

CONDITIONS ASSESSMENT OF WATERFRONT STRUCTURES

Black Point Beach Club Association

East Lyme, CT USA

Revised March 24, 2026

Prepared By:



Project No. D-25-08-3384

Table of Contents

Introduction.....	3
Background	4
Location.....	4
Description of Overall Facilities	5
Past Development & Maintenance	6
Site Exposure.....	7
Tide/Flood Elevations	7
Flooding.....	8
Condition Assessment	9
Nehantic Pier	9
Indianola Steel Pier.....	9
White Cap Access Way (Drainage Pipe)	10
Sea Breeze Pier	10
Sea View Boat Launch	11
Osprey Pier	11
Recommendations & Opinion of Probable Cost	12
Nehantic Pier – All Recommended Work.....	13
Nehantic Pier – Alternate Work Only	14
Seabreeze Pier – All Recommended Work	15
Seabreeze Pier – Alternate Work Only	16
Osprey Pier – All Recommended Work.....	17
Sea View Boat Launch – All Recommended Work.....	18
White Cap Access Way (Drainage Pipe) – All Recommended Work	19
Cost and Construction Advisory Overview.....	20
Appendices	20

Introduction

Black Point Beach Club Association (OWNER) is a quasi-municipality which maintains several waterfront structures within their boundaries on the West side of Niantic Bay on the Long Island Sound. Structures within the scope of assessment include five erosion/beach control structures, one with a drainage pipe outlet, and a boat launch. These structures support waterfront and boating access for 574 properties within the association.

Sound Engineering Associates, LLC (SEA) was retained by Coastline Consulting, Inc. to assist with an evaluation of the condition of the waterfront structures and determine if maintenance was required. The condition assessment of the facility was conducted by a three-person engineering team over multiple days in the period of October 2025. SEA's efforts were limited to a general screening/overview of the structures and focused exclusively on waterfront infrastructure including both stone and steel concrete capped piers, one with a drainage outlet, and a boat launch. Areas evaluated were limited to the portions of the structure above water that were accessible to the field crew. Evaluations were general in nature, limited to visual assessment and did not involve detailed structural, mechanical and/or utility evaluations, materials testing or analysis.

Throughout the inspection and evaluation effort, the inspection team followed the routine condition assessment rating system presented in Table 1 below, taken from the reference titled "Underwater Investigations Standard Practice Manual" published by the American Society of Civil Engineers (2001).

1.	CRITICAL Very advanced deterioration overstressing or breakage has resulted in localized failures of primary structural components. More widespread failures likely and load restrictions should be implemented. Repairs may need to be carried out on a very high priority basis with strong urgency.
2.	SERIOUS Advanced deterioration, overstressing or breakage may have significantly affected the capacity of primary structural components. Local failures possible and load restrictions may be necessary. Repairs may need to be carried out on a high priority basis with urgency.
3.	POOR Advanced deterioration or overstressing noted on widespread portions of the structure but does not significantly reduce the load bearing capacity of the structure.
4.	FAIR All primary structural elements are sound but minor to moderate defects or deterioration are observed. Localized areas of moderate to advanced deterioration may be present but do not significantly reduce the capacity of the structure. Repairs are recommended but the priority of those repairs is low.
5.	SATISFACTORY Limited minor to moderate defects or deterioration are observed but no overstressing is observed. No repairs are required.
6.	GOOD No visible damage or only minor damage is noted. Structural elements may show very minor deterioration but no overstressing is observed. No repairs are required.

Table 1: Rating System for routine condition assessment

Background

This association is located on the East side of Black Point in the iconic Niantic Bay within the Town of East Lyme. Along the shoreline in both North and South directions are residential homes with association-owned beaches in front of them. The association owns and maintains a reserved beach extending approximately from Billow Road to Waterside Avenue, identified on the Town of East Lyme GIS as parcels 05.2-68 and 05.11-71, extending out to Mean High Water. A portion of a navigation chart obtained from NOAA is provided in Figure 1 below showing the general location of the waterfront structures. An aerial image obtained from the GIS is also provided in Figure 2 showing the detailed location of each waterfront structure.



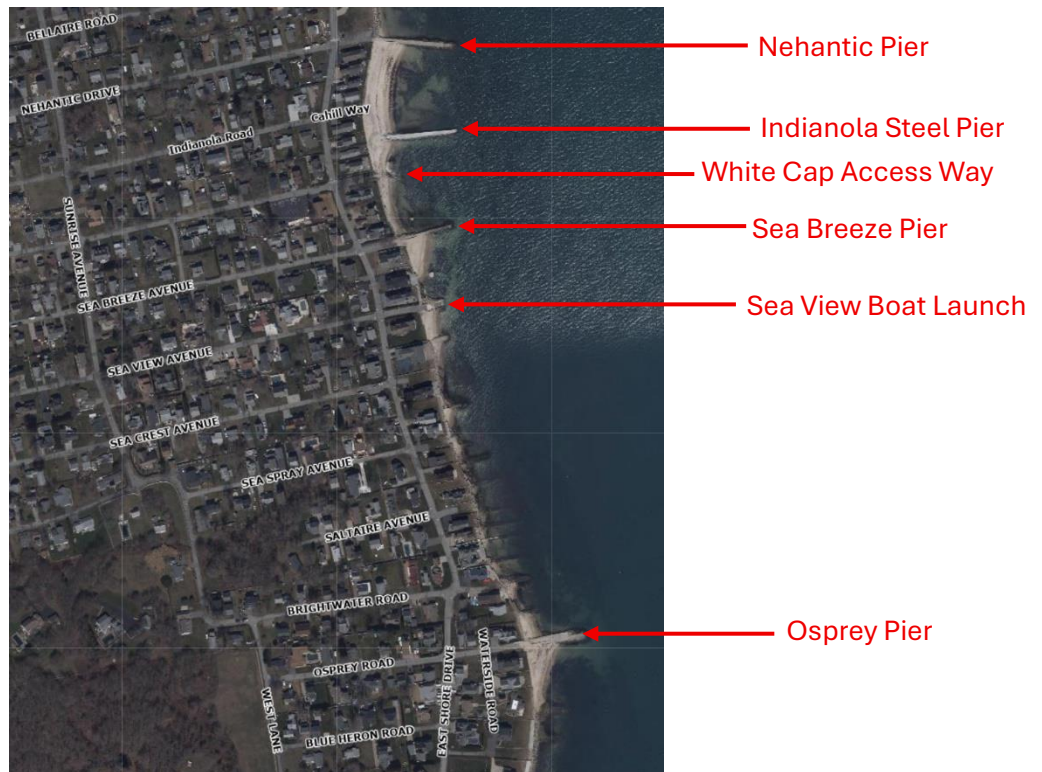


Figure 2: GIS Aerial Image – Town of East Lyme

Description of Overall Facilities

The waterfront structures intended for evaluation at this site include five erosion/beach control structures, one with a drainage pipe outlet, and a boat launch. These structures exist as follows:

Nehantic Pier – Concrete capped stone pier/groin with armor stone protection and small pile restrained float off extension of Nehantic Drive approximately 281-FT into Niantic Bay.

Indianola Steel Pier – Concrete Capped stone and steel pier/groin with armor stone between Indianola Road/Cahill Way and Whitecap Road. Steel sheet pile protection on North side with armor stone on the South side extending approximately 260-FT into Niantic Bay.

White Cap Access Way – Concrete encased drainage outlet with armor stone protection off extension of Whitecap Road approximately 60-FT into Niantic Bay.

Sea Breeze Pier – Concrete capped stone pier/groin with armor stone protection off extension of Sea Breeze Avenue approximately 220-FT into Niantic Bay.

Sea View Boat Launch – Concrete boat launch with small pile restrained float off extension of Sea View Avenue approximately 50-FT into Niantic Bay.

Osprey Pier – Concrete capped stone pier/groin with armor stone protection and a pile restrained float off extension of Osprey Road approximately 200-FT into Niantic Bay

The primary structures evaluated at this site incorporate characteristics of several common shoreline structures, including piers, groins, and, to a lesser extent, jetties. In general, a pier is intended to provide water access and/or vessel berthing and typically consists of a concrete cap or deck utilized as a walking surface supported by piles or stone. A groin is intended to reduce shoreline erosion by disrupting sediment transport and is typically constructed of armor stone, timber, or sheet pile. A jetty serves a similar purpose to a groin but is generally larger and more heavily constructed, often consisting of substantially sized stone or concrete, and is typically associated with inlet or harbor protection. As described above, many of the evaluated structures consist primarily of armor stone outcroppings with concrete caps, and while these structures provide some sand retention and erosion protection, they function predominantly as piers by providing a walking surface for shoreline access, some with supporting features like pile restrained floats.

