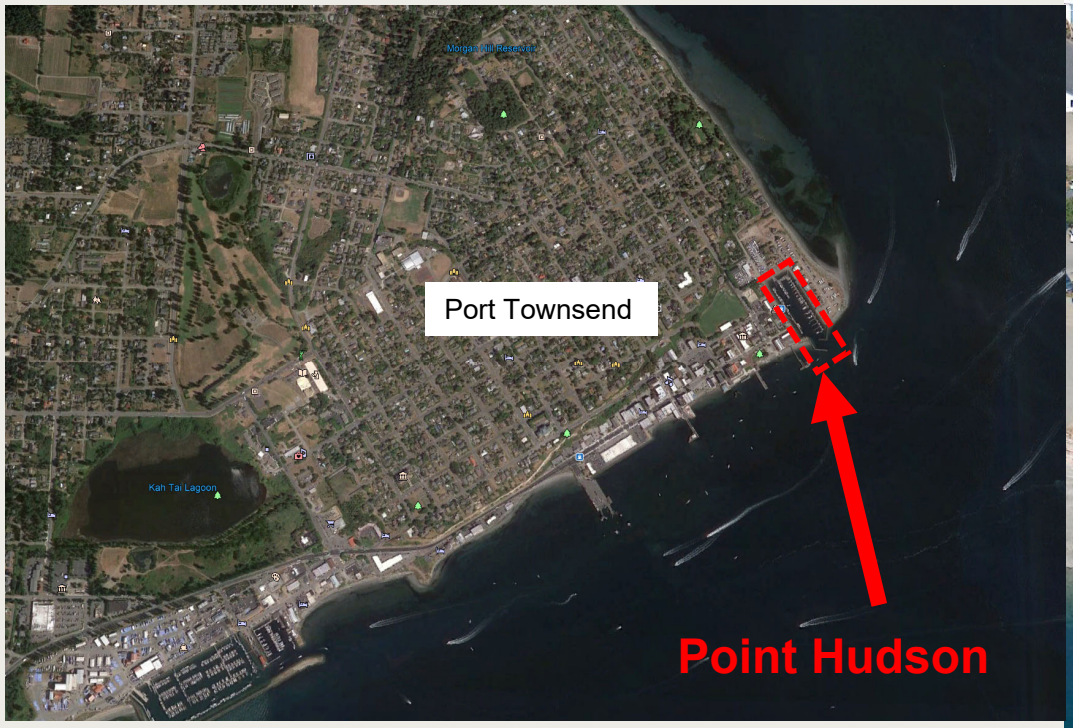
Point Hudson

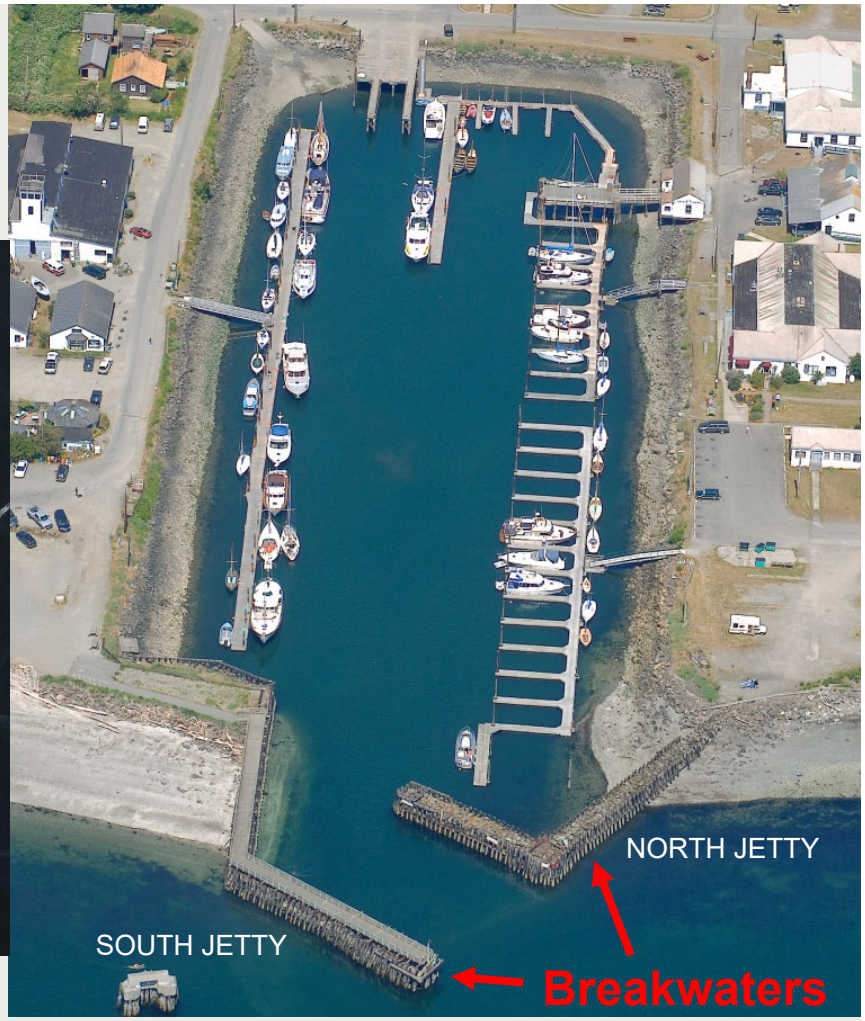
Breakwater Improvement Project Update

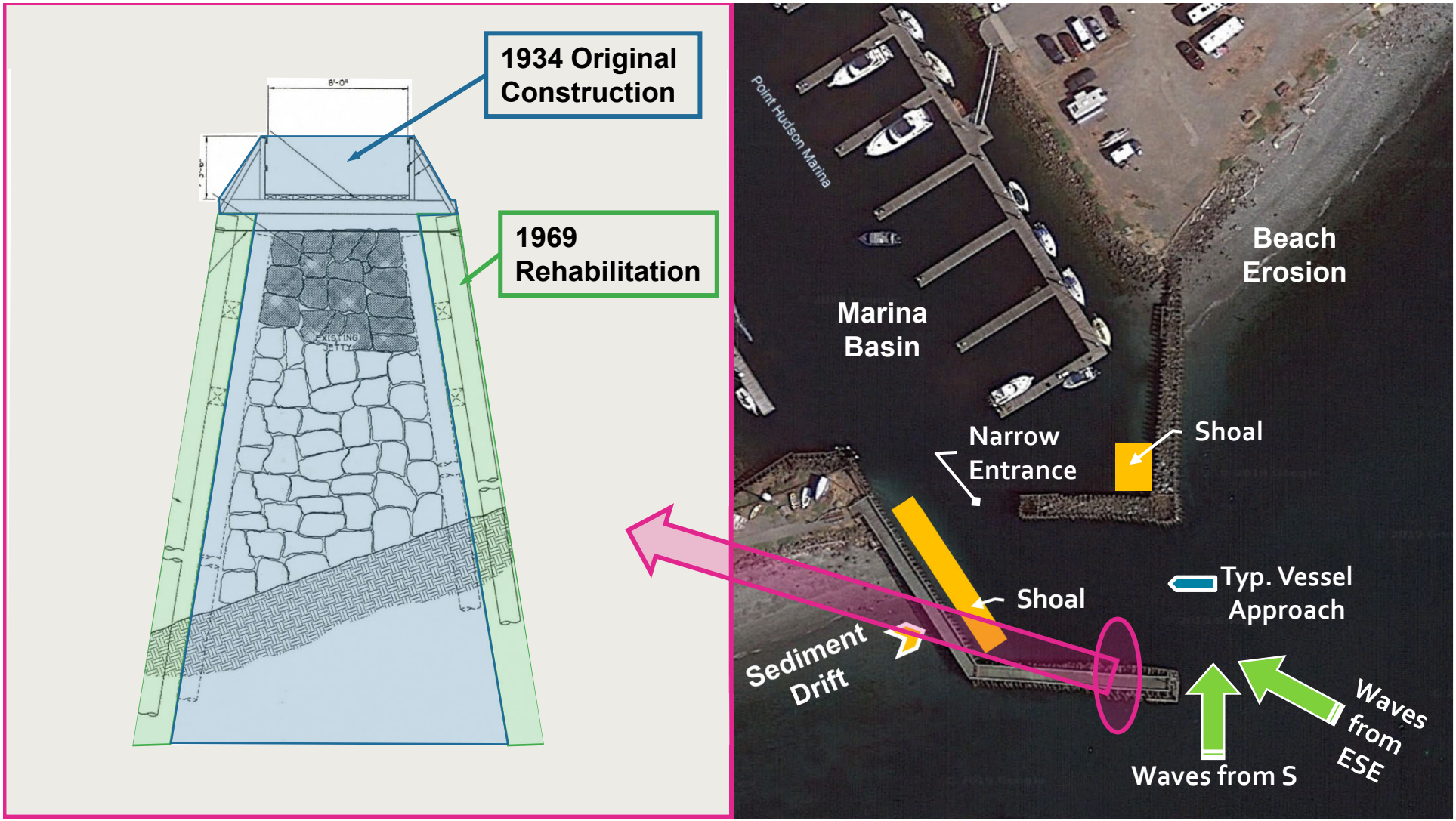
Public Meeting June 9, 2021

Presenter: Mike Love, Port of Port Townsend

Location


Port Townsend
Point Hudson


NORTH JETTY
SOUTH JETTY
Breakwaters


1934 Original Construction
1969 Rehabilitation
8'-0"
EXISTING
Point Hudson Marina
Marina Basin
Beach Erosion
Narrow Entrance
Shoal
Shoal
Typ. Vessel Approach
Sediment Drift
Waves from ESE
Waves from S

POINT HUDSON NORTH BREAKWATER

POINT HUDSON SOUTH BREAKWATER

Existing Condition

Timber piles, walers, cable tiebacks, and armor rock are at or beyond useful life. Stability of the overall structural system is compromised.


