Race Rock Lighthouse
Long Island Sound, New York
Report of Investigation
30 August 2019

EXECUTIVE SUMMARY

Race Rock Light Station (completed 1878; automated 1978) was from its inception designed to be a model of durability and resilience. These embedded qualities have served it well over its 140+ year existence: Its massive drum base, granite quarters & timber framing are remarkably in very good condition, with pathologies of deterioration that are understood and well defined. There are other important elements throughout the resource that suffer from extreme exposure and lack of maintenance brought on by the logistical difficulties inherent in regularly accessing the site. This category comprises important features of safety and stability: landing facilities, perimeter railing, drum decking, stormwater drainage systems, failing cast iron components and deteriorated masonry. These last two elements — cast iron and masonry — now pose a significant hazard in their potential to dislodge and fall away; insofar as this is an indeterminate condition (i.e., specific timelines of failure cannot be reasonably predicted), there exists the possibility that any failure, however small, could lead to an even more worrisome outcome. Finally, there are numerous tertiary concerns, ranging from the lack of ventilation, ingress of water, formation of ice, continued loss of historic material, broken glass, microbiological and vegetative growth, lightning strikes, et al.

While not unique to this site, much of the current damage is directly attributable to remedial repairs that are not well suited to the light station's traditional materials or its intended method of sustainably engaging with the local environment and weather conditions. It appears that the approach to repairs — perhaps beginning with its automation in 1978 — has been to select increasing "hard" materials, or those commonly (and erroneously) referred to as "maintenance free." Often these cause far greater damage than they are intended to correct; this clearly is evident throughout the stair tower's brick masonry interior, where brittle cementitious pointing mortar has led to pandemic brick deterioration. It was further noted that a masonry coating currently stored on the main floor was intended to be applied to the interior brick surfaces in response to its widespread deterioration; wisely, that plan has now been abandoned, since it would only have made matters *gravely worse*. Lack of ventilation and heat, coupled with the rampant ingress of water at all levels, have affected the stability both of specific assemblies as well as heritage elements throughout.

Even through this lens, however, there is much to be grateful for:

- The major underpinnings of the resource – drum, envelope, framing – remain sound;
- Representative examples of many important historical elements still exist, including windows, doors, hardware, glass, flooring, finishes, cisterns and system accessories;
- Means and methods required to stabilize and restore the structure may be quantified and defined, based on a clear understanding of the pathologies of deterioration.

FINDINGS

1. General Siting, Geography, Access

1.1. Race Rock Light Station is its own island, constructed from 1871-77 and incorporating a massive stepped cast-in-place concrete drum with granite block overlay and parged wearing surface. The lighthouse and keepers quarters, also built of granite, utilizes the drum as both its foundation and repository of its cisterns and water channeling system.

1.2. The light station is set essentially on cardinal points: its lantern/light tower facade faces (nearly) due SW while its primary entrance, on the opposite facade, faces NE, adjacent to the original and existing jetty. Current jetty configuration is less extensive than the original, and safe access is consequently more limited. This is a major consideration regarding transport of personnel and materials for desired stabilization and restoration.

1.3. The base of the drum is protected with massive granite riprap that, while effective as a barrier, also hampers the ability to circumnavigate the drum for regular repairs.

1.4. Access is via a ship's ladder from MHT to the top of the drum, somewhat protected by the jetty. While this was the traditional, intended orientation for debarking a vessel, its NE orientation presents issues for the late fall and winter months.

1.5. The drum's topside is a parged deck, generally incorporating cementitious materials as well as coatings. Incorporated into the deck are hatches two providing access to the lower level, presumably to provide services/materials to cellars stores and mechanical systems. They also may have provided access to the critical, interconnected cisterns, for periodic inspection and cleaning.

1.6. Insofar as the drum is significantly raised above the level of MHT, there is a protective perimeter railing system fabricated of either cast or wrought iron.

2. Building Envelope

2.1. The lighthouse and keepers quarters comprises coursed ashlar granite block bearing walls and lantern tower.

2.2. The primary structural system spanning interior spaces and roof is hardwood timber that retains its original configuration and is in *excellent* condition. The importance of its condition cannot be overstated, since it is potentially subject to water ingress from around the roof eaves and through the exterior wall and windows; it is a testament to the careful and high quality original construction materials and techniques employed.

2.3. Interior wall surfaces are both plaster over wood lath, for living quarters, with exposed brick masonry for the tower stairs. In the mechanical/storage/support spaces below the main floor there is a mix of plaster as well as parging directly applied to masonry.

2.4. Roofing currently is metal standing seam, which is well formed and integrated into the building. The roofing system's weak link is its edges and terminations, which include gutters, leaders (downspouts), drain outlets and flashing systems. The form of the roof has changed over the years.

2.5. Original wood windows have been replaced in their entirety with aluminum sash and frames, with polycarbonate sheet glazing in lieu of glass. These replacements do not, strictly speaking, bear fidelity to the quality and form of the originals. Polycarbonate glazing has deteriorated, significantly blocking sunlight (although it must be stressed that *some* light is far better than no light via boarded-up windows).

3. Lantern and Tower

3.1. An octagonal cast iron lantern surmounts the granite tower; its lantern gallery (exterior perimeter observation deck) projecting well past the wall of the service level below. The principal lantern elements are fabricated of iron, in the form of sheets, castings and fasteners. Its skirt panels incorporate air vents originally intended to benefit the lantern's wick, as well as cast window mullions, spider frame and ogee dome, which is now sheathed in copper. While not definitive, it does appears that the original roof – perhaps the entire lantern – has been replaced in response to damage sustained from a storm or other event. Lantern elements are coated with many layers of paint, which renders operable elements (e.g., vents, bulkhead door) generally inoperable. Glass is intact, held in place with cast iron glazing bars and bronze fasteners, typical for this specific glazing application; inexplicably, bronze fasteners are covered with sealant.

3.2. A fourth order lens (now modern) is housed within the lantern, supported in part by a solar array mounted below on the drum deck, facing due south.

3.3. The lantern lacks a cohesive lightning protection system.

4. Interior, Cellar Level

4.1. The Cellar is a warren of spaces and varying floor heights that have been ingeniously carved out of the solid drum base of this lighthouse. Numerous fascinating remnants exist of early heating, cooking, storage and water routing systems. The latter includes both discharge of ambient seawater (such as might be encountered following a heavy storm or during an extreme high tide) as well as enclosed, but inter-linked cisterns.

4.2. Fresh air and light are offered via several windows situated just above the drum deck elevation (which positions them quite high within the Cellar spaces). There also are the aforementioned hatches along both the SE and NW exterior walls, with direct access for support services, materials and supplies. Presumably, these also may have had a function during an extreme weather emergency.

4.3. Aside from accumulated ambient detritus, these spaces remain in a very serviceable state, with effective reuse potential.

5. Interior, Main (Entry) Level

5.1. The main floor level consists of a raised entry vestibule (critical during winter months and inclement weather) along with the main communal spaces: living room, kitchen, bathroom/shower and office. These spaces are now largely empty. Their principal current function is to house support components of the modern solar array, alongside maintenance material and supplies.

