

# Management of Corrosion Damage in Locked Coil Cables of the Galecopper Bridge: Case Study, Detection, Assessment, and Strengthening

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## Abstract

Corrosion damage in locked coil cables can pose a significant threat to the structural integrity of bridges worldwide. This paper presents a comprehensive analysis of the management of corrosion-related issues in the Galecopper bridge cables to ensure the structural safety of the bridge and discusses their implications for other bridges facing similar challenges. The study encompasses the detection, assessment, and temporary strengthening of damaged strands.

Temporary strengthening measures were designed, constructed, and monitored, focusing on the most severely damaged strands, to allow time for the design and execution of permanent solutions. The findings and lessons learned from the Galecopper Bridge case can serve as a reference for bridge engineers and managers facing similar challenges, contributing to the long-term safety and maintenance of critical infrastructure.

**Keywords:** Locked coil cables, corrosion, Galecopper Bridge, assessment, strengthening, inspection, renovation, temporary strengthening.

## 1 Introduction

Corrosion damage in locked coil cables poses a significant threat to the structural integrