

Deep Foundation Testing Services Available to Address All Project Specifications

Deep foundation testing methods are utilized to provide information regarding a structure's integrity, load capacity, concrete quality, conformance to the foundation design and potential optimization of the deep foundations. GRL Engineers, Inc. has provided a variety of deep foundation testing services and analyses for 50 years. Many projects require multiple test methods for varying deep foundation components. GRL is experienced in a wide array of testing solutions to address project needs, as detailed in a few recent projects below.

California High Speed Rail: (SLT, BDSLT, PDA, WEAP Analysis, Shaft Verticality & Cleanliness)

The multi-billion-dollar California High Speed Rail Project has been under construction since 2015. The project consists of a rail line connecting San Francisco to Anaheim through the central valley, extending out to Sacramento and San Diego. GRL has performed required testing of piles that make up the rail's foundation since the beginning. [Bi-Directional Static Load Testing](#) was provided on multiple sites with some adjacent to an active freight rail line. [Static Axial Load Tests](#) were performed on some of the drilled shafts and Lateral Load Tests were also implemented. The load tests provided the general contractor and engineer valuable insight on the geotechnical characteristics of the site.

In addition to load testing, GRL performed [Pile Driving Monitoring](#), Data Analysis using [CAPWAP® Software](#), and Re-Strikes to assess pile set-up. [GRLWEAP analyses](#) helped determine hammer suitability via contractor provided boring logs with proposed hammer selections.

Drilled shafts were assessed for verticality with a [Shaft Area Profile Evaluator](#) (SHAPE) and the shaft bases were inspected for bottom cleanliness with a [Shaft Quantitative Inspection Device](#) (SQUID). These testing methods were used to identify potential issues with the excavation before concrete was poured.

Jimmie Davis Bridge Replacement: (TIP, CSL, BDSLT)

In 2024, construction to replace the Jimmie Davis Bridge (LA 511) began. The bridge is planned to be widened from two-lanes to four-lanes, improving the flow of traffic. GRL Engineers was hired to provide non-destructive integrity testing services for drilled shafts that would support the new bridge foundation. Three piers utilized [Thermal Integrity Profiling](#) (TIP) measurements to assess the concrete integrity inside and outside the reinforcing cage within the drilled shaft. [Crosshole Sonic Logging](#) (CSL) was also performed on the three piers. This non-destructive integrity testing method uses sonic pulse echo to assess data between the cross section of the installed tubes.

Bi-Directional Static Load Testing was performed following installation of the test shaft to determine the magnitude of the mobilized shaft and toe resistance.



High Speed Rail Services

- Bi-Directional Static Load Testing (BDSLT)
- Static Load Testing (SLT)
- Pile Driving Monitoring and Analysis (PDA) Testing
- GRLWEAP Pile Driving Predictability Studies
- Drilled Shaft Verticality Assessment
- Drilled Shaft Bottom Cleanliness Evaluation



Jimmy Davis Bridge Services

- Thermal Integrity Profiling
- Crosshole Sonic Logging
- Bi-Directional Static Load Testing (BDSLT)

Nassau River Bridge Repairs: (CSL, TIP, DLT)

The Nassau County bridge connecting Florida and Georgia underwent reinforcement repairs to strengthen the bridge for extreme weather events. Construction began in 2024 to improve the bridge foundation and GRL Engineers was hired to provide integrity testing and load testing services. Integrity testing services included Crosshole Sonic Logging and Thermal Integrity Profiling to assess concrete quality on drilled shafts. The drilled shafts revealed potential anomalies, and an [APPLE Dynamic Load Test](#) was provided to check the shaft's load capacity to determine if it was still within specification of the design.

To learn more about GRL Engineers, visit www.grlengineers.com or email us at info@grlengineers.com.



Nassau River Bridge Services

- Thermal Integrity Profiling
- Crosshole Sonic Logging
- Dynamic Load Testing with APPLE Systems