

GEOTEC SPA

SOIL INVESTIGATIONS & LAND SURVEYING

COMPANY PRESENTATION

www.geotecspa.com



MANAGEMENT SYSTEMS CERTIFICATIONS

Geotec SpA prides itself on the high standards it has achieved.



MANAGEMENT SYSTEM STANDARDS

UNI EN ISO 9001:2015

UNI ISO 45001:2018

UNI EN ISO 14001:2015

EMAS Environmental Management System

SA8000 Corporate Social Responsibility

SOA: Italian Public Works Certification

for the following categories

OS20B cl. VIII - OS20A cl. IIIbis - OS21 cl. II

OUR PARTNERS



OUR MEMBERSHIPS



ABOUT US AND WHAT WE DO

Geotec S.p.A. , known as TPS in 1974, has been working for 35 years primarily in the geophysical industry.

Founded in 1986, GEOTEC SPA (formerly known as TPS in the 70's & 80's) has been working primarily in the geophysical industry providing surveying, drilling, recording services to public authorities and private companies in the O&G for over 35 years. In 1996 GEOTEC SPA took over Discovery Geophysical Services S.p.A., a company founded in 1991 by the Experimental Geophysical Observatory of Trieste. The merger between the two companies in 2005 set an important milestone for GEOTEC SPA making it a main player in the provision of the complete seismic acquisition services in the Industry.

Over the last 15 years GEOTEC SPA extended its field of activity to the civil engineering sector and is actively involved in the field of geotechnical & geophysical investigation, topographical surveys, geotechnical, geometric and structural monitoring for major and minor infrastructure projects in Italy and Europe by providing Clients with a complete service from the feasibility stage, through the investigation and design phases, to the final project completion.

MISSION

Create wealth and add value by optimizing the discovery and development of natural resources, water and geological knowledge.

VISION

To be chosen by large, important groups for complex geological studies, for both mining and scientific purposes.

Looking at becoming the best.

strictest safety standards allow us to obtain the best sustainable performance.

VALUES

- The well-being and satisfaction of our people, their safety, enthusiasm, and social integration.
- Protection and respect for the environment.
- Innovation and development, customer satisfaction, the desire to do well.

Our passion for technical innovation and our compliance with the strictest safety standards allow us to obtain the best sustainable performance.

OUR OFFICE LOCATIONS


Geotec S.p.A.'s headquarters are located in the Molise region, in the city of Campobasso, a strategic position in central Italy.

An area of 20,000 sq. metres houses the administrative and technical offices, laboratories, a mechanical workshop and a warehouse for the storage of equipment and vehicles.



HEADQUARTERS

- **Campobasso Italy**
Via Giuseppe Barbato, 20

 +39 0874 481868

 info@geotecspa.com

 www.geotecspa.com

BRANCHES

- **Varna/Vahrn Italy**
Via Isarco Eisackstraße, 1
- **Albania**
Rruga Abdyl Frasherit, 31 Tirana
- **British Columbia Canada**
1200 - 1075 - West Georgia Street Vancouver BC V6E3C9
- **Ontario Canada**
199 Bay Street, Suite 2200, Toronto M5L1G4
- **DGS GEOTEC MEPE - 3 Athens, Greece**
Stratigou Tombra Str. Aghia Paraskevi 153 42



PERSONNEL

1

Skills and abilities

Geotec's staff is highly qualified with many years of experience. Members of the staff include environmental engineers, building engineers, electrical and electronic engineers, geologists, architects and surveyors.

2

Skills development

Staff is fully involved in company activities and are continuously trained and updated on all aspects of their job which is aimed primarily at improving the Quality of the services provided.

3

Safety of employees

Geotec pays particular attention to the protection of workers' health and safety, through the use of preventive rather than proactive measures and by enforcing health and safety legislation. The safety of employees is very important to Geotec management.

SEISMIC SURVEYS

Geotec S.p.A. has a solid experience and can offer high resolution 2D and 3D seismic acquisitions aimed at geophysical research for the O&G Industry, geothermal exploration or scientific research.

Geotec S.p.A. is a leader when carrying out geophysical surveys using the 2D/3D seismic reaction method especially in mountainous and very challenging areas where helicopter support is necessary. It is equipped with the most up to date, high-tech equipment and has at its disposal a vast fleet of vehicles (over 230) operated by experienced personnel.





MAIN CLIENTS

Over the years Geotec S.p.A. has been involved in very important scientific field experiments, studies and geophysical surveys providing a unique opportunity to investigate geological, geophysical, hydrological and microbiological properties of the earth's upper crust and projects regarding CO2 storage such as:

TRANSALP

CROP project (CROSTA PROFONDA)

CNR – "Consiglio Nazionale delle Ricerche" (National Research Council)

IFP – French Institute of Petroleum

OGS – "Istituto Nazionale di Oceanografia e Geosica Sperimentale" - National Institute of Oceanography and Experimental Geophysics

TNO The Netherlands Organization for Applied Scientific Research and Imperial College London, as well as other Italian Universities.

SEIZE- Ivrea-Verbano (2020)

INGV- Gubbio (2021)

ENI, SHELL, TOTAL, SARAS, EDISON, OMV, ENEL, SNAM RETE GAS, are just some of the prestigious national and international companies for which Geotec S.p.A. provides services.

GEOTECHNICAL INVESTIGATIONS

Geotec performs ground and geotechnical investigations; Geotec specializes in carrying out deep boreholes for mining and tunneling.

GEOTEC SPA provides a broad range of geotechnical engineering services for Italy's and foreign major geotechnical projects. Our engineers and geologists are experienced in evaluating general and site-specific data to determine the most cost effective means to investigate rock masses and soils in order to design foundations, structures, slope remediation, tunnels etc. The core drillers are highly qualified and have vast experience acquired onsite through their involvement in major geotechnical field-campaigns from high speed railways to motorway structures, tunneling, hydropower plants design, residential engineering etc. Our know-how, along with multiple years of experience and a vast vehicle fleet, puts Geotec at the top of the market.

Geotec S.p.A. has the equipment and personnel to collect undisturbed soil samples and to carry out Standard Penetration Tests S.P.T., to assess permeability values through packer testing, constant and variable head testing. Our capability for seismic down-the-hole testing allows to achieve data up to 200 meters in depth.

