



*Axial fan installation in 1980*



*Tunnel Isla Bella south portal*



*Jet fans for air flow control, 1250 mm*

## Description

The single tube Tunnel Isla Bella is designed for bi-directional traffic. The tunnel length is approx. 2.5 km. It is situated on the national road north of San Bernardino, 620 m above sea level.

The original ventilation system included the following features:

- False ceiling with two separate ventilation ducts
- Two axial fans 2'500 mm diameter
- Air flow control by variable pitch in motion
- One axial fan reversible to be used in smoke extraction mode
- Normal operation: semi-transverse supply
- Emergency operation: transverse ventilation

The new ventilation system includes the following features:

- Longitudinal ventilation with six reversible jet fans 1250 mm diameter (170 m of the false ceiling have been removed)
- Local smoke extraction, fixed fan blades
- Remote controlled smoke dampers located in the connected exhaust ducts
- Jet fans to be used for closed loop control of the air flow velocity along the carriage-way during smoke extraction

## Services

- Evaluation of ventilation equipment
- Feasibility study based on application of the existing axial fans, concept design
- Detailed design according to the Swiss design code (replacement of axial fans)
- Preparation of tender documentation for the axial fans
- Bid evaluation and recommendation for contract award, evaluation of supplier's technical documentation
- Preparation of ventilation control system functional description
- Site supervision (installation during night time closure of the tunnel, factory and site acceptance tests)
- Ventilation control system site acceptance test