GINPROSA Corporation
Founded in 1990

Central Office in MADRID: 21,500 Sq Ft

Independent Company (stockholders works in the company)

Offices distributed all over Spain

Multidisciplinary Team of Civil Engineering

Commercial & custom-made Software
GINPROSA Activities

- Feasibility Studies
- Engineering Reports
- Preliminary and Detailed Design Projects
- Quality Control
- Construction Management & Supervision
- Business areas:
  - Roads & Highways
  - Transportation
  - Structures
  - Water Supply & Waste Water Infrastructures
  - Buildings
  - Master Planning & Development
GINPROSA's staff is comprised of a young and dynamic team of over one hundred professionals.
GINPROSA
RELEVANT Works
**MEJORA DE LA ACCESIBILIDAD A MATARÓ. CARRETERA C-31.**
**TRAMO: CABRERA DE MAR-MATARÓ.**

(Detailed design project for the modernization of the link road of Mataro. Section: Cabrera de Mar-Mataro. Province: Barcelona)

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<th><strong>Owner</strong></th>
<th>GISA. GENERALITAT DE CATALUNYA. (Catalonia State Goverment)</th>
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<tr>
<td><strong>Completion Year</strong></td>
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<tr>
<td><strong>Construction Budget</strong></td>
<td>US$ 190 Millions</td>
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<tr>
<td><strong>Contractor company</strong></td>
<td>No Awarded</td>
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</table>

**Relevant details:**
- **Length**: 13,800 m.
- **Structure**: 8 Viaducts, 9 Bridges, 12 different level crossings, 10 retaining walls, 1 Tunnel 209.45 m, 1 Tunnel 202.9 m.

**Services performed:**
- Detailed Design Project.
Owner
MINISTERIO DE FOMENTO. DEMARCACION DE CARRETERAS DEL ESTADO EN CASTILLA Y LEON OCCIDENTAL.
(Ministry of Public Works. Government of Spain)
Completion Year
2009
Construction Budget
US$ 95 Millions
Contractor company
J.V. ZARZUELA – BEJAR (Zamora N – Rio Duero); J.V. INTERSA – TAPUSA (Rio Duero – Zamora S)

Relevant details:
2 Viaducts over Duero river of 276 m each
4 Viaducts over Valderaduey river of 104 m each
16 Overpass on-site
3 Overpass of precast girders
1 Railway overpass
12 Underpass

Services performed:
Alignment design and Detailed Design Project
Construction Management
Quantitative, qualitative and geometric control.
Construction Supervision.
Monthly reports and Final report.
Owner
MINISTERIO DE FOMENTO. DEMARCACIÓN DE CARRETERAS DE CASTILLA-LA MANCHA.
(Ministry of Public Works. Government of Spain)

Completion Year
2006

Construction Budget
US$ 46 Millions

Contractor company
SANDO

Relevant details:
Length: 16,600 m.
Typical Section: 2 Roadways of 2 Lanes each direction/ 2 Complete junctions
Structures: Viaduct over Jabalón river, bridge over H.S.R. Line Madrid-Sevilla, 2 Structures for Junctions, 3 Bridges for streams pass and wildlife, 1 Structure for wildlife crossing and 8 Structures for minor roads replacement.

Replacements: Minor roads, highways and utility relocation.

Services performed:
Detailed Design Project.

HIGHWAYS
SOTERRAMIENTO DE LA M-30. TRAMOS: PUENTE DE SAN ISIDRO-PUENTE DE PRAGA Y PUENTE DE PRAGA-NUDO SUR.
Works of burial M-30 highway between San Isidro bridge – Praga bridge and Praga bridge – South Joint

Owner
AYUNTAMIENTO DE MADRID, (Madrid City Council)

Completion Year
2007

Construction Budget
US$ 673 Millions

Contractor company
Acciona (San Isidro bridge -- Praga bridge)
FCC (Praga bridge – South Joint)

Relevant details:
Length: 17,271 m.
Length of connecting fork with highway A-3: 491.06 m
Typical Sections: “Cut & Cover” Tunnel of 3-5 Lanes and another section of 2-3 lanes
Tunnel:
- “Cut & Cover” Tunnel of 3-5 Lanes 8,668 m.
- “Cut & Cover” Tunnel of 2-3 Lanes 8,603 m.

Services performed:
AUTOVÍA DE LA PLATA A-66.
TRAMO: BÉJAR – LÍMITE DE PROVINCIA DE SALAMANCA.
Highway de la Plata: A-66. CN-630 from Gijon to Sevilla. Section: Bejar - L. P. Province: Caceres and Salamanca

Owner
MINISTERIO DE FOMENTO. DEMARCACION DE CARRETERAS DEL ESTADO EN CASTILLA Y LEON OCCIDENTAL
(Ministry of Public Works. Government of Spain)

Completion Year
2010

Construction Budget
US$ 53 Millions

Contractor company
AZVI

Relevant details:
Length: 8,320 m.
Typical Sections: 2 Roadways of 2 lanes in each direction and 2 complete junctions
Structures: Viaduct over “Cuerpo de Hombre” river and another over a big ravine.
Other Structures: 5 Overpass, 1 railway overpass.
Replacements: Minor roads, highways and utility relocation

Services performed:
Alignment design and Detailed Design Project.
NUEVO ACCESO A CÁDIZ. TRAMO: PUENTE SOBRE LA BAHÍA Y DUPLICACIÓN DE LA N-443. PROVINCIA DE CÁDIZ.

New Road Access to Cadiz. Bridge over the bay and duplication of N-443 road. Province: Cadiz.

Owner
MINISTERIO DE FOMENTO. DEMARCACIÓN DE CARRETERAS DEL ESTADO EN ANDALUCÍA OCCIDENTAL. (Ministry of Public Works. Government of Spain)

Completion Year
Under construction

Construction Budget
US$ 486 Millions

Contractor company
DRAGADOS

Relevant details:
Length: 5,000 m.

Typical Sections:
2 Roadways of 2 Lanes each direction, 3 complete junctions and a rail platform.

Structures: New Viaduct over Cadiz Bay: Total Length 3,150 m with 37 piles and 4 main sections:
Launched section of 600 m, Removable section of 150 m, Cable-stayed section of 1,180 m, Prestressed concrete section of 1,200 m.

Other Structures:
Viaduct of San Pedro river: Length of 800 m, composite section. 2 Overpass in river San Pedro junction

Replacements:
Minor roads, highways and utility relocation

Services performed:
Alignment design and Detailed Design Project, Quantitative, qualitative and geometric control, Construction Supervision, Monthly reports and Final report, Safety and health coordination. Environmental control.
Owner
AYUNTAMIENTO DE MADRID. (Madrid City Council)

Completion Year
2007

Construction Budget
US$ 379 Millions

Contractor company
J.V. FERROVIAL – AGROMAN – ACCIONA

Relevant details:
Length: 8,320 m.
Length of main roadway: 4,131.21 m.
Length of connecting branch with highway A-3: 491.06 m
Typical Sections: T.B.M. Tunnel of 3 Lanes of 3.5 m width each, shoulders of 0.5 m in both sides and clearance of 4.50 m.
Tunnel: Tunnel with TBM 3,548.96 m. Wells, Retaining walls: 582.25 m
Other interesting works: Protections of surrounding buildings and consolidating inyections. Shallow and deep foundations. Control elements and safety in tunnel and fire protection.

