the occupant load of a story is increased by more than 20 percent, then plumbing fixture quantities must meet the current code. This will be further explored once a preferred alternative is selected.

Chapter 12 allows some useful concessions. Per 1203, elements of the means of egress such as door openings and corridor and stairway width may be less than those specified in the code, when approved by the code official.

Section 1203.5 allows historic interior finishes to be maintained despite flame spread requirements.

Per 1203.7, any one-hour fire-resistant assembly need not be provided where the existing wall and ceiling finish are lath and plaster.

Per 1203.9, grand stairways are excepted from handrail and guard requirements provided they are not structurally dangerous. Section 1203.10 allows the spacing in historic guard rails to be maintained.

Section 1204 discusses consideration for change of occupancy for historic buildings should that avenue be pursued.

Condition: Fair
The Quincy Mine Office has only one exit from the second floor (the main stair). This is acceptable for a B occupancy but becomes more complicated should a mixed occupancy be pursued on the second floor. The current stair enclosure falls sort of compliance in most aspects.

Architecture - Accessibility
As a federally managed structure, this building is subject to the Architectural Barriers Act (ABA) Standards. Section F202.5 outlines specific exceptions to the standards for qualified historic buildings. In short, alterations to qualified buildings must provide at a minimum: one accessible route from a site arrival point to an accessible entrance (F206.2), one accessible public entrance with an accessible route to public elements on that floor (F206.4) and a minimum of one unisex accessible restroom (F213.2). Otherwise, altered elements must comply with the standards. The NPS also upholds Universal Design principles, which encourages designers to go above and beyond the minimums to ensure universal access.

Condition: Poor
There is currently no accessible route to an accessible entrance nor an accessible path. Neither of the restrooms conform to accessibility standards. An interior accessible route through the main vestibule is difficult to accommodate due to distance requirements between doors in a series and maneuvering clearance required at doors. A route through the rear porch is more favorable to providing universal access with a minimal disruption to historic fabric. The restroom on the first floor could not be considered accessible without significant modification to the space. The restroom on the second floor might be modified within the existing space, but relocation of fixtures and related plumbing would be necessary.

Existing Conditions & Assessment - Hazardous Materials

Hazardous Materials - Asbestos
Twelve materials were tested for asbestos, including ceiling tiles, plaster. wire insulation and carpet and tile adhesives.

Condition: Good
Asbestos was not detected in any of these materials. Please refer to the full report of Environmental Survey Findings in the Appendix for a thorough discussion.

Hazardous Materials - Lead Based Paint
Testing conducted in 2001 detected lead-based paint on all painted surfaces of the first and second floor. Current testing focused on the basement, taking two swab samples from damaged paint.

Condition: Poor
The two samples were identified as lead-containing. Swab samples only test the surface coat of paint. Because the previous tests found lead-based paints, all painted surfaces should be considered to contain lead, except for wood window sashes and trim, from which LBP was removed during the 2017 window restoration project. Please refer to the full report of Environmental Survey Findings in the Appendix for a thorough discussion.

Existing Conditions & Assessment - Structural

Structural - General System Description

The Quincy Mine Office building is a two-story structure with a full height basement. It is constructed of 3x sawn lumber floor and roof framing bearing on interior clay brick and exterior red sandstone masonry ashlar bearing walls (Figure4-95). As seen in the basement, the perimeter foundation walls transition from the visible red sandstone to "poor rock" rubble ashlar about 1'-6" below grade. It appears that no major modifications have been made to the original structural system. The three story vault on the interior of the structure is framed with early fireproof construction technology that includes brick masonry arches supported on steel I-beams with tie rods resolving the arch thrust. These floor systems are supported on multi-wythe brick walls around the perimeter of the vault. The west elevation is adorned with a wood framed entry porch that was enclosed in 1913. Original architectural drawings by Robert C. Walsh dated 1896 have been located, but no original structural drawings have been found.



Figure 4-95. Overview of the Quincy Mine Office from the southeast corner (CBB, 11/01/2018)

Structural - Foundation

The Quincy Mine Office is founded on full height basement with walls constructed of stone and brick. Around the perimeter of the structure, the approximately 2' thick sandstone walls extend below grade approximately 1'-6" before transitioning to a stone locally referred to as poor rock (Figure 4-96). The interior bearing walls are founded on brick foundations walls of varying thickness. Most of the interior surfaces of the foundation walls are coated with numerous and varying types of paints or coatings.



Figure 4-96. Transition of foundation wall from sandstone to poor stone (CBB, 10/31/2018)

The foundations at the base of the walls are concealed and are likely unreinforced brick or stone strip footings. Portions of a brick footing from the store which previously occupied the site are visible in the northeast corner of the basement.

Condition: *Fair*
The foundations of the Quincy Mine Office are in fair condition.

It appears that the structure has settled over time, with more substantial settlement on the south or downhill side of the building. Approximately 1-1/8" of differential settlement was measured between the north and south side of the structure at the second floor, resulting in minor floor slopes across the width of the building (Figure 4-97). The cause of the settlement has not yet been determined, but it could be related to several issues including inadequate footings on the south side of the structure or uncompacted fill. The footings at the south side of the building may be inadequate in size causing the soil to be overburdened. Or the building may have been constructed upon fill used to level the sloping site which may have compacted over time on the downhill or south side of the structure. There are only a few hairline cracks in the interior plaster finishes of the first floor of the structure, which is unusual for this type of movement, leading us to hypothesize that the lath and plaster are moving independently of the perimeter masonry bearing walls. It is not clear if the observed settlement is ongoing or if it has subsided.

The front south pier at the end of the south knee or cheek wall of the entry porch is leaning south while the north pier at the end of the north knee or cheek wall is leaning north (Figure 4-98). This is likely caused by

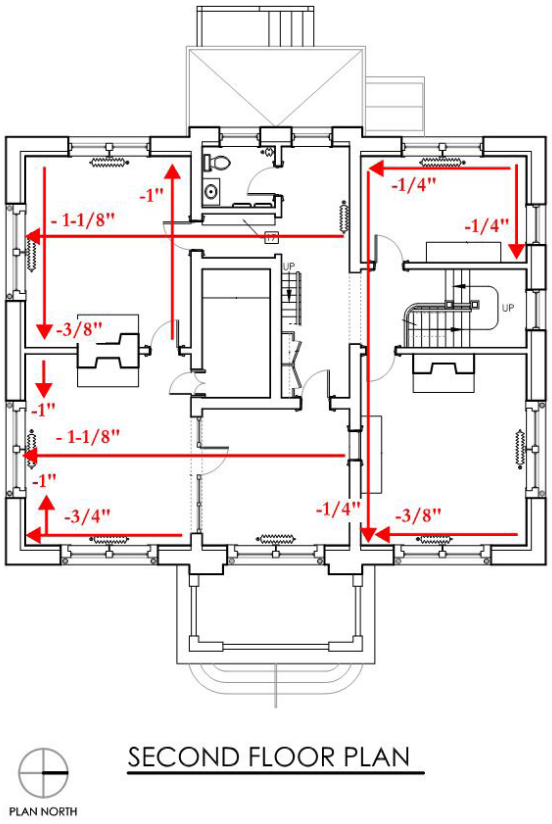


Figure 4-97. Diagram of the slopes or differential elevations of the second floor (CBB, 12/20/2018)



Figure 4-98. South pier at the east entry. Note that the pier leans slightly to image left (CBB, 10/31/2018)

differential settlement of the piers which appear to have no below grade footings. These porch piers are also in close proximity to a below grade utility trench, also referred to as a launder, that is composed of a rubble stone arch (Figure 4-99). It is possible that portions of the launder have collapsed resulting in movement of the brick piers at the porches.



Figure 4-99. Excavation near base of south pier near the main entry completed during Summer 2018 work (NPS, 7/9/2018)

The basement shows signs of long-term, widespread, and pervasive water infiltration. The groundwater level is high at the site; there are three sump pumps currently installed in the basement and there is a hole in the concrete basement floor slab in the northeast corner of the building where water can reportedly be seen running underneath the floor slab (Figure 4-100). During the observation visit, standing water approximately 18" below the top of the slab was visible in several of the sump pumps. However, there are visible signs of water in the sump reaching approximately 7" below the top of the slab, which is very close to the underside elevation of the slab. Rising damp due to the high groundwater level is an issue throughout the basement.



Figure 4-100. Standing water visible in one of the active sump pumps in the basement indicating high groundwater levels (LMG, 10/31/2018)

As for the perimeter walls, many of the stones are water stained and some were actively damp during the October site visit. Many of the non-original coatings on the interior faces of the walls are not breathable and they trap water that enters the foundation from the exterior behind the coatings. This lack of breathability is resulting in delaminating coatings and in some locations the sandstones blocks are starting to disintegrate from long term saturation at the coating interface (Figure 4-101, Figure 4-102, and Figure 4-103). A recent landscaping project, including tying the roof downspouts into below grade drain lines and a French drain



Figure 4-101. Failing coating at perimeter wall due to moisture infiltration (CBB, 10/31/2018)

near the base of three of the four walls, was completed in the summer of 2018.

Structural - Floor Framing
The basement floor of the Quincy Mine office is a concrete slab-on-grade.

The first floor of the Quincy Mine Office is framed with dimensional lumber floor joists that span between the north and south exterior walls and two interior bearing walls located at third points. The joists measure 2-¾" x 11-½", are spaced at 16" on center, and span approximately 18' between interior and exterior bearing walls into which they are pocketed (Figure 4-104). The joists are sheathed with 1-¾" x 6" horizontal board sheathing. At the 3'-10" wide door openings in the brick bearing walls, three 5-¾" x 5-¾" beams comprise the built-up header beams that support the joists.

At the vault, the first, second, and attic floors are framed with a brick arch system that was popular at the time of construction (Figure 4-105). It provided a strong and fire-proof floor system for important spaces, such as in this case with a vault. This system is framed with steel beams with a 4" flange spaced at 32" on center, spanning north to south between brick bearing walls. An arch of bricks springs between the bottom flanges of adjacent steel beams and the voids between the topping slab and the top of the arch are filled with concrete fill. Additionally, a ¾" diameter rod spans between the steel beams, resisting the thrust of the brick floor arches.

The second floor framing was not visible due to finishes, but it is likely framed with the same framing at the same spacing as the first floor.

Although it was difficult to see all of the



Figure 4-102. Failing coating at perimeter wall due to moisture infiltration (CBB, 10/31/2018)



Figure 4-103. Deteriorating stone caused by water infiltration and moisture trapping against surface of stone by the coating (LMG, 10/31/2018)



Figure 4-104. Typical joist ends of first floor embedded in an interior bearing wall (CBB, 10/31/2018)

members at the attic floor level due to insulation, it is likely that there are flush beams located directly beneath the exposed wooden ring beam of the roof to collect the point loads from the posts above. The joists generally span from north to south and are likely 2-¾" x 11-½" lumber members spaced at 16" on center, similar to the floor below. At the east and west projecting gables at the center of the structure, the floor joists switch direction and span east to west between the exterior bearing wall and the flush beam beneath the roof ring beam.



Figure 4-105. Brick arched floor construction of the vault as seen in the basement (CBB, 10/31/2018)

The floor of the porch on the west elevation is framed with 3" x 11-½" joists spaced at 16" spanning east to west. The joists are pocketed into the masonry walls on the west side and attached to the wall of the main building with a double 2x ledger.

Condition: Good (Elevated Floors); Poor (Basement Slab-on-Grade & West Porch)
Generally, the floors of the Quincy Mine Office are in good condition. There are no signs of structural distress such as deflection or fractured members. The minor slopes in the floors caused by foundation settlement do not affect the structural capacity of the floors. All floors are adequate for their current uses (see the Applicable Codes & Load Requirements section below).

The slab-on-grade in the basement is in poor condition; the slab is unlevel and likely not bearing on the soil below where voids have developed by erosion. As noted in the Foundation section above, ground water level is high at the site and there have been reports of water visibly and audibly running under the slab. There is at least one void visible in a hole in the slab in the northeast corner of the basement that was probably caused by running water eroding the soil beneath the

slab, and there are likely more voids spread across the basement. If these voids are pervasive, the structural integrity of the slab could be undermined if heavily loaded.

The floor framing of the west porch is in poor condition. There are many signs of water infiltration in this area including water staining on the wood and stone elements, and deterioration of the joist ends embedded in the wall (Figure 4-106). The level of deterioration at the bearing condition of the members is relatively severe and the floor should not be used for long term storage until remedied.



Figure 4-106. Deteriorated embedded joist end at the porch (CBB, 10/31/2018)

Park service staff report that carpenter ants were detected in the building approximately five years ago . At that time, an exterminator treated the perimeter of the building with a boric acid solution and there have been no signs of carpenter ants or damage since. No signs of damage due to carpenter ant infestation was noted during the design team's visit in October 2018.



Figure 4-107. Overview of attic space and roof framing looking west (CBB, 10/31/2018)

Structural - Roof & Ceiling Framing

The hipped roof is framed with dimensional sawn lumber of different sizes (Figure 4-107 & FIgure 4-108). 2" x 10" rafters spaced at 16" on center with an 11 on 12 pitch simple span between the bearing walls and various framing elements. These framing elements include a ring beam, valley beams, hip beams, and a ridge board. The double 2" x 12" ring beam is located approximately 9'-0" inbound of the exterior bearing walls and is supported by 5-¾" x 5-¾" posts located at variable spacing (Figure 4-109). The valley beams are composed of two 1" x 11 ½" members. The hip beams transition from double 2" x 12" member below the ring beam to a single 2" x 12" member above the ring beam. The ridge board is a double 2" x 12" member spanning



Figure 4-108. Overview of attic space and roof framing looking south (LMG, 10/31/2018)

north to south.

Condition: *Good to Fair*
Overall the roof framing is in good condition with exceptions at the following locations: roof to wall connections, the projecting eaves, and the ridge board.

During the observation visit, no positive connections between the roof framing system and the wall system to resist uplift caused by wind were noted.

Over time, the original ends of the outriggers supporting the gutters and eaves decayed causing the eaves to deflect. In a project completed in 2009, the deteriorated ends were removed and new dimensional lumber members were scabbed onto what remained of the outriggers with several fasteners. These several fasteners were not adequate to resist the overturning moment imposed on the eaves created by the eave snow loads associated with the site, so during an investigation in 2017, it was revealed that many of the eave scabs had failed along the east elevation (Figure 4-110 & Figure 4-111). In 2017, the failed scabs were supplemented with plywood gussets, but the park acknowledges that a more long-term solution may be necessary, which is correct. Without proper tension restraint, the members could fail.

At the ridge of the roof, there are signs of water infiltration (i.e. water staining) at the anchorage points of the decorative cresting at the ridge board (Figure 4-113). Although it was not accessible at the time of the observation visit, it is likely that the ridge members are deteriorating.



Figure 4-109. Corner of ring beam bearing on a post in the attic (CBB, 10/31/2018)



Figure 4-110. Failed eave repair (John Rosemurgy with KEWE NPS, 9/19/2017)



Figure 4-111. Failed eave repair - enlarged (John Rosemurgy with KEWE NPS, 9/19/2017)

Structural - Wall Framing
Above grade, the walls of the Quincy Mine Office are constructed of coursed ashlar sandstone units. The perimeter walls are approximately 24" thick. The interior bearing walls are constructed of multiwythe red clay brick masonry. These walls vary in thickness from 16" to 24".

Condition: *Good to Fair*
Generally the bearing walls of the structure are in good condition. There are no major signs of structural distress in the walls including bulges or racking. However, there are two issues associated with the walls worthy of note: rising damp at the walls and cracked sandstone lintels at the basement window openings.

Because the groundwater is so high at the site, rising damp is a pervasive issue at the base of the interior clay brick masonry walls (Figure 4-114). Clay brick is a porous material that wicks up any moisture in the near vicinity. Since the water source is at the base of the wall, the moisture migrates from the base up through the wall as it is able. This action is called rising damp.

Six of the exterior sandstone lintels over the basement windows around the perimeter of the structure are cracked at or near to the bearing point (Figure 4-115 & Figure 4-116). The global building settlement described in the Foundation section above is likely contributing to this mechanism. These fractures are eroded indicating that they have been present for years.



Figure 4-112. Ridge condition, exterior view (LM 6/5/2019)



Figure 4-113. Water staining visible at the ridge of the roof (CBB, 10/31/2018)



Figure 4-114. Rising damp visible at the base of an interior brick bearing wall (CBB, 10/31/2018)

Structural - Lateral System
The lateral force resisting system of the Quincy Mine Office consists of the unreinforced masonry walls and foundation walls, as well as the wood sheathed floor and roof diaphragms of the structure.

Condition: *Good*
The lateral force resisting system is in good condition. The wooden floor diaphragms, perimeter masonry shear walls, and internal masonry shear walls are in good condition laterally and there are no signs of racking or lateral distortion associated with lateral events; the elements appear to be adequately proportioned to resist the low lateral demands on this shear wall structure. The minor observed slopes at the building (described in the Floor Framing section above) are the result of foundation settlements, not lateral design issues.

Structural - Applicable Codes & Load Requirements
The code references for this assessment include the 2018 International Building Code (IBC), the 2018 International Existing Building Code (IEBC), and ASCE 7-10 Minimum Design Loads for Buildings and Other Structures.

The load requirements for the Quincy Mine Office are based on the type of occupancy and geographical location of the building. The required floor live load capacity per ASCE 7-10 for office use is 50 pounds per square foot (psf). This building use classifies the structure as Risk Category II for standard occupancy. A brief review was completed to compare the design and current code required live load capacities of the floors since the use of the structure has changed over time (see the KEWE HSR Live Load Capacity Chart).



Figure 4-115. Context shot of typical crack in stone lintel over basement window near bearing point (CBB, 10/31/2018)



Figure 4-116. Typical crack in stone lintel over basement window near bearing point (CBB, 10/31/2018)

The ground snow load required for the Quincy Mine Office per ASCE 7-10 is 80 psf. This ground snow load translates to a flat roof snow load on the structure of 56 psf per ASCE 7-10 when wind exposure and thermal conditions are considered. Given the steep slope of the roof and the texture of the roof surface, a 55% reduction is allowed resulting in a roof snow load of 26 psf.

The ultimate design wind speed at the Quincy Mine Office site per ASCE 7-10 Figure 26.5-1A is 115 miles per hour (mph). The equivalent nominal wind speed is 90 mph.

The Quincy Mine Office site falls within Seismic Design Category A. The Seismic Design Category is a classification given to a structure that is based on the Risk Category of the building and the severity of the design earthquake ground motion at the site. The earthquake ground motion properties of the site are catalogued by the United States Geological Survey (USGS). The two mapped acceleration parameters for the site per the USGS are short period (Ss = 0.055 g) and 1 second period (S1 = 0.019 g). Without site specific soil testing, site soil conditions are assumed to comply with Site Class D resulting in a Seismic Design Category for the Quincy Mine Office of A. Since the structure falls within Seismic Design Category A, no seismic analysis is necessary.

Eastern White Pine design values were used to evaluate the load capacity of the Quincy Mine Office structural members based on wood samples taken from an original floor joist and an original rafter. The samples were not retained after analysis. Most of the members had some sporadically located grade-limiting defects, such as knots, resulting in Grade No. 1 analysis values.

Condition: *Good*

The floors are adequate for their current use as offices. If it is desired to use spaces for public access, the Code required capacity for the floors jumps to 100 psf, which is above the existing capacity of the floors.
Refer to the Live Load Capacity chart in the appendix for a clear comparison of the capacity of each floor versus the code required live loads.

The roof framing elements have adequate capacity for the snow loads associated with the site and are in good condition.

Existing Conditions & Assessment - Mechanical

Mechanical - System

The existing mechanical system provides heating for the building. There is no air conditioning within the building today and outdoor air ventilation is accomplished through operable windows. The heating system is a new hydronic heating water system with boilers, pumps, heating water distribution, and heating water radiators. The system was installed in 2018. Figure 4-117.



Figure 4-117. Boilers, forced air furnace, and water heater in basement mechanical room. (DMD, 10/31/2018)

In addition to the hydronic heating water system, there is a back up forced air system with a gas fired furnace in the basement. The forced air system is limited to providing airflow to portions of the basement area and the first floor. The forced air system does not extend up to the second floor. Figures 4-118, 4-119 and 4-120.

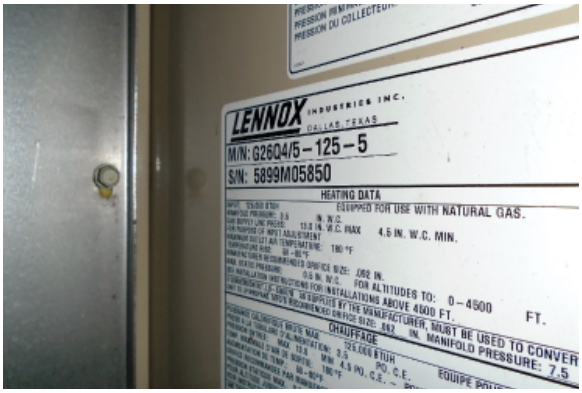


Figure 4-118. Furnace nameplate information (DMD, 10/31/2018)

The hydronic heating water system consists of two high efficiency boilers each, with primary/boiler circulating pumps, two secondary/system loop pumps, expansion tank, pot feeder, air separator, and make-up water line. The boilers are provided with combustion air and flue venting to the outside on the south side through a previous window. The vents are exposed on the outside and routed above grade. There is a Emergency Power Off (EPO) button outside the mechanical room that interrupts power when activated by personnel in an emergency situation. Figures 4-121 through 4-125



Figure 4-119. Boiler nameplate information (DMD, 10/31/2018)

The heating water distribution is routed from the boilers to the radiators on the 1st and 2nd floors. The main heating water lines are located in the basement and then individual pipes for each radiator are routed up through the floor(s) to the radiators. The isolation

and balancing valves for the radiators are located in the basement for ease of access. Figure 4-126

The heating water pipe in the basement is insulated while the piping routed through the 1st floor to the second floor is exposed copper pipe. The basement is not heated by the hydronic heating water system. There are no baseboard, radiators, or unit heaters in the basement. The radiators are controlled via manual thermostats on the side of the radiators. Figures 4-127 and 4-128

Within the basement, there are four locations, three on the east side of the building and one on the west side, where there were previous small wooden ducts (12x6) to the outside. There is one duct that remains today on the west side that is open ended. On the outside of the building at these same locations are notches in the stone of the same width, +/- 12". At one time, there was a connection from the outside to the basement via the wood ducts. It is not known the purpose of these ducts. Adjacent to each wood duct is a metal duct of similar size that is open ended. There are also small vents (11x14) high on walls in some of the offices on the 1st floor and one office on the second floor. These vents align vertically to the duct openings in the basement. There are also six (6) fireplaces within the building, (3) on the 1st floor and (3) on the 2nd floor. On the first floor, the vents high on the walls correspond to the rooms with fireplaces. However, on the 2nd floor, the only high vent is in a room that does not have a fireplace. Figures 4-129 through 4-133

There were two dehumidifiers in the basement, one in the northwest corner and one in the northeast corner. The drains for these dehumidifiers were routed to the sump



Figure 4-120. Forced air system ductwork in basement (DMD, 10/31/2018) (DMD, 10/31/2018)



Figure 4-121. Secondary/system loop pumps on back wall (DMD, 10/31/2018)



Figure 4-122. Secondary/system loop pumps, expansion tank, and pot feeder. (DMD, 10/31/2018)

basin that was located next to them. Figure 4-134

The 1st floor contains radiators fed from the heating water system in the basement. The radiators are all new (2018) except for the one radiator in Hall #116 which is a refurbished steam radiator from the previous steam heating system. Figure 4-135

Entry Vestibule #101 contains no heating source.

Entry Area #102 and Hall #116 are communicating spaces and contain one hydronic radiator. This radiator is a refurbished steam radiator that is located on the north wall of Hall #116 by the stairs down to the basement. There is also a supply floor grille on the west wall of #102, directly across from the entry doors, from the forced air system. The return air for the forced air system is ducted up to the 1st floor from the basement and there is one return grille. This return grille is located in Entry Area #102 in the northeast corner low on the wall. There are transom windows above the doors on the 1st floor which allow most of the return air from other areas of the floor to return back to this location. The front entry doors serve as the natural ventilation opening to meet code requirements. Figures 4-136 and 4-137

Office #104 has one heating radiator on the east wall under the window. This office also has three (3) supply air grilles on the floor from the forced air system. Two of the supply grilles are under the windows while the third grille is along the west wall. There is not return air or transfer air out of the office area. There is a vent high on the east wall in this office. This vent is not part of the forced air system today. Exposed heating water lines are routed through this office to



Figure 4-123. Boiler and water heater venting and combustion air to the outside on south exterior. (DMD, 10/31/2018)



Figure 4-124. Makeup water line for hydronic system with backflow preventer. (DMD, 10/31/2018)



Figure 4-125. Emergency Power Off (EPO) button outside mechanical room. (DMD, 10/31/2018)

the floor above. There are operable windows within the space for compliance with code via natural ventilation. Figure 4-138

Office #105 has one heating radiator on the south wall under the window. This office also has a fireplace on the west wall. There are no supply air floor registers from the forced air system into this office however, there is a transom window above the door leading into Entry Area #102. Heating water lines are routed exposed through this office to the floor above. Offices #104 and #105 were previously one larger office and have been divided into two separate spaces leaving the forced air system compromised due to the division. There are operable windows in the office for natural ventilation.

Vault #106 has no heating source.

Office #107 has two heating radiators, one on the south wall and one on the west wall, both are under the windows. There are three (3) supply air grilles from the forced air system, one at each of the windows and a third in the northeast corner. There is no transfer or return air out of this office back to the main return. This office also has a fireplace on the east wall. In the northwest corner of the office there is a vent located high on the wall. This vent is not part of the forced air system. Heating water lines are routed exposed through this office to the floor above. There are windows in the office for natural ventilation.

Office #108 has one heating radiator on the west wall near the door leading to the back entry. There is also a single supply air grille on the floor by the door leading to Hall #116 on the east side of the room. There are transom windows for transfer/return air above the doors leading to Hall #116 and to



Figure 4-126. Heating water pipe with branch lines to floors above, isolation valves, and balancing valves. (DMD, 10/31/2018)



Figure 4-127. Typical heating water piping exposed routed through 1st floor to 2nd floor. (DMD, 10/31/2018)



Figure 4-128. Typical piping arrangement for radiator. (DMD, 10/31/2018)

adjoining Office #111. There are exposed heating water pipes routed through this space to the floor above. There are no operable windows directly to the outside in this office. There is an operable window on the west wall, but it opens up into the Back Entry #109.

Back Entry #109 contains no source of heat. There is an abandoned steam radiator that is located on the west wall under the windows. Figure 4-139

Office #111 has two heating radiators, one on the north wall and one on the west wall, both are under the windows. There is no forced supply air into this office. There are transom windows over the doors leading into Office #108 and into Hall #112. There are exposed heating water lines that are routed through this office to the floor above. There are operable windows for natural ventilation.

Hall #112 has no source of heat, but directly communicates to Hall #116 which does have a heating radiator.

Bathroom #113/#114 has two small heating radiators, one is located on the west wall by the lavatory and the other is located in the toilet room by the water closet. There is also a single supply air floor grille in the toilet room from the forced air system. Both rooms have operable windows to the outside.

Office #115 has two heating radiators, one on the north wall and one on the east wall, both are under the windows. There are two (2) supply air grilles from the forced air system, one at each of the windows. There is a transom window for transfer/return air over the door leading to Hall #116. There is a fireplace within this office on the west wall. In the southeast corner of the office there is



Figure 4-129. Wooden duct with adjacent metal duct in basement on west side. (DMD, 10/31/2018)



Figure 4-130. Wood duct with metal duct above in basement on east side. (DMD, 10/31/2018)



Figure 4-131. Notch in stone on exterior in alignment with wooden duct in basement. (DMD, 10/31/2018)

a vent located high on the wall. This vent is not part of the forced air system. There are exposed heating water lines routed through the office to the floor above. There are operable windows for ventilation.

The 2nd floor contains heating radiators that are fed from the basement with heating water pipes routing exposed through the 1st floor to the 2nd floor. There are no supply air feeds from the forced air system to this floor. Figure 4-140

Office #202 has two heating radiators, one on the north wall and one on the east wall. The office also contains a fireplace on the west wall. There are operable windows for natural ventilation. There are transom windows above the doors leading into Stair #201 and Office #203. Figure 4-141

Office #203 has one heating radiator on the east wall. In the southeast corner of the office there is a vent located high on the wall. This vent is not part of the forced air system. Windows are operable for natural ventilation. There are transom windows above the doors leading into Hall #210 and Office #202. Figure 4-142

Office #204 has two heating radiators, one on the south wall and one on the east wall. The office also contains a fireplace on the west wall. There are operable windows for natural ventilation. There is a transom window above the door leading into Office #205.

Office #205 has two heating radiators, one on the south wall and one on the west wall. The office also contains a fireplace on the east wall. There are operable windows for natural ventilation. There are transom windows above the doors leading into Hall #206 and Office #204.



Figure 4-132. Vent high on wall in 2nd floor Office #203. (DMD, 10/31/2018)



Figure 4-133. Vent high on wall on 1st floor. (DMD, 10/31/2018)



Figure 4-134. Typical dehumidifier in basement. (DMD, 10/31/2018)

Hall #206 and Hall #210 are shared spaces and contain a heating radiator on the north wall on the west side of the space. There is an operable window on the west wall.

Restroom #207 has a small heating radiator on the west wall. There is an operable window on the west wall. There is a transom window above the door leading into Hall #210.

Office #208 has a single heating radiator on the west wall under the window. There are operable windows within the office for natural ventilation. There is a transom window above the door leading into Stair #201.

There are no heating sources in the attic.

Condition: *Good*
The mechanical hydronic heating system was replaced with a new system in 2018. The heating system is in good condition with new boilers, pumps, expansion tank, pot feeder, radiators, and controls.

The mechanical forced air heating system is in fair condition but, is not the primary heating source for the building. The forced air system serves only as a backup heating source for the basement and 1st floor area. The ductwork system serving the forced air furnace is dirty.

There is no cooling system within the building today. Future uses of the building will be impacted if a new air conditioning system should be added.

The ventilation for the building is via natural openings to the outside mainly through operable windows. Office #108 on the first floor is the only area that does not have the



Figure 4-135. Historic steam radiator converted to heating water in Hall #116. (DMD, 10/31/2018)



Figure 4-136. Refurbished historic steam radiator in Hall #116. (DMD, 10/31/2018)



Figure 4-137. Return air grille in Entry Area #102. (DMD, 10/31/2018)

code required ventilation air through natural openings to the outside. Treatment options should provide outside air for this space based on use of space.

Exhaust for the restrooms is passive with operable windows within the restrooms.

Existing Conditions & Assessment - Plumbing

Plumbing - System

The main water line for the building enters into the basement in the mechanical room and is a 1" line. There is a water meter installed in the basement on this line but, there is no backflow preventer. The water line then feeds the gas water heater in the same room as the water entry, make-up water to the heating water system, a utility sink in the mechanical room, and two restrooms on the floors above. Figures 4-143 and 4-144

Cold and hot water piping are routed from the basement mechanical room to the north to under the 1st floor restroom. The pipes are then routed up to the fixtures in the 1st floor restroom including a lavatory and tank water closet. The cold and hot water lines are also routed up to the 2nd floor restroom. These lines go up in the southwest corner of Office #108 from the basement to the 2nd floor. The 2nd floor restroom has a lavatory and tank water closet. There are also historic water lines in the 2nd floor restroom, but these lines have been abandoned in place. The existing water closets are in good condition. The historic lavatories in both restrooms have been reused and are in fair condition. Figures 4-145 through 4-151

The water heater is a high efficiency gas water heater located in the basement mechanical



Figure 4-138. Typical radiator on the 1st floor with floor supply grille. (DMD, 10/31/2018)



Figure 4-139. Abandoned historic steam radiator in Back Entry #109. (DMD, 10/31/2018)



Figure 4-140. Typical 2nd floor radiator. (DMD, 10/31/2018

room. The water heater has combustion air and flue vents routed out through a previous window on the south side of the building.

The sanitary main is routed out of the basement mechanical room to the south to a septic system. Figure 4-152

The 2nd floor waste line from the restroom comes down in the southwest corner of Office #108 into the ceiling level of the basement and is routed along the west wall of the mechanical room where it then ties into the main waste line prior to exiting the building. The sanitary line from the 1st floor restroom is routed along the ceiling level of the basement to the west before turning south and routing into the main hall area where it than travels southwest to tie into the drain from the 2nd floor restroom. These drains connect and are routed above the floor of the basement to the main waste. The utility sink in the mechanical room ties into the waste line above the basement floor. Figures 4-453, 4-454and 4-455.

The basement also has three (3) sump pump systems. There is a sump pump in the northeast portion of the basement and this pump is routed via a garden hose to a floor drain located on the west side of the basement. Figures 4-456 and 4-457

There is also a sump pump in the northwest corner of the basement that pumps to the same floor drain as the northeast sump pump via a garden hose. Figures 4-458 and 4-459

The third sump pump is in the southwest corner of the mechanical room and is pumped up and into the main sanitary line within the mechanical room. The floor drain that the other two sump pumps drain into via garden hoses is routed to the 3rd sump pump system.



Figure 4-141. Typical fireplace on 2nd floor. (DMD, 10/31/2018)



Figure 4-142. Typical transom window over door on 2nd floor. (DMD, 10/31/2018



Figure 4-143. Main water line entry and water meter. (DMD, 10/31/2018)

There is a trench drain in the mechanical room and concrete work that indicates this trench drain was installed as part of the recent boiler project and the drain is routed to the sump pump in the southwest corner. Figures 4-150, 4-151, 4-152

There is a natural gas meter on the west side of the building. The natural gas line is routed into the basement mechanical room and feeds the two boilers and water heater. Figures 4-153 and 4-154

There is an abandoned fuel oil tank on the south side of the building. The tank is labeled as "Empty Not In Service 07 2013". There was a small area under the tank on the south end that smelled of oil and the bottom of the tank appears wet. The grass under the tank is also not growing and the edges are turning brown. Figure 4-155

Condition: *Fair*
The main water line into the building is provided with a water meter however; it is not provided with a code required reduced pressure backflow preventer. The water lines are copper in the basement and are in good condition. The water lines in the 2nd floor restroom are also copper lines but, are in only fair condition. Based on observation, the basement water lines appear to have been replaced recently while the water lines in the 2nd floor restroom are older. The new make-up water line to the hydronic heating water system is properly protected with a reduced pressure backflow preventer.

The water heater is in fair condition.

The main waste line out of the building is in good condition and was scoped in 2018. The waste line within the basement varies in material and condition. The PVC waste line



Figure 4-144. Location of water shut-off valve in relationship to building on south side. (DMD, 10/31/2018)

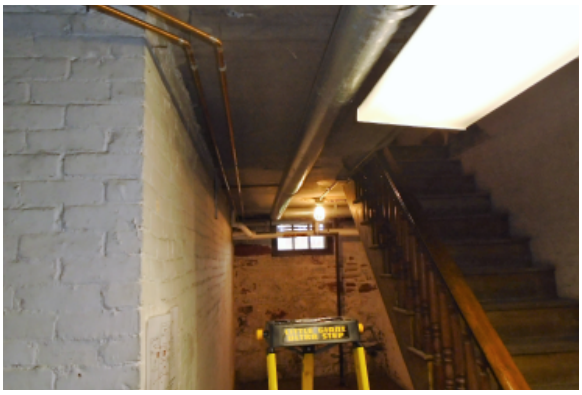


Figure 4-145. Water lines in basement routed to 1st floor Restroom. (DMD, 10/31/2018)



Figure 4-146. 1st floor Restroom lavatory. (DMD, 10/31/2018)

from the 1st floor restroom to the tie-in point half way through the basement is in good condition. Where this PVC line connects to the cast iron pipe is in good condition all the way to the main waste line exit. The cast iron line up to the 1st floor restroom is in poor condition. The cast iron pipe up to the 2nd floor restroom is in fair condition.

Two of the three sump pumps are in poor condition: the sump in the northeast corner and the sump in the northwest corner of the basement. These pumps are utilizing a garden hose to discharge to a 3rd sump pump in series. Utilizing garden hoses to discharge from a sump pump is not code compliant.

The natural gas system is in good condition.



Figure 4-147. 1st floor Restroom water closet. (DMD, 10/31/2018)



Figure 4-148. Water lines to Utility Sink in mechanical room. (DMD, 10/31/2018)



Figure 4-149. 2nd floor Restroom plumbing fixtures. (DMD, 10/31/2018)

Existing Conditions & Assessment - Fire Suppression

Fire Suppression - System

There is no existing fire protection system within the building.

Condition: *N/A*



Figure 4-150. Abandoned historic water piping in 2nd floor Restroom. (DMD, 10/31/2018)



Figure 4-151. Historic piping and modern piping in 2nd floor Restroom. (DMD, 10/31/2018)



Figure 4-152. Relationship of septic tank in relationship to building at southwest corner. (DMD, 10/31/2018)



Figure 4-153. Waste line from 1st floor Restroom and water lines to 1st floor Restroom in basement. (DMD, 10/31/2018)



Figure 4-154. Waste line up to 1st floor Restroom. (DMD, 10/31/2018)



Figure 4-155. Waste line in corner down from 2nd floor restroom and horizontal line from 1st floor restroom tie in prior to entering basement mechanical room. (DMD, 10/31/2018)



Figure 4-156. Sump pump and dehumidifier in northeast area of basement with garden hose routed on floor to floor drain on west side of the basement. (DMD, 10/31/2018)



Figure 4-157. Typical sump pump. (DMD, 10/31/2018)



Figure 4-158. Sump pump and dehumidifier in northwest corner of basement. (DMD, 10/31/2018)



Figure 4-159. Garden hoses to floor drain from northeast and northwest sump pumps. (DMD, 10/31/2018)



Figure 4-160. Main sanitary line exit point in basement with 3rd sump pump tie-in. (DMD, 10/31/2018)



Figure 4-161. Trench drain in mechanical room routed to 3rd sump pump. (DMD, 10/31/2018)



Figure 4-163. Utility Sink in mechanical room. (DMD, 10/31/2018)



Figure 4-162. Abandoned fuel tank at southwest corner of building. (DMD, 10/31/2018)



Figure 4-164. Gas meter on west side of building. (DMD, 10/31/2018)



Figure 4-165. Gas line into basement through previous south window. (DMD, 10/31/2018

Existing Conditions & Assessment - Electrical

Electrical - Electrical Service and Panels

The existing electrical service for the building is 120/240, single-phase. The utility transformer serving the building is a pole mounted transformer. This transformer runs overhead to the service mast, down through a direct read utility meter and into the 200A rated panel in the basement. This panel serves the all the mechanical, receptacles & lighting on the basement and first floor levels, and the mechanical equipment. Note that the panel is labeled as 120/208V, single-phase that should be confirmed by an electrician and properly labeled.



Figure 4-166. MDP located in Basement SJH 10/30/18

It is not known when the first electrical system was installed in the building. There are remnants of old knob & tube wiring in the attic, and old glass wiring insulators remain on the front of the exterior. Several rooms have old wall mounted light fixtures on walls, but wiring has been abandoned and the fixtures are no longer in use.

