

Los Dominicos Overpass crossing the N-I Motorway

Located in the North of the Community of Madrid, this bridge over the NI motorway and its service lanes allows the connection of the road network of Las Tablas and Sanchinarro PAUs (Programmes for Building Activities) at the height of Los Dominicos School.

The structure of the deck consists of a single constant depth beam and four spans of 25+45+45+25m, which is conditioned by the available space between the inferior road ways.

The deck is 32.40m wide which accommodates two 6.50m wide lanes, a 1.50m central median, two 3.25m hard shoulders, a support of 0.50 m for the 5.0m semi-rigid barrier and an exterior railing of 0.20 m.

The transversal section of the deck is composed of three steel 1.35m deep box girders and an upper reinforced 0.25m deep concrete slab. Each of the boxes is composed of a lower metal plate 3.00m in width and two angled lateral webs, finished off with an upper cover plate where the connection with the slab is placed. This slab was built on pre-cast concrete lattice slabs, less than 8.50cm thick, which covered the entire width of the deck.

The design of the deck allows to double the central support for a hypothetical construction of preference lanes between the main roadways of the NI motorway.

The two extreme piers (1 and 3) are composed of three prismatic- sectioned shafts with 1.0m diameter semicircular buttresses which allow double support on their heads; they were directly founded on pile-caps. On the other hand, the central pier (2), consisting of three 1.20m diameter circular shafts, was founded on 1.80m diameter pre-cast concrete piles in order to minimize the side-effects on the traffic during the construction process. The height of the extreme piers is 11.00m and 8.25m of the central one.

These Works are completed with a pedestrian ramp which allows access from the Dominics Overpass to the bus stop situated on the Las Tablas service lane. The difference in height to be covered is 11.15m, so therefore the total length of the ramp is around 166.0m, composed of 4 inclined stretches at a slope of 1/7 with intermediate landings of 2.0m. A metal structure has been chosen, composed of tubular lateral beams 260x140x6mm which are connected to tubular steel columns 250x250x10mm placed every 5.44m.



Spain /2005 Project data

Structural type:
Composite, transversal multi-box
constant-depth section, rectilinear bridge
Location:
The Community of Madrid
Opening Date:
October, 2005
Proprietor:
Madrid Town hall
Construction:
DRAGADOS S.A.
General Consultants:
VIGICONSLT
Structural Consultants:
FHECOR Consulting Engineers.
Scope of Works:
Construction Project and
Technical Assistance