Past Development & Maintenance

Prior to 1923, Black point Beach Club was largely undeveloped, primarily consisting of open land and wetlands. In 1924 much of the land was divided into lots and sold, with cottages being built shortly after and the establishment of the association. There is evidence that some of these pier/groin structures have existed since at least 1934 as seen in historic aerial photographs. Exact dates of construction are unknown for these pier/groin structures although, all have existed since at least 1970, pre-dating current permitting regulations and classifying these structures as grandfathered "Pre-1995". The most significant construction modification to these longstanding structures occurred in 1987 and included the installation of a concrete cap on the existing Nehantic, Indianola, Sea Breeze, and Osprey piers. All infrastructure developments to these structures were approved by the **State of Connecticut Department of Energy and Environmental Protection (DEEP)** and/or the **U.S. Army Corps of Engineers (ACOE)**. Including the concrete capping in 1987, nine permits have been issued as follows:

- SD-M-87-107: Concrete capping Nehantic, Indianola (steel), Sea Breeze, Osprey piers
- COP-2006-093-CC: Concrete replacement & stone enhancement Nehantic, Indianola (steel), Seabreeze, Osprey piers. Sheet pile replacement Indianola (steel) pier. Sea View boat launch concrete repairs.
- 20061576-SB: Anchor restrained floats Nehantic pier, Sea View boat launch, osprey pier
- NAE-2006-1974: Old Black PT Road Float & boardwalk (not in evaluation area)
- 201400529-MG: Float restraint piles Nehantic pier, Sea View boat launch, osprey pier
- 201600405-MG: Sea View boat launch & float replacement
- 20160432-MG & NAE-2014-00510: Sea View boat launch concrete cap and wall(s)
- 201908317-COP & NAE-2014-00510: Indianola (steel) pier concrete repair & capping, sheet pile replacement

Historic aerial imagery was reviewed to evaluate the development and evolution of the Site over the past 89 years. Using the UCONN Magic aerial viewer tool, photographs of the Site taken in 1934, 1990, 2004, and 2023 were reviewed, these photographs are provided in Figure 3 below.



Figure 3: Comparison of aerial photographs of SITE including years 1934, 1990, 2004, and 2023

Site Exposure

Tide/Flood Elevations

The water sheet associated with the Niantic Bay is exposed to tidal fluctuations coincident with The Fishers Island Sound and Long Island Sound. Table 3 below provides a composite summary of water surface fluctuations obtained from NOAA and FEMA who provide actual and statistically derived elevations for waterfront communities. Based on the tidal elevations obtained from NOAA, the site has a daily tidal range of approximately 3.0 feet.

DESCRIPTION OF WATER SURFACE OR DATUM	ELEVATION (FT) NAVD88
Base Flood Elevation (1% Annual Chance)	16.0
1% Annual Chance Stillwater Flood Elevation ³	9.4
2% Annual Chance Stillwater Flood Elevation ³	7.5
10% Annual Chance Stillwater Flood Elevation ³	4.9
Coastal Jurisdiction Line (CJL) ²	2.3
High Tide Line (HTL) ¹	1.9
Mean Higher High Water (MHHW) ¹	1.2
Mean High Water (MHW) ¹	1.0
North American Vertical Datum-1988 (NAVD88)	0.0
Mean Low Water (MLW) ¹	-1.6
Mean Lower Low Water (MLLW) ¹	-1.8

Table 3: Tidal & Surge Elevations (Mystic River)

Sources: ¹NOAA Online Tides & Currents Station 8461490, New London, CT

²CT DEEP Coastal Jurisdiction Line Fact Sheet, Long Island Sound, Groton, CT

³FEMA Flood Insurance Study New London County, Connecticut – East Lyme, Town of

Flooding

To determine the Site's potential exposure to flooding during a significant storm event, SEA referred to the **Flood Insurance Rate Map (FIRM)** map number **09011C0487J** issued by the **Federal Emergency Management Agency (FEMA)** on August 5, 2013 for the region.

Base Flood Elevations (BFEs) noted on the FIRM are elevations noted within defined areas that take into account storm surge and local effects including erosion and resulting wave action. These BFE's need to be considered when building a new structure, modifying an existing structure, or evaluating the level of risk and existing structure has to be flooded/damaged due to a significant storm event. According to the Firm, the entire site is located in Zone VE (EL+16). For reference, areas located in a V-Zone are potentially vulnerable to being flooded 1% annually with waves 3 feet or greater. A portion of the FIRM, referred to as the FIRMette, is provided in Figure 4 below.

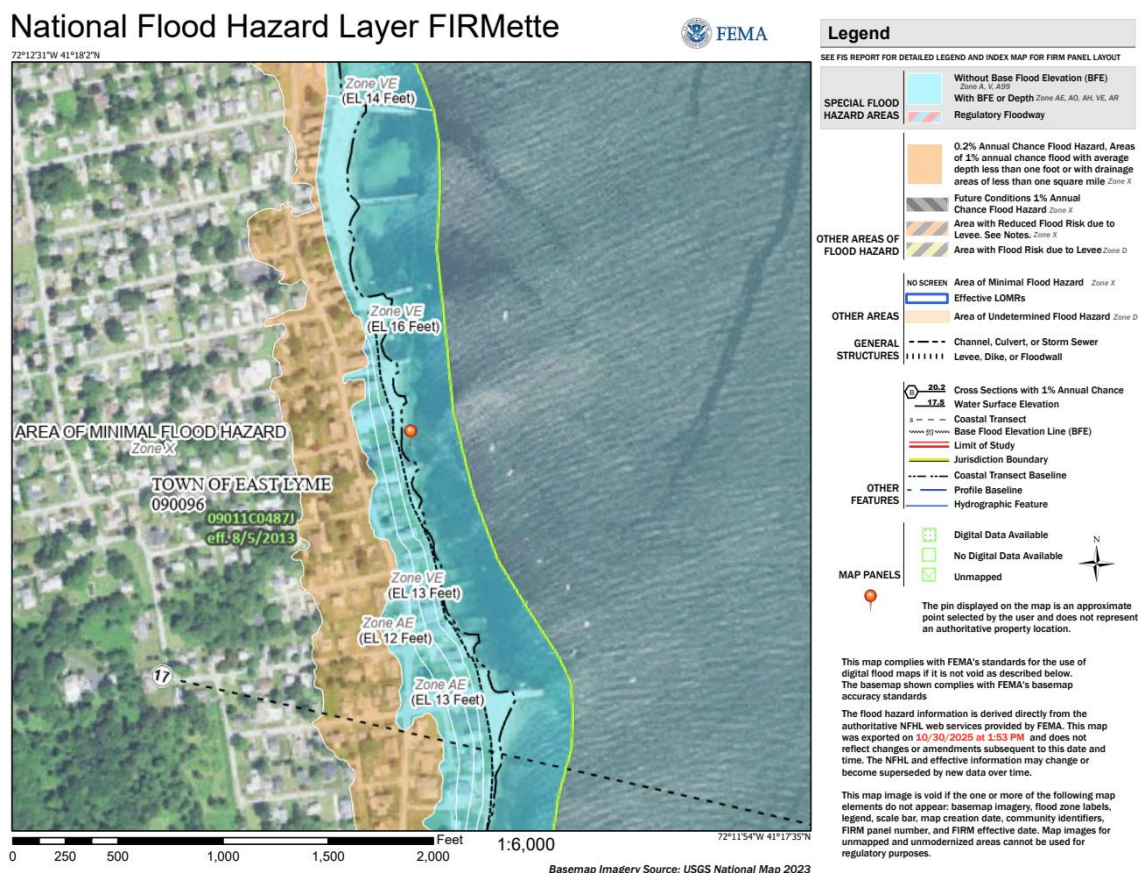


Figure 4: FIRMette from Flood Insurance Rate Map #09011C0487J

Condition Assessment

To establish condition of the facilities, the three-member engineering team walked along all piers, and sections of shoreline that were accessible in both high and low tide conditions. Inspections were performed over multiple days in the period of October 2025 with the 2020 GNCR report serving as a basis for assessment. During inspection, general conditions of each structure were noted and specific areas of concern were identified and documented. Representative photographs that were taken during the site visit(s) are provided below in Appendix B. These photographs are intended to provide clarity beyond the written assessment on SEA findings regarding the condition of these structures and may be useful in developing permit drawings for future repairs. Note, additional site visits and a detailed topographic survey may still be required to develop full permit drawings for approval. The following is a summary of SEA findings.