Voids in the Rocks

Horizontal bracing deterioration


Cable Corrosion


Pile Deterioration


Loss of Interior Rock

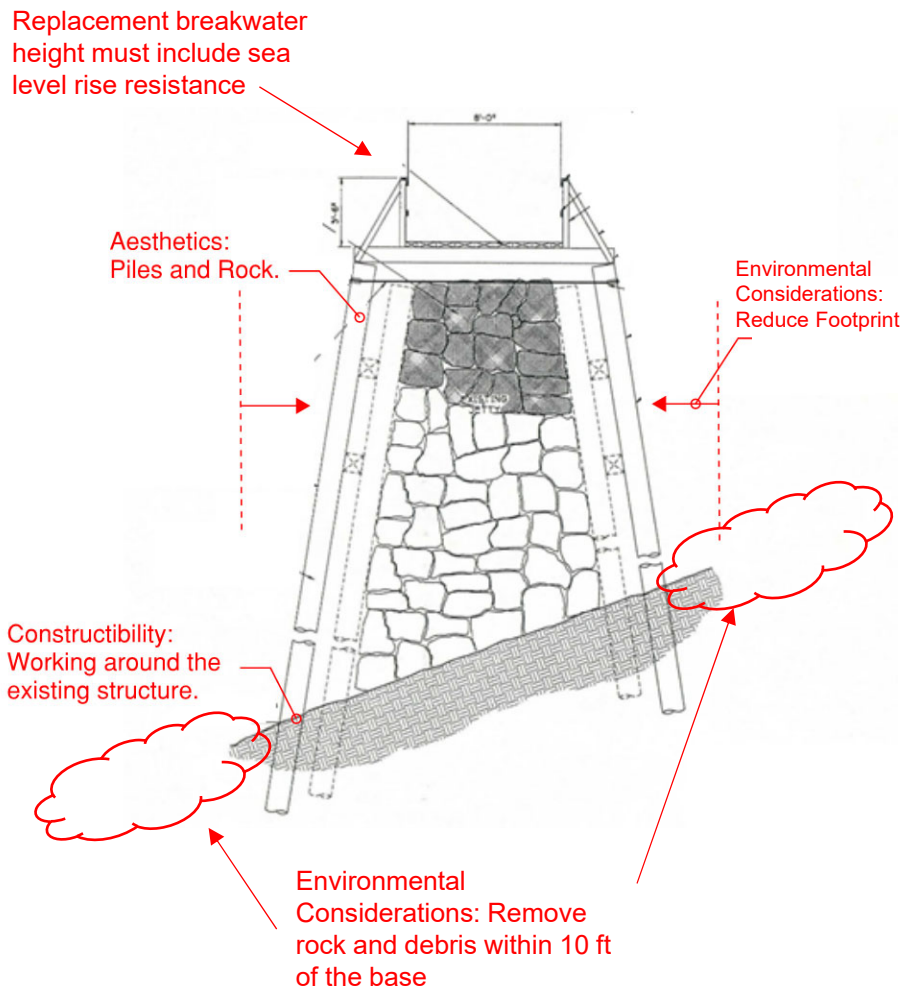
A Challenging Marine Environment

- A 2018 storm damaged the breakwaters, breaking pile tops, severing cable ties and further eroding the armor rock core

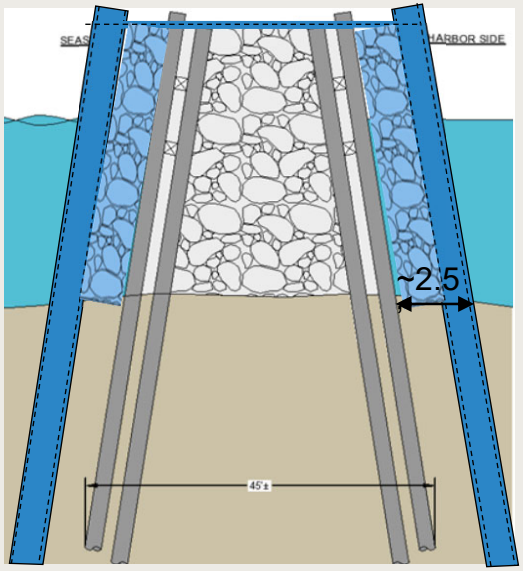
A December 2018 storm sweeps over the jetties and into the Point Hudson Marina.

Design Objectives

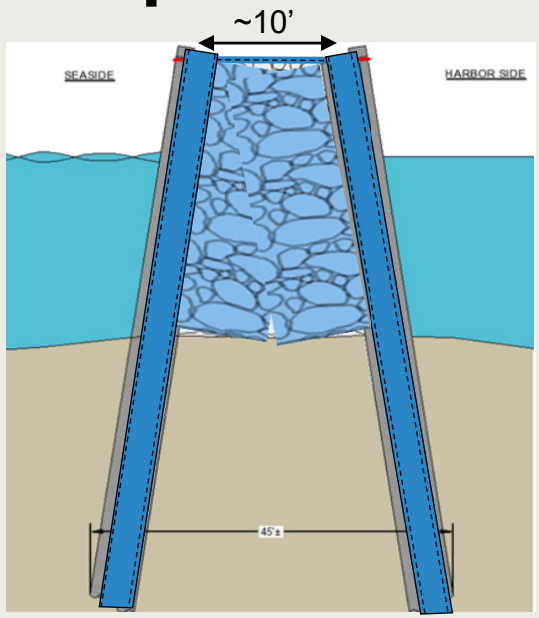
- **Engineering.** Protect existing marina and Port operations for 30 years from wind and vessel waves and **sea level rise**.
- **Aesthetics.** Similar in appearance to existing breakwater (rocks and piles) using environmentally acceptable materials.
- **Environmental Considerations.** Remove creosote, reduce breakwater footprint, and protect existing eelgrass outside of marina.
- **Constructability.** Minimize risks from potential cost overruns, delays, errors, and obstacles during construction.



Alt. Evaluation: Encapsulation vs. Replacement



- Existing structure remains except for a few select creosote timber piles removed for permitting.
- Piles driven in a batter outside of existing structure, expand footprint by 2.5 ft each side with mesh lagging.
- Reduces demo costs but increases offsite mitigation costs.

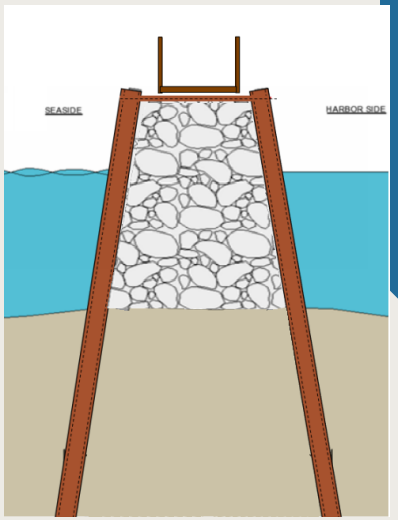


- Existing structure is completely removed including piles and rock.
- Piles driven batter with new rock installed between the rows of piling.
- Seeks to be self mitigating because of the reduction in footprint and creosote removal.

Breakwater Design

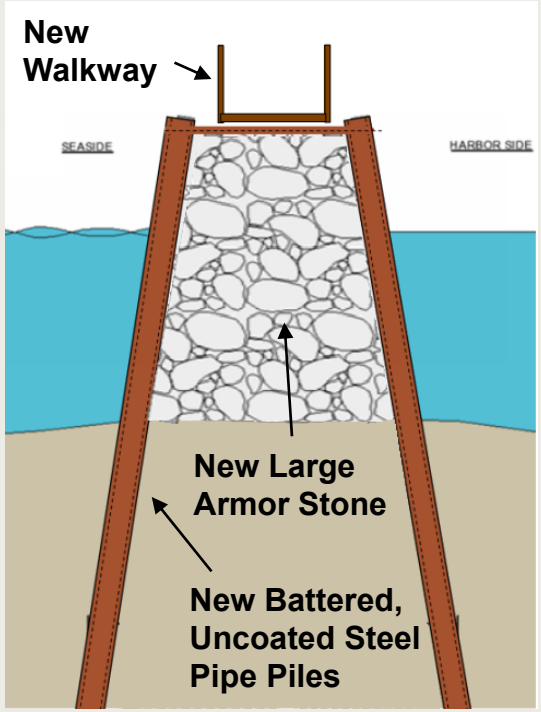
After review of the different alternatives, Replacement was selected as the preferred alternative with some additional input.

Category	Input
Pile	• Piles should be closely spaced, similar to the existing • Piles should be uncoated steel pipe piles with sacrificial corrosion thickness, no composite piles • Piles should be battered to match existing aesthetics • Piles should be supported with tie rod cross-ties and potential walers
Breakwater Core	• Large high quality riprap (granite) • No mesh for rock containment
Walkway	• Design and system should allow for installation of walkway on top of the south breakwater • End of walkway waterside should incorporate a wider turnaround and look out area
Permitting	• North and south breakwaters should be designed and permitted together

