

CERTIFIED

INSPECTORS



INSPECTION REPORT
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INSPECTED BY
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INSPECTION DATE
📅 1/12/2026
🕒 11:00 AM

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1. Seawall or Bulkhead

Styles & Materials

Seawall Type:	Seawall Construction:	Seawall Deck:
Vertical	T-Pile Seawall	Concrete
Cap Hight to Water Line:	Tide at Inspection Time:	
8 FT	Low	

Items

1.0 Grounds

Comments: Inspected, Repair/Replace

The ground and supporting subgrade near the seawall appear to be experiencing loss of support and differential settlement. Several floor tiles are uneven, displaced, or no longer fully supported, with visible voids beneath some areas, indicating soil migration or washout. The digital level shows localized out-of-plane conditions that are inconsistent with a stable, well-compacted substrate. These conditions are particularly concerning in a waterfront environment, where tidal action, wave energy, and water infiltration can progressively erode underlying soils. It is important to note that the majority of the ground conditions are concealed beneath the tile installation, limiting direct visual confirmation of the extent of soil loss or subgrade deterioration. However, the visible voids, tile movement, and irregular elevations strongly suggest that the concealed areas may be similarly affected.

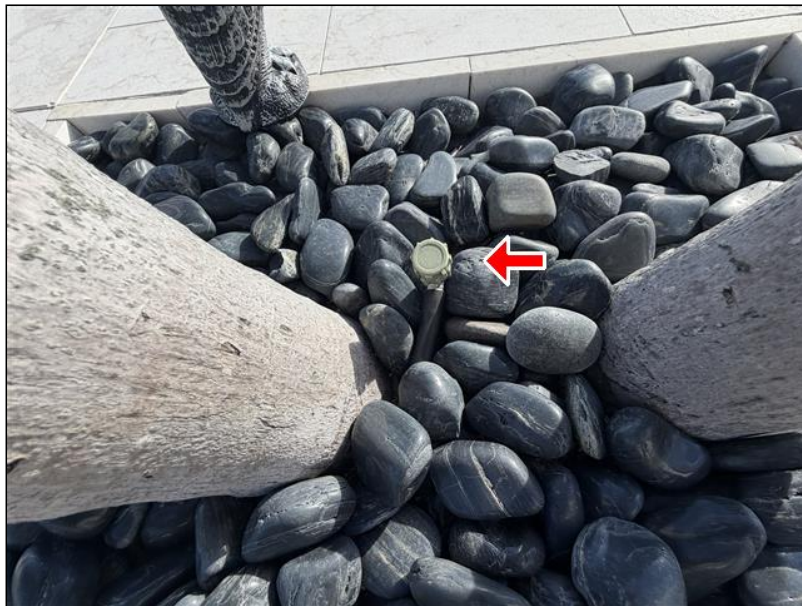
Recommendations:

- Remove select tiles near the seawall to allow direct evaluation of the underlying soil, bedding material, and any drainage or filter fabric present.
- Re-establish proper subgrade support by recompactng soils, replacing lost material, and installing a suitable stabilized base (e.g., compacted aggregate with underground textile separation).
- Consider installing drainage improvements or edge restraints to reduce water intrusion and migration of fines beneath the tiled surface.
- Manage to reduce or minimize the amount of water discharged through the sprinkler system.
- Reset or replace affected tiles after subgrade repairs, ensuring proper slope and uniform support..









1.1 Seawall Cap

Comments: Inspected, Repair/Replace

The seawall cap exhibited visible signs surface deterioration, staining, biological growth, and localized concrete distress. The underside of the cap shows discoloration, leaching, and streaking consistent with moisture intrusion and saltwater exposure. In several areas, the concrete edges appear roughened and weathered, suggesting surface deterioration.

While no widespread spalling or exposed reinforcement is visible, the staining patterns and deteriorated surface texture indicate that moisture is migrating through the concrete. Similar to the deck area above, much of the condition of the seawall cap is concealed from view, limiting confirmation of internal deterioration. This is particularly true on the interface between the cap, backfill, and reinforcing steel.

