ReidMiddleton
CIVIL ENGINEERING
STRUCTURAL ENGINEERING
SURVEYING

April 17, 2024
File No. 242024.003

Shawn Bell
Port and Harbors, Haines Borough
Small Boat Harbor
32 South Front Street, P.O. Box 1209
Haines, Alaska 99827

Subject: Preliminary Concept Design Development of Haines Cruise Ship Floating Dock Facility

Dear Mr. Bell:

This Preliminary Concept Design Report contains proposed concept design information for the Port Chilkoot Cruise Ship Dock located in Portage Cove in Haines, Alaska. Reid Middleton, Inc., used existing drawing and report information along with input from the Borough of Haines and Rick Erikson (Cruise Line Agencies of Alaska) to develop three concepts to meet the needs for future cruise ships and touring vessels that visit the Chilkoot Dock.

A summary of the project scope, site requirements considering environmental and mechanical loading and vessel needs, proposed floating dock concepts, and an opinion of probable construction costs are provided. Proposed concept layout, details, and costs will be further developed based on input received from the Borough of Haines and Cruise Line Agencies of Alaska.

PROJECT UNDERSTANDING

The Borough of Haines contacted Reid Middleton, Inc., to provide a scope of services to develop three conceptual design alternatives for the new cruise ship floating dock facility adjacent to the south side of the existing Port Chilkoot Cruise Ship Dock.

After meeting with the Borough of Haines, it was determined that three new concepts should be provided for supplemental passenger loading and unloading for cruise vessels that moor to Chilkoot Dock. Additional passenger loading and unloading areas are required due to the fixed height of the existing dock and the approximate 20-foot tidal swings that occur daily at the site. Additionally, the new floating dock concepts should include moorage for smaller touring vessels up to 150 feet long and cruise line tender vessels. The development of the three concepts will each consider the requirements for cruise ship operations, locations, long-term performance, and construction costs, which include material and transportation costs. Preliminary engineering for the float guide pile sizing and spacing will be provided along with project constraints, requirements, and advantages and disadvantages for each concept.

SITE REQUIREMENTS

The existing Chilkoot Dock site was analyzed for site-specific tidal data, environmental (wind, current, and wave), and mechanical (small vessel impact) loading. Cruise ship information was provided by Cruise Line Agencies of Alaska and Holland America Group.

Tidal Data

The following tidal elevations were obtained from the nearest active National Oceanic and Atmospheric Administration (NOAA) station. Elevations are from NOAA Station No. 9452400 Skagway, Taiya Inlet, Alaska. All elevations listed below are in Mean Lower Low Water (MLLW). For reference, the top of the existing Chilkoot Cruise Ship Dock is approximately +30.0 feet MLLW.

Highest Observed Tide	Max Tide	+26.82 ft. (10/22/1945)
Mean Higher High Water	MHHW	+16.73 ft.
Mean Sea Level	MSL	+8.83 ft.
Mean Lower Water	MLW	+1.62 ft.
Mean Lower Low Water	MLLW	0.00 ft.
Lowest Observed Tide	Min Tide	-6.56 ft (01/04/2022)

Concept designs account for the daily tidal fluctuation by accounting for environmental and mechanical loading applied at the Max and Min Tides. Additionally, proposed gangway slopes are checked for American Disability Act (ADA) compliance at low water and high water to ensure all passengers can load and unload according to code requirements.

Environmental Loading

For small touring vessels, the wind and current loads acting on the moored vessel condition along with accidental berthing impact from a small touring vessel was determined. A wind-driven design wave was determined and applied to the proposed floating dock. These loads were then used to determine the quantity and size of the steel pipe guide piles that secure the proposed floating dock concepts.

Wind Load on a Moored Vessel:

A design wind speed of 105 miles per hour (mph) was used according to ASCE 7-16 Mean Recurrence Interval (MRI) or 100 years. The wind speed was projected over a small vessel above-water surface area to develop loading requirements for the small vessel floating dock.

Current Load on Moored Vessel:

An assumed current speed of 3 feet per second was projected onto the below-water vessel surface area to determine the current load acting on multiple moored vessels at the small vessel floating dock.

Wind-Driven Wave Load:
The design wave height and period were determined using a project site-specific open area fetch distance (uninterrupted open water distance) and using wave modeling software. The load induced from the design wave for the Chilkoot Cruise Ship Dock was determined to be approximately 900 pounds per linear foot of floating dock length.

Vessel Information
The following cruise ship and cruise ship tender vessel information was provided by Cruise Line Agencies of Alaska. Vessel information will be used to determine the ideal ship mooring position for loading and unloading passengers.

