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上海港湾集团 GEOHARBOUR

GEOHARBOUR CONSTRUCTION GROUP

Advanced & Innovative Geotechnical Contractor

COMPANY OVERVIEW

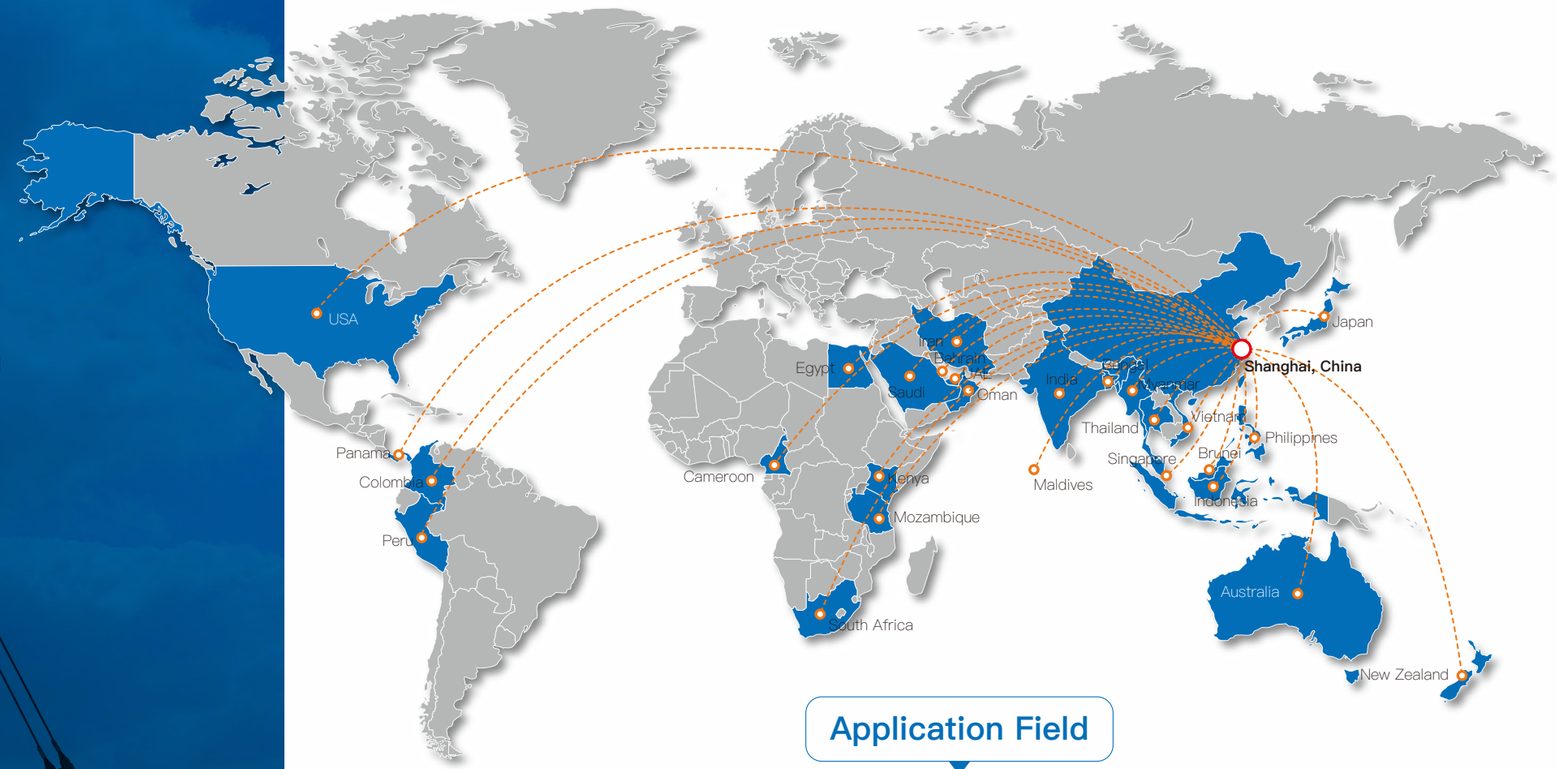
Company profile

Geoharbour Construction Group is a global professional entity specializing in geotechnical construction, design, investigation, consultancy and research, and also the chief editorial unit of China National Standard of Reclamation Soil Treatment, and directorate body of the Technical Committee of China Soft Soil Treatment. In the past 20 years, Geoharbour Construction Group has completed over 500 large–scale projects, total area of soil treatment over 10, 000 hectares, involving a variety of job sites such as roadways, airport runways, ports, power plants, industrial parks and etc.

Services	Techniques
Ground Improvement	DC > VCM > HVDM > VC > DCM > SC
Piling Foundation	PC > BP
Deep Foundation Pit	SMW > Diaphragm Wall > Soldier Pile Retaining Structure
Slope Protection	Grid Beam > Anchor Cable > Anchor Bolt > Turf Planting > SNS
Reclamation	Cutter Suction > Pump–convey–hydraulic Fill
Harbor Construction	High Pile > Counterfort Wall > Gravity Retaining Wall

Business Coverage

As a global entity, Geoharbor Construction Group has completed more than 500 projects and exported its core patent technologies to more than 20 countries.