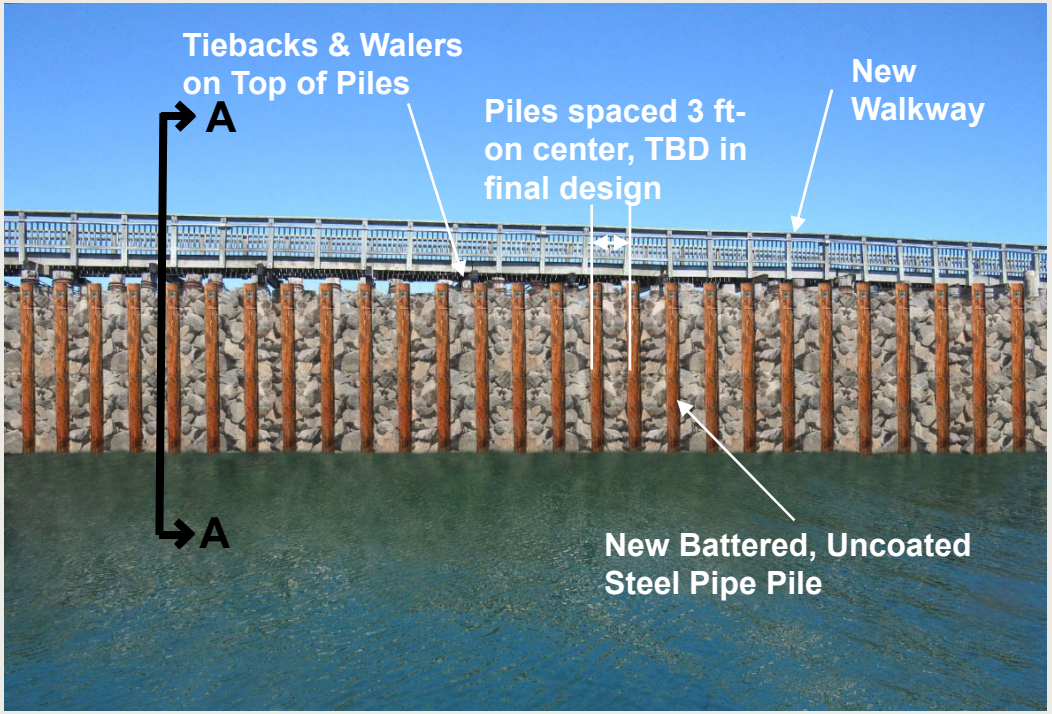


Selected Breakwater Design - Replacement

Selected Cross-Section and Elevation

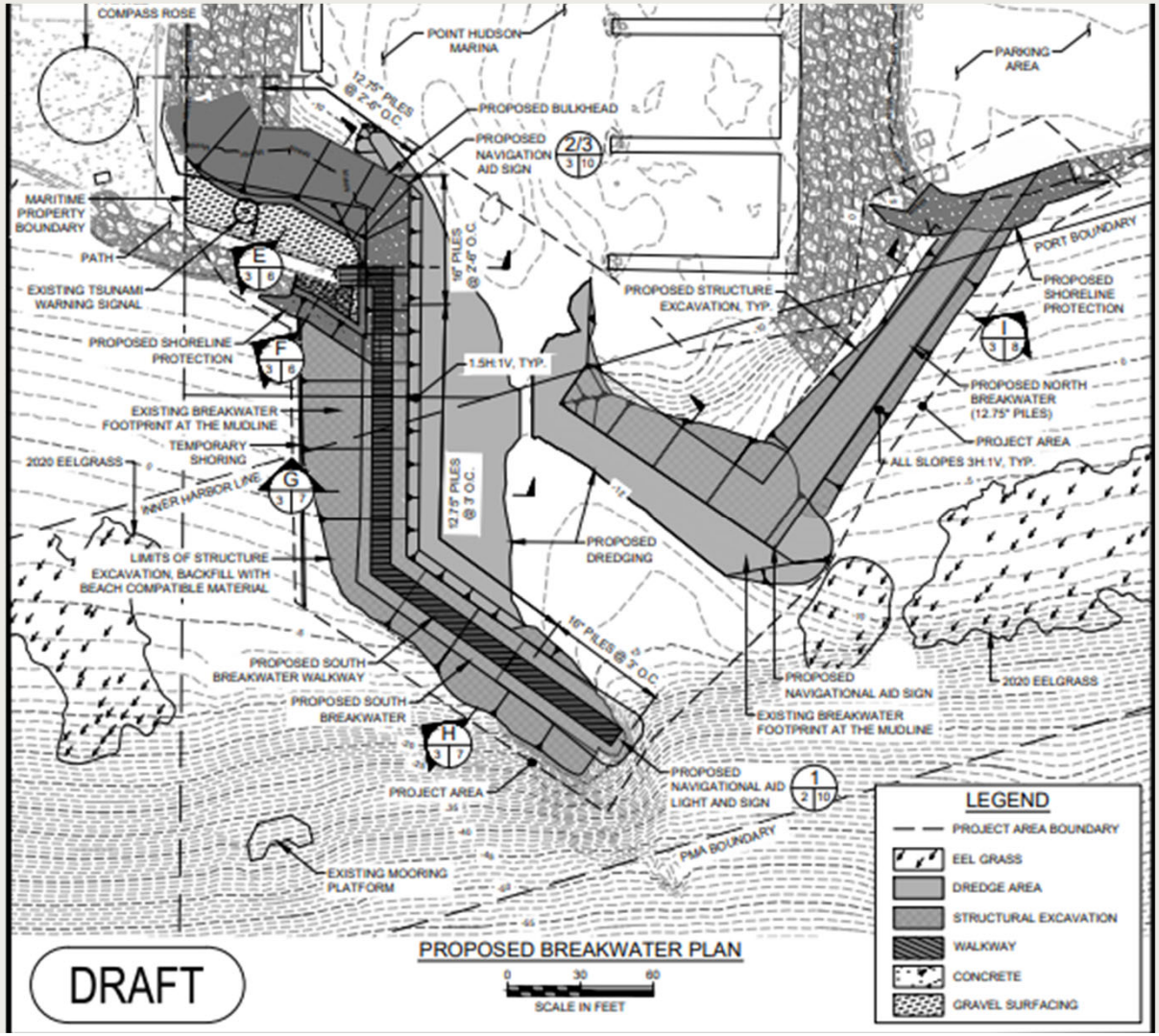


Section A - A

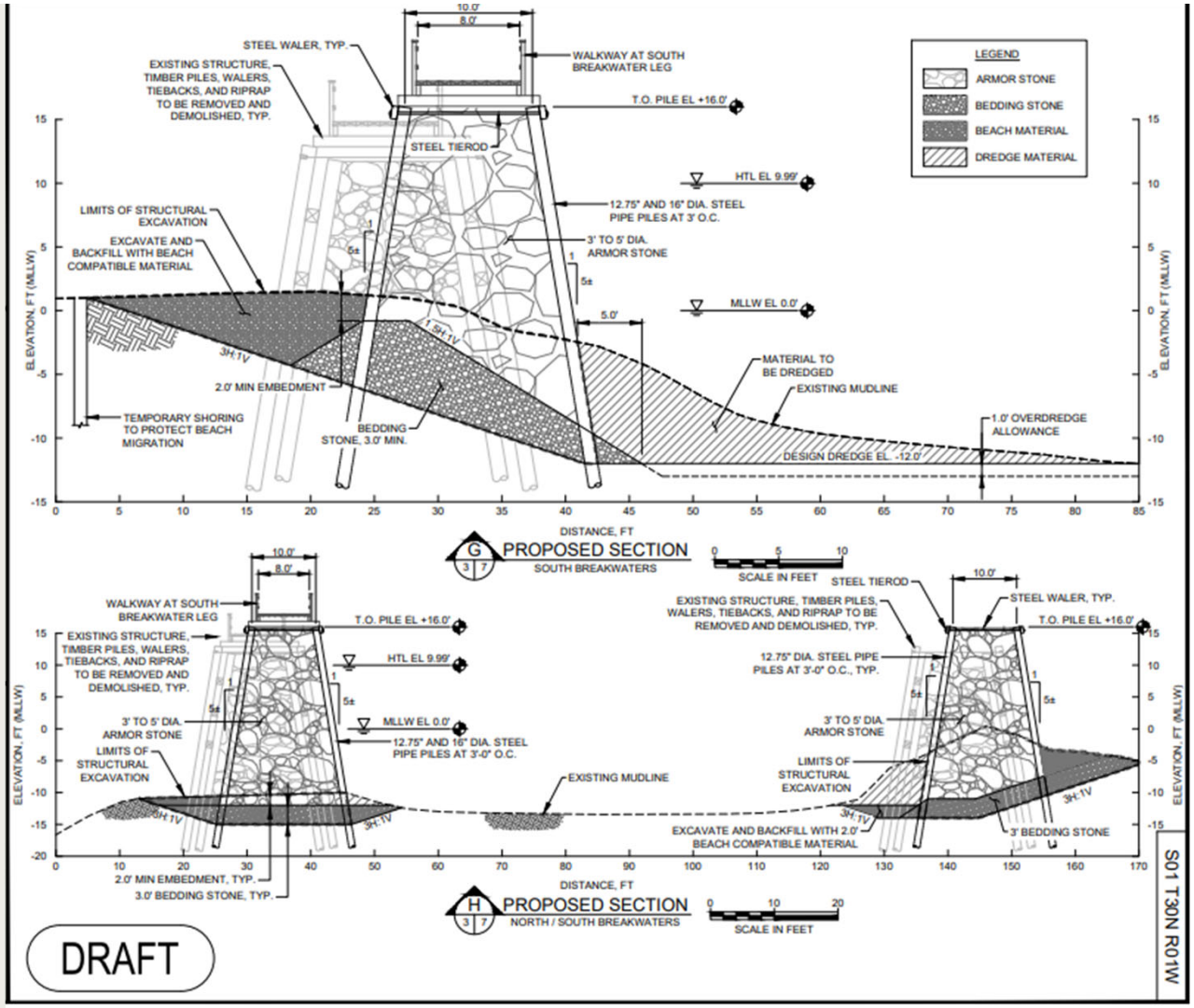


Elevation View

PERMIT DRAWING



PERMIT DRAWING



Potential Permitting Scenarios/Schedules

	Scenario 1 (Best Case)	Scenario 2	Scenario 3
Description	• Existing permit is modified for current design	• Existing permit is modified but NMFS is re-engaged	• Modification is rejected and a new permit application is required.
Permitting Length	• 6 months	• 12 months	• 2+ years
Permit Submittal	• July 2020	• July 2020	• Uncertain
Permit Received	• Jan 2021	• July 2021	• Work under an Emergency Action
Bid Advertisement	• Fall 2021	• Winter 2021	
Construction Start	• Fall 2022	• September 2022 (North Break) • September 2023 (South South)	
Construction End*	• Spring/Fall 2022	• February 2023 (North Break) • February 2024 (South Break)	

Environmental Considerations

1. CREOSOTE REMOVAL 827 piles
2. SMALLER FOOTPRINT
3. ROCK AND DEBRIS REMOVAL
4. INWATER WORK SEASON JULY TO FEBRUARY
5. VIBRATORY PILE DRIVER
6. BUBBLE CURTAIN
7. FLOATING DEBRIS BOOM
8. SILT CONTAINMENT CURTAIN
9. HOURS OF WORK
10. EEL GRASS AVOIDANCE
11. MARINA OPERATION