5.2. Vertical access – the lantern stair – provides access to the Cellar and Second Floors, and is positioned at the southerly end of the center hallway.

5.3. Principal materials of the Main Floor include: plaster walls and ceilings, wood floors overlaid with vinyl asbestos[1] tile (VAT) and wooden doors and casework. All woodwork and plaster surfaces are painted; original finishes appear intact in multiple locations.

6. Interior, Second Level

6.1. The second floor level houses bedrooms and a bathroom, positioned near the lantern tower. While these spaces are now largely empty, they are used for the safe storage of several important original interior features, notably original mortise-and-tenon paneled doors and associated hardware.

6.2. Vertical access – the lantern stair – provides access to the Main Floor and Lantern; it is situated at the southerly end of the center hallway. Between the hall and lantern stair, a double leaf metal door provides fire separation between the sleeping rooms and lantern (where, originally, the light incorporated an open flame).

6.3. Principal materials of the Second Floor are similar to the First Floor: plaster walls and ceilings, wood floors overlaid with VAT, and painted wooden doors and casework. The interior walls of the cylindrical tower stair are exposed brick, now heavily deteriorating.

[1] Unless these tiles are significantly deteriorated or corrupted, the asbestos component of VAT is embedded, with associated hazard levels varying from that of airborne fibers. Handling and disposal remain of critical concern.

6.4. Deterioration of the interior brick of the tower stairwell is characteristic of the type of extensive damage that is often the response to layers of inappropriate interventions:

- Originating with the cast iron lantern gallery decking, lack of ongoing maintenance led to rusting that, in turn, invited "rust-jacking," literally applying microscopic but highly intense pressures to the cast iron elements;
- In response, the cast iron plates shift or – worse – crack (both have occurred);
- More water gets in, reaching the stone below the deck;
- Mortar erodes, remains unaddressed, and ultimately more water is allowed to seep into mortar joints (both vertical and horizontal);
- Because of the massive inherent compressive strength of granite, when the water within joints freezes and expands, it moves the stones apart (i.e., they tend to not crack) and water reaches the interior;
- The collar joint between the exterior stone wall and the interior brick facing – often irregular by nature – allows water to spread widely behind the brick surfaces, where it is slowly absorbed by the brick;
- As the imbedded water begins to evaporate, it tends to favor warmer (i.e., interior) surfaces, expressing itself as dampness across the exposed brick surfaces;
- Once water begins to evaporate, it leaves behind particles of dissolved salts that have been collected from the atmosphere and its travels within the Light Station's wall system, forming whitish blotches on the interior exposed brick surfaces;
- In reaction, the interior brick joints are aggressively pointed with a "hard" mortar;
- Hard mortars force water through the brick rather than – as intended – through the previously (and originally) more permeable joints, exacerbating the dampness and efflorescence and, in turn, deteriorating the brick itself (it begins to "sugar" as particles of brick are dislodged during the evaporation & salt deposition process;
- Harder, and more, mortar worsens and accelerates the condition, until additional remedies are sought; and, finally
- Coatings are applied, which likely will lead to the complete destruction of the wall.

6.5. This process can be properly resolved by addressing the *source* of the problem: unpainted, and now deteriorated, cast iron exterior plates. Keeping water from getting in is the key to success for remediation/restoration programs treating water ingress.

7. Interior, Attic

7.1. The Attic is an unfinished, open space, which allows for a close examination of many otherwise underlying conditions critical to a building's health: water ingress at eaves or throughout roof plane, venting & ventilation, structural stability, etc.

7.2. Access to the Attic is via the Lantern stair tower; it resides a level below the Lantern.

7.3. Structural framing consists of hardwood timber (chestnut/oak) and softwood lumber (pine/fir) in combination, with unfinished softwood flooring boards. Perimeter roof plates, which are located at the tops of exterior stone walls, are riven into the stone. Rives are ferrous and have rusted, which in turn has led to a pattern of vertical cracks noticeable in the uppermost stone coursing of the exterior walls. This is an active condition that will get worse over time by virtue of ambient moisture and salts present in the immediate environment. The roof plates are important elements that receive the rafters of the gable roofs, and disperse the applied loads. Throughout the Attic, we are very pleased to note that the timber framing system remains in remarkable condition.

7.4. Another notable finding is that many of this Light Station's original windows still exist, and have been stored – since being replaced – safety within the Attic. They are in stunning condition (which tends to lead to the question of *why* they were replaced?).

RECOMMENDATIONS

Preamble: Hierarchy

Insofar as there are both overarching and overlapping concerns related to a palette of potential remedial actions that would be appropriate for this exceptional resource, we have subdivided this section into three hierarchical components: 1) Safety, 2) Stabilization & 3) Restoration.

Part 1: Safety

1. Access

1.1. The present configuration of jetty, stair and davits is highly dependent on tide tables, and so not conducive to either periodic maintenance when required or the eventual introduction of construction personnel/artisans engaged in specific restorative work.

1.2. It would appear that the most cost effective and useful approach would be a floating dock facility of sufficient size to offload construction materials. The location of the existing access stair on the Light's NE exposure – while not ideal – does correspond to its historical configuration, and one jetty already exists (there were originally two, of somewhat different form than the present one).

2. Fall Arrest Hazards

2.1. Both hatches leading from the drum deck to the Cellar are disguised, albeit also roped off to deter stepping on them. While these important access links need to remain, they also require re-structuring to keep a person from inadvertently falling through them.

2.2. A temporary perimeter rail system needs to be employed that does not limit the ability of the original to be eventually restored. In its present condition, the original railing is not a proper fall arrest device.

2.3. Stone fragments continue to fall from around the perimeter of the Lantern tower as well as the lower flanking stone eaves. Loose stone needs to be catalogued (for eventual replacement), removed and stored safely on site. Following removal, eave elements left open to the weather require secure waterproofing and/or netting, to protect from further destabilization and bird/insect/water/debris ingress or nesting.

Part 2: Stabilization

1. Rainwater Distribution

1.1. Concentrated rainwater is creating an ongoing damaging condition as it makes its way through open masonry joints, earlier internal drainage lines (previously abandoned), openings at the intersection of the building's exterior wall and drum deck, as well as through the breached drum deck itself.

1.2. Remove and reform perimeter gutters and flashing systems associated with the roof, walls, tower and chimneys. At the base of the building, gather and direct water over the top of the drum deck to at least 4' beyond the drum walls.

2. Lantern Tower Interior Brick Masonry

2.1. DO NOT apply any coatings or other products to the interior surfaces of the brick!

2.2. Provide a secure weatherproofing system that encompasses the entirety of the Lantern gallery decking, down to the base of the octagonal portion of the stone tower below (approximately 8'-10' vertically). Allow the masonry materials within this enclosure to dry out naturally before next steps are taken; this will require at least 3-4 months, and may readily be monitored with field meters as desired. Once excessive moisture levels have stabilized, durable corrective measures may begin.