Condition: *Poor*

The existing electrical service/panel is located on the basement level. The panel is labeled with the installation date of July 1975. The panel exterior has surface rust and other signs of a high humidity and 38 years old and should be replaced as it is at the end of its useful life.

The second floor subpanel is in a much drier environment and although it does not indicate visible damage as does the basement panel, it is recommended to be replaced as well. Electrical panels and similar equipment typically have a useful life expectancy of 30-50 years.

Electrical - Electrical Distribution System
Receptacles for general power / convenience use are very minimal throughout. In general, GFCI protected receptacles were located where required by code. Extension cords and power tongue and grooves are used throughout the occupied offices. The basement level conduits are run exposed at the ceiling and walls. The first floor receptacles and lighting are for the most part fed from conduits poked thru the floor. The receptacles are located at different heights throughout; some are at baseboard level, and some are combined with light switches. All second floor receptacles and power are fed from the second floor panel via a surface mounted two channel wiremold product. The attic has minimal stumble lighting.

There are remnants of old knob and tube wiring, however, it did not appear that any knob and tube wiring was in operation.

Condition: *Poor*
There are not enough receptacles per the current use (office space), resulting in extension cords being used. The existing receptacles are installed in various methods, resulting in an unsightly installation. The conduits run throughout the basement are unsightly. The surface wiremold throughout the second floor are unsightly as well.

Electrical - Lighting, Emergency Lighting, and Exit Signs
There is no exterior building lighting; the front has an exterior light, and the back entrance has no light fixture.

The interior lighting for first and second floors use outdated fluorescent surface wraps and some pendants. There are some round incandescent surface fixtures located in corridors. There are several rooms with abandoned wall mounted fixtures. Depending upon the historic period of significance, some of these lights may have been installed with the first electrical installation.

Each room/office has a switch, but do not have automatic controls required by current codes.

Egress lighting consists of a frog eye on the stairs and on the first floor. Egress lighting does not meet current codes. There are exit signs for the single exit. The back door has a sign indicating it is not to be used as an exit. There is no exterior light on the rear exit.

Condition: *Poor*
Many of the existing lighting fixtures utilize incandescent and fluorescent lamping. It is unknown without calculation, whether the building would meet current energy code in terms of Watts/SQFT, but it would appear non-compliant in its current condition. The building is also not equipped with an overall lighting control system (or other, local means of automatic shut-off controls) and therefore would not be compliant with current energy codes.

Egress fixtures located throughout the facility should be reviewed for proper performance

as well as aesthetic concerns. Egress lighting throughout the facility has inadequate spacing to meet current egress illumination requirements. There are areas within the building including the basement which do not have any egress illumination.

Electrical - Fire Alarm & Detection System
The building has no fire protection or a smoke detection system. There are two battery powered spot detectors but the condition is not known.

Condition: *Poor*
There is no fire protection, fire alarm smoke detection, or notification systems.

Electrical - Tele/Data Communications System
The tele/data cable is run underground from the AT&T utility enclosure near the road to punch down blocks in the basement level with an additional telephone board and data rack located on the 2nd floor. CAT5 cable is run to data ports, and data is DSL. The overhead cable run to the building is abandoned and not in use. There is no fiber cable to the building.

Condition: *Poor*
The cable distribution is run through surface mounted wiremold and/or poked through the floor without proper sleeves.



Figure 4-168. Dated fluorescent luminaires located on 1st Floor (SJH 10/30/18)



Figure 4-167. Low voltage punch down block located in basement (SJH 10/30/18)

Existing Conditions & Assessment - Site

Site - General Description

Completed in 1897, the Quincy Mine Office replaced a smaller two-story wood frame mine office. The Quincy Mining Company built the new office next to the smaller office building in the spot where the general store was located.[4.1] The 4.36-acre Quincy Mine Office site is owned and maintained by the National Park Service. The Quincy Mining Company Historic District, a National Historic Landmark (NHL), is listed in the National Register of Historic Places (NRHP) with the Quincy Mine Office as a contributing feature. The district also includes the adjacent Mine Captain's Residence and Mine Agent's House.

Contributing Features
- Quincy Mine Office
- Front Entrance Walkway Alignment
- Pay Office Entrance (walk)
- Road Trace (Old Calumet Road)
- Concrete Curb
- Views to the town of Houghton
- Views to Quincy Mine Surface Works
- Views to Huron Mountains
- Views to Quincy Mine Office from the town of Houghton
- Masonry Building Foundation Ruin
- In-Ground Poor Rock Utility Trench
- Picket Fence and Sandstone Wall Alignment (recently reconstructed)
- Below Grade Features (i.e., subsurface launders and general store foundation)
- Mown Lawn
- Deciduous Trees

Non-Contributing Features
- Front Entrance Handrail
- NPS Site Identification Sign
- Street Number Identification Sign
- Electric Poles and Overhead Lines
- Fire Hydrant

Unknown Status
- Slag Pile and Borrow Pit
- Well
- Fuel Tank

Site - Site Design

The Quincy Mine Office is situated on the crest of Quincy Hill above the town of Hancock and Portage Lake. The building was originally part of management row—a cluster of company offices and residences. Prominent views from the site include Quincy Mining Company surface works, Portage Lake, Houghton, and the Huron Mountains. The Quincy Mine Office is visible from the crest of the hill above Houghton. The siting and orientation give the building a commanding presence and prominent views.

Quincy Mine Office is oriented towards the southeast. The primary entrance and porch face southeast in alignment with U.S. 41. U.S. 41 was preceded by a historic route named Old Calumet Road and later County Road. In the area surrounding Quincy Mine Office, U.S. 41 was realigned south of the historic Old Calumet Road alignment. Realignment included the addition of a drainage ditch. A road trace of the historic route remains and extends from the Mine Agent's House to the Mine Captain's Residence. The historic road trace serves as an access drive and informal parking area.

The area immediately surrounding the Quincy Mine Office consists of open lawn and woods to the northwest. Rows of oak species trees

4.1 Quinn Evans Architects. "Quincy Mine Historic Landscape, Cultural Landscape Report and Environmental Assessment." May 2010.

extend perpendicular to the road. The trees historically separated land uses and defined property boundaries. Sanborn maps and photographs from the period of significance indicate additional structures (non-extant) were to the north and south of the Quincy Mine Office. Extant historic features include an in-ground poor rock utility trench and stone building foundation.

Historically a concrete curb, picket fence, sandstone wall, and attached sidewalk separated the front lawn from the public road. The concrete sidewalk and picket fence were recently reconstructed. Remnant concrete curb is visible north and south of the reconstructed walkway.

Concrete entrance walkways connect the historic road trace and attached sidewalk to the building. The front entrance walkway extends from the attached sidewalk to the front porch. The pay office walkway extends from the attached sidewalk to the historic pay office entrance at the back porch. The pay office walkway initially provided access via the front entrance walkway and was realigned shortly after completion to establish direct access from the street to the pay office.

Condition: *Good*
The Quincy Mine Office's historic spatial organization and site design remain. The Quincy Mine Office retains its proximity to the Quincy lode and associated mining buildings and structures built before 1920, the end of the period of significance. The prominent location on the crest of Quincy Hill and views to the surrounding area and from the town of Houghton remain. The setting is somewhat altered by U.S. 41's realignment and widening and addition of the adjacent drainage ditch.

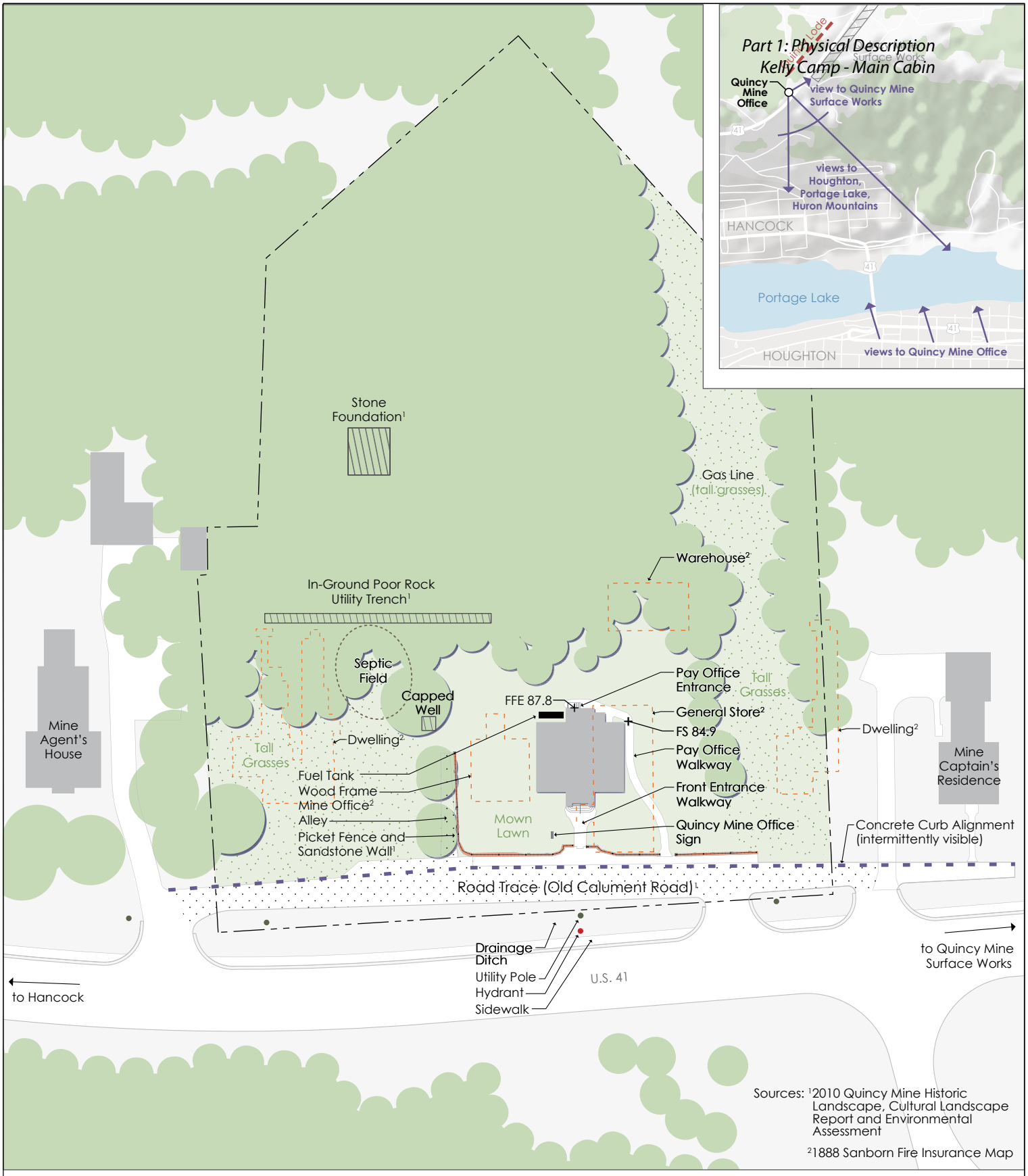
The site is generally in good condition. To the



Figure 4-169. Quincy Mine Office exterior, ca. 1925 (source: Keweenaw National Historical Park, Koepel Collection, N. A. Eilertson photographs, 1-13)



Figure 4-170. Quincy Mine Office Setting, 2018. (Mundus Bishop, 2018)



Sources: [1]2010 Quincy Mine Historic Landscape, Cultural Landscape Report and Environmental Assessment

[2]1888 Sanborn Fire Insurance Map

Legend

- Quincy Mine Office Boundary
- Mown Lawn
- Tall Grasses
- Deciduous Tree
- Historic Road Trace (unpaved)[1]
- Sandstone Wall and Picket Fence[1]
- Concrete Curb Alignment (intermittently visible)[1]
- Non-Extant Structure[2]
- Utility Pole
- Fire Hydrant
- Septic Field
- FFE Finish Floor Elevation
- FS Finish Surface

SCALE OF FEET

80 0 80 160

DESIGNED: TB DRAWN: KR TECH REVIEW: TB DATE: ~~4-74~~ 11/1/2019	SUB SHEET NO. L1.0	TITLE OF SHEET PART 1 - EXISTING CONDITION SITE QUINCY MINE OFFICE KEWEENAW NATIONAL HISTORIC PARK *90% Draft*	DRAWING NO. X XXX PMIS/PKG NO. 237234 SHEET ____ OF X

south, the site drains away from the structure. To the northwest, the site drains to the structure. Recent landscape improvements included a perimeter roof drain installed for roof drainage, surrounding the building.

Walks are generally in good condition. Recent landscape improvements included front sidewalk and entrance walkway replacement along historic alignments. The original pay office walkway remains. The pay office walkway is cracked and in need of repair near the back porch. The historic road trace remains but is in need of repair.



Figure 4-171. In-ground poor rock utility trench. (Mundus Bishop, 2018)

Site - Small Scale Features

Contributing features include an in-ground poor rock utility trench and masonry building foundation located west of the building. The recently reconstructed picket fence and sandstone wall are replicas based on historic photographs and remnant traces. The fence and wall replaced non-extant features and are similar in location, character, and scale to historic features. Segments of concrete curb are visible north and south of the reconstructed front sidewalk.



Figure 4-172. Masonry building foundation. (Mundus Bishop, 2018)

Contemporary small scale features that are non-contributing include a Quincy Mine Office sign and street identification sign at the building's main entrance, electric poles, and overhead lines along U.S. 41, and a concrete pad covering a well to the east of the Quincy Mine Office.

A modern fire hydrant is at the location of a non-extant fire hydrant present in historic photos. Historic photographs indicate a non-extant hitching post along Old Calumet Road.



Figure 4-173. Small scale features, 1900. (KNHP Archives)

Condition: *Good to Fair*

Small scale feature condition varies. The in-ground poor rock utility and masonry

building foundation are within the wooded area and vegetation partially covers the features. Contemporary efforts to stabilize the masonry building foundation included concrete patching of mortar joints. The remnant concrete curb is largely covered by road trace surfacing. Along the Quincy Mine Office site, the front sidewalk was reconstructed over the historic concrete curb alignment and covers remnant portions.

Site - Vegetation

The area surrounding the Quincy Mine Office is primarily low mown lawn defined by mature deciduous trees. Woods border the northern portion of the site and are comprised of a mix of deciduous canopy and understory vegetation. A row of maples lines the alley. The gas easement north of the building and field southwest of the building are tall grasses.

Condition: *Good*

Vegetation patterns remain similar to the period of significance. Mature trees from the period of significance remain and continue to define the areas of open lawn and line the historic property line. The wooded area west of the Quincy Mine Office is likely denser than the period of significance as the area included structures and features (e.g. launders and poor rock piles). The areas of tall grass north of the building and southwest of the building were likely lawn.



Figure 4-174. Open lawn defined by mature deciduous trees, 1915. (Keweenaw National Historical Park, Peterman Glass Plate Negative #508)



Figure 4-175. Open lawn defined by mature deciduous trees, 2018. (Mundus Bishop, 2018)



Figure 4-176. Maple tree-lined alley, 2018. (Mundus Bishop, 2018)

Part 2: Treatment and Use Overview

Introduction

Presented after the Existing Conditions and Condition Assessment, the Treatment section presents recommendations for the repair, protection and stewardship of the Quincy Mine Office. Treatment recommendations are founded on review of historic documentation, assessment of existing conditions, current building function, and application of the Secretary of the Interior's Standards as they apply to the treatment of historic buildings.

Unique or diagnostic historic material being salvaged (permanently removed and not reinstalled) from the structure should be submitted to the park for consideration for the museum collection.

Part 2 Organization

This overview begins with an explanation of the Treatment Priority rating system used throughout Part 2. After this overview follows a discussion of treatment recommendations for each of the elements described and assessed in Part 1, again arranged by discipline. A table on the next page summarizes higher priority tasks.

Following these treatment recommendations, the preferred alternative, selected during a team workshop in June 2019, is portrayed graphically.

Treatment Priorities

Treatment priorities are classified as one of three options:

- Critical
- Serious
- Minor

A Critical Deficiency of a feature or elements exists where:

- There is advanced deterioration that has resulted in failure of the building feature or element or will result in its failure if not corrected within 2 years, and/or;
- There is accelerated deterioration of adjacent or related building materials as a result of the feature or element's deficiency, and/or;
- There is a threat to the health and safety of the user.

A Serious Deficiency of a feature or element exists where:

- There is deterioration that if not corrected within 2 to 5 years will result in the failure of the building feature or element, and/or;
- A threat to the health and/or safety of the user may occur within 2 to 5 years if the deterioration is not corrected, and/or;
- There is deterioration of adjacent or related building materials and/or systems as a result of the deficiency of the feature or element.

A Minor Deficiency of a feature or element exists where:

- Standard preventative maintenance practices and building conservation methods have not been followed, and/or;
- There is a reduced life expectancy of affected or related building materials and/or systems, and/or;
- There is a condition with long-term impact beyond 5 years.

Matrix of Critical and Serious Treatments

Discipline	System	Treatment	Rating
Architecture	Interior finishes	Removable impermeable coating	Critical
Electrical	Service	Replace electrical service	Critical
Electrical	Distribution	Replace electrical distribution	Critical
Electrical	Lighting	Provide emergency lighting	Critical
Electrical	Fire alarm	Provide new fire alarm and detection system	Critical
Electrical	Lightning Protection	Evaluate need for new system	Critical
Hazmat	Lead Paint	Work with interior paint under OSHA protocol	Critical
Site	ABAAS	Provide exterior accessible route	Critical
Architecture	Elevator	Provide elevator for accessibility	Critical
Architecture	Roofing	Repair, provide snow guards	Serious
Architecture	Exterior masonry	Repair and repoint masonry; replace steps	Serious
Architecture	Exterior doors	Rehabilitate doors, provide ABA hardware	Serious
Architecture	Interior finishes	Rehabilitate historic finishes	Serious
Mechanical	HVAC system	Provide new VAV system, ducting and controls	Serious
Plumbing	Plumbing system	Upgrade various pumps and pipes	Serious
Structural	Foundations	Monitor moisture migration issues	Serious
Structural	Roof framing	Install hold downs, repair gutter	Serious
Structural	Floor framing	Reframe porch floor, monitor slab	Serious
Site	General	Rehabilitate site and landscape features	Serious

5. Treatment Recommendations

Treatment - Architecture

Architecture - Roofing System
Priority: *Serious*
Replace in kind missing or cracked slate roofing tiles near dormer valleys. Provide new ice and water shield and roofing felt at eave where existing is torn or compromised below broken shingles and restore associated flashing. Anticipate 60 square feet of affected roof area.

The underlying cause of the ice jacking that is cracking these tiles needs further research. Recommend documentation of conditions during cold months with the following measures: photograph build up of snow and ice at valley exterior over the course of several days following snow events. At the approximately the same times, record the interior air temperature in the attic at the underside of the valleys as well as several other attic locations.

As heat escaping through the attic may be part of the cause of these conditions, as well as contributing to the classic ice damming at the gutters, the following measures are recommended. In the main attic, replace any R-49 batt insulation that has been compressed, wetted or otherwise compromised. Install insulation tight against perimeter rim joists, and insulate between rafter framing members at the wall plate. In the upper attic, install R-49 between the joists above the attic stair enclosure to reduce heat loss from that enclosure. Estimate 300 sq ft of additional R-49 batt insulation for these purposes. To reduce future damage to insulation, nail plywood to tops of select joists to create walking paths over the insulation to typical maintenance access points.

To reduce heat loss by air infiltration (often a more dire cause than inadequate insulation), consider sealing at ceiling penetrations and joints. The most effective method for such sealing uses a closed-cell insulating foam. These foams are *not* a reversible treatment and should only be used after due deliberation of the risks and benefits.

Install snow guards (pad-style retrofit snow guards for 3388 square feet of roof area) at the roof to reduce safety risk.

The treatment for deflection in the gutters is to treat underlying structural issues, as recommended in that section.

Investigate the moisture staining at the underside of the ridge cap for active moisture presence. The ridge received new cap flashing during the 2008 roofing project, which may have alleviated the problem. If the leaking is active, evaluate the flashing condition relative to the documentation for that project, and re-apply flashing where necessary after replacing any deteriorated sheathing or structural members.

At the rear (west) porch roof, replace in kind roofing in kind (asphalt shingle). Provide new lead-coated copper eave and wall flashing. Provide a continuous reglet in the masonry wall to receive the wall flashing.

Architecture - Chimney
Priority: **Minor**
Cleaning the staining on the chimneys is recommended only with great caution. The park reports that masonry cleaners have not been effective to date in removing the environmental staining on the south chimney. Sandstone can be more receptive to acidic cleaners than alkaline ones. Alkaline cleaners, which are often sold as masonry cleaners because acid is harmful to limestone, can

stain sandstone, particularly ferrous ones like this Portage Entry. A carefully selected masonry cleaner could be tested on a small area for effectiveness, and then used sparingly. Brushing is not advised in this case as any mechanical means robust enough to remove these stains would be too harsh on the surface of the soft sandstone, rendering it more susceptible to future staining and deterioration.

Architecture - Exterior Masonry
Priority: *Serious*
Remove all incompatible mortar and repoint with compatible mortar. Repoint joints where mortar is loose, deteriorated or missing. Anticipate that 800 sq ft of masonry requires repointing. Compatible mortar matches historic mortar in strength, composition, color and texture, and must be applied and tooled in a manner consistent with the historic joint appearance. Settling or loss of material in some areas have widened joints considerably, making an exact match of the historic beyond expectation.

Fill open cracks (15 linear feet) in the sandstone with a mortar grout that is chemically and physically compatible with the stone, as described above. At cracked lintels (6), repair any active crack with steel rods and epoxy per the structural section of this report. Severely cracked or broken stones (3), such as those at the historic entry to the rear porch, should be replaced.

At the east entry, replace in kind sandstone steps (6) , the sandstone landing, and the single sandstone step at the door. Remove existing stone. Repair, compact and level subsoil base to receive new stones. Provide new sandstone steps and landing and tool all joints with compatible mortar. Provide (2) new steel handrails .

No large-scale cleaning of the masonry is recommended. Smaller areas of black environmental staining can be addressed with the use of a tested masonry cleaner that is specially formulated for use on the ferrous sandstone. Heavy brushing and any more assertive mechanical means, such as any type of blasting, is not recommended.

A wholesale application of biocides is likewise not recommended. Light biological growth was noted on several sandstone sills. Denser and thicker growth has occurred at the sandstone skirt wall of the rear porch. Biocide efficacy differs greatly by stone constitution, so several products should be tested and then used on only the more severe cases. The biological growth at the rear porch is likely a symptom of a unique condition. These stones are exposed to excessive water run-off from the sloped plywood enclosure above them. Removal of the enclosure should include a flashing detail at the top of the masonry wall that will deflect rainwater beyond the plane of the water table.

Architecture - Exterior Woodwork
Priority: *Minor*
Most exterior woodwork is in good condition and requires nothing more than routine painting. Where repairs to structural roof elements are made, inspect all adjacent cornice, fascia and soffit elements and repair or replace in kind; repaint.

Woodwork elements at the shrouded rear porch, to include wood posts, sills and fascia elements, were not fully examined due to the plywood cover, but will likely require a full restoration. Estimate 25% wood replacement and 25% wood repair on 72 sf of exterior wood elements. Repaint all porch wood elements when repairs are complete.

Demolish plywood shroud, wood shed vestibule (salvaging wall boards with graffiti; see interior treatments) and wood steps.

Architecture - Windows
Priority: *Minor*
Most windows were rehabilitated in 2016 and require no further work other than routine maintenance such as painting. Eight windows, W111, W112 and W114-119 on the rear porch, require full rehabilitation. Remove (8) sashes for rehabilitation. Replace in kind or provide Dutchman repair at any deteriorated wood stiles and rails (4). Replace in kind wood stops. Replace in kind any broken upper panes in kind (2). Provide tempered glazing at all lower, operable sashes. Replace in kind missing historic hardware and provide new chains and weatherstripping. Provide (8) new one-over-one storm windows comparable to those included in the 2016 rehabilitation.

Architecture - Exterior Doors
Priority: *Serious*
Remove Doors 101, 102, 109 and 110 for rehabilitation. At Door 101 and 102, square up wood stiles and rails, sand doors and paint/stain. Adjust head and jamb framing to reverse swing of doors; provide new astragal at inactive leaf. Remove and salvage existing glazing. Provide new tempered glass and new glazing compound. Remove, clean and oil existing hinges; repair as necessary (2); re-install for reversed swing. Remove and salvage other hardware. Provide new but compatible thumb latch hardware.

At Door 109 and 110, square up wood stiles and rails, sand doors and refinish. Remove and salvage existing glazing. Provide new tempered glass and new glazing compound. Remove, clean and oil existing hinges; repair as necessary. Remove and salvage existing hardware. Reinstall with reverse swing. Provide new ABAAS compliant lever hardware and wood thresholds.

Architecture - Interior Doors
Priority: *Minor*
At the first floor Type 1 doors (6), touch up stain at wood elements. Provide new glazing compound at glazing (to include transom) where deteriorated. Clean and oil existing hinges and transom hardware; repair as necessary. At Doors 105, 107, 112 and 117, remove and salvage hardware and provide ABAAS compliant lever hardware. At remaining doors, remove, clean, oil and replace in kind existing hardware.

At the first floor Type 2 doors (4), touch up stain at wood elements. Clean and oil existing hinges; replace in kind ball tips as necessary. At the first floor Type 3 doors (2), touch up stain at wood elements. Provide new glazing compound at glazing where deteriorated. Clean and oil existing hinges; replace in kind ball tips as necessary. Remove and salvage hardware and provide ABAAS compliant lever hardware.

At the second floor Type 1 doors (6), touch up varnish at wood elements. Provide new glazing compound at glazing (to include transom) where deteriorated. Clean and oil existing hinges and transom hardware; replace in kind ball tips and transom pulls as necessary. At Doors 201, 202, 20, 209 and 230, remove and salvage hardware and provide ABAAS compliant lever hardware. At remaining doors, remove, clean, oil and replace in kind existing hardware.

At second floor Type 2 doors (2), touch up varnish at wood elements. Repair split wood inset panel at Door 206.

At the second floor Type 3 door (1), touch up finish at wood elements in conjunction with partition wall rehabilitation. Provide new glazing compound at glazing where deteriorated. Clean and oil existing hinges; replace in kind ball tips as necessary. Remove and salvage hardware and provide ABAAS compliant lever hardware.

Remove door 112 and reinstall in new partition with new compliant door hardware. Provide new 3280 flush wood door at janitor's closet.

Architecture - Interior Construction
Priority: Serious
Cut new opening (24 sf) in the east masonry wall of Room 006.

Cut new opening (24 sf) in the south masonry walls of Room 111. Fill masonry opening at door 112.

Cut new opening (24 sf) in the south masonry walls of Room 208.

Provide 6-in cmu wall (1040 sf) hoistway from basement into attic.

Furr out west side of hoistway, each floor, add gypsum board (80 sf each floor).

Provide a 2-hr fire rated ceiling assembly (steel stud and Type X gyp, 46 sf) at top of hoistway.

At new restroom and closet in Room 111, build new 2x4 partition walls (8 lf), 2x6 behind toilet (5 lf) with moisture -resistant gypsum board at exposed sides (144 sf).

At new restroom and closet in Room 208, build new 2x4 partition walls (8 lf), 2x6 behind toilet (5 lf) with moisture -resistant gypsum board at exposed sides (144 sf).

In Room 208, level the wood floor in proximity of the elevator entrance (31 sf).

Architecture - Elevator
Priority: Critical
Provide a 2-stop, 2000 or 2100 lb, 100-150 fps hydraulic MRL elevator (Basis of Design: Kone Monospace 500, ThyssenKrupp Endura)

Basement level to serve as pit space; no excavation for pit required, see Structural.

Architecture - Interior Finishes - General
Priority: Serious
Remove carpet in rooms with carpet (4). Sand and refinish wood floors throughout. Sand and refinish all wood baseboards as well.

Repair cracks (12 lf) in finish plaster at walls and ceilings. Repair all plaster affected by routing of electrical conduit (mostly on 2nd floor); anticipate 10%of plaster will be affected. Repaint all plaster surfaces using original colors based on recommendations from the architectural conservator.

Repair all woodwork affected by routing of electrical conduit (mostly on 2nd floor); anticipate 5% of woodwork will be affected.

Sand and refinish interior wood window sills.

For interior window shutters: Remove (4) pairs of folding wood shutters for complete rehabilitation. Sand wood surfaces and refinish. Restore all hardware to assure smooth operation replacing in kind where missing. Reinstall shutters. At remaining (32) pairs of shutters, refinish the oak panel that is exposed to view at the jamb pocket. Do this work in place, without removal of the shutter.

Architecture - Interior Finishes - Additional Basement

Priority: *Critical*

Remove impermeable coating at basement walls. This will likely require removal of any remaining parging or skim coat. Do not repaint; either leave walls exposed or apply approved breathable coating.

Architecture - Interior Finishes - Additional 1st Floor

Priority: *Serious*

Room 101. Investigate moisture stains in bead board wall and ceiling finishes and repair any active leaks. Replace in kind deteriorated bead board as necessary, sand and refinish.

Room 105. Repair and replace in kind broken tiles at the fireplace in kind. Remove plexiglass from firebox and replace in kind metal firebox trim.

Room 106. Anticipate additional plaster crack repair (+10 lf) at vault walls.

Room 107. Remove dropped ceiling. Restore plaster at upper walls and ceiling as described above. Repaint all plaster surfaces using original colors based on recommendations from the architectural conservator. Repair and repaint any damaged or removed crown molding elements. Repair metal trim at firebox.

Room 108. Remove dropped ceiling. Restore plaster at upper walls and ceiling as described above. Repair and repaint any damaged or removed crown molding elements.

Room 109 (Rear Porch). Demolish wood floor and repair structural elements below as described in that section. Provide new wood strip flooring above new subfloor. Demolish plywood shroud elements at walls. Remove windows for rehabilitation as described above. Provided new continuous wood sill element below windows and at top of masonry knee wall. Provide new bead board wainscot and quarter round base shoe. Refinish wood framing elements at walls and roof. Refinish board sheathing at underside of roof.

Room 110 (Temporary Vestibule). Salvage wallboards that are marked with graffiti; return to park. Demolish remainder of enclosure.

Room 111. Remove dropped ceiling.

Repair/replace plaster and lath where affected by installation of partitions or relocation of door openings. At new opening, provide new trim to match historic cased opening

For wall finish in restroom, provide ceramic tile to 48” AFF (56 sf) on new partitions only

Provide ABAAS compliant grab bars at toilet (fixture re: Plumbing). Provide new restroom accessories (paper towel, toilet paper and soap dispensers)

Room 112. Sand and refinish stair treads, risers, railings and exposed structural elements. Provide new tread covers. Sand and refinish all wood wainscot along the stair. Provide a new wood handrail at the closed side of the stair (the handrail brackets will attach through the wainscot).

Room 115. Remove dropped ceiling. Restore plaster at upper walls and ceiling. Repair and repaint any damaged or removed crown molding elements.

Architecture - Interior Finishes - Additional 2nd Floor
Priority: *Serious*
Room 201. See Room 112 for treatment of wood stair elements and adjacent wainscot.

Room 202. Repair and replace in kind broken and missing tiles at the fireplace in kind hearth. Repair metal firebox trim.

Room 203. Replace in kind broken lite in glazed partition to match existing: figured single-pane glass.

Room 204. Sand and refinish two water-stained wood panels below windows 205 and 206. Clean and regrout hearth tile, which is intact in this room.

Room 205. Repair and replace in kind broken and missing tiles at the hearth. Repair the metal firebox trim.

Room 206. Remove the historic bench for salvage and return to park.

Room 207. Anticipate replacement of all beadboard wainscot on south fixture wall (24 sf).

Room 208. Remove two historic wall-mounted light fixtures and wood desk for salvage; return to park.

Repair/replace plaster and lath where affected by installation of partitions or demolition for door openings. At new opening, provide new trim to match historic cased opening

For wall finish in restroom, provide ceramic tile to 48" AFF (56 sf) on new partitions only

Provide ABAAS compliant grab bars at toilet (fixture re: Plumbing). Provide new restroom accessories (paper towel, toilet paper and soap dispensers)

Room 209. Anticipate additional plaster crack repair (+10 lf) at vault walls. Anticipate complete replacement of plaster in ceiling vaults (94 sf) . Do not re-plaster underside of the steel beams.

Room 210. Sand and refinish stair treads, risers, and exposed wood structural elements. Provide new tread covers.

Treatment- Hazardous Materials

Hazardous Materials - Asbestos
Priority: *Serious*
Though materials tested did not show positive for asbestos, further testing to include destructive testing of suspect materials, might be required. Refer to full report of Environmental Survey Findings in the Appendix.

Hazardous Materials - Lead Based Paint
Priority: *Serious*
Per the report of Environmental Survey Findings, all painted surfaces should be deemed lead -containing. Presence of lead-based paint is primarily limited to the interior. Lead-based paint on the exterior, including windows, has been abated with the exception of exterior doors and door frames. All work that will impact these surfaces will require OSHA trained workers and associated safety programs and protective equipment.

Treatment- Structural

Structural - Foundation
Priority: *Serious*
The structure will need to be monitored with crack gauge monitors and/or a site survey with points on the building included to determine if the settlement is active or if it is complete. If monitoring reveals that the settlement is active, further analysis will be necessary. Once analysis is complete the foundations may need to be strengthened by underpinning or installing helical piles, or some additional minor cracking of the walls and increasing floor slopes will have to be acknowledged and accepted.

Underpin the stone porch foundation walls on the front (east) of the structure that are differentially settling with new concrete footings that extend below frost depth.

Remove the coatings on the faces of the foundation walls to allow the walls to dry to the interior. Either leave the faces exposed to dry to the basement interior or coat with a breathable coating.

With the site work that was completed last summer (2018), it would be prudent for park staff to monitor the moisture in the foundation walls with a moisture meter to determine if the water source has been cut off or not. As of observations made in June of 2019 and from park service staff over the winter, it appears that the water is no longer infiltrating through the walls. To verify that water is no longer seeping through the masonry, the walls should be checked at regular intervals with more frequent monitoring visits after large rain events and during the spring runoff. If the moisture issues have subsided, no work is necessary.

If there are still active water infiltration problems, the source of the walls will need to be waterproofed either by applying a barrier to the exterior surface of the wall or blindside injecting a urethane waterproofing material from the interior of the structure.

The basement level will serve as the elevator pit space, therefore no excavation is required. Sawcut and remove existing slab at elevator footprint. Construct a new 5' tall concrete platform.

Structural - Floor Framing
Priority: *Serious*
Use Ground Penetrating Radar (GPR) to determine the extent of any voids below the slab.

Monitor the slab for signs of moving water below the surface. If the water flowing under the slab is active after monitoring, it may be necessary to demolish the current slab-on-grade, install any drains or pumps as described in the Mechanical recommendations in the report below, and repour a new concrete slab-on-grade reinforced with wire mesh. If voids were found during the GPR scanning process but water is not actively flowing under the slab, fill all voids with flowfill.

If the slab is not undermined, but it is desired to install storage loads such as compact shelving units, the slab may need to be replaced.

The floor framing is adequate if the structure remains in use as an office. If it is desired to use any of the spaces for public use or storage, the floor framing will need to be strengthened or the live load will need to be limited and posted visibly for occupants in the space.

No structural remediation is necessary for the minor floor slopes, but they should be addressed in specific locations during any future architectural programing or finish work.

If it is desirable to remove some of the floor in the vault for use as an elevator shaft or a duct chase, the opening should be sized to fit within the steel beam spacing. Partial brick arches should not remain.

Until the porch floor framing is remedied, do not use the west porch for storage as the existing members are not adequate for such loading, and may become overloaded and fail. In the near term, the porch floor could be shored if the porch is used for storage. In the long term, reframe the porch floor with pressure treated wood joists, provide an air pocket, and bear the ends on non-corroding plastic shims.

Where the floor joists are to be shortened to allow for the installation of the new elevator, support the cut ends of the framing on the new CMU hoistway walls. At the duct chase provide a dimensional lumber header, hang the trimmed joists on the header, and sister the two adjacent floor joists.

Although no damage caused by carpenter ants was discovered, if an infestation were to occur and the insects attacked the wooden structural members of the building (such as the floor framing), the members could become weaker and eventually fail. Periodic treatments to prevent carpenter ant infestations should continue.



Figure 5-1. An example of a tension tie at the gutter to relieve the imposed loads on the eaves

Structural - Roof & Ceiling Framing
Priority: *Serious*
Install A35 hold down clips at each rafter to the top of wall around the perimeter of the structure to resist wind uplift loads on the roof.

At the integral gutter at the wood framed eave, replace any failed outrigger scabs in kind. Install custom fabricated tension ties every 2' to 3' along the top of the outriggers, through the gutters, and up along the roof sheathing under the slate tiles to resupport the eaves (Figure 5-1). Installation of snow guards at the roof will also help alleviate the loads imposed on the eave associated with snow and ice accumulation (see Architectural recommendations).

Investigate the ridge of the roof to determine the condition of the ridge board where the water appears to be infiltrating. If the leak is active, fix per architectural recommendations. If the member is deteriorating, underframe the ridge with a new dimensional lumber member and collar ties.

Structural - Wall Framing
Priority: *Minor*
If the water infiltration remains active (see the sections above for monitoring this condition), install a capillary break near base of interior brick masonry walls to limit height of rising damp. This will involve slotting a bed joint in the wall near the base and inserting copper flashing from both sides of the wall.

Monitor the cracks in the stone lintels above the basement windows by installing crack monitors on the affected lintels. If the cracks are active, embed steel rods with epoxy across the cracks and inject the crack with a compatible mortar. If the cracks are not active, inject the crack with a compatible mortar to prevent moisture migration.

At the elevator shaft, provide a 6" thick CMU hoistway wall reinforced with #5 bars at 24" from the basement into the attic.

At the new opening in the south brick masonry wall of Room 111, provide a lintel composed of two steel angles.

At the new opening in the south brick masonry wall of Room 208, provide a lintel composed of two steel angles.

Structural - Lateral System
Priority: *N/A*
No recommendations at this time.

Treatment- Mechanical

Mechanical - System
Priority: *Serious*
Existing heating system

- Remove the existing heating radiator in Office #111 under the west window to allow room for new elevator. Relocate existing heating radiator in Office #111 to allow proper clearance for ABA bathroom.
- Relocate existing heating radiator in Office #208 to the west wall. This relocation will allow room for the new elevator and provide heat in the new ABA bathroom on the 2nd floor.