Services performed:
Construction Management and construction supervision.
**Owner**
MINISTERIO DE FOMENTO. DEMARCACION DE CARRETERAS DEL ESTADO EN CASTILLA Y LEON OCCIDENTAL.
(Ministry of Public Works. Government of Spain)

**Completion Year**
2007

**Construction Budget**
US$ 69.5 Millions

**Contractor company**
J. V. CYOPSA-SYSOCIA

**Relevant details:**

- **Length:** 17,800 m.
- **Typical Sections:** 2 Roadways of 3-2 lanes in each direction and 6 complete junctions.
- **Structures:** 3 Viaducts over highway N-620, over the railway and over creek La Valmuza, and the retrofitting of Viaduct over Tormes river
- **Other Structures:** 4 Overpass and retrofitting of an existing bridge and 26 Underpass.
- **Replacements:** Minor roads, highways and utility relocation

**Services performed:**
Alignment design and Detailed Design Project.
Owner
MINISTERIO DE FOMENTO. DEMARCACIÓN DE CARRETERAS DEL ESTADO EN ASTURIAS.
(Ministry of Public Works. Government of Spain)

Completion Year
2009

Construction Budget
US$ 83 Millions

Contractor company
J.V. COPROSA and PUENTES Y CALZADAS

Relevant details:
Length: 11,900 m.
Typical Sections: 2 Roadways of -2 Lanes in each direction and a diamond junction
Structures: Viaduct over the Rebollada ravine: 312 m. Viaduct over Porcia river and FEVE line: 585 m. Viaduct over Caballeiros creek (Perdigueiros): 160 m. Viaduct over Miudes creek: 173,7 m.
Other Structures: 16 overpass crossing highway, 6 Underpass

Services performed:
Alignment design and Detailed design Project
Owner
MINISTERIO DE FOMENTO. DEMARCACIÓN DE CARRETERAS DEL ESTADO EN VALENCIA.
(Ministry of Public Works. Government of Spain)

Completion Year
In development

Construction Budget
US$ 318 Millions, (estimated)

Contractor company
Project not finished

Relevant details:
Length: 23,000 m.

Junctions and links:
Section AP-7 – CV-32: 7 Junctions and links.
Section CV-32 – A-3: 9 Junctions and links.
Section A-3 – Algemesí: 5 Junctions and links.
Section New access from highway A - 3: 6 Junctions and links.

Structures: 96 Structures and 8 retaining walls. Viaducts over Turia river and 4 Viaducts to be defined at junction of V-30 highway in Paterna.

Other Structures: 16 overpass crossing highway, 6 Underpass

Services performed:
Alignment design and Detailed Design Project
AUTOVÍA ALBACETE-MURCIA. N-301 DE MADRID A CARTAGENA. PK 252,000 AL PK 290,500. TRAMO: ALBACETE-ENLACE DEL PUERTO.

Albacete & Murcia Highway, N-301 from Madrid to Cartagena. P.K. 252,000 al 290,500.
Section: Albacete - Junction "El Puerto".

Owner
MINISTERIO DE FOMENTO. DEMARCACIÓN DE CARRETERAS DEL ESTADO EN CASTILLA – LA MANCHA
(Ministry of Public Works. Government of Spain)

Completion Year
2002

Construction Budget
US$ 71 Millions

Contractor company
J.V. ACCIONA INFRAESTRUCTURAS and FERROVIAL-AGROMAN

Relevant details:
Length: 37,690 m.
Typical Sections: 2 Roadways of 2 Lanes in each direction and 10 complete junctions.
Drainage works: 79.
Earthworks: Excavations: 3,755,000 m3. Embankments, rock embankments, and selected soils: 3,821,000 m3
Road pavements: Artificial graded granular mixture: 365,000 m3. Hot botuminous mixes: 610,000 Tm.
Replacements: Minor roads, highways and utility relocation.

Services performed:
**AUTOVIA DE CASTILLA. CN-620 DE BURGOS A PORTUGAL.**
**TRAMO: SALAMANCA-ALDEHUELA DE LA BOVEDA. PROVINCIA DE SALAMANCA.**


**Owner**
MINISTERIO DE FOMENTO. DEMARCACION DE CARRETERAS DEL ESTADO EN CASTILLA Y LEON OCCIDENTAL
(Ministry of Public Works. Government of Spain)

**Completion Year**
2004

**Construction Budget**
US$ 61 Millions

**Contractor company**
OBRASCÓN-HUARTE LAIN S. A. (OHL)

**Relevant details:**
- **Length:** 22,250.22 m
- **Typical Sections:** 2 Roadways of 2 Lanes in each direction and 4 complete junctions
- **Structures:** 8 Overpass on-site. Length total: 525 m. 7 Underpass. Total length: 200.18 m
- **Earthworks:** Excavations: 637,469 m3. Embankments: 3,027,457 m3
- **Road pavements:** Artificial graded granular mixture: 61,877 m3. Hot bituminous mixes: 278,782 Tm.
- **Drainage works:** 56
- **Replacements:** Minor roads, highways and utility relocation.

**Services performed:**
Owner  
MINISTERIO DE FOMENTO. DEMARCACION DE CARRETERAS DEL ESTADO EN CASTILLA Y LEON OCCIDENTAL.  
(Ministry of Public Works. Government of Spain)

Completion Year  
2009

Construction Budget  
US$ 33 Millions

Contractor company  
ALTEC

Relevant details:  
Length: 14,368 m  
Typical Sections: 2 Roadways of 2 lanes in each direction and junction with N-501 roadway in Ventosa of the Almar river. 
Structures: 8 Overpass on-site. 1 Overhead crossing of precast girder. 4 Underpass 
Earthworks: Excavations: 1,154,086 m³. Embankments: 1,500,388 m³ 
Road pavements: Artificial graded granular mixture: 63,593 m³. Hot bituminous mixes: 111,350 Tm. 
Drainage works: 15. 
Replacement: Minor roads, highways and utility relocation.

Services performed:  
Construction management. Quantitative, qualitative and geometric control and cost management, Construction Supervision. Montly reports and Final report.
Owner
MINISTERIO DE FOMENTO. DEMARCACIÓN DE CARRETERAS DEL ESTADO EN CASTILLA – LA MANCHA
(Ministry of Public Works. Government of Spain)
Completion Year
2011
Construction Budget
US$ 17 Millions
Contractor company
J.V. AGROCAJA-VELASCO

Relevant details:
Length: New alignment: N-322: 6,395.49 m. Junctions: 6,938.34 m
Typical Sections: 1 Roadway of 1 carril in each direction and 4 complete junctions.
Structures: 6 Overpass of Precast girder, 2 Underpass of Precast girder
Earthworks: Excavations: 1,260,153 m³, Embankments: 670,022 m³
Road pavements: Artificial graded granular mixture: 64,000 m³, Soil cement: 70,559 m³, Hot bituminous mixes: 67,000 Tm.
Drainage works: 18.
Replacements: Minor roads and highways: 7,219.26 m.