Recommendations

- Clean marine growth and staining to allow clearer visual assessment and slow ongoing biological deterioration.
- Repair localized concrete distress using appropriate marine-grade repair materials, including patching, resurfacing, or edge restoration where section loss is identified.
- Seal cracks, joints, and penetrations to reduce water intrusion into the seawall cap and supporting members.





1.2 Seawall Face

Comments: Inspected, Repair/Replace

The reinforced concrete seawall panels exhibit moderate to advanced deterioration consistent with long-term exposure to a marine environment. The panels show pronounced tide-line staining, biological growth, mineral deposits, and widespread discoloration, all of which indicate chronic and repeated wetting from fluctuating water levels. Numerous dark circular patches and linear staining patterns are visible on the panel faces, which are commonly associated with moisture migration through the concrete matrix and corrosion activity at embedded reinforcing steel. In several areas, patch repairs appear to have been performed in the past; however, these repairs are uneven, weathered, and in some locations appear to be debonding or ineffective, suggesting ongoing deterioration behind the repaired surfaces. The visible distress patterns strongly suggest that corrosion-related expansion and moisture intrusion may be occurring internally and could progress if not addressed.

Recommendations

- Retain a qualified marine structural engineer to perform hammer sounding, probing, and nondestructive testing to assess concrete integrity and reinforcing steel condition.
- Clean the seawall panel surfaces to remove biological growth and deposits, which will improve visibility of defects and reduce ongoing surface degradation.
- Consider applying a protective coating, sealant, or corrosion-inhibiting system designed for marine environments to slow moisture ingress and extend the service life of the seawall panels.
- Monitor the seawall periodically for progression of cracking, spalling, or displacement, and plan for more extensive rehabilitation if deterioration continues.





1.3 Footings or foundation

Comments: Inspected, Repair/Replace

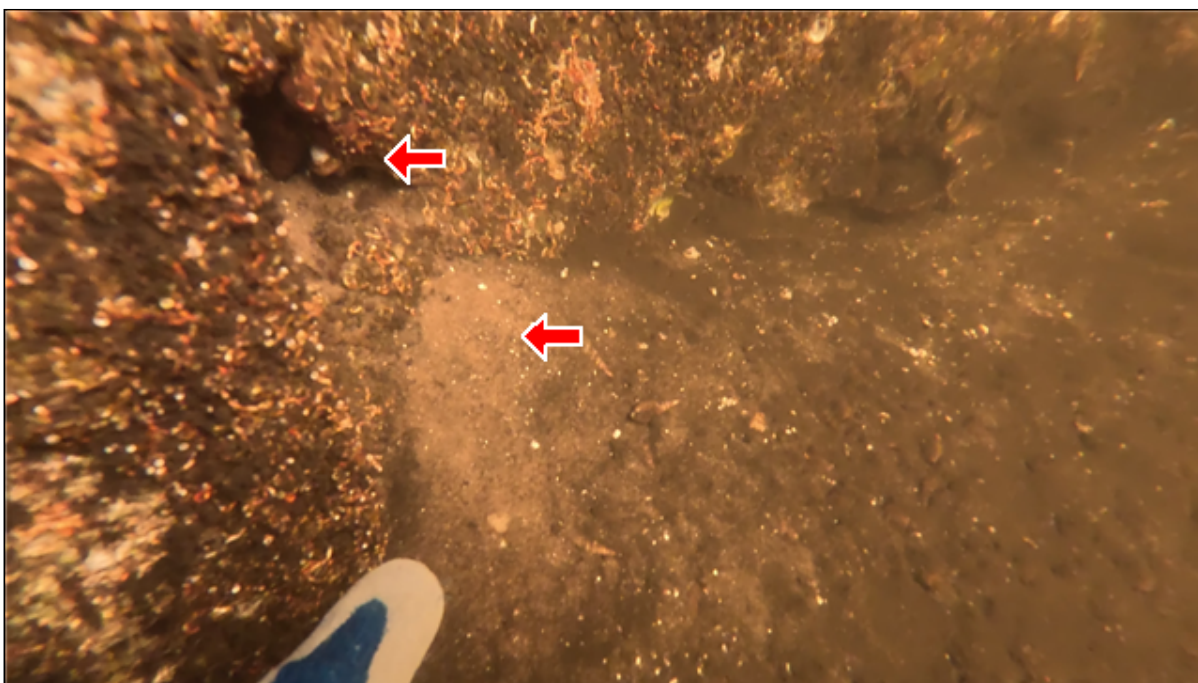
The seawall foundation consists of a cast-in-place concrete wall bearing directly onto the berm, with no visible continuous footings. The exposed base of the wall is heavily encrusted with marine growth, indicating prolonged submergence and tidal influence. The images show the wall transitioning directly into sandy substrate, with localized voids and depressions along the toe. No riprap, or footer protection is present at the base of the wall.

