

# AGENDA ITEM REPORT

Ordinance 23-12, An Ordinance of the City Council of Homer, Alaska Amending the FY23 Capital Budget by Appropriating \$63,070 from the Port Reserves Fund for Professional and Technical Assistance to Support Submission of a Port Infrastructure Development Program Grant Application for the Purpose of Float Replacement in the Small Boat Harbor. City Manager/Port Director.

Item Type:	Ordinance
Prepared For:	Mayor & City Council
Meeting Date:	27 Feb 2023
Staff Contact:	Bryan Hawkins, Port Director
Through:	Rob Dumouchel, City Manager

#### Issue:

The purpose of this Memorandum is to recommend a \$63,070 appropriation from the Port & Harbor Reserves to be used to prepare a Federal 2023 Port Infrastructure Development Program (PIDP) application.

#### **Background:**

The Homer Small Boat Harbor facility contains several float systems that are in service well past their engineered life expectancy. Among those are the floats on System 4, which is made up mostly of floats that were constructed in 1964 for the original Homer Harbor, and System 1. While major maintenance has allowed continued use of these floats, many conditions have combined to produce a critical loss of structural capacity and should be replaced before they are condemned and need to be decommissioned.

Replacing these two systems is ranked #5 in the Legislative Priority section of the City's FY24 Capital Improvement Plan, and Small Boat Harbor Float Replacement was identified as a priority project by City Council in their 2022 Visioning meeting.

The US DOT Maritime Administration is poised to release a notice of funding opportunity for the PIDP, a Federal grant program with an 80/20 cost share. PIDP, with an average large project award from \$20M-\$40M, offers an opportunity to leverage significant funds to address long-deferred maintenance needs in the existing Small Boat Harbor basin.

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In April of 2022, the City entered into a Task Order with R&M Consultants to begin readying the float replacement project for a PIDP grant application. Through that process, the City obtained a Harborwide Float Condition Report and a cost estimate for float replacement. The estimated cost for replacing all floats in Serious and Critical condition is \$72,610,000. The costs to replace System 4 and 1, both rated as Serious and Critical Condition, is \$41,000,000, within the average range of awards.

The PIDP is highly competitive -- requests for funds can exceed the total available Federal funds by 30 times or more. Further, completing a nationally competitive application is time and labor intensive, requiring responses that are data driven (to prove need and/or benefit), pre-planned (scope, partnerships, match strategies), aligned with over-arching Federal priorities (equity, resilience) and technical in nature (cost benefit analyses, environmental review, etc.)

Staff is requesting funds to support professional and technical assistance to complete a PIDP application within the three-month application window. Staff reached out to term contractor, HDR Engineering for estimated costs. Services are estimated not to exceed \$63,070 in time and effort, and would include completing a full Benefit to Cost Analysis (BCA) of the Float Replacement project and submission of a 2023 PIDP grant application. The Task Order with R&M has been completed. \$16,000 of unused funds from that Task Order is being returned to the Port & Harbor Reserves fund and are available to assist with the BCA and grant application.

While a full BCA is not required for Alaska applications to the PIDP, based on the size of the request, the City would be competing for a Large PIDP project. A BCA is highly recommended for the Large PIDP projects to show stronger evidence for the benefits of the project.

Matching funds strategy will be explored as part of the application process; potential sources include TIFIA, a low-interest Federal loan program, the Alaska Municipal Harbor Grant Program and Denali Commission funds, a State Legislative grant through the CAPSIS system, as well as a 2024 RAISE grant if needed. The BCA and grant application can be used to support application for these other potential sources of matching funds.

The City's strategic review of Federal Infrastructure Improvement and Jobs Act funding opportunities completed in January 2023 identified PIDP as one Federal grant source for this project. As evidenced by the motion made at their January 25th, 2023 meeting, the Port & Harbor Advisory Commission supports the use of funds from the Port & Harbor Reserves for technical assistance to support a PIDP grant application.

#### **Staff Recommendation:**

Conduct public hearing and move to adopt Ordinance 23-12 by reading of title only for second and final reading.

#### Attachments:

Ordinance 23-12

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<u>FY24 CIP Project Description</u> <u>R&M Float Condition Report & Project Estimate Summary</u> <u>Port & Harbor Advisory Commission Minutes Excerpt 012523</u>

Financial Supplement

#### **CITY OF HOMER** 1 2 HOMER, ALASKA 3 **City Manager** Port Director 4 5 **ORDINANCE 23-12** 6 7 AN ORDINANCE OF THE CITY COUNCIL OF HOMER, ALASKA, AMENDING THE FY23 CAPITAL BUDGET BY APPROPRIATING 8 9 \$63,070 FROM THE PORT RESERVES FUND FOR PROFESSIONAL AND TECHNICAL ASSISTANCE TO SUPPORT SUBMISSION OF A 10 PORT INFRASTRUCTURE DEVELOPMENT PROGRAM GRANT 11 APPLICATION FOR THE PURPOSE OF FLOAT REPLACEMENT IN 12 THE SMALL BOAT HARBOR. 13 14 WHEREAS, The City has long recognized the need to replace floats in the Small Boat 15 Harbor that are past or near the end of their useful life, and 16 17 WHEREAS, City Council identified Small Boat Harbor float replacement as a high priority 18 19 project in their 2022 Visioning session; and 20 WHEREAS, In planning for a float replacement project, the City completed a 21 comprehensive harbor condition study that identified float systems that were in serious to 22 23 critical condition; and 24 WHEREAS, The Harbor Condition Report estimated replacement costs for all Serious-25 and Critical-rated floats to be \$72,610,000; and 26 27 28 WHEREAS, The Port Infrastructure Development Program (PIDP) has a total of \$662 Million to distribute in FY23 to projects that improve the safety, efficiency, and reliability of the 29 movement of goods into, out of, around, or within a port; and 30 31 32 WHEREAS, To be successful an application must demonstrate competitiveness on a 33 national level in alignment with the program goals and the benefits provided by the project, 34 which requires significant project planning time, engagement of partners and the public, 35 environmental review, technical and benefit-cost analyses, identification of matching funds 36 and grant writing; and 37 38 WHEREAS, Given the short timeframe between the PIDP funding announcement and grant submission deadline, leveraging additional expertise is necessary to ensure the City is in 39 the best possible position to succeed with a PIDP application; and 40 41 WHEREAS, The BCA and grant application can be used to support requests to other 42

43	sources for matching funds, including the Alaska Municipal Harbor Grant Program and Denali									
44	Commission funds, as well as a potential 2024 PIDP or RAISE grant, if needed.									
45										
46	NOW, THEREFORE, T	THE CITY OF HOMER ORDAINS:								
47										
48	Section 1: The Homer City Council hereby amends the FY23 Capital Budget by									
49	appropriating \$63,070 for the purpose of obtaining professional PIDP advisory, technical, and									
50	grant writing services as fol	llows:								
51										
52	<u>Fund</u>	<u>Description</u>	<u>Amount</u>							
53	456-0380	2023 PIDP BCA & Application	\$63,070							
54										
55										
56	Section 2: This is a bu	udget amendment ordinance, is not permane	nt in nature, and shall							
57	not be codified.									
58										
59	ENACTED BY THE C	TTY COUNCIL OF HOMER, ALASKA, this o	day of,							
60	2023.									
61										
62		CITY OF HOMER								
63										
64										
65		KEN CASTNER, MAYOF	२							
66	ATTEST:									
67										
68										
69	MELISSA JACOBSEN, MMC, O	CITY CLERK								
70										
71	YES:									
72	NO:									
73	ABSTAIN:									
74	ABSENT:									
75										
76	First Reading:									
77	Public Hearing:									
78	Second Reading:									
79	Effective Date:									



## 5. Homer Harbor Critical Float System Replacment: Float Systems 4 & 1

**Project Description & Benefit:** System 4 is made up mostly of floats that were constructed in 1964 for the original Homer Harbor. In the 2002 Transfer of Responsibility Agreement (TORA) project, those original floats were moved to create System 4. Within two years, the System's 207 slips for vessels ranging in size from 24 feet to 60 feet in length and over 1,000 linear feet of transient moorage was filled to maximum capacity. System 4 provides dockage for the Seldovia Fast Ferry *Kachemak Explorer* for passenger and freight loading. System 4 has two accessible gangways on ramps 6 and 7 and is supported by a public restroom and public fish cleaning station located at the top of ramp 6.

