

Spain

Trains To Cross Girona Underground

The alignment of the high speed railway in Girona, north of Barcelona has been approved by the ministry of development. The Spanish gauge trains and the high speed (European gauge) trains will cross the city underground. The existing viaduct that divides the city will be demolished. Arriving from Barcelona, the conventional and high speed lines will run through a 750 m open cut portion, to be dug between diaphragm walls, before disappearing underground in a 1.3 km cut-and-cover tunnel between the Avellaneda freight station and the commuter station. A station box for both systems will be built at a depth of twenty metres under the existing Renfe station in Plaça Espanya with two tracks for the conventional line and four high speed tracks. From there, the line will separate in two northward branches to Figueras. The first branch for the high speed line will go westward, passing beneath Street Ter, Fontajau and Puig d'En Roca using a 3,060 m double-track tunnel to be TBM-driven. The line will exit at grade in Sarrià de Ter near the A-7 highway. The second branch, for the Spanish gauge trains, will be a 3,340 m-long TBM-driven tunnel following the existing viaduct and passing under river Onyar, Pedret and Pont Major. The conventional line will be built prior to dismantling the viaduct. Only after will the high speed line works be launched. It has been calculated that the TBM would bore 30 metres a day and that the tunnels could be driven in 100 days. The tunnels will be excavated at a depth of 15 metres starting from the new station. A €242 million investment will be necessary. It is estimated the works will take three years. Visit www.mfom.es and www.gif.es

France-Spain

France Finally Puts Off Closure Of Aragnouet-Bielsa Tunnel

Before possibly closing the transnational Aragnouet-Bielsa tunnel to heavy traffic, France has decided to wait for the alternatives to be proposed by Aragon, Spain and Haute-Pyrénées, France. The decision of the commission for the assessment of safety in tunnels last week has triggered a wave of protest in Spain. Officials and up to 1,000 local residents of Sobrarbe, Ribagorza and Somontano have demonstrated at the Spanish entrance to the tunnel to claim free circulation and to criticize the loss of business that the French decision would cause to their tourist places.

World Digest Of Tunnels Under Planning

Spain. Bids will be invited by Renfe, the Spanish state railways, in the first quarter of 2003 to transfer underground the railtracks in Alicante as part of the high speed link to Madrid. Renfe is also considering the possibility of transferring underground two kilometres of tracks in Bilbao between Lutzana and Sestao, at a cost estimated at €30 million. Visit www.renfe.es

Spain. Madrid has tremendously boosted its metro network constructing 56.5 km of new lines between 1995 and 1999 and 57 km from 1999 to 2003. If reelected for the next term 2003-2007, the Madrid government plans to build the Metronorte, a north line linking the northern municipalities of Alcobendas, San Sebastián de los Reyes and possibly Tres Cantos. This project is similar to the Metrosur line, south of Madrid, scheduled to open next year. Other projects on the drawing board include a southern connection to Villaverde, south of Madrid and a line to the east towards Coslada and San Fernando. Visit www.metromadrid.es

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United Kingdom. Progress on plans for the £139 million second Tyne tube alongside the existing tunnel was outlined in advance of a likely decision to be taken on 28th February by the Tyne and Wear passenger Transport Authority to apply to the government for an order to authorise construction of the new link. The new tunnel would be used only by southbound traffic and the existing link by northbound vehicles. The preferred type of tunnel is an immersed tube. It would be only the third such tunnel in Britain. Work would start in the spring of 2004. Opening is expected in 2007. Visit www.twpta.gov.uk/index.htm

United States. The idea of replacing the Alaskan Way viaduct with a cut-and-cover tunnel, built alongside a new Elliott Bay sea wall, is beginning to take root in Seattle. Studies of ways to replace the 49-year-old, earthquake-damaged viaduct began in earnest last year, after the Nisqually earthquake opened up several cracks in the structure in the Pioneer Square area. Two options would connect the stadium area with Denny Hill, and one would extend a tunnel almost to Broad Street, where it would link to surface streets and use a mined tunnel to connect to Aurora Avenue. Cost estimates will not be disclosed until the final option is selected but it is believed the replacement could cost more than \$1 billion.

United States. The MTA Board has just voted to certify the final environmental report on a planned 9.7 km light rail extension of the Metro Gold Line through east Los Angeles. The extension would serve one of the most densely populated areas of Los Angeles County. Construction of a 2.75 km tunnel portion through Boyle Heights could begin in mid-2003, construction of the at-grade portion in late 2004 or early 2005. The extension could begin operation in mid-2008. Visit www.mta.net

World Digest Of Bids

Colombia. The second bidding process launched by Instituto Nacional de Vías (Invías), the highways authority, to auction the US\$270 million La Línea road tunnel failed again. Three companies - Conconcreto, Bouygues and Ferrovial - had previously purchased the bidding rules. Representatives from Conconcreto and Bouygues said they would be unable to carry out the project economically and at the same time meet all investment guarantees stipulated in the contract. The 8.6 km tunnel would form part of a road link between the cities of Ibagué and Armenia in central Colombia, and is expected to take 6.5 years to build. Invías will now go back to the drawing board, and will immediately look at modifying the La Línea contract. The state authority will next try to sell the project via direct invitation to the three interested companies, rather than by auction. Visit www.invias.gov.co

France-UK. Negotiated procedure, deadline 29th March, 2002 for the design and manufacture of a dust removal module to be used in a railway tunnel. Visit <http://ted.eur-op.eu.int/ojs/en/frame.htm>, OJ S 41, document 32329-2002 or contact Eurotunnel, Coquelles, tel. +33 3 21006169.

Germany. Open tendering, deadline 27th March, 2002 for the construction of sewers in Gladbeck including pipejacking stretches: 325 m, i.d. 3000; 1,055 m, i.d. 2600; 405 m, i.d. 2000. Visit <http://ted.eur-op.eu.int/ojs/en/frame.htm>, OJ S 40, document 30931-2002 or contact Emschergenossenschaft, Essen, Mr. Schauerte, fax +49 201 1042661.

Italy. Open tendering, deadline 15th April, 2002 for the the work supervision and safety coordination for an avalanche protection tunnel on Road 46 in Singlin. Tender value of €234,000. Visit <http://ted.eur-op.eu.int/ojs/en/frame.htm>, OJ S 38, document 29692-2002 or contact the Aosta Valley autonomous region, Aosta, fax +39 0165272658.

Italy. The long-awaited Direttissima highway that will link Brescia, Bergamo and Milan could be a reality in 2007. The time frame to bid for its construction under concession expired on 21st February. One of the bidders is a jv of Astaldi and Cofiroute. The overall amount of the concession is €1.3 billion, of which €756 million for the construction and €551 million for the management costs throughout the

full duration of the concession. Altogether, there will be 2,250 metres of tunnel. In Caravaggio, two artificial tunnels will be required, of 1 km and 970 metres in length. Visit www.brebemi.it

Norway. Open procedure for the construction of a 550 m road including a 350 m tunnel on the Fv 188 county road in Sedalen near Bergen. The cross section of the tunnel is approx. 60 sq m. Drill/blast method. Visit <http://ted.eur-op.eu.int/ojs/en/frame.htm>, OJ S 38, document 29822-2002 or contact the national roads administration, Bergen, fax +47 55168715. E-mail firmapost.hor@vegvesen.no. Visit www.vegvesen.no/hordaland

Sweden. Restricted tendering, deadline 4th April, 2002 for the construction of a 600 m cut-and-cover tunnel on Road 48 between Borgunda and Skövde. Visit <http://ted.eur-op.eu.int/ojs/en/frame.htm>, OJ S 38, document 29500-2002 or contact Vägverket, Gothenburg, fax +46 31635196. E-mail jan-olof.agndal@vv.se

World Digest Of Contract Awards

Australia. Sydney's planned cross-city tunnel will cost \$240 million more and be 300 metres longer than initially thought. Under the revised plan, the tunnel will be 30 m deeper at its eastern end where it will pass under the Eastern Distributor, instead of over it. A consortium of Baulderstone Hornibrook, its parent company Bilfinger+Berger, Deutsche Bank and equity partner CKI Group, has been named preferred bidder to build, operate and finance the project which now will cost \$640 million, up from the \$400 million announced last year. Construction should begin by the end of the year and be completed before the end of 2004. Visit www.bh.com.au and www.rta.nsw.gov.au/roadworks/cct_brochure.pdf



Picture 1: The site where the Cross-City tunnel will join the Western Distributor.

Spain. The two jvs commissioned to build Line 9 of the Barcelona metro under a BOT contract are seeking private financing from banks for a total of €390 million before the administration releases its public funds. The first jv includes FCC, OHL, Ferrovial, Copisa, and Copcisa. The second is led by Dragados and includes also Necso, ACS, Comsa, and Sorigué. The banks approached are Santander Central Hispano, BBVA, La Caixa, CajaMadrid, Caixa de Catalunya, and Dexia Sabadell. The construction of Line 9 will cost €714 million altogether.

