OIL HOUSE #1

Chronology of Alterations and Use

Original Construction

The Devils Island Oil House #1 (east) was constructed in 1892.[34]

The building is located between the Keepers and Assistant Keepers Quarters. (Historic Image DI-01*)*

There are no available historic drawings for this building.

Significant Alterations / Current condition

One alteration to the Devils Island Oil House #1 is the cedar shingle reroofing that occurred in 2006. The Historic Structure Preservation Team at the NPS completed this project. The original roofing material is unknown but it is unlikely that it was a combustible material. Many of the other oil houses have metal shingles.

This building contains no mechanical or electrical systems and is currently used as storage.

This building is currently in good condition.

[34] Busch, Jane C. "People and Places: A Human History of the Apostle Islands; Historic Resource Study of Apostle Islands National Lakeshore" Bayfield: Apostle Islands National Lakeshore. 2008.

Summary of Documented Work on the Building

Date	Work Described	Source of Information
1952, August	August 12: "…painting light tower, roof of spare parts locker." (one of the oil houses, also referred to as "gear locker") August 15: "Painted light tower, paint locker, and inside of fog signal."	USCG Log, summarized by Bob Mackreth, 2004
2006	Reroofed with cedar shingles	HSPT Reports, 2009

General Physical Description

This building is a small one-story, single room utilitarian brick structure with a brick foundation. The roof is hipped with wood shingles and the eaves are boxed and trimmed. The hollow core, wood door is located on the north elevation.

Physical Description -- Architecture

Architecture – Roof
The roof is hipped with wood (cedar) butt shaped shingles with a 5" exposure. It was reroofed in 2006. The roof has prefinished metal (red) drip flashing and a galvanized ridge flashing on wood with prefinished ball closure pieces at each corner. In 1904, it does not show signs of having ridge trim. The eave consists of a boxed soffit with ogee trim as the closure to the masonry. The eave extends +/- 9" with all members wood, painted. The sheathing was not visible so it is unknown if it is spaced.

Architecture – Exterior Walls
The exterior walls consists of red brick running bond with a rowlock course below the floor slab, soldier course detailing at top of the wall, and a flared brick header of soldier course at the door opening. The walls are similar to those of the Keepers Quarters. A mortar sample taken revealed that the mortar was composed of lime and coarse sand, with a rough mixture of one part lime to two parts sand, by volume. The mixture composition is similar to the Keepers Quarters mortar, but the sand coarseness differs.

Architecture – Door
The entry door is a contemporary wood, flush, hollow-core door with two hinges and contemporary hardware. (DI-OH1-06)

Architecture – Exterior Trim
Refer to roofing section. (DI-OH1-05)

Architecture – Wall Finish
The interior wall finish for this building is the original running bond brick painted white.

Architecture – Ceiling Finish
The ceiling finish is composed of 3 ½" wide beadboard painted blue-gray. This finish is original to the building.

Architecture – Floor
The floor is concrete that is painted red. The floor is original to the building.

Architecture – Casework
There are two wood shelving units, painted blue-gray, on the northeast and southwest walls. Both shelves look modern.

Architecture – Accessibility
The building is currently not accessible nor is there a clear 5'-0" diameter space within. The entry door opening is 2'-6" clear with a grade to finished floor elevation change of 1'- 1 ½" with no stairs. This door has a concrete sill.

Physical Description -- Structural

Structural – Foundation
The perimeter foundation system consists of brick masonry walls.

Structural – Floor Framing
The floor is a concrete slab-on-grade.

Structural – Roof Framing
The roof framing was not accessible and could not be measured.

Structural – Wall Framing
The exterior walls are constructed of brick masonry.

Structural – Lateral System
Lateral stability for the building is provided by the brick masonry walls.

Structural – Load Requirements
The required floor load capacity is 125 psf and the required roof snow load capacity is 40 psf.

Physical Description -- Mechanical

Mechanical – Plumbing Systems
None in the building.

Mechanical – HVAC
None in the building.

Mechanical – Fire Suppression
None in the building.

Physical Description -- Electrical

Electrical – System Configuration
None in the building.

Electrical – Conductor Insulation
None in the building.

Electrical – Overcurrent Protection
None in the building.

Electrical – Lighting Systems
None in the building.

Electrical – Telecommunications
None in the building.

Electrical – Fire Alarm System
None in the building.

Electrical – Lightning Protection
None in the building.

Physical Description -- Hazardous Materials

Landmark Environmental collected 12 bulk samples from a total of 12 different types of suspected asbestos containing materials (ACMs) at Devils Island. Of the 12 suspect ACMs that were sampled and analyzed, a total of three suspect ACMs resulted in concentration of greater than one percent (positive for asbestos).

Hazardous Materials – Asbestos
The following suspect ACMs were not sampled due to inaccessibility or park limitation regarding potential for damage to structures. Asbestos is assumed to be present in:

1. Adhesives,
2. Wall Interiors,
3. Brick and Block Filler (The interior of the structure is brick and has the potential to have a block filler or grout that is potentially asbestos containing, and,
4. Asbestos-cement (Piping, wall-board, wall interior panels, roof flashing and roofing applications can be constructed of asbestos-cement. This type of application was not observed at the structure but may be present).

The assumed ACMs were observed to be in fair condition.

Hazardous Materials – Lead Containing Paint

Detectable lead is assumed to be present at the following locations:

1. Interior Painted Surfaces, and,
2. Exterior Painted Surfaces.

Based on the estimated dates of construction of the various structures, LCP is assumed to be present on painted surfaces throughout the structure. The assumed LCP was observed to be in poor condition.

Paint chip debris was not observed on the ground surface.

Hazardous Materials – Lead Dust

Surface wipe-sampling for lead dust was not conducted in the Oil Houses because they are noninhabited structures.

Hazardous Materials – Lead in Soils

Historical paint maintenance activities such as manual scraping, power-washing, sanding, abrasive blasting or the general poor and peeling condition of exterior LCP may have created the potential to impact the surrounding soil. Areas of the surface soils adjacent to the structure were not observed to have LCP debris and additional areas may exhibit LCP debris or lead-contaminated soils. Preliminary lead-in-soil sampling was not performed to assess whether these near-structure soils contain lead concentrations above applicable soil standards.

Soil Sampling was not conducted around the Oil Houses.

Hazardous Materials – Mold

Inspections of the structure were performed to identify the readily ascertainable visual extent of the mold growth. Moisture testing in building materials was not performed nor was sampling of building materials performed for microbial analysis. Mold was not visually identified in the Oil Houses.

