

Description

A section of the bulkhead in Basin B at the Watch Hill Marina failed and deflected outward over Memorial Day weekend 2014. The boardwalk around the marina is supported by the bulkhead, so when the bulkhead failed a section of the boardwalk sagged. This section of boardwalk was subsequently closed to the public by NPS. The NPS then requested and engineering firm (VHB) perform a visual inspection of the failed area and four other randomly selected locations to determine if this was a localized or widespread issue throughout the marina. The concessionaire at the Watch Hill Marina recently installed new timber tongue and groove sheeting over the face of the existing bulkhead sheeting in front of the concession. The marina consists of approximately 3800 lineal feet of wall (2350 feet of perimeter bulkhead; 235 feet of ferry dock bulkhead, 715 feet of Pier B; 500 feet of Pier C).

To address the issues uncovered during the visual inspection, the boardwalk decking and marina electrical system would be replaced at the time of bulkhead reconstruction. The following steps will need to take place to complete rehabilitation: Drive new timber tongue and groove sheeting outside the existing timber tongue and groove sheeting; Connect the boardwalk to the new sheeting to structurally eliminate the dependency on the existing tongue and groove timber sheeting as a vertical support; Replace the existing tie-back anchors with new tie back or helical anchors that tie the new sheeting to the existing timber deadman lay piles; Reuse existing boardwalk superstructure framing as currently detailed in the NY ERFO FIIS 2013-1(3) project.

Justifications

Watch Hill, located on Fire Island across the Great South Bay from Patchogue, NY, is the starting point for a variety of outdoor experiences, ranging from ocean swimming to backcountry hiking to bird watching.

As described in the Condition Assessment Report prepared by VHB after the June 3, 2014 inspection, the rot in the timber sheeting that caused the bulkhead failure in Basin B appears to be prevalent throughout the marina. As a result, NPS requested that VHB evaluate alternatives and prepare Class C conceptual construction cost estimates for rehabilitating the Watch Hill Marina bulkhead. NER has helped develop a report which presents the three conceptual bulkhead repair/replacement alternatives that VHB evaluated. The work proposed to address these issues is known as "Alternative 2" The conceptual construction cost estimates for the alternatives were developed using recent bid prices for FIIS projects, as well as NYSDOT, NJDOT, CTDOT, RIDOT, and Maine DOT unit prices for permanent sheeting, bulkhead construction, and treated timber. The cost estimates all exclude the already programmed boardwalk strengthening and electrical improvement project costs. A Value Analysis in the summer of 2014 determined that replacing the bulkhead with timber was the best value. The design and engineering is shown in Component B, with the net construction in Components A and C. Costs were updated after the design as Class A.