

# DEEP FOUNDATIONS

## FROM START TO FINISH

Drilling and casting of drilled shafts, pile driving, micropiles and rigid inclusions. Our own machinery and equipment, with more than 30 years of experience across our management and technical teams.



alianzaparagon.com

**30+**

YEARS OF EXPERIENCE

**20**

OUR OWN DRILLING RIGS

**8**

SPECIALTIES

### SPECIALTIES

DEEP FOUNDATIONS

CAST-IN-PLACE DRILLED SHAFTS

RIGID INCLUSIONS

PILE DRIVING

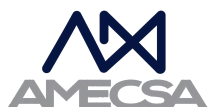
MICROPILES

WELL DRILLING

REBAR FABRICATION

EARTHWORKS

### GROUP COMPANIES



# DOCUMENT INDEX

Company profile of Alianza A|CP Cimentaciones Paragón and the companies with which it maintains partnerships and commercial alliances.

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# SPECIALISTS IN DEEP FOUNDATIONS

We work with our own machinery and equipment, applying the construction techniques and processes suited to each soil and project. We provide personalized advice at the start, throughout construction and upon completion, delivering within the agreed schedule.

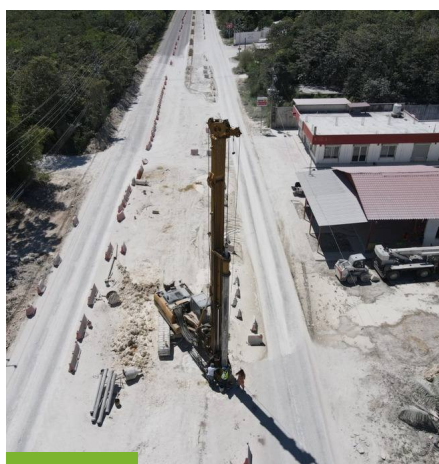
## SERVICES

|                              |                                                                                                                                  |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| 01 Deep foundations          | 02 Construction of drilled shafts and piles                                                                                      |
| 03 Pile drilling and driving | 04 Drilling, reinforcement placement and concrete casting of drilled shafts                                                      |
| 05 Well drilling             | 06 Use of temporary and permanent casings                                                                                        |
| 07 Micropiles and inclusions | 08 Fabrication and placement of reinforcing steel for drilled shafts, footings, columns, pile caps, bearing seats and diaphragms |



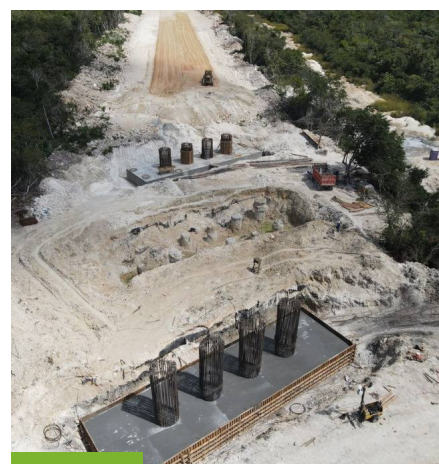
### BEAM DESIGN AND SUPPLY

Structural design, plant fabrication and delivery of prestressed concrete beams, including loading, specialized transport and installation on pier caps and neoprene bearings.



### COMPLETE FOUNDATION WORKS

Complete execution of deep foundation works: drilling with temporary casing, fabrication and lowering of reinforcement, tremie concrete placement, surveying and quality control for each element.



### REBAR FABRICATION AND CONCRETE PLACEMENT

Fabrication and assembly of footings, pedestals and pile caps; reinforcing cages, anchor bolts and base plates; concrete placement using steel or timber formwork, vibration and controlled curing.

## MISSION, VISION AND OBJECTIVE

### MISSION

To provide services that uphold the highest principles of professional ethics, applying all our experience and the most advanced techniques to achieve objectives that lead to a fully satisfactory relationship.

"A satisfied client is our greatest recognition."

### VISION

Maintain a continuous strategy for qualitative development through staff motivation, ongoing research and constant training, supported by our safety policies and quality philosophy. Add value to projects through appropriate materials and our own machinery.

"Motivation leads to success."

### OBJECTIVE

Provide excellent service through personalized advice at the start, throughout construction and upon completion; deliver quality work with qualified personnel and execute projects within the agreed schedule, ensuring a prompt response to our commitments.

"Projects delivered on time and as agreed."

#### COVERAGE

### NATIONWIDE PRESENCE

Our own machinery and equipment, mobilized throughout Mexico: from Tijuana to Cancún.

32

STATES SERVED OR AVAILABLE  
FOR CONSTRUCTION



• COMPLETED PROJECTS



# PUENTE EL CONEJO

OAXACA

IN PROGRESS

Construction of 30 drilled shafts, each 1.50 m in diameter and 18 m deep, using stabilizing polymer for the foundations of Puente El Conejo in Oaxaca.

