

Switzerland-UK

Engineering Consultancy Wins BTS Award for Swiss Tunnelling Project

Engineering consultancy Scott Wilson in Derby was presented with the Tunnelling Industry Award 2003 for Excellence in Tunnel Design by the British Tunnelling Society at an awards dinner in London. The winning project was carried out in Switzerland on behalf of CERN, the European Organisation for Nuclear Research. It involved the team working on huge underground structures for the Large Hadron Collider in Geneva, which form part of the European Laboratory, which is used for particle physics research. Scott Wilson, who acquired Knight Piésold last year, is based in Heritage Gate, and has expertise in tunnelling, ground engineering and power projects.

Scott Wilson initially intended to excavate all shafts and caverns, install primary excavation support to make the excavations safe and then construct the structural linings upwards from the cavern floors. However, as the client wished to continue experimentation and also take over one of the smaller caverns some 18 months before the other structures, the tunnelling team had to review its entire method of working and find alternative solutions. Visit www.scottwilson.com, www.britishtunnelling.org and <http://lhc-new-homepage.web.cern.ch/lhc-new-homepage>

World Digest of Tunnels Under Planning

Australia. The Parramatta rail link to Chatswood may be shelved, with the line set to end at Clyde or Granville stations under new options unveiled. Escalating costs forced a rethink of the second and final stage of the project. The 28 km line was originally to be finished by 2006 and cost A\$1.4 billion. But Stage 1 alone, from Epping to Chatswood, would cost up to A\$1.7 billion and not be open until mid-2008. This prompted the transport ministry of New South Wales, Michael Costa, to seek alternatives for Stage 2 - Epping to Parramatta - based on costs and expected patronage levels. The five options released all start with a tunnel from Epping to Carlingford. But different combinations of tunnels, surface rail lines and bus routes, were suggested for the rest of the link at costs ranging from A\$250 million to more than A\$1 billion. The five options are:

- **Modified EIS Option** with a tunnel from Epping to Carlingford, twin surface rail track Carlingford to new Rosehill/Camellia Station, tunnel from Rosehill/Camellia to Westmead, with underground platforms at Parramatta Station. Cost estimate: A\$1.05 billion.
- **Clyde Link** with a tunnel from Epping to Carlingford, single line surface rail service with passing loops from Carlingford to Clyde Station. Grade separated rail bridge over Parramatta Road. Cost estimate: A\$400 million.
- **Granville Link** is a tunnel from Epping to Carlingford, single line surface rail service with passing loops from Carlingford to Granville Station. Grade separated rail bridge over Parramatta Road. Cost estimate: A\$450 million.
- **Harris Park Option** includes a tunnel from Epping to Carlingford, twin surface rail service with passing loops from Carlingford to south of Rosehill Station, rail tunnel under Parramatta Road, connection into surface Main Western Line west of Harris Park Station. Cost estimate: A\$800 million.

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- Carlingford Line Transitway encompasses a tunnel from Epping to Carlingford, bus Transitway from Carlingford Station to Parramatta via Camellia and Hassell Street. Cost estimate: A\$250 million.

All estimates include cost of tunnelling and rail systems fitout for underground Epping to Carlingford connection. Visit www.raillink.nsw.gov.au and www.tunnelbuilder.com, au/11. Read E-News Weekly 41/2002 & 49/2002.

Canada-United States. The Canadian federal and Ontario governments announced plans to address the city's truck traffic crisis and improve the Windsor-Detroit trade corridor with targeted infrastructure investments and a commitment to work with the Detroit River Tunnel Partnership to increase truck and rail capacity as soon as possible by building a new border crossing for trucks plus a new rail tunnel. The Detroit River Tunnel Partnership Jobs Tunnel project includes building a new, high-capacity rail tunnel under the Detroit River, converting the existing twin-tube rail tunnel to truck tunnels, constructing a truckway within the existing rail corridor from Windsor to Detroit, and building a US/Canada Customs plaza on the Canadian side. Over 80% of the total project will be privately funded and it will be up and running in just five years. The project will be privately run and no operating and maintenance costs will be passed along to the City.

Moreover, a coalition of US and Canadian officials is also stepping up its efforts to establish a third crossing between Ontario and Michigan. The Canada-US-Ontario-Michigan Border Transportation Partnership is eyeing three possibilities for a tunnel or bridge, each costing between US\$400 million to US\$600 million. The proposals under consideration by the coalition are to twin the Ambassador Bridge with another span, build another bridge near Zug Island or convert a train tunnel in southwest Detroit to a twin train and truck tunnel.

