

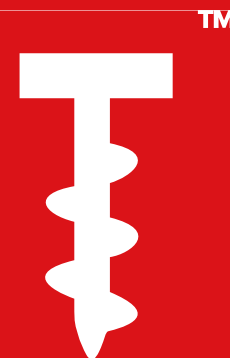
GEOTECHNICA

COMPANY PROFILE

GEO  TECHNICATM



GEOTECHNICA





ABOUT GEOTECHNICA

SOIL/ROCK INVESTIGATION & GEOTECHNICAL TESTING

PILING & DEEP FOUNDATIONS

GEOPHYSICAL INVESTIGATION

MINING ENGINEERING



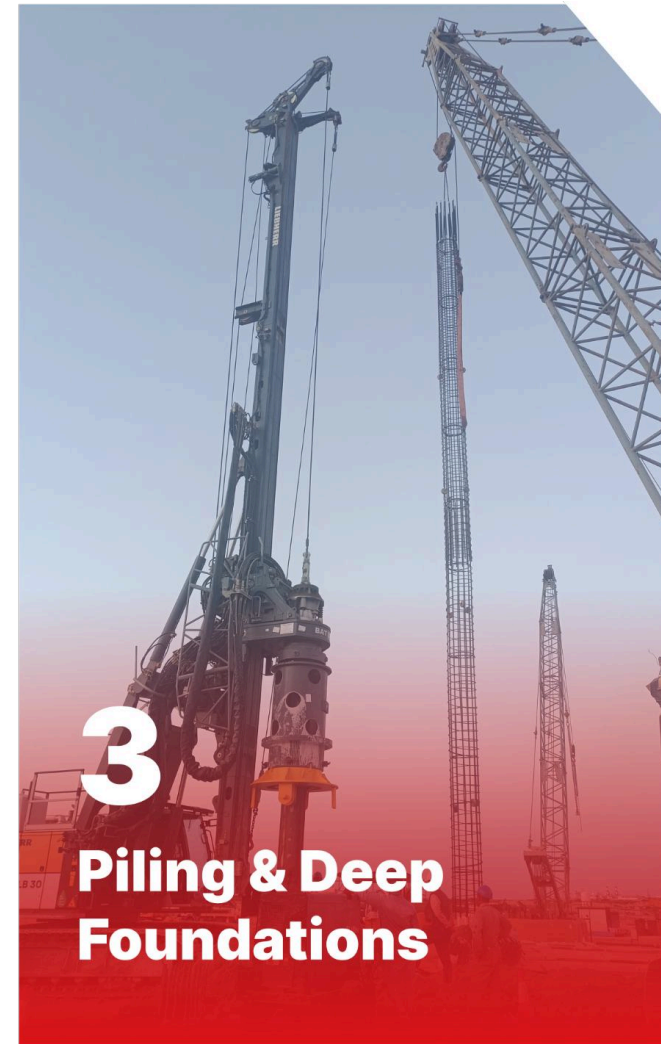
INTRODUCTION – ABOUT GEOTECHNICA

Geotechnica is a specialist provider of geotechnical Pilling, geophysical, and mining engineering services.

Our work covers soil investigation and laboratory testing, bored piling, pile testing, and geophysical surveys including **ERT** (Electrical Resistivity Tomography), **MASW** (Multichannel Analysis of Surface Waves), downhole and crosshole seismic methods.

We also serve in the mining engineering sector, with particular experience in **cement raw materials and other industrial minerals**.

Geotechnica Company is a **Libyan national company, licensed to work under License No. [2024-5362] based in Benghazi, Libya.**



OUR FOUR OPERATING DIVISIONS

1

Soil Investigation & Geotechnical Testing: on-shore and off-shore ground investigation, drilling and sampling, laboratory testing of soil, rock, and concrete, and in-situ field testing.

2

Piling & Deep Foundations: design support, installation of bored and driven piles, and full-scale pile load testing.

3

Geophysical Survey: non-destructive subsurface imaging by electrical resistivity tomography, induced polarization, and surface and borehole seismic methods.

4

Mining Engineering: engineering geological investigation, mining planning, quarry preparation and management, raw material supply, and geo-mining technical assistance.