**30**

DRILLED SHAFTS

**1.50 m**

SHAFT DIAMETER

**18 m**

DEPTH



POLYMER STABILIZATION · DEEP FOUNDATIONS



# PUENTE SAN JUAN

HIDALGO

IN PROGRESS

Foundation shafts drilled using stabilizing polymer to support the borehole, with concrete placement and lifting of reinforcement cages for the bridge foundations.

**8**

DRILLED SHAFTS

**1.20 m**

SHAFT DIAMETER

**4.50 m**

DEPTH



STABILIZING POLYMER · CONCRETE PLACEMENT · LIFTING OF REBAR CAGES



# PUENTE GARCÉS

HUAUTLA, HIDALGO

Drilled shafts constructed with bentonite slurry to stabilize the boreholes, with an on-site slurry mixing and recirculation plant, working inside the excavation at the foot of the existing bridge.

33

DRILLED SHAFTS

1.20 and 1.50 m

SHAFT DIAMETERS

10 m

DEPTH



BENTONITE SLURRY · ON-SITE MIXING PLANT · EXCAVATION AT THE FOOT OF THE BRIDGE



# REMODELACIÓN SÚPERISSSTE

CANCÚN, QUINTANA ROO

Deep foundations for the store renovation: 120 drilled shafts in three diameters according to the structural element, constructed on an urban site with several drilling rigs operating simultaneously to meet the project schedule.

120

DRILLED SHAFTS

0.80 · 1.00 · 1.20 m

SHAFT DIAMETERS

12 m

DEPTH



THREE DIAMETERS · SIMULTANEOUS RIG OPERATIONS · URBAN SITE



# PILOTES CON POLÍMERO LA PITAHAYA

EJIDO LA PITAHAYA, SAN LUIS POTOSÍ · GRUPO VISE

Large-diameter piles drilled with stabilizing polymer and steel casings installed using a vibratory driver: 1.60 m casings for 1.50 m piles and 2.10 m casings for 2.00 m piles, within a riverbed and with water-level control during construction.

24

FOUNDATION PILES

1.50 and 2.00 m

PILE DIAMETERS

18 m

DEPTH



STABILIZING POLYMER · 1.60 AND 2.10 m CASINGS · VIBRATORY DRIVER · RIVERBED WORK



# PILOTES EJIDO LA PITAHAYA

## CONSTRUCCIONES URALES

Cast-in-place foundation piles with permanent casings and flowable concrete placed by pumping, 1.80 m in diameter and 18 m deep, with crane support for lifting and lowering the rebar cages.

**50**

FOUNDATION PILES

**1.80 m**

PILE DIAMETER

**18 m**

DEPTH



PERMANENT CASING · FLOWABLE CONCRETE · PUMPED CONCRETE PLACEMENT · CRANE LIFTING OF REBAR CAGES



# NAVE INDUSTRIAL CARRETERA A MÉRIDA

CARRETERA A MÉRIDA · INDUSTRIAL BUILDING FOUNDATIONS

Drilled shafts for the industrial building foundations, using a prepared working platform and following the structural grid, progressing row by row to release work areas for reinforcement and concrete placement.

