Project Manager: Brandon Hindbo

Keller Office: Cyntech US/Canada

Poster Category: Quality

Phillips 66 LPG Export Terminal

Freeport, Texas

Upgrading the LPG import terminal in Freeport to a larger LPG export terminal

- The Phillips 66 LPG export terminal project is located in Freeport, Texas, and was awarded to BMZ, a joint venture between Burns and MacDonald and Zachry

- Cyntech has completed approximately $7 million USD to date worth of work in the terminal

- Cyntech was responsible for supplying 1800+ helical piles, ranging from 7 inch diameter to 16 inch diameter helical piles.

- Quality of manufactured product was maintained on a demanding production schedule. Full traceability was implemented and third-party welding inspections were performed to ensure product quality.

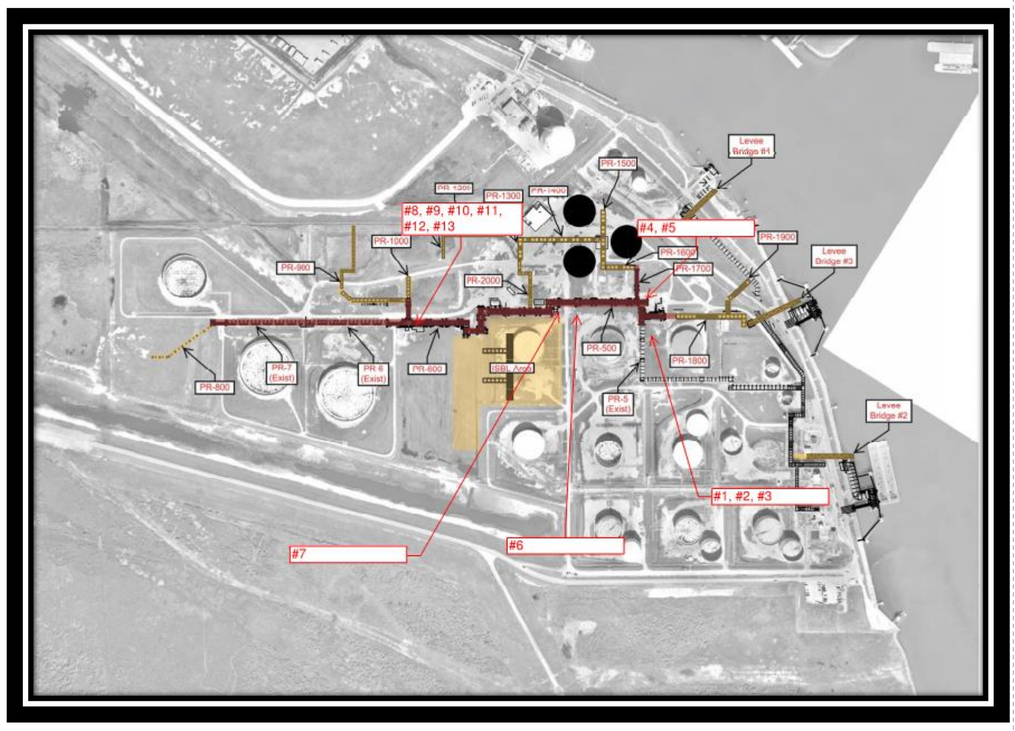
- Space restrictions led to a complicated design. Cyntech designed custom helical pile groups to accommodate the close proximity of the piles. Many piles were within inches of adjacent utilities with multiple piles being embedded in a single concrete pile cap.

- Load testing was performed on-site to determine the actual capacities of the piles vs. Cyntech's predicted capacities. In all cases, the actual very closely resembled the predicted. The graph shown details the load test performed on Pile Type 1, where the expected capacity was 169.61 kips and the actual capacity was 170 kips (total difference of 400 lbs or 0.23%).