Hazardous Materials – Petroleum Hydrocarbons

Localized areas of staining were observed on concrete floors in the Oil Houses. Stained areas are likely associated with fuel oil, diesel or other petroleum hydrocarbons. Tank and piping systems may also contain petroleum hydrocarbons.

Character Defining Features

Mass/Form. A simple masonry utilitarian hipped roof structure.

Exterior Materials. Red brick with wood shingle roof.

Openings. One modern flush hollow core door.

Interior Materials. Exposed masonry, concrete floor slab and painted beadboard ceiling.

General Condition Assessment

In general, the Devils Island Oil House #1 is in good condition. The original beadboard ceiling, brick walls, and concrete floor are in good condition. The modern hollow core door is in fair condition but shows signs of delaminating.

Structurally, the Oil House #1 is in good condition.

There are no mechanical or electrical systems in Oil House #1.

The following section is a discipline-by-discipline, component-by-component condition assessment of the building. Refer to Volume I, Chapter 2: Methodology for definitions of the condition ratings.

Condition Assessment -- Architecture

Architecture – Roof
Condition: *Good*
This roof and eave are in good condition.

Architecture – Exterior Walls
Condition: *Fair*
The walls are in fair condition with previous repointing work evident by the varying mortar color and tooling. There are many joints with loose or missing mortar.

Architecture – Exterior Door
Condition: *Fair*
The entry door is in fair condition as the frame of the door is beginning to separate from the masonry near the bottom hinge.

Architecture – Exterior Trim
Condition: *N/A*

Architecture – Wall Finish
Condition: *Good*
The painted brick walls are in good condition.

Architecture – Ceiling Finish
Condition: *Good*
The ceiling finish is in good condition.

Architecture – Floor
Condition: *Good to Fair*
The concrete floor is in fair condition as the red paint has all but deteriorated. The concrete is intact.

Architecture – Casework
Condition: *Fair*
The wood shelves have peeling paint, stains, and a few are uneven. Overall, the shelves are in fair condition.

Architecture – Accessibility
Condition: *Poor*
This building is not accessible.

Condition Assessment -- Structural

Structural – Foundation
Condition: *Good*
The visible portion of the perimeter foundation system appeared to be in good condition. No obvious signs of distress or damage were observed.

Structural – Floor Framing
Condition: *Good*
The concrete slab-on-grade is in good condition.

Structural – Roof Framing
Condition: *Unknown*
The roof framing could not be observed, thus its condition is not known. No obvious signs of distress or damage were observed.

Structural – Wall Framing
Condition: *Good*
The exterior walls are in good condition.

Structural – Lateral System
Condition: *Good*
Lateral stability of the building is good.

Structural – Load Requirements
Condition: *Good*
The slab-on-grade has adequate capacity. The roof framing could not be observed, thus its capacity is unknown.

Condition Assessment -- Mechanical

N/A

Condition Assessment -- Electrical

N/A

Condition Assessment -- Hazardous Materials

Refer to 'Physical Description -- Hazardous Materials' for detailed descriptions of locations and conditions of hazardous materials.

Ultimate Treatment and Use

The Oil House #1 was constructed in 1892 as a support building for the temporary wood tower. Since the automation of the cast iron tower light, the building has served as storage.

The building is currently used for storage by the NPS. The proposed use for the Oil House #1 is to remain as a storage building with no public access.

Preservation is the recommended treatment for the building.

Requirements for Treatment

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS and listed in Volume I, Administrative Data section of this report.

The recommended treatments are tailored to the Preferred Alternative as the outcome of the Value Analysis/CBA for the project. As individual buildings are rehabilitated, specific alternatives will present themselves during design and construction. The following section is a discipline-by-discipline, component-by-component description of the treatments proposed for the preservation of the building. Refer to Volume I, Chapter 2: Methodology for the priority rating definitions.

Treatment Recommendations -- Architecture

Architecture – Roof
Priority: *Low*
No recommendations at this time.

Architecture – Exterior Walls
Priority: *Low*
Remove loose mortar and repoint with mortar matching original lime based mortar.

Architecture – Exterior Door
Priority: *Low*
Reattach the frame to the masonry.

Architecture – Wall Finish
Priority: *Low*
No recommendations at this time.

Architecture – Ceiling Finish
Priority: *Low*
No recommendations at this time.

Architecture – Floor
Priority: *Low*
No recommendations at this time.

Architecture – Casework
Priority: *Low*
No recommendations at this time.

Architecture – Accessibility
Priority: *Low*
Provide program access through interpretive exhibits and waysides at the Visitor Center.

Treatment Recommendations -- Structural

Structural – Foundation
Priority: *Low*
No recommendations at this time.

Structural – Floor Framing
Priority: *Low*
No recommendations at this time.

Structural – Roof Framing
Priority: *Low*
No recommendations at this time.

Structural – Wall Framing
Priority: *Low*
No recommendations at this time.

Structural – Lateral System
Priority: *Low*
No recommendations at this time.

Treatment Recommendations -- Mechanical

N/A

Treatment Recommendations -- Electrical

N/A

Treatment Recommendations -- Hazardous Materials

Hazardous Materials – Asbestos
Priority: *Low*
Recommend sampling of suspect asbestos containing materials, including adhesives, wall interiors, brick and block filler, and asbestos cement.

Hazardous Materials – Lead-Containing Paint and Lead Dust
Priority: *Moderate*
Recommend stabilization or abatement of Lead Containing Paint. Lead dust wipe sampling not recommended.

Hazardous Materials – Lead In Soils
Priority: *Low*
Recommend further soils characterization to confirm applicable regulatory requirements.

Hazardous Materials – Mold/Biological
Priority: *Low*
No recommendations at this time.

Hazardous Materials – Petroleum Hydrocarbons
Priority: *Low*
Recommend further investigation and sampling.

Alternatives for Treatment

One alternative treatment for consideration could be for the use by the park to include this building for interpretive use on the interior as opposed to continued use as park storage. However, due to the limited options for the necessary maintenance functions' storage at this remote site, retaining the storage use on the interior is deemed appropriate. At the time of future reroofing a noncombustible material may be considered.

