In our three activities, our companies have distinguished themselves on large-scale projects in a large number of countries.

Bruno Dupety, Chief Executive Officer of Soletanche Freyssinet
ACTIVITIES 2011
SOILS - STRUCTURES - NUCLEAR
Through its three networks of world-renowned companies, Soletanche Bachy, Menard and Terre Armée, the Soletanche Freyssinet Group has acquired very broad expertise in foundations, ground improvement and retaining structures.

SOFE, soil mixing project, Vietnam.

GEMALINK, construction of the CMIT container port, Vietnam.
Rising between the sea and the sky, the Odéon Tower will be the tallest building in the Principality of Monaco at 160 metres, with 48 storeys and 10 underground levels. Spectacular and complex in equal measure, the 56-month project includes the construction of outsized retaining structures and foundations. To accommodate the dimensions and the weight of the building, the configuration of the site (grade difference of over 30 metres) and seismic constraints, it was necessary to build a 70 metre high retaining structure that combines several techniques: micro-Berlin wall, Berlin wall, anchor ties and 55 metre deep diaphragm walls.

Soletanche Bachy provides the full range of geotechnical processes, special foundations, underground works, and ground improvement and soil remediation. The company offers integrated capabilities on major infrastructure projects under varying types of contract.

As part of the construction of the Singapore metro, Soletanche Bachy is carrying out contract C903 of the Downtown Line that serves the Marina Bay business district. After completing the concrete work at the Bugis station and its associated tunnels in 2010, the teams worked on three tunnel sections in 2011, including one, with a length of 80 metres, which runs under the existing Bugis station. The work required preliminary ground treatment underneath the station, which combined two ground improvement methods: Springsol and glass fibre reinforced nailing. The horizontal application of Springsol – a world first – proved highly effective in stabilising the marine clay prior to complete opening of the diaphragm walls.
LEE TUNNEL (United Kingdom)
The country’s largest shafts

Bachy Soletanche Ltd is taking part in the construction of the Lee Tunnel, 10 km east of the London City. Starting in 2015, the outfall – a major project in terms of its size and its environmental importance – will reduce the volume of untreated wastewater and rainwater annually discharged to the Thames by 16 million cu. metres. The Lee Tunnel is made up of four monumental shafts with 1.80 metre thick diaphragm walls linked by a network of tunnels bored at a depth ranging from 55 to 75 metres. The 100 metre deep shafts are the largest ever built in the United Kingdom.

TORRE REFORMA (Mexico City)
At the top of Mexico City

Cimesa, Soletanche Bachy’s Mexican subsidiary, is building all the special foundations and the underground car park for the Torre Reforma building currently under construction in Mexico City, to be completed in 2014. The 57-storey building will be Mexico City’s tallest and architecturally most futuristic structure. Its innovative design will enable it to be the first high-rise building in Latin America to receive LEED® Platinum environmental certification. Working in a demanding environment, Cimesa had to cope with a variety of technical challenges such as the displacement of a landmark building at the site and the construction of thick (1.20 metre) diaphragm walls to depths of 52 and 60 metres, depending on the zone.

VEHICLE SECURITY CENTER (United States)
World Trade Center, an ongoing project

Nicholson, Soletanche Bachy’s U.S. subsidiary, has been taking part in the reconstruction of the World Trade Center site since just after September 11, 2011. Nicholson has been engaged in a variety of works at the emblematic and emotionally charged site. The latest works were for the Vehicle Security Center, a 50-space parking facility for tourist buses that will meet safety standards and cope with the expected additional influx of visitors. Following a first contract in 2009-2010, the company carried out an additional project consisting of placing 1,000 sq. metres of secant piling, 75 anchor ties, 15 micropiles and 122 jet grouting columns.
MENARD
From design to construction, Menard proposes and implements foundation solutions using ground improvement and reinforcement techniques that make it possible to build on land otherwise unsuited for the purpose. These techniques are global benchmarks.

REAGAN NATIONAL AIRPORT IN WASHINGTON, D.C. (UNITED STATES)
Night work

To accommodate larger aircraft and improve safety, the main runway at Reagan National Airport is being extended. For the Menard teams, installing the controlled modulus columns (CMC) designed to reinforce the ground under the new runway and taxiways, the project was a challenge in terms of both construction and logistics. Airport activity limited their working hours to between midnight and six a.m., and they were forced to produce the concrete themselves in concrete plants installed at the site, since the usual supplier does not deliver at night. Despite these restrictions, the project was carried out between July and November 2011, with the teams working six days a week, and completed on schedule.

YOLOTEN (TURKMENISTAN)
Express project in the desert

In the South Yoloten Gas Field, one of the world’s largest gas fields in the desert dunes of southeastern Turkmenistan, Menard’s teams carried out a project to prepare construction of a gas treatment plant for Petrofac. To ensure the stability of the installations, they performed dynamic compaction over a surface area of 1,150,000 sq. metres in just under 12 weeks, using 8 machines.