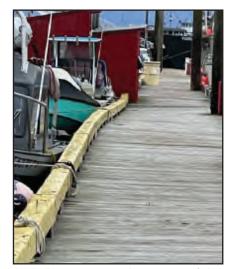
The 1964 timber floats are 30 years beyond their engineered life expectancy and should be replaced before they are condemned and need to be decommissioned. Major maintenance (adding flotation to the end of main floats and replacing timber piles, decking, and stall floats) has allowed continued use of these floats. Despite these efforts, many conditions have combined to produce a critical loss of structural capacity. Bullrails, used for securing mooring lines, are cracked or deteriorated; older timber piles have areas of rot; flotation foam has disintegrated throughout these floats, reducing freeboard, which ultimately reduces load capacity and increases rates of corrosion. The lack of floatation and deteriorated structural members makes the entire main float lists to one side; snow has to be removed in the winter to prevent sinking. Lack of flotation also causes the stall floats to be unstable or bouncy when walking on them, resulting in a potential safety hazard. Parts of System 1 dates back to 1986 The lack of freeboard flotation, concrete and timber deterioration and broken structural elements at end floats and failures in some headwalk floats likewise puts these components of System 1 in critical to serous categories.

**Plans & Progress:** R&M Engineers provided a harbor-wide condition report and cost estimate for float replacement in 2023. It recommends replacing floats categorized as serious and critical and upgrading shore power, fire suppression and potable water. AAA float can be expanded towards the load and launch ramp to open up narrow fairways between the floats, giving

vessels more room to safely navigate between the float systems The City is preparing applications for Federal discretionary grant funds to assist with project funding. State matching funds help leverage federal dollars in support of Homer's regionally critical port infrastructure.

Total Project Cost:	\$41,000,000
FY24 State Request:	\$6,150,000
FY24 Federal Request	: \$28,700,000
City of Homer Match	\$6,150,000





The Headwalk Float AAA is warped, suggesting a failure in the structural members below the deck and lack of floatation..

System 4 floats to be replaced.



Low freeboard resulting in submerged pile collar. Decking has rot and hardware connections protrude through it.

Contact Mayor Ken Castner or Rob Dumouchel, City Manager at 907-235-8121

	Description	Quantity	Unit		Unit Price	E>	ctended Price
	Mobilization/Demobilization	1	LS	\$	6,600,000	\$	6,600,000
	Construction Survey	1	LS	\$	251,000	\$	251,00
	Protected Species Observers (2 persons)	123	DAY	\$	3,000	\$	369,00
	Demolition/Removal of Existing Facilities	1	LS	\$	2,180,000	\$	2,180,00
ystem 1:	ABCD Floats						
	Floats	1	LS	\$	6,249,300	\$	6,249,30
	Ramp 1 & 2 Trestle	1	LS	\$	1,051,200	\$	1,051,20
	Ramp 1 & 2 Gangways	2	EA	\$	125,000	\$	250,00
	16" Steel Piles w/Anodes	100	EA	\$	18,000	\$	1,800,00
	Utilities (water, dry fire, power)	1	LS	\$	1,417,200	\$	1,417,20
	Safety Equipment (ladders, life rings, fire extinguishers)	1	LS	\$	58,800	\$	58,80
Subtotal:	\$10,826,500						
vstem 1:	AKLMNPQ Floats						
	Floats	1	LS	\$	7,689,900	\$	7,689,90
	Ramp 4 Trestle	- 1	LS	\$	481,600	\$	481,60
	Ramp 4 Gangway	- 1	EA	\$	125,000	\$	125,00
	16" Steel Piles w/Anodes	87	EA	\$	18,000	\$	1,566,00
	Utilities (water, dry fire, K Float power)	1	LS	\$	1,063,200	\$	1,063,20
	Safety Equipment (ladders, life rings, fire extinguishers)	1	LS	\$	125,400	\$	125,40
Subtotal:	\$11,051,100	-	LJ	Ŷ	125,400	Ŷ	120,40
ystem 2	+,,						
ystem 2	Floats	1	LS	\$	3,230,600	\$	3,230,60
	Ramp 5 Trestle	1	LS	\$	662,400	\$	662,40
	Ramp 5 Gangway		EA	\$	125,000	ې \$	125,00
	16" Steel Piles w/Anodes	1 49			123,000		
			EA	\$	-	\$ ¢	882,00
	Utilities (water, dry fire)	1	LS	\$ \$	340,700	\$	340,70
ubtotal	Safety Equipment (ladders, life rings, fire extinguishers) \$5,302,500	1	LS	Ş	61,800	\$	61,80
ystem 4	(CC DD EE GG)	1	LS	¢	E E00 100	¢	5,500,10
	Floats	1		\$	5,500,100		
	Ramp 6 Trestle	1	LS	\$	691,200 125,000	\$ ¢	691,20
	Ramp 6 Gangway	1	EA	\$		\$ ¢	125,00
	16" Steel Piles w/Anodes	101	EA	\$	18,000	\$	1,818,00
	Utilities (water, dry fire, power)	1	LS	\$	1,758,200	\$	1,758,20
ubtotal	Safety Equipment (ladders, life rings, fire extinguishers) \$9,974,100	1	LS	\$	81,600	\$	81,60
ystem 5	(South) Floats	1	LS	\$	2,104,000	\$	2,104,00
	20" Steel Piles w/Anodes	32	EA		2,104,000	ې \$	2,104,00
	Utilities (water, dry fire, power, sewer pumpout)	32 1	LS	\$ ¢	831,000		979,20 831,00
				\$ ¢	-	\$ ¢	
ubtotal:	Safety Equipment (ladders, life rings, fire extinguishers) \$3,956,200	1	LS	\$	42,000	\$	42,00
	Subtotal Unit Price Items:					\$	50,510,40
	Contingency 25%:					\$	12,627,60
Construct	ion Total:					\$	63,138,00
	Enginnering, Permitting, & Construction Support:				15%	\$	9,470,70
	ROJECT ESTIMATE:					\$	72,608,70

# Homer Small Boat Harbor Floating Dock Replacement Project Estimate (2022 US\$)

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# Homer Small Boat Harbor October 10, 2022

# **System 1 Condition Report**

Prepared by: Kimberly Nielsen, PE R&M Consultants Inc. 9101 Vanguard Drive Anchorage, AK 99507 Prepared for: Bryan Hawkins Port Director/Harbormaster Homer Port & Harbor 4311 Freight Dock Road Homer, AK 99603



## 2. FINDINGS

The floating dock systems in Homer Boat Harbor are of various ages and conditions. As would be expected, the original floats built by DOT in 1964 through 1992 are in the poorest condition, while the newer floats that have been installed to replace the DOT floats in other portions of the harbor are in satisfactory to good condition. In general, a key finding for floats that require major repairs or replacement is the low freeboard and lack of reserve flotation. ASCE Manual of Practice 30, *Planning and Design Guidelines for Small Craft Harbors* lists the following live load design criteria for floating docks.

 Table 2.1: Design Live Loads

Condition	Uniform Live Load
Restricted access - pedestrian use only	30 pounds per square foot
Unrestricted access - pedestrian use only	40 pounds per square foot
Unrestricted access - golf carts	50 pounds per square foot

Preliminary calculations show that the older floats will be approximately awash at 30 pounds per square foot live load and will be submerged at 40 pounds per square foot or larger live loads. It should be noted that Homer has an ASCE 7-16 (code) specified 40 pounds per square foot ground snow load, which would sink some of the original generation of floats. This section describes all condition findings in detail and provides a summary rating of the various elements in each System.