Assessment of Effects for Recommended Treatments

The following table includes an analysis of the major treatment recommendations which affect Section 106 Compliance:

Recommended Treatment	Potential Effects	Mitigating Measures	Beneficial Effects
1. Additional Hazardous Testing and Mitigation	Mitigation of hazardous material may require removal of historic materials.	Any mitigation will need to be evaluated for benefit and implemented sensitively to minimize damage to the resource.	- Improves safety for visitors and staff - Removes hazards from the cultural resource

Oil House #1 Photographs, 2009

DI-OH1-01: North elevation, 2009 (Source: A&A DSC00874)

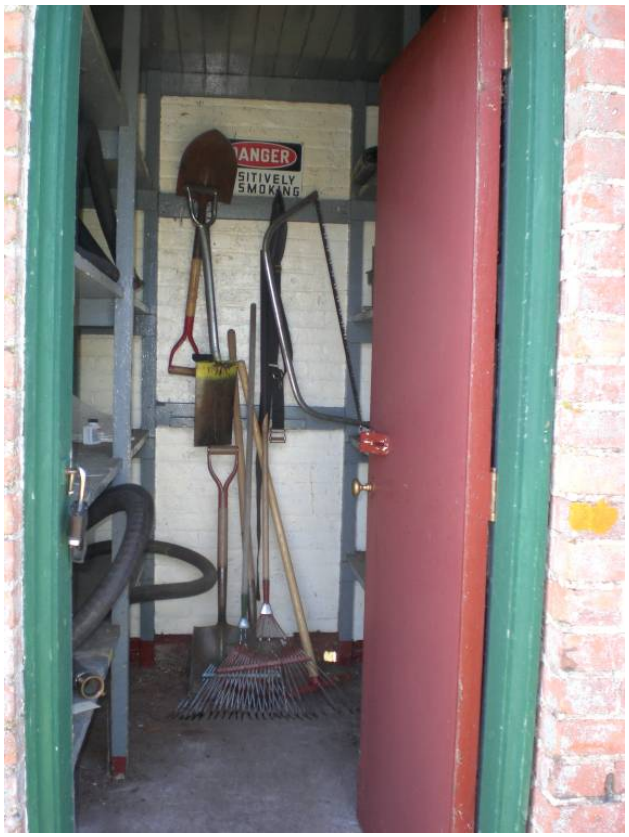
DI-OH1-02: East elevation, 2009 (Source: A&A DSC00875)

DI-OH1-03: South elevation, 2009 (Source: A&A DSC00876)

DI-OH1-04: West elevation, 2009 (Source: A&A DSC00877)

DI-OH1-05: Roof, trim and wall detail (Source: A&A IMGP2919)

DI-OH1-06: North elevation entry door (Source: A&A 100_9779)



DI-OH1-07: South view into interior (Source: A&A CIMG3670)

OIL HOUSE #2

Chronology of Alterations and Use

Original Construction

The Devils Island Oil House #2 (West) was constructed between 1908 and 1913.

There are no available historic drawings for this structure.

Significant Alterations / Current condition

There have been no significant alterations to the Devils Island Oil House #2.

This building contains no electrical systems and is currently used as storage. The only mechanical feature is a circular metal vent that has been sealed off from the interior.

The Oil House #2 is currently in stable condition.

Summary of Documented Work on the Building

Date	Work Described	Source of Information
1952, August	August 12: "…painting light tower, roof of spare parts locker." (one of the oil houses, also referred to as "gear locker") August 15: "Painted light tower, paint locker, and inside of fog signal."	USCG Log, summarized by Bob Mackreth, 2004

General Physical Description

The building is a small, one-story, one room, rectangular utilitarian brick structure on a brick foundation with built out corner plinth bases. The hipped roof has boxed eaves with a painted ogee wood fascia. The roof is covered with scallop-pressed metal shingles except at the apex, which has a circular metal ridge vent painted the same color as the roof shingles. The metal door is located on the northeast elevation.

Physical Description -- Architecture

Architecture – Roof
The roofing is metal shingle, painted dark red, which appears to be original. There is no drip edge flashing evident and the shingles hang over the edge of the eave. The eave extends +/- 12" and consists of a boxed wood soffit with ogee trim at the fascia and as a closure at the wall: soffit. All are painted wood.

Architecture – Exterior Walls
The exterior walls consist of running bond over-sized brick (3 ½" tall, 8 ¾" long, and 4" thick) with plinths at the base of each corner. A sloped parge coat allows drainage from the plinth. Two courses corbel out at the top of the wall just below the final course which is flush to the plane of the exterior wall. A mortar sample taken indicates that the mortar is composed of Portland cement and sand mortar, is hard, and has a gray color. Fine sand was used.

Architecture – Door
The entry door and frame are made of painted plate steel. This door has two hinges and the lockset has been removed. The door appears to be original to the building. The door is reinforced with additional plate steel at its perimeter and across the center on both sides, resembling rails and stiles. A paint sample taken of the door trim (made of plate steel) indicates that the oldest layers of paint were white. There have been eighteen layers of paint on the plate steel, and its variety of colors includes dark gray, green, yellow-orange, and the present-day maroon. (DI-OH2-01)

Architecture – Exterior Trim
Refer to roof section.

Architecture – Wall Finishes
The wall finish for this building is the original oversize common bond brick, unpainted.

Architecture – Ceiling Finishes
The ceiling finish is composed of 3 ½" wide beadboard, painted white. The finish is original to the building.

Architecture – Interior Trim
There is no interior trim in this building.

Architecture – Floor
The floor is concrete, painted red. The floor is original to the building.

Architecture – Casework
There are three wood shelving units, painted blue-gray. The two identical units are four shelves, located on the southeast and northwest walls. The southwest wall also has one low, deep shelf (2'-7" deep). All shelves look modern. (DI-OH2-05)

Architecture – Accessibility
The building is currently not accessible nor is there a clear 5'-0" diameter space within. The entry door opening is 2'-7" clear with a grade to finished floor elevation change of 1'- 0" with a 1" threshold height and no stairs.

Physical Description -- Structural

Structural – Foundation
The perimeter foundation system consists of brick masonry walls.

Structural – Floor Framing
The floor is a concrete slab-on-grade.

Structural – Roof Framing
The roof framing was not accessible and could not be measured.

Structural – Wall Framing
The exterior walls are constructed of brick masonry.

Structural – Lateral System
Lateral stability for the building is provided by the brick masonry walls.

Structural – Load Requirements
The required floor load capacity is 125 psf and the required roof snow load capacity is 40 psf.

Physical Description -- Mechanical

Mechanical – Plumbing Systems
None in the building.

Mechanical – HVAC
A circular metal roof vent remains in place.

Mechanical – Fire Suppression
None in the building.

Physical Description -- Electrical

Electrical – System Configuration
None in the building.

Electrical – Conductor Insulation
None in the building.

Electrical – Overcurrent Protection
None in the building.

Electrical – Lighting Systems
None in the building.

Electrical – Telecommunications
None in the building.

Electrical – Fire Alarm System
None in the building.

Electrical – Lightning Protection
None in the building.

