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Pomham Rocks Lighthouse: Reuse and Rehabilitation Feasibility Report

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Pomham Rocks Lighthouse

Reuse and Rehabilitation Feasibility Report

Community Partner:
The Friends of Pomham Rocks Lighthouse

Fall 2012
The Roger Williams University Community Partnerships Center

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Introduction

Plan Purpose

The Friends of Pomham Rocks Lighthouse—a chapter of the American Lighthouse Foundation—is interested in rehabilitating the interior of the lighthouse so that it can be used for educational purposes. Currently, the interior is inhabitable. The purpose of this Existing Conditions report is to identify the major problem areas and gather information that will serve as the basis for the subsequent rehabilitation work and design.

The Roger Williams University Historic Preservation Graduate Program, in collaboration with the Community Partnerships Center at Roger Williams University, was requested to conduct a Historic Preservation Assessment of Pomham Rocks Lighthouse in East Providence, Rhode Island. This report, prepared by members of the Historic Rehabilitation Workshop graduate course, is intended to provide the owners of this property with the following information:

1. Identification of the history, significance and character-defining features of the buildings and surrounding area.
2. A visual survey of the interior and exterior existing conditions of the building and site.
3. An assessment to determine and inform a rehabilitation reuse for Pomham Rocks Lighthouse.
Methodology

The team’s work on the Pomham Rocks Lighthouse was organized around a sequence of course assignments that approximated the standard approach used by design and preservation professionals planning for the rehabilitation of an historic structure. Under the guidance of course instructor Arnold Robinson, the student team of Caitlin Merritt, Nina Caruso and Derek Dandrand completed the full assessment and rehabilitation plan. Specific steps included:

Site Investigation and Existing Conditions Documentation: Members of the team visited the site to sketch and measure the floor plans and elevations and to thoroughly document the interior and exterior conditions through digital photographs and notes. The results of the visual investigation were used to create elevations and plans of the building in Auto-CAD. An Existing Conditions report was then completed.

Historical Research: Some team members were assigned the task of researching the history of the structure through available public records, primarily at the United States Coast Guard Archives in New London, Connecticut, and the Rhode Island Historical Society. The results of this research informed the rehabilitation design. A statement of significance and an architectural description were then completed.

Program Development: The Friends of Pomham Rocks Lighthouse participated in the site visit and discussion about the future use of the building. For the purposes of the project, the rehabilitation plan accommodates a reuse of the ground floor as educational space for visitors and groups and the upper level as offices and accommodations.

Rehabilitation Plan: Based on the observed conditions and historical research, the team identified the character-defining features of the building as well as applicable regulations such as the RI Historical Preservation and Heritage Commission and building/fire codes. Then the team created a prioritized list of the rehabilitation items and formulated the overall scope of work.

Key elements of the Rehabilitation Plan include:
- Written description of all rehabilitation work items, organized using the Construction Specifications Institute’s (CSI) MasterFormat system.
- Final rehabilitation drawings with annotations for rehabilitation work items.
- Specifications for the most important rehabilitation work items, formatted in accordance with the CSI MasterFormat protocols.
- Draft application for Federal Historic Preservation Tax Credit.
- Final Rehabilitation Plan document.
History and Significance

History

Pomham Rocks Lighthouse sits on a small isle in Narragansett Bay about 800 feet from the east shore in the Riverside section of East Providence. The name “Pomham” is derived from a Narragansett Native American sachem who was killed during King Phillip’s War in 1676.

In 1870, due to increased shipping traffic heading towards Providence, Rhode Island, U.S. Congress granted $20,000 for the purpose of building three lighthouses along the Providence River—at Pomham Rocks, Sassafras Point and Fuller Rock.

Pomham Rocks Lighthouse was built in 1871. The light was first exhibited on December 1, 1871, with a sixth-order Fresnel lens (upgraded to a fourth-order in 1939) showing a fixed white light. On October 1, 1872, the characteristic was changed to fixed red and has continued to be red ever since. The fourth-order Fresnel lens was removed in 1974 and is now on display at the Custom House Maritime Museum in Newburyport, Massachusetts. The 28’ X 28’ building has a 34-foot hexagon tower that houses the light for the complex. The Light Station at Pomham Rocks is one of oldest remaining lighthouses in Narragansett Bay and, since its construction, the building has been guiding and leading ships into Providence Harbor.