20

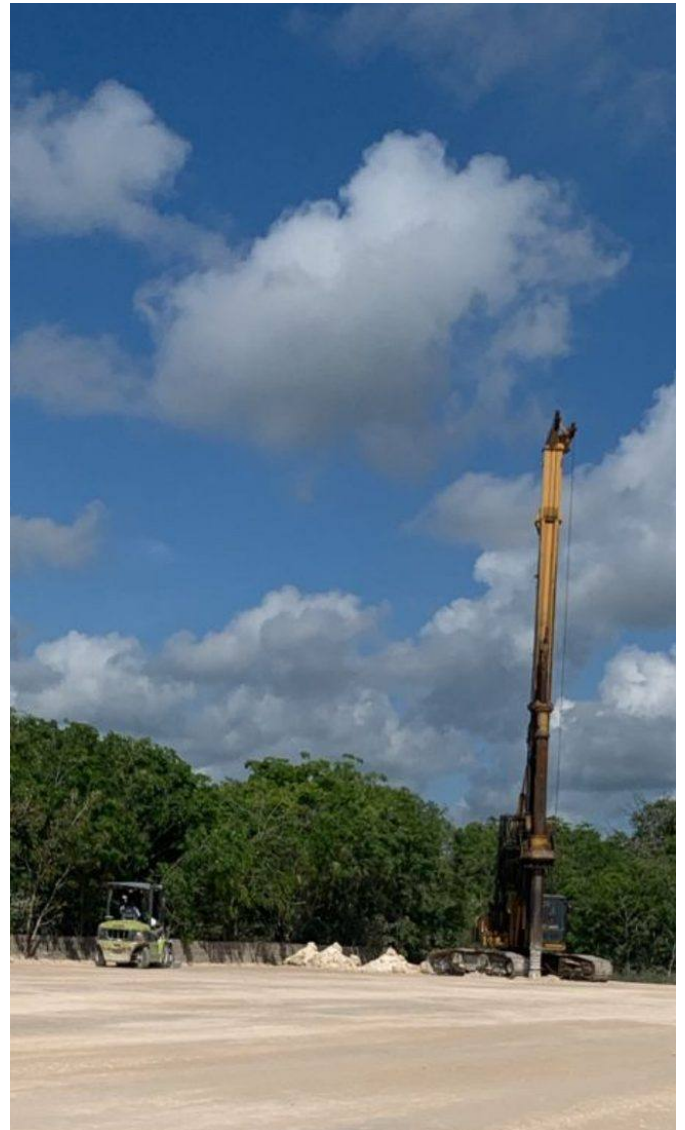
DRILLED SHAFTS

0.80 m

SHAFT DIAMETER

10 m

DEPTH



DRILLING ALONG THE STRUCTURAL GRID · WORKING PLATFORM · INDUSTRIAL CONSTRUCTION



# TREN MAYA TRAMO 5 SUR

QUINTANA ROO · GRUPO INDI

Large-diameter, deep drilled shafts at the foot of the Tren Maya viaduct: drilling, fabrication and lowering of reinforcement and concrete placement, with the elevated section in operation and coordinated handling beneath the track.

6

DRILLED SHAFTS

1.70 m

SHAFT DIAMETER

25 m

DEPTH



DEEP DRILLING · WORK BENEATH AN OPERATING VIADUCT · CAST-IN-PLACE CONCRETE · GRUPO INDI



# SUBESTACIÓN CFE MAHAHUAL

MAHAHUAL, QUINTANA ROO

Large-diameter drilled shafts for the electrical substation foundations, using the cloverleaf method: overlapping bores made with smaller-diameter tools to form the design section in limestone, followed by reinforcement and concrete placement.

5

DRILLED SHAFTS

2.00 m

SHAFT DIAMETER

15 m

DEPTH



CLOVERLEAF METHOD · OVERLAPPING BORES IN ROCK · ELECTRICAL SUBSTATION · CFE



# PILAS TRONCOCÓNICAS PARA CFE

CELAYA, GUANAJUATO

Deep foundations for Comisión Federal de Electricidad infrastructure: drilling with temporary casing, fabrication and lowering of reinforcement, and concrete casting of large-diameter tapered shafts.

53

TAPERED DRILLED SHAFTS

2.00 · 2.20 · 2.40  
2.60 · 2.80 · 3.00 m

SHAFT DIAMETERS

20 m

DEPTH



CASED DRILLING · LARGE DIAMETERS · ELECTRICAL INFRASTRUCTURE · SUNWARD SA 20/70



# LÍNEA DE TRANSMISIÓN **GARRA DE JAGUAR**

PLAYA DEL CARMEN, Q. ROO · CFE

Foundations for six transmission-line towers: four legs per tower and four bores per leg, totaling 96 bores in limestone, including access clearing and working platforms within the forest.

**96**

DRILLED SHAFTS

**1.80 m**

BOREHOLE DIAMETER

**10 m**

DEPTH



4 BORES PER LEG · 96 IN TOTAL · ROCK DRILLING · FOREST ACCESS · CFE



# PUENTE VALLE DE LOS FANTASMAS

SAN LUIS POTOSÍ, S.L.P.

Deep foundations for the road bridge: drilling, fabrication and lowering of reinforcing steel, and concrete casting of drilled shafts, with traffic maintained and restricted handling beneath the existing overpass.

65

DRILLED SHAFTS

1.50 m

SHAFT DIAMETER

18 m

DEPTH



DRILLING · FABRICATION AND LOWERING OF REINFORCEMENT · SHAFT CASTING · TRAFFIC MAINTAINED



# PILAS TAMAZUNCHALE

TAMAZUNCHALE, SAN LUIS POTOSÍ

Roadside drilled shafts: drilling, fabrication and lifting of long rebar cages, and cast-in-place concrete, with coordinated drilling-rig and excavator operations for cage handling.

10

DRILLED SHAFTS

1.20 m

SHAFT DIAMETER

16 m

DEPTH



LIFTING OF LONG REBAR CAGES · SOILMEC R-210 · ROADSIDE WORK



# COYUCA DE BENÍTEZ

GUERRERO · LARGE-DIAMETER SHAFTS WITH PERMANENT CASING

Large-diameter drilled shafts at the foot of the existing bridge: drilling with permanent casing to support the borehole in a riverbed containing cobbles and sand, with handling supported from the roadway above and continuous work during the rainy season.

50

DRILLED SHAFTS

1.80 and 2.00 m

SHAFT DIAMETERS

20 m

DEPTH



PERMANENT CASING · LARGE DIAMETERS · RIVERBED AND BRIDGE-BASE WORK · HANDLING FROM THE ROADWAY

# CORREDOR INTEROCEÁNICO LÍNEA K

ISTMO DE TEHUANTEPEC · CHIAPAS

Foundation piles for structures on Línea K of the Corredor Interoceánico: drilling with temporary casing in soils containing cobbles and gravel, using two diameters according to the structure, with work fronts distributed along the railway alignment.

