KELLER

Global strength and local focus

- Ground improvement
- Deep foundations
- Grouting
- Earth retention
- Anchors, Nails & Micropiles

Geotechnical solutions for the construction industry

KELLER

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For Keller, a global leader in geotechnical solutions, it is exciting to participate in the ever -changing economies of the Middle East by laying the foundations of some of the world's most ambitious constructions as well as ports and airports, commercial and industrial buildings and futuristic skyscrapers. Those structures have an important role in making the countries of the Arabian Peninsula less dependent on oil by introducing all types of future-oriented industries to their economies. By combining our global strength and local focus we are committed to delivering on our promises on time, cost efficiently and at a quality pertinent to the challenging construction demands in the Middle East.

The Doha Metro in Qatar

global strength
and local focus

Stability and safety for challenging constructions

The most renown construction companies work with Keller, and so do the best civil engineers. There are good reasons for this.

Keller provides ideal solutions for all geotechnical requirements. Our comprehensive product portfolio, our global expertise, our engineering experience and our ability to meet our customer's needs have made us the preferred ground engineering partner. Our people develop and realize best-in-class solutions for geotechnical challenges that our customers are facing. Our solutions are reliable, efficient, flexible, in high quality and always compliant with standards, laws and regulations.

Our guiding principles

Quality cannot be compromised
Our engineering teams ensure that whatever we offer is the best solution for the particular geotechnical challenge and what we finally carry out always meets the required specifications. High quality standards is the cornerstone in which we can continue to sustain quality in our everyday work.

Reliability is our license to operate
We understand that trust is of key importance to our customers and this is an aspect that we always convey. We live up to this responsibility by keeping our promises on engineering, techniques, quality, time schedules, costs, compliance and any other relevant aspects. Our customer

Solutions drive us
It is our role to help find and realize the best possible geotechnical solutions for our customers. We are always looking for the perfect way to not only meet the customers' technical specifications but to also meet their requirements on costs, endurance and sustainability.

Flexibility ensures results
Our local responsiveness with our global network of resources allows us to have geotechnical experts and equipment ready to contribute in any part of the world. We try to make efficient and effective use of our global Keller network to quickly provide answers to any geotechnical challenge.

Efficiency & cost-effective solutions
It's as simple as that: The purpose for any of our geotechnical solutions is to satisfy our customer requirements. Our unrivalled range of technical choices put us in the position to offer what best suits the particular requirements. Our portfolio comprises solutions for any geotechnical challenge. Our global network of experts and our proximity to our customers enable us to bring the most efficient and most effective solution to any site in the world.

We are proud to contribute to the growth of the Middle East

By 2025 the global construction output will have grown by more than 70 percent compared to 2012.

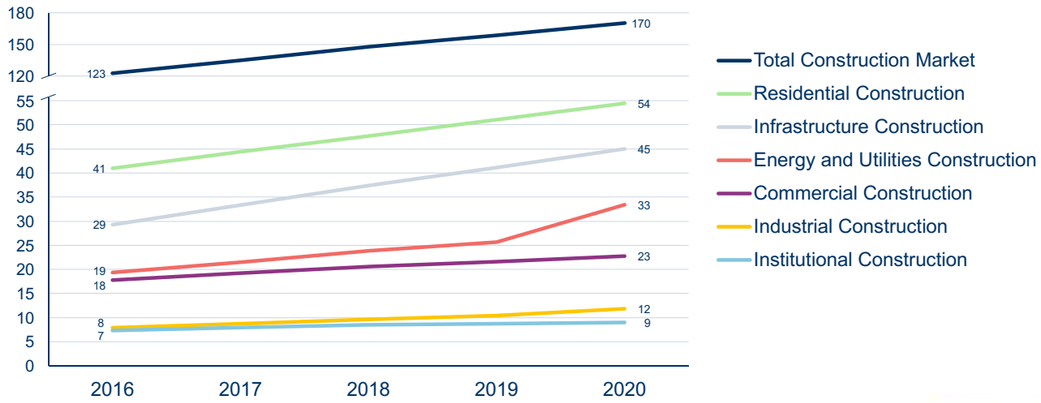
Growth is fuelled by some of the prevailing trends of our societies: urbanization, globalization, infrastructure renewals and exploding megacities. There is space for both in this flowering market environment, for huge globally operating construction companies specialized in large, infrastructure, industry and energy projects, and for local suppliers of smart solutions for smaller but no less important constructions.

