PAPKE'S LANDING

1. INTRODUCTION

Presently a State of Alaska asset, managed by the Alaska Department of Transportation and Public Facilities (ADOT&PF), Papke Landing is a long approach, gangway and floating dock facility serving small transient watercraft. A well-used facility, Papke Landing is popular among local residents and visitors, alike.

It is anticipated that this facility, and the underlying land will eventually become the property of the Petersburg Borough.

a. History

Originally constructed in 1961 by the State of Alaska Department of Public Works, Division of Water and Harbors, Papke Landing was originally designated the Petersburg Approach and Floats Project No. W6205.

In 1975, Papke Landing underwent a major renovation, as part of Division's simultaneous repair and upgrade effort at North Harbor, under Project No. 4-76174.

It is uncertain whether any interim inspections have taking place prior to this visual condition assessment.

b. Description

The following paragraphs are intended to provide a general, overall description of the construction of the existing facility components observed at Papke Landing.

Approach:

The approach (Photo 2) to the Papke Landing float is a timber trestle constructed of fifteen (15) – two-pile bents at 17' o.c., constructed of 10" (nominal) dia. timber pile, with 10x10 (nominal) timber pile caps, supporting two (2) 4x10 (nominal) interior timber stringers, and 6x10 (nominal) exterior stringers, overlain with a 6'-0"' wide walking surface of 2x12 (nominal) timber decking.

Cross-bracing between bent piles is single tier 3x8 (nominal), with the last two bent spaces braced in the longitudinal direction of trestle, on each side, as well. 4x4 (nominal) posts, 4'-0" long (from bottom of stringer) at 8'-0" centers support a 2x4 (nominal) girt with a 2x6 (nominal) hand rail in the flat position. Two (2) - intermediate 2x6 (nominal) girt rails extend continuously on each side of the trestle, about equally spaced from the deck to the handrail. No continuous toe or kicker plate, or wheel guard is present.

Gangway:

The gangway is an nominally 5' wide by 50' long steel open framed truss type, with 2" nom. dia. pipe top chord, a 6" x 2" channel bottom chord, and a 1-7/8" nom. dia. pipe web in a basic Howe configuration. Three 1" nom. dia. railing pipes extend continuous along each side, at roughly equal spacing between deck and top chord. The gangway is decked for its full width with welded steel grating with long, open, raised serrations perpendicular to the direction of travel. The decking is modular, six (6) sections wide.

Two sections on one side of the gangway have L3x3x3/16 tread angles at 16" o.c. laid corner up and attached to the welded grating.

At the top end of the gangway, the bottom chord channel is hinged-connected to the end of the approach trestle with a link assembly. A hinged, radiused, smooth grating transition plate provides access from gangway to trestle deck. At the bottom end of the gangway, the bottom flange of the channel is filleted to a radius, and slides in an upturned 3" x 1-1/4" guide channel mounted to the float. A hinged, flat, smooth grating transition plate from gangway to float deck.

Float:

The main float is a nominal 10' wide by 100' long timber float with rows of four (4) – 10" thick x 20" wide x 9' long polystyrene planks, grouped at approximately 12'-6" o.c. The planks support 6x6 (nominal) top sills at 6'-0" o.c. The top sills are bolted through the planks to 3x6 (nominal) bottom sills. The floatation planks are bounded on the outboard edges with 2x10 (nominal) siding.

The top sill framing supports two (2) – 4x6 (nominal) interior stringers and 6x8 (nominal) flatwise exterior stringers, which are overlain with 2x12 (nominal) decking. The outboard faces of the float framing are protected by 2x12 (nominal) bumper boards, and an 8x8 (nominal) tie-off rail on 3x8 (nominal) blocking is provided along all outboard edges of the float.

The gangway float is a nominal 10' wide by 63' long timber float, positioned perpendicular to, and approximately centered on the main float. It is of substantially similar construction.

The main float is held on station by four (4) – 12" (average) dia. timber guide piles along the shoreward edge of the float; two on either side of the gangway float. The outer guide piles are laterally supported from the top by two additional timber piles which batter toward shore. The inner guide piles are laterally unsupported at the top.

The landward end of the gangway float is held on station by a 12" (nominal) dia. timber guide pile situated on one side. The top of the guide pile is laterally supported away from the edge of the gangway float by two additional timber batter piles.

