CAPE DECISION LIGHTHOUSE SOCIETY (CDLS)

CONSERVATION CONDITION ASSESSMENT OF THE **CAPE DECISION LIGHTHOUSE CUPOLA AND LANTERN ROOM**

JULY 07-10, 2019

REPORT BY:
NICOLE PETERS, CONSERVATOR
PETERS ART CONSERVATION SERVICES, LLC

WWW.PACSLLC.ORG
NPACSLLC@GMAIL.COM

CAPE DECISION LIGHTHOUSE STATION

CONSERVATION CONDITION ASSESSMENT AND TREATMENT RECOMMENDATIONS FOR CUPOLA AND LANTERN ROOM

CAPE DECISION LIGHT
AHRS SITE NO: XPA-00012
USCG NO: 6-1020

SITE(S):

CAPE DECISION LIGHTHOUSE
SOUTHERN TIP OF KUIU ISLAND, SOUTHEAST ALASKA
56°00'05"N, 134°08'09"W

PETERS ART CONSERVATION SERVICES, LLC
NICOLE PETERS
OBJECTS CONSERVATOR
WWW.PACSLLC.ORG
P.O BOX 1122
SKAGWAY, AK 99840

SUBMITTED: _____
NICOLE PETERS, CONSERVATOR **DATE**

APPROVED: _____
ANDREW WASHBURN, CDLS VP **DATE**

APPROVED: _____
JUDITH E. BITTNER, STATE HISTORIC PRESERVATION OFFICER **DATE**

CONCURRED: _____
JEAN AYERS, GRANTS ADMINISTRATOR **DATE**

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The examination and conservation condition assessment of the Cape Decision Lighthouse (AHRS: XPA-00012) cupola and lantern room was completed by Nicole Peters, objects conservator of Peters Art Conservation Services LLC of Skagway, Alaska. The structure was examined and documented over the course of 4 days from July 07-10, 2019. The project was requested by the Cape Decision Lighthouse Society (CDLS), with on-site support from board members Chris Brooks (President), Molly Conley, and Steve Lanwermeyer (Treasurer). The project was financially supported through funding acquired by CDLS Board Member and Vice President Andrew Washburn, who was awarded grant funding from the State of Alaska: Office of History & Archaeology/ State-Local Grant Agreement #18014/ Historic Preservation Fund.

The purpose for the examination and condition assessment of the Cape Decision Lighthouse (CDL) cupola and lantern room is to record written and photographic baseline condition information to which all future preservation assessments can be compared. Recommendations for future preservation and conservation efforts were made considering the following: material condition and extent of degradation, significance or originality of historic fabric/historical context, practicality and/or feasibility of repair materials and methods, general safety of crew and conservator/preservationist, and intended utility of architectural space and historic fabric. This assessment provides data that aids in important decisions involving the implementation of preventative conservation methods and cyclical maintenance procedures. All work completed was governed by the Code of Ethics and Guidelines for Practice of the American Institute for Conservation of Historic and Artistic Works (AIC), the Historic Lighthouse Preservation Guidebook, and the Secretary of Interior Standards for Historic Preservation guidelines.

The CDL lantern room and cupola contain both structural and surface instabilities that require prompt attention or repair. In order of urgency, with 1. being the most urgent, the issues are as follows:

1. The exterior “crown” or railing on top of the cupola. There is approximately 70% loss in the railing component with active iron corrosion and structure delamination/flaking with reports of pieces independently breaking off and falling onto lower platforms, deeming it a safety hazard. This component is in irreparable condition with little to no structural integrity remaining. The treatment of this component in situ is not recommended; its current condition and appearance is not aesthetically or historically appropriate, nor would a laborious conservation treatment be practical, feasible, or economical in this situation. It is recommended that this component be carefully deinstalled with the aid of scaffolding. Sections of the railing can then be brought indoors, where they can be properly consolidated and preserved for historical reference or study. It is recommended that options be explored for the replacement of the railing component with in-kind material (i.e. a metal containing hot-dip galvanization processes and/or powder-coating: this is discussed in greater detail later in the report).

2. The upper ladder and platform on top of the cupola are not suitable for use. Similar to the railing, these components are riddled with active iron corrosion and delamination/flaking of structure. Naturally, this greatly impedes access to the roof and the ability to properly examine the area. The vertical pole ladder (which is currently navigable) was utilized to climb up for brief examination. It was noted that some of the structural beams on the upper ladder have corroded to approximately 1/8’’ thickness with areas of flaking material around the thinned area. At this

point, it was decided to abort any further climbing. Photographic documentation of the area was taken as thoroughly as possible from the pole ladder.

3. There are three cracked glass panes in the lantern room: 2 panes each containing a small, traveling fissure, and 1 pane containing substantial damage and cracking thought to have been caused by a bullet. Lantern glass and frames must be weathertight. To minimize water infiltration, the damaged glass (at least the "bullet damaged" pane) should be replaced as soon as possible, using glass (either tempered or laminate) because of its superior weathering qualities. Acrylic or polycarbonate are not suitable replacement materials because they are easily scratched by airborne sand and will fog with time. The glass panes must be sized for code-required wind loads and code requirements for glazing next to or above walking surfaces. Depending on the location and environmental conditions at the lighthouse site, often times only laminated glass is acceptable. For the two cracked panes and as a temporary measure for the bullet-hole pane, a low-viscosity UV-activated epoxy resin with a refractive index akin to glass can be carefully wicked into the cracks in order to mitigate further fissure growth.

4. The ferrous hardware along on the interior of the lantern room beams is severely corroded and is delaminating due to galvanic corrosion. These components need to be cleared of debris, cleaned, and coated. It is also important to ensure that the electrolyte, water, is not allowed to penetrate joints between dissimilar metals. The joints can be sealed using the existing detailing (i.e., flashing, profiles of members) combined with modern caulks and sealants.

5. There is active corrosion on cuprous and ferrous metal components on the interior of the lantern room, around the vents and interior ceiling "liner," the lantern table and associated hardware, and along the bronze door. The corrosion growth should be mechanically removed, the surfaces cleared/cleaned with solvent, and either coated with a protective wax or painted-depending on the original surface. The latch and hinges of the door should be lubricated and in working order. The opening should be fitted with a gasket material such as neoprene that is both readily available and long lasting.

6. There are areas of localized failing paint coatings and protruding iron corrosion on interior and exterior metal components. Failing and flaking paint (where corrosion has induced the damage) should be scraped off, the area be treated with a reducing agent, and the appropriate paint system reapplied. Areas of paint loss or flaking that are otherwise stable should be touched up with the corresponding paint.

7. Removal of "Rust-oleum" (or similar product) from the interior roof and liner of the lantern room. This application of a protective coating is unsightly and inappropriate. Removal will likely involve scraping with the aid of a mild solvent or application of a mild abrasive dispersed in a cream or solvent mixture. Ladders and minor scaffolding will be needed for this treatment.

8. Address the broken wood doorstop affixed to the pole ladder on the gallery deck. The broken component is no longer offering protection against the lantern room door hitting the pole ladder if the door catches wind or is accidentally swung open. The wood doorstop is cracked, rotted, and punky in texture. It is recommended this component be replaced with in-kind material in order to protect the door.

9. Removal of miscellaneous debris from interior of lantern room. During site visit, there were several plastic bottles, paper towels, spilled oil and unidentified liquid, and spare lantern parts in the room. These items should be cleaned out and the room should be swept and cleaned. Signs of biological growth colonization on top of dusty/grimy surfaces along ledges was also noted. Horizontal ledges, surfaces, and interior windows should be wiped with a simple 1:1 isopropyl / distilled water solution to mitigate bio growth. Biological growth harbors moisture and can cause localized corrosion on underlying metal surfaces.

10. Remove cuprous corrosion product from original brass handrails in and below the lantern room. This will require the application of a mild abrasive cream or solvent mixture followed by a protective wax coating. Experimentation with different waxes may be warranted in order to realize the efficacy of the different compositions in the harsh environmental conditions.

11. The stairs and concrete support leading up to the lantern room require stabilization. The concrete is cracked where the hardware penetrates into the structure; this is a result of expansive ferrous corrosion and delamination of metal structure. Consultation and collaboration with a structural engineer is recommended for this component in order to gather data on load-bearing parameters of both the original materials and repair materials. Although this issue is rather severe, it is listed as rather “low” on the urgency scale because there appears to be a fair amount of structural integrity remaining within the component(s). However, this does not negate the fact that the issue will need to be addressed in the near future (3-5 years).

The following is a list of key recommendations for the conservation and overall preservation of the Cape Decision Lighthouse cupola and lantern room.

KEY RECOMMENDATIONS

SHORT TERM (IN THE NEXT 1-2 YEARS/SEASONS)

- Deinstall exterior "crown" or railing on top of the cupola. This will be a major project requiring scaffolding, PPE and safety equipment, photographic documentation of the procedure, and a work team familiar with preservation methods and ethics.
- Perform cleaning and consolidation treatments on cracked glass panes.
- Treat the ferrous hardware along on the interior of the lantern room beams. These components need to be cleared of debris, cleaned, treated with a reducing agent, and coated. The application of a modern caulk or sealant may be warranted at the juncture of two dissimilar metals where galvanic corrosion is occurring.
- Address the active corrosion on cuprous and ferrous metal components on the interior of the lantern room, around the vents and interior ceiling "liner," the lantern table and associated hardware, and along the bronze door. The corrosion growth should be mechanically removed, the surfaces cleared/cleaned with solvent (or reducing agent for ferrous metals) and either coated with a protective wax or painted- depending on the original surface.
- Removal of miscellaneous debris from interior of lantern room and cleaning of surfaces with 1:1 isopropyl / distilled water solution to kill bio growth and remove dust /grime.
- Remove cuprous corrosion product from original brass handrails in and below the lantern room.
- Routine annual inspection of the lantern room and cupola should be performed. This can be as simple as taking photographs and filling out a basic condition checklist form.

LONG TERM (IN THE NEXT 2-5 YEARS/SEASONS)

- Continue discussions with the United States Coast Guard (USCG) about the potential collaboration of having the upper ladder and platform restored or replaced (and funded by USCG) in exchange for permission to install monitoring equipment atop the cupola. Safe access to the top of the cupola is critical for routine examination and maintenance; this collaboration with the USCG should be closely evaluated, as this comprise may be warranted depending on the scale (or visual obtrusiveness) of the desired equipment to be installed.
- Begin consultations with a structural engineer on the stairs and concrete pad leading up to the lantern room.
- Failing and flaking paint (where corrosion has induced the damage) should be scraped off, the area be treated with a reducing agent, and the appropriate paint system reapplied. Areas of paint loss or flaking that are otherwise stable should be touched up with the corresponding paint.
- Removal of "Rust-oleum" (or similar product) from the interior roof of the lantern room.
- Address the broken wood doorstop affixed to the pole ladder on the gallery deck.
- Continued routine annual inspection of the lantern room and cupola should be performed. This can be as simple as taking photographs and filling out a basic condition checklist form.
- Keep lantern room clean and free of debris.

SITE BACKGROUND

Image from USCG: Public domain file *(17 U.S.C. § 101*

Cape Decision is an important headland located on the north side of the narrow passage between the Spanish Islands and Kuiu Island. The lighthouse has been lighting the passages of Chatham and Sumner Straits for over 80 years [1] For several years following the acquisition of Alaska in 1867, the vast majority of vessels made their way between Seattle and Juneau by following a winding route through the Alexander Archipelago that parallel this stretch of the northwest coast. By remaining within the islands' protection, the captains and passengers were granted a safer and smoother journey than that experienced in the open waters of the North Pacific.

As ships' girths increased through the years, alternate routes had to be used. Specifically, some ships were unable to travel Wrangell Narrows and were forced to make a detour around Cape Decision. To pursue this lengthier route, captains sailing north now followed Sumner Strait to its end at Cape Decision, where they were exposed to full swells before entering Chatham Strait. In addition to passenger vessels, the waters surrounding Cape Decision were also traversed by fishermen; nearby Port Alexander home to the largest salmon trolling fleet in Alaska during the 1930s.[2] The first attempt to light these waters was an acetylene lantern placed on the Spanish Islands, just off the southern end of Kuiu Island. The lantern proved ineffective and consequently Congress appropriated funds in 1929 for a lighthouse and construction began in September of that year. However, weather and inadequate funds delayed the completion of the station until it finally became active in March 1932. For over 40 years, the lighthouse was manned by live-in crew members. On September 1, 1974, the last live-in crew left the lighthouse, being replaced by a diesel generator. The station was later converted to solar power to further reduce the maintenance work required during regular Coast Guard visits.

Cape Decision Lighthouse, 2019

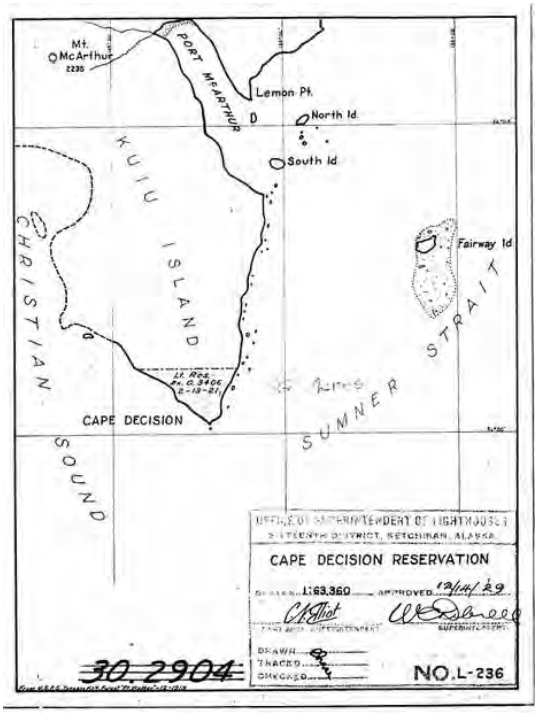
In 1997, Cape Decision Lighthouse was leased to the Cape Decision Lighthouse Society, a 501(c)3 non-profit grass-roots Alaskan organization dedicated to preserving the lighthouse for public recreation. The Cape Decision Lighthouse and associated properties were officially conveyed to CDLS in 2004 and added to the Registry of Historic Places in 2005.

[1] Lighthouse Friends website, "Cape Decision Lighthouse," website accessed 08/08/19: https://www.lighthousefriends.com/light.asp?ID=1049.

[2] Cape Decision Lighthouse Society website, "The Story," website accessed 08/08/19: https://www.capedecisionlight.org/the-story.html.

LIGHTHOUSE SPECIFICS

Location: Kuiu Island, Alaska
Coordinates: 56.001°N -134.1369°E
Foundation: Rock
Construction: Concrete
Year first lit: 1932
Automated: 1974
Tower shape: square
Height: 75 ft (96 feet above sea level)
Original lens: Third order Fresnel lens
Range: 18 nm
Characteristic: White art deco marking, flashing, white 5s, obscured from 134° to 245°. Emergency light (FI W 5s) of reduced intensity if main light is extinguished. (*Data obtained from CDLS website)



Cape Decision Lighthouse reservation plans and location. Image courtesy of CDLS website.

LANTERN SPECIFICS:
Order of lantern: 3rd
Shape of lantern: Cylindrical
Diameter to glass: 7’11’’ inside
Type of bars: Helical
Height glazed: 6’
Number of plates in height: 2
Thickness of plates: ¼’’
Size of plates: 24’’ x 24’’
Bearings: Light obscured form 134 degrees to 245 degrees
Construction Material Lantern: Iron
Construction Material Roof / Cowl: Iron
Balustrade: 2" galv. iron pipe rail, concrete floor
Lantern Doors: Heavy bronze hinges
Floor of Lantern: Concrete
Watchroom Doors: Wooden and brass hinges


Original third-order Fresnel lens is currently housed at the Clausen Museum in Petersburg, Alaska. Image courtesy of Lighthouse Friends website.

The concrete lighthouse features a central, square tower rising to a height of seventy-five feet, with a one-story structure wrapped about its base. The lighthouse provided quarters for three keepers and also housed generators for the light and fog signal, boilers for the heating plant, and cisterns for storing water for domestic use and for cooling the engines. The third-order Fresnel lens, mounted in the circular, helical-bar lantern room, was transferred from the Tenth Lighthouse District, and a 300-watt bulb was used inside it to produce two white flashes every fifteen seconds. Cape Decision was the first lighthouse in Alaska to be powered by electricity. A Class-A radio beacon was placed on the rocks just seaward of the lighthouse. Today, the lantern room is illuminated by a XX LED light (get specs from Chris) which was installed in the summer of 2019. The original third-order Fresnel lens is currently housed at the Clausen Museum in Petersburg, Alaska.

CONDITION EXAMINATION

Date: July 07-10, 2019

Prepared by: Nicole Peters, conservator
Peters Art Conservation Services, LLC

Artifact/ Structure: Cape Decision Lighthouse
Cupola and Lantern Room

Dimensions: N/A

Maker: United States Coast Guard

Year: Lighthouse was first lit in 1932

Materials: Bronze, brass, cast iron, steel, galvanized steel, copper, aluminum, glass, concrete, industrial paint systems, wood

CONDITION

Summary:

The Cape Decision Lighthouse lantern room and cupola contain both structural and surface instabilities that require prompt attention or repair.

Metals

The harsh coastal Alaskan environment has taken a toll on both interior and exterior metal components. The most severe damage observed was that of the exterior cast iron "crown" or railing on top of the cupola. There is approximately 70% loss of the structure due to advanced corrosion, erosion from airborne particulate, and years of being subjected to salt-laden ocean aerosols which have penetrated bare metal surfaces due to paint/coating loss and breaks in structure. The degradation of this component is so advanced that it is considered to be in irreparable condition. Given the railing's current condition, location, environmental exposure, and historical (and also contemporary) intended utility, conservation treatment of this component in situ is not recommended. The sheer logistics of attempting to consolidate and stabilize the compromised railing in situ would be prohibitive to a successful treatment. The deinstallation of original historic fabric and replacement with a reproduction component is never favorable; however, in this case it is warranted. The current condition and appearance is not aesthetically or historically appropriate. It is recommended that options be explored for the replacement of the railing component with in-kind material. Metal technologies involving hot-dip galvanization processes and/or powder-coating have proved to produce quite robust and durable products that can withstand extreme environments. I have personally worked with Precision Boat Works marine fabrication shop based out of Sitka, AK, who successfully crafted a custom steel and aluminum mount for a totem pole now exhibited at Sitka National Historical Park. There may be a closer workshop that can perform similar services based out of Wrangell; research on this possibility is currently in progress. However, the main focus for the immediate future should be the deinstallation of the railing.

The deinstallation process should be thoroughly documented, as it will likely provide insight for the reinstallation of the reproduction component. In order to execute a safe deinstallation, a scaffolding setup should be installed around the lantern room. This will allow for comfortable access and will help facilitate thorough examination and proper documentation of the area.

Detail of advanced corrosion on structural beam of upper ladder on top of cupola.

The upper ladder and platform on top of the cupola are not suitable for use. Similar to the railing, these components are heavily corroded and are actively delaminating and flaking. It was noted that some of the structural beams on the upper ladder have corroded to approximately 1/8'' thickness with areas of flaking material around the thinned area. As mentioned earlier in the Key Recommendations section, the possibility of collaborating with the USCG for the restoration or replacement of the upper ladder and platform in exchange for permission to install monitoring equipment may be a mutually beneficial project. This prospect should be discussed amongst CDLS board members and SHPO.

The ferrous hardware along on the interior of the lantern room beams is severely corroded and is delaminating due to galvanic corrosion. These components need to be cleared of debris, cleaned, and coated. A reducing agent, such as tannic acid, may be applied in order to halt oxidation reactions. It is also important to ensure that the electrolyte, water, is not allowed to penetrate joints between dissimilar metals. Previously applied caulking around the window edges is missing in several areas, potentially allowing for water infiltration.

Active corrosion was noted on both cuprous and ferrous components inside the lantern room. These components include: the upper vents and interior ceiling "liner," along the bronze door and hinges, the brass railings, and the ferrous metal walls along the lower lantern room. The issues must be addressed on a case-by-case basis; there is no blanket treatment for the different alloys. Treatment for active corrosion involves either chemical or mechanical removal of the oxidation product, clearing of the surface with solvent, and the application of a coating (i.e wax, paint). The selection of the type of coating is dependent on historical context, utility, location, and previous treatment campaigns. The metal components and coatings on the *exterior* of the lantern room (aside from the railing, ladder, and platform) have held up remarkably well. Only minor paint touchups and two ferrous hardware bolts on the exterior of the door require attention. There are applications of a dark gray spray coating (possibly Rust-oleum) along the interior roof, vents, and liner of the lantern room. The spray was applied locally over corroding surfaces. The coating may be effective; however, it is unsightly and inappropriate. Removal will likely involve scraping with the aid of a mild solvent. A protective spray coat that is more visually cohesive should be applied in these areas. Ladders and minor scaffolding will be needed for this treatment.

Glass

There are three cracked glass panes in the lantern room: 2 panes each containing a small, traveling fissure. One pane is located on a N-facing window and one is on a S-facing window. The third damaged glass pane faces S/SW and is thought to have been caused by a bullet. Several cracks have grown out from the initial impact point, traveling to the edges of the pane. Lantern glass and frames must be weathertight. To minimize water infiltration, the damaged glass (at least the "bullet damaged" pane) should be replaced if possible, using glass (either tempered or laminate) because of its superior weathering qualities. Acrylic or polycarbonate are not suitable replacement materials because they are easily scratched by airborne sand and will fog with time. The glass panes must be sized for code-required wind loads and code requirements for glazing next to or above walking surfaces. Depending on the location and environmental conditions at the lighthouse site, often times only laminated glass is acceptable. There has been ongoing consultation with colleagues in the historic preservation field who specialize in glass repair. For the two cracked panes and as a temporary measure for the bullet-hole pane, a low-viscosity UV-activated epoxy resin with a refractive index akin to glass can be carefully wicked into the cracks in order to mitigate further fissure growth. Options for resins include: Sunglue, windshield-glass repair epoxy (obtained from mechanic shop), HXTAL, or CCS330. Prior to treatment, four mockups of broken glass panes should be assembled with each epoxy inserted into the cracks. The mockups should be subjected to outdoor elements similar to that experienced at Cape Decision. (This may involve merely placing the mockups outside in Alaska for the winter/spring exposed to full visible light and ultraviolet radiation, and periodically spraying the surfaces with salt water).

Detail of cracked glass pane on S/SW facing side. Damage is thought to have been caused by a bullet. It has been noted that damage has become worse over the years.

Wood

The only wood component is the wooden door stop on the exterior of the lantern room. The stop is affixed to the pole ladder with steel bolts. The wood is cracked, rotted, and punky in texture and is no longer serving its purpose of preventing the door from hitting against the pole ladder. It is believed this component became damaged at some point when the heavy lantern door caught wind and slammed against the stop. Now, if the door is opened all the way, it touches the pole ladder. To prevent this while the door is open (for either work purposes or for ventilation), a temporary solution of tethering a rope to the inside of the door attached to the interior lantern table has been implemented. It is recommended this component be replaced with in-kind material in order to protect the door.

Concrete

The concrete pad on the gallery requires stabilization. Specifically, there are areas of damage facing the S/SW direction, where there are areas of loss and exposure to internal fabric. This opening is allowing water penetration, which as a result catalyzes corrosion of the ferrous reinforcement. Unfortunately, the damage is at the far corner edge of the platform. Considerable PPE and safety harnesses will be required for this treatment. Research and analysis of concrete composition, alkalinity, and density should be performed prior to treatment. In order to prevent future crack development after the loss or

spall has been patched and to ensure that the patch matches the historic concrete, thorough attention must be paid to the treatment of rebars, the preparation of the existing concrete substrate, the selection of compatible patch material, the development of good contact between patch and substrate, and the curing of the patch. The stairs and concrete support leading up to the lantern room also require stabilization. The concrete is cracked where the hardware penetrates into the structure; this is a result of expansive ferrous corrosion and delamination of metal structure, likely induced by prolonged moisture exposure or catalytic corrosion due to close contact with alkaline concrete fabric. Given the critical utility of this structural element, consultation and collaboration with a structural engineer is recommended in order to gather data on load-bearing parameters of both the original materials and repair materials.

Detail of cracked concrete which is supporting ladder leading up to lantern room.

Environment

Due to accumulated dirt and grime and the warm, moist conditions of the interior of the lantern room, lichen and other biological colonies have begun to develop on top of organic dirt deposits. Horizontal ledges, surfaces, and interior windows should be wiped with a simple 1:1 isopropyl / distilled water solution to mitigate bio growth. Biological growth harbors moisture and can cause localized corrosion on underlying metal surfaces. Also noted during the site visit were plastic spray bottles, paper towels, spilled oil and unidentified liquid, and spare lantern parts in the room. These items should be cleared out and the room should be swept and cleaned. The materials serve as a hazard and can also harbor excess moisture and chemical threats to the interior space.

Previous Treatment Campaigns:

The CDLS board members, volunteers, and contractors have made outstanding efforts in the preservation of the site. A list of just a few of these projects include: trail and grounds maintenance, structural stabilization of wood components and walkway, preservation of historic windows and sashes, lead paint and asbestos encapsulation, application of protective paint/coatings to vulnerable surfaces, solar energy equipment installation, and so on. The gathering of information on these projects is ongoing, as CDLS board members are still being interviewed. The goal is produce a treatment history log that can be referenced by future CDLS participants and preservationists.

Pertaining to the maintenance of the cupola and lantern room, the following information was recorded from CDLS President Chris Brooks in August 2019.

1. How often is the cupola painted (interior and exterior) and when was the painting campaign?
   The inside of the lantern room was painted last summer (2018). This was the first time we have ever painted it so it has been 25+ years. We painted the red concrete surface three times since 1997 with the most current painting in 2015. The black steel and rails were also last painted in 2015 but have been spot-painted / touched up a few times since then. The upper exterior steel, roof, and bronze window stops have not been painted since 2001. I do not think the roof was painted at this time.
2. How often do you caulk the joins along the windows? *We have never caulked these.*
3. When you paint the interior, do you paint all metal surfaces? Including ferrous hardware/bolts?
   Yes.
4. When was the last time the interior upper-tier vents and "liner" were coated/treated? I noticed some contemporary applications of a gray spray/paint (Rust-oleum?) over top of corrosion spots.
   I noticed this for the first time this year and do not know when it happened. I don't think it occurred while I was at the lighthouse and may have possibly be done by someone else. I will ask the person who painted the interior last year if she has a recollection.
5. Do you have an approximate date or year of the bullet(?) damage to the S/SW facing window pane? Same for the other two windows with cracks: 1 N-facing window and 1 S-facing window. (Cardinal directions are approximate).
   I am not sure. The large crack on the south facing window has been there since my first visit in '97. I was told it was caused by a bullet but don't know that for sure. I have never noticed the other cracks before so I assume that they are relatively new. The large crack has definitely grown.
6. Did Steve replace that lantern room vent that he recovered from the man who was studying it?
   Yes
7. Can you inform me about any other treatments you've done and the brand names of treatment products/paints/caulk as much as you can recall? I know Steve was mentioning a particular product used at Cape D for rust mitigation.
   We typically use OSPHO to treat rusted surfaces before painting. OSPHO is a phosphoric acid based rust-inhibiting coating not a paint. It is sprayed on and causes iron oxide (rust) to chemically change to iron phosphate which is an inert, hard substance that turns the metal black which helps the paint stick and prevents moisture and oxygen from causing rust. For paint, we use an oil based enamel, typically gloss.

PHOTOGRAPHIC DOCUMENTATION

For the purposed of this report, the lantern room has been digitally mapped through a series of photographic images and is divided into designated sections for easier identification. The sections begin at the viewer's right of the lantern room door, moving clockwise around the room. Each section has four primary images that detail four areas from floor to ceiling. Example: Section 1a, 1b, 1c, and 1d, followed by annotated details of issues documented in that section.

SECTION 1a:

SECTION 1b

SECTION 1c

SECTION 1d

Section 1:

Detail of the crack in the window pane in Section 1. The crack currently spans approximately 9 cm in length.

Arrows indicating areas of failing paint coating. Areas of missing paint, corrosion penetration, and active spalling were noted during site visit.

Top: galvanic corrosion of ferrous hardware. Bottom right: Rust-oleum(?) coating application on ceiling liner. Bottom left: severe degradation and corrosion of ferrous hardware due to galvanic corrosion.

SECTION 2a

SECTION 2b

SECTION 2c

SECTION 2d

Section 2:

Top: Detail of iron corrosion sporting beginning to penetrate through paint coating. Bottom right: Biological growth forming on top of grime/organic deposits. Bottom left: Detail of damage to vent handle: handle had been torqued too hard and is bent. Detail of delaminated iron structure just above.

Section 2 (cont):

Galvanic corrosion of ferrous hardware.

Section 2 (cont):

The vents throughout the lantern room require a great deal of attention. This image details the Rust-oleum(?) application, flaking original paint/coating, and advanced cuprous corrosion.

SECTION 3a

SECTION 3b

SECTION 3c

SECTION 3d

Section 3:

Top: Paint splatters and spilled oil on concrete floor inside lantern room. Evidence of iron corrosion penetrating through paint coating. Bottom: Localized corrosion due to water infiltration around vent and staining from iron corrosion drips.

Section 3 (cont):

Details of iron corrosion staining and penetration through paint coating due to exposure to water and galvanic corrosion.

Section 3 (cont):

Detail of the vent in section 3. Rust-oleum(?) application, flaking paint system, advanced cuprous corrosion, delaminating and flaking of ferrous metal.

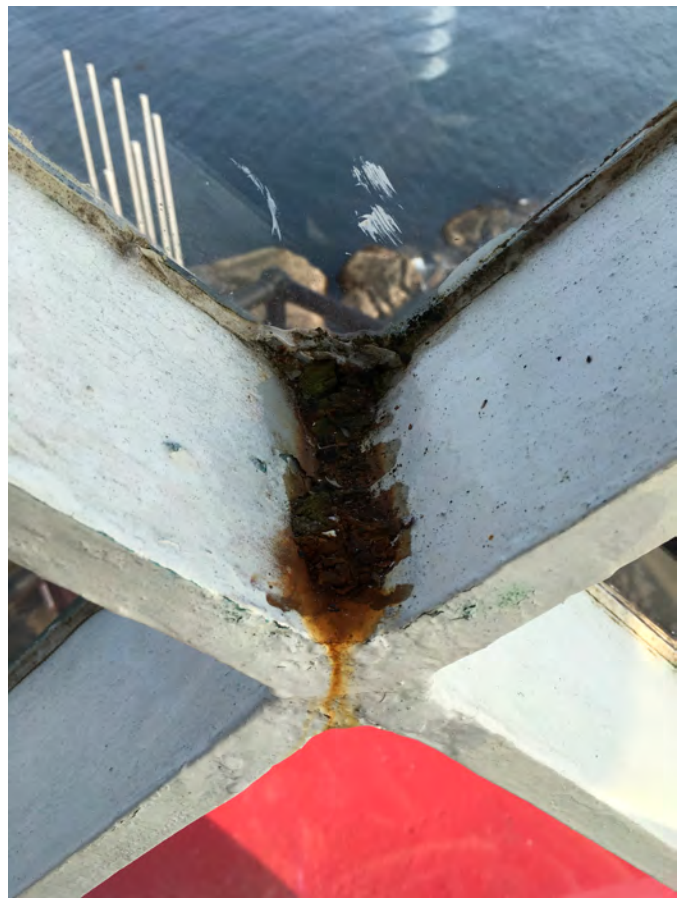
SECTION 4a

SECTION 4b

SECTION 4c

SECTION 4d

Section 4



Top: Iron corrosion spots penetrating through paint coating. Bottom right: Advanced galvanic corrosion of ferrous hardware. Bottom left: Iron corrosion staining from water infiltration around vents.

Section 4 (cont):

Top: Detail of crack in window pane. Crack currently spans the width of the pane in that area- approximately 7 centimeters. Bottom: Detail of severe condition of vents and replacement patch(?) just below. There are no records of this restoration.

Section 4 (cont):

Attempted photographic documentation of the bolts in the top of the ceiling. These may be auxiliary hardware supports for the exterior cupola railing.

SECTION 5a

SECTION 5b

SECTION 5c

SECTION 5d

Detail of advanced corrosion resulting in loss of structure. Area requires patch/sealing.

Detail of Rust-oleum(?) application and flaking paint system along upper ferrous panels.

SECTION 6a

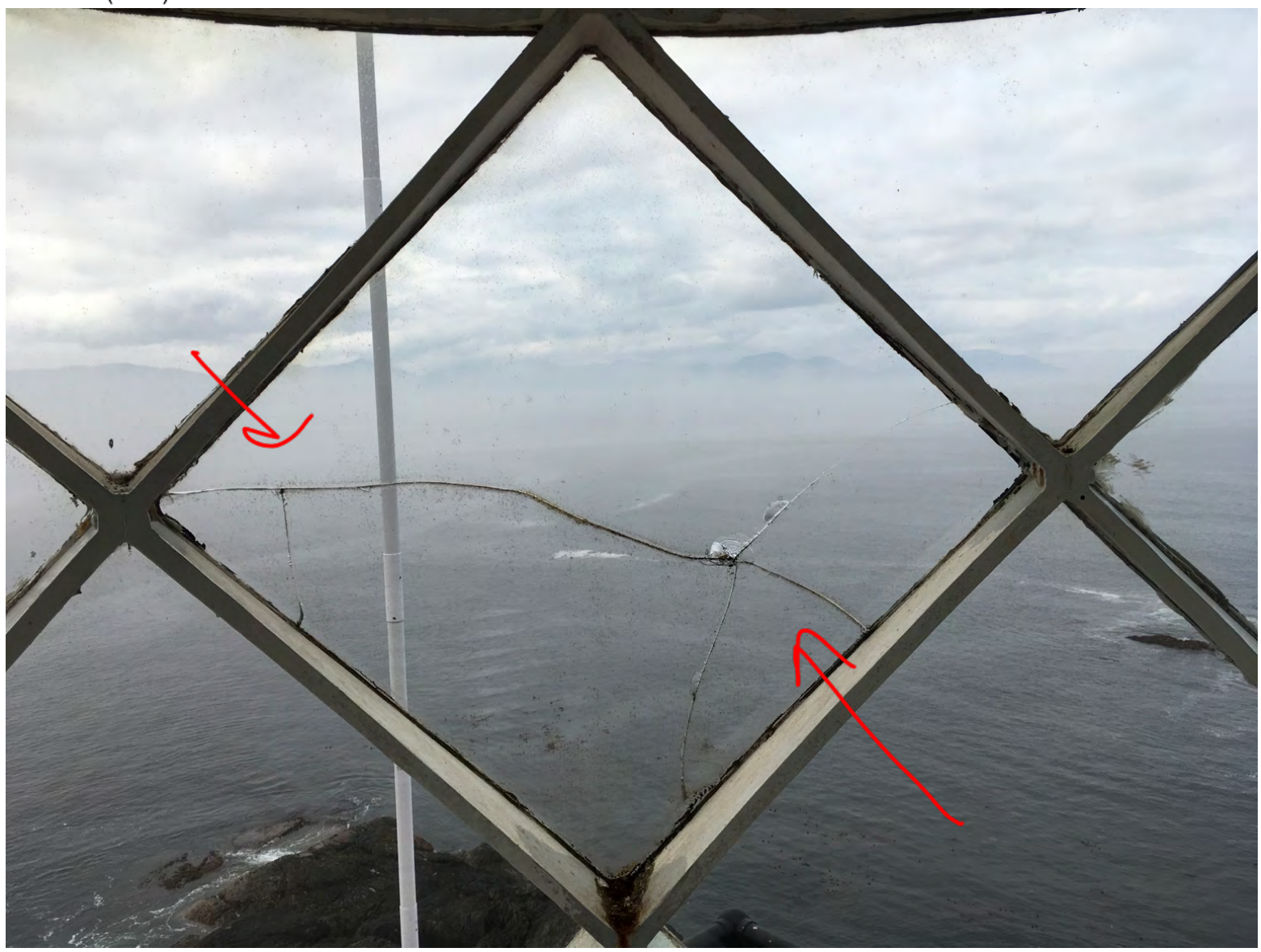
SECTION 6b

SECTION 6c

SECTION 6d

Section 6

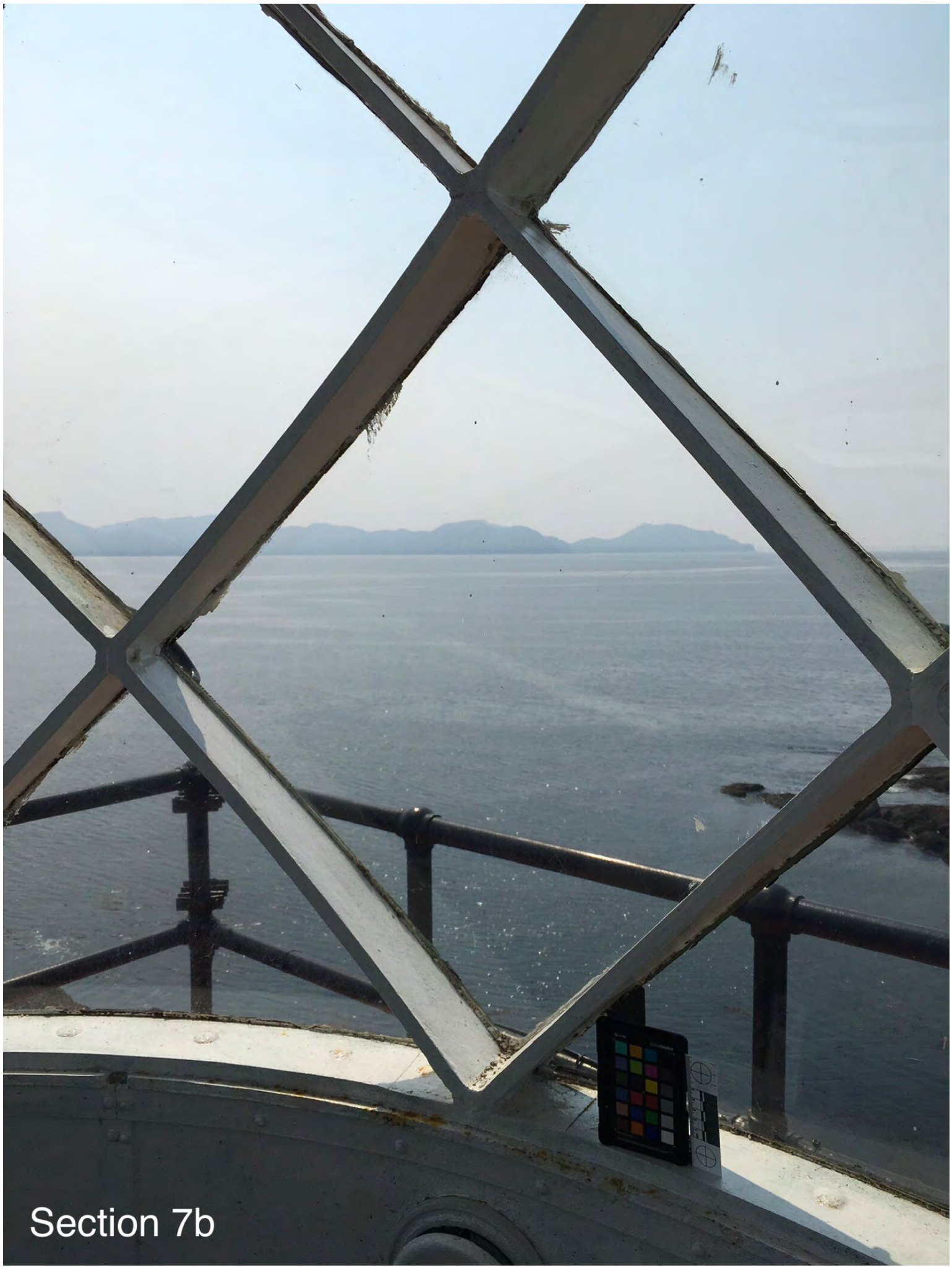
Evidence of water infiltration through vents, resulting in iron corrosion staining and water puddling along bottom panel.



Top: Detail of cracked window pane and the multiple fissures extending from impact point. Bottom right; detail of vent in severe condition. Bottom left: detail of advanced galvanic corrosion of ferrous hardware.