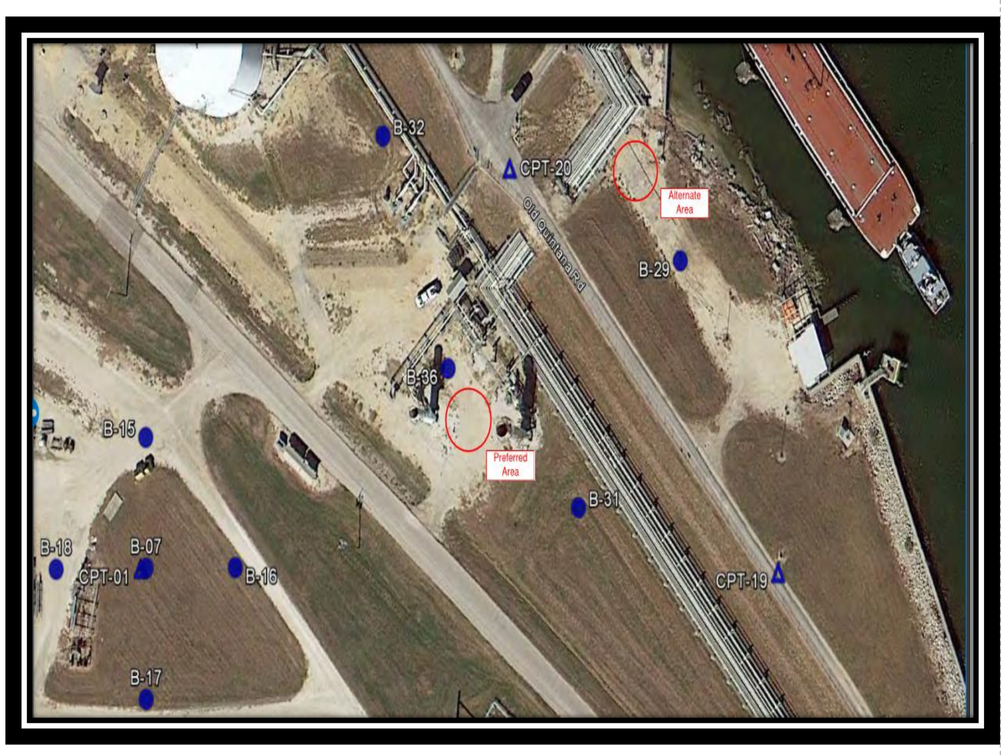
- Shipments of helical piles began in early May of 2014, and are still ongoing. An immense amount of coordination for shipping was required, as many piles required galvanizing prior to arrival on-site. Cyntech drastically improved our material tracking abilities out of necessity, as there were large number of piles on the move at any given time.

- Cyntech was able to complete the project with a healthy margin. It is to date the largest project Cyntech has performed in the United States.

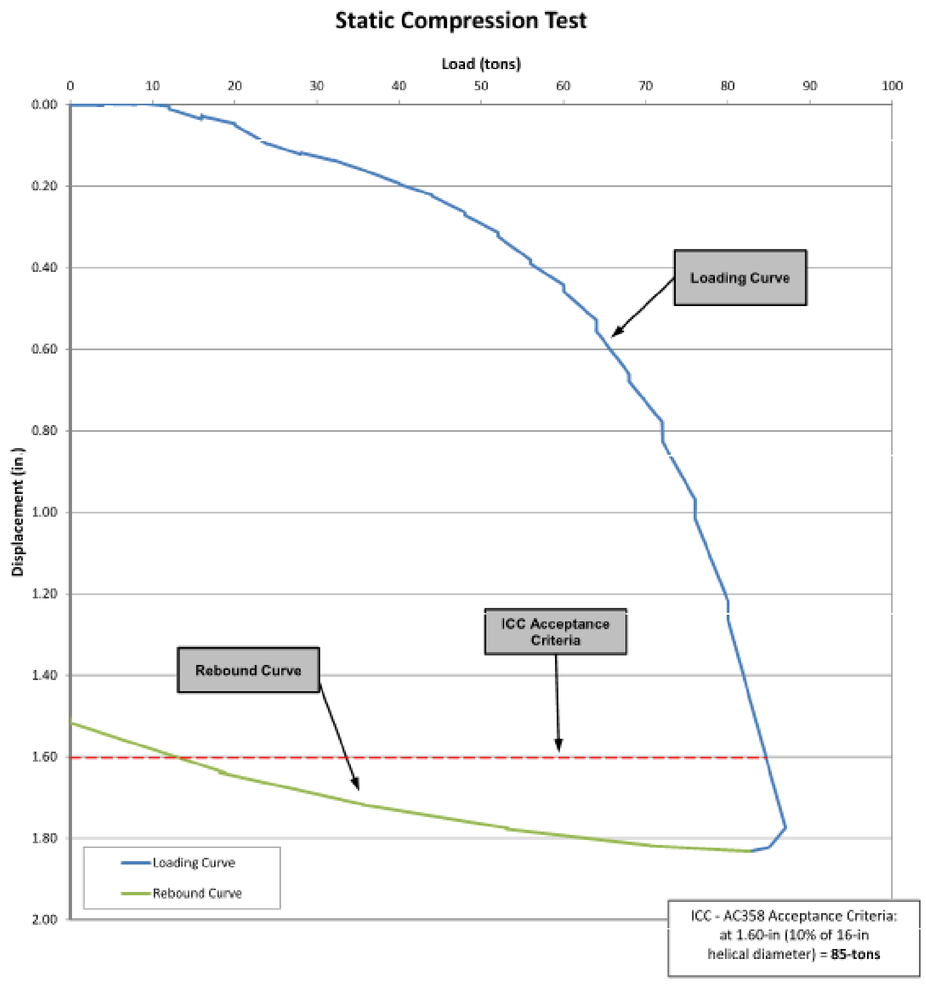
Typical Helical Pile Foundation



Site Overview, prior to installation



Locations used for testing of Helical Piles



Static Load Test for Pile Type 1

Experiences, Lessons Learned, Best Practices:

Specific site quality requirements led to Cyntech implementing full material traceability to ensure quality control. Full material traceability is now Cyntech's standard practice for all projects.