**250**

FOUNDATION PILES

**1.20 and 1.50 m**

PILE DIAMETERS

**15 m**

DEPTH



RAILWAY WORKS · TEMPORARY CASING · COBBLE AND GRAVEL SOILS · WORK FRONTS ALONG THE ALIGNMENT



# LIBRAMIENTO CUAUTLA

CUERNAVACA, MORELOS · GRUPO VISE

Deep foundations for the highway bypass: drilling and concrete casting of shafts with diameters varying by structural element, constructed on slopes and beside the roadway with traffic maintained and several rigs operating simultaneously.

40

DRILLED SHAFTS

0.80 to 1.50 m

SHAFT DIAMETERS

12 m

DEPTH



VARIABLE DIAMETERS · SLOPE WORK · TRAFFIC MAINTAINED · SIMULTANEOUS WORK FRONTS

# COMPLETED PROJECTS

Railway, urban road, airport and hotel projects: drilled shafts, rigid inclusions, pile driving and associated earthworks.



## RAILWAY WORKS

### Tren Maya · Frente Catenarias

Drilling for overhead-line mast foundations on sections 5 Norte (Cancún–Playa del Carmen Norte), 6 (Tulum–Bacalar) and 7 (Bacalar–Escárcega).

200 bores · dia. 0.60, 0.80 and 1.00 m · depth 10 m

Q. ROO / CAMPECHE · SECTIONS 5, 6 AND 7

2024



## RAILWAY WORKS

### Tren Maya · Catenarias sobre balasto

Foundation drilling along the right-of-way with a crawler-mounted rotary rig and restricted handling beside the track.

200 bores · dia. 0.40, 0.60 and 0.80 m · depth 8 m

Q. ROO / CAMPECHE · OVERHEAD-LINE WORK FRONT

2024



## RIGID INCLUSION

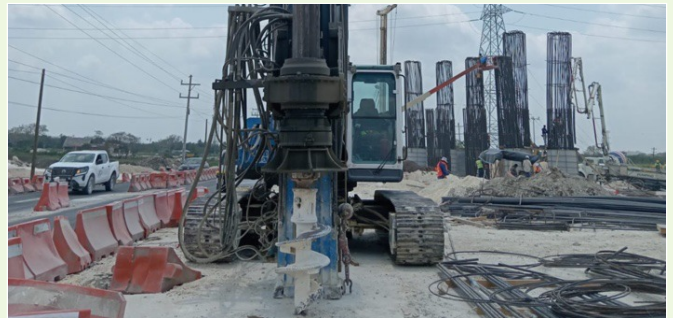
### Tren Maya · Frente inclusiones Belice

Construction of rigid inclusions to improve the foundation ground along sections 5, 6 and 7 of the Tren Maya corridor.

300 inclusions · dia. 0.40, 0.60, 0.80 and 1.00 m · depth 10 m

Q. ROO / CAMPECHE · GROUND IMPROVEMENT

2024



## RIGID INCLUSION

### Tren Maya · Frente inclusiones Eric Paolo

Rigid inclusions installed using a Soilmec R-412 rig in an urban area, with operations beneath power lines and vehicle traffic protection.

200 inclusions · dia. 0.40, 0.60, 0.80 and 1.00 m · depth 10 m

Q. ROO / CAMPECHE · SOILMEC R-412

2024





RIGID INCLUSIONS

## Tren Maya · Frente inclusiones Expofer

Rigid inclusions in forest and earthwork sections, using a rig with a tall mast to reach the design depths.

200 inclusions · dia. 0.40, 0.60, 0.80 and 1.00 m · depth 10 m

Q. ROO / CAMPECHE · EXPOFER WORK FRONT

2024



RIGID INCLUSIONS

## Tren Maya · Expofer, frente de plataforma

Continuous-flight auger drilling on a prepared platform, with borehole collar protection and positioning control at each point.

100 bores · dia. 0.80 and 1.00 m · depth 15 m

Q. ROO / CAMPECHE · YUTONG YTR

2024



URBAN ROADS

## Proyecto Integral Paseo 5 de Febrero

Drilled shafts with reinforcement lowering and concrete placement. Night work with traffic maintained.

243 bores · dia. 1.00, 1.20 and 1.50 m · depth 18 m

QUERÉTARO, QRO. · CAST-IN-PLACE DRILLED SHAFTS

2023



PILE DRIVING

## Pile driving

Pile driving with ICE 812 and APE 200-6/700 vibratory drivers, suitable for concrete piles, sheet piles and steel sections.

OUR OWN EQUIPMENT · ICE 812 · APE 200-6/700



EARTHWORKS

## Topsoil grading

Stripping, grading and compacting topsoil with a motor grader and vibratory roller, supporting the foundation work fronts.

MOTOR GRADER · VIBRATORY ROLLER



ASSOCIATED WORKS

## Material spreading in trenches

Trench excavation, material spreading and backfilling with backhoe loaders, including work beside the track and in areas with restricted access.

BACKHOE LOADERS · TRENCHERS



# MACHINERY AND EQUIPMENT

Group inventory, including AMECSA equipment.