Inspector observed loss of supporting soil immediately adjacent to the seawall face, creating undercut conditions beneath the wall. In several locations, voids are visible at the wall-to-soil interface, suggesting that soil has been washing out by tidal action and wave energy. The presence of sediment plumes when disturbed further indicates loose, unstable soils and ongoing erosion. The foundation appears partially undermined in localized areas, reducing effective

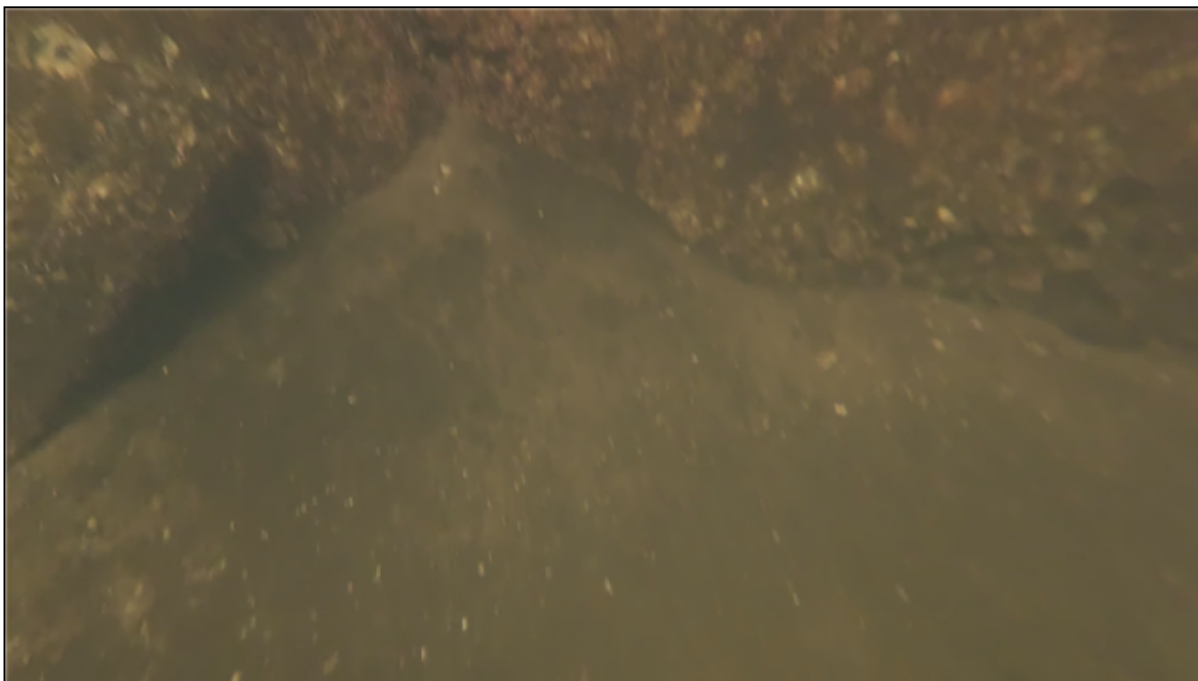
bearing capacity and increasing the risk of settlement or rotation of the seawall. The absence of a footer allows continued soil migration which translate into ground destabilization and can compromise structural stability.

Recommendations

- Install foundation protection at the seawall toe, such as riprap over textile fabric or a concrete footer designed for local conditions.
- Install pressure-grout or marine-grade hydraulic cement on existing voids beneath the wall to restore bearing support where feasible.