Nehantic Pier

The Nehantic Pier off the extension of Nehantic Road extending approximately 281 feet into Niantic Bay was generally found to be in FAIR condition overall, though certain portions of the concrete walkway were found to be in POOR condition. The ramp landing platform for access to the float was observed to be in SERIOUS to CRITICAL condition. The pier consists of cast-in-place concrete slabs supported by a cut granite block foundation with armor stone protection along both sides. The concrete deck exhibits moderate cracking, surface scouring, and localized settlement, most notably along the North side where loss of bearing support and visible joint separation have developed. Evidence of previous grout injection and concrete repair remains visible and mostly intact, although incomplete bonding and open seams allow groundwater infiltration and continued void formation beneath the slabs.

Several armor stones have shifted or been lost due to direct wave exposure, leaving voids beneath the concrete walkway and exposing the granite foundation toe. The end slab remains stable and in SATISFACTORY condition, while the two intermediate slabs show downward deflection and joint cracking consistent with loss of support. The ramp landing platform at the North end is severely undermined and cantilevered, with limited remaining support, and should be repaired IMMEDIATELY with pedestrian access restricted until restoration is complete. To restore long-term stability, displaced armor stones should be reset and supplemented, undermined voids should be grout injection filled, and the two cracked slabs replaced. The ramp landing platform should be reconstructed and the surrounding area supplemented with new armor stone to protect from further scour.

Indianola Steel Pier

The Indianola Steel Pier between Indianola Road/Cahill Way and White Cap Road extending roughly 260 feet into Niantic Bay was observed to be in SATISFACTORY to GOOD condition overall, with only minor surface deterioration on the steel sheet pile. This pier consists of a concrete-capped steel sheet-pile wall with concrete and stone infill and armor stone protection along the South side. The concrete walkway remains level and intact with minimal cracking and effective joint sealant throughout, while the steel sheet piles exhibit only light surface corrosion in the splash zone. Armor stone alignment and interlock remain tight, showing no measurable settlement or rotation.

This structure has remained in near-new condition since its rehabilitation approximately six years ago, and no deformation, corrosion expansion, or connection failure was observed. Routine

inspection and light maintenance of surface cracking and rust are recommended to preserve long-term serviceability. This light maintenance may include concrete filling and joint sealing as cracks develop on the walkway and surface coating, patching, and individual pile replacement if necessary, on the steel sheet pile as corrosion becomes severe. No repairs are required at this time, and the pier is expected to remain in satisfactory condition for at least the next 15–20 years with proper maintenance.

White Cap Access Way (Drainage Pipe)

The White Cap Access Way drainage structure off the extension of White Cap Road extending approximately 60 feet into Niantic Bay was observed to be in POOR to SERIOUS condition overall, though still marginally serviceable. The structure consists of a 30-inch pre-cast concrete pipe encased within a deteriorated concrete headwall and cap. The final 10–12 feet of pipe and encasement are broken, settled, and misaligned, with visible joint separation and rotation at the discharge end. Severe cracking extends approximately 12 feet back from the outlet, and the last 20+ feet of the encasement show clear signs of structural failure and settlement consistent with the conditions noted in the prior GNCB report.

Multiple concrete patches indicate at least four or five past repair attempts, all showing renewed deterioration. Ice damage and surface scaling were observed along the upper quadrant, while localized washout beneath the discharge end confirms ongoing undermining and loss of support. Although still functioning under normal flow, this structure is nearing the end of its service life and may fail during heavy runoff or storm events. Replacement of the disjointed pipe section and encasement back to sound connection, along with resetting and supplementing displaced armor stone, is recommended in the near term to restore full drainage function and prevent failure.

Sea Breeze Pier

The Sea Breeze Pier off the extension of Sea Breeze Avenue extending approximately 220 feet into Niantic Bay was found to be in FAIR to POOR condition overall, with the Northeast corner classified as SERIOUS to CRITICAL. The pier consists of cast-in-place concrete slabs over a cut granite and rip-rap foundation with armor stone protection along both sides. The structure exhibits severe settlement ranging from approximately 6–18 inches along both sides and up to 24 inches on the North side, resulting in loss of bearing support beneath portions of the slab. Evidence of prior grout repair and localized concrete infill was noted throughout, particularly along the North side where grout was used as a temporary stabilization measure over unfilled voids.

Several armor stones have shifted or are missing, reducing toe stability and allowing localized scour and ongoing settlement of the foundation. The concrete walkway remains serviceable but shows moderate cracking, surface scaling, and chipped corners near slab joints consistent with freeze-thaw distress and voiding below. The Northeast corner of the slab is partially cantilevered and unsupported, with visible separation from the underlying stone foundation. Temporary grout placement has slowed progression but does not provide adequate long-term stability. To restore durability, displaced armor stones should be reset and supplemented by at least 10% in total volume to reestablish slope geometry and grade elevation. Deteriorated concrete infill should be removed and replaced with flowable grout to restore uniform bearing, and open joints should be sealed to prevent infiltration. Without corrective action, continued settlement and partial failure are expected within the next five years.

Sea View Boat Launch

The Sea View Boat Launch off the extension of Sea View Road extending approximately 50 feet into Niantic Bay was observed to be in FAIR to POOR condition overall but remains functional for residential use. The ramp surface is steep and transitions poorly into the sand base ending abruptly and allowing large stones to accumulate at the toe and obstruct trailer access. The previous concrete overlay has failed to adhere to the substrate where crack repair material was applied, leading to delamination and surface separation along areas of the ramp.

The flanking seawalls and surrounding armor stone remain in FAIR to SATISFACTORY condition, though minor stone displacement and joint separation were noted along the North edge. Recommended improvements include removal of the failed overlay, resurfacing or capping of the existing ramp, and reconstruction or extension of the slab to smoothly transition into the seabed to reduce stone buildup and restore smooth trailer access. Repairs to this structure are of minimal urgency, and residential use may continue under favorable sea conditions until work is undertaken. Extension of the ramp toe to provide smoother access and prevent stone buildup may also result in substantial cost due to the fashion of construction required for boat ramp extension including a cofferdam and upland dewatering. This extension was provided as more of a long term suggested improvement rather than an immediate or necessary repair.

Osprey Pier

The Osprey (South Beach) pier off the extension of Osprey Road extending approximately 200 feet into Niantic Bay was observed to be in FAIR condition overall, with localized deterioration primarily along the North side. The structure consists of cast-in-place concrete slabs supported by a stacked stone wall foundation with armor stone extending along both sides. Several sections of stone along the North side have separated from the vertical wall, producing visible gaps between the slab and foundation face. While not yet structural in nature, these voids indicate gradual settlement and loss of interlock in the stone foundation.

Previous stone resetting and concrete repairs remain mostly intact, though several isolated sections show stone movement and surface cracking. The pier remains safe and serviceable, but continued maintenance will be required to prevent further settlement or failure. Recommended actions include resetting displaced armor stones and replacing or repairing cracked slab sections. With routine maintenance and annual visual inspection, the structure is expected to remain serviceable for another 10–15 years before significant rehabilitation is required.

Recommendations & Opinion of Probable Cost

Opinion of Probable Costs

An Opinion of Probable Costs (OPC) has been prepared for repairs to all structures assessed to be in SERIOUS or CRITICAL condition herein referenced to as the BASE OPC. Additional repairs pertaining to structures assessed to be in FAIR or POOR condition are also included in the OPC as ALTERNATE construction items which may be deferred to a later date. Depending on the scope of work and construction costs, alternate items assessed to be in FAIR or POOR condition may be deferred to a later date or addressed as part of the more urgent work, thus the OPC shows both scenarios. Alternate cost to defer FAIR or POOR items includes 3% compound inflation for work to be done in 5 and 10 years.

The purpose of the OPC is to provide an order of magnitude cost that should be anticipated to spend on repairs or replacement of in-water items noted. It is not an actual construction bid and as such, should be used for planning purposes only. Actual costs will be the result of a competitive bidding process which will be performed after design of the repairs are completed and regulatory approvals are obtained.