Physical Description -- Hazardous Materials

Landmark Environmental collected 12 bulk samples from a total of 12 different types of suspected asbestos containing materials (ACMs) at Devils Island. Of the 12 suspect ACMs that were sampled and analyzed, a total of three suspect ACMs resulted in concentration of greater than one percent (positive for asbestos).

Hazardous Materials – Asbestos

The following suspect ACMs were not sampled due to inaccessibility or park limitation regarding potential for damage to structures. Asbestos is assumed to be present in:

1. Adhesives,
2. Wall Interiors,
3. Brick and Block Filler (The interior of the structure is brick and has the potential to have a block filler or grout that is potentially asbestos containing, and,
4. Asbestos-cement (Piping, wall-board, wall interior panels, roof flashing and roofing applications can be constructed of asbestos-cement. This type of application was not observed at the structure but may be present).

The assumed ACMs were observed to be in fair condition.

Hazardous Materials – Lead Containing Paint

Detectable lead is assumed to be present at the following locations:

1. Interior Painted Surfaces, and,
2. Exterior Painted Surfaces.

Based on the estimated dates of construction of the various structures, LCP is assumed to be present on painted surfaces throughout the structure. The assumed LCP was observed to be in poor condition.

Paint chip debris was not observed on the ground surface.

Hazardous Materials – Lead Dust

Surface wipe-sampling for lead dust was not conducted in the Oil Houses because they are noninhabited structures.

Hazardous Materials – Lead in Soils

Historical paint maintenance activities such as manual scraping, power-washing, sanding, abrasive blasting or the general poor and peeling condition of exterior LCP may have created the potential to impact the surrounding soil. Areas of the surface soils adjacent to the structure were not observed to have LCP debris and additional areas may exhibit LCP debris or lead-contaminated soils. Preliminary lead-in-soil sampling was not performed to assess whether these near-structure soils contain lead concentrations above applicable soil standards.

Soil Sampling was not conducted around the Oil Houses.

Hazardous Materials – Mold

Inspections of the structure were performed to identify the readily ascertainable visual extent of the mold growth. Moisture testing in building materials was not performed nor was sampling of building materials performed for microbial analysis. Mold was not visually identified in the Oil Houses.

Hazardous Materials – Petroleum Hydrocarbons

Localized areas of staining were observed on concrete floors in the Oil Houses. Stained areas are likely associated with fuel oil, diesel or other petroleum hydrocarbons. Tank and piping systems may also contain petroleum hydrocarbons.

Character Defining Features

Mass/Form. A simple masonry utilitarian hipped roof structure.

Exterior Materials. Oversized red brick with plinth bases built out at each corner and a metal shingle roof painted red.

Openings. One plate steel door.

Interior Materials. Exposed masonry, concrete floor slab and painted bead board ceiling.

General Condition Assessment

In general, the Devils Island Oil House #2 is in good condition. The original beadboard ceiling is in fair condition. The historic brick walls and exterior door are in good condition as only minor wear and tear is visible on these elements. The concrete floor is a little more damaged than in the Oil House #1 but the damage does not need to be addressed at this time.

Structurally, the Oil House #2 is in good condition.

Mechanically, there are no systems in the Oil House #2 except a circular metal roof vent that has been sealed off inside the building.

Electrically, there are no systems in the Oil House #2.

The following section is a discipline-by-discipline, component-by-component condition assessment of the building. Refer to Volume I, Chapter 2: Methodology for definitions of the condition ratings.

Condition Assessment -- Architecture

Architecture – Roof
Condition: *Fair*
This roof is in fair condition as one portion of the ridge cap is missing (on the northeast corner), but was located on the ground near the structure. Also, paint is peeling in some areas and signs of rust are visible under the paint. The eave and trim is in good condition.

Architecture – Exterior Walls
Condition: *Good*
The exterior walls are in good condition.

Architecture – Door
Condition: *Good*
The entry door is in good condition with some minor blistering paint.

Architecture – Exterior Trim
Condition: *N/A*

Architecture – Wall Finish
Condition: *Good*
The unpainted brick is in good condition.

Architecture – Ceiling Finish
Condition: *Good*
The ceiling finish is in good condition as there is some separation visible between the beadboard segments and the paint is peeling heavily in the northeast area. The circular metal vent is in good condition.

Architecture – Floor
Condition: *Good*
The concrete floor is in good condition as the red paint has all but deteriorated. The concrete is intact but worn.

Architecture – Casework
Condition: *Good*
The three wood shelves have chips and gouges in wood. Overall, the shelves are in good condition.

Architecture – Accessibility
Condition: *Poor*
This building is not accessible.

Condition Assessment -- Structural

Structural – Foundation
Condition: *Good*
The visible portion of the perimeter foundation system appeared to be in good condition. No obvious signs of distress or damage were observed.

Structural – Floor Framing
Condition: *Good*
The concrete slab-on-grade is in good condition.

Structural – Roof Framing
Condition: *Unknown*
The roof framing could not be observed, thus its condition is not known. No obvious signs of distress or damage were observed.

Structural – Wall Framing
Condition: *Good*
The exterior walls are in good condition.

Structural – Lateral System
Condition: *Good*
Lateral stability of the building is good.

Structural – Load Requirements
Condition: *Good*
The slab-on-grade has adequate capacity. The roof framing could not be observed, thus its capacity is unknown.

Condition Assessment -- Mechanical

Mechanical – Plumbing Systems and Fire Suppression
Condition: *N/A*

Mechanical – HVAC
Condition: *Fair*
A circular metal roof vent is in fair condition, but the vent opening has been sealed off inside the building making the vent nonfunctional.

Condition Assessment -- Electrical

N/A

Condition Assessment -- Hazardous Materials

Refer to 'Physical Description -- Hazardous Materials' for detailed descriptions of locations and conditions of hazardous materials.

Ultimate Treatment and Use

The Oil House #2 was constructed between 1908 and 1913. In 1921, it was identified as oil storage for the oil vapor lamp. Since its inception, similar to Oil House #1, this building has acted as a storage facility.

Oil House #2 is currently used for storage by the NPS. The proposed use for this building is to preserve it and possibly add a view panel at the door to provide visual access to visitors.

Preservation is the recommended treatment for the building.

Requirements for Treatment

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS and listed in Volume I, Administrative Data section of this report.

The recommended treatments are tailored to the Preferred Alternative as the outcome of the Value Analysis/CBA for the project. As individual buildings are rehabilitated, specific alternatives will present themselves during design and construction. The following section is a discipline-by-discipline, component-by-component description of the treatments proposed for the preservation of the building. Refer to Volume I, Chapter 2: Methodology for the priority rating definitions.

