













## The leading geotechnical specialty contractor

- Deep foundations
- Ground improvement
- Groundwater control
- Instrumentation & monitoring
- Liquefaction mitigation
- Releveling structures
- Slope stabilization
- Support of excavation
- Underpinning





Global strength and local focus



## **Global strength and local focus**

We harness the power of our global network and knowledge base to safely deliver the optimum solution, no matter the size or location.



## The leading geotechnical specialty contractor

Every day, people around the world live, work, and play on ground prepared by Keller.

Leveraging our full range of techniques, we provide solutions to geotechnical challenges across the entire construction spectrum.

We have the expertise, experience, and product range to respond quickly with the optimum solution, execute it safely, and see it through to a successful conclusion, no matter the size of the project.

The strongest local construction projects are built on a foundation of connected global experience. Our in-depth knowledge of local markets and ground conditions enables us to understand and respond to specific project challenges.



# **OUR PURPOSE**

Every day we help create projects that range from prominent structures to routine roads, bridges, and buildings—everything society needs.

# **OUR VISION**

## To be the leading provider of specialty geotechnical solutions.

We strive to lead in quality, product range, safety, and service. We are the world leader today, and to maintain our leadership, we always endeavor to improveto get even better.

# **OUR VALUES**

### Integrity

We always behave with integrity towards our clients, colleagues, and the communities in which we work.

## Collaboration



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Our teams collaborate across borders and disciplines to bring our clients the best of Keller and build a stronger business for the future.

## Excellence

highest standards.

### Building the foundations for a sustainable future.

In all that we do, we target excellence. Whether it's safety, engineering, project management, or people development, we strive to deliver to the





## **EXPERTISE TO GET** THE JOB DONE

At Keller, we have the experience to get the job done and the track record to prove it.

Whether large or small, complex or simple, we take the time to understand every subsurface problem and provide the optimal, tailor-made solution. The size of the project is irrelevant to us—what drives us is sharing in our client's satisfaction of a job well done.

If you want faster and more effective results, ask us to work on your specific problem—we've likely solved a similar one before.



#### UNIVERSITY OF PORTLAND

Ground improvement, liquefaction mitigation

At the riverfront expansion for the University of Portland, Keller used single axis deep soil mixing and cutter soil mixing to create ground improvement buttresses that supported various structures and limited lateral spreading deformations to within code requirements.

**OWNER: University of Portland** MAIN CONTRACTOR: Keller, main trade partner direct to owner

#### THE WHARF

Support of excavation, ground improvement, groundwater control

Keller provided a full foundation package to facilitate excavation of up to three levels of underground parking for five high-rise buildings constructed along the Potomac River waterfront in Washington D.C. Support of excavation included sheet piles, soldier piles, displacement piles, tiebacks, internal bracing, and jet grouting. Rigid inclusions provided ground improvement beneath a portion of one garage. Keller also performed dewatering/water treatment for the project.

OWNER: Wharf District Master Developer LLC (dba Hoffman-Madison Waterfront)

MAIN CONTRACTOR: Balfour Beatty Construction

#### **ASTON MARTIN RESIDENCES**

### Deep foundations, groundwater control, support of excavation

Keller used multiple techniques to create a basement and provide deep foundations for the luxury high-rise building on the Miami River. Techniques included permeation grouting, soil mixing, secant pile walls, tremie seals, jet grouting, and tangent bearing elements, a technique developed by Keller.

**OWNER: G and G Business Developments LLC** MAIN CONTRACTOR: Coastal Construction

#### WRIGLEY FIELD

Support of excavation, deep foundations, underpinning, instrumentation & monitoring

Keller provided a schedule-saving, top-down construction proposal which included multi-technique support of excavation, deep foundations, stadium underpinning, and real-time structural monitoring for an expansion and upgrade to the stadium and facilities.