The Middle East as one of the emerging and fastest growing regions will benefit from these developments and provide ample challenges for excellent civil engineering solutions.

Due to our presence in more than 40 countries world-wide we are always close to our customers. All our affiliates operate in an integrated well-structured network of expertise.

Our customers always have access to any part of this network. Centres of excellence provide support for the continuous development of methods and equipment and the transfer of technology between Keller companies worldwide. Regardless if we lay the foundation for huge infrastructure endeavours or whether we provide excavation support for a small residential building: we never compromise on safety, quality, efficiency and engineering excellence. We combine local market know how and global expertise to remain the No 1 geotechnical company in the world sought after by our customers and by the best civil engineering people.

Development of construction market in the Middle East in bn€



Keller in the Middle East
Keller offers a comprehensive range of solutions which ensures that its customers benefit from the most cost-effective solutions for their geotechnical requirements. Keller has been operating in the Middle East for over 45 years now and has the experience, capability and capacity to undertake projects of all sizes.

We have offices and facilities in Dubai, Abu Dhabi (United Arab Emirates), Doha, (Qatar), Dammam, Riyadh and Jeddah (Saudi Arabia), Cairo and Alexandria (Egypt), Manama (Bahrain) and Muscat (Oman).

Our core values are professionalism in the application of skill, and diligence in the delivery of all products, integrity through consistently acting with honesty, fairness and positive intent, and respect for colleagues, suppliers and customers.

Keller Middle East is a prefered partner for its innovative value engineering and ground improvement solutions

Innovative value engineering

At Keller, innovation and value engineering are key components in offering our customers the most cost-effective solutions. Our innovative value engineering is defined by creating value that is both efficient and effective for our client without compromising on safety, quality and engineering excellence.

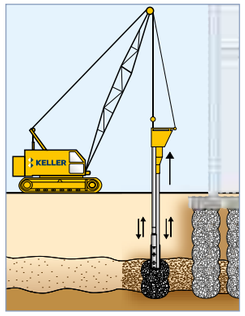
Ground improvement

Combining our innovative value engineering and our 45 years of experience in the Middle East, allows us to design efficient in-house ground improvement solutions. Our most popular products include vibro compaction, vibro replacement, dynamic compaction, prefabricated vertical drains and deep soil mixing.

Solutions

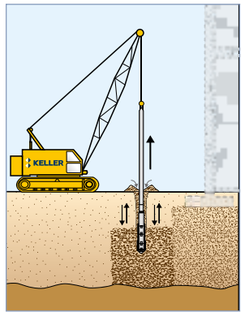
Ground improvement

Ground improvement techniques are used to prepare the ground for new construction projects and to reduce the risk of liquefaction in areas of seismic activity.



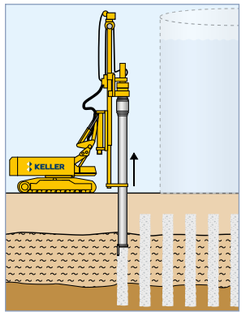
Vibro replacement

Vibro replacement provides stability in granular soils with high fines content and in cohesive soils. It uses company designed machines to densify and at the same time partially replace the soil with stronger material.



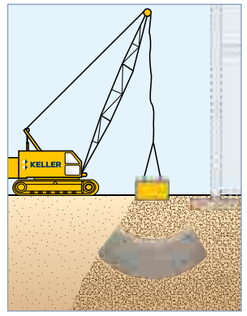
Vibro compaction

A site improvement technique for granular material that densifies soils to depths of up to 40 m. It increases bearing capacities, reduces settlements and also mitigates liquefaction potential in seismic areas.