Services performed:
Construction management. Quantitative, qualitative and geometric control and cost management, Construction Supervision, Montly reports and Final report.
Owner
MINISTERIO DE FOMENTO. DEMARCACIÓN DE CARRETERAS DEL ESTADO EN ANDALUCIA OCCIDENTAL
(Ministry of Public Works. Government of Spain)

Completion Year
2009

Construction Budget
Several

Contractor company
Several

Relevant details:
Length: Doble roadway: 153.19 km, and single roadway: 20.9 km.
Structures: Length of Viaducts in strict environmental conditions: 3,657 m
Protected areas: Marshes of the Cadiz bay, Depressions of Guadalquivir River and Genil River.

Services performed:
Owner
MINISTERIO DE FOMENTO. DEMARCACIÓN DE CARRETERAS EN LA COMUNIDAD VALENCIANA
(Ministry of Public Works. Government of Spain)

Completion Year
2010

Construction Budget
US$ 786 Millions

Contractor company
No awarded

Relevant details:

Length: 151 Km.

Scope of work: were analyzed a total of 640 km of possible routes, including: Alignments, geological and geotechnical characteristics, hydrological, environmental analysis and characterization, including studies of: Study of occupation of land and assessments, Pre-design of Structures, Viaducts and Drainage works, definition of special construction procedures: Tunnel, foundations, budgets.

Owner
GISA. GENERALITAT DE CATALUNYA.
(Department of Infrastructures. Catalonia State Government)
Completion Year
2007
Construction Budget
US$ 456 Millions
Contractor company
CIRALSA CONCESSIONAIRE

Relevant details:
Length: 56,060 m
Typical Sections: 2 Roadways of 3-2 Lanes in each direction and 14 junctions and 1 service area
Structures: 20 Viaducts with 3,832 m of total length
Other Structures: 27 Overpass, 7 Bridges over highways and rivers, 24 Underpass
Tunnel: 12 Tunnels of 4,515.47 m of total length
Replacements: Minor roads, highways and utility relocation

Services performed:
Preliminary design for Construction, maintenance and operation. Alignment design for the widening and construction of additional lanes of the roadway C-25 and its transformation to highway.
Owner
MINISTERIO DE FOMENTO. DEMARCACIÓN DE CARRETERAS DEL ESTADO EN ANDALUCIA ORIENTAL
(Ministry of Public Works. Government of Spain)
Completion Year
2008
Construction Budget
US$ 180 Millions
Contractor company
FERROVIAL - AGROMAN

Relevant details:
Length: 10,500 m
Typical Sections: 2 Roadways of 2 lanes in each direction
Structures: 1 Bridge over “Rambla de Huarea” of 291 m long, with 3 spans and piles of 74 m height. 1 Bridge over “Rambla of the Alcazaba” of 204 m long, 3 spans and piles of 60 m height. 1 Bridge over “Rambla de Güainos Bajos” of 204 m long, 5 spans and piles of 38 m height. Total length the bridges: 1.370 m

Services performed:
Owner
MINISTERIO DE FOMENTO. DEMARCACION DE CARRETERAS DEL ESTADO EN CASTILLA Y LEON OCCIDENTAL
(Ministry of Public Works. Government of Spain)

Completion Year
Unstarted

Construction Budget
US$ 96 Millions

Contractor company
J.V. ACCIONA – FERROVIAL

Relevant details:
Length: 15,970 m included 1,670 m of junction between Highways A-66 and A-6

Typical Sections: 2 Roadways of 2 lanes and 3 complete junctions

Structures: 1 Viaduct over Prado Ramiro river of 146 m long, 6 Structures for the Highways A-66 and A-6 junctions, 12 Overpass, 3 Underpass.

Replacements: Minor roads, highways and utility relocation

Services performed:
Alignment design and Detailed Design Project.
Owner
MINISTERIO DE FOMENTO. DEMARCACIÓN DE CARRETERAS DEL ESTADO EN ANDALUCÍA
(Ministry of Public Works. Government of Spain)

Completion Year
2006

Construction Budget
US$ 44.5 Millions

Contractor company
ACCIÓN

Relevant details:
Length: Single roadway 50,943.20 m. Minor roads 16,670.30 m
Typical Sections: 2 Roadways of 2 lanes in each direction and 3 complete junctions.
Structures: 2 Viaducts over Ayuela river and 2 over “Puerto de las Herrerías” joint, 8 Overpass crossing highway, 16 Underpass
Replacements: Minor roads, highways and utility relocation

Services performed:
Alignment design and Detailed Design Project, and Right of way services.
Owner
MINISTERIO DE FOMENTO. DIRECCIÓN GENERAL DE FERROCARRILES
(Ministry of Public Works. Government of Spain)
Completion Year
2010
Construction Budget
US$ 92 Millions
Contractor company
No awarded

Relevant details:
Length: Public documents for public consultation: 42,276 m of possible routes. Detailed Design Project: 34,369.75 m
Typical Sections: New platform for UIC gauge for 260 Km/h. Track rectificación of actual Iberian gauge for 220 Km/h, in 6,641.95 m
Structures: 15 Overpass. 4 Underpass frame type and another with slab.
Earthworks: Excavations: 1,710,684 m³, Embankments: 474,472 m³, Shape layer in rail platform: 245,012 m³, Subballast: 15,859 m³, ballast: 15,906 m³
Drainage works: 7 over 3 m and 49 up to 3 meters.
Track assembly: Iberian gauge 6,641.95 m
Replacements: Minor roads, highways and utility relocation

Services performed:
Public documents for public consultation, EIS and Detailed design Project.
Owner
ADIF, ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS
(High Speed Rail Administration. Government of Spain)

Completion Year
Under construction

Construction Budget
US$ 213 Millions

Contractor company
ACCIÓN INFRAESTRUCTURAS

Relevant details:
Length: UIC gauge: 14,335 m for double track and 22,460 m for single track.
Iberian gauge: 3,026 m of double track and 12,121 m of single track

Typical Sections: New platform for UIC gauge for 260 Km/h. Rectification track of actual Iberian gauge for 220 Km/h, in 6,641.95 m

Structures: 10 Viaducts for high speed rail. 12 Overpass. 4 Flying junction on the high speed tracks. 10 Underpass, (4 of this are jacked boxes under existing railways).

Earthworks: Excavations: 7.85 Millions of m3. Embankments: 5.75 Millions of m3

Track assembly and installations: 17,362 m of track, power supply, communications, control and security facilities

Services performed:
Detailed Design Project, Construction Management and Construction Supervision.

RAILWAYS
**Owner**
MINISTERIO DE FOMENTO. DIRECCIÓN GENERAL DE FERROCARRILES
(Ministry of Public Works. Government of Spain)

**Completion Year**
Under construction

**Construction Budget**
US$ 484 Millions

**Contractor company**
ACCIÓNA INFRAESTRUCTURAS and FCC

**Relevant details:**

**Length:** 8,961 m of high speed rail platform in double track and 2,221 m of single track in Vigo Station.

**Tunnel and Structures:** A double-tube tunnel excavated with T.B.M. of 8,280 m long, a cut&cover tunnel of 178 m long and 1,614 m of retaining walls.