3. Drum Deck *(2 Options, Each Valid)*

3.1. Tarp. Provide continuous tarp over entirety of drum deck. Secure from 4' above base of building exterior walls to 6' below deck level over stone perimeter walls (10' vertical).

3.2. PMMA. Apply liquid membrane roofing system (e.g., PMMA: poly methyl methacrylate) from base of building exterior walls to the outer edge of the drum deck. These types of systems are flexible and self-terminating, but do require a clean substrate.

4. Light and Ventilation

4.1. Replace deteriorated polycarbonate sheeting with laminated glass or acrylic sheeting, to allow more natural daylight into the interior spaces.

4.2. Reconfigure windows for measured ventilation throughout structure (generally, small vents integrated into the window perimeter).

4.3. Incorporate a building-wide passive convective draft ventilation system.

5. Temporary Services

5.1. It is CRITICAL that this building is kept from freezing during winter months; therefore, a package radiant fluid loop system is advised, which is best distributed throughout the perimeter walls of the interior, from Cellar to Attic. Ambient target temperature range of ±40°F would be ideal; slightly higher is even better.

5.2. Consistently warming the interior during the winter will couple well with the approaches above to dry out deteriorated masonry systems within the Lantern tower.

5.3. Electrical service is required to power numerous requisite systems, tools & lights. If it is possible to restore pre-existing utilities or utilize power from the current solar array, that would be ideal. If not, options would include a separate dedicated solar array, a battery backup and/or propane generator.

6. Leave Everything In Place

6.1. While it may be tempting to “clean up” spaces during the application of the above recommended stabilization measures, it is recommended that ALL MATERIALS BE LEFT IN PLACE, UNDISTURBED. Even seemingly innocuous elements provide vital clues during restoration planning and implementation. More important, we already have discovered a treasure trove of original elements strewn across many interior spaces, from Cellar to Attic. The time will come to properly catalog and analyze all of these remnant artifacts.

Part 3: Restoration

1. Archiving Materials and Documents

1.1. The first step in a prescribed Restoration Program for this site would be cataloging, evaluating and archiving *in situ* elements and related records associated with the site.

2. Drum

2.1. The intrinsic value of the Drum is its ingenious design, most of which remains unseen. It is evident from our inspection that deterioration is progressing from the top down, which generally indicates that when the Drum Deck is stabilized with a proper topping, the ferrous railing is restored and the perimeter walls are pointed (upper 6'), this extraordinary foundational element will once again be stable.

2.2. Specifications are required for Drum Deck.

2.3. Specifications are required for perimeter railing.

2.4. Specifications are required for pointing mortar.

3. Stormwater Drainage System & Cisterns

3.1. Originally, stormwater collected via the metal roof gutters was directed (hard-piped) to the Cellar, then routed into the cisterns formed beneath the Cellar floors. If the intent is to restore the function of the cisterns, this system could be re-instated. Alternatively, stormwater could be routed over the top of the Drum Deck where it may be discharged safely overboard. That basic decision will guide the configuration of the lower portion of the roofing downspouts, but not gutters or other elements of stormwater collection, management and distribution.

3.2. Gutters need to be properly sized and configured for this application (currently they are not). Installing new gutters may necessitate partial or complete removal of main roof panels, as all roofs are generally constructed from the bottom up.

4. Lantern, Dome Roofing & Decorative Cast Iron

4.1. The beautiful cast iron scrolls positioned at the eaves of the Lantern's ogee dome roof are corrupted; one also is missing and must be replicated. It is anticipated that this would best be accomplished alongside all cast iron elements of the Lantern scheduled for restoration, including vent ball, spider frame, scotia eaves, glazing posts, astragals, condensate troughs, skirt panels, vents, thresholds, gallery deck plates and railing.

4.2. Lantern glazing (glass) requires upgrading, and this should be accomplished in strict accordance with DHS/USCG standards and protocol. WSA is familiar with materials and installation procedures so specified.

5. Building Envelope

5.1. Granite walls require selective repointing, as well as the extraction of embedded iron elements: rives, clamps, fasteners, et al. that have led to staining and cracking.

5.2. Embedded iron elements may be safely replaced with non-ferrous alternatives.

5.3. Original windows – or new windows more closely emulating the originals – need to be reinstalled throughout the Light Station.

5.4. Exterior paint finishes are important architectonic considerations, and vary significantly from the non-historic white finishes now present. Original hues also are more closely aligned with the stylistic elements of the resource as a whole, rendering its appearance more pleasing and unified.

6. Systems

6.1. Heating. Perimeter radiant, emulating the original efficient system.

6.2. Ventilation. Passive complemented by mechanically enhanced (convective).

6.3. Electrical. Plug load and potential mechanical components (pumps, fans).

6.4. Lightning. Master Label equivalent, protecting tower and keeper's quarters.

6.5. Security. Perimeter safety and remote access locking.

6.6. Lighting. Interior (all levels) and exterior (deck, landing, architectural).

7. Interior Spaces & Features

7.1. As described earlier herein, there are enough elements that remain on the premises to faithfully restore interior spaces to a condition reflecting a variety of periods throughout the site's history.

7.2. Alternatively the site may be preserved intact as a remnant in its current state.

— END OF SUMMARY FINDINGS —

Photo 1. Race Rock Lighthouse is oriented roughly on ordinal points: its tower entrance faces generally southwest (SW). Note the original jetty/breakwater configuration in this pre-1915 image.

Photo 2. Wave action at high tide. Image credit: Rosario.

Photo 3. Approach to Race Rock Lighthouse, looking southwest. Landing poses difficulties.

Photo 4. View of Lighthouse looking west.

Photo 5. Years in the making, the granite sheathed concrete drum is an inherently rugged core, yet there are locations of distress rendered from lack of continual maintenance that would have occurred with a Keeper.

Photo 6. Missing rails, open masonry joints, gutters filled with organic matter, and similar myriad but addressable issues combine to undermine stability, even of structures built to last hundreds of years or more.

