

1 **KEEPERS QUARTERS**

2 **Chronology of Alterations and Use**

3 *Original Construction*

4
5 The Tower and its attached quarters were completed in October of 1874. The two-story brick residence is
6 connected to the Tower by a short passageway. Although it retains much of its original exterior appearance,
7 the Keepers Quarters underwent several, significant alteration regimens to accommodate its changing
8 occupants and to address the effects of severe weather.
9

10 11 *Significant Alterations / Current Condition*

12
13 Significant alterations to the Outer Island Keepers Quarters consist primarily of interior remodels: the pre-
14 1925 conversion of the second floor into two private spaces for the first and second Assistants; the 1925
15 conversion of the second floor into the first assistant's quarters; the installation of the staircase from the
16 second floor to the attic; the attic conversion to the second assistant's quarters; and, the rehabilitation to its
17 present and original configuration at some point after 1925.
18

19 Undated elevations and plans for the building illustrate a plan for the finished attic and the stairs from the
20 second floor to the attic, suggesting it was drawn around 1925. (Historic Drawing OI-05) Other dated
21 drawings indicate the 1925 conversion of the second floor into the first assistant's quarters and the
22 conversion of the attic into the second assistant's quarters. (Historic Drawings OI-06 and 07) The plans
23 detail the stairs from the second floor to the attic and show the configuration of the house prior to the 1925
24 alterations. The second floor was divided equally with each half including a kitchen on the south side (now
25 reverted to bedrooms) and one bedroom on the north side. A locked door was indicated between the two
26 kitchens, but currently there is no evidence of a door. A note on the drawing states: "This entire Floor to go
27 to first Asst when attic converted."³⁹ The attic space was converted into separate living quarters with a
28 kitchen at the south end (with a stove, sink, and cupboard indicated), a living room to the west, a bedroom
29 to the east, and two closets flanking the stairs on the north wall. Two sets of dormers were added to the east
30 and west walls during this same period. Few remnants of this conversion exist as the building now has a
31 traditional, single-family house composition, with the second floor containing only bedrooms and a
32 partially finished attic. There are signs of plaster and lath on the attic frame structure, linoleum flooring
33 remnants, and an extant wood cabinet. The 1925 construction set calls for tin shingles on the roof and sides
34 of the house and what is today the kitchen is labeled the "Wood Shed" (per the 1908 keeper's log, it
35 appears the original shingles were probably wood). Other than the addition of the dormers, during the 1925
36 rehabilitation work, there were only minor alterations to the building's exterior.
37

38 An 1893 photo reveals painted wood shutters on all windows and a covered, painted wood well structure to
39 the southeast of the kitchen (no longer extant). The site was connected by wood plank walkways that linked
40 the well, Privy, and Keepers Quarters to each other. (Historic Image OI-01) In 1916, the western kitchen
41 entry is visible (first historic photograph in present collection where entry appurtenance is seen). It's simple
42 gable roof and wood clapboard siding, painted white appear the same today. (Historic Image OI-07)
43

44 From the 1970s to the 1990s, the building was used to house the NPS staff. A propane stove, refrigerator,
45 heating units and solar lights for the kitchen were installed during this period.
46

47 Other work, between 1998 and 2009, was performed by the Historic Structure Preservation Team of the
48 NPS including painting the exterior woodwork, repointing, rehabilitating the dormers, reglazing the

³⁹ 1925 Plan to Convert second Floor of Keepers Quarters Into One Living Space for first Assistant (Historic Drawing OI-06)

1 windows and replacing the broken glazing. The Keepers Quarters was re-roofed with three-tab asphalt
2 shingles (brick red) by the Team in 2002.

3
4 Mechanical systems in the Keepers Quarters have been upgraded to allow for seasonal housing for park
5 employees and volunteers. Little remains of the original 1880s water and heating systems. Some of the
6 mechanical components installed in the 1952 remodel remain in place, although they are no longer
7 functional.

8
9 There is no evidence that any electrical lighting or distribution equipment was installed at the time the
10 Keepers Quarters was built. In 1928, the Keepers Quarters was electrified. That installation would have
11 presumably been governed by the NEC (National Electrical Code) of 1928. Between 1941 and 1952 the
12 building's electrical system was upgraded for use by the USCG.

13
14 The Outer Island Keepers Quarters is in fair condition.
15
16
17

1 Summary of Documented Work on the Building

Date	Work Described	Source of Information
1875, August 4	"Brot the bricks for repairing chimney on dwelling."	O.K. Hall, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol I
1877, October	Oct 1: "Mr. G.W. Bond finished work on the cistern....Mr. Jerome Sauzon is in charge of the building of the Signal and Light House now being constructed."	H.A. Kuchli, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol I
1880, October 16	"The cap on top of the chimney blew off... The Tower swayed like the top of a tree; and the Lens, well, it is a wonder to me that a piece of it is left."	H.A. Kuchli, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol I
1893 (or before)	Shed at Tower entry (different than shed seen in 2009)	Historic Photo OI-01, 1893
1895, July 22	Steamer "Amaranth" brings "some shingles for the House and shed roof." "Shed roof" most likely refers to the kitchen shed roof.	John Leonard, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol I
1907, July 29	"...repairing ruff on kitchen."	John Irvine, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1908	Re-shingled roof with metal shingles Aug 24: "...shingled all roofs with metallic shingles..."	Otto Olson, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1910	Aug 2: "John W. Miller arrived with a carpenter ...they come here to ... lay the hardwood floors..." Oct 12: "Repaired eve trough on West side of Dwelling." "Eve trough" is another terminology for the gutter.	Otto Olson, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1911	July 28: "Put on moldings around kitchen floor." Sept 20: "Put down ¼ round molding in Dwelling."	Otto Olson, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1912, July	July 1: "Keeper making cupboard for kitchen." July 10: "Put lock and hinges on kitchen cupboard."	Otto Olson, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1915, November	Nov 1: "Piling lumber on dock and bringing up lumber for storm house." Nov 2: "Seting up frame of storm house." Nov 5: "Got siding on storm house, also roof. Started to put on lining in side." Nov 6: "Working on storm house. Putting in window." Nov 16: "Fiting door on storm house." Assume this "storm house" is the west shed at the kitchen entry, seen in Historic Photo OI-08 from 1916	Otto Olson, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1919, October 20	"Put up new cook stove in First Assistant's part, and started to lay new floor and line water closet."	Daniels, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II

Date	Work Described	Source of Information
1922, November 7	"Made door for storm shed."	Daniels, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1925	Dormers added, attic converted into living quarters for second assistant keeper	Historic Drawings OI-05 and 06, 1925
1926	May 7: "Second Assistant moved up in his quarters. Put in window glass in hall window." June 2: "Second Assistant put down rubber mats on his steps."	Daniels, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1928, July 28	"Started to cut opening in Assistant's kitchen."	Daniels, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1929, May 16	"Put in post and looking glass for First Assistant so he can see Light from his quarters."	Daniels, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1930, October 29	"Piped shower bath." First mention of indoor plumbing.	Daniels, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1935	Oct 2: "Started to work on bedroom off the hall. Tore out stand and took up part of floor, and removed loose plaster on walls." Oct 3: "Laying floor in bedroom." Oct 4: "Made ¼ round to go around the floor in bedroom." Nov 15: "Laying floor in Assistant's quarters." Nov 20: "Run out of flooring; was 52' short of having enough to finish the kitchen."	A. G. Carpenter, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1936, May	May 15: "Laying new floor in First Assistant's Quarters, and painting in Second Assistant's quarters." May 18: "Fitting ¼ round on new floor in Assistant's quarters."	A. G. Carpenter, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1937, June 15	"Fitted rug to Keeper's kitchen floor. Put in a new cement thrush under door of storm porch to Keeper's quarters."	A. G. Carpenter, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1940, June 10	"Plastering chimney, and patching up wall in First Assistant's Quarters."	A. G. Carpenter, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1943, July 3	"Brought Mr. Miller and helper to shingle the dwelling and Fog Signal."	V.T. Barningham, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1945	May 4: "Installing hot water tank in kitchen." May 9: "Cutting doorway in upstairs quarters." May 14: "Working on entry to bedroom in second floor quarters." June and July: Laid linoleum throughout Quarters	V.T. Barningham, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1952	Remodel, including new heating system, two water storage tanks, bathtub, and electrical system	USCG Mechanical Plans
2002	Re-roofed with 3-tab asphalt shingles (brick red)	HSPT Reports, 2009

1 Notable Actions with Unknown Dates

Date Range	Work Described
Pre-1925	Converted second floor to two private apartments, each with their own kitchen and bedroom
Post-1925	Converted back to original configuration of single-family home
1970s-1990s	Propane stove, refrigerator, heating units and solar lights for the kitchen installed for the NPS staff habitation
1998-2009	Repointed
1998-2009	Painted exterior woodwork
1998-2009	Rehabilitated dormers
1998-2009	Reglazed windows and replaced broken glazing

4 General Physical Description

5 This building is a two-and-a-half story brick structure with a tooled brownstone foundation. It has a clipped
6 gable roof with gable dormers centered on both sides of the ridge. Punched, arched openings in the
7 masonry characterize window openings at each elevation. The dwelling is attached to the Tower at the
8 north end via a single-story gabled passageway that includes a shed addition. There is a one-story masonry
9 shed roof appendage on the south end. The first floor has four main rooms plus the kitchen. The second
10 floor has four rooms and the third floor (attic) was remodeled to have three rooms at one time but is now an
11 open area with exposed framing.

14 Physical Description -- Architecture

15 Architecture – Roof

16 The roofing is red asphalt shingle, 5"x12" exposure, with installed tie-off rings. The tie-off rings do not
17 appear to comply with OSHA requirements. This roofing is not historic and the park records indicate its
18 installation was in 2002. The original sheathing is 1x12 with 1" gaps, which suggest the original roofing
19 was wood shingle, supported by historic photos of 1893. The dormer sheathing is 1x7 and is not spaced.
20 There are metal shingles evident under the exposed newer dormer framing visible at the attic (circa 1925)
21 as well as a layer of felt. The metal shingles predate the dormers (suggesting that the presumed original
22 wood shingles were replaced by metal shingles sometime before 1925). (OI-KQ-09 and 25) The eave
23 consists of a closed soffit on the rake extending approximately 1'2" at the main roof with a +/- 10" fascia
24 and ogee trim. The top of masonry wall: soffit has a +/- 1'4" frieze board at the junction. All are wood
25 members painted white.

26
27 The metal flashings are a mix of older, reused 4" step flashings at masonry and newer 8" step flashing.
28 There is no drip-edge flashing evident at the newer asphalt shingle roof. There is valley flashing at the
29 dormers. The roof flashing at the south addition appears to have been re-used. The southwest kitchen
30 vestibule entry has the older metal shingles.

33 Architecture – Gutters and Downspouts

34 No gutter system exists on this building other than a small, 2" diameter gutter/diverter at the Tower entry
35 door. (OI-KQ-08)

1 *Architecture – Chimney*

2 The red brick chimney has stepped (corbelled) coursing and banding detail. The top of the chimney has
3 concrete flashing. Previous pointing work is evident due to the mortar color and tooling. (OI-KQ-06 and
4 07)

7 *Architecture – Exterior Walls*

8 The exterior walls are likely four and three-wythe red brick that steps to two-wythe at the attic level. The
9 main house has a rowlock course every seventh course. Upon original observation, the one-story kitchen
10 appeared to be an addition. However, due to the course alignment, the seventh course rowlock pattern, the
11 matching sill heights, and similar sized brick it appears the kitchen was original, though it was noted as a
12 “Wood Shed” on the 1925 remodel drawings. The wood-framed areas have wood clapboard siding with a 4
13 ½” exposure. The foundation is brownstone block and steps down at the south end and has parging along
14 the south and east walls. The sills are also brownstone and are painted. The dormers have metal shingle
15 panels at all three walls with each panel 26” wide and there are three shingles (vertically) per panel,
16 intended to replicate chamfered wood wall shingles.

18 A mortar sample taken at the brownstone block foundation indicates that the composition is a large portion
19 of Portland cement mixed with sand. The mortar is gray colored, and hard.

21 Four mortar samples were taken at the brick portions of the walls. The mortar ranged from relatively soft to
22 moderately hard indicating both original mortar and contemporary re-pointing mortars.

25 *Architecture – Windows*

26 There are a variety of window types predominated by a six-over-six, double hung. All of the window
27 openings in masonry walls are segmented arch with wood trim infill. The windows all appear to have been
28 replaced with the possible exception of the kitchen’s east window, which is three-over-three. Modern stops
29 have been installed, the hardware varies, and no pulleys or ropes can be seen in the original openings.
30 There are storm and screen sash affixed by exterior hook hardware. Some of the glass is distorted, though it
31 does not appear to be original. At the exterior, the sills are painted, tooled, brownstone. On the interior the
32 windows typically have a shaped, painted wood casing surround with a wood sill and apron trim.

34 **Six-Over-Six, Double Hung.** This window type has the upper sash fixed by blocks and has a variety of
35 hardware. There are six of these windows on the first floor and five on the second floor. The general
36 dimension for this window is 2’8 ½” x 5’10”. (OI-KQ-20)

38 **Six-Lite, Awning.** This window is located in the attic at the north, clipped-gable end. There is hardware for
39 a screen evident, but no screen. The dimension for this window is 3’1 ½” x 2’9 ½”.