Application Field

Ground Improvement
- Airports, Ports, Power Plants, Highways, Industrial Parks

Piling Foundation
- Power Plants, Highways, Municipal Engineering

Deep Foundation Pit
- Tunnel, Subway, Municipal Engineering

Slope Protection
- Prevention and control of geological disasters

Reclamation / Harbour Construction
- Islands, Harbour, Reservoir, Canal, Jetty

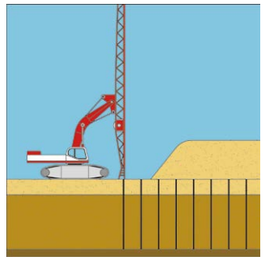
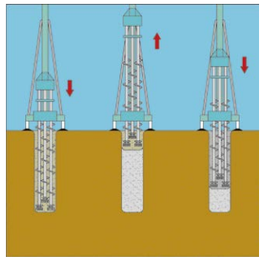
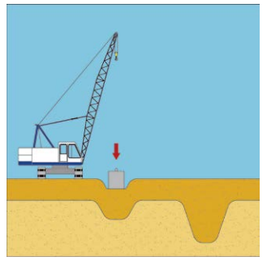
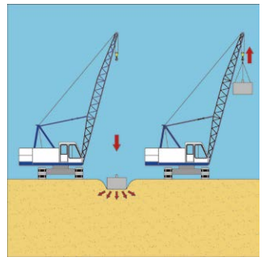
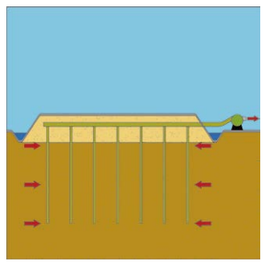
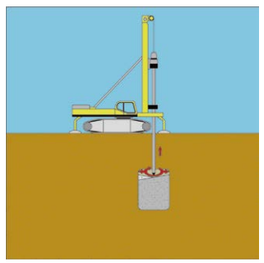
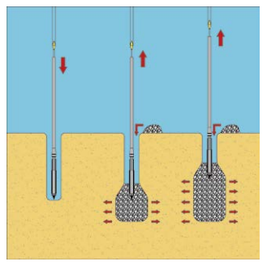
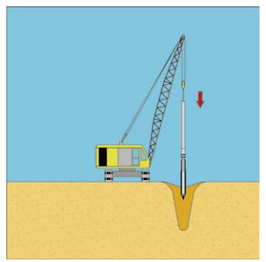
Ground Improvement Works

Techniques & Illustration

Common Ground Improvement Techniques

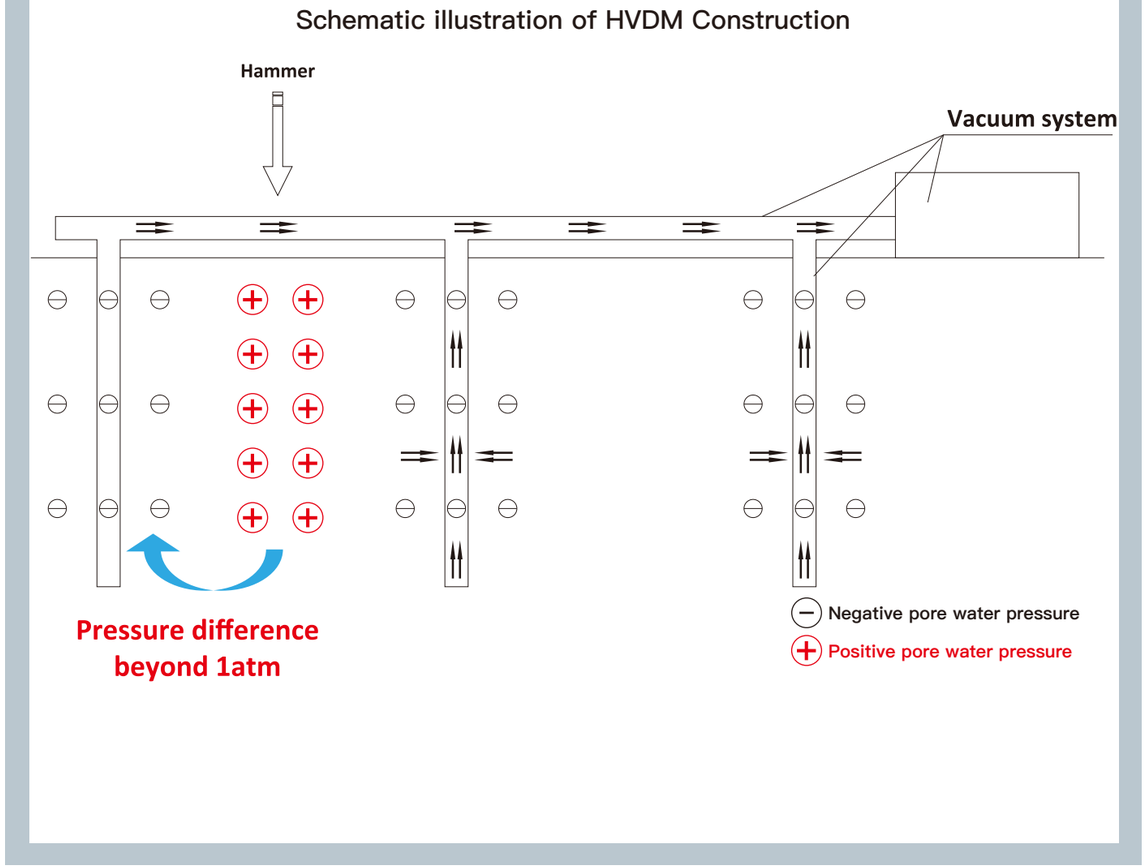
Thick Soft Fine Grained Soil (silt and clay)