Geotec uses the DAC TEST method (all drilling rigs are already equipped) to measure the drilling parameters while drilling and it's the only Italian company capable of reaching a depth of 1200m using the wire-line technique.





***Geotec Spa have been engaged in the following
major geotechnical and ground investigations projects***

Brenner Base Tunnel
Verona Munich high speed railway
Naples-Bari high speed railway
Milano Genova high speed railway
Palermo Catania high speed railway
Construction of the Genoa Saint George Bridge (ex Morandi Bridge)
Messina Catania railway
Follo Line Project Norway
Construction of a Sub-Sea Tunnel between Malta and Gozo

Geotec S.p.A. carries out geotechnical and geophysical investigations and can provide a wide range of services including:

CONVENTIONAL CORING METHODS

- Core drilling
- Rotary drilling and open hole drilling with the direct circulation of fluids/air.
- Rotary drilling and open hole drilling with reverse circulation of fluids/air.



Casagrande M3D – Geotechnical investigations (depth 80 m incl. 45°)

WIRE LINE CORING METHODS

- Core drilling
- Rotary drilling and open hole drilling with the direct circulation of fluids/air.
- Rotary drilling and open hole drilling with reverse circulation of fluids/air.



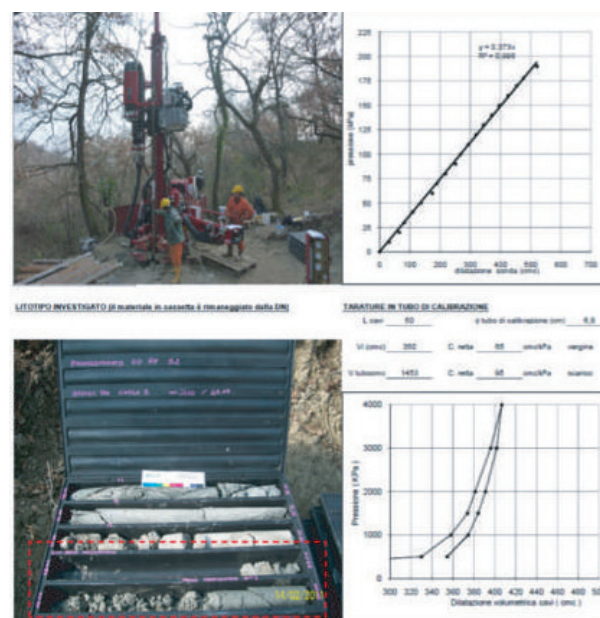
EGT VD 315 – Slim Hole diamond coring for geothermal exploration – (depth 700 m)



Drillmec G25 Scientific coring project (1000 mt. depth)

During drilling Geotec S.p.A. can monitor/measure the angle and the direction of drilling using an inclinometer, this way data and parameters indicated by the client are continuously observed. Geotec S.p.A. has the technical ability and the organizational skills to guarantee geotechnical investigations even in challenging areas with limited access.

-
- The figure consists of three charts illustrating the relationship between pressure and permeability for different grades of material.
- Top Left Chart: Pressione effettiva vs. Permeabilità (T/m²)**
- This bar chart shows the permeability (T/m²) for five different grades of material (grado 1 to grado 5) across a range of effective pressures (0 to 50). The permeability generally increases with pressure, with higher grades showing higher permeability values.
- | Pressione effettiva (T/m²) | grado 1 | grado 2 | grado 3 | grado 4 | grado 5 |
|----------------------------|---------|---------|---------|---------|---------|
| 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
- Top Right Chart: Unità Lugeon vs. Permeabilità (T/m²)**
- This bar chart shows the permeability (T/m²) for five different grades of material (grado 1 to grado 5) across a range of Lugeon units (0.00 to 0.20). The permeability generally increases with Lugeon units, with higher grades showing higher permeability values.
- | Unità Lugeon | grado 1 | grado 2 | grado 3 | grado 4 | grado 5 |
|--------------|---------|---------|---------|---------|---------|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
- Bottom Chart: Pressione - Portata**
- This line graph shows the relationship between pressure (T/m²) and permeability (T/m²) for five different grades of material (grado 1 to grado 5). The permeability generally increases with pressure, with higher grades showing higher permeability values.
- | Pressione (T/m²) | grado 1 | grado 2 | grado 3 | grado 4 | grado 5 |
|------------------|---------|---------|---------|---------|---------|
| 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |



Abbassamenti (m) - tempo(s)

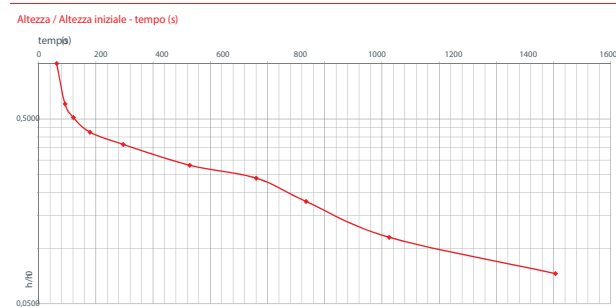
tempo (s)	abbassamento (m)
0	0.00
50	0.50
100	1.00
150	1.50
200	2.00
250	2.50
300	2.80
400	3.10
600	3.40
800	3.60
1000	3.80
1200	4.00
1400	4.50

Permeabilità media K (m/s)

$$K = \frac{1800}{c_u} \cdot \left(\frac{A}{t_2 - t_1} \right) \left(\frac{h_1}{h_2} \right)$$

4,552E-05

Livello base acqua (m)	3,80
Diametro del foro (m)	0,127
Profondità foro (m)	18,00
Area di base del foro A (m²)	0,0127
Profondità rivestimento (m)	17,00
Lunghezza tratto filtrante L (m)	1,00
Sorgenza testa rivestimento (m)	1,00
Livello stab. acqua da boccaforno (m)	0,00
Coefficiente di forma	1,00



TIDAL FLUXES

Water Level (m)

Time (h)

PROPOSED METHOD

REFERENCE METHOD

TIDAL FLUXES DIFFERENCE

Difference (m)

Time (h)

TIDAL FLUXES

Water Level (m)