## 01 DRILLING RIGS

**20** units in inventory

- Sunward SA 20/70
- Yutong YTR 150
- Soilmec R-412, R-312 and RT3E
- Casagrande B175XP, B125XP and B100XP
- Maicat MC180
- Tescar SF 35 and CF 3
- Texoma 950
- EZ 90-52
- Sany SR-150C
- Soilmec SR45 · 3
- Soilmec SR50 · 1
- Soilmec SR60 · 1
- Bauer BG20H · 1

## 02 CRANES AND VIBRATORY DRIVERS

**17** units in inventory

- Lorain CD118 crane
- P&H 5576 crane
- Link Belt LS108 and LS98 cranes
- ICE 812 vibratory driver
- APE 200-6/700 vibratory driver
- Mitsubishi M-25 and M-15 pile hammers
- Link Belt LS-118 · 2
- Terex RT-780 · 1
- Terex RT555-1 · 1
- Grove 600-E · 1
- Terex AC-350 · 2
- Peterbilt (Titán) · 1
- HIAB EP-3CLX · 1

## 03 EXCAVATORS AND BACKHOES

**12** units in inventory

- Komatsu PC 450 LC
- Caterpillar 336D2L, 336DL, 320GX, 320DL and 416F2
- John Deere 210 C, 210 G, 310J and 310G
- Case 580 N
- JCB 3CX

## 04 TRENCHERS AND TRUCKS

**8** units in inventory

- Ditch Witch RT-115 and RT-110 (wheel)
- Vermeer RTX1250 and C306 (wheel)
- Trencor 860C and 660B (chain)
- 1996 Peterbilt drilling truck
- 1992 Dunham MP225E drilling truck

## 05 EARTHWORKS

- Caterpillar 12H motor grader
- Dynapac CA250 and CA2500D vibratory rollers
- Caterpillar D6 dozers

## 06 TOOLS

- Augers in various diameters
- Drilling buckets in various diameters
- Core barrels in various diameters
- Clay buckets in various diameters
- Tremie pipes for concrete placement
- Temporary and permanent casings
- Hunan FAE FASB 606 · 1 (pile breaker)

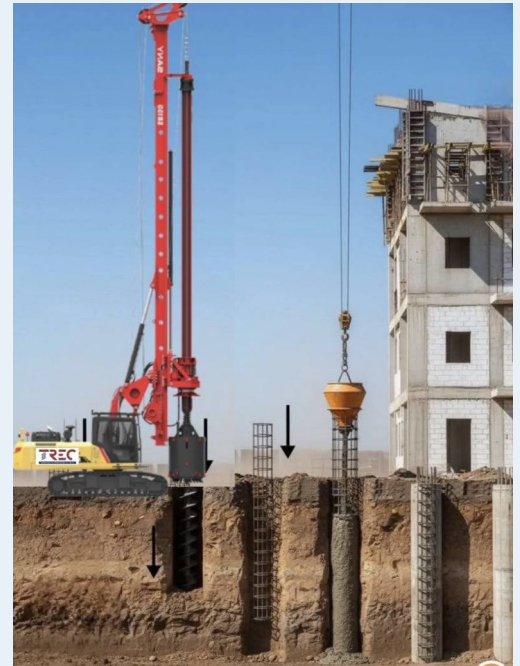
## 07 HYDRAULIC BREAKERS

- Hydraulic breakers

# FOUNDATION TECHNOLOGY

TREC, S.A. DE C.V.

Deep foundations, cast-in-place shafts, micropiles and soakaway wells. Our own machinery and equipment, with over 20 years of construction experience.



20+

YEARS OF EXPERIENCE

7

OUR OWN DRILLING RIGS

26

FOUNDATION WORKS

## SPECIALTIES

DEEP  
FOUNDATIONS

CAST-IN-PLACE DRILLED SHAFTS

MICROPILES

SOAKAWAY WELLS

REBAR FABRICATION

## COMMERCIAL AND OPERATING ALLIANCE



ALIANZA A|CP CIMENTACIONES PARAGÓN® · TREC TECNOLOGÍA EN CIMENTACIÓN



## COMMERCIAL AND OPERATING PARTNER IN DEEP FOUNDATIONS

Alianza A|CP Cimentaciones Paragón maintains a commercial and operating partnership with TREC Tecnología en Cimentación, S.A. de C.V. Under this arrangement, both companies jointly undertake deep foundation projects nationwide, combining machinery, tools, technical staff and response capacity to serve several work fronts simultaneously.

The alliance provides the client with a single point of contact at the start, throughout construction and upon completion, backed by both parties' own equipment and continuity of execution when required by the schedule. TREC's company profile follows.

### TREC AT A GLANCE

TREC Tecnología en Cimentación, S.A. de C.V. is a wholly Mexican-owned company based in Durango, Dgo., with personnel bringing more than 20 years of industry experience and trained staff holding DC-3 certification. Its aim is to offer enhanced technology, quality and service in the national deep foundation drilling market.

