OHL, first Spanish company to use a hydroshield tunnel boring machine for building a tunnel underneath the navigation channel of a river

12 / 06 / 2013. OHL has become the first Spanish company to build a tunnel underneath the navigation channel of a river using a hydroshield tunnel boring machine with an external diameter of 12.56 m, length of 91 m and weight of 2,200 t. Hydroshield tunnel boring machines are employed in areas where the geological conditions of the terrain are likely to be highly unstable under excavation or where there is combination of geological conditions with the prevailing granularity bearing an elevated volume of water.

In September 2011, the consortium led by OHL (55%), together with PBG and PRG Metro (45%), was awarded Phase IV of the Slovak Highway. This is a highway section designed to circumvent the Polish city of Gdansk at a maximum speed of 120 km/h. A tunnel boring machine will tunnel through 1.1 km of this 2.4 km section. This phase pertains to the highway that will connect the Walessa airport in Gdansk with the highway to Warsaw. This project is scheduled to be finished by the end of 2014.

The inaugural act for the launching of the tunnel boring machine in the city Gdansk was held on 29 May. Among those in attendance were Slawomir Nowak, Polish Minister of Transportation, Construction and Maritime Economic Affairs; Elzbieta Bienkowska, Polish Minister of Regional Development; Agustín Nuñez Martínez, Spanish Ambassador to Poland; and Gdansk City Mayor Pawel Adamowicz. Also in attendance on behalf of the Group OHL were Manuel Viciana, director of OHL Construction for Europe; Carmen Escribano, director of Business Development at OHL Construction; Javier Rodríguez del Val, director of Purchasing and Machinery at OHL Construction; and Ramón Gil Mataix, regional director in Poland for OHL Construction.

With a budget of € 180 million, this project will create twin tunnels, each spanning 1,072 m in length underneath the mouth of the Vistula river at the Baltic Sea. Both tunnels will be linked by seven connection galleries that will be made with ground freezing technology.

Technical characteristics
The lining of the tunnels will be made with segmented rings of prefabricated reinforced concrete, mounted under the protection of the tail shield of the Tunnel Boring Machine (TBM). The universal ring comprises seven segments (6+key), which weighs 109 t. Each segment has a width of two meters and a thickness of 60 cm.

The inner diameter of each tunnel will be eleven meters, which, through an internal structure of reinforced concrete, will enable the creation of two levels. The upper level is a two-lane roadway for vehicular traffic while the lower level will be used for communications and services.

The front containment is made by means of bentonite slurry. For the treatment of such slurry, a separating plant will be installed with a treatment capacity of 2,400 m³/hour.