### 2.1 System 1

The System 1 float system is the largest inter-connected float system in the harbor, comprising B Float through S Float. It has four primary "sub-systems" that are grouped based on their age and construction type (Refer to Drawings G2 and G3 in Appendix A). This section discusses the floating docks based on these groupings. The pedestrian access to System 1 is by four access Ramps: Ramp 1 and Ramp 2 located near C Float and E Float, respectively are similar and discussed together. Ramp 3 is located near G Float and Ramp 4 is located near N Float.

## Access Ramps

Ramp 1 and Ramp 2 trestles are constructed of creosote-treated timber, with timber support piles and timber cross bracing. Steel piles have been installed at the end of the trestle to support a 74-ft long aluminum gangway ramp. The steel piles and steel floor grating and landing tracks on the gangway have evidence of corrosion but otherwise only minor damage was found (Figure 2.1). In general, the steel grating on the gangways does not meet ADA-accessibility guidelines. Gangways must be at least 80-ft long to meet current ADA requirements and there must be at least one ADA-accessible route for each size slip in a public harbor (the quantity of ADA-accessible slips required varies depending on the size of the harbor). Ramp 3 was rebuilt in 2013 and includes steel pile and treated timber trestle and a covered gangway that is 100-ft long and provides access to all the various slip sizes available throughout Homer Harbor. Because of this, an



*Figure 2.1: aluminum gangway with steel floor grating and landing tracks* 

ADA gangway is not required at some of the other locations. However, we recommended that have any new project that replaces a trestle, should consider providing a new 80-ft or longer covered gangway with flooring that meets ADA.

The decking and bullrails on the two trestles have evidence of deterioration due to wear. The timber support piles have moderate section loss and minor splits and gouges. Timber support piles have timber cross bracing (Figures 2.2 and 2.3. Some of the cross bracing has major deterioration, some boards are missing, and hardware located in the tidal zone is partially corroded (Figures 2.2 through 2.5). Note that the trestle decks on both Ramp 1 at Ramp 2 appear to have a dip—where it changes from a sloped deck to a level deck. Handrails appear to be a later addition to these trestles. Embedment depths on the timber piles is not evident, but timber harbor piles of this time period in Alaska were not typically driven to depths sufficient to withstand heavy axial or seismic/lateral loads, especially without relying on the cross bracing. If not already, vehicle access to these trestles should be restricted.



Figure 2.2: Ramp 1 timber pile supported trestle.



*Figure 2.3: lower hardware connections appear corroded.* 



Figure 2.4: Ramp 2 timber pile supported trestle.



Figure 2.5: cross bracing connections corroded and in split timber



Ramp 3 has a timber trestle with steel piles and a 100-ft long roofed/sided gangway that was installed in 2015 (Figure 1.3). As noted, Ramp 3 is in good condition and provides ADA-access to Homer Harbor. The Ramp 3 timber trestle structure appears to be securely attached to the pile caps with steel plates (Figure 2.6). The seaward-most four piles have evidence of corrosion below tide line.

Figure 2.6: Ramp 3 trestle.

Ramp 4 consists of a relatively wide timber trestle (about 25' wide) with steel piles and an approximately 70-ft long aluminum gangway. Similar to the other gangways, this gangway has steel floor grating and landing tracks which have evidence of corrosion.

The Ramp 4 trestle has evidence of minor to moderate wear in decking as well as evidence of fungal decay and minor checks/splits in bullrails and handrails (Figure 2.7). The trestle appears to have had some modifications, with the shoreward end appearing older, more deteriorated than the seaward end. The steel piles at the seaward end are secured into the timber beams with steel plates and bolts, while the shoreward end of the timber structure appears to rest on the steel piles (Figure 2.8). Also noted, although not part of the harbor facilities being inspected, the adjacent timber retaining wall and steel piles that support the adjacent boardwalk appeared to be displaced and broken.



Figure 2.7: Ramp 4 trestle



Figure 2.8: Ramp 4 trestle, noting newer/older portions of timber trestle and pile-to-beam attachments.

### 2015 Timber Floats

Main Floats R, S, and J as well as headwalk Float A from E Float to K Float were installed in 2015 and are constructed of timber frame with HDPE encased flotation tubs, such that there is no timber submerged in the water. Float modules are connected by steel hinges. The floats are secured in place with galvanized steel piling. The floats and piles were found to be in good condition: there was adequate reserve flotation (Figure 2.9) and only minor checks and splits in timber, worn non-skid coating on steel hinges, and evidence of early fungal growth in some areas of decking (Figure 2.10). Many of the piles, in deeper water, have had new anodes installed in 2018 or are included in an anode installation project currently underway which will help to ensure the piles to not prematurely corrode.

Potable water is piped within or under the floats and hose bibs are located periodically on the edge of the floats (Figure 2.10). J Float is equipped with power (combined water/power pedestals) at each stall as shown in Figure 2.11. There is no power service available on R Float or S Float.

Fire suppression systems include fire extinguishers placed on the floats as well as a dry standpipe fire suppression system with an upland charging station for Fire Department use. According to the National Fire Protection Association (NFPA) 303 "*Fire Protection for Marinas and Boatyards*", the fire suppression system appears to be inadequate because the above-water piping is HDPE which is not fire-resistant (Figures 2.12 and 2.13). A failure in part of the piping system due to melting during a fire could render the system useless or worse cause delay in fighting a fire. The above-water HDPE pipe should be replaced with metal pipe or it may be possible to install a suitable fireproof cover sleeve.



Figure 2.9: Timber floats have sufficient freeboard and reserve flotation.

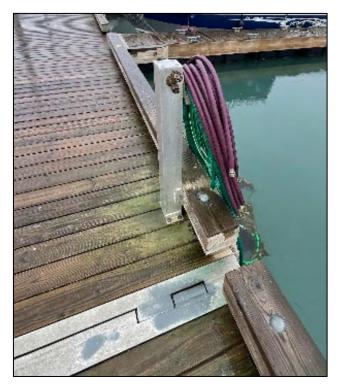


Figure 2.10: Hose bib riser, typical on R & S Floats. Note fungal growth on timber and partially worn antiskid on steel hinge connections.



*Figure 2.11: Typical combined power and water pedestal (J Float).* 



Figure 2.12: Fire suppression system standpipe/hydrant near J Float



Figure 2.13: Fire system HDPE piping on Ramp 4.

## 2002 Timber Floats

Main Floats E, F, G, and H were installed in 2002 and are constructed of timber with polystyrene flotation (framed in timber). Float modules are connected by steel hinges and are anchored with galvanized steel piling. The floats were found to be in satisfactory condition: there was adequate reserve flotation; minor to moderate checks, splits and damage to some timber elements, minor to moderate wear in decking (Figure 2.14), a few worn and broken bullrails (Figure 2.15), worn non-skid coating on steel hinges (Figure 2.16), and evidence of fungal growth in some areas. Areas of consumed galvanizing was observed within the tidal zone on steel piles. Piles on E and F Float had new anodes installed in 2018 and G and H Float are included in an anode installation project currently underway. This will help to ensure the piles to not prematurely corrode.



Figure 2.14: Typical decking wear at high traffic areas (float intersections)



Figure 2.15: Bullrails worn, twisted out of position, and broken from supports.



Figure 2.16: Worn non-skid coating at hinges.

Potable water is piped within or under the floats and hose bibs are provided at each stall, along with power service in a combined pedestal, similar to that on J Float (Figure 2.3). However, the pedestals on these floats appeared to have a coating issue. The paint appeared bubbled and peeled in places, exposing the metal housing to corrosion (Figure 2.18).

Fire suppression systems include fire extinguishers placed on the floats as well as a dry standpipe fire suppression system. The fire suppression system for these floats is supplied from Ramp 2 (Figure 2.17). The above-water piping for the fire suppression system is HDPE which is not a fire resistant material. The above-water HDPE pipe should be replaced with metal pipe or it may be possible to install a suitable fire resistant sleeve.