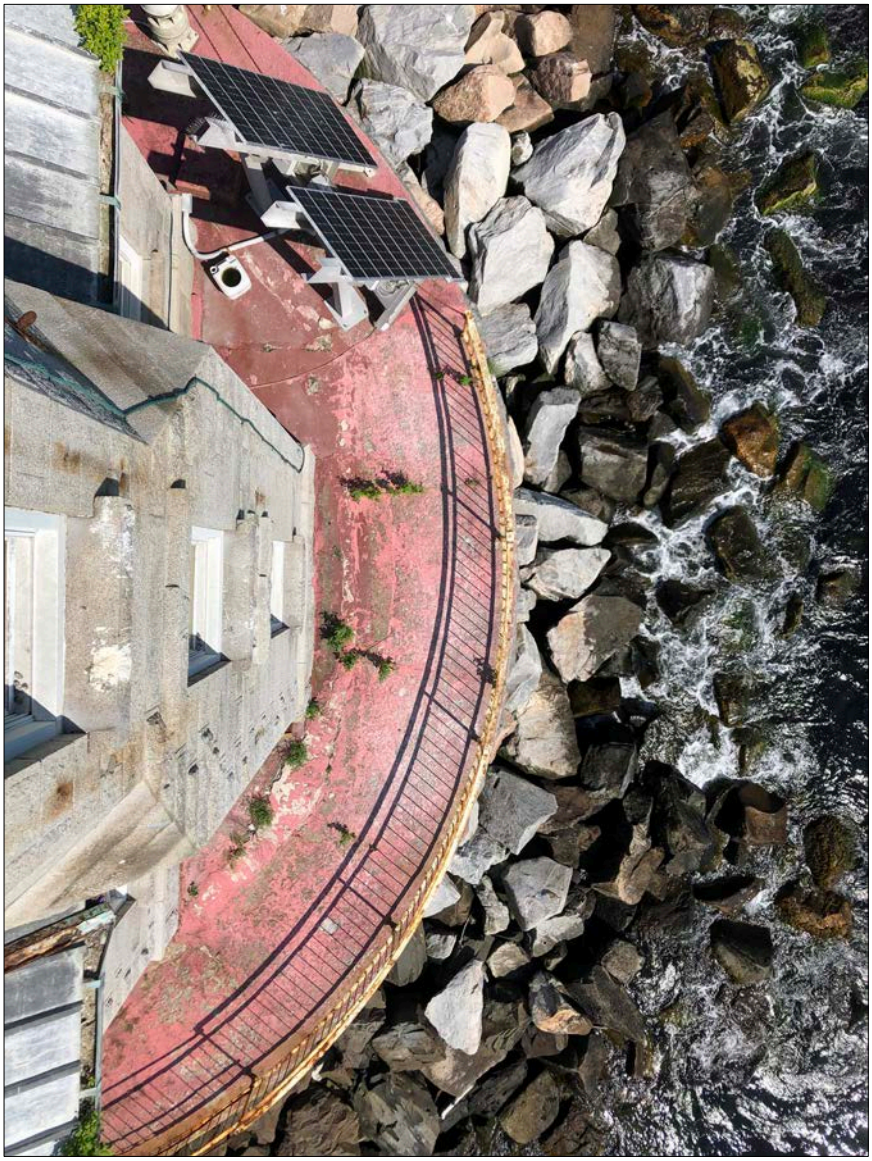

Photo 7. View from the Lantern Gallery to the drum, deck & riprap below.

Photo 8. The Drum's deck surface is a crucial first line of defense, protecting the foundation and stores below. Cracks and breaching allow infiltration of vegetation and other organic matter, exacerbating the condition. Rainwater, left to spill adjacent to foundation walls, compounds deterioration. Note shards of cast iron that have fallen from the Lantern above.

Photo 9. General view of the Drum deck and perimeter railing, both of which are currently in an unsafe condition. Bulkheads to the right provide access to the cellar and stores; in their deteriorated state, and without being safely cordoned, they harbor potential for a serious fall to nearly one story below.

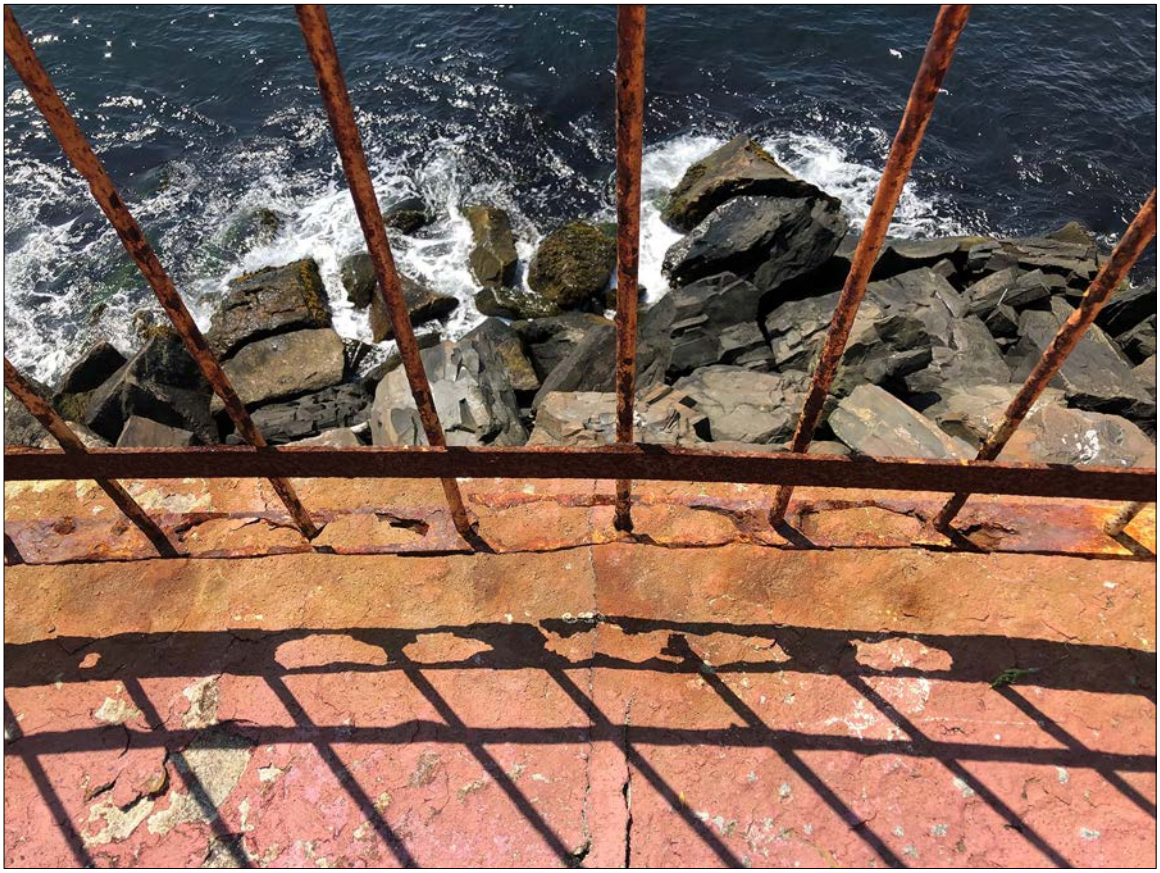

Photo 10. Perimeter iron railing, embedded into concrete Drum deck, is strong but corroded. It also is discontinuous. Despite these conditions, this early railing remains restorable and may be refined to meet current building safety standards.

Photo 11. View up the west wall of the Tower and adjoining west eave. Coursed ashlar granite walls remain in extraordinary condition – a testament to their underlying technology – though the assembly possesses several Achilles' heels: gutters, unpainted cast iron and marginally maintained windows.

Photo 12. Drone view of Lantern, upper tower, chimney and south roof slope. Photo credit: Jim Tracy US Beacons.