The lighthouse’s history is best represented through the keepers who lived in and cared for the building. From 1871 to 1956 there were five keepers. From 1956-1974 the U.S. Coast Guard manned the lighthouse. Electricity was first brought to the island during the Coast Guard years. In May 1974 the Coast Guard constructed a new modular, galvanized light tower adjacent to the original light station. With this new construction the original station was decommissioned and vacated by the Coast Guard.

The Rhode Island Historical Society cared for the lighthouse following it’s decommissioning. Two more caretakers continued to tend to the lighthouse until 1980. In May 1978 the General Service Administration declared the structure federal property, and in 1980 Pomham Rocks was sold to Mobil Oil Company, today known as ExxonMobil, who leased it to American Lighthouse Foundation twenty years later. In 2004, the Friends of Pomham Rocks Lighthouse was established as a new chapter of the American Lighthouse Foundation, and they continue to care for the lighthouse today. The lighthouse has remained empty since the mid-1980s, undergoing a full exterior restoration in 2005.
Significance

The lighthouse has withstood the passing of time, including the harsh coastal weather elements. Pomham Rocks’ significance was obtained through its historic function, architectural style and keeper history. Pomham Rocks Lighthouse was listed in 1976 on the National Register of Historic Places.

Pomham Rocks Light Station consists of nearly half an acre situated atop of a promontory, approximately 800 feet off the mainland of East Providence at the upper reaches of Narragansett Bay in what is called the Providence River.

Constructed in 1871, the main dwelling is two stories high and divided into three bays, with a wooden light tower extending 35 feet vertically from the center bay. The windows on the first floor are six-over-six; the windows on the second floor are four-over-four; and the window in the light tower is two-over-four. The structure is wood framed on a granite base 28’x 28.’ The mansard-style roof is covered with red slate. The exterior of the main dwelling is covered with clapboard siding.

The light and keepers quarters are combined in a single wooden structure, which sits on a three-course granite foundation in High Victorian design.

The Light Station is among one of the oldest stations on Narragansett Bay and has long served as both a functional and picturesque landmark for the East Providence community. For the past 143 years the station has guided ships in the main channel leading into Providence Harbor.

2. The lighthouse and island in the late 19th century.

Photos courtesy of U.S. Coast Guard Archives.
Existing Conditions

Site Location
Pomham Rocks Lighthouse is situated on a half-acre island in the Providence River. The island is about 800 feet from the east shore of the Riverside section of East Providence.

The purpose of this Existing Conditions report is to evaluate the current state of Pomham Rocks Lighthouse. The exterior was completely restored in 2005 by Abcore Restoration Company, Inc.

“A complete exterior restoration of: lantern room with iron recasting, metal repairs and refinishing, a stainless steel door, 25% of building frame replacement. Removal, consolidation, and reinstallation of horizontal siding. New metal standing seam roof, new red slate mansard roof, chimney rebuild, storm windows, new rear landing & stairs, new headed board bulkhead, window hood, dormer trim, cornice repair, trough relines and doors. Complete restoration to oil house.” — Abcore Restoration

Site Conditions and Constraints
Because the site is on an island, there is no direct access to the lighthouse without the assistance of a boat.

This Existing Conditions report will focus primarily on the interior of the keeper’s dwelling, with the exception of the windows and some masonry issues.

Site Conditions and Constraints
The island’s landscape is in fair condition. The years of exposure to harsh environmental conditions have resulted in natural weathering and erosion. In addition, the lack of proper drainage and drainage maintenance has led to further deterioration of the site. There is limited amount of topsoil due to the island’s geologic formation, which consists mostly of bedrock.

There is currently no distinct path on the island for easy access to the lighthouse. Access to the lighthouse from the dock is limited due to the island’s topography. From the dock to the lighthouse, the grade of the site changes from 18 to 30 feet with no defined path. This can pose challenges to certain visitors.

Applicable Regulations

Local Regulations:
East Providence Waterfront Special Development District
• Pomham Rocks is not located within the project area of the 2003 East Providence Waterfront Special Development District Plan. Views toward the lighthouse from within the project area should be preserved and enhanced.

State Regulations:
State Historic Preservation Office (SHPO)
• The SHPO serves as the first point of contact for property owners. It provides application
forms, regulations, information on appropriate treatments and technical assistance. It advises applicants on rehabilitation projects and makes site visits.

**Coastal Resources Management Council (CRMC)**
- Because Pomham Rocks is located on the water, environmental issues that result from waste removal, construction waste and on-site wastewater treatments can adversely affect the marine location.