Table 1 – Cruise Ship Information

For Vessels Calling Haines 2024		Berths	Length	Breadth	Draft	Crew	Gross Tons	Net Tons	Air Draft
#	Ship Name	#	FT	FT	FT	#	Tons	Tons	FT
1	Brilliance of the Seas	2142	962	106	28	850	90,090	56,328	-
2	Carnival Miracle	2124	960	106	26	930	85,942	53,626	199
3	Crown Princess	3080	950	118	26	1200	113,561	83,977	-
4	Le Soleal	260	466	60	16	130	10,992	3,440	96
5	NG Sea Bird	60	152	31	8	35	95	65	-
6	NG Sea Lion	60	152	31	8	35	99	67	-
7	Norwegian Sun	2002	848	106	27	953	78,309	46,069	168
8	Queen Elizabeth	2092	965	106	26	1097	90,901	50,157	-
9	Radiance of the Seas	2143	962	106	29	894	90,090	53,812	-
10	Regatta	670	595	86	20	400	30,277	11,481	161
11	Roald Amundsen	530	459	77	18	151	21,765	7,465	98
12	Ruby Princess	3080	947	118	27	1190	113,561	83,606	-
13	Seabourn Odyssey	458	651	92	21	344	32,477	10,700	-
14	Silver Muse	596	698	89	22	400	40,791	14,153	157
15	Silver Shadow	382	610	81	20	302	28,258	9,144	129
16	Viking Orion	930	749	95	22	465	47,861	18,865	144
17	Westerdam	1848	936	106	26	812	82,862	48,225	
18	American Constellation	-	-	-	-	-	-	-	-

Pilot cards were also provided by Holland America Group for the MS Westerdam, Seabourn Odyssey, and Seabourn Quest, which indicate shell door locations (distances from bow to stern and height above waterline).

Cruise Ship tender information was provided by Holland America Group. This vessel information was used to determine small vessel floating dock freeboard (distance from waterline to top of floating dock) and used for the environmental loading to determine guide pile size and quantity.

Table 2 – Cruise Ship Tender Information

TYPE	Lightweight fully equipped	Freeboard (Empty boat)	Freeboard (Full loaded)	Tender boat length	Tender draft	Tender draft
		(Distance from the water level to the embark. Level)			Lightweight - Fully equipped	Fully laden weight - Tender mode 120 pers.
CTL 36	11282 kg	0.651 mt	0.476 mt	11.5 mt	0.759 mt	0.934 mt
PL 9.7	7950 kg	1.133 mt	0.787 mt	9.68 mt	0.617 mt	0.963 mt
PL 11	11150 kg	1.01 mt	0.740 mt	11.01 mt	0.690 mt	0.940 mt
PL 11	11150 kg	1.01 mt	0.740 mt	11.01 mt	0.690 mt	0.940 mt
PL 11	11150 kg	1.01 mt	0.740 mt	11.01 mt	0.690 mt	0.940 mt
CTL 38 SV	12350 kg	0.985 mt	0.679 mt	11.92 mt	0.695 mt	1.001 mt
CTL 38 SV	12350 kg	0.985 mt	0.679 mt	11.22 mt	0.695 mt	1.001 mt
PL 11	11150 kg	1.01 mt	0.740 mt	11.23 mt	0.690 mt	0.940 mt
PL 11	11150 kg	1.01 mt	0.740 mt	11.60 mt	0.690 mt	0.940 mt
PL 11	11150 kg	1.01 mt	0.740 mt	11.01 mt	0.690 mt	0.940 mt
PL 11	11150 kg	1.01 mt	0.740 mt	11.10 mt	0.690 mt	0.940 mt
PL 11	11150 kg	1.01 mt	0.740 mt	11.01 mt	0.690 mt	0.940 mt
PL 9.7	7950 kg	1.133 mt	0.787 mt	9.68 mt	0.617 mt	0.963 mt
PL 11	11150 kg	1.01 mt	0.740 mt	11.20 mt	0.690 mt	0.940 mt
PL 9.7	7950 kg	1.133 mt	0.787 mt	9.88 mt	0.617 mt	0.963 mt
PL 9.7	7950 kg	1.133 mt	0.787 mt	9.65 mt	0.617 mt	0.963 mt
PL 9.7	7950 kg	1.133 mt	0.787 mt	9.68 mt	0.617 mt	0.963 mt
PL 9.7	7950 kg	1.133 mt	0.787 mt	9.68 mt	0.617 mt	0.963 mt

FLOATING DOCK CONCEPTS

All Concepts

For all three concepts, the following is assumed:

- The floating dock that provides supplemental loading and unloading for cruise ship passengers will require at least 6 feet of freeboard (distance between to the waterline to top of floating dock). Floating docks requiring 6 feet of freeboards will likely be around 15 feet in total depth (9 feet submerged below the waterline). This distance is too large for smaller vessels or tenders. Therefore, a second floating dock with 2-3 feet of freeboard is required for moorage.

