

# North Breakwater Replacement Current Status @ 12-23-2017

Design is complete and final drawings are released

Permitting activity is complete and all permits are issued

Contract has been signed with Culbertson Marine Construction for all pre-assembly and over-water work.

All materials including steel pipe pile, steel facing structure and vinyl facing material have been manufactured, finished and delivered to our contractor.

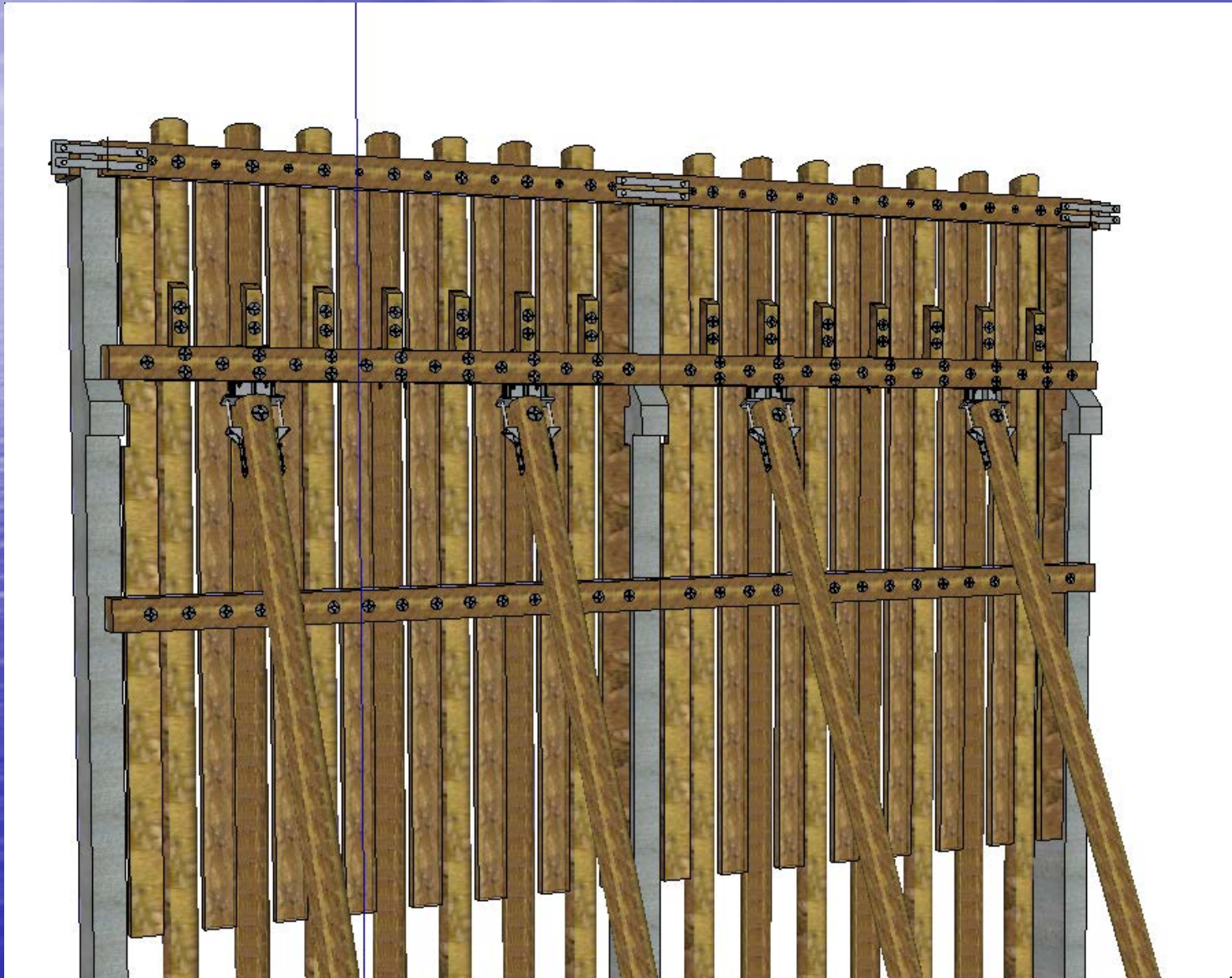
Pre-assembly of facing panels is now complete.

Over-the water work has commenced. Mobilization was completed on December 11th.