New mechanical system

- Remove existing forced air furnace in the basement mechanical room and associated supply and return air ductwork.
- Remove the existing floor registers located on the 1st floor.
- Provide new 6,000 CFM gas fired VAV (Variable Air Volume) air handling unit with DX cooling coil in the basement.
- Provide one (1) VAV zone in the basement for general airflow and ventilation.
- Route new 30x22 supply air duct routed through the basement following the removed supply ductwork path.
- Provide a new 30x24 return air duct routed through the basement parallel to the supply ductwork.
- Provide new outside air duct from the west exterior window in the basement sized at 30x22 to allow for full economizer operation. Location of new air handling unit to be on west side of basement and coordinate with existing sump pump and utility sink locations.
- Provide new nominal 15-ton condensing unit on exterior at the southwest corner. Location of condensing unit to be coordinated with landscape architect.
- Provide four (4) VAV zones on the 1st floor as follows:

Zone #1-1	Entry #102, Hall #116, Hall #112, and Office #115
Zone #1-2	Office #104 and Office #105
Zone #1-3	Office #107
Zone #1-4	Office #108 and Office #111

- Route new supply air duct up to new supply air floor registers on the first floor. Existing openings will need to be enlarged.
- Provide ducted return air floor registers into each room on the first floor. These returns will require new openings in the floor. The existing return air vent in the Entry #102 can remain to return the airflow from the entry area only.
- Route new 24x16 supply air duct and 24x18 return air duct up adjacent to elevator through the 1st and 2nd floors and into the attic. Route new supply and return ductwork in the attic and provide new supply diffusers and return grilles in the ceiling of the 2nd floor within all the offices and hallway. Ducts shall be wrapped with insulation.
- Provide four (4) VAV zones on the 2nd floor as follows:

Zone #2-1	Office #202 and #203
Zone #2-2	Office #204
Zone #2-3	Office #205
Zone #2-4	Office #208, Hall #206, and Hall #210

- Provide controls for new VAV air handling unit which will provide cooling throughout the space. Unit shall be capable of full economizer control, static pressure reset based on VAV box position, and serve as a backup heating source for

the building.

- Provide temperature controls for each of the terminal zone boxes.
- Provide new exhaust fan for each restroom. Route exhaust duct up into the attic from each exhaust fan. Connect exhaust ducts together near the roof and vent out utilizing the existing vent pipe through the roof.

Treatment- Plumbing

Plumbing - System
Priority: *Serious*
Downstream of the 1" water meter, upsize the water line to 1-1/2" and provide a new 1-1/2" reduced pressure backflow preventor. Provide +/-10' of new 1-1/2" cold water line and connect to existing 1" line. Provide a new 1-1/4" cold water connection to the new 1-1/2" line and route to the new restrooms and mop sinks .

Provide new hot water recirculation pump and hot water recirculation line from the water heater to the bathrooms on first and second floor. Provide a master thermal mixing valve on the hot water system and individual thermal mixing valves at each lavatory.

Remove existing sump pump and garden hose for the northeast sump pump system. Provide new sump pump and piping to route new drain line to tie into existing sanitary main line located in southwest corner of basement mechanical room. Existing sump basin can be reused. Provide alarming for overflow at sump basin.

Remove existing sump basin and sump pump in northwest corner of basement. Provide new larger sump basin and pump to accommodate existing drainage and well as new code required sump for elevator. Sump pump systems shall be capable of 50gpm flow and routed to existing sanitary lines. Provide with oil alarm as required by code.

- Provide new cold and hot water piping from existing mains in basement to new ABA bathroom on 1st floor and 2nd floor.

- Provide new tank type water closet and new lavatory with ABA compliant faucet for each restroom.
- Route new 4" waste line from water closet and lavatory to connect to existing 4" cast iron riser in the basement where the other two existing water closets connect.
- Provide two (2) new mop sinks, one on the 1st floor and one the 2nd floor.

Treatment- Fire Suppression

Fire Suppression - System
Priority: *Critical*
Provide new wet pipe fire protection system within the basement.

Provide with reduced pressure backflow preventer and flow alarm devices. The wet sprinkler system shall provide protection for the basement, 1st floor, and 2nd floor.

Provide a new dry pipe fire sprinkler valve and provide a dry pipe system for the attic space.

Provide an air compressor for the dry pipe system.

Treatment - Electrical

Electrical - Electrical Service and Panels
Priority: *Critical*
The existing electrical service is at the end of its life expectancy and should be considered for replacement. The panel has surface deterioration due to the damp environment and there may be internal deterioration as well.

Consideration should be given to replacing the overhead service lateral with underground lateral as the communications cabling has already been converted to underground. The direct read meter will be retained.

The building will be used for office / interpretation space and will be provided with a new elevator. Using a typical watts per square foot calculation, it is anticipated that a new electrical service will be either 600 amps at 240V/1PH or 400 amps at 208V/3PH. Due to the inclusion of a new elevator, it is recommended that 208V/3PH power is provided to the building.



Figure 5-2. Service entrance conduit with signs of rust/deterioration (SJH, 10/30/18)

The service should not be replaced until the use of the building has been determined as

the ampre-rating may need to change.

Elevator: The service should not be replaced until the use of the building has been determined including the type of elevator that will be installed. It is likely the service rating will be upgraded to accommodate the new elevator.

Electrical - Electrical Distribution System
Priority: *Critical*
The electrical distribution within the building should be replaced. The EMT conduits are run wild in the basement ceiling space and conduits have been added over many years. Some of the conduits feeding first floor receptacles penetrate the floor to a surface mounted electrical box. These can be replaced with either poke thru devices designed for the purpose or run concealed in first floor walls.

The second floor plastic exposed wiremold product used for lighting and receptacles should be replaced using concealed wiring methods. The surface wiremold is code compliant but is unsightly.

Any un-used cabling shall be removed from the building.

Modification to existing branch circuits as well as the addition of new branch circuits will be required due to the addition of the elevator, (2) small janitor closets, and (2) ABAAS restrooms. Please see below for a list of requirements:

- Provide (1) new electrical connection to elevator motor.
- Provide (1) new electrical connection to elevator cab lights.
- Provide (1) new GFCI receptacle and (1) LED strip light in elevator pit.
- Provide (1) tele/data connection to elevator controller.
- Provide (1) new GFCI receptacle in each new ABAAS restroom.
- Provide (1) new GFCI receptacle in each new Janitor Closet.
- Remove receptacles and all associated circuiting in Room 111 where new elevator and ABAAS restroom are being added.
- Relocate/remove receptacles and all associated circuiting in Room 208 where new elevator and ABAAS restroom are being added.

Electrical - Lighting, Emergency Lighting, and Exit Signs
Priority: *Critical*
Existing historical fixtures shall be evaluated for historic significance for possible reconditioning and reuse. The existing fluorescent fixtures shall be replaced with new energy efficient LED type fixtures, the type will depend on the use of the building. The lighting levels shall be brought to IEC recommendations. Back of house and non-historic fixtures which utilize incandescent or fluorescent lamping shall be replaced with new energy efficient LED fixtures.

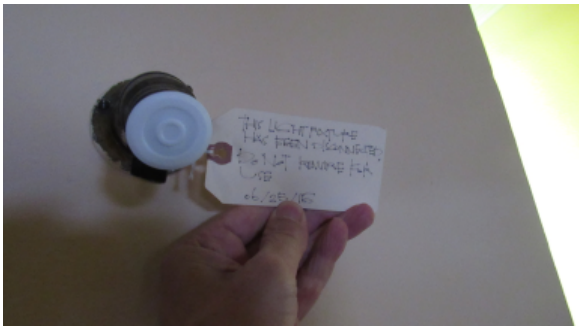


Figure 5-3. Existing disconnect lighting fixture (SJH, 10/30/18)

All new lighting controls shall be provided for building to provide automatic on/off controls to meet current energy code requirements. Wireless lighting controls shall be used to limit the impact to existing plaster walls/ ceiling.

Emergency and egress lighting shall be provided per code to meet minimum light levels for egress as well as sight lines for exit signage. All existing emergency fixtures and exit signs to be replaced with new.

See below for a list of specific areas which require modification due to the addition of the elevator, (2) small janitor closets, and (2) ABAAS restrooms.

- Provide (1) LED vanity light and (1) LED downlight in each new ABAAS restroom.
- Provide (1) occupancy sensor wall switch in each new ABAAS restroom.
- Provide (1) LED surface mounted fixture with emergency battery back-up in new elevator lobby.
- Provide (1) LED surface mounted 2' strip lighting and (1) vacancy sensor wall switch in each Janitor Closet.
- Remove lighting controls and light fixtures in Room 111 where new elevator and ABAAS restroom are being added.
- Relocate/remove lighting controls and light fixture locations in Room 208 where new elevator and ABAAS restroom are being added.
- Add (1) exterior LED emergency fixture, (1) exit sign with battery back-up, and (1) surface mounted emergency fixture in Room 109 for new emergency egress route out of building.

Electrical - Fire Alarm & Detection System
Priority: *Critical*
There is no fire alarm system as required by NPS Standards. Provide new detection and notification system for the building per current code and standards.

Electrical - Tele/Data Communications System
Priority: *Critical*
The overhead cable serving the building has been abandoned in place and shall be removed. The cable is run underground from the utility cable pedestal near the road. The interior tele/data communications system requires significant upgrades/clean-up. All abandoned cabling shall be removed from the building. All cabling that is to remain in-use shall be organized with j-hooks or other means of cable management. Current conditions include cables run through the floor via abandoned metal ductwork.



Figure 5-4. Second floor low-voltage equipment(SJH, 10/30/18)

Electrical - Lightning Protection System
Priority: *Critical*
There is no lightning protection system for the building. A lightning protection study shall be performed to help determine the need for a system. AE Design can perform this study and provide to the park for review. Due to the location of the structure, it is anticipated that a lightning protection system will be recommended.

Treatment- Site

Quincy Mine Office retains the historic character of the period of significance. This includes its siting on Quincy Hill, setting in open lawn surrounded by trees, and relationship to Quincy Mine operations.

The recommended treatment for Quincy Mine Office is to rehabilitate the site to ensure preservation of the Quincy Mine Office landscape and to provide an ABAAS route to the building by modifying existing walkways and structure. Site treatment guidance is consistent with the HSR scope of work and provides more detailed recommendations than provided in the 2010 Quincy Mine Historic Landscape, Cultural Landscape Report and Environmental Assessment.

Site - General Description[5.1]
Priority: *Serious*
The Quincy Mine Office site will be rehabilitated to repair contributing features and provide an ABAAS compliant route.

The following actions describe site rehabilitation for Quincy Mine Office.

- Preserve views to Quincy Mine surface works, town of Houghton, and Huron Mountains.
- Repair the historic road trace (Old Calumet Road) along its historic alignment to accommodate site access, circulation, and parking. Eliminate ruts and provide positive flow to adjacent drainage ditch. Replace gravel surfacing with asphalt surfacing.
- Extend the at-grade sidewalk along the historic alignment. Connect to the non-motorized trail proposed in the 2010 Quincy Mine Historic Landscape CLR. The trail is proposed to connect resources in the Quincy unit.
- Retain the recently reconstructed picket fence and sandstone wall.
- Preserve extant concrete curbs and walkways.
- Stabilize and preserve the masonry foundation and in-ground poor rock utility trench.
- Establish positive drainage away from the building.
- Preserve and maintain the open lawn surrounding Quincy Mine Office.
- Preserve existing trees. Perform pruning and thinning to maintain tree form and health. Replace mature trees along the alley and behind Quincy Mine Office when they become hazards or die.
- Monitor basement slab per structural recommendations. If slab replacement and associated improvements are warranted, provide in-kind landscape remediation and establish positive drainage away from the structure.
- Locate and screen ground mounted condensers to the southeast of the fuel tank. Screen utilities with a low-profile metal louvered fence, horizontal in form.

5.1 Archeological research prior to design and installation of site rehabilitation actions is recommended.

Site - ABAAS
Priority: *Critical*
Improvements to the existing pedestrian and vehicular system will provide an ABAAS route into Quincy Mine Office.

The finished floor elevation at the front door is approximately 39 inches higher than the existing grade. The finished floor elevation at the pay office door is approximately 39 inches higher than existing grade, prohibiting ABAAS access at either entrance. Walkways do not meet ABAAS slope and landing requirements. Existing handrails at both entrances are not ABAAS compliant.

The following actions describe ABAAS parking and access into Quincy Mine Office.

- Modify the pay office walkway to provide an ABAAS route from the parking area to the building with an accessible ramp at the pay office entrance.

- Provide an ABAAS route to the pay office entrance via a ramp on the northeast end of the porch. Begin the ramp at the pay office walkway, matching the width of the existing walkway. Extend the ramp parallel to the back facade and transition to a concrete paved ramp with stone base and painted steel handrails. Extend the ramp west to meet the porch's finished floor elevation. Concrete paved ramp and stone base should be compatible but not mimic historic building structure. Set ramp away from building to provide an area for drainage between it and the building. Establish an inlet and underground drainage system to divert stormwater away from the building. Seed or sod to match the surrounding mown lawn.

- Reconstruct the pay office stairs and handrails south of ramp to meet ABAAS requirements. Reconstruct walkway where modified to match historic walkway width and alignment.

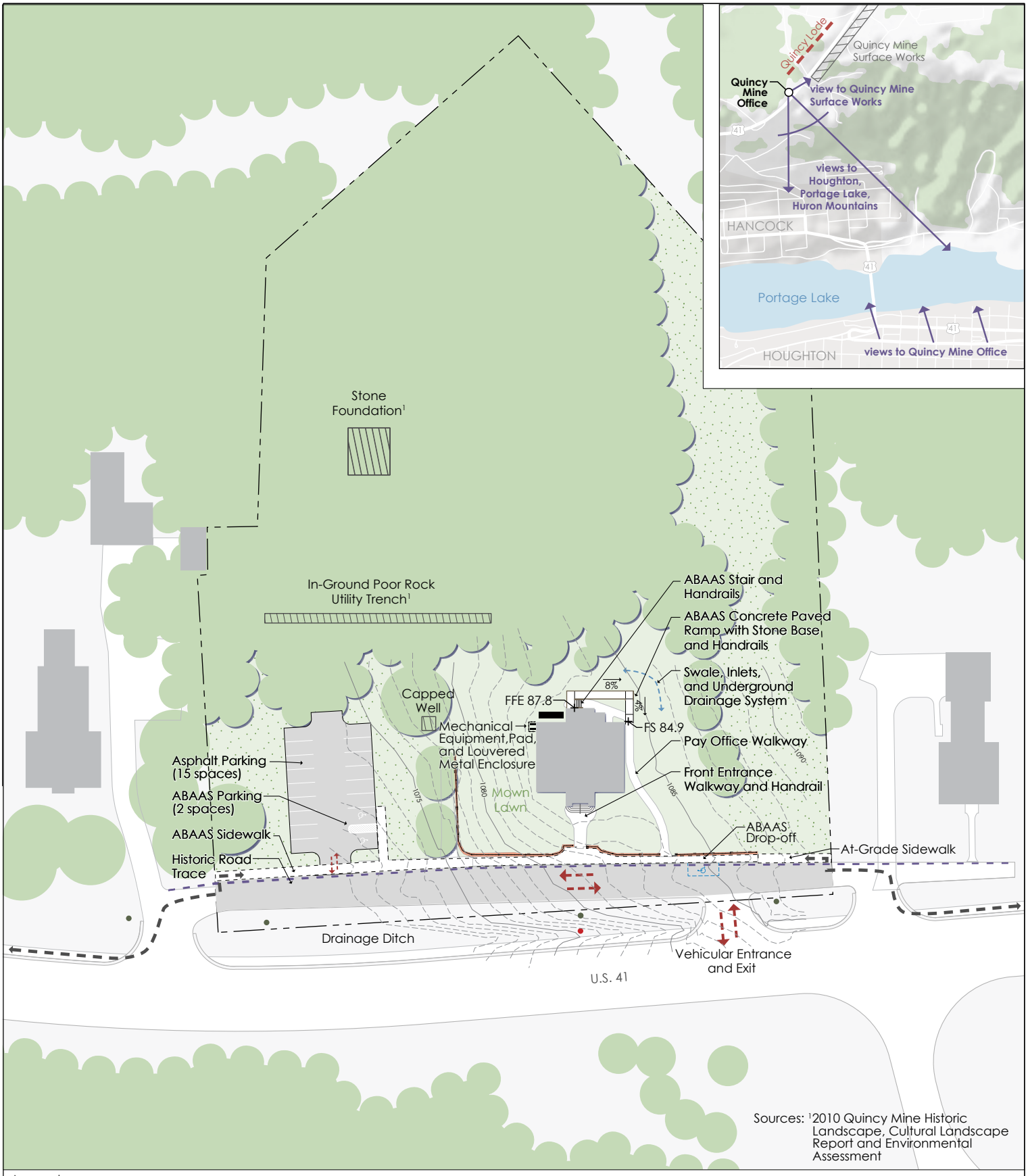
- Establish a swale, new inlets, and underground drainage system to divert stormwater around and away from the building.

- Modify the historic road trace to accommodate one (1) ABAAS drop-off space.

- Provide an asphalt parking area to accommodate 15 vehicular spaces in the field southwest of the office. Ensure ABAAS compliant surfacing and two (2) ABAAS spaces.

- Maintain two-way circulation along the historic road trace.

Preferred Alternative Drawings



Sources: [1]2010 Quincy Mine Historic Landscape, Cultural Landscape Report and Environmental Assessment

Legend

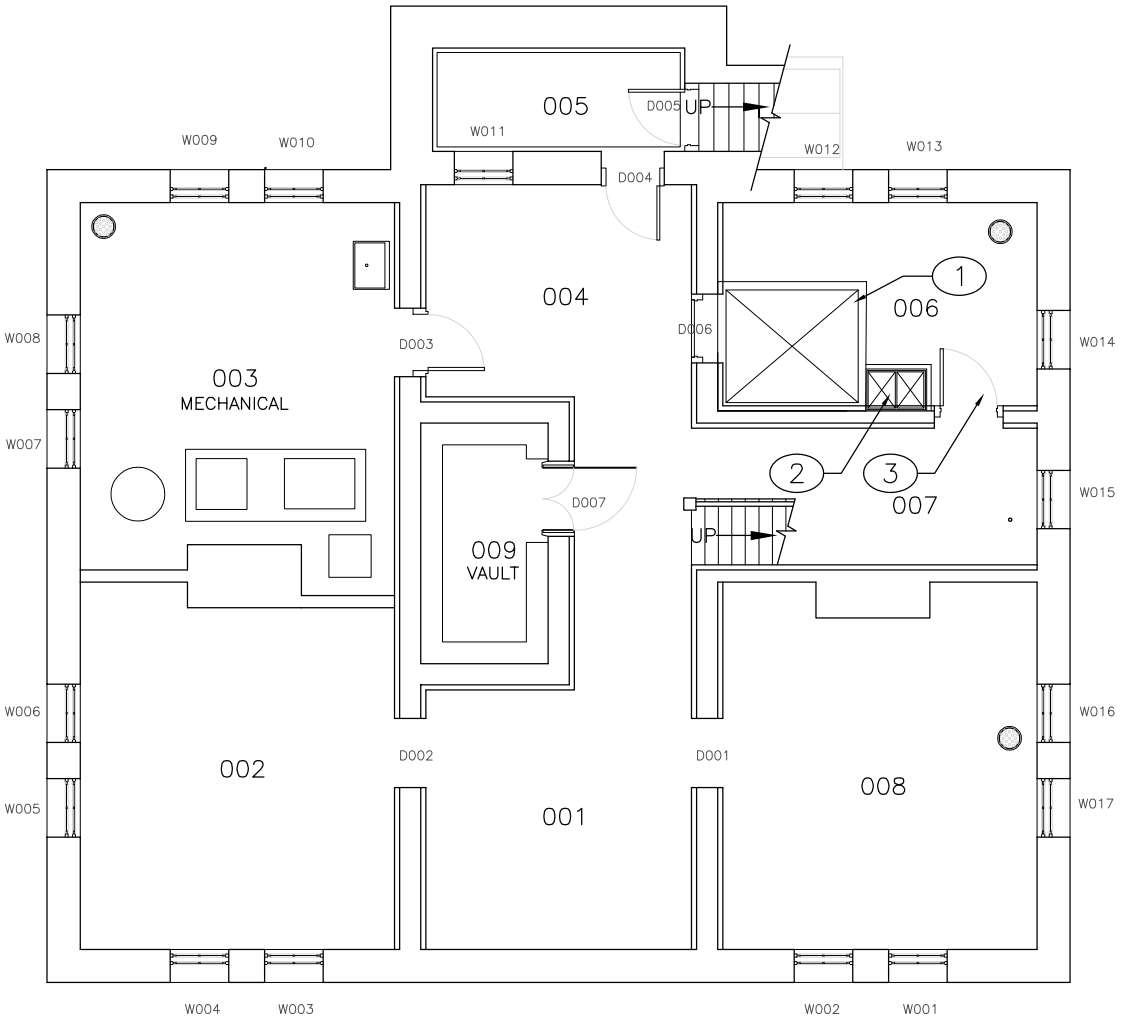
- Quincy Mine Office Boundary
- Mown Lawn
- Tall Grasses
- Deciduous Tree
- Asphalt Surfacing
- Sandstone Wall and Picket Fence[1]
- Concrete Curb[1]
- At-Grade Sidewalk (flush with road)
- Proposed Non-Motorized Quincy Unit Trail[1]
- Two-way Vehicular Circulation
- FFE Finish Floor Elevation
- FS Finish Surface

SCALE OF FEET
80 0 80 160

DESIGNED: TB DRAWN: KR TECH REVIEW: TB DATE: 11/1/2019	SUB SHEET NO. L1.1	TITLE OF SHEET PART 2 - TREATMENT AND USE PREFERRED ALTERNATIVE SITE QUINCY MINE OFFICE KEWEENAW NATIONAL HISTORIC PARK	DRAWING NO. X XXX PMIS/PKG NO. 237234 SHEET 1 OF 1

– — – ACCESSIBLE ROUTE

– — – ABA CLEARANCES



(#) KEYNOTES:

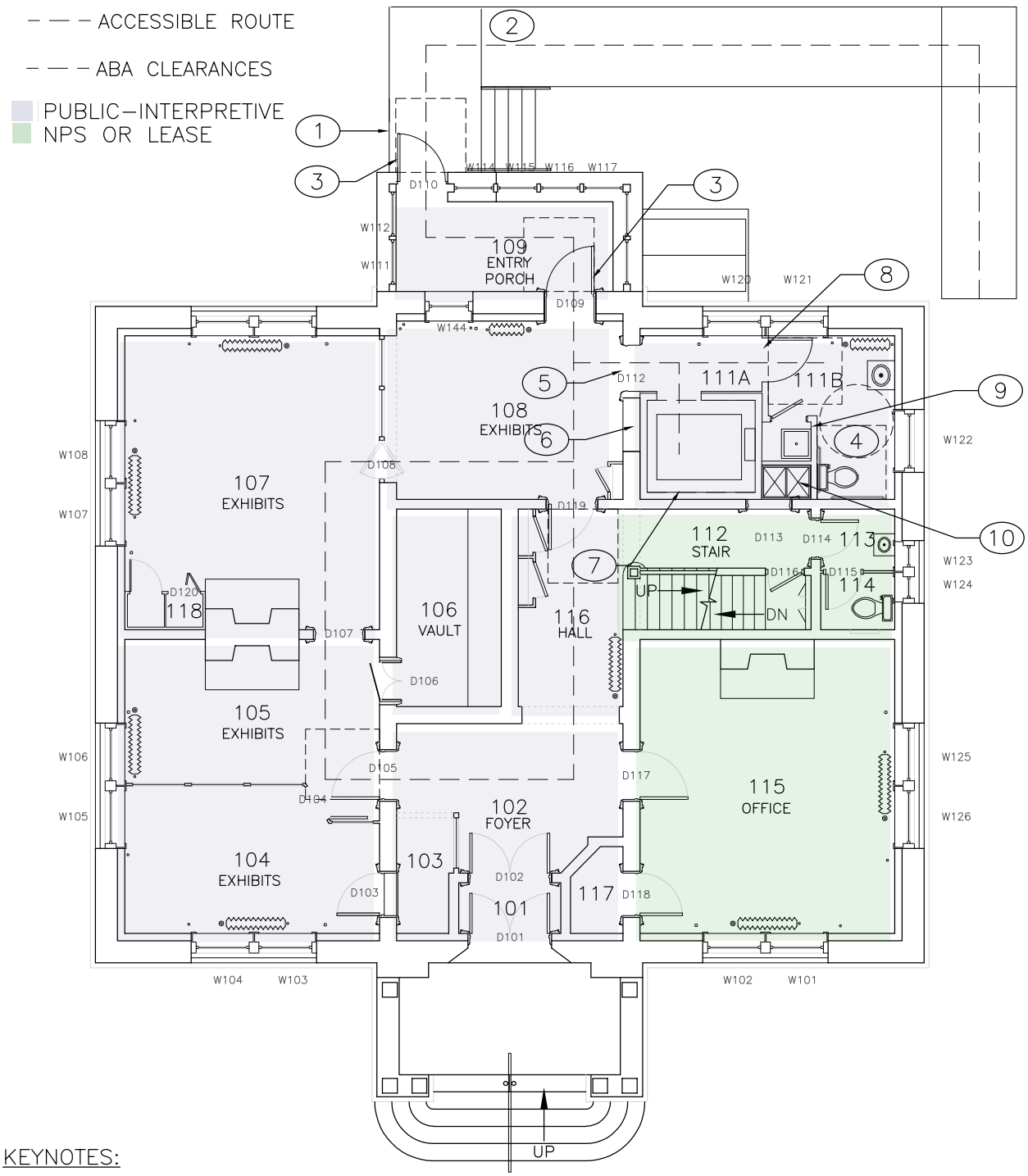
1. ELEVATOR PIT IN BASEMENT
2. MECHANICAL SHAFT TO ATTIC
3. NEW DOOR LOCATION

4 0 4 8 12

SCALE OF FEET

DESIGNED: LHM	SUB SHEET NO.	TITLE OF SHEET: PART 2–TREATMENT AND USE PREFERRED ALTERNATIVE BASEMENT QUINCY MINE OFFICE KEWEENAW NATIONAL HISTORICAL PARK	DRAWING NO. X XXX
CADD SH			PMIS/PKG NO. 237234
TECH. REVIEW: EMH			SHEET 2 OF 4
DATE: 11/1/2019			

4/14/19 23:23 SUSIESCOMP R22 N:\AA PROJECTS\2018\2018590 NPS KEWE HSR (MB)\BIM\ACAD\ARCH\QMO\QMO ALTERNATE 2.DWG XREFS: ..\..\BASES\XA CHTITLEBLOCK.DWG;



(#) KEYNOTES:

1. DEMOLISH TEMPORARY VESTIBULE
2. NEW ABAAS ACCESSIBLE RAMP RE: SITE ALTERNATIVE 2
3. REVERSE DOOR SWING
4. NEW ABAAS COMPLIANT RESTROOM WITH JANITOR'S CLOSET
5. CUT NEW DOOR OPENING; RELOCATE TRIM
6. SALVAGE DOOR, INFILL OPENING
7. CMU HOISTWAY FOR 2–STOP ELEVATOR, FURRED WALL WHERE EXPOSED
8. INSTALL SALVAGED DOOR
9. NEW STUD PARTITIONS
10. MECHANICAL SHAFT

4 0 4 8 12

SCALE OF FEET

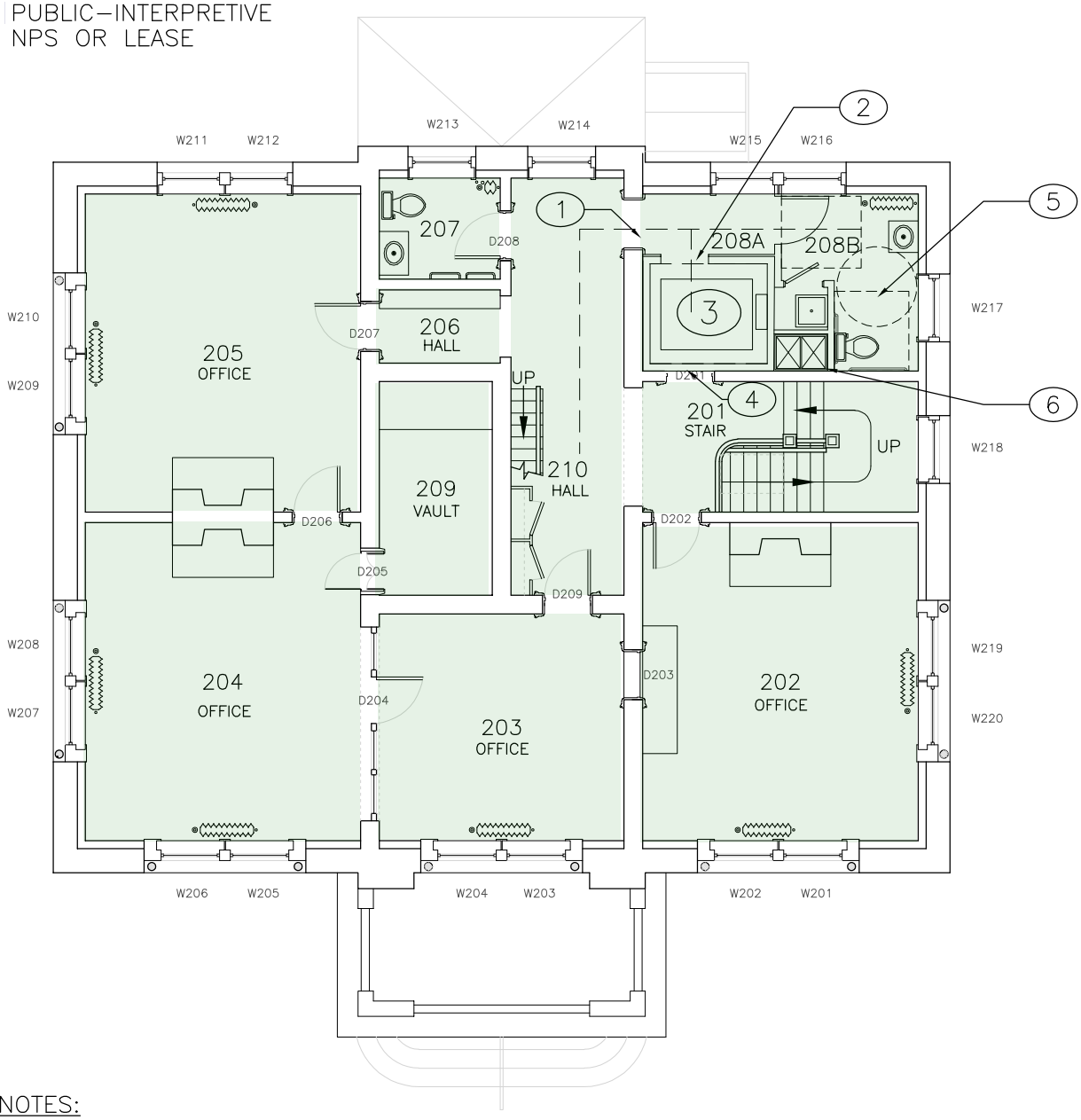
DESIGNED: LHM	SUB SHEET NO.	TITLE OF SHEET: PART 2–TREATMENT AND USE PREFERRED ALTERNATIVE 1ST FLOOR	DRAWING NO. X XXX
CADD: SH		QUINCY MINE OFFICE KEWEENAW NATIONAL HISTORICAL PARK	PMIS/PKG NO. 237234
TECH. REVIEW: EMH			SHEET 3 OF 4
DATE: 11/1/2019			

4/14/19 23:23 SUSIESCOMP R22 N:\AA PROJECTS\2018\2018590 NPS KEWE HSR (MB)\BIM\ACAD\ARCH\QMO\QMO ALTERNATE 2.DWG XREFS: ..\..\BASES\XA CHTITLEBLOCK.DWG;

– — – ACCESSIBLE ROUTE

– — – ABA CLEARANCES

PUBLIC–INTERPRETIVE
NPS OR LEASE



(#) KEYNOTES:

1. CREATE NEW CASED OPENING
2. LEVEL WOOD FLOOR FOR ELEVATOR THRESHOLD
3. CMU HOISTWAY FOR 2–STOP ELEVATOR – FURRED WHERE EXPOSED
4. EXISTING DOOR NO LONGER OPERABLE. FIX IN PLACE AND REMOVE ANY UNNECESSARY HARDWARE
5. NEW ABAAS COMPLIANT RESTROOM
6. MECHANICAL SHAFT AND JANITOR'S CLOSET

4 0 4 8 12
SCALE OF FEET

DESIGNED: LHM CADD: XX TECH. REVIEW: EMH DATE: 11/1/2019	SUB SHEET NO.	TITLE OF SHEET PART 2–TREATMENT AND USE PREFERRED ALTERNATIVE 2ND FLOOR QUINCY MINE OFFICE KEWEENAW NATIONAL HISTORICAL PARK	DRAWING NO. X / XXX PMIS/PKG NO. 237234 SHEET 4 OF 4

4/14/19 23:23 SUSIESCOMP R22 N:\AA PROJECTS\2018\2018590 NPS KEWE HSR (MB)\BIM\ACAD\ARCH\QMO\QMO ALTERNATE 2.DWG XREFS: ..\..\BASES\XA CHTITLEBLOCK.DWG;

Appendix

Appendix A - Engineering Supplements

Appendix B - Bibliography

Appendix C - Historic Drawings

Appendix D - Existing Condition Drawings

Appendix E - Hazardous Materials Report

Appendix F - Condensed VA/CBA Workshop Notes

Appendix G - Cost Estimate

Appendix A. Engineering Supplements

1. Structural Live Load Chart

2. Wood Species Identification Report

KEWE Quincy Mine Office Live Load Capacities

75% HSR - 2019 - JVA, Inc.

Area	Controlling Element of Structural System	Material	Current			Time of Installation		
			Current Use	Calculated Live Load Capacity (psf)	Code Required Live Load Capacity (psf)[A]	Historic Use	Date of Installation	Code Required Live Load Capacity (psf)
Basement	Concrete Slab on Grade	Concrete	Unoccupied	TBD[E]	TBD	Unknown	1896	Unknown
1st Floor & 1st Floor Porch	2-3/4" x 11-1/2" Wood Joists	Eastern White Pine, Grade No. 1[B]	Offices	65	50	Offices	1896	75[G]
2nd Floor	2-3/4" x 11-1/2" Wood Joists	Eastern White Pine, Grade No. 1[C]	Offices	65	50	Offices	1896	75[G]
Vault Floors	Brick arch floor systems with I8x4 Steel Beams	Steel - F_y = 60 ksi & F_b = 16 ksi[D]	Unoccupied	~400	250[F]	Heavy Storage	1896	150[G]
Attic	2" x 9 3/4" Wood Joists	Eastern White Pine, Grade No. 1[C]	Nonresidential Attic, Nonstorage	65	25	Blueprinting	1896	75[G,H]

A: 2018 International Building Code (IBC)

B: Sample taken from first floor joist

C: Material extrapolated from sample taken from similar member elsewhere in the building

D: Material extrapolated from date of construction using *AISC Iron and Steel Beams, 1873-1952* published in 1953 and edited by Herbert Ferris

E: Load capacity will depend on the results of GPR study, which will identify voids below the slab, the thickness of the slab, and reinforcing (if any)

F: Load requirement associated with Heavy Storage per IBC. Floor has capacity for most uses

G: "Laws Relating to Buildings in the City of New York" 1887 (Building designed by a New Jersey firm)

H: Considered an office use for the purposes of this study

December 18, 2018

Ms. Christine Britton, P.E.
JVA, Incorporated
1319 Spruce Street, Boulder, CO 80302

RE: Wood species identification of three samples from JVA Job No. 19463

Ms. Britton:

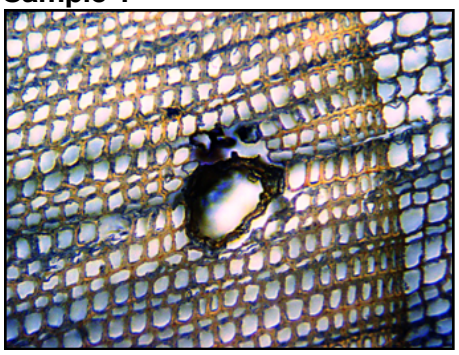
Three wood samples from JVE Job No. 19463, Quincy Mine Office, office building, Hancock, Michigan, were sent to Wood Identification and Consultation Services for species identification. Identifying wood species makes it possible to identify compatible material for repairs and can aid in historic interpretation of construction or repair campaigns.

The samples were assessed for macroscopic characteristics that aid in species identification. Thin sections of the samples were also examined at 40x to 1000x magnification with a light microscope to identify cellular features that allow for species differentiation. The samples were identified as follows:

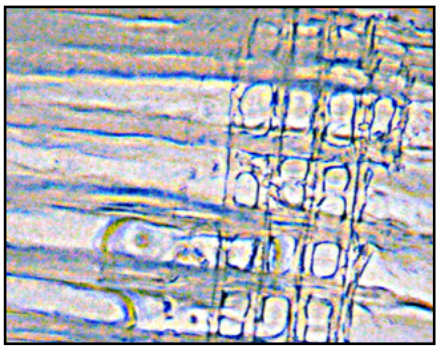
Sample No.	Description	Member Dimensions	Species
1	original roof rafter	2” x 9-3/4”	eastern white pine (*Pinus strobus*)
2	original post in attic	6” x 6”	eastern spruce (*Picea s*pp.)
3	original first floor joist	2-3/4” x 11-1/2”	eastern white pine

Microscopic characteristics used in identification:

Sample 1

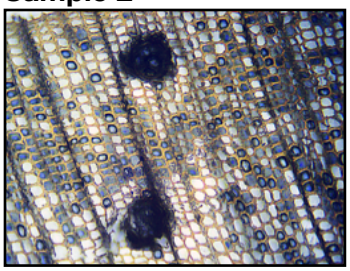


Resin Canal in Cross Section

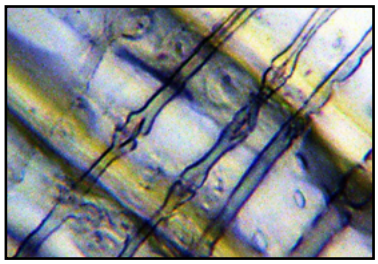


Fenestriform Cross Field Pitting

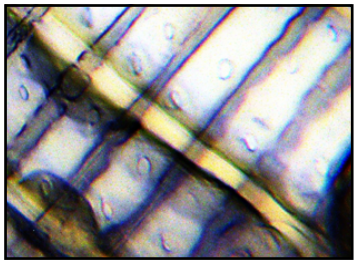
Sample 2



Resin Canals in Cross Section

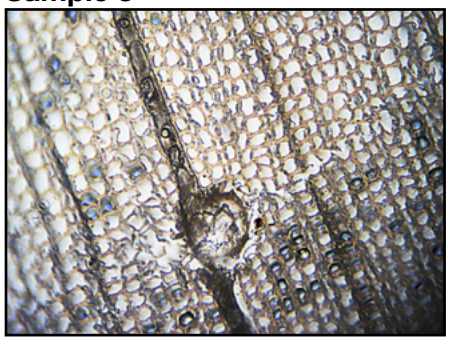


Fenestriform Cross Field Pitting

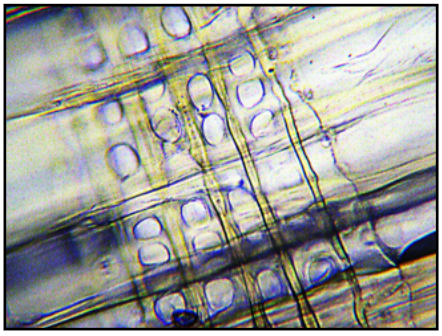


Piceoid Cross Field Pitting

Sample 3



Resin Canal in Cross Section



Fenestriform Cross Field Pitting

Spruces cannot be distinguished from one another based on microscopic characteristics alone and are generally identified as transcontinental spruce (*Picea* spp.); however, spruces do have distinct geographic ranges. Given the construction date and location of the structure of origin, the most likely species group is eastern spruce (*Picea* spp.), which includes red spruce (*Picea rubens*), black spruce (*Picea mariana*), and white spruce (*Picea glauca*).