The OPC for recommended repairs is broken down as follows:

Nehantic Pier – All Recommended Work

Base Construction items

ITEM	DESCRIPTION	OPC
1	Site Preparation, Mobilization & Demobilization, Cleanup	\$19,000
2	Demolitions & Removals	\$6,100
3	Concrete and Base Material Placement	\$32,200
4	Armor Stone Placement	\$46,600
	BASE CONSTRUCTION SUBTOTAL (Critical & Serious)	\$103,700

Alternate Construction Items

5	Concrete Slab Demolition	\$6,100
6	Concrete Slab and Base Material Placement	\$121,600
7	Armor Stone Placement	\$318,400
	ALTERNATE CONSTRUCTION SUBTOTAL (Fair & Poor)	\$446,000

Professional Services & Contingencies

8	Permitting & Design	\$30,000
9	Construction Advisory Services	\$16,100
10	Design Contingency (30%)	\$165,000
	PROJECT SUBTOTAL	\$760,800

11	Construction Contingency (20%)	\$152,200
	TOTAL OPC	\$913,000

Nehantic Pier – Alternate Work Only

ITEM	DESCRIPTION	OPC
1	Site Preparation, Mobilization & Demobilization, Cleanup	\$19,000
2	Demolitions & Removals	\$6,100
3	Concrete and Base Material Placement	\$64,700
4	Armor Stone Placement	\$331,000
	CONSTRUCTION SUBTOTAL	\$420,600
5	Permitting & Design	\$30,000
6	Construction Advisory Services	\$14,300
7	Design Contingency (30%)	\$126,200
	PROJECT SUBTOTAL	\$591,100
8	Construction Contingency (20%)	\$118,300
	TOTAL OPC	\$709,400

	Deferred 5 Years	\$822,400
	Deferred 10 Years	\$953,400

Seabreeze Pier – All Recommended Work

Base Construction items

ITEM	DESCRIPTION	OPC
1	Site Preparation, Mobilization & Demobilization, Cleanup	\$19,000
2	Demolitions & Removals	\$12,100
3	Concrete and Base Material Placement	\$56,100
4	Armor Stone Placement	\$78,400
	BASE CONSTRUCTION SUBTOTAL (Critical & Serious)	\$165,400

Alternate Construction Items

5	Armor Stone Placement	\$158,900
6	Grout Injection Repair	\$30,500
7	Joint Sealant	\$6,200
	ALTERNATE CONSTRUCTION SUBTOTAL (Fair & Poor)	\$195,400

Professional Services & Contingencies

8	Permitting & Design	\$30,000
9	Construction Advisory Services	\$13,100
10	Design Contingency (30%)	\$108,300
	PROJECT SUBTOTAL	\$512,200

11	Construction Contingency (20%)	\$102,500
	TOTAL OPC	\$614,700

Seabreeze Pier – Alternate Work Only

ITEM	DESCRIPTION	OPC
1	Site Preparation, Mobilization & Demobilization, Cleanup	\$19,000
2	Armor Stone Placement	\$158,900
3	Grout Injection Repair	\$30,500
4	Joint Sealant	\$6,200
	CONSTRUCTION SUBTOTAL	\$214,400
5	Permitting & Design	\$30,000
6	Construction Advisory Services	\$10,100
7	Design Contingency (30%)	\$64,400
	PROJECT SUBTOTAL	\$318,900
8	Construction Contingency (20%)	\$63,800
	TOTAL OPC	\$382,700

	Deferred 5 Years	\$443,700
	Deferred 10 Years	\$514,400

Osprey Pier – All Recommended Work

ITEM	DESCRIPTION	OPC
1	Site Preparation, Mobilization & Demobilization, Cleanup	\$19,000
2	Demolitions & Removals	\$18,100
3	Concrete and Base Material Placement	\$267,300
4	Aarmor Stone Placement	\$237,900
	CONSTRUCTION SUBTOTAL	\$542,100
5	Permitting & Design	\$30,000
6	Construction Advisory Services	\$14,000
7	Design Contingency (30%)	\$162,700
	PROJECT SUBTOTAL	\$748,800
8	Construction Contingency (20%)	\$149,800
	TOTAL OPC	\$898,600

	Deferred 5 Years	\$1,041,800
	Deferred 10 Years	\$1,207,700

Sea View Boat Launch – All Recommended Work

ITEM	DESCRIPTION	OPC
1	Overlay Removal	\$18,100
2	Concrete Placement	\$24,400
3	Cleanup	\$6,100
	CONSTRUCTION SUBTOTAL	\$45,400
4	Permitting & Design	\$30,000
5	Construction Advisory Services	\$6,800
6	Design Contingency (30%)	\$13,700
	PROJECT SUBTOTAL	\$95,900
7	Construction Contingency (20%)	\$19,200
	TOTAL OPC	\$115,100

	Deferred 5 Years	\$133,500
	Deferred 10 Years	\$154,700

White Cap Access Way (Drainage Pipe) – All Recommended Work

ITEM	DESCRIPTION	OPC
1	Demolitions & Removals	\$24,700
2	Concrete Pipe Placement	\$15,700
3	Concrete Placement	\$64,700
4	Armor Stone Placement	\$110,100
5	Cleanup	\$7,900
	CONSTRUCTION SUBTOTAL	\$97,200
7	Permitting & Design	\$30,000
8	Construction Advisory Services	\$7,400
	PROJECT SUBTOTAL	\$134,600
9	Contingency (20%)	\$27,000
	TOTAL OPC	\$161,500

Notes:

1. A Design Contingency of 30% - 50% is recommended for preliminary design when there are a variety of assumptions made. The OPC is based on preliminary design. As the design advances, these variables are reduced or eliminated.
2. A Construction Contingency of 15% - 30% is recommended to account for unforeseen conditions during construction, which may require the contractor perform work that is outside of the Agreement with the Owner.

In providing an Opinion of Probable Cost for any construction work the Client is advised that SEA has no control over the cost or availability of labor, equipment, materials, market conditions, or construction methods for pricing. Any Opinion of Probable Cost provided by SEA is made on the basis of professional judgment and experience. SEA makes no warranty, express or implied, that any bids or negotiated cost of the Work will not vary from the Opinion of Probable Cost provided. In addition, it is SEA's experience that prices of materials can fluctuate after the occurrence of significant events, such as natural disasters.

Cost and Construction Advisory Overview

Sound Engineering Associates, LLC (SEA) can provide engineering support during construction, as needed, to assist with project oversight and coordination. These services may include assistance with contractor selection, periodic review of work in progress for general conformance with the design, review of contractor applications for payment, and project close-out services. The construction phase involvement would typically consist of periodic site visits by a project engineer (approximately 2–3 times per week) to observe progress, address field conditions, and provide direction if deviations from the design or previously unobserved conditions arise. While the association may have personnel capable of performing certain aspects of this work, it is recommended that an engineer involved in the design of the project be present during construction.

From a cost perspective, performing repairs to multiple structures under a single construction contract would reduce certain project costs. Permitting costs may also be lower if multiple structures are included within a single permit application rather than submitted individually. Completing the work for multiple projects together would eliminate repeated mobilization and demobilization costs if each structure were repaired individually. Additional cost reductions may also occur through bulk procurement of materials such as armor stone or concrete. Although, it must be noted these material costs are subject to market conditions and can be difficult to predict in advance.

The Opinion of Probable Cost (OPC) provided in this report is based on recent experience with similar shoreline and marine construction projects across Connecticut, including numerous contractor bids received for comparable work. Estimated costs were developed by identifying the anticipated repair approach for each structure, the materials and equipment required and the expected construction duration. These factors were then compared to similar recent projects and current labor and equipment rates to develop an overall estimate. The OPC is only somewhat conservative and should be considered reasonably accurate and representative of current construction costs. Though it should be noted that material costs can fluctuate based on external market conditions and can only be reasonably predicted for the current time period.

Project-specific considerations were also incorporated into the cost estimates for each structure. A design contingency was not included for the White Cap Access Way project due to the limited scope of work and the ability to evaluate the structure more comprehensively from land compared to the other structures, which include significant underwater components. Estimates were developed based on observed site conditions, anticipated repair approaches, material quantity calculations, and known costs of comparable projects recently completed in the region. Material quantities were calculated independently by two SEA engineers and used to develop the overall cost projections.