41 **One-Over-One, Double-Hung.** There are four of these windows in the attic, two at each dormer. They
42 have roped pulleys and modern sweep locks. The general dimension for this type of window is 2’7 ½” x
43 5’0”.

45 **Single-Lite, Awning.** There are two of these types of windows in the attic at the south, clipped-gable end.
46 This window type has a casement and an interior screen. The general dimension for this window is 3’ ½” x
47 2’5 ½”.

49 **Interior Awning.** This window is located in the attic on the interior. The dimension for this window is
50 1’4” x 1’8”.

Three-Over-Six, Double-Hung. This type of window is located on the first and second floors - one on the first floor and two on the second floor. The general dimension for this type of window is 2'11" x 2'9" (lower sash height) and 1'5" (upper sash height).

One-Over-One, Double-Hung. This window is located at the secondary entrance. The dimension is 2'3 1/2" x 4'6".

Single-Lite, Casement. This casement window is located in the kitchen. It has an exterior screen. The dimension is 2'4" x 1'11".

Three-Over-Three, Double-Hung. This window is located in the kitchen and may be the only original window in the building. The dimension is 2'10 1/2" x 2'1" (lower sash height) and 1'5" (upper sash height).

Three-Lite, Awning. This window is located in the kitchen vestibule. The dimension is 2'4" x 1'4". The window casing is a simple 1x surround.

Three-Lite, Awning. The sash of these four windows (indicated on the original drawings as three-lite) have all been removed from the basement and replaced with wood slat vents. The general dimension for this type of window is 3'11" x 1'8".

Architecture – Exterior Doors

The kitchen vestibule door is a half-lite over two horizontal panels, wood door. It is not original to the building. Its dimensions are 2'10" x 6'8" x 1 3/4". (OI-KQ-10) The secondary entrance door is a half-lite over three horizontal panels, wood door. This door has ball-tipped hinges. Its dimensions are 2'8" x 6'8 1/2" and the thickness could not be determined as the door was locked. (OI-KQ-21) The trim at the doors consists of simple 1x wood material painted.

Architecture – Exterior Trim

The exterior wood trim consists of corner boards, belly banding and window casing at the dormers and wood frame portions. All trim is simple 1x wood material, painted.

Architecture – Interior Doors

The doors vary within a general style of paneled door. Only two of the doors appear to be original (based on historic drawings and extant hardware). All of the hardware appears to be modern with the exception of the steeple tip hinge pins, where they exist. The trim at the doors is a shaped painted wood casing similar to the windows with the exception of several doors which have been altered (the attic door for example) have simple 1x casing, painted.

Attic Door. This door is the only remaining door in the attic. It is wood, has five panels, and has ball-tipped hinges. This door's dimension is 2'4" and 2'5" x 6'7 1/2" x 1 3/4". There are several other doors stored in the attic all wood 5 panel and with ball-tipped hinges.

Second Floor Doors

Five Panel, NonOriginal. The doors to the bedrooms and closets (seven in-situ) are five panel, good replicas of the original doors. Their widths vary from 2'8" to 2'4", their heights from 6'8" to 6'6", and they all are 1 3/8" thick. (OI-KQ-26)

Two Panel. The door to the attic is different as it is a two panel door. This door has different trim and hardware than the other second floor doors as it appears to be from a later remodel. This door's dimensions are 2'-4" x 6'-5" x 1 3/8". (OI-KQ-28)

First Floor Doors

Five Panel, NonOriginal. These seven doors are not original and are five panels. Their widths vary from 2'-10" to 2'-4", 2'-8", their heights vary from 6'-11" to 6'-9", and they are all 1 3/8" thick.

Three Panel, NonOriginal. This door is located between the secondary hall and the main hall. It is three panels, with a lite located below the upper panel. It is not original. The door's dimensions are 2'-7 1/2" x 6'-6 3/4" x 1 3/8". (OI-KQ-19)

Five Panel, Original. This type of door is original to the building and there are two existing, both in the living room. The door is a five, horizontal, raised panel: 2'-8" x 6'-4" and 6'-8", and thicknesses of 1 1/8".

Basement Door, NonOriginal. This door is a nonoriginal, five panel wood door. Its dimensions are 2'-9" x 5'-11" x 1 3/4".

Architecture – Wall Finishes

Basement. Each room's exterior walls are painted, rubble stone, while their interior walls are painted brick.

Kitchen Vestibule. This room has 1 1/2" wood board on the north, west, and south framed walls. The east wall is an exterior brick, painted white. The wall finish appears to be original to the kitchen entry (circa 1919). (OI-KQ-09)

Kitchen. The kitchen has exposed brick which was painted white at one time, though much of it has flaked or peeled off. (OI-KQ-16 and 17)

Living Room, Main Hall, and Associated Closets. These rooms have modern gypsum board finishes on furring strips (presumably added when the building was retrofitted with electrical service) over the original plaster and wood lath (interior frame walls) or plaster on masonry (exterior walls).

Storage/Bath. This room has plaster over lath walls with fiberglass reinforced plastic (frp) wainscot (except in the southeast corner), the same frp as in the baths at the Triplex on Long Island. The southeast corner has the original 3 1/2" wide painted beadboard remaining. The frp wainscot is not original but the beadboard wainscot is. The plaster over lath wall finish is original to the building.

Secondary Entrance. This room has 1 3/4" beadboard lining the walls in a horizontal orientation, painted pink. At the corners, a simple base shoe wood trim was used. The beadboard appears to be original to the building.

Secondary Hall. The hall has original plaster over lath finish, painted. A material sample revealed that the plaster is most likely made of one part lime to three parts sand by volume, and the sand is very fine.

First Floor Bedrooms and Closets (Two Bedrooms, One Closet). These two bedrooms have a mix of original plaster over lath and modern gypsum board walls. The northeast bedroom's east wall has plaster over lath while the other walls are gypsum board. This room's closet was inaccessible at the time of the survey. The southeast bedroom's north and east walls are plaster while the south and west walls are gypsum board. There is no closet associated with this room.

Second Floor Hall. The hall has modern gypsum board on the west and the far east walls, while the north and east (stairwell area) walls are original plaster over lath.

Second Floor Bedrooms (Four Bedrooms, Three Closets). These rooms are a mix of modern gypsum board and original plaster over lath wall finishes, painted. The northeast bedroom has gypsum board over plaster and lath with a plaster over lath closet. (OI-KQ-24) The southeast bedroom has gypsum board over plaster and lath (no closet). The southwest bedroom has gypsum board painted pink with a closet that has plaster over lath. The northwest bedroom has plaster over lath in both the room and closet. A paint sample was taken at the vestibule between the northeast and southeast bedrooms which indicates that some of the later paint layers are early forms of latex paint.

Attic. The attic has the original stud framing exposed. There are remnants, however, of the circa 1925 historic plaster and lath on walls (since removed) that separated the finished rooms from the attic/eave spaces. (OI-KQ-29 and 30) The attic level was once used as an apartment for the second assistant and his family (Historic Drawings OI-05 and 06).

Architecture – Ceiling Finishes

Basement. Both the primary and the oil storage rooms have modern gypsum board ceiling finishes covering up the first floor framing system.

Kitchen Vestibule. This room has original 1 ½” wood board, painted white, as the ceiling finish.

Kitchen. The kitchen has a plaster over lath ceiling finish.

Living Room, Main Hall, and Associated Closets. The living room and main hall have modern ceiling tiles as the ceiling finishes. The living room’s closet has original plaster over lath ceiling finish, while the hall’s closet has a modern gypsum board ceiling.

Storage/Bath. This room has original plaster over lath ceiling finish.

Secondary Entrance. This room has original 1 ¾” beadboard lining the ceiling, painted pink.

Secondary Hall and First Floor Bedrooms (Two Bedrooms, One Closet). The secondary hall and bedrooms have modern ceiling tiles as their ceiling finishes. In the southeast bedroom, a missing tile reveals the original plaster and lath finish above the dropped ceiling tiles. The closet is inaccessible.

Second Floor Hall and Second Floor Bedrooms (Four Bedrooms, Three Closets). These rooms have modern ceiling tiles over original plaster and lath. (OI-KQ-27)

Attic. The attic has the exposed roof structure of joists, beams, and wood sheathing. However, there are nail holes on the joists and beams from where lath once was attached (there are stains from the plaster keys on the lath). (OI-KQ-30 and 31)

Architecture – Interior Trim

Kitchen Vestibule. This room has a simple wood 1x base trim, 4 3/8” tall, painted gray. The window casing is also a simple 1x surround.

Kitchen. The kitchen has a red painted-on base “trim”, 6 ½” tall, with a 1 ¼” simple wood base shoe, also painted red.

Living Room, Living Room Closet, and Main Hall Closet. These rooms have a simple base trim and base shoe, both painted white, 4 ½" tall including ¾" tall base shoe. This base trim is not original to the building. The living room also has cove molding whose profile matches that of the cove molding seen at the Long Island Triplex and the Sand Island Light Station Quarters. This molding is not original to the building but may be historic.

Main Hall, Secondary Hall, First Floor Bedrooms (Two), Second Floor Hall and Second Floor Bedrooms (Four). These rooms have portions of the historic 11 ½" tall wood base trim with an ogee profile at the top 1", including a 2 ¼" base shoe, which is also seen at the Sand Island Light Station Quarters (built 1881). At the main hall, the trim leads up the staircase; in the secondary hall, this type of trim is located on the west wall; in the first floor, northeast bedroom, the trim is on the south, west, and parts of the north walls; in the second floor hall, this trim style is on the staircase and continues into the hall a short distance; and, in the first floor southeast bedroom and the four second floor bedrooms the trim is on every wall. The other trim used in the rooms where only a portion of the room had the historic trim were nonhistoric base trims and base shoes. The second floor hall, the first floor bedrooms, and the second floor bedrooms also have the same cove molding as the living room. This molding is not original to the building but may be historic.

Storage/Bath. This room has an original simple wood base shoe, painted white, in the southeast corner at the base of the original beadboard wainscot. The rest of the room has a modern base trim with a base shoe included so that the trim is one piece of wood. This trim is painted black.

Secondary Entrance. This room has original 8" wood board, painted gray, as its base trim with no base shoe.

Second Floor Bedroom Closets (Three). These closets have a unique form of the historic base trim that their associated bedrooms have. The closets' trim is the same historic trim but with the top inch (the ogee profile portion) removed or possibly covered by a layer of plaster. Therefore, it appears to be a much simpler trim. The base trim also has the same base shoe as the more elaborate historic trim.

Architecture – Floor

Basement. The two rooms in the basement both have unfinished concrete slab floors that are original to the building.

Kitchen Vestibule. This room has weathered wood flooring, painted gray. This flooring is original.

Kitchen. The kitchen has modern 12x12 resilient flooring tiles over the original wood flooring (small portion visible).

Living Room, Main Hall Closet, Storage/Bath, Secondary Hall, First Floor Bedrooms (Two Bedrooms, One Closet). These rooms have modern resilient sheet flooring, over wood flooring (small portions visible). The main hall has a 2' x 1' hole in the floor cut-out for basement access. In the first floor northeast bedroom, the wood flooring underneath the resilient flooring is partially exposed.

Secondary Entrance. This room has an original concrete slab floor, with remnants of blue-gray paint.

Second Floor Hall and Second Floor Bedrooms (Four Bedrooms, Three Closets). These rooms have modern linoleum floors over the original wood flooring. The hall has a single layer of wood flooring, as seen by the step up between this room and the bedrooms. The northeast bedroom has visible double-layer wood flooring on the north end of the room. (OI-KQ-25)

Attic. This level's resilient flooring is modern and covers the original 3 ½" wide board flooring with tongue-and-groove joints.

Architecture – Stairs

Basement to First Floor Stairs. These stairs are painted concrete. There are six risers at 9" high and the tread depth is 9" with no nosing overhang. The width of the stairs is 3'. They do not have a handrail. These stairs are original to the building. (OI-KQ-15)

Kitchen Stairs. These stairs are painted wood with rubber grips on the treads attached at nosing with a metal bar. The balusters, handrails, and newels are painted wood. There are four risers at 8" and the tread depth is about 10". Both sides of the stairs have a newels, balusters, and handrails. The stairs and balustrades are original to the building. A paint sample taken from the nosing of the stair revealed the oldest layer of paint was a black, glossy varnish.

Secondary Entrance Stairs. These stairs are made of concrete painted blue-gray. There are five risers at 8" with treads that are 11" deep and 3'6" wide. The upper tread acts as a threshold to the door and is 9" deep to the door frame. There is no nosing overhang nor are there handrails. The stairs are original to the building. (OI-KQ-22)

First Floor to Second Floor Stairs. These stairs are painted wood with rubber grips on the treads attached at nosing with a metal bar. The balusters, handrail, and newels are painted wood. There are 15 risers at 8". The tread depth is 10" and the width is 2'8". The nosing overhang is 1". From the nosing to the center of the handrail is 2'6". The newel is 6" square with a height of 3'6". The stairs and balustrade are original to the building. (OI-KQ-23)

Second Floor to Attic Stairs. These stairs are painted wood with rubber grips on the treads. There are 8 risers at 8" to the landing (5'3 ¼" deep, with a width of 3'2 ¼" on the second floor portion of the stairs, and a width of 2'11 ½" on the attic portion of the stairs), and six risers at 8" to the attic from the landing. The tread depth is 10 ½" and the width is 2'6 ½" on the second floor portion and 2'7" on the attic portion. The nosing overhang is 1". There is no handrail, but the wall separating the two portions of stairs is 5 ½". Per the attic remodel drawings, these stairs date to 1925. (OI-KQ-28)

Architecture – Casework

Basement. The primary room in the basement contains an historic, two-door, wood cabinet, painted blue-gray. The cabinet is 4'6" wide, 2'10" high, and 1'11" deep.