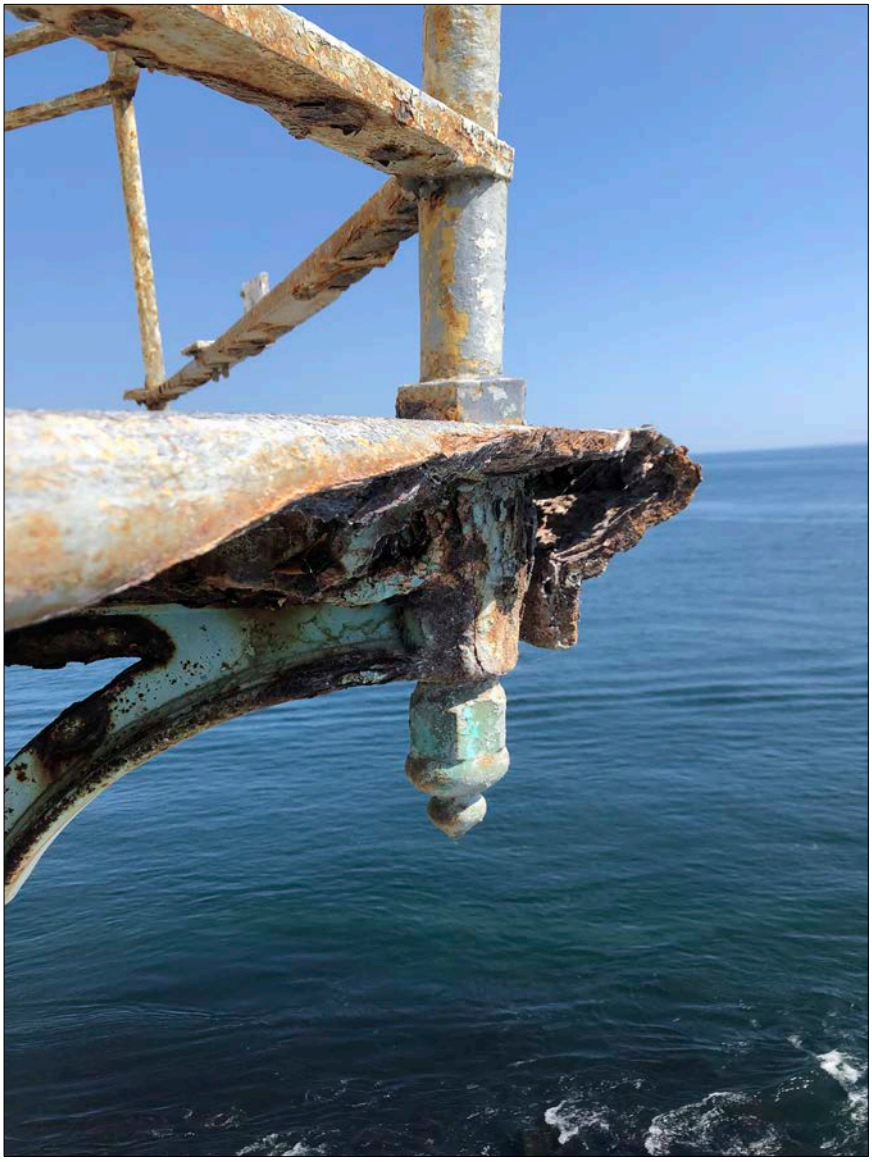

Photo 13. Detail of railing through-pendant fastening assembly. Though severely corroded, missing elements may be restored by recasting in iron.

Photo 14. A cast iron cartouche, as well as embellishments of the lower fasciae, demonstrate the celebratory nature of Lighthouse design; these were the technological marvels of their time, expressed in architectural details such as these, as well as in literature and visual arts. Their allure is undiminished.

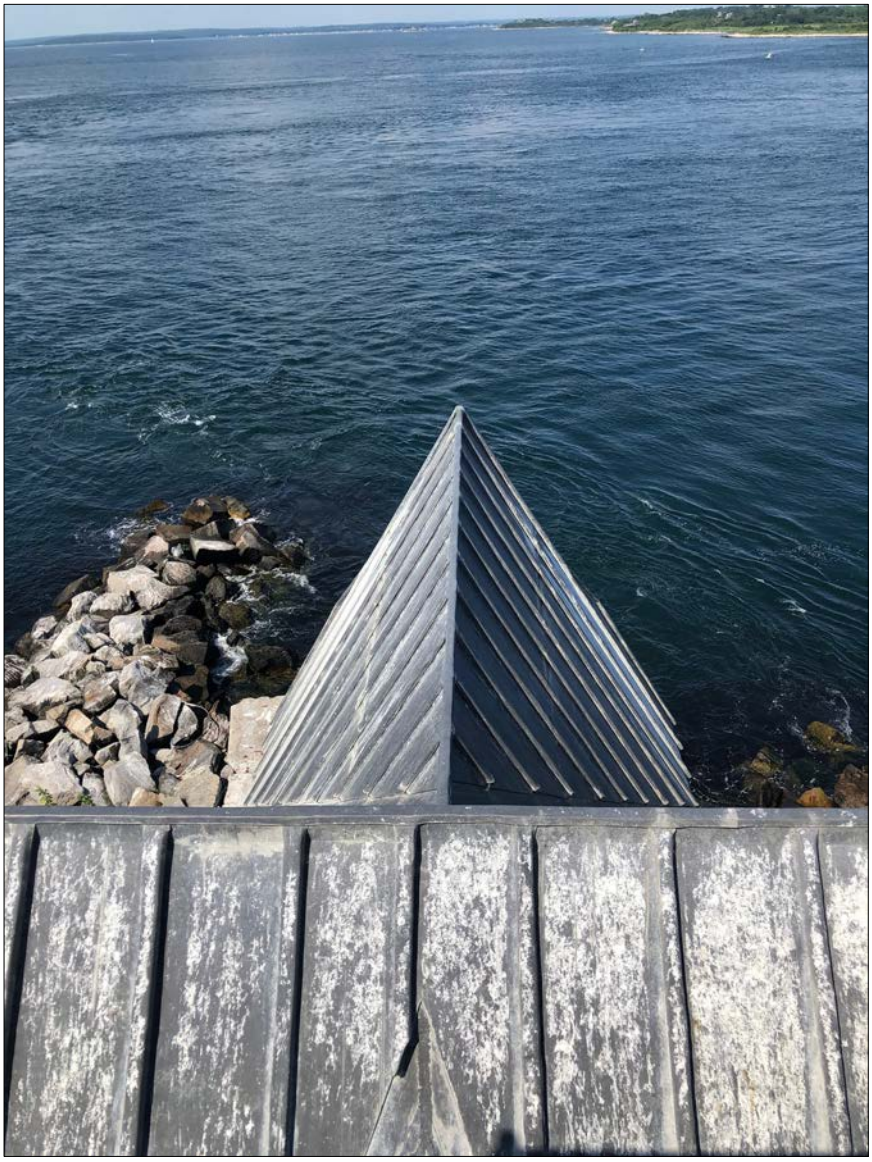

Photo 15. Present lead-coated copper batten roofing system is durable and appropriate, representing a significant sustainable component of the exterior envelope, and first line of defense for the Lighthouse proper (as the Drum deck is for the cellar stores below).

