



STATEMENT OF QUALIFICATIONS

LIQUID STORAGE TANK SERVICES

THE LEADING
GEOTECHNICAL
SPECIALTY CONTRACTOR



keller-na.com



5
continents



40+
countries



10k
people



6k
projects/year

WHY CHOOSE KELLER?

The global leader in tank support services
focused on your goals

- Safety: Industry-leading HSE program and performance
- Cost: Economically maximizes tank capacities with in-house foundation design
- Schedule: Financial strength and resources to successfully complete any project in any market
- Quality: In-house engineering and digitized quality management system providing predictable performance
- Experience: In-house global sharing of experience and expertise

DESIGN & BUILD SERVICES FOR

- Site preparation and access
- New and existing tank support solutions
- Terminal piping – support and installation
- Demolition and decommissioning
- Waste management and environmental remediation
- Existing tank repair

Safety is critical to all operations at Keller. The goal of our global THINK SAFE program is zero incidents. Our crews begin each day with a daily site hazard analysis meeting in which hazards related to the specific tasks being performed that day are identified and the required safety measures to avert an incident are implemented.



SITE PREPARATION AND ACCESS



Planned tank sites often present accessibility challenges due to soft soils, uneven site elevations, or relic foundations, utilities, and structures. Keller, through subsidiary company RECON, has extensive experience in performing the necessary site work and soil stabilization to provide site access for the heavy equipment necessary to build the tanks and facilities.



LNG SITE PREPARATION

RECON stabilized 2.5 MM cubic yards of soil using Portland cement via shallow and deep mixing south of New Orleans. The project amassed over 600,000 manhours with 200 personnel on site. Early works projects included installation of roads/construction entrances, parking areas, laydown yards, stockpile pads, and batch plant setup/operation.

OWNER: Confidential



TANK SITE PREPARATION AND REMEDIATION

Preparing a 56-acre planned tank site, RECON excavated, removed, and crushed for recycling over 20,000 tons of concrete foundations, prepared a 20-acre laydown area for steel and piping for planned tank operations, constructed over 10,000 linear feet of access and heavy haul roads to support tank building and constructed a 4,000-linear-foot earth tank containment system using stockpiled materials generated from on site grading.

OWNER: Confidential

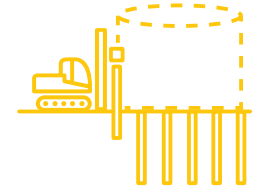


OIL S-200 REMEDIAL SITE PREPARATION AND BENEFICIAL REUSE

RECON's program modifications saved the owner over \$8M and included a reduction in reagent quantities and modifications to the mixing approach. RECON also remediated and beneficially reused ~600,000 cy of impacted soils from four capped, closed TCEQ-registered landfills.

OWNER: Confidential

PLANNED TANK SUPPORT



Whether dealing with highly compressible soils that will produce unacceptable settlement, soils that can liquefy during a seismic event, or slowly consolidating soils that will delay your construction schedule, just ask Keller. Chances are we have designed and constructed a pad-ready deep foundation or ground improvement system to support tanks on similar soils.

DESIGNING FOUNDATIONS FOR SUBSURFACE OBSTRUCTIONS

Keller designed and built foundations for 9 product tanks and one firewater tank to support the facility expansion. All the tanks were supported on stone columns except one, which was supported on jet grout improved ground where underground obstructions were present. A load transfer pad was constructed to provide more homogeneous support for the tanks on the improved ground.

OWNER: Kinder Morgan



BUILDING OVER KARST LIMESTONE

At this challenging site of the new Titan Partners terminal in Dickson County, TN, Keller designed and built foundations for 6 product tanks and one firewater tank. With karst limestone features present, tanks were supported on a combination of H-Piles and micropiles drilled into the underlying competent limestone. The remaining tanks were founded on driven H-piles. Reinforced concrete slabs were constructed on top of the deep foundations to provide uniform support pressure on the tank bottoms.

OWNER: Buckeye Partners



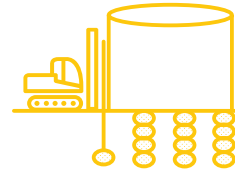
SOLUTIONS FOR SOFT SOIL SITES

To enable construction of large-diameter tanks over soft compressible soil, Keller designed and performed an economical ground improvement program consisting of soil mixing, wick drains, and surcharge loading. Over the past 20 years, 23 tank foundations have been designed and built by Keller at this Galliano, LA facility.

OWNER: LOOP



EXISTING TANK SUPPORT



Keller understands that empty tanks represent lost revenue. Our experienced crews can mobilize and work rapidly and safely to return the tank to service promptly. Settlement of existing tanks can be remediated quickly and economically with specialty grouting and piling techniques that offer limited access constructability, pinpoint treatment, void filling and shell lifting, and re-leveling.



REMEDICATION AFTER EXCESSIVE HYDROTEST SETTLEMENT

When two 100-foot diameter tanks experienced excessive settlement during the hydrotest, Keller quickly designed and constructed a jet grouting underpinning solution. Working around existing piping and other obstructions, jet grouting columns were constructed to underpin the existing ring beam under the entire tank.

OWNER: Houston Fuel Oil



RELEVELING PRODUCT TANK

Helical piles were used to underpin an existing tank with a ring beam style foundation. The helical piles were then used to jack against to raise the ring beam to the proper elevation. Once the tank was raised, new foundation plates were bolted to the ring beam and finished with covering protection.

OWNER: TransMontaigne

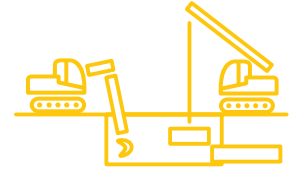


RELEVELING BOOSTER PUMP TANK

At the Leissner Booster Pump Station, a 2.0 MG Water storage tank experienced excessive settlement of the tank ring beam foundation. Keller designed and performed a compaction grouting program around the tanks' perimeter to stabilize and relevel the ring beam.

OWNER: Seguin Regional Water Authority

TERMINAL PIPING SUPPORT AND INSTALLATION



Above and below-ground piping and below-grade structures such as metering pits and vaults must be installed quickly on schedule, often in congested work sites. Keller has the expertise to rapidly design-build and safely install foundations for above-ground piping and construct below-grade structures.

PIPE BRIDGE SUPPORT

Using 36 and 42-inch piping, Moretrench Industrial, a Keller company, built this unique creek crossing at a Florida facility. Using driven H-Piles as the primary support for the pipe bridge, bents used a unique roller system to accommodate the expansion and contraction of the piping. Keller completed all work on schedule before the rainy season—a regulatory requirement.

OWNER: Mosaic



BURIED PIPING ARRAY INSTALLATION IN AN OPERATING FACILITY

A new piping array required 13-foot-deep excavations throughout an operating Florida Power and Light facility. To accomplish the work while avoiding numerous subsurface utilities and shallow water table, Moretrench Industrial, used GPR, soft digging, vacuum excavations, and a deep dewatering system. Keller also constructed concrete foundations to support new structures.

OWNER: Florida Power and Light



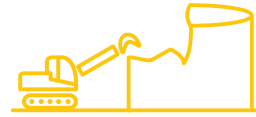
DEEP FOUNDATION TO SUPPORT AERIAL PIPING

More than 1,000 helical piles were needed to support the installation of aerial piping at the USD Terminal in Port Arthur, TX. Working within congested areas, helical piles ranging in shaft diameters of 5.5 to 22 inches with helical diameters in the range of 22 to 42 inches were used to support structures and piping.

OWNER: USD Terminals



DEMOLITION AND DECOMMISSIONING



Keller's specialty services, provided through subsidiary company RECON, include partial and full demolition in operating and decommissioned facilities, decommissioning facility assets, decontamination, asset liquidation, waste management, site remediation, and site restoration.



REMOVAL OF WASTEWATER TANKS IN OPERATING FACILITY

Two decommissioned wastewater tanks required removal from the refinery in Yabucoa, PR. RECON's demolition team removed the tanks without affecting the daily operations of the refinery. The proximity of the tanks to existing piping added an additional challenge to the project.

OWNER: Confidential



TERMINAL DECOMMISSIONING

When demolition and decommissioning of a tank farm at a California facility was needed, RECON delivered. The work included the removal of several below and at-grade structures along with terminal piping. Site restoration and improvements to an existing creek were also performed. Dewatering and treatment were necessary for the removal of underground utilities.

OWNER: Confidential



DECOMMISSIONING WELL SITE TANKS

A unique challenge provided by decommissioning well sites is the removal of all assets and returning the site to prior use condition. RECON successfully removed and decommissioned the tanks and related appurtenances at this legacy East Texas well site.

