

EXISTING ISLAND SHEET PILE PERIMETER WALLS

Existing Construction

The existing island upon which the Detroit Boat Club is located is surrounded by retaining walls. The retaining walls are constructed of concrete near the original access bridge. The remaining retaining walls are constructed of steel sheet piling with steel rod tie-backs and steel channel caps. At some point in time, steel channels oriented vertically were added above the cap channels to increase the freeboard of the sheet pile walls. The top of the sheet piles contain regularly spaced holes which we suspect are intended to allow for drainage of surface water on the island back into the river.

Existing Condition

Observations of the existing concrete and sheet pile walls surrounding the Boat Club island were made by a dive crew from Underwater Construction Corporation. An engineer from Northwest Design Group was present and watching the live video stream from the diver's helmet mounted video camera during the underwater inspections. In general, the relatively short section of concrete retaining wall along the southwest section of the island was in fair condition with minor abrasion and spalling, primarily near the waterline. In general, the sheet pile wall system appeared to be in fair condition. The sheet piling wall system contains surface corrosion where the elements are not painted (most surfaces). There are a couple of pipes penetrating the sheet piles along the west wall along with a small hole that may have contained a tie-back rod near the north end of the west wall. There is a missing tier-rod nut near the existing T-pier and a loose tie-rod nut between the T-Pier and the east end of the north wall. There is a loose tie-rod nut near the south end of the east wall. There is a bent tie-rod near the east end of the south wall. The sheet pile wall along the north side of the parking lot contained multiple (4+) under-water holes along its length.

Conclusions

Based on the observations of the concrete and sheet pile walls, it is our opinion that they are generally in fair condition with a few widely scattered deficiencies.

Recommendations

1. We recommend that the loose tie-rods have their nuts tightened. If tightening is not possible due to corrosion of the nuts onto the tie-rods, we recommend that slotted shims be installed and welded in-place. These repairs could be made by underwater welders at the same time as repairs/modifications are being made to the T-Pier.
2. We recommend that below-water holes in the sheet pile walls be patched to minimize the amount of soil loss from behind the retaining walls. See item #1 for construction timing.
3. We recommend that the drainage holes near the top of the sheet pile walls be patched or plugged with concrete where loss of the adjacent soils is a concern (i.e. at the sidewalk at the end of the T-Pier).



Belle Isle – Access Fishing Location
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PHOTOS



Typical Sheet Pile Wall along South Side of Island (Looking North)



Typical Sheet Pile Wall along East Side of Island (Looking Southwest)



Typical Sheet Pile Wall along North Side of Island (Looking East from T-Pier)



Typical Sheet Pile Wall along North Side of Island (Looking West from T-Pier)



Typical Sheet Pile Wall along West Side of Island (Looking South)