Kitchen. The kitchen has a free-standing, two-door, two-drawer, wood cabinet that is 3'7" wide, 2'10 ½" tall, and 1'6 ½" deep. It is painted blue-gray.

Living Room Closet. The closet in this room has four built-in wood shelves, painted white, along the east wall. Each shelves' depth is 2' ½". These shelves may be historic (older than 50 years).

Main Hall's Closet. This closet has four built-in wood shelves, painted blue-gray, that are the length and depth of the closet. These shelves may be historic (older than 50 years).

Second Floor Bedrooms' Closets. The closets in each bedroom and the passageway between the northeast and southeast bedrooms have a set or series of 4" wood hook boards attached to the walls. The northwest bedroom's closet has one remaining historic metal hook attached to the board. There is also partial wood shelving remaining in two of the second floor closets.

Attic. The attic has a historic wood cabinet in the east section. The cabinet is five-door (three on the bottom, two on the top), with historic hardware (cabinet latch and keeper), and is painted white. It is 4'9 ¾" wide, 6' tall, base cabinet depth of 2' and top cabinet depth of 1'. The cabinet was most likely previously located in the kitchen that existed in the attic when it was converted in 1925 to a second assistant's quarters.

Architecture – Passageway

The passageway connects the Keepers Quarters to the Tower. The wall finish is plaster over brick, and the arched ceiling is also finished with plaster. The floor is concrete slab-on-grade. This small hall once had 3 ½" base trim but it is no longer extant.

Architecture – Accessibility

The building is currently not accessible. The kitchen vestibule door opening from the exterior is 2'8" clear with a grade to finished floor elevation change of 4 ½" with a wood sill. The entry door opening to the kitchen from the vestibule is 2'9" clear with a grade to finished floor elevation change of 6 ½" due to one step. The secondary entrance opening is 2'8" clear with a grade to finished floor elevation change of 3 ½" with a wood sill. Within the building, there have been no accessibility upgrades. The door widths vary and the multiple floor levels preclude accessibility.

Physical Description -- Structural

Structural – Foundation

The perimeter foundation system consists of stone masonry. The interior foundations are below an interior brick masonry wall and could not be observed.

Structural – Floor Framing

The kitchen floor framing was not accessible and could not be measured. The joists span approximately 12'. The joists are supported on the perimeter foundation.

The first floor framing was measured to be FS 2x10 spaced at about 16". The joists span approximately 12.5'. The joists are supported on the perimeter foundation walls and an interior brick masonry wall. The floor is sheathed with diagonal solid wood subflooring.

The second floor framing was not accessible and could not be measured. The joists span approximately 13'. The joists are supported on wood-framed partition walls and the exterior masonry walls.

The attic floor framing was measured to be FS 2x8 spaced at about 16". The joists span approximately 13'. The joists are supported on wood-framed partition walls and the exterior masonry walls. The joists are partially sheathed with solid wood subflooring.

Structural – Roof Framing

The main roof framing was measured to be FS 3x6 rafters spaced at about 17". The rafters span approximately 8'. The rafters are supported on wood-framed partition walls and the exterior masonry walls. The rafters are sheathed with spaced solid wood underlayment. The spaces between the solid wood underlayment have been filled with wood blocking. This was probably done in the past when new roofing was installed.

The dormer framing was measured to be FS 2x4 rafters spaced at about 16". The rafters span approximately 4'. The rafters are supported on the main roof and interior partition walls. The rafters are sheathed with solid wood tongue and groove underlayment.

The kitchen roof framing was not accessible and could not be measured. The rafters span approximately 12'. The rafters are supported on the exterior masonry walls.

Structural – Ceiling Framing

The attic ceiling framing was measured to be rough-sawn RS 2x10 joists spaced at about 16". The joists span approximately 14'. The ceiling joists are supported on wood-framed partition walls.

Structural – Wall Framing

The exterior walls are constructed of brick masonry. The framing of the interior walls, where it could be observed, was measured to be FS 2x4 studs spaced at approximately 16".

Structural – Lateral System

Lateral stability for the building is provided by the exterior masonry walls.

Structural – Load Requirements

The required floor load capacity is 40 psf and the required roof snow load capacity is 45 psf. The required ceiling live load capacity is 10 psf (no storage is allowed).

Structural – Passageway

The floor is a concrete slab-on-grade. The roof framing was not accessible and could not be measured. The rafters span approximately 3'. The ceiling framing was not accessible and could not be measured. The joists span 5'6". The walls are masonry. The lateral stability for the passageway is provided by the brick walls, Keepers Quarters and Tower. The required floor load capacity is 40 psf and the required roof snow load capacity is 45 psf. The required ceiling live load capacity is 10 psf (no storage is allowed).

Physical Description -- Mechanical

Mechanical – Plumbing Systems

A nonpotable domestic water supply enters the building below grade in the basement with galvanized steel distribution piping to the first floor kitchen and bath. The water is supplied from a tank in the Fog Signal Building. There is no hot water in the building. Two steel water storage tanks from the 1952 rehabilitation remain in the basement. These tanks have a capacity of approximately 1,000 gallons each. In addition, there is a covered metal stock tank in the basement that appears to have been used for water storage. These tanks are no longer connected to the domestic water system.

The building waste lines are mainly cast iron connecting to a 4" cast iron sewer main that exits the building in the basement on the east side. The building sewer runs to a septic tank and leach field located to the east of the building. The distribution box and leach field was installed in 1952 to the east of the existing septic tank. A 4" cast iron vent stack extends from the first floor up through the attic to the roof.

The plumbing fixtures consist of a stainless steel kitchen sink with single cold water faucet, a tank-type toilet on the first floor, and a laundry tub in the basement. There is no faucet for the basement laundry tub.

A bathtub installed in the 1952 remodel is no longer in place. Building plans indicate a kitchen located at the south end of the attic level. The fixtures and piping serving the Kitchen have been removed.

Mechanical – HVAC

The original heating for the building would likely have been coal burning stoves. All that remains from this era is a brick chimney stack from the basement up through the roof. The 1952 heating system consisted of a fuel oil-fired American Standard “Sunbeam” furnace in the basement. The furnace is still located in the basement, along with the distribution ductwork to the floors above. Many of the wall and floor grilles are still in place. Two steel fuel oil tanks remain on the east side of the basement adjacent to the furnace. The furnace is no longer operational. A new Empire 25,000 btuh (British thermal unit per hour) console type propane room heater has been installed in the first floor living room. A 4” aluminum flue pipe has been extended from the heater to the original chimney stack. Two propane tanks are located to the north of the Fog Signal Building. Copper propane piping enters the building on the south side with a pressure regulator on the exterior wall and copper distribution piping to the heater, kitchen stove, and refrigerator.

Basement ventilation consists of four ground level 32”x24” wood slat louvers with wire mesh screen. Two on the east side of the building and two on west side of the building.

Mechanical – Fire Suppression

None in the building.

Physical Description -- Electrical

Electrical – System Configuration

Alternating current power to the building originally came from the Fog Signal Building generator system via an underground cable.

Direct current power for selected equipment in the Keepers Quarters was, at one time, provided by a photovoltaic system that utilizes a freestanding flat plate photovoltaic (PV) array and storage batteries. The PV collection array is approximately 60" x 42", and is located near the Keepers Quarters. At one time, the storage batteries were located in a fiberglass vault below the array; however they have been removed, rendering the PV system nonfunctional.

Electrical – Conductor Insulation

Conductors and cable within the building are typical of the 1941 through 1952 vintage, and are of three types. Exposed wiring in the basement is run in EMT (electro-metallic tubing) conduit and is of the thermoplastic insulated type. Flexible wiring in the basement is of the corrugated armor, rubber insulated construction, type "BX". The remainder of the wiring, where run in walls, is of the "Romex" construction with rubber insulated conductors in an overall sheath of braided cotton fiber. None of the wiring includes a separate ground conductor and receptacles within the building are of the two prong, nongrounded type.

Electrical – Overcurrent Protection

Overcurrent protection was originally via a four circuit screw-in fuse box located in the basement. Fuses are still in place, but the box and connections have been disconnected from the building's supply and branch circuits. There is no individual main disconnect for the building.

Electrical – Lighting Systems

Lighting systems inside of the building are incandescent lamp type consistent with the 1941 to 1952 construction. Lighting in utility areas is via porcelain keyless lamp holders. Lighting in living areas is a combination of glass drums, pendants and low profile ceiling mounted fixtures.

Electrical – Telecommunications

None in the building.

Electrical – Fire Alarm System

None in the building.

Electrical – Lightning Protection

Lightning protection consists of brass air terminals and brass or copper down-cables that appear to be terminated on buried ground rods. Air terminals are located along the peaks of the roof, on the peaks of dormers, and on chimneys.

Physical Description -- Hazardous Materials

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

Hazardous Materials – Asbestos

Asbestos is known to be present at the following homogenous materials/areas:

1. Floor Tile.

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. Brick and Block Filler (The exterior of the structure is stone and has the potential to have a block filler or grout that is potentially asbestos containing),
2. Plaster,
3. Caulk (Caulking was observed around window and door penetrations, which can also include gasket applications between the window assembly and the structure),
4. Adhesives (Multiple varieties of miscellaneous adhesives were seen on heater components, under remnant flooring applications, and around windows),
5. Thermal System Insulation (TSI) (Was not observed and asbestos is commonly present in insulation on water pipes, metal ducting for heating systems, behind floor registers, steam piping, etc.), and,
6. 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 except isolated areas of plaster in poor condition.

Hazardous Materials – Lead Containing Paint

The LCP inspection included a visual inspection of the structure. A previous inspection and testing for of LCP was conducted using an x-ray florescence (XRF) detector coupled with bulk sampling and laboratory

analysis for conformation. The XRF inspection was conducted by the NPS Staff in 1993. The findings of this study are incorporated into this study by reference.

Detectable lead in paint was confirmed for the following testing combinations:

1. Window Sash (Wood substrate various colors),
2. Window Trims (Wood substrate various colors),
3. Doors (Wood and metal substrate various colors),
4. Door Trims (Wood and metal substrate various colors),
5. Walls (Various substrates various colors), and,
6. Ceilings – Various substrates various colors.

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

1. Interior Painted Surfaces (Based on testing in the basement, kitchen, living room, bedrooms, and bathroom LCP is assumed to be present on painted surfaces throughout the structure), and,
2. Exterior Painted Surfaces (Based on testing of the window sash and trim LCP is assumed to be present throughout the exterior painted surfaces).

Based on the estimated dates of construction of the various structures and the available testing data, LCP is assumed to be present throughout the structure. The confirmed LCP was observed to be in fair condition and the assumed LCP was observed to be in fair condition.

Loose/flaking LCP is identified on the exterior painted walls of the structure. Paint chip debris is not noted on the surface soils surrounding the structure.

Hazardous Materials – Lead Dust

Wipe sampling for lead dust was not conducted in the Keepers Quarters because lead dust was assumed to be present due to the poor condition of assumed LCP.

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, but are not observable due to vegetative cover surrounding the structure. Preliminary lead-in-soil sampling was performed to assess whether these near-structure soils contain lead concentrations above applicable soil standards.

One four-aliquot soil sample was collected from ground-surface soils at the roof (drip-line), approximately 3' from the foundation wall. One sample aliquot was collected from each side of the structure and these aliquots are composited together for analysis.

1. Analysis of the composite drip-line soil sample resulted in 794.3 milligrams of lead per kilogram of soil (mg/kg).

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 visually identified in the Keepers Quarters.

Character Defining Features

Mass/Form. A simple two-and-a-half story clipped gable masonry structure with chimney and a one story shed roof appendage on the opposite end of the house from the one story gable/shed connection to the tower. Dormers were added on either side of the gable roof with metal panels replicating wood shingles at the walls. A simple one-story wood frame clapboard gable addition serves as an entry to the kitchen door.

Layout of Space. The 1926 remodel altered the original circulation by creating three distinct keeper's units. Generally, the rooms are small and accessed from minimal hall/stair space. Several of the bedrooms communicate with openings from one to another.

Exterior Materials. Red brick masonry with painted, tooled stone sills, painted white wood trim, painted white wood clapboard siding. (Red asphalt shingle roofing is not original to the building.)

Openings. Newer wood double-hung windows varying from one over one, to three over six, to six over six from the attic to first floor respectively. Doors consist of painted white wood doors, one each of a two-lite (covered) over three panel and a one-lite over two panel door.

Interior Materials. Exposed framing at the attic level, plaster walls and ceilings, painted wood trim and wood tongue and groove flooring typically covered with linoleum sheet flooring.

General Condition Assessment

In general, the Outer Island Keepers Quarters is in good condition on the exterior and fair condition on the interior. Most of the ceiling and floor finishes are covering up, or have replaced, the historic ceilings and floors, but what historic finishes are visible and remaining, are in poor condition due to moisture issues. The historic casework in the house is generally in fair condition as there are missing doors and drawers to cabinets, peeling paint, and scratched wood, but the basic shapes of the pieces remain.

Structurally, the Keepers Quarters is in good condition. The load paths for the framing around the roof dormers are unresolved.

Mechanically, the upgraded systems in the Keepers Quarters are generally in fair condition. The abandoned mechanical components from the 1952 remodel are in fair to poor condition.