**Onsite Wastewater Treatment Systems**
- Rhode Island Soil Erosion and Sediment Control
- Rhode Island Department of Environmental Management (RIDEM)
  - Office of Water Resources

**Federal Regulations:**
- Federal Historic Preservation Tax Credit
  - The amount available under this program equals 20% of the qualifying expenses of the rehabilitation. The tax credit is only available to properties that will be used for a business or other income-producing property, and a substantial amount must be spent rehabilitating the historic building. The building needs to be certified as a historic structure by the National Park Service. Rehabilitation work has to meet the Secretary of the Interior’s Standards for Rehabilitation.

**National Park Service**
- The Park Service administers the Federal historic preservation tax incentives. It reviews applications for conformance with the Secretary of the Interior’s Standards for Rehabilitation.

**Secretary of Interiors Standards of Historic Rehabilitation**

**National Register Status:**
- Listed on the National Register in 1976

**Proposed New Use**
The client’s ideal proposed use for Pomham Rocks Lighthouse is museum and caretaker space. The Friends of Pomham Rocks Lighthouse would like to partner with the environmental organization Save The Bay to provide additional field trip opportunities for Save The Bay’s student groups. The museum will have information and history on both Sabin Point and Bullock’s Point Lighthouses. Those two lighthouses are no longer standing.

**Program Space Needs**
In order to meet the program space needs of the proposed use, several changes will be made to the function of the rooms. The floor plan of the building—a character-defining feature—will not be altered in any way. Rooms 100 and room 101 on the first floor will be converted to museum space. Room 102, currently the chamber, will be converted into a bathroom.

The entire second floor will serve the needs of the caretaker. Room 200 will be converted into a bedroom, while room 201 will be converted into the kitchen. To keep the plumbing stacked, room 202 will be converted into a second bathroom with a shower. Room 204, the former bathroom, will be converted into an office.

**Precedent**
Rose Island Lighthouse Rehabilitation in Newport, Rhode Island.
Existing Material Assessment

02 25 19 Existing Masonry Assessment

**Exterior Granite:** The mortar is deteriorating and failing at the mortar joints all along the granite foundation.

**Interior Brick:**
- **Chimney:** The brick chimney is exposed, and the mortar is deteriorating at the mortar joints.
- **Hearth:** There is a brick hearth in the living room, and it is in good condition.
- **Cistern:** A brick cistern in the basement was originally used to collect runoff water. The cistern is in poor condition.

02 25 23 Existing Metals Assessment

- **Door Hardware:** Some of the original door hardware is missing. The remaining original door hardware is in fair condition but unoperable.
- **Cast Iron Radiators:** The original cast iron radiators exist and are in good condition.
- **Floor Vents:** Cast iron floor vents are original and in fair condition.

02 25 26 Existing Wood, Plastics and Composites Assessment

**Wood:**
- **Framing:** 25% of the building frame has been replaced and is in good condition. The remaining original wood framing is also in good condition.
- **Stairs:** The physical stairs are in sound condition, but the rail and balusters are in poor condition. Several of the balusters are broken or missing.
• **Flooring:** The floors range from fair to poor condition, depending on the area of usage. There is original wood flooring on the second floor and 1940’s flooring on the first floor.

• **Trim:** Window and door trim range from fair to poor condition, and some pieces are missing.

• **Lath:** There are large sections of lath missing, and the remaining lath ranges from fair to poor condition.

• **Mortise and Tenon Joinery:** There is exposed mortise and tenon joinery at floor level where there is a break in the floor for the stairs.

**Plastics:**

• **Shower:** The upstairs bathroom contains a standing shower that is in poor condition.

**Composites:**

• **Faux-wood Beams:** In the living room, there are faux-wood beams made out of foam that are falling off the ceiling.

• **Wood Paneling:** There is wood paneling in fair condition mounted on the first floor walls in the kitchen, living room and office, and on the second floor bathroom walls.

• **Ceiling Tiles:** Ceiling tiles of poor condition are mounted in the office.

• **Kitchen/Bathroom Cabinets:** The cabinets in the kitchen and bathroom range from good to fair condition.

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**02 25 29 Existing Thermal and Moisture Protection Assessment**

**Insulation:** Fiberglass insulation in the sub-floor of the lantern house has been exposed to moisture and is in poor condition.