Treatment Recommendations -- Architecture

Architecture – Roof
Priority: *Moderate*
Remove the existing metal shingles. Verify that the substrate is sound, replace as needed if not. Install a new prefinished metal shingle to match the existing including a hipped ridge cap trim.

Architecture – Exterior Walls
Priority: *Low*
No recommendations at this time.

Architecture – Door
Priority: *Low*
No recommendations at this time.

Architecture – Vent
Priority: *Low*
Repaint the vent coordinated with the roofing work.

Architecture – Wall Finish
Priority: *Low*
No recommendations at this time.

Architecture – Ceiling Finish
Priority: *Low*
Scrape, sand and repaint beadboard ceiling.

Architecture – Floor
Priority: *Low*
No recommendations at this time.

Architecture – Casework
Priority: *Low*
No recommendations at this time.

Architecture – Accessibility
Priority: *Low*
Provide program access through interpretive exhibits and waysides at the Visitor Center.

Treatment Recommendations -- Structural

Structural – Foundation
Priority: *Low*
No recommendations at this time.

Structural – Floor Framing
Priority: *Low*
No recommendations at this time.

Structural – Roof Framing
Priority: *Low*
No recommendations at this time.

Structural – Wall Framing
Priority: *Low*
No recommendations at this time.

Structural – Lateral System
Priority: *Low*
No recommendations at this time.

Treatment Recommendations -- Mechanical

Mechanical – Plumbing Systems and Fire Suppression
Priority: *N/A*

Mechanical – HVAC
Priority: *Low*
No recommendations at this time.

Treatment Recommendations -- Electrical

N/A

Treatment Recommendations -- Hazardous Materials

Hazardous Materials – Asbestos
Priority: *Low*
Recommend sampling of suspect asbestos containing materials, including adhesives, wall interiors, brick and block filler, and asbestos cement.

Hazardous Materials – Lead-Containing Paint and Lead Dust
Priority: *Moderate*
Recommend stabilization or abatement of Lead Containing Paint. Lead dust wipe sampling not recommended.

Hazardous Materials – Lead In Soils
Priority: *Low*
Recommend further soils characterization to confirm applicable regulatory requirements.

Hazardous Materials – Mold/Biological
Priority: *Low*
No action recommended.

Hazardous Materials – Petroleum Hydrocarbons
Priority: *Low*
Recommend further investigation and sampling.

Alternatives for Treatment

Although a view panel has been proposed as a possibility, consideration should be given if a physical barrier is required in allowing the Oil Building #2 to be open to the public during the time of guided use at the light station. Such an addition might be more of a maintenance burden than the risk of the public entering the Oil House #2.

Another alternative could be for the public to only experience Oil House #2 from the exterior.

Assessment of Effects for Recommended Treatments

The following table includes an analysis of the major treatment recommendations which affect Section 106 Compliance:

Recommended Treatment	Potential Effects	Mitigating Measures	Beneficial Effects
1. Additional Hazardous Testing and Mitigation	Mitigation of hazardous material may require removal of historic materials and may affect the adjacent landscape/fabric.	Any mitigation will need to be evaluated for benefit and implemented sensitively to minimize damage to the resource.	- Improves safety for visitors and staff - Removes hazards from the cultural resource
2. Introduce a Plexiglas panel or similar product for visual access by visitors	- Creates a false atmospheric division at structure. - Installation methods may damage historic fabric.	Study alternative methods for allowing visitors visual access to the structure.	- Improves visitor experience
3. Replace the existing roof shingles inkind	Replacement would require removal of the old (not original) building material.	There is an available material currently which matches the existing in size, material and color.	- Replacement shingles at the shed roof will likely be a longer lasting alternative than repainting the existing and thereby reduce future maintenance costs

Oil House #2 Photographs, 2009

DI-OH2-01: Northeast elevation, 2009 (Source: A&A DSC00872)

DI-OH2-02: Southeast elevation, 2009 (Source: A&A DSC00873)

DI-OH2-03: Northwest elevation, 2009 (Source: A&A DSC00871)

DI-OH2-04: Trim, roof and roof vent (Source: A&A IMGP2922)

DI-OH2-05: Interior, looking southwest (Source: A&A CIMG3660)

TRAMWAY ENGINE BUILDING

Chronology of Alterations and Use

Original Construction

The Devils Island Tramway Engine Building was constructed in 1901, the same year that the Fresnel lens was installed and put into service in the temporary wood tower. The tramway was vital to island construction projects as materials were hauled up from the water to the Tower site via the cart system. Therefore, the building that housed the hoisting engine was one of the first structures constructed on the site. This is further evidenced by the local brownstone blocks that the building is built of versus the red brick used for the other buildings.

A tramway track sloped away from the Engine Building down the steep cliff edge and onto a natural landing of flat rock. Unfortunately, due to wave action, the tram ramp was washed away frequently and is no longer extant. There are multiple historic images that show different ramps due to the almost yearly destruction of the structures in the winter. (Historic Images DI-03, 12, and 16*)* The tram cart itself has not seemed to change much from its 1940 form. (Historic Image DI-18*)*

Historic drawings include the "House for Hoisting Engine", plans and sections (1901). The plans show the coal bin location that is further evidenced by the physical remnants in the building. (Historic Drawing DI-12)

Significant Alterations / Current condition

There have been minor significant alterations to the Devils Island Tramway Engine Building. Original shutters have been removed and the window was changed. The coal bin's wood walls on the interior of the building were removed at some point after the tramway was no longer in use.

The building originally housed a coal-fired steam hoist engine. The original mechanical equipment has been removed. There are no electrical systems in the Tramway Engine Building.

The building is currently in fair condition.

Summary of Documented Work on the Building

Date	Work Described	Source of Information
Annual Report of 1901	"*Devils Island, Lake Superior. Wisconsin*… A hoisting engine and derrick, together with a lot of material of various kinds for repairs, were taken to the station by the tender Amaranth, June 22, 1901. A working party was landed at the same time. About 1,000 feet of the roadway to connect the boathouse with the tower and other buildings of the station was cleared of timber and underbrush,… the stone for a small building for the protection of the hoisting engine at the north end of the island was quarried and dressed, the engine was removed, and the work on foundation of the new structure was commenced. The foundation for the derrick was commenced, two sections of portable tracks, each 20 feet long, were built… This work is being paid for from the unexpended balance of the appropriation for Devils Island (Wisconsin) light-station."	"1901 Annual Report of the Lighthouse Board," Devils Island listings in Lighthouse Establishment Annual Reports 1890-1914

General Physical Description

This building is a small, one-story, one room, rectangular utilitarian structure made of brownstone with a hipped roof. It has an exterior brick chimney and brick arched door and window openings.