Rigid inclusions

Rigid inclusions transfer loads through weak strata to a firm underlying stratum using high modulus, controlled stiffness columns.

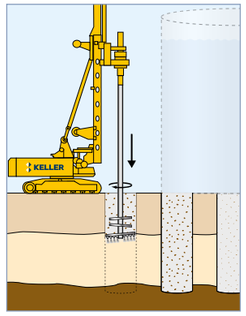


Dynamic compaction

Dynamic compaction increases the soil density by dropping a heavy weight repeatedly on the ground at regularly spaced intervals. The free fall impact results in densifying stress waves in granular soils and fills.

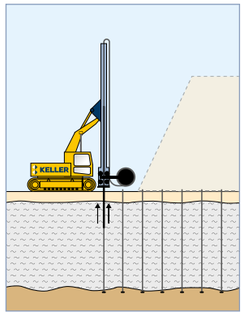
Grouting

Grouting strengthens the ground and controls ground water flow.



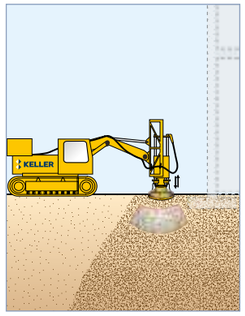
Deep soil mixing (DSM)

A powerful drill that improves the characteristics of weak soils by mechanically mixing them with cementitious binder slurry. This process constructs individual soilcrete columns, rows of overlapping columns or 100% mass stabilization, all with a designed strength and stiffness.



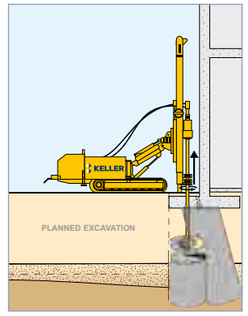
Prefabricated vertical drains (PVD)

Prefabricated vertical drains are geotextile filter-wrapped plastic strips with molded channels. They are installed to provide drainage paths for pore water in soft to very soft compressible soil. The vertical drains accelerates the consolidation process and the construction schedule.



Rapid impact compaction (RIC)

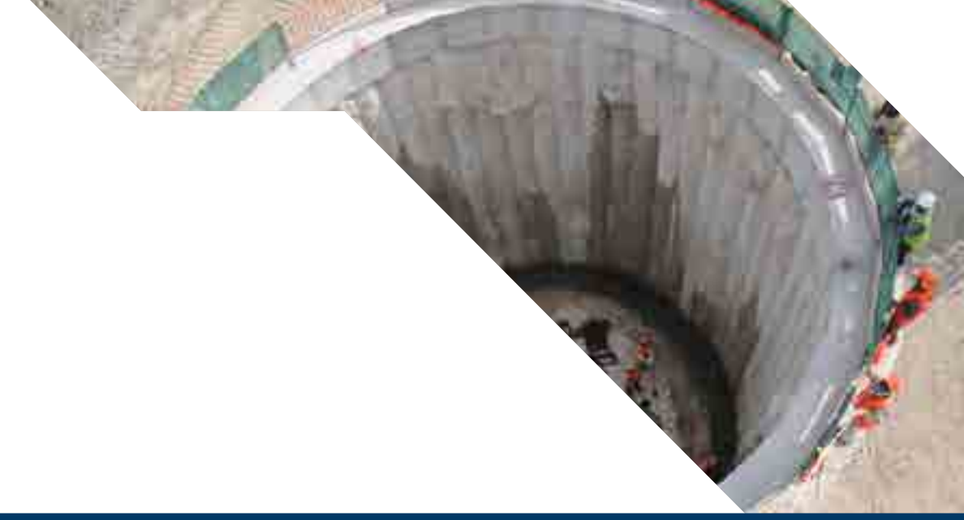
Rapid Impact Compaction densifies shallow, granular soils, using a hydraulic hammer, which repeatedly strikes an impact plate on the ground surface.