**OWNER: Chicago Cubs** MAIN CONTRACTOR: Pepper Construction Company

#### SHERIDAN LANDSLIDE

#### **Slope stabilization**

Keller designed a multi-technique solution to stabilize an 80-ft failing slope, threatening to cause widespread local flooding. The package included a soil nail wall, an anchored soldier pile wall, and a gabion retaining wall, all with sculpted shotcrete facing to create a natural-looking finish.

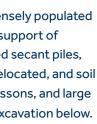
**OWNER: City of Sheridan** MAIN CONTRACTOR: Keller

#### **EGLINTON STATION**

#### Support of excavation, underpinning

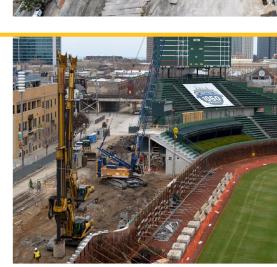
To construct a new station underneath an existing one in a densely populated area of Toronto, Keller used multiple techniques for complex support of excavation and underpinning. Keller's shoring system included secant piles, supplemented with jet grouting where utilities could not be relocated, and soil nailing underneath the existing station. Micropiles, drilled caissons, and large needle beams underpinned the existing station to facilitate excavation below.

**OWNER: Metrolinx MAIN CONTRACTOR: Crosslinx** 





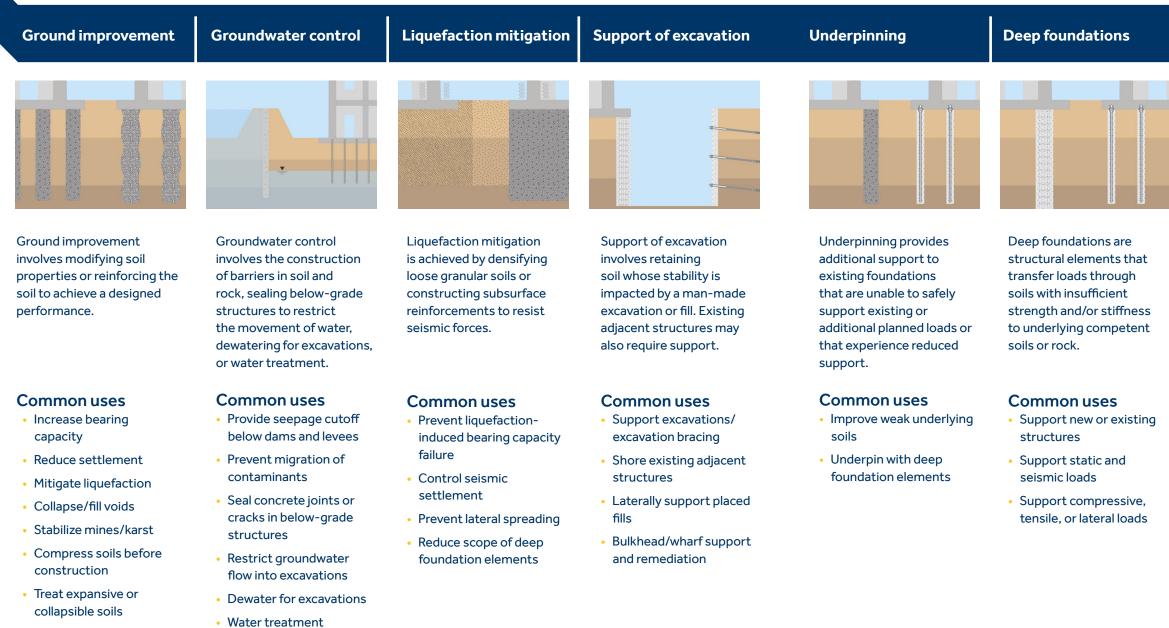






# **SOLUTIONS**

Keller provides the optimal solution, leveraging our experience and expertise with our comprehensive suite of techniques to get the job done right the first time.



• Stabilize soft ground

#### DESIGN-BUILD

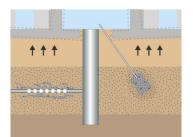
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Our decades of research and development have supported design methods in line with fundamental geotechnical engineering theory. Our experience and knowledge lead to the optimal solution for each loading configuration, subsurface condition, and project objective.



