

Testing of regulatory load-bearing capacity of engineering structures under extra thick bitumen coating – Feasibility studies into the reinforcements

AREA network


Client:

AREA

Project manager:

AREA

Contractors:

Not applicable

Years:

2013

Principal features:

Post 1970 structures

Number of structures: 18

Number of families: 5

Extra thickness of bitumen coating reaches up to 30 cm.
Background

Under the 2009-2013 program agreement, AREA is responsible for checking that 100% of the underpasses forming part of its concession have a sufficient regulatory load-bearing capacity.

Having obtained approval from the licensor to the proposed framework, AREA identified those structures whose regulatory load-bearing capacity could be called into question. These structures were classed into different families in order to carry out studies into a representative structure from each family.

After completion of the load-bearing studies, a study into the feasibility of reinforcing the structures in use was then also carried out.

DIADES' task

AREA tasked DIADES with all the load-bearing capacity studies which were carried in the following stages:

- Analysing the structures' document records,
- Approving the classification of the structures and suggested representative structures,
- Drafting an assumptions report on the basis of the regulations governing the construction of the structures and the information gathered from the analysis of the records file,
- Recalculating the selected structures under different thicknesses of bitumen coating and note of the calculations.
- Establishing the conceivable reinforcement techniques and methods for the structures that have been identified, with the same level of detail as that of the feasibility studies.

Recalculation of structures in accordance with the CCBA70
Reinforcement studies using Eurocodes

Drafting of an assumptions report in accordance with the CCBA 70 based on the analysis of the records file and DIADES' assessment, with an awareness of the former regulations. Recalculations of structures based on numerical models produced using PYTHAGORE software and which improve on the original calculations in order to research reserves in load-bearing capacity.

Diadès

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