Thick Loose Coarse Grained Soil (sand and gravel)

CONSOLIDATION METHODS	REINFORCEMENT METHODS		COMPACTION METHODS
	Semi-Rigid Inclusion	Natural Inclusion (sand, stone, etc)	
			
Prefabricated Vertical Drains	Cement Columns/ Deep Soil Mixing	Dynamic Replacement	Dynamic Compaction
			
Vacuum Consolidation/HVDM	Jet Grout Columns	Vibro Replacement	Vibro Compaction

Innovative High Vacuum Densification Method(HVDM) Technique

HVDM is one of Geoharbour Construction Group's series of patented technology, which outperforms dynamic compaction, one of traditional ground improvement methods. HVDM enables soil consolidation process expediated by a pressure gradient acted within the ground, which is formed between positive pressure (i.e., excess pore water pressure from dynamic compaction) and negative pressure (i.e., vacuum pumping). HVDM extends the treatment scope of dynamic compaction to saturated silty soil. By using HVDM, an over consolidated hard crust is formed in the subsurface, which helps mitigate the post-treatment settlement of a job site.



Ground Improvement Works

Application case | Airports

The terminal 5 project of Singapore Changi Airport covers an area of around 25 hectares, and the depth of some part of the foundation is about 60 m. After replacing the previous technology of Cement Mixing Piling with Vacuum Consolidation Method(VCM), we helped save about 2 billion RMB and reduced 300, 000 tons of CO_2 emission (equals to the total annual emission of about 600, 000 cars)

Changi International Airport, Singapore

Project Profile

Name: Vacuum preloading & PVD Installation works in terminal 5
Location: Changi International Airport, Singapore
Method: VCM

Construction duration

From: 2015.01
To: 2018.06

Ground Improvement Works

Application case | Airports

Project Profile

Name: Nakhon Si Thammarat Airport
Location: Nakhon Si Thammarat
Methods: VCM

Construction duration

From: 2015.04
To: 2016.02

Nakhon Si Thammarat Airport, Thailand

Pudong International Airport, a competition was run among 7 schemes for treating soft ground (1,110, 000 m^2) of the 2nd runway of Shanghai Pudong Int'l Airport. HVDM won by its high quality, low cost, and fast construction. Shanghai Airport website posted the project event, saying "No.1 Nationwide" and "well above the design standard", and "saving over RMB 100 million". The 3rd runway would continue to use the method.

Shanghai Pudong International Airport, China

Project Profile

Name: Pudong International Airport
Location: Shanghai, China
Method: HVDM

Construction duration

From: 2003.06
To: 2005.10

Ground Improvement Works

Application case | Ports

VC (Vibro-compaction) was employed for a large-scale soil treatment of Shanghai Waigaoqiao, i.e. Phase III (800, 000 m^2) in 2002, Phase IV (1, 600, 000 m^2) in 2003 and Phase V (1, 600, 000 m^2) in 2004. The soil improvement effects are reliable.

Shanghai Waigaoqiao Port Area, China

Project Profile
Name: Waigaoqiao Port Area
Location: Shanghai, China
Method: VC

Construction duration
From: 2000.05
To: 2004.10

Project Profile
Name: Yangshan Port
Location: Shanghai, China
Method: VC

Construction duration
From: 2003.11
To: 2004.11

Shanghai Yangshan Port, China

Ground Improvement Works

Application case | Highways

Palembang–Kayu Agung Toll Road is part of Trans Sumatera Project. This project is located at swampy area at south of Palembang City, with total length 13 km. Vacuum Consolidation method is chosen to overcome the challenge to build toll road in swampy area in a most efficient way.

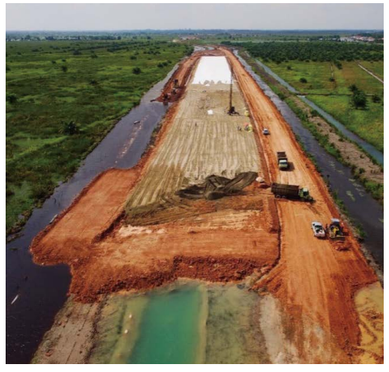
Palembang–Kayu Agung Toll Road, Indonesia

