



Hoofdcontract-Rotterdamsebaan (NL) Cross-Passage Waterproofing

Country	Netherland
Type	Motorway
Client	Combinatie Rotterdamsebaan, CRB
Main Contractor	BAM Infra, Volker Wessels, Wayss & Freytag Ingenieurbau AG
Execution of the work	Renesco a.s.
Construction Period	2019

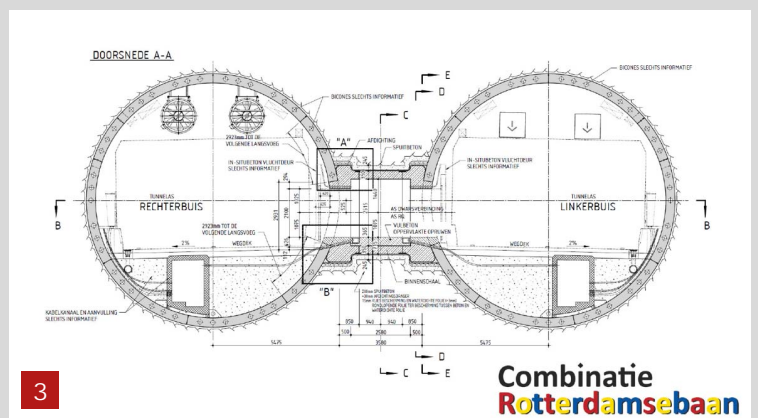
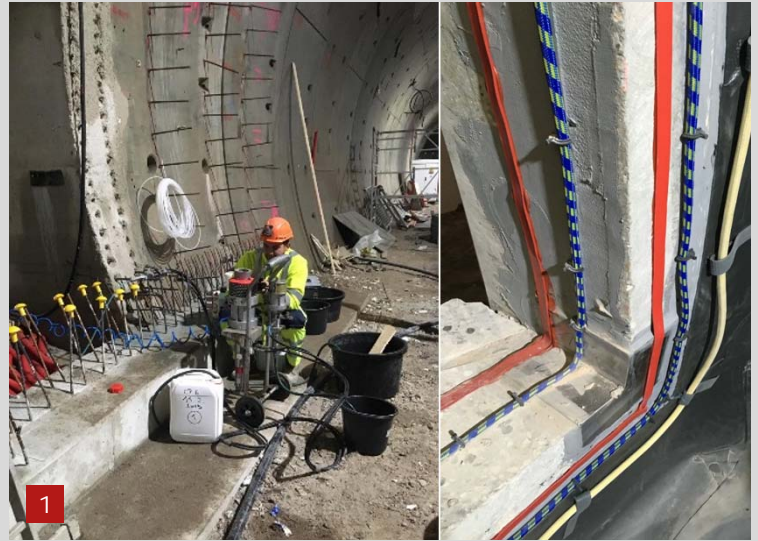
Project Description

The municipality of The Hague is currently building a road traffic connection between the junction Ypenburg (A4/A13) and the center ring - The Hague. The entire connection will have a length of 3.8km, where 1.64km of the connecting section are driven by a tunnel boring machine (hydroshield). Between the two parallel tunnel tubes 6 x cross-passages in conventional construction method are built with a first layer of shotcrete in combination with a reinforced concrete inner shell. Since the area of the cross-passages is in the groundwater, the construction takes place under a protection frost body/ground icing. The cross-passages have a length of approx. 4m and an oval outbreak cross-section of about 3.5m in wide and 4.9m in height. The opening dimension in the tunnel lining is approx. 2.0 x 2.9m.

Scope of Service

Installation of a FPO/TPO based waterproofing system acc. to ZTV-ING (German standard), full-round (360°) with an adhesive tape/strip termination at the pre-cast concrete segment openings including all necessary pre-treatments of the segments (tubbing), installation of a back-up grouting system and – if required, all grouting/injection works.

- FPO/TPO 3mm sheet waterproofing
- 950g/sqm polypropylene (PP) geotextile
- 600mm/ 6 ribs FPO/TPO waterbarriers
- 3mm FPO/TPO protection sheet membrane/ invert
- All relevant pre-treatment works, like sand-blasting, water stoppings, cleanings, pre-injections, joint treatments
- Application of an adhesive tape/strip termination system with epoxy resin
- Installation of an injection/grouting system as back-up waterproofing
- Installation of hydrophilic waterstops
- Installation of a contact grouting system
- All relevant grouting/injection works



1. Pre-Treatment-Measures/ Detail Segment Opening
2. Inner Lining
3. Example of the cross-passages design