Electrically, the existing wiring and equipment in the Keepers Quarters is nearly 60 to 70 years old and is past its useful life expectancy. Equipment in the building was installed under the National Electrical Code applicable in 1941 through 1952.

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 roof is overall in good condition. The southwest shed roof over the kitchen, however, is approaching poor condition with rust evident. There is also a portion of the southern eave of the kitchen that is in poor condition, possibly due to roof damage prior to the new roof. The tie offs on the roof should not be used for life safety anchors until they can be certified as meeting OSHA requirements.

1 The kitchen vestibule's metal shingles are in fair condition as they have peeling paint and rusted portions.

2
3
4 *Architecture – Gutters and Downspouts*

5 Condition: *Good*

6 No overall gutter system but the diverter over the Tower entry door is in good condition.

7
8
9 *Architecture – Chimney*

10 Condition: *Fair*

11 The chimney has several spalled bricks and is in fair condition.

12
13
14 *Architecture – Exterior Walls*

15 Condition: *Good*

16 Overall, the masonry walls appear to be in good condition. Some of the previous pointing is evident due to
17 color and tooling of mortar. The mortar used appears to have been a harder mortar than the original mortar,
18 which may put the masonry at risk. There are several small cracks that do translate through the brick and
19 brownstone; there are three seen at the west wall near the window sill. The south kitchen wall indicates that
20 the kitchen portion is pulling away from the main house about ¼" to ½", possibly due to moisture at the
21 foundation of the kitchen where it is inaccessible.

22
23 The clapboard siding is in fair condition as the peeling paint has exposed weathered wood beneath. The
24 foundation is in good condition with the exception of one brownstone member which has eroded
25 significantly. The dormer shingles are in good condition.

26
27
28 *Architecture – Windows*

29 Condition: *Good*

30 Overall, the windows are in good condition. The glazing putty is brittle in areas and should be removed,
31 replaced, and repainted as it appears to be nearing the end of its serviceable life. Also, the sill of the
32 northwest entry window is rotting.

33
34
35 *Architecture – Exterior Doors*

36 Condition: *Good*

37 The doors are in good condition. The secondary entrance door's threshold is in fair condition as the north
38 edge is getting soft where the bottom of the casing is rotting.

39
40
41 *Architecture – Exterior Trim*

42 Condition: *Good*

43 Overall, the trim is in good condition with mild to moderate peeling paint. However, the base at the
44 southwest entry is in poor condition due to rotting conditions at grade.

45
46
47 *Architecture – Interior Doors*

48 Condition: *Fair*

49 The interior doors are in fair condition with separation of stile and rails.

1 *Architecture – Wall Finishes*

2 Condition: *Fair to Poor (Original Plaster in State of Failure)*

3 The basement's primary room has wall finishes that are in good condition with minor spalling around the
4 base of the east wall and loss of paint and stains around windows and at base. The oil storage room has the
5 same damage pattern as the primary room and is also in generally good condition.

6
7 The kitchen vestibule's wall finishes are in good condition; the paint is fading on the walls with beadboard.
8 The kitchen's brick wall finish is in fair condition as the paint is badly peeling, brick is spalling at southeast
9 corner, and there is a stress crack at the northeast corner. The living room and its closet's gypsum board are
10 in good condition, while the main hall's gypsum board over plaster is in deteriorated condition. The hall's
11 east wall gypsum board and plaster are missing, revealing the lath. The frp wainscot in the storage/bath is
12 in good condition while the original beadboard wainscot is in fair condition with separating boards. The
13 plaster over lath wall finish is in poor condition, especially at the northeast corner and north wall where the
14 paint is flaking off to reveal the cracked plaster. The secondary entrance's beadboard wall finish is in good
15 condition with minor peeling paint in the southwest corner. The plaster over lath in the secondary hall is in
16 deteriorated condition as there are large sections of plaster missing on all walls and the lath anchor points
17 are pulling away from the brick wall. Under the boarded-up east window, the condition is especially poor
18 as the lath is damaged and the exterior brick is exposed. The northeast first floor bedroom's east wall,
19 which has plaster, is in poor condition as there are large cracks around the door and window frames, while
20 the gypsum board walls are in good condition. The southeast first floor bedroom's plaster and gypsum
21 walls are in poor condition, especially around the door and windows. There is a horizontal crack between
22 the two windows on the south wall.

23
24 The wall finishes of plaster and gypsum board in the second floor hall are in fair condition as there are
25 obvious unsuccessful attempts at patching and cracked and peeling paint. The stairwell walls are in poor
26 condition as the plaster is cracked and separating around the base trim. The northeast second floor bedroom
27 and closet walls' are in poor condition as there is a hole in the bedroom wall (where plaster and lath are
28 visible beneath the gypsum), cracks in the plaster in the closet, and cracks and separation between the walls
29 and base trim. The southeast second floor bedroom is in fair condition as the northeast corner is the only
30 example of water issues apparent on the wall finish. The southwest second floor bedroom's gypsum board
31 is in good condition while its closet's plaster is in poor condition (cracks and missing plaster). The
32 northwest second floor bedroom's plaster is in poor condition as there are cracks in the plaster throughout
33 and peeling paint. The closet associated with the northwest bedroom has plaster in fair condition with paint
34 peeling.

35
36 The attic's stud framing is in good condition. The remaining bits of plaster over lath are in poor condition.
37 The original lath and plaster is in poor condition as some areas have the lath anchor points pulling away
38 from the brick exterior walls, which could result in wall finish failure.

39
40
41 *Architecture – Ceiling Finishes*

42 Condition: *Good to Fair to Poor*

43 The basement's primary room has a gypsum board finish that is in fair condition with some sagging around
44 joints and overlaps between fiberboards. The oil storage's fiberboard ceiling is in poor condition as the
45 north section is deteriorated by water damage.

46
47 The kitchen vestibule's wood board ceiling finish is in good condition. The kitchen's plaster is in fair
48 condition as there is a hole near the east wall and cracks and peeling paint along the south side. The living
49 room's and main hall's ceiling tiles are in good condition. The living room closet's plaster is in poor
50 condition as over 60% of the surface is covered by cardboard and the uncovered area looks as if the plaster
51 is about to fail. The hall closet's gypsum board ceiling is in good condition. The storage/bath's plaster
52 ceiling finish is in fair condition as the northeast corner has peeling paint and there is a crack running north-

south in the center of the ceiling. The secondary entrance's beadboard ceiling is in fair condition with minor separation of boards and minor deflection occurring. The secondary hall and first floor bedrooms (two bedrooms, one closet) have ceiling tiles in fair condition as there are water stains on some of the tiles and a missing tile in the southeast first floor bedroom. The missing tile reveals the original plaster and lath finish to be in poor condition as it is cracked and deflected (e.g. has probably lost the integrity of its keying).

The second floor hall's ceiling tiles are in good condition, while the northeast second floor bedroom's ceiling tiles are in fair condition as there are water stains and one tile is missing, revealing plaster in poor condition. This bedroom's closet has water stains, deflection, and rust around the existing light fixture. The southeast second floor bedroom's tiles are in good condition. The southwest second floor bedroom's tiles, however, are in poor condition as there are missing and loose tiles at the northwest corner and water stains along the east section. (OI-KQ-27) The missing tiles reveal damaged and missing plaster and visible lath that has water damage. The closet for the southwest bedroom has ceiling tiles in good condition. The northwest second floor bedroom's tiles are in poor condition as there are stains and deflection around the pipe. This bedroom's closet has ceiling tiles in good condition.

Architecture – Interior Trim

Condition: *Good to Fair*

The kitchen vestibule's simple board trim is in good condition but has faded paint. The kitchen's base trim is in poor condition as the paint is badly peeling in certain areas and the base shoe is detached from the wall along the southwest wall. The living room, living room closet, and main hall closet's simple base trim and base shoe are generally in fair condition. The living room's cove molding is in good condition. The main hall's, secondary hall's and the first floor northeast bedroom's portions of the historic trim are in fair condition as there are instances of separation of base trim from walls and peeling paint. The first floor southeast bedroom's historic trim is in fair condition as some of the trim is misaligned, separating from the walls, and there are horizontal cracks where the base trim ends and the wall begins. The cove molding in the first floor bedrooms is in good condition. The storage/bath's original wood base shoe at the base of the wood wainscot is in good condition. The modern, one-piece base trim and shoe in this room is generally in good condition. The overall condition of the base trim in the storage/bath, however, is fair as there are segments missing and the two styles of modern and historic are not visually compatible. The secondary entrance's simple wood base trim is also in good condition but its paint is badly peeling.

The second floor hall's historic trim is in fair condition as there are instances of separation of the base trim from the walls and peeling paint. The four second floor bedrooms' historic trim are in fair condition as some of the trim is misaligned, separating from the walls, and there are horizontal cracks where the base trim ends and the wall begins. (OI-KQ-25) The cove molding in the second floor hall and the second floor bedrooms is in good condition. The condition of the second floor closets' (three) simplified historic trim is generally in worse condition than their bedrooms' trim. This trim has more joint separation, more horizontal damaged areas around wall junctures, and the northeast bedroom closet's trim is missing its base shoe.

Architecture – Floor

Condition: *Good to Fair*

The basement's two concrete slab floors are in good condition.

The kitchen vestibule's wood flooring is in good condition but its paint is peeling and there is missing caulking around the entry step. The resilient flooring in the kitchen is in good condition but the original wood flooring's condition cannot be determined as it is not visible. The resilient flooring in the living room, main hall closet, storage/bath, secondary hall, first floor bedrooms (two bedrooms, one closet) is in

good condition with minor seam separation. The wood flooring visible in the first floor northeast bedroom has water stains and appears to be damaged. The secondary entrance's concrete slab floor is in good condition but the once-painted floor has only small patches of paint remaining.

The resilient flooring in the second floor hall and second floor bedrooms (four bedrooms, three closets) is in fair condition as there are water stains and obvious patches in the resilient flooring. The visible wood in the northeast bedroom is in poor condition as there are water stains on the boards and what appears to be water damage at the northwest corner. (OI-KQ-25)

The attic's resilient flooring is in poor condition as it is heavily water stained and warped. The small area of the wood flooring visible is in fair condition as it has water stains and the original finish has worn away.

Architecture – Stairs

Condition: *Good to Fair*

First Floor to Basement Stairs. These stairs are painted concrete. They do not have handrails and paint is badly peeling. Overall, the treads are in good condition.

Kitchen Stairs. These stairs have peeling paint and two rubber grips with pieces missing. The balustrades also have minor peeling paint. Overall, these stairs and balustrades are in good condition.

Secondary Entrance Stairs. These concrete stairs have badly peeling paint and no handrails. Overall, the stairs are in fair condition. (OI-KQ-22)

First Floor to Second Floor Stairs. These wood stairs have peeling paint, chipped wood nosings, and worn and cockeyed rubber grips. The balustrade also has peeling paint and chips in the balusters. Overall, the stairs and balustrades are in fair condition. (OI-KQ-23)

Second Floor to Attic Stairs. These wood stairs have peeling paint and missing, worn, and skewed rubber grips. The landing is worn, has peeling paint, and unpainted portions. Also, there is no handrail for these stairs. Overall, the stairs are in fair condition. (OI-KQ-28)

Architecture – Casework

Condition: *Good to Fair to Poor*

The wood cabinet in the basement is in poor condition as the door on the right is in pieces, the door on the left has scratched and gouged wood, and the paint is peeling. The kitchen's wood cabinet is in poor condition as its drawers are missing and it has badly peeling paint. The shelves in the living room closet are in good condition. The main hall's closet shelves are in good condition but the blue-gray paint has mostly disappeared. The second floor closets' wood hook boards are generally in fair condition as they have missing hooks, peeling paint, and misaligned joints. The remaining wood shelving in two of the closets are in poor condition as there are only partial shelves and supports existing. The wood cabinet in the attic is in poor condition as one of the base doors is missing and the paint is peeling badly.

Architecture – Passageway

Condition: *Good to Fair*

The passageway between the Tower and Keepers Quarters has a hole in the plaster near the base of the southeast wall. There are rust stains on the walls as well. The ceiling is in good condition as is the floor, though it shows some wear near the entry from the residence into the Tower. The missing base trim has left adhesive marks and areas of missing plaster at the base of the walls.

Architecture – Accessibility

Condition: *Poor*

This building is currently not accessible.

Condition Assessment -- Structural

Structural – Foundation

Condition: *Good*

The foundations are in good condition. Hairline to 1/8” wide cracks were observed in the north and east walls at the northeast corner and in the west wall. The cracks were not recent and could be due to temperature fluctuations.

Structural – Floor Framing

Condition: *Fair*

The floor framing in the kitchen, first and second floors could not be observed, thus their conditions are unknown. No obvious signs of distress or damage were observed. The accessible attic floor framing is in good condition. The balance of the attic floor framing could not be observed, thus its condition is unknown. No obvious signs of distress or damage were observed.

Structural – Roof Framing

Condition: *Good*

The main roof framing is in good condition. The load paths for the framing around the dormers are unresolved and require further investigation (OI-KQ-31 and 32). The kitchen roof framing could not be measured, thus its condition is unknown. No obvious signs of distress or damage were observed.

Structural – Ceiling Framing

Condition: *Good*

The attic ceiling framing is in good condition.