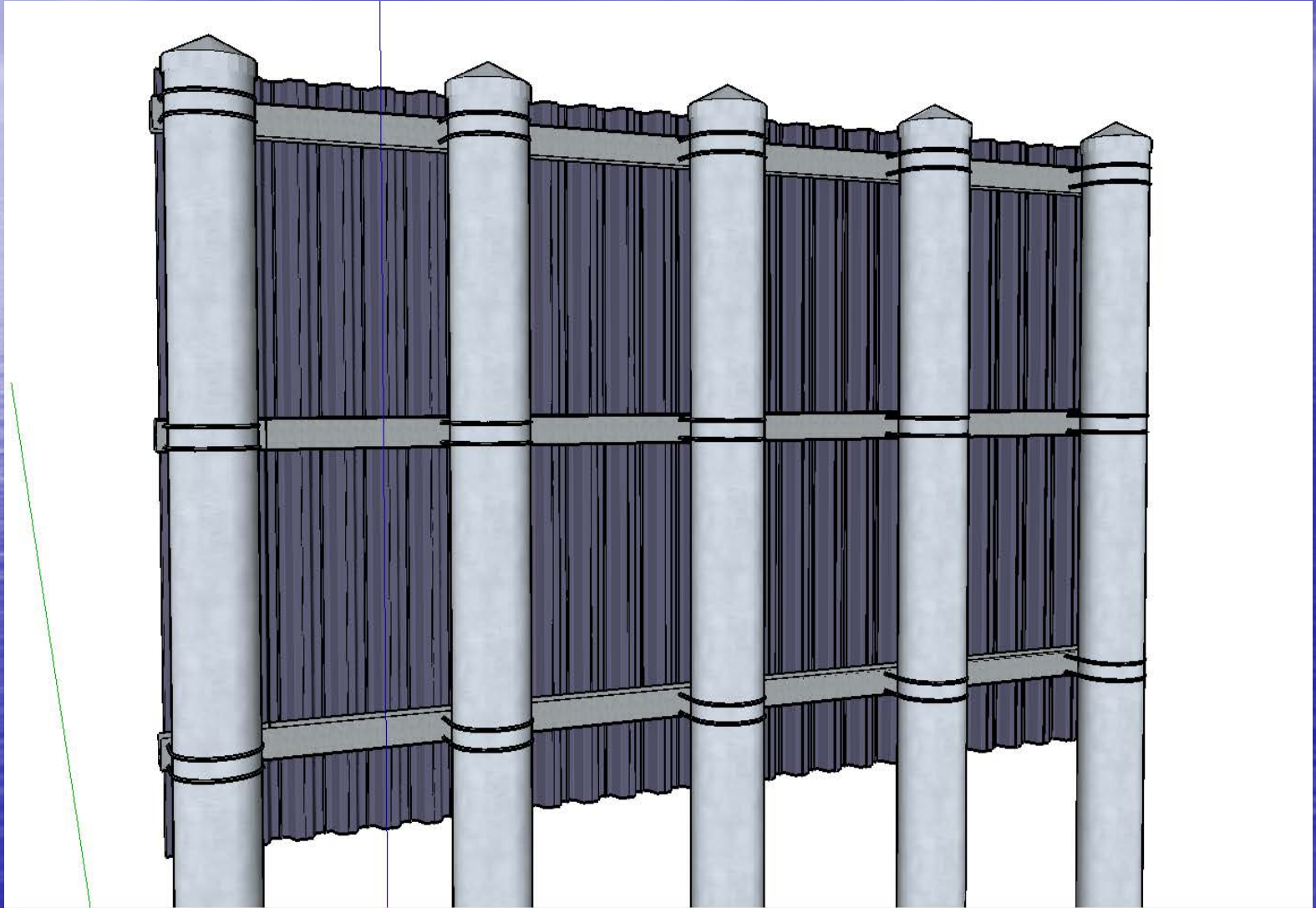
Two new steel pilings have been permanently installed to their design embedment depth. An additional five new pilings have been set in place and partially driven in, with final driving expected the first week of January.

Construction work has been halted for the Christmas holidays and will resume on January 2.

# Existing North Breakwater



# Future North Breakwater



# North Breakwater Replacement Project

## Project Phasing and Funding Plan

### Construction Funding Source

### Design Funding Source

Association Reserve; \$.31M

Owners Assessment; \$2.9M  
Association Reserve; \$ (As Determined)

|                          |                          |        |
|--------------------------|--------------------------|--------|
| <input type="checkbox"/> | Condition Survey         | \$27k  |
| <input type="checkbox"/> | Concept Study            | \$45K  |
| <input type="checkbox"/> | Follow On Study          | \$2k   |
| <input type="checkbox"/> | Wave Study               | \$23K  |
| <input type="checkbox"/> | Final Design Preparation | \$105K |
| <input type="checkbox"/> | Geological Drilling      | \$80K  |
| <input type="checkbox"/> | Permitting               | \$30K  |

|                          |  |         |
|--------------------------|--|---------|
|                          | Project Management                     | \$100K  |
| <input type="checkbox"/> | Boundary Survey                        | \$5K    |
| <input type="checkbox"/> | Geological Probing                     | \$0K    |
|                          | Legal/Contract                         | \$10K   |
|                          | Insurance/Bonding                      | \$39K   |
| <input type="checkbox"/> | Piling Acquisition & Finish            | \$672K  |
|                          | Environmental Monitoring               | \$?     |
|                          | Quality Control                        | \$?     |
|                          | Pre-assembly/Mobilization/Construction | \$1751K |
|                          | Contingency (from \$2.9M)              | \$250+K |

( - Complete)

Design Phase

Construction Phase

(Est.)



