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Other Adjudications

New law courts building in Cuenca,for the Ministry of Justice, for €12.9 million. The building is rectangular in plan with two basements and three storeys.

Oria Medio interceptor and additional branches. Section: Benta Aundi – Tolosa (Guipúzcoa)for €16 million, in a temporary joint venture with a local company, for the Basque Government Department of Territorial Order and the Environment. The main collector is 2,451 m long with diameters ranging from 800 to 1,500 mm and the secondary section is 1,510 m long. Some sections involve sinking pipes under the River Oria.

A-3 concession (province of Cuenca) and A-31,for the General Roads Directorate of the Ministry for Development. This involves improving, conserving and maintaining these motorways for 19 years. The initial investment is € 110 million.

Supply of sleepers for ADIF, for Prefabricados Delta, in a temporary joint venture with another company, for € 21.2 million.

Adjudications

FCC to build the access to the Vidin-Calafat bridge in Bulgaria

The contract is worth €75.1 million

FCC is to build the €75.1 million access to the bridge over the Danube between Vidin (Bulgaria) and Calafat (Rumania) for the government of Bulgaria.

The access to the bridge (also built by FCC) is on the right bank and is for both road and rail traffic. The rail access is 16.3 km long with a single electrified track and all auxiliary installations for lighting, control, signalling and telecommunications as well as an international goods station, the renovation of the existing passenger station and three new nearby buildings.

The road traffic access includes the building of a 6 km long motorway with two lanes in each direction, the renovation of four junctions and the building of eight overpasses over roads and the railway.

Computer graphic

Delhi Metro Rail: Alpine wins the contract to build a section of underground in India

Alpine, in a temporary joint venture with other companies, has won the contract to build the first section of the underground line between New Delhi and the Indira Gandhi international airport, for €139.3 million. The 3.7 km route includes two underground stations, New Delhi and Shivaji. Work will start this year and finish in under three years.

The project will require two tunnel boring machines with earth pressure shields (EPB) over six metres in diameter to excavate 2 x 2.192 km.

Alpine wins contract to build the second Pfänder tunnel in Austria

The contract is worth €123 million; work will start in October and end in 2012

Alpine, in a temporary joint venture with other companies, has won the contract to build the second Pfänder tunnel, on the A-14 motorway in the Rhine valley in Austria, for €123 million.

The Alpine team will speed up the building of the 6.5 km long eastern tube with a tunnel boring machine, a mechanical excavation method used for years in Spain with good results but applied for the first time in Austria to build a road tunnel.

Building will start this October and is scheduled to finish within five years, by December 2012.

FCC to build the Formula 1 city track in Valencia

The Government of Valencia has awarded FCC the contract to build the connecting infrastructures for the Alameda - Avenida de Francia - Valencia Port section, in a temporary joint venture with other companies. The project has a budget of €31.73 million and covers the first section, 2,073 m, of the future Formula 1 city track, which must be ready by 24 August 2008 for the European Grand Prix.

The main road has a constant width of 14 m, widening to 16 m in some areas. As well as the main road, 11 others will be created for the circuit itself and for landscaping in general.

Route of the future Formula 1 City Track

ADIF awards FCC a new section of the high speed railway

The contract is for two urban tunnels under Gerona on the Madrid - Barcelona - French frontier high speed railway

FCC, in a temporary joint venture with other companies, has been awarded the contract to build the urban tunnels for the Madrid - Barcelona - French frontier high speed railway under the city of Gerona, for €278.62 million.

This is a new section, 3.64 km long, of which 2,861 m are two sections of tunnel to be built with a tunnel boring machine. The contract also includes the building of the first phase of the new Gerona inter-modal station.

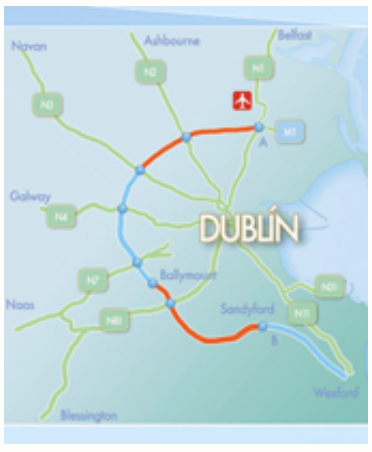
FCC to build a section of the SE 40 eastern section motorway in Seville

The Sociedad Estatal de Infraestructuras del Transporte Terrestre (SEITT), part of the Ministry for Development, has awarded FCC the eastern section of the SE 40 motorway between Alcalá de Guadaira (A-92) and Alcalá de Guadaira (A-376), which will connect the A-376 and the A-92 motorway, continuing the Seville metropolitan area ring road after the junction of the SE-40 with the A-92 motorway.