OWNER: Confidential

WASTE MANAGEMENT AND ENVIRONMENTAL REMEDIATION



A program to remediate site contaminants can include stabilization in situ and/or collecting, treating, and disposing to off-site facilities. As a leader in stabilization, Keller through subsidiary company RECON, provides alternative approaches to standard construction practices that will resolve environmental concerns and create usable real estate for further development.

PLANT SOIL REMOVAL & ISS

Challenged at an operating chemical plant with overhead pipelines, RECON successfully performed in situ soil stabilization (ISS) of over 482 tons and excavated over 400 tons of contaminated soil and transported off-site for final disposition of over 230 tons of hazardous waste and 460 tons of non-hazardous waste. A complete restoration was achieved with the full satisfaction of the property owner and regulators.

OWNER: BASF



ACTIVE REFINERY WASTE MANAGEMENT

The RECON project team responds to Motiva's needs 24 hours a day and 7 days a week safely and is annually recognized as one of its safest contractors. RECON manages the disposal vendors, transportation providers, HAZMAT response, and remediation and recycling programs.

OWNER: Motiva



TANK FARM SITE REMEDIATION

A former tank farm once housed 41 tanks that stored and blended various pigments, resins, and solvents. The high levels of contaminants found in the soil included VOCs, SVOCs, and metals. Over 13,000 tons of hazardous and non-hazardous impacted soil were removed and transported for disposal. The site was backfilled and restored.