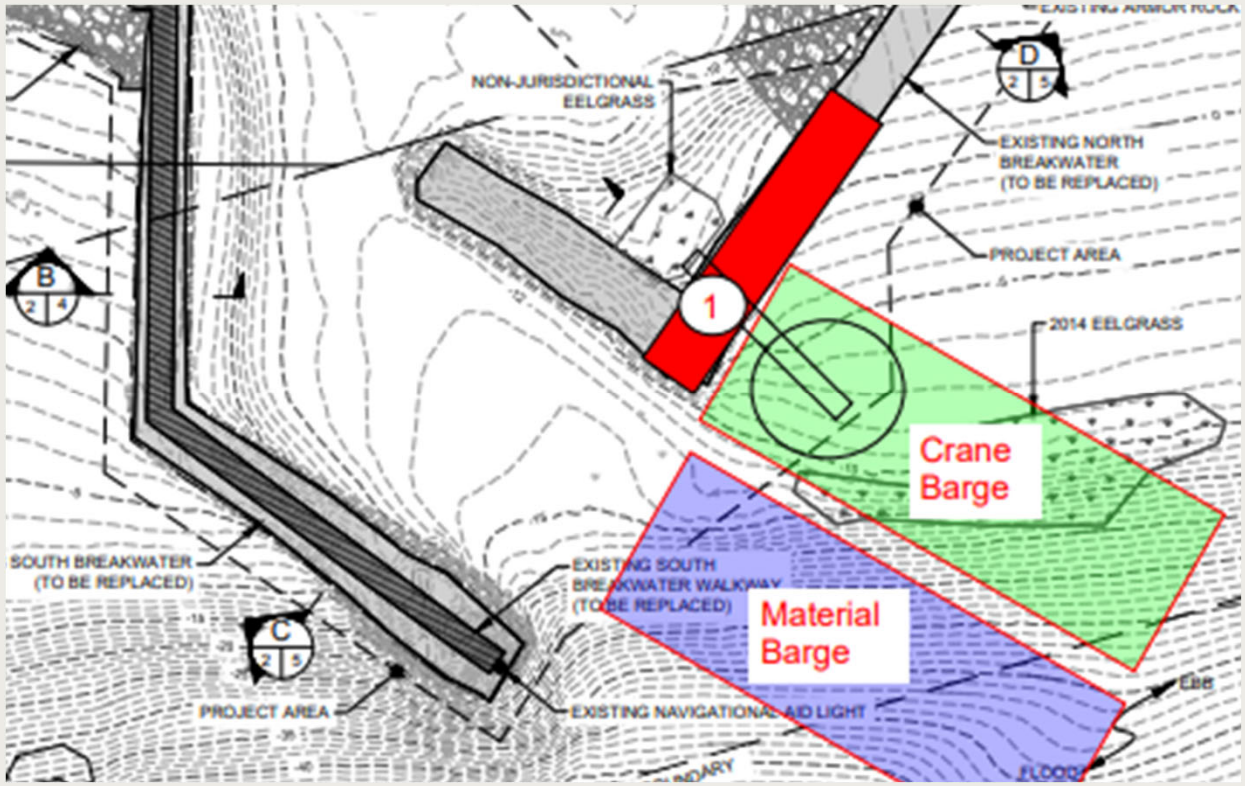
Timeline of North Breakwater

Start Following the Wooden Boat Festival in September 2022.

Close the Marina to allow Contractor to work 6 days a week and 10 hours day.

Six Months of in-water Work without delay

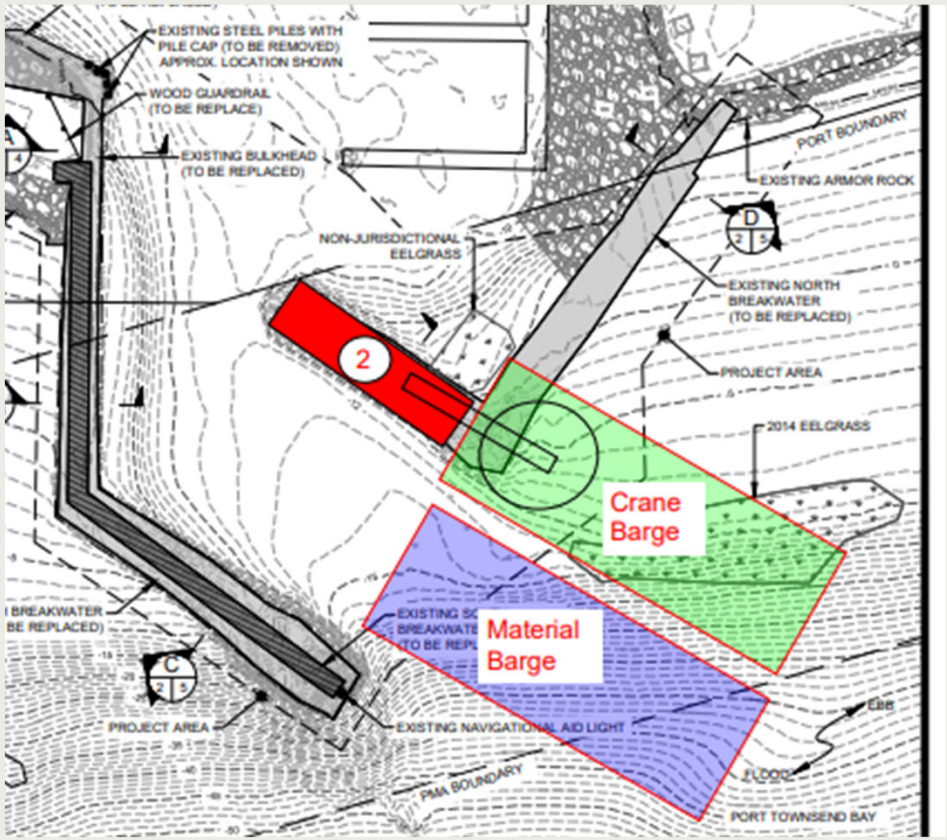
Complete the North Breakwater February 2023



