The Advanced Geosynthetic Contractor

CeTeau

CeTeau Profile

www.ceteau.com

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CeTeau

Vacuum Consolidation

CeTeau

CeTeau stands for innovative ground improvement technologies and specialized geosynthetic environmental techniques. With more than 10 years of worldwide experience in numerous projects, CeTeau is ready to execute your ground improvement and environmental projects according to the highest standards.

We can offer a complete tailored package for almost any geosynthetic challenge.

- Site investigation
- Design proposal for ground improvement
- Execution of ground improvement work
- Instrumentation and monitoring
- All geosynthetic applications

Sand Compaction

Geotextile

Prefabricated Vertical Drains (PVD)

Prefabricated Vertical Drains
Prefabricated Vertical Drains (PVD) or Wick Drains, are prefabricated drain strips consisting of a polypropylene core extruded into a configuration to transmit maximum water flow on both sides of the core. The core is wrapped in a non-woven filter, ultrasonically welded at the edges.

PVD Saves Time
Vertical drains are used to shorten the settlement period, reducing the construction period of a project and to avoid post-construction differential settlements. By shortening the drainage path in fine soils, such as silts and clays, it only takes months instead of years for the water to dissipate and prepare the soil for supporting new loads.

The Technique
The drains are installed vertically into soft soils in order to shorten the path water must travel, accelerating the consolidation of the soil. By applying a temporary preload on top of the embankment or fill, the consolidation period can be reduced even more. Additionally, a part of the secondary settlement is also eliminated.

PVD Installation Machine

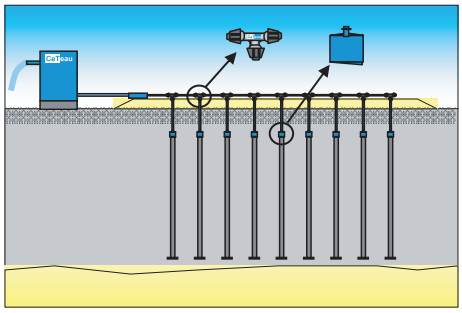
Manufacturing
CeTeau-Drain is manufactured in modern factories located in Malaysia and Thailand. CeTeau is focusing on green manufacturing using only high grade polypropylene which does not contain any additional chemicals that can pollute the soil.

High Quality Standards
The production facilities in Malaysia and Thailand have been accredited the ISO 9001:2000 Quality certificate.

Main Applications
- Roads, Railways, Dikes and Airports
- Land Reclamation
- Harbor Construction
- Urban and industrial sites

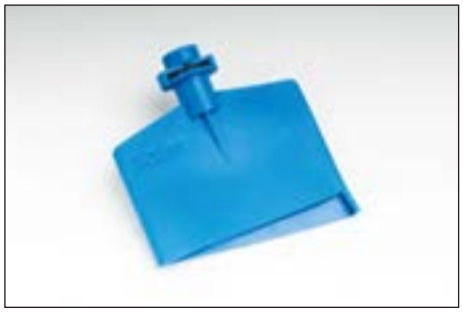
Other Applications
- Stabilization of slopes
- De-watering to lower aquifers
- Vacuum consolidation
- De-gassing of landfills

Vacuum Consolidation



Vacuo Schematic

T-Coupling



Drain Connector

Vacuum Consolidation

The innovative CeTeau Vacuo is developed to further shorten the consolidation period for soft and very soft saturated fine-grained soils, compared to Prefabricated Vertical Drain with surcharge.

The loading process creates an accelerated isotropic consolidation in the soil mass in a relatively short time, eliminating the need for long-term and potentially unstable surcharge loads.

The Technique

The system consists of installing prefabricated vertical drains, individually connected below the surface to vacuum transmission pipes. These pipes are than connected at surface level to a horizontal tubing system by means of specially developed airtight T-couplings. The so-called drainage screens, a row of vertical drains that are connected at the top to a horizontal line, are brought outside the surcharge (if any) and connected to a combined water/air pump. This pump creates a vacuum pressure equal to 3.5 meter pre-load.

Advantages

The advantage of this method over the traditional sealing by geo-membrane is that leaks are fully traceable even after surcharge loading.

There is no requirement for drainage sand, or a complex subsoil drainage system, as the water flows trough the piping system.

The system is fully compatible with ground improved using PVD with surcharge, giving the designers the freedom for project cost optimization.

Applications

- Stability problems
- No space for shallow slopes or berms
- Minimal allowable deformation of subsoil (close to buildings)
- Short construction time available

CeTeau Vibro Stone Columns

Vibro Stone Columns
CeTeau Vibro Replacement increases the load bearing capacity by constructing stone columns in weak soils. This technique provides an economically and technically solution to a wide range of foundation problems.

The Technique
Crushed aggregates are placed into the soil at regular intervals throughout the area where the soil bearing capacity needs to be improved. This is done either by using the dry bottom or the wet top feed vibrators, which are forced into the ground. The aggregates are then allowed to take the place of displaces soil.

CeTeau Vibroflotation

Vibroflotation
This method is also known as “Sand Compaction”. Natural deposits as well as artificially reclaimed sands can be compacted up to a depth of 70 meter. The intensity of compaction can be varied to meet bearing capacity criteria. Other improvement effects such as reduction of both total and differential settlements are achieved.