1.4 Drainage or Storm sewer

Comments: Inspected, Repair/Replace

The seawall drainage system consists of several weep holes penetrating the concrete seawall panels to relieve hydrostatic pressure by allowing groundwater behind the wall to discharge. The drains contain screen material intended to limit soil loss while permitting water flow. The drains show minor deteriorated patching, cracking, or separation between the pipe sleeve and surrounding concrete, which may allow some soil loss or seepage.

Recommendations

- Clean, clear, and flush all drainage outlets to assure proper water flow, including removal or replacement of clogged mesh or screens as necessary.
- Repair or reseal the pipe-to-concrete interfaces using marine-grade, non-shrink repair materials to prevent soil loss and uncontrolled seepage.
- Implement periodic inspection and maintenance of the drainage outlets to ensure continued functionality and to reduce long-term structural risk to the seawall.







1.5 Vertical Pilings

Comments: Inspected, Repair/Replace

The vertical pilings consist of reinforced concrete support columns extending from below the waterline to the underside of the deck and supporting the panels. These pilings transfer vertical and lateral loads from the supported structure into the underlying soils and are continuously exposed to a tidal marine environment. The concrete pilings exhibit moderate to advanced deterioration consistent with prolonged marine exposure. Pronounced tide-line staining, heavy biological growth, and marine fouling are present along much of the lower and mid-height portions of the pilings, particularly within the splash and tidal zones. Several pilings display cracking, patch repairs, and areas of delamination, suggesting prior attempts to address concrete distress.

Recommendations

- Retain a qualified marine structural engineer to perform hammer sounding, probing, and nondestructive testing to assess concrete integrity and reinforcing steel condition.
- Remove marine growth and clean piling surfaces to better evaluate the extent of cracking, delamination, and section loss.
- Repair deteriorated piling areas using marine-grade concrete repair systems, including removal of unsound concrete, corrosion mitigation of reinforcing steel where exposed, and placement of compatible repair materials.
- Evaluate prior repair areas for bond failure or incompatibility and replace as necessary.







1.6 Batter Pilings

Comments: Inspected, Repair/Replace

The batter pilings consist of reinforced concrete columns installed at an inclined angle to provide lateral stability and resistance to horizontal forces acting on the structure, including wave action, hydrostatic pressure, vessel impact, and soil or waterborne loads. These pilings work in conjunction with the vertical pilings and the overhead beam/deck system to distribute loads into the supporting soils.

The batter concrete pilings exhibit moderate to advanced marine-related deterioration, particularly within the splash and tidal zones. Extensive biological growth, algae accumulation, and marine fouling are present along the lower and mid-height portions of the pilings, clearly defining long-term tidal exposure levels. Surface erosion, roughened concrete texture, and loss of cement paste are evident, especially near and just above the mean waterline, where deterioration is most aggressive.

Vertical and diagonal cracking patterns are visible on multiple pilings, which may be associated with moisture intrusion, chloride penetration, and corrosion of embedded reinforcing steel. While no complete section loss or structural separation is clearly visible in the images, the surface condition indicates that internal deterioration of reinforcement cannot be ruled out without further testing.

Progressive concrete degradation and potential reinforcing steel corrosion reduce effective cross-sectional capacity and may impair the pilings' ability to resist design loads over time.

Recommendations

- Remove marine growth and thoroughly clean piling surfaces to better identify cracking, delamination, and areas of section loss.
- Repair deteriorated concrete using marine-grade repair systems, including removal of unsound material, corrosion mitigation of reinforcing steel where exposed, and placement of compatible, durable repair mortars.
- Evaluate existing patch repairs for effectiveness and replace or upgrade deficient repairs as necessary.







1.7 Seam Sealing

Comments: Inspected, Repair/Replace

The seam seals consist of cementitious paste or grout placed at the vertical interfaces between the precast seawall panels and the cast-in-place or precast vertical pilings. These joints are intended to provide continuity between structural elements, limit water infiltration, reduce soil loss from behind the seawall, and offer a first line of protection against chloride intrusion and marine deterioration. While not always designed as fully watertight expansion joints, their integrity is critical to the long-term durability and performance of the seawall system.