The species group appropriate for determining design values from the *National Design Specification for Wood Construction* for samples 1 and 3 is Eastern White Pine. The species group appropriate for determining design values from the *National Design Specification for Wood Construction* for sample 2 is Spruce-Pine-Fir.

If you have any questions regarding the species identification, or if I can be of any additional assistance, please do not hesitate to contact me.

Best regards,

Kimberly Dugan
Wood Specialist
(720) 518-6057
kdugan.preservation@gmail.com

Appendix B - Bibliography

Archival Collections

Michigan Technological University

Quincy Mining Company Collection, MS-001.
Correspondence, Annual Reports, Ledgers, Photographs, and other miscellaneous records.

Keweenaw National Historical Park

Photograph Collections, Keweenaw History Center.

Drawings
Walsh, Robert C. "Quincy Mine Office." 1895.
Quinn Evans Architects. "Quincy Mine Office – Masonry Restoration." July 8, 2005.
Quinn Evans Architects. "Quincy Mine Office – Roof and Woodwork Package." March 9, 2006.
Quinn Evans Architects. "Quincy Mine Office Window Rehabilitation." March 9, 2006.
Commonwealth Heritage Group, BVH Architects, and Alvine Engineering. "Rehabilitate Heating System Quincy Mine Office." September 19, 2016.
National Park Service. "Quincy Mine Office Landscape Rehabilitation Contract Drawings." 2018.

Specifications
Quinn Evans Architects. "Quincy Mine Office Window Rehabilitation." March 9, 2006, Revised by NPS November 2015 and March 2, 2017.
Commonwealth Heritage Group, BVH Architects, and Alvine Engineering. "Rehabilitate Heating System Quincy Mine Office." September 19, 2016.

Project Management Information Statements
PMIS 77492: "Stabilization/Rehabilitation Quincy Pay Office." October 22, 2008.
PMIS 238255: "Paint Quincy Mine Office Exterior Woodwork." December 15, 2017.
PMIS 191833: "Replace Heating System for Quincy Mining Company Office." October 23, 2017.
PMIS 161164: "Rehabilitate Quincy Mine Office Windows." October 23, 2017.
PMIS 227904: "Repair and Restore Quincy Mine Office Landscape Features." July 17, 2018.

Miscellaneous
Bjorkman, Lynn. Quincy Mine Office Chronology of Development and Use (draft). Undated.
Bjorkman, Lynn. Quincy Mine Office Library Significance and Period of Significance (draft). Undated.
Marsten, Charles, email to Bruce Kozlowski. Scope of Work for Quincy Pay Office work, June 1, 2005.
National Park Service. Keweenaw National Historical Park, Facility Plan, January 2009.
National Park Service. Request for Quotes, Purchase and Installation of New Natural Gas Boiler, October 26, 2001.
National Park Service. Scope of work, Quincy Paymaster House Interior Modifications, November 2001.
National Park Service. Scope of Work, Quincy Paymaster House Second Floor Oak Floor Refinishing, March 1, 2002.

National Park Service. Standard Operating Procedures, Keweenaw National Historical Park Quincy Paymaster's Office, September 25, 2002.
Quincy Pay Office. "Pack and Move." September 2001.
"Quincy Office Projects Funded and Underway." 2007.
Rosemurgy, John. "Custom Roller Shades for the Quincy Mining Company Office Windows." July 28, 2009.

Articles

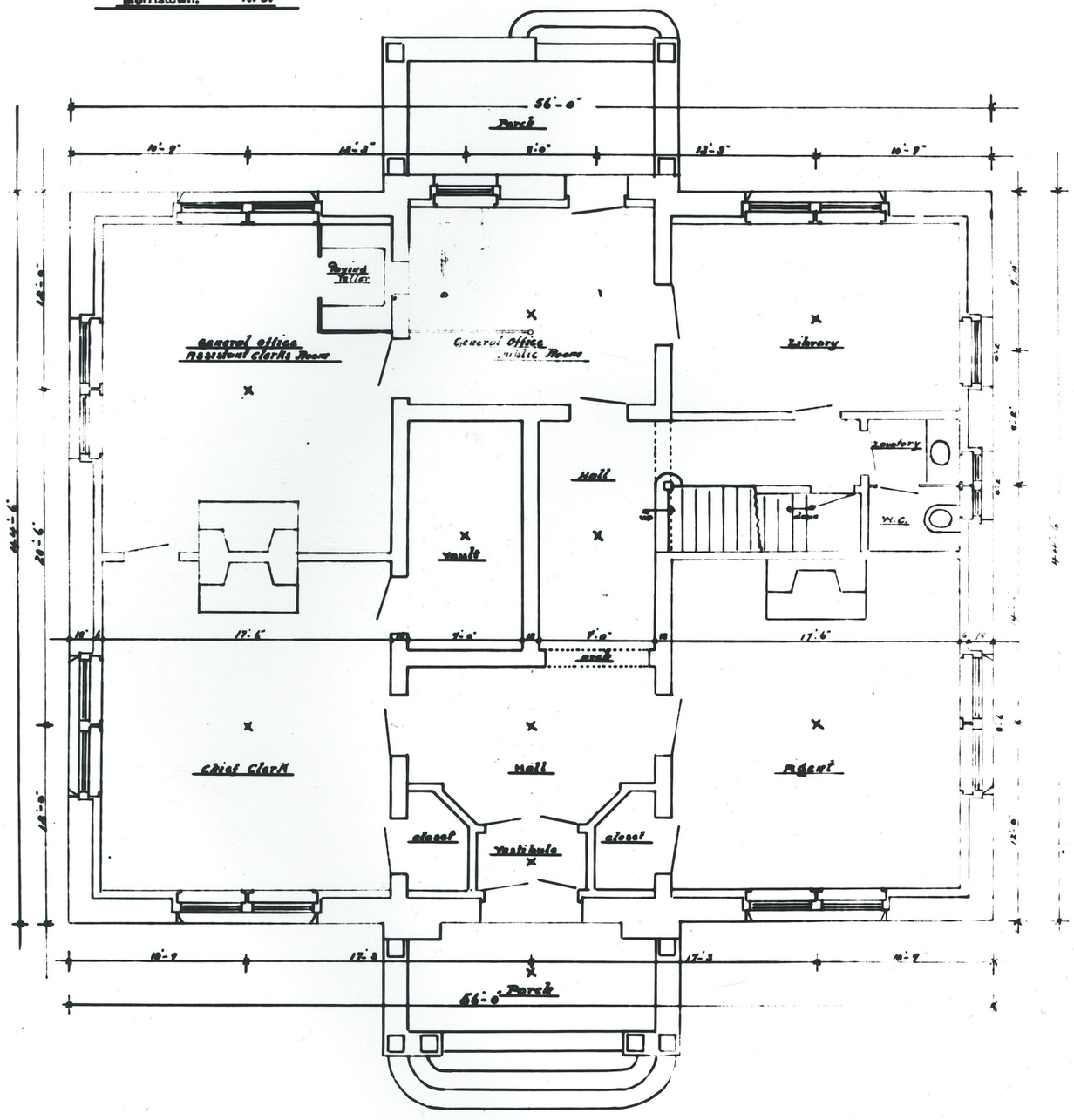
"Agent's Report." *Portage Lake Mining Gazette*, February 25, 1897, 1.
Michael, Rodney R. "A Labor-Based Explanation for Accounting Innovation in a Late Nineteenth Century American Corporation." *The Accounting Historians Journal*, June 1998.
Pierson, Aldus H. "Prominent Architects Have Been Residents of Town." *Morristown Daily Record*, October 1, 1938, 3.
"Quincy." *Portage Lake Mining Gazette*, January 7, 1897, 1
"Quincy." *Portage Lake Mining Gazette*, January 21, 1897, 1.
[Quincy Mine Office Building Being Moved]. Copper Country Evening News, April 24, 1896.
"Robert C. Walsh." (Obituary), *The Jerseyman* (Morristown), October 6, 1911, 5.
"Wages: Public Employment." *The American Labor Legislation Review*, Volume III, 1913, 428.

Books, Reports, and Studies

Bringelson, Dawn and Adam Wiewe. Trip Report, Archaeological Investigations at Quincy Mine Office, July 2017.
Eckert, Kathryn Bishop. *The Sandstone Architecture of the Lake Superior Region*. Detroit, MI: Wayne State University Press, 2000.
Fisher, Nancy Beth. "Quincy Mining Company Office, 1895-1994." Research Paper dated November 5, 1994.
Hoagland, Alison K. Mine Towns: Buildings for Workers in Michigan's Copper Country. Minneapolis, MN: University of Minnesota Press, 2010.
Hyde, Charles K. "An Economic and Business History of the Quincy Mining Company." In HAER No MI-2, an unpublished report for the National Park Service American Engineering Record. Washington, DC, 1978.
"Mining Office." Quincy Mining Company Historic American Engineering Record, HAER MI-2.
"The Quincy Location Store." Quincy Mining Company Historic American Engineering Record, HAER MI-2.
Quincy Mining Company. *Report of the Quincy Mining Company for the Year* (1862-1930).
Quinn Evans Architects. "Quincy Mining Company Historic District." National Historic Landmark nomination (draft), December 2017.
Quinn Evans Architects. "Quincy Unit Cultural Landscape Report/Environmental Assessment." National Park Service, 2010.
Report of the Director to the Stockholders of the Quincy Mining Company for the year 1872. Boston, MA: Press of Rand, Avery, and Company, 1873.
Seaton Appraisal Associates. "An Appraisal Report of Tract 102-04, The Quincy Paymaster Building." Hancock, Michigan, October 18, 2000.
U.P. Engineers and Architects. "NPS Level I, II, and III Survey for Proposed Real Estate Acquisition of Tract 102-04." Keweenaw National Historical Park, January 9, 2001.

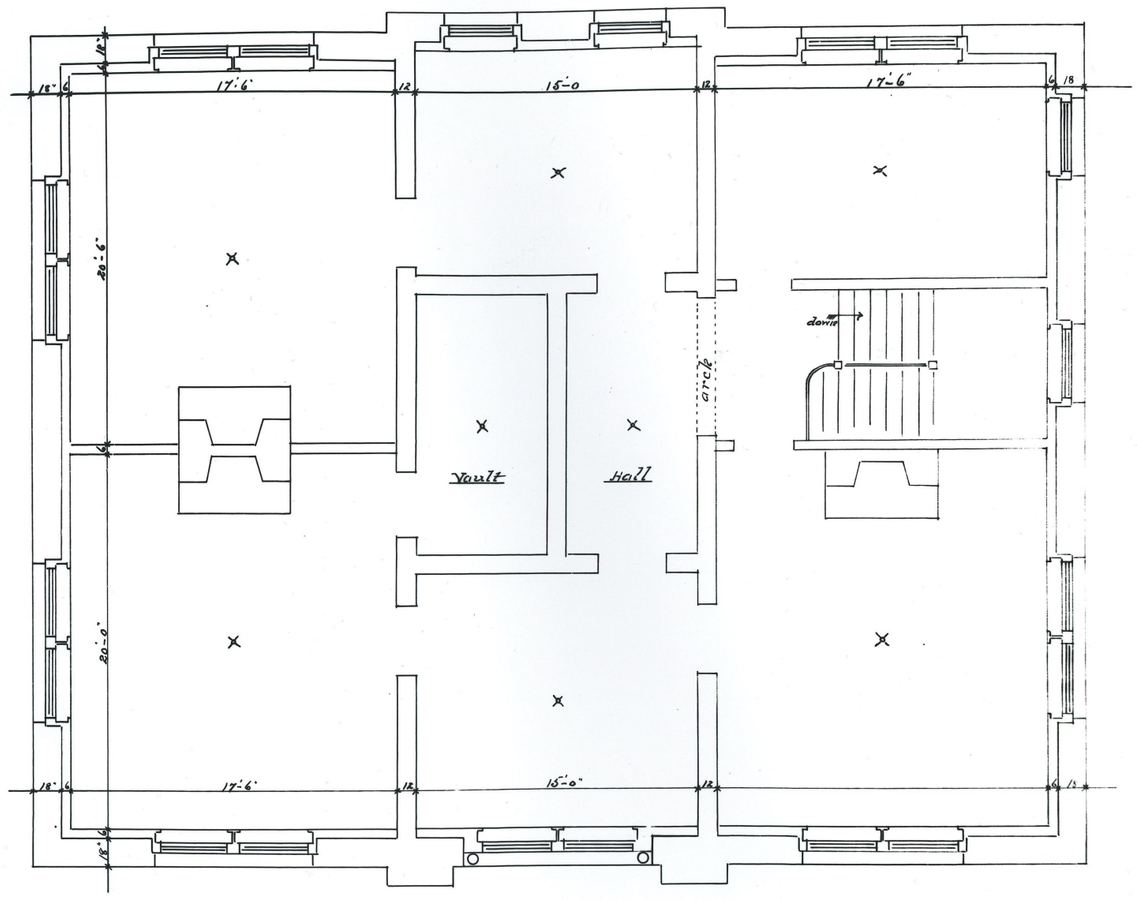
Appendix C. Historic Drawings

ROBERT C. WALSH,
ARCHITECT.
Morristown, N. J.



FIRST STORY.
SCALE 4 FEET TO THE INCH.

ROBERT C. WALSH,
ARCHITECT.
Morristown, N. J.



SECOND STORY.
SCALE 4 FEET TO THE INCH.

Sheet 4.

ROBERT C. WALSH, ARCHITECT, 1895
1st and 2nd Floor Plans

ROBERT C. WALSH,
ARCHITECT.
Morristown, N. J.



FRONT ELEVATION.

SCALE 4 FEET TO THE INCH.

1160-F

1160-F
Sheet 1

ROBERT C. WALSH, ARCHITECT, 1895
Front Elevation

ROBERT C. WALSH
ARCHITECT
Morristown, N. J.



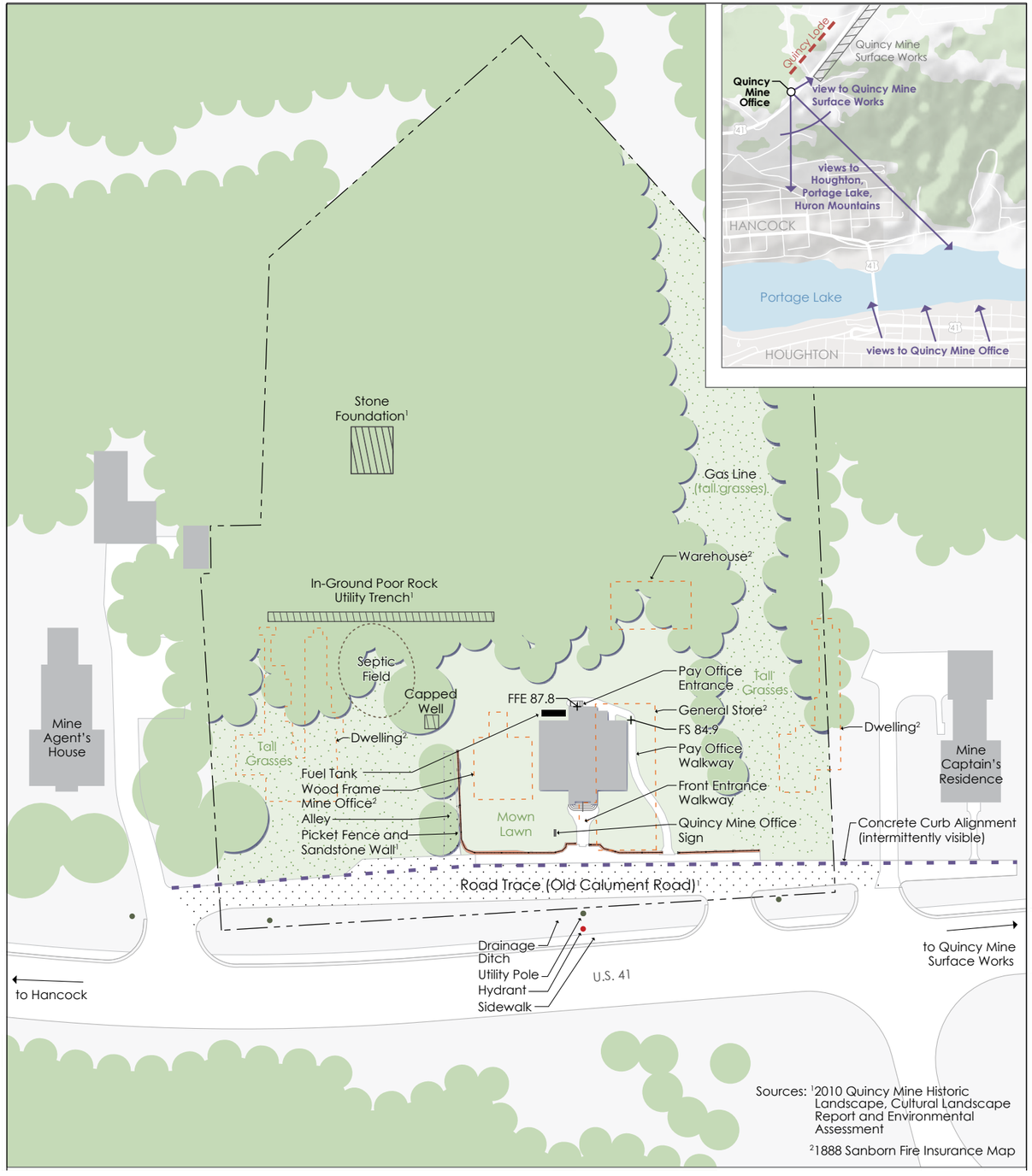
SIDE ELEVATION

SCALE 4 FEET TO THE INCH

1160-F
Sheet 2.

ROBERT C. WALSH, ARCHITECT, 1895
Side Elevation

Appendix D. Existing Conditions Drawings



Legend

- Quincy Mine Office Boundary
- Mown Lawn
- Tall Grasses
- Deciduous Tree
- Historic Road Trace (unpaved)[1]
- Sandstone Wall and Picket Fence[1]
- Concrete Curb Alignment (intermittently visible)[1]
- Non-Extant Structure[2]
- Utility Pole
- Fire Hydrant
- Septic Field
- FFE Finish Floor Elevation
- FS Finish Surface

SCALE OF FEET
80 0 80 160

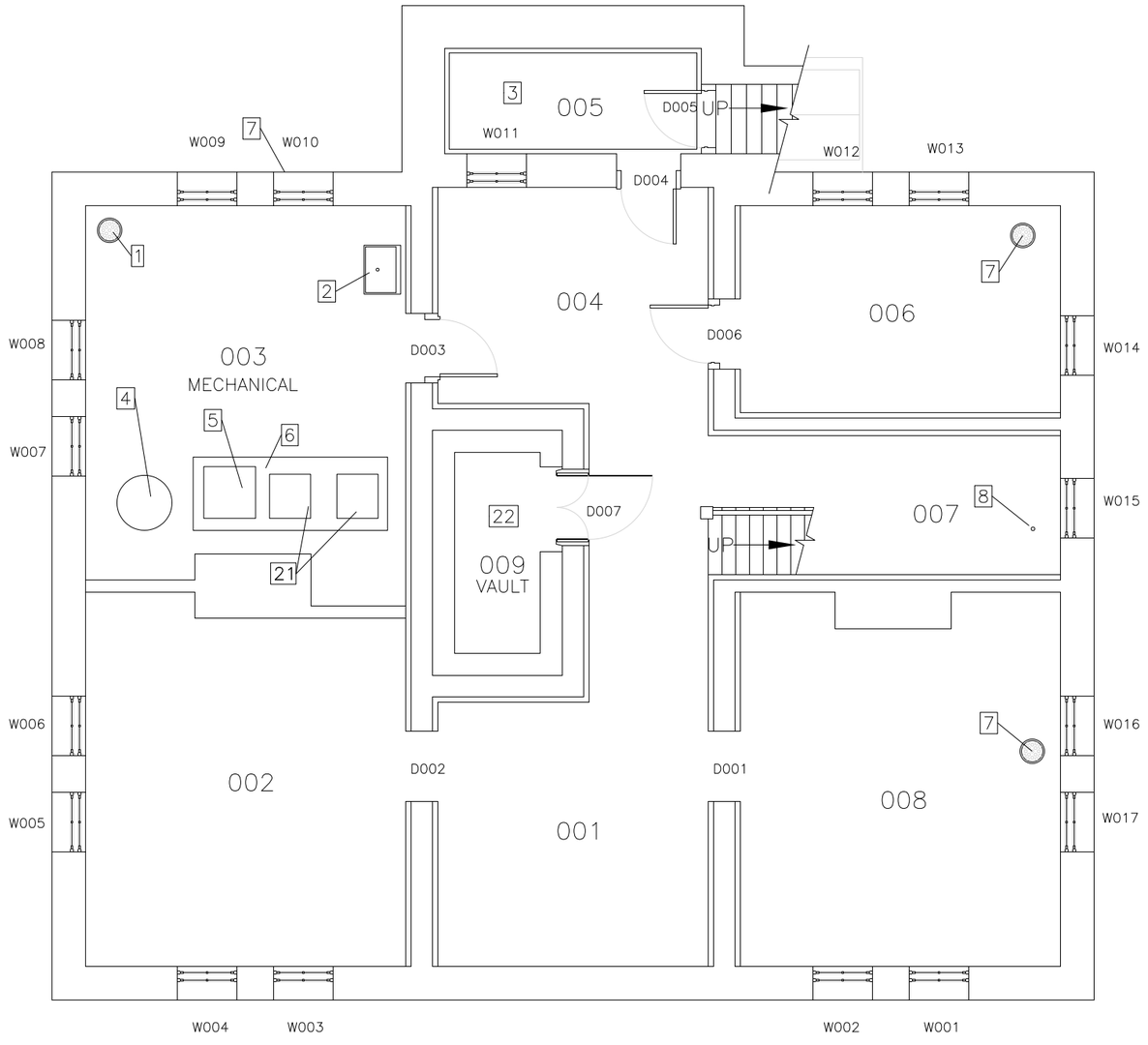
NOT FOR CONSTRUCTION

DESIGNED: TB	SUB SHEET NO. L0.0
CADD KR	
TECH. REVIEW: TB	
DATE: 11/1/2019	

TITLE OF SHEET
PART 1–EXISTING CONDITIONS SITE PLAN

QUINCY MINE OFFICE
KEWEENAW NATIONAL HISTORICAL PARK

DRAWING NO. X XX
PMIS/PKG NO. 237234
SHEET 1 OF 9



NOTES

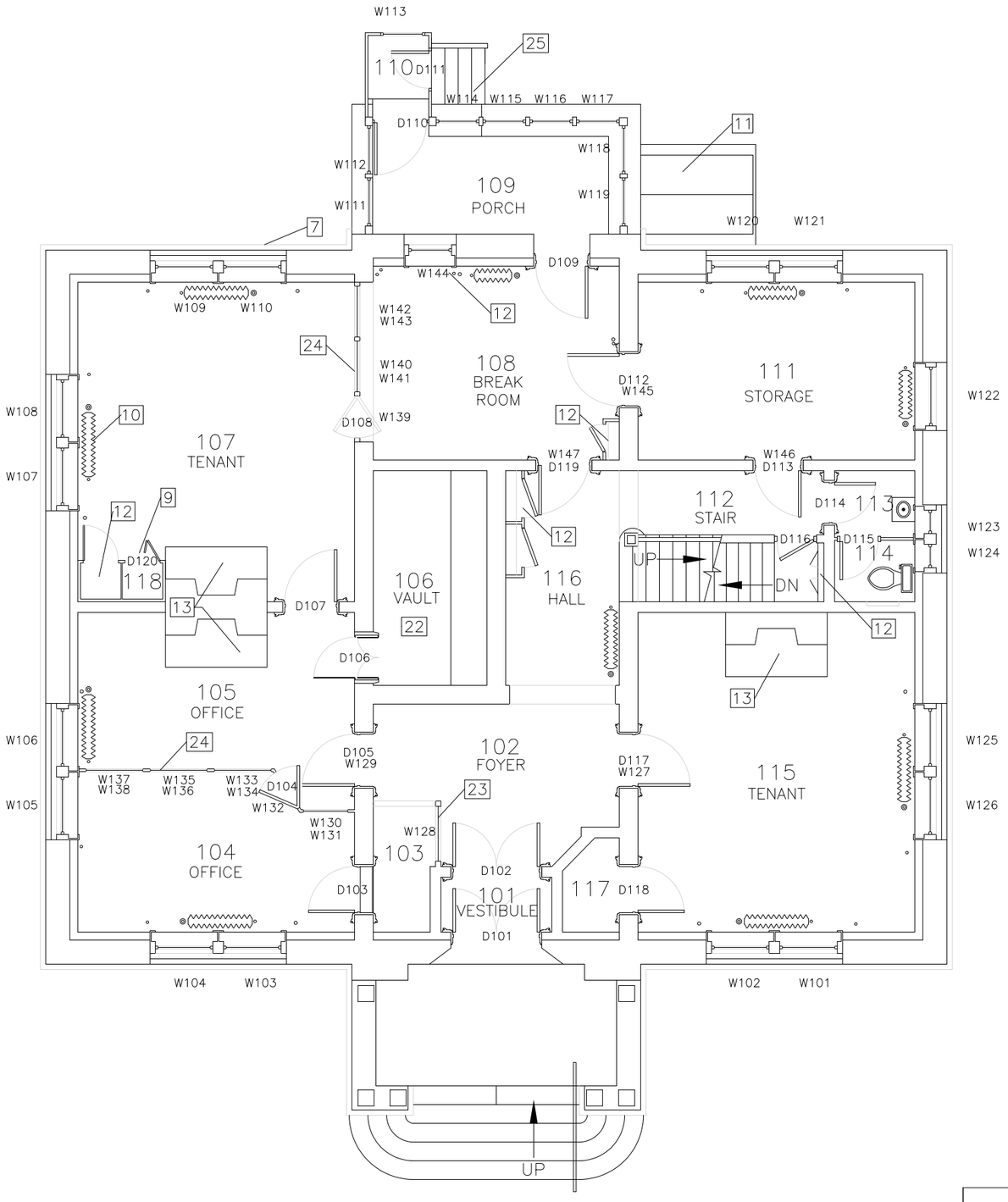
1. SUMP PUMP
2. UTILITY SINK
3. PLYWOOD PLATFORM
4. HOT WATER HEATER
5. FURNACE AND DUCTWORK
6. NEW CONCRETE PAD
7. VENT FOR BOILER (REMOVED)
8. PIPE COLUMN
9. TELEPHONE BOOTH
10. FIN TUBE RADIATOR TYP.
11. BASEMENT ENTRY BULKHEAD
12. BUILT–IN CABINETRY
13. GLAZED CERAMIC TILE HEARTH
14. ATTIC ACCESS HATCH ABOVE
15. BUILT–IN DESK
16. BUILT–IN SHELVING
17. WOOD BENCH
18. EXPOSURE CASE
19. BLUEPRINT EQUIPMENT
20. DARKROOM SINK
21. HIGH EFFICIENCY BOILERS
22. VAULT
23. GLAZED PARTITION
24. GLAZED PARTITION WITH DOOR
25. WOOD STAIR TO REAR ENTRY

SCALE A 4 0 4 8
SCALE OF FEET

1 / A1.0 QUINCY MINE OFFICE – BASEMENT FLOOR PLAN
SCALE A

NOT FOR CONSTRUCTION

DESIGNED: LHM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
CADD: SH	A1.0	PART 1–EXISTING CONDITIONS BASEMENT FLOOR PLAN	X XX
TECH. REVIEW: EMH		QUINCY MINE OFFICE KEWEENAW NATIONAL HISTORICAL PARK	PMIS/PKG NO. 237234
DATE: 11/1/2019			SHEET 2 OF 9



1 A1.1 QUINCY MINE OFFICE – FIRST FLOOR PLAN

SCALE A

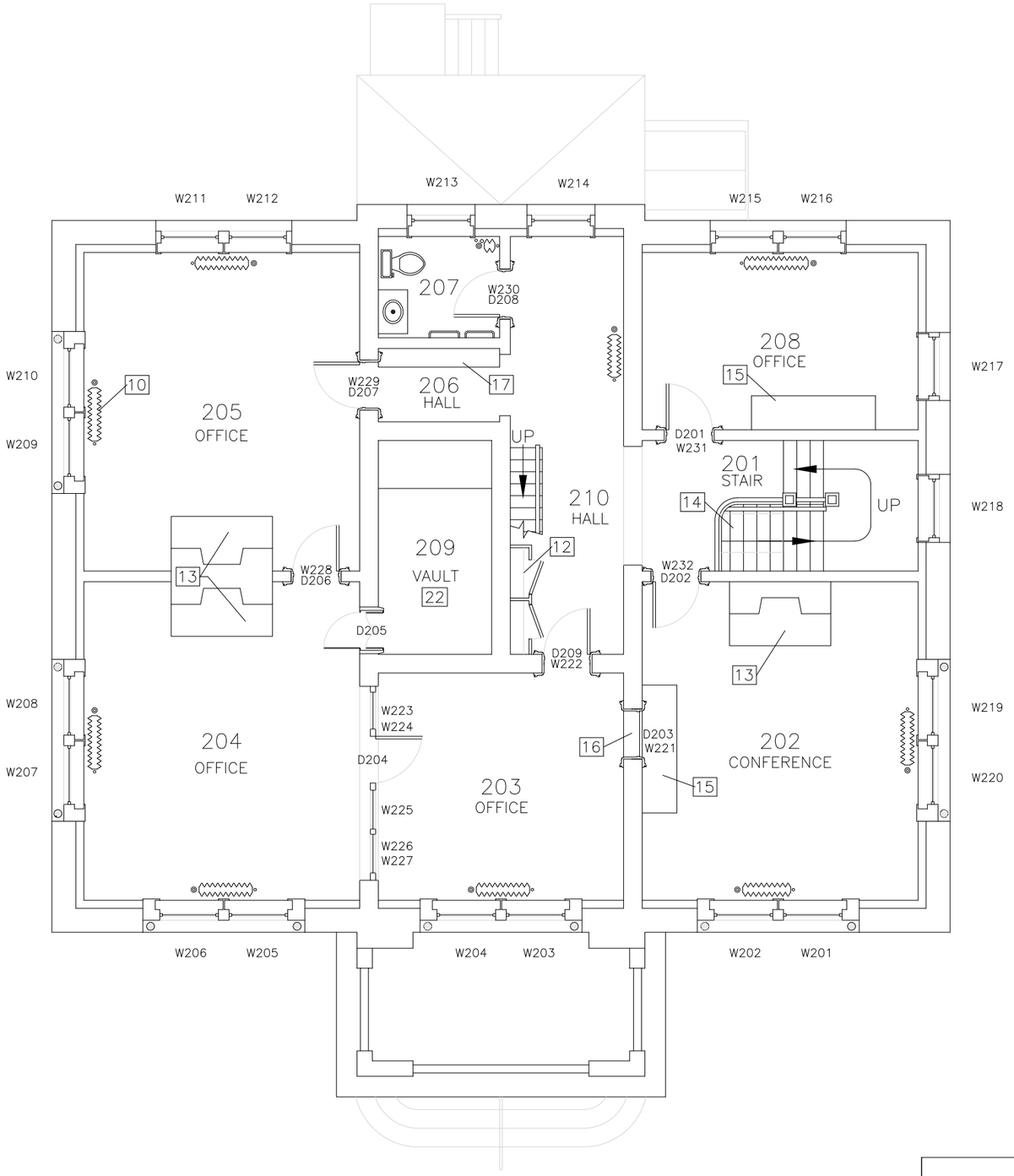
NOTES

1. SUMP PUMP
2. UTILITY SINK
3. PLYWOOD PLATFORM
4. HOT WATER HEATER
5. FURNACE AND DUCTWORK
6. NEW CONCRETE PAD
7. VENT FOR BOILER (REMOVED)
8. PIPE COLUMN
9. TELEPHONE BOOTH
10. FIN TUBE RADIATOR TYP.
11. BASEMENT ENTRY BULKHEAD
12. BUILT–IN CABINETRY
13. GLAZED CERAMIC TILE HEARTH
14. ATTIC ACCESS HATCH ABOVE
15. BUILT–IN DESK
16. BUILT–IN SHELVING
17. WOOD BENCH
18. EXPOSURE CASE
19. BLUEPRINT EQUIPMENT
20. DARKROOM SINK
21. HIGH EFFICIENCY BOILERS
22. VAULT
23. GLAZED PARTITION
24. GLAZED PARTITION WITH DOOR
25. WOOD STAIR TO REAR ENTRY

SCALE A 4 0 4 8
SCALE OF FEET

NOT FOR CONSTRUCTION

DESIGNED: LHM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
DADD SH	A1.1	PART 1–EXISTING CONDITIONS 1ST FLOOR PLAN	X XX
TECH. REVIEW: EMH		QUINCY MINE OFFICE KEWEENAW NATIONAL HISTORICAL PARK	PMIS/PKG NO. 237234
DATE: 11/1/2019			SHEET 3 OF 9



NOTES

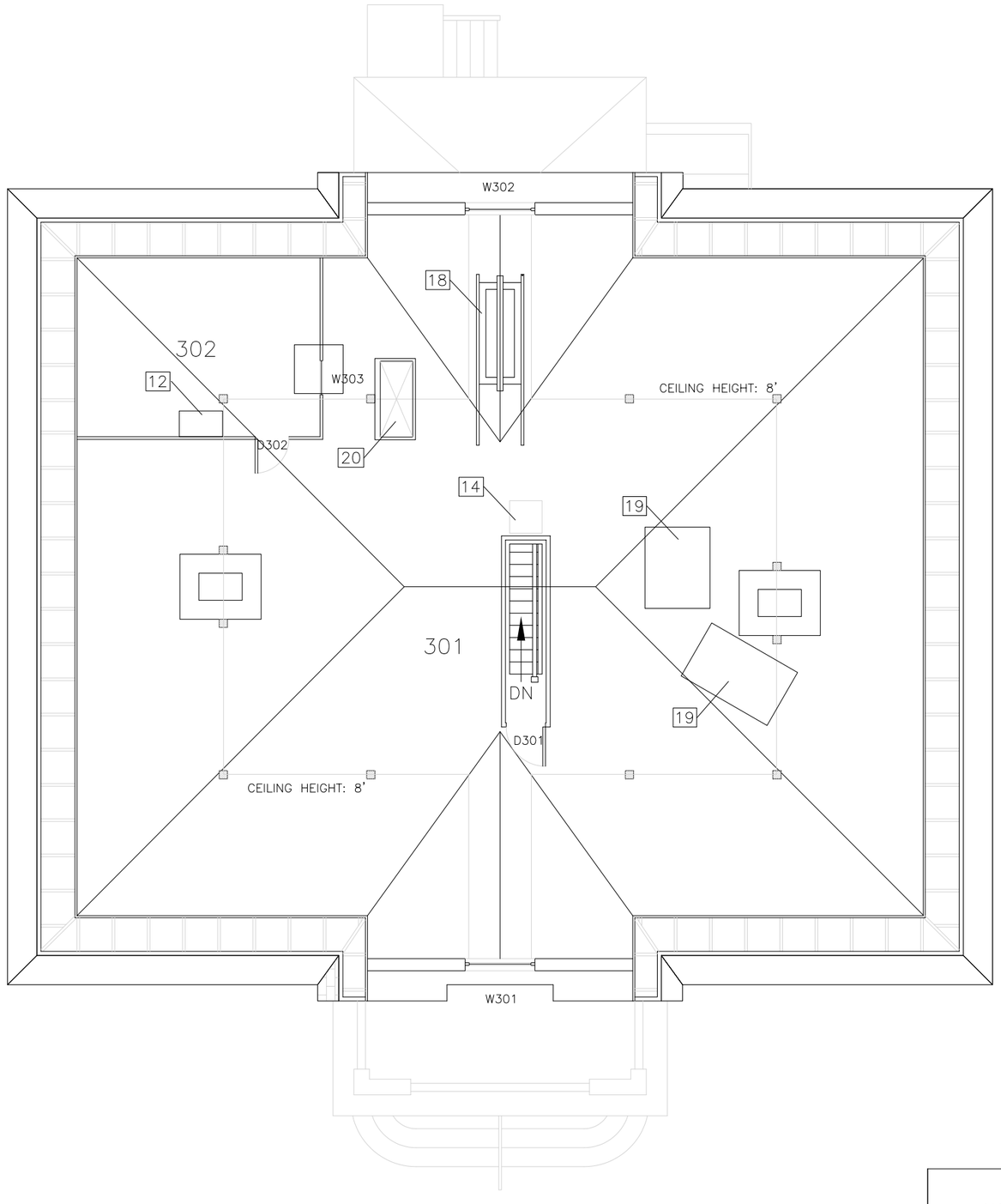
1. SUMP PUMP
2. UTILITY SINK
3. PLYWOOD PLATFORM
4. HOT WATER HEATER
5. FURNACE AND DUCTWORK
6. NEW CONCRETE PAD
7. VENT FOR BOILER (REMOVED)
8. PIPE COLUMN
9. TELEPHONE BOOTH
10. FIN TUBE RADIATOR TYP.
11. BASEMENT ENTRY BULKHEAD
12. BUILT–IN CABINETRY
13. GLAZED CERAMIC TILE HEARTH
14. ATTIC ACCESS HATCH ABOVE
15. BUILT–IN DESK
16. BUILT–IN SHELVING
17. WOOD BENCH
18. EXPOSURE CASE
19. BLUEPRINT EQUIPMENT
20. DARKROOM SINK
21. HIGH EFFICIENCY BOILERS
22. VAULT
23. GLAZED PARTITION
24. GLAZED PARTITION WITH DOOR
25. WOOD STAIR TO REAR ENTRY

SCALE A 4 0 4 8
SCALE OF FEET

1 / A1.2 QUINCY MINE OFFICE – SECOND FLOOR PLAN
SCALE A

NOT FOR CONSTRUCTION

DESIGNED: LHM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
CADD SH	A1.2	PART 1–EXISTING CONDITIONS 2ND FLOOR PLAN	X XX
TECH. REVIEW: EMH		QUINCY MINE OFFICE KEWEENAW NATIONAL HISTORICAL PARK	PMIS/PKG NO. 237234
DATE: 11/1/2019			SHEET 4 OF 9