- After discussions with Cruise Line Agencies of Alaska, floating dock concepts will only be provided for areas south of the main fixed pier portion of the Chilkoot Dock, as it seems to be the preferred area for passenger loading and unloading based on the ship's geometry. Additionally, online aerial images of the dock show an additional mooring or breasting dolphin located north of the fixed dock and connected to Breasting Dolphin #1 by a catwalk. This dolphin and catwalk are not shown in the provided as-built drawings of the dock.

Concept #1 - $10,040,000

This concept was developed to fit around the existing mooring and breasting dolphin system at the Chilkoot Dock. Demolition would consist of only removing two existing catwalk structures extending north and south of Breasting Dolphin 3. The catwalks would need to be removed due to the tidal fluctuation and low clearance between the catwalks and top of the floating dock. A new aluminum gangway would extend from the existing fixed pier structure down to the main concrete floating dock. Two smaller floating docks would extend outward towards the water to allow cruise ships to load and unload passengers. These floating docks would not take any large berthing load from a moored cruise ship and would require fewer steel guide piles than Concepts 2 and 3. A new ladder or catwalk structure would be installed to allow mooring and berthing personnel to still have access to Breasting Dolphin #4 and Mooring Dolphins 3 and 4.

Towards the south end of the main float, an aluminum transfer span would extend to a narrower floating dock, which is designed for smaller touring vessels or cruise ship tenders to load and unload. Guide piles at this floating dock location are designed for small vessel mooring, wave, wind and current loads.

Concept #2 - $11,976,000

Like Concept 1, passengers would access the new floating dock from a new aluminum gangway structure to a large floating dock. For this concept, the existing Breasting Dolphin #3 and two catwalks would be demolished, and the new floating dock should be designed to transfer the mooring and berthing loads from the exterior face of the floating dock fenders through the new float and to guide pile berthing dolphins on the shore side of the float. The new guide pile structures would require additional piles to support the lateral berthing and mooring loads due to the cruise ship coming directly into contact with the float fenders. A new ladder or catwalk structure would be installed to allow mooring and berthing personnel to still have access to Breasting Dolphin #4 and Mooring Dolphins 3 and 4.

Concept #3 - $23,581,000

Concept 3 requires the most demolition of the three concepts, removing the entire fixed pier, part of the access trestle, Breasting Dolphin #3, and two catwalks. An access bridge will lead from the remaining portion of the trestle to a landing float designed to carry half the access bridge weight. The new floating dock would allow for a larger loading and unloading area compared to

the previous two concepts. As the concept considers a large float, more berthing and mooring lateral loads would be transferred from the exterior face of the floating dock to the guide pile system on the shore side, meaning more steel piles will be required to handle the loads. A new ladder or catwalk structure would be installed to allow mooring and berthing personnel to still have access to the northern and southern breasting and mooring dolphin systems.

From a cruise line operations perspective, Concept #3 is the preferred option as it allows a large area for cruise ships of various sizes to moor to and load and unload passengers. Additionally, the access bridge connecting the trestle to the floating dock can be designed for small maintenance vehicles or golf carts if the Borough requires them.

This preliminary report is for your review. All concepts will be further developed with input from the Borough of Haines and the Cruise Line Agencies of Alaska and will be updated based on comments received on this report. A draft report will be developed based on received feedback and further design analysis. If you have any question or require additional information with respect to the investigation findings or proposed design, please contact me at wahn@reidmiddleton.com.

Sincerely,

Reid Middleton, Inc.

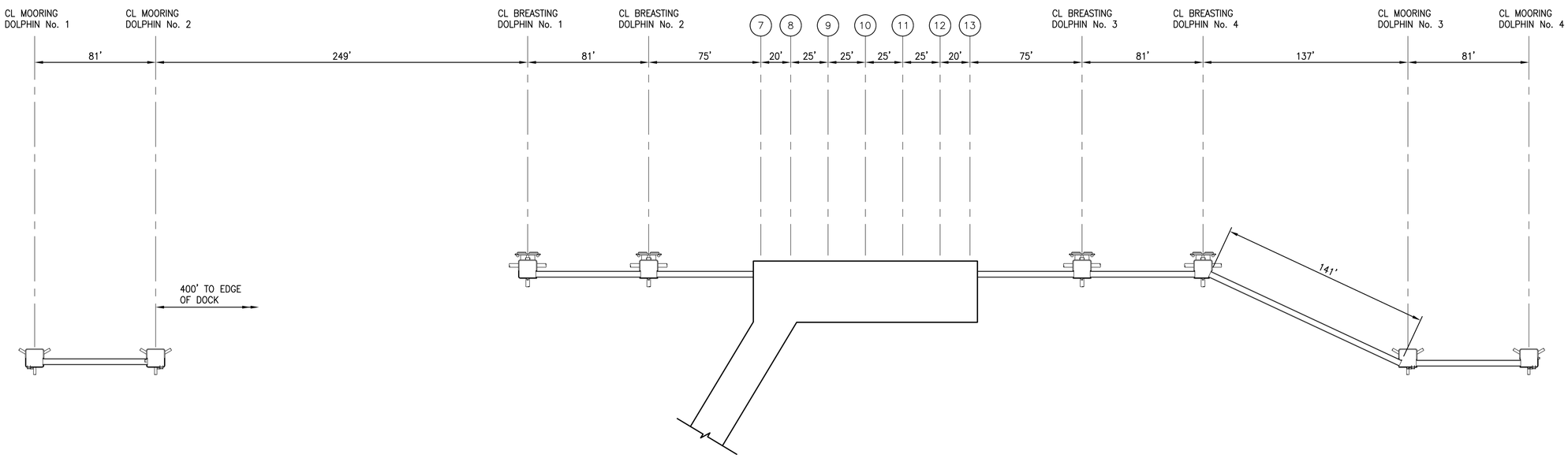
Willy Ahn, Ph.D., P.E.
LEED AP
Director Waterfront