A recent study shows Michigan and Ontario could lose US\$6.9 billion in jobs and trade by 2030. The Detroit-Windsor border currently handles US\$92 billion in trade per year, or roughly 25% of the total US-Canadian trade. The state's other major crossings points are bridges in Port Huron and Sault Ste. Marie.

A site could be named by March and construction could begin as early as late 2005. A number of state, local and provincial approvals, including one from the president of the United States, will have to be secured before the idea becomes a reality. Read E-News Weekly 33/2002 & 40/2002.

Russia. The first tunnel in the world to combine road traffic and metro transit will be built in Moscow. The project is developed by specialists of Metrogiprotrans and Avtometrotonnel. Building is intended to begin at the end of 2003. The tunnel stretches under Serebryany Bor. Cars will enter the tunnel from Novorizhsky Highway to Marshal Zhukov Prospect, and metro trains will travel from Krilatskoye metro station to Strogino station. In reality, three tunnel levels will be dug as part of the project. Metro trains will travel along the lower level, and motorists will travel along the upper levels. Metrostroy will construct the tunnel. The tunnel will be approximately 1.5 km in length. Construction will be completed in four years. Visit www.metrostroy.ru/lat/today1.htm

Spain. The Calderona and Los Alforines tunnels, the longest tunnels planned for the Ebro river diversion, will be located in the Valencia region, where 62.6 km (12 tunnels) out of 92 km of tunnels will be necessary for this water infrastructure. The Los Alforines tunnel, 12.4 km in length, will be built in La Font de la Figuera while the Calderona tunnel will be 11.7 km in length. Other noteworthy tunnels in the Valencia region are Benlloch (4.2 km), Costur (3.6 km), La Cazuela (1,470 m), La Vall d'Uixó (5,965 m) through Espadán mountains, and Enguera (5,230 m). Visit www.tunnelbuilder.com, es/85.

United States. The city of South Pasadena should take part in a study by the on the feasibility of closing the Long Beach (710) Freeway gap with a tunnel, rather than a mostly above-ground highway. The MTA, in a list of priorities for the next six years, committed to an investigation of the cost and logistics of constructing twin tunnels, one northbound and one southbound along the 7.25 km unbuilt portion of the 710 Freeway. The feasibility study also would examine the impact that tunnelling construction could have on South Pasadena, El Sereno and Pasadena. Read E-News Weekly 7/2003. Visit www.mta.net

World Digest of Bids

Austria. Open call for bids, deadline 22nd July, 2003 for construction of the 678 m-long Mixnitz tunnel, of which 47 m in cut-and-cover on the north side and 106 m on the south side. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=098519-2003>, OJ S 110, or contact ÖSAG, Vienna, fax +43 1 5313414020. E-mail office.wien@osag.at

France. Restricted call for bids, deadline 27th June, 2003 for low voltage equipment, fire hydrants and water supply for metro Line B in Toulouse . Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=093970-2003>, OJ S 105, or contact SMAT, Toulouse, fax +33 561144851.

Spain. Open call for bids, deadline 7th July, 2003 for construction of the Padrón-Osebe section of the high speed train line in La Coruña province further to approval by the government. The 3.8 km section includes a 865 m 90 sq m double-track tunnel under Mount Areal. Budget for construction amounts to €26.2 million and construction will last 30 months. The designers are Intecsa-Inarsa. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=096563-2003>, OJ S 108, or contact Ministry of Development, Madrid, fax +34 91 5979342 and 5978470. E-mail vrpascual@mfo.es or cpublic@mfo.es

Spain. Open call for bids, deadline 4th July, 2003 for audit of the quality insurance plans, quality management, architectural control, engineering services during construction, in particular tunnels, on the high speed line Madrid-Castilla La Mancha-Valencia region-Murcia region. Visit <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=096962-2003> and <http://ted.publications.eu.int/udl?request=Seek-Deliver&language=en&docid=096961-2003>, OJ S 108, or contact GIF, Madrid, fax +34 91 3198535.