**Track assembly:** 5,812 m of slab track of steel reinforced concrete. 20,984 m of slab track of polypropylene fibers reinforced concrete. 760 m of floating slab track. 24 different detours types.

**Services performed:**
Detailed Design Project, Technical assistance to Principal Engineers.
### PROYECTO DE PLATAFORMA DEL NUEVO ACCESO FERROVIARIO DE ALTA VELOCIDAD DE LEVANTE. MADRID - CASTILLA LA MANCHA - COMUNIDAD VALENCIANA - REGIÓN DE MURCIA. TRAMO: VILLARREAL – CASTELLÓN.

**High Speed Rail. Madrid - Castilla la Mancha - Comunidad Valenciana - Region of Murcia.**  
**Section:** Villarreal - Castellón.

| **Owner** | ADIF, (ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS)  
(High Speed Rail Administration. Government of Spain) |
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<td><strong>Construction Budget</strong></td>
<td>US$ 119 Millions</td>
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<td><strong>Contractor company</strong></td>
<td>No awarded</td>
</tr>
</tbody>
</table>

**Relevant details:**
- **Length:** UIC gauge: 3,709 m long, Iberian gauge: 4,533 m long.
- **Tunnel:** 1,336 m
- **Track assembly and facilities:** slab track removable blocks systems: 3,800 m long. Track over ballast: 8,450 m long. Shifting of the track over ballast: 680 m long

**Services performed:**
Platform Detailed Design Project for high speed rail and track superstructure. Power supply, security and communications facilities for the replacement of the existing railway line.
**Owner**
MINISTERIO DE FOMENTO. DIRECCIÓN GENERAL DE FERROCARRILES.
(Ministry of Public Works. Government of Spain)

**Completion Year**
2005

**Construction Budget**
US$ 61 Millions

**Contractor company**
COMSA

**Relevant details:**
Length: 2,540 m of double track of high speed. UIC gauge
Tunnel: Tunnel of Xesteira. Tunnel for double track of 783 m long. Tunnel of Ponte Sampaio. Tunnel for double track of 176 m long. 1 Artificial tunnel located in the city of Arcade.
Structures: Viaduct over Verdugo river, of 120 m long. 1 Overpass. 3 Underpass

**Services performed:**
Detailed Design Project of high speed rail.
Owner
ADIF, (ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS).
(High Speed Rail Administration. Government of Spain)

Completion Year
2010

Construction Budget
US$ 143 Millions

Contractor company
ALTEC

Relevant details:
Length: 10,860 m. Maximum speed: 350 km/h. Double track. UIC gauge
Earthworks: Excavations: 1,068,845 m³. Embankments (12): 610,251 m³. Shape layer: 75,751 m³. Subballast: 33,176 m³
Tunnel of La Loma del Carrascal: 2,192.81 m long, New Austrian tunneling method.
Structures: Viaduct over creek de la Zarza: 44.0 m long. Viaduct over creek de la Vega: 489.50 m long. Viaduct over access road to Colliguilla: 12 m long. Viaduct over Júcar River: 562 m long. Overpass (5). Underpass, Wildlife crossing and special drainage works.

Services performed:
Owner
ADIF, (ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS).
(High Speed Rail Administration. Government of Spain)

Completion Year
2009

Construction Budget
US$ 54 Millions

Contractor company
J.V. TAPUSA – PAVASAL

Relevant details:
Length: 15,400 m. Double track. Max. Speed: 350 km/h. UIC gauge
Earthworks: Excavations: 2.38 Millions of m3. Embankments: 1.74 Millions of m3
Structures: 1 Viaduct HSR of 90 m long. 1 Overhead crossing A-3 highway of 71 m long. 1 Overhead crossing CM-200 highway of 111.3 m long. 6 Overpass. 10 Underpass

Services performed:
Owner
ADIF, (ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS)
(High Speed Rail Administration. Government of Spain)

Completion Year
2008

Construction Budget
US$ 69.5 Millions

Contractor company
SACYR

Relevant details:
Length: 6,940 m. Doble track. Max. Speed: 350 km/h. UIC gauge
Earthworks: Sub-ballast: 17,400 m3. Shape layer: 39,000 m3. Selected soils: 136,000 m3. Rock fill in artificial tunnels and slope protection: 60,000 m3. Excavations: 1,681,000 m3. Embankments or rockfill: 1,238,000 m3
Tunnel of Las Barrancadas: 2,890 m long (Mined tunnel).
Structures: Viaduct over CV-830 of 16 m long. Derramador Viaduct of 30 m long. 5 reinforced concrete frames

Services performed:
Owner
MINISTERIO DE FOMENTO. DIRECCIÓN GENERAL DE FERROCARRILES.
(Ministry of Public Works. Government of Spain)

Completion Year
2009

Construction Budget
US$ 103.5 Millions

Contractor company
FERROVIAL – AGROMAN

Relevant details:
Length: Doble track of high speed of 8,100 m long, and 2,167 m long of single track.
Cerceda-Meirama Station: Station building.
Earthworks: Excavations: 1.89 Millions of m³. Embankments: 1.47 Millions of m³
Tunnel: Tunnel of "Viris" for double track of 1.736 m long. Artificial tunnel of "As Revaltas" for double track of
245 m long. Artificial tunnel of "Rego da Iña" of 180 m long.

Services performed:
Platform Detailed Design Project, Track Superstructure, Security and communications facilities. Station building
of the New Cerceda-Meirama Station.
Owner
ADIF, (ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS)
(High Speed Rail Administration. Government of Spain)

Completion Year
2009

Construction Budget
US$ 58 Millions

Contractor company
PLODER

Relevant details:
Length: 8,353 m. Doble track. Max. Speed: 350 km/h. UIC gauge
Earthworks:  Excavations: 1,560,807 m³. Embankments or rockfill: 1,366,062 m³. Shape layer: 48,782 m³. Selected soils, transition wedges: 90,000 m³. Sub-ballast: 33,057 m³. Artificial graded granular mixture: 10,845 m³. Rock fill: 7,500 m³
Tunnel Sierra de Altomira: 768.40 m long. Artificial West tunnel : 78.17 m long. Mined tunnel: 665.16 m long. Artificial East tunnel: 25.07 m long.
Structures: 2 Minor roads Overpass. 3 Minor roads Underpass. 3 Wildlife crossing and Minor roads Underpass. 1 Wildlife crossing and drainage tube.

Services performed:
Design Statement and Platform Detailed Design Project.
Owner
ADIF, (ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS)
(High Speed Rail Administration. Government of Spain)

Completion Year
2000

Construction Budget
US$ 99 Millions

Contractor company
ACCIÓN INFRAESTRUCTURAS

Relevant details:
Length: 14.7 km

Typical Sections: New platform UIC gauge for 350 Km/h

Tunnel: Tunnel of Sagiofs. Tunnel for double track of 1,821 m long.

