

Date: **8/19/2022**

Project No.: **20631 Chebeague Island Stone Wharf Evaluation**

To: **Ms. Viktoria G. Wood, Town Administrator, Town of Chebeague Island, ME**

From: **Jason Gallant, PE**

Subject: **Final Draft Preferred Alternative – Stone Wharf Improvements**

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## Background

The Wright-Pierce team presented interim findings on inspection, evaluation and recommendations for the stability and future use of the Stone Wharf at Great Chebeague Island on January 6, 2022. It was determined through structural and geotechnical analysis that the facility is structurally stable in its current configuration. The determination was based on evaluations of The Stone Wharf in the summer and fall of 2021. The structure is suitable for modification by widening and increasing the height of some or all of the working surface for future long-term use with improvements to its foundation supports.

With favorable conclusions on structural sufficiency, the design team began to evaluate concept level plans for modifications to the Stone Wharf: maintenance level repairs; upgrades for accessibility and safety; implementation of coastal resiliency measures for climate change; and associated modifications to the structure for improved future long-term use.

## Public Engagement Program Summary

Understanding the need to engage the community in the conceptual design process, the design team recommended a stakeholder engagement process to publicly evaluate alternatives for future use of the Stone Wharf. In February of 2022, the Town engaged Wright-Pierce in collaboration with Morris Communications and GEI Consultants to deliver a Public Engagement Program to build concurrence among the majority of stakeholders on the preferred alternative for the future use of the Stone Wharf.

To broadly inform permitting criteria for proposed improvements, the design team and members of the community met with representatives from the US Army Corps of Engineers (USACE) and Maine Department of Environmental Protection (DEP) in February 2022. USACE and DEP generally advised the design team that expansion of the stone wharf is permissible. Further, alternatives that focus most on accessibility, safety, and flow in support of marine dependent uses of the Stone Wharf are most favorable to the permitting agencies. Alternatives with some fill within the intertidal resource are possible, but alternatives that minimize fill will pose the least burden on the Town for permitting.

Four public meetings were held to discuss primary functions and proposed future use of the Stone Wharf followed by a fifth public meeting that compiled the most preferred ideas into a proposed improvement concept (Draft Preferred Alternative) for the Stone Wharf. The public meetings used knowledge of the structural capacity of the existing system, preliminary guidance from permitting agencies, and the results of a town-wide survey conducted in March 2022 as the basis for discussion:

Meeting 1: April 7, 2022 – Safety and Accessibility / Barge Ramp Access

Meeting 2: April 14, 2022 – Boating Access

Meeting 3: May 5, 2022 – Fishing Operations

Meeting 4: May 12, 2022 – Parking Flow

Meeting 5: June 29, 2022 – Draft Preferred Alternative Review

Meeting notes from each of the five public meetings have been compiled and posted on the Town’s website.

### **Final Draft Alternative Overview**

Comments received on the Draft Preferred Alternative were compiled and incorporated into the concept design of the Final Draft Preferred Alternative plans included as Appendix A to this memorandum. The Final Draft Preferred Alternative was developed by distilling meeting notes and sketches from our meetings into design criteria which are included as Appendix B to this memorandum.

