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# CHAMPAGNE EMBANKMENT

## Italy, 1989

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### PROJECT CHARACTERISTICS

**Works:** High reinforced soil slope with vegetated (green) surface, waste, backfill embankment, and concrete culvert for the passage of local fauna.

**Purpose:** Support of a 4 lanes motorway replacing a viaduct which would have produced an unacceptable visual impact.

### Dimensions:

- height: 27 m
- embankment volume: 600 000 m<sup>3</sup>
- length: 300 m
- slope angles: 70° and 60° over the horizontal

### Materials:

- foundation: recent alluvium, moraine
- embankment: tunnel muck (gneiss) as structural fill, non woven Polyester geotextile as reinforcement, High Density Polyethylene geogrid as reinforcement, lattice woven geotextile as slope protection



### PROFESSIONAL SERVICES PERFORMED:

Conceptual and construction design. The design included: laboratory testing of geosynthetics, large scale tests on site, assistance during construction and analysis of the embankment's displacements and internal deformations

*Champagne embankment, designed in 1989 and built in 1990, is located along the Aosta - Mount Blanc motorway, in the North West of Italy. The reinforced soil structure is composed of 2 main blocks, 5 and 7 m high with outer slope 60° steep on the horizontal, which are reinforced with non-woven Polyester geotextiles. A 3 m wide berm separates the two blocks. The top part of the structure is an additional block, 3 m high, reinforced with Polyester geotextiles and recessed some 12 m from the slope. The total amount of non woven reinforcement geotextile was more than 100 000 m<sup>2</sup>. The above rests on a conventional sloping fill, except for a 60 m long section, near the centre where the lower block is in its turn supported by an arch shaped reinforced soil structure. This arch is 11 m high built with fans of High Density Polyethylene geogrid amounting to 25000 m<sup>2</sup>. A special technology allowed obtaining a grassed regular surface over the 25 000 m<sup>2</sup> of the exposed, subvertical face. The main purpose of the Champagne embankment was to provide a convenient dump for tunnel muck and common excavation proceeding from nearby construction fronts.*