Structures: Viaduct 1: 207 m. (36+45x3+36 m). Viaduct over Madre of Sagiofs creek: 510 m. (45+60x7+45 m). Viaduct 3. Length 252 m. (36+45x4+36 m). Viaduct over Valzarzo creek: 330 m. (45+60x4+36 m). Viaduct over Chaorna creek: 450 m. (45+60x6+45 m). Viaduct over Los Pilones creek: 211 m. (38+45x3+38 m). 7 Overpass. 6 Underpass


Drainage works: 6 frameworks of 2.5 x 2.5 m. 2 Reinforced concrete arch of 6.5 x 5.5 m. used as wildlife crossing. 25 reinforced concrete pipelines.

Replacements: Minor roads, highways and utility relocation

Services performed:
Detailed Design Project, Construction Management and Construction Supervision.
Owner
ADIF, (ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS)
(High Speed Rail Administration. Government of Spain)

Completion Year
2006

Construction Budget
US$ 19 Millions

Contractor company
COPCISA

Relevant details:
Length: 1.48 km
Typical Sections: New platform UIC gauge for 350 Km/h
Tunnel: Tunnel of Costa Blanca. Tunnel for double track of 635 m long. Tunnel of Bó. Tunnel for double track of 333 m long
Structures: Bó Viaduct. 100 m long. (22+28x2+22 m)
Earthworks: Excavations: 381,282 m³. Embankments: 162,384 m³. Shape layer in rail platform: 4,538 m³. Subballast: 2,234 m³
Drainage works: 2 frameworks of 2 x 2 m
Replacements: Minor roads, highways and utility relocation

Services performed:
Detailed Design Project, Construction Management and Construction Supervision.
Owner
ADIF, (ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS)
(High Speed Rail Administration. Government of Spain)

Completion Year
2005

Construction Budget
US$ 14 Millions

Contractor company
COPCISA

Relevant details:

Length: 1.10 km

Typical Sections: New platform UIC gauge for 350 Km/h

Tunnels: Tunnel of Llobregat. Tunnel for double track of 456 m long.

Structures: Viaduct of Llobregat river. Length 202 m. (46+55.2x2+46 m). 1 Underpass


Drainage works: 1 frame of 2 x 2 m. 1 frame of 5 x 5 m

Services performed:
Detailed Design Project, Construction Management and Construction Supervision.
**Owner**
ADIF, (ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS)
(High Speed Rail Administration. Government of Spain)

**Completion Year**
2003

**Construction Budget**
US$ 137 Millions

**Contractor company**
ACCIONA INFRAESTRUCTURAS

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**Relevant details:**

**Length:** UIC gauge: 21,000 m for double track. UIC gauge: 7,180 m for single track. Iberian gauge: 11,056 m for single track.

**Typical Sections:** New platform UIC gauge for 350 Km/h. Rail detours UIC gauge. (Iberian gauge: 1,668 m).

**Structures:** Viaduct 1 over Huerva river: 1,122 m (2x49.50+14x66.00+2x49.50 m). Viaduct 2 over Huerva river: 1,111 m (2x44+14x66+2x49.50 m.). 6 Bridges over railway, roadways and highway. 7 Overpass. 23 Underpass

**Earthworks:** Excavations: 5,694,416 m³. Embankments: 3,580,931 m³. Shape layer in rail platform: 249,546 m³. Subballast: 174,731 m³

**Drainage works:** 1 frame of 6 x 6 m. 2 bicellular frameworks of 6 x 4 m

**Services performed:**
Detailed Design Project, Construction Management and Construction Supervision.
Owner
ADIF, (ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS)
(High Speed Rail Administration. Government of Spain)

Completion Year
2007

Construction Budget
US$ 49 Millions

Contractor company
AZVI

Relevant details:
Length: 11,508.26 m. Doble track. UIC gauge. Max. Speed: 350 km/h.

Earthworks: Excavations: 571,986 m³. Embankments or rockfills: 1,301,770 m³. Shape layer: 75,277 m³. Sub-ballast: 49,056 m³

Structures: Viaduct over Adaja river. Viaduct over Cega river. Viaduct over Duero river. 12 Overpass

Drenaje: 15 Cross drainage culverts.

Superstructures: 23,040 m of UIC-60 rail. 4 Type 350/220 detours. 6 Expansion devices.

Services performed:
Platform and Track superstructure Detailed Design Project.
Owner
ADIF, (ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS)
(High Speed Rail Administration. Government of Spain)

Completion Year
No awarded

Construction Budget
US$ 89.1 Millions

Contractor company
No awarded

Relevant details:
Length: High Speed rail 10,915 m long. Max. Speed: 330 Km/h.
Typical Sections: New HSR platform of 14 m width, for double track UIC gauge (1,435 mm).
Structures: Viaduct over CC-18 road.3 of 83 m long. Viaduct over EX-208 road of 47m long. 1 Overpass. 3 multifunctional Overpass: Wildlife crossing and road replacement. 1 Underpass for road replacement.
Tunnel: Tunnel of “La Dehesa de Terzuelo” for double track of 1,420 m long.
Earthworks: Excavations: 2,644,000 m³. Embankments: 793,000 m³. Shape layer in rail platform: 60,000m³. Subballast: 40,900 m³
Drainage works: 4 drainage culverts over the platform, 5 drainage culverts over 6m, 5 drainage culverts over 3 m and 8 drainage culverts up to 3m.
Replacements: Minor roads, highways and utility relocation

Services performed:
Design statement and platform detailed design Project

Owner
ADIF, (ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS)
(High Speed Rail Administration. Government of Spain)

Completion Year
No awarded

Construction Budget
US$ 90.5 Millions

Contractor company
No awarded

Relevant details:
Length: LAV. Length: 6,335 m. Max. Speed: 250 Km/h

Typical Sections: New HSR platform of 14 m width, for double track UIC gauge (1.435 mm).

Structures: Viaduct of Manzanil of 1,737 m long. 33 Spans. Max. span: 55 m. Width: 14m. 1 Overpass for road replacement.

Tunnel: Tunnel of "Los Abades" for double track of 608 m long. Tunnel of "Las Monjas" for double track of 69 m long.

Earthworks: Excavations: 1,100,000 m³. Embankments: 657,000 m³. Shape layer in Rail platform: 24,100m³. Subballast: 12,600 m³

Drainage works: System of rail platform waterproofing, (located over an aquifer), 6 decanting and treatment pools, 2 drainage culverts over 7m and 8 drainage culverts up to 7m.

Replacements: Minor roads and utility relocation

Services performed:
Design statement, Platform detailed design project and Environmental restoration for HSR.

RAILWAYS
Owner
ADIF, (ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS)
(High Speed Rail Administration. Government of Spain)
Completion Year
2011
Construction Budget
US$ 54.7 Millions
Contractor company
J.V. CYOPSA-SISOCIA-CONSTRUCCIONES SARRIÓN-TABLEROS FUENTES.