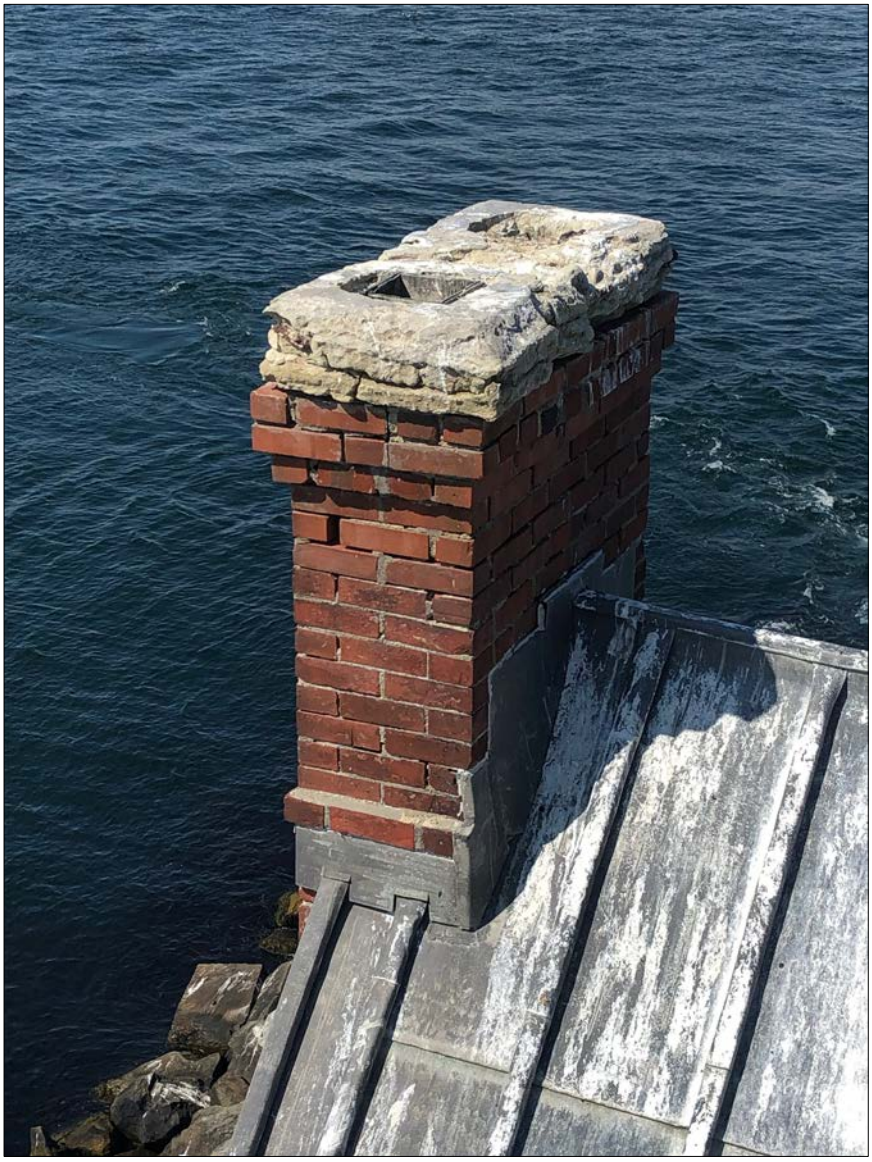

Photo 16. Despite the high quality of the present roofing installation, original chimney and other penetrations require special attention. Damage to the copings is not unusual, and eminently reparable.

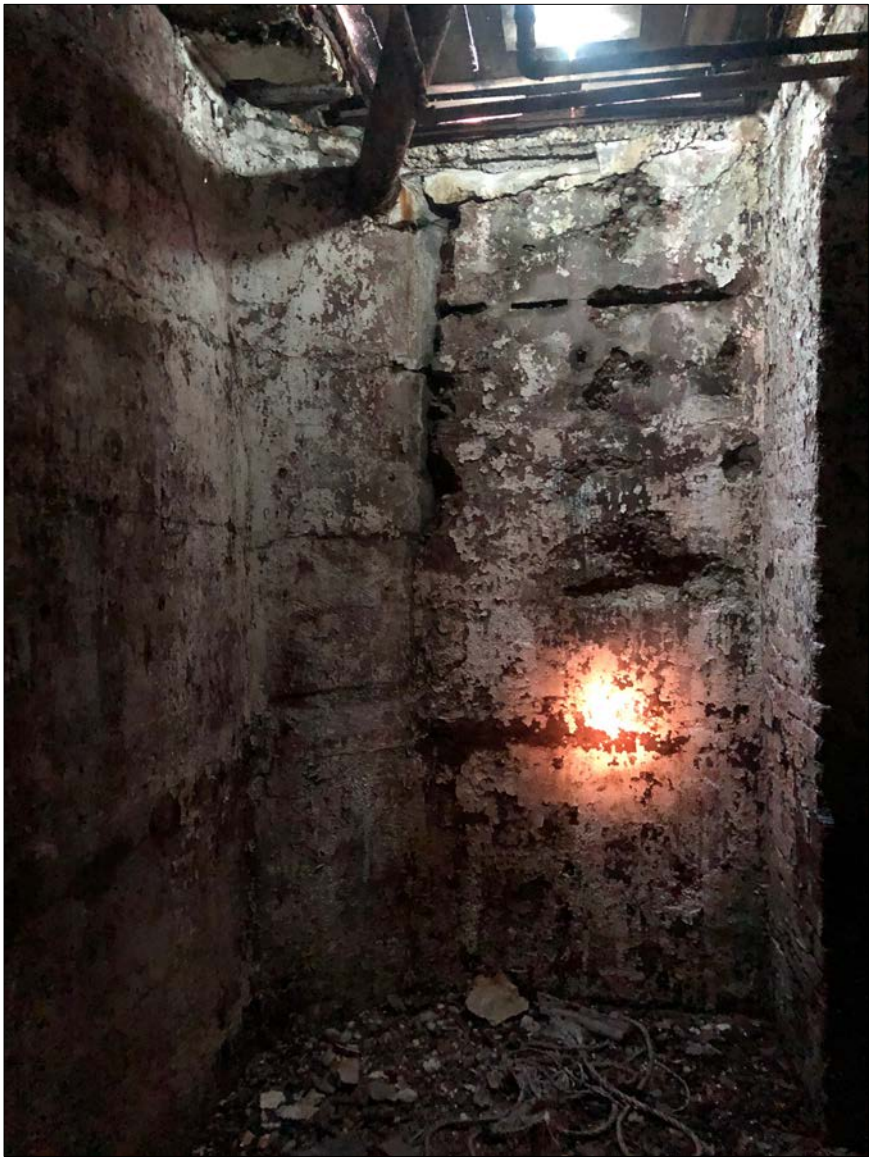

Photo 17. Beneath the Drum deck bulkheads are vertical access shafts for coal, food & ice. At present, these pose a severe potential safety hazard for anyone standing on or near the bulkhead plates, or below.

