REFURBISHMENT RUDERSDORF TUNNEL

Refurbishment Rudersdorf Tunnel

Replacement of the existing Rudersdorf tunnel comprising 2 single-track tunnel tubes using mined construction methods. Backfilling of the old tunnel. Protection of the listed old portals. Open-air track and connection to the existing line.

Project scope

- Mined tunnel, L = 2x approx. 3 km
- Railway overpasses / bridges / culverts
- Cuts / embankments / retaining structures
- Backfilling of existing tunnel
- Securing the listed old portals

Challenges

- Construction under operation
- High overburden of up to 175 m
- Challenging groundwater pressure conditions
- BIM planning

Amberg Services

- Overall project management
- Overall BIM coordination
- Planning & Design and structural engineering of civil engineering structures
- Planning & Design of traffic facilities
- Planning & Design of technical equipment and trackside equipment
- Environmental planning
- Surveying

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- Road overpass (arch bridge)

- North portal of the existing tunnel

- Brook culvert in the area of the open stretch

AMBERG FACTS

Contract sum Amberg

- Total Amberg: approx. € 4.3 million

Project phases & periods

Variant studies	2020
Preliminary Design	2020 - 2021
Approval Design	2021
Tender Design	pending
Support Procurement	pending
Detailed Design	pending

Project details

Tunnel as new replacement construction

- mined tunnelling
- 2x approx. 3 km long
- Cross Passages
- Variant comparison of tunnelling methods

Existing tunnel

- Masonry tunnel, in operation during tunnel excavation, later backfilled
- Preservation of the listed tunnel portals

Other buildings

- Railway and road overpasses / bridges
- Culverts / stream relocation
- Cuts / embankments / retaining structures

BIM planning

- Overall BIM coordination and BIM management
- 3D modelling (capture existing)
- Production and coordination of the technical models
- Collision check of the technical models
- Planning coordination based on the 3D models
- Derive 2D plans
- Linking data model with schedules (4D) & costs (5D)
- Visualisations
- Common Data Environment (CDE)
- Approval processes
- Quality assurance

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Total costs

- Total: approx. € 200 million

Overview overall project

- Replacement of the railway tunnel
- Open-air route
- Connection to existing line
- Backfilling of existing tunnel

Geology

- Wilgersdorfer strata: Alternating sequences of Claystones/siltstones and sandstones
- Höllberg strata of the sandy facies: quartzitic-bound sandstone strata and intercalated alternating sequences of less quartzitic-bound, sandy and clayey rocks.
- Höllberg strata in clayey facies: Clay/siltstones, predominantly interbedded with sandier strata.
- below GW table

Reference person

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