4

**Mining
Engineering**



SOIL INVESTIGATION GEOTECHNICAL

TION & TESTING



GEOTECHNICA'S SOIL / ROCK INVESTIGATION DIVISION

Determines the ground conditions on which safe, economical design depends. Working from early planning through to construction, we define the soil and rock profile, measure the engineering properties of each stratum, establish groundwater conditions, and report the parameters required for foundation, earthwork, and pavement design.



SCOPE OF SERVICES

- **Planning and execution of site investigation programmes for buildings, industrial plants, and infrastructure.**
- **On-shore and off-shore drilling, boring, and sampling.**
- **Undisturbed and disturbed soil sampling; rock coring.**
- **Laboratory testing of soil, rock cores, and concrete.**
- **In-situ (field) testing, including plate load testing and permeability testing.**

- **Groundwater level monitoring and evaluation of site dewatering requirements.**
- **Compaction and quality control testing for earthworks and fill.**
- **Concrete and construction material testing.**
- **Geotechnical interpretation and reporting, including foundation recommendations and allowable bearing capacity.**



DRILLING AND SAMPLING

The company owns a full range of drill rigs (2 rigs) with all associated equipment for the drilling and sampling of both on-shore and off-shore activities. Off-shore work is carried out from two fully equipped barges.





LABORATOR TESTING

Geotechnica operates its own soil testing laboratory, which is one of the most common engineering tests.



Classification and index testing of soils.



Strength and deformation testing of soils.



Chemical testing of soils to foundation design.

l and material testing laboratory, equipped to conduct
sts on soil samples, rock cores, and concrete



Rock core testing.



**Concrete testing, including
compressive strength.**

**Testing relevant
ion durability.**



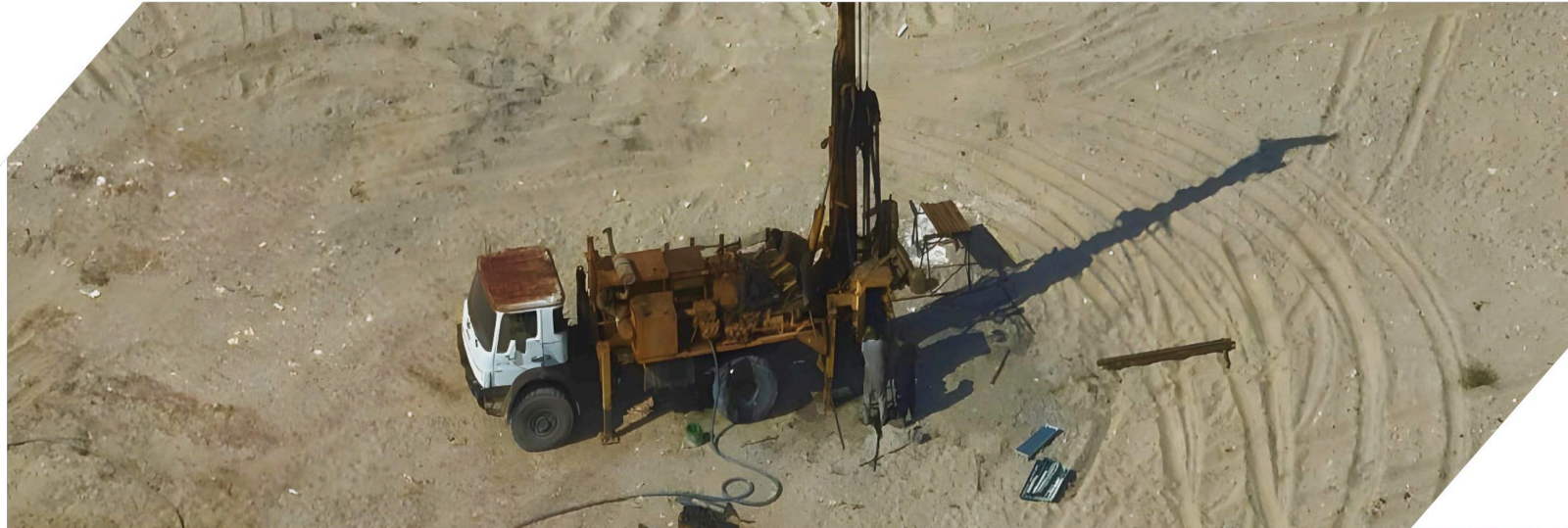
IN-SITU (FIELD) TESTING

The company maintains a complete set of field testing equipment, allowing ground properties to be measured in place and construction quality to be **verified as work proceeds**:

- Plate load test
- Sand cone
- Field gauges for groundwater level and site dewatering evaluation.
- Permeability testing

REPRESENTATIVE EXPERIENCE

The company has completed over 20 projects nationwide. Representative soil investigation **experience includes**:



- Site investigation and soil evaluation for the Tosyali Sulb steel plant, Benghazi

- **Benghazi Cement Plant (Sinoma CDI)**



PILING & DEEP FOUNDATION

EP
NS

COMPANY
PROFILE



PILING & DEEP FOUNDATIONS

Geotechnica's piling services focus on creating **strong and stable foundations** for all types of structures, including residential, commercial, and industrial buildings.

Our foundation solutions are designed to ensure structural integrity, durability, and long-term performance, **whatever the size or complexity of the project.**



SCOPE OF SERVICES

1

Site evaluation and foundation assessment prior to piling.

2

Pile design and engineering, in coordination with the client's design team using 3D plaxis.

3

Installation of bored piles in diameters of 60, 80, 90, 100, and 120 & 150cm.

4

Belled (under-reamed) pile bases using an expanded 60° auger.

5

Piling through obstructions and rock using rock breaker.

6

Concreting by tremie pipe, with temporary steel casing where required.

7

Static pile load testing up to 1,600 tons.

8

Pile caps, rafts, and associated foundation works.

9

Driving piles & sheet piles using diesel hammer (Vibrator).



DIVISION EQUIPMENT AND RESOURCES

PILING RIG

1 Bauer / 2 Liebherr BG30 with augers and buckets of 60, 80, 90, 100, 120 and 150cm diameter



ANCILLARY TOOLING

Compatible steel casings, expanded 60° auger for bell-shaped shaft base, rock breaker, tremie pipes



DRIVING HAMMER

Kobe diesel hammer, model K25



PILE LOAD TEST SYSTEM

4 hydraulic jacks (400 tons each), pumps, steel beams, and monitoring devices — up to 1,600 tons test load





REPRESENTATIVE EXPERIENCE

TOSYALI SULB STEEL PLANT

BENGHAZI

Execution of 1,220 piles for Toysali Sulb steel Plant in Benghazi, Libya. It is one of the Major projects in Libya consist of towers ranging from 160 m to 42 m high.



160m

**high reduction furnace covering
an area of 32 m × 51 m**

65m

**high oxygen plant
tower**

45m

**high flue gas
stack**

42m

**high natural gas
flare**



GEOPHYSICAL SURVEY

AL



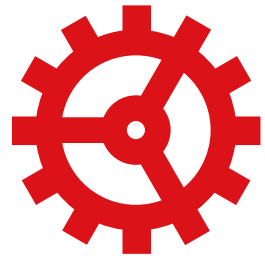
GEOPHYSICAL INVESTIGATION

The department is equipped with **state-of-the-art Electrical Resistivity Tomography (ERT)**, Induced Polarization (IP), seismic refraction, seismic reflection, **MASW (Multichannel Analysis of Surface Waves)**, downhole and crosshole seismic methods.



COMPANY
PROFILE





CORE SERVICES

Electrical methods.

Electrical Resistivity Tomography (ERT).

Vertical Electrical Sounding (VES).

Induced Polarization (IP) surveys.

Seismic methods.

Seismic refraction and seismic reflection.

Multichannel Analysis of Surface Waves (MASW).

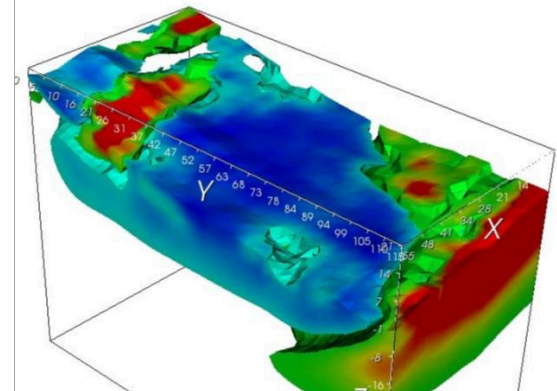
Downhole and crosshole seismic testing.