Photo 18. The cellar level within the Drum housed a variety of functions critical to Keeper & family, primarily related to food, water and heating. It is punctuated with upper windows at the level of the Drum deck for ventilation and light. Efflorescence of embedded salts is evident in the brick walls.

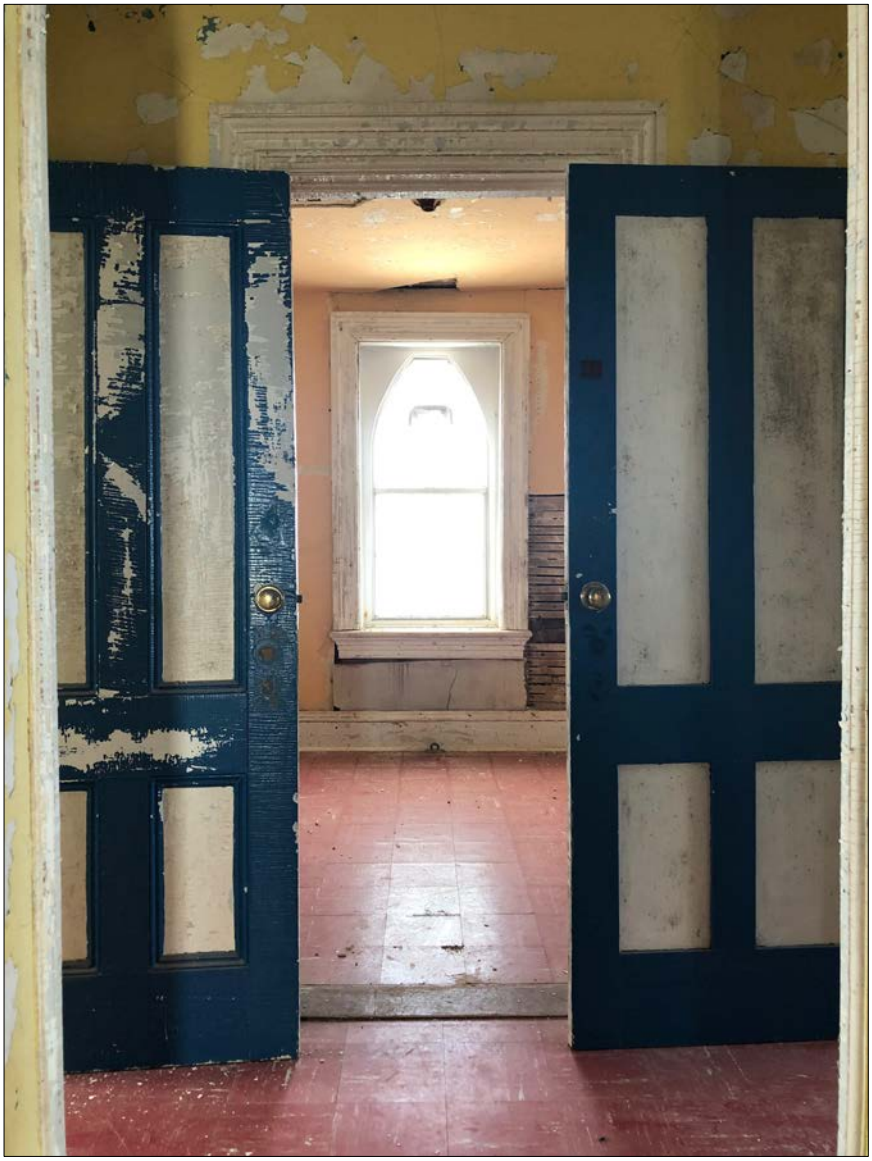

Photo 19. Interior spaces are largely intact, with many features displaying a multitude of changes over time. Understanding the value of each element as an artifact is crucial before any restorative work is begun.

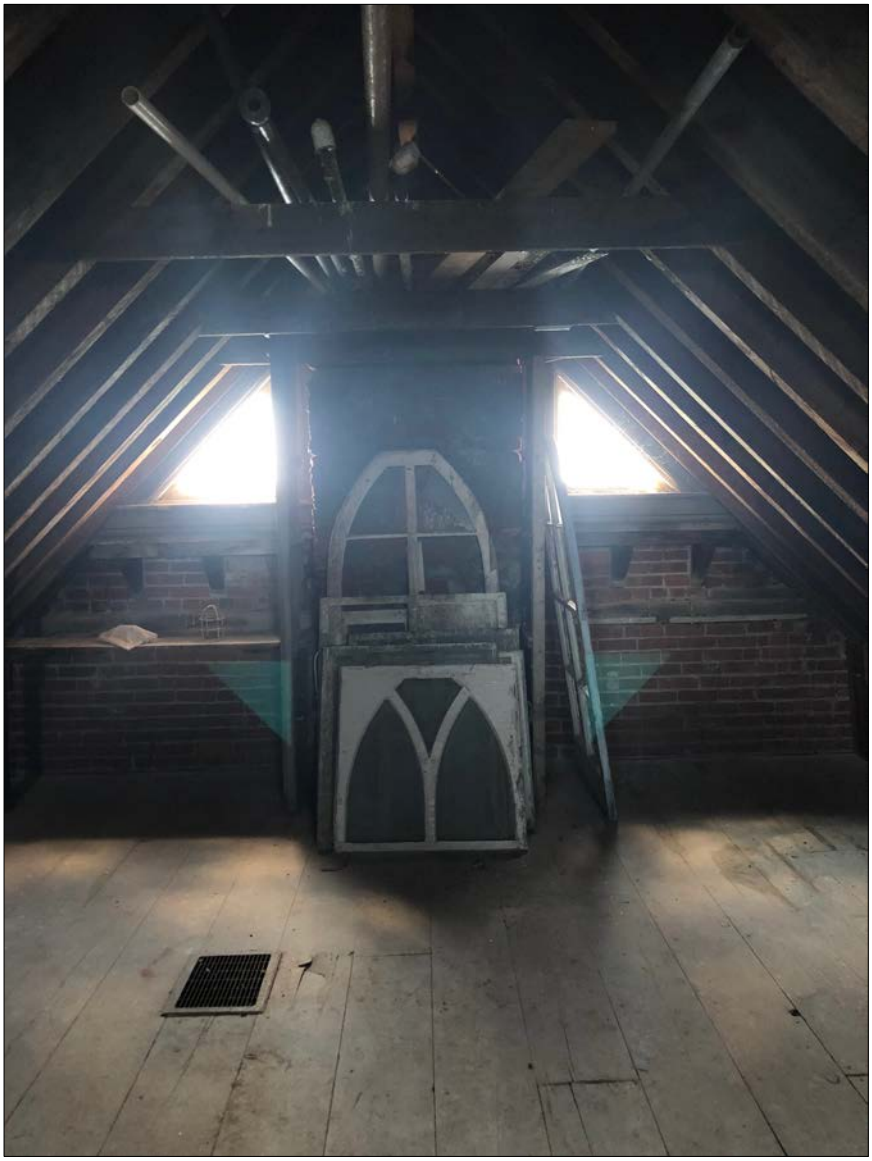

Photo 20. The attic space is clear and pristine, with few issues of concern relating to condition, structural integrity or usefulness. Remarkably, many of the original wood windows – swapped for utilitarian versions by USGC – have been stored for safekeeping; these should be re-integrated during the Lighthouse restoration, where they can exceed new energy standards.