The Technique
Vibroflotation is a deep compation method using vibro technique, generally used for coarse non cohesive soils. The action of the vibrator, usually accompanied by water jetting, reduces the inter granular forces between the soil particles allowing them to move into a more open configuration. After a certain time the optimum configuration is reached. Than the vibrator is raised a short distance and the procedure is repeated.

CeTeau Liners

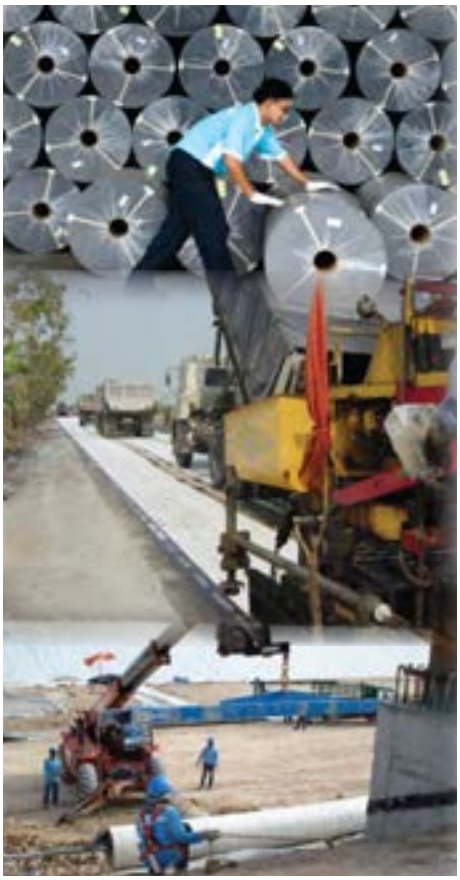
High Density Poly Ethylene Liners (HDPE)
HDPE Liners are used for containment of liquids, solids and waste materials. It is resistant to a wide range of chemicals and reliable in exposed environments due to, high UV protection against degrading and low temperature brittleness.

To connect HDPE liners our own certified technicians heat weld the liners on site. All welds are tested in the field to guarantee the quality.

Geosynthetic Clay Liners (GCL)
GCL's are used for similar purposes as HDPE liners, or as secondary containment layer below HDPE liners. One of the advantages is that the liners are joint by overlapped seams (without welding), which makes installation easier. The other main advantage is that the GCL's have self sealing properties.

A GCL consists of a geotextile- or geomembrane-carrier component bonded to a layer of low-permeable sodium bentonite. Our 6 mm thick GCL's provide better engineered hydraulic performance than one meter of compacted clay.

CeTeau Tex

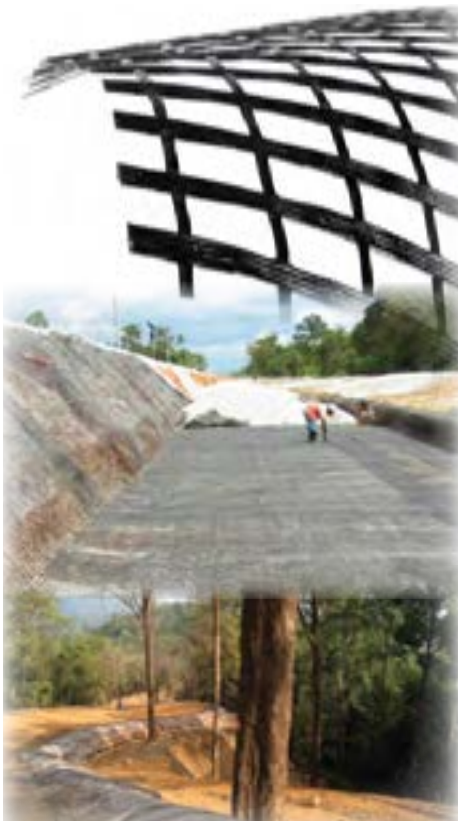


Geotextiles
Geotextiles are permeable fabrics which, have the ability to separate, filter, reinforce, protect, and drain. Our geotextiles are made from polypropylene or polyester and are available in three basic forms: woven, needle punched or heat bonded.

Advantages
Geotextiles provide major contributions towards increased efficiency and economy in all facets of construction.

Applications
- Separation/reinforcement layer in foundations for motor ways, airports, railroads, etc.
- Filter material for drainage systems, bank and slope protection, erosion control, etc.
- Protection layer for waste depots, tank storage, canal lining and irrigation basins, etc.
- Reinforcement or soil stabilization of soft areas and marine works.

CeTeau Geogrid



Geogrid
Geogrid overcomes the bearing limits of many poor and weak natural soils and other mineral construction materials.

Advantages
Geogrid's strength and geometric structure absorps shear loads, which avoids destabilization of soft soils. It transmits the vertical loads to the soft soil at the construction of dams, landfill slopes, base layer reinforcement or similar applications.

Geogrids are also widely used for the construction of very steep slopes due to space constraints or when a gradient is bigger than the internal friction angle of the material available.

Applications
- Retaining walls
- Slope stabilization
- Embankments over piles
- Landfill
- Erosion control

CeTeau Cell

Geocell
Geocell is a cellular three-dimensional high density polyethylene honeycomb structure designed to physically confine infill material. By using geocell the infill material is protected from migration due to hydraulic flows.

Advantages
Geocell provides excellent protection for slopes against erosion. Stabilizes base material for load bearing purposes, reducing fill thickness.

Confinement with cellular systems (prevention of horizontal movement) substantially improves the material shear strength and bearing capacity.

Geocell

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