Project Profile

Name: Palembang–Kayu Agung Toll Road
Location: Sumatera, Indonesia
Method: VCM

Construction duration

From: 2016.09
To: 2018.12



North–South Expressway, Vietnam

Project Profile

Name: North–South Expressway
Location: Dong Nai Province, Vietnam
Method: VCM

Construction duration

From: 2011.12
To: 2013.05

Expressway, Malaysia

Project Profile

Name: Expressway, Malaysia
Location: Jalan Air Kuning Ke Kampung Gajah, Perak
Method: Install Sand Columns VIA Dynamic Replacement

Construction duration

From: 2012.12
To: 2013.06

Ground Improvement Works

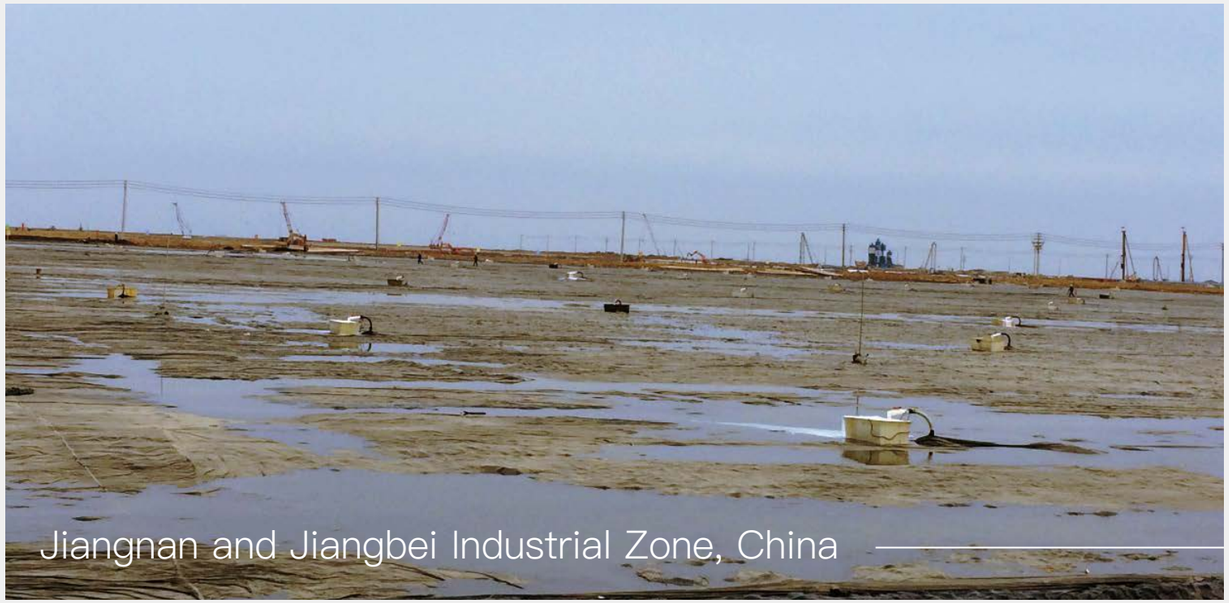
Application case | Industrial Parks

High Vacuum Densification Method(HVDM) was introduced to Hebei Caofeidian Industrial Park. Many construction sites of several hundreds of hectares, including tens of major roads, coal docks, railways, waste water treatment, etc, were treated by using HVDM. It was also reported that this technology saved around one third in cost and one half in time compared to conventional technologies.

Hebei Caofeidian Industrial Park, China

Project Profile
Name: Caofeidian Industrial Zone
Location: Hebei Province in China
Method: HVDM

Construction duration
From: 2006.03
To: 2011.11



Jiangnan and Jiangbei Industrial Zone, China

Shangyu Industrial Zone, China

Project Profile
Name: Jiangnan and Jiangbei Industrial Zone
Location: Anhui Province in China
Method: HVDM

Construction duration
From: 2011.12
To: 2017.04

Project Profile
Name: Shangyu Industrial Zone
Location: Zhejiang Province in China
Method: HVDM

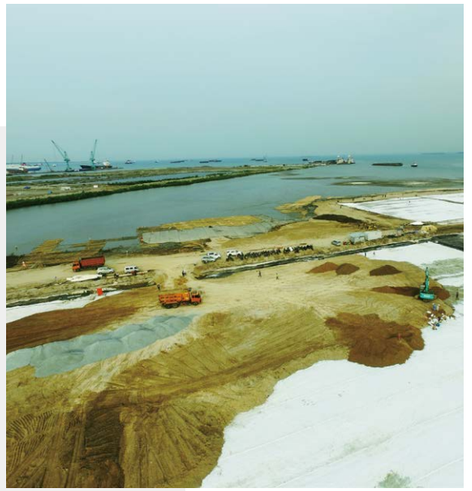
Construction duration
From: 2011.10
To: 2013.12

Ground Improvement Works

Application case | Power Plants

Jawa 7 Power Plant is one of the largest coal fired power plant with 2*1000 MW capacity in Indonesia. The project is located at low land area with a lot of fish pool and swampy area. Vacuum Consolidation method is used to improve the soft clay to help the overall construction period to fulfill the very tight period requirement.