The 5.96 km section starts at km 0+125 on the A-92 and ends at the A-376 (Utrera road) at km 6+0.81, where a new junction is to be built and the existing one remodelled.

The estimated schedule for the work is 30 months and the budget, €58.5 million. The SE-40 motorway is intended to relieve traffic on both the Andalusia motorway (A-4) and the SE-30, both very congested at peak hours, and to improve access to the villages in the area as well as reducing traffic passing through the centre of Seville.

The National Road Authority has awarded FCC the building and operating for 35 years of the 25 km M 50 motorway in Dublin



FCC, in a temporary joint venture with other companies, has been awarded the contract to build and operate the M 50 motorway in Dublin, Eire, with an investment of €265 million. The M 50 project is a concession to design, renovate and operate the M 50 Dublin ring motorway and includes widening lanes over 24 km and operating and maintaining an further 19.3 km from the moment the contract is signed.

The concession is for 35 years and work is scheduled to end at the start of 2011.

Events

Work starts on the new wharf 4 in the Rota naval base

The new wharf to be built by FCC will cost €34.9 million

Santiago Ruiz, FCC Construcción Area I Sub-director General, at the presentation ceremony

The Mayor of Rota, Cadiz, Lorenzo Sánchez Alonso, accompanied by Rota naval base commander Admiral José María Pelluz Alcantud and numerous military authorities and business representatives, attended the layout checking ceremony for the new wharf 4 at the base on 15 October.

Work on the new wharf is scheduled to last 27 months and will involve the dredging of over a million cubic metres and 298,276 m^3 of stone filling as well as the placement of 32 reinforced concrete caissons.

Wharf 4 will provide the berth for the new Juan Carlos I aircraft carrier, to be built in El Ferrol.

Attendees at the ceremony in the Rota naval base

Foundation stone laid for the Public University of Navarre campus in Tudela

Laying the foundation stone

The foundation stone for the future Tudela campus in Navarre was laid on 12 September, attended by Miguel Sanz, Chairman of the Regional Executive, Julio Lafuente, Rector of the university, Carlos Pérez, Navarre Education Councillor and Luis Casado, the Mayor of Tudela, among others.

The project was awarded to FCC Construcción for €12 million and involves building an industrial engineering building with an area of 4,700 m^2, another for physiotherapy and a classrooms building as its centre, with accesses to the administrative services, cafeteria, conference hall and library, as well as the landscaping of the site. The work is scheduled for completion in 15 months.

Events

ISO builds a shopping centre and bus station in Talavera de la Reina

Shopping centre and bus station

Interior of the new bus station

Ibérica de Servicios y Obras, SA, an FCC Construcción subsidiary, has built a new shopping centre for El Corte Inglés in Talavera de la Reina, Toledo, and has also built a new bus station next to it, together with access tunnels for the entire complex to link it with the surrounding landscaped area, also built by ISO.

The new shopping centre has seven storeys above ground as well as two storeys of structures for the roof and coffers to provide a total area of 70,000 m^2.

The shopping centre lies in a complex that includes the town's new bus station and the surrounding landscaping.

Technical data

Project name:
Shopping centre, bus station, access tunnels and landscaping in Talavera de la Reina

Promoter/owner:
El Corte Inglés

Start:
January 2006

End:
June 2007

Project team

Department manager:
Juan Ruano

Site managers:
José Miguel Iborra / David Barral

Foremen:
Daniel González / José Blázquez

Work under way

Alpine to build three towers in Bratislava, Slovakia

The company will build 633 homes with 24-hour reception, garage and fitness centre in each tower and shops on the ground floor. The contract - to be undertaken in a temporary joint venture with another company - is worth €49 million.

Computer graphic of the project

Alpine is to build the largest and most modern housing project in Slovakia, in Bratislava, the Three Towers, for Tricorp Development, with a project budget of €49 million.

The Three Towers will be built near the Bratislava stadium. Each will be 73 metres high on 25 storeys plus a ground floor housing shops and restaurants and an additional level with a fitness centre and storage rooms.

The project includes a four-floor garage with a parking space for each of the 633 homes, the area of which ranges from 40 m² to 220 m² on 19 floors.