World Digest Of Ongoing Tunnelling

Bolivia. The Calio section of the 19.8 km Misicuni water tunnel is at 13,500 feet in Bolivia. The contractors Astaldi and ICE decided on 24th January, 2002 to shut the job down with only 500 m to go, and to battle for more money. On 21st February, Empresa Misicuni claimed the \$10 million cash guarantees and is proceeding to finish the tunnel immediately using its own resources. This tunnel was started 45 years ago, and by January 2000 only 300 m had been completed of the 12 km on the Calio side. It has proved to be a most difficult TBM job with over 1,200 m of cover with great pressure, causing rock bursts and constant fall out, 2,000 litres/sec water inflows, a cave-in that reached 300 m above the TBM, and squeezing ground moving at 3 mm a minute. A state of emergency was declared in Bolivia when the electorate decided that the water tunnel was not in their interests, and the local Bechtel offices were ransacked.

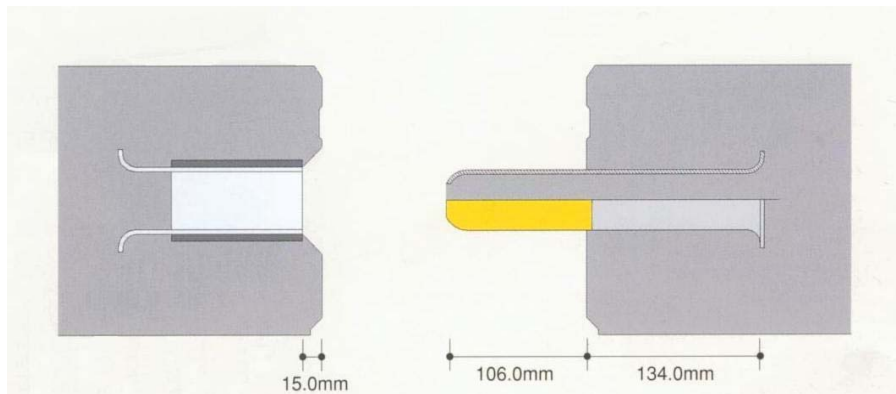
Italy. On 4th March is to commence the excavation of the 3.4 km-long 5.2 m-diameter pilot tunnel on the Rocchetta-Trento Nord section of the Mezzolombardo bypass. The contractors Giolai Costruzioni, a Bolzano-based company, and De.Mo.Ter of Messina will use a Wirth TBM. Construction should take

six months to complete. There will be three teams of workers in three shifts. Geingegneria is the work supervisor. Visit www.provincia.tn.it. More from studiogeingegneria@tin.it and giolai@iol.it

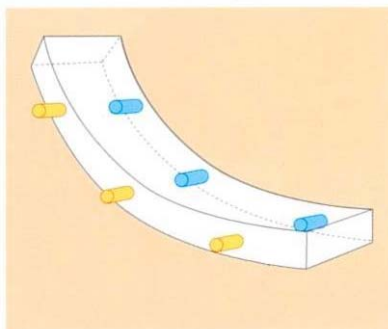
United States. Frank Coluccio Construction Company is currently using a refurbished Lovat 200 5.08 m-diameter tunnel boring machine. The TBM is excavating a 1,890 metre long sewer overflow tunnel, with respect to the Denny Way / Lake Union CSO, Mercer Street Tunnel, Contract C93001C, in King County, Seattle, Washington, USA. As of 11th February, 2002, the TBM has erected 1,384 rings having bored 1,661 metres with 222 metres remaining. Visit www.lovat.com and www.coluccio.com

World Digest Of Innovations – R & D

Japan. KFC, a Tokyo-based company, has jointly developed with Taisei a system called Just Push Joint (JPJ) designed to assemble better concrete segmental rings in small to medium-diameter tunnels. The segments are equipped with yellow male plug connectors on their rear edge, and blue female socket connectors on their front edge. When the segments are erected, the male connectors are hydraulically plugged into the female holes at the front edge of the previously erected ring (see pictures 2-9). The JPJ segments are not equipped with any bolts or metallic parts. The JPJ system allows to install more easily segmental rings thus shortening the lining process by 11 to 13% and cutting the construction costs. The segments can be installed as the TBM is excavating the tunnel. The system will be used for the construction of sewers in Tokyo.



Picture 2 (above): The male connector's outer diameter (yellow) is bigger than the female connector's inner diameter. When the concrete segments are assembled together, the male connector widens the female connector and fits into it.



Picture 3 (left): The concrete segments are equipped with yellow ring connectors on their back edge which are plugged to the previously installed ring and blue connectors on the front edge to which the next ring will be connected.

Pictures 4-9 (right): Sequence of installation of JPJ concrete segments within a tunnel.



Companies

Sweden. Skanska announced that Keith Clarke has been promoted to the group's senior executive team and David Fison has been appointed chief executive of Skanska's UK business unit. The company has also promoted Clarke to executive vice president and he joins the Skanska senior executive team, with responsibility for three business units - the UK business (which includes Mining, LNG, India and Gammon), Poland and the Czech Republic. Skanska's executive team is headed by the group's president and CEO, Claes Björk. Visit www.skanska.com

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