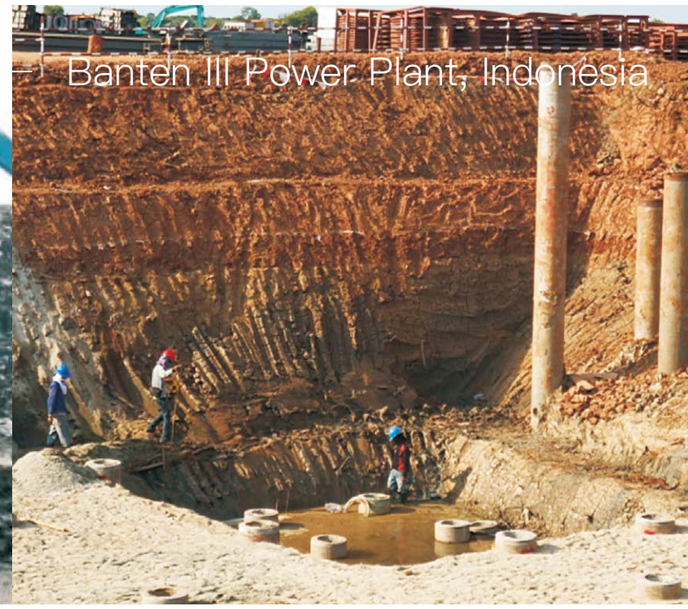
Jawa 7 Power Plant, Indonesia



Project Profile
Name: Jawa 7 Power Plant
Location: Jawa, Indonesia
Method: VCM

Construction duration
From: 2016.05
To: 2017.07

Long Phu 1 Thermal Power Plant, Vietnam



Banten III Power Plant, Indonesia

Project Profile
Name: Long Phu 1 Thermal Power Plant
Location: Soc Trang Province, Vietnam
Method: VCM

Construction duration
From: 2011.05
To: 2013.01

Project Profile
Name: Banten III Power Plant
Location: Banten Province, Indonesia
Method: VCM

Construction duration
From: 2008.01
To: 2010.12

Ground Improvement Works

Application case | Island Construction

PIK Golf Island is the first huge scale reclamation artificial island in Indonesia. The total area was formed is more than 313 hectares. Dynamic compaction and Vibroflotation method are used to compact the loose sand of the whole island.

KOMATSU
KOMATSU

Project Profile

Name: PIK Golf Island
Location: Jakarta, Indonesia
Method: Dynamic Compaction, Vibroflotation

Construction duration

From: 2014.02
To: 2017.08

Project Profile

Name: Soil Improvement Works for The World Islands (The Heart of Europe)
Location: Dubai
Method: Vibro-compaction, Sheet Piling

Construction duration

From: 2016.06
To: 2017.06

Project Profile

Name: Soil Improvement Works for Deira Islands
Location: Dubai
Method: Vibro-compaction

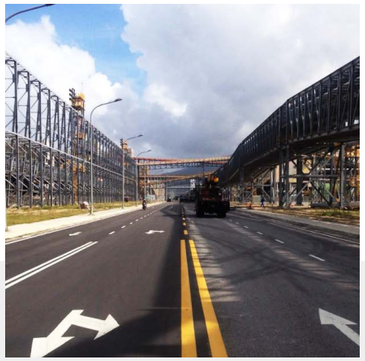
Construction duration

From: 2014.12
To: 2017.10

Ground Improvement Works

Application case | Roads

Formosa Ha Tinh Steel Mill southern part main road project, Vietnam



Project Profile

Name: Formosa Ha Tinh Steel Mill southern part main road project
Location: Ky Anh Ha Tinh Vietnam
Method: Municipal engineering

Construction duration

From: 2013.06
To: 2016.08

Project Profile

Name: Road Project of ONG KEO Industrial Area
Location: Dong Nai Province Vietnam
Method: Municipal engineering

