CONCRETE RENOVATION AND ENHANCING OF FIRE PROTECTION OF AN EXISTING TUNNEL WITH SPRAYABLE POLYMER CEMENT CONCRETE (SPCC)

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Key Words: Fire protection, concrete renovation, sprayable polymer cement concrete.

The approx. 342 m long tunnel located in the old town is constructed as a two cell rectangular frame section as part of the L530 in Lüdenscheid in 1971. During the stocktaking process it was detected that the demands of technical standards like e.g. RBT, ZTV-ING, RIZ-ING are not met. The construction also lacks of the structural fire protection. A recalculation of the rectangular frame section in case of exposure to fire showed that there is no sufficient load capacity. Due to the location in the city center with construction work above the tunnel line this topic is of major concern.

Furthermore the need of concrete renovation was obtained, e.g. cracks, defects in the concrete, chlorides and in insufficient concrete cover.

For the concrete renovation and the enhancing of fire protection it is planned to apply a sprayable polymer cement (spcc) to an extensive area.

The report describes the calculatory verifications of the fire case and the intended renovation and enhancing concept.