### SERVICES

|                                                                                      |                                                                                            |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| <b>01</b> Deep foundations                                                           | <b>02</b> Cast-in-place drilled shafts                                                     |
| <b>03</b> Micropiles                                                                 | <b>04</b> Soakaway wells                                                                   |
| <b>05</b> Well drilling to depths of 80 m                                            | <b>06</b> Sale of bagged bentonite                                                         |
| <b>07</b> Rebar fabrication for piles, columns, beams, pedestals, walls and footings | <b>08</b> Rental of crawler- and wheel-mounted drilling rigs for small and large diameters |
| <b>09</b> Cranes for lifting operations up to 25 tonnes                              |                                                                                            |

# COMPLETED PROJECTS

Deep foundation projects completed by TREC Tecnología en Cimentación in different states across the country.

- **Puente La Comanjilla**  
140 drilled shafts in Type II and III material · León, Gto.
- **Edificio Adamant Campestre**  
Drilled shafts.
- **Postes y antenas CFE**  
43 drilled shafts · Saltillo, Coah.
- **Nave industrial Torreón**  
90 drilled shafts · Torreón, Coah.
- **Pozos de absorción ISSSTE**  
45 wells · Texcoco, Estado de México.
- **Edificio Arcángeles**  
68 drilled shafts · Durango, Dgo.
- **Torre Mazarik ABA Center**  
72 drilled shafts · Aguascalientes, Ags.
- **Puentes deprimidos 5 de Febrero**  
243 drilled shafts · Querétaro, Qro.
- **ITCO**  
54 drilled shafts · Gómez Palacio, Dgo.
- **Torre Kioto**  
65 drilled shafts · Culiacán, Sin.
- **Hospital ISSSTE Torreón**  
280 drilled shafts · Torreón, Coah.
- **Agencia Geenly**  
45 drilled shafts · Durango, Dgo.
- **Hulmaq**  
60 drilled shafts · Durango, Dgo.
- **Corredor Interoceánico**  
30 drilled shafts · Chiapas.
- **Caterpillar Trebotti**  
135 drilled shafts · Torreón, Coah.
- **Amistad**  
110 drilled shafts, pedestal and footing construction · Torreón, Coah. and Saltillo.
- **Salón de eventos Fortana**  
28 drilled shafts · Torreón, Coah.
- **Rastro Long Beef**  
322 drilled shafts · Francisco I. Madero, Coah.
- **Cemex, puente aeropuerto**  
20 drilled shafts · Guadalajara, Jal.
- **Buhler Amistad**  
95 drilled shafts · Torreón, Coah.
- **Nave Arizlu Trebotti**  
Drilled shafts · Acatlán, Jal.



## PROJECTS IN PROGRESS

### Hospital ISSSTE Oaxaca de Juárez

432 drilled shafts, 103 soakaway wells and rebar fabrication.

### Hospital ISSSTE Chetumal, Q. Roo

Expansion: 35 drilled shafts and rebar fabrication.

### Puentes de libramiento Sabinas

67 drilled shafts · Sabinas, Coah.

### Puente Tuxtepec

12 drilled shafts · Tuxtepec, Oax.

### Top Park Laguna, nave industrial

35 drilled shafts.

## OUR MACHINERY AND EQUIPMENT

### DRILLING RIGS

7

- Tescar CF3 · crawler-mounted
- Texoma 950 · wheel-mounted
- Sany SR-150C · crawler-mounted (2 rigs)
- Sany SR-155C · crawler-mounted
- Soilmec SR-20 · crawler-mounted
- Soilmec STM-20 · truck-mounted

### DRILLING TOOLS

- Augers in various diameters
- Clay buckets and core barrels
- Tremie pipes for concrete placement

### SUPPORT EQUIPMENT

- Cranes for lifting operations up to 25 tonnes
- Bentonite slurry mixing plants
- Utility vehicles
- Welding units

# GALLERY OF EQUIPMENT AND PROJECTS

TREC's own equipment for drilling, lifting operations and rebar fabrication.



## DRILLING RIGS

### Texoma 950

Wheel-mounted drilling rig working on site alongside rebar fabrication.



## DRILLING RIGS

### Soilmec STM-20

Truck-mounted drilling rig for work fronts requiring rapid relocation.



## LIFTING OPERATI

### P&H 22-tonne crane

Our own crane for lifting rebar cages and handling operations in the yard and on site.



## REBAR

### Rebar fabrication

On-site assembly of reinforcing cages before lifting and concrete casting of the shafts.





DRILLING RIGS

**Sany SR-150C**

Crawler-mounted drilling rig for large-diameter shafts.



DRILLING RIGS

**Sany SR-150C**

Rig assembly and positioning at an urban work front.