Attachments:

1. Existing Site Plan and Proposed Concept Drawings
2. Concept Opinion of Probable Construction Cost Estimates

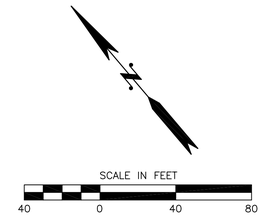
ATTACHMENT 1

Existing Site Plan and Proposed Concept Drawings



PLAN–EXISTING CHILKOOT DOCK

SCALE: 1"=40'



CONCEPT DESIGN

REVISIONS				
NO.	DATE	BY	DESCRIPTION	APP'D

DESIGNED BY: J. STRUB
DRAWN BY: D. OLSEN
CHECKED BY:
DATE: 04/17/24
PROJECT NO: 24-24-003

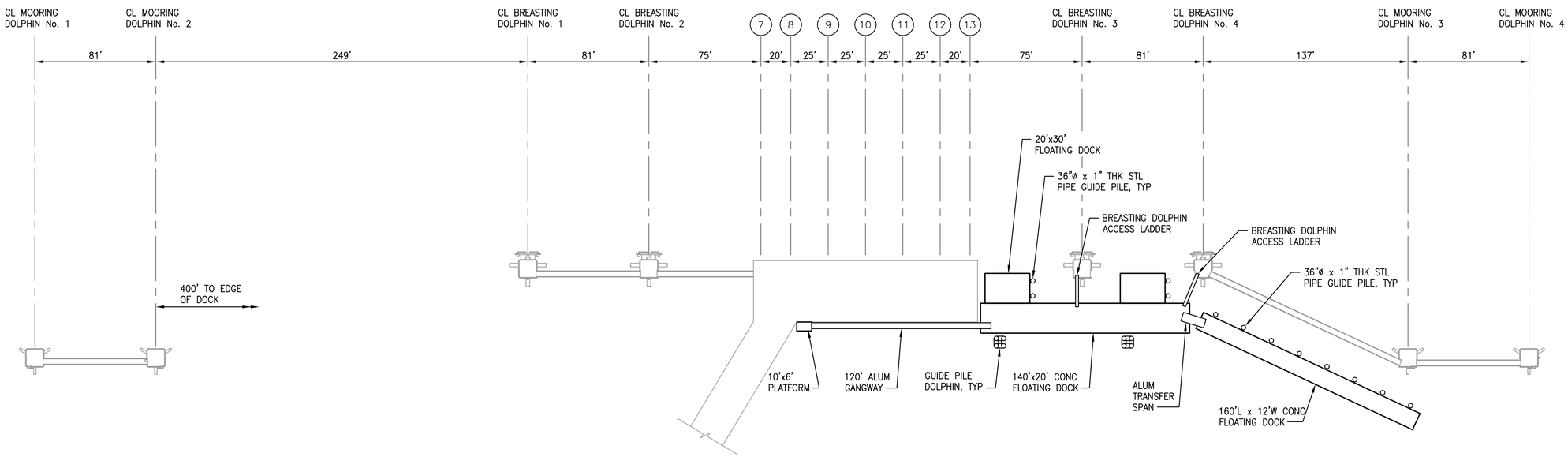
SCALE:
HORIZ AS NOTED
VERT
NOTE: "L"
IF "L" DOES NOT MEASURE 1" ADJUST SCALES ACCORDINGLY

ReidMiddleton
728 134th Street SW · Suite 200
Everett, Washington 98204
Ph: 425 741-3800