SECTION 7a

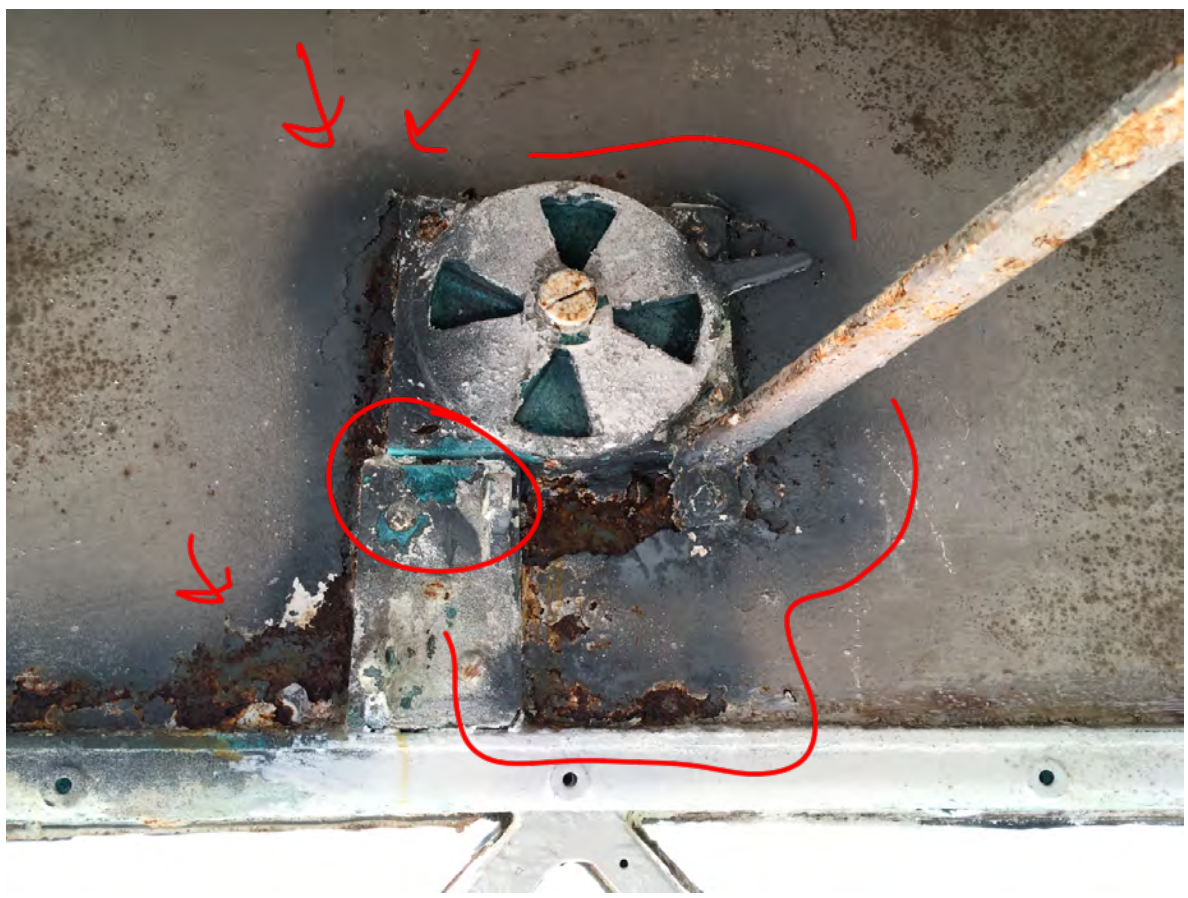
SECTION 7b



SECTION 7c

SECTION 7d

Section 7



Top left: Detail of advanced corrosion resulting in loss of structure. Area requires patch/sealing. Top right: Advanced galvanic corrosion of ferrous hardware. Bottom: Severe condition of vents (same issues noted on the other vents in lantern room.)

Top: Broken liner component due to advanced corrosion and degradation of structure. Rust-oleum(?) application and flaking original paint.
Bottom: Attempted photographic documentation of the bolts in the top of the ceiling. These may be auxiliary hardware supports for the exterior cupola railing.

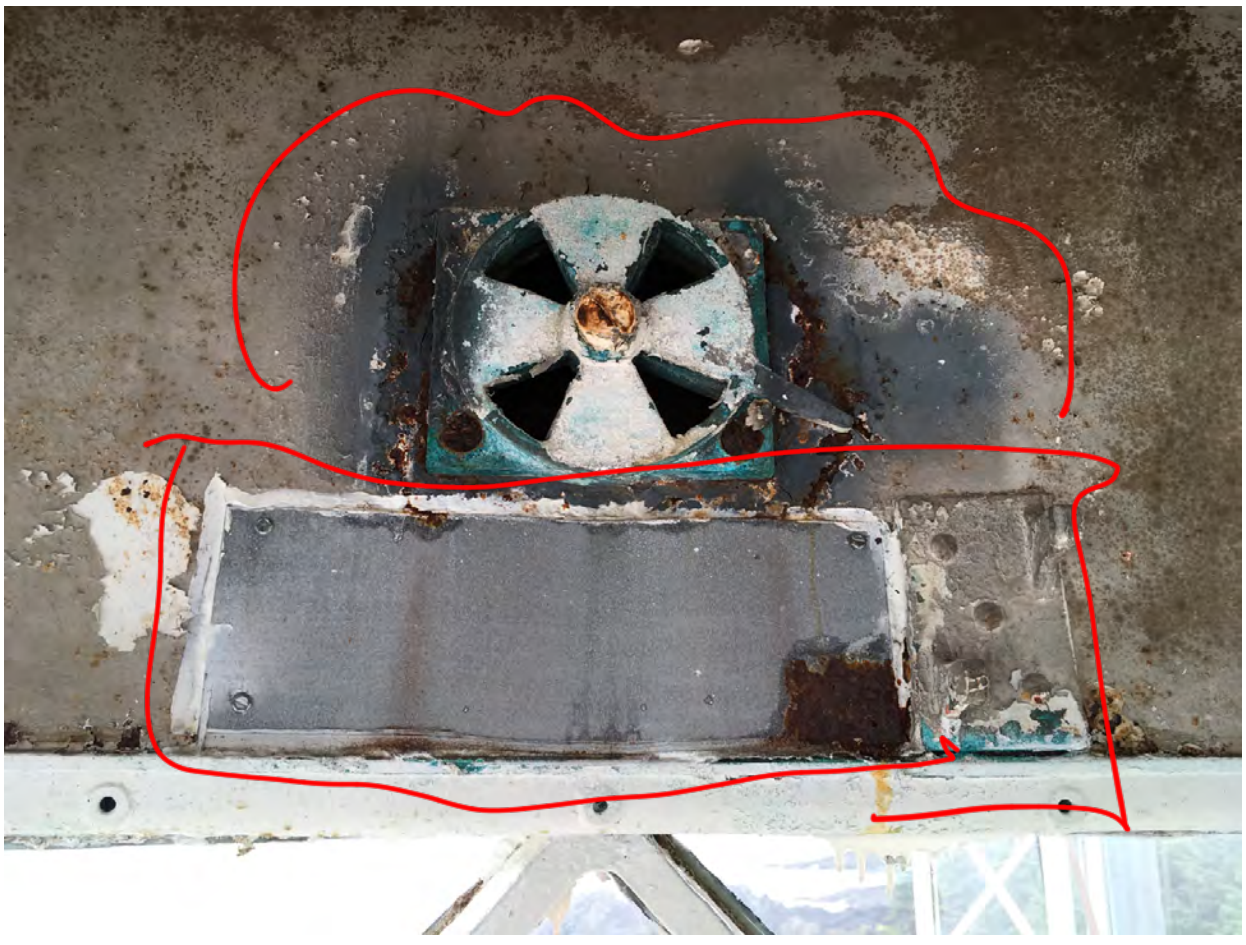
SECTION 8a

SECTION 8b

SECTION 8c

SECTION 8d

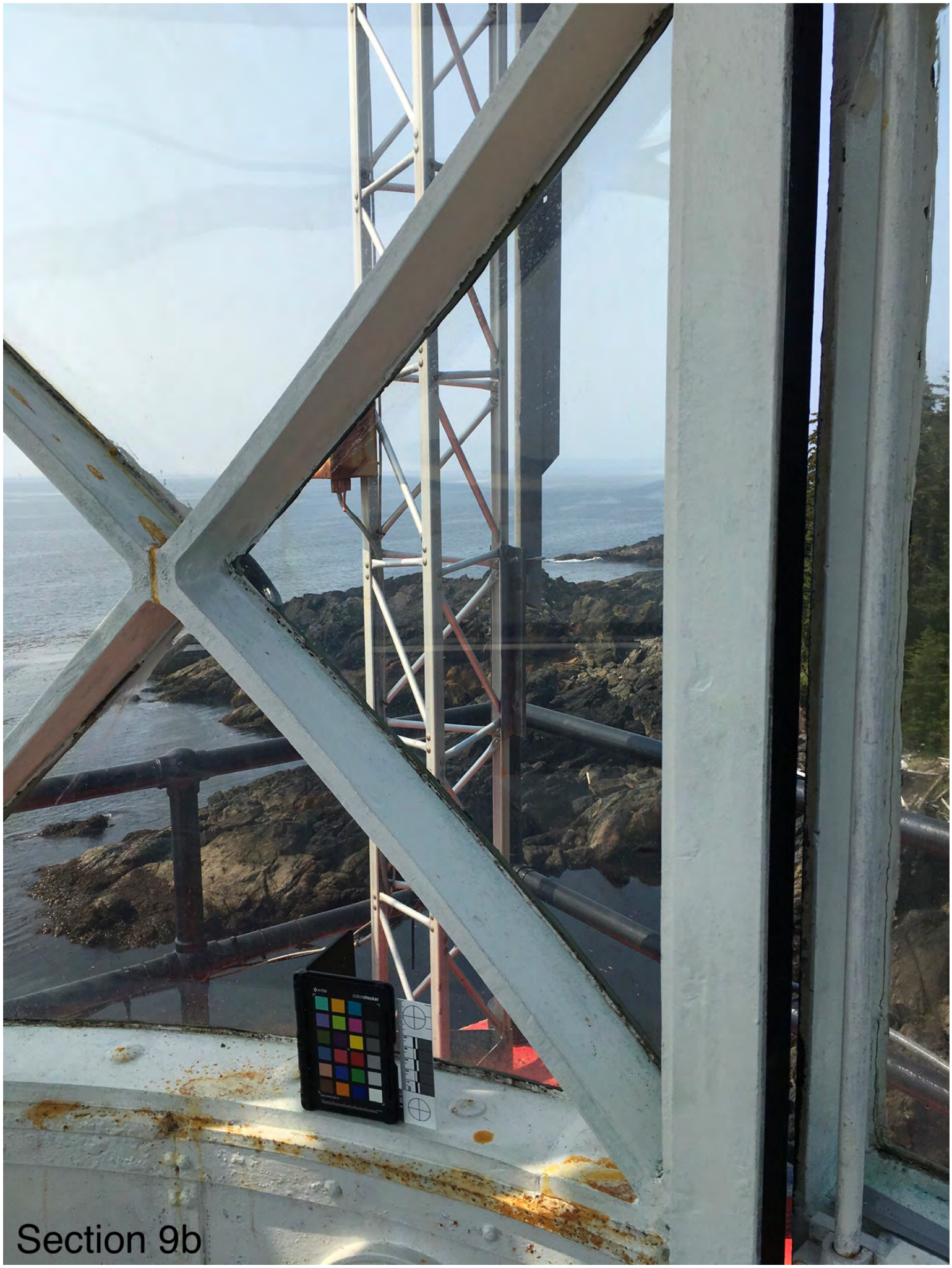
Section 8



Top left: Iron corrosion penetrating through paint coating. Top right; Galvanic corrosion of ferrous hardware and paint splatters on window. Bottom: Severe condition of vent and previous undocumented restoration/ patch along upper panel.

SECTION 9a

SECTION 9b



SECTION 9c

SECTION 9d

Section 9

Detail of iron corrosion penetration through paint coating. The missing vent plate has been recovered and was installed onto the vent after this picture was taken.

Top: detail of Rust-oleum(?) application on top panel. Bottom: Galvanic corrosion of ferrous hardware.

SECTION 10a (door)

SECTION 10b

SECTION 10c

SECTION 10d

Section 10 door

Abrasion into metal surface on top jamb and coating disruption from opening and closing of door.

Section 10 door (cont):

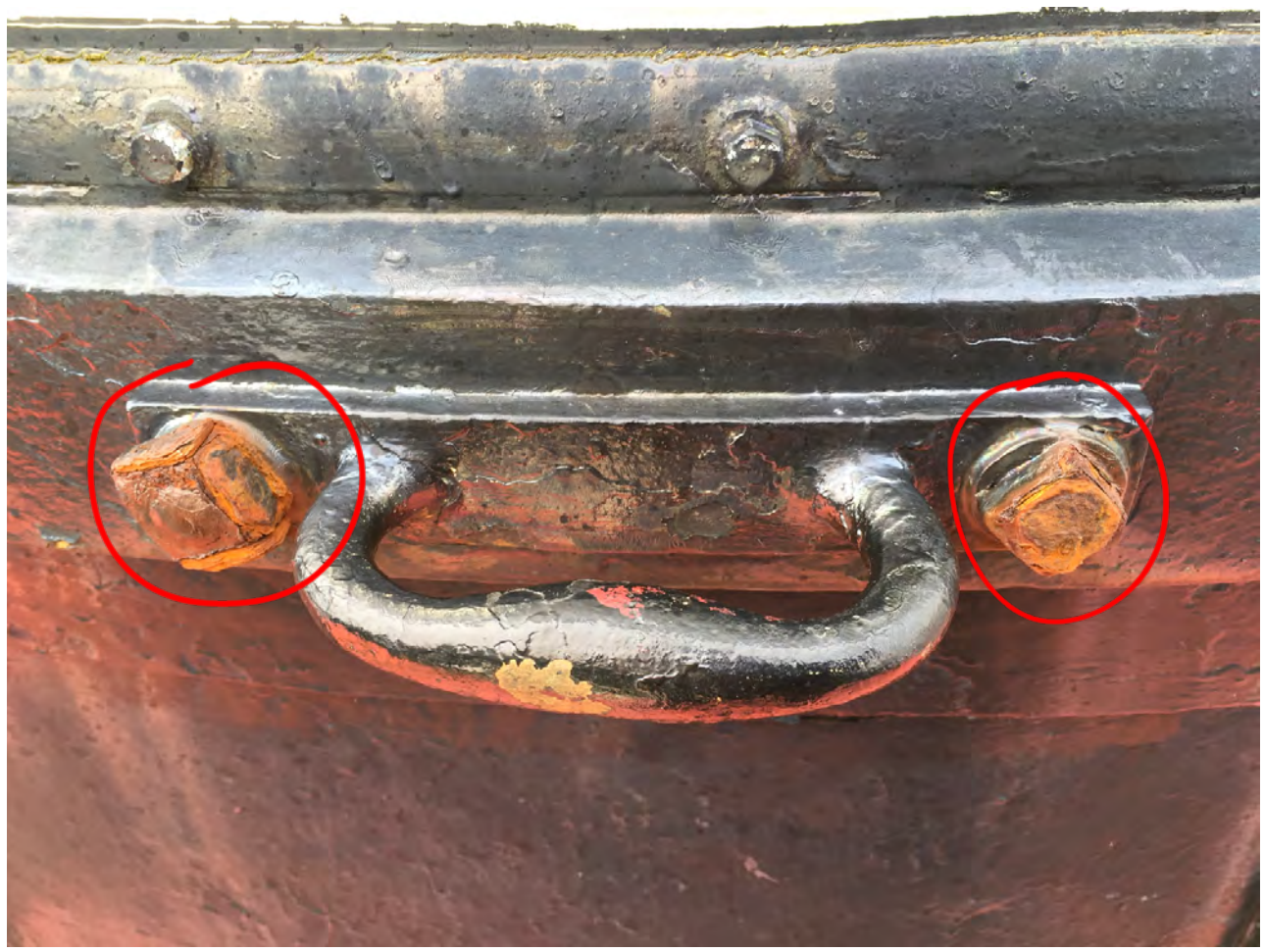
Top left: cuprous corrosion deposits along metal bars. Bottom right: bright orange paint exposed. Bottom left: active cuprous and ferrous corrosion along bottom of bronze door hinges and bottom jamb.

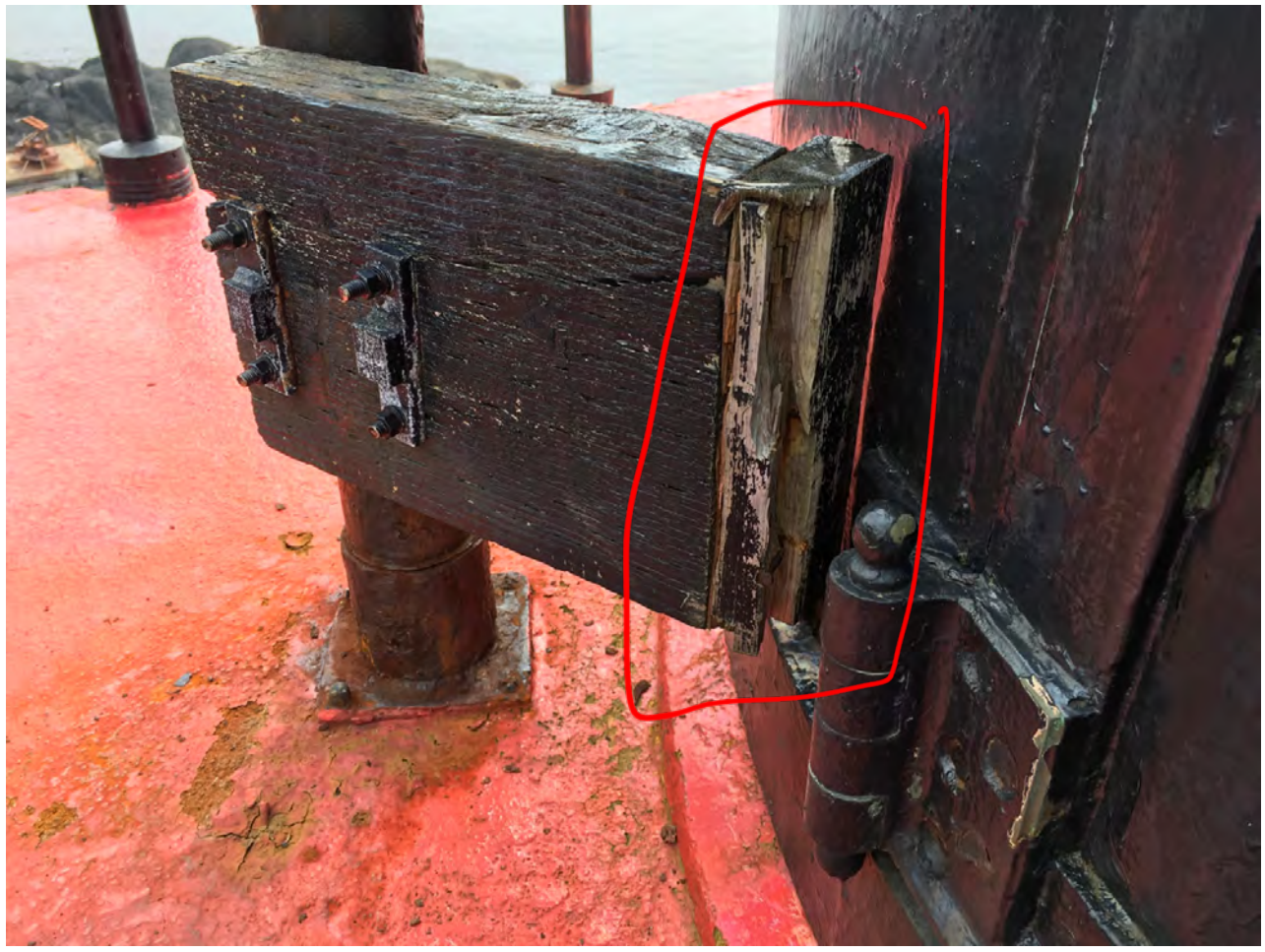
Section 10 door (cont)

Top left: Bright orange paint exposed. Top right: active corrosion (potential bronze disease) along bronze hinges. Bottom: Active and weeping iron corrosion along bottom jamb.