Figure 2.18: Power/water pedestal coating damage



Figure 2.17: HDPE fire suppression piping at Ramp 2

#### 1992 Concrete Floats

The 1992 Concrete Floats include Main Floats B, C, D and connecting headwalk Float A from B to and including Ramp 2 landing float. These floats are constructed of concrete with steel through rods and a timber waler system. The floatation is concrete-encased polystyrene foam. The floats are secured in place with galvanized steel piling.

The floats were found to be in serious condition. The headwalk float A between B and D Floats appeared as well as the end of main Float C appeared to have a twist in the float suggesting possible broken concrete and/or through rods. In general, the freeboard was low throughout the facility indicating inadequate reserve flotation (Figure 2.19); moderate to major checks, splits, breaks and other damage to timber walers and rubboards (Figures 2.20 and 2.21), and corroded and missing through rods (Figure 2.22). Steel bullrails have been installed by mounting through damaged timber walers, which may result in loss of mooring.

Replacement rubboards have been added in some areas. The concrete surface of the floats had some areas of relatively minor cracking most of which has been repaired.

Piles generally had areas of consumed galvanizing within the tidal zone, and active corrosion was observed on some of the piles (Figure 2.23). The piles had new anodes installed in 2018.



*Figure 2.19: Concrete stall float with low freeboard, and in the water at the end.* 



Figure 2.20: Broken rubboard and corroded through rods



*Figure 2.21: Deteriorated timber rubboard and waler. Steel bullrail mounted in waler.* 



Figure 2.22: Missing through rods.

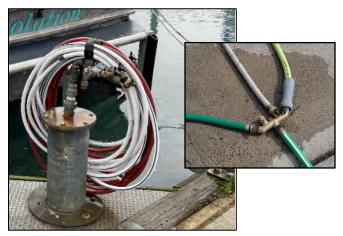


Figure 2.23: Pit corrosion and other areas of active corrosion is evident on some piles

The water distribution system appears to be a piped system from the gangway ramp to the headwalk float, where a single riser with multiple hose bibs is provided near the intersection with each of the three main floats (Figure 2.24). In some locations hoses were attached to the outside of the main float to individual vessel slips. Garden hoses are typically not NSF-approved for potable water distribution and hence should not be used as part of a public water distribution system. Multiple hose connections indicate inadequate backflow protection (Figure 2.24).

Fire suppression systems include fire extinguishers placed on the floats. Like the other floats in System 1, a dry standpipe fire suppression system exists in this area. For these floats it appears to be supplied from Ramp 2 and made of HDPE which is not a fire-resistant material. The above-water HDPE pipe should be replaced with metal, or it may be possible to install a fire rated sleeve.

Power service is provided to B, C and D Floats. Many power pedestals have broken or loose mounts (Figure 2.25).



*Figure 2.25: Water service riser at the head of each main float (left) and multiple hose connections.* 



Figure 2.24: Typical power pedestal, many with damaged mounts. Note also typical minor crack in concrete.

#### 1986 Concrete Floats

The 1986 Concrete Floats in System 1 include Main Floats K, L, M, N, P, Q and connecting headwalk Float A from S Float (Drawing G2). The concrete floats in this portion of System 1 are generally in serious condition, with some specific areas in critical condition. There is very low freeboard throughout the float system (Figure 2.26). Concrete surfacing has widespread areas of patched concrete over patched concrete—showing many years of repairs (Figure 2.27). Some stall floats are listing to one side or have been refurbished by adding timber decking added over the top and lumber attached to the sides (Figure 2.27). The City has added floatation to some of the headwalk/utility floats to keep them from sinking. Many areas of fungal decay and vegetation were observed. Timber bullrails and walers have moderate to major checks and splits, some running through the full depth of the member as well as some that are partially broken from their mountings (Figure 2.28). Cleats mounted in decayed or broken walers also have reduced capacity.

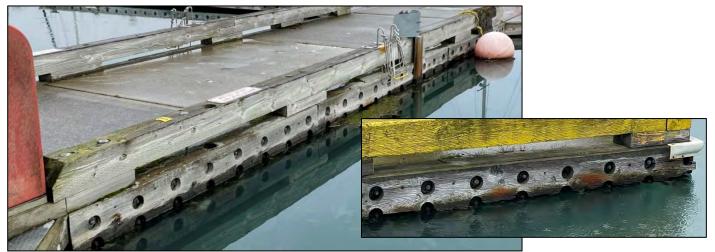


Figure 2.26: Concrete floats showing low freeboard and corroding and missing through rods.



Figure 2.27: Deteriorated concrete surface and concrete repairs, including covering with timber decking.



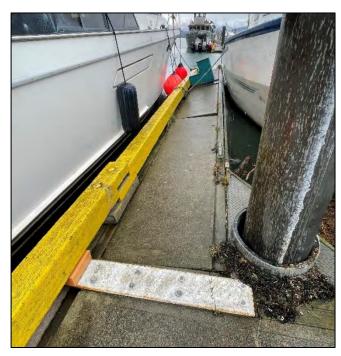
Figure 2.28: Bullrails will major splits and missing section, and cleat mounted in damaged timber waler.

Stall flats on both sides of the Tee floats, at the end of each of the main float rows (Q, P, N, M, L, and K) nearest the main harbor navigation channel, are severely listing and broken loose from their connections to the main float (Figure 2.29). Walers on these floats have major deterioration. Modifications have been made to keep the floats from coming apart (Figure 2.30). It is thought that wave action in the channel acting on the moored vessels in the end slips has overstressed the end floats and caused breakage of the deteriorated structural members in these float connections. This is considered an area of critical condition and immediate repair or removal of the end floats and/or restrictions on use of these slips should be implemented as soon as practicable. Except for these end floats, the rest of these concrete floats in this area are considered to be in serious condition. When these floats are eventually replaced, the fairway distance between J and K Floats as well as between Q and R Floats should be increased to meet current standards (Drawing G2).



Figure 2.29: Tee floats, located along the harbor channel, are broken and severely listing.

Steel piles are used to secure the floats, and in this area of System 1 the original galvanized coating on many of the piles has been consumed and there is evidence of corrosion (Figure 2.31). A project is underway to install anodes on the piles in this area.

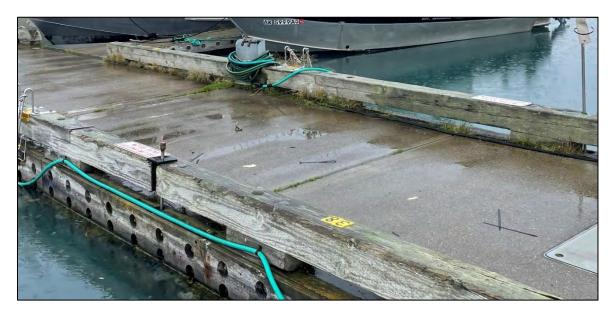




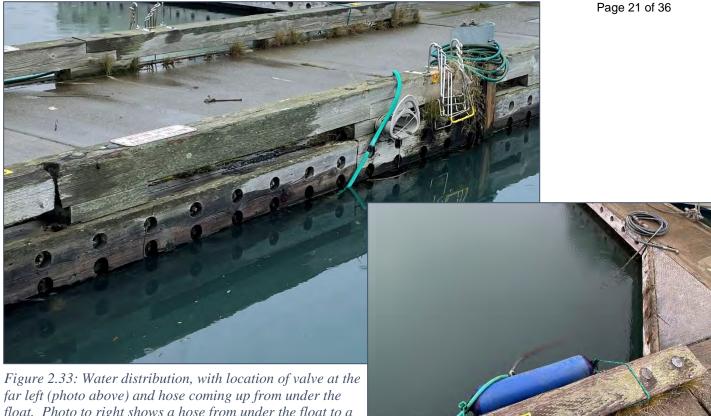
*Figure 2.30: A metal plate has been installed to a broken Tee Float. Note the bullrail has come apart at the splice.* 

*Figure 2.31: Typical steel pile and exterior pile hoop. Note galvanized pile coating is consumed* 

Water service to the 1986 concrete floats in System 1 appears to be distributed by a combination of piping and hoses. There have been many modifications and the exact piping and source to these floats was not clear from topside visual observation. No fixed water piping was visible on the gangway ramp; although there are hose bibs near the top of the trestle at Ramp 4. It is assumed that there is piping along the headwalk float, to the point of the shutoff valves which were observed at the intersection with the main floats. Hoses are attached to the sides of the floats, which may provide service to hose bibs that are located periodically along the main floats. Alternatively, the hose bibs may no longer be connected and hoses go direct to slips as shown in Figure 2.33.