1. The plan includes an enlarged site plan to accommodate the major items below. This increases intertidal impact area from 3500 SF in the original Draft to 8900 SF in the Final Draft.
  - a. The updated concept plan moves the drop-off lane to the outside to minimize pedestrian/vehicle conflicts, which results in a wider circulation footprint because the turning radius of the main travel way is based on that needed for a Single Unit Truck or Bus. The wider circulation area results in more interior space that has the benefit of more room for pedestrian circulation and parking. Scooter and bicycle areas were relocated to maximize parking available. This configuration is better for parking capacity, but will likely draw regulatory agency concerns regarding parking over the intertidal resource. The design team will work to justify the plan in terms of “intertidal impacts driven by site circulation and safety”. The parking will require backing into the main travel way, which was avoided in the original Draft Preferred Alternative.
  - b. The Final Draft plan adds a commercial fishing pier to access deep-water and a larger working waterfront area that avoids conflict with the barge ramp.
2. The design team retained float B-1 next to the ferry landing as in the original Draft. The float could be used as a temporary tie-up location, or the design team could relocate the float with Town input as the design develops.
3. The design team added limits of the USACE dredge channel to the plan to show complete dredge limits next to the Stone Wharf. See Appendix A.
  - a. Except for the commercial fish pier on the south side, the plan shows that, all proposed improvements, including the boat/barge ramp, are clear of the federal channel and turning basin area.
  - b. The design team recommends, with Town concurrence, that we share the Draft Final Alternative with USACE upon to show the encroachment of the deep-water commercial fishing pier on the channel and to inform the work they are doing to resolve requirements for remedial action to complete the dredge that was completed in spring 2022.
4. The design team solicited location and design input from Chebeague Transportation Company (CTC) and Lionel Plante Company Associates (LPA) provided below on barge ramp use. Based on this input, the design team recommends keep the ramp configuration similar to existing configuration, but widened it from 20 to 24-feet to maximize access within the existing granite pier landing area.

- a. CTC (Matt Ridgeway)
  - The footprint of the CTC barge (tug/barge/bow ramp) is shown on the figure in Appendix A with the dredge channel. The barge can navigate to the landing within the dredge channel and clears the proposed commercial pier.
  - While the benefits of an all-tide ramp are appreciated, CTC does not need an all-tide ramp because they time trips around the Cousins Island ramp which only has tidal access.
- b. LPA (Coley Mulkern)
  - The footprint of the Fort Gaines (LPAs largest barge) is shown on the figure in Appendix A with the dredge channel. LPA has a smaller barge, but the design team was advised to inquire if access was possible for the Fort Gaines to enable large deliveries such as modular home components.
  - Barge ramp use will be limited to ½ tide or higher because of the limited dredge channel width. The Fort Gaines has a 25-ft bow ramp that fits into the granite pier slot. Because of its size, navigation to the ramp and clearance of the proposed pier will be challenging.
  - LPA prefers Bennett Landing because the steaming time from the Portland East End is less. Historically, they have only made ‘special’ trips to the Stone Pier, because of limited tidal access and because the site is so congested with other activities.

### **Estimated Project Costs**

A cost estimate for the proposed improvements to the Stone Wharf is included As Appendix C to this memorandum. The estimated cost of the Final Draft Preferred Alternative is in the range of \$15.7 to \$18 Million. The estimate was developed in recognition of recent extenuating circumstances including cost of construction, materials up ~45%-60% since 2019 with worker and material shortages continuing. It is anticipated that federal grants will be sought to fund the majority of project costs. The grant pursuit process is recommended to begin after concurrence on the Preferred Alternative and concurrent with preliminary design and permitting efforts for the project. Recent success in the Town’s pursuit of the 2022 Shore and Harbor Planning Grant is a positive indicator of the potential for the Stone Wharf project to receive more substantive grants.

### **Recommended Next Steps**

The attached Draft Final Alternative is recommended for review and approval of the Selectboard. Upon approval of the Draft Final Alternative, the Wright-Pierce team will issue our final report concluding this phase of our work on the project.