Time (h)

PROPOSED METHOD

REFERENCE METHOD

TIDAL FLUXES DIFFERENCE

Difference (m)

Time (h)

VERTICAL FLUXES

Flux (m³/s)

Time (h)

PROPOSED METHOD

REFERENCE METHOD

VERTICAL FLUXES DIFFERENCE

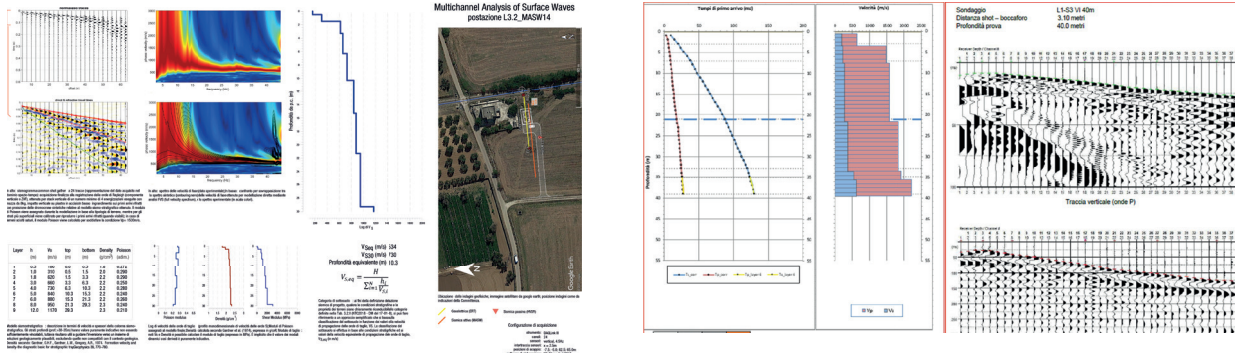
Difference (m³/s)

Time (h)

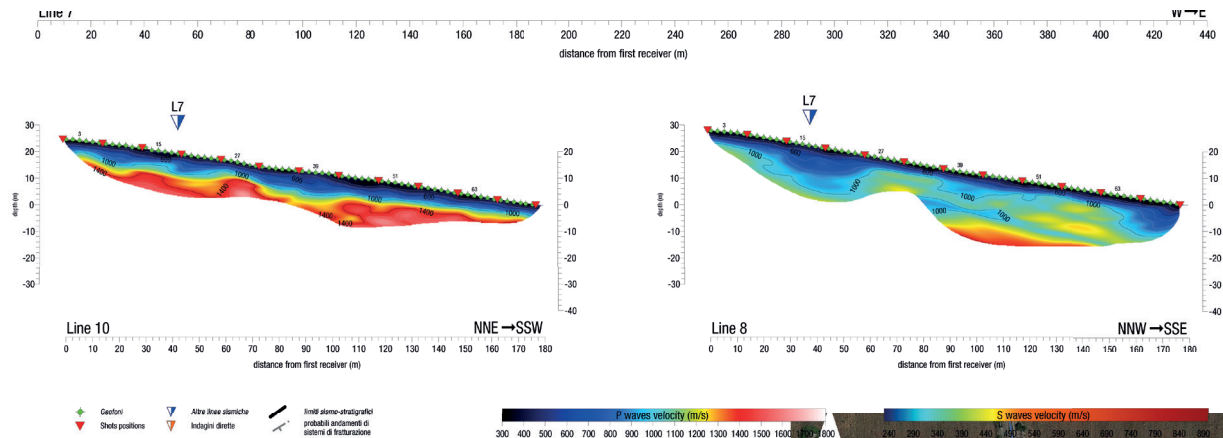
Hydraulic fracturing

NEAR SURFACE GEOPHYSICS

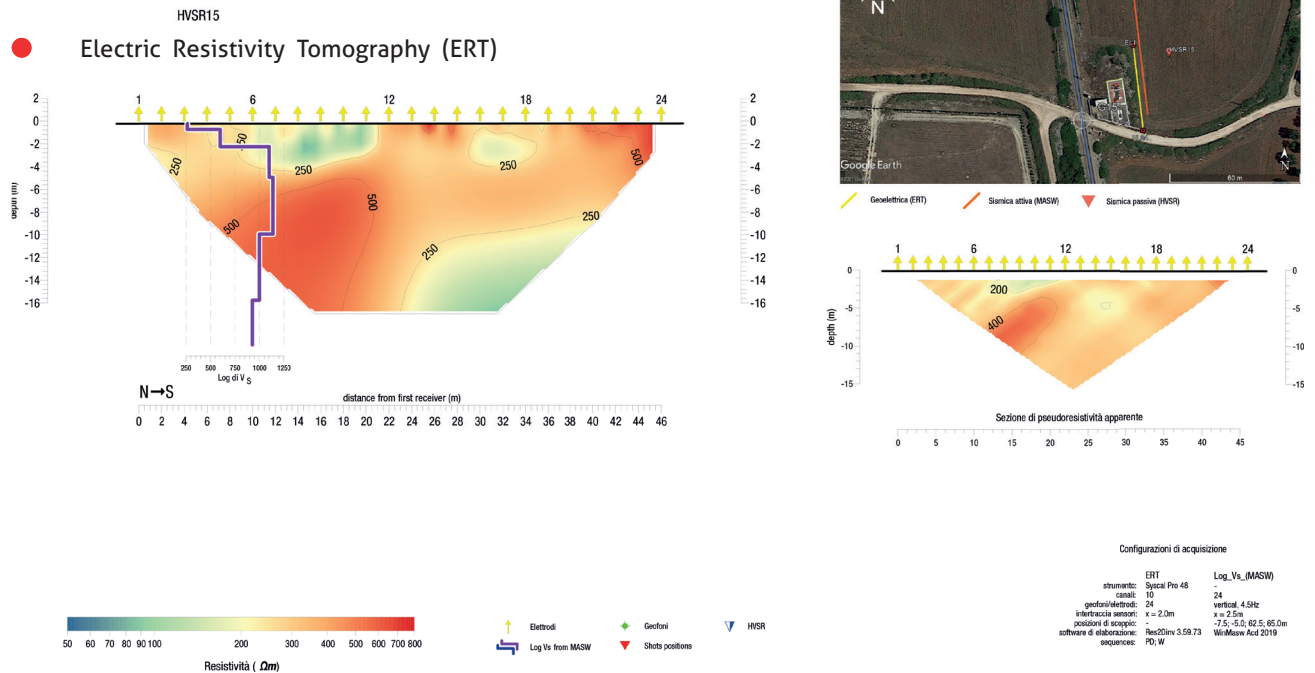
Multichannel Analysis of Surface Waves



Seismic Refraction Tomography (SRT) - P WAVES



Electric Resistivity Tomography (ERT)



