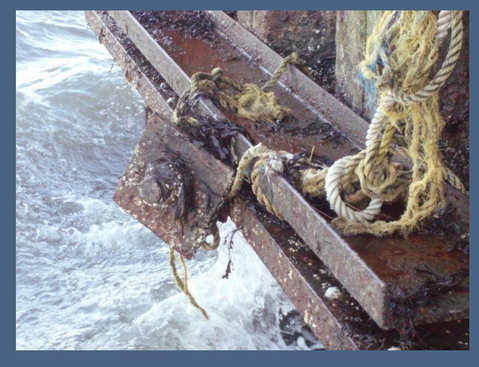
BULKHEAD DESIGN

Sponsor: TRACEN Cape May, Project Advisor: Dr. Jackson

1/c Constantino, Lagdon, McHenry, Robison

Problem Statement

TRACEN Cape May's waterfront facilities are inadequate for its current and future needs. The piers are aging and in need of replacement, and not large enough for the new Deepwater assets that will be brought to the center. The goal of this project is to provide a full design of the bulkhead and a replacement strategy that will ensure mooring needs are met as the rollout of Deepwater progresses .

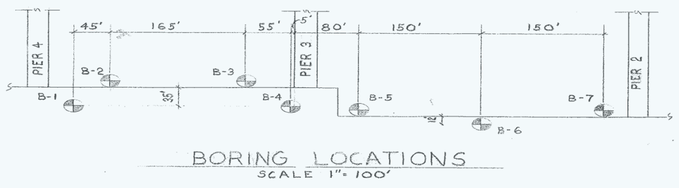


Above: Sinkhole from surface loadings, pieces of the wall coming off and general corrosion damages.

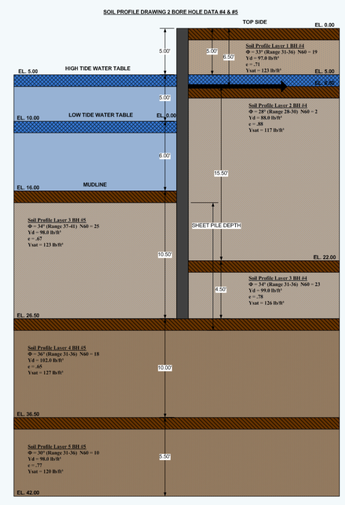
Benefit to Deepwater: The new Deepwater assets require larger berthing, which requires a new pier. This bulkhead will be the foundation upon which the pier is built.

Design Process

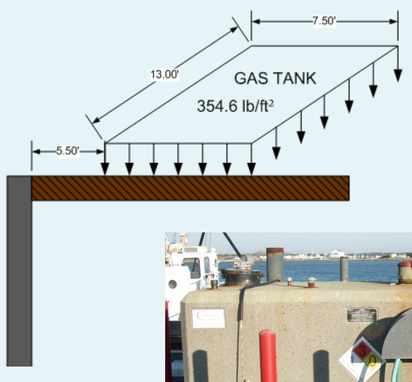
Compile Information

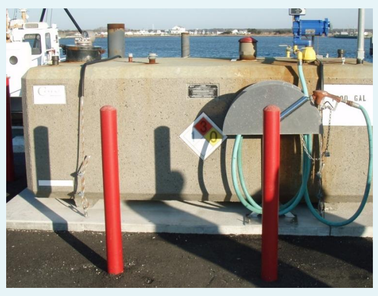


Gather geotechnical information such as water table and soil densities. Compile data into soil profiles.

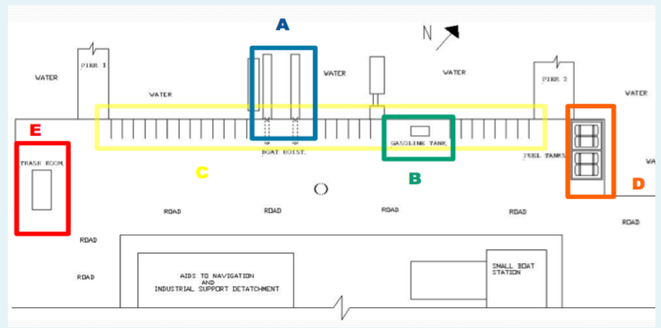


Establish Loading Conditions & Design Parameters

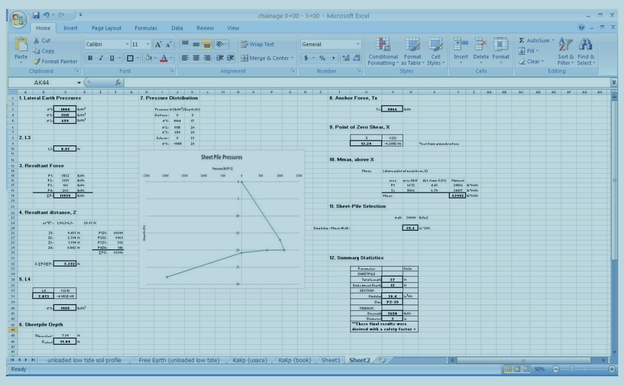




Identify loading conditions and calculate critical loading for each case.



Design with excel



Using input values such as lateral earth pressures and surface loadings, calculate the section modulus, the embedment depth and anchor design.

Material and Construction recommendations

-Select a material that will be of adequate strength, durability and safe for a marine environment.

-Select a method of construction will be least disruptive to daily operations and impose least stresses on the sheet piles and surrounding structures .

- Determine estimated cost that includes labor, equipment, and material options.