



North Vespucio Motorway

Santiago, Chile / 2006

Owner
Client
Constructor
Scope

Ministerio de Obras Públicas. República de Chile
Ingeniería Cuatro
Dragados - Skanska - Belfi - Brotec.
detailed design



The North Vespucio Motorway is part of the amplification and reform of the bypass motorway ring of Santiago, which is being built over the present Américo Vespucio Avenue. This motorway consists of two roadways and three lanes in each direction and runs along a total length of 29 km between Route 78 and El Salto Avenue. Once finished, it will be the third motorway worldwide and the first in South America (together with other license holders of the Metropolitan Region) to implant a Free Flow Toll which allows a non-stopping traffic flow.

This project includes the construction of a great quantity of structures in urban and suburban areas with intensive traffic. Thus it is essential to maintain vehicle traffic, although with some restrictions, throughout the process of construction. The structures of the project comprise 2 bridges, 12 upper and 10 lower roadways, 25 footbridges and 12 km of walls.

The applied typologies for these bridges and upper and lower roadways are conditioned by factors of geometry and construction. That is the reason why lighter reinforced slabs and structures with pre-cast pre-tensioned beams were employed. For the lower roadways reinforced concrete slabs of 1 and 2 arches on piles were designed. Including all structures, the adopted construction process consisted of excavation, pile construction and the subsequent concrete casting of the slab on the ground. The last step concerned the excavation under the slab.

The project of the structures for the North Vespucio Motorway has been conditioned by the seismic phenomena taking place in Chile. The current Standard for the design of bridges and structures in this country is the American AASHTO 1996 code, supplemented with the Spanish Road Manual of the Ministry for Public Works (MOP). Therefore, the usual requirements for projects in seismic areas were applied to all structures, including, i.e., confined reinforcement in zones of possible hinge formation, etc. Furthermore, original and innovating solutions have been contributed, as e.g. anti-raising anchors used for the pre-cast beam structures.



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