Anticipated Barge Placement during construction

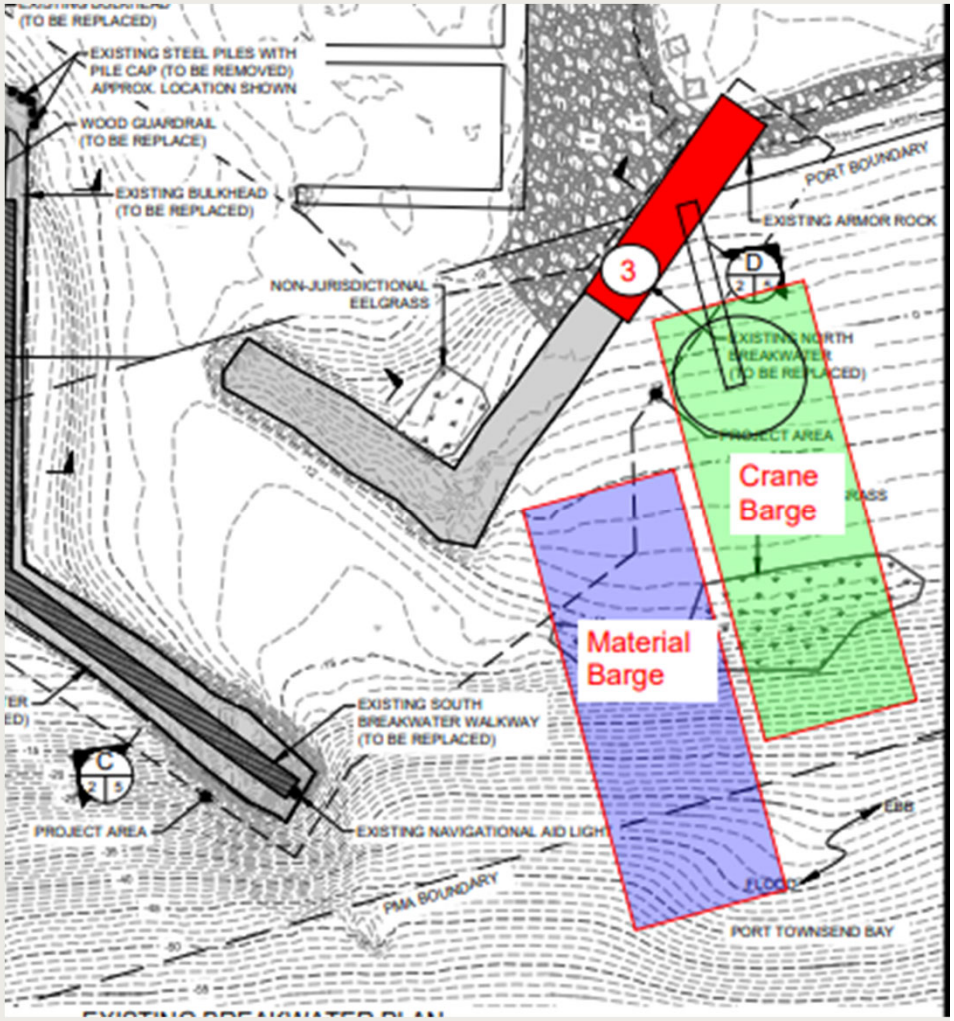
Demolish the Existing Breakwater – 8 to 10 weeks

Remove 356 wood piles
5,428 cy of Rock and debris



Rebuild - 12 to 14 weeks

Install 197 new steel piles
Place 5,035 cy of Fill
Install Steel Tie Rods



Estimated Project Costs

Total Project Costs (South and North)

- Construction Cost - **$13.6 Million** (2020 dollars)
- Engineering, Permitting, Bid Docs - **$400k**
- Construction Administration (South) - **$250k**
- Construction Administration (North) - **$250k**
- **Grand Total = $14.5 Million** (2020 dollars)

Current Funding Sources (South and North)

- RCO - **$880k (may be ineligible)**
- EDA Grant - **$7.1M**
- WA State Budget - **$1.0 M (July 2021)**
- Port Funding - **$5.5 to $6.4M**
- Grand **Total = $14.5 Million**

Variables

- Costs assume two separate construction seasons due fish window restrictions on in water work and duration of planned work.
- If obtaining permits further delays the project beyond September 2022 start date, we anticipate cost escalation due to inflation.

Summary

Replacement Alternative

- Breakwater replacement alternative similar in style as existing breakwater with modern materials and walkway on south breakwater.

Permitting

- Permitting will include replacement of both breakwaters.

Final Design

- Final design will be for replacement of both breakwaters.
- We may break project into Two Phases. Constructing the North Phase first.

Schedule

- Earliest Start Date September 2022 (after Wooden Boat Festival) with completion of the north breakwater March 2023, and continue with the South Breakwater beginning September 2023 and completion March 2024.

Questions?

Public comment period open until July 2, 2021. Please direct your comments or information regarding potential impacts to environmental resources or historic properties to:

US Economic Development Administration

Jim Jacobson
EDA Regional Environmental Officer
jjacobson@eda.gov or call (206) 833-6035

Or
Mike Love
mike@portofpt.com or call (360) 379-5025