Structural – Wall Framing

Condition: *Good*

The exterior masonry walls are in good condition. The east wall of the kitchen has separated up to 1/4” from the south wall of the Keepers Quarters. This separation could be the result of differential foundation movement. The interior brick masonry walls are in fair condition. The brick and mortar were deteriorating just above the basement floor level (OI-KQ-33). The accessible framing of the interior walls is in good condition. The balance of the interior wall framing could not be observed, thus its condition is unknown. No obvious signs of distress or damage were observed.

Structural – Lateral System

Condition: *Good*

Lateral stability of the building is good.

Structural – Load Requirements

Condition: *Good*

Roof, ceiling and floor framing have adequate capacity to support the required loads.

*Structural – Passageway*Condition: *Good and Unknown*

The roof and ceiling framing could not be observed, thus their conditions are unknown. No obvious signs of distress or damage were observed. The masonry walls and lateral stability are in good condition. The slab-on-grade has adequate capacity. The roof and ceiling framing could not be observed, thus their capacity is unknown.

Condition Assessment -- Mechanical*Mechanical – Plumbing Systems*Condition: *Fair*

The nonpotable domestic water piping to the first floor kitchen and bath is galvanized steel and is in fair to poor condition. The two 1,000 gallon water storage tanks located in the basement are in fair condition. The covered metal stock tank in the basement is also in fair condition. These tanks are no longer connected to the domestic water system.

The building waste lines and 4" cast iron sewer main are in fair condition. The condition of the buried sewer main and septic tank could not be determined.

The stainless steel kitchen sink and faucet are in good condition. The first floor tank-type toilet is in fair condition. The basement laundry tub is in poor condition.

*Mechanical – HVAC*Condition: *Fair*

The 1952 furnace located in the basement is in poor condition with rust damage. The furnace distribution ductwork to the floors above is in fair condition. The wall and floor grilles still in place are in fair condition. The two fuel oil tanks in the basement are also in fair condition. The new propane heater and associated flue vent are in good condition. The propane building entry, pressure regulator on the exterior wall, and copper distribution piping through the basement up to the first floor are also in good condition.

The basement ventilation louvers are in fair condition. The total square footage of the louvers openings meets code requirements for nonmechanical basement ventilation.

*Mechanical – Fire Suppression*Condition: *N/A****Condition Assessment -- Electrical****Electrical – System Configuration*Condition: *Poor and Good*

The underground service cable from the Fog Signal Building to the Keepers Quarters has been in place for a minimum of 60 years. It is well beyond its expected serviceable life and should not be counted on to perform in the future.

The photovoltaic power system for selected fixtures in the building is nonfunctional. Batteries have been removed from the underground battery vault. Aside from this, the general condition of the photovoltaic system collectors and wiring is good.

Electrical – Conductor Insulation

Condition: *Poor*

Conductors and cable within the building are in poor condition and are well past their serviceable life.

Branch circuit wiring in the attic has been removed along with all receptacles and lighting. The space has been stripped of all electrical equipment. Conductors from the floor below remain in place, coiled between studs.

Electrical – Overcurrent Protection

Condition: *Poor*

The existing service fuse box is in poor condition, is badly corroded and is currently disconnected. Fuses remain in place, but the entire service is nonfunctional.

Electrical – Lighting Systems

Condition: *Poor*

Lighting fixtures inside of the building are in poor condition and do not meet current underwriters codes. Most of the fixtures have been fully or partially removed and have not been replaced.

Electrical – Telecommunications and Fire Alarm System

Condition: *N/A*

Electrical – Lightning Protection

Condition: *Fair to Poor*

Lightning protection systems are intact and appear to be in fair condition, however, over time, connections deteriorate and components corrode. The integrity of the system cannot be assured.

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 Keepers Quarters was constructed in 1874 as part of the lighthouse which included an attached tower. In 1961, the light was automated and the keeper and assistant(s) were no longer required for lighthouse operations.

The Keepers Quarters is currently open to visitors on a limited/guided basis and provides seasonal housing to the NPS staff and volunteers. The proposed use for the building is for seasonal staff (NPS) housing offering only basic amenities.

Rehabilitation is the recommended treatment.

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 rehabilitation of the building. Refer to Volume I, Chapter 2: Methodology for the priority rating definitions.

Treatment Recommendations -- Architecture

Architecture – Roof

Priority: *Moderate*

Verify/provide proper blocking for roof tie offs at main roof. Repair and repaint metal shingles at the southwest shed roof and kitchen vestibule as possible or replace in kind with a prefinished shingle. Scrape, sand and repaint the fascia, frieze soffit and trim.

Architecture – Gutters and Downspouts

Priority: *Low*

No recommendations at this time.

Architecture – Chimney

Priority: *Low*

Replace spalling bricks and repoint with mortar to match existing in composition, color and tooling.

Architecture – Exterior Walls

Priority: *Moderate*

Repoint areas of failing mortar and/or incompatible mortar (i.e. too hard) and where cracks are evident in the masonry walls. Scrape, sand and repaint the clapboard siding. Monitor the south kitchen wall which shows indications that the kitchen portion is pulling away from the main house about ¼” to ½”, possibly due to moisture at the foundation of the kitchen where it is inaccessible.

Architecture – Windows

Priority: *Moderate*

Remove, replace, and repaint the glazing putty in areas. Replace the rotting window sill at the northwest entry.

Architecture – Exterior Doors

Priority: *Low*

Epoxy stabilize the secondary entrance door's frame where the bottom of the casing is rotting.

Architecture – Exterior Trim

Priority: *Low*

Epoxy stabilize the base at the southwest entry where it is rotting. Investigate alternative for drainage away from the wall. Scrape, sand and repaint all trim.

Architecture – Interior Doors

Priority: *Low*

No recommendations at this time.

Architecture – Wall Finishes

Priority: *Moderate*

Enhance overall building ventilation. Remove/replace damaged plaster. Repaint all wall finishes using the paint analysis to guide the color selection.

Architecture – Ceiling Finishes

Priority: *Moderate*

Repair damaged plaster and repaint using the paint analysis to guide the color selection. Remove the modern ceiling tiles and repair or replace damaged plaster above. Document and monitor areas of previous water damage to verify these are not current leaks.

Architecture – Interior Trim

Priority: *Low*

Repair/infill sections of base trim where separating from the wall and from joints. Scrape, sand and repaint interior trim.

Architecture – Floor

Priority: *Moderate*

Remove modern resilient flooring, repair where necessary and refinish original wood flooring. Repaint kitchen wood flooring.

Architecture – Stairs

Priority: *Moderate*

Add code compliant wood handrails where no handrails exist. Repair chipped nosings and scrape, sand and repaint wood stairs.

1 *Architecture – Casework*

2 Priority: *Low*

3 Scrape, sand and repaint wood casework. Repair damaged sections where necessary.

6 *Architecture – Accessibility*

7 Priority: *Low*

8 Provide program access through interpretive exhibits and waysides at the Visitor Center.

11 ***Treatment Recommendations -- Structural***

12 *Structural – Foundation*

13 Priority: *Low*

14 No recommendations at this time.

17 *Structural – Floor Framing*

18 Priority: *Low*

19 No recommendations at this time.

22 *Structural – Roof Framing*

23 Priority: *Low*

24 The load paths for the framing around the dormers are unresolved and require further investigation.

27 *Structural – Ceiling Framing*

28 Priority: *Low*

29 No recommendations at this time.

32 *Structural – Wall Framing*

33 Priority: *Low*

34 No recommendations at this time.

37 *Structural – Lateral System*

38 Priority: *Low*

39 No recommendations at this time.

42 ***Treatment Recommendations -- Mechanical***

43 *Mechanical – Plumbing Systems*

44 Priority: *Moderate*

45 It is recommended that the sewer and septic system be cleaned, tested, and inspected with repairs as
46 necessary for an operational system.

Mechanical – HVAC

Priority: *Severe (Chimney Liner); Moderate (Ventilation and Piping)*

The existing chimney stack is not adequately lined and does not meet current mechanical and building codes. Installation of a chimney liner for the heater flue vent is highly recommended.

While the total square footage of the existing basement ventilation louvers meets code requirements, additional passive ventilation is recommended to prevent condensation and high humidity levels in the basement.

It is recommended that all unused propane piping be removed.

Mechanical – Fire Suppression

Priority: *N/A*

Treatment Recommendations -- Electrical

Electrical – System Configuration

Priority: *Moderate*

Electrical devices, lighting and wiring are no longer connected to a source of power. These items should remain in place for historical context. Existing wiring in the building for PV powered systems is limited. Existing PV array and storage battery system is no longer functional. PV storage batteries have been removed. It is recommended to expand the existing system with new array, batteries and wiring to provide power for staff radio units, new ventilation systems, new refrigerator, and new stove. All new electrical equipment and wiring shall be in accordance with the National Electrical Code.

Electrical – Conductor Insulation

Priority: *Moderate*

It is recommended that new conductor insulation be consistent with wiring methods for proposed PV systems. Conductor insulation shall be in accordance with the National Electrical Code, NPS and Federal Standards and Regulations.

Electrical – Overcurrent Protection

Priority: *Moderate*

It is recommended that overcurrent protection for new PV system wiring be in accordance with the National Electrical Code, NPS and Federal Standards and Regulations.

Electrical – Lighting Systems

Priority: *Low*

No Recommendations at this time.

Electrical – Telecommunications

Priority: *N/A*

Electrical – Fire Alarm System

Priority: *Moderate*

It is recommended that battery operated smoke detectors be added inside and outside rooms intended for sleeping, and that carbon monoxide sensors be added as required.

Electrical – Lightning Protection

Priority: *Moderate*

Existing lightning protection is old and its effectiveness has not been established. It is recommended that the existing lightning protection system be removed prior to roof replacement. It is recommended that a new LPI-175 compliant lightning protection system be installed after roof replacement.

Treatment Recommendations -- Hazardous Materials

Hazardous Materials – Asbestos

Priority: *Moderate*

Recommend sampling of suspect asbestos containing materials, including brick and block filler, flooring, plaster, caulking, asbestos cement, adhesives, and TSI should be sampled.

Hazardous Materials – Lead-Containing Paint and Lead Dust

Priority: *Moderate*

Recommend stabilization or abatement of Lead-Containing Paint.

Hazardous Materials – Lead In Soils

Priority: *Moderate*

Recommend further soils characterization to confirm applicable regulatory requirements.

Hazardous Materials – Mold/Biological

Priority: *Moderate*

Recommend water intrusion and mold mitigation.

Hazardous Materials – Petroleum Hydrocarbons

Priority: *Low*

No recommendations at this time.

Alternatives for Treatment

The following are several considerations of alternatives for the proposed treatments:

1. One alternative would be to retain the attic level in its exposed framing state. The framing offers a story of how the space was finished. Installing new lath and plaster and other finishes would be a reconstruction and not in keeping with the overall rehabilitation treatment of the building. There would also be a net savings to the park on reduced rehabilitation costs.
2. An alternative that was considered was the restoration of this island as it is listed as one of the three islands targeted in the GMP. However, due to the low visitation numbers and the remoteness of the island, it was deemed as a lower priority at this time compared to Michigan and Sand.

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

Assessment of Effects for Recommended Treatments

Recommended Treatment	Potential Effects	Mitigating Measures	Beneficial Effects
1. Visitor access into former residence	Change in Use: Upgrades for code and safety may be required and may alter the historic fabric.	Integrate upgrades to minimize damage to historic fabric.	- Allows visitors to experience the cultural resource first hand - Improves safety for visitors and staff
2. 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
3. Structural repair of dormers	Additional (new) framing members may be needed to be introduced.	Evaluate all alternatives to determine which will be least disruptive to the historic fabric both at the attic and possibly below to track the load paths.	- Improves safety for visitors and staff
4. Possible replacement of shed roof shingles	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

1 **Keepers Quarters Photographs, 2009**



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3 *OI-KQ-01: Aerial from Tower, south view, 2009 (Source: A&A DSC01514)*
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OI-KQ-02: West elevation, 2009 (Source: A&A IMG3090)



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OI-KQ-03: South elevation, 2009 (Source: A&A IMGP3091)



OL-KQ-04: East elevation, 2009 (Source: A&A IMG3093)



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OI-KQ-05: North elevation, 2009 (Source: A&A IMGP3097)



OI-KQ-06: Chimney detail, south elevation (Source: A&A IMGP3100)



OI-KQ-07: Chimney detail, south aerial view (Source: A&A IMGP3225)



OI-KQ-08: Secondary entrance diverter and trim detail, west elevation (Source: A&A IMGP3142)



OI-KQ-09: Kitchen vestibule, roof and trim detail, south elevation (Source: A&A IMGP3135)



OI-KQ-10: Kitchen vestibule, west elevation (Source: A&A CIMG4450)



OI-KQ-11: Primary basement room, looking north (Source: A&A CIMG4472)



OI-KQ-12: Basement oil storage room, looking northeast (Source: A&A CIMG4483)



OI-KQ-13: Basement oil storage room, looking south (Source: A&A CIMG4487)



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2 OI-KQ-14: Basement oil storage room furnace detail, south view (Source: A&A CIMG4488)
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5 OI-KQ-15: Stair from basement to kitchen, looking west (Source: A&A DSC01520)



OI-KQ-16: Kitchen, east elevation (Source: A&A CIMG4458)



OI-KQ-17: Kitchen and stair to living room, west elevation (Source: A&A CIMG4462)



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OI-KQ-18: Living room, looking southeast (Source: A&A CIMG4499)



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OI-KQ-19: First floor main hall, north elevation (Source: A&A CIMG4509)