World Digest of Ongoing Tunnelling

Ecuador. The Baños-Puyo highway includes several tunnels. The Puertas del Cielo tunnel is already completed. Two tunnels are under way in Río Verde, tunnel A and tunnel B. Río Verde A is 480 m-long and 250 m are still to go to break through. Cut-and-cover construction of the entrance portal at Río Verde B (650 m) is finished and tunnelling began on 11th June. The Machay tunnel (859 m) is completed with surfacing of the carriageway just missing. This will start in two weeks and take two and a half months. The builder is Argentinian contractor José Cartellone. Visit www.mop.gov.ec and www.cartellone.com.ar

Spain. Minister of development Francisco Álvarez Cascos officially launched on 10th June the preparatory works for the 3.5 km cross-city tunnel in Gijón. These works consist in preparing the TBM access near the former Industrial Engineering School, building two stations and boring ten core drills prior to the construction of the Begoña station. The dimensions of the 20 m-deep Universidad station structure under Justo del Castillo Avenue are delineated by diaphragm walls, which will form an concrete box of 165 m-long, with a width of 19 m. The second station box, with similar size, will be located in El Bibio. Begoña station will be mined from two drives in La Reconquista Street and Rendueles Llanos Street. A rescue tunnel will also be dug from El Humedal to Fernández Vallín Street to allow cement grouting in one of the trickiest area of the project. The Herrenknecht TBM ordered by Necso is due to arrive in the city in February 2004. The machine is expected to advance at a daily rate of 12 to 15 m. The 9.6 m-diameter tunnel will be lined with 14,000 concrete segments. Visit www.tunnelbuilder.com, es/73.

United States. Two Herrenknecht TBMs (machines S-231 & S-232) will arrive next month in Portland, Oregon to build an underground and underwater path for Portland's wastewater. This is a major step in the city's 20-year effort to control sewer overflows (CSOs) into the Willamette River that occur when



rainstorms fill pipes handling sewage and storm water runoff to capacity. The two machines will be lowered into a shaft at Northwest Nicolai Street, one boring south to Southwest Clay Street, the other north to Swan Island as they cut a tunnel 4.27 m in diameter. The tunnel will run about 5.7 km on the west side of the Willamette River at depths up to 36.6 m before crossing under the river to a pump station 45.7 m below the surface at Swan Island. The contracting JV comprises Impregilo and S.A. Healy. Parsons Brinckerhoff (PB) and Jacobs Associates are the consultants responsible for the project. The client is the Environmental Services Bureau of the City of Portland. The JV is currently building four large shafts along the west side tunnel route for sewage from existing pipes (see map). Construction is under way at Northwest Nicolai and Upshur streets and Southwest Clay Street. Construction will begin next month on a fourth shaft at Tom McCall Waterfront Park at Southwest Ankeny Street. Construction of the shafts, pump station and tunnel will be completed in 2006, setting the stage for similar work on the river's east side in 2007. Machines S-231 will bore 4,350 m and S-232 1,350 m through sand, gravel, alluvium and boulders. All excavated material will be removed at Nicolai shaft. The tunnel will pass under Broadway Bridge, Steel Bridge, and Burnside Bridge and this will require to stabilise the soil under the bridges before tunnelling to avoid ground settlement that could affect the bridge structures.

Read E-News Weekly 38/2002 & 29/2002. Visit www.ci.portland.or.us, www.cleanriverworks.com, www.herrenknecht.com and www.impregilo.it

Vietnam. The Vietnam Import-Export Construction Corporation (Vinaconex) began on 5th May the construction of the Ngoi Phat hydroelectricity project in the mountainous province of Lao Cai. The project has a designed generation capacity of 54 MW and requires total investment capital of VND950 billion (US\$62 million). Two kilometres of tunnel will be necessary. Construction is scheduled for completion in early 2006. Visit www.vinaconex.com.vn

World Digest of Inaugurations

Pakistan. President General Pervez Musharraf officially inaugurated the Kohat tunnel on 10th June. The 1,885 m tunnel is between Peshawar and Karachi and was completed at a cost of Rs6.62 billion with the financial and technical assistance of Japan. It is equipped with all the sophisticated and modern equipment, including modern ventilation system, lighting system, standby power supply system, supervision and control system, fire fighting system and CCTV system. It is expected to generate revenue of Rs94 million in form of toll tax during the first year of operation alone. Construction started in August 1999 and was completed three months before schedule. Visit www.tunnelbuilder.com, pk/16.