*Figure 2.32: Water service on main float. Note T-handle used to operate the water valve, which is located underneath the float. Garden hoses run from under the float and are attached to the side of the float in places.* 



float. Photo to right shows a hose from under the float to a 3-way connection, with one end going under the float and the other to a nearby slip, with a sprayer attachment.

Note that the garden hoses are not NSF-approved materials and so would not satisfy the requirements of a public water system for potable water use. It is unlikely, given all the various hose connections, that sufficient backflow prevention is provided. Signs should be posted to clarify the water is non-potable. When new floats are installed, the new water system should be constructed of materials suitable for drinking water and include proper backflow prevention, as regulated/permitted by Alaska Department of Environmental Conservation (ADEC).

No power service is available at K through Q Floats.

The fire suppression systems include fire extinguishers placed on the floats as well as a dry standpipe fire suppression system. Similar to the other floats in System 1, the fire suppression system at the 1986 concrete floats appears to be inadequate because the above-water piping is HDPE which is not a fire-resistant material. As noted previously, this piping should be replaced with metal and/or a fire rated covering to meet modern NFPA standards.

Table 2.2 provide a summary of the condition ratings assigned to the various floating docks and other elements within System 1.

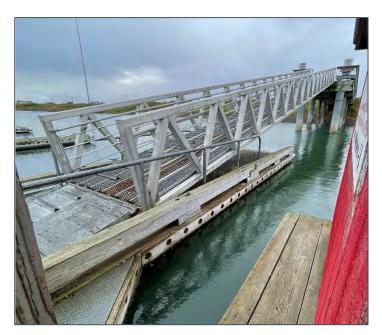
ITEM		RATING	DESCRIPTION
Floating Docks, 1986 Concrete	1.5	Serious-	Lack of freeboard/reserve flotation,
(K, L, M, N, P, Q, & connecting		Critical	concrete and timber deterioration
A)			(serious). Broken structural
			elements at end floats (critical).
Floating Docks, 1992 Concrete	2	Serious	Lack of freeboard/reserve flotation,
(B, C, D, & connecting A)			deterioration of timber and steel
			elements. Possible failures, twist in
			some headwalk/main float modules.
Floating Docks, 2002 Timber	5	Satisfactory	Minor to moderate timber
(E, F, G, H)			deterioration, damage.
Floating Docks, 2015 Timber	6	Good	Only minor damage noted in timber:
(J, R, S, & A from E to K)			checks, splits, and fungal growth.
Piling (steel)	5	Satisfactory	Reduced galvanizing & active
			corrosion on some piles, but new
			anodes have/are being installed.
Trestles (R1, R2)	2	Serious	Deterioration of timer piles and cross
			bracing, missing members, corroded
	_		hardware.
Trestles (R3)	5	Satisfactory	Steel pile/caps, minor deterioration
			of timber.
Trestles (R4)	4	Fair	Shore end moderate deterioration of
			timber and poor connection to piles
Gangways (R1, R2, R4)	5	Satisfactory	Some corrosion/track wear evident
Gangways (R3)	6	Good	
Water System (2002 & 2015	5	Satisfactory	
Floats)	-		
Water System (1986 & 1992	3	Poor	Non-NSF materials (garden hose)
floats)			distribution piping. Inadequate
	-		backflow prevention.
Fire Suppression System	3	Poor	Dry standpipe system (where
			present) does not meet NFPA due to
			plastic materials.

## 2.2 System 2

The Ramp 5 approach trestle and gangway have evidence of wear, typical of their age. Steel piles have evidence of corrosion in the tidal zone. Trestle timber treatment is reduced, some minor cracking in pile caps, and decking has evidence of wear. The gangway ramp, at 70-ft long does not meet ADA-guidelines; however, as long as there are sufficient ADA slips (5 total) in the 20-24-ft length available in the harbor (i.e., System 1), this is not required; although it is recommended to replace the ramp with an 80-ft minimum length ADA ramp when the trestle and/or floating docks are replaced. The gangway ramp bottom slide guides have evidence of wear and these as well as the steel floor grating have evidence of corrosion (Figure 2.34). However, there is no visible major damage or defects that immediately affect the capacity of these structures; other than the float on which the gangway ramp lands has low freeboard, as is noted by the timber walers in/near the water especially at the shoreward end (Figure 2.35).



*Figure 2.34: Ramp 5 aluminum gangway w steel floor grating.* 



*Figure 2.35: Ramp 5 trestle and gangway. Note landing on concrete float with reduced freeboard.* 

The concrete floating dock modules appear to be in serious condition. The floats throughout System 2 have reduced freeboard (Figure 2.36) due to a lack of flotation and/or saturated foam as a result of the concrete encasement having spalled or cracked. The City has added flotation tubs underneath to supplement the lack of flotation in the most severe locations. The structural through rods which connect the exterior walers have evidence of corrosion throughout the system and several are missing—as no rod/nut was visible on the sides of the floats (Figure 2.37). Many rubboards are cracked and many bullrails, used for securing mooring lines, are cracked or deteriorated due to fungal growth (Figure 2.38), resulting in loss of structural capacity in some locations.



*Figure 2.36: System 2 Headwalk float has reduced freeboard and appears to be listing to one side, as noted by partially submerged rubboards.* 

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Figure 2.37: Through rods corroded or missing.

Years of maintenance is evident: patches over already patched



Figure 2.38: Deteriorated bullrails

concrete (Figure 2.39) decking over deteriorated concrete stall floats (Figure 2.41), replacing sections of timber bullrails and rubboards, and adding safety equipment including fire extinguishers and ladders is evident and have allowed continued use of these floats.



*Figure 2.39: Deteriorated/patched concrete on main floats.* 



*Figure 2.40: Patched concrete and deteriorated waler and rubboards on stall floats.* 

Piles in this area are steel and have consumed galvanizing and corrosion evident; however, these piles are included in an anode installation project currently underway.

The water distribution system at System 2 appears to have been added and modified 3982<sup>6</sup> the<sup>6</sup> years. It is fed from System 1 (S Float) via an underwater flex hose. Hose bib stanchions are located periodically on the floats (Figure 2.42). Users run t hoses across the floats to the nearest hose bib. A reduced pressure backflow prevention assembly was not evident/observed for this system. The hose bibs are equipped with vacuum breakers; however, these are not reliable or normally accepted as the only backflow prevention device in a public water system. In addition, some hoses had splitters to individual slips, and these did not have vacuum breakers.