NOTES

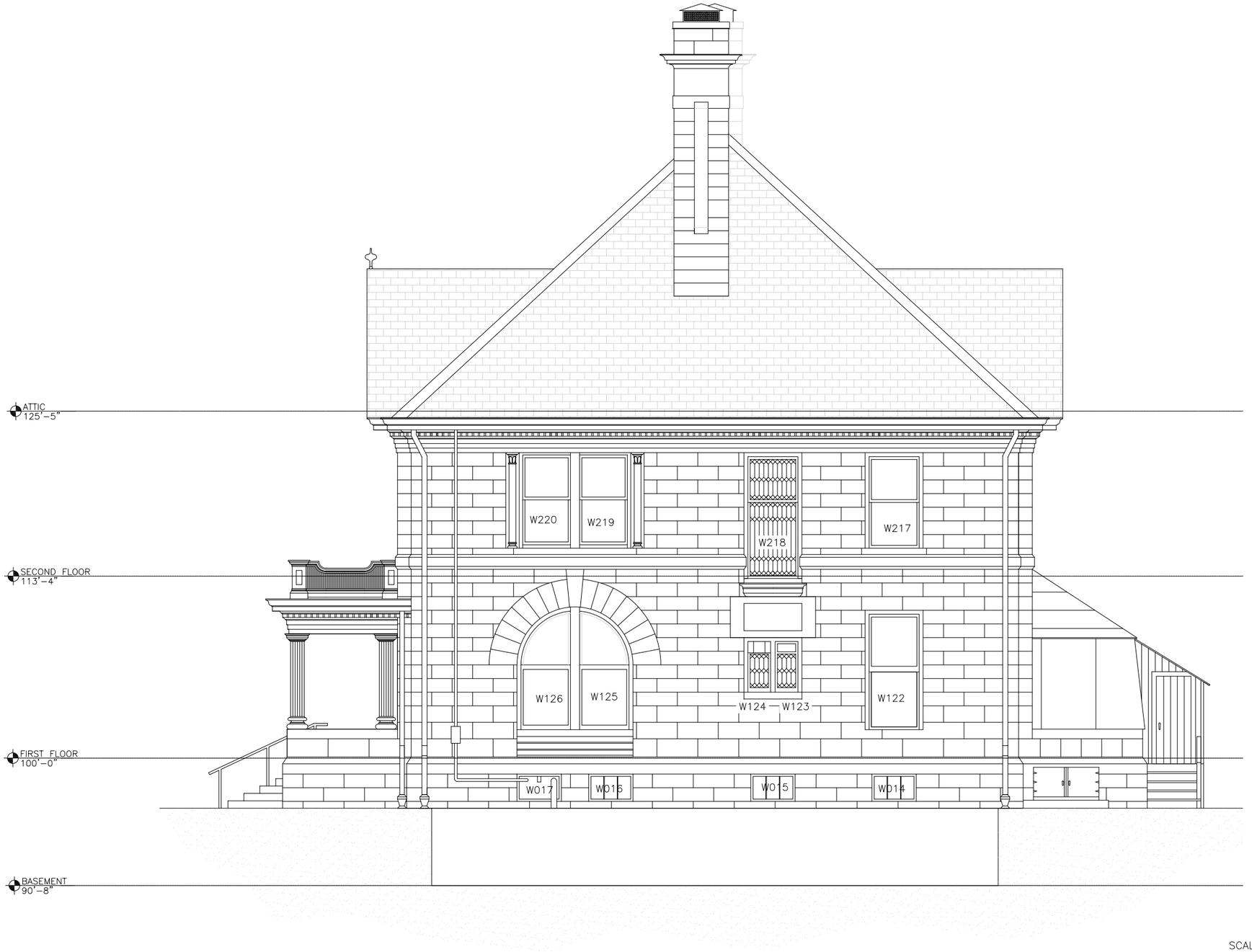
1. SUMP PUMP
2. UTILITY SINK
3. PLYWOOD PLATFORM
4. HOT WATER HEATER
5. FURNACE AND DUCTWORK
6. NEW CONCRETE PAD
7. VENT FOR BOILER (REMOVED)
8. PIPE COLUMN
9. TELEPHONE BOOTH
10. FIN TUBE RADIATOR TYP.
11. BASEMENT ENTRY BULKHEAD
12. BUILT–IN CABINETRY
13. GLAZED CERAMIC TILE HEARTH
14. ATTIC ACCESS HATCH ABOVE
15. BUILT–IN DESK
16. BUILT–IN SHELVING
17. WOOD BENCH
18. EXPOSURE CASE
19. BLUEPRINT EQUIPMENT
20. DARKROOM SINK
21. HIGH EFFICIENCY BOILERS
22. VAULT
23. GLAZED PARTITION

SCALE A 4 0 4 8
SCALE OF FEET

1 / A1.3 QUINCY MINE OFFICE – ATTIC FLOOR PLAN
SCALE A

NOT FOR CONSTRUCTION

DESIGNED: LHM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
DRAWN: SH	A1.3	PART 1–EXISTING CONDITIONS ATTIC FLOOR PLAN	X / XX
TECH. REVIEW: EMH			PMIS/PKG NO. 237234
DATE: 11/1/2019		QUINCY MINE OFFICE KEWEENAW NATIONAL HISTORICAL PARK	SHEET 5 OF 9



SCALE A

4 0 4 8

SCALE OF FEET

1 / A2.0 QUINCY MINE OFFICE – NORTH ELEVATION

SCALE A

NOT FOR CONSTRUCTION

DESIGNED: LHM	SUB SHEET NO. A2.0
DRAWN: SH	
TECH. REVIEW: EMH	
DATE: 11/1/2019	

TITLE OF SHEET
PART 1–EXISTING CONDITIONS
NORTH ELEVATION

QUINCY MINE OFFICE
KEWEENAW NATIONAL HISTORICAL PARK

DRAWING NO. X / XX

PMIS/PKG NO. 237234

SHEET 6 OF 9

4/30/19 00:13 SUSIESCOMP R22 N:\AA PROJECTS\2018\2018590 NPS KEWE HSR (MB)\BIM\ACAD\ARCH\QMO\QMO EX ELEVATIONS.DWG XREFS: N:\AA PROJECTS\2018\2018590 NPS KEWE HSR (MB)\BIM\ACAD\BASES\XA-QUINCYTITLEBLOCK.DWG;

4/30/19 00:13 SUSIESCOMP R22 N:\AA PROJECTS\2018\2018590 NPS KEWE HSR (MB)\BIM\ACAD\BASES\XA-QUINCYTITLEBLOCK.DWG;
XREFS: N:\AA PROJECTS\2018\2018590 NPS KEWE HSR (MB)\BIM\ACAD\ARCH\QMO\QMO EX ELEVATIONS.DWG



SCALE A

4 0 4 8

SCALE OF FEET

1 / A2.1 QUINCY MINE OFFICE – EAST ELEVATION

SCALE A

NOT FOR CONSTRUCTION

DESIGNED: LHM	SUB SHEET NO. A2.1
CADD SH	
TECH. REVIEW: EMH	
DATE: 11/1/2019	

TITLE OF SHEET

PART 1–EXISTING CONDITIONS EAST ELEVATION

QUINCY MINE OFFICE
KEWEENAW NATIONAL HISTORICAL PARK

DRAWING NO. X / XX

PMIS/PKG NO. 237234

SHEET 7 OF 9



SCALE A

4 0 4 8

SCALE OF FEET

1 / A2.2 QUINCY MINE OFFICE – SOUTH ELEVATION

SCALE A

NOT FOR CONSTRUCTION

DESIGNED: LHM	SUB SHEET NO. A2.2
CADD SH	TITLE OF SHEET: PART 1–EXISTING CONDITIONS SOUTH ELEVATION
TECH. REVIEW: EMH	QUINCY MINE OFFICE KEWEENAW NATIONAL HISTORICAL PARK
DATE: 11/1/2019	DRAWING NO. X XX
	PMIS/PKG NO. 237234
	SHEET 8 OF 9

4/30/19 00:13 SUSIESCOMP R22 N:\AA PROJECTS\2018\2018590 NPS KEWE HSR (MB)\BIM\ACAD\ARCH\QMO\QMO EX ELEVATIONS.DWG XREFS: N:\AA PROJECTS\2018\2018590 NPS KEWE HSR (MB)\BIM\ACAD\BASES\XA-QUINCYTITLEBLOCK.DWG;



SCALE A 4 0 4 8
SCALE OF FEET

1 / A2.3 QUINCY MINE OFFICE – WEST ELEVATION
SCALE A

NOT FOR CONSTRUCTION

DESIGNED: LHM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
CADD SH	A2.3	PART 1–EXISTING CONDITIONS WEST ELEVATION	X XX
TECH. REVIEW: EMH		QUINCY MINE OFFICE KEWEENAW NATIONAL HISTORICAL PARK	PMIS/PKG NO. 237234
DATE: 11/1/2019			SHEET 9 OF 9

4/30/19 00:13 SUSIESCOMP R22 N:\AA PROJECTS\2018\2018590 NPS KEWE HSR (MB)\BIM\ACAD\ARCH\QMO\QMO EX ELEVATIONS.DWG XREFS: N:\AA PROJECTS\2018\2018590 NPS KEWE HSR (MB)\BIM\ACAD\BASES\XA-QUINCYTITLEBLOCK.DWG;

Appendix E - Hazardous Materials Assessment

LANDMARK ENVIRONMENTAL, INC.

December 12, 2018

Ms. Laine McLaughlin
Anderson Hallas Architects, PC
715 14th Street
Golden, Colorado 80401
lainemclaughlin@andarch.com

Subject: **Environmental Survey Findings - Quincy Mine Office, 49445 US-41, Hancock, Michigan 49930 – Keweenaw National Historical Park. Landmark Project No. 18088.001.001.**

Dear Ms. McLaughlin:

Landmark Environmental, Inc. (Landmark) has completed an environmental survey for asbestos-containing material (ACM), lead-containing paint (LCP)/lead-based paint (LBP), and biological hazards at the Quincy Mine Office located within Keweenaw National Historical Park at 49445 US-41, Hancock, Michigan 49930 (the Site). This survey was performed in support of the Historic Structures Report (HSR) that Anderson Hallas Architects, PC is preparing.

Scope of Work

Landmark's Industrial Hygienist and United States (U.S.) Environmental Protection Agency (EPA) Asbestos Hazard Emergency Response Act (AHERA) and Michigan Certified Asbestos Building Inspector reviewed historical information from the Site and surveyed the Site for ACM, LCP/LBP, and biological hazards. Fieldwork was performed on October 31, 2018.

Asbestos-Containing Materials Survey

Landmark reviewed the Environmental Report dated January 9, 2001 from the U.P. Engineers & Architects, Inc. (UPEA) which contained information about asbestos within the structure. This report indicated that friable asbestos insulation was located in the attic and friable asbestos insulation was associated with piping on the radiant heating system. This report also indicated that asbestos was not detected in the plaster walls and ceiling tiles.

Sampling of suspect ACM at the Site was performed in accordance with EPA AHERA and U.S. Occupational Safety and Health Administration (OSHA) Chapter 29 Code of Federal Regulations (CFR) 1926.1101 requirements as well as generally accepted industry standards. This screening level survey was performed to gain preliminary information related to asbestos abatement costs

for pending suggested treatments within the structure as part of the HSR process. Additional sampling may be required prior to a scheduled renovation or demolition of components of the structure.

Landmark collected confirmatory samples of the plaster and ceiling tiles to verify the UPEA results that the plasters and ceiling tiles do not contain asbestos. Landmark additionally collected samples from carpet adhesive, tar felt material in the attic, floor tile and adhesive, sealant on fiberglass insulation, thin compound coating on brick walls, sheet flooring adhesive and insulation associated with abandoned electrical wiring.

The bulk suspect ACM samples were submitted to Reservoirs Environmental, Inc. (REI), located in Denver, Colorado. REI is a National Voluntary Laboratory Accreditation Program accredited laboratory, which is also accredited by the American Industrial Hygiene Association. The samples were analyzed using Polarized Light Microscopy to determine asbestos type and percent. A copy of the analytical report is included in Attachment A.

Asbestos Regulatory Criteria

Applicable asbestos regulations define ACM as material containing greater than one percent asbestos by weight, volume or surface area, and distinguishes between friable and non-friable forms of ACM. Friable ACMs can be crumbled or reduced to powder by hand pressure when dry, while non-friable materials cannot. Regulations stipulate that if any one sample of a homogenous material contains greater than one percent asbestos, the entire homogenous area is considered asbestos-containing.

Asbestos Survey Findings

Landmark collected seventeen (17) bulk samples from twelve (12) different homogenous areas identified while performing the survey. No asbestos was detected in any of the samples.

A summary of confirmed ACM is below. Information related to asbestos is included in Attachment A. This data package includes a summary table, an ACM inspection form of all sampled materials including photographs, a figure of the locations of the samples, and the laboratory results.

Lead-Containing Paint and Lead-Based Paint Survey

UPEA collected swab samples in 2001 and identified LBP on all painted surfaces on the 1st and 2nd floors of the building. Swab samples did not identify LBP in the basement. No samples were collected from the attic because there were no painted surfaces observed. Swab samples only identify lead in the surface paint and cannot identify lead in other layers of paint below the surface.

LCP/LBP Regulatory Criteria

LBP is defined as paint containing 0.5 percent lead by weight or 1.0 milligram per square centimeter (mg/cm^2) by both the EPA and Department of Housing and Urban Development (HUD). LCP is paint containing any detectable concentrations of lead.

The EPA and HUD regulate LBP abatement activities in target housing and child occupied facilities. The EPA also developed a program for renovation activities in child-occupied / target housing and child-care facilities called the Lead Renovation, Repair, and Paint Rule. This rule requires that firms performing renovation, repair, and painting projects that disturb lead-based paint in homes, child care facilities and pre-schools built before 1978 have their firm certified by EPA (or an EPA authorized state), use certified renovators who are trained by EPA-approved training providers and follow lead-safe work practices. The surveyed buildings is not considered a child-occupied facility; therefore, these rules do not apply.

The OSHA lead in construction standard 29 CFR 1926.62 addresses requirements for sites where the employer has reason to believe that any employee may be exposed to lead in excess of OSHA's action level of 30 micrograms per cubic meter (30 µg/m3) of air over an 8-hour time weighted average. The OSHA standard applies to all construction activities that may impact LCP.

LCP/LBP Findings

Landmark only collected two paint chip samples from damaged paint in the basement. Both of the collected paint chips analyzed by the laboratory were identified as LCP. The laboratory results and field form are included in Appendix B.

The remaining painted surfaces on the 1st and 2nd floors were in good condition and have been previously identified as LBP. Due to the paint history in the building all painted surfaces should be treated like LCP.

Observations of Biological Hazards

Landmark conducted limited observations for biological hazards during the Site walk through. The Site is currently active, operating as office space. There were no observations of any evidence of rodent infestations, water intrusion, or mold growth. If rodents are encountered, it is recommended that the National Park Service's Hantavirus Worker Protection Guidelines (Attachment C) be followed.

Conclusions and Recommendations

Previously identified materials that contained asbestos were removed prior to Landmark's site visit. None of the materials sampled by Landmark contained asbestos. Materials that were sampled, analyzed, and confirmed not to contain asbestos may also require additional sampling to meet minimum sample requirements. This was a screening level survey only and did not meet typical sample minimums on some materials. This survey also did not include all suspect materials or destructive testing. There may be additional materials that require sampling before renovation or demolition activities. Inspection activities were limited to the main structure on the Site.

Renovation activities that will impact LBP/LCP will require OSHA trained workers and safety programs. Personal protective equipment will be required to handle these materials until a negative exposure assessment is completed that shows work activities do not result in exposures above the OSHA permissible exposure limit. Additionally, an appropriate waste management plan should be developed for the disposal of these materials. LBP/LCP in good condition that will not be impacted by renovation activities can be left in the building.

Biological hazards were not observed during the Site survey; however, these conditions can change over time. It is recommended that the Hantavirus Guidelines, included in Attachment C, be followed by personnel who encounter areas of rodent habitation/nesting and/or localized accumulations of feces. These workers must be trained on applicable National Park Service Guidance, related hazards, and exposure prevention.

Limitations

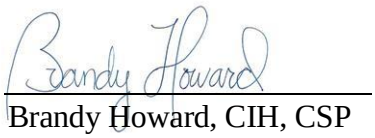
It should be noted that no destructive investigation of wall cavities or below grade structures was performed. In the event of demolition or renovation of these areas, asbestos could be discovered that was not identified during this investigation. Additionally, as this was a screening level survey to support high-level decision making regarding the costs of potential abatement during potential renovations projects, not all suspect materials were sampled, and material sample minimums were not achieved in all cases. Additional sampling will be required before demolition or renovations activities occur.

Landmark performed this asbestos, lead paint, and biological hazard survey in a manner consistent with the level of care and expertise exercised by members of the asbestos, lead paint, and biological hazard inspection and assessment profession. Landmark does not imply or guarantee that every suspect ACM, LCP/LBP, or biological hazard on or in the building has been identified or sampled. Conditions described are accounts at the time of the survey and biological hazard conditions can vary over time.

Landmark appreciates the opportunity to provide our services on this important project. Please feel free to contact us if you have any questions or if we can provide any additional assistance.

Respectfully,

Landmark Environmental, Inc.



Brandy Howard, CIH, CSP
Project Manager

Attachment A – Asbestos Data
Attachment B – Lead Paint Data
Attachment C – National Park Service – Hantavirus Risk Reduction – Worker Protection

Attachment A

ASBESTOS DATA

LANDMARK ENVIRONMENTAL INC.
7881 Shaffer Parkway
Littleton, Colorado 80127 ♦ 720-283-8974 ♦ Fax: 720-283-8666

ASBESTOS BULK SAMPLE LOCATION LOG			
PROJECT NAME:	NPS MWR_KEWE_Historical Structures Rpts	**LANDMARK PROJECT NUMBER:**	18088.001.001
LOCATION:	Quincy Office	**INSPECTOR:**	Don Milner
CLIENT:	Mundus Bishop	**DATE:**	10/31/2018

Sample ID	Homogenous Material Description	Sample Description	Sample Location	Friability Type	Material Type	Material Condition	Approximate Quantity	Laboratory Analytical Results (RES 421885-1)
Q-CA01-01	Carpet Adhesive	Gold brittle carpet adhesive	Room 105, S wall, S side of radiator	Type II, Non-Friable	Misc.	Good	N/A	None Detected
Q-CA01-02	Carpet Adhesive	Gold brittle carpet adhesive	Room 115, SE corner	Type II, Non-Friable	Misc.	Good	N/A	None Detected
Q-CK01-01	Caulking	White brittle caulk between back porch buildout and rock exterior	Room 109, SE corner, 6' up	Type II, Non-Friable	Misc.	Good	N/A	None Detected
Q-FM01-01	Tar Felt Material	Black tar felt material on ceiling	Attic, loose hanging piece, approximately 6' N of entry	Type II, Non-Friable	Misc.	Fair	N/A	None Detected
Q-FTC01-01	Floor Tile Compound	Tan mottled floor tile and yellow adhesive	Room 114, E wall, approximate center	Type I, Non-Friable	Misc.	Good	N/A	None Detected
Q-LIP01-01	Lay In Panels (Ceiling)	White lay-in ceiling panel with perpendicular, medium/long fissures and small pinholes	Room 104, 2' from N wall, just W of N entry	Friable	Misc.	Good	N/A	None Detected
Q-LIP02-01	Lay In Panels (Ceiling)	White pressed wood lay-in ceiling panel	Room 107, W wall, above S side of radiator	Friable	Misc.	Good	N/A	None Detected
Q-PL01-01	Plaster	Gray granular plaster in basement	Room 002, loose piece on ground near NW corner	Friable	Surfacing	Poor	N/A	None Detected
Q-PL02-01	Plaster	White skim coat over gray granular plaster	Stairs, at top of main stair from basement at damaged area on wall	Friable	Surfacing	Good	N/A	None Detected
Q-PL02-02	Plaster	White skim coat over gray granular plaster	Room 103, SE corner at damaged area on wall	Friable	Surfacing	Good	N/A	None Detected
Q-PL02-03	Plaster	White skim coat over gray granular plaster	Room 209, E wall, 3' from N	Friable	Surfacing	Good	N/A	None Detected
Q-PS01-01	Pipe Sealant	White pliable pipe sealant associated with fiberglass insulation		Type II, Non-Friable	Misc.	Good	N/A	None Detected
Q-SC01-01	Skim Coat	White plaster skim coat over brick walls	Room 001, S wall, 2' from E wall at damaged area	Type II, Non-Friable	Surfacing	Poor	N/A	None Detected
Q-SC01-02	Skim Coat	White plaster skim coat over brick walls	Room 004, N wall, 3' from W	Type II, Non-Friable	Surfacing	Poor	N/A	None Detected
Q-SC01-03	Skim Coat	White plaster skim coat over brick walls	Room 008, S wall, 3' from E	Type II, Non-Friable	Surfacing	Poor	N/A	None Detected
Q-SFA01-01	Sheet Flooring	Tan brittle sheet flooring associated with mesh cloth	Room 106, SE corner	Type II, Non-Friable	Misc.	Fair	N/A	None Detected

Sample ID	Homogenous Material Description	Sample Description	Sample Location	Friability Type	Material Type	Material Condition	Approximate Quantity	Laboratory Analytical Results (RES 421885-1)
Q-WI01-01	Wire Insulation	Black cloth wrap wire insulation associated with abandoned wiring	Room 203, loose hanging piece approximately 6' n of entry	Friable	Misc.	Fair	N/A	None Detected

LANDMARK ENVIRONMENTAL INC.
7881 Shaffer Parkway
Littleton, Colorado 80127 ♦ 720-283-8974 ♦ Fax: 720-283-8666

Homogeneous Area Building Inspection Form

Client: **Mundus Bishop**	Project: **NPS KEWE Quincy Office**	Date: **10-31-18**
		Inspector(s): **Don Milner**

Homogeneous Material Description:			**Photo**
Carpet Adhesive			
Material Code:	**Material Sequence:**	**Size:**	
CA	01		
Color:	**Pattern / Texture:**	**Associated Materials:**	
Gold	Brittle	Carpet	
Quantity (SF/LF/EA):	**Material Type:**	**Friable:**	
	M	II	
Condition:	**Disturbance Potential:**	**Assessment Category:**	
G	L	N/A	
Material Notes:			

Sample Number:	Room #	Sample Location Description:	Analytical Results:
Q -CA01-01	105	S wall, S side of radiator	ND
Q-CA01-02	115	SE corner	ND

Homogeneous Material Description:			**Photo**
Caulk			
Material Code:	**Material Sequence:**	**Size:**	
CK	01		
Color:	**Pattern / Texture:**	**Associated Materials:**	
White	Brittle	Between back porch buildout and rock exterior	
Quantity (SF/LF/EA):	**Material Type:**	**Friable:**	
	M	II	
Condition:	**Disturbance Potential:**	**Assessment Category:**	
G	L	N/A	
Material Notes:			

Sample Number:	Room #	Sample Location Description:	Analytical Results:
Q-CK01-01	109.	SE corner, 6 ft. up	ND

Material Type:
- Surfacing (S)
- Texturing (T)
- Miscellaneous (M)

Friability:
- Friable (F)
- Type I Non-Friable (I)
- Type II Non-Friable (II)

Condition:
- Good (G)
- Fair (F)
- Poor (P)

Disturbance Potential:
- Low (L)
- Moderate (M)
- High (H)

Assessment Categories:
1. Damaged or significantly damaged TSI ACM
2. Damaged friable surfacing ACM
3. Significantly damaged friable surfacing ACM
4. Damaged or significantly damaged friable miscellaneous ACM
5. ACBM with potential for damage
6. ACBM with potential for significant damage
7. Any remaining friable ACBM of friable suspected ACBM

LANDMARK ENVIRONMENTAL INC.
7881 Shaffer Parkway
Littleton, Colorado 80127 ♦ 720-283-8974 ♦ Fax: 720-283-8666

Homogeneous Area Building Inspection Form

Client: **Mundus Bishop**	Project: **NPS KEWE Quincy Office**	Date: **10-31-18**
		Inspector(s): **Don Milner**

Homogeneous Material Description:			**Photo**
Tar Felt Material			
Material Code:	**Material Sequence:**	**Size:**	
FM	01		
Color:	**Pattern / Texture:**	**Associated Materials:**	
Black	Tar felt	On ceiling	
Quantity (SF/LF/EA):	**Material Type:**	**Friable:**	
	M	II	
Condition:	**Disturbance Potential:**	**Assessment Category:**	
F	L	N/A	
Material Notes:			

Sample Number:	**Room #**	**Sample Location Description:**	**Analytical Results:**
Q-FM01-01	Attic	Loose hanging piece approx. 6' N of entry	ND

Homogeneous Material Description:			**Photo**
Floor Tile and Adhesive			
Material Code:	**Material Sequence:**	**Size:**	
FTC	01	12" x 12"	
Color:	**Pattern / Texture:**	**Associated Materials:**	
Tan	Mottled	Yellow adhesive	
Quantity (SF/LF/EA):	**Material Type:**	**Friable:**	
	M	I	
Condition:	**Disturbance Potential:**	**Assessment Category:**	
G	M	N/A	
Material Notes:			

Sample Number:	**Room #**	**Sample Location Description:**	**Analytical Results:**
Q-FTC01-01	114	E wall, approximate center	

Material Type:
- Surfacing (S)
- Texturing (T)
- Miscellaneous (M)

Friability:
- Friable (F)
- Type I Non-Friable (I)
- Type II Non-Friable (II)

Condition:
- Good (G)
- Fair (F)
- Poor (P)

Disturbance Potential:
- Low (L)
- Moderate (M)
- High (H)

Assessment Categories:
1. Damaged or significantly damaged TSI ACM
2. Damaged friable surfacing ACM
3. Significantly damaged friable surfacing ACM
4. Damaged or significantly damaged friable miscellaneous ACM
5. ACBM with potential for damage
6. ACBM with potential for significant damage
7. Any remaining friable ACBM of friable suspected ACBM

LANDMARK ENVIRONMENTAL INC.
7881 Shaffer Parkway
Littleton, Colorado 80127 ♦ 720-283-8974 ♦ Fax: 720-283-8666

Homogeneous Area Building Inspection Form

Client: **Mundus Bishop**	Project: **NPS KEWE Quincy Office**	Date: **10-31-18**
		Inspector(s): **Don Milner**

Homogeneous Material Description:			**Photo**
Lay-in Ceiling Panel			
Material Code:	**Material Sequence:**	**Size:**	
LIP	01		
Color:	**Pattern / Texture:**	**Associated Materials:**	
White	Perpendicular, medium/long fissures and small pinholes		
Quantity (SF/LF/EA):	**Material Type:**	**Friable:**	
	M	F	
Condition:	**Disturbance Potential:**	**Assessment Category:**	
G	L	7	
Material Notes:			

Sample Number:	Room #	Sample Location Description:	Analytical Results:
Q-LIP01-01	104	2' f N wall, just W of N entry	ND

Homogeneous Material Description:			**Photo**
Lay-in Ceiling Panel			
Material Code:	**Material Sequence:**	**Size:**	
LIP	02		
Color:	**Pattern / Texture:**	**Associated Materials:**	
White	Pressed wood		
Quantity (SF/LF/EA):	**Material Type:**	**Friable:**	
	M	F	
Condition:	**Disturbance Potential:**	**Assessment Category:**	
G	L	7	
Material Notes:			

Sample Number:	Room #	Sample Location Description:	Analytical Results:
Q-LIP02-01	107	W wall, above S side of radiator	ND

Material Type:
- Surfacing (S)
- Texturing (T)
- Miscellaneous (M)

Friability:
- Friable (F)
- Type I Non-Friable (I)
- Type II Non-Friable (II)

Condition:
- Good (G)
- Fair (F)
- Poor (P)

Disturbance Potential:
- Low (L)
- Moderate (M)
- High (H)

Assessment Categories:
1. Damaged or significantly damaged TSI ACM
2. Damaged friable surfacing ACM
3. Significantly damaged friable surfacing ACM
4. Damaged or significantly damaged friable miscellaneous ACM
5. ACBM with potential for damage
6. ACBM with potential for significant damage
7. Any remaining friable ACBM of friable suspected ACBM

LANDMARK ENVIRONMENTAL INC.
7881 Shaffer Parkway
Littleton, Colorado 80127 ♦ 720-283-8974 ♦ Fax: 720-283-8666

Homogeneous Area Building Inspection Form

Client: **Mundus Bishop**	Project: **NPS KEWE Quincy Office**	Date: **10-31-18**
		Inspector(s): **Don Milner**

Homogeneous Material Description:			**Photo**
Plaster			
Material Code:	**Material Sequence:**	**Size:**	
PL	01		
Color:	**Pattern / Texture:**	**Associated Materials:**	
Gray	Granular	Basement	
Quantity (SF/LF/EA):	**Material Type:**	**Friable:**	
	S	F	
Condition:	**Disturbance Potential:**	**Assessment Category:**	
P	M	5	
Material Notes:			

Sample Number:	Room #	Sample Location Description:	Analytical Results:
Q-PL01-01	002	Loose piece on ground near NW corner	ND

Homogeneous Material Description:			**Photo**
Plaster			
Material Code:	**Material Sequence:**	**Size:**	
PL	02		
Color:	**Pattern / Texture:**	**Associated Materials:**	
White	Skim coat over gray granular		
Quantity (SF/LF/EA):	**Material Type:**	**Friable:**	
	S	F	
Condition:	**Disturbance Potential:**	**Assessment Category:**	
G	M	5	
Material Notes:			

Sample Number:	Room #:	Sample Location Description	Analytical Results:
Q-PL02-01	Stairs	At top of main stair from basement at damaged area on wall	ND
Q-PL02-02	103	SE corner at damaged area on wall	ND
Q-PL02-03	209	E wall, 3;' from N	ND

Material Type:
- Surfacing (S)
- Texturing (T)
- Miscellaneous (M)

Friability:
- Friable (F)
- Type I Non-Friable (I)
- Type II Non-Friable (II)

Condition:
- Good (G)
- Fair (F)
- Poor (P)

Disturbance Potential:
- Low (L)
- Moderate (M)
- High (H)

Assessment Categories:
1. Damaged or significantly damaged TSI ACM
2. Damaged friable surfacing ACM
3. Significantly damaged friable surfacing ACM
4. Damaged or significantly damaged friable miscellaneous ACM
5. ACBM with potential for damage
6. ACBM with potential for significant damage
7. Any remaining friable ACBM of friable suspected ACBM

LANDMARK ENVIRONMENTAL INC.
7881 Shaffer Parkway
Littleton, Colorado 80127 ♦ 720-283-8974 ♦ Fax: 720-283-8666

Homogeneous Area Building Inspection Form

Client: **Mundus Bishop**	Project: **NPS KEWE Quincy Office**	Date: **10-31-18**
		Inspector(s): **Don Milner**

Homogeneous Material Description:			**Photo**
Pipe Sealant			
Material Code:	**Material Sequence:**	**Size:**	
PS	01		
Color:	**Pattern / Texture:**	**Associated Materials:**	
White	pliable	Fiberglass insulation	
Quantity (SF/LF/EA):	**Material Type:**	**Friable:**	
	M	II	
Condition:	**Disturbance Potential:**	**Assessment Category:**	
G	L	N/A	
Material Notes:			

Sample Number:	Room #	Sample Location Description:	Analytical Results:
Q-PS01-01			

Homogeneous Material Description:			**Photo**
Skim Coat			
Material Code:	**Material Sequence:**	**Size:**	
SC	01		
Color:	**Pattern / Texture:**	**Associated Materials:**	
White	Plaster	Over brick walls	
Quantity (SF/LF/EA):	**Material Type:**	**Friable:**	
	S	II	
Condition:	**Disturbance Potential:**	**Assessment Category:**	
P	L	N/A	
Material Notes:			

Sample Number:	Room #	Sample Location Description:	Analytical Results:
Q-SC01-01	001.	S wall, 2 feet from E wall at damaged area	ND
Q-SC01-02	004	N wall, 3' from W	ND
Q-SC01-03	008	S wall, 3feet from E	ND

Material Type:
- Surfacing (S)
- Texturing (T)
- Miscellaneous (M)

Friability:
- Friable (F)
- Type I Non-Friable (I)
- Type II Non-Friable (II)

Condition:
- Good (G)
- Fair (F)
- Poor (P)

Disturbance Potential:
- Low (L)
- Moderate (M)
- High (H)

Assessment Categories:
1. Damaged or significantly damaged TSI ACM
2. Damaged friable surfacing ACM
3. Significantly damaged friable surfacing ACM
4. Damaged or significantly damaged friable miscellaneous ACM
5. ACBM with potential for damage
6. ACBM with potential for significant damage
7. Any remaining friable ACBM of friable suspected ACBM

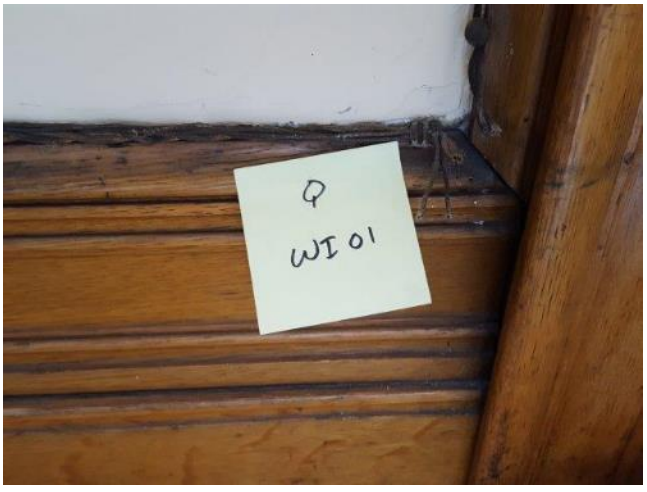
LANDMARK ENVIRONMENTAL INC.
7881 Shaffer Parkway
Littleton, Colorado 80127 ♦ 720-283-8974 ♦ Fax: 720-283-8666

Homogeneous Area Building Inspection Form

Client: **Mundus Bishop**	Project: **NPS KEWE Quincy Office**	Date: **10-31-18**
		Inspector(s): **Don Milner**

Homogeneous Material Description:			**Photo**
Sheet Flooring			
Material Code:	**Material Sequence:**	**Size:**	
SFA	01		
Color:	**Pattern / Texture:**	**Associated Materials:**	
Tan	Brittle	Mesh cloth	
Quantity (SF/LF/EA):	**Material Type:**	**Friable:**	
	M	II	
Condition:	**Disturbance Potential:**	**Assessment Category:**	
F	M	N/A	
Material Notes:			
Painted black			

Sample Number:	**Room #**	**Sample Location Description:**	**Analytical Results:**
Q-SFA01-01	106	SE corner	ND

Homogeneous Material Description:			**Photo**
Wire Insulation			
Material Code:	**Material Sequence:**	**Size:**	
WI	01		
Color:	**Pattern / Texture:**	**Associated Materials:**	
Black	Cloth wrap	Abandoned wiring	
Quantity (SF/LF/EA):	**Material Type:**	**Friable:**	
	M	F	
Condition:	**Disturbance Potential:**	**Assessment Category:**	
F	L	7	
Material Notes:			

Sample Number:	**Room #**	**Sample Location Description:**	**Analytical Results:**
Q-WI01-01	203	Loose hanging piece approx. 6’ N of entry	

Material Type:
- Surfacing (S)
- Texturing (T)
- Miscellaneous (M)

Friability:
- Friable (F)
- Type I Non-Friable (I)
- Type II Non-Friable (II)

Condition:
- Good (G)
- Fair (F)
- Poor (P)

Disturbance Potential:
- Low (L)
- Moderate (M)
- High (H)

Assessment Categories:
1. Damaged or significantly damaged TSI ACM
2. Damaged friable surfacing ACM
3. Significantly damaged friable surfacing ACM
4. Damaged or significantly damaged friable miscellaneous ACM
5. ACBM with potential for damage
6. ACBM with potential for significant damage
7. Any remaining friable ACBM of friable suspected ACBM

Reservoirs Environmental, Inc.

November 13, 2018

Subcontract Number: **NA**
Laboratory Report: **RES 421885-1**
Project # / P.O. # **18088.001.001**
Project Description: **KEWE Quincy**

Brandy Howard
Landmark Environmental, Inc.
7881 Shaffer Parkway
Littleton CO 80217

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 421885-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Brett S. Colbert for

Jeanne Spencer
President

RESERVOIRS ENVIRONMENTAL INC.

NVLAP Lab Code 101896-0

TABLE: PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: **RES 421885-1**
Client: **Landmark Environmental, Inc.**
Client Project Number / P.O.: **18088.001.001**
Client Project Description: **KEWE Quincy**
Date Samples Received: **November 05, 2018**
Method: **EPA 600/R-93/116 - Short Report, Bulk**
Turnaround: **Standard**
Date Samples Analyzed: **November 12, 2018**

ND=None Detected
TR=Trace, <1% Visual Estimate
Trem/Act=Tremolite/Actinolite

Client Sample Number	Lab ID Number	LAYER	Physical Description	Sub Part (%)	Asbestos Content: Mineral	Asbestos Content: Visual Estimate (%)	Non Asbestos Fibrous Components (%)	Non-Fibrous Components (%)
Q-CA01-01	EM 2197278	A	Tan adhesive	100		**ND**	0	100
Q-CA01-02	EM 2197279	A	Tan adhesive	100		**ND**	0	100
Q-CK01-01	EM 2197280	A	Gray resinous material	40		**ND**	0	100
		B	White resinous material w/ gray/tan paint	60		**ND**	0	100
Q-FM01-01	EM 2197281	A	Black felt	100		**ND**	75	25
Q-FTC01-01	EM 2197282	A	Beige/white tile	100		**ND**	0	100
Q-LIP01-01	EM 2197283	A	Gray/white ceiling tile	100		**ND**	65	35
Q-LIP02-01	EM 2197284	A	Tan/white ceiling tile	100		**ND**	70	30
Q-PL01-01	EM 2197285	A	Gray granular plaster w/ green paint	100		**ND**	0	100
Q-PL02-01	EM 2197286	A	White texture w/ off white paint	3		**ND**	0	100
		B	White plaster w/ brown paint	10		**ND**	0	100
		C	Gray granular plaster	87		**ND**	0	100
Q-PL02-02	EM 2197287	A	Gray granular plaster	10		**ND**	0	100
		B	White plaster w/ green/multi-colored paint	90		**ND**	0	100

TEM Analysis recommended for organically bound material (i.e. floor tile) if PLM results are <1%.

RESERVOIRS ENVIRONMENTAL INC.

NVLAP Lab Code 101896-0

TABLE: PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME

RES Job Number: **RES 421885-1**
Client: **Landmark Environmental, Inc.**
Client Project Number / P.O.: **18088.001.001**
Client Project Description: **KEWE Quincy**
Date Samples Received: **November 05, 2018**
Method: **EPA 600/R-93/116 - Short Report, Bulk**
Turnaround: **Standard**
Date Samples Analyzed: **November 12, 2018**

ND=None Detected
TR=Trace, <1% Visual Estimate
Trem/Act=Tremolite/Actinolite

Client Sample Number	Lab ID Number	LAYER	Physical Description	Sub Part (%)	Asbestos Content: Mineral	Asbestos Content: Visual Estimate (%)	Non Asbestos Fibrous Components (%)	Non-Fibrous Components (%)
Q-PL02-03	EM 2197288	A	Gray granular plaster	25		ND	0	100
		B	White plaster w/ green paint	75		ND	0	100
Q-PS01-01	EM 2197289	A	White/silver wrap	5		ND	40	60
		B	Brown insulation	30		ND	97	3
		C	White sealant	65		ND	0	100
Q-SC01-01	EM 2197290	A	Red granular material	10		ND	0	100
		B	White plaster	90		ND	0	100
Q-SC01-02	EM 2197291	A	Red granular material	5		ND	0	100
		B	White plaster	95		ND	0	100
Q-SC01-03	EM 2197292	A	Red granular material	5		ND	0	100
		B	White plaster	95		ND	0	100
Q-SFA01-01	EM 2197293	A	Tan fibrous woven material	10		ND	95	5
		B	Brown tile	90		ND	40	60
Q-WI01-01	EM 2197294	A	Tan/black wire insulation	100		ND	40	60

TEM Analysis recommended for organically bound material (i.e. floor tile) if PLM results are <1%.