Seismic tomography.

DIVISION **EQUIPMENT** AND RESOURCES

1 SYSCAL PRO SWITCH 72 – ELECTRICAL RESISTIVITY TOMOGRAPHY (ERT) AND INDUCED POLARIZATION (IP) :

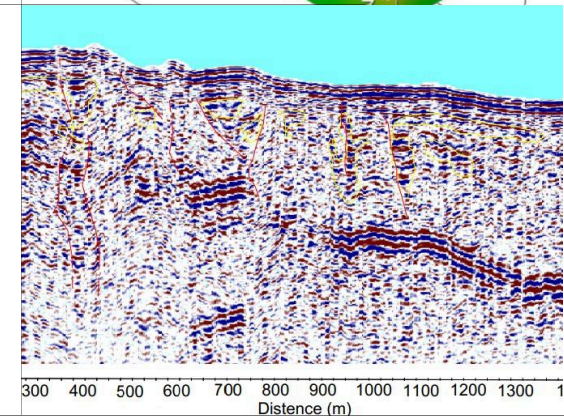
The SYSCAL Pro Switch 72 is a high-performance multi-electrode resistivity and induced polarization imaging system designed for 2D, 3D, and 4D investigations.



2 ABEM Terraloc Pro 2 Seismic System with Borehole Seismic Accessories

The ABEM Terraloc Pro 2 is a modern seismic acquisition system designed for **high-resolution engineering** and geological investigations.

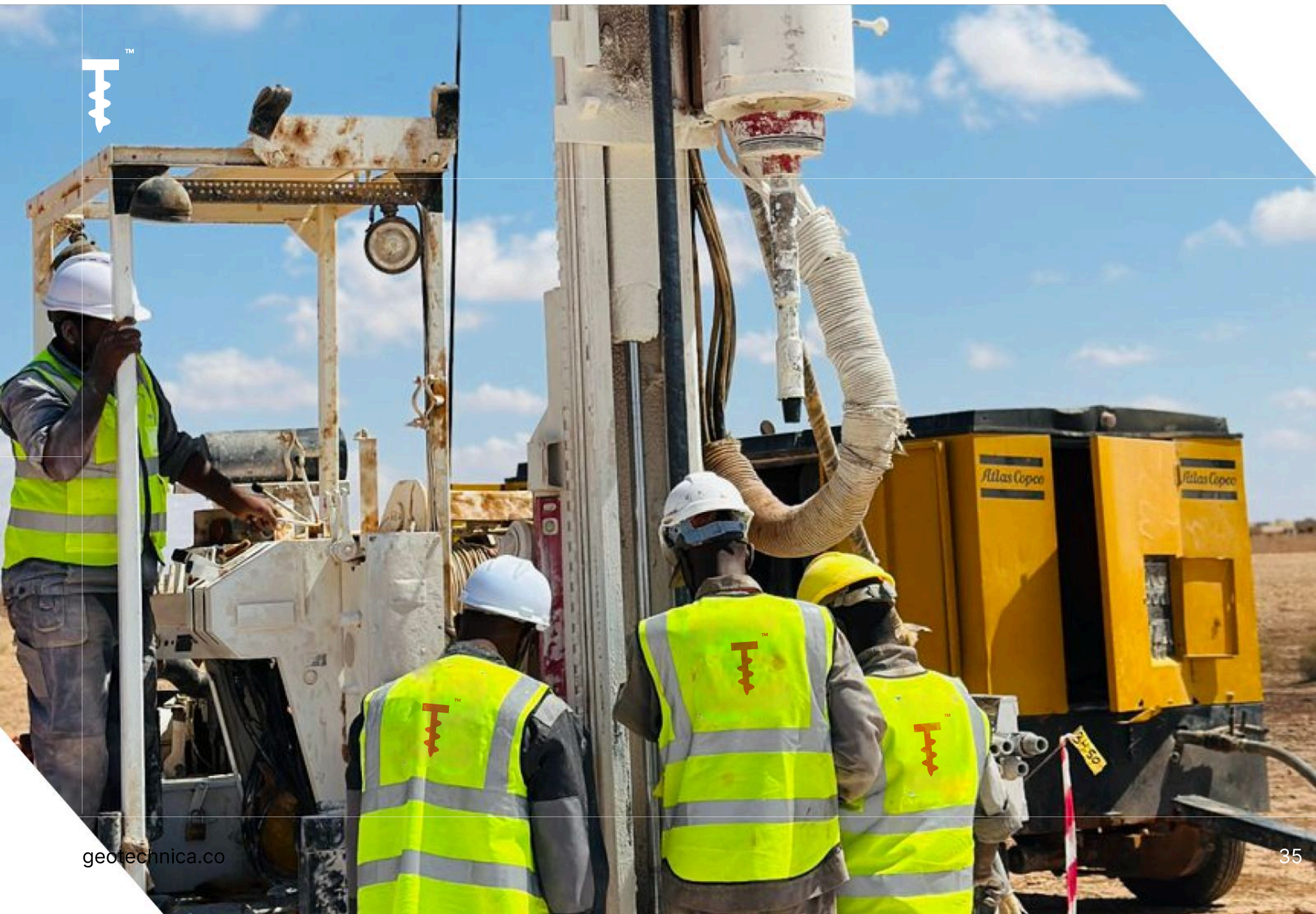
The system supports both surface and borehole seismic applications required for **advanced borehole investigations**.