*Figure 2.41: concrete stall float with decking attached over the top.* 

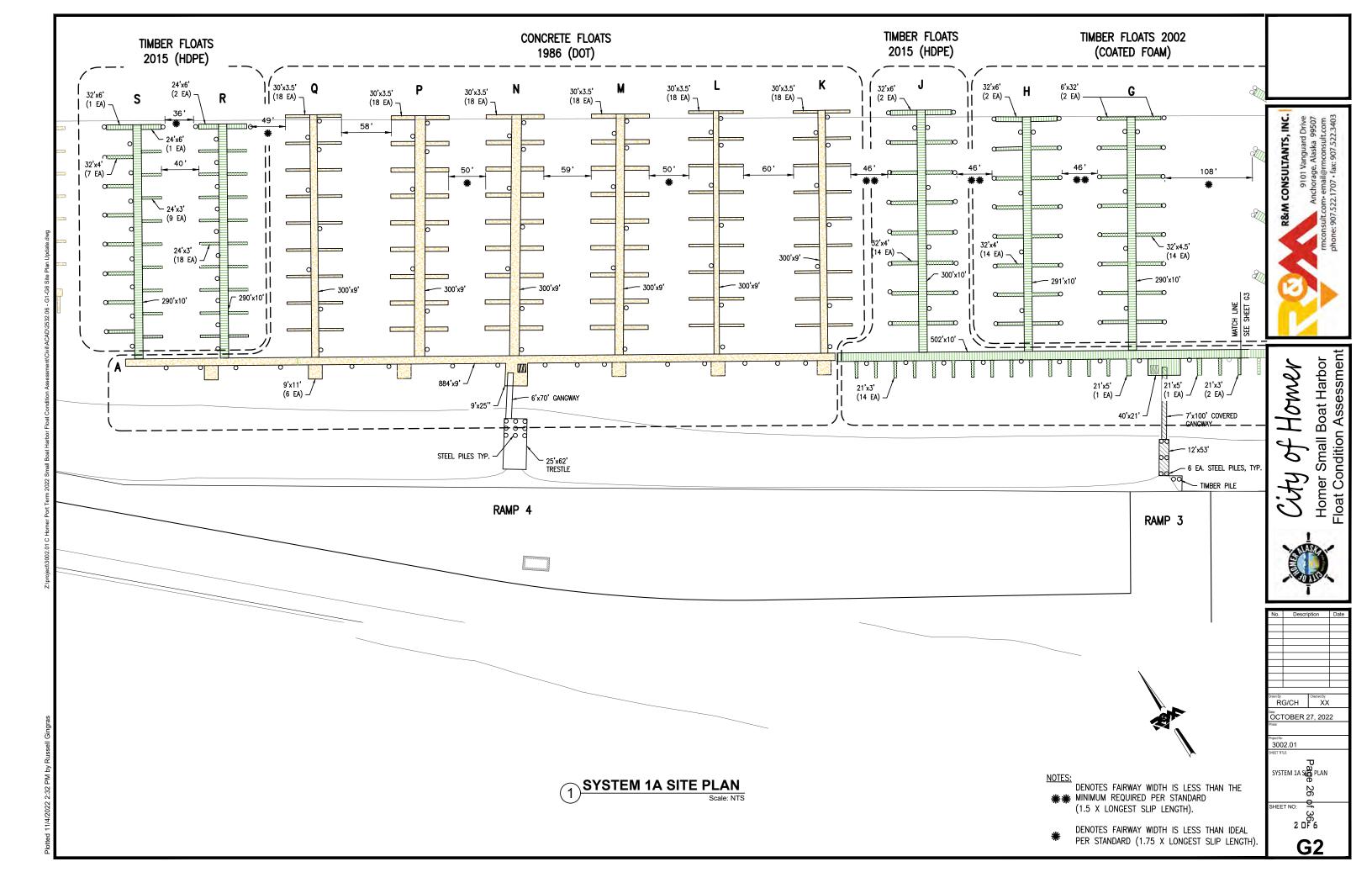


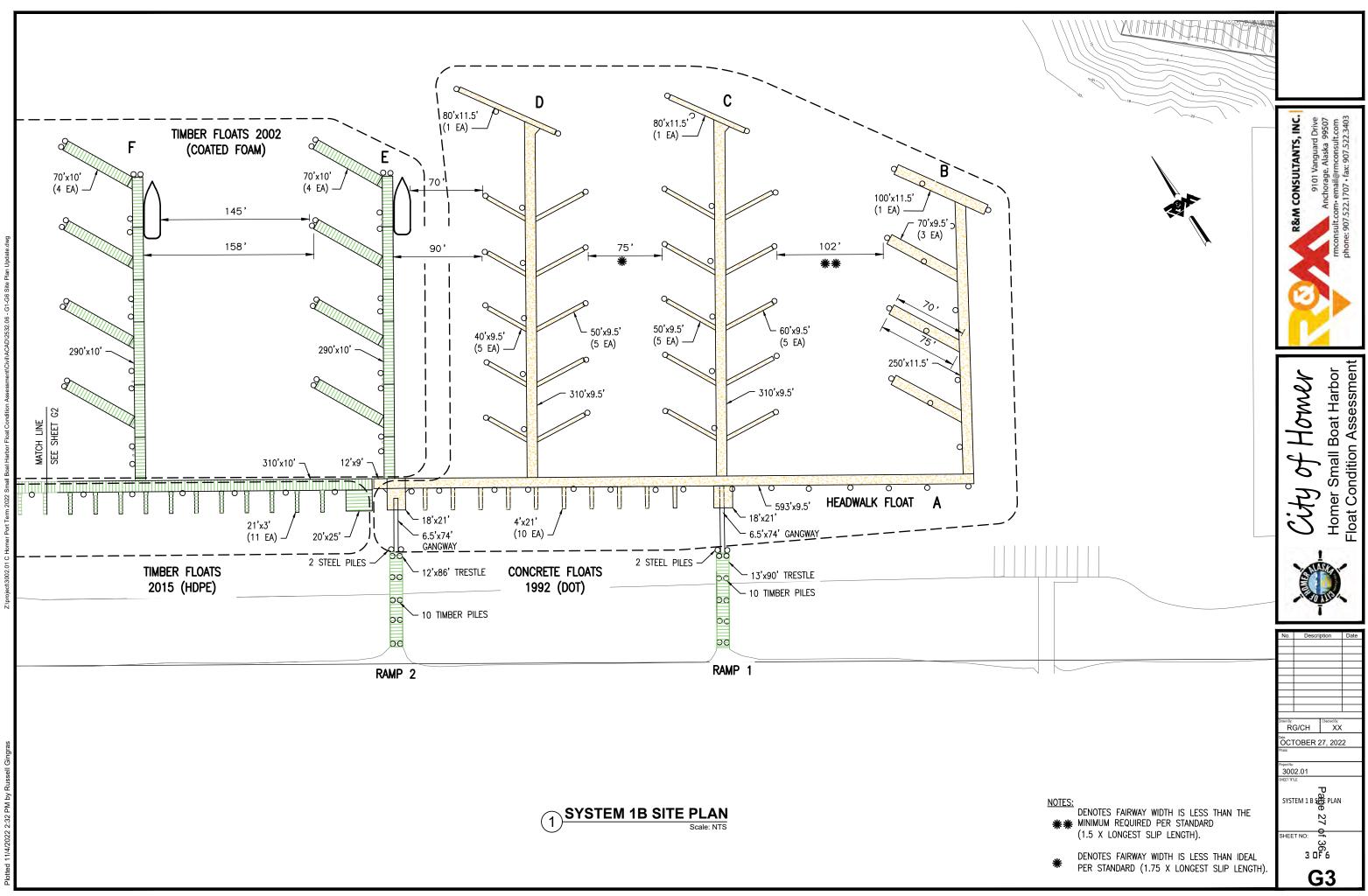
Figure 2.42: water hose bib and hose stand.

System 2 fire suppression system is in poor condition, primarily due to not meeting modern standards. The fire suppression system includes periodic extinguishers and other equipment (in a shed) on the float system and a hydrant in the uplands. However modern standards such as National Fire Protection Association (NFPA) 303 "*Fire Protection for Marinas and Boatyards*" include a piped dry standpipe system that would allow an upland charging station and risers for Fire Department access on the float system. Table 2.3 provides a summary of the condition ratings assigned to System 2.

ITEM		RATING	DESCRIPTION		
Floating Docks (1986)	2	Serious	Low freeboard, lack of reserve flotation.		
			Deteriorated/missing thru-rods and bullrails.		
Piling (steel)	5	Satisfactory	Reduced galvanizing observed in tidal zone.		
			Anode installation project underway.		
Trestle	5	Satisfactory	Cracks in timber pile caps, minor		
			deterioration/wear in other timber members.		
Gangway (R5)	4	Fair	Evidence of corrosion and wear of bottom		
			guide, does not meet ADA.		
Water System	3	Poor	Many modifications, non-NSF hoses, likely		
			inadequate backflow prevention.		
Fire Suppression	3	Poor	Does not meet NFPA, lacks dry standpipe fire		
System			suppression system.		