Appendices

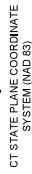
Appendix A: Pier location survey

Appendix B: Key plan

Appendix C: Site photographs

Appendix A

Pier Location Survey



CT STATE PLANE COORDINATE
SYSTEM (NAD 83)

LONG ISLAND SOUND

- ### 1) Nehantic Concrete Capped Pier

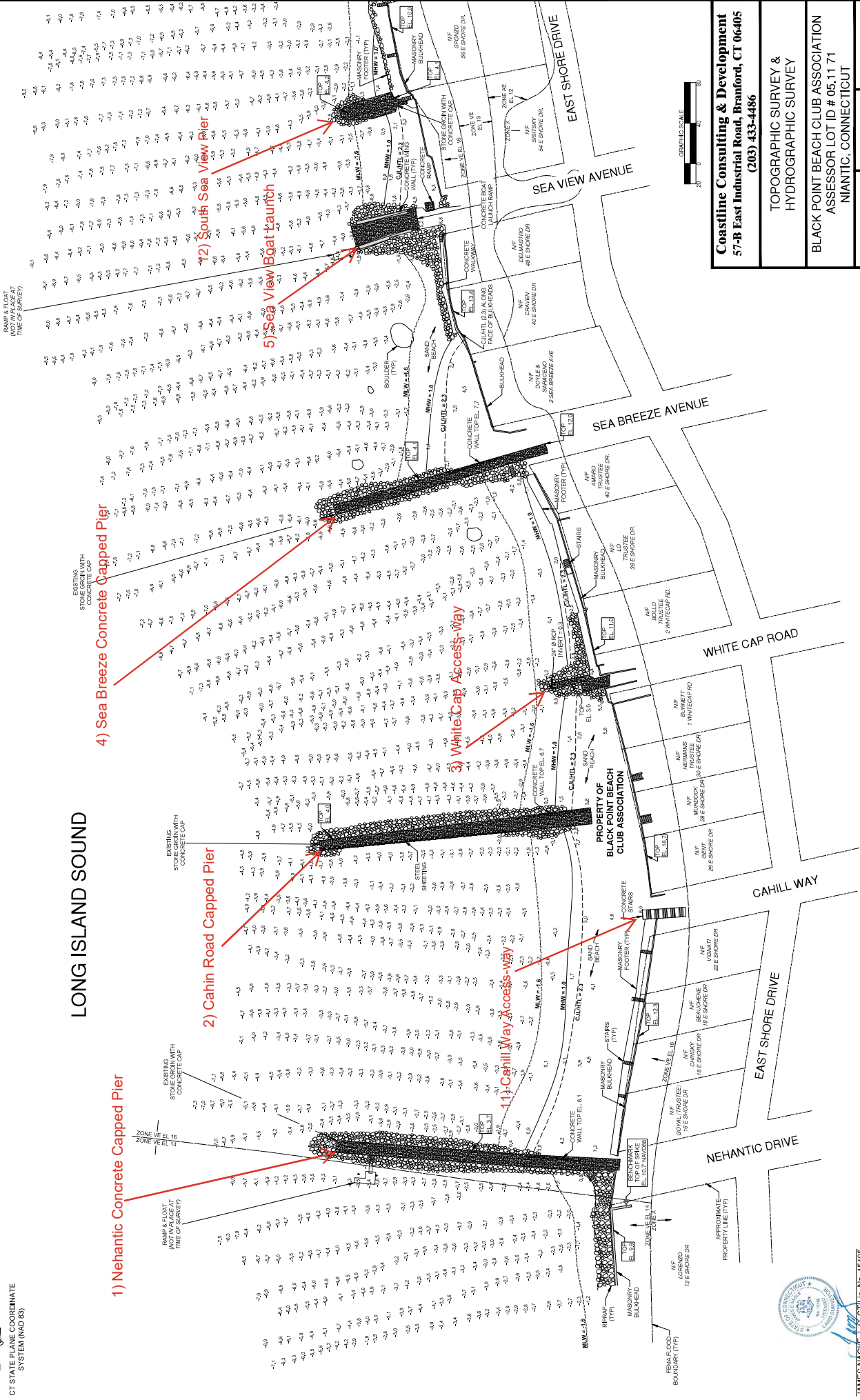
- 4) Sea Breeze Concrete Capped Pier

- ## 2) Cahin Road Capped Pier

- 12) South Sea View Pier

-

- 5.4
 -5.3-5.3
 -5.4
 -5.2
 -5.7
 -5.0
 -6.2
 -6.0
 -6.2



Coastline Consulting & Development
57-B East Industrial Road, Branford, CT 06405
(203) 433-4486

TOPOGRAPHIC SURVEY &
HYDROGRAPHIC SURVEY

BLACK POINT BEACH CLUB ASSOCIATION
ASSESSOR LOT ID # 05,11 71
NIAHTIC, CONNECTICUT

APRIL 15, 2025 SHEET 2 OF 3

JAMES NAGLE, L.S. CT/Lic. No. 15195



LONG ISLAND SOUND

6) Sea Spray Access-way and Groins

7) Brightwater Association Access-way

10) South Beach/Osprey Road
Northern Groin

8) South Beach/Osprey Road Pier

9) South Beach/Osprey Road
Southern Groin

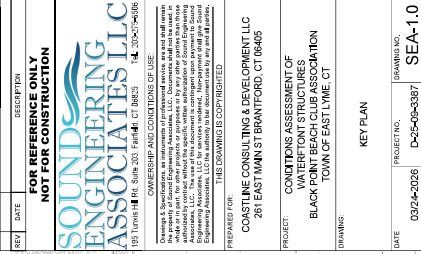
13) Sea Crest Aie Access-way

14) Saltaire Aie Access-way



Appendix B

Key Plan



KEY PLAN
1" = 40'