Construction duration

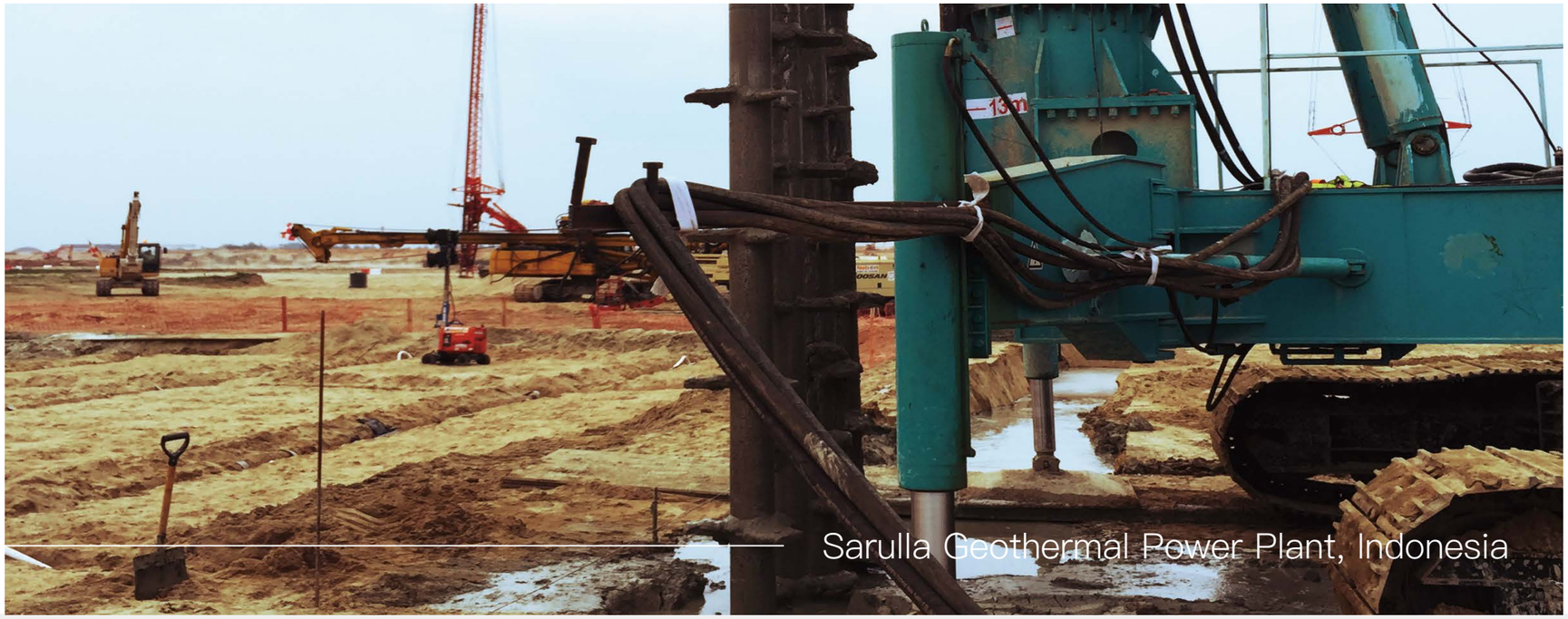
From: 2016.06
To: 2018.03

Road Project of ONG KEO Industrial Area, Vietnam

Ground Improvement Works

Application case | Others

Sarulla Geothermal Power Plant is located beside Toba Lake which was a volcanic in history. The project site contains a lot of Tuff soil which is expansive when meeting water. Deep Cement Mixing method is used to improve the loose Tuff soil for stabilizing the whole backfill area.



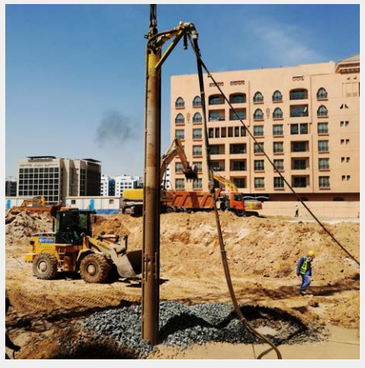
Sarulla Geothermal Power Plant, Indonesia

Project Profile

Name: Sarulla Geothermal Power Plant
Location: Sumatera, Indonesia
Method: Deep Cement Mixing