#### **Releveling structures**

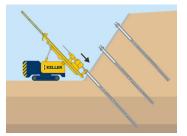
#### **Slope stabilization**



Releveling structures is achieved by either lifting through a direct connection to the structure or by injecting grout at depth to raise both the overlying soil and the structure it supports.

#### Common uses

• Reverse settlement experienced by a structure



Slope stabilization involves the strengthening, reinforcing, or supporting of soil slopes to produce a sufficient stability factor of safety.

#### Common uses

- Stabilize man-made slopes
- Stabilize natural slopes adversely affected by natural or man-made influences



## WHY CHOOSE KELLER?

You can be assured you have a strong partner with Keller.

#### **Excellence in performance**

We have a strong reputation for leading safety culture and operational excellence. Keller is dedicated to fostering a healthy, safe work environment. The goal of our global Keller Think Safe program is zero incidents. Management and employee commitment to this health and safety framework has rewarded us with many safety awards from our clients and industry organizations. Our industry-leading focus on training and development enables our employees to achieve their full potential and achieve operational excellence.

#### Product leadership

Our global product teams comprise industry experts focused on advancing the safety, quality, and productivity of the work Keller performs. These teams are resources for each of our clients' projects.

#### Value engineering

Keller employs about 1500 engineers worldwide, with over 200 focused purely on design. With this in-house capability, half of our projects are design-build, enabling our value engineering to reduce cost and schedule.

#### Innovation

Keller has a culture of creativity and innovation. Our research and development programs are fueled by ideas submitted by our employees and product teams. Examples include our in-house developed DAQ and InSite<sup>®</sup> systems.

Our proprietary DAQ or data acquisition systems collect performance data from our equipment and provides real-time, actionable feedback to our field and office staff to monitor and control quality, efficiency, material usage, and productivity.

InSite is an app used by our field personnel on handheld and mobile devices as a single source for all of our site reporting, including production, safety, equipment and material use.

	GROUTING							GROUND IMPROVEMENT											DEEP FOUNDATIONS										EARTH RETENTION											GROUNDWATER CONTROL						
CHALLENGES	Compensation (fracture) grouting	High mobility (cement/slurry) grouting	Injection systems	Jet grouting	Low mobility (compaction) grouting	Permeation (chemical) grouting Polyurathana crouting	Clab indiana	Cutter soil mixing	Dry soil mixing	Dynamic compaction	Earthquake drains	Rapid impact compaction	Rigid inclusions	Vibro compaction	Vibro concrete columns	Vibro Piers®	Vibro stone columns	Wet soil mixing	Wick drains	CFA (auger cast) piles	Displacement CFA piles	Drilled shafts	Driven piles	Franki piles (PIFs)	Helical (screw) piles	Jacked in piles	Load bearing elements (barrettes)	Macropiles®	Micropiles	Tangent bearing elements (TBEs)	Anchors Anchor block slope	Stabilization Dianhram walls	Ciaprin agrin wans	Interlocking pipe piles	Pit underpinning	Micropile slide stabilization system (MS3)	Sculpted shotcrete	Secant or tangent (contiguous) piles	Sheet piles	Soil nailing	Soldier piles and lagging	Dewatering	Ground freezing	Groundwater treatment	Slurry cutoff trenches	TRD - soil mix walls
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.

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

INSTRUMENTATION & MONITORING In combination with these techniques, we also provide automated instrumentation for monitoring all aspects of construction, including the safety and stability of buildings, excavations, bridges, railways, roads, tunnels, dams, embankments, and slopes.

## **SOLUTIONS MATRIX**

The solution to any geotechnical challenge



















Keller's team of engineers, project managers, and construction experts are available to provide the optimal solution to your geotechnical challenge.

Contact us today US: 800-456-6548 Canada: 888-846-7858 keller-na.com





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