Appendix C

Representative Conditions Photographs



Photo 1: Nehantic pier

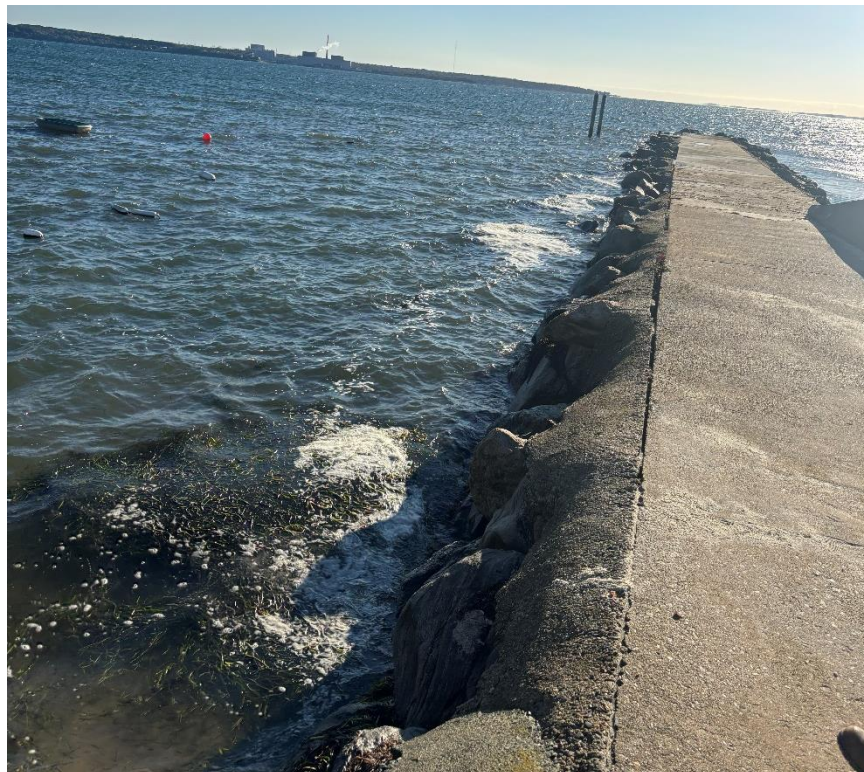


Photo 2: Nehantic pier North armor stone



Photo 3: Nehantic pier North side end

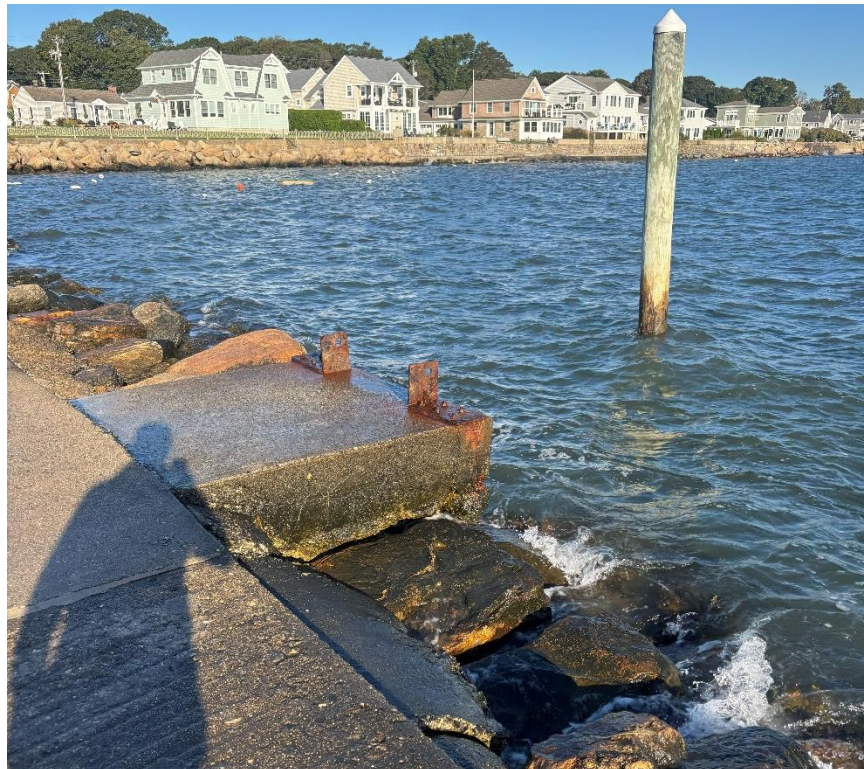


Photo 4: Nehantic pier partially cantilevered ramp landing platform



Photo 5: Nehantic pier deteriorated intermediate concrete slabs



Photo 6: Nehantic pier cracked concrete



Photo 7: Nehantic pier displaced armor stone



Photo 8: Nehantic pier void in stone foundation



Photo 9: Indianola steel pier



Photo 10: Indianola steel pier North side



Photo 11: Indianola steel pier North side armor stone



Photo 12: Indianola steel pier South side



Photo 13: Indianola steel pier displaced armor stones South side



Photo 14: Indianola steel pier shifted armor stones Southeast corner



Photo 15: Indianola steel pier concrete walkway

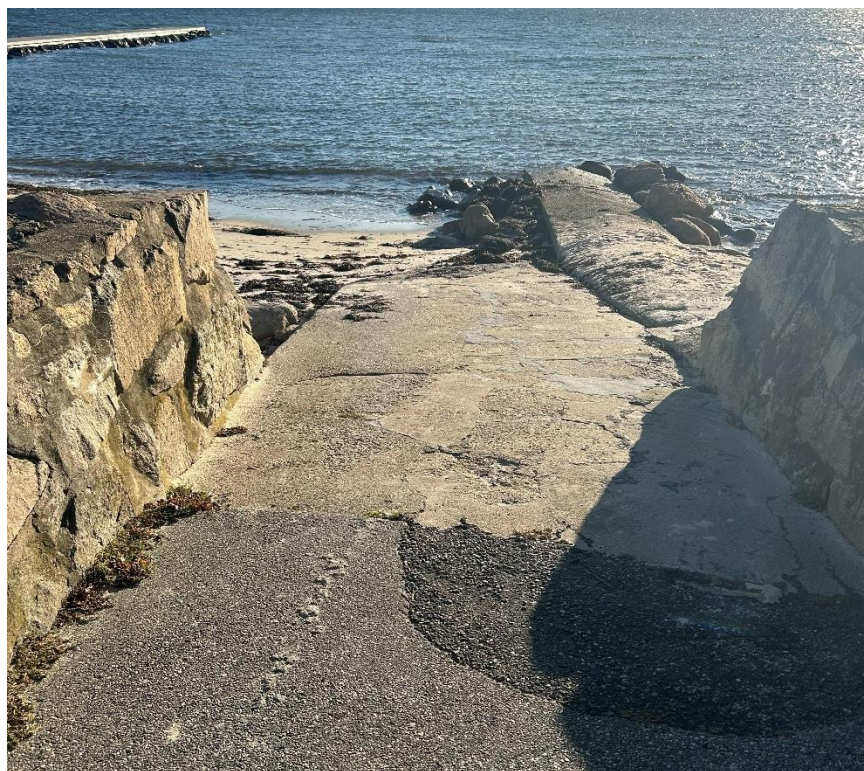


Photo 16: White Cap access way