Relevant details:
Length: HSR: 10,475 m. Design speed: 350 Km/h. Railway branch: 2,533 m. Speed: 60 Km/h
Typical Sections: Doble track UIC gauge. New platform for rail branch of 7 m width, for single track Iberian gauge.
Structures: Viaduct over P-972 road of 81,9 m long. Viaduct over Sequillo river of 90 m long. Viaduct over P-905 road of 23.2 m long. Viaduct over Railway line Palencia–León of 23.1 m long. 4 Overpass for replacement of minor roads. 3 Underpass for replacement of two highways and one minor road.
Villada PAET, (PAET: overtaking and parking place for trains) PAET Length : 4,031 m.
Earthworks: Excavations: 866,000 m3. Embankments: 1,513,000 m3. Shape layer in rail platform: 124,000 m3. Subballast: 54,400 m3
Drainage works: 6 drainage culverts over 7 m, 5 drainage culverts over 3 m and 19 drainage culverts up to 3m.

Services performed:
Design statement and Platform detailed design project of High Speed rail and one rail branch to access to rail facilities.
Owner
MINISTERIO DE FOMENTO DIRECCIÓN GENERAL DE FERROCARRILES.
(Ministry of Public Works. Government of Spain)

Completion Year
No awarded

Construction Budget
US$ 70.6 Millions

Contractor company
No awarded

Relevant details:
Length: HSR: 13,531 m. Design Speed: 220 Km/h. Rail branch to railway regulation site and railway line Córdoba-Jaén. Lengths: 721 and 949 m.

Typical Sections: HSR of 14 m width, for doble track UIC gauge. Branches of 8,5 m width, single track of Iberian gauge.

Structures: Viaduct over Guadalquivir river of 389 m long. Viaduct over Guadalbullón river of 215 m long. 1 Flying junction of HSR Linares-Jaén over line Espelúy-Jaén. 2 Overpass. 9 Underpass

Tunnel: Tunnel of "Mengibar" for double track of 382 m long.

Railway Regulation Site: Length : 2,184 m. 2 Stabling tracks of 580 m long and 3 railway sidings of 70 m long. 2 platform of 400 m and 1 technical building platform

Earthworks: Excavations: 683,000 m3; Embankments: 1,351,000 m3

Drainage works: 2 drainage culvert over 5 m, 4 drainage culvert over 3 m and 37 drainage culvert up to 3m.

Services performed:
Platform Design Statement of HSR and two rail branches.
OWNER

MINISTERIO DE FOMENTO. DIRECCIÓN GENERAL DE FERROCARRILES.

(Ministry of Public Works. Government of Spain)

Completion Year

Under construction

Construction Budget

US$ 72 Millions

Contractor company

VIAS Y CONSTRUCCIONES, S.A.

Relevant details:

Track Superstructure: The track alignment in double track in Iberian gauge and in mixed gauge UIC-Iberian. The platform is made of soils, Tunnel and Viaducts. 2,510 m of slab track RHEDA 2000 with reinforced concrete slab. 21,308 m of slab track RHEDA 2000 with polypropylene fibers reinforced concrete slab. 2,965 m of slab track RHEDA 2000 with reinforced concrete slab with elastomeric blanket for vibration mitigation. 709 m of floating system slab track. 8,983 m of track over ballast with multi-purpose sleepers. 730 m of shifting of the track. 15 detours over ballast. 5 detours over slab. 4 double diagonal over slab. 4 expansion devices.

Remodelling of Vigo-Urzaiz Station, Redondela Station, Arcade Station and Pontevedra Station, and of Redondela PIB, (Middle Site of reverse flow operation)

Drainage of lowest point of Tunnel of Vigo–Das Maceiras: Design of a pipe drainage system of Ø1,5 m and 380 m long, which drains to Vigo sewerage net.

Execution in surface unaffected, in urban environment, introducing a line of reinforced concrete pipes with hydraulic jacks push through in the interior of a tunnel which has been previously drilled by a microtunnelling machine.

Services performed:

Platform Design project for high speed rail and two connecting branches.
Double crossover in the northern area of the station for traffic distribution. Double crossover in the tracks placed in the middle length of the platforms. Lead track in northern area, of 215 m long.

**Relevant details:** New underground station in the center of Vigo, in a densely populated and built area. Demolition of the old station, travelers building and its annexes. Over 1,614 m of retaining walls. 740,000 m³ of excavation in soils and rocks in the station.

**Services performed:**
Design Statement Project and Infrastructure detailed design Project of the new underground Station Vigo-Urzáiz.

**Definition of the new underground station:** Level of tracks projected: 15 m under the actual station. Number of tracks = 6, (all of them usable for travelers). Number of platforms = 4. Platforms length= 400,6 m, 357,7 m, 356,0 m and 400,1 m. Maxumun platforms width= 10,0 m, 12,7 m, 12,7 m and 10,00 m
Owner
ADIF, (ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS)
(High Speed Rail Administration. Government of Spain)

Completion Year
Under construction

Construction Budget
US$ 96 Millions

Contractor company
J.V. SACYR / CAVOSA

Relevant details:
Length: UIC gauge: 16,955 m. for double track.
Typical Sections: New platform UIC gauge for 300 Km/h
Structures: 1 Tunnel of 1,000 m long. Inner cross section: 105 m2. Excavation cross section: 145 m2. 2 Viaducts for high speed rail. 2 Overhead crossing over the high speed line and the actual track. 7 Overpass.
6 Underpass. 5 Wildlife crossing.
Earthworks: Excavations: 2.50 Millions of m3. Embankments: 1.50 Millions of m3.

Services performed:
Construction Management and Construction Supervision.
Owner
ADIF, (ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS)
(High Speed Rail Administration. Government of Spain)

Completion Year
Under construction

Construction Budget
US$ 172 Millions

Contractor company
J.V. ISOLUX CORSAN-TABOADA-RAMOS

Relevant details:
Length: UIC gauge: 8,749 m. for single track.
Typical Sections: New platform UIC gauge for 300 Km/h
Structures: 1 Tunnel of 8,570 m. Inner cross section: 52 m2. Rock blasting excavation (New austrian tunnel method). 4 Bridges for HSR.
Earthworks: Excavations: 800,000 m3. Embankments: 87,450 m3.

Services performed:
Construction Management and Construction Supervision.
Owner
ADIF, (ADMINISTRADOR DE INFRAESTRUCTURAS FERROVIARIAS)
(High Speed Rail Administration. Government of Spain)

Completion Year
Under construction

Construction Budget
US$ 166 Millions

Contractor company
J.V. COPROSA / RUBAU / INSERSA

Relevant details:
Length: UIC gauge: 8.853 m. for single track.
Typical Sections: Nueva platform UIC gauge for 300 Km/h
Structures: 1 Tunnel of 8,570 km. Inner cross section: 52 m². Rock blasting excavation (New austrian tunnel method). 2 Bridges for HSR. All the foundations are made of footings.
Earthworks: Excavations: 1,117,190 m³. Embankments: 222,725 m³

Services performed:
Construction Management and Construction Supervision.
Owner
GISA. GENERALITAT DE CATALUNYA
(Department of Infrastructures. Catalonia State Government)

Completion Year
Under construction

Construction Budget
US$ 310 Millions

Contractor company
ACCIÓN

Relevant details:
Length: 4,700 m

Two-tubes Tunnel with TBM EPB, (Earth Pressure Balance): Inner/Outer diameter of each tube: 5.90 / 6.65 m.
Distance between tubes: 10 m. Maximon distance between stations: 2.1 km. Distance between cross galeries: 250 m. Tunnel depth: 20 to 30 m

Cut&Coverage Tunnel: 2.48 km long.