Construction duration

From: 2015.05
To: 2015.09

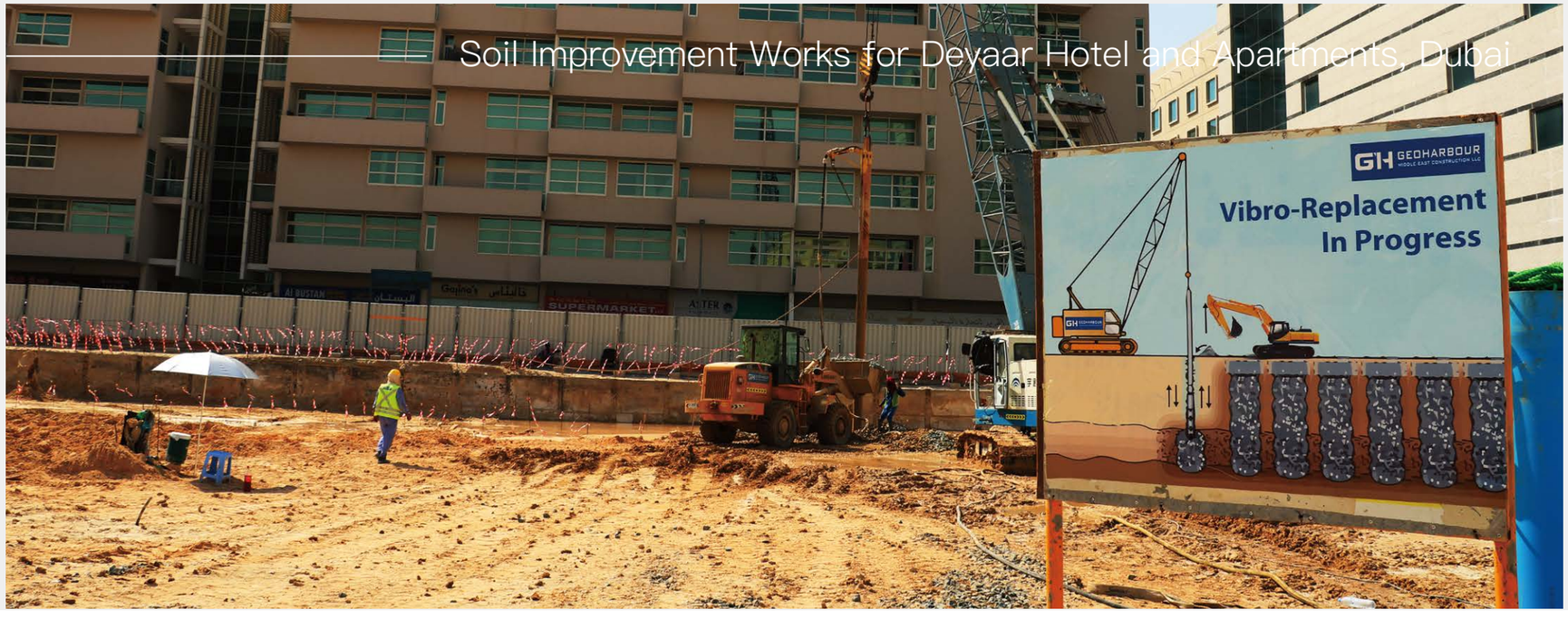


Project Profile

Name: Soil Improvement Works for Deyaar Hotel and Apartments
Location: Dhabi
Method: Stone Column (Vibro Replacement)

Construction duration

From: 2016.05
To: 2016.08



Soil Improvement Works for Deyaar Hotel and Apartments, Dubai

Piling Foundation Works

Application case | Piling

Formosa Ha Tinh Steel Plant project is located in Ha Tinh in the middle of Vietnam, the employer of which is Formosa Ha Tinh Steel Xingye Co., Ltd, and its floor area is 2200 ha. We provide professional service to the employer, such as hydraulic reclamation material sifting evaluation suggestion, soft ground treatment design and construction of more than 500 hectares and pile foundation construction etc.The soft ground treatment covers dynamic compaction, High Vacuum Densification, preloading by vacuum, vibro-floated sand-gravel pile and immersed tube sand compaction pile etc.

Formosa Ha Tinh Steel Mill Furnace area Piling project, Vietnam

Project Profile

Name: Formosa Ha Tinh Steel Mill Furnace area Piling project
Location: Ky Anh Ha Tinh Vietnam
Method: PC

Construction duration

From: 2012.12
To: 2013.12

Project Profile

Name: Bored Piling Works, Kepong 5, UOA GROUP
Location: Kepong, Kuala Lumpur, Malaysia
Method: BP

Construction duration

From: 2016.12
To: 2017.08

Bored Piling Works, Kepong 5, UOA GROUP, Malaysia

Piling Foundation Works

Application case | Piling

It's located in Macau from Taipa Row Angular Path to Cotai East Road, about 3.6KM in length, Including 638 piles, φ1.5 and φ1.2m piles are mainly used with maximum depth of 90m, the piles should be 3–5 meters into the bedrock of which compress strength is 70–175MPa. The piles are constructed by use of whole casing method.

Piles Engineering Project for C360–LRT Phase–1

Project Profile

Name: Cadangan Membina 1 Blok Kompleks 39 Tingkat Komersial Dengan 2 Tingkat Basement
Location: Air Itam, Pulau Pinang, Malaysia
Method: BP

Construction duration

From: 2016.07
To: 2017.06

Cadangan Membina 1 Blok Kompleks 39 Tingkat Komersial Dengan 2 Tingkat Basement

Excavation Works

Application case | Deep Foundation Pit

The area is 45000m² in this project with three storey basements. The general excavation depth varies from 16.2m² to 19.2m², and the maximum depth is up to 24m². The project is located at a soft mud soil layer with a complicated engineering geological condition. Surrounding environment is very complex with many buildings, municipal pipelines near foundation pit. We overcome the constraints of complex surrounding environment conditions and restrictions to make sure excavation displacement is less than 40mm by using diaphragm wall and concrete strut.

Ningbo International Finance Centre, China

Project Profile

Name: Ningbo International Finance Centre
Location: Ningbo City in China
Method: Diaphragm wall and reinforced concrete strut

Construction duration

From: 2009.05
To: 2010.12

Dalian Jiaotong University station in metro line 2, China

Project Profile

Name: Dalian Jiaotong University station in metro line 2
Location: Dalian City in China
Method: Diaphragm wall

Construction duration

From: 2011.05
To: 2014.04

Wuhan Greenland Center, China

Project Profile

Name: Diaphragm wall works in Wuhan Greenland Center
Location: Wuhan City in China
Method: Diaphragm wall