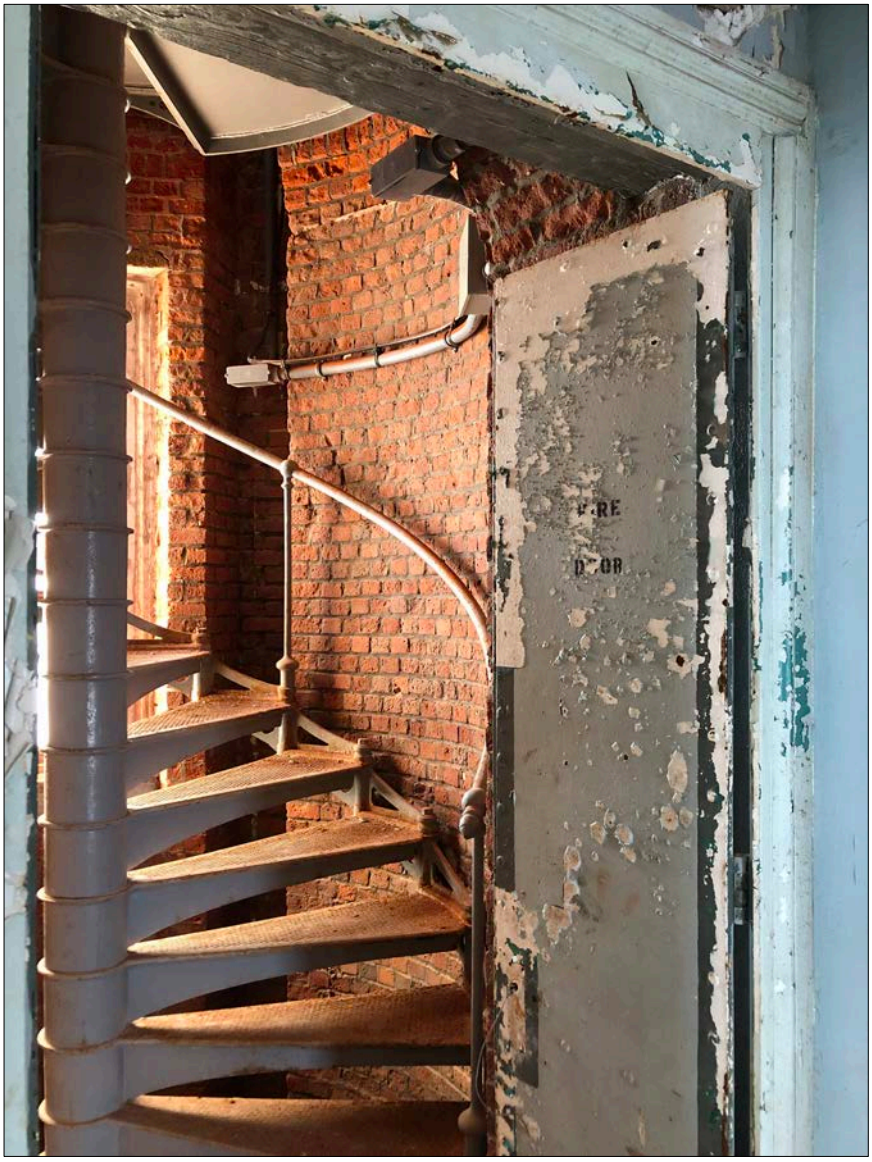

Photo 21. Vertical circulation plays a multiple role: fire egress, convective air flow (for the wick of the original lantern, plus expulsion of warmed air during summer months that helps keep the interior relatively cool. Water ingress through the Lantern above has seeped into brick walls; evidence of brick dust is everywhere, indicating a deep process of degradation.

Photo 22. Cast iron spiral stairs continue directly to the Lantern, via the attic and Service Level of the Lighthouse. Water seeping through the Lantern's cast iron elements is evident throughout.

Photo 23. Just beneath the Lantern Level, the final stair run is permeated with rust resulting from water ingress above as well as deposition of condensation from being closed for long periods. Despite its appearance, damage such as this remains very restorable.

Photo 24. Within the Lantern, the vertical bars, sills, vents, spider frame and various related elements all suffer from lack of a Keeper who could attend to small coating & repair issues before they became large. Most elements are intact, which speaks well for the success of the planned restoration.

PRELIMINARY COST ESTIMATES

A Word About Budgets

Budgets are not contractor bids; that is, while they reflect anticipated cost of construction, they also include allowances for contingencies that are not yet fully known or defined. **WSA|ModernRuins** develops budgets in a very specific manner: estimated costs are calculated based on unit costs of similar work conducted in the New York metropolitan area; these unit costs are maintained in the firm's database and are continually updated. Projected costs represent the mean, or average, cost for defined work, *not* the lowest cost; that is, our projections are where we expect the center of a bell curve of bid responses to fall. It is reasonable to expect that actual bids received from qualified contractors may be lower or higher than calculated budgets, depending on market conditions, a more refined scope or other factors in play at the time of bidding. All budgets indicated as "preliminary" include a contingency in the range of 7-10% to cover unknowns at this time or discretionary additions to a construction project while it is underway. We have found that oftentimes it is the case that when a well-performing contractor is on site, owners prefer to complete additional similar work based on convenience or cost-effectiveness. Therefore, our budgets seek to eliminate a shortfall of funds, while establishing a relative value for each work element identified. Budgets reflect a quality of work consistent with the construction of the original building. Unless otherwise indicated they do not include A/E professional services or regulatory fees. Budgets are shown in current (2019) dollars.

Seq No.	Summary Scope		Est Budget
1st Priority: Landing Integrity & Safety			
1.01.00	Access & Landing Hazards	$	330,000
1.02.00	Fall Arrest Systems		24,000
	Subtotal Priority 1: Safety	**$**	**354,000**
2nd Priority: Stabilization			
2.01.00	Rainwater Distribution	$	18,000
2.02.00	Lantern Tower Interior Brick Masonry		34,000
2.03.00	Drum Deck (PMMA Option)		84,000
2.04.00	Natural Light & Ventilation		21,000
2.05.00	Temporary Services		188,000
2.06.00	Curatorial Stewardship		13,000
	Subtotal Priority 2: Stabilization	**$**	**358,000**

3rd Priority: Restoration

3.01.00	Archiving Materials & Documents	35,000
3.02.00	Drum	280,000
3.03.00	Stormwater Drainage Systems & Cisterns	166,000
3.04.00	Lantern, Dome Roofing, Cast Iron	633,000
3.05.00	Building Envelope	511,000
3.06.00	Systems Upgrades	425,000
3.07.00	Interior Spaces & Features	234,000
	Subtotal Priority 3: Restoration	**$ 2,284,000**

— END OF REPORT OF INVESTIGATION —