EXTERIOR OF LANTERN ROOM

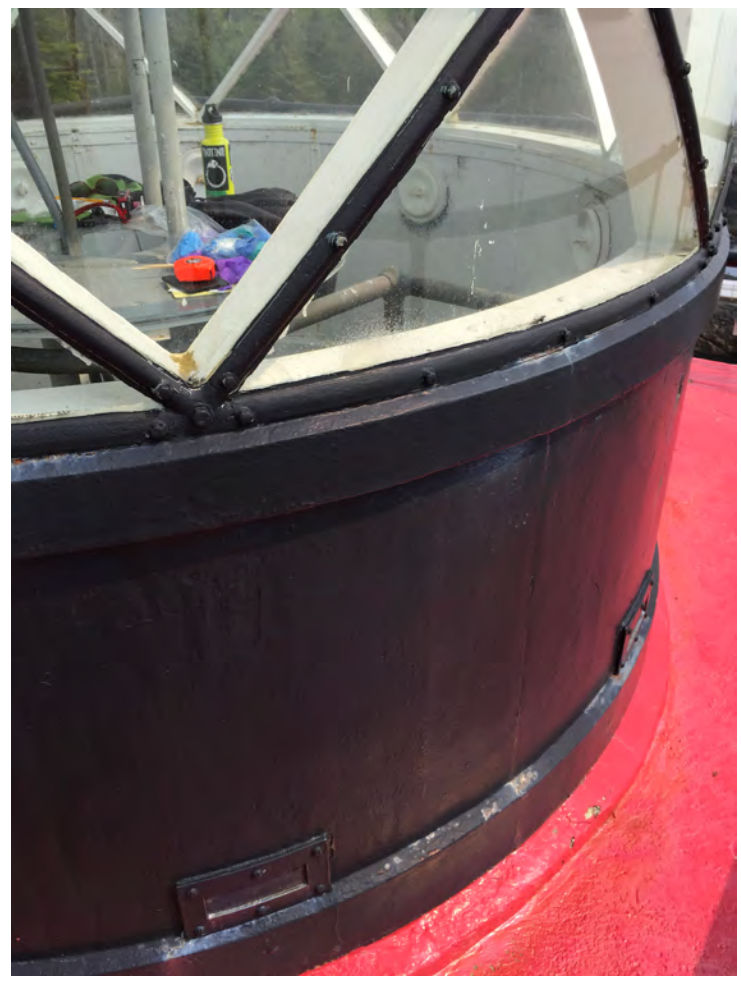
Areas of paint loss where cuprous correction products are forming. Corrosion removal and reapplication of coating is recommended for 2020 season.





Top: Detail of galvanic corrosion of ferrous hardware. Bottom: detail of damage to wood door stop.

EXTERIOR OF LANTERN ROOM



Images of good/fair condition of exterior paint and coating systems. Minor touch-ups are recommended as necessary.

PHOTOGRAPHIC DOCUMENTATION OF THE RAILING

PHOTOGRAPHIC DOCUMENTATION OF THE RAILING

PHOTOGRAPHIC DOCUMENTATION OF THE RAILING

PHOTOGRAPHIC DOCUMENTATION OF THE RAILING

PHOTOGRAPHIC DOCUMENTATION FROM POLE LADDER

PHOTOGRAPHIC DOCUMENTATION FROM POLE LADDER

PHOTOGRAPHIC DOCUMENTATION FROM POLE LADDER

PHOTOGRAPHIC DOCUMENTATION FROM POLE LADDER

PHOTOGRAPHIC DOCUMENTATION FROM POLE LADDER

PHOTOGRAPHIC DOCUMENTATION FROM POLE LADDER

PHOTOGRAPHIC DOCUMENTATION FROM POLE LADDER

PHOTOGRAPHIC DOCUMENTATION FROM POLE LADDER

OTHER ISSUES NOTED INSIDE LANTERN ROOM

OTHER ISSUES NOTED INSIDE LANTERN ROOM

OTHER ISSUES NOTED INSIDE LANTERN ROOM

CONSERVATION TREATMENT (SIDE PROJECT)

During the site visit, two historic trail signs were recovered from the site property. After discussion with CDLS board members, it was decided to bring the signs indoors where they could be properly preserved and stored.

Both signs were in poor condition. The wood is rotted and punky in texture with heavy biological growth. Lichen colonies, moss, and mold were embedded into the wood surface, obstructing the original paint surface and text. The surfaces were cleaned using small brushes and bottled water. Areas of mold growth were treated with Q-tips and rubbing alcohol sachets acquired from a backpack emergency kit. After treatment, the signs were placed in the foyer to dry. Further biological growth removal can commence once the wood has dried.

The larger sign reads:

McARTHUR TRAIL --->>
-o-
CAPE DECISION
<<--- L/S

The smaller sign reads:

CABIN
<<----

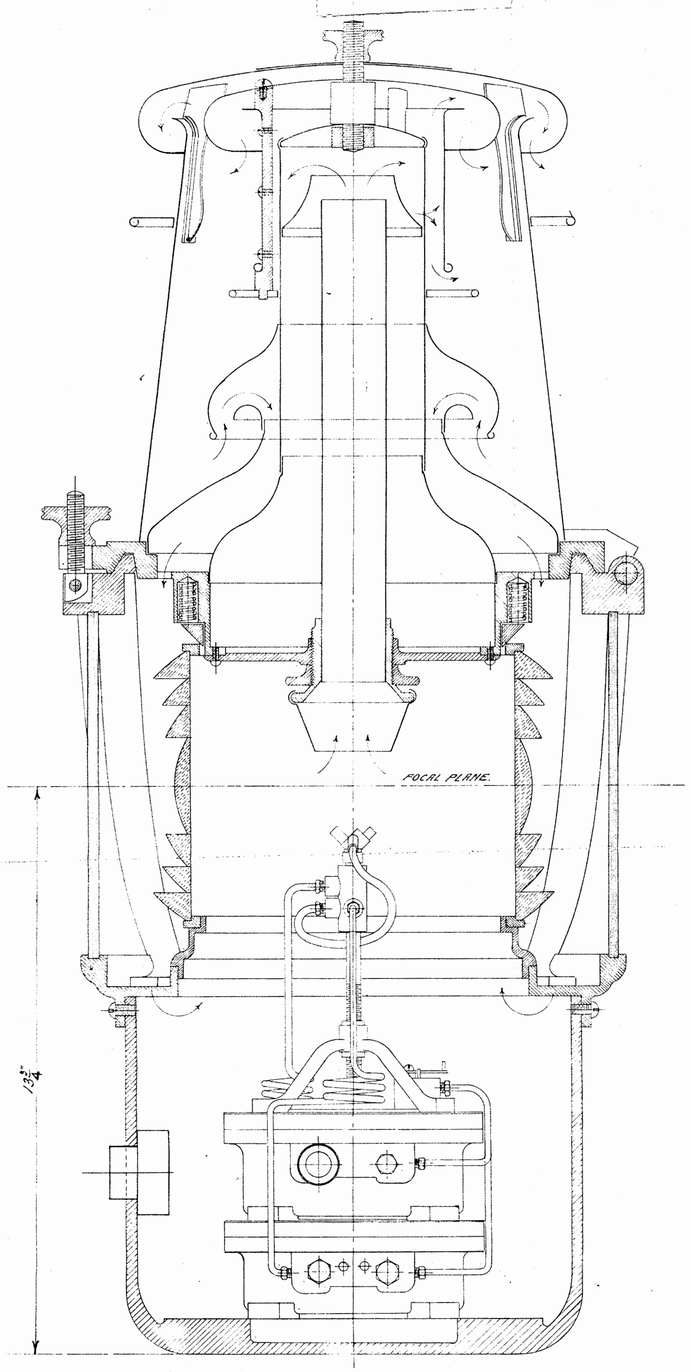
BEFORE TREATMENT (LARGER SIGN)

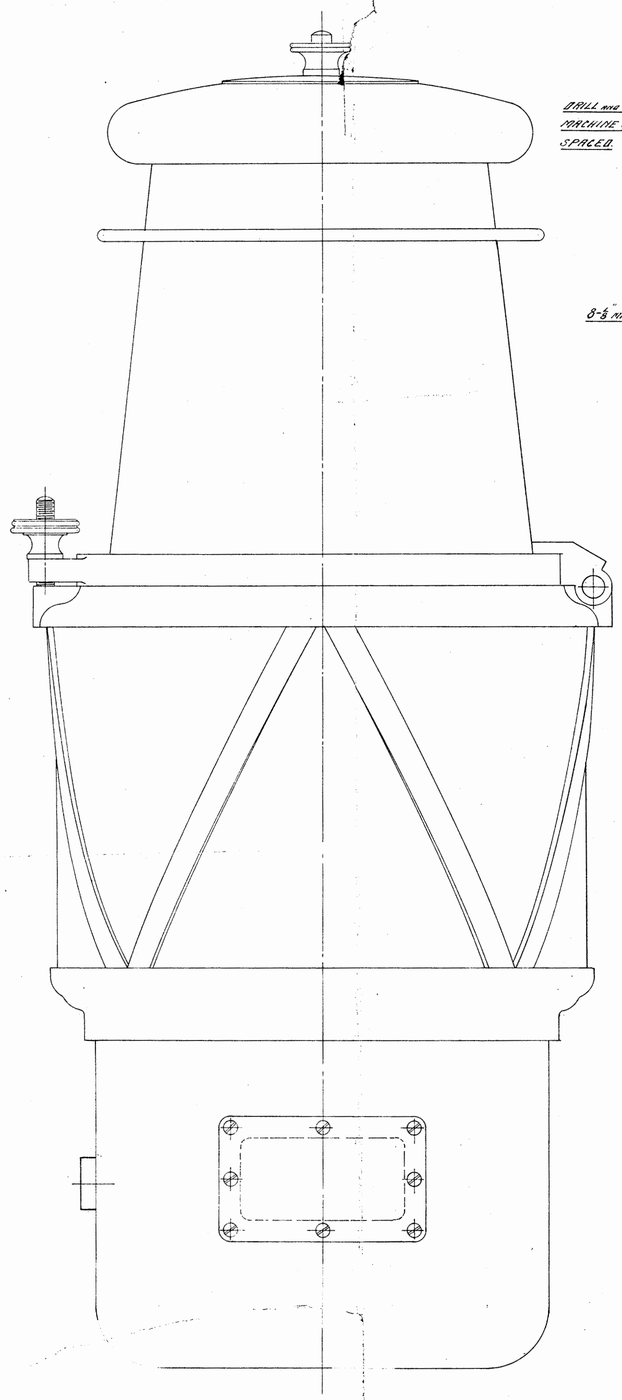
AFTER TREATMENT (LARGER SIGN)

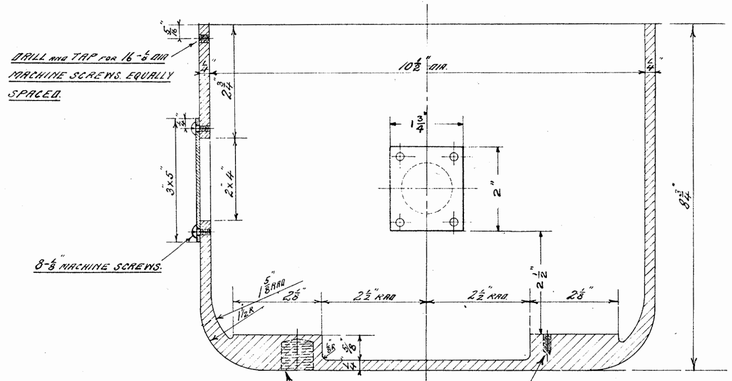
BEFORE TREATMENT (SMALLER SIGN)

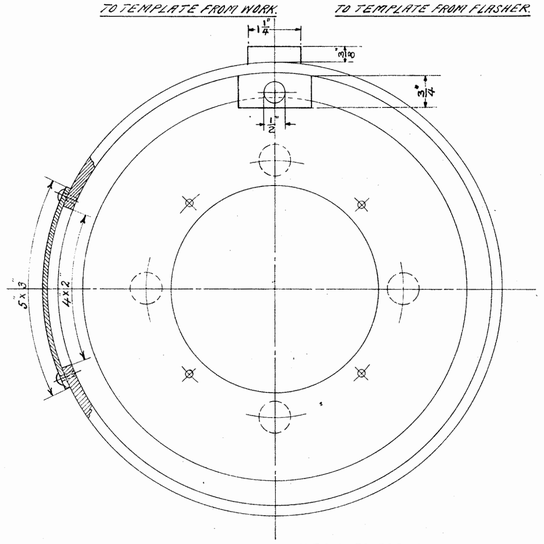
AFTER TREATMENT (SMALLER SIGN)

AFTER TREATMENT (BOTH SIGNS DRYING IN THE FOYER)









ONE OFF PER LANTERN. AS DRAWN.
COMPOSITION

MODIFIED BY DR. No 5363. JUNE 23, 1913.
WHEN USED AS A BUOY LANTERN.

200 M.M. GAS LANTERN. TYPE. D.

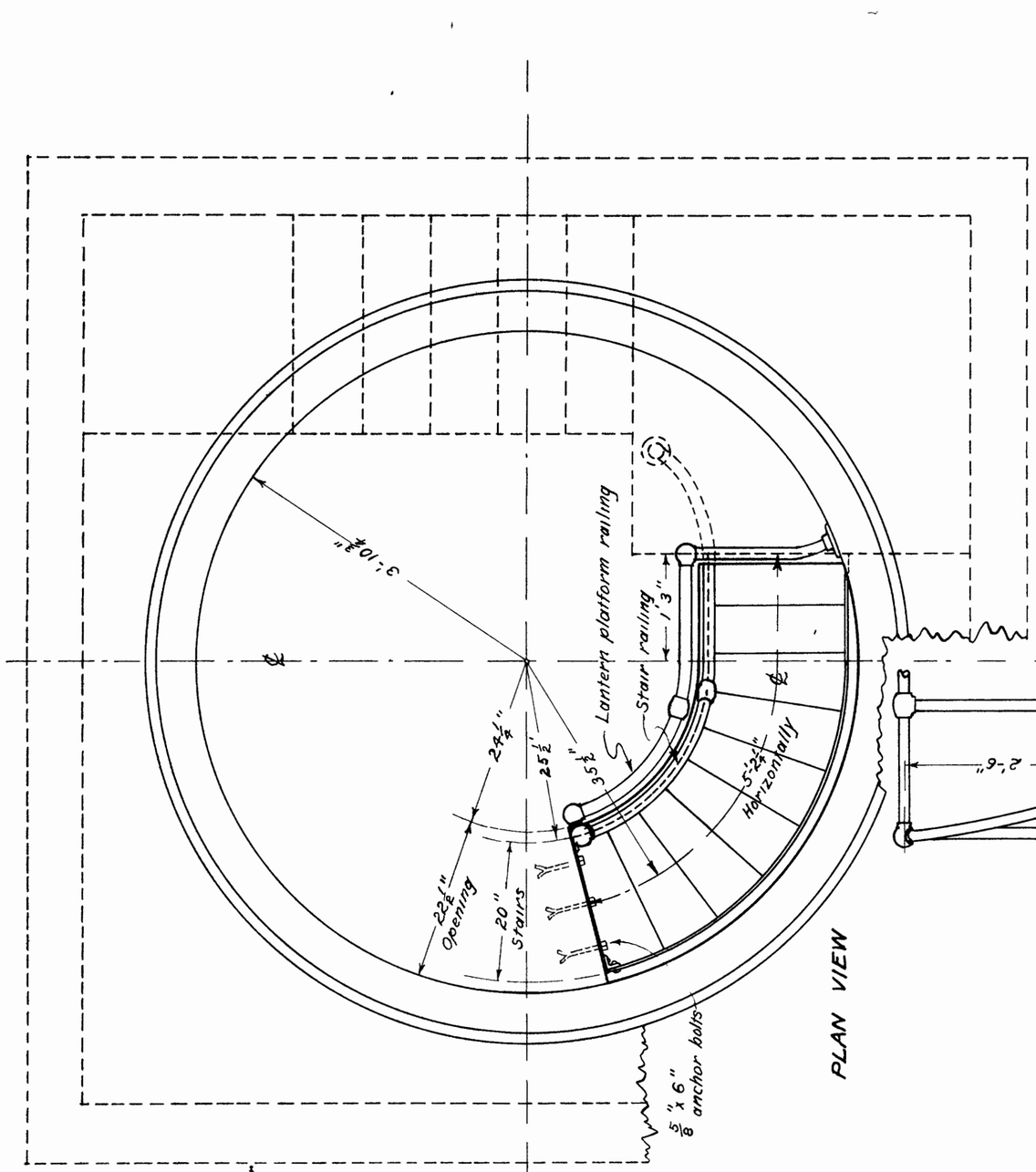
SCALE HALF SIZE.

OFFICE OF THE LIGHT-HOUSE INSPECTOR.
3RD DISTRICT.

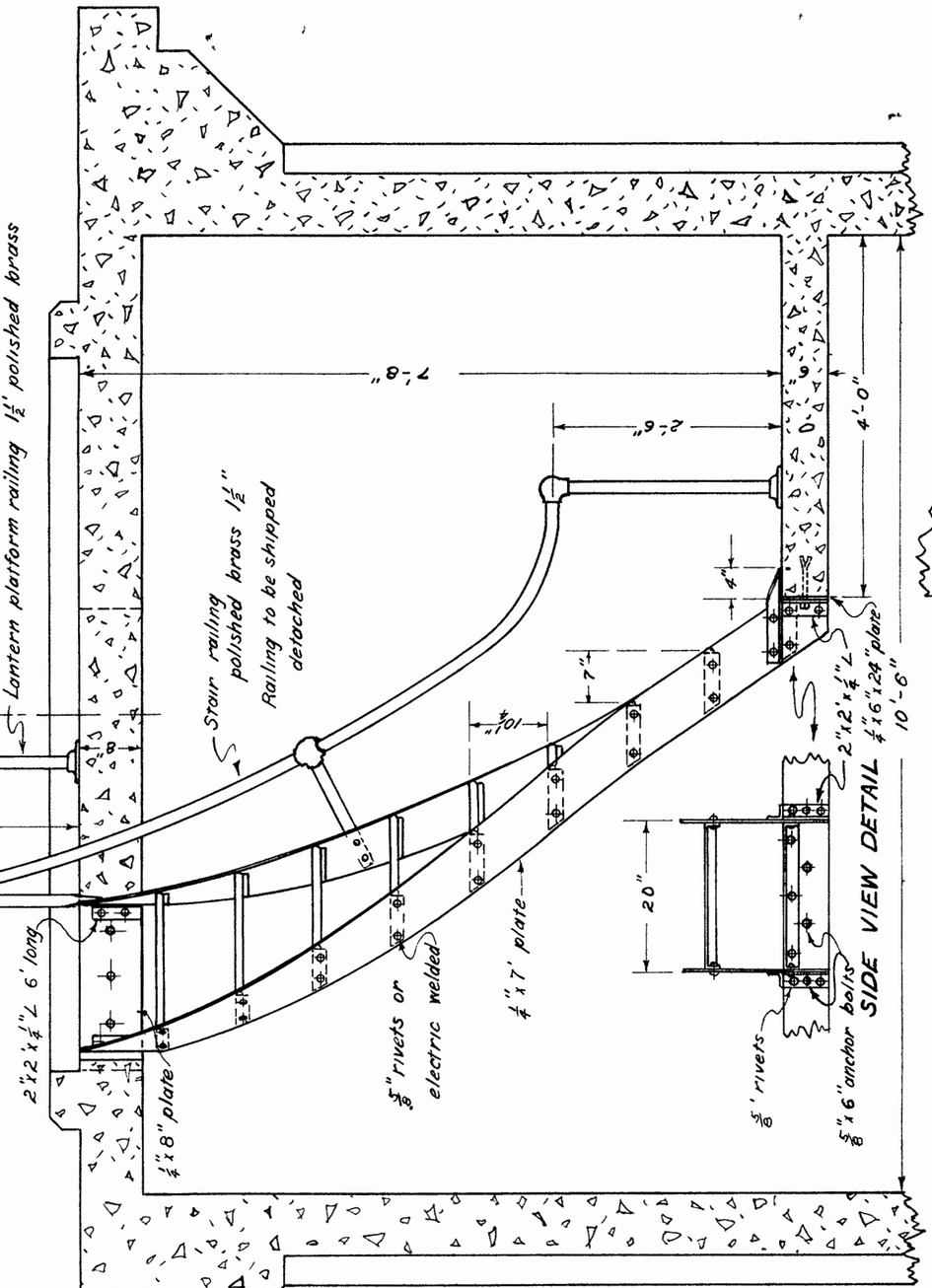
TOMPKINSVILLE. NEW YORK. SEPT. 1911.

COMMANDER. U.S.N.
INSPECTOR.

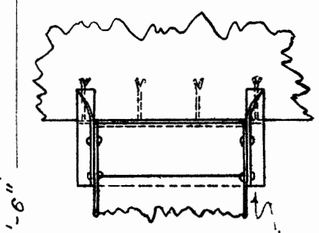
DA No 5065.



