/ ASSET PRESERVATION, STRUCTURAL REPAIRS & UPGRADING /

DECK REPLACEMENT USING HEAVY LIFTING

When repairs or strengthening works are no longer viable, the full deck of a bridge can be dismantled and replaced. Typically, the possibility of dismantling will not have been considered during the design of the bridge and so special solutions will need to be developed in order to carry out the operation safely and without causing unacceptable disruption.

VSL

A member of
Bouygues Construction

FIT-FOR-PURPOSE SOLUTIONS

Deck replacement operations tend to be unique and project-specific. The solution that needs to be developed will be very dependent on the available space, the deck characteristics and the time frame for the work. In close co-operation with the client, VSL proposes and develops the right solution for each project.

METHODS

Combined knowledge of structural and equipment engineering and methods is of great importance to create the detailed solutions needed for any deck replacement. VSL makes use of its in-house engineering teams to deliver the construction engineering for stage-by-stage dismantling, together with the design and detailing of the temporary works and equipment. This expertise – which draws on experience in constructing complex structures - allows us to provide the best method for each job.

HEAVY LIFTING EXPERTISE

Heavy lifting by means of hydraulic strand jacking is a versatile technology ideal for deck replacement operations. In some cases, the deck can be cut into segments that are then lowered, allowing new deck elements to be lifted into place. In other instances, entire bridge decks can be slid, lowered or lifted out of the way to make space for new members.

USE OF SPECIALIST TEMPORARY WORKS

VSL has extensive experience dating back many decades in the use of specialist deck erection equipment, heavy lifting and the construction of bridge deck superstructures worldwide. It has considerable in-house knowledge in the design and operation of specialist equipment such as erection gantries, lifting frames and form travellers. Similar methods and equipment can also be applied for dismantling operations.

01 PREPARATION

Every structure is unique and will require a careful study to determine the best method for replacing the deck.

02 COORDINATION WITH THE CLIENT AND DESIGNER

Constraints such as traffic management requirements or allowable stresses in the existing structure require close coordination with all parties involved.

03 CONSTRUCTION ENGINEERING

Stability and structural capacity drive the decision-making in this phase. Tailored temporary works allow constraints to be overcome at each stage of the work.

04 INSTALLATION OF TEMPORARY WORKS

Specialist equipment such as erection gantries or extensive temporary works including props may be required to carry out the dismantling works safely.

05 DECK REPLACEMENT

The existing deck can be dismantled segment by segment or as a full unit. Minimising disruption to the users of the bridge and working to the available closure windows are the most important constraints for the works.

06 FINISHING WORK

Once new deck elements have been placed, they can be secured temporarily to allow traffic back on the structure while finishing works are completed.

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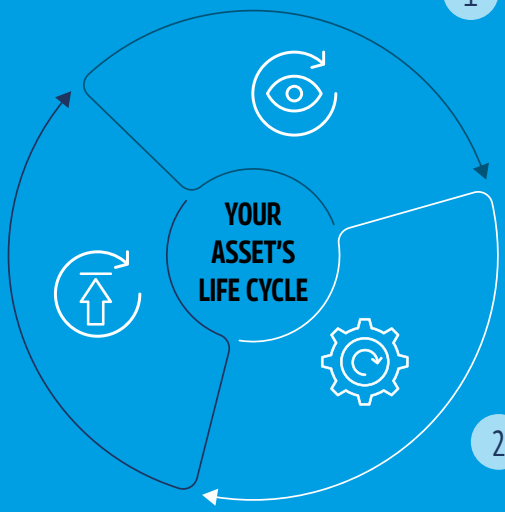

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ASSET PRESERVATION

PREVENTIVE MAINTENANCE
INSPECTION
ASSESSMENT
MONITORING

2

STRUCTURAL REPAIRS

REPAIR
REPLACEMENT

3

UPGRADING

STRENGTHENING
CHANGE OF USE
RESILIENCE ENHANCEMENTS

- CREATIVE ENGINEERING & EFFICIENT METHODS
- IN-HOUSE STRUCTURAL TECHNOLOGIES
- OPERATIONAL SKILLS IN COORDINATION & EXECUTION

WE'RE READY TO MAKE YOUR PROJECT POSSIBLE!

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