Stations: Can N'Oriach Station. Plaça Espanya Station. Eix Macia Station. Plaça Major Station. Sabaofl Station.

Services performed: Technical consultancy for instrumentation, auscultation and monitoring. Construction Supervision of the excavations of the Tunnel and underground stations.
Owner
MINTRA. CONSEJERÍA DE TRANSPORTES E INFRAESTRUCTURAS. COMUNIDAD DE MADRID
(Department of Infrastructures. Madrid State Government)
Completion Year
2007
Construction Budget
US$ 75 Millions
Contractor company
OHL

Relevant details:
Length: 1,600 m
Two-tubes Tunnel with TBM EPB, (Earth Pressure Balance): PPKK 0+042.5 a 0+225 (L = 182 m): Continuous reinforced concrete shield. PPKK 0+225 a 0+300 (L=75 m). Crossing under highway M-30: Retaining piles wall, “Top Down”. PPKK 0+300 a 0+405 (L=105 m): Section between piles. PPKK 0+405 a 1+325 (L= 920 m): Mined section, (Madrid method). PPKK 1+325 a 1+430 (L= 105 m). La Elipa Station: Continuous reinforced concrete shield. PPKK 1+430 a 1+610 (L = 180 m): Mined section, (Madrid method)
Shafts: Emergency exits and compensation injections.

Services performed: Detailed design Project
Owner
DIRECCIÓN GENERAL DE INFRAESTRUCTURAS DE TRANSPORTE. COMUNIDAD DE MADRID. (Department of Infrastructures. Madrid State Government)

Completion Year
2007

Construction Budget
US$ 68 Millions

Contractor company
FERROVIAL-AGROMAN

Relevant details:
Length: 1,996 m
Tunnel: Total length of 2 km excavated with TBM-EPB (Earth Pressure Balance). Tunnel inner diameter 8.43 m. Prefabricated reinforced concrete sections of 0.32 m width. Ring 7 piece universal type. Excavation diameter: 9.38 m. Fill the gap with mortar.

Casar Station: Station with central platform. Exchanger with Renfe line C-3 on common lobby. Cavern of 215 m long, 15 m of depth and width varies between 13 to 22 m

Espartales Station: Station with two side platforms and upper hall underground. Cavern of retaining walls of 120 m long, 15 m depth and width varying from 18 to 32 m

Services performed:
Detailed design Project
Owner
DIRECCIÓN GENERAL DE INFRAESTRUCTURAS DE TRANSPORTE. COMUNIDAD DE MADRID
(Department of Infrastructures. Madrid State Government)

Completion Year
2007

Construction Budget
US$ 27 Millions

Contractor company
FERROVIAL-AGROMAN

Relevant details:
Length: 1,543 m

Tunnel: Tunnel excavated with TBM EPB, (Earth Pressure Balance) of 1,020 m long. Inner diameter of 8.43 m. Prefabricated reinforced concrete sections of 0.32 m width. Ring 7 piece universal type. Excavation diameter: 9.38 m. Fill the gap with mortar

Open tunnel: 254 m long include El Bercial Station. Typical section reinforced concrete frame type of 10 x 8 m

Station El Bercial: Station with two side platforms and lobby at street elevation. The structure consist in perimeter retaining walls, interior columns and roof slabs and background. The set of tracks is conformed by 8 tracks. The total width of the station is 75 m. The length of the railway station is 266 m

Services performed: Detailed design Project
NEW ACCESS TO THE WARNER THEME PARK AND SAN MARTÍN DE LA VEGA (STUDY AND CONSTRUCTION PROJECT).

New rail access to the Warner Theme Park and San Martín de la Vega.

**Owner**
COMUNIDAD DE MADRID. CONSEJERÍA DE OBRAS PÚBLICAS, URBANISMO Y TRANSPORTES
DIRECCIÓN GENERAL DE INFRAESTRUCTURAS DE TRANSPORTE
(Department of Infrastructures. Madrid State Government)

**Completion Year**
2002

**Construction Budget**
US$ 58 Millions

**Contractor company**
J.V. ACCIONA – SACYR

**Relevant details:**

**Length:** Public documents for public consultation 29,320 m of possible routes. Detailed design project: 13,412 m

**Typical Sections:** New platform in double track of Iberian gauge for 100 Km/h design speed. Diverted lines in single track were calculated for 100 Km/h.

**Structures:** 2 Viaducts. 1 Canopy over railway. 15 Overpass. 3 Frames over railway. 12 Underpass

**Earthworks:** Excavations: 1,524,458 m³. Embankments: 1,387,435 m³. Shape layer: 102,826 m³

**Drainage works:** 21

**Stations:** Warner Park Station. San Martín de la Vega Station

**Services performed:** Public documents for public consultation and Detailed design Project.
Owner
AGENCIA DE OBRA PÚBLICA. JUNTA DE ANDALUCÍA.
(Department of Infrastructures. Andalusia State Government)

Completion Year
Under construction

Construction Budget
US$ 147 Millions

Contractor company
No awarded

Relevant details:
Length: 10,490 m
New double track: Length 2,940 m. Platform 7.14 m width. Distance between track axes: 3.63 m
New double track over access bridge to Cádiz: Length 3,730 m. Platform 6.80 m width.
New single track: Length 1,030 m. Platform 4.50 m width.

Services performed: Comparative study, Alignment design and Detailed design Project
ARTERIA DE INTERCONEXIÓN ENTRE EL 2º Y 3er DEPÓSITO CON LOS NUEVOS DESARROLLOS DEL SURESTE DE MADRID. FASE II”. TRAMO A. TUBERÍA DE ABASTECIMIENTO.

Interconnection line between 2nd and 3rd deposit with new southeast Madrid developments. Pipeline of water supply. Phase II. Section A.

Owner
CANAL DE ISABEL II. COMUNIDAD DE MADRID.
(Madrid City Council)

Completion Year
2008

Construction Budget
US$ 2.2 Millions

Contractor company
J.V. ACCIONA-FCC

Relevant details:
Length: 800 m
Description: The pipe of 1,400 mm of inner diameter is a concrete pipe steel jacket, with an outer diameter of 1,700 mm.
Alignment: Horizontal radial of 260 m. Slopes 2 to 36 mm/m.

Hydraulic calculations: Demand calculation, Initial stage: 881,634 l/s. Final stage 1,517,760 l/s. Design pressure: 163 to 185 psi

Services performed: Detailed design Project

HYDRAULIC
Interconnection line between 2nd and 3rd deposit with new southeast Madrid developments. Pipeline of water supply. Phase II. Section B.

**Owner**
CANAL DE ISABEL II. COMUNIDAD DE MADRID.
(Madrid City Council)

**Completion Year**
2008

**Construction Budget**
US$ 1.6 Millions

**Contractor company**
ACCIONA-FCC

**Relevant details:**
**Length:** 860 m
**Description:** The pipe of 1,400 mm of inner diameter is a concrete pipe steel jacket, with an outer diameter of 1,700 mm.
**Alignment:** Horizontal radius of 260 m. Slopes 1.4 to 2 mm/m.
**Hydraulic calculations:** Demand calculation, Initial stage: 881,634 l/s. Final stage 1,517,760 l/s. Design pressure: 163 to 185 psi

**Services performed:** Detailed design Project
Interconnection line between 2nd and 3rd deposit with new southeast Madrid developments. Pipeline of water supply. Phase II. Section A.