**Wind-proofing:** Currently, there is a cementitious material in between the exterior sheathing and lath that acts as a wind barrier.

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1. Fiberglass insulation exposed to moisture and in poor condition.
2. Exposed lath and plaster deterioration in the first floor hallway. This section will be preserved.
\textbf{Plaster failure and missing sill in this second-story window.}

\textbf{Pomham Rocks Lighthouse boat dock, the only way to access the island.}

\textbf{Windows:} The original wood windows range from fair to poor condition and are not operable. There are also exterior, aluminum storm windows. There are nine first-floor windows that are six-over-six, seven second-floor windows that are four-over-four and three tower windows that are two-over-two. There is one new wood window replacement in room 102. A window opening, discovered during the 2005 exterior restoration, was turned back into a window. The new window is in good condition.

\textbf{Doors:} The two exterior doors have been replaced and are in good condition. The remaining interior doors are in fair condition. There are some missing interior doors. The first floor has nine interior doorways. One doorway was converted to a wall between rooms 100 and 103 (original door frame still intact); three doors were removed and/or are missing. The second floor has eight interior doorways; three doors have been removed and/or are missing. Rooms 201 and 202 each contain one removed door.

\textbf{Plaster:} The plaster ranges from fair to poor condition throughout the lighthouse with significant areas missing.

\textbf{Openings}

\textbf{Finishes}

\textbf{Plumbing}

\textbf{Heating, Ventilating and Air Conditioning}

The furnace is in poor condition and is not operable. There is no air-conditioning system. The radiators are in good condition.

\textbf{Electrical}

There is no electric service on the island. However, there is existing wiring, outlets and ceiling fixtures. There are also solar panels that are in good working condition.

\textbf{Communications}

The light in the lighthouse is in good working condition. There are no other forms of communications on the island: no telephone, Internet or cable.

\textbf{Earthwork}

The island is not handicapped accessible. The downspouts are not connected to anything, which is causing erosion issues with the surrounding soil.

\textbf{Utilities}

There is no water or electrical service to the island.

\textbf{Transportation}

A boat is required for transportation to and from the lighthouse.

\textbf{Waterways and Marine Construction}

There is a boat dock in good working condition.
Rehabilitation Plan

Listed by Key Work Items

1. Walkway

Crushed stone screening will be used to define a new walkway from the dock to the lighthouse. It will follow the natural grade of the site in an effort to make the walkway compliant with the Americans with Disabilities Act (ADA). Stone screening will pack down nicely, integrate with the surrounding landscape and will not impact the site visually. If the walkway does not need to be ADA-compliant, the walkway will be laid in the same location as it was in 1976.

2. Septic System and Utilities

The septic tank is suitable for the proposed new use and will be reactivated and serviced by the harbor master. The harbor master has the capacity to remove sewage.

The dwelling will have a direct connection to National Grid. A Bergey 1500 wind turbine will be installed on the island. This wind turbine can typically support continuous loads of 150-300 watts, which will help reduce the electric bill. The turbine is small and will minimally impact the views looking towards the island. A new electrical panel will be installed along with new wiring.

A one-to-two-inch water line will be run from the mainland to the island. All interior plumbing will be removed and updated with Pex piping and fittings to accommodate the relocation of the first and second-floor bathrooms and the kitchen. Piping for the cast iron radiators will be removed, and two tankless water heaters will be installed.

3. Exterior Masonry Foundation

The mortar joints will be repaired using a mortar that matches color and composition of the historic mortar. All work will be done in accordance with the guidance found in Preservation Briefs 2: "Repointing Mortar Joints in Historic Masonry Buildings."

4. Basement Structural Framing

A new header will be installed in the basement window. The header offers support that prevents the full weight of the above floor joist from resting on the window casing.

5. Masonry Cistern

The cistern will be inspected and stabilized in accordance with the guidance in Preservation Briefs 35: "Understand Old Buildings: The Process of Architectural Investigation." The cistern is to be preserved for education and historical purposes, which includes preliminary measures to protect and stabilize the cistern. The cistern will not be used.
6. Kitchen Cabinets

The cabinets in room 100 will be removed by the gentlest means in order to decrease any potential damage to the plaster and lath beneath.

8. Wood Paneling

All wood paneling will be removed from rooms 100, 101, 102 and 204. The removal of the paneling should be done by the gentlest means in order to decrease potential damage to the original plaster and lath underneath. All moldings and trim will be saved and reused on site.