Table 2.3	System	1 2 Co	ndition	Summary
				<u> </u>





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# Homer Small Boat Harbor October 10, 2022

# **System 4 Condition Report**

Prepared by: Kimberly Nielsen, PE R&M Consultants Inc. 9101 Vanguard Drive Anchorage, AK 99507 Prepared for: Bryan Hawkins Port Director/Harbormaster Homer Port & Harbor 4311 Freight Dock Road Homer, AK 99603



#### 2.3 System 4

The Ramp 6 and Ramp 7 approach trestles and gangways appeared to have no major damage or defects visible. The gangway at Ramp 7 provides ADA-access to System 4, therefore the shorter gangway at Ramp 6 is acceptable.

#### 1964 Timber Floats

The timber floats of Floats CC, DD, EE, and GG are the oldest in the harbor and are likely about 20 or 30 years beyond the original design life. Major maintenance such as adding flotation to the end of main floats (GG) as well as replacing timber piles (with timber and/or steel piles), decking, and stall floats is evident and have allowed continued use of these floats. Despite this, many bullrails, used for securing mooring lines, are cracked or deteriorated (Figure 2.44), resulting in loss of structural capacity in some locations. Some older timber piles have areas of rot (Figure 2.45). Some newer timber piles show evidence of section loss due to wear (Figure 2.46). Flotation foam has disintegrated in large areas throughout these main and stall floats (Figures 2.47 and 2.48 This causes all floats to have reduced freeboard, which ultimately reduces load capacity, and causes increased rate of corrosion on hinges, bolts, and pile collars. Float DD appeared to have notably low freeboard—as low as 4 to 6 inches in places—with some pile collars submerged (Figure 2.49). The entire main float appears to list to one side. The harbor staff indicated that they have to come shovel these floats at every snowfall to prevent them from sinking. The lack of flotation and deteriorated structural members throughout these four main floats (CC, DD, EE, GG) can cause the stall floats to twist or list to one side (Figure 2.50). Lack of flotation also causes the stall floats to be unstable or bouncy when walking on them, resulting in a potential safety hazard.

The headwalk Float AAA between Float EE and Float GG appears to be warped, suggesting a possible failure in structural members below the deck or lack of flotation or both (Figure 2.51). There are notably fewer piles on this section of Float AAA, which has contributed to this section of the float being overloaded.

Concrete float modules located at the end of EE Float have spalled concrete, exposing the foam flotation and what may be a steel reinforcing mesh (Figure 2.52).



Figure 2.43: Stall Float on CC Float with damaged timber waler, rubboard, and decking.



*Figure 2.44: Cracked and deteriorated bullrail* 

*Figure 2.45: Timber pile with advanced deterioration/rot* 

*Figure 2.46: Moderate wear on timber piles.* 



*Figure 2.48: View between deck boards of deteriorated flotation foam.* 



Figure 2.47: View under deck at a pile location. The odd shaped grey item floating between the pile and persons foot is very deteriorated flotation foam that is loose.

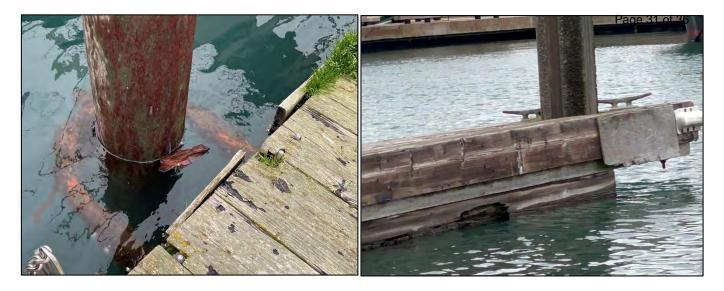


Figure 2.49: Low freeboard resulting in submerged pile collar. Also note hardware connections protruding through decking.

*Figure 2.50: Example of a listing stall float (GG Float). Also note advanced rot/deterioration of below-deck timber.* 



*Figure 2.51: Headwalk Float AAA between EE and GG Floats.* 



Figure 2.52: Spalled/missing concrete below deck with exposed foam and reinforcing.

## 2002 and 2015 Timber Floats

The FF Float system timber elements and steel piles and hardware show evidence of wear that is normal for a 20-year old facility with good maintenance. HH Floats and JJ Floats, along with the connecting AAA headwalk float were constructed in 2015 and appear to be good condition, with the exception of several bullrails, which appear to be overstressed. Several bullrails are damaged and bent at their mountings (Figure 2.53). Repairs might include more robust bullrail connections

that are more suitable for the vessels utilizing this float, possibly mounted to interior ይቸዋድቲያ ያቆβ6 members offset from the edge of the float.



*Figure 2.53: Example of several bullrails that have been damaged on JJ Float.* 

Water service is provided to the System 4 by means of a seasonal HDPE pipe that runs under the gravel harbor slope and underwater to hose bib risers on the headwalk float (Figure 2.54). It appears the main floats and slips are serviced from the headwalk float hose bibs by a system of garden hoses to the older main floats. The newer main floats appear to have in-float piping distribution to hose bibs located in the power pedestals (HH and JJ Floats).

Note that the garden hoses are typically not NSF-approved materials and so would not satisfy the requirements of a public water system for potable water use. Given the various hose connections, backflow contamination is possible. Signs should be posted immediately to indicate the water is non-potable. When new floats are installed, the new water system should be constructed of materials suitable for drinking water and include proper backflow prevention, as regulated/permitted by ADEC.



*Figure 2.54: Typical water service to main floats provided from headwalk float by various hoses/connections.* 



Float EE has electrical power pedestals that are older generation, while the power service on HH and JJ Floats is modern (Figure 2.55). Note that a specific electrical inspection was not conducted to check for code/safety issues.

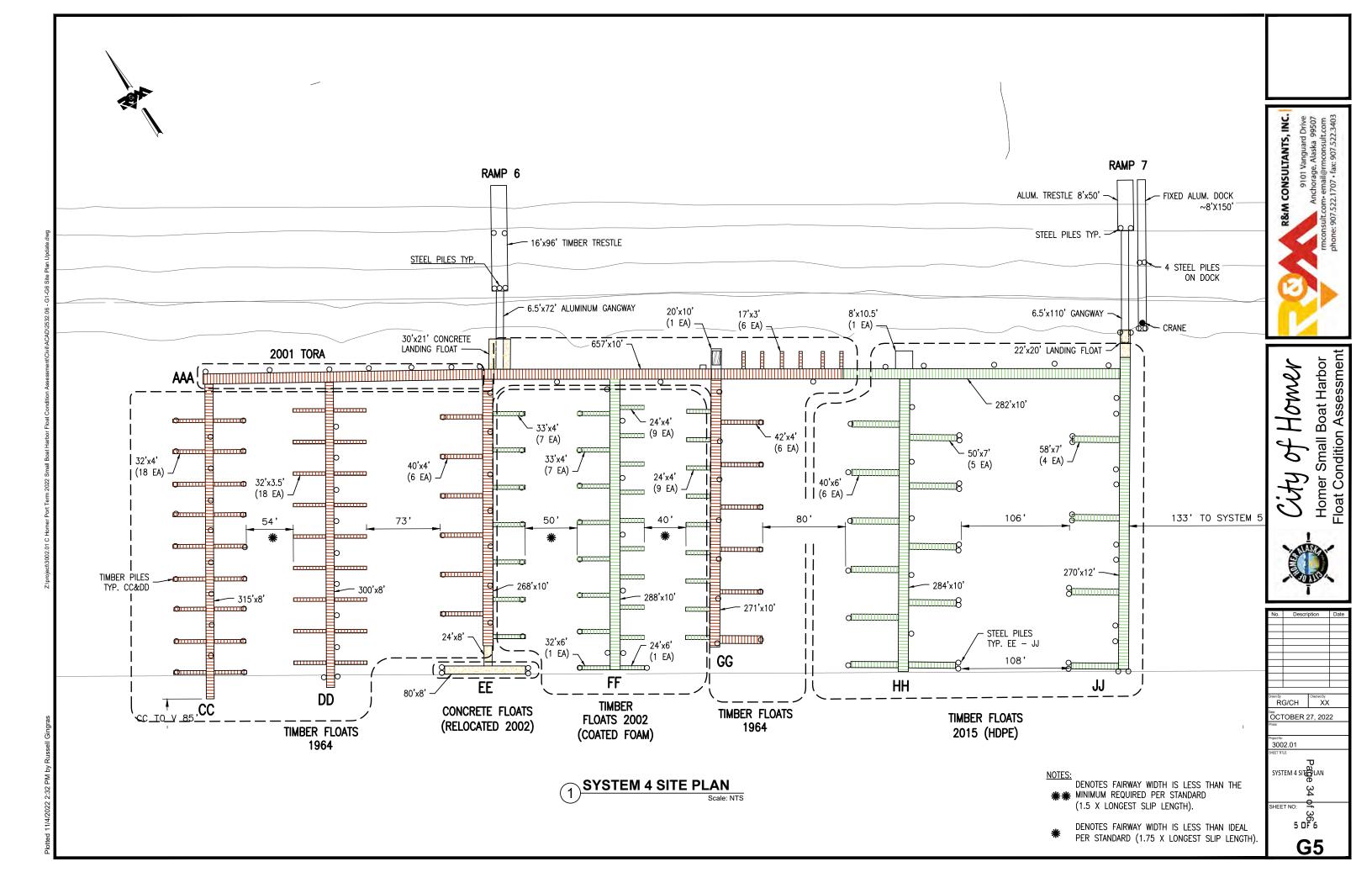
System 4 did not appear to have a modern dry standpipe fire suppression system. Fire extinguishers are provided throughout the float system and a red shed has additional fire fighting equipment. However, modern