PLAN VIEW

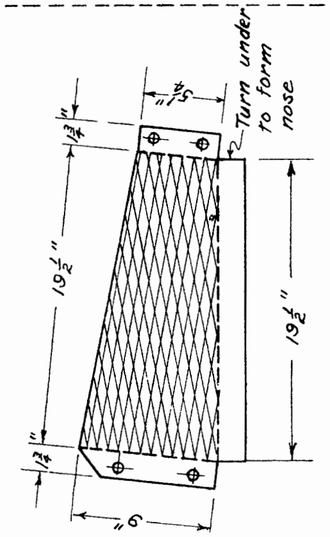


SECTIONAL ELEVATION

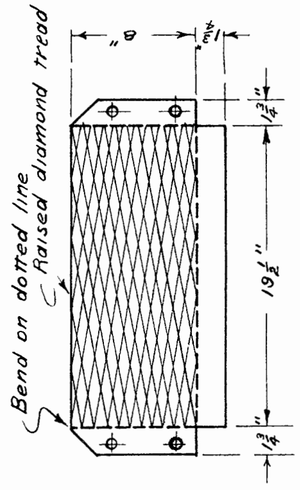


PLAN DETAIL

SIDE VIEW DETAIL



UPPER 7 STAIRS
3/16" steel plate



LOWER 2 STAIRS

STAIR DETAIL

SCALE 1½" = 1'-0"

Stairway to be given one coat of black metallic paint

REFER TO DRAWING H 53 FOR THE INSIDE RAILING

OFFICE OF SUPERINTENDENT OF LIGHTHOUSES
SIXTEENTH DISTRICT, KETCHIKAN, ALASKA.

CAPE DECISION LIGHT STATION
SPIRAL STAIRWAY

SCALES ¾"=1'-0" & 1½"=1'-0" APPROVED DEC. 23, 1938

FIRST AID SUPERINTENDENT

SUPERINTENDENT

DRAWN E.W.L.
TRACED E.W.L.
CHECKED D.A.C.

NO. M-108

30-3013

PLAN VIEW

Lantern platform railing

Stair railing 1'-3"

3'-10½"

24½"

25½"

35½"

5'-2½" Horizontally

22½" Opening

20" Stairs

⅝"x6" anchor bolts

Lantern platform railing - 1½" polished brass

Stair railing polished brass 1½" Railing to be shipped detached.

7'-8"

2'-6"

4'-0"

10'-6"

4"

7"

10½"

2"x2"x¼"L 7"

¼"x6"x24" plate

2"x2"x¼"L

PLAN DETAIL

2"x1½"x¼"L-6" long

¼"x8" plate

⅝" rivets or electric welded

¼"x7" plate

20"

⅝" rivets

⅝"x6" anchor bolts

SIDE VIEW DETAIL

SECTIONAL ELEVATION

Turn under to form nose.

19½"

UPPER 7 STAIRS

⅜" steel plate

Bend on dotted line Raised diamond tread

LOWER 2 STAIRS

STAIR DETAIL

SCALE 1½" = 1'-0"

Stairway to be given one coat of black metallic paint.

REFER TO DRAWING H-53 FOR THE INSIDE RAILING.

OFFICE OF SUPERINTENDENT OF LIGHTHOUSES
SIXTEENTH DISTRICT, KETCHIKAN, ALASKA.

CAPE DECISION LIGHT STATION
SPIRAL STAIRWAY

SCALES ⅜"=1'-0" & 1½"=1'-0" APPROVED DEC. 23, 1930

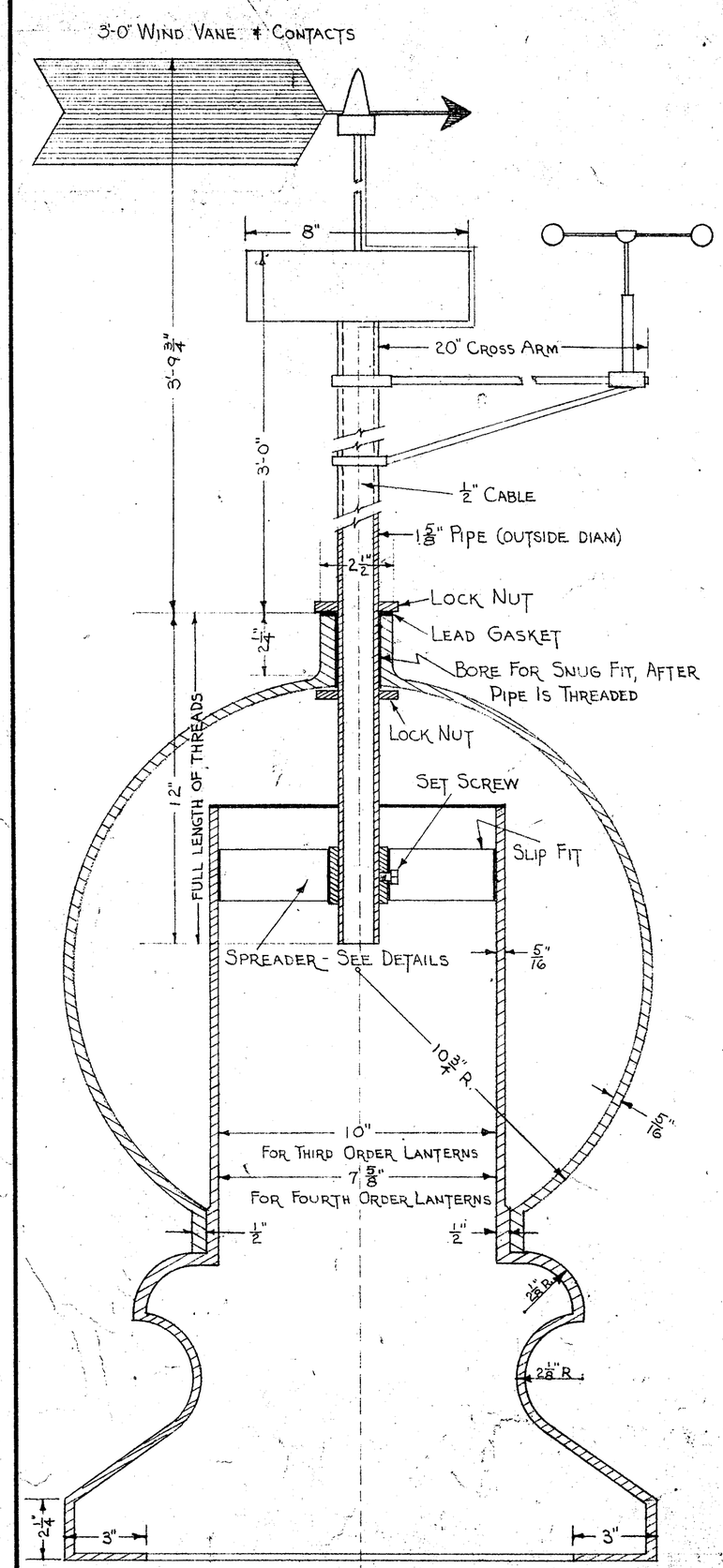
FIRST ASST. SUPERINTENDENT

W. C. Darnell
SUPERINTENDENT.

DRAWN E.W.L.
TRACED E.W.L.
CHECKED D.A.C.

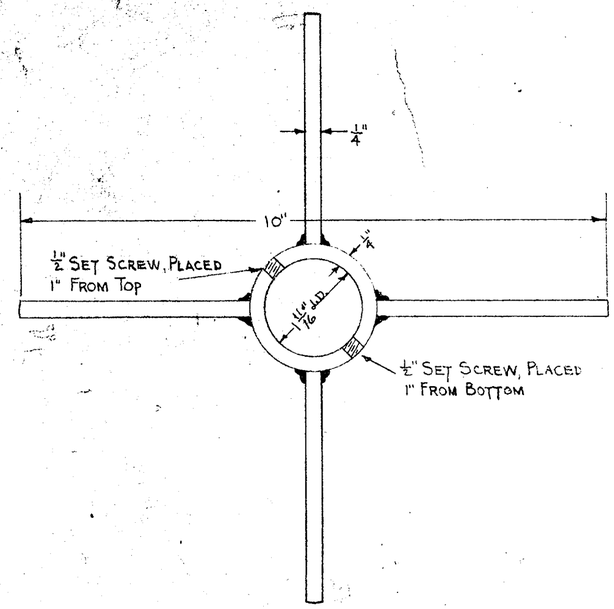
NO. M-108

30.3013

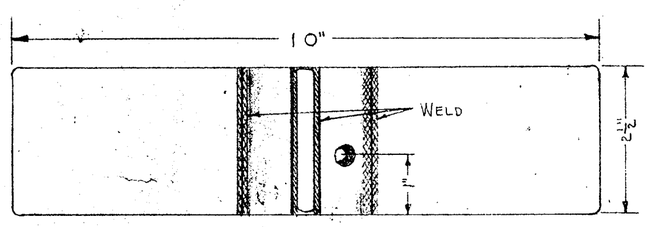


SECTION

SCALE 3"=1'-0"



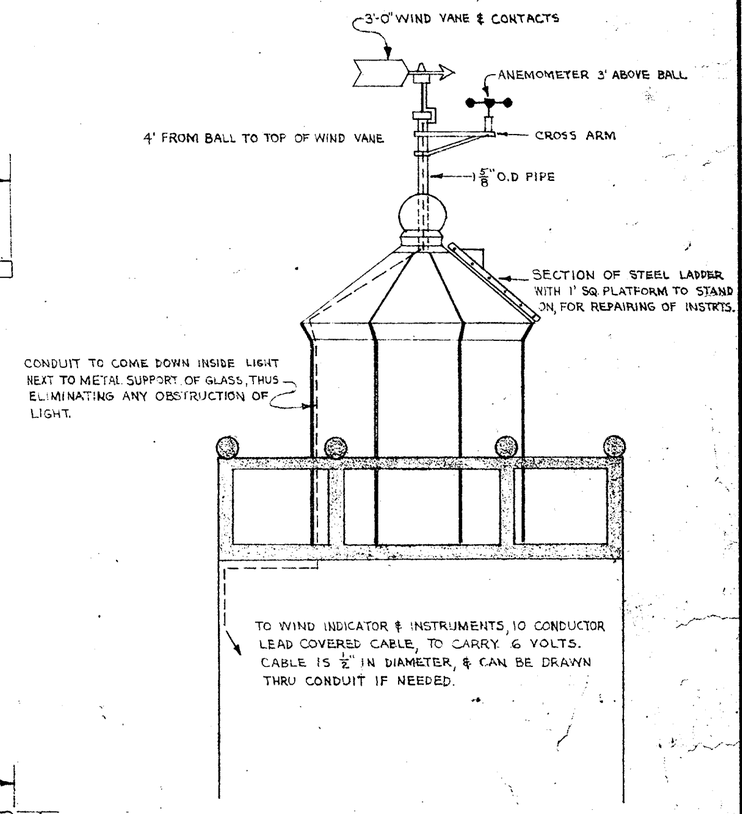
PLAN



ELEVATION

SPREADER DETAIL

SCALE - HALF FULL SIZE

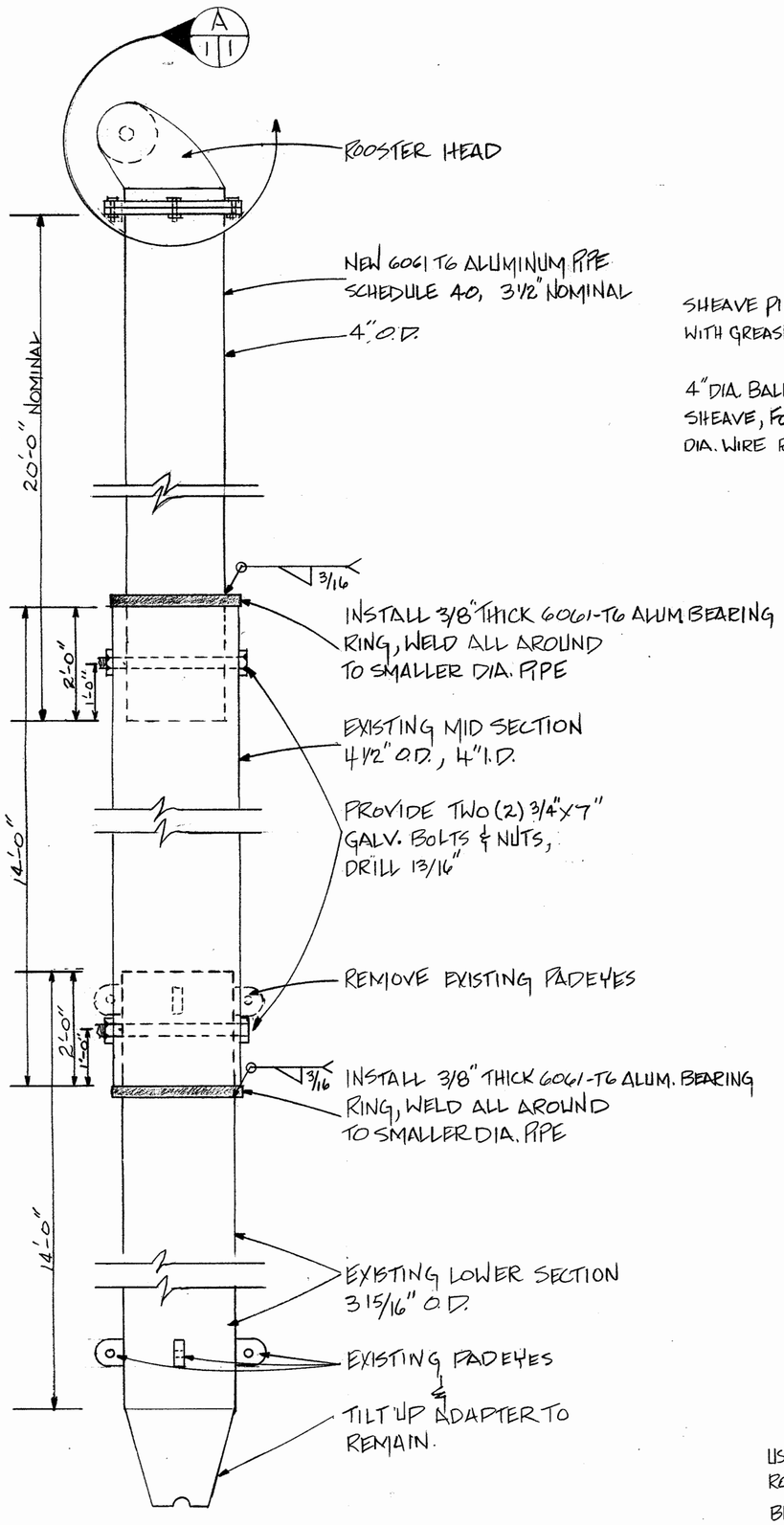


SCALE - DIAGRAMATIC

FILED

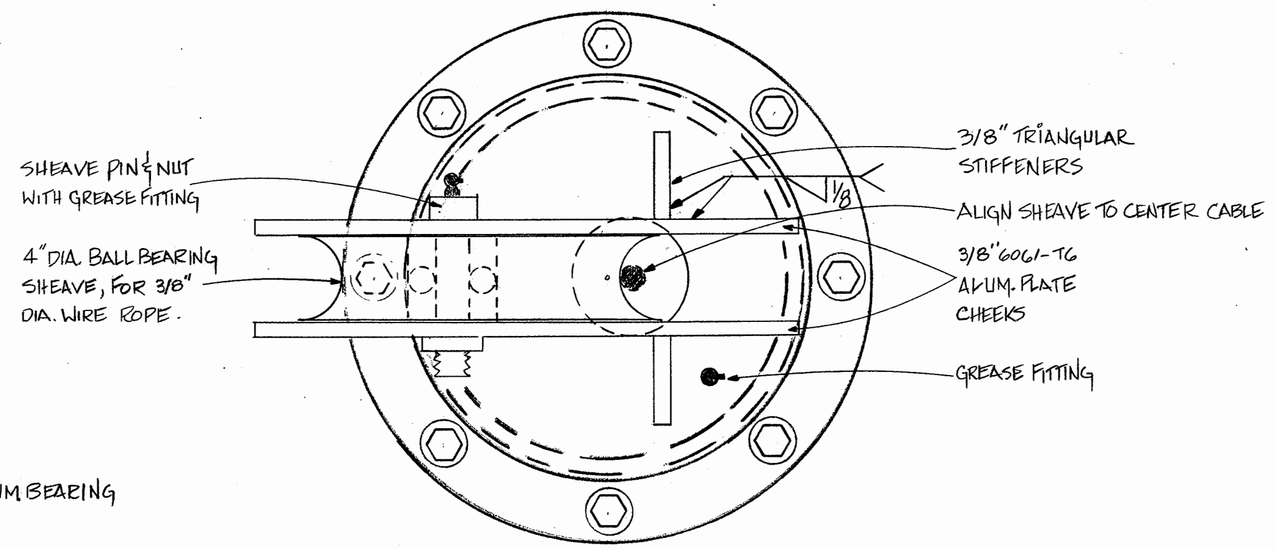
24 AUG 1988

DESCRIPTION	
LIGHT STATIONS	DR. AAF
TITLE MODIFICATION OF VENT. BALL FOR INSTALL. OF WEATHER INSTRUMENTS.	
UNITED STATES COAST GUARD ENGINEERING DISTRICT KETCHIKAN, ALASKA	SCALE AS SHOWN
	1-23-45
E.S. Gordon APPROVED:	SHEET 1 / 1
CIV. ENG. H.W. Runner DIST. ENG.	DRAWING NO. M-355
LT. COMM.	

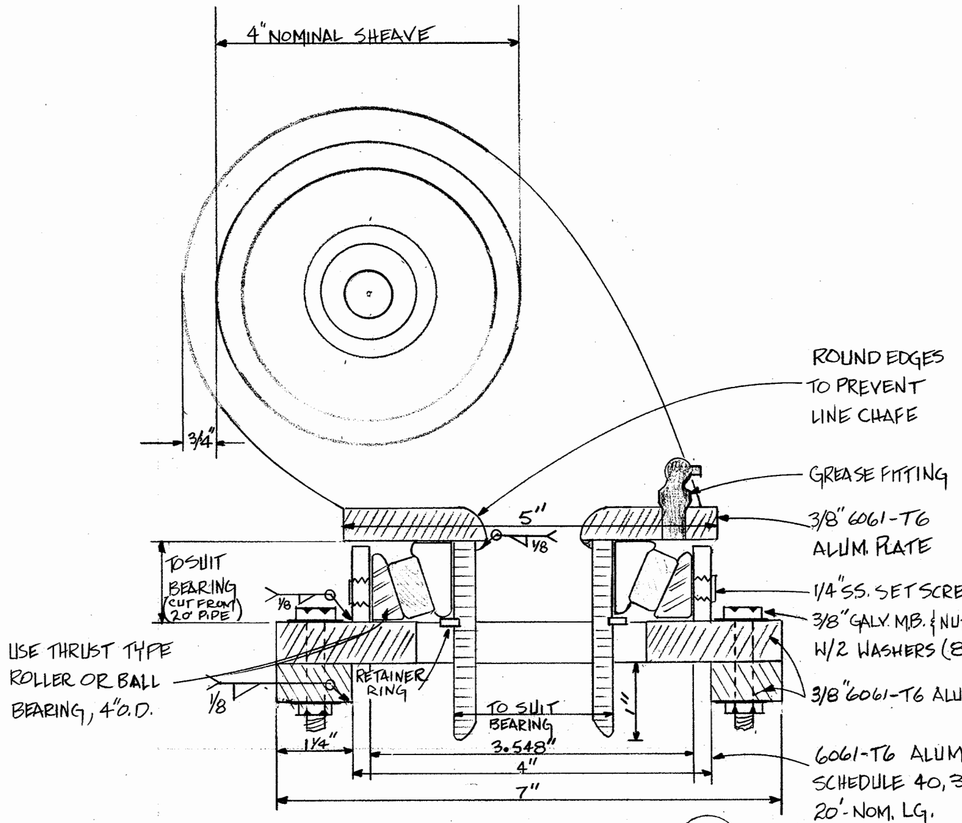


GIN POLE EXTENSION

NO SCALE



TOP VIEW



ROOSTER HEAD DETAIL

SIDE SECTION

NO SCALE

REV.	DATE	APPR.	DESCRIPTION	BY

DESIGNED: FJ
DRAWN: LWW
TRACED:
CHECKED: JMM
REVIEWED BY: [signature]
REVIEWED BY: [signature]
REVIEWED BY:

U.S. COAST GUARD

ENGINEERING

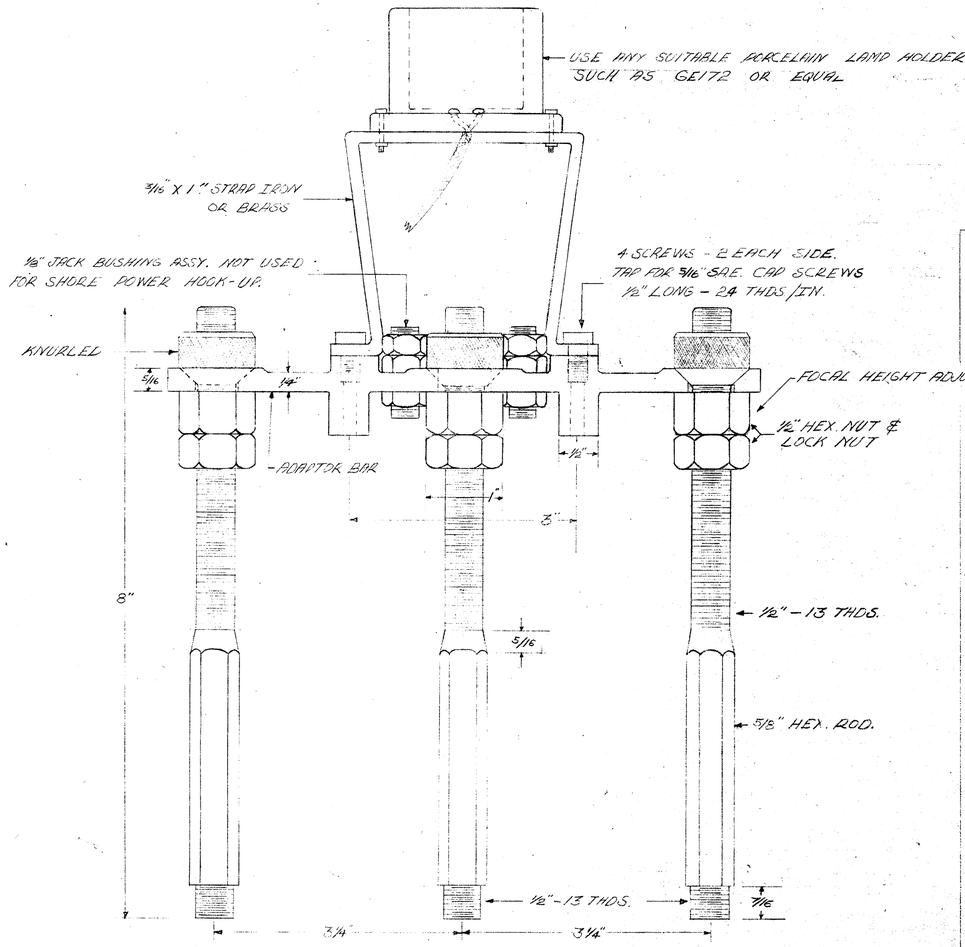
GIN POLE EXTENSION

APPROVED: [signature] CHIEF OF DIVISION — DATE 6/8/73

DRAWING NUMBER M-950

SCALE: AS NOTED — SHEET 1 OF 1

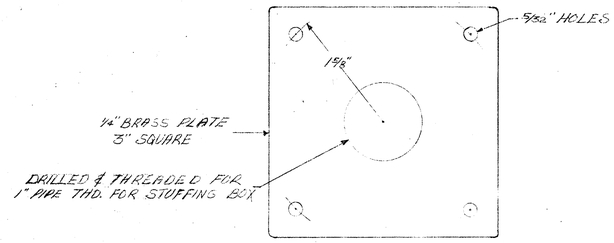
☆ U. S. GOVERNMENT PRINTING OFFICE : 1972 O - 456-866 Dept. of Transp., USCG, CG-4061 (Rev. 3-67)



ADAPTORS USED IN 200 MM SERVICE TYPE ELECTRIC LANTERN WHEN RIGGED FOR SHORE POWER

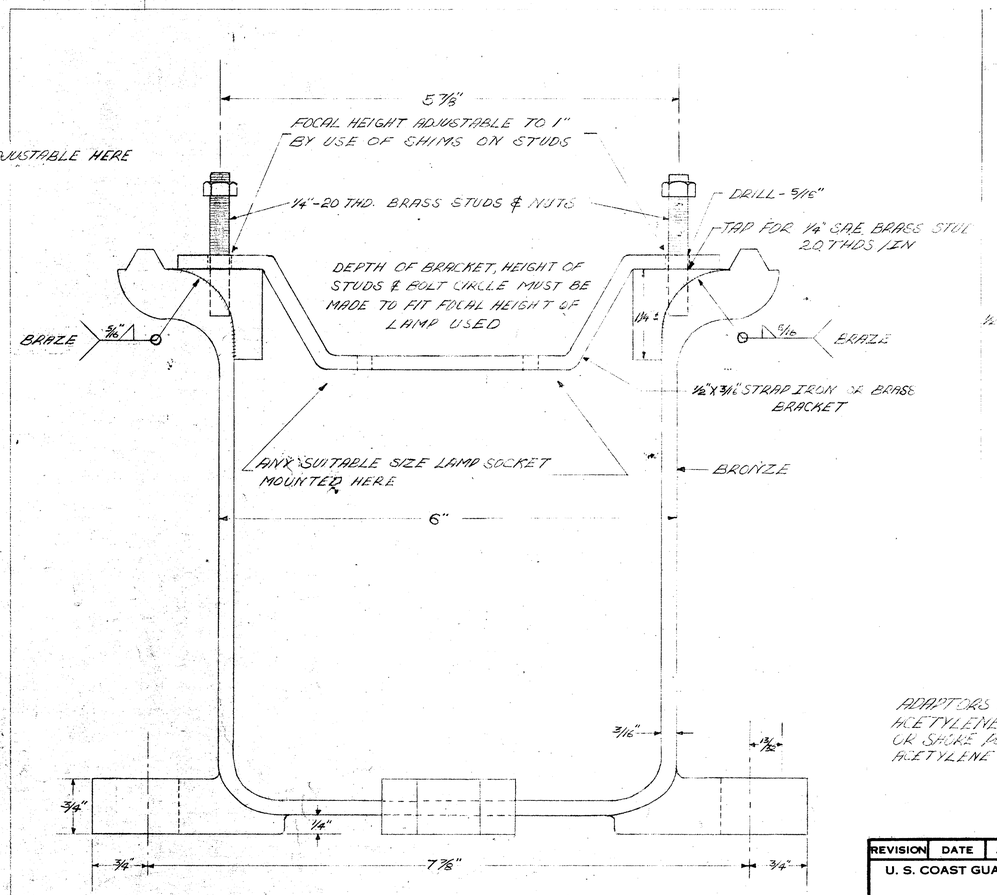
SCALE - FULL SIZE

(FOR ADDITIONAL DETAIL, SEE THIRD DISTRICT DWG. SK. 616)



FOR CONVERTING ACETYLENE LANTERNS THE LANTERN VALVE & PLATE MUST BE REMOVED AND THE ABOVE PLATE INSTALLED. WIRE GOES THROUGH STUFFING BOX HERE.

SCALE — FULL SIZE

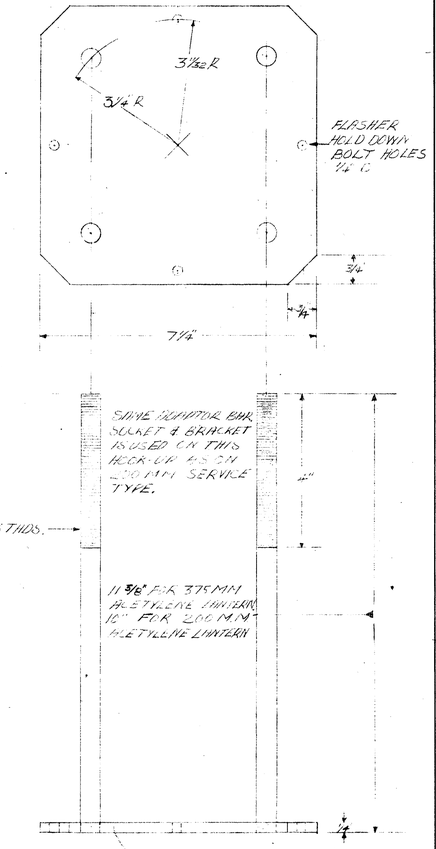


ADAPTOR BRACKET USED IN C.G. STANDARD 200 MM ELECTRIC LANTERN WHEN RIGGED FOR SHORE POWER

SCALE - FULL SIZE

(FOR ADDITIONAL DETAIL SEE A TO N MANUAL, CHAPTER 21, FIGURE 21-23)

1/4" BRASS PLATE - 7/4 SQUARE. THIS PLATE BOLTS TO BOTTOM OF LANTERN INTO REGULAR ACETELENE FLASHER HOLD DOWN BOLT HOLES. SCREWS MUST BE STANDARD HIGH PART # 107-43.



ADAPTORS NECESSARY FOR CONVERTING 200 MM & 375 MM ACETYLENE LANTERNS TO ELECTRIC FOR BATTERY POWER OR SHORE POWER. FOR COLORED CHARACTERISTICS STANDARD ACETYLENE SHIELDS & HOLDERS MAY BE USED.

SCALE - HALF SIZE

FILED

1 AUG 1966

REVISION	DATE	APPD.		BY

U. S. COAST GUARD — 17TH. DISTRICT — JUNEAU, ALASKA

CIVIL ENGINEERING

DESIGNED -
DRAWN - L.L.
TRACED -
CHECKED - H.A.S.

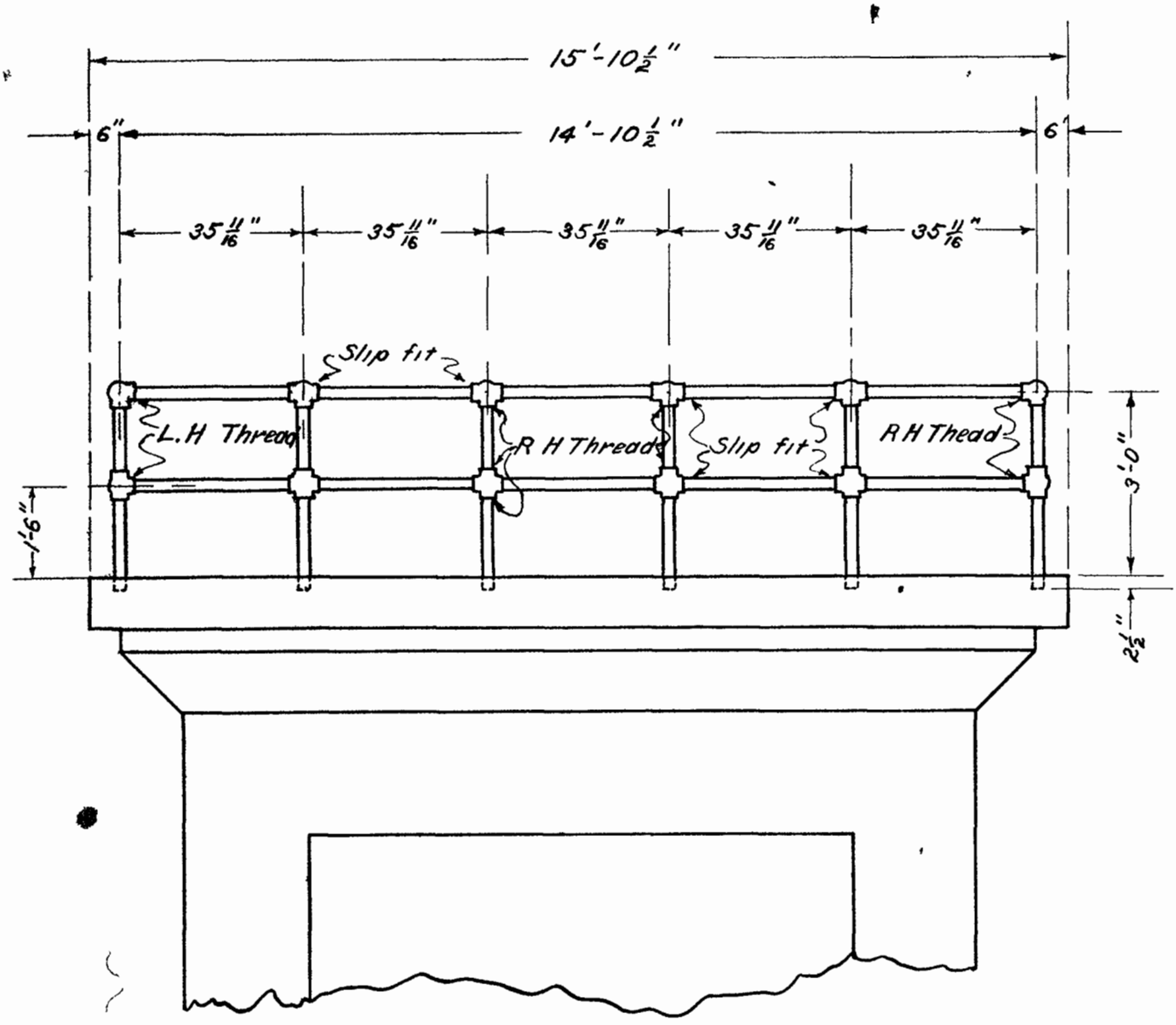
CHIEF OF SECTION
CDR. U.S.C.G.

ADAPTORS USED TO CONVERT 200 M.M. & 375 M.M. LANTERNS WHEN RIGGED FOR SHORE POWER.

APPROVED D. McMorrison 5-17-51 DATE
CDR. U.S.C.G. CHIEF OF DIVISION

C. G. DRAWING NO.
638

SCALE AS SHOWN — SHEET 1 OF 1



ELEVATION

Horizontal rails to be one piece pinned to fittings. Vertical posts to in sections screwed into fittings. Vertical posts to be grouted 2½" into concrete.

~ List of materials ~

16 - 2" Tees

16 - 2" Crosses

4 - 2" Side outlet elbows

4 - 2" Side outlet tees

180 lineal ft. 2" pipe, galv. iron

Fittings to be ball pattern, galv

OFFICE OF SUPERINTENDENT OF LIGHTHOUSES
SIXTEENTH DISTRICT, KETCHIKAN, ALASKA

CAPE DECISION LIGHT STATION
LANTERN PLATFORM RAILING

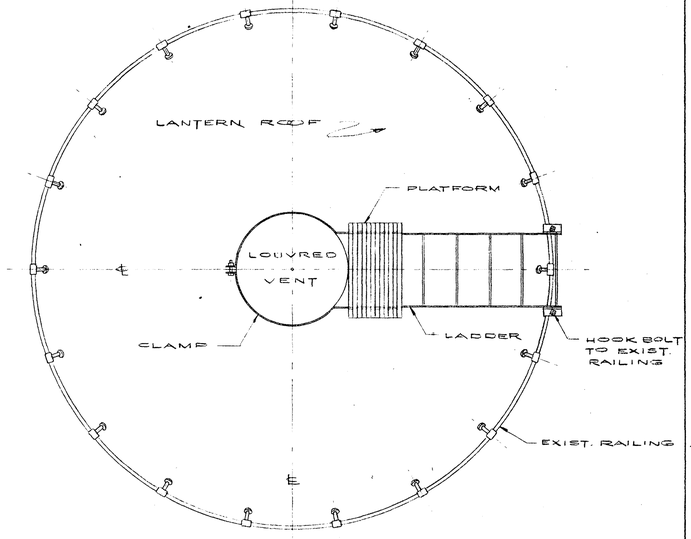
SCALES 3/8" = 1'-0" APPROVED NOV. 14, 1930

W. C. Ivell
SUPERINTENDENT

FIRST ASST. SUPERINTENDENT

DRAWN E.W.I.
TRACED E.W.I.
CHECKED E.W.I.

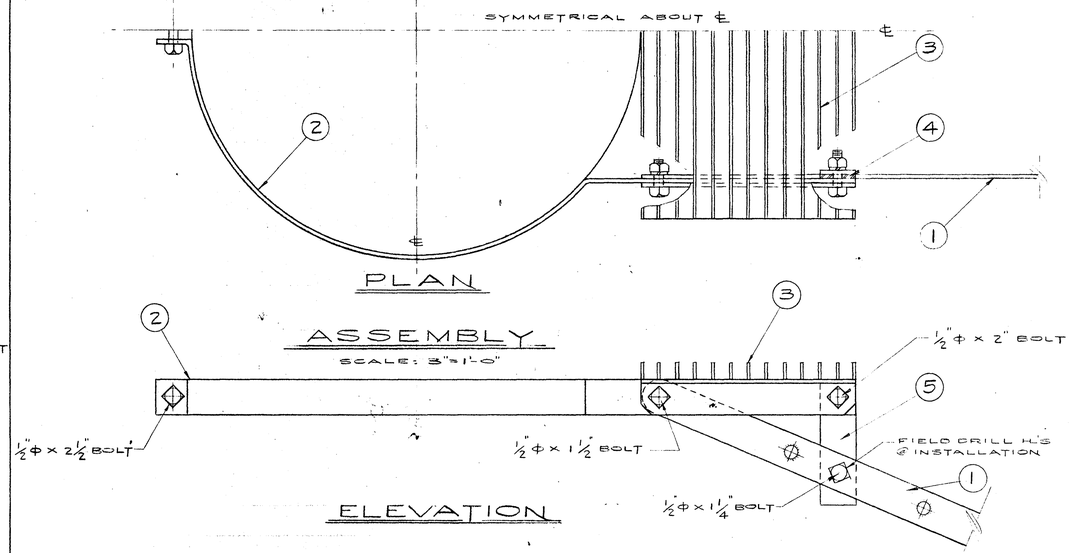
NO. L-259



PLAN

LADDER & PLATFORM LOCATION

SCALE: $\frac{3}{4}$" = 1'-0"



PLAN

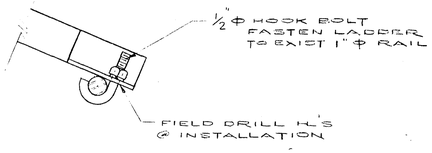
ASSEMBLY

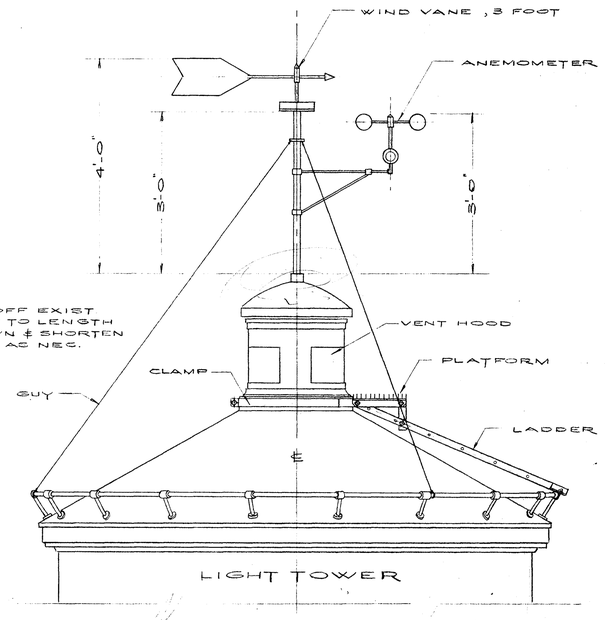
SCALE: 3" = 1'-0"

ELEVATION

NOTES

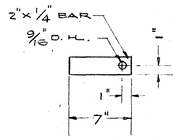
1. ALL BOLTS TO HAVE LOCK WASHERS & TO BE GALVANIZED.
2. ENTIRE UNIT TO BE GIVEN VINYL PAINT COATING
3. SIZE OF PARTS MAY BE VARIED TO UTILIZE AVAILABLE MATERIALS ON HAND





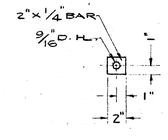
ELEVATION WIND INSTRUMENT SUPPORT INSTALLATION

SCALE: $\frac{3}{4}$" = 1'-0"