1.15 million sq. metres compacted in 12 weeks of work.

SOILS
In response to booming business activity in the Australian state of Queensland, the Port of Brisbane decided to expand its facilities by reclaiming land from the sea by filling over highly compressible clay terrain with a thickness of over 30 metres in places. Following a conclusive experimental project in 2007-2008, the Port of Brisbane entrusted to Menard Bachy the consolidation of a 9 hectare area using the Menard Vacuum consolidation process, which consists of producing an atmospheric pressure on previously drained soil by evacuating air under an airtight impervious membrane laid over it. The solution, applied for the first time on this scale in Australia, offers numerous environmental advantages: backfill savings (since the negative pressure replaces a major part of the overload normally used to compress the soil), reduction in the worksite carbon footprint, energy and time savings.

PORT OF BRISBANE (Australia)

Soil consolidation by Vacuum depressurisation

In response to booming business activity in the Australian state of Queensland, the Port of Brisbane decided to expand its facilities by reclaiming land from the sea by filling over highly compressible clay terrain with a thickness of over 30 metres in places. Following a conclusive experimental project in 2007-2008, the Port of Brisbane entrusted to Menard Bachy the consolidation of a 9 hectare area using the Menard Vacuum consolidation process, which consists of producing an atmospheric pressure on previously drained soil by evacuating air under an airtight impervious membrane laid over it. The solution, applied for the first time on this scale in Australia, offers numerous environmental advantages: backfill savings (since the negative pressure replaces a major part of the overload normally used to compress the soil), reduction in the worksite carbon footprint, energy and time savings.

PORT OF BRISBANE (Australia)

Soil consolidation by Vacuum depressurisation

In response to booming business activity in the Australian state of Queensland, the Port of Brisbane decided to expand its facilities by reclaiming land from the sea by filling over highly compressible clay terrain with a thickness of over 30 metres in places. Following a conclusive experimental project in 2007-2008, the Port of Brisbane entrusted to Menard Bachy the consolidation of a 9 hectare area using the Menard Vacuum consolidation process, which consists of producing an atmospheric pressure on previously drained soil by evacuating air under an airtight impervious membrane laid over it. The solution, applied for the first time on this scale in Australia, offers numerous environmental advantages: backfill savings (since the negative pressure replaces a major part of the overload normally used to compress the soil), reduction in the worksite carbon footprint, energy and time savings.
DOUBLE TRACK (Malaysia)
A railway line with nearly 110,000 sq. metres of Terre Armée® walls

As part of the construction of a 330 km double track electrified railway line between the cities of Ipoh and Padang Besar for the Malaysian Railways, Terre Armée subsidiary Reinforced Earth Malaysia is taking part in a major project that got under way in February 2009. In addition to Terre Armée® retaining walls and abutments for a large number of bridges across rivers and motorways, the company is building large wall surfaces for the railway bridges that will replace level crossings. Overall, Terre Armée is supplying 109,425 sq. metres of walls, making this the company’s largest contract ever in Malaysia. With the project nearing completion, only 12,190 sq. metres remain to be built.
Soletanche Freyssinet 2011 ACTIVITY REPORT

ESCONIDA MINE (Chile)

21 Terre Armée® walls in the world’s largest copper mine

Freyssinet Tierra Armada Chile is building 21 Terre Armée® walls in the world’s largest copper mine. Located at an altitude of 3,100 metres 1,000 km north of Santiago in the arid and earthquake-prone Atacama desert region, the Escondida mine has been constantly expanded since it began operating in the 1990s. Of the 21 walls built, 17 were to create a new 720-tonne truck unloading platform. In a world first, seven of these used the Composite Earth® technique. The project involved exemplary international cooperation among the various Terre Armée teams. Participating companies were Freyssinet Tierra Armada Chile in Santiago, the Terre Armée division of Freyssinet Middle East, Reinforced Earth USA and the technical and scientific department of Terre Armée Internationale for the design of the structures. Three Chilean employees and an expert seconded by Reinforced Earth UK provided on-site support seven days a week for 160 consecutive days.

NORTH TARRANT EXPRESS (United States)

140,000 sq. metres of Terre Armée® walls in Texas

The Reinforced Earth Company (RECo) won the contract to design and supply more than 140,000 sq. metres of Terre Armée® retaining walls for the design-build North Tarrant Express (NTE) roadworks project in Texas. The project, a milestone in the history of RECo, is the company’s largest ever. It includes the installation of over 30,000 linear metres of prefabricated elements. The panels, cornices and connector parts will be manufactured at the RECo plant in Waco, Texas.

A world first: the use of Composite Earth®.