

# Urban excavation

D.W. - Ground anchors - Piles - Prefounded columns - Jet grouting - Grouting

## ISSÉANE

ISSY-LES-MOULINEAUX - FRANCE



## Deep foundations works for a household waste treatment plant

The Isséane underground plant for sorting and incinerating household waste produced by Issy-les-Moulineaux required major deep foundation works for its construction. A 400 x 100m excavation 31m deep had to be created in a dense and sensitive urban environment. The super structure has a height of 21m.

The foundation works, supervised by Solétanche Bachy, took 15 months to complete and included the construction of more than 80,000m<sup>2</sup> of diaphragm walls varying in thickness between 600 to 1,500mm to a depth of 50m, 400 foundation piles, 35,000m<sup>2</sup> of cut-off grouted down to a depth of 71m, 231 temporary ground anchors, watertight grouted blankets in the chalk, watertight jet grouted slabs and dewatering to a maximum depth of 31m with flows of approximately 250m<sup>3</sup>/hour to dry out the excavation, that is to say to between 25 and 30m below the level of the River Seine.

The project was successful because it was based on our ability to master several fundamental points:



Site overview

CLIENT:	SYCTOM (LOCAL PLANNING AUTHORITY RESPONSIBLE FOR PROCESSING AND RECYCLING HOUSEHOLD WASTE)
SUPERVISING ENGINEER:	SYCTOM
ARCHITECTS:	DUBOSC & LANDOWSKI - AAE ARCHITECT PARTNERSHIP
DESIGN OFFICES:	SECHAUD ET METZ
TECHNICAL INSPECTION:	VERITAS
SPS COORDINATOR	PRESENTS
EXCAVATION, CIVIL WORKS, WORKS BELOW GROUND:	RAZEL DEMATHIEU & BARD - URBAINE DE TRAVAUX
DEEP FOUNDATIONS	JOINT VENTURE LEADED BY SOLÉTANCHE BACHY

### MAIN QUANTITIES:

- 256 diaphragm wall Panels totalling more than 80,000m<sup>2</sup>
- 231 ground anchors
- 132 pre-cast columns
- 212 piles
- 1,250 bore holes for grouting
- 1,050 jet grouting columns

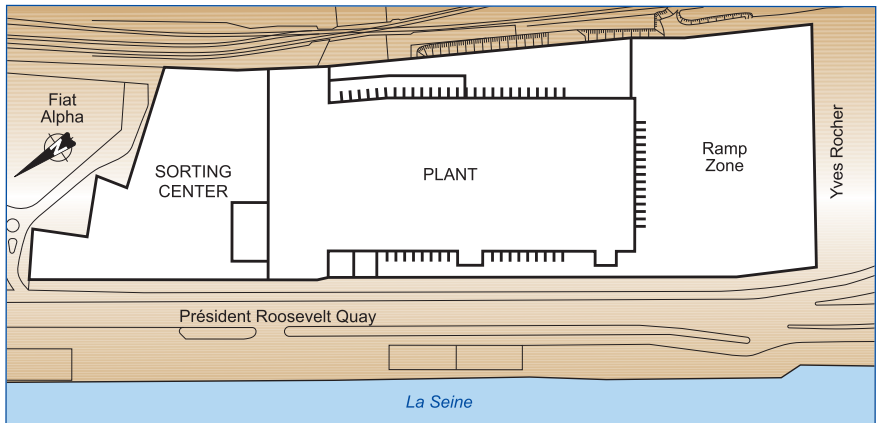
- Controlling the water in the aquifer. It was important that we only pump out reasonable amounts from each of the major excavations including the excavation for the plant which had to be cleared to a depth of 32m and withstand a hydrostatic head of 27m. The site's service water requirements were tapped off during the pumping process.

- Controlling the vertical alignment of the structures. The walls and pre-cast columns will only tolerate very minor non-vertical alignment compared with the plant's equipment. The targets were achieved thanks to the deployment of the latest technical developments involving electronic control equipment mounted on the drilling tools.

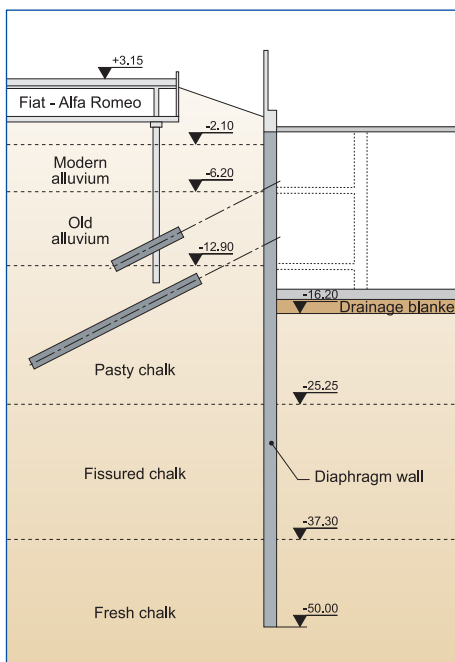
- Controlling the environment. Foundation works had to be carried out within the available time bands: 24 hour a day, 5 days a week. A preliminary acoustic study was produced and recordings made throughout the duration of the works in order to control noise levels.



Site overview



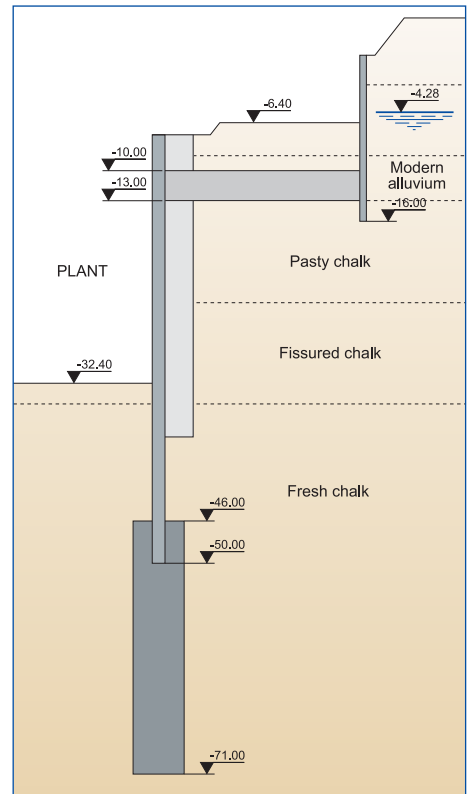
Plan view of the site



Cross section view of the sorting area



Excavation floor at a depth of 32 m and a 27 m head of water



Cross section view of the West side zone