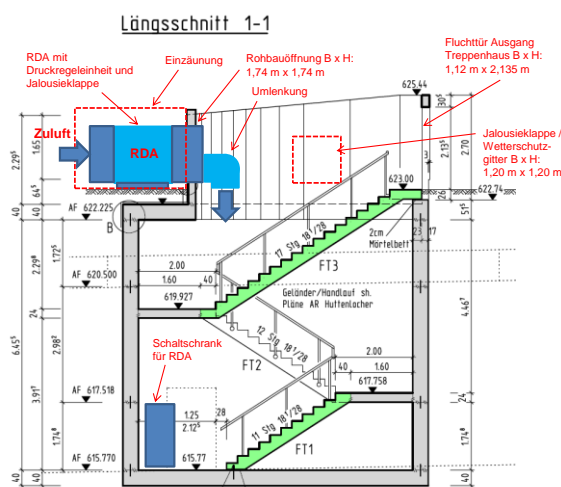
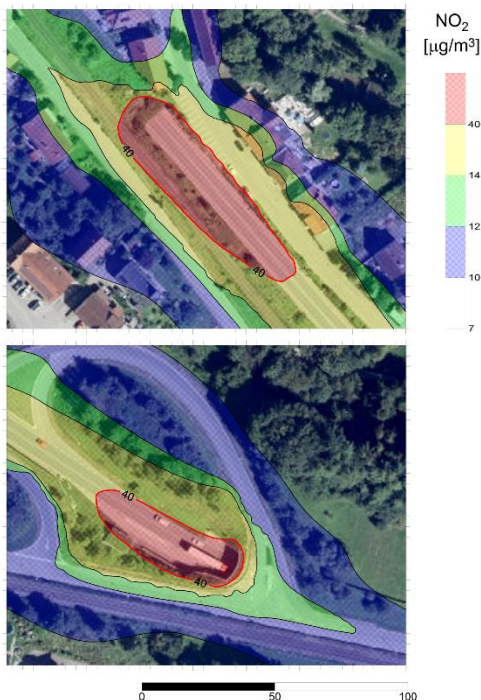


Tunnel cross-section with jet fan recesses



Positive pressure ventilation for the emergency staircase



NO₂ load in the east (top) and west (bottom) portals

Description

The Albstadt-Laufen tunnel, which forms part of the B463 highway connecting Albstadt in the east and Balingen in the west, has a tunnel tube to accommodate oncoming traffic. The standard cross-section of the 540 meter tunnel tube has two lanes and two emergency walkways. To accommodate the longitudinal ventilation system, jet fan recesses are provided in two location.

The tunnel must be checked to ensure compliance with current safety standards and upgraded if required.

With a maximum escape route length in excess of 300 meters, the tunnel has a special structure characteristic in view of RABT guideline requirements.

A dispersion simulation of the tunnel air at the portals can reveal whether actively influencing airflow conditions during normal operation is necessary to meet emissions control requirements.

Services

HBI Haerter Consulting Engineers rendered the following services:

- Emissions simulations near the portals, factoring the surrounding structures into MISKAM
- Application of guideline requirements for conducting safety assessments in road tunnels
- Qualitative safety assessment for evaluating deviations from RABT guideline requirements and determination of compensation measures
- Expert assessment of tunnel ventilation system, including dimensions of the system with respect to prevailing structural constraints
- Planning of positive pressure ventilation for existing emergency staircase

The solution-oriented approach devised was leveraged to define an economical solution that does not require extensive structural modifications while at the same time raises the safety level up to the current standard.