Tyler Hutchinson
Analyst

Liu Wenlong
Data QA

Due Date:_____
Due Time:_____

Reservoirs Environmental, Inc.

RES 421885

Pager : 303-509-2098

INVOICE TO: (IF DIFFERENT)

Company:	Landmark Environmental, Inc.
Address:	7881 Shaffer Parkway
	Littleton, CO 80127

Company:	Same
Address:	

CONTACT INFORMATION:

Contact:	Brandy Howard
Phone:	720-3601509
Fax:	
Cell/pager:	720-878-6475

Contact:	Don Milner
Phone:	720-360-1514
Fax:	
Cell/pager:	303-205-8831

Project Number and/or P.O. #: 18088.001.001
Project Description/Location: KEWE Quincy

Final Data Deliverable Email Address: bhoward@landmarkenviro.com
dmilner@landmarkenviro.com jduffy@landmarkenviro.com

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm

PLM / PCM / TEM ____ RUSH (Same Day) ___ PRIORITY (Next Day) X STANDARD
(Rush PCM = 2hr, TEM = 6hr.)

CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm

Metal(s) / Dust ___ RUSH ___ 24 hr. ___3-5 Day
RCRA 8 / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___10 day
Organics ___ 24 hr. ___ 3 day ___5 Day

****Prior notification is required for RUSH turnarounds.****

MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm

E.coli O157:H7, Coliforms, S.aureus ___ 24 hr. ___2 Day ___3-5 Day
Salmonella, Listeria, E.coli, APC, Y & M ___ 48 Hr. ___3-5 Day
Mold ___ RUSH ___24 Hr ___48 Hr ___3 Day ___5 Day

****Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.****

REQUESTED ANALYSIS

Client sample ID number (Sample ID's must be unique)	PLM - Short report, Long report, Point	TEM - AHERA, Level II, 7402, ISO, +/-, Semi-quant, Micro-Quant,	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s)	ORGANICS - METH	MICROBIOLOGY: Salmonella: +/-	MICROBIOLOGY: E.coli O157:H7: +/-	MICROBIOLOGY: Listeria: +/-	MICROBIOLOGY: Aerobic Plate Count: +/- or Quantification	MICROBIOLOGY: E.coli: +/- or Quantification	MICROBIOLOGY: Coliforms: +/- or Quantification	MICROBIOLOGY: S.aureus: +/- or Quantification	MICROBIOLOGY: Y & M: +/- or Quantification	MICROBIOLOGY: Mold: +/-, Identification, Quantification	SAMPLER'S INITIALS OR OTHER NOTES
1 Q-CA01-01	X															
2 Q-CA01-02	X															
3 Q-CK01-01	X															
4 Q-FM01-01	X															
5 Q-FTC01-01	X															
6 Q-LIP01-01	X															
7 Q-LIP02-01	X															
8 Q-PL01-01	X															
9 Q-PL02-01	X															
10 Q-PL02-02	X															

VALID MATRIX CODES

Air = A	Bulk = B
Dust = D	Paint = P
Soil = S	Wipe = W
Swab = SW	F = Food
Drinking Water = DW	Waste Water = WW
O = Other	

****ASTM E1792 approved wipe media only****

Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p

LAB NOTES:

EM Number (Laboratory Use Only)

21677899801234567

Number of samples received: _____ (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: Don Milner Date/Time: 11-2-18 12:20

Sample Condition: On Ice Yes / No | Sealed Yes / No | Intact Yes / No
Temp. (F°) _____

Laboratory Use Only
Received By: Michelle Lo Jones Date/Time: 11-5-18 12:35pm Carrier: Hand

Results:	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials
	Contact	Phone	Email	Fax	Date	Time	Initials	Contact	Phone	Email	Fax	Date	Time	Initials

REI LAB **Reservoirs Environmental, Inc.**

RES Job # 42885 Page 2 of 2

Submitted by: **Landmark Environmental, Inc**

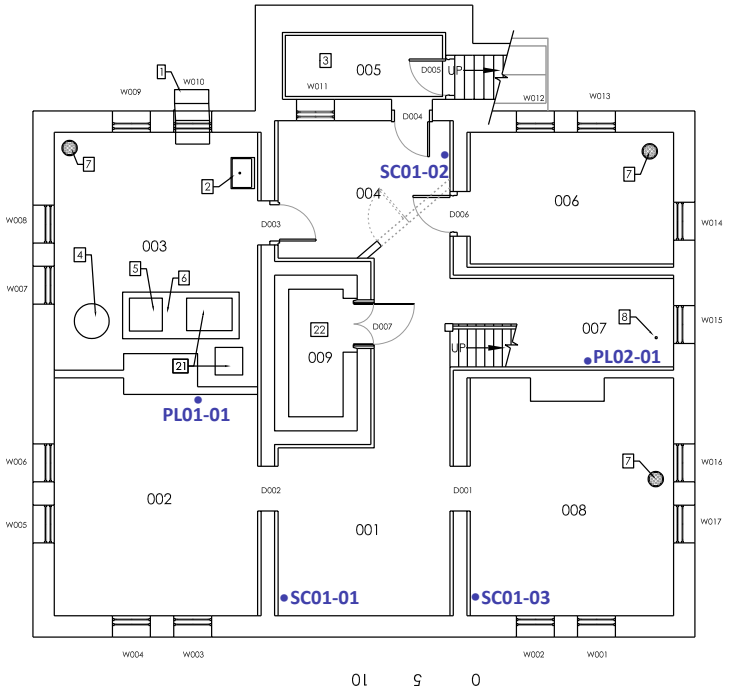
Client sample ID number (Sample ID's must be unique)		REQUESTED ANALYSIS: PLM - Short report, Long report, Point Count	TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s) _____ RCRA 8, TCLP, Welding Fume, Metals Scan	ORGANICS - METH	MICROBIOLOGY: Salmonella: +/-	MICROBIOLOGY: E.coli O157:H7: +/-	MICROBIOLOGY: Listeria: +/-	MICROBIOLOGY: Aerobic Plate Count: +/- or Quantification	MICROBIOLOGY: E.coli: +/- or Quantification	MICROBIOLOGY: Coliforms: +/- or Quantification	MICROBIOLOGY: S.aureus: +/- or Quantification	MICROBIOLOGY: Y & M: +/- or Quantification	MICROBIOLOGY: Mold: +/- or Quantification	OTHER -	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p	EM Number (Laboratory Use Only)
11	Q-PL02-03	X																				2197288 9
12	Q-PS01-01	X																				90 1
13	Q-SC01-01	X																				2
14	Q-SC01-02	X																				3
15	Q-SC01-03	X																				4
16	Q-SFA01-01	X																				
17	Q-WI01-01	X																				
18																						
19																						
20																						
21																						
22																						
23																						
24																						
25																						
26																						
27																						
28																						
29																						
30																						
31																						
32																						
33																						
34																						
35																						
36																						
37																						
38																						
39																						
40																						
41																						

VALID MATRIX CODES

Air = A	Bulk = B
Dust = D	Paint = P
Soil = S	Wipe = W
Swab = SW	F = Food
Drinking Water = DW	Waste Water = WW
O = Other	

ASTM E1792 approved wipe media only

LAB NOTES:



PLAN NORTH

BASEMENT

SCALE 3/32" = 1'

0 5 10 20 FEET

Key

- **Current Non-Detect ACM Samples**

QUINCY MINE COMPANY OFFICE

49445 US 41 HANCOCK, MICHIGAN 49930

NOTES:
1. VENT FOR BOILER
2. UTILITY SINK
3. PLYWOOD PLATFORM
4. HOT WATER HEATER
5. FURNACE
6. CONCRETE PAD
7. SUMP PUMP
8. PIPE COLUMN SUPPORT
21. BOILER
22. VAULT

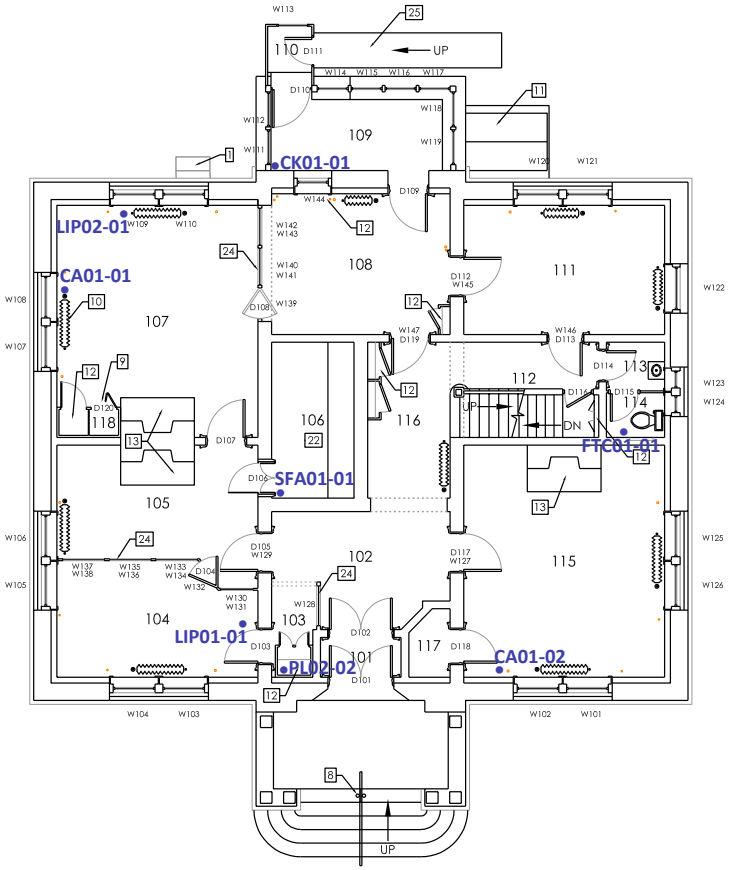
BASEMENT PLAN

EXISTING CONDITIONS

DRAWN BY: Q. PETERSON	DATE: 08/2004
REVISED BY: B. THOMPSON	DATE: 08/2005
REVISED BY: J. M. NORTON	DATE: 05/2007
REVISED BY: T. SICKLES	DATE: 05/2013
CHECKED BY:	DATE: /

SHEET NO. A - 6

SHEET 7 OF 30



PLAN NORTH

FIRST FLOOR PLAN

3/32" = 1'

SCALE 0 5 10 20 FEET

QUINCY MINE COMPANY OFFICE

49445 US 41 HANCOCK,
MICHIGAN 49930

NOTES:
1. VENT FOR BOILER
8. PIPE COLUMN
9. TELEPHONE BOOTH
10. FIN TUBE RADIATOR (TYP.)
11. BASEMENT ENTRY BULKHEAD
12. STORAGE CABINET
13. GLZD. CRMC. TILE HEARTH
22. VAULT
24. PARTITION WALL WITH GLAZING
25. WOOD RAMP

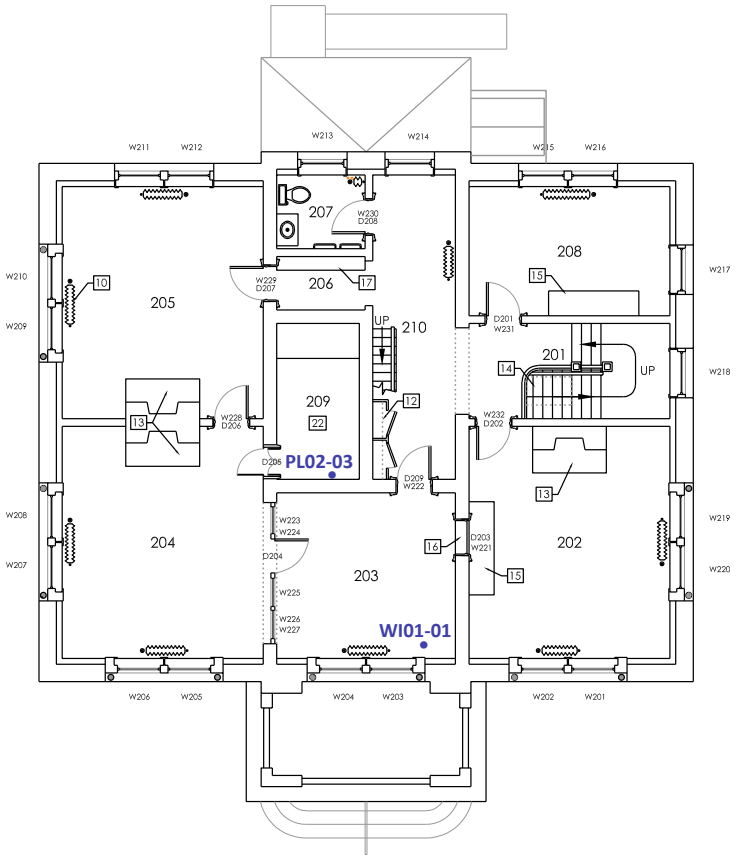
FIRST FLOOR PLAN

EXISTING CONDITIONS

DRAWN BY: Q. PETERSON	DATE: 08/2004
REVISED BY: B. THOMPSON	DATE: 08/2005
REVISED BY: J. M. NORTON	DATE: 05/2007
REVISED BY: T. SICKLES	DATE: 05/2013
CHECKED BY:	DATE:

SHEET NO. A - 7

SHEET 8 OF 30



PLAN NORTH

SECOND FLOOR PLAN

3/32" = 1'

SCALE 0 5 10 20 FEET

QUINCY MINE COMPANY OFFICE

49445 US 41 HANCOCK,
MICHIGAN 49930

NOTES:
10. Cast Iron RADIATOR (TYP.)
12. STORAGE CABINET
13. GLZD. CRMC. TILE HEARTH
14. ATTIC ACCESS HATCH ABV.
15. WOOD DESK ATTACHED TO WALL
16. WOOD SHELVING IN DOOR FRAME
17. WOOD BENCH
22. VAULT
24. PARTITION WALL WITH GLAZING

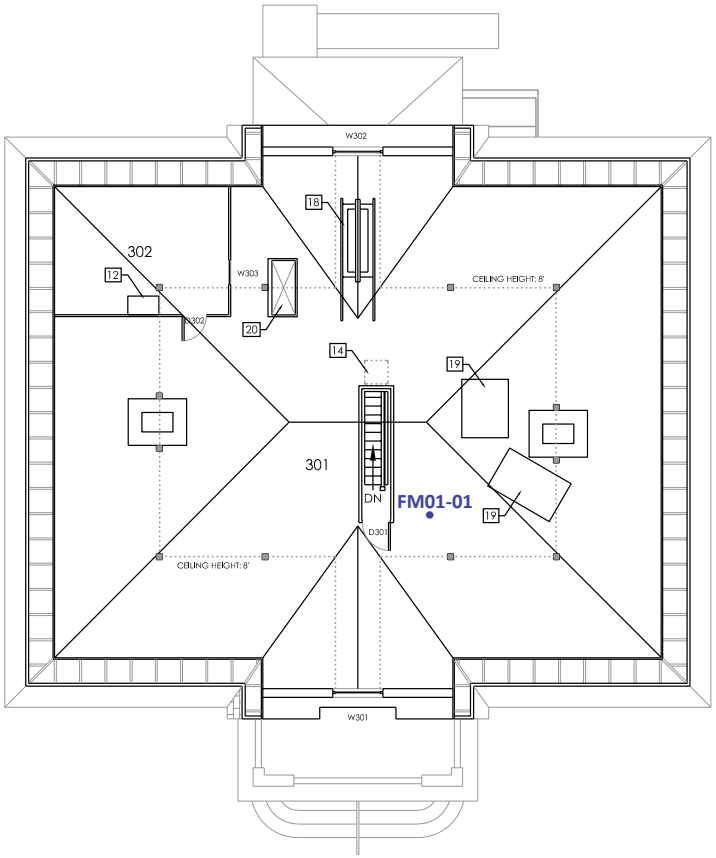
SECOND FLOOR PLAN

EXISTING CONDITIONS

DRAWN BY: Q. PETERSON	DATE: 08/2004
REVISED BY: B. THOMPSON	DATE: 08/2005
REVISED BY: J. M. NORTON	DATE: 05/2007
REVISED BY: T. SICKLES	DATE: 05/2013
CHECKED BY:	DATE:

SHEET NO. A - 8

SHEET 9 OF 30



PLAN NORTH

ATTIC/ROOF PLAN

3/32" = 1'

SCALE 0 5 10 20 FEET

QUINCY MINE COMPANY OFFICE

49445 US 41 HANCOCK,
MICHIGAN 49930

NOTES:
12. STORAGE CABINET
14. ATTIC ACCESS HATCH ABOVE
18. BLUE PRINTING EXPOSURE CASE AND TRACK
19 BLUE PRINTING EQUIPMENT
20. BLUE PRINTING SINK

ATTIC FLOOR PLAN

EXISTING CONDITIONS

DRAWN BY: Q. PETERSON	DATE: 08/2004
REVISED BY: B. THOMPSON	DATE: 08/2005
REVISED BY: J. M. NORTON	DATE: 05/2007
REVISED BY: T. SICKLES	DATE: 05/2013
CHECKED BY:	DATE:

SHEET NO. A - 9

SHEET 10 OF 30

Attachment B

LEAD PAINT DATA

Landmark Environmental, Inc.

7881 Shaffer Parkway ♦ Littleton, Colorado 80127 ♦ 720-283-8975 ♦ Fax: 720-283-8666

Client:	**Project:**	**Date**: 10/31/2018
Mundus Bishop	NPS KEWE - Quincy Office	**Inspector(s)**: Don Milner

Sample #	Location	Component	Substrate	Color	Condition	Result (%)
Q-LBP01	Room 002	Wall	Brick	Green	Poor	0.0084
Q-LBP02	Room 001	Wall	Brick	Orange	Poor	0.0061

REI LAB **Reservoirs Environmental, Inc.**

November 12, 2018

Laboratory Code:	**RES**
Subcontract Number:	**NA**
Laboratory Report:	**RES 421884-1**
Project # / PO #:	**18088.001.001**
Project Description:	**KEWE Quincy Pb**

Brandy Howard
Landmark Environmental, Inc.
7881 Shaffer Parkway
Littleton CO 80217

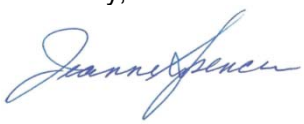
Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the American Industrial Hygiene Association, Lab ID 101533 - Accreditation Certificate #480. The laboratory is currently proficient in both IHPAT & ELPAT programs respectively.

Reservoirs has analyzed the following sample(s) using Atomic Absorption Spectroscopy (AAS) / Inductively Coupled Plasma - Mass Spectrometry (ICP-MS) per your request. Reported sample results were not blank corrected. The analysis has been completed in general accordance with the appropriate methodology as stated in the analysis table. Results have been sent to your office.

RES 421884-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those authorized by the client. The results described in this report only apply to the samples analyzed. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you should have any questions about this report, please feel free to call me at 303-964-1986.

Sincerely,



Jeanne Spencer
President

RESERVOIRS ENVIRONMENTAL, INC.

5801 Logan St., Suite 100
Denver CO 80216

TABLE ANALYSIS: LEAD IN PAINT

RES Job Number:	**RES 421884-1**
Client:	**Landmark Environmental, Inc.**
Client Project Number / P.O.:	**18088.001.001**
Client Project Description:	**KEWE Quincy Pb**
Date Samples Received:	**November 5, 2018**
Analysis Type:	**USEPA SW846 3050B / AA (7420)**
Turnaround:	**Standard**
Date Samples Analyzed:	**November 12, 2018**

Client ID Number	Lab ID Number	Reporting Limit (%)	LEAD CONCENTRATION (%)
Q-LBP01	EM 2197330	0.0028	0.0084
Q-LBP02	EM 2197331	0.0021	0.0061

*** Unless otherwise noted, all quality control samples are performed within specifications established by the laboratory.**

Analyst / Data QA: David E. Monagle

RES 421884

Due Date:_____
Due Time:_____

REI LAB Reservoirs Environmental, Inc.

Job #_____
Page 1 of 1

Pager : 303-509-2098

INVOICE TO: (IF DIFFERENT)

Company:	Landmark Environmental, Inc.
Address:	7881 Shaffer Parkway Littleton, CO 80127
Project Number and/or P.O. #:	18088.001.001
Project Description/Location:	KEWE Quincy Pb

Company:	Same
Address:	

CONTACT INFORMATION:

Contact:	Brandy Howard
Phone:	720-3601509
Fax:	
Cell/pager:	720-878-6475
Final Data Deliverable Email Address:	bhoward@landmarkenviro.com dmilner@landmarkenviro.com jduffy@landmarkenviro.com

Contact:	Don Milner
Phone:	720-360-1514
Fax:	
Cell/pager:	303-205-8831

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm

PLM / PCM / TEM ____ RUSH (Same Day) ___ PRIORITY (Next Day) X STANDARD
(Rush PCM = 2hr, TEM = 6hr.)

CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm

Metal(s) / Dust ___ RUSH ___ 24 hr. ___3-5 Day

RCRA 8 / Metals & Welding Fume Scan / TCLP ___ RUSH ___ 5 day ___10 day

Organics ___ 24 hr. ___ 3 day ___5 Day

Prior notification is required for RUSH turnarounds.

MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pm

E.coli O157:H7, Coliforms, S.aureus ___ 24 hr. ___2 Day ___3-5 Day

Salmonella, Listeria, E.coli, APC, Y & M ___ 48 Hr. ___3-5 Day

Mold ___ RUSH ___24 Hr ___48 Hr ___3 Day ___5 Day

Turnaround times establish a laboratory priority, subject to laboratory volume and are not guaranteed. Additional fees apply for afterhours, weekends and holidays.

Atomic Absorption Spectroscopy analysis

REQUESTED ANALYSIS

Client sample ID number (Sample ID's must be unique)	PLM - Short report, Long report, Point	TEM - AHERA, Level II, 7402, ISO, +/-, Semi-quant, Micro-Quant,	PCM - 7400A, 7400B, OSHA	DUST - Total, Respirable	METALS - Analyte(s) _Lead only (FAAS) RCRA 8, TCLP, Welding Fume, Metals	ORGANICS - METH	MICROBIOLOGY: Salmonella: +/-	MICROBIOLOGY: E.coli O157:H7: +/-	MICROBIOLOGY: Listeria: +/-	MICROBIOLOGY: Aerobic Plate Count: +/- or Quantification	MICROBIOLOGY: E.coli: +/- or Quantification	MICROBIOLOGY: Coliforms: +/- or Quantification	MICROBIOLOGY: S.aureus: +/- or Quantification	MICROBIOLOGY: Y & M: +/- or Quantification	MICROBIOLOGY: Mold: +/-, Identification , Quantification	SAMPLER'S INITIALS OR OTHER NOTES	Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy	Time Collected hh/mm a/p	EM Number (Laboratory Use Only)
1 Q-LBP01				X																		219730
2 Q-LBP-02				X																		31
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

VALID MATRIX CODES

Air = A	Bulk = B
Dust = D	Paint = P
Soil = S	Wipe = W
Swab = SW	F = Food
Drinking Water = DW	Waste Water = WW
O = Other	

ASTM E1792 approved wipe media only

LAB NOTES:

Number of samples received: 2 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: Date/Time:

Sample Condition: On Ice Yes / No Sealed Yes / No Intact Yes / No

Temp. (F°) _____

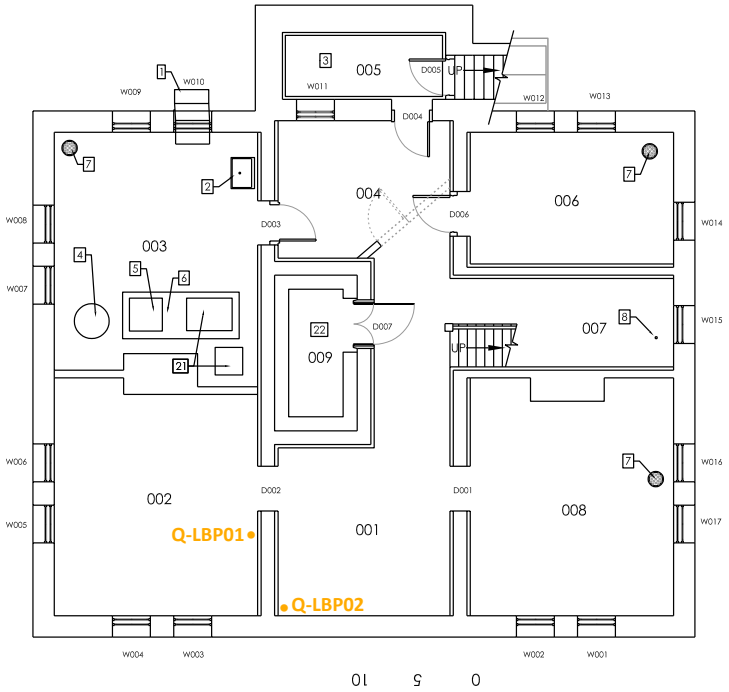
Laboratory Use Only

Received By: Don Milner Date/Time: 11-5-18 / 12:20 Carrier: Hand

Results:	Contact	Phone	Email	Fax	Date	Time	Initials
	Contact	Phone	Email	Fax	Date	Time	Initials
	Contact	Phone	Email	Fax	Date	Time	Initials
	Contact	Phone	Email	Fax	Date	Time	Initials

1225p

Mellelo Howe 11-5-18 1225p Hand



PLAN NORTH

BASEMENT

3/32" = 1'

SCALE 0 5 10 20 FEET

Key

- Current Lead-Containing Paint Samples

QUINCY MINE COMPANY OFFICE

49445 US 41 HANCOCK,
MICHIGAN 49930

NOTES:
1. VENT FOR BOILER
2. UTILITY SINK
3. PLYWOOD PLATFORM
4. HOT WATER HEATER
5. FURNACE
6. CONCRETE PAD
7. SUMP PUMP
8. PIPE COLUMN SUPPORT
21. BOILER
22. VAULT

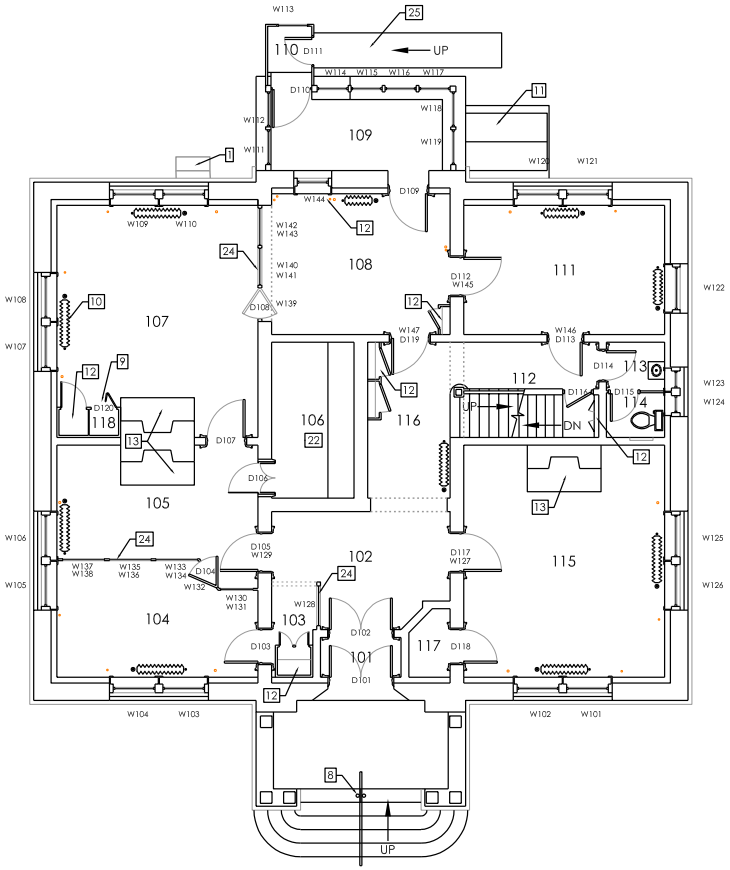
BASEMENT PLAN

EXISTING CONDITIONS

DRAWN BY: Q. PETERSON	DATE: 08/2004
REVISED BY: B. THOMPSON	DATE: 08/2005
REVISED BY: J. M. NORTON	DATE: 05/2007
REVISED BY: T. SICKLES	DATE: 05/2013
CHECKED BY:	DATE: /

SHEET NO. A - 6

SHEET 7 OF 30



Historical survey results indicate LBP on all painted surfaces on the 1st and 2nd floors of the Quincy Mine Company Offices.

PLAN NORTH

FIRST FLOOR PLAN

3/32" = 1'

SCALE 0 5 10 20 FEET

QUINCY MINE COMPANY OFFICE

49445 US 41 HANCOCK, MICHIGAN 49930

NOTES:
1. VENT FOR BOILER
8. PIPE COLUMN
9. TELEPHONE BOOTH
10. FIN TUBE RADIATOR (TYP.)
11. BASEMENT ENTRY BULKHEAD
12. STORAGE CABINET
13. GLZD. CRMC. TILE HEARTH
22. VAULT
24. PARTITION WALL WITH GLAZING
25. WOOD RAMP

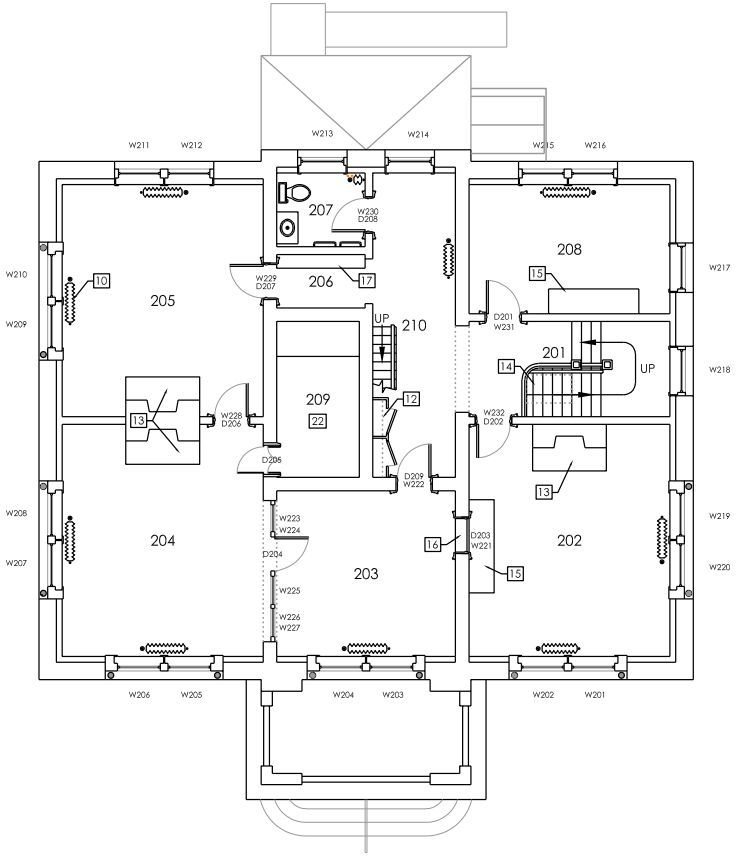
FIRST FLOOR PLAN

EXISTING CONDITIONS

DRAWN BY: Q. PETERSON	DATE: 08/2004
REVISED BY: B. THOMPSON	DATE: 08/2005
REVISED BY: J. M. NORTON	DATE: 05/2007
REVISED BY: T. SICKLES	DATE: 05/2013
CHECKED BY:	DATE:

SHEET NO. A - 7

SHEET 8 OF 30



PLAN NORTH

SECOND FLOOR PLAN

3/32" = 1'

SCALE 0 5 10 20 FEET

Historical survey results indicate LBP on all painted surfaces on the 1st and 2nd floors of the Quincy Mine Company Offices.

QUINCY MINE COMPANY OFFICE

49445 US 41 HANCOCK, MICHIGAN 49930

NOTES:
10. Cast Iron RADIATOR (TYP.)
12. STORAGE CABINET
13. GLZD. CRMC. TILE HEARTH
14. ATTIC ACCESS HATCH ABV.
15. WOOD DESK ATTACHED TO WALL
16. WOOD SHELVING IN DOOR FRAME
17. WOOD BENCH
22. VAULT
24. PARTITION WALL WITH GLAZING

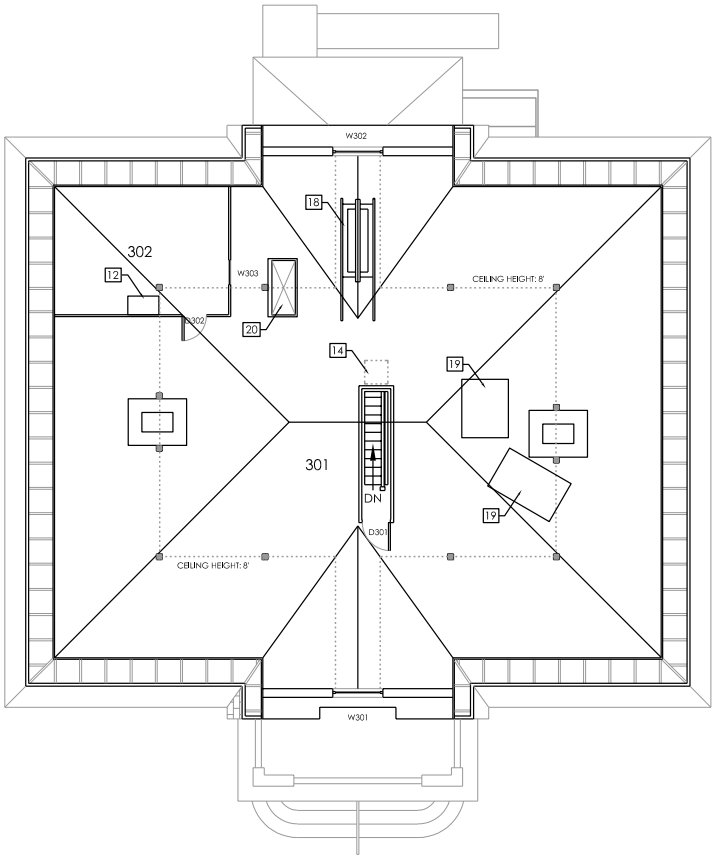
SECOND FLOOR PLAN

EXISTING CONDITIONS

DRAWN BY: Q. PETERSON	DATE: 08/2004
REVISED BY: B. THOMPSON	DATE: 08/2005
REVISED BY: J. M. NORTON	DATE: 05/2007
REVISED BY: T. SICKLES	DATE: 05/2013
CHECKED BY:	DATE:

SHEET NO. A - 8

SHEET 9 OF 30



PLAN NORTH

ATTIC/ROOF PLAN

3/32" = 1'

SCALE 0 5 10 20 FEET

QUINCY MINE COMPANY OFFICE

49445 US 41 HANCOCK,
MICHIGAN 49930

NOTES:
12. STORAGE CABINET
14. ATTIC ACCESS HATCH ABOVE
18. BLUE PRINTING EXPOSURE CASE AND TRACK
19 BLUE PRINTING EQUIPMENT
20. BLUE PRINTING SINK

ATTIC FLOOR PLAN

EXISTING CONDITIONS

DRAWN BY: Q. PETERSON	DATE: 08/2004
REVISED BY: B. THOMPSON	DATE: 08/2005
REVISED BY: J. M. NORTON	DATE: 05/2007
REVISED BY: T. SICKLES	DATE: 05/2013
CHECKED BY:	DATE:

SHEET NO. A - 9

SHEET 10 OF 30

Attachment C

NATIONAL PARK SERVICE – HANTAVIRUS RISK REDUCTION – WORKER PROTECTION

National Park Service
U.S. Department of the Interior

Hantavirus Risk Reduction

Worker Protection

Updated December 2013

Hantavirus Risk Reduction

Worker Protection

Updated December 2013

Office of Public Health
1201 Eye Street NW
Room 52
Washington, DC 20005

Wildlife Health Branch, Biological Resource Management Division
1201 Oakridge Drive
Suite 200
Fort Collins, CO 80525

Integrated Pest Management Program, Biological Resource Management Division
1201 Oakridge Drive
Suite 200
Fort Collins, CO 80525

The following National Park Service contributors helped revise this document: Bruce Badzik, Integrated Pest Management Coordinator & Biologist, Golden Gate National Recreation Area; Dr. Danielle Buttke, DVM, PhD, MPH, DACVPH, One Health Coordinator, Biological Resource Management Division/Wildlife Health Branch and Office of Public Health; Myron Chase, Integrated Pest Management Coordinator –Biologist, Intermountain Regional Office IPM Coordinator; Carol DiSalvo, Servicewide Integrated Pest Management Coordinator, Biological Resource Management Division; and Ciro Monaco, Biological Technician, Servicewide Integrated Pest Management Program.

December 2013

U.S. Department of the Interior
National Park Service
Office of Public Health
Washington, DC
Natural Resource Stewardship and Science
Fort Collins, Colorado

This report received formal peer review by subject-matter experts who were not directly involved in the collection, analysis, or reporting of the data, and whose background and expertise put them on par technically and scientifically with the authors of the information.

Views, statements, findings, conclusions, recommendations, and data in this report do not necessarily reflect views and policies of the National Park Service, U.S. Department of the Interior. Mention of trade names or commercial products does not constitute endorsement or recommendation for use by the U.S. Government.

NPS, December 2013

Contents

Page

Introduction 1

Precautions 1

Precautions for Workers Frequently Exposed to Rodents 1

Precautions for Workers Having Potential Contact with Rodents 2

Cleanup 2

Cleanup of Rodent Urine, Droppings, and Contaminated Surfaces 2

Cleanup of Dead Rodents and Rodent Nests 3

Disinfecting Solutions 4

Cleaning Shed and Other Buildings 4

Recommendations for Cleaning Homes or Buildings with Heavy Rodent Infestations 4

Special Considerations for Historic Structures or Structures with Dirt Floors 5

Contacts 6

Introduction

This document summarizes the updated recommendations from the Centers for Disease Control and Prevention (CDC) for hantavirus risk reduction for workers. The information is adapted from the Morbidity and Mortality Weekly Report, July 26, 2002; Vol. 51; No. RR09.

Precautions

Precautions for Workers Frequently Exposed to Rodents

Persons who frequently handle or are exposed to wild rodents are probably at higher risk for hantavirus infection than the general public because of the frequency of their exposures. Such persons include, but are not limited to: wildlife specialists; maintenance workers; employees involved in rodent management; concessions managers; some custodial staff; and building and fire inspectors. Therefore, enhanced precautions are warranted to protect them against hantavirus infection, as described below.