HAINES BOROUGH
HAINES CRUISE SHIP FLOATING DOCK

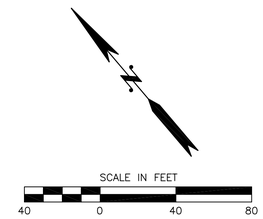
SHEET TITLE:
EXISTING CHILKOOT DOCK PLAN

SHEET NO.
C1.0



PLAN–CHILKOOT DOCK CONCEPT 1

SCALE: 1"=40'



CONCEPT DESIGN

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NO.	DATE	BY	DESCRIPTION	APP'D

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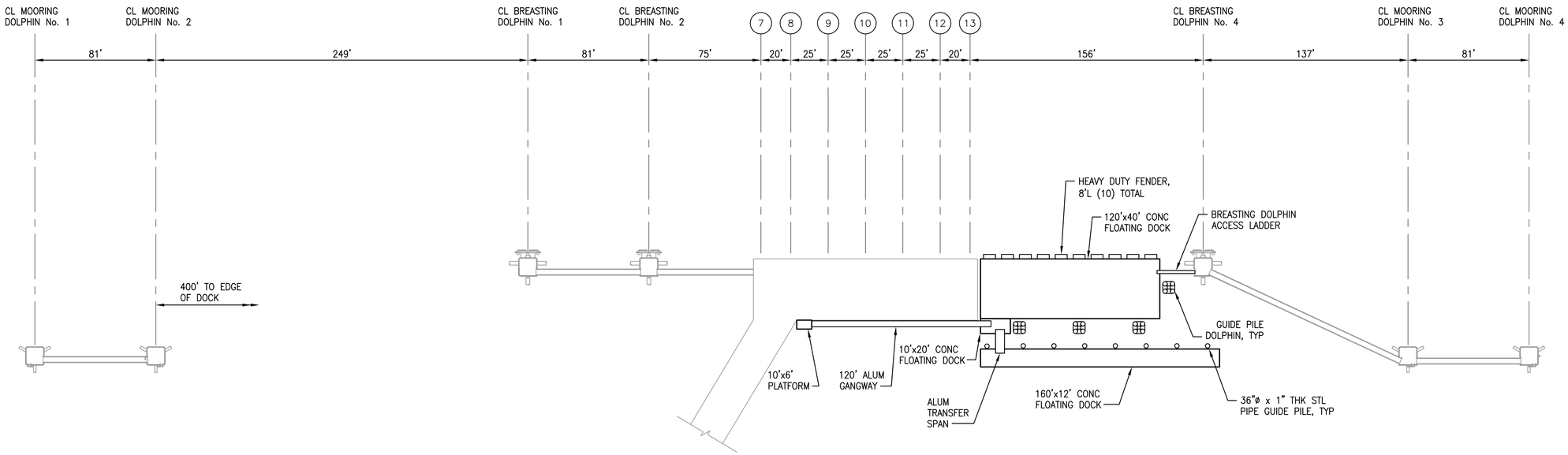
HAINES BOROUGH
HAINES CRUISE SHIP FLOATING DOCK

SHEET TITLE:
CHILKOOT DOCK PLAN – CONCEPT 1

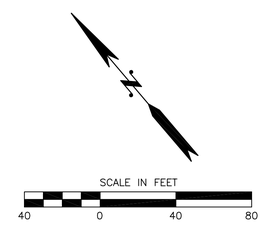
SHEET NO.
C2.0



PLAN–CHILKOOT DOCK CONCEPT 2

SCALE: 1"=40'

NOTE:
1) AT THIS LOCATION, THE 160'x12' CONCRETE FLOATING DOCK LENGTH CAN BE EXTENDED UP TO AN ADDITIONAL 70 FT IF DESIRED. ADDITIONALLY, THE LOCATION OF THE FLOATING DOCK CAN BE UPDATED TO BE SIMILAR TO CONCEPT 1 AND 3.



CONCEPT DESIGN

Apr 17, 2024 - 4:52pm Jostru84 H:\24WR\2024\003 Haines Cruise Ship Floating Dock Concept Design\Drafting\Design - CAD 2019\4403-C21.dwg Layout Name: C21

