

GeoDesign, Inc. supported Ocean and Coastal Consultants' final design of the bulkhead rehabilitation for the City of Bridgeport. Our involvement included stability analyses, a review of Ocean and Coastal's earth pressures and pile design, and seismic input.

GeoDesign performed 33 borings and cone penetration tests behind the bulkhead and in the water. The principal objective was to provide additional soil information in the critical areas behind the bulkhead on the west side of the site.

We performed testing of physical properties of the subsurface soils including, consolidation tests, triaxial strength tests, and index testing.

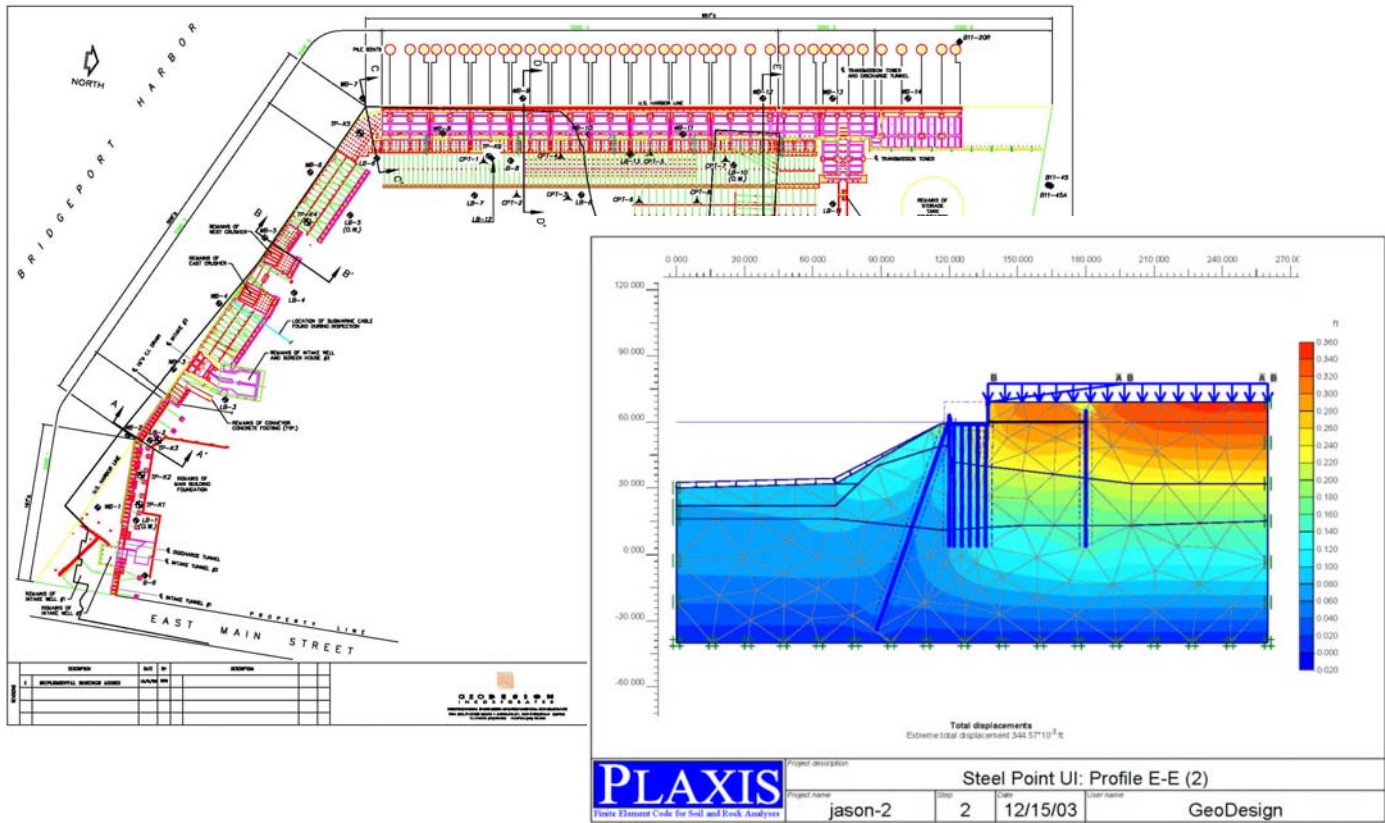
Given the complex geometry of the west bulkhead-wharf arrangement, including pile-supported relieving platforms, tie-rods, new batter piles, and over-sheeting with new sheets, a finite element model (PLAXIS) was developed to help analyze the problem.

Review of the south waterfront bulkhead was completed by performing independent analysis of sheet piles, maximum bending moments, tie-rod loads, and the tip elevations of sheets.



Bulkhead following demolition

Plan of Steel Point Bulkhead



Finite Element Analysis of Existing Bulkhead System