**Owner**
CANAL DE ISABEL II. COMUNIDAD DE MADRID.
(Madrid City Council)

**Completion Year**
2008

**Construction Budget**
US$ 4.6 Millions

**Contractor company**
ACCIÓNA-FCC

**Relevant details:**
- **Length**: 1,400 m
- **Description**: The pipe of 1,400 mm of inner diameter is a concrete pipe steel jacket, with an outer diameter of 1,700 mm.
- **Alignment**: Horizontal radius of 260 m. Slope 2 mm/m.
- **Hydraulic calculations**: Demand calculation, Initial stage: 881,634 l/s. Final stage 1,517,760 l/s. Design pressure: 163 to 185 psi

**Services performed**: Detailed design Project

**HYDRAULIC**
Owner
CANAL DE ISABEL II. COMUNIDAD DE MADRID.
(Madrid City Council)

Completion Year
2008

Construction Budget
US$ 1.4 Millions

Contractor company
ACCIÓNA-FCC

Relevant details:
Length: 140 m
Description: The pipe of 1,400 mm of inner diameter is a concrete pipe steel jacket, with an outer diameter of 1,700 mm.
Alignment: Horizontal radial of 260 m. Slope 2 mm/m.
Hydraulic calculations: Demand calculation, Initial stage: 881,634 l/s. Final stage 1,517,760 l/s. Design pressure: 163 to 185 psi

Services performed: Detailed design Project
Owner
DIRECCIÓN GENERAL DE CALIDAD Y EVALUACIÓN AMBIENTAL.
(Madrid City Council)

Completion Year
2009

Construction Budget
US$ 97 Millions

Contractor company
FERROVIAL-AGROMAN

Relevant details:
Description: Tunnel excavated with T.B.M. (Earth Pressure Balance) of 6.70 metros inner diameter and 7.65 of outer diameter of 4,400 m long. Cut&cover tunnel of 9.00 m width and 400 m long, in places where earth coverage is not enough. By-pass of the main drains of 9.00 square meters, on both sides of the M-30 highway. Execution of a chamber of derivation of three main drain lines with storm-water spillways.

Structures: Working shaft: 70.00 meters of perimeter and 25.00 deep. Executed with retaining walls. Working shaft for the TBM: rectangular 18.10 m long, 12.40 meters wide and 18.70 meters high. Structure for connecting main drain lines A, B, and C: structure conformed by two irregularly shaped shafts, of area: 676.50 and 626.90 m², united by mined gallery section.

Services performed: Detailed design Project and Construction Management. Quantitative and Qualitative control. Construction Supervision.
MEJORA DE LA CUENCA DE ABROÑIGALES DOBLADO DEL COLECTOR ABROÑIGAL Y ACTUACIONES EN LOS COLECTORES DE PILILLAS Y MORATALAZ.

Duplication of the Abroñigales sewage and improvements to the sewage network of Pilillas and Moratalaz.

Owner
DIRECCIÓN GENERAL DE CALIDAD Y EVALUACIÓN AMBIENTAL.
(Madrid City Council)
Completion Year
Under construction
Construction Budget
US$ 40 Millions
Contractor company
DRAGADOS

Relevant details:
Description: Initial tunnel of 78.00 m long excavated in mined vaulted gallery, interior section of 3.40x3.40m. 85.00 m in the interior of working shaft, 2,380 m of main drain in Tunnel excavated with TBM, (EPB), of diameter 3.95 m. Drain system in mine of 400 m long for connecting Pilillas basin. Cut & Cover drain system of 640 m for connecting the basin of Moratalaz.
Structures: Working shaft of 13.00 m width, 83.75 m long, 16.00 m high with piles. Shaft for extracting the EPB. Inner diameter of 15 m, 36.00 m depth with piles. Structure of connection with collector B: Circular shaft of diameter of 10.00 m, 39.00 m depth, executed with secant piles. Internal spiral staircase to bridge the elevation gap of 22.00 m. Connections with minor drainage systems duplicates in Pilillas and Moratalaz.

Services performed: Detailed design Project and Construction Management. Quantitative and Qualitative control. Construction Supervision.
Owner
DIRECCIÓN GENERAL DE CALIDAD Y EVALUACIÓN AMBIENTAL.
(Madrid City Council)

Completion Year
2008

Construction Budget
US$ 86 Millions

Contractor company
ACCIONA

Relevant details:
Length: 6,400 m

Description: Left bank drain system of 510 m long with a hydraulic capacity of 40.00 m³/s, with net width of 4.00 m and a minimum height of 3.80 m. Right bank drain system of 5,890 m long with hydraulic capacity of 80.00 m³/s, with 4.50 m width and a minimum height of 4.50 m.

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Services performed: Detailed design Project
Abroñigal Storm-water tank.

Owner
DIRECCIÓN GENERAL DE CALIDAD Y EVALUACIÓN AMBIENTAL.
(Madrid City Council)

Completion Year
2009

Construction Budget
US$ 68 Millions

Contractor company
SACYR

Relevant details:
Description: Storm Tank: 200,000 m³ capacity, with dimensions of 85.00 meters wide and 255.00 meters long. Perimeter executed by retaining walls of 1.00 meters thick and 19.35 meters high. Alveolar cell slab supported by piles of mesh 8.50 x 8.50 and 4.00 x 4.00 m footings. The system has five gates with cutwaters for storms tank fill. Spillway storm tank: Two independent lips 42.20 m each with 9.15 m depth. Discharging the storm tank: Pumping shaft 12.00 m³/s capacity and 12 bombs. House of ventilation with three fans of 100,000 m³/h. Cleaning system: using flaps. Tank drainage inlet: three frames 5.00x3.20 meters. Bypass drainage system to collector south for small flows: frame of 2.50x2.00 meters.

Services performed: Detailed design Project and Technical assistance to Principal Engineer during construction.
Relevant details:

**Description:** Storm Tank: 400,000 m³ capacity, in two sub-tanks. Dimensions of 170.00 meters wide and 255.00 meters long and perimeter executed by retaining walls of 1.00 meters thick and 19.35 meters high. Alveolar cell slab supported by piles of mesh 8.50 x8.50 and 4.00 x4.00 m footings bracing by girder brace. The system has five gates with cutwaters for filling each sub-tank with thick decanter and energy absorber. Spillway storm tank: Independent by-pass with a drainage line of 5 m width. Discharging the storm tank: 2 Pumping systems of 10.50 and 6.5 m³/s capacity. House of ventilation with three fans of 100,000 m³/h. Cleaning system: folding fusegates. Tank drainage inlet: three frames 5.00x3.20 meters. Bypass drainage system to collector south for small flows: frame of 2.50x2.00 meters.

**Services performed:**
Detailed design Project and Technical assistance to Principal Engineer during construction.
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