- Workers in potentially high-risk settings should be informed by their employers about hantavirus transmission and symptoms of infection, and be given detailed guidance and training on prevention measures. Determining the level of risk for HPS in each work setting is the responsibility of the park. The Regional Public Health Consultant and Safety Officer may be contacted for assistance, if necessary.

- Workers who develop a febrile or respiratory illness within 7 weeks of the last potential exposure should immediately seek medical attention and inform the attending physician of the potential occupational risk of hantavirus infection.

- When removing rodents from traps, handling rodents, or cleaning heavily infested areas, workers should wear either a NIOSH-approved half-face or full-face, tight-seal, negative-pressure respirator or a positive pressure PAPR (powered air-purifying respirator), both options must be equipped with P-100 or N-100 filters. Employees must be in compliance with NPS Director’s Order #50B and Reference Manual #50B for respiratory protection. Requirements include medical clearance and annual training and fit testing for each approved respirator type. Any individual wearing a respirator must be clean shaven.

- Workers should wear rubber, latex, vinyl, or nitrile gloves when cleaning or working in rodent infested areas, handling rodents or handling traps containing rodents. Before removing the gloves, wash gloved hands in a disinfectant or chlorine solution and then wash bare hands in soap and water.

- Mammalogists or wildlife biologists who handle wild rodents for research or management purposes should refer to the published safety guidelines available on CDC's website, All About Hantavirus (http://www.cdc.gov/ncidod/dvrd/spb/mnpages/rodentmanual.htm).

Precautions for Workers Having Potential Contact with Rodents

Persons who work in occupations with unpredictable or incidental contact with rodents or their nesting sites should follow general risk reduction recommendations and seek guidance from their safety manager or the Office of Public Health. Examples of such occupations include: archaeologists; natural resource specialists; utility operators; curators; and certain construction workers. Workers in these jobs may have to enter buildings and crawl spaces, or might otherwise be exposed to sites or materials that are potentially rodent-infested. Recommendations for such circumstances must be made on a case-by-case basis after the specific working environment has been assessed. The Regional Public Health Consultant or the Safety Officer may be consulted as needed to assist in the assessment. Determining the level of risk present and implementing appropriate protective measures is the responsibility of the park.

Areas with evidence of rodent activity (e.g., dead rodents, nests, and droppings) should be thoroughly cleaned to reduce the likelihood of exposure to hantavirus-infected materials. Cleanup procedures must be performed in a manner that limits the potential for dirt or dust from contaminated surfaces to become airborne. Recommendations are listed in this report for cleaning up (1) rodent urine and droppings, and surfaces potentially contaminated by rodents; and (2) dead rodents and rodent nests.

Cleanup

Cleanup of Rodent Urine, Droppings, and Contaminated Surfaces

- During cleaning, wear rubber, latex, vinyl, or nitrile gloves.
- Spray rodent urine and droppings with an EPA registered disinfectant or chlorine solution until thoroughly soaked. (See Cleanup of Dead Rodents and Rodent Nests below.) Allow disinfectant-soaked area to sit for at least 10 minutes before proceeding.
- To avoid generating potentially infectious aerosols, do not sweep rodent urine, droppings, or contaminated surfaces until they have been disinfected (soaked with disinfectant for at least 10 minutes).
- Use a paper towel to absorb the urine and disinfectant and pick up the droppings. Place the paper towel in the garbage.
- After the rodent droppings and urine have been removed, disinfect items and underlying surfaces that might have been contaminated by rodents or their urine and droppings.
    - Mop floors with a disinfectant or chlorine solution. Allow to sit for 10 minutes before rinsing.

- o Disinfect countertops, cabinets, drawers, and other durable surfaces with a disinfectant or chlorine solution. Allow disinfectant to sit on surface for 10 minutes before wiping down.
- o Spray dirt floors with a disinfectant or chlorine solution.
- o Disinfect carpets with a disinfectant or with a commercial-grade steam cleaner or shampoo.
- o Steam-clean or shampoo rugs and upholstered furniture.
- o Launder potentially contaminated bedding and clothing with hot water and detergent. Use rubber, latex, vinyl, or nitrile gloves when handling contaminated laundry. Machine-dry laundry on a high setting or hang it to air dry in the sun.
- o Leave books, papers, and other items that cannot be cleaned with a liquid disinfectant or thrown away, outdoors in the sunlight for several hours, or in an indoor area free of rodents for approximately 3 weeks before cleanup. After that time, the virus should no longer be infectious. However, to further reduce risk, wear rubber, latex, vinyl, or nitrile gloves and wipe the items with a cloth moistened with disinfectant.
- o Before removing the gloves, wash gloved hands in a disinfectant or chlorine solution and then wash bare hands in soap and water.

Cleanup of Dead Rodents and Rodent Nests

- Wear rubber, latex, vinyl, or nitrile gloves.
- In the western United States, use insect repellent (containing DEET) on clothing, socks, and arms to reduce the risk of fleabites that might transmit plague, tularemia, or other diseases.
- Spray dead rodents and rodent nests with a disinfectant or a 10% chlorine solution, soaking them thoroughly. Wait 10 minutes before disturbing to ensure inactivation of the virus.
- Place the dead rodent or nest in a plastic bag, or remove the dead rodent from the trap and place it in a plastic bag. When cleanup is complete (or when the bag is full), seal the bag, place it into a second plastic bag, and seal the second bag. Dispose of the material in the double bag discarding it in a covered trash can that is regularly emptied.
- Clean up the surrounding area and area that was underneath the rodent as described in "Cleanup of Rodent Urine and Droppings and Contaminated Surfaces."

Disinfecting Solutions

Two types of disinfecting solutions are recommended to clean up rodent materials.

1. General-Purpose Household Disinfectant: These can be used for light infestations (ie, rodent droppings present, evidence of chewing, but no extensive nesting or droppings). Prepare according to the label, if not prediluted. Almost any agent commercially available in the United States is sufficient as long as the label states that it is a "disinfectant" and it has an EPA registration number on the label. Effective agents include those based on phenols, quaternary ammonium compounds, and hypochlorite solutions at a 1:100 or greater concentration.

2. Hypochlorite Solution: A 10% chlorine solution, freshly prepared by mixing 1½ cups of household bleach in 1 gallon of water (or a 1:10 solution) can be used in place of a commercial disinfectant and should be used for heavily infested areas (ie, several rodent nests with extensive droppings present). When using chlorine solution, avoid spilling the mixture on clothing or other items that might be damaged by bleach. Wear rubber, latex, vinyl, or nitrile gloves when preparing and using chlorine solutions. Chlorine solutions should be prepared fresh daily.

Cleaning Shed and Other Buildings

Before cleaning closed sheds and other outbuildings, ventilate the building by opening doors and windows for at least 30 minutes. Use cross ventilation if possible. Be sure that you do not stir up any dust when entering to open windows and leave the area during the airing-out period. This airing helps to remove infectious primary aerosols that might be created by hantavirus-infected rodents. In substantially dirty or dusty environments, additional protective clothing or equipment may be worn. Such equipment includes coveralls (disposable when possible) and safety glasses or goggles, in addition to rubber, latex, vinyl, or nitrile gloves. For recommendations regarding precautions for cleanup of outbuildings with heavy rodent infestations, see below.

Recommendations for Cleaning Homes or Buildings with Heavy Rodent Infestations

Special precautions are indicated for cleaning homes or buildings with heavy rodent infestations. A rodent infestation is considered heavy if piles of feces or numerous nests or dead rodents are observed. Persons cleaning these homes or buildings should contact their Safety Officer or Public Health Consultant. These precautions also can apply to vacant dwellings that have attracted rodents while unoccupied and to dwellings and other structures that have been occupied by persons with

confirmed hantavirus infection. Workers who are either hired specifically to perform the cleanup or asked to do so as part of their work activities should receive a thorough orientation about hantavirus transmission and disease symptoms and should be trained to perform the required activities safely.

- If the building has been closed and unoccupied for a long period (weeks or months), ventilate the building by opening doors and windows for at least 30 minutes before beginning any work. The ventilation helps to remove aerosolized virus inside the structure. Use cross ventilation if possible. Leave the area during the airing-out period.

- Persons involved in the cleanup should wear coveralls (disposable, if possible); rubber boots or disposable shoe covers; rubber, latex, vinyl, or nitrile gloves; protective goggles; and a respirator with appropriate clearance, annual fit-testing, and approvals as detailed in "Precautions for Workers Frequently Exposed to Rodents."

- Personal protective gear should be decontaminated or safely disposed of upon removal at the end of the day. If the coveralls are not disposable, they should be laundered on site. If no laundry facilities are available, the coveralls should be immersed in liquid disinfectant until they can be washed.

- Wash hands thoroughly after personal protective equipment is removed.

- Unless burned on site, all potentially infectious waste material from cleanup operations should be double-bagged in durable plastic bags and then discarded in a covered trash can that is regularly emptied. Contact the local or state health department concerning other appropriate disposal methods.

- Persons involved in the cleanup who develop a febrile or respiratory illness within seven weeks of the last potential exposure should immediately seek medical attention and inform the attending physician of the potential occupational risk of hantavirus infection.

Special Considerations for Historic Structures or Structures with Dirt Floors

- Consult cultural resources staff before beginning any work in historic structures.

- Some disinfectants, such a 10% or greater bleach solutions or repeat use of other disinfectants, can change the color of an organic surface (such as wood, cloth, etc). If this is a concern for a historic structure, disinfectants such as household disinfectants or isopropyl/ethyl alcohol might be more appropriate.

- Dirt floors should be treated as other hard surfaces, with extra care taken not to stir up dust. Thoroughly wet the area and adjacent area with disinfectant, allow the disinfectant to sit for at least 10 minutes, and use a wetted paper towel to clean up the droppings or material.

Contacts

Integrated Pest Management (IPM) – 202-513-7183

Public Health – 202-513-7217

Risk Management – 202-513-7214

Wildlife Health – 970-267-2118

The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

NPS, December 2013

National Park Service
U.S. Department of the Interior

Office of Public Health
1201 Eye Street NW, Room 52
Washington, DC 20005

Natural Resource Stewardship and Science
1201 Oakridge Drive, Suite 150
Fort Collins, CO 80525

www.nature.nps.gov

Appendix F - Condensed VA/CBA Workshop Notes

PREFACE

On June 4th and 5th, 2019 concerned parties gathered for a Condensed Value Analysis/Choosing by Advantages ("Condensed VA/CBA") workshop to choose preferred alternatives among those presented in the 75% draft of the HSR.

Participants included:
Wyndeth Davis, Superintendent, NPS KEWE
John Rosemurgy, Historical Architect, NPS KEWE
Brian Hoduski, Chief of Museum and Archival Services, NPS KEWE
Jeremiah Mason, Archivist, NPS KEWE
Jo Holt, Historian, NPS KEWE
Steve DeLong, Landscape Architect, NPSKEWE
Chris St. Martin, Facility Manager, NPS KEWE
Kathleen Hanter, I&E Program Manager, NPS KEWE
Robert McKay, Historic Architect, Michigan SHPO
Elizabeth Hallas, Principal, Anderson Hallas Architects (Facilitator)
Laine McLaughlin, Project Architect, Anderson Hallas Architects

The condensed VA/CBA process took the participants through the following steps

1. In the Information phase, participants reviewed background information such as character defining features and then identified stakeholders
2. Next, in the Evaluation phase, the team reviewed NPS principles and factors and attached criteria to each factor that would be useful in evaluating the alternatives.
3. Choosing By Advantages is one option for evaluation within the VA process. For each factor, the team evaluated the alternative as to its relative advantage in that regard, assigning a weight to each of 0 to 100.
4. Weights were summed for each alternative to arrive at an advantage rating. This rating was compared to the estimated cost for the alternative to produce an advantage to cost ratio. The alternative with the most advantage was considered the preferred alternative.
5. Reconsideration. As only three alternatives were developed and priced, there is often some bundling of design options in each alternative. Some aspects of an alternative are thus interchangeable. The reconsideration process allows participants to incorporate other design options so long as the overall weighting is not deemed to be at risk. The participants also offered other design ideas that the discussion of the alternative brought to light--for example, security implications of a presented egress route.

During this session, this problem of bundled design options caused concern among many participants, who felt it skewed the results. Options for future use of various rooms were bundled together with the options for elevator location. Some participants would have preferred that these options be evaluated independently. Despite this concern, it was generally agreed to proceed with the alternatives as prepared.

The workshop was considered "condensed" because the Functional Analysis and Creativity phases, in which the alternatives are framed, developed and priced, occurred prior to the workshop. Also, a formal VA report was not included in the deliverables.

Keweenaw National Historic Park
Calumet & Hecla Library & Quincy Mine Office HSRs
VALUE ANALYSIS/CBA LITE – JUNE 4 & 5, 2019





ANDERSON
HALLAS
ARCHITECTS

KEWE / C&H LIBRARY AND QUINCY MINE OFFICE HSR VA/CBA LITE

AGENDA – WEDNESDAY JUNE 5, 2019

9:00 **QMO VA/CBA LITE: STAKEHOLDERS**

9:15 **PRESENT QMO DESIGN ALTERNATIVES**

10:15 **BREAK**

10:30 **EVALUATION - CHOOSING BY ADVANTAGE**
- Review NPS Principles, Factors and Subfactors
- List Attributes of Each Alternative
- Score Advantages

12:30 **LUNCH BREAK**

1:15 **CBA CONCLUDE VA – QMO**
- Insert Scores & Costs into Importance Graph
- Finalize Scores & Costs into Importance Graph
- Identify Apparent "Preferred Alternative"

2:00 **RECONSIDERATION OF PREFERRED ALTERNATIVE**
- Quincy Mine Office
- C&H Library

2:45 **SCHEDULE REVIEW/NEXT STEPS**

3:00 **ADJOURN**

ANDERSON
HALLAS
ARCHITECTS

KEWE / C&H LIBRARY AND QUINCY MINE OFFICE HSR VA/CBA LITE

PROJECT GOALS: 2009 FACILITY PLAN AND CBA

C&H

- Proposed Building Use
  - Current: museum services
    Proposed: interpretive (corporate paternalism)
- 2009 CBA- Alternative 2
- Highlights
  - Museum storage and processing
  - Reconstruction of Delivery Room
  - Use of reading rooms
  - Gallery storage

QMO

- Proposed Building Use
  - Current: historic leasing
  - Proposed: interpretive (business of mining)
- 2009 CBA- Alternative 2
- Highlights
  - Interpretive use of front offices
  - Leased space of rear offices
  - Interpretive use of one office on 2nd floor

ANDERSON
HALLAS
ARCHITECTS

KEWE / C&H LIBRARY AND QUINCY MINE OFFICE HSR VA/CBA LITE

PROJECT GOALS: NOV 2018 FACILITY USE DISCUSSION

C&H

- Confirmed: museum services with *strong* interpretive component
- Basement: public viewing of processing space
- Delivery Room reconstruction
- South wing office partitions
- Flexible use of main reading room
- Children's reading room as a controlled but viewable space?
- Concept of secure zones
- Partnerships

QMO

- Confirmed: leased offices with interpretive component
- 1st floor: leased office plus interpretive
- 2nd floor: leased, maybe interpretive
- Self-guided interpretation
- Interpretive vignettes
- Concept of secure zones
- Partnerships

ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

QUINCY MINE OFFICE HSR VA/CBA LITE



ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

STAKEHOLDERS

STAKEHOLDERS	INTERESTS
Park visitors	Historic building and setting, curiosity, context, safe access, significant traffic concerns
Partner tenants	Currently: George Wright, IRKPA; lease time, construction disruption, winter meeting space
NPS tenants	Perhaps a flex space
Maintenance staff	Water service
KEWE Interpretive	Use of actual artefacts, setting and landscape, tour groups, relevancy, access to space for educators
Partners	Quincy Mining Association, interpretation, meeting (more than 12) artefact storage
SHPO	Same as C&H
NPS Midwest Region	Same, justifiable expenses
MDOT	Alterations/visitor use, pedestrian safety
Neighbors	Expanded parking, shared drive, edge treatment, fence

ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

DESIGN ALTERNATIVES



COMMON TO ALL

- Recommended treatments for historic fabric
- Replacement of 1st floor heating system
- Air conditioning system
- Fire suppression system
- Electrical upgrade
- Entry through restored west porch area
- Accessible restroom on 1st floor
- Improve egress conditions
- No elevator access to basement

ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

VA ALTERNATIVES



ALTERNATIVE VARIABLES

- Parking configuration (independent variable)
- Exterior accessible route from parking to entry
- Accessible entry
- Elevator and hoistway
- Interior accessible route
- Public access of second floor
- Interpretive scope

ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

TREATMENT ALTERNATIVES



ALTERNATIVE 1:
- Ramp + Vault Elevator

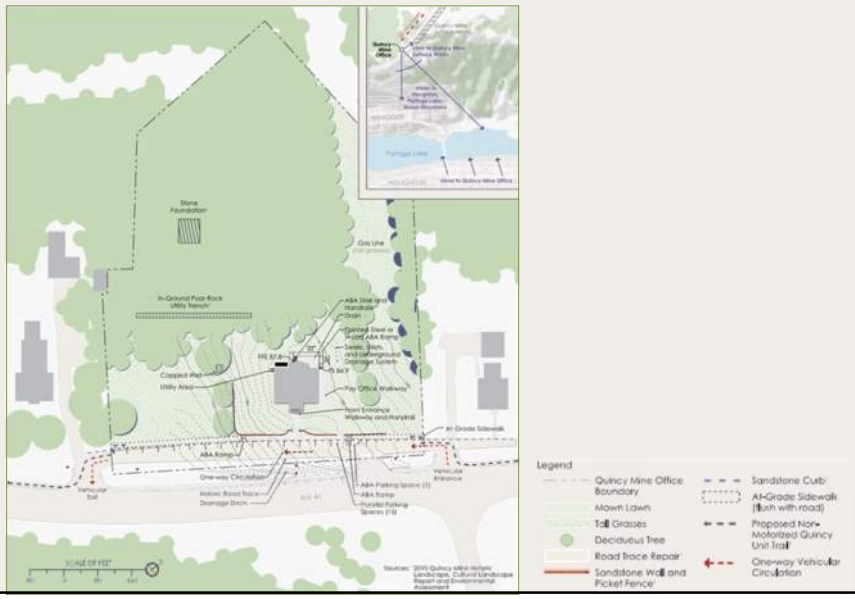
ALTERNATIVE 2:
- Ramp + Room Elevator

ALTERNATIVE 3:
- Lift + Vault Elevator

ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE ARY HSR VA/CBA LITE

ALTERNATIVE #1 – RAMP + VAULT ELEVATOR



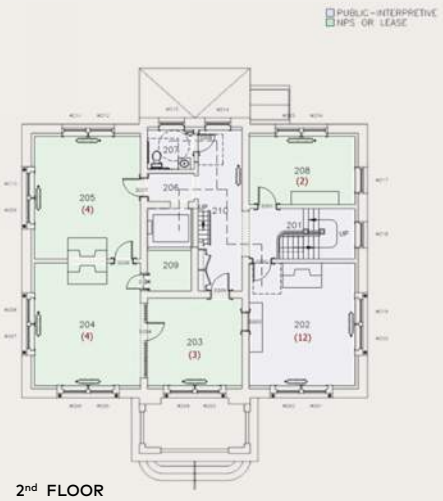
ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

ALTERNATIVE #1 – RAMP + VAULT ELEVATOR



1st FLOOR
Occupants: 37



2nd FLOOR
Occupants: 25

ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

ALTERNATIVE #1 – RAMP + VAULT ELEVATOR

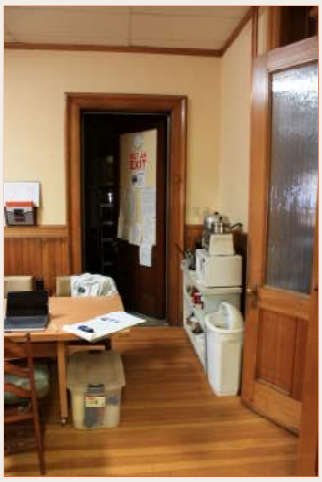




ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

ALTERNATIVE #1 – RAMP + VAULT ELEVATOR



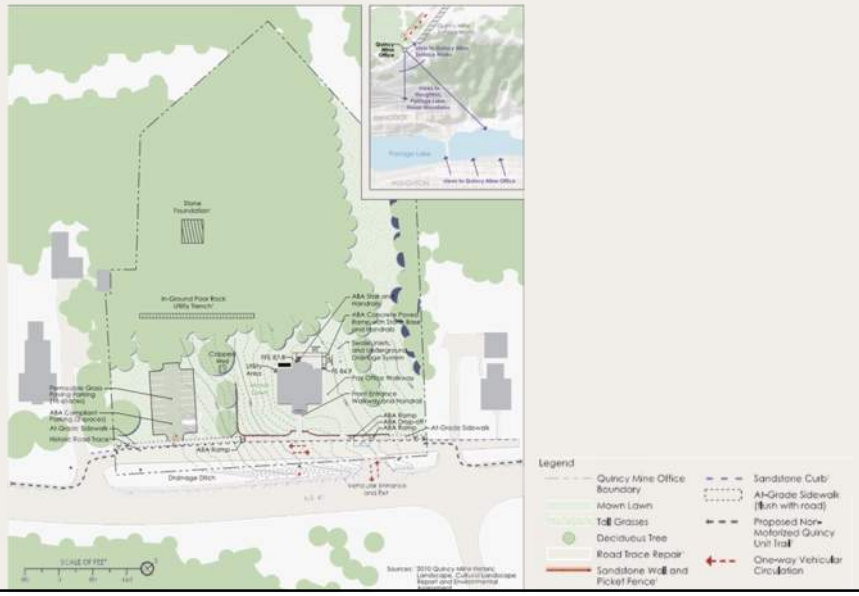




ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

ALTERNATIVE #2 – RAMP + ROOM ELEVATOR



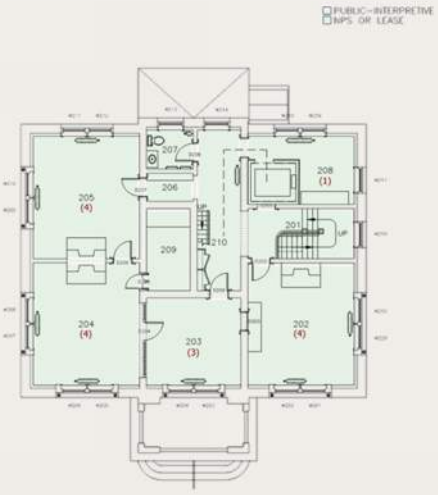
ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

ALTERNATIVE #2 – RAMP + ROOM ELEVATOR



1st FLOOR
Occupants: 35



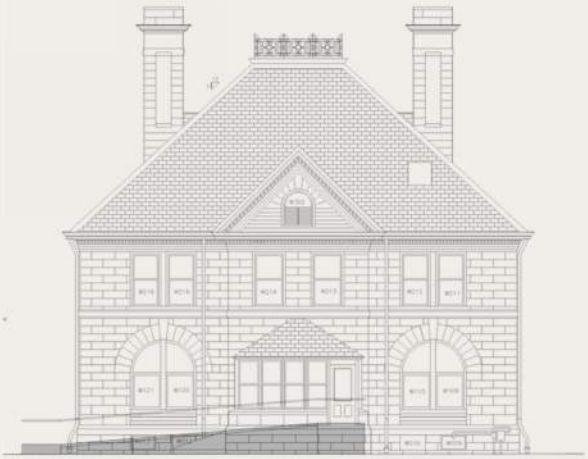
2nd FLOOR
Occupants: 16

ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

ALTERNATIVE #2– RAMP + ROOM ELEVATOR





ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

ALTERNATIVE #2– RAMP + ROOM ELEVATOR

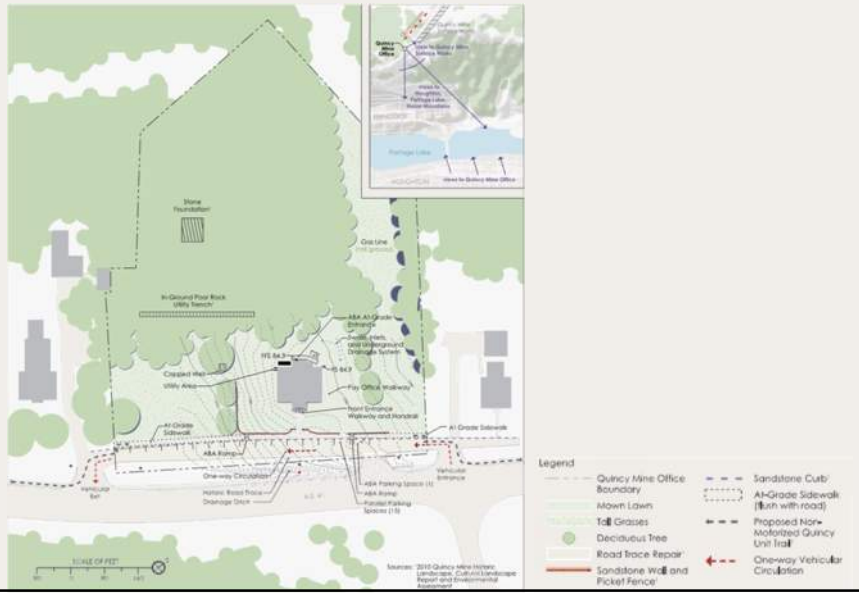




ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

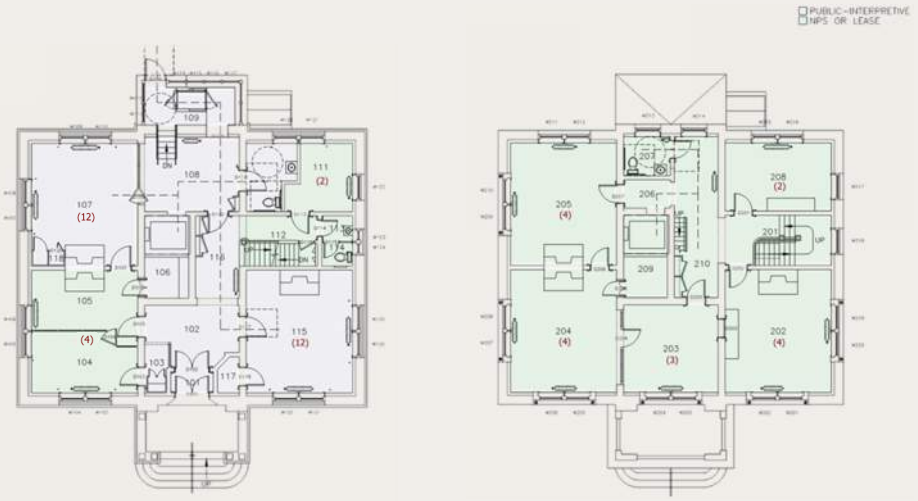
ALTERNATIVE #3 – LIFT + VAULT ELEVATOR



ANDERSON
HALLAS
ARCHITECTS

KEWE QUINCY MINE OFFICE HSR VA/CBA LITE

ALTERNATIVE #3 – LIFT + VAULT ELEVATOR



ANDERSON
HALLAS
ARCHITECTS

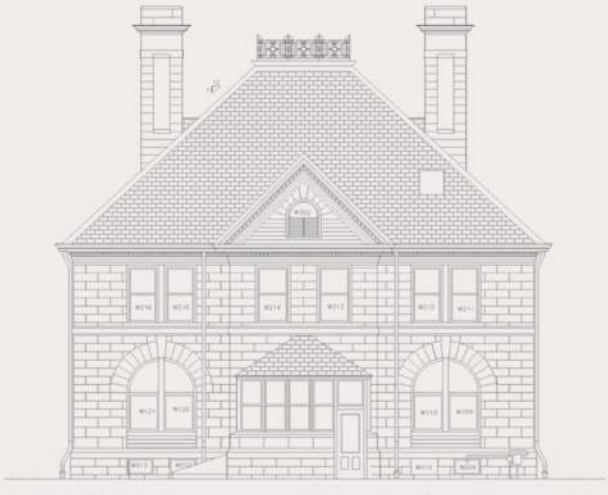
1st FLOOR
Occupants: 37

2nd FLOOR
Occupants: 17

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

ALTERNATIVE #3– LIFT + ROOM ELEVATOR

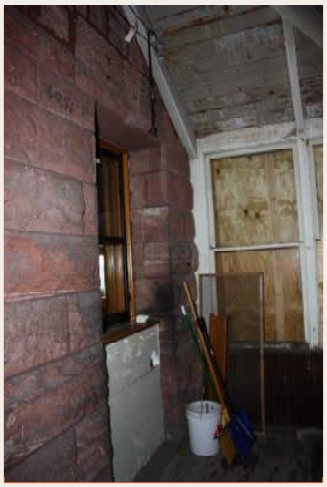




ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

ALTERNATIVE #3– LIFT + ROOM ELEVATOR



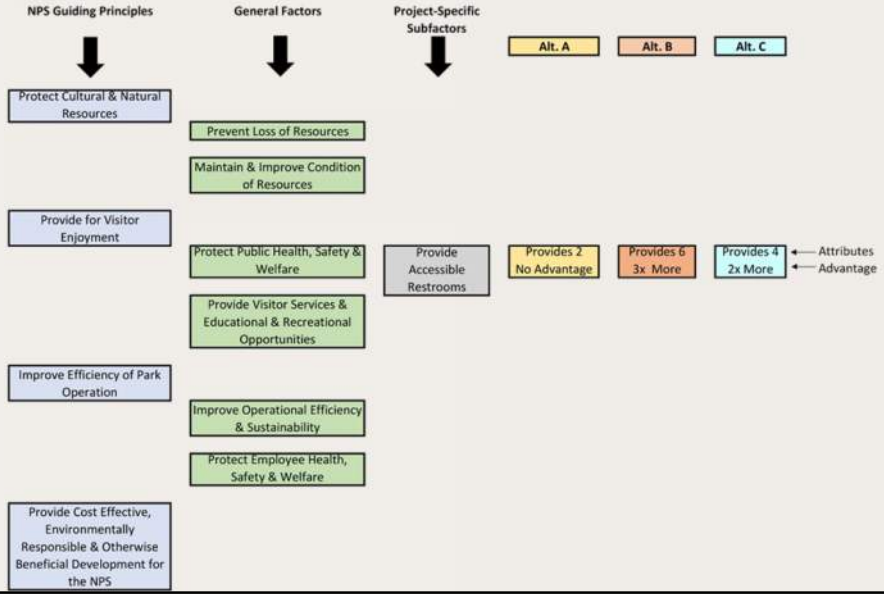




ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

CHOOSING BY ADVANTAGES PROCESS



ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

EVALUATION OF ADVANTAGES

Proposed Factor Criteria

Principle 1 – Protect Natural & Cultural Resources

Factor 1 – Prevent Loss of Resources
1A Minimize impact to historic fabric, spaces and setting
Factor 2 – Maintain & Improve Condition of Resources
2A HSR treatment recommendations - Common to all

Principle 2 – Provide for Visitor Enjoyment

Factor 3 - Provide Visitor Services & Opportunities
3A Expand opportunities for site-based interpretation of related themes
3B Improve building access per 7 principles of universal design
3C Improve site access per 7 principles of universal design
Factor 4 – Protect Public Health, Safety, & Welfare
4A Improve egress conditions – Common to all

ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

EVALUATION OF ADVANTAGES

Proposed Factor Criteria

Principle 3 – Improve Efficiency of Park Operations

Factor 5 – Improve Operational Efficiency and Sustainability
5A Promote facility security without dedicated staff
5B Minimize maintenance effort

Principle 4 – Provide Cost Effective, Responsible & Otherwise Beneficial Development for NPS

Factor 6 – Provide Other Advantages to the National Park System
6A Expand opportunities for revenue sources

ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

EVALUATION OF ADVANTAGES

PRINCIPLE
PROTECT NATURAL & CULTURAL RESOURCES

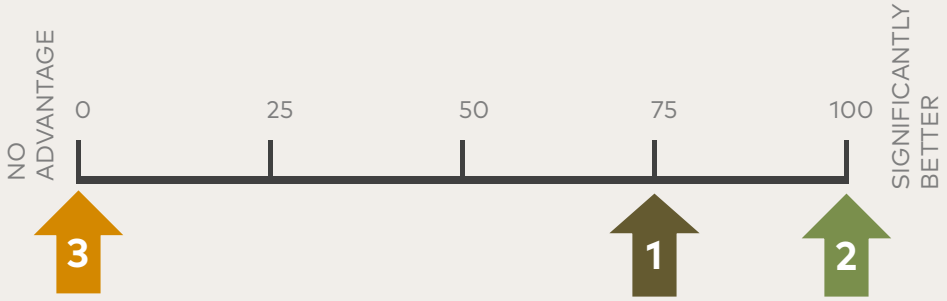
FACTOR 1
PREVENT LOSS OF RESOURCES

ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

EVALUATION OF ADVANTAGES

1A MINIMIZE IMPACT TO HISTORIC FABRIC, SPACES AND SETTING



Alternative 1
Ramp + Vault Elevator

Alternative 2
Ramp + Room Elevator

Alternative 3
Lift + Vault Elevator

ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

EVALUATION OF ADVANTAGES

PRINCIPLE
PROVIDE FOR VISITOR ENJOYMENT

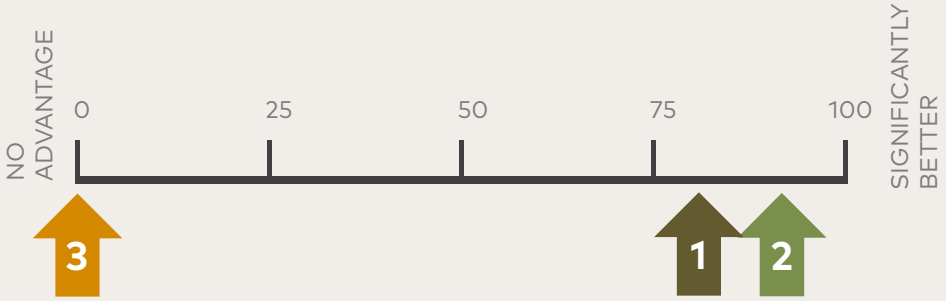
FACTOR 3
PROVIDE VISITOR SERVICES AND OPPORTUNITIES

ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

EVALUATION OF ADVANTAGES

3A PROVIDE OPPORTUNITIES FOR INTERPRETATION



Alternative 1
Ramp + Vault Elevator

Alternative 2
Ramp + Room Elevator

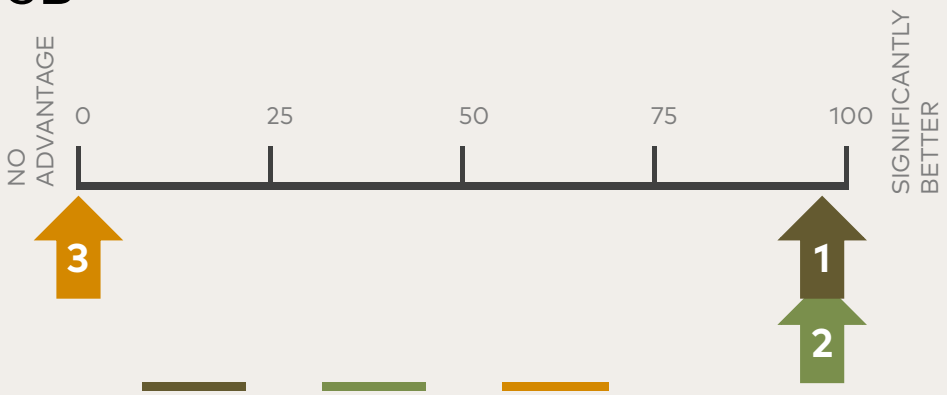
Alternative 3
Lift + Vault Elevator

ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

EVALUATION OF ADVANTAGES

3B IMPROVE BUILDING UNIVERSAL ACCESS



Alternative 1
Ramp + Vault Elevator

Alternative 2
Ramp + Room Elevator

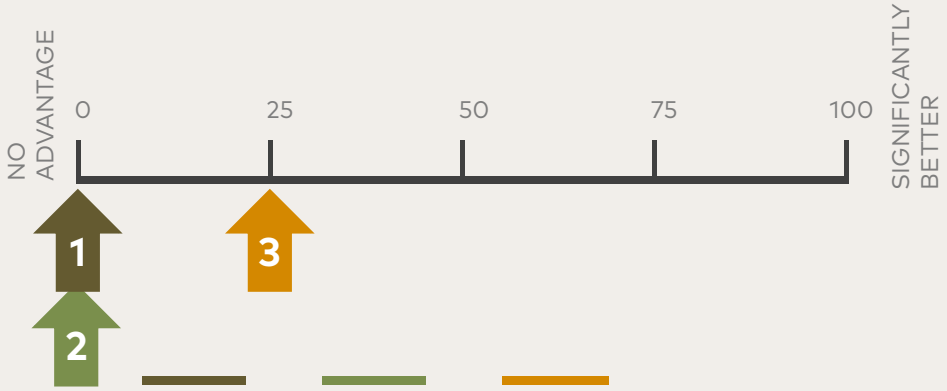
Alternative 3
Lift + Vault Elevator

ANDERSON HALLAS ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

EVALUATION OF ADVANTAGES

3C IMPROVE SITE UNIVERSAL ACCESS



Alternative 1
Ramp + Vault Elevator

Alternative 2
Ramp + Room Elevator

Alternative 3
Lift + Vault Elevator

ANDERSON HALLAS ARCHITECTS

KEWE / QUINCY MINE OFFICE LIBRARY HSR VA/CBA LITE

EVALUATION OF ADVANTAGES

PRINCIPLE
IMPROVE EFFICIENCY OF PARK OPERATIONS

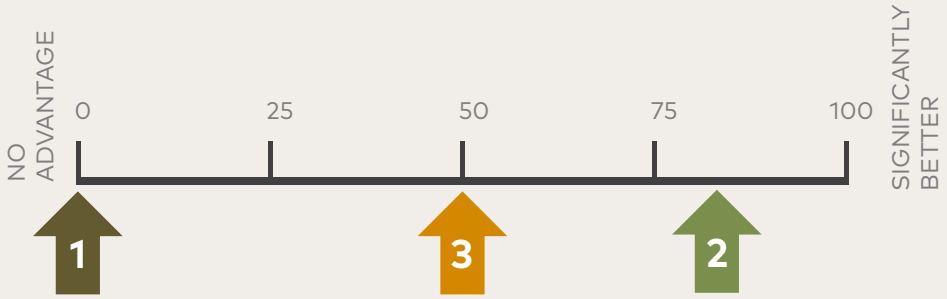
FACTOR 5
IMPROVE OPERATIONAL EFFICIENCY

ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

EVALUATION OF ADVANTAGES

5A PROMOTE FACILITY SECURITY



Alternative 1
Ramp + Vault Elevator

Alternative 2
Ramp + Room Elevator

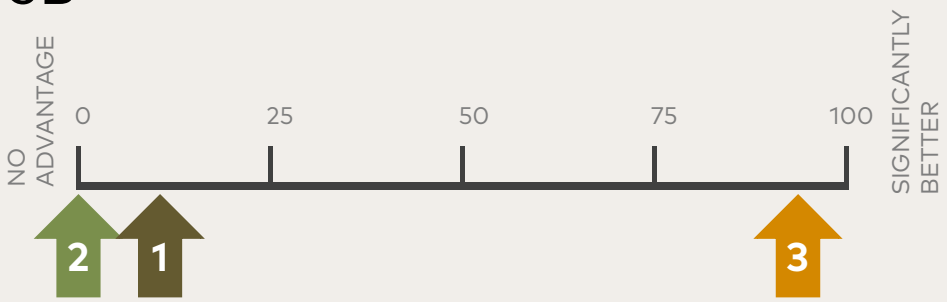
Alternative 3
Lift + Vault Elevator

ANDERSON
HALLAS
ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

EVALUATION OF ADVANTAGES

5B MINIMIZE MAINTENANCE EFFORT



Alternative 1
Ramp + Vault Elevator

Alternative 2
Ramp + Room Elevator

Alternative 3
Lift + Vault Elevator

ANDERSON HALLAS ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

EVALUATION OF ADVANTAGES

PRINCIPLE
PROVIDE COST EFFECTIVE DEVELOPMENT FOR NPS

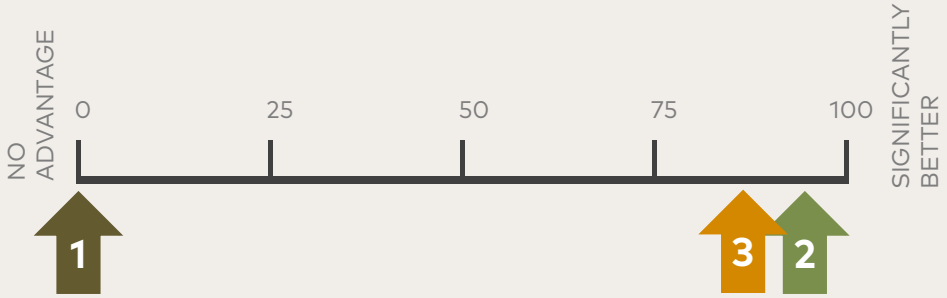
FACTOR 5
PROVIDE OTHER ADVANTAGES TO THE NPS

ANDERSON HALLAS ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

EVALUATION OF ADVANTAGES

6A EXPAND OPPORTUNITIES FOR REVENUE SOURCES



Alternative 1
Ramp + Vault Elevator

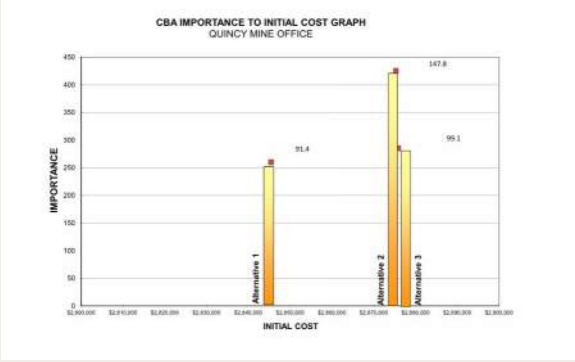
Alternative 2
Ramp + Room Elevator

Alternative 3
Lift + Vault Elevator

ANDERSON HALLAS ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

PREFERRED ALTERNATIVE



ALTERNATIVE 2 IS PREFERRED

ANDERSON HALLAS ARCHITECTS

KEWE / QUINCY MINE OFFICE HSR VA/CBA LITE

RECONSIDERATION

ALTERNATIVE 2 RECONSIDERATION

- Flip exterior stair to make snow removal easier
- Revisit parking relative to ABA and septic location
- Review repeating ABA restroom on 2nd floor
- Review addition of a janitor's closet
- Review alt 2 – do we need the stair?