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2 OI-KQ-20: Storage/bath, west elevation (Source: A&A CIMG4518)
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5 OI-KQ-21: Secondary entrance, west elevation (Source: A&A CIMG4530)



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OI-KQ-22: Secondary entrance, looking east (Source: A&A CIMG4535)



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OI-KQ-23: Stair to second floor hall, looking north (Source: A&A DSC01550)



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2 OI-KQ-24: Northeast second floor bedroom (Source: A&A CIMG4589)
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5 OI-KQ-25: Northeast second floor bedroom floor and base trim (Source: A&A CIMG4598)



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2 OI-KQ-26: Southeast second floor bedroom door and frame (Source: A&A CIMG4617)
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5 OI-KQ-27: Southwest second floor bedroom ceiling (Source: A&A CIMG4630)



OI-KQ-28: Second floor stair to attic, north elevation (Source: A&A DSC01535)



OI-KQ-29: South view of attic space (Source: A&A CIMG4661)



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OI-KQ-30: Northwest view of attic space (Source: A&A CIMG4656)



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OI-KQ-31: Dormer framing in attic (Source: Martin/Martin)



01-KQ-32: Dormer framing in attic (Source: Martin/Martin)



01-KQ-33: Deteriorated masonry wall in basement (Source: Martin/Martin)

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FOG SIGNAL BUILDING

Chronology of Alterations and Use

Original Construction

The Outer Island Fog Signal Building was constructed in 1875 to house the first fog signal in the Apostle Islands. A steam locomotive whistle was used as the fog signal.⁴⁰ The building was also used to house the hoisting winch for the tramway.⁴¹

Significant Alterations / Current condition

By 1877, two small buildings appear on a site plan, later labeled Whistle Buildings 1 and 2 on the 1893 site plan. (Historic Drawing OI-01 and 02) The two buildings were wood frame with lap siding. The eastern building had a wood shed structure attached, which must have been added later in 1893, with its own double doors and window with shutters. (Historic Images OI-02 and 03) The eastern building had the hoisting mechanism in front of its main entrance. (Historic Image OI-03) By 1900, as visible in historic photos and a site plan, the western whistle building had been removed from the site, and the eastern building was expanded, branching out to the west. (Historic Image OI-05 and Historic Drawing OI-03) In 1934, the new tram and hoist system were installed. By 1937, the building appears to be in the configuration and appearance that it is today. (Historic Image OI-09) In 1977, the building was re-roofed.

The historic construction drawings from 1929 for the diaphone platform addition show a building that appears to have changed little between the time of its expansion around 1900 and present day. (Historic Drawing OI-08)

Recent alterations to the building consist of replacing broken and missing siding, repointing of the chimney and foundation, painting the exterior and the adjacent oil tank, reglazing the windows, replacing the broken glazing, and rebuilding the tram cart. These alterations occurred between 1998 and 2009 and were completed by the Historic Structure Preservation Team of the NPS. The Fog Signal Building was also re-roofed with three-tab asphalt shingles (brick red) by the Team in 2002.

With regards to the mechanical systems, the original steam whistle fog signal equipment was removed while much of the diesel-powered air diaphone system installed in 1929 remains, along with the associated tanks and compressors.

The Fog Signal Building was originally electrified in 1928 when diesel air compressors were installed to power the fog horns. In 1937, the building's electrical systems were remodeled to accommodate new radio equipment. In 1942 under the USCG, the facility was remodeled and new radio systems and supporting electrical equipment were installed. In 1948, new diesel driven air compressors were installed. In 1985, two Kohler engine generators were removed and a single Onan engine generator was installed by the NPS. No major modifications have occurred since.

The Outer Island Fog Signal Building is in fair to good condition.

⁴⁰ 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.

⁴¹ List of Classified Structures, National Park Service, 2009.

1 Summary of Documented Work on the Building

Date	Work Described	Source of Information
1874	Oct 30: "The bank around the fog whistle has caved in very much on the Lake side. The sea has washed it away within 6 or 8 feet of the building." Nov 14: "Got up steam and blowed till 6 PM when the bank on the land side gave way and carring the ladder with great force against the building. The earth nearly covered the building to the roof. We thought the whole side was coming in... We was obliged to draw the fire and give up running and clime the bank the best we could."	O.K. Hall, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol I
1875, July	July 8: "The fog whistle completed today so that we was able to get up steam and sound the alarm."	O.K. Hall, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol I
1877, Oct 1	"Mr. G.W. Bond finished work on the cistern....Mr. Jerome Sauzon is in charge of the building of the Signal and Light House now being constructed."	H.A. Kuchli, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol I
1878, June 27	"Government boat 'Warrenton' arrived at 6 AM; left material for a duplicate [sp] Fog Signal, lumber for building, and all the machinery; unloaded by means of a scow." Duplicate Fog Signal built	H.A. Kuchli, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol I
1894	New brick foundations for separate fog signal buildings	<i>Ashland Daily Press</i> , 1958
1897, June 10	"Marigold" brings supplies, including "1 Fog Signal replacement"	John F. P. Jacobi, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol I
1898, July	July 25: "Took down Smoke Stack on No. 2, put up new one." July 26: "Getting new Smoke [Stack] fised in place, and derrick down."	John Irvine, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol I
1900, July	July 23: "... helping to raise Signal House No. 2." July 25: "... helping to move Signal House." Western building removed and materials reused in expanding the eastern building to the west	John Irvine, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol I
1908	Shingled all roofing with metal shingles	August 24, 1908 Keepers Log Entry
1915, August 2	"Putting up frame for partition in Fog Signal."	Otto Olson, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1925, October 23	"Making new platform for whistles."	Daniels, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1928	Diesel air compressors installed to power fog horns	Electrical Plan
1929	Diaphone monitor built Sept 5: "Repair [crew] making concrete sill under Signal." Oct 1: "Painted new siding on Signal." Oct 31: "Air signal in commission."	1929 Plan (Historic Drawing OI-08); Daniels, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1932, June 16	"Put up some curtains [on] Signal windows."	Daniels, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1934	Aug 22: "Put window in shop." Oct 10: "Installed new radio." Oct 12: "Bolted stand on balcony for Winter Light."	Daniels, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1935	June 12: "... nailing on siding on work shop." Sept 17: "White leaded around flashing of chimney on Signal ... and repaired two leaks."	A. G. Carpenter, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1936, July 1	"Painted the black on No. 2 Engine, and painted aluminum on pipes on No. 2..."	A. G. Carpenter, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1937	Electrical systems remodeled for new radio equipment May 10: "Repaired floor in attic of Signal." May 27: "Hoisted gravel and made a cement cap on the chimney."	Electrical Plan; A. G. Carpenter, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II

Date	Work Described	Source of Information
	June 17: "Put in a pane of glass in Signal window."	
1938, April 25	April 25: "Put in a window glass in Signal..." July 9: "...started to enamel Signal floors." Aug 26: "Moving furnice [furnace] in Signal so it will be away from the hoisting engine. The carborator [carburetor] on the hoist got on fire from the furnice door. Moved furnice to one side and patched the hole in the chimney."	A. G. Carpenter, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1938, September	Sept 2: "Put in frame for iron door in chimney..." Sept 15: "Finished on furnice, and made new hole in chimney for furnice pipe." Sept 26: "Working on the coal bin in Signal. Took off siding and took out old wall and inside sheeting. Hoisted up gravel to put in the new wall." Sept 30: "Made cement steps to coal bin, and painted up wall, and put siding back on the coal bin."	A. G. Carpenter, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1941, June 26	"Built screen door for Fog Signal..."	V.T. Barningham, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1942	Remodel by USCG, including new radio system and electrical support May 13: "Worked in Fog Signal and Tower. Wiring and putting partition in." May 15: "Put partition in... Turned Light on to electricity for the first time. Now is a full pledge [fledge] Coast Guard Station." June 16: "Worked on ceiling in Fog Signal. Took forms off from basement and filled in the holes." June 19: "Worked on oil tank. Replaced it." June 27: "Removed cement step to work shop. Dug trench for oil pipe." July 31: "Built stairs in Fog Signal." Oct 29: "Worked on radio equipment; installing the same. Went on the air at 7 P.M. this date; all working good." Nov 24: "Replacing broken glass in Signal."	USCG Electrical Plan; V.T. Barningham, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1943	May 25: "Put in new petition [partition] between batteries room and work shop." July 3: "Brought Mr. Miller and helper to shingle the dwelling and Fog Signal." July 5: "Mr. Miller working on shingling Fog Signal roof."	V.T. Barningham, OI Log, Sept 17, 1874 – Dec 10, 1947, Vol II
1948	Diesel-driven air compressors installed	Electrical Plan
1985	Two Kohler engine generators removed and a single Onan engine generator installed by the NPS	N. Howk, 2010
2002	Exterior repainted	HSPT Reports, 2009
2002	Re-roofed with 3-tab asphalt shingles (brick red)	HSPT Reports, 2009

Notable Actions with Unknown Dates

Date Range	Work Described
Pre-1998	Asbestos siding shingles installed
1998-2009	Repointed chimney and foundation
1998-2009	Replaced broken and missing siding
1998-2009	Rebuilt tram cart
1998-2009	Reglazed windows and replaced broken glazing

General Physical Description

This building is one-story, utilitarian, wood frame structure with a rectangular footprint. It has a gable roof and a monitor for the fog signal. The main portion of the building has asbestos siding. It has a brick foundation and chimney. The building consists of a series of four main rooms.

Physical Description -- Architecture

Architecture – Roof

The roof is modern red asphalt shingle (CertainTeed brand, Maple Red Blend) with tie-off rings installed, though they do not appear to comply with OSHA requirements. It appears that no drip edge flashing was installed; rather, the new roof was installed over a previous sheet metal panel layer of roofing. The sheathing, where visible at the western end of the attic, was originally spaced, indicating that the original roof material was wood shingles; however metal shingles were installed by 1908. The eave consists of a closed, raked soffit of painted wood extending +/- 1'-2" and a +/- 10" wood painted frieze board.

Architecture – Chimney

The red brick chimney has corbelled coursing at the top and concrete flaunching. A sheet metal cap has been installed and there is evidence of past repointing work. A mortar sample taken from the interior indicates that the composition of the mortar is a small part lime mixed with sand and the sand is fine. The mortar is tan colored and very soft. (OI-FSB-08)

Architecture – Exterior Walls

The exterior walls are wood frame with asbestos shingles at the main portion of the building (the exposed area of a shingle is 10 1/2" wide by 24" long), there are sheet metal panels at the fog monitor area, and there is parging over the brick foundation.

A mortar sample was taken at the brick foundation that indicates the mixture is composed of Portland cement and sand. The mortar has a gray color, is hard and brittle, and has moderate coarseness sand.

Architecture – Windows

The windows have no existing hardware. All first floor windows have retrofitted tracks and only the fog monitor north window has a sash cord and pulley in-situ. The windows have painted wood 1x casing with sill and drip trim at the header on the exterior and simple shaped 1x casing on the interior with sill and apron trim.

First Floor Windows, One-Over-One, Double-Hung. These windows are all double-hung, one-over-one. They have aluminum tracks from the Michigan Molding Company, Detroit, MI. The primary window size is 3'11" x 2'11". There is one window each of the sizes 2'8 1/2" x 5'6" and 2'9" x 3'4".

Fog Monitor North Window, Four-Over-Four, Double-Hung. This window is a four-over-four double-hung that retains the original sash cord and pulley system. It does not have hardware like the rest of the windows in this building. It is 2' x 3'10". There is an in-filled opening on the south wall that has the same dimensions as the north wall's window.

Architecture – Exterior Doors

There are four original exterior doors that have been in-filled; one on the east wall, one on the south wall, and two on the north wall. The only open exterior door is the door on the west wall, which is a wood, five

panel door. The door has three ball-tip hinges. The door is 2'9 3/4" x 6'11" x 1 3/4". (OI-FSB-06) The north wall's main door that is infilled is a double door that has door dimensions of 2'5" x 7'11". The transom at the north elevation's former door opening is a four-lite and is 1'8" x 5'11 1/2". The north wall's hoist engine door is also a double door with each door measuring 2'2" x 4'6". This door is constructed of tongue and groove boards. The exterior doors have painted wood 1x casing.

Architecture – Exterior Trim

Exterior trim is covered elsewhere.

Architecture – Interior Doors

The existing interior doors are located at the battery storage room and the work room. The battery storage room door is a three panel wood door with a half lite and simple wood board trim. The door is 3'x 7'x1 3/4". The work room door is a five panel wood door that is 2'8" x 6'8" x 1 3/8" with the same simple wood board trim as the battery storage room. This door has a historic lockset and appears to be original to the expanded building. The interior doors have simple painted wood 1x casing.

Architecture – Wall Finishes

Equipment Room and Battery Storage. These rooms' wall finishes are sheet metal over wood boards (5 1/2" wide), painted gray and white. The west wall in the equipment room has 5 1/2" beadboard siding above the sheet metal. Both the sheet metal and the beadboard are original to the building. The equipment room's paint sample indicated that beneath the oldest layer of white paint a thin layer of black and dark maroon which may be a ferrous metal substrate exists.

Work Room and Fog Signal Room (Second Floor). These rooms have 5 1/2" wide wood boards, painted gray and green. The wood appears to be original to the expanded building. (OI-FSB-15)

Storage Room. This room has gypsum board as its wall finish, painted in various shades of blue. The gypsum board is not original to the building and is modern.