OWNER: Confidential



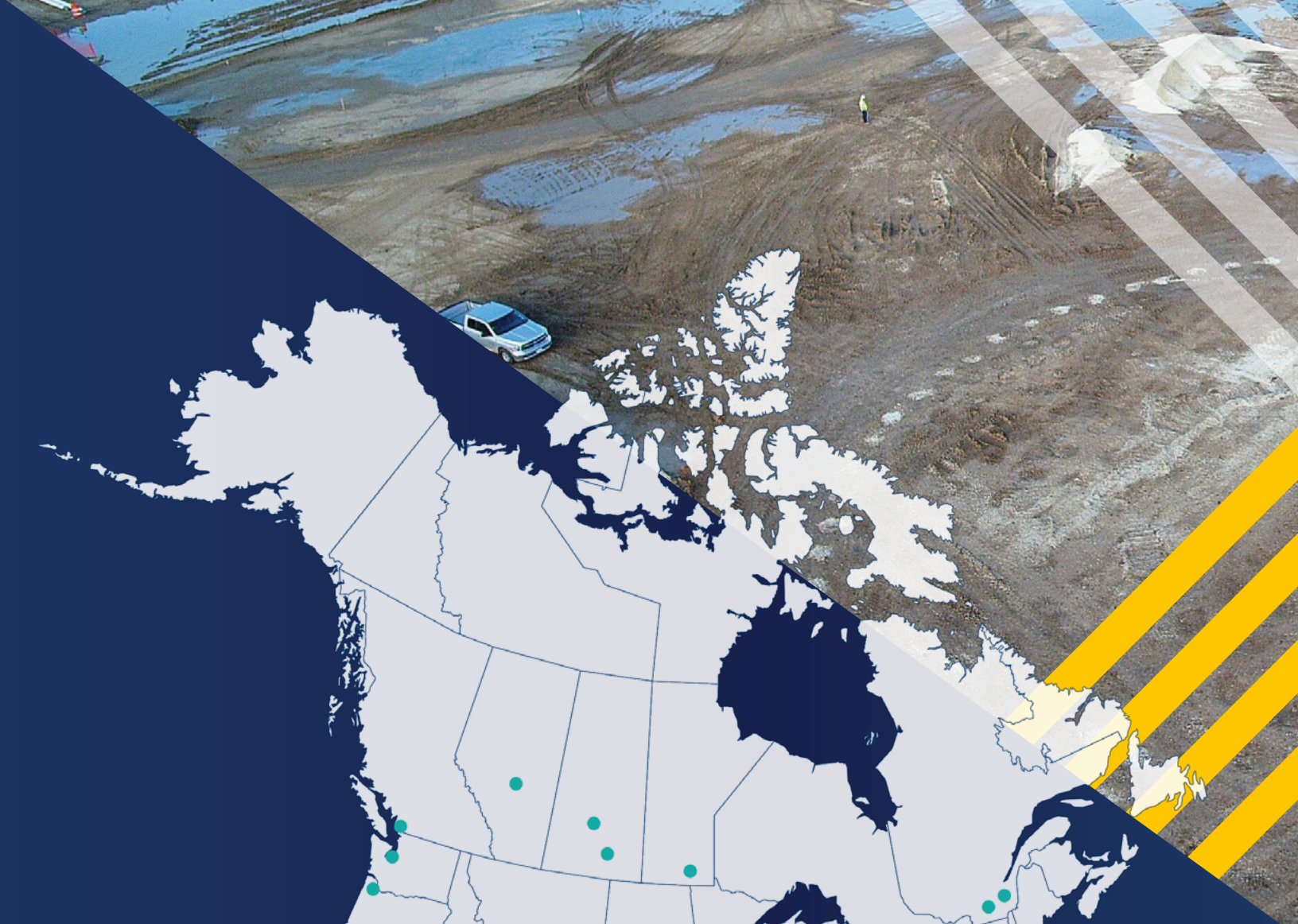
SOLUTIONS MATRIX

Whether with one or a combination of techniques, Keller provides the optimal solution tailored to each project’s specific circumstances and requirements.

CHALLENGES		SOLUTIONS		GROUTING								GROUND IMPROVEMENT										DEEP FOUNDATIONS								EARTH RETENTION										GROUNDWATER CONTROL										
				Compensation (fracture) grouting	Crack injection	Rock / fissure grouting	Injection systems	Jet grouting	Compaction grouting	Permeation grouting	Slab jacking / structural releveling	Void fill grouting	Cutter soil mixing	Dry soil mixing	Dynamic compaction	Earthquake drains	Mass soil mixing	Rapid impact compaction	Rigid inclusions	Vibro compaction	Vibro Piers®	Vibro replacement (stone columns)	Wet soil mixing	Wick drains (PVDs)	CFA (auger cast) piles	Displacement piles	Drilled shafts	Driven piles	Franki piles	Helical (screw) piles	Jacked piles	Load bearing elements (LBE)	Macropiles®	Micropiles	Anchors	Anchor block slope stabilization	Diaphragm walls	Gabion systems	Interlocking pipe pile walls	Pit underpinning	Micropile slide stabilization system (MS3)	Shotcrete	Secant or tangent (contiguous) piles	Sheet piles	Soil nailing	Soldier piles and lagging	Dewatering	Ground freezing	Groundwater treatment	Slurry cutoff trenches
Bearing capacity/ settlement control		●		●	●	●	●	●		●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●																			
Environmental remediation/ containment					●	●				●	●			●							●																						●	●	●	●	●			
Groundwater cut-off			●	●		●		●		●											●														●		●					●	●		●	●				
Heave control/ expansive soil treatment					●						●			●							●																													
Heavy foundations																						●	●	●	●	●	●							●																
Marine structures support						●						●			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				●												
Mine stabilization/ void filling				●			●		●																																									
Railroad subgrade stabilization					●		●						●																																					
Releveling structures		●					●		●																			●	●			●																		
Seismic/ liquefaction mitigation						●	●	●		●	●	●	●		●			●	●	●	●																													
Sinkhole/ karst remediation				●			●		●			●						●		●																														
Slope stabilization						●				●	●								●	●	●	●		●									●	●	●	●	●	●		●	●	●	●	●	●	●	●	●		
Support of excavation						●		●		●											●											●		●	●	●	●	●		●	●	●	●	●		●		●		
Tunneling stabilization		●	●	●		●	●	●													●															●						●	●							
Underpinning						●		●																				●	●		●							●				●								

This chart represents techniques that could apply to the listed geotechnical challenges. Consult with your local Keller representative to discuss specific site conditions and appropriate Keller geotechnical construction solutions. The actual applicability of a particular technique depends upon the soil character (soft, loose, stiff, dense, organic, collapsible, etc.) and its composition (clay, silt, sand, cobbles, boulders, etc.). Occasionally, multiple techniques used simultaneously could provide a more economical solution. Other considerations include accessibility, availability of materials, presence of utilities or other underground obstructions, and many other internal and external influences.





**GET IN
TOUCH**

US: 800-456-6548

Canada: 888-846-7858

keller-na.com

**SCAN TO VISIT
OUR TANKS PAGE**