*Figure 2.55: Electrical power service pedestals on EE Float (left) and typical of HH & JJ Floats (right). Note that the newer pedestal also incorporates water hose bibs.* 

systems with a dry standpipe suppression system capable of providing sufficient water flow and pressure to fight a large vessel fire is recommended. The following table provides a summary of the condition ratings assigned to System 4.

Table 2.4	System	4 Condition	Summary
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ITEM	RATING		DESCRIPTION
Floating Docks	2	Serious	Low freeboard, lack of reserve flotation.
(CC, EE, GG)			Deteriorated, broken timbers, listing stall floats.
Floating Docks (DD)	1	Critical	Very low freeboard. Lack of flotation. Load
			restrictions are in place (immediate snow removal).
Floating Docks (FF)	5	Satisfactory	
Floating Docks AAA	2	Serious	Advanced deterioration of structural elements
between EE & HH.			and/or flotation has affected float performance.
Floating Docks	4	Fair	Float modules are satisfactory; however, bullrails on
(HH, JJ, and			JJ appear overstressed and damaged, reducing
connecting AAA)			load capacity for moorage.
Float Piling (timber)	3.5	Fair to Poor	Some timber piles have areas of rot. Some piles
			are relatively sound, with moderate section loss.
Float Piling (steel)	5	Satisfactory	Reduced galvanizing observed in tidal zone. Anode
			installation project is underway.
Trestles (R6)	5	Satisfactory	
Trestles (R7)	6	Good	
Gangways (R6, R7)	6	Good	
Water System	3	Poor	Non-NSF materials (garden hose) distribution
-			system. Inadequate backflow prevention.
Fire Suppression	3	Poor	Does not meet NFPA, lacks dry standpipe fire
System			suppression system.



In response to Chair Matthews asking when they can expect updated conceptual designs, Port Administrative Supervisor Woodruff explained what components are expected to be included in the revised designs and that they plan on having them by next week before City staff travels to Juneau for funding lobbying efforts. Any materials received will be included in their next PHC meeting packet.

#### 8. PUBLIC HEARING

#### 9. PENDING BUSINESS

#### **10. NEW BUSINESS**

10.A. FY2023-24 Federal Infrastructure Investment and Jobs Act (IIJA) Work Plan – Port Projects Agenda Item Report PHC 23-006

Chair Matthews introduced the agenda item by reading the title and asked for a motion to begin discussion.

SHAVELSON/PITZMAN MOVED TO SUPPORT A PORT SECTION OF THE PROPOSED WORK PLAN, AND RECOMMEND THAT CITY COUNCIL APPROVE A PRELIMINARY BENEFIT COST ANALYSIS AND POTENTIAL FULL BENEFIT COST ANALYSIS FROM ADMINISTRATION THAT SUPPORT PURSUING IIJA FUNDING FOR PORT AND HARBOR PROJECTS.

Mayor Castner shared his thoughts on the Federal RAISE planning grant that's underway to access planning and design funding for Streets, Sidewalks, and Trails. The Spit is a people-oriented place with multiple user groups; the City can use that information to make a compelling case in their application.

There was discussion on the following:

- Support for including the large vessel harbor expansion project under cargo and deliverables.
- Importance of tapping into the commercial fishing industry's reliance on transportation and dock use as a funding source and including that into the Comprehensive Plan now, not just in 10 years with a new harbor.
- Clarification on the three different types of grants and Federal funding programs that the City is applying for and what their focuses are on.

VOTE: YES: VELSKO, ZEISET, FRIEND, SIEKANIEC, MATTHEWS, PITZMAN, SHAVELSON

Motion carried.

#### **11. INFORMATIONAL MATERIALS**

- 11.A. Reappointment of Commissioners Pitzman & Friend Agenda Item Report CC-23-010
- 11.B. Critical Habitat Area Management Plan, Provided by Mayor Castner ADF&G Kachemak Bay & Fox River Flats Critical Habitat Areas Management Plan, December 1993
- 11.C. Port & Harbor Statistics Harbor EOY 2022 Ice & Crane 2022

#### CITY OF HOMER FINANCIAL SUPPLEMENT

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PROJECT NAME DEPARTMENT REQUESTED AMOUNT	PIDP Grant Applicat Port and Harbor \$ 63,070	tion - Professional and	Technical Assistance	DATE <u>02/08/2</u> SPONSOR <u>Port Dir</u>	
DESCRIPTION	movement of goods into, o To be successful an applic requires significant projec funds and grant writing. Given the short timeframe	out of, around, or within a po ation must demonstrate com t planning time, engagement	ort. petitiveness on a national level in al of partners and the public, environr nnouncement and grant submission	e in FY23 to projects that improve the safety, effi lignment with the program goals and the benefit nental review, technical and benefit-cost analys deadline, leveraging additional expertise is nece	s provided by the project, which es, identification of matching
FUNDING SOURCE(S)	OPERATING	GF CARMA	GF FLEET CARMA	PORT RESERVES	WATER CARMA

			•••••		
	0%	0%	0%	100%	0%
	HAWSP	HART-ROADS	HART-TRAILS	PORT FLEET RESERVES	SEWER CARMA
	0%	0%	0%	0%	0%

FUNDING SOURCE 1: PORT RESERVES		FUNDING SOURCE 2:	FUNDING SOURCE 3:
Current Balance	\$ 2,367,407	Current Balance	Current Balance
Encumbered	\$910,228	Encumbered	Encumbered
Requested Amount	\$ 63,070	Requested Amount	Requested Amount
Other Items on Current Agenda	\$0	Other Items on Current Agenda	Other Items on Current Agenda
Remaining Balance	\$ 1,394,110	Remaining Balance	Remaining Balance
FUNDING SOURCE 4:		FUNDING SOURCE 5:	FUNDING SOURCE 6:
Current Balance		Current Balance	Current Balance
Encumbered		Encumbered	Encumbered
Requested Amount		Requested Amount	Requested Amount
Remaining Balance		Remaining Balance	Remaining Balance