2. DETAILED ASSESSMENT

Approaches, Gangways:

The timber approach is in good condition (Photo 2). It was reportedly re-decked and new handrails were installed in 2013. The handrail and decking appear to be constructed using off the shelf dimensional treated lumber. Treatments used in this type of lumber are typically ACQ or similar, which do not have the same long term design life as those typically specified in marine applications. It can be expected that the new timber decking will be good for 10 years or so.

The piling, cap, and stringers (Photo 3) are heavily creosoted, and appear to be in good condition. It appears these timber components have approximately 20 years of useful life remaining before requiring significant repairs.

The steel gangway is in good condition (Photo 5), with only minor locations of coating loss and surface rust. The gangway is approximately 50' long, making it very steep at low tides, and not suitable for ADA access. It is recommended that the gangway be replaced as part of any significant rehabilitation to the approach or floating dock.

Timber Float:

The timber float (Photo 4) is in poor condition, and it appears to be at or near its useful life. The decking is mostly in fair condition with many boards being highly weathered. About 10 % of the boards are spongy and deflect significantly when walked on (Photo 8). The bullrail has locations of rot and decay, frequent structural cracks and splits, and severe wear (Photo 6, 7). Several of the blocking are missing, and many bolts are loose or compromised (Photo 24). The bullrail is no longer sound, and may not be capable of adequately securing vessels. The rub strips are in poor condition, showing signs of heavy wear or missing completely. They are pulled up at the joints, and show cracks and abrasion damage.

The fasteners in general appear to retain most of their section, however, the galvanizing is completely gone and corrosion is moderate with some showing heavy scaling (Photo 11, 12).

The existing timber piling appear to be in fair condition above the waterline, though rot and vegetation are apparent at the pile tops. It also appears the pile hoops have worn flat spots into the piling, reducing their sections (Photo 9). It is recommended that the piling be pulled and replaced at the same time as the float.

The flotation on the northeast corner of the float is heavily damaged (Photo 10). It appears outermost sill was damaged and the floatation is somewhat loose. More of this type of damage can be anticipated at more locations, as some of the other sills appear rotted and split.

It is recommended that the float be replaced with a heavy duty concrete, timber, or steel pontoon unit. The location is exposed, and heavy currents likely bring ice and other debris in contact with this float. The float does not appear to be on the verge of breaking loose, but it has reached its useful life. Without repair or replacement, it is not expected to be safely useable beyond the next 5 years.

The float reportedly grounds at negative tides. Soundings show the shoreward end of the gangway float is at approximately -1' elevation (MLLW) and the middle of the outer face is at -5.5'. This shows that the gangway landing float grounds at low tide, and the outer face of the dock may not be useable by medium size vessels at extreme low tides. If the float is replaced, it should be moved offshore to deeper water to increase its functionality. If the float was moved out approximately 30', an ADA compliant 80' gangway could be installed, without substantial modification to the approach geometry.

A renovation/replacement project at this location should include safety features such as life rings, fire extinguishers, and safety ladders, and an accessible gangway at a minimum.

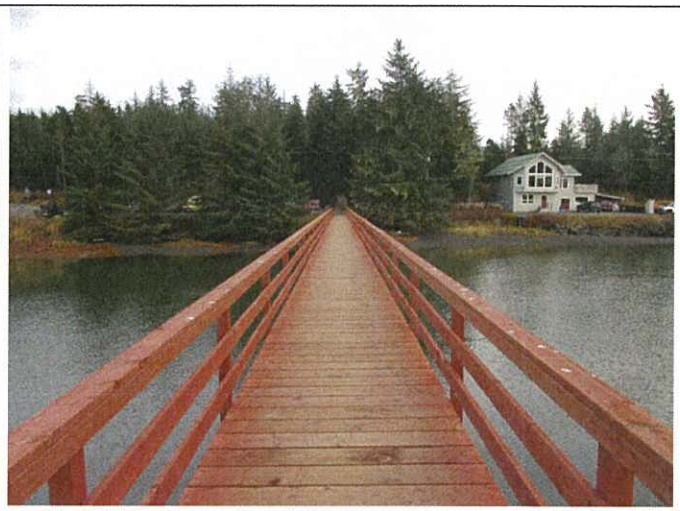
Figure 5 indicates some soundings and freeboard values measured at the Papke Landing float.