REVISIONS				
NO.	DATE	BY	DESCRIPTION	APP'D

DESIGNED BY: J. STRUB
DRAWN BY: D. OLSEN
CHECKED BY:
DATE: 04/17/24
PROJECT NO: 24-24-003

SCALE:
HORIZ AS NOTED
VERT
NOTE: "L"
IF "L" DOES NOT MEASURE 1" ADJUST SCALES ACCORDINGLY

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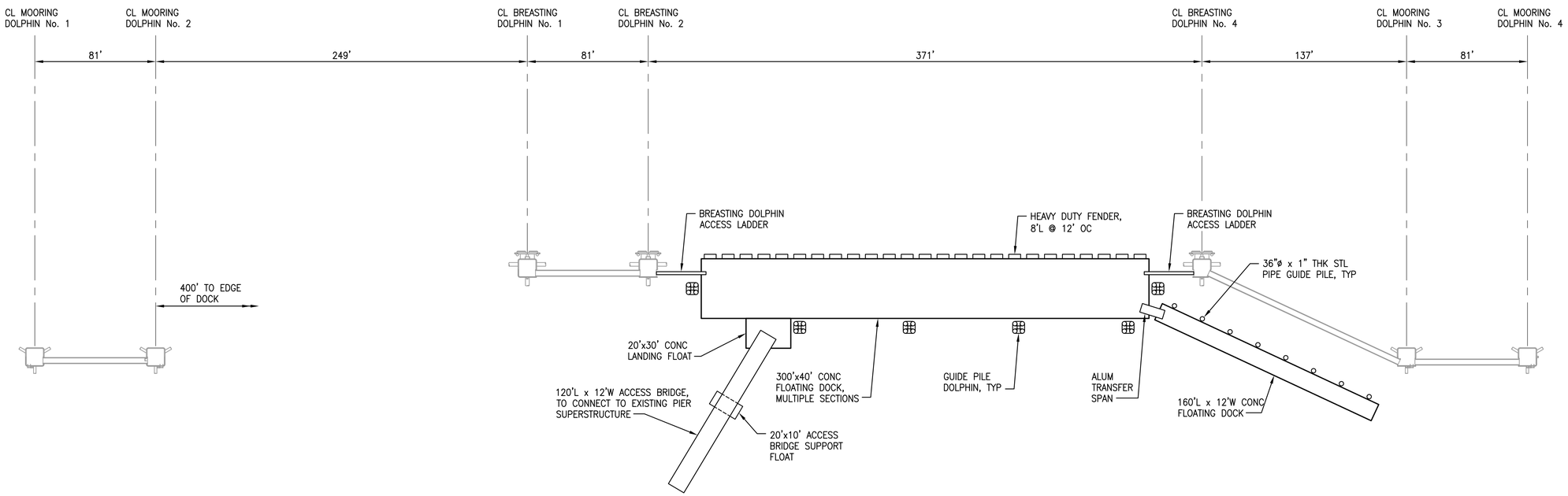
HAINES BOROUGH
HAINES CRUISE SHIP FLOATING DOCK

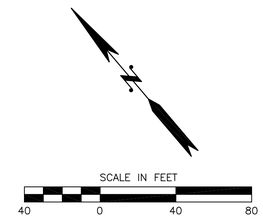
SHEET TITLE:
CHILKOOT DOCK PLAN – CONCEPT 2

SHEET NO.
C2.1



PLAN–CHILKOOT DOCK CONCEPT 3

SCALE: 1"=40'



CONCEPT DESIGN

REVISIONS				
NO.	DATE	BY	DESCRIPTION	APP'D

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HAINES BOROUGH
HAINES CRUISE SHIP FLOATING DOCK

SHEET TITLE:
CHILKOOT DOCK PLAN – CONCEPT 3

SHEET NO.
C2.2

ATTACHMENT 2

Concept Opinion of Probable Construction Cost Estimates

ReidMiddleton

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Everett, WA 98204

Borough of Haines - Cruise Ship Floating Dock Concepts

Concept 1
Borough of Haines
Submittal 1

April 17, 2024
24-24-003

PROJECT INFORMATION	
Submittal Status:	Concept 1- Submittal 1
Estimator:	BGM
Project manager:	WWA
Q/A checker:	WWA

Item No.	Description	Unit	Quantity	Unit Price	Total Cost
1.0	**MOB / DEMOB, TESC, & SITE CONTROLS**				
1.01	Mobilization and Demobilization (10%)	LS	1	$559,000	$559,000
1.02	Temporary Erosion & Sedimentation Control	LS	1	$20,000	$20,000
	MOB / DEMOB, TESC, & SITE CONTROLS SUBTOTAL				**$579,000**
2.0	**DEMOLITION**				
2.10	Demolish 75'-0" x 4' W Aluminum Catwalk	EA	2	$2,500	$5,000
	DEMOLITION SUBTOTAL				**$5,000**
3.0	**CRUISE SHIP FLOAT**				
3.01	Furnish and Install two (2) 20'L x 30'W x 15' D Concrete Floats	SF	1,200	$720	$864,000
3.02	Furnish and Install one (1) 140'L x 20'W x 15'D Concrete Floats	SF	2,800	$720	$2,016,000
3.03	Furnish Guide Piles (36"Ø x 1"thk x avg 125' L)	EA.	12	$62,500	$750,000
3.04	Install Guide Piles (36"Ø x 1"thk x avg 125' L)	EA.	12	$7,500	$90,000
3.05	Furinsh and Install 35'L Ladder	EA.	2	$4,000	$8,000
3.06	Furnish and Install 50'L x 6'W Aluminum Gangway	EA.	1	$180,000	$180,000
3.07	Furnish and Install 10'L x 6'W Platform	SF	60	$300	$18,000
3.08	Furnish Platform Piles (36"Ø x 1"thk x avg 125' L)	EA.	2	$62,500	$125,000
3.09	Install Platform Piles (36"Ø x 1"thk x avg 125' L)	EA.	2	$7,500	$15,000
3.10	Furnish and Install Misc. Float Appurtenances (signage, etc)	LS	1	$3,000	$3,000
	CRUISE SHIP FLOAT SUBTOTAL				**$4,069,000**

