

Madrid-Barcelona HST (Spain)

TMB Excavation for HST in Barcelona

Hidromill Diaphragm Wall and Pile Retaining Wall



Project:	Madrid-Barcelona-Frontera Francesa. Barcelona Station
Scope:	Hydromill diaphragm wall and Pile retaining walls for protection of TBM excavation
Property:	ADIF
Client:	UTE AVE GIRONA (Dragados, Fcc, Copisa, Tecsa)
Year:	2008-2011

Description:

The project is located in the heart of Barcelona. The scope is to execute protection for TBM excavation for the buildings and singular monuments, in the most important commercial area of Barcelona, with a high density of shops and tourism places.

The protection in most of cases consists in diaphragm walls excavated by Hidromill and piles retaining walls of 1,200 mm diameter, depths from 40 to 42 meters and with 8 m length permanent casing.

Due to the responsibility of the protection and the coordination with the TBM works, the contract required an accurate execution control, for example, setting inclination tolerances for piles below 1%, and giving maximum attention to the tunnel close to the protection works. Those requirements combined with strict schedule (prevision for the TBM works), and the extreme urban situation, even in Christmas time were the main difficulties on the execution of the site.

The context of work was very demanding throughout the play because of:

- Narrow space for the execution of the works.
- Near buildings, with less than 0,30 m distance between the drilling works to surface of some cultural buildings (“la pedrera”) keeping the public access at anytime.
- Location in a dense urban area to with important tourist monuments, business and commercial areas, also with accessibility at Christmas time, requiring a major security control.
- Strict deadlines

The TBM crossed the stretch run in the February without incident.

Summary of site characteristics

- 1.000 to 1.200 mm diaph. walls
- 800 to 1.200 mm pile section
- 53 m maximum depth
- 32.000 m2 of executed walls
- 14.700 m of pile retaining walls



Foundation works for the connecting tunnel “Sants La Sagrera” at “La Pedrera” building

Foundation works for the connecting tunnel “Sants La Sagrera” at “La Sagrada Familia”

