

METRO GRAND PARIS EXPRESS, LINE 17 NORTH



Metro Grand Paris Express - France

The new metro line 17 North in Paris, France connects Bourget RER station and Le Mesnil-Amelot.

This line is part of the new metro extension project of Grand Paris Express, which links Paris suburban areas and downtown.

Scope

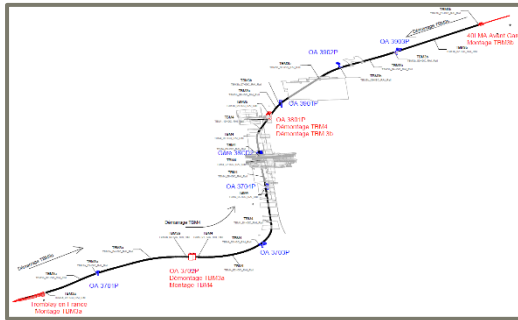
- 19.5km of automatic operated metro line, of which 14km single tube tunnels and 5.5km viaduct
- 5 new underground stations
- 14 deep excavated shafts for safety and ventilation

Challenges

- TBM excavation under existing Charles de Gaulle Airport facilities and landing grounds under operation: premiere in France
- TBM excavation under existing high-speed train and suburban train lines under operation.
- Low cover TBM start portals
- Very tight design and construction schedule with Paris Olympic summer games in 2024
- Project designed and engineered using BIM – Building information modelling

Amberg services

- Complete engineering design process of lot no 3. Preliminary design, Detailed design, Bidding procedure, Contractor selection, Work supervision
- Design of cross passages between tunnel and shafts
- Monitoring design of Charles de Gaulle Airport facilities when tunnel is under construction



- Layout of Line 17 North between Tremblay-en-France et Le Mesnil-Amelot



- Charles de Gaulle Airport: landing grounds and facilities



- Station Triangle de Gonesse 3D Visualisation of forecourt

AMBERG FACTS

Contract value JV

- Total €45 million (according to contract)

Contract value Amberg

- Total €1.5 million (according to contract)

Project Phases & Duration

- Preliminary design 2016 – 2017
- Construction permit allowance 2017
- Detailed design and bidding process 2017 – 2018
- Contractor selection 2018
- Construction 2019 – 2030

Project details

Tunnel

- Single tube tunnel two lines
- Internal diameter 8.70m
- TBM bored tunnel, total length: 14km
- Tunnel of lot no 3 (Amberg responsibility) extends from Tremblay-en-France to Mesnil-Amelot. Total length is 6.5km. Cross passages are located between tunnel and shafts each 800m. Lot no 3 tunnel is mainly located under Charles de Gaulle Airport.

Stations

- 3 underground stations, 1 open-air station et 1 semi underground station
- Each station has its own specific architecture signature for better insertion of the project in existing surroundings
- Underground stations are constructed using diaphragm walls prior to excavation
- Stations are planned for high users' frequentation under service

CLIENT FACTS

Overall Costs

- Total €1'065 million

Overview Project

- New metro line towards north of Paris urban area. An important stretch is bored under Paris Charles de Gaulle Airport
- 20.5 km total length
- 14 km tunnels
- 5 new stations along the line
- Two single tube tunnels with 2 lines. 7 km each
- 5.5 km open air stretch with viaducts
- 40 to 50 million annual users expected under operation
- Automatic operated metro line
- Construction planned to begin in 2019
- Operation planned to start in 2027 until Triangle de Gonesse and 2030 until Mesnil-Amelot station

Project specific features

- TBM excavation under existing Charles de Gaulle Airport facilities under operation. This includes: landing grounds, luggage automatic sorting machines and passenger's buildings
- TBM excavation under existing high-speed rail line under operation

Geology

- Granular sands sometimes mixed with gravel

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