4.0	**SMALL CRAFT MOORAGE FLOAT**				
4.01	Furnish and Install one (1) 160'L x 12'W x 8' D Concrete Floats	SF	1,920	$480	$921,600
4.02	Furnish Guide Piles (36"Ø x 1"thk x avg 125' L)	EA.	8	$62,500	$500,000
4.03	Install Guide Piles (36"Ø x 1"thk x avg 125' L)	EA.	8	$7,500	$60,000
4.04	Furnish and Install 20' Aluminum Tansfer Span	EA.	1	$30,000	$30,000
4.05	Furnish and Install Misc. Float Appurtenances (signage, etc)	LS	1	$1,000	$1,000
	SMALL CRAFT MOORAGE FLOAT SUBTOTAL				**$1,512,600**

BASE CONST. COST (2024DOLLARS)	**$6,165,600**
DESIGN CONTINGENCY @ 20%	**$1,233,100**
CONSTRUCTION CONTINGENCY @ 20%	**$1,233,100**
ESCALATION TO 2026 (5% / YR FOR 2 YRS)	**$884,800**
SALES TAX @ 5.5%	**$523,400**
COST (ROUNDED)	**$10,040,000**

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Everett, WA 98204

Borough of Haines - Cruise Ship Floating Dock Concepts

Concept 2
Borough of Haines
Submittal 1

April 17, 2024
24-24-003

PROJECT INFORMATION	
Submittal Status:	Concept 2- Submittal 1
Estimator:	BGM
Project manager:	WWA
Q/A checker:	WWA

Item No.	Description	Unit	Quantity	Unit Price	Total Cost
1.0	**MOB / DEMOB, TESC, & SITE CONTROLS**				
1.01	Mobilization and Demobilization (10%)	LS	1	$667,000	$667,000
1.02	Temporary Erosion & Sedimentation Control	LS	1	$20,000	$20,000
	MOB / DEMOB, TESC, & SITE CONTROLS SUBTOTAL				**$687,000**
2.0	**DEMOLITION**				
2.01	Demolish 75'-0" x 4' W Aluminum Catwalk	EA	2	$2,500	$5,000
2.02	Demolish one (1) three-pile breasting dolphin	LS	1	$5,000	$5,000
	DEMOLITION SUBTOTAL				**$10,000**
3.0	**CRUISE SHIP FLOAT**				
3.01	Furnish and Install one (1) 120'L x 40'W x 15' D Concrete Float	SF	4,800	$720	$3,456,000
3.02	Furnish and Install one (1) 20'L x 10'W x 15' D Concrete Float	SF	200	$720	$144,000
3.03	Furnish Guide Piles (36"Ø x 1"thk x avg 125' L)	EA.	16	$62,500	$1,000,000
3.04	Install Guide Piles (36"Ø x 1"thk x avg 125' L)	EA.	16	$7,500	$120,000
3.05	Furnish and Install 120'L x 6'W Aluminum Gangway	EA.	1	$180,000	$180,000
3.06	Furnish and Install one (1) 35'L Ladder	EA.	1	$4,000	$4,000
3.07	Furnish and Install Heavy Duty Fenders	EA.	10	$8,000	$80,000
3.08	Furnish and Install 10'L x 6'W Platform	SF	60	$300	$18,000
3.09	Furnish Platform Piles (36"Ø x 1"thk x avg 125' L)	EA.	2	$62,500	$125,000
3.10	Install Platform Piles (36"Ø x 1"thk x avg 125' L)	EA.	2	$7,500	$15,000
3.11	Furnish and Install Misc. Float Appurtenances (signage, etc)	LS	1	$3,000	$3,000
	CRUISE SHIP FLOAT SUBTOTAL				**$5,145,000**