The total useful area of the Three Towers is 70,000 m². The design of the façade follows the latest architectural trends, with aluminium and ceramics predominating, and will become a modern milepost in Bratislava.

Alpine will finish building the towers within two years. The first two will be handed over in Autumn 2008 and the third will be inaugurated at the start of 2009.

Current state of the project

RSC

RSC

FCC Construcción obtains the A+ classification for its 2005-2006 Sustainability Report

FCC Construcción has updated its 2005-2006 Sustainability Report in accordance with the G3 international standard of the Global Reporting Initiative. According to this guide, the company has obtained the A+ classification.

The company has undertaken to publish its report biannually with an update being published in alternating years for the information of all those interested.

The Entorno Foundation has collaborated in preparing this report which has been verified by a third independent organisation, AENOR.

The 2006 update is the most complete version containing priority lines for action in areas of corporate social responsibility for 2008: the choice of sustainable building materials, the efficient use of natural resources, the health and safety of persons, innovation, energy efficiency, employment rights, the reduction of nuisances caused by building work and social action.

The main actions in 2006 included a push to prevent accidents at work, resulting in accident figures below those for the sector, the creation of over 1,800 jobs in 2006, the integration of disadvantaged groups, for which it has signed an agreement with Adecco, care for the environment, complying with the ISO 14.001 standard and using its environmental management system in all projects, and collaboration with society by sharing knowledge and through support for cultural, social and sports programmes, to which the company dedicated over €1.5 million last year.

FCC Construcción is a leading company in Spain with activities in America and Western and Eastern Europe, working in civil engineering and building and with over 24,000 employees. In 2006 it had a turnover of €4,395 million with a net operating profit of €241 million.

FCC welcomes the Sustainable Building Working Group in its head office

Cristina García-Orcoyen (left), Chair of the Entorno Foundation, during the Working Group meeting

FCC welcomed the companies in the Sustainable Building Working Group, promoted by the Entorno Foundation, in its Torre Picasso head office on 17 October.

This working group, consisting of Acciona, ADIF, Ferrovial, Grupo Eroski, Holcin, Ericsson, Philips, Gas Natural, FCC Construcción, Iberdrola, CEMEX, Telefónica, Bancaja, Habitat and Cementos Pórtland, was set up to provide the members of the Entorno Foundation with a platform from which to set up a framework for action that defines the conditions making sustainable building possible throughout the value chain and to encourage dialogue with all those involved.

The 17 October meeting discussed the problems and challenges of sustainable building and the possibility of preparing a joint publication containing all the conclusions.

Company News

Danish builders visit two FCC Construcción projects

Senior management from the Danish building companies MT Hoigard, E Phil & Son, A Engarrd, Akril and Per Aarlesfs, together with personnel from Seopan and their professional association in Denmark, Danks Byggeri, visited the Sol station and Caja Mágica projects in Madrid at the end of September.

The visitors were impressed with the size of both projects and the high technical level of the work.

Espelsa takes part in the London international defence fair

Espelsa, the FCC Construcción subsidiary specialising in electrical projects and installations, took part in DSEi (Defence Systems & Equipment International) held in London on 11 - 14 September.

This fair covers all sectors involved in the defence area, from military vehicles to special cabling, and including UAVs, combat equipment and military software systems.

Espelsa was on the Spanish pavilion with its own space where videos demonstrating its simulation, missile training and mission planning systems were shown continuously.

Contributions

Tunnels: a factor for change

Since the final two decades of the last century, tunnels have been infrastructures associated with the level of living and in such a mountainous country as ours, have become absolutely necessary. When other needs have been met, we want and demand better, faster and safer communications, we do not want cars occupying the places where we walk, etc. Because of all this, many tunnels are being built in Spain and many more will be built in the future.

Only a few years ago, we could hear important Spanish engineers saying that the best tunnel is the one that that hasn't been built. Fortunately, they are no longer afraid of tunnelling.

As with any other project, tunnelling demands respect and the adoption of the safety means within our reach but a tunnel should never be avoided because of fear of building it.