Physical Description -- Architecture

Architecture – Roof

The roof consists of a modified hipped roof with corrugated sheet metal roofing. The roof has rounded cap flashing at the ridges and hips. Roofing is attached to 1x16 (+/-) sheathing boards. There are no gutters or downspouts. (DI-TEB-05) The roof overhangs are 1'2" deep on all sides of the building and are painted. The fascia has an ogee profile. There is a second, smaller ogee trim at the wall/soffit interface. (DI-TEB-06)

Architecture – Chimneys

The chimney is stone to 6' and then brick to +/- 8' above the eave line. The cap is made from cast-in-place concrete. The flashing is saw-cut into the brick on the diagonal. (DI-TEB-05 and 07)

Architecture – Exterior Walls

The exterior walls are brownstone quarried blocks from the area, 16" thick. The northeast façade has the main door, a window, and two metal ventilation pipes at the floor level. The southeast elevation has the opening for the hoist cables. The southwest elevation has the second window and the chimney that is located 6'6" from the south corner and is 2'4" wide with a depth of 12". The northwest elevation has no openings or features.

Architecture – Windows

Fixed Lite Window. Currently, there are two windows that are twelve-lite fixed sash. Original construction drawings indicate six- over six-lite double-hung windows, but since there are no indications of weight pockets at the walls, it can be assumed that the fixed sash window type is original to the building. (Historic Drawing DI-12) The windows are located on the southwest and the northeast elevations of the building. Both windows have their original wood frame, painted, with brick molding around the exterior face and a segmented brick arch header. The windows are held in with thumb turns and have wood sills. They also have original hinges for shutters on the exterior, but the shutters are not in-situ. The windows are 3'8 ½" x 4'6". (DI-TEB-11)

Hoist Opening. This opening was used for the hoisting engine machine and cables. It is original to the building but is currently boarded over with nonhistoric beadboard. The opening is 5'x 5'. (DI-TEB-12)

Architecture – Exterior Doors

The entry door is a two-vertical over one-horizontal over two-vertical wood panel door. The door is original to the building. The door has a padlock and two ball-tipped hinges. Both sides of the door are painted and there is brick molding on the exterior as well as a segmented brick arch header. The door also has a concrete sill. The door is 2'11 ½" x 6'11" x 1 ¾". (DI-TEB-08, 09 and 10)

Architecture – Wall Finishes

The wall finish for this building is plaster over masonry, painted white. The brownstone was quarried locally. The plaster stops on the northwest façade +/- 5'from the floor and there are post holes in the southwest and northeast walls 3' from the northwest wall. This signals the dimensions of the original coal bin that existed in that portion of the building. (DI-TEB-13) Bricks form a segmented arch around the opening for the hoisting engine. An ash clean-out is located on the southwest wall with an exhaust opening into the chimney above. The clean-out is original but the exhaust opening is modern.

Architecture – Ceiling Finishes

The ceiling finish is composed of 3 ½" wide beadboard, painted blue-gray, with a rough opening for attic access.

Architecture – Floor

The floor is concrete with an embedded brick pad with concrete in the center. The concrete is smooth until the coal bin begins on the northwest section. In the coal bin area, the concrete is left rough and unfinished. The concrete and brick pad are original to the building.

Architecture – Accessibility

The building is currently not accessible. The primary entry door opening is 2'11 ½" clear with a grade to finished floor elevation change of less than 6" with a concrete sill.

Physical Description -- Structural

Structural – Foundation

The perimeter foundation system consists of stone masonry walls.

Structural – Floor Framing
The floor is concrete slab-on-grade.

Structural – Roof Framing
The roof framing was measured to be FS 2x4 rafters at 24". The rafters span approximately 4'. The rafters are supported on the exterior walls. The rafters are sheathed with solid wood underlayment.

Structural – Ceiling Framing
The ceiling framing was measured to be FS 2x4 joists spaced at about 28". The joists span approximately 8'. The ceiling joists are supported on the stone masonry walls.

Structural – Wall Framing
The exterior walls are constructed of stone masonry.

Structural – Lateral System
Lateral stability for the building is provided by the stone masonry walls.

Structural – Load Requirements
The required floor load capacity is 125 psf, the required ceiling load capacity is 10 psf (no storage is allowed) and the required roof snow load capacity is 22 psf.

Physical Description -- Mechanical

Mechanical – Plumbing Systems
None in the building.

Mechanical – HVAC
None in the building.

Mechanical – Fire Suppression
None in the building.

Mechanical – Other
The only remaining equipment in the building is a 55 gallon drum with a vent connecting to the original brick vent stack. The drum appears to have been converted to serve as an incinerator. The vent is constructed with coffee cans.

Physical Description – Electrical

Electrical – System Configuration
None in the building.

Electrical – Conductor Insulation
None in the building.

Electrical – Overcurrent Protection
None in the building.

Electrical – Lighting Systems
None in the building.

Electrical – Telecommunications
None in the building.

Electrical – Fire Alarm System
None in the building.

Electrical – Lightning Protection
None on the building.

Physical Description -- Hazardous Materials

Landmark Environmental collected 12 bulk samples from a total of 12 different types of suspected asbestos containing materials (ACMs) at Devils Island. Of the 12 suspect ACMs that were sampled and analyzed, a total of three suspect ACMs resulted in concentration of greater than one percent (positive for asbestos).

Hazardous Materials – Asbestos
The following suspect ACMs were not sampled due to inaccessibility or park limitation regarding potential for damage to structures. Asbestos is assumed to be present in:

1. Adhesives,
2. Wall Interiors,
3. Plaster.

The assumed ACMs were observed to be in fair condition.

Hazardous Materials – Lead Containing Paint
Detectable lead is assumed to be present.

1. Exterior Painted Surfaces.
2. Interior Painted Surfaces.

Based on the estimated dates of construction of the various structures, LCP is assumed to be present. The assumed LCP was observed to be in poor condition.

Paint chip debris was not observed on the ground surface.

Hazardous Materials – Lead Dust
Wipe sampling for lead dust was not conducted at the Tramway Engine Building because it is a noninhabited structure.

Hazardous Materials – Lead in Soils
Preliminary lead-in-soil sampling was not performed to assess whether these soils contain lead concentrations above applicable soil standards.

Soil Sampling was not conducted around the Tramway Engine Building.

Hazardous Materials – Mold
Inspections of the structure were performed to identify the readily ascertainable visual extent of the mold growth. Moisture testing in building materials was not performed nor was sampling of building materials performed for microbial analysis. Mold was not visually identified in the Tramway Engine Building.