DRILLING RIGS

**Sany SR-155C**

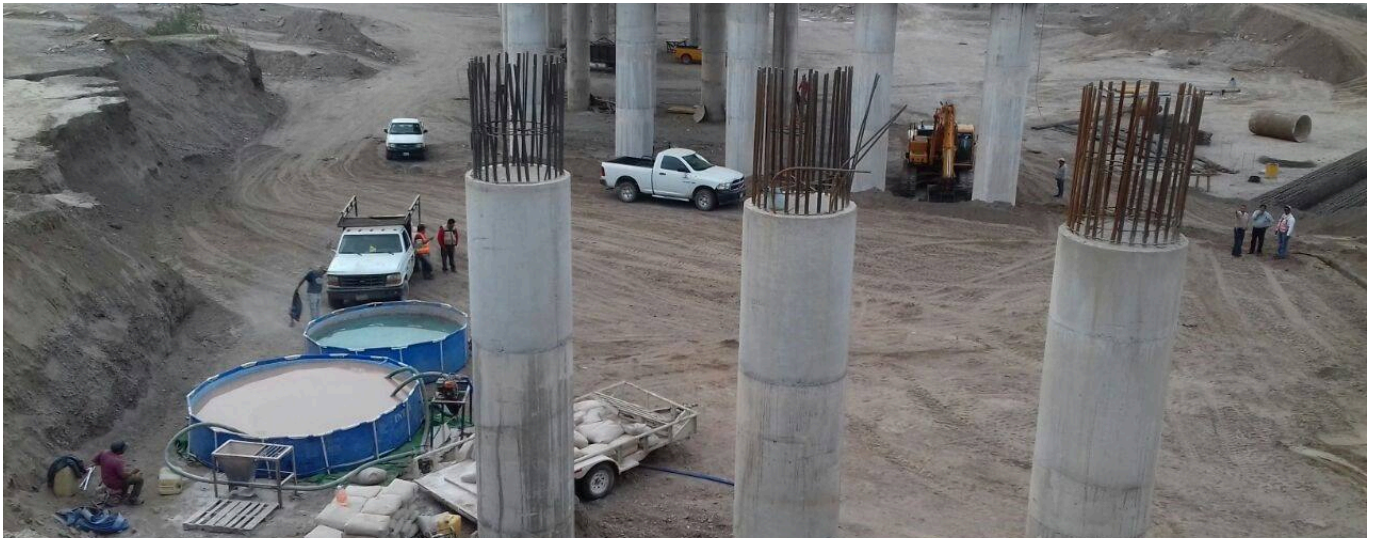
Crawler-mounted drilling rig with greater mast reach.



DRILLING RIGS

**Soilmec SR-20**

Crawler-mounted drilling rig for shafts and micropiles.



DRILLING SLURRY

### Bentonite plant

On-site mixing and recirculation of bentonite slurry to stabilize the boreholes during shaft concreting.



REBAR

### Reinforcement placement

Crane lifting and lowering of long rebar cages using our own equipment.

### RESPONSE CAPACITY

TREC has its own machinery, tools, slurry plant and personnel, enabling it to open and sustain several work fronts simultaneously throughout the country.

## “Foundations in action”

Deep foundations from start to finish: drilling, fabrication and lowering of reinforcement, shaft concreting and associated works.



## CONTACT INFORMATION

LEGAL COMPANY NAME

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S.A. de C.V.

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Durango, Dgo.

COVERAGE

Nationwide

SPECIALTY

Deep foundations,  
micropiles and  
soakaway wells



### "FOUNDATIONS IN ACTION"

We would welcome the opportunity to be considered for your deep foundation projects throughout the country.

**LIC. PEDRO NEVÁREZ ORTEGA**  
GENERAL MANAGEMENT

ALLIANCE CONTACT



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GRUPO **LCI**

COMPANY PROFILE

**COMMERCIAL ALLIANCE**

## MECHANICALLY STABILIZED EARTH WALLS

### HUMUS STABILIS PATENT

Earth retention system using precast concrete panels and reinforcement, as an alternative to reinforced concrete and masonry walls.



PIV 104 CHETUMAL · QUINTANA ROO

# MSE

EARTH RETENTION

# 5

MSE WALL TYPES

# 7

PROJECTS IN THE PORTFOLIO

### WALL TYPES

CONVENTIONAL MSE

MSE WITH SLOPE

FLOODABLE OR  
SUBMERGED MSE

ABUTMENT OR BRIDGE MSE

INVERTED OR  
CANTILEVER MSE

### COMMERCIAL ALLIANCE



COMMERCIAL ALLIANCE · GRUPO LCI, HUMUS STABILIS PATENT



## MSE WALL SYSTEM HUMUS STABILIS PATENT

Alianza A|CP Cimentaciones Paragón maintains a commercial alliance with Grupo LCI, holder of the Humus Stabilis patent for Mechanically Stabilized Earth Walls. This is a strictly commercial relationship: Grupo LCI carries out earth retention and embankment stabilization work using its own personnel and equipment, while the Alianza handles deep foundations.

Mechanically stabilized earth (MSE) walls are retaining structures that combine reinforcement and facing panels to retain soil. Their rapid assembly and design flexibility make them an alternative to concrete and masonry walls. Their use is determined by ground conditions and the requirements of each project.

### CONSTRUCTION PROCESS

**01**

#### **Preparation**

Site setting-out and leveling.

**02**

#### **Facing assembly**

Fabrication and installation of precast concrete panels.