Architecture – Ceiling Finishes

Equipment Room. This room's ceiling finish is sheet metal over lath and plaster, painted white. Along the south sloped ceiling, the finish is the same beadboard seen on the west wall, painted white. This sheet metal and beadboard ceiling is historic, while the plaster and lath beneath the sheet metal is most likely original to the expanded building.

Battery Storage, Work Room, Storage Room, and Fog Signal Room. These rooms have original wood board ceiling finishes (5 1/2" wide boards), painted white or gray. The battery storage room has modern plywood over the eastern half of the ceiling.

Architecture – Interior Trim

Equipment Room. This room has a painted base trim (a strip of red paint 5" high from the floor). The base is a concrete curb, 2" wide by 2" high.

Battery Storage. On the west and portions of the south wall, there is a simple wood board base trim, 5 1/2" tall, painted gray. On the north wall, the same concrete curb as the equipment room exists.

Work Room. This room has the same concrete curb as the equipment room and battery storage, except the east wall does not have a curb.

Storage Room. This room has a simple wood board base trim, 5 ½" tall trim, painted gray, and the concrete curb that the other rooms also have, along its north wall.

Architecture – Floor

Equipment Room, Battery Storage, Work Room, and Storage Room. These four rooms all have slab-on-grade concrete floors. In the equipment room, the platform on the west end has wood plank flooring 7 ¼" wide, painted blue-gray. The concrete and the wood floor appear to be original to the expanded building.

Fog Signal Room. This room has wood board flooring, 5 ½" wide, painted blue-gray. The floor is most likely original to the expanded building.

Architecture – Stairs

Exterior West Elevation Stairs. These stairs are concrete, painted blue-gray. There are three risers with beveled corners (top riser 5 ½" high, other risers 8 ¼" high), and the tread depth is 12" with a width of 3'8". There are no handrails and the stairs appear to be original to the expanded building.

Exterior North (Northwest) Elevation Stairs. These stairs are concrete, painted blue-gray. There are two risers (top riser 7" high, bottom riser 8 ¼" high) with beveled corners and a tread depth of 10 ¾" and a width of 5'7". There is no handrail. These stairs are most likely original to the expanded building but the associated, former entrance has been locked and is no longer in use. (OI-FSB-07)

Exterior North (Northeast) Elevation Stairs. These stairs are concrete, painted blue-gray. There are two risers (top riser 8" high, bottom riser 8 ½" high) with beveled corners and a tread depth of 1'2" and a width of 5'1". There is no handrail. These stairs appear to be original to the expanded building but the associated, former entrance has been covered over by the exterior asbestos shingle siding. (OI-FSB-07)

Exterior East Elevation Stairs. These stairs are concrete, painted blue-gray. There are two risers at 7 ½" high with beveled corners, a tread depth of 1'3" and a width of 7'¾". There is no handrail. These stairs are original to the building but the associated, former entrance has been covered over by the exterior asbestos shingle siding.

Exterior South Elevation Stairs. These stairs are concrete, painted blue-gray. There are two risers at 8" high with beveled corners and a tread depth of 1'8" and a width of 5'6 ½". There is no handrail. These stairs are original to the building but the associated, former entrance has been boarded up.

Interior Stairs in Equipment Room. These stairs are wood, ladder-like (open riser), painted blue-gray, with a partial handrail. There are eight risers to the platform, then five more risers to the attic access. The risers are 10 ½" high and the treads are 10 3/8" deep, 2' wide, with a 2" nosing overhang. The stringers on either side of the stairs are 2x8s. The partial wood railing is actually the railing of the platform. It is comprised of two 2x4s forming a simple railing, painted blue-gray. The distance between the two sections of stairs on the platform is 2'7 ½". (OI-FSB-09)

Metal Stairs (Ladder) to Fog Signal Room. This metal ladder is painted black with handrails beginning half-way up on each side of the ladder. There are eleven risers at 11 ½" high and the treads are two ½" steel bars with a 1" gap between them. The treads are 2' wide. The stringers are 2 5/8" x 4 1/8" steel bars. The railings are 1 ½" diameter steel pipes that are 7 ½" from the rails to the top of the stringers. (OI-FSB-10)

Wood Stairs to Fog Horns. This small stair is painted wood, ladder-like (open riser), with no handrail. There are three risers at 8" high and the treads are 7 ½" deep with a 2 ½" nosing overhang. The wood stringers are 2x6s. (OI-FSB-11)

Architecture – Accessibility

This building is currently not accessible. The west entry door opening is 2'8" clear with a grade to finished floor elevation change of 7 ½" due to one step. The north entry (main) double door opening is 5'7" clear with a grade to finished floor elevation change of 8 ¼" due to one step. This set of doors is boarded over. The east entry door opening is 2'9 ¾" clear with a grade to finished floor elevation change of 1'10" with three steps. The south entry door opening is about 5'6" clear with a grade to finished floor elevation change of 1'4" with two steps. This door is boarded over. Once inside the building there appears to be adequate single level floor elevation and clearances, but there have been no accessibility upgrades.

Physical Description -- Structural

Structural – Foundation

The perimeter foundation system consists of brick masonry walls.

Structural – Floor Framing

The main level floor is a concrete slab-on-grade. The floor framing for the room with the fog horns was not accessible and could not be measured.

Structural – Roof Framing

The roof framing for the original western portion of the building was measured to be FS 2x4 rafters spaced at about 20". The rafters span approximately 9'. The rafters are supported on the exterior wood-framed walls. The rafters are sheathed with spaced solid wood underlayment. The spaces between the solid wood underlayment have been filled with wood blocking. This was probably done in the past when new roofing was installed. The roof framing for the added, eastern portion of the building could not be observed.

Structural – Ceiling Framing

The ceiling framing above the work and storage rooms was measured to be FS 2x6 joists spaced at about 40". The joists span approximately 17.5'. The joists are supported on the exterior walls. The coffered ceiling framing above the equipment room was measured to be FS 2x6 joists spaced at about 20". The joists span approximately 14.5'. The joists are supported on the roof joists.

Structural – Wall Framing

The exterior wall framing was not accessible and could not be measured. The interior wall framing was also not accessible and could not be measured.

Structural – Lateral System

Lateral stability for the building is provided by the exterior wood-framed walls that are sheathed on both sides with solid wood siding.

Structural – Load Requirements

The required floor load capacity is 125 psf for light storage on the slab-on-grade and 80 psf for the fog signal room. The required ceiling live load capacity is 10 psf (no storage is allowed). The required roof snow load capacity is 36 psf.

Physical Description -- Mechanical**Mechanical – Plumbing Systems**

The original domestic water system has been replaced with a plastic water storage tank (approximately 200 gallon capacity), water filtration system, pump, and copper piping that connects to buried galvanized steel piping and currently serves the Keepers Quarters with nonpotable water. Domestic water piping to the sink in the work room has been disconnected. A 4,500 gallon stone cistern is located just to the south of the building and still contains water. The cistern was installed after the steam water source well ran dry in 1876. A steam powered injector was installed in 1886 to provide lake water to the Fog Signal Building and the Keepers Quarters. This system is no longer in place.

The sanitary sewer drain piping from the work room sink has been disconnected. There are no other functional sewer connections in the building.

The counter-mounted work room sink remains in place at the west end of the building, although no longer connected to the plumbing system.

Mechanical – HVAC

The original heating for the building was a centrally located coal burning heater. The heater has been removed, but the brick chimney stack with flue vent opening still remains at the center of the building.

Ventilation for the building consists of a 36"x42" metal louver through the east wall near the fog signal generators and a 20"x24" metal louver through the south wall of the battery room.

Mechanical – Fire Suppression

None in the building.

Mechanical – Other

The majority of the 1929 diesel-powered air diaphone fog signal system is still in place. This includes two Ingersoll Rand (125 cubic foot per minute) diesel-powered air compressors, a large steel air receiver tank, and fuel tank, twin type "F" diaphones, 4" iron body globe valves, and 4" steel compressed air piping between the compressors and the fog signal diaphones. The two original generators have been removed. The current generator and fuel tank are located adjacent to the hoist with the generator mounted on one of the original concrete generator pads. The steam powered tram hoist installed in 1900 is no longer in place.

Physical Description -- Electrical**Electrical – System Configuration**

At present, alternating current power for the Fog Signal Building is provided from a diesel engine generator located in the Fog Signal Building. Power for the tram hoist and for lighting and receptacles in the building comes from a 15 kW (18.75kVA), 120/240 volt three phase diesel engine generator. For this equipment to function, the engine generator must be manually started. This system is known as a "High Leg" system in that one phase has a higher voltage to ground (208 volts) than the other two phases (120 volts). With this

system, care must be taken to insure that no single phase line-to-neutral loads are connected to the "high-leg" phase as downstream equipment failure will likely follow.

Direct current power for small pumps and equipment within the building was provided by the photovoltaic system located near the Keepers Quarters. Because the photovoltaic system is nonfunctional, this power system is nonfunctional as well.

Electrical – Conductor Insulation

Original branch circuits consist of thermoplastic wire in EMT (electro-metallic tubing) conduit.

Electrical – Overcurrent Protection

Overcurrent protection for the engine generator system is via engine control panel mounted 50 amp three pole circuit breaker which feeds the facility panel board. The facility panel board is rated 150 amps and contains 18 spaces and nine circuit breakers for circuits in the building. One three pole breaker space for the tram hoist winch is empty as the circuit breaker has been removed.

Electrical – Lighting Systems

Lighting systems inside of the building are incandescent lamp type. Fixtures are open porcelain keyless type or RLM (industrial stem mounted reflector) type.

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 ten bulk samples from a total of ten different types of suspected asbestos containing materials (ACMs). Of the ten suspect ACMs that were sampled and analyzed, a total of one suspect ACM resulted in a 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 (Miscellaneous adhesives were seen at pipe/wall interfaces, between ducting, and on heater components),
2. Roofing Materials,
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),

4. Caulk (Caulking was observed around window and door penetrations, which can also include gasket applications between the window assembly and the structure), and,
 5. Asbestos cement (Siding was observed to be asbestos cement).
- The assumed ACMs were observed to be in fair condition.

Hazardous Materials – Lead Containing Paint

The LCP inspection included a visual inspection of the structure. A previous inspection and testing for of LCP was conducted using an x-ray florescence (XRF) detector coupled with bulk sampling and laboratory analysis for conformation. The XRF inspection was conducted by the NPS Staff in 1993. The findings of this study are incorporated into this study by reference.

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

1. Interior Painted Surfaces (Based on testing of the generator and entry LCP is assumed to be present throughout the structure), and,
2. Exterior Painted Surfaces.

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

Loose/flaking LCP is identified on the exterior walls of the structure. Paint chip debris is noted on localized areas of surface soils surrounding the Fog Signal Building.

Hazardous Materials – Lead Dust

Surface wipe-sampling for lead dust was not conducted in the Fog Signal Building because it is a noninhabited structure.

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, but are not observable due to vegetative cover surrounding the structure. 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 Fog Signal 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 Fog Signal Building.

Hazardous Materials – Petroleum Hydrocarbons

Localized areas of staining were observed on concrete floors in the Fog Signal Building. 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 utilitarian gable structure with a red brick chimney and a monitor flanking the gable roof.

Exterior Materials. Painted white asbestos siding; some trim elements painted black, red asphalt roof shingles.

Openings. Wood double hung windows, one over one, painted black and various types of wood five panel doors, painted white.

Interior Materials. A mix of painted wood board paneling, metal sheets and gypsum board and exposed concrete floor.

General Condition Assessment

In general, the Outer Island Fog Signal Building is in fair condition.

Structurally, the Fog Signal Building is in good condition.

Mechanically, while some of the building's systems have been removed or are in poor condition, the 1929 diesel powered air diaphone and associated components remain in place and are in generally fair to good condition.

Electrically, equipment in the Fog Signal Building is generally in poor condition. Most of the equipment was installed in the 1940's or 1950's and is beyond its expected life. Notable exceptions are the Onan engine generator and some of the newer distribution equipment. This equipment is still viable and could continue to be used if needed.

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 is in good condition. The fascia, soffit and frieze are all in good condition, though with peeling paint. The tie offs on the roof should not be used for life safety anchors until they can be certified as meeting OSHA requirements.

Architecture – Chimney

Condition: *Good*

This chimney appears to be in good condition.

Architecture – Exterior Walls

Condition: *Good*

The exterior walls are overall in good condition. There are a few shingles chipped.

Architecture – Windows

Condition: *Fair*

The windows are in fair condition as previous glazing patches are evident.

Architecture – Exterior Doors

Condition: *Fair to Poor*

The existing door on the west wall is in fair condition as it has splitting wood on the panels. Also, its base on the interior has chipped and damaged wood. The north wall's main door is also in fair condition with some damage at the bottom of the eastern door. The north wall's hoisting engine door, however, is in poor condition as there is a large hole in the wood of the western door.

Architecture – Exterior Trim

Condition: *N/A*

Architecture – Interior Doors

Condition: *Fair*

The battery storage room door is in fair condition as the door has badly peeling paint, mismatched and nonhistoric hardware and badly peeling paint on the simple wood board trim. The work room door is also in fair condition as it has badly peeling paint and a rusty lockset.