Above the waterline, the seam seals show cracking, shrinkage, surface erosion, and debonding from adjacent concrete surfaces. Vertical cracks are visible along the joint lines, and staining patterns suggest that water is migrating through the seams during tidal cycles, wave action, or storm events. While the cement paste remains partially intact in these

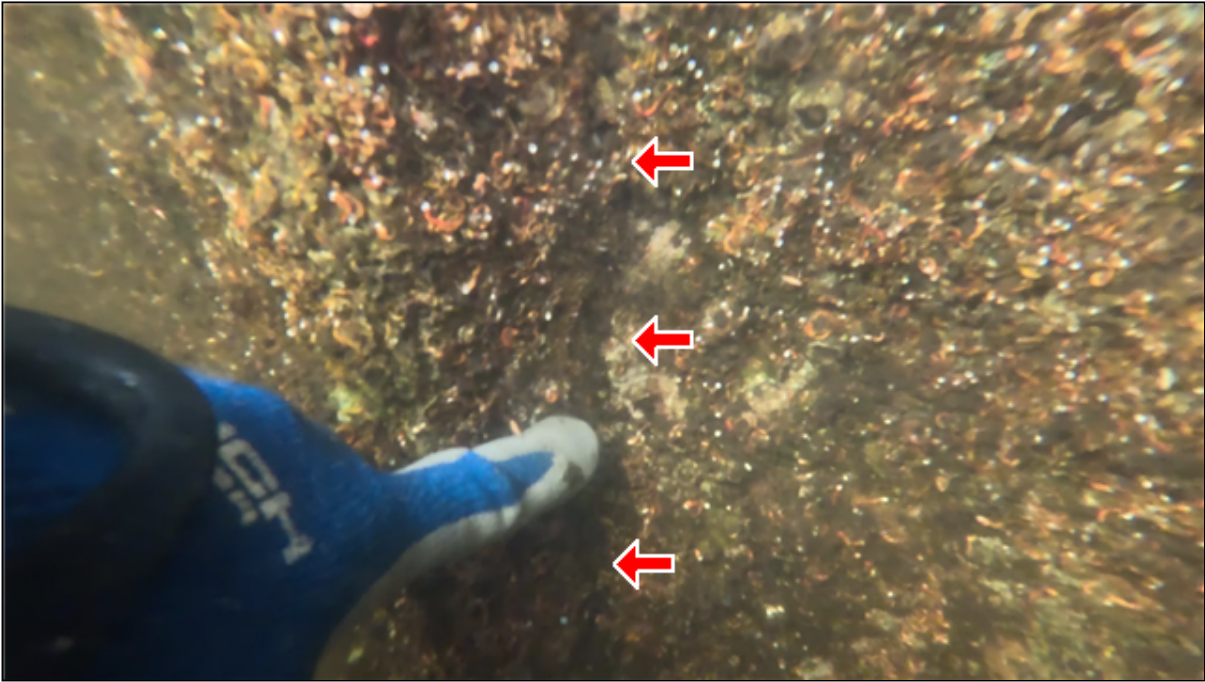
areas, it appears brittle and weathered, with reduced effectiveness as a barrier. Drying cycles above water have likely contributed to shrinkage cracking and loss of adhesion over time.

Below the waterline, the seam seals are in noticeably poorer condition. The cement paste is heavily eroded, softened, or partially missing in several locations, with open voids visible at the joint interfaces. Continuous submergence, tidal pumping, and chloride exposure have accelerated leaching of cementitious components, resulting in loss of material and increased permeability. In some areas, the joint appears to be functioning as an open pathway rather than a seal.

Recommendations

- Remove loose, deteriorated, and biologically contaminated cement paste from the vertical seam joints, both above and below the waterline.
- Prepare joint surfaces by cleaning, profiling, and treating as required to promote proper bonding.
- Replace existing cement paste with a hydraulic cement, non-shrink grout, or epoxy-modified mortar designed for tidal and submerged conditions.
- Perform repairs during suitable tidal conditions to ensure proper installation and curing, particularly below the waterline.
- Implement periodic underwater inspections to monitor joint performance and identify early signs of future deterioration.















1.8 Video

Comments: Inspected

<https://youtu.be/j5oDj90NCgl>