

Evers, Eckhard - Pier Repair

Based on a detailed site inspection of the existing pier at 4456 Ferncroft Road, it is Waterfront Construction's professional opinion that the majority of the piles are not structurally sound. The inspection has determined that certain deck framing is need of repair as well.

I. DECKING REPLACEMENT

Because of regulatory requirements ((MIC19.13.050(F)(2)(ix)(a))), the solid pier decking needs to be replaced with 100% grated decking. Since grated decking requires additional stringers in a different spacing arrangement, the existing decking and stringers cannot be used, and must be replaced to repair the pier. Replacing solid decking with grated decking has been the common practice for several years now, due largely in part by the regulator requirements.

II. PILE REPLACEMENT

There are two common methods for repairing piles: splicing the piles or replacing the piles. Replacement of piles is common in shallow water due to the limited amount of structurally sound piling between the OLWM and the lakebed needed to secure the new bracing that connects the new pile stub to the remaining pile stub. New steel piles last longer than wood piles, reduce the number of piles needed, and significantly increases the life of the pier. Therefore, it is common for us to replace piles with steel piles instead of using the pile splice method. On this pier specifically, the number of piles will be reduced from 44 to 22, reducing the in-water structural elements by 50%.

Additionally, other regulatory requirements affecting the proposed work state:

- the pier width needs to be reduced for the initial 30 ft waterward of OHWM ((MIC19.13.050(F)(3)(ii)). This requires new piles in a different spacing arrangement.
- the underside of any dock must be at least 1.5 feet above OHWM ((MIC19.13.050(F)(2)(ix)(b)). The existing dock sits lower than this and has to be raised.

III. CONCLUSIONS

Due to the existing conditions of the piles and framing support structures, the requirement to replace solid decking with grated decking, the requirement to reduce the width of the initial 30 ft of the pier and the requirement to raise the pier; replacement of the piles, decking, and support elements is the common method of repair.

Should this pier be categorized as a rebuild instead of repair based on percentage of substructure needing to be replaced, multiple existing legally nonconforming elements would need to be addressed in order for the pier to comply with current code, to the point of the pier not being able to exist in its current footprint. Since it is impossible to repair the pier without replacing more than 50% of the substructure while also complying with regulatory requirements, we are asking for the proposed pier work to fall in the repair category.