**03**

#### **Reinforcement placement**

Final positioning of reinforcement to ensure soil retention.

### SYSTEM BENEFITS

**01**

#### **Cost efficiency**

Quick-to-install precast components reduce construction costs.

**02**

#### **Ease of installation**

No special equipment required; guidance and installation by trained personnel.

**03**

#### **Less site preparation**

Minimal site preparation saves time and accelerates construction.

**04**

#### **Confined spaces**

A small operating area is required, making the system suitable for urban sites and limited rights-of-way.

**05**

#### **Seismic resistance**

Flexible structures that accommodate deformation without requiring rigid foundations.

**06**

#### **Design versatility**

Panels adapt to various architectural shapes and finishes.

## CONSTRUCTION, SPECIALISTS AND TECHNICAL ADVICE

Experience in Mechanically Stabilized Earth Walls, embankment stabilization and gabion walls, with capabilities in engineering, fabrication, assembly and construction of stabilized embankments.

### Construction

Complete MSE wall construction: engineering, fabrication, assembly and construction of the stabilized embankment.

- Conventional MSE
- MSE with slope
- Floodable/submerged MSE
- Abutment/bridge MSE
- Inverted/cantilever MSE
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### Specialists

Each project is analyzed to provide the most appropriate technical advice.

- MSE walls
- Embankment stabilization
- Laboratory testing
- PANDA testing
- Geotechnical studies
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### Technical advice

Trained personnel for:

- Engineering
- Supervision
- Labor
- Equipment operators
- MSE wall specialist
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## PROJECTS USING HUMUS STABILIS

**PIV 104 Chetumal**

Quintana Roo

**PIV 104 Mérida**

Yucatán

**Rampas DV AIFA**

Estado de México

**DV Toyota Apaseo el Grande**

Guanajuato

**PIV La Curva**

Quintana Roo

**PIV Belice**

Quintana Roo

**Parque Santa Fe**

Ciudad de México



# GALLERY OF PROJECTS

Mechanically Stabilized Earth Walls built using the Humus Stabilis system.

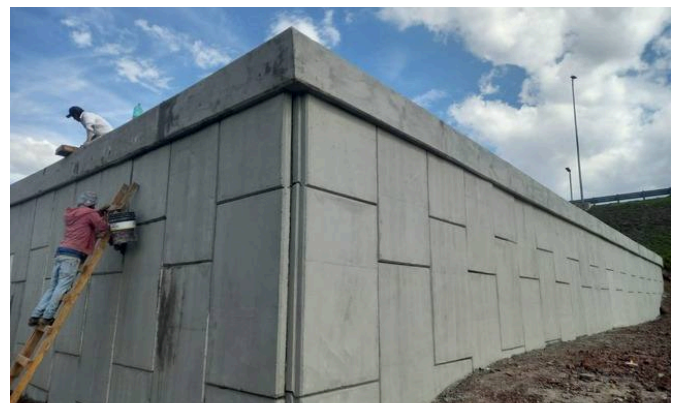
## PIV 104 CHETUMAL • QUINTANA ROO



## PIV 104 MÉRIDA • YUCATÁN



## RAMPAS DV AIFA • ESTADO DE MÉXICO





## DV TOYOTA APASEO EL GRANDE · GUANAJUATO



## PIV LA CURVA · QUINTANA ROO



## PIV BELICE · QUINTANA ROO





## PARQUE SANTA FE · CIUDAD DE MÉXICO



### GENERAL INFORMATION

## CONTACT INFORMATION

#### GROUP / BRAND

Grupo LCI

#### PHONE NUMBERS

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222 952 1954

#### EMAIL

proyectos@grupolci.org

#### WEBSITE

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#### SPECIALTY

Mechanically Stabilized  
Earth Walls

#### SYSTEM

Humus Stabilis patent

## Grupo LCI

MECHANICALLY STABILIZED EARTH WALLS

## HUMUS STABILIS PATENT

MECHANICALLY STABILIZED EARTH WALLS

Earth retention and embankment stabilization, offered as complementary services to the Alianza's deep foundation work.

®

### ALLIANCE CONTACT

®

#### ALIANZA A|CP CIMENTACIONES PARAGÓN®

(998) 185 0956 · (999) 119 3982 · patoparagon@gmail.com

DEEP FOUNDATIONS

# STRENGTH UNDERGROUND.

Drilled shafts · Driven piles · Micropiles · Rigid inclusions

## THE TEAM BEHIND YOUR PROJECT.

OUR OWN MACHINERY, TOOLS AND CREWS

[alianzaparagon.com](http://alianzaparagon.com)



GENERAL INFORMATION

## CONTACT INFORMATION

LEGAL COMPANY NAME

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COVERAGE

Nationwide  
throughout Mexico

SPECIALTY

Deep foundations, rigid inclusions  
and associated works



LET'S TALK ABOUT YOUR NEXT PROJECT

# YOUR PROJECT. OUR TEAM.

From site preparation to foundations. Tell us the  
scope of your next project.

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