9. Interior Plaster

The plaster on the interior dividing walls and ceilings will be repaired and restored in accordance with the guidelines found in Preservation Briefs 21: “Repairing Historic Flat Plaster Walls and Ceilings.”

The wood paneling mounted over the plaster on the exterior perimeter walls will be removed. Depending on the condition of the plaster underneath, partial or complete removal may be necessary. If the plaster is missing or damaged beyond repair, all plaster will be removed and replaced with Fiberock Aqua-Tough Interior Panels. The plaster will be repaired to the plane of the existing window and door trim.

10. Plaster Wall Section Preservation

The wall section will be preserved in its existing state for educational purposes. A Plexiglas or glass protective covering will be mounted one and a half to two inches off the wall with four points of connection at each corner.

11. Ceiling Plaster, Beams and Tiles

The plaster on the ceilings will be repaired and restored in accordance with the guidelines found in Preservation Briefs 21: “Repairing Historic Flat Plaster Walls and Ceilings.”

The faux-wood beams and ceiling tiles will be removed.

7. Masonry Hearth

The brick hearth will be removed, and any underlying wood flooring will be repaired with in-kind materials.

2. First-floor kitchen to be removed and converted to museum space. The cabinets are from the 1956 Coast Guard renovations.

2. The faux-wood ceiling beams, paneling and the raised brick hearth in the living room will be removed.
12. Interior Staircase

The stairs will be stabilized and repaired. The missing balusters will be replaced with in-kind materials. The staircase will be stripped of any finish or paint by the gentlest means possible. The stairs will be sanded, and a coat of varnish or any safe protective coating will be applied. Any coating or varnish applied should be removable without causing damage to the wood surfaces underneath.

13. Chimney Stack

The mortar joints will be repaired using a mortar that matches color and composition of the historic mortar. All work will be done in accordance with the guidance found in Preservation Brief 2: “Repointing Mortar Joints in Historic Masonry Buildings.”

14. Flooring

The existing flooring will be repaired and replaced where needed with in-kind materials and using the “Secretary of the Interior Standards for Rehabilitation & Illustrated Guidelines for Rehabilitating Historic Buildings: Interior Space, Features & Finishes” as guidance. The existing floor finishes, paint and coatings will be removed using the gentlest means necessary, cleaned and returned to the original wood finish. The floors will be gently sanded and applied with a protective coating or varnish. The varnish will be removable.

The wood floors in the proposed bathrooms will be safely covered with a sub-flooring and a laminate flooring to better suit bathroom needs. The laminate flooring will be installed with the ability to safely remove them, without damaging the original flooring underneath.

15. Windows

The windows in the lighthouse will be repaired, restored and weatherized in accordance with the guidelines found in Preservation Brief 9: “The Repair of Historic Wooden Windows.” After the new exterior storm windows are installed, the current windows will be carefully removed and labeled. They will be going off site to a company that specializes in window restoration.

16. Interior Doors

The doors will be restored and used. The doors will be removed and labeled from where they came. Paint and any other finishes that may be on the door will be stripped using the gentlest means possible. The doors will be gently sanded, primed and painted white to match the original paint color of the door. The missing doors will be replaced with in-kind wooden doors and in-kind hardware.
17. Bathroom

The sink, cabinets, shower, toilet and wall paneling will be removed. The removal of the bathroom elements will be by the gentlest means possible to prevent potential damage to the wood flooring and plaster walls.

The second floor bathroom will be relocated to the chamber (room 202). A new toilet, sink and standing shower will be installed to serve the caretaker’s apartment. A bathroom with a new toilet and sink will be installed on the first floor in the office (room 102) in order to serve the museum space.

18. Radiators

The piping for the radiators will be removed and the radiators will remain. The radiators will be made operational by retrofitting them to a new radiant heating system. An electric element replaces the extensive water piping system, and each radiator will be connected to a programmable thermostat that allows the temperature of each room to be controlled. In the rooms where there are no radiators, new matching replacement radiators will be installed.

19. Interior Lighting

The light fixtures will remain in situ. The wiring will be repaired and updated in order to make the lights function. The missing fixtures will be replaced with like fixtures.
Conclusion

The proposed new use for Pomham Rocks Lighthouse is museum space and caretaker space. The team believes that this is the best program based on the client’s goals and program needs. All information in this report is a recommendation that is intended to help inform the client on the decision-making process, while providing thoughtful design solutions for the interior restoration of Pomham Rocks.