Hazardous Materials – Petroleum Hydrocarbons
Localized areas of staining were not observed on concrete floors in the small shed at the Tramway Engine Building.

Character Defining Features

Mass/Form. A simple one level hipped roof masonry structure with a brick chimney.

Exterior Materials. Rough brownstone with brick accents and patching. Exterior trim is painted both green (openings) and white (soffits). Roof is painted corrugated metal panels with painted rounded hip ridge caps.

Openings. Two fixed wood windows (twelve-lite), one five panel wood door and one tongue and groove wood board panel all painted green.

Interior Materials. Exposed brownstone with areas of plaster; painted bead board ceiling and a concrete floor.

General Condition Assessment

In general, the Devils Island Tramway Engine Building is in good condition.

Structurally, the Tramway Engine Building is in good condition.

Mechanically, the original coal fired steam hoist engine has been removed.

Electrically, there are no systems in the Tramway Engine Building.

The following section is a discipline-by-discipline, component-by-component condition assessment of the building. Refer to Volume I, Chapter 2: Methodology for definitions of the condition ratings.

Condition Assessment -- Architecture

Architecture – Roof
Condition: *Good*
The roofing is in good condition as it is well fastened. The soffits and overhangs have weathered and alligatored paint, but are overall in good condition.

Architecture – Chimneys
Condition: *Fair*
The chimney is in fair condition as the upper portion of the chimney is in need of repointing and there are two cracks in the concrete cap that appear to be stress fractures.

Architecture – Exterior Walls
Condition: *Good*
The exterior walls in general are in good condition. There is moss and lichen growth at the foundation level on the northeast and northwest facades as well as at the base of the chimney on the southwest facade. There is also a diagonal stair step crack running from the east corner to the center of the wall on the southeast façade.

Architecture – Windows
Condition: *Fair*
Fixed Lite Window. The two windows of the building are in fair condition. There wood sills are rotting and their glazing compounds are failing.

Hoist Opening. This opening could not be assessed due to being covered by beadboard.

Architecture – Exterior Doors
Condition: *Fair*
The entry door is missing its knob hardware and the interior and exterior paint is peeling.

Architecture – Wall Finishes
Condition: *Fair*
The building's wall finishes are generally in fair condition. A good majority of the white paint and plaster has fallen off the brownstone walls, a stair step crack is located at the east corner runs from ceiling to floor, and there are rust stains around the ash clean out on the southwest wall.

Architecture – Ceiling Finishes
Condition: *Good*
The ceiling finish is in good condition.

Architecture – Floor
Condition: *Fair*
The finished concrete floor and brick pad show years of wear as an equipment building with some gouges and cracks in the flooring. The unfinished concrete for the coal bin area also shows wear. Overall, the floor is in fair condition considering the building's use and character.

Architecture – Accessibility
Condition: *Poor*
This building is not accessible.

Condition Assessment -- Structural

Structural – Foundation
Condition: *Good*
The visible portion of the perimeter foundation appeared to be in good condition.

Structural – Floor Framing
Condition: *Good*
The concrete slab-on-grade is in good condition.

Structural – Roof Framing
Condition: *Good*
The roof framing was in good condition.

Structural – Ceiling Framing
Condition: *Good*
The ceiling framing was in good condition.

Structural – Wall Framing
Condition: *Good*
The exterior walls are in good condition. There was one diagonal crack in the southeast façade. The crack appears to be old and stable. The crack is not a structural concern.

Structural – Lateral System
Condition: *Good*
Lateral stability of the building is good.

Structural – Load Requirements
Condition: *Good*
The roof framing, ceiling framing and slab-on-grade have adequate capacity to support the required loads.

Condition Assessment -- Mechanical

Mechanical – Plumbing Systems, HVAC, and Fire Suppression
Condition: *N/A*

Mechanical – Other
Condition: *Poor*
The 55 gallon drum and coffee can vent is in poor condition.

Condition Assessment -- Electrical

N/A

Condition Assessment -- Hazardous Materials

Refer to 'Physical Description -- Hazardous Materials' for detailed descriptions of locations and conditions of hazardous materials.

Ultimate Treatment and Use

The Tramway Engine Building was constructed in 1901 from local brownstone and served as the tramway engine's system center as well as storage. An area in the rear of the building stored coal which was used to power the hoist engine. Once the tram engine was automated, the Tramway Engine Building became a storage facility.

This building is currently vacant and has no visitor access. The proposed use for the Tramway Engine Building is to preserve the historic character of the structure and maintain its current use with no public access.

Preservation (stabilization) is the recommended treatment for the building.

Requirements for Treatment

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS and listed in Volume I, Administrative Data section of this report.

The recommended treatments are tailored to the Preferred Alternative as the outcome of the Value Analysis/CBA for the project. As individual buildings are rehabilitated, specific alternatives will present themselves during design and construction. The following section is a discipline-by-discipline, component-by-component description of the treatments proposed for the stabilization of the building. Refer to Volume I, Chapter 2: Methodology for the priority rating definitions.

Treatment Recommendations -- Architecture

Architecture – Roof
Priority: *Low*
Scrape, sand and repaint wood soffits and overhangs.

Architecture – Chimneys
Priority: *Moderate*
Repoint the upper portion of the chimney and monitor the cracked concrete cap.

Architecture – Exterior Walls
Priority: *Low*
Repoint the diagonal stair-step crack running from the east corner to the center of the wall on the southeast façade. Continue to monitor it.

Architecture – Windows
Priority: *Moderate*
Epoxy stabilize the two rotting sills and install new glazing compound in both windows.

Architecture – Exterior Door
Priority: *Low*
Install missing knob hardware in-kind and scrape, sand and repaint the interior and exterior of wood door.

Architecture – Wall Finishes
Priority: *Low*
No recommendations at this time due to the proposed limited use.

Architecture – Ceiling Finishes
Priority: *Low*
No recommendations at this time.

Architecture – Floor
Priority: *Low*
No recommendations at this time.

Architecture – Accessibility
Priority: *Low*
Provide program access through interpretive exhibits and waysides at the Visitor Center.

Treatment Recommendations -- Structural

Structural – Foundation
Priority: *Low*
No recommendations at this time.

Structural – Floor Framing
Priority: *Low*
No recommendations at this time.

Structural – Roof Framing
Priority: *Low*
No recommendations at this time.

Structural – Ceiling Framing
Priority: *Low*
No recommendations at this time.

Structural – Wall Framing
Priority: *Low*
No recommendations at this time.