Architecture – Wall Finishes

Condition: *Fair*

The equipment room and battery storage's sheet metal walls are in fair condition with badly peeling paint. In some areas, the sheet metal walls bulge near the bottom, suggesting that the interior wood framing is deteriorating. The wood bead board siding in the equipment room is in good condition. The battery storage room has a burn scar on the east wall. The work room's wood board wall finish is in fair condition as there are some signs of damage beneath the north window and the paint is badly peeling. The Fog Signal Room's wall finish is also in fair condition as there are possible moisture issues in the room and the paint is badly peeling. The storage room's fiberboard finish is in fair condition as there are areas where the paint has fallen off to reveal the fiberboard interior.

Architecture – Ceiling Finishes

Condition: *Fair*

The equipment room's ceiling finishes – the sheet metal and the bead board – are in fair condition as there is badly peeling paint on the metal surfaces and above the west wall where the metal has rusted away exposing the plaster beneath. The battery storage, work room, storage room, and fog signal room's wood board ceiling finishes are in fair condition. The work room's ceiling has a slight deflection, specifically around the wood joints. The storage room has a stress crack running north-south on the southern portion of the ceiling. The fog signal room has some separation of the wood boards.

Architecture – Interior Trim

Condition: *Good to Fair*

The equipment room's paint trim and concrete curb are in fair condition as some of the paint is peeling and the curb is separating from the wall along the north side. The wood base trim and concrete curb in the battery storage are in good condition. The work room's concrete curb is in fair condition as there is some

separation of the curb from the wall along the west side of the room. The storage room's wood base trim and the concrete curb are in good condition.

Architecture – Floor

Condition: *Good to Fair*

The poured concrete floors in the equipment room, battery storage, work room, and storage room are in good condition with usual wear and stains attributed to storage buildings. The wood board flooring on the platform in the equipment room is also in good condition. The fog signal room's wood board flooring in this room is in good condition, with some paint peeling.

Architecture – Stairs

Condition: *Good to Fair*

Exterior West Elevation Stairs. These stairs are in good condition as there are only minor cracks on the bottom riser and there is minimal paint peeling.

Exterior North (Northwest) Elevation Stairs. These stairs are in good condition. There is a large gap, with vegetation growth, between the bottom step and the top step/door threshold. These stairs are no longer in use.

Exterior North (Northeast) Elevation Stairs. These stairs are in fair condition. There is a large gap, with vegetation growth, between the bottom step and the top step/door threshold. The bottom riser has a ventilation pipe encased in the concrete and the bottom tread is well-worn with peeling paint. These stairs are no longer in use.

Exterior East Elevation Stairs. These stairs are in fair condition as the top riser and tread has serious cracks. These stairs are no longer in use.

Exterior South Elevation Stairs. These stairs are in good condition. There is a large gap, with vegetation growth, between the bottom step and the top step/door threshold. These stairs are no longer in use.

Interior Stairs in Equipment Room. These stairs are in good condition, but there is only a partial handrail (with wood deterioration at the juncture with the wood post), and there is some peeling paint.

Metal Stairs (Ladder) to Fog Signal Room. This metal ladder and railings are in good condition. There is some peeling paint.

Wood Stairs to Fog Horns. The stairs are in good condition but there are no handrails and paint is peeling.

Architecture – Accessibility

Condition: *Poor*

This building is currently not accessible.

Condition Assessment -- Structural

Structural – Foundation

Condition: *Good*

The visible portion of the foundation system appears to be in good condition. No obvious signs of distress or damage were observed.

Structural – Floor Framing

Condition: *Fair*

The concrete slab-on-grade is in good condition. The floor framing for the room with the fog signals could not be observed and its condition is unknown. No obvious signs of distress or damage were observed.

Structural – Roof Framing

Condition: *Good*

The roof framing over the western portion of the building is in good condition. The roof framing over the eastern portion of the building could not be observed and its condition is unknown. No obvious signs of distress or damage were observed.

Structural – Ceiling Framing

Condition: *Good*

The ceiling framing is in good condition.

Structural – Wall Framing

Condition: *Good*

The interior and exterior wall framing could not be observed, thus their condition is unknown. No obvious signs of distress or damage were observed.

Structural – Lateral System

Condition: *Good*

Lateral stability of the building is good.

Structural – Load Requirements

Condition: *Good*

The ceiling framing in the equipment and storage rooms and the roof framing over the western portion of the building have adequate capacity to support the required loads. The ceiling framing above the work room does not have adequate capacity and should be strengthened. The floor framing for the floor of the fog signal room and the roof framing over the eastern portion of the building could not be observed, thus the capacity of the framing is unknown.

Condition Assessment -- Mechanical

Mechanical – Plumbing Systems

Condition: *Good*

The 200 gallon plastic nonpotable water storage tank is in good condition. The associated pump, water filter station, and copper piping that connects to the buried galvanized steel water piping to the Keepers Quarters is also in good condition. The galvanized steel domestic water piping to the sink in the work shop has been disconnected. The brick cistern located just to the south of the building is in fair condition and still contains water.

The sanitary sewer drain piping from the work shop sink has been disconnected. There are no other functional sewer connections in the building.

The counter mounted work shop sink is in poor condition and is no longer connected to the plumbing system.

Mechanical – HVAC

Condition: Fair

The original heating systems have been removed from the building.

The metal ventilation louvers through the east and south wall of the building are in fair condition.

Mechanical – Fire Suppression

Condition: N/A

Mechanical – Other

Condition: Good to Fair

The two Ingersoll Rand diesel powered air compressors for the fog signal system are in fair condition. The air receiver tank and fuel tank are also in fair condition. The twin type “F” diaphones, valves, and steel compressed air piping between the compressors and the fog signal diaphones are in good condition with the exception of some cracked and peeling paint on the piping. (OI-FSB-16) The current generator and fuel tank are in good condition.

Condition Assessment -- Electrical

Electrical – System Configuration

Condition: Good

The existing diesel engine generator is in good condition and can continue to be used as needed. Contactor equipment for the existing winch is in good condition.

The tram winch motor (OI-FSB-17) and clutch has been disassembled and is awaiting parts and is therefore nonfunctional at this time. Parts for the winch system are becoming increasingly difficult to obtain. As modifications are made to the apparatus to keep it in service, safety issues result.

Electrical – Conductor Insulation

Condition: Poor

Original branch circuit wiring is 60 to 70 years old, is in poor condition, and should not be counted on for future use.

Electrical – Overcurrent Protection

Condition: Poor

Building distribution equipment is 60 to 70 years old, is in poor condition, and should not be counted on for future use.

Electrical – Lighting Systems

Condition: Poor

Lighting systems inside of the building are in poor condition, do not meet current codes, and are beyond their expected life.

Electrical – Telecommunications, Fire Alarm System, and Lightning Protection

Condition: 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

This building operated as a fog signal building from 1875 until 1937 when radio equipment was installed. The building has continuously housed mechanical and electrical systems for the entire light station.

Currently used for the NPS storage, the building is not accessible to the public. The proposed use for the building is interpretive - to provide limited visitor access to the interior (possibly visual only).

Rehabilitation is the recommended treatment.

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 rehabilitation of the building. Refer to Volume I, Chapter 2: Methodology for the priority rating definitions.

Treatment Recommendations -- Architecture

Architecture – Roof

Priority: *Low*

Verify/provide proper blocking for roof tie offs. Scrape, sand and repaint the fascia, soffit and frieze boards.

Architecture – Chimney

Priority: *Low*

No recommendations at this time.

Architecture – Exterior Walls

Priority: *Low*

Replace chipped shingles. (Existing shingles are asbestos; replacements shall be obtained from current attic stock or with new material to match existing in exposure, texture, and dimension and painted to match existing.)

Architecture – Windows

Priority: *Moderate*

Replace missing hardware in kind. Scrape, sand and repaint all sash, frames and trim at the interior and exterior.

Architecture – Exterior Doors

Priority: *Moderate*

Repair any split, chipped or damaged wood on the doors, frames and trim. Repair the large hole in the north wall's (west) hoisting engine door. Scrape, sand and repaint.

Architecture – Exterior Trim

Priority: N/A

Architecture – Interior Doors

Priority: Low

Scrape, sand and repaint interior doors. Where required, repair or replace existing hardware in-kind to match original and to allow smooth operation.

Architecture – Wall Finishes

Priority: Low

Scrape, sand and repaint sheet metal and wood board walls using the paint analysis to guide the color selection. Repaint fiberboard wall finishes.

Architecture – Ceiling Finishes

Priority: Low

Scrape, sand and repaint sheet metal, wood board and beadboard ceilings. Monitor the stress crack in the storage room as well as the work room's slight deflection. If any changes occur, investigate conditions further.

Architecture – Interior Trim

Priority: Low

No recommendations at this time.

Architecture – Floor

Priority: Low

Scrape, sand and repaint the fog signal room's wood board flooring.

Architecture – Stairs

Priority: Low

Repaint metal and concrete stairs where peeling paint is evident. Add code compliant handrails where needed.

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

The ceiling framing above the work room is over-stressed. The framing should be investigated further to determine the necessary strengthening or additional supports. The calculated capacity is 4 psf and the required capacity is 10 psf.

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

Priority: Low

Cap or remove all unused plumbing piping.

Mechanical – HVAC

Priority: Low

No recommendations at this time.

Mechanical – Fire Suppression

Priority: N/A

Mechanical – Other

Priority: Moderate

The existing tram hoist is beyond its useful life and replacement parts are no longer available. Recommend replacing with self contained diesel powered winch.

While the fog signal is no longer functional, the system is in generally good condition. It is recommended that the fog signal components be cleaned and repainted for purposes of historical preservation.

Treatment Recommendations -- Electrical

Electrical – System Configuration

Priority: *Moderate*

Electrical devices, lighting and wiring are no longer connected to a source of power. These items should remain in place for historical context. Existing diesel engine generator system is old and is becoming unserviceable. The existing tram hoist is to be replaced with a diesel powered unit. With the deletion of electrically driven tram hoist, the need for a diesel engine generator ceases. It is recommended to remove the existing diesel engine generator along with all associated equipment such as fuel tank, muffler, starting batteries and associated panelboard. It is recommended that the existing tram hoist contactors and wiring be removed.

Electrical – Conductor Insulation

Priority: *Low*

No recommendations at this time.

Electrical – Overcurrent Protection

Priority: *Moderate*

Overcurrent protection for removed generator set and associated electrical equipment should be removed.

Overcurrent protection for removed hoist contactors should be removed.

Electrical – Lighting Systems

Priority: *Low*

No recommendations at this time.

Electrical Telecommunications, Fire Alarm System, and Lightning Protection

Priority: *N/A*

Treatment Recommendations -- Hazardous materials

Hazardous Materials – Asbestos

Priority: *Moderate*

Recommend sampling of suspect asbestos containing materials, including brick and block filler, adhesives, roofing materials, caulking, and asbestos cement should be sampled.

Hazardous Materials – Lead-Containing Paint and Lead Dust

Priority: *Low*

Recommend stabilization or abatement of Lead Containing Paint.

Hazardous Materials – Lead In Soils

Priority: *Low*

Recommend soils characterization to confirm applicable regulatory requirements.

Hazardous Materials – Mold/Biological

Priority: *Low*

No recommendations at this time.

Hazardous Materials – Petroleum Hydrocarbons

Priority: *Low*

No recommendations at this time.

Alternatives for Treatment

One alternative treatment for the Fog Signal Building would be for the park to maintain its current use as park storage and solely rehabilitate the exterior for interpretive use.

Consider removal of asbestos shingles to prevent long term hazardous materials issue due to continued chipping and difficulty of finding a similar sized replacement shingle.

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

Assessment of Effects for Recommended Treatments

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
2. Change in use from utility to interpretive	Change in Use: Upgrades for code and safety may be required and may alter the historic fabric.	Integrate upgrades to minimize damage to historic fabric.	- Allows visitors to experience the cultural resource first hand - Improves safety for visitors and staff
3. Potential strengthening of ceiling framing	Supplemental support may be required.	Study various alternatives (sistering of existing, adding a post, etc.) to determine which will be the least disruptive to the historic fabric.	- Improves safety for visitors and staff - Supplemental (vs. replacement) support methods will allow historic fabric to remain

1 **Fog Signal Building Photographs, 2009**



OL-FSB-01: Aerial, 2009 (Source: A&A DSC01512)

2



OI-FSB-02: North elevation, 2009 (Source: A&A DSC01420)

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1
2

OI-FSB-03: West elevation, 2009 (Source: A&A DSC01418)

1
2
3



Ol-FSB-04: South elevation, 2009 (Source: A&A DSC01417)



1
2

OI-FSB-05: East elevation, 2009 (Source: A&A DSC01421)



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2
3
OI-FSB-06: West entry door and stair (Source: A&A DSC01476)



4
5
OI-FSB-07: North elevation steps and foundation details (Source: A&A DSC01478)



OI-FSB-08: Equipment room, east elevation (Source: A&A CIMG4400)



OI-FSB-09: Equipment room and loft, looking west (Source: A&A DSC01485)



OI-FSB-10: Equipment room ladder to fog signal room, south elevation (Source: A&A DSC01490)



OI-FSB-11: Fog signal room, north elevation (Source: A&A DSC01498)



OI-FSB-12: Fog signal room, equipment detail and window, looking northwest (Source: A&A DSC01399)



OI-FSB-13: Battery storage room, looking southeast (Source: A&A CIMG4414)



OI-FSB-14: Storage room, west elevation into work room (Source: A&A CIMG4438)



OI-FSB-15: Work room, looking southwest (Source: A&A CIMG4425)



OI-FSB-16: Fog signal valves (Source: RMH)



OI-FSB-17: Tram hoist winch, clutch is disassembled and awaiting parts (Source: RMH)

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