PAPKE'S LANDING

Referenced Photos

Papke's Landing Photos

1. **Papke's Landing**



2. **Papke's Approach, Topside**

3. **Papke's Approach, Typical Framing**

4. **Papke's Float**

5. **Papke's Gangway**

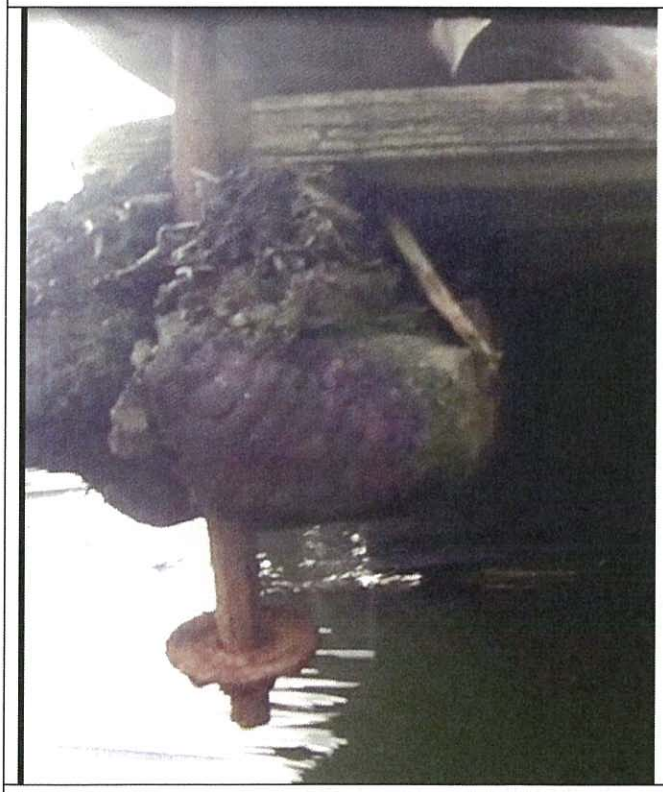
6. **Papke's Worn Bullrail and Decking.**