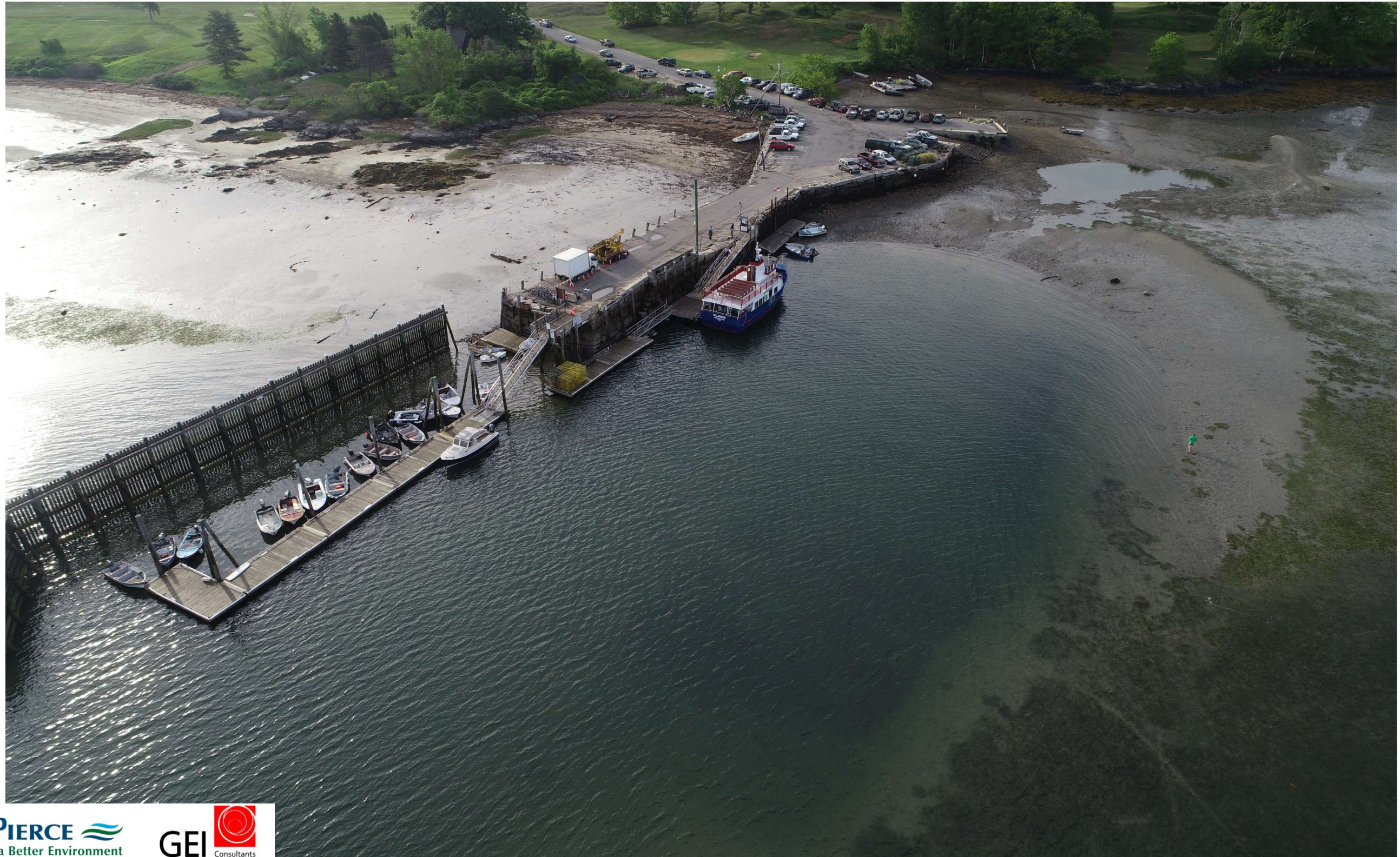
We look forward to the opportunity to support the Town for completion of the scope of the Shore and Harbor Grant which includes coastal modeling and preliminary design for permit readiness as the project moves toward development of grant funding procurement, final permitting of the project and final design for construction. Attachments:

Appendix A – Existing Facility Overview, Final Draft Alternative Concept Plan, and Rendering

Appendix B – Design Criteria and Comparison to Existing Facility

Appendix C – Final Draft Alternative Cost Estimate

# Existing Facility Overview – Chebeague Island Stone Wharf

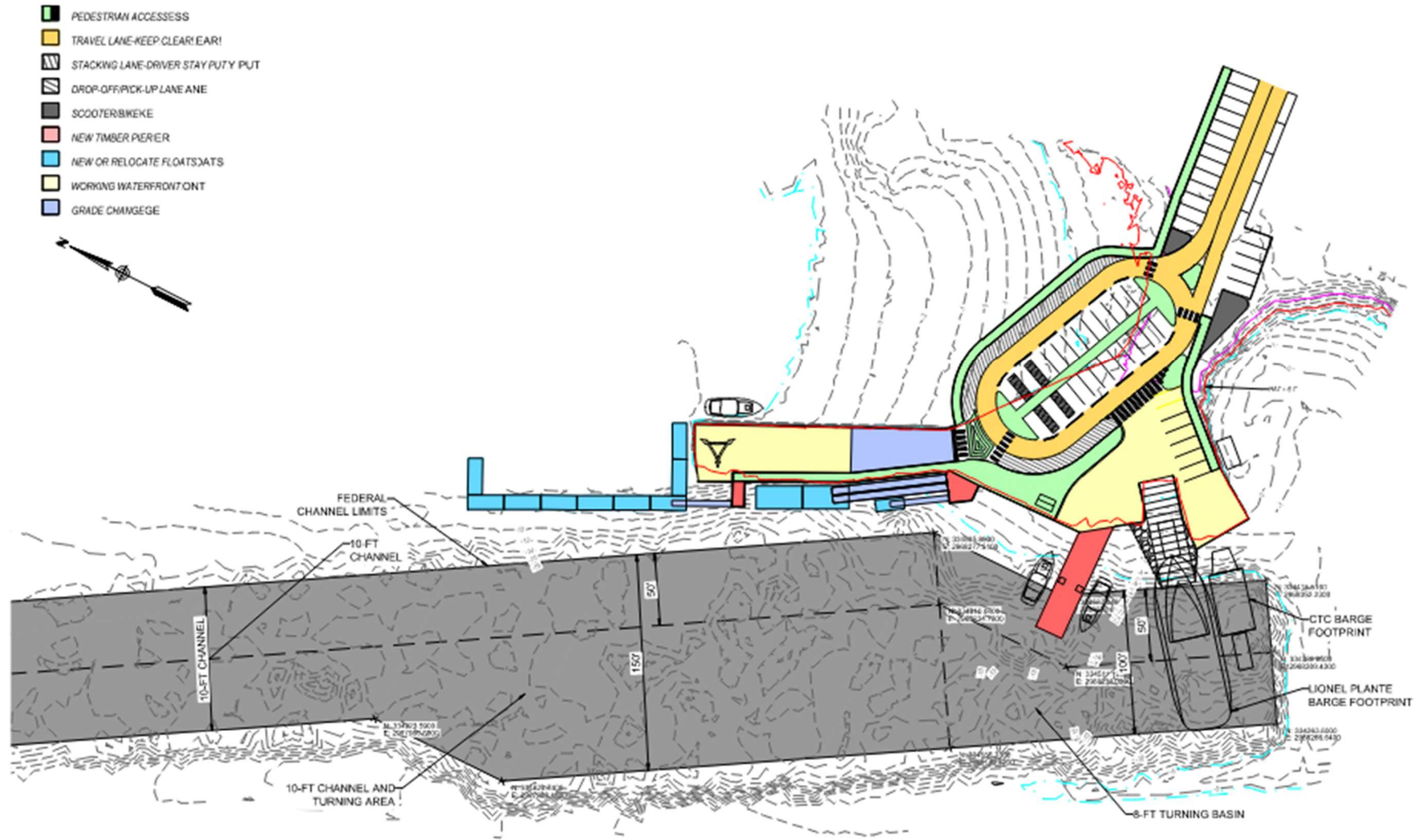




# Proposed Facility Rendering – Chebeague Island Stone Wharf



# USACE Dredge Channel- Chebeague Island Stone Wharf



NOTE: BATHYMETRY AND ACOE DREDGE LIMITS TAKEN FROM SURVEY PROVIDED BY ARMY CORPS OF ENGINEERS.

NOT FOR CONSTRUCTION



Design Criteria and Comparison Chebeague Island Stone Wharf	Existing Facility Configuration	CONCEPT PLAN LAYOUTS	
		Draft Final Preferred Alternative	Draft Preferred Alternative
<b>Site Access and Safety</b>			
No Vehicle Backing on the Pier	All vehicles must back up.	Continuous circular flow . Vehicle backing from pier parking	Continuous circular flow . Only ADA vehicle backing
Safe Pickup and Dropoff	Not efficient	Dedicated Pick-up & Drop-off Areas	Dedicated Pick-up & Drop-off Areas
School Bus/Van Access	No dedicated space.	INNER lane accommodate vehicles with large turning radius.	OUTER lane accommodate vehicles with large turning radius.
Emergency Equipment	Congested access	Truck Access provided in INNER loop	Truck Access provided in OUTER loop
ADA Compliant Pier Parking	6 Spaces on the pier	6 Spaces on Pier	6 Spaces on Pier
NON-ADA on Pier	26	23	15
Waiting "Stacking" Spaces	0	15	10
Safe Pedestrian Travel	Unsafe	Dedicated perimeter Walkway with railing and interior Crosswalks	Dedicated perimeter Walkway with railing and interior Crosswalks
Avoid Congestion/Gridlock	Congested... Gridlock occurs when busy.	Fluid Circulation	Fluid Circulation
Dedicated Turn-around on Finger	No Turn Around	Yes	Yes
<b>Boating/Float/Barge Access</b>			
Add Ferry Float	Not ADA Accessible	ADA Accessible, Double Ramp	ADA Accessible, Double Ramp
Add Temporary Tie-up Floats	Refer to Harbor Ordinance	Net + 1	Net + 1
Widen Attenuator Basin space	Existing Space crowded	Yes	Yes
All Floats have ramps	Ladders to commercial floats	Yes	Yes
Barge Ramp	Location works but needs repair	All tide ramp provided.	All tide ramp provided.
<b>Fisherman (Working Waterfront)</b>			
Minimize Elevation Increase	Periodic flooding.	Elevation increase to Main Pier only	Elevation increase to Main Pier only
North Landing Access	Tidal Dependent	No Change	No Change
South Landing Access	Tidal Dependent	<b>ADD Pier for Deepwater Access</b>	Reduced pier face to accommodate relocated floats
<b>Golf Tee</b>			
	No direct access	Dedicated Access	Dedicated Access

Cost Estimate - Chebogue Island Stone Wharf						UNIT	UNIT COST	DRAFT FINAL	
								COMPREHENSIVE IMPROVEMENTS	
								Quantity	Cost
						Intertidal Expansion		SF	8900
<b>GENERAL ITEMS</b>									
	Mobilization/Demobilization (7% of Construction)					LS		1	\$ 800,000.00
	Barge Trip Allowance					Day	\$ 5,000.00	85	\$ 425,000.00
	Worker Ferry Commute					Pass	\$ 1,950.00	6	\$ 11,700.00
	Demolition					LS	\$ 20,000.00	1	\$ 20,000.00
	Erosion Control					LS	\$ 30,000.00	1	\$ 30,000.00
	Turbidity Curtain					LS	\$ 50,000.00	1	\$ 50,000.00
	Phase Construction Allowance/Temp Works					LS	\$ 50,000.00	1	\$ 50,000.00
<b>STONE PIER IMPROVEMENTS</b>									
	<b>Intertidal Expansion</b>								
	Pile Supported Pedestrian Walkway (90 PSF)	8	310	2480		SF	\$ 600.00	0	\$ -
	PILE Supported Pier (Truck Loading & WW 250PSF)					SF	\$ 500.00	8900	\$ 4,450,000.00
	Intertidal Impact Fee Allowance (beyond 500 SF)					SF	\$ 12.00	8400	\$ 100,800.00
	<b>Raised Areas in Existing Footprint</b>								\$ -
	Raised Pier Area Prep					SF	\$ 2.00	20000	\$ 40,000.00
	Vehicle Ramp Prep					SF	\$ 2.00	1760	\$ 3,520.00
	Mini Pile Mobilization					LS	\$ 50,000.00	1	\$ 50,000.00
	Mini Piles	80				EA	\$ 2,500.00	200	\$ 500,000.00
	RC Perimeter Cap	600	6	3		CY	\$ 1,200.00	900	\$ 1,080,000.00
	Fill					CY	\$ 100.00	2500	\$ 250,000.00
	Paving	110	9	3		Ton	\$ 250.00	0	\$ -
	RC Slab	12				CY	\$ 1,200.00	741	\$ 888,888.89
	<b>Finger Pier (Low Area)</b>								
	Paving	110	9	3		Ton	\$ 250.00	0	\$ -
	RC Slab					CY	\$ 1,200.00	79	\$ 95,051.85
	<b>UTILITY Allowance</b>					LS	\$ 100,000.00	1	\$ 100,000.00
									\$ -
<b>FERRY LANDING</b>									
	Ferry Takeoff Pier					SF	\$ 600.00	400	\$ 240,000.00
	ADA Aluminum Ferry Gangway					EA	\$ 75,000.00	2	\$ 150,000.00
	Added Ferry Float A2 (512 SF)					EA	\$ 50,000.00	1	\$ 50,000.00
	Guide Piles					EA	\$ 12,000.00	4	\$ 48,000.00
	ADA Float Provisions Allowance					EA	\$ 50,000.00	1	\$ 50,000.00
									\$ -
<b>BREAKWATER BASIN PIER/TRANSIENT TIE-UP</b>									
	Basin Pier					SF	\$ 600.00	148	\$ 88,800.00
	New Aluminum Gangway					EA	\$ 16,000.00	1	\$ 16,000.00
	New Basin Float (K)	250	40	50		EA	\$ 12,500.00	1	\$ 12,500.00
	Reconfigure Existing Floats (C,D,E,F,G,H,I,J)					EA	\$ 1,000.00	8	\$ 8,000.00
	Guide Piles					EA	\$ 12,000.00	8	\$ 96,000.00
									\$ -
<b>BARGE/BOAT RAMP</b>									
						SF	\$ 300.00	1500	\$ 450,000.00
<b>WORKING WATERFRONT</b>									
	Relocated Annual Rental B Floats	250	40	50		EA	\$ 3,000.00	1	\$ 3,000.00
	Aluminum Ramp to B Floats (Basin Repurpose)					EA	\$ 3,000.00	1	\$ 3,000.00
	Timber Guide Piles	450	6			EA	\$ 1,000.00	4	\$ 4,000.00
	Fender Piles (North & South Landing Areas)	450	6			EA	\$ 1,000.00	75	\$ 75,000.00
	Deepwater Access Timber Pier	7				SF	\$ 350.00	1575	\$ 551,250.00
	Jib Hoists					EA	\$ 25,000.00	2	\$ 50,000.00
	Ladders (North Pier Face)					SF	\$ 1,500.00	2	\$ 3,000.00
<b>SITE SAFETY, CIRCULATION and SIGNAGE</b>									
	Pedestrian Railing					LF	\$ 300.00	400	\$ 120,000.00
	Site Signage					EA	\$ 500.00	30	\$ 15,000.00
	Curbing					LF	\$ 150.00	200	\$ 30,000.00
	Bollards					EA	\$ 1,500.00	10	\$ 15,000.00
	Striping					LS	\$ 20,000.00	1	\$ 20,000.00
									\$ -
Comparison Construction Total									\$11,043,511
12%									\$1,325,221
30%									\$3,313,053

PROJECT BUDGET \$15,700,000

to \$18,000,000