Photo 17: White Cap access way deteriorated concrete apron



Photo 18: White Cap access way drainage pipe encasement



Photo 19: White Cap access way drainage pipe end

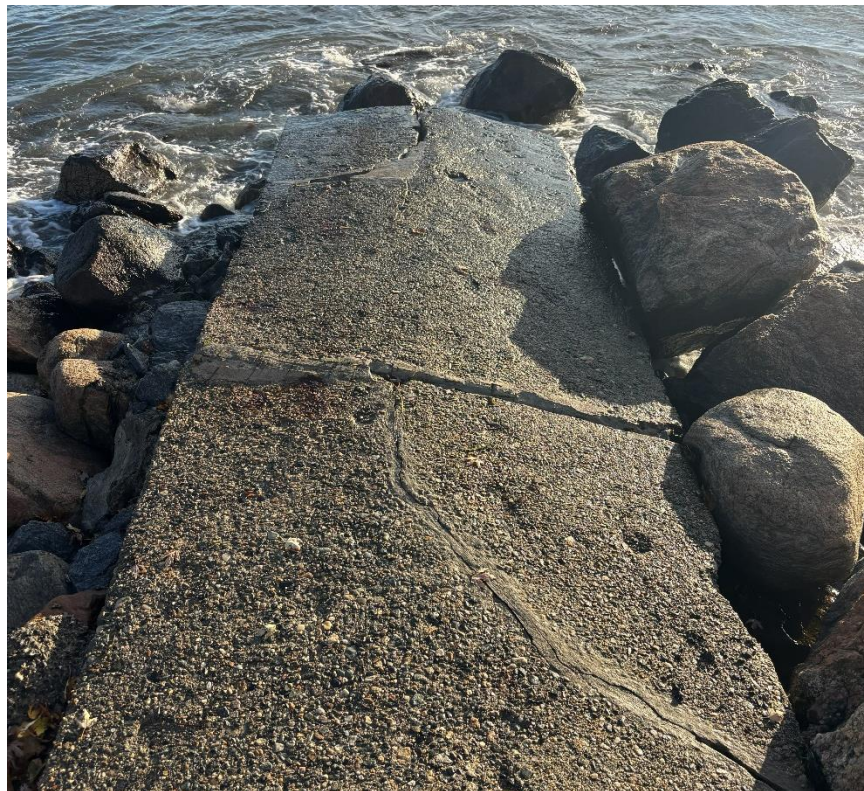


Photo 20: White Cap access way cracks in drainage pipe encasement



Photo 21: White Cap access way broken off encasement end



Photo 22: White Cap access way presumed pipe break location

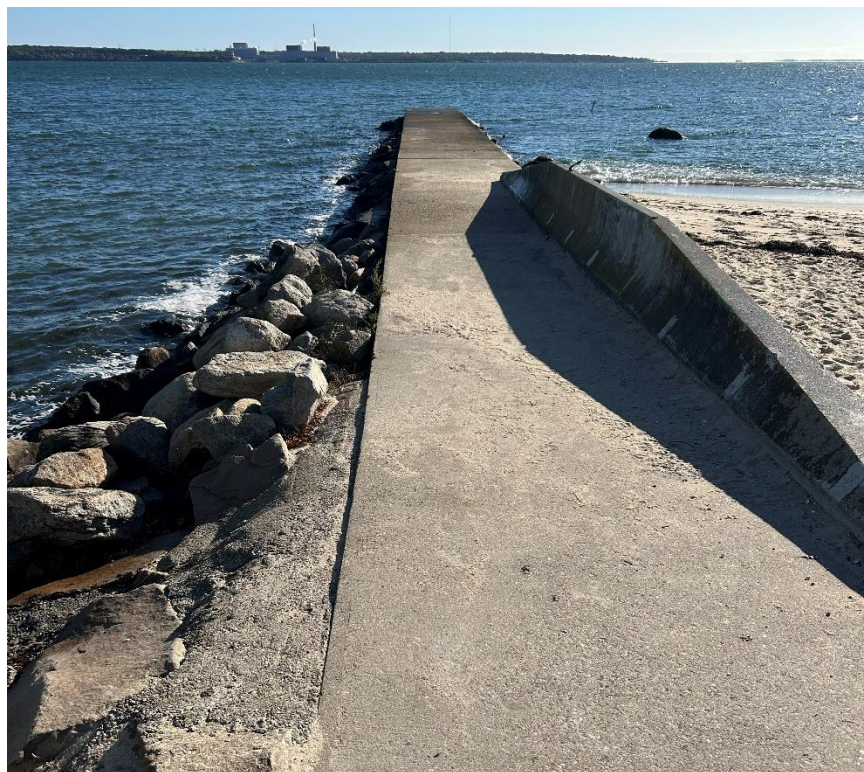


Photo 23: Sea Breeze pier



Photo 24: Sea Breeze pier North side armor stone



Photo 25: Sea Breeze pier South side armor stone



Photo 26: Sea Breeze pier North side armor stone settlement



Photo 27: Sea Breeze pier South side armor stone settlement

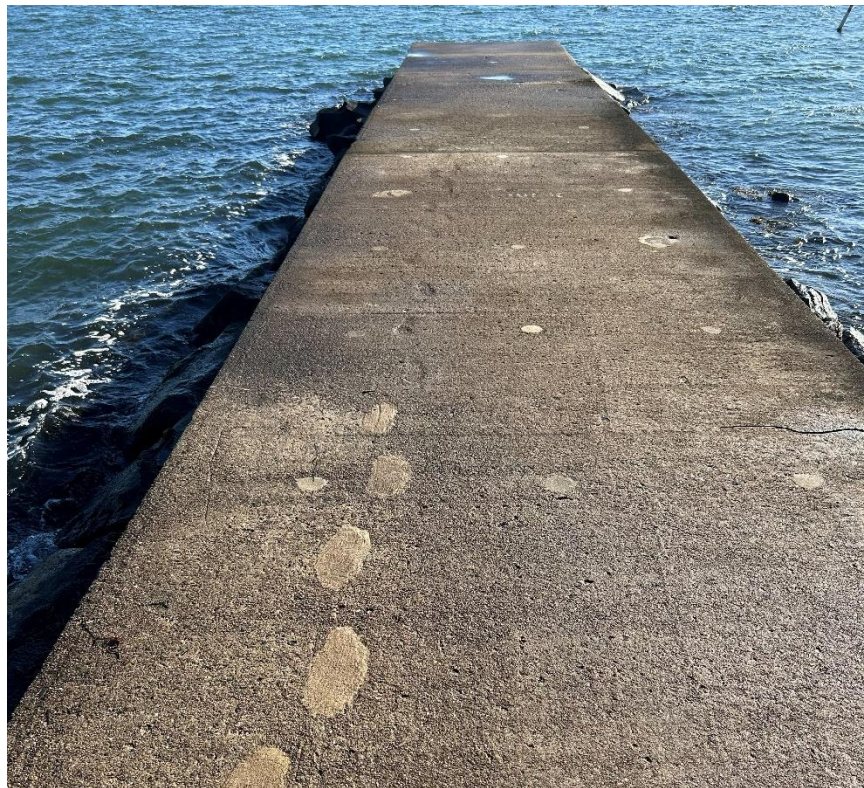


Photo 28: Sea Breeze pier deteriorated concrete end slabs



Photo 29: Sea Breeze pier concrete crack formation

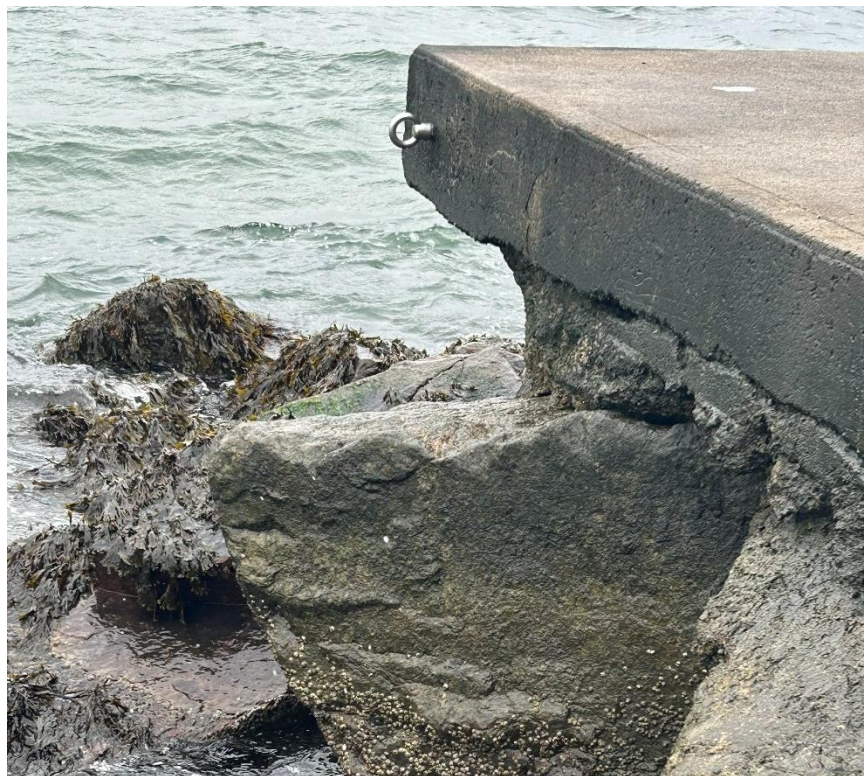


Photo 30: Sea Breeze pier partially cantilevered Northeast corner



Photo 31: Sea View boat launch



