

St. James Terminal

St. James Parrish, LA

Wick Drains

For the construction of above ground storage tanks in Louisiana, a combination of soil surcharge with wick drains was used to stiffen soft soils and accommodate the heavy loads.



Installing wick drains to prepare the ground for the addition of several above ground storage tanks.

Owner: Plains All American Pipeline
General Contractor: Boh Brothers Construction Company
Owner's Geotechnical Engineer: Eustis Engineering Company
Ground Improvement Contractor: DGI-Menard (Menard)

Project Summary

St. James Terminal is an above ground storage terminal located in Louisiana between New Orleans and Baton Rouge. This storage terminal expansion project included the construction of a total of four new 325-foot-diameter tanks. Due to poor ground conditions at the site, ground improvement was necessary.

To strengthen the underlying soft soil, accommodate the heavy tank loads and minimize future settlement, DGI-Menard (Menard) installed vertical wick drains to accelerate the consolidation process.

This project represents one of Menard's largest single-phase wick drain projects for above ground storage tanks — a total of 1,241,000 linear feet of wick drain was installed.

Ground Conditions

The site was underlain by relatively recent soft silt and clay deposits to a depth of approximately 80 feet. The geotechnical engineer determined that the most cost-effective solution for the site was to use a combination of soil surcharge with wick drains to strengthen the underlying soft soils.

Ground Improvement Solution

The final design called for wick drains installed on a 5-foot triangular grid spacing, extending to the stiffer soils that were present at a depth of approximately 80 feet. The upper end of the wick drains were extended to horizontal strip drains placed between every other wick drain row. The strip drains served to convey the collected water to drains located just beyond the surcharge footprint.

Once the surcharge was removed, the ground was already subjected to stresses that were similar to those from the tank, thus reducing total and differential settlement to acceptable values. The solution sped up the consolidation process, reducing the time required for the surcharge to remain in place.



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