MINING ENGINEERING

G

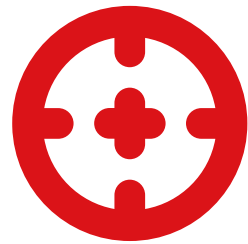




MINING ENGINEERING

Geotechnica's mining engineering Division serves the extractive industry, from first exploration borehole through to a producing, well-managed quarry.

The division is staffed by a carefully selected team qualified in geology and mining, and works across limestone and aggregate quarries, industrial minerals, and mineral exploration.



SCOPE OF SERVICES

Geological investigation.

Quarry preparation, operation, and management.

Raw material supply.

Geo-mining technical assistance.

Mining planning.

GEOLOGICAL INVESTIGATION AND EXPLORATION DRILLING

- 1 Geological mapping and reconnaissance of the deposit and its surroundings.**
- 2 Exploration and core drilling in rock, with continuous core recovery.**
- 3 Geological logging of cores and preparation of stratigraphic sections.**
- 4 Sampling and laboratory testing of rock for quality and suitability.**
- 5 Petrographic and thin-section examination.**
- 6 Definition of overburden thickness, seam boundaries, and waste-to-ore ratio.**



MINING PLANNING AND RESOURCE MODELLING

Exploration data is built into a three-dimensional geological model of the deposit, from which reserves are estimated and the extraction sequence is planned:

- **3D geological block modelling** of seams and lithological units.
- Reserve and resource **estimation**.
- **Pit and bench design**, and definition of the extraction sequence.
- **Life-of-quarry planning** and production scheduling.
- **Waste and overburden** management planning.
- **Slope stability** assessment for quarry faces and benches.

COMPANY PROFILE





QUARRY PREPARATION, OPERATION, AND MANAGEMENT

The division prepares new quarries and manages producing ones, whether as operator or as technical manager on behalf of the owner:

- **QUARRY SITE PREPARATION, ACCESS, AND INFRASTRUCTURE LAYOUT.**
- **DRILLING AND BLAST DESIGN, INCLUDING EXPLOSIVE QUANTITIES, BURDEN AND SPACING, AND DELAY SEQUENCE.**
- **SUPERVISION AND RECORDING OF BLASTING OPERATIONS, WITH BLAST-BY-BLAST REPORTING OF BLASTED VOLUME AND TONNAGE.**
- **MONITORING AND CONTROL OF DAILY PRODUCTION AND TRANSPORTED TONNAGE.**



LIMESTONE EXPLORATION
14/10 BOREHOLES
Al-Bayida, Al-Magrun area quarry studies



LIMESTONE EXPLORATION
80 BOREHOLES
Jardian Cement Plant quarry study



COMPANY
PROFILE

INFO@GEOTECHNICA.CO

GEOTECHNICA.CO