Photo 32: Sea View boat launch South armor stone



Photo 33: Sea View boat launch North wall

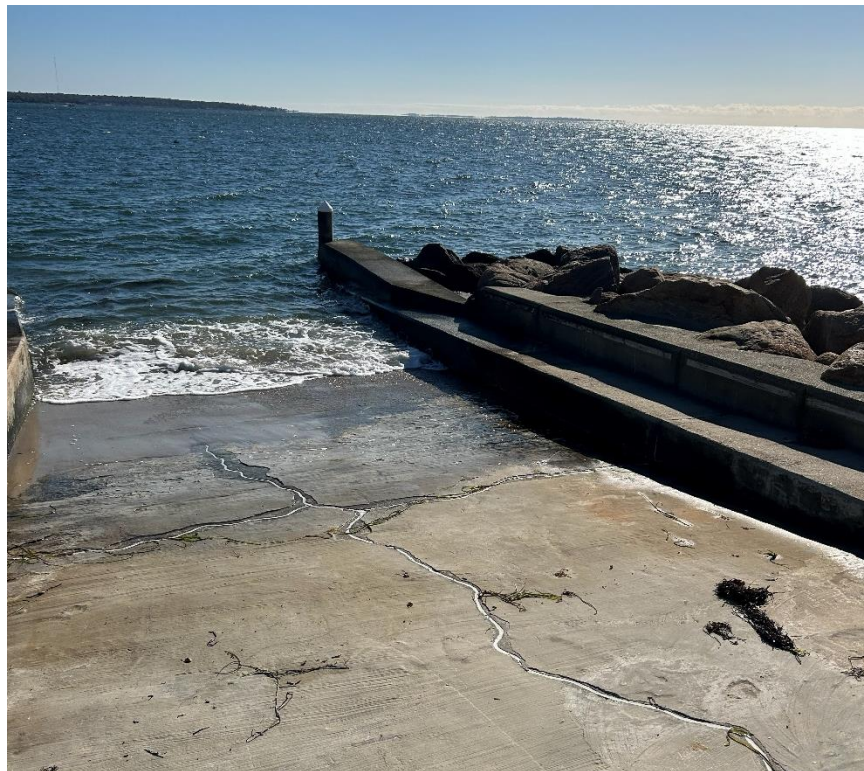


Photo 34: Sea View boat launch South wall



Photo 35: Sea View boat launch failed concrete overlay



Photo 36: Sea View boat launch sand and stones collecting at ramp toe

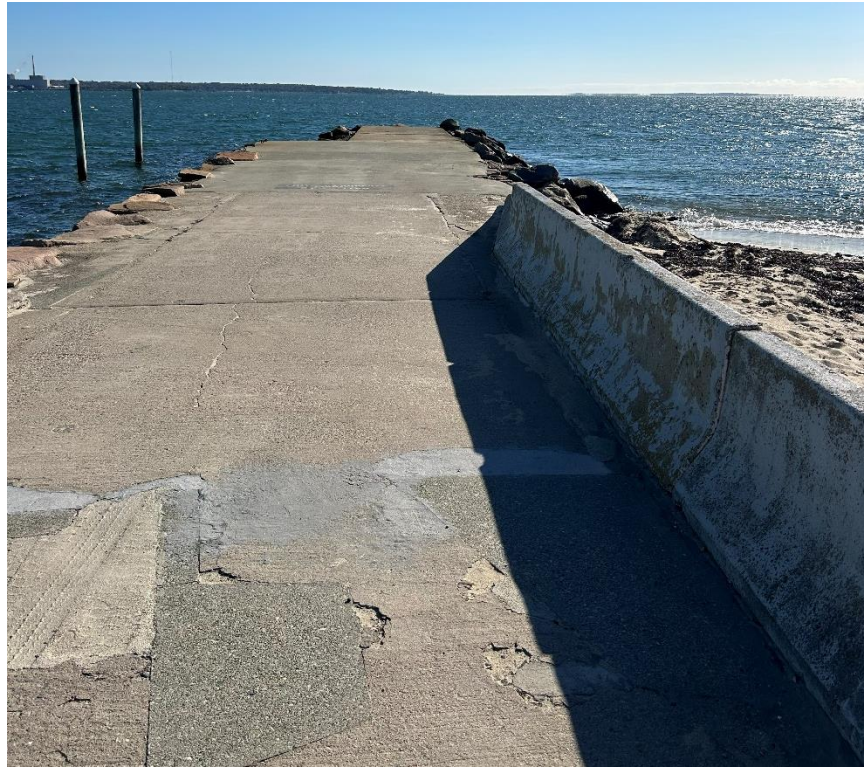


Photo 37: Osprey (South Beach) pier



Photo 38: Osprey (South Beach) pier North side stacked stone wall



Photo 39: Osprey (South Beach) pier South side armor stone

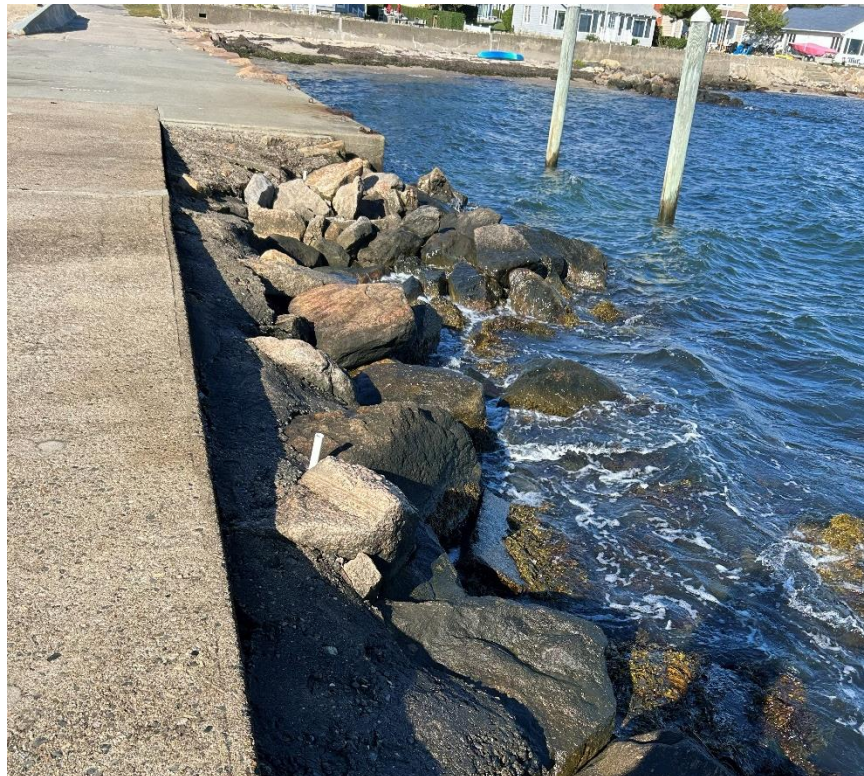


Photo 40: Osprey (South Beach) pier displaced armor stones North side end

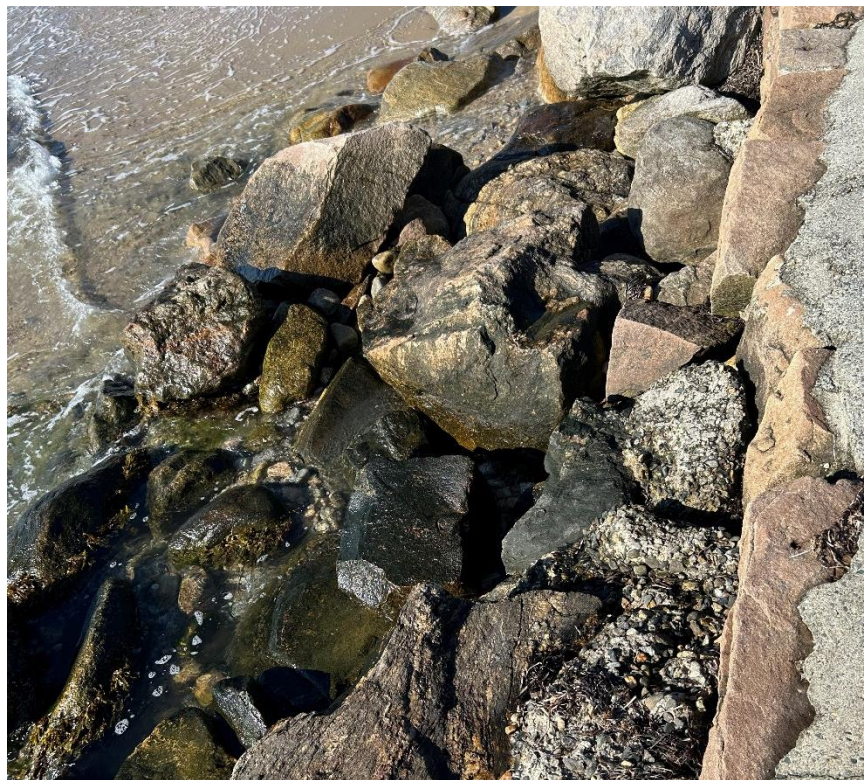


Photo 41: Osprey (South Beach) pier displaced armor stones South side



Photo 42: Osprey (South Beach) pier concrete crack formation

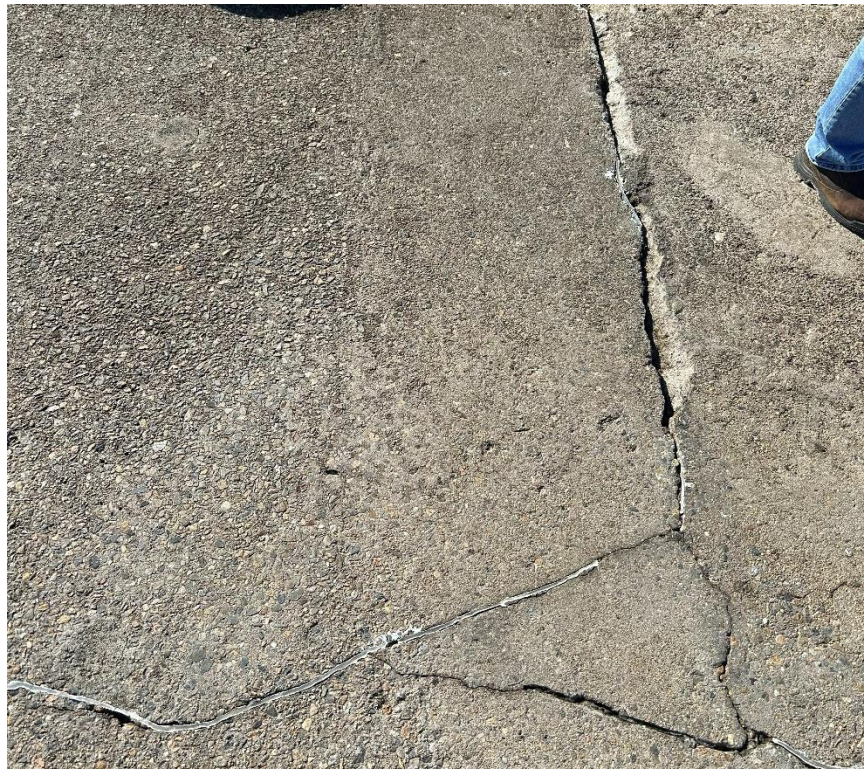


Photo 43: Osprey (South Beach) pier additional concrete crack formation



Photo 44: Osprey (South Beach) pier previous concrete crack repair