GEOPHYSICAL BOREHOLE LOGGING

OPTICAL TELEVIEWER

The optical televiewer log (OPTV) generates a 360° image of borehole or well walls with a resolution of millimetres. Through the oriented images you can carry out the following analysis:

- Detailed geomechanical analysis of the rock mass (orientation, geometry and real conditions of fractures, RQD)
- Analysis of concrete
- Paleoclimatical analysis
- Archeological analysis
- Inspection of piezometers and wells.

The optical televiewer (OPTV) performs both in dry and clear water conditions up to temperatures of 50° C and pressures of 200 bar, it gives information about dip and azimuth of the borehole furthermore it allows accurate analysis of the geomechanical properties of the rock mass.

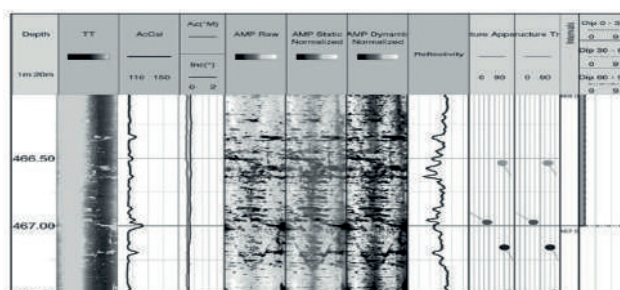
CALIPER LOG (CM)

The mechanical caliper (CM) measures the diameter of the borehole or well.

It registers the following information:

- Cavities
- In situ stress measurements of rocks
- Changing lithologies
- Hydrogeology
- Well/borehole conditions and monitoring the state of the casing.

The mechanical caliper (CM) operates with or without water inside the borehole.



ACOUSTIC TELEVIEWER

The acoustic televiewer (BHTV) generates an image of borehole or well walls transmitting ultrasound impulses.

With the oriented images you can carry out the following analysis:

- Detailed geomechanical analysis of the rock (orientation, geometry and real conditions of fractures, RQD)
- High resolution determination of the diameter of the borehole
- Indications to the tensional state of the rock mass
- Analysis of cementing of a pipe or pole
- Analysis of concrete
- Paleoclimatical analysis
- Archeological analysis
- Inspection of piezometers and wells.

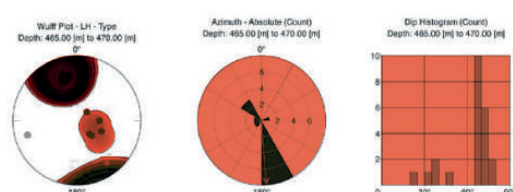
The acoustic scanner (BHTV) needs wet conditions (presence of fluid) inside the borehole, it operates with temperatures up to 70°C and pressure of 200 bar. It gives information about dip direction and azimuth of the borehole furthermore it allows accurate analysis of the geomechanical properties of the rock mass furthermore it allows accurate analysis of the geomechanical properties of the rock mass.

FLOWMETER (MM)

This logging probe (Mn) moves constantly up and down an impeller flowmeter measuring vertical fluid movement inside the borehole.

Water inflow or outflow inside the well or the borehole cause a change in the velocity of the impeller.

- Determination of water entry or outlet inside wells or piezometers
- Design of wells
- Pumping tests.



GAMMA RAY LOG (GR)

The gamma ray log (GR) measures the natural radioactivity of rock formations.

It gives information about:

- Lithology
- Presence of shale beds or evaporites inside rock formations
- Presence of bentonite
- Sedimentary sequences
- Stratigraphic correlations between boreholes.

The gamma ray log (GR) operates with or without the presence of water.

RESISTIVITY NORMAL (16"N-64"N) /SPONTANEOUS POTENTIAL LOG

The normal resistivity log or spontaneous potential (RS) works on the basis of electrolytic conductivity.

The normal resistivity log gives information about:

- Lithology
- Porosity and pressuring in deep boreholes and well
- Quality of fluids in rock formations.

The log needs the presence of a fluid to operate.

FULL WAVE SONIC AND INSPECTION OF CEMENTING (CBL)

The full wave sonic log (FWS) operates with an acoustic signal propagating in rock formations and can be compared to seismic vertical logs inside boreholes or wells.

The results of this log allow the following analysis:

- Vp and Vs waves of the investigated medium (rock or concrete)
- Cementation control of metal/PVC casings
- Information about fractures, porosity, elastic properties and type of crossed medium.

The log needs a fluid inside the borehole and can operate with temperatures up to 70°C and pressures of 200 bar.

GEOPHYSICAL MONITORING

Measurements of the vibrations inside the borehole and on the surface with geophones and triaxial accelerometers.

The vibrations induced by means of explosives or mechanical machines on architectural constructions and infrastructures (e.g. dams, railway, tunnels) are measured.

Field of application:

- Demolition, Quarries, Tunnels.

GEOSTRUCTURAL, HYDROGEOLOGIC AND GEOPHYSICAL MONITORING, DESIGN AND INSTALLATION

Field of application:

- Monitoring of landslides
- Monitoring of rock masses
- Geotechnical monitoring
- Structural monitoring
- Mining monitoring
- Monitoring of open pit and quarries
- Hydrogeological monitoring
- Geothermal monitoring
- Environmental monitoring
- Seismic monitoring
- Control of drillings.

Geostrutctural Monitoring

Collection and automatic or manual storage of data for controlling shallow or deep movements along rock slopes or soil slopes and of civil constructions. Rotation and dip.

- Settlement
- Deformation in rocks, soil and concrete
- Load and pressure
- Tension rods and anchorages
- Strain and stress
- Temperature.

HYDROGEOLOGICAL MONITORING

Measurements of river and creek discharges, measurement of groundwater table, pore pressure, measurement of physical parameters of fluids.

- Measurements with tracers: salt NaCl,
- Fluorescence tracer (uranin), rhodamine
- Automatic measurements for controlling
- Pumping tests
- Control measurements of wells
- Measurements for geothermic exploration

TEMPERATURE AND CONDUCTIVITY

The multiparameter log (TC) measures the physical parameters of fluids. This are the fields of application:

- Hydrogeological, geothermic studies in boreholes or wells
- Quantication of water entries or outlets in wells or piezometers
- Design of wells for the determination of lter sections
- Determination of anomalies of the geothermic gradient
- Presence of different fluids inside the well or the borehole
- Measurement of temperature during cementing of casings.

DRILLING RIGS



Model: *EK 650 CAN – ELLETTARI*
 Type of vehicle: *SAME 130 HP 4x4 wheeled tractor*
 Strokes of rotary head: *3600 mm*
 Pull out: *5000 kg*
 Push in: *5000 kg*
 Maximum winch strength: *500 kg*
 Rotation speed: *0-250 rpm*
 Maximum torque: *650 kgm*
 Equipped with: *mud pump, tilting head.*
 Number of rigs available: *15*
 Use: *Traditional methods*
 Max depth: *Coring 140 mt., destructive 200 mt.*



Model: *DRILLMEC G25*
 Type of vehicle: *ASTRA 6x8 TRUCK*
 Strokes of rotary head: *6800 mm*
 Pull ut: *24000 kg*
 Push in: *10000 kg*
 Maximum winch strength: *24000 kg*
 Rotation speed: *0-750 rpm*
 Maximum torque: *1350 kgm*
 Equipped with: *mud pump, tilting head, optional rotary head with reverse fluid circulation (1700kgm x 60rpm), 1200mt. wireline winch*
 Number of rigs available: *1*
 Use: *Wire line method/diamond core drilling*
 Max depth: *PQ, 1000 mt. HQ, 1700 mt. NQ, 2500 mt.*



Model: *CASAGRANDE C8*
 Type of vehicle: *Crawler drilling rig*
 Strokes of rotary head: *8000 mm*
 Pull out: *12000 kg*
 Push in: *7850 kg*
 Maximum winch strength: *2000 kg*
 Rotation speed: *0-1000 rpm*
 Maximum torque: *920 kgm*
 Equipped with: *wireline winch*
 Number of rigs available: *1*
 Use: *Wire line method/diamond core drilling*
 Max depth: *PQ, 500 mt. HQ, 800 mt. NQ, 1200 mt.*



Model: *EGT VD 315*
 Type of vehicle: *Crawler drilling rig*
 Strokes of rotary head: *3400 mm*
 Pull out: *12000 kg*
 Push in: *10000 kg*
 Maximum winch strength: *1500 kg*
 Rotation speed: *0-600 rpm*
 Maximum torque: *1000 kgm*
 Equipped with: *Dac test, wireline winch, rotopercussion*
 Number of rigs available: *1*
 Use: *Wire line method/diamond core drilling*
 Max depth: *PQ, 400 mt. HQ, 700 mt. NQ, 1000 mt.*



Model: *EGT VD 700*
 Type of vehicle: *Crawler drilling rig*
 Strokes of rotary head: *3400 mm*
 Pull out: *12000 kg*
 Push in: *10000 kg*
 Maximum winch strength: *1500 kg*
 Rotation speed: *0-600 rpm*
 Maximum torque: *1000 kgm*
 Equipped with: *Dac test, wireline winch, rotopercussion*
 Number of rigs available: *1*
 Use: *Wire line method/diamond core drilling PQ,*
 Max depth: *400 mt. HQ, 700 mt. NQ, 1000 mt.*



Model: **GEOMARC GM1000**
 Type of vehicle: **Crawler drilling rig**
 Strokes of rotary head: **3400 mm**
 Pull out: **11000 kg**
 Push in: **6000 kg**
 Rotation speed: **0-520 rpm**
 Maximum torque: **1000 kgm**
 Equipped with: **wire line equipment**
 Number of rigs available: **1**
 Use: **Wire line method/diamond core drilling**
 Max depth: **PQ, 400 mt., HQ, 700 mt. NQ, 1000 mt.**



Model: **GEOMARC GELMA1**
 Type of vehicle: **Crawler drilling rig**
 Strokes of rotary head: **3400 mm**
 Pull out: **5500 kg**
 Push in: **4000 kg**
 Rotation speed: **0-500 rpm**
 Maximum torque: **600 kgm**
 Equipped with: **wireline equipment**
 Number of rigs available: **1**
 Use: **Wire line method/diamond core drilling**



Model: **CASAGRANDE M3D**
 Type of vehicle: **Crawler drilling rig**
 Strokes of rotary head: **2000 mm**
 Pull out: **3000 kg**
 Push in: **3000 kg**
 Rotation speed: **0-330 rpm**
 Maximum torque: **750 kgm**
 Number of rigs available: **1**
 Use: **Traditional methods**
 Max depth: **Coring 140 mt., destructive 200 mt.**



Model: **BOART LONG YEAR DB520**
 Type of vehicle: **Crawler drilling rig**
 Strokes of rotary head: **3400 mm**
 Pull out: **3900 kg**
 Push in: **2500 kg**
 Rotation speed: **0-450 rpm**
 Maximum torque: **520 kgm**
 Equipped with: **Equipped with:**
 Number of rigs available: **1**
 Use: **Traditional methods**
 Max depth: **Coring 150 mt**



Model: **ATLAS COPCO MUSTANG B53**
 Type of vehicle: **Crawler drilling rig**
 Strokes of rotary head: **4500 mm**
 Pull out: **20000 kg**
 Push in: **8000 kg**
 Rotation speed: **0-600 rpm**
 Maximum torque: **1280kgm**
 Equipped with: **Wire line equipment**
 Number of rigs available: **1**
 Use: **Wire line method/diamond core drilling**
 Max depth: **PQ, 800 mt., HQ, 1100 mt., NQ, 1600 mt.**