Jet grouting (Soilcrete®)

Jet grouting uses high velocity fluid jets to construct cemented soil in varying geometries in the ground. The process constructs soilcrete panels, full columns, or partial columns with designed strength and/or permeability.

Solutions



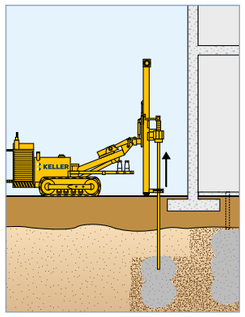
Grouting

Earth retention

Earth retention systems are used to solve a wide range of geotechnical solutions from slope stabilisation to excavation support by using a single or a combination of geotechnical products.

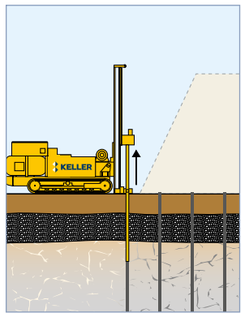
Heavy foundations

Heavy Foundations are required whenever weak soils have little capacity to resist an existing load or a change in existing load. They involve the construction of structural elements to transfer loads down to stronger underlying soils or rock.



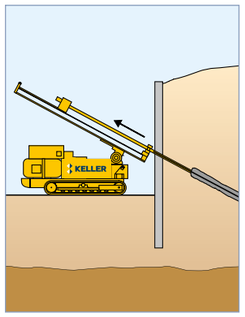
Compaction grouting

Compaction grouting is the injection of a low slump, mortar grout to densify and reinforce soil. This process can also extend to cavity filling works where subsurface voids can be filled.



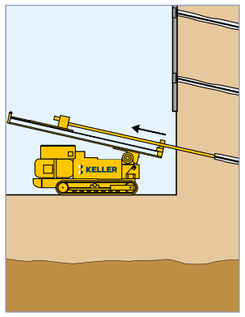
Permeation grouting

Permeates pore spaces in granular soils with a low viscosity non-particulate grout, which hardens to create a cemented mass. The grouted soil has increased strength, stiffness and reduced permeability. Sands with low fines content are best suited for this technique.



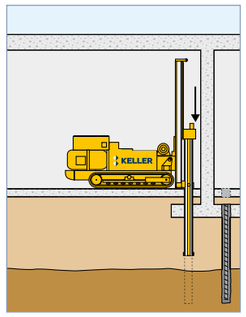
Anchors

Rock and soil anchors offer an economical solution to temporary or permanent stability or support problems – e.g. for dam stabilization, or to resist wind-produced uplift forces.



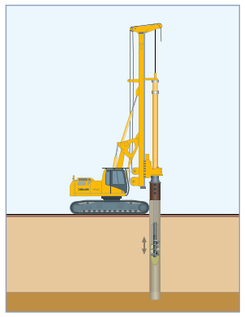
Shotcrete nails

Soil nailing provides a cost effective and feculent solution to slope stability and earth retention problems on highway widening schemes, railway cuttings and for commercial developments.



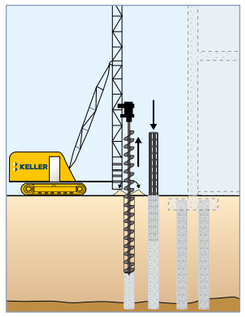
Micropiles

Micropiles are small-diameter, low- to high capacity structural elements that can provide compressive, tensile, or shear support as foundation or slope stabilization components.



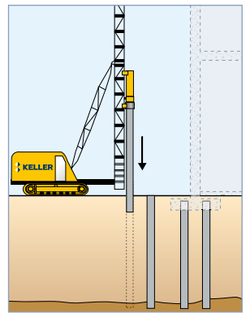
Bored piles

Bored piles of concrete are an economical means of supporting high structural loads with minimum settlement. Depending on ground conditions and application these can be augered, underslurry or cased.