4.0	**SMALL CRAFT MOORAGE FLOAT**				
4.01	Furnish and Install one (1) 160'L x 12'W x 8' D Concrete Floats	SF	1,920	$480	$921,600
4.02	Furnish Guide Piles (36"Ø x 1"thk x avg 125' L)	EA.	8	$62,500	$500,000
4.03	Install Guide Piles (36"Ø x 1"thk x avg 125' L)	EA.	8	$7,500	$60,000
4.04	Furnish and Install 20' Aluminum Tansfer Span	EA.	1	$30,000	$30,000
4.05	Furnish and Install Misc. Float Appurtenances (signage, etc)	LS	1	$1,000	$1,000
	SMALL CRAFT MOORAGE FLOAT SUBTOTAL				**$1,512,600**

BASE CONST. COST (2024 DOLLARS)	**$7,354,600**
DESIGN CONTINGENCY @ 20%	**$1,470,900**
CONSTRUCTION CONTINGENCY @ 20%	**$1,470,900**
ESCALATION TO 2026 (5% / YR FOR 2 YRS)	**$1,055,400**
SALES TAX @ 5.5%	**$624,300**
COST (ROUNDED)	**$11,976,000**

ReidMiddleton

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Borough of Haines - Cruise Ship Floating Dock Concepts

Concept 3
Borough of Haines
Submittal 1

April 17, 2024
24-24-003

PROJECT INFORMATION	
Submittal Status:	Concept 3- Submittal 1
Estimator:	BGM
Project manager:	WWA
Q/A checker:	WWA

Item No.	Description	Unit	Quantity	Unit Price	Total Cost
1.0	**MOB / DEMOB, TESC, & SITE CONTROLS**				
1.01	Mobilization and Demobilization (10%)	LS	1	$1,315,000	$1,315,000
1.02	Temporary Erosion & Sedimentation Control	LS	1	$25,000	$25,000
	MOB / DEMOB, TESC, & SITE CONTROLS SUBTOTAL				**$1,340,000**
2.0	**DEMOLITION**				
2.01	Demolish 70'-0" x 4' W Aluminum Catwalk	EA	2	$2,500	$5,000
2.02	Demolish 75'-0" x 4' W Aluminum Catwalk	EA	1	$2,500	$2,500
2.03	Demolish one (1) three-pile breasting dolphins	LS	1	$5,000	$5,000
2.04	Demolish Fixed Pier and Partial Access Way Superstructure	SF	8,800	$20	$176,000
2.05	Demolish 37 - 20"Ø steel piles	EA	37	2000	$74,000
	DEMOLITION SUBTOTAL				**$262,500**
3.0	**CRUISE SHIP FLOAT**				
3.01	Furnish and Install one (1) 300 x 40'W x 15' D Concrete Float	SF	12,000	$720	$8,640,000
3.02	Furnish and Install one (1) 20'L x 30'W x 15' D Concrete Float	SF	600	$720	$432,000
3.03	Funrish and Install one (1) 20'L x 10'W Flexifloat pontoon	EA.	1	$40,200	$40,200
3.04	Furnish Guide Piles (36"Ø x 1"thk x avg 125' L)	EA.	24	$62,500	$1,500,000
3.05	Install Guide Piles (36"Ø x 1"thk x avg 125' L)	EA.	24	$7,500	$180,000
3.06	Furnish and Install 120'L x 12'W Access Bridge	EA.	1	$300,000	$300,000
3.07	Furnish and Install 30'L x 4'W Aluminum Gangway/ Catwalk	EA.	2	$39,000	$78,000
3.08	Furnish and Install Heavy Duty Fenders	EA.	25	$8,000	$200,000
3.09	Furnish and Install Misc. Float Appurtenances (signage, etc)	LS	1	$3,000	$3,000
	CRUISE SHIP FLOAT SUBTOTAL				**$11,373,200**
4.0	**SMALL CRAFT MOORAGE FLOAT**				
4.01	Furnish and Install one (1) 160'L x 12'W x 8' D Concrete Floats	SF	1,920	$480	$921,600
4.02	Furnish Guide Piles (36"Ø x 1"thk x avg 125' L)	EA.	8	$62,500	$500,000
4.03	Install Guide Piles (36"Ø x 1"thk x avg 125' L)	EA.	8	$7,500	$60,000
4.04	Furnish and Install 15' Aluminum Tansfer Span	EA.	1	$22,500	$22,500
4.04	Furnish and Install Misc. Float Appurtenances (signage, etc)	LS	1	$1,000	$1,000
	SMALL CRAFT MOORAGE FLOAT SUBTOTAL				**$1,505,100**

BASE CONST. COST (2024 DOLLARS)	**$14,480,800**
DESIGN CONTINGENCY @ 20%	**$2,896,200**
CONSTRUCTION CONTINGENCY @ 20%	**$2,896,200**
ESCALATION TO 2026 (5% / YR FOR 2 YRS)	**$2,078,100**
SALES TAX @ 5.5%	**$1,229,300**
COST (ROUNDED)	**$23,581,000**