VEHICLES AND EQUIPMENT



Mitsubishi / Toyota heavy duty vehicles
number of units available: 79



HDJ - Helidrill Junior
number of units available: 8



HD Standard
number of units available: 8



HD Cosmo with onboard
compressor (one lift rig)
number of units available: 16



Mercedes Sprinter
number of units available: 14



Scania
number of units available: 4



Iveco Cursor
number of units available: 1



Vibrators VVCAE
number of units available: 12



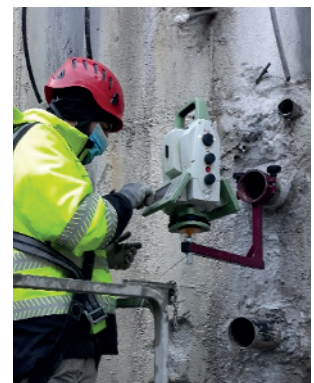
Vast type of compressors

SURVEYING

Geotec S.p.A. originates as TPS in the 70's (Topografia Per Sismica) over the last 3 decades it has grown and expanded its range of surveying services by offering seismic survey positioning, GIS asset mapping and data management for O&G projects as well as providing pre-installation surveys, structure monitoring and geodetic framing services for the civil engineering for major construction projects.

DRONES

Photogrammetry is a survey technique that allows you to collect the geometric data of an object through the acquisition and analysis of stereometric frames. Through the use of dedicated software that process the images collected, our professionals are able to provide a three-dimensional model of the objects in the survey, which can be used for different purposes. Photogrammetry is therefore only a tool for surveying on several scales; topographic, planimetric, detailed, but it is also the fastest and cheapest tool for the creation of three-dimensional modeling capable of allowing any user to enjoy the asset even in a virtual perspective.





SURVEY EQUIPMENT

GPS instruments



Leica Receiver GNSS – GS10 n.2



Leica Receiver GNSS -GS18T n.5



Leica Viva Controller CS20 n.5



Leica Viva Controller CS10/CS15 n.9/n.2



Leica Receiver GNSS -GS15 n.9

Electro - Optical instrumentation



Digital Level Leica Sprinter 50 n.2



Leica TCA2003 n.1



Leica TM50 n.1



Leica TS60 n.9

LASER SCANNING

3D SCANNING

Geotec S.p.A. can also supply clients with 3D Scanning services.

3D scanning is a technology that captures the shape of physical objects digitally. 3D laser scanners create "point clouds" of data from the surface of an object which are geo-referenced and geometrically correct. A vast amount of high quality data is generated in a very short period, producing in this way a high resolution survey with a lot of extra information. The accuracy of the laser together with the precision of the photographic images makes laser scanning surveys realistic and complete. 3D laser scanning technology can provide a detailed spatial representation of particularly complex objects, in unreachable and inaccessible survey locations. It is particularly useful in the survey of cultural artefacts and historical sites and buildings and in situations which would be otherwise difficult to research.



RIEGL_VZ400 Laser scanner



Z+F MAGER 5010 Laser scanner



RIEGL LMS-Z390 Laser scanner



*Among the most important projects carried out by Geotec
in its experience are*

- Anas S.p.A. with about 200 architectures including viaducts and bridges surveyed, where it saw the use of this innovative technology for the detailed 3D reconstruction of the structures without design drawings.
- BBT Brenner BasisTunnel with more than 80 km of tunnel to be surveyed, one of the most important railway works in Europe.
- CONDOTTE D'ACQUA SPA a project for the construction in Algeria of a section of the new railway line, with the acquisition of some sides affected by the work and the return of a high-resolution 3D model.
- "LA SAPIENZA" University of Rome, in the scope of cultural heritage, the survey of the Farnesian Bastion of the Domus Tiberiana on the Palatine Hill was carried out for the return of sections and plans aimed at studying the safety of the structure.

SEISMIC PROJECTS

LAST 10 YEARS

CLIENT	PROJECT	SOURCE/RECEIVERS	LOCATION	YEAR
Edison Spa	<i>2D seismic acquisition - Torrente Parma</i>	Explosive Cable	<i>Italy</i>	2012
Aleanna Resources LLC	<i>3D seismic acquisition - project Ponte dei Grilli"</i>	Vibroseis Cable	<i>Italy</i>	2012
Petromanas (C/O Geotec Albania Branch)	<i>2D seismic acquisition</i>	Explosive Cable	<i>Albania</i>	2012
Jv Petromanas Albania GmbH Shell (C/O Geotec Albania Branch)	<i>2D seismic acquisition - blocks 2 and 3 Albania</i>	Explosive Cable	<i>Albania</i>	2013
Edison Stoccaggio Spa	<i>3D seismic acquisition - S.Potito and Cotignola</i>	Vibroseis Explosive	<i>Italy</i>	2013
Enel Longanesi Developments Srl	<i>3D seismic acquisition - San Marco exploration permit</i>	Vibroseis Explosive Cable	<i>Italy</i>	2013
Sorgenia Geothermal S.r.l	<i>2D seismic acquisition - Le Cascinelle-Poggio Montone-Montorio</i>	Vibroseis Cable	<i>Italy</i>	2015
Edison Spa	<i>2D seismic acquisition</i>	Vibroseis Cable	<i>Italy</i>	2016
Repsol Exploration (Geotec's Subsidiary Dgs Geotec Mepe)	<i>Onshore geophysical data acquisition services in the Ioannina block</i>	Explosive Cableless	<i>Greece</i>	2018/19
Geozentrum Nordbayern (Northern Bavaria) Institute Of Geology	<i>2D seismic survey in the area of Oberfranken</i>	Vibroseis Cable	<i>Germany</i>	2018
Sua (Shell Upstream Albania) (Geotec Spa Albania Branch)	<i>2D seismic survey block 2</i>	Vibroseis Cableless	<i>Albania</i>	2019
Sua (Shell Upstream Albania) (Geotec Spa Albania Branch)	<i>2D seismic survey block 3</i>	Vibroseis Explosive Cableless	<i>Albania</i>	2019
Gfz Potsdam	<i>Seize - seismic imaging of the Ivrea zone 2D seismic project</i>	Vibroseis Cableless	<i>Italy</i>	2020
Geo2x Sa	<i>2D and 3D project for Salines Suisses</i>	Vibroseis Cableless	<i>Swiss</i>	2020
University Of Lausanne-Institut Des Sciences De La Terre	<i>The Balmuccia Piggy back seismic in the quarry / 3D seismic project</i>	Vibroseis Cableless	<i>Italy</i>	2020
Sab Shell Block 4	<i>2D seismic survey block 4</i>	Explosive Cableless	<i>Albania</i>	2021
Smart Seismic Solutions Sas	<i>3D geothermal seismic project</i>	Vibroseis Cableless	<i>Italy</i>	2021