CFA-piles

A CFA piling system provides a quiet low vibration form of piling that is ideal in built-up areas. Keller's CFA rigs can construct piles in most soils and in high water tables without the need for temporary support systems.



Driven piles

Driven piles are elements driven to a design depth or resistance. If penetration of dense soil is necessary, predrilling may be required. The finished foundation element resists compressive uplift and lateral loads.

Marassi Al Bahrain

Marassi Al Bahrain covers 124,915 m2 of reclaimed land. It is a unique mixed-use urban development focused on tourism, recreation, and housing in a context of quality amenities, open spaces and public beaches for both foreign visitors and residents.

Our solution

- Bored piles

Amidst tough competition, Keller won this project on an alternative design as the Client was seeking a solution to fit its budget limits without compromising on time and quality.

5000 piles of varying diameters of 600, 750 and 800mm were designed to an average depth of 21m and max 25m. Besides preliminary test piles that were executed to confirm the design, production piles were load tested simultaneously and the buildings were handed over within the agreed milestone dates.

Emirati neighbourhood - Capital District

The Capital District is part of the major initiatives for Plan Abu Dhabi 2030, one of UAE's most ambitious urban development projects. It will be the focus of the government's academic and knowledge based sectors and is strategically located to connect with Abu Dhabi's metropolitan area and new mainland developments. This project involves ground investigation, followed by design and execution of a variety of ground improvement solutions.

It's the largest ever design and build ground improvement project for Keller Middle East covering 8 million m².

Our solutions

- Dynamic compaction
- Vibro replacement
- Dynamic replacement
- Rapid impact compaction (RIC)
- Cavity grouting

The main challenge was to develop multiple soil profiles to design appropriate ground improvement solutions based on the geophysical surveys and ground investigation reports. The identification of cavities required proper calibration of geophysical survey. This complex project was completed in 18 months.

Design of a variety of ground improvement techniques such as vibro replacement, dynamic replacement, dynamic compaction, rapid impact compaction and cavity grouting to meet the specified requirement for bearing capacity and mitigation of liquefaction potential.

East Port Said development

Port Said adjacent to Suez Canal is one of the busiest ports in the world. Due to the current development in Suez Canal, the east side of Port Said is to be developed to assist in the financial and economic growth. The project consists of several terminals and industrial zones to be built on a plot area of approximately 60,000,000 m² located near the shore.

Our solution

- Prefabricated vertical drains

Installation of prefabricated vertical drains (PVD) in an area of 8 million m² down to a depth of 25m. The biggest challenge was to establish site organization, a large fleet of equipment and PVD material to install 82,000 km of drains within a year. The required organization and resources were built up in stages to support 22 rigs working in double shift.

The lead design was governed by Keller and done by experienced consultants. The final design was based on the soil investigation data collected from the CPTu test results and field trials to verify the design.

High standards for sustainable growth

We are committed to the needs of all our stakeholders – customers, employees, local authorities, NGOs, suppliers, shareholders and most of all the people on our planet.

Compliance
We are convinced that compliance to international, national and local laws and regulations is the only way to accomplish fairness for all our partners and customers.

We are accredited for the Integrated Management System of QMS 9001:2015, EMS 14001:2015 and OSHA 18001:2007.

Environment
At Keller, we acknowledge the responsibility of being part of the construction industry and we are aware that any kind of construction done by human beings has an adverse impact on our existing environment. However, we always strive to minimize the impact on our environmental footprint to an absolute minimum by using environmental friendly materials, reusing the materials, recycling and by avoiding any kind of enduring pollution.

Health and safety
We bear responsibility for our people. We understand that the Health and Safety of our employees are of paramount importance and we do not compromise on this. Consequently, we train our employees in observing safety regulations and avoiding accidents. We equip them with the necessary tools for a safe work environment. We design working environments as safe as possible and comply with any applicable labour laws.

Al Zour, Kuwait

THINK SAFE

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