7. **Papke's Worn, Broken Bullrail**

8. **Papke's Float Decking**

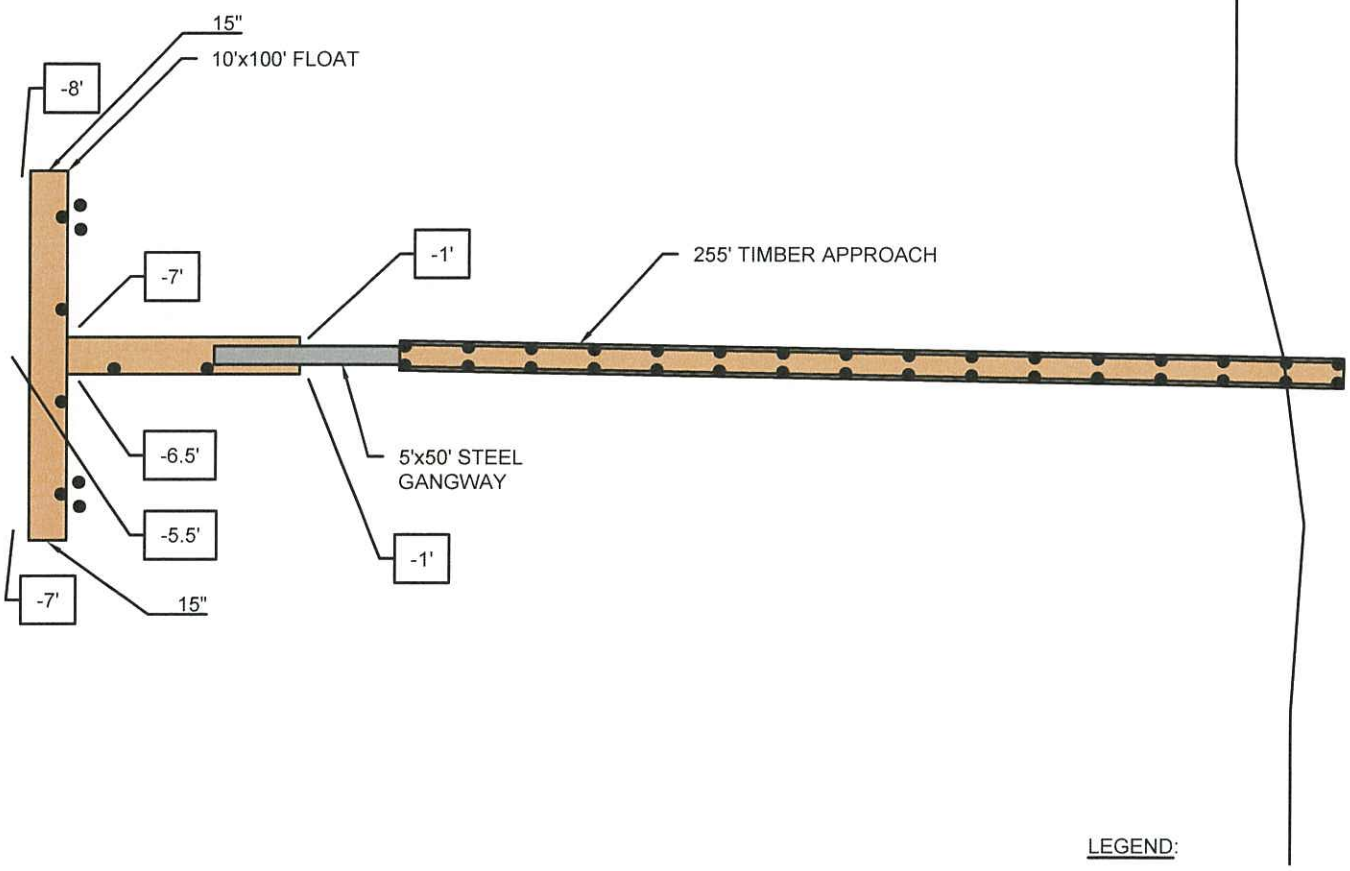
9. **Wear on guide pile, note vegetation**

10. **Damage to Flotation and Sill**



11. **Damage sill and bolt, note corrosion.**

12. **Damaged/ Loose bolt, note corrosion**



NOTE:
MUDLINE ELEVATIONS ARE DERIVED FROM SOUNDINGS AND OBSERVED WATER ELEVATIONS AT THE TIME OF INSPECTION, AND SHOULD BE CONSIDERED APPROXIMATE
DATUM: MLLW = 0.0'

LEGEND:

- PILE
- -XX' MUDLINE ELEVATION
- 14" FREEBOARD

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PAPKE'S FLOAT

0 50 100

FIGURE 5

PREPARED FOR: PETERSBURG BOROUGH

DATE: 11/17/15

PAPKE'S LANDING
Opinion of Probable
Construction Cost (OPCC)

moffatt & nichol

Item No.	Description	Approx. Quantity	Unit	Unit Cost ($)	Extended Cost (Rounded)
1	**MOBILIZATION & DEMOBILIZATION**		LS	$ 250,000	$ 250,000
2	**CONSTRUCTION SURVEYING**	1	LS	$ 10,000	$ 10,000
	Float Replacement				
3	**Demolish Existing Float and Gangway**	1	LS	$ 50,000	$ 50,000
4	**Install new 10'x100' Float**	1	EA	$ 150,000	$ 150,000
5	**Install Gangway Landing Float**	1	EA	$ 40,000	$ 40,000
6	**Install New 80' Gangway**	1	LS	$ 110,000	$ 110,000
7	**Install Steel Piling**	10	EA	$ 10,000	$ 100,000
8	**Install Life Rings, Fire Extinguishers and Safey Ladders**	1	LS	$ 20,000	$ 20,000
	Total Float Replacement				**$ 470,000**
	Estimated Construction Cost				**$ 730,000**
	Contingency			(25%)	$ 183,000
	Opinion of Probable Construction Cost				**$ 913,000**
	Planning, Permitting, Design and Bid Documents			(10%)	$ 91,000
	Contract Administration, Construction Inspection & Other Indirect Costs			(5%)	$ 46,000
	Estimated Project Cost				**$ 1,050,000**

Note: All estimates are in 2015 USD and rounded to the nearest thousand dollars.