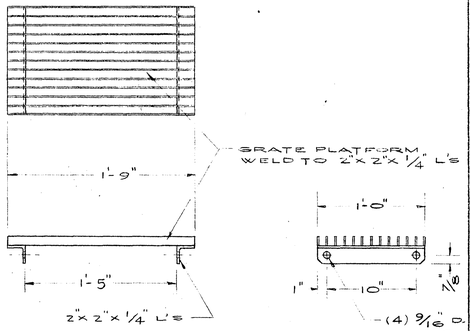
PART # 5 SUPPORT

(2) REQUIRED



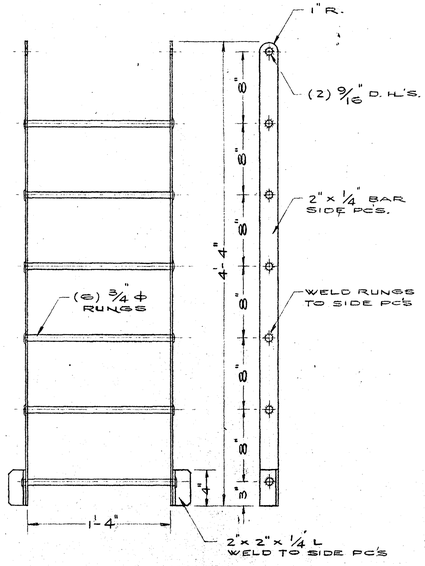
PART # 4 SPACER

(2) REQUIRED



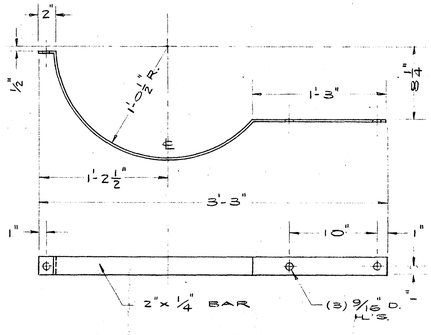
PART # 3 PLATFORM

(1) REQUIRED



PART # 1 LADDER

(1) REQUIRED



PART # 2 CLAMP

(2) REQUIRED

SCALE: 1½" = 1'-0"

FILE COPY FILED

12 AUG 1966

REVISION	DATE	APPD.		BY

U. S. COAST GUARD — 17TH DISTRICT — JUNEAU, ALASKA

CIVIL ENGINEERING

DESIGNED -
DRAWN - B. B.
TRACED -
CHECKED -

CAPE DECISION L.S. ALASKA

MODIFICATION WIND INSTRUMENT LOCATION LADDER & PLATFORM DETAILS

J. J. Maceau
LCDR. USCG
CHIEF OF SECTION

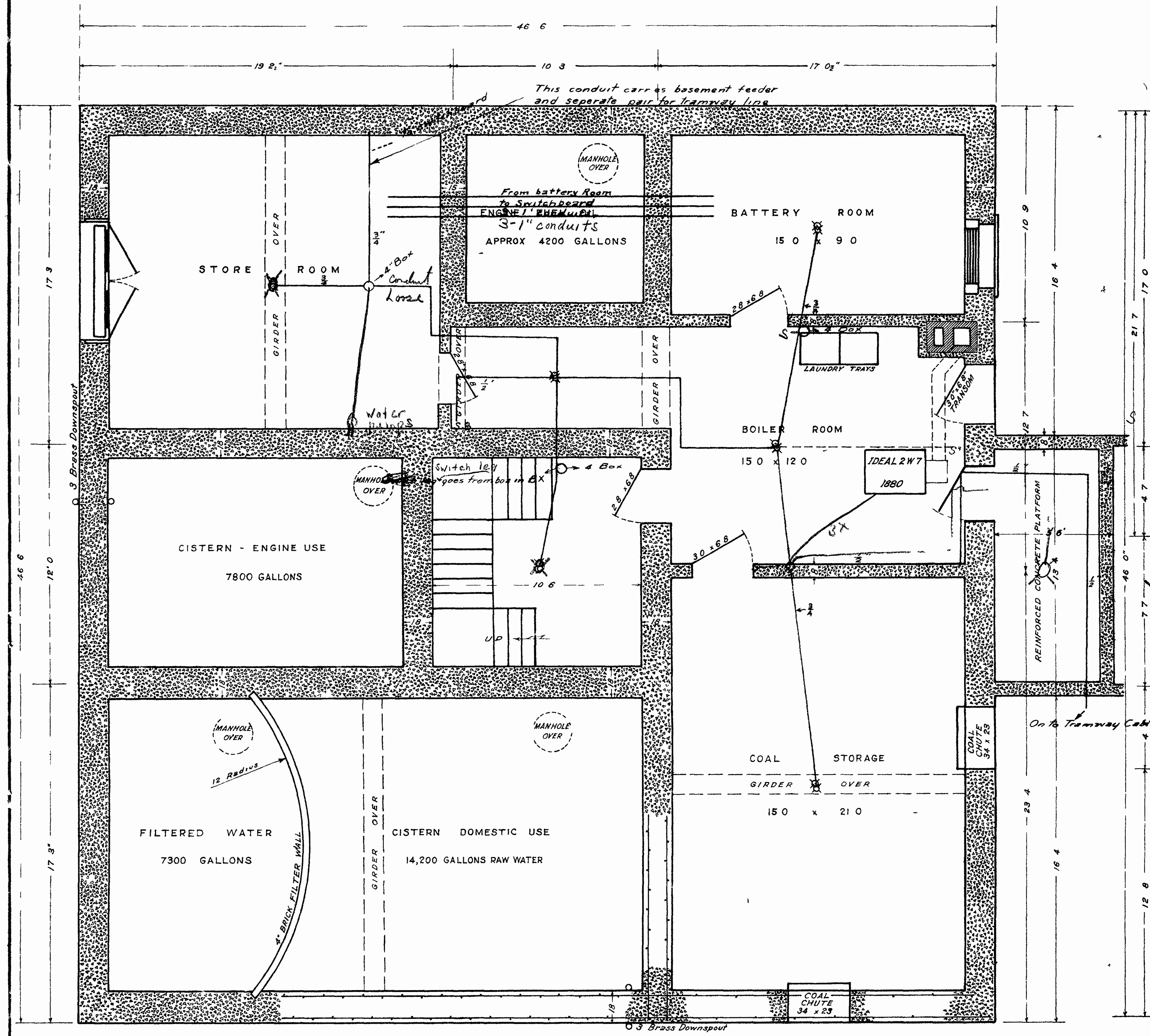
APPROVED
C.B.R. U.S.C.G. CHIEF OF DIVISION

DATE JULY 1955

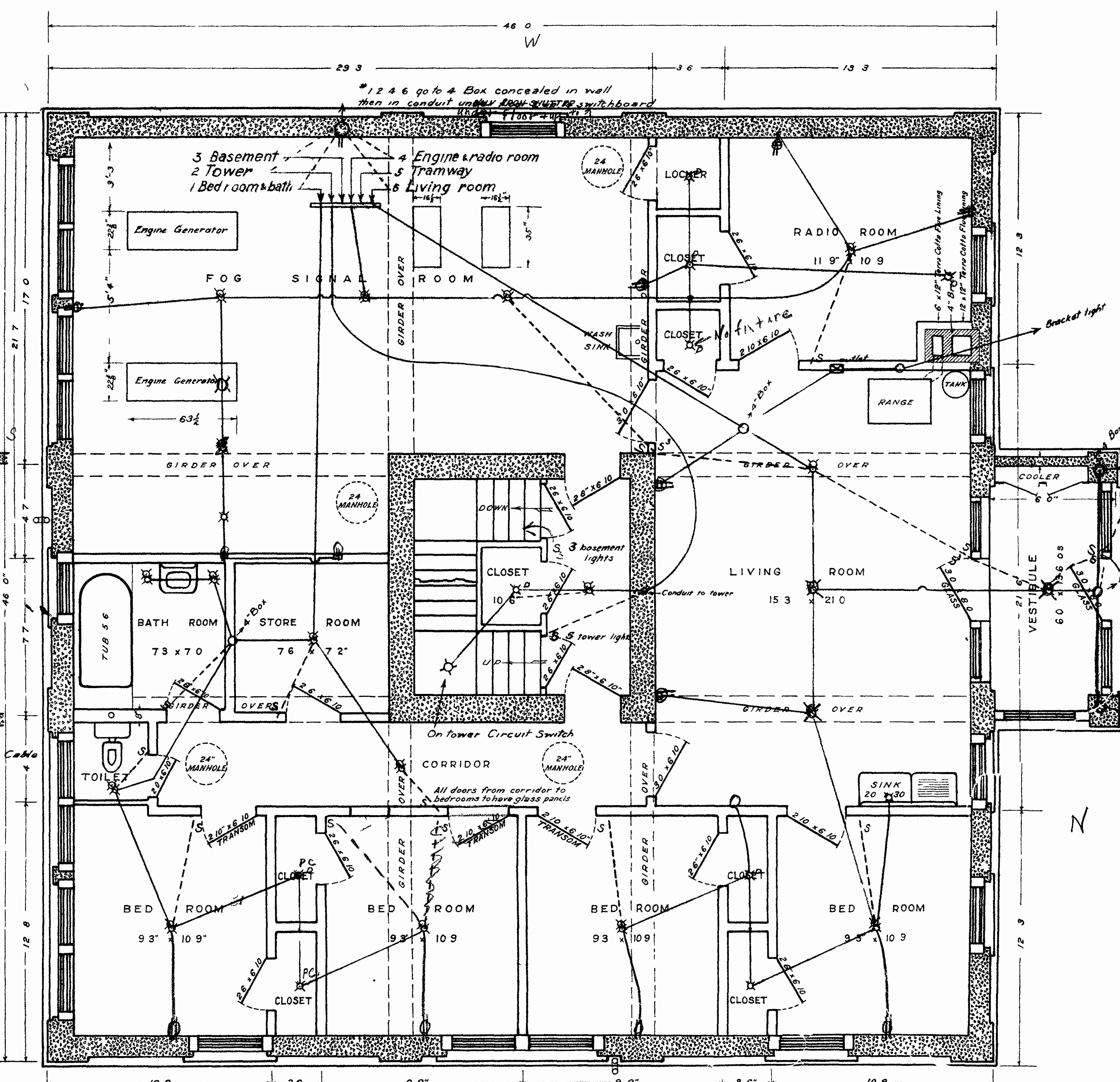
C. G. DRAWING NO. 795

CG-3404-A 12-52

SCALE AS SHOWN — SHEET 1 OF 1



BASEMENT FLOOR PLAN



FIRST FLOOR PLAN

E

Reinforcing in walls is ½" ϕ 24" o c horizontal and staggered and ½ ϕ 18" o c vertical and staggered Except cistern wall which is ½" ϕ 12" o c both hor and vert and stag. Floor and roof slab reinforcing is ½" ϕ 8" o.c and the same at right angles Two-thirds of slab reinforcing to be bent up over supports

OFFICE OF THE SUPERINTENDENT OF LIGHTHOUSES
SIXTEENTH DISTRICT, KETCHIKAN, ALASKA

CAPE DECISION LT. STA.
ELECTRIC WIRING LAYOUT

Scale ¼" = 1'
Approved 2/25/1930

FIRST ASST SUPT
SUPERINTENDENT

Drawn by C N E
Traced by D A C
Checked by

Dr. No 170

Sheet 11 [redacted] of 11.

NPS Form 10-900
(Rev. 10-90)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in How to Complete the National Register of Historic Places Registration Form (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

==========

1. Name of Property

==========

historic name Cape Decision Light Station

other names/site number Cape Decision Lighthouse
AHRS Site No. XPA-00012

==========

2. Location

==========

street & number southwesterly extremity of Kuiu Island, immediately north of the junction of Chatham and Sumner Straits in Southeast Alaska, approximately 63 miles south of Sitka

not for publication n/a

city or town Sitka vicinity X

state Alaska code AK county Wrangell-Petersburg code 280

zip code 99835

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this _X_ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property _X_ meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant ___ nationally _X_ statewide ___ locally. (___ See continuation sheet for additional comments.)

Joan M. Antonson — 16 December 2004
Signature of certifying official — Date

Alaska
State or Federal agency and bureau

In my opinion, the property _____ meets ____ does not meet the National Register criteria. (___ See continuation sheet for additional comments.)

_____ _____
Signature of commenting or other official — Date

State or Federal agency and bureau

4. National Park Service Certification

I, hereby certify that this property is:

_✓_	entered in the National Register ___ See continuation sheet.	Edson M. Beall 2/2/05	
____	determined eligible for the National Register ___ See continuation sheet.	_____	_____
____	determined not eligible for the National Register	_____	_____
____	removed from the National Register	_____	_____
____	other (explain): _____		

_____ _____ _____
Signature of Keeper — Date of Action

5. Classification

Ownership of Property (Check as many boxes as apply)

_X_ private
___ public-local
___ public-State
___ public-Federal

Category of Property (Check only one box)

___ building(s)
_X_ district
___ site
___ structure
___ object

Number of Resources within Property

Contributing	Noncontributing	
2	____	buildings
____	____	sites
4	3	structures
____	____	objects
6	3	Total

Number of contributing resources previously listed in the National Register 0

Name of related multiple property listing (Enter "N/A" if property is not part of a multiple property listing.) Light Stations of the United States

6. Function or Use

Historic Functions (Enter categories from instructions)
Cat: Transportation **Sub:** water-related

Current Functions (Enter categories from instructions)
Cat: Transportation **Sub:** water-related

7. Description

Architectural Classification (Enter categories from instructions)
Art Moderne

Materials (Enter categories from instructions)
foundation concrete
roof concrete
walls concrete
other

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

Cape Decision Light Station is located at the south end of Kuiu Island, immediately to the north of the junction of Chatham and Sumner Straits in Southeast Alaska. In the area, tidal currents are strong, fog is frequent, and numerous dangerous rocks are present. Prior to construction of the station, which was completed in 1932, an acetylene light stood on one of the Spanish Islands about ten miles south of Cape Decision.

In July 1929, the Lighthouse Board received funding from Congress to establish the station at Cape Decision on land previously withdrawn by executive order from the Tongass National Forest. Construction began in September. Insufficient funds and poor weather delayed work. The light, fog signal, and radio station started operating March 15, 1932. The Lighthouse Board later constructed several wood frame buildings at the site, including a large boathouse, hoist house, and blacksmith shop. An accidental fire in 1989 destroyed these wood buildings, four fuel tanks, and a portion of the dock. The lighthouse and paint shed constructed in 1932 still stand. Also at the site today are a boardwalk, dock, seawall, dam, and helicopter pad.

In 1997, the nonprofit Cape Decision Lighthouse Society leased the site from the U.S. Coast Guard. In 2004, the society received title to the buildings and structures, however, the Coast Guard maintains the light.

8. Statement of Significance

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

- _X_ **A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- ____ **B** Property is associated with the lives of persons significant in our past.
- _X_ **C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- ____ **D** Property has yielded, or is likely to yield information important in prehistory or history.

Criteria Considerations (Mark "X" in all the boxes that apply.) n/a

- ____ **A** owned by a religious institution or used for religious purposes.
- ____ **B** removed from its original location.
- ____ **C** a birthplace or a grave.
- ____ **D** a cemetery.
- ____ **E** a reconstructed building, object, or structure.
- ____ **F** a commemorative property.
- ____ **G** less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)
Maritime history
Architecture
Transportation

Period of Significance 1932-1954

Significant Dates 1932

Significant Person (Complete if Criterion B is marked above)
n/a

Cultural Affiliation n/a

Architect/Builder U.S. Lighthouse Service

9. Major Bibliographical References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Brown, C.M. *Lighthouses and Other Aids to Navigation in Alaska History.* Juneau, Alaska: U.S. Coast Guard, 1990.

Gibbs, James A. *Sentinels of the North Pacific.* Portland, Oregon: Binfords & Mort, 1955.

Hunt, Bill. ``Lighting the Maritime Trail,'' *Alaska Magazine*, Vol. 56, No. 10 (October 1990):46-50.

Lowry, Shannon. ``Alaska Lighthouse Tales,'' *Alaska Magazine*, Vol. 56, No. 10 (October 1990):30-45.

Lowry, Shannon and Jeff Schultz. *Northern Lights.* Harrisburg, Pennsylvania: Stackpole Books, 1992.

U.S. Coast Guard. *Light List, November 30, 1974.* Washington, D.C.: Government Printing Office, 1975.

U.S. Coast Guard, Juneau Division. Files in the Offices of Aids to Navigation, Civil Engineering, and Public Affairs.

U.S. Lighthouse Bureau. Annual reports, 1922-1932. Washington, D.C.: Government Printing Office, 1923-1933.

Wheeler, Wayne. ``Northern Lights: Lighthouse Development in the Alaska Territory,'' *The Keeper's Log*, Vol. VI, No. 3 (Spring 1990):2-13.

10. Geographical Data

Acreage of Property less than one acre

UTM References (Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing		Zone	Easting	Northing
1	08	553980	6206320	3			
2				4			

___ **See continuation sheet.**

Verbal Boundary Description (Describe the boundaries of the property.)

Cape Decision Light Station is located in the northeast quarter of the northwest quarter of the southwest quarter of Section 4, Township 68 South, Range 73 East, Copper River Meridian. It is described in Executive Order 3406, signed by President Woodrow Wilson on February 13, 1921, as ``that part of the southern extremity of Kuiu Island lying south of a true east and west line located at a distance of 4560 feet north true from the high water line at the southernmost extremity of the point.''

Boundary Justification (Explain why the boundaries were selected.)

The boundaries include the lighthouse, paint building, boardwalk, dock, dam, and seawall that stand and historically have been associated with Cape Decision Light Station at the southernmost tip of Kuiu Island. Although within the boundaries, the helicopter pad is noncontributing because it was built after the period of significance, and short sections of two trails are noncontributing because they are not shown on station plans.

11. Form Prepared By

name/title Chris Brooks, Secretary

organization Cape Decision Lighthouse Society

date November 14, 2000; revised December 1, 2004

street & number 224 Katlian Street

telephone 907-747-7803

city or town Sitka **state** AK **zip code** 99835

Contributing properties

Lighthouse. The lighthouse is a one story, reinforced concrete Art Moderne influenced building set on a raised basement. Measuring 46 by 46 feet the base is adorned with a minimalist cornice, a projecting entry vestibule centered on the façade, and recessed panels that occupy nearly all of, and are centered on, each elevation. A short, broad flight of fifteen concrete stairs with solid handrails leads to the entrance from the boardwalk. The front of the vestibule contains a single 15-light door flanked by 2/2 windows; windows also occupy the sides of the vestibule. Set into the façade on either side of the entrance are two 2/2 sash windows. Centered on the east elevation is a paired window, each with four lights, flanked by 2/2 windows. The south elevation has asymmetrical fenestration. From west to east on the elevation are a paired set of 2/2 windows (a paired set of 2/2 windows is boarded), a single 2/2 window and two paired sets of 2/2 windows. The west elevation contained only one centered window opening and it is currently boarded.

The basement has a double door at the west corner of the south elevation. The east and west elevations have no openings. A 1933 photograph of the façade shows two 2/2 windows on each side of the staircase at the basement level; these windows are no longer visible on the exterior.

Currently the first floor elevations are painted white and the basement elevations are gray. The roof is painted red with the exception of a white field on the east side that contains the large black letters ``CDE.''

Projecting from the flat roof are both a chimney and the tower. The chimney rises from the northwest corner of the roof and, like the base, exhibits shallow recessed panels on each elevation.

A 14 by 14 foot reinforced concrete tower with lantern rises 40 feet from the center of the roof. It features recessed panels on each of the elevations. At the base of the tower on the north side is a door that provides access to the roof. Fenestration on the tower is limited to a boarded window opening on the north side and a window centered vertically on the east side. Surmounting the tower's cornice is the lantern gallery, which is enclosed by a two-tiered metal pipe railing. The cylindrical metal watchroom rising from the center of the gallery is topped by a metal and glass lantern. The glass is broken horizontally by thin metal muntins that form diamond shaped panes. The roof of the lantern is capped by a ventilator ball. The original third order fixed lens powered by a 300-watt electric lamp displayed two white flashes every 15 seconds of 24,000 candlepower and was visible 15.6 nautical miles in clear weather. It was the first electric powered light installed in an Alaskan lighthouse. Today the lantern houses a Vega VRB-25 acrobeacon which flashes white every five seconds and is visible up to 18 nautical miles.

Inside the lighthouse on the main floor are three bedrooms, a galley, bathroom, radio room, and workshop/generator room. The Coast Guard

dismantled the radio equipment in 1997. NOAA meteorological equipment occupies another small room on this floor. The basement has small storage rooms, an electric water pump and filter system, and an air compressor that powered the first class fog signal. Water is collected in two 10,000-gallon cisterns inside the lighthouse from a rain catchment system on the roof. Originally, fresh water was piped from a small stream nearby. Attached to the lighthouse are two 5,000-gallon fuel tanks.

Paint shed. Constructed in 1931, the paint shed is an 8 by 8 by 10 foot wood frame building covered with corrugated metal. It is a short distance north of the dock.

Boardwalk. A wood plank boardwalk with a two-tiered wood railing connects the lighthouse to the 60-foot long dock crossing the octagonal helicopter pad. Although the 1989 fire destroyed part of the boardwalk, enough remains to be considered a contributing structure. It extends north and east of the lighthouse.