SOIL INVESTIGATION SURVEYS

LAST 5 YEARS

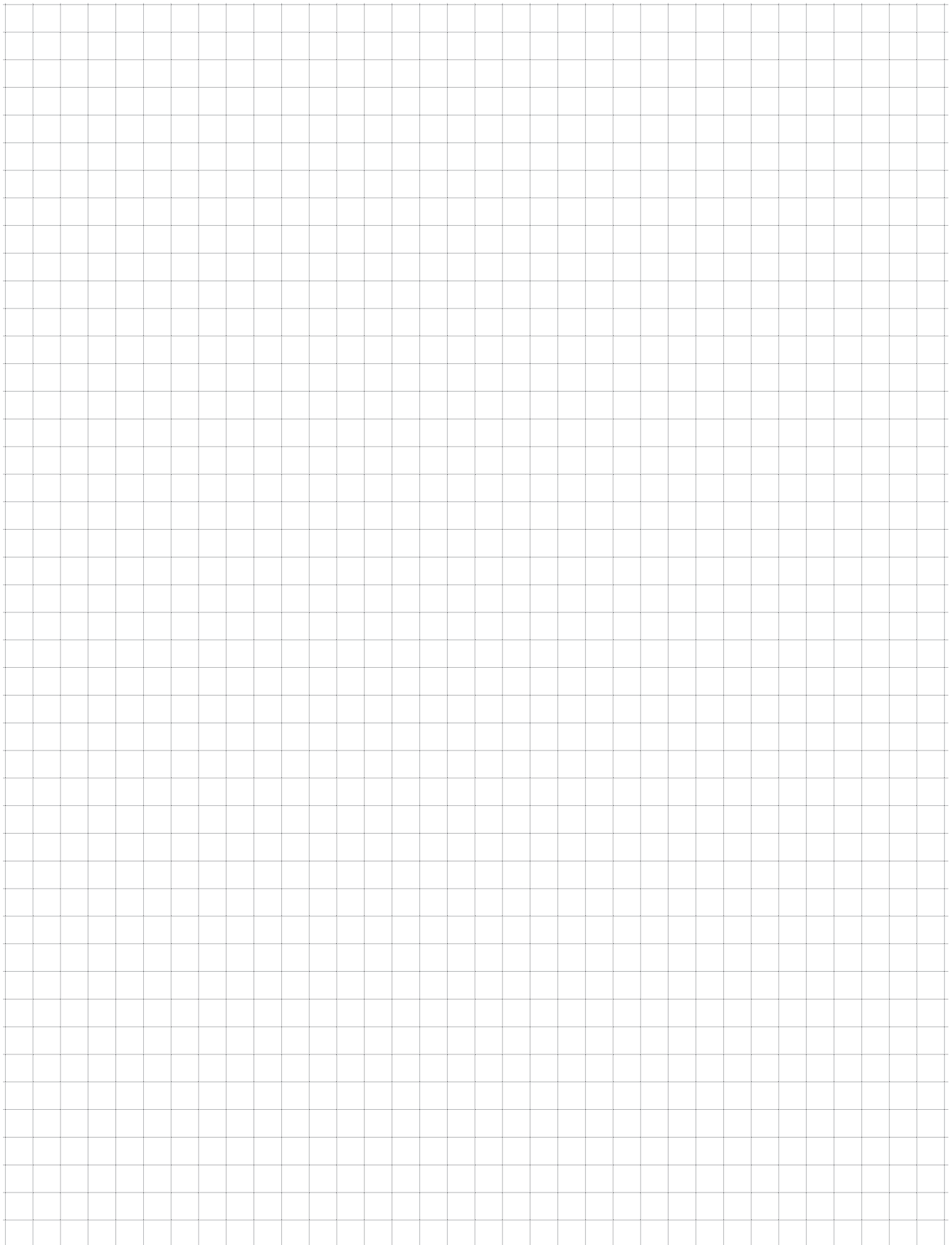
CLIENT	PROJECT	LOCATION	YEAR
Webuild	<i>Multiple Agreements for the Geotechnical investigations associated with the design and construction of the RFI railways projects.</i>	<i>Italy</i>	<i>2021/2022</i>
Cap Holding Spa	<i>Geological, geotechnical, geophysical and environmental surveys at numerous CAP water service sites in Lombardia.</i>	<i>Italy</i>	<i>2020/2022</i>
Cesi	<i>Multiple Framework agreement for the Geotechnical investigations for the design and assessment of earthworks, earth retaining structures and dams</i>	<i>Italy</i>	<i>2020/2022</i>
Ingv	<i>International scientific research project involving drilling around 800m divided in 6-8 boreholes of max 180m of depth and maximum 8 inches (≈20 cm) of diameter, in the Gubbio region of Central Italy.</i>	<i>Italy</i>	<i>2021</i>
Isarco S.c.ar.l-Consortio Dolomiti Webuild Implenia	<i>Geotechnical Investigations for the design project of the railway between Fortezza-Verona, tratta "Fortezza – Ponte Gardena".</i>	<i>Italy</i>	<i>2021/2022</i>
Arta Abruzzo	<i>Soil investigations and sampling for the regional Agency for the protection of the environment</i>	<i>Italy</i>	<i>2021</i>
Italferr Spa	<i>Multiyear Framework agreement for the Execution of geotechnical investigations for the design of the railway network and road infrastructures and superstructures within the Central part of the National Territory. (Lot 3)</i>	<i>Italy</i>	<i>2021/2023</i>
Italferr Spa	<i>Multiyear Framework agreement for the geotechnical instrumentation and ground monitoring of piezometers for the design of railway network and road infrastructures of the Fortezza-Verona track.</i>	<i>Italy</i>	<i>2020/2022</i>
Italferr Spa	<i>Multiyear Framework Agreement for the geotechnical instrumentation and ground monitoring of piezometers for the design of railway network and road infrastructures for the entire railway network.</i>	<i>Italy</i>	<i>2021/2023</i>
Italferr Spa	<i>Multiyear Framework Agreement for the geophysical and geotechnical assessment for the design of railway network and road infrastructures for the area in Territory 2 (Umbria, Marche, Lazio, Abruzzo, Molise, Puglia, Calabria, Basilicata, Sicilia)</i>	<i>Italy</i>	<i>2020/2022</i>
Telt Sas	<i>5 year framework Agreement for the geotechnical investigations on the Italian side of the Lyon Turin base tunnel as part of the cross-border section of the new mixed freight/ passenger railway line</i>	<i>Italy</i>	<i>2020/2024</i>
Rfi Spa	<i>Multiyear Framework Agreement for engineering services related to the technical and economic feasibility of the projects and the final design for the Integrated Contract related to the of replacement or removal noise barriers for the road network and railway crossings</i>	<i>Italy</i>	<i>2020/2022</i>
Rfi Spa	<i>Framework Agreement for the in situ, laboratory and structural geometric survey aimed at identifying the parameters of the subsoil, the geometric and mechanical characteristics for the assessment of the vulnerability of the railway line - Venice Mestre.</i>	<i>Italy</i>	<i>2018/2021</i>
Vianini Lavori Spa	<i>Performance of geognostic and environmental investigations for the design and planning of the Campolattaro reservoir</i>	<i>Italy</i>	<i>2020</i>
Infraengineering	<i>Multiple contracts for the geotechnical investigations and assessments for the design of roads, highways, bridges, foundations, and earth retaining structures and dams.</i>	<i>Italy</i>	<i>2021</i>
Anas Spa	<i>Numerous services performed for the execution of geotechnical surveys related to projects for the road construction and maintenance</i>	<i>Italy</i>	<i>2021/2022</i>