Installation of the tunnel boring machine head. Guadarrama tunnels

Until recently, tunnels were bored manually by drilling and blasting, with slow output and a high risk of accidents. With these means it was difficult to bore long tunnels, which were avoided by building routes with steeper gradients at higher levels to achieve shorter tunnels. Even so, there are very important projects that were a challenge to Spanish tunnel engineering, such as the Padornelo tunnel, 6 km long, on the Zamora – Orense line and that of La Egaña, seven kilometres, on the unfinished Santander – Mediterranean line, without forgetting the 62 tunnels on the Puerto de Pajares between León and Asturias, one of the most important works of Spanish engineering of the 19th century.

Currently, rail and road communications require routes with better conditions of comfort, speed and safety which imply, above all for railways, the building of longer tunnels.

Another important area is the building of urban tunnels for underground railways and cars. The case of Madrid in the last 10 years is an outstanding example with more than 150 km of underground railway tunnels built using EPB type tunnel boring machines, and the southern bypass tunnels on the M-30, 3.6 km long and 15.02 m in excavated diameter, the largest diameter tunnels built in the world. This type of large diameter tunnel, in my opinion, must be considered from now on for motorway projects since it can house three lanes.

Beyond doubt, the most important progress has been the general use of latest generation tunnel boring machines.

These machines provide a relatively high output in good safety conditions for the workers. They require strong financial investments since they are built practically to measure for each project, because of the cross section to be built, type of material to be excavated, etc, but they allow the undertaking of projects that would be impossible without them.

As an example, the Guadarrama tunnel, two tubes 27 km long, were bored in four years with four machines. It is difficult to predict, but the same work with conventional methods would have taken at least 10 years, without including any problems in undertaking and safety.

Segments stockpile. Guadarrama tunnels

Regarding the building of underground rail tunnels, especially in Madrid, it would not have been possible to build such a high number of kilometres in 10 years with the traditional system instead of using earth pressure tunnel boring machines (EPBs).

Currently in Spain, railway tunnels 25 km long are being built, such as the Guadarrama tunnels, already finished, and the Pajares diversion in an advanced state of undertaking as well as the Abdalajis tunnels on the Córdoba – Málaga line, 9 km, also finished, and others of similar features being built and in various stages of progress.

In the immediate future, initial work will start on various important tunnels such as those at Sotiello, also on the Pajares diversion, 6 km, and the new railway access to Vigo, of the same length.

In the longer term, it is clear that more important tunnels will have to be built, required by the future high-speed railway lines and the new generation of motorways.

Today, and without anyone accusing us of being chauvinists, we can say that Spain overall is the greatest worldwide reference. If we look at the number of tunnels built in the last 20 years and those being built now, there is no other country in the world that has a balance such as ours.

With regard to tunnels in the world, the most interesting could be the English Channel tunnel between France and England. Its length and the fact that it runs for most of its distance under the sea makes it admirable, both for technicians and for the public. Something similar occurs with the Seikan tunnel in Japan; both are over 50 km long.

A new San Gothard tunnel is now being built between Switzerland and Italy which, with more than 50 km, will replace the one built over 100 years ago, measuring 18 km. The old tunnel had steep ramps to reduce its length and the new one is a base tunnel, for the reasons described above.

Rail sidings. Pajares tunnels

The engineering involved in designing and building a tunnel must include various aspects, all of them important, since each of them alone could cause of the project to fail.

The first requirement is the maximum possible knowledge of the terrain to be crossed, the geotechnical study, complemented with an intensive series of trial drillings, research into other tunnels and mines in the area, etc. It requires the greatest possible information on the type of terrain involved, taking whatever time is necessary. It is an error to try to design an important tunnel quickly in order to speed up the work since this is time supposedly saved will certainly be the lost later during the building.

Another important aspect is the design of the tunnel boring machine to be used, which must be carried out together with the manufacturer in order to include those improvements or additional elements that have been successfully proven in other projects.

It is necessary to be especially generous in defining the parameters of tunnel boring machines (especially thrust and motor torque). There is nothing more costly, in my opinion, than saving on the design of a tunnel boring machine.

It is also necessary to study in great detail and with generous criteria all the installations for removing earth, ventilation, sidings for trains carrying the lining segments, material for injection behind the lining, etc, remembering that all this must operate at the service of the tunnel boring machine, which must never have to stop due to failures or insufficiencies in these installations.

Finally, but especially, it is vital to design the necessary means and procedures for the workers' safety so that any contingency is planned for.

The environmental impact of these projects must also be considered since, logically, they are located in mountain areas and often in protected countryside. The provision of tips and their treatment must form part of the project and may even condition it to some extent.

Avelino Acero Díaz
Zone IX Director
FCC Construcción