Dock. The dock has a wood deck and an understructure of creosoted timbers set on concrete footings. It had a boom derrick system to raise and lower boats, a tramway, a boathouse, a hoist house, blacksmith shop, and four fuel tanks. The buildings and structures were constructed during the 1930s. The 1989 fire destroyed these and part of the dock. Only the dock was rebuilt. Enough of the original dock remains for it to be considered a contributing structure. The dock is northeast of the lighthouse.

Walkway, seawall and footbridge. A walkway extends parallel to the east side of the lighthouse to a small grassy area in the back. It is enclosed by a two-tiered handrail that is a continuation of the handrail on the eastern side of the boardwalk. South and west of the lighthouse and backyard are six-inch thick concrete seawalls set on the rocks. Also to the south is a small footbridge connecting Kuiu Island with a small rocky island.

Dam. The concrete and log dam is 45 feet long and 5 feet high. It is approximately 300 feet north of the lighthouse. Although the original water system is no longer used, the dam still exists.

Noncontributing structures.

Helicopter pad. This is an octagonal wood structure in the center of the light station, a short distance north and east of the lighthouse and south and west of the dock. It was built in the mid-1960s, which is after the period of significance, but representative of the evolution of access to Alaska's remote light stations.

Trails (2). Over the years, keepers established two trails. A .9-mile trail connects the light station and a protected cove on the east side of the island where a trapper's cabin stood. A four-and-a-half-mile trail

connects the light station with Port McArthur. During the years the light station was staffed, the trail was occasionally used to transport supplies. Only a short portion of each trail is within the light station reserve. Because the trails were not integral to the station's mission, they are noncontributing.

Narrative Statement of Significance (Explain the significance of the property on one or more continuation sheets.)

Cape Decision Light Station was the last of 16 staffed lights established by the U.S. Government in Alaska. Since its lighting in 1932 it has been part of a system of navigational aids to safely guide commercial and recreational vessels through the dangerous and heavily traveled Southeast Alaska waterway known as the Inside Passage. The lighthouse, the main building at the site, housed the light, fog signal and radio equipment, offices, and living quarters for three keepers. It is, like many of its predecessors in Alaska, a reinforced concrete building with modest Art Moderne influences. The original lamp installed in the original lantern at the Cape Decision station was the first electric one used at an Alaskan lighthouse. In 1974, the Coast Guard automated the light and stopped assigning keepers to the station. Today, a light at Cape Decision continues to guide vessels passing between the Gulf of Alaska, Chatham and Sumner Straits, however the period of significance ends in 1954, fifty years ago. While a fire in 1989 destroyed several of the station's wood frame auxiliary buildings and boardwalk, the buildings and structures that remain, particularly the lighthouse, continue to convey the importance of maritime commerce and transportation routes in the history of Alaska.

Historic background

The Inside Passage has been a major transportation route in Southeast Alaska for hundreds of years. It provided a safer route for ships and boats to travel than through the open Gulf of Alaska to the west. Although safer, the numerous small islands, sharp turns, and narrow channels combine with frequent fog and heavy precipitation to make travel through the Inside Passage treacherous. Between 1902 and 1932, the U.S. Lighthouse Board and its successor the U.S. Lighthouse Service built and staffed 12 light stations in Southeast Alaska to aid navigation and to support development of commerce, industry, and communication.

During the 1920s, the number of salmon canneries, herring salteries, and reduction plants along the coasts bordering Chatham and Sumner Straits increased. Larger boats that could not pass through Wrangell Narrows used Chatham Strait accessing it by passing Cape Decision. Many deep-sea fishing vessels entered and exited the Inside Passage near the cape. Shipping companies and fishermen appealed to the U.S. Lighthouse Service to upgrade the acetylene light that then existed on the Spanish Islands. The Lighthouse Service determined that a lighted navigational aid with fog signal and radio equipment was needed in the area, and selected for a station Cape Decision at the southernmost tip of Kuiu Island, about ten miles north of the Spanish Islands.

On February 13, 1921, President Woodrow Wilson signed Executive Order 3406 reserving approximately 216 acres of southern Kuiu Island for lighthouse purposes. After the U.S. Lighthouse Service requested money for several years, in July 1929 Congress appropriated $59,400 to build Cape Decision

Light Station on the island. Construction began in September of that year. Delayed by poor weather and insufficient funding, the station, at a total cost of $158,000, did not begin operation until March 15, 1932. The lighthouse, which also housed three keepers, is a reinforced concrete Art Moderne influenced building. Wood frame lighthouses built in the early 1900s in Alaska proved inadequate to meet the often harsh weather conditions. Cape Decision was the last staffed light station established in Alaska.

The light tower was topped by a third order iron lantern which housed a fixed third order lens with a 300-watt electric lamp. It was the first light in Alaska powered by electricity. Cape Decision Light Station was also equipped with a fog signal and Class B radio beacon. The original fog signal consists of two No. 425 tyfon foghorns mounted on the southwest corner of the roof. In 1962, these were replaced by a single Supertyphon TF150/255-2B. The fog signal and radio beacon were synchronized thus acting as a distance finding station. By noting the time elapsed between the reception of the two sounds in the pilot house of the vessel and dividing the same by five, a close approximation of the vessel's distance from the station in miles could be obtained.

In 1974, the U.S. Coast Guard automated the station and removed the keepers. A 1,000-watt electric bulb powered by solar panels replaced the original third order lens which is now at the Clausen Museum in Petersburg, Alaska. In 1996, the light source was changed to a Vega VRB-25 aerobeacon.

In 1989, a fire destroyed the wood buildings at the station but not the lighthouse. Several buildings and structures still stand at the station and the light continues to operate. The Cape Decision Lighthouse Association, a non-profit organization, leased the buildings and structures in 1997 from the U.S. Coast Guard and received title to them in 2004. The U.S. Coast Guard continues to operate and maintain the light.

Previous documentation on file (NPS) n/a
___ **preliminary determination of individual listing (36 CFR 67) has been requested.**
___ **previously listed in the National Register**
___ **previously determined eligible by the National Register**
___ **designated a National Historic Landmark**
___ **recorded by Historic American Buildings Survey #**
___ **recorded by Historic American Engineering Record #**

Primary Location of Additional Data
___ **State Historic Preservation Office**
___ **Other State agency**
___ **Federal agency**
___ **Local government**
___ **University**
_X_ **Other**
Name of repository: U.S. Coast Guard Archives, Washington, D.C.

Additional Documentation

Submit the following items with the completed form:

Maps

A USGS map (7.5 or 15 minute series) indicating the property's location.

A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs

Representative black and white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items)

Property Owner

(Complete this item at the request of the SHPO or FPO.)

name Cape Decision Lighthouse Society

street & number 224 Katlian Street

telephone 907-747-7803

city or town Sitka **state** AK **zip code** 99835

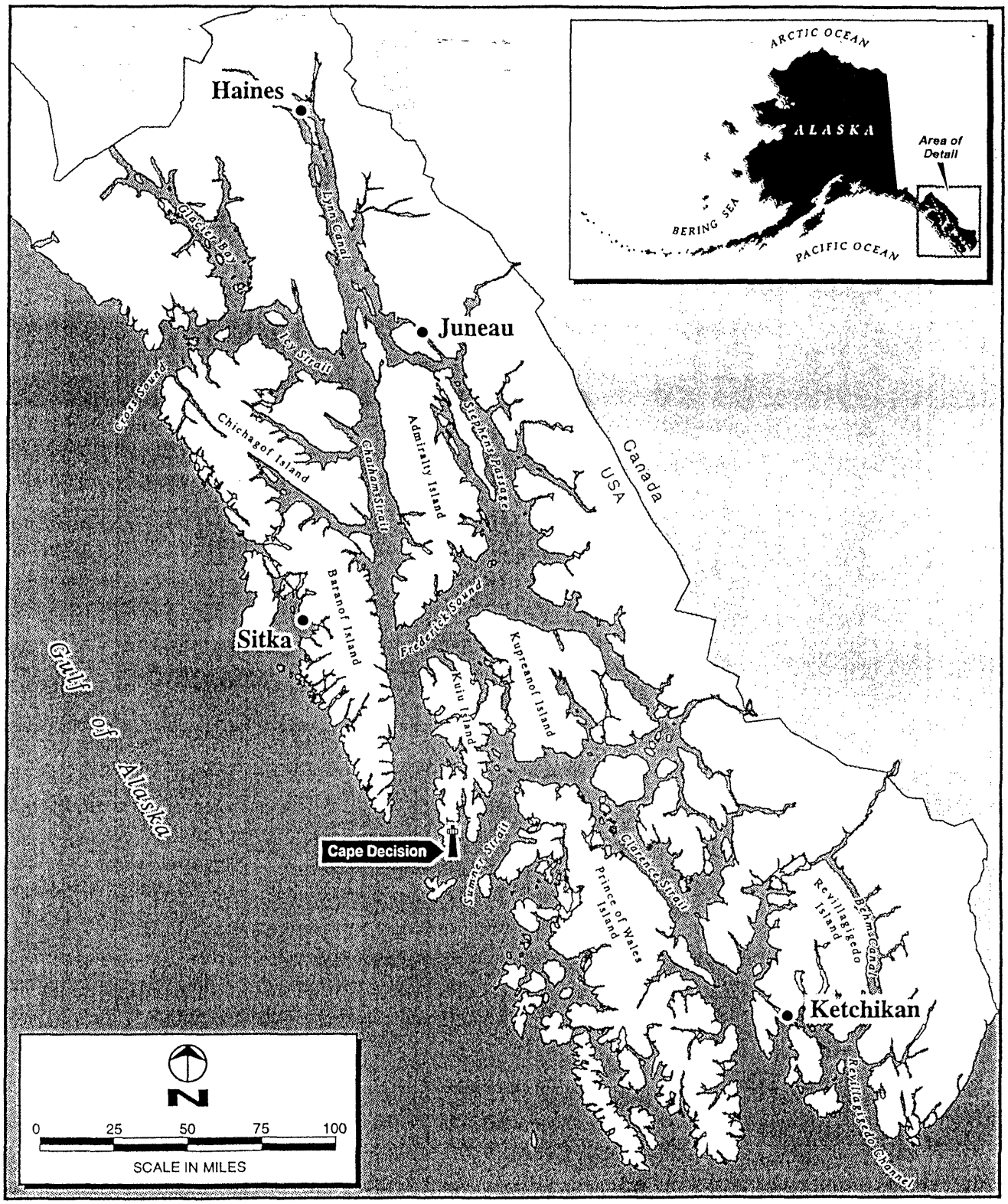
Section Photograph identification

1. Cape Decision Light Station
   Wrangell-Petersburg, Alaska
   Karen Johnson
   July 30, 2004
   Cape Decision Lighthouse Society, 224 Katlian Street, Sitka, AK 99835
   Looking north northwest at the lighthouse, boardwalk, and dock

2. Cape Decision Light Station
   Wrangell-Petersburg, Alaska
   Karen Johnson
   July 31, 2004
   Cape Decision Lighthouse Society, 224 Katlian Street, Sitka, AK 99835
   Looking west at the lighthouse

3. Cape Decision Light Station
   Wrangell-Petersburg, Alaska
   Karen Johnson
   July 31, 2004
   Cape Decision Lighthouse Society, 224 Katlian Street, Sitka, AK 99835
   Looking southwest at the lighthouse; part of the helicopter pad is visible in the foreground

4. Cape Decision Light Station
   Wrangell-Petersburg, Alaska
   Bryan Cornelius
   August 1, 2004
   Cape Decision Lighthouse Society, 224 Katlian Street, Sitka, AK 99835
   Looking west southwest at the lighthouse



Source: USCG Civil Engineering Unit, Juneau, *SEAK Lighthouse Map*

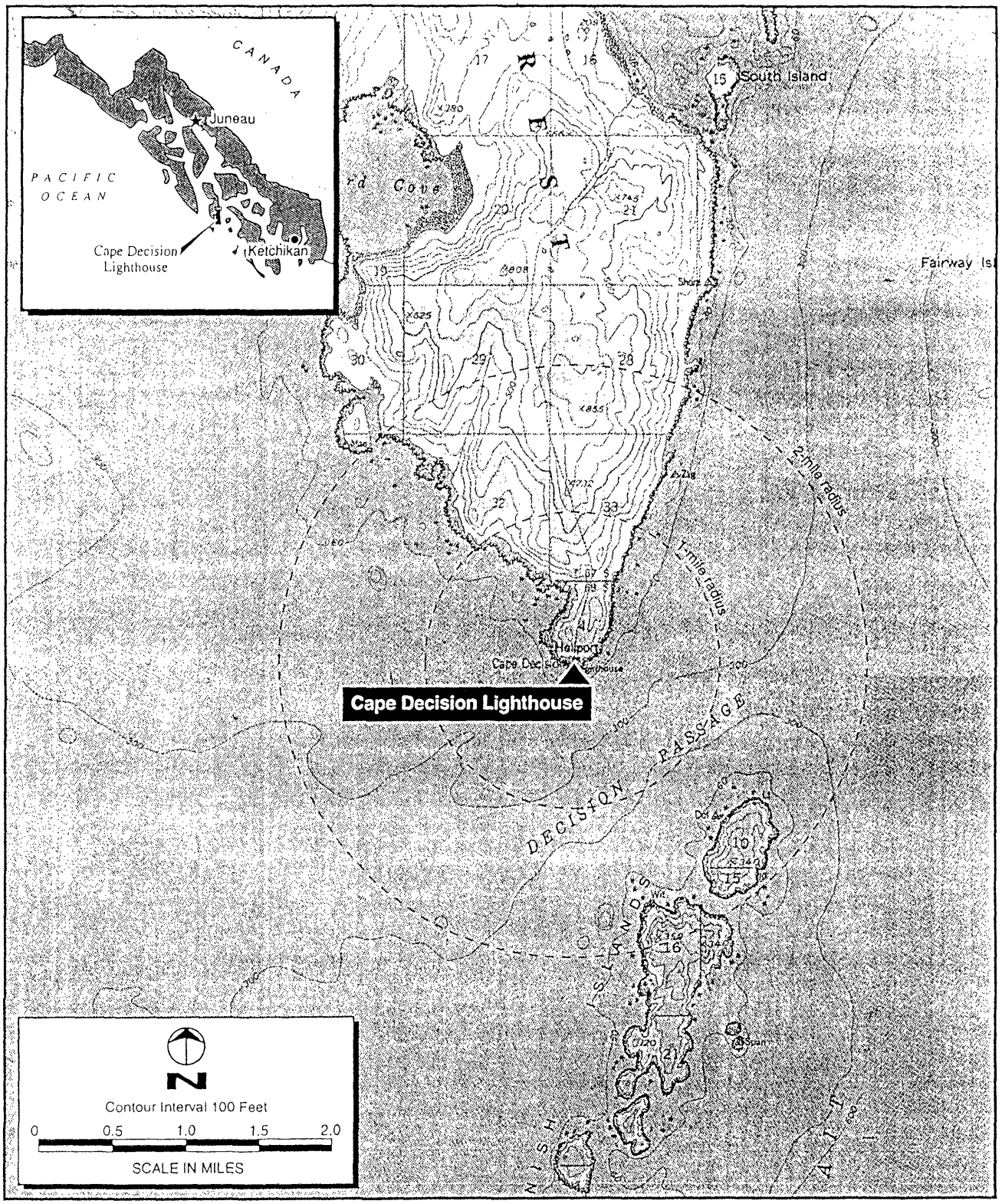
Figure 3-1

Vicinity Map

United States Coast Guard
Cape Decision Light Station

CH2M HILL

139145.SA.03 CpDec 09/17/97 anc/hd



Source: USGS Quadrangles: Craig (D-6), Craig (D-7 and D-8), and Port Alexander (A-1), Alaska

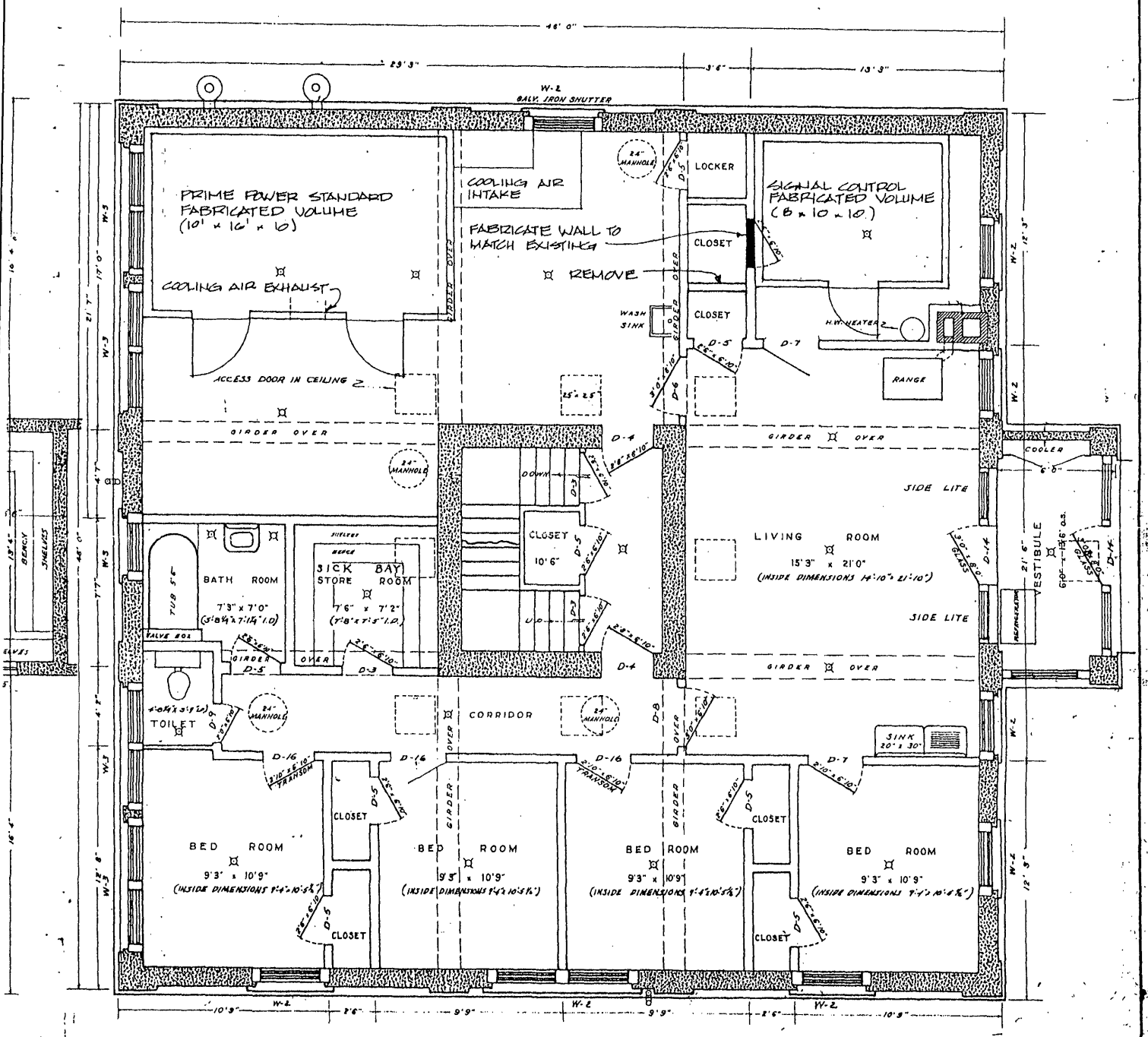
Figure 3-2

Location Map

United States Coast Guard
Cape Decision Light Station

CH2M HILL

139145 SA 03 CapeDec 06/17/97



'LE SEE DRAWING M-380

FIRST FLOOR PLAN

f" o.c. horizontal and staggered and
ered. Except cistern wall which is
' and stag. Floor and roof slab
f the same at right angles. Two-
o be bent up over sopports.

REVISION	DATE	APPD.	DESCRIPTION	BY

U. S. COAST GUARD — 17th DISTRICT — JUNEAU, ALASKA

CIVIL ENGINEERING

DESIGNED · GIGUERE	U.S. COAST GUARD LIGHT STATION CAPE DECISION, ALASKA
DRAWN · LANIER	LAMP - 1985
TRACED · LP, SHT 2	LIGHT HOUSE FLOOR PLAN
CHECKED · [illegible]	
REVIEWED	
SUBMITTED	APPROVED [illegible] TECHNICAL ASSISTANT — DATE 2/26/85

C G DRAWING NO F-351

SCALE 1/4" - 1'-0" — SHEET 2 OF 23