CLIENT	PROJECT	LOCATION	YEAR
Autorità Di Sistema Portuale Del Mar Tirreno Settentrionale Porto Di Livorno	<i>Performance of geotechnical, geophysical and environmental surveys for the design of the EU platform at the port of Livorno.</i>	<i>Italy</i>	2019
Consorzio Hirpinia Av	<i>Numerous contracts for the geotechnical investigations related to the design of the railway high speed project Napoli-Bari –Apice -Orsara, I lotto Apice-Hirpinia</i>	<i>Italy</i>	2019/2020
Brenner Autobhan A22	<i>Geotechnical investigation for the construction of the new traffic circle junction on the S.S. 12 in the municipality of Chiusa near the freeway station</i>	<i>Italy</i>	2019
Alperia Greenpower Srl	<i>Soil investigations at the hydroelectric plant</i>	<i>Italy</i>	2018
Authority For Transport In Malta	<i>Investigative coring in connection with the construction of a tunnel between Malta and Gozo.</i>	<i>Malta</i>	2017/2018
Ato Ambiente Ragusa Spa	<i>Execution of geotechnical and site investigations in a waste disposal site</i>	<i>Italy</i>	2016/2017
Brenner Autobhan A22	<i>Geotechnical investigations near viaducts and tunnels</i>	<i>Italy</i>	2018
Flumar	<i>Geotechnical investigations and assessments for earthworks associated with and earth retaining structures at the Valle di Cadore (BL) in località Vallesina dam</i>	<i>Italy</i>	2018
Trevi (Munchen)	<i>Core drilling at the FOUR FRANKFURT project.</i>	<i>Germany</i>	2018/2019
Trevi Geotechnik	<i>Installation of Piezometers on the riverbed of the Inn River</i>	<i>Austria</i>	2019
B.t.c. Brenner Tunnel Construction S.c.a.r.l.	<i>Tunnel Surveys and Monitoring for the Railway axis Munich – Verona Brenner Base Tunnel - B130 - Construction Lot 'Mules 2-3</i>	<i>Italy</i>	2017
Cociv Consorzio Collegamenti Integrati Veloci	<i>Numerous contracts for the geotechnical investigations as well as horizontal coring related to railway high speed project MILANO-GENOVA*TERZO VALICO DEI GIOVI</i>	<i>Italy</i>	2016/2017

SURVEYS AND MONITORING LAST 10 YEARS

CLIENT	PROJECT	LOCATION	YEAR
ANAS Spa	<i>The assessment of the structural safety of existing bridges, overpasses and viaducts along the Anas road and motorway network in Central Italy using Laser Scanner methodology for over 22.826 meters.</i>	<i>Italy</i>	2010/2011
Società Italiana per Condotte d'Acque Spa	<i>Laser Scanner services along the railway Oued/Tlelat e Tlemcen Algeria.</i>	<i>Algeria</i>	2011
ANAS Spa	<i>Land registration and inspection with the use of Total stations and GPS receivers of over 2500 bridges, retaining walls and drains along the roads of the ANAS road and motorway network in the Abruzzo Region Roads Department.</i>	<i>Italy</i>	2011/2012
RFI SPA	<i>Multiple Framework Agreements for the geotechnical and soil investigations as well as geometric surveys using Total Stations and GPS receiver units for the Italian national Railway company throughout the Italian Territory.</i>	<i>Italy</i>	2014/2021
BBT SE	<i>Multiyear Framework Agreement for the Geotechnical convergence and laser scanner measurements of the Isarco Undercrossing for the Brenner Base Tunnel (BBT)</i>	<i>Italy</i>	2016/2023
Authority for Transport in Malta	<i>3D laser scanned models in Malta and Gozo</i>	<i>Malta</i>	2018/2019
BBT SE	<i>Multiyear Geotechnical convergence and laser scanner measurements in the Mules Access Tunnel for the Brenner Base Tunnel (BBT)</i>	<i>Italy</i>	2020/2024

NOTES

A large grid of graph paper for taking notes. The grid consists of 20 columns and 40 rows of small squares. The grid is centered on the page, with a white border around it. The background of the page is light gray, and there are red geometric shapes on the left and right sides.



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