Structural – Lateral System
Priority: *Low*
No recommendations at this time.

Treatment Recommendations -- Mechanical

Mechanical – Plumbing Systems, HVAC, and Fire Suppression
Priority: *N/A*

Mechanical – Other
Priority: *Low*
No recommendations at this time.

Treatment Recommendations -- Electrical

N/A

Treatment Recommendations -- Hazardous Materials

The Tramway Engine Building was not accessed or observed during the September 2009 Site Inspections by Landmark Environmental.

Alternatives for Treatment

One alternative would be to undertake the repair of the stress crack – though under stabilization, treatment is not deemed necessary or a wise use of the limited available construction funds.

Assessment of Effects for Recommended Treatments

There are no apparent adverse effects of the recommended treatments.

Tramway Engine Building Photographs, 2009

DI-TEB-01: Southeast elevation, 2009 (Source: Martin/Martin Devils Island 16 Sep 09 376.jpg)

DI-TEB-02: Northeast elevation, 2009 (Source: Martin/Martin Devils Island 16 Sep 09 374.jpg)

DI-TEB-03: Northwest elevation, 2009 (Source: Martin/Martin Devils Island 16 Sep 09 373.jpg)

DI-TEB-04: Southwest elevation, 2009 (Source: Martin/Martin Devils Island 16 Sep 09 366.jpg)

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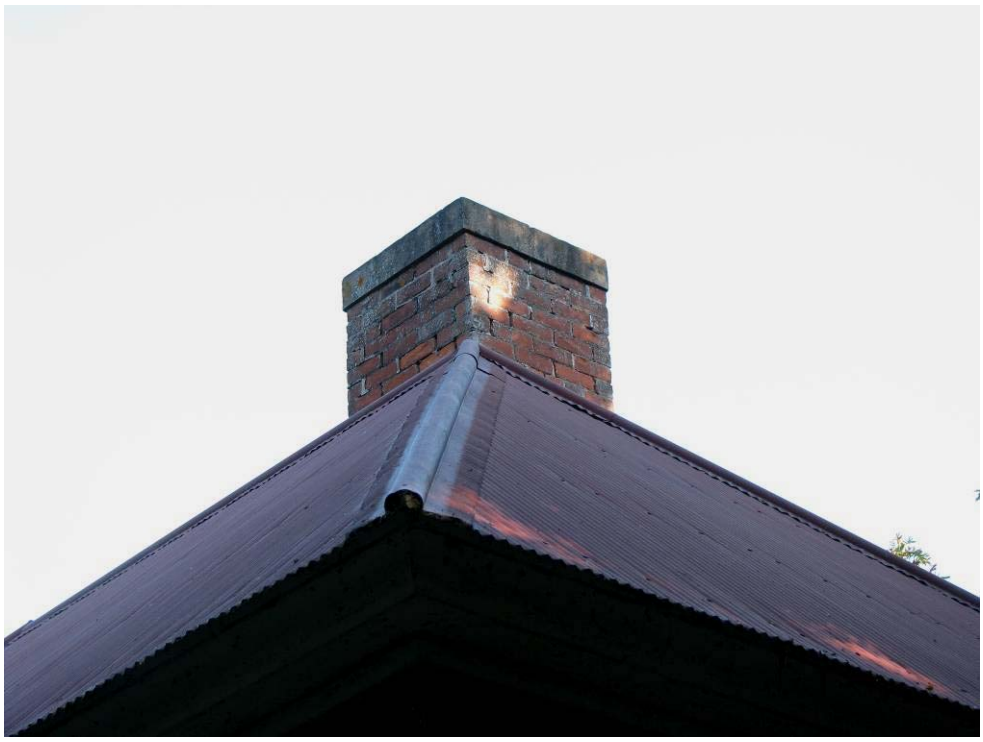


DI-TEB-05: Roof and chimney detail (Source: Martin/Martin Devils Island 16 Sep 09 375.jpg)

DI-TEB-06: Eave detail (Source: A&A 100_9762)

DI-TEB-07: Southwest elevation, chimney, trim and roof detail (Source: A&A 100_9756)

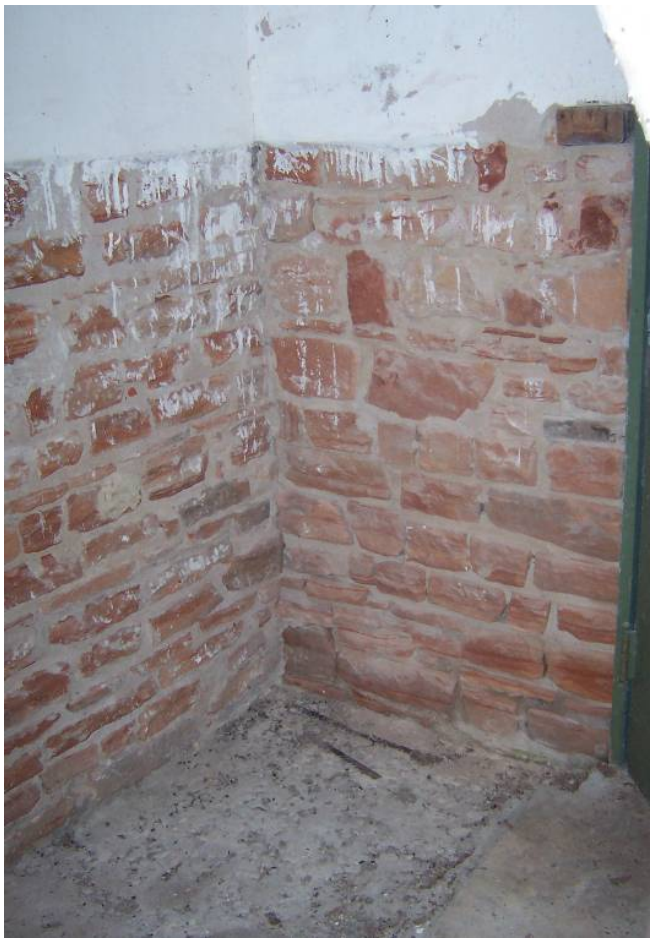
DI-TEB-08: Northeast entry door (Source: A&A 100_9759)

DI-TEB-09: Lockset detail, exterior (Source: A&A 100_9755)

DI-TEB-10: Lockset detail, interior (Source: A&A 100_9768-A)

DI-TEB-11: Window, looking northwest (Source: A&A 100_9766)

DI-TEB-12: Hoist door, looking southeast (Source: A&A 100_9763A)



DI-TEB-13: Coal bin area behind door (Source: A&A 100_9772-A)