ANDERSON
HALLAS
ARCHITECTS

Appendix G - Cost Estimate

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

BASIS OF ESTIMATE

PROJECT INFORMATION

Project:	Quincy Mine Company Office
Park:	Keweenaw National Historic Park
Park Alpha:	KEWE
PMIS Number:	237234
Estimate Date:	10/28/2019 V 1.0
Prepared By:	McCabe Karcher
Company:	ACC Cost Consultants, LLC
Address:	8060 SW Pfaffle St., Suite 110
City, State Zip:	Tigard, Oregon 97223
Phone:	503-718-0075

BACKGROUND SUPPORTING MATERIAL (Scope of Work):

This Historic Structures Report (HSR) identifies characteristics and features that convey the historic significance and character of the Quincy Mine Office in Keweenaw National Historic Park and provides a plan for the long-term preservation and stewardship of the existing structure. The report provides park management with a comprehensive understanding of the physical evolution of the building, and provides managers with guidance for care of these features. Treatment recommendations include repair and modification of building exterior & interior surfaces, structural components, mechanical, plumbing and electrical systems.

SOURCE OF COST DATA:

Cost Data is based on ACC's work history along with ACC's database of past and current projects. When cost data is not available for certain component parts, pricing defaults to our Portland, Oregon data base and or RS Means. (The Means City Cost Index and other factor percentages adjusts for location factor and pricing). whenever possible, pricing includes contacting local suppliers and vendors for price checks. This estimate is formulated on the estimator's professional judgment and experience. This estimates makes no warranty, expressed or implied, that the quantities, bids or the negotiated cost of the work will not vary from the estimator's opinion of probable construction cost. This estimate assumes a competitive bidding environmentof no fewer than three (3) competitive bidders.

ESTIMATE ASSUMPTIONS:

Assume a construction start of spring 2021

MAJOR CHANGES FROM PREVIOUS ESTIMATE:

Alternate #2 has been incorporated into the base bid. Alternates #1 & 3 have been discarded.

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

BASIS OF ESTIMATE

PROJECT INFORMATION

Project: Quincy Mine Company Office

Park: Keweenaw National Historic Park
Park Alpha: KEWE
PMIS Number: 237234
Estimate Date: 10/28/2019 V 1.0

DESCRIPTION OF MARK-UP & ADD-ONS:

Location Factor:	-19.00%	Per NPS
Remoteness Factor:	13.00%	Site is 125 miles from published commercial center. Factor revised per RS Means with Iron Mountain as a point of reference.
Wage Rate Factor:	0.00%	Not required
State & Local Taxes:	6.00%	The state general sales tax rate of Michigan is 6% on material only. Michigan cities and/or municipalities don't have a city sales tax.
Design Contingency:	20.00%	per NPS Cost Estimating Handbook Requirements, at PD contingency range is 25% to 30%, at SD stage 15% to 20%. Use 20 % for this submittal.
Standard. General Conditions:	15.00%	Per NPS Handbook, typical range is 4 to 20%. This is Pre-Design level estimate allow 15%
Government General Conditions:	10.00%	Per NPS Handbook, typical range is 5 to 10%. This is Pre-Design level estimate allow 10%
Historic Preservation Factor:	10.00%	per NPS Cost Estimating Handbook Requirements, at SD contingency range is 0% to 10%, at DD stage 0% to 5%. Use 10 % for this submittal because it is HSR/SD.
Contractor Overhead:	15.00%	per NPS Cost Estimating Handbook Requirements, range is 10% to 25%. Use 15% for this submittal.
Contractor Profit:	10.00%	Per NPS Handbook, typical range is 10 to 25%. This is Pre-Design level estimate allow 10%
Bonds and Permits:	3.176%	Bonds 1.105%, Insurance 1.039% & Permits 1.032%
Contracting Method Adjustment:	15.00%	Assume full & open bidding process with a minimum of three qualified bidders.
Annual Inflation Escalation Factor:	0.00%	Projected annual inflation rate.
Time Until Project Midpoint (Months)	10	Number of months from estimate (or data) date until the projects midpoint of construction.

OTHER COMMENTS:

This estimate is for direct construction cost only. It does not include furnishings & equipment, architect and engineer design fees, consultant fees, inspection and testing fees, plan check fees, hazardous material testing and removal, financing costs, nor any other normally associated development costs. This estimate assumes competitive bidding of no less than three (3) bidders. This is a probable cost estimate based on in-progress documentation provided by the architect. The actual bid documents will vary from this estimate due to document completion, detailing, specification, addendum, etc. The estimator has no control over the cost or availability of labor, equipment, materials, over market conditions or contractor's method of pricing, contractor's construction logistics and scheduling.

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

PROJECT COST SUMMARY

Project: Quincy Mine Company Office
Park: Keweenaw National Historic Park
Alpha: KEWE
PMIS: 237234

Estimate By: McCabe Karcher
Date: 10/28/2019 V 1.0

Reviewed By: Seth Pszczolkowski
Date: 10/28/19

Item No.	Description	Quantity	Unit	Cost/Unit	Total
1	Base Bid	1	VALUE	$1,653,835	$1,653,835
	Subtotal Direct Construction Costs				**$1,653,835**
	Value of Government Furnished Property (GFP) Included in Direct Cost (see footnote)*				**$0**
				Direct Cost Subtotal without GFP	**$1,653,835**
	Published Location Factor	-19.00%			-$314,229
	Remoteness Factor	13.00%			$214,998
	Federal Wage Rate Factor	0.00%			$0
	State & Local Taxes - 40% of Direct Costs	6.00%			$39,692
	Design Contingency	20.00%			$330,767
	Total Direct Construction Costs				**$1,925,063**
	Standard General Conditions	15.00%			$288,760
	Government General Conditions	10.00%			$192,506
	Historic Preservation Factor	10.00%			$192,506
	Subtotal NET Construction Cost				**$2,598,836**
	Overhead	15.00%			$389,825
	Profit	10.00%			$259,884
	Estimated NET Construction Cost				**$3,248,545**
	Bonds & Permits	3.18%			**$103,174**
	Contracting Method Adjustment	15.00%			$487,282
	Inflation Escalation	10	Months	0.00%	$0
	Total Estimated NET Cost of Construction				**$3,839,000**

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Quincy Mine Company Office**	**Estimate By:**	McCabe Karcher
Park:	**Keweenaw National Historic Park**	**Date:**	10/28/2019 V 1.0
Park Alpha:	**KEWE**	**Reviewed By:**	Seth Pszczolkowski
PMIS Number:	**237234**	**Date:**	10/28/19
Summary Item 1	**Base Bid**	**Total Cost:**	$1,653,835

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A10	**FOUNDATIONS**					
Level 3 Code	Install & monitor crack gauge	1	EA	$ 500.00	$500	
Level 3 Code	Stabilize & waterproof the foundations	1	ALLW	$ 75,000.00	$75,000	Allowance
Level 3 Code	Front Porch Pier Underpinning Allowance	1	ALLW	$ 600.00	$600	Allowance
Level 3 Code	Monitor basement slab	1	LS	$ 500.00	$500	Alternate 2
Level 3 Code	Preserve and stabilize the masonry foundation and in-ground utility trench	1	ALLW	$ 25,000.00	$25,000	per Laine
Level 3 Code	Description	0	Unit	$ -	$0	
	SUBTOTAL FOUNDATIONS	**1**	**VALUE**	**$ 101,600.00**	**$101,600**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
A20	**BASEMENT CONSTRUCTION**					
Level 3 Code	GPR slab	2646	SF	$ 1.50	$3,969	
Level 3 Code	Demo Slab	2646	SF	$ 5.00	$13,230	
Level 3 Code	Install sump & underdrain system	1	EA	$ 7,250.00	$7,250	Assume 50 lf underdrain
Level 3 Code	Reinforced slab	2646	SF	$ 8.62	$22,809	
Level 3 Code	New elevator concrete platform (5') with formwork, reinforcement	9	CY	$ 500.00	$4,500	Alternate 2
Level 3 Code	Strip footing for hoistway	30	LF	$ 30.00	$900	
Level 3 Code	Description	0	Unit	$ -	$0	
	SUBTOTAL BASEMENT CONSTRUCTION	**1**	**VALUE**	**$ 52,657.52**	**$52,658**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
B20	**EXTERIOR CLOSURE**					

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Quincy Mine Company Office**	**Estimate By:**	McCabe Karcher
Park:	**Keweenaw National Historic Park**	**Date:**	10/28/2019 V 1.0
Park Alpha:	**KEWE**	**Reviewed By:**	Seth Pszczolkowski
PMIS Number:	**237234**	**Date:**	10/28/19

Summary Item 1 **Base Bid** **Total Cost:** $1,653,835

Level 3 Code	Repoint Masonry	100	LF	$	75.00	$7,500	
Level 3 Code	Fill 15 LF cracks in masonry	15	LF	$	100.00	$1,500	
Level 3 Code	Rod & epoxy lintels	6	EA	$	350.00	$2,100	
Level 3 Code	Replace broken stones @ rear porch entry	3	EA	$	440.00	$1,320	
Level 3 Code	Replace steps @ east entry plus landing & entry	8	EA	$	550.00	$4,400	
Level 3 Code	Steel handrails	2	EA	$	1,500.00	$3,000	
Level 3 Code	Repaint exterior trim	1	ALLW	$	10,000.00	$10,000	
Level 3 Code	Rehab historic windows	8	EA	$	2,500.00	$20,000	
Level 3 Code	One over one storm windows	8	EA	$	750.00	$6,000	
Level 3 Code	Rehab exterior doors	4	EA	$	500.00	$2,000	
Level 3 Code	Rear porch 25% wood replacement & 25% repair, paint	72	SF	$	45.00	$3,240	Includes PT joists
Level 3 Code	Wall framing - Monitor water infiltration	1	LS	$	1,500.00	$1,500	
Level 3 Code	Wall framing - Monitor cracks in lintel	1	LS	$	500.00	$500	
Level 3 Code	Reconstruct pay office stairs and handrails	1	LS	$	3,500.00	$3,500	Alternate 2
Level 3 Code	Description	0	Unit	$	-	$0	
SUBTOTAL EXTERIOR CLOSURE		**1**	**VALUE**	**$**	**66,560.00**	**$66,560**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
B30	**ROOFING**					
Level 3 Code	Replace slate roof tiles	60	SF	$ 28.00	$1,680	
Level 3 Code	New ice & water shield	1	LS	$ 250.00	$250	
Level 3 Code	New snowguards	1	ALLW	$ 10,000.00	$10,000	
Level 3 Code	Roof leak remediation	1	ALLW	$ 5,400.00	$5,400	
Level 3 Code	West porch roof replace	176	SF	$ 7.50	$1,320	
Level 3 Code	Lead copper eave flashing & reglet	22	LF	$ 40.00	$880	
Level 3 Code	Install A35 clips on rafters	1	LS	$ 1,000.00	$1,000	
Level 3 Code	Install gutter tension wires	1	LS	$ 1,500.00	$1,500	
Level 3 Code	Description	0	Unit	$ -	$0	
SUBTOTAL ROOFING		**1**	**VALUE**	**$ 22,030.00**	**$22,030**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Quincy Mine Company Office**	**Estimate By:**	McCabe Karcher
Park:	**Keweenaw National Historic Park**	**Date:**	10/28/2019 V 1.0
Park Alpha:	**KEWE**	**Reviewed By:**	Seth Pszczolkowski
PMIS Number:	**237234**	**Date:**	10/28/19

Summary Item 1 **Base Bid** **Total Cost:** $1,653,835

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
C10	**INTERIOR CONSTRUCTION**					
Level 3 Code	CMU walls for elevator	1040	SF	$ 12.00	$12,480	Alternate 2
Level 3 Code	2-hour ceiling for elevator	46	SF	$ 45.00	$2,070	Alternate 2
Level 3 Code	Steel for ceiling	1	ALLW	$ 4,000.00	$4,000	Alternate 2
Level 3 Code	RR partition walls, Rooms 111 & 208	288	SF	$ 40.00	$11,520	Alternate 2
Level 3 Code	Shorten existing wood floor framing and attach to the CMU hoistway walls w/ hangers	1	ALLW	$ 10,000.00	$10,000	Alternate 2
Level 3 Code	Rooms 111 & 208 - Lintels	4	EA	$ 750.00	$3,000	Alternate 2
Level 3 Code	Description	0	Unit	$ -	$0	
	SUBTOTAL INTERIOR CONSTRUCTION	**1**	**VALUE**	**$ 43,070.00**	**$43,070**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Quincy Mine Company Office**	**Estimate By:**	McCabe Karcher
Park:	**Keweenaw National Historic Park**	**Date:**	10/28/2019 V 1.0
Park Alpha:	**KEWE**	**Reviewed By:**	Seth Pszczolkowski
PMIS Number:	**237234**	**Date:**	10/28/19

Summary Item 1 **Base Bid** **Total Cost:** $1,653,835

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
C20	**STAIRCASES**					
Level 3 Code	Room 112 sand & refinish stair treads, risers, railings	378	SF	$ 11.50	$4,347	
Level 3 Code	Room 112 wood handrail	9	LF	$ 45.00	$405	
Level 3 Code	Room 112 new tread covers	11	EA	$ 100.00	$1,100	
Level 3 Code	Room 201 new handrail	13	LF	$ 45.00	$585	
Level 3 Code	Room 201 new tread covers	3	EA	$ 100.00	$300	
Level 3 Code	Room 210 new handrail	13	LF	$ 45.00	$585	
Level 3 Code	Room 210 new tread covers	11	EA	$ 100.00	$1,100	
Level 3 Code	Rooms 201, 210 sand & refinish treads, risers, railings	247	SF	$ 11.50	$2,841	
	SUBTOTAL STAIRCASES	**1**	**VALUE**	**$ 11,262.50**	**$11,263**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
C30	**INTERIOR FINISHES**					
Level 3 Code	Sand & refinish wood floors	4200	SF	$ 4.00	$16,800	
Level 3 Code	Install capillary break - copper flashing	160	LF	$ 19.16	$3,066	
Level 3 Code	Repair plaster	144	SF	$ 75.00	$10,800	
Level 3 Code	Paint all plaster	3408	SF	$ 1.50	$5,112	
Level 3 Code	Repair 5% woodwork	1	ALLW	$ 10,000.00	$10,000	
Level 3 Code	Rehab interior shutters	92	EA	$ 250.00	$23,000	
Level 3 Code	Sand & refinish wood sills	20	EA	$ 250.00	$5,000	
Level 3 Code	Room 109 new wood floor & sills	153	SF	$ 11.84	$1,812	
Level 3 Code	Thumblatch and ABAAS door hardware	8	EA	$ 500.00	$4,000	
Level 3 Code	Interior touch up doors, glazing compound, oil hinges	23	EA	$ 500.00	$11,500	
Level 3 Code	Rooms 105, 202, 205 replace tiles & firebox trim	3	EA	$ 750.00	$2,250	
Level 3 Code	Room 109 bead board, quarter round, refinish wood	1	LS	$ 5,000.00	$5,000	
Level 3 Code	Room 112 sand & refinish wainscot in stairwell	70	SF	$ 4.00	$280	
Level 3 Code	Room 201 sand & refinish wainscot in stairwell	75	SF	$ 4.00	$300	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Quincy Mine Company Office**	**Estimate By:**	McCabe Karcher
Park:	**Keweenaw National Historic Park**	**Date:**	10/28/2019 V 1.0
Park Alpha:	**KEWE**	**Reviewed By:**	Seth Pszczolkowski
PMIS Number:	**237234**	**Date:**	10/28/19

Summary Item 1 **Base Bid** **Total Cost:** $1,653,835

Level 3 Code	Room 203 replace single pane lite	1	LS	$ 500.00	$500	
Level 3 Code	Room 204 sand & refinish wood panels	2	EA	$ 200.00	$400	
Level 3 Code	Room 204 regrout hearth	15	SF	$ 5.50	$83	
Level 3 Code	Doors 109/110 - Reverse swing, hardware, threshold	2	EA	$ 1,850.00	$3,700	Alternate 2
Level 3 Code	Door 112 - reverse swing, hardware	1	EA	$ 1,750.00	$1,750	Alternate 2
Level 3 Code	RR ceramic tile 48" AFF	112	SF	$ 22.00	$2,464	Alternate 2
Level 3 Code	RR accessories	1	LS	$ 900.00	$900	Alternate 2
Level 3 Code	Repair of finishes due to systems work	1	ALLW	$ 25,000.00	$25,000	
Level 3 Code	Door 208 - relocate, reverse swing	1	EA	$ 1,250.00	$1,250	Alternate 2
Level 3 Code	Furr out / gyp	160	SF	$ 20.00	$3,200	Alternate 2
Level 3 Code	Level wood floor at elevator	20	SF	$ 12.00	$240	Alternate 2
Level 3 Code	Occupancy Load signage	1	LS	$ 200.00	$200	Alternate 2
Level 3 Code	Description	0	Unit	$ -	$0	
SUBTOTAL INTERIOR FINISHES		**1**	**VALUE**	**$ 138,605.62**	**$138,606**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
D10	**CONVEYING SYSTEMS**					
Level 3 Code	2-stop, 2,000 lb., 100+ fps MRL elevator	1	LS	$ 75,000.00	$75,000	Alternate 2
Level 3 Code	Description	0	Unit	$ -	$0	
SUBTOTAL CONVEYING SYSTEMS		**1**	**VALUE**	**$ 75,000.00**	**$75,000**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
D20	**PLUMBING**					
Level 3 Code	Pex Piping 1/2"	12	LF	$ 13.15	$158	
Level 3 Code	Waste piping, 2"	100	LF	$ 24.09	$2,409	
Level 3 Code	L-Cu Dist. Piping 3/4"	67	LF	$ 19.38	$1,298	
Level 3 Code	L-Cu Dist. Piping 1"	29	LF	$ 23.07	$669	
Level 3 Code	Drain System & CTE DHW Line	2	EA	$ 250.00	$500	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Quincy Mine Company Office**	**Estimate By:**	McCabe Karcher
Park:	**Keweenaw National Historic Park**	**Date:**	10/28/2019 V 1.0
Park Alpha:	**KEWE**	**Reviewed By:**	Seth Pszczolkowski
PMIS Number:	**237234**	**Date:**	10/28/19

Summary Item 1 **Base Bid** **Total Cost:** $1,653,835

Level 3 Code	1" RPBFP Complete	1	EA	$	975.00	$975	
Level 3 Code	Balancing Valve	1	EA	$	164.00	$164	
Level 3 Code	MMV-1 Master Mixing Valve	1	EA	$	642.00	$642	
Level 3 Code	CP-1 DHW Circulation Pump	1	EA	$	570.00	$570	
Level 3 Code	Piping Insulation Domestic H&C	157	LF	$	16.10	$2,528	
Level 3 Code	SP-1, elevator sump pump w/ discharge piping	1	EA	$	1,550.00	$1,550	
Level 3 Code	F&I New Discharge Line to SW Corner CTE	1	LS	$	1,065.00	$1,065	
Level 3 Code	Demo sump pump & garden hoses	2	EA	$	345.00	$690	
Level 3 Code	Create a larger basin & provide new basin & pumps	1	EA	$	11,658.00	$11,658	
Level 3 Code	New basin pumps / level control / oil alarm	1	EA	$	6,750.00	$6,750	
Level 3 Code	Seismic bracing	4	EA	$	168.00	$672	
Level 3 Code	Penetrate Wall/Roof and Seal Tight	1	EA	$	210.00	$210	Alternate 2
Level 3 Code	GSV Emergency Solenoid Valves	1	EA	$	715.00	$715	Alternate 2
Level 3 Code	Emergency Shut off Switch	1	EA	$	425.00	$425	Alternate 2
Level 3 Code	1-1/2" - 2" Blk Stl Gas Piping	60	LF	$	31.73	$1,904	Alternate 2
Level 3 Code	CTE 2" Blk Stl Gas Line @ Meter	1	LS	$	750.00	$750	Alternate 2
Level 3 Code	Gas Piping Connections	1	EA	$	350.00	$350	Alternate 2
Level 3 Code	CI Waste & Vent AG 2"	78	LF	$	25.20	$1,966	Alternate 2
Level 3 Code	CI Waste & Vent AG 3"	20	LF	$	31.67	$633	Alternate 2
Level 3 Code	Wall Cleanout 2"	2	EA	$	212.00	$424	Alternate 2
Level 3 Code	Flashings (VTR's) 2"-4"	2	EA	$	142.00	$284	Alternate 2
Level 3 Code	Pex Piping 1/2"	41	LF	$	13.15	$539	Alternate 2
Level 3 Code	L-Cu Dist. Piping 3/4"	20	LF	$	19.38	$388	Alternate 2
Level 3 Code	L-Cu Dist. Piping 1"	16	LF	$	23.07	$369	Alternate 2
Level 3 Code	Access Panel for Valves	2	EA	$	220.00	$440	Alternate 2
Level 3 Code	Piping Insulation - Domestic H&C	137	LF	$	16.10	$2,206	Alternate 2
Level 3 Code	New Low-Flow Tank-Type Water Closet	2	EA	$	886.00	$1,772	Alternate 2
Level 3 Code	Lavatory - Wall Hung Low-Flow Faucet	2	EA	$	914.00	$1,828	Alternate 2
Level 3 Code	Mop sinks	2	EA	$	764.00	$1,528	Alternate 2
Level 3 Code	Description	0	Unit	$	-	$0	
SUBTOTAL PLUMBING		**1**	**VALUE**	**$**	**49,028.36**	**$49,028**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Quincy Mine Company Office**	**Estimate By:**	McCabe Karcher
Park:	**Keweenaw National Historic Park**	**Date:**	10/28/2019 V 1.0
Park Alpha:	**KEWE**	**Reviewed By:**	Seth Pszczolkowski
PMIS Number:	**237234**	**Date:**	10/28/19
Summary Item 1	**Base Bid**	**Total Cost:**	$1,653,835

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
D30	**HVAC**					
Level 3 Code	HVAC Demo - Remove Floor Diff on 1st Floor - Enlarge	12	EA	$ 305.00	$3,660	Alternate 2
Level 3 Code	HVAC Demo - Demo Forced Air Furnace	650	EA	$ 405.00	$263,250	Alternate 2
Level 3 Code	HVAC Demo - Demo Ductwork	1500	LB	$ 3.00	$4,500	Alternate 2
Level 3 Code	Piping Insulation	61	LF	$ 23.61	$1,440	Alternate 2
Level 3 Code	Ductwork FG ASH 1-1/2" Thick	2170	LF	$ 2.68	$5,816	Alternate 2
Level 3 Code	L-Cu 95/5 1/2"	12	LF	$ 32.80	$394	
Level 3 Code	L-Cu 95/5 3/4"	76	LF	$ 37.63	$2,860	
Level 3 Code	L-Cu 95/5 1"	10	LF	$ 47.26	$473	
Level 3 Code	Re-install relocated heating radiator	2	EA	$ 1,059.00	$2,118	Alternate 2
Level 3 Code	Sleeves w/ Fire Sealant 1" - 2"	4	EA	$ 136.00	$544	Alternate 2
Level 3 Code	Connect to Existing HWS/R Lines	2	EA	$ 550.00	$1,100	Alternate 2
Level 3 Code	Radiator Connection Piping	2	EA	$ 815.00	$1,630	Alternate 2
Level 3 Code	AHU-1 Basement Air Handler DX Clg Gas Ht	1	EA	$ 28,870.00	$28,870	Alternate 2
Level 3 Code	Housekeeping Pad for CU-1	1	EA	$ 1,350.00	$1,350	Alternate 2
Level 3 Code	CU-1 Heat Pump Condensing Unit with pad	1	EA	$ 29,400.00	$29,400	Alternate 2
Level 3 Code	Rigging	1	LS	$ 1,500.00	$1,500	Alternate 2
Level 3 Code	Refrigerant Piping (Suction & Liquid)	120	LF	$ 65.63	$7,876	Alternate 2
Level 3 Code	Insulation	120	LF	$ 15.00	$1,800	Alternate 2
Level 3 Code	Galvanized Rectangular & Spiral Duct OSA	1030	LB	$ 9.00	$9,270	Alternate 2
Level 3 Code	Galvanized Rectangular & Spiral Duct S/A	5670	LB	$ 9.00	$51,030	Alternate 2
Level 3 Code	Galvanized Rectangular & Spiral Duct R/A + E/A	2430	LB	$ 9.00	$21,870	Alternate 2
Level 3 Code	Insulated Flex Duct to Diffusers	90	LF	$ 9.39	$845	Alternate 2
Level 3 Code	Standard S/A Diffusers	12	EA	$ 71.00	$852	Alternate 2
Level 3 Code	R/A Grills	3	EA	$ 67.00	$201	Alternate 2
Level 3 Code	Exhaust registers	3	EA	$ 84.00	$252	Alternate 2
Level 3 Code	New larger R/A floor registers	12	EA	$ 76.00	$912	Alternate 2
Level 3 Code	Volume Dampers	30	EA	$ 52.00	$1,560	Alternate 2

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Quincy Mine Company Office**	**Estimate By:**	McCabe Karcher
Park:	**Keweenaw National Historic Park**	**Date:**	10/28/2019 V 1.0
Park Alpha:	**KEWE**	**Reviewed By:**	Seth Pszczolkowski
PMIS Number:	**237234**	**Date:**	10/28/19

Summary Item 1 **Base Bid** **Total Cost:** $1,653,835

Level 3 Code	VAV 1-1 Thru 2-4 Terminal Units	10	EA	$	585.00	$5,850	Alternate 2
Level 3 Code	Seismic Bracing	1	LS	$	1,150.00	$1,150	Alternate 2
Level 3 Code	DDC Controls for Air Handler and TU's	55	EA	$	975.00	$53,625	Alternate 2
Level 3 Code	Air & Water Balancing	1	LS	$	2,550.00	$2,550	Alternate 2
Level 3 Code	Mechanical/Plumbing Indirect Costs	1	LS	$	11,495.00	$11,495	Alternate 2
Level 3 Code	Description	0	Unit	$	-	$0	
	SUBTOTAL HVAC	**1**	**VALUE**	**$**	**520,041.59**	**$520,042**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Quincy Mine Company Office**	**Estimate By:**	McCabe Karcher
Park:	**Keweenaw National Historic Park**	**Date:**	10/28/2019 V 1.0
Park Alpha:	**KEWE**	**Reviewed By:**	Seth Pszczolkowski
PMIS Number:	**237234**	**Date:**	10/28/19

Summary Item 1 **Base Bid** **Total Cost:** $1,653,835

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
D40	**FIRE PROTECTION**					
Level 3 Code	Wet pipe system: basement, 1st, 2nd	7872	SF	$ 10.00	$78,720	
Level 3 Code	Dry system for the attic	2668	SF	$ 14.00	$37,352	
Level 3 Code	Description	0	Unit	$ -	$0	
	SUBTOTAL FIRE PROTECTION	**1**	**VALUE**	**$ 116,072.00**	**$116,072**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
D50	**ELECTRICAL**					
Level 3 Code	Install New Electrical Service	1	LS	$ 21,608.00	$21,608	
Level 3 Code	Install Underground Feeder	100	LF	$ 145.00	$14,500	
Level 3 Code	Trenching	100	LF	$ 65.00	$6,500	
Level 3 Code	Upgrade Electrical Distribution	10280	SF	$ 2.75	$28,270	
Level 3 Code	Upgrade Lighting	10280	SF	$ 5.00	$51,400	
Level 3 Code	Upgrade Lighting controls	10280	SF	$ 1.50	$15,420	
Level 3 Code	Install New FA System	10280	SF	$ 2.20	$22,616	
Level 3 Code	Demo OH Comm Service Lines	1	EA	$ 1,419.00	$1,419	
Level 3 Code	Upgrade Comm System	1	LS	$ 15,480.00	$15,480	
Level 3 Code	Install Lightning Protection	1	LS	$ 25,000.00	$25,000	
Level 3 Code	Elevator Feeder & Bussman Module	1	EA	$ 10,159.00	$10,159	Alternate 2
Level 3 Code	Circuit Sump Pump	1	EA	$ 871.00	$871	Alternate 2
Level 3 Code	Circuit / Lockable Switch-Cab Lights	1	EA	$ 832.00	$832	Alternate 2
Level 3 Code	Data Connection Elevator Controller	1	EA	$ 661.00	$661	Alternate 2
Level 3 Code	Circuit Transfer Fan Elevator Control Room	1	EA	$ 839.00	$839	Alternate 2
Level 3 Code	Circuit RR EF	1	EA	$ 258.00	$258	Alternate 2
Level 3 Code	Circuit AHU	1	EA	$ 3,935.00	$3,935	Alternate 2
Level 3 Code	Circuit Condensing Unit	1	EA	$ 3,483.00	$3,483	Alternate 2
Level 3 Code	Install GFCI Duplex	2	EA	$ 355.00	$710	Alternate 2

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Quincy Mine Company Office**	**Estimate By:**	McCabe Karcher
Park:	**Keweenaw National Historic Park**	**Date:**	10/28/2019 V 1.0
Park Alpha:	**KEWE**	**Reviewed By:**	Seth Pszczolkowski
PMIS Number:	**237234**	**Date:**	10/28/19

Summary Item 1 **Base Bid** **Total Cost:** $1,653,835

Level 3 Code	Install Occ Sensor Switch	1	EA	$ 219.00	$219	Alternate 2
Level 3 Code	Install Vanity Light	1	EA	$ 419.00	$419	Alternate 2
Level 3 Code	Install LED Downlight	1	EA	$ 371.00	$371	Alternate 2
Level 3 Code	Install Exterior EM Light	1	EA	$ 1,013.00	$1,013	Alternate 2
Level 3 Code	Install Exit Sign	1	EA	$ 371.00	$371	Alternate 2
Level 3 Code	Install Interior EM Light	2	EA	$ 339.00	$678	Alternate 2
Level 3 Code	Demo / Relocate Electrical	1	LS	$ 3,483.00	$3,483	Alternate 2
Level 3 Code	Description	0	Unit	$ -	$0	
SUBTOTAL ELECTRICAL		**1**	**VALUE**	**$ 230,515.00**	**$230,515**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Quincy Mine Company Office**	**Estimate By:**	McCabe Karcher
Park:	**Keweenaw National Historic Park**	**Date:**	10/28/2019 V 1.0
Park Alpha:	**KEWE**	**Reviewed By:**	Seth Pszczolkowski
PMIS Number:	**237234**	**Date:**	10/28/19

Summary Item 1 **Base Bid** **Total Cost:** $1,653,835

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
F10	**SPECIAL CONSTRUCTION**					
Level 3 Code	Room 110 salvage and transport wallboards	21	SF	$ 25.00	$525	
Level 3 Code	Room 206 salvage and transport historic bench	1	LS	$ 750.00	$750	
Level 3 Code	Room 208 salvage and transport wall sconces	2	EA	$ 250.00	$500	
Level 3 Code	Room 101 water intrusion investigation	1	LS	$ 4,000.00	$4,000	
Level 3 Code	Investigate ridge for water intrusion	1	LS	$ 2,000.00	$2,000	
Level 3 Code	Description	0	Unit	$ -	$0	
	SUBTOTAL SPECIAL CONSTRUCTION	**1**	**VALUE**	**$ 7,775.00**	**$7,775**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
F20	**SELECTIVE BUILDING DEMOLITION**					
Level 3 Code	Lead based paint , microbial, and asbestos mgmt	1	EA	$ 6,000.00	$6,000	
Level 3 Code	Demo wood vestibule & steps	72	SF	$ 12.00	$864	
Level 3 Code	Demo carpet	1320	SF	$ 1.00	$1,320	
Level 3 Code	Room 109 Demo wood floor, plywood shroud @ walls	153	SF	$ 12.00	$1,836	
Level 3 Code	Room 111 Demo drop ceiling	200	SF	$ 7.00	$1,400	
Level 3 Code	Rooms 115, 107, 108 Demo drop ceiling, R&R molding	1080	SF	$ 11.50	$12,420	
Level 3 Code	Remove impermeable coating @ basement walls	1818	SF	$ 7.50	$13,635	
Level 3 Code	Demo ceilings for elevator	138	SF	$ 25.00	$3,450	Alternate 2
Level 3 Code	Cut brick walls for doors	72	SF	$ 20.00	$1,440	Alternate 2
Level 3 Code	Sawcut slab	49	SF	$ 12.00	$588	Alternate 2
Level 3 Code	Description	0	Unit	$ -	$0	
	SUBTOTAL SELECTIVE BUILDING DEMOLITION	**1**	**VALUE**	**$ 42,953.00**	**$42,953**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Quincy Mine Company Office**	**Estimate By:**	McCabe Karcher
Park:	**Keweenaw National Historic Park**	**Date:**	10/28/2019 V 1.0
Park Alpha:	**KEWE**	**Reviewed By:**	Seth Pszczolkowski
PMIS Number:	**237234**	**Date:**	10/28/19

Summary Item 1 **Base Bid** **Total Cost:** $1,653,835

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G10	**SITE PREPARATION**					
Level 3 Code	Permeable grass parking lot - rough grading, rolling	17600	SF	$ 0.28	$4,928	
Level 3 Code	Description	0	Unit	$ -	$0	
	SUBTOTAL SITE PREPARATION	**1**	**VALUE**	**$ 4,928.00**	**$4,928**	

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G20	**SITE IMPROVEMENTS**					
Level 3 Code	Permeable grass parking lot- ecogrid, grass seed	17600	SF	$ 2.50	$44,000	Alternate 2
Level 3 Code	Minor repair - address ruts	1	ALLW	$ 5,000.00	$5,000	Alternate 2
Level 3 Code	Match existing gravel surface	9120	SF	$ 1.30	$11,856	Alternate 2
Level 3 Code	Extend front sidewalk	4560	SF	$ 8.50	$38,760	Alternate 2
Level 3 Code	ABA Curb ramps	3	EA	$ 1,000.00	$3,000	Alternate 2
Level 3 Code	Pruning / thinning	1	LS	$ 500.00	$500	Alternate 2
Level 3 Code	Modify pay office walkway	1	ALLW	$ 2,500.00	$2,500	Alternate 2
Level 3 Code	Install swale and two inlets	1	LS	$ 10,400.00	$10,400	Includes underground drainage
Level 3 Code	Ramp framing	880	SF	$ 30.00	$26,400	Alternate 2
Level 3 Code	Ramp concrete	6	CY	$ 350.00	$2,100	Includes stone base
Level 3 Code	Handrails	560	SF	$ 35.00	$19,600	Alternate 2
Level 3 Code	Sidewalk to ADA parking lot spaces	250	SF	$ 8.50	$2,125	
Level 3 Code	Sod ramp area	1100	SF	$ 0.45	$495	
Level 3 Code	Reconstruct walkway where damaged	1	ALLW	$ 5,000.00	$5,000	
Level 3 Code	Description	0	Unit	$ -	$0	
	SUBTOTAL SITE IMPROVEMENTS	**1**	**VALUE**	**$ 171,736.00**	**$171,736**	

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate

LINE ITEM COST SUMMARY

Project:	**Quincy Mine Company Office**	**Estimate By:**	McCabe Karcher
Park:	**Keweenaw National Historic Park**	**Date:**	10/28/2019 V 1.0
Park Alpha:	**KEWE**	**Reviewed By:**	Seth Pszczolkowski
PMIS Number:	**237234**	**Date:**	10/28/19

Summary Item 1 **Base Bid** **Total Cost:** $1,653,835

TOTAL COST - Base Bid	**1**	**VALUE**	**$ 1,653,834.59**	**$1,653,835**	



AGENT'S AND CLERK'S OFFICE, QUINCY MINE,
HANCOCK, LAKE SUPERIOR, MICH.

QUINCY MINE OFFICE
KEWEENAW NATIONAL HISTORICAL PARK
Historic Structure Report

2019