# Cost Reduction Opportunities

(realized)

Elimination of phased construction approach  
(fewer piles, optimum spacing, no interim design)

Availability of existing pile stock at attractive price

Utilization of vinyl sheet pile instead of recycled  
plastic timber for breakwater facing

Simplified pile/wale connection details

Early selection of local contractor (design/build  
participation, efficient mobilization)

# Materials Cost Savings

36" Piles in stock  
@ \$.35-.45 / Lb



Vinyl Sheet Pile  
@ 1/10 the Cost  
Of Plastic Timber

# Risks

(~~abc~~ = mitigated risk)

~~Permitting Assumptions — Nationwide (repair) Permit~~

~~Steel Pricing~~

~~Contractor Availability~~

~~Environmental Mitigation~~

Vibratory vs Impact Pile Driving

Demolition Schedule

# Pipe Pile Fabrication

May-July 2017





# Material Delivery

June - November 2017

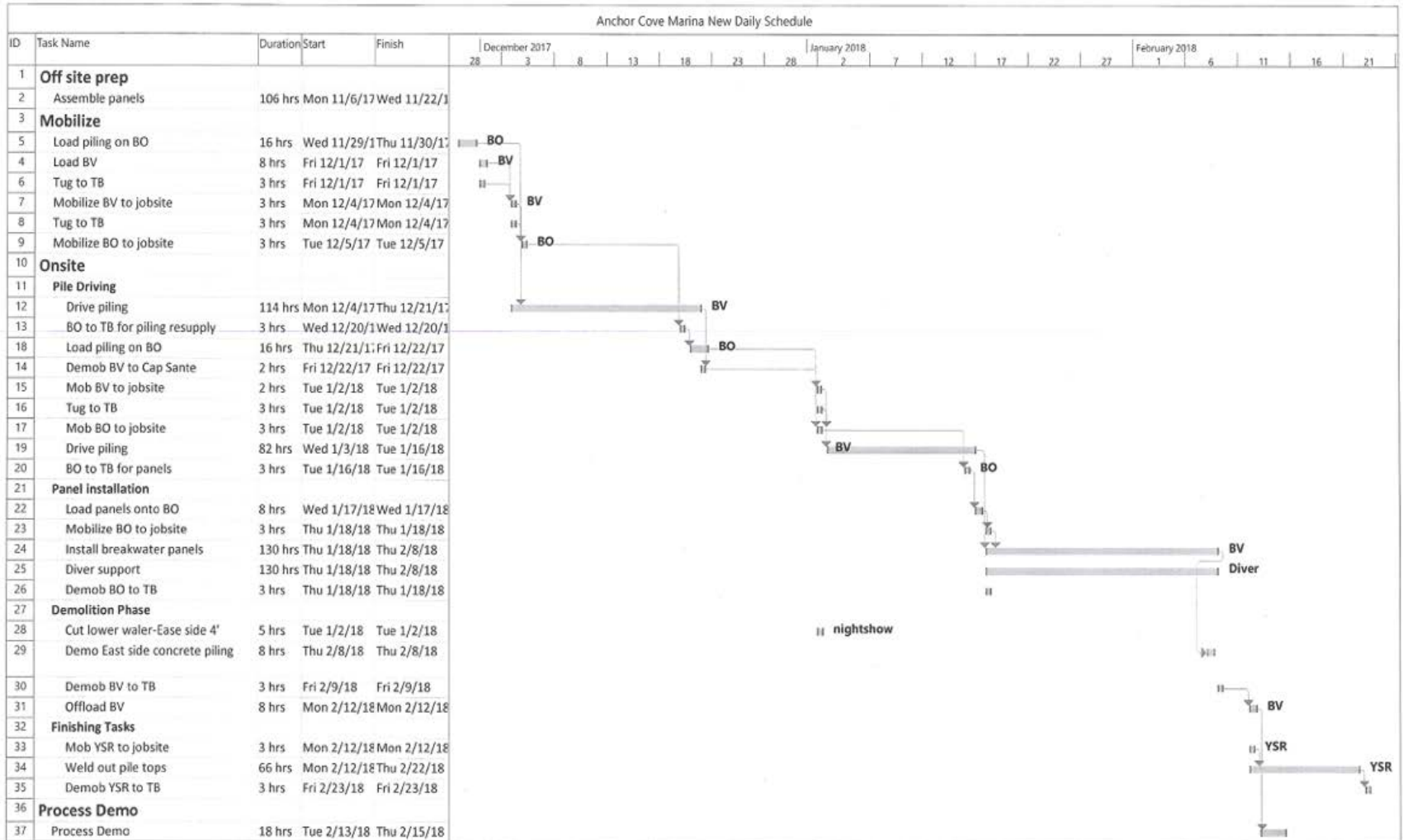


# Facing Panel Preassembly

November 2017



# Schedule



Schedule 2.5.1

Reflects new start date of Dec. 4th, based on 1 crew continuous. Demo out 1 concrete piling East side

Calendar is CMC standard calendar

Observes Holidays and DST

Monday 10/02/17

4:010 PM