# Metro-Link Express for Gandhinagar & Ahmedabad (MEGA) – Package UG-2, India

## Metro-Link Express for Gandhinagar & Ahmedabad (MEGA) – Package UG-2, India

**Design consultancy services for the contractor L&T for the project "Design and Construction of Underground stations and Tunnels including finishes and excluding PHE, Electrical and HVAC from East end of launching shaft near Kalupur to west end of West ramp, which comprises of West Ramp, twin bored tunnel between launching shaft near Kalupur station and West Ramp All ut & Cover portion including Two Underground stations at Shahpur and Ghee kanta including a portion of NATM and launching and Receiving chambers of TBM for Ahmedabad Metro rail Project-Phase-1"**

### Client

**Larsen and Tubro Ltd**

### Authority

**Gujarat Metro Rail Corporation Limited (GMRCL) formerly known as Metro-Link Express for Gandhinagar & Ahmedabad (MEGA) Company Limited**

### Scope

The overall length of the project approx. 4,094 m. The twin bored tunnel is excavated with an EPB (Earth Pressure Balance) TBM machine, having an inner finished diameter of 5.8 m. The contract includes a total of one Launching and receiving shaft and two underground Stations along the alignment including a portion in Cut & Cover tunnel and ramp.

### Challenges

- Densely populated urban area
- Tunneling below existing operational Railway lines
- Sensitivity for noise and pollution
- Difficult ground, many heritage structures in near vicinity, old dilapidated buildings on tunneling route, settlement issues
- Site logistics

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- Assembly shaft


- Breakthrough at TBM's

- Metro station construction

## AMBERG FACTS

### Contracted value Amberg

- Total Approx. INR 14.75 Crores

### Project Phases & Duration

- Design: Start in April-2017
- Construction: From 2017 – 2020

### Project Details

**Tunnels**

- Twin-tube tunnel with two underground stations
- Length: 2 x 3190 m approx
- Machine drive by closed tunnel boring machine (Earth-Pressure Balance Shield– EPBS TBM)
- Inner diameter: 5.80 m
- Single shell watertight segmental lining
- Ventilation shafts

**Metro stations**

- Total 2 underground stations at Shahpur and Ghee Kanta
- Both Top Down construction using diaphragm Walls

**Cut and Cover Tunnel and Ramp**

- Cut and Cover Tunnel and ramp to be constructed by open cut excavation using temporary retaining system like Soldier piles and struts

**Launching and Receiving Shaft**

- Launching and Receiving shaft for the TBM's to be constructed by open cut excavation using temporary retaining system like Soldier piles and struts

## CLIENT FACTS

### Overall costs

- Total Approx. INR 901Crores (Pkg 2)

### Overview Project

- Metro tunnel, length approx.2 x 3190m
- 2 single-track tunnel tubes
- Ventilation Shafts
- Two underground Metro stations
- Cut and Cover tunnel and ramp

### Geology

Layers of Filled up Soil, Sandy Silt, Silty Sand, Sandy Clay and Clay with medium to high plasticity. Soil is mostly over consolidated in nature. The ground water table rises in monsoon period and gets lowered in lean season. Generally the GWL is about 12-14 m from EGL.
Overburden: 5.5 to 17 m

### Contact person

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## AMBERG KEY PEOPLE INVOLVED

| | |
|---|---|
|  | **Armando Capellan**<br>Team Lead (Geotech/NATM/C&C Expert)<br>acapellan@amberg.es |
|  | **Ulf Carsten Tresser**<br>Tunneling Expert – Segmental & NATM<br>utresser@amberg.es |
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|  | **Soumyadeep Roy**<br>Design Engineer –Stations |
|  | **Supriya Bharti**<br>Design Engineer –Tunnel<br>sbharti@ambergindia.com |

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