Construction duration

From: 2011.07
To: 2013.11

Slope Protection Works

Application case | Slope Protection

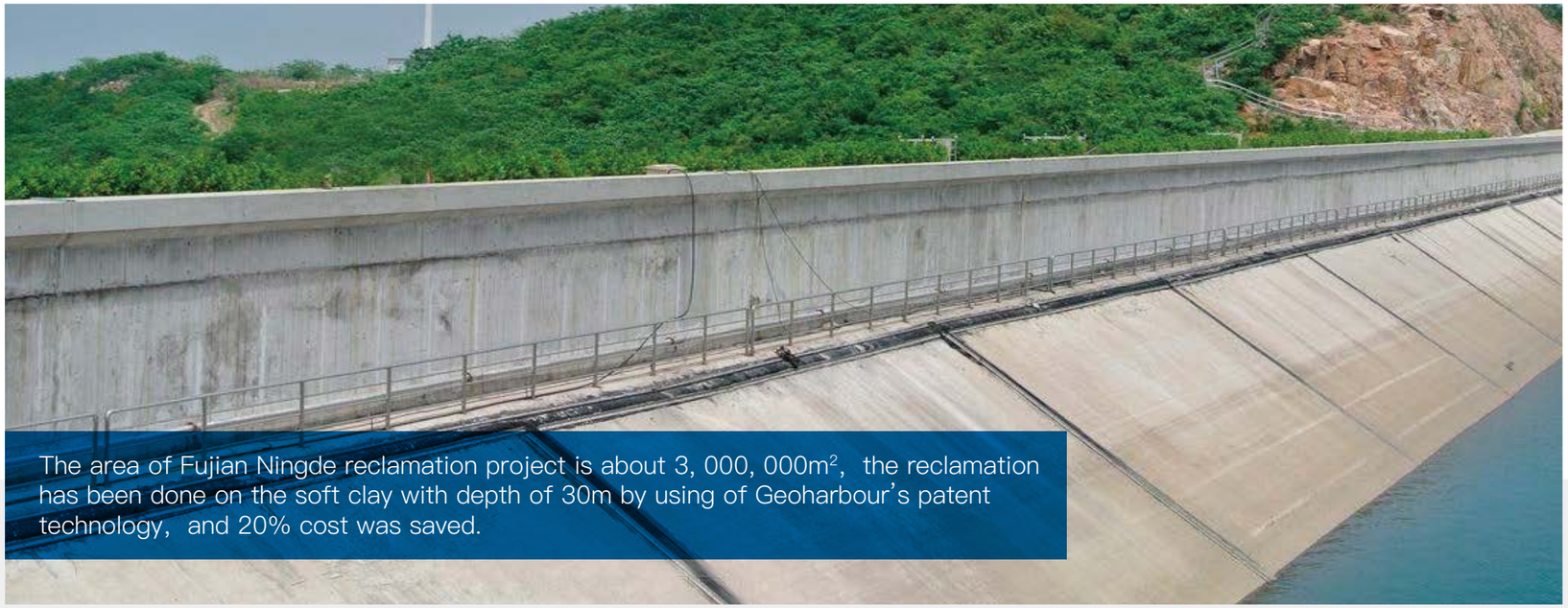
Nan Mountain slope protection for Kai Zhou express way (west section)
Grid beam and anchoring bolt have been used for slope protection, and turf planting used for greenery.

Slope Protection for Xi Shan Power Plant
Grid beam and anchor cable have been used for slope protection.

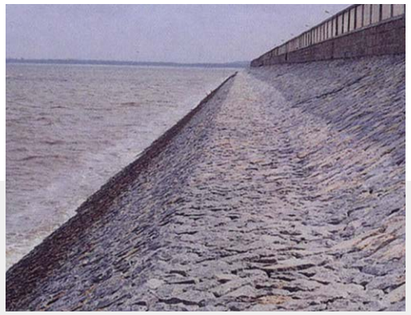
Slope protection for 206 line in Zhang Jia Jie
Concrete spraying and anchor bolt used for slope protection, SNS flexible protective net used to prevent from falling stone.

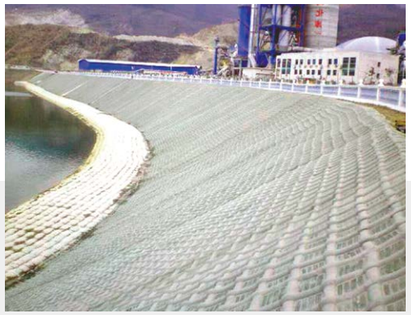
Marine Construction Works

Application case | Reclamation / Harbour Construction



The area of Fujian Ningde reclamation project is about 3, 000, 000m^2, the reclamation has been done on the soft clay with depth of 30m by using of Geoharbour's patent technology, and 20% cost was saved.





We offer the best solution to the clients with suitable trailing suction hopper dredger, cutter suction dredger or grab dredger based on the project requirements, which is guaranteed by our outstanding project managing team.

Major port area of Zhenjiang Port Phase–IV Project introduction: the port consists of two 50000T Container terminals with designed capacity of 600, 000, standard containers per year, and the length of port is 707m.

Company Achievements

Research and Design Institution of Geoharbour is,

- The Directorate institution of the Soft Soil Improvement Technology Committee in China
- Editorial Unit of National Technical Code for Soft Soil Foundation and Dam Engineering in China
- Editorial Unit of the National Technical Code for Chemical Engineering Piperacks and Pipesleepers in China
- Editorial Unit of the National Technical Code for Coral Reef Foundation Treatment in China
- Editorial Unit of the National Technical Code for Foundation Treatment in Indonesia

The World 10th Bogsch Memory Medal
Was given to 10 honorable investors making significant contribution to the world by IFIA.

The WIPO Award for Investors
Is the most important prize for investors given by WIPO.

The Green Invention Glory Medal
Is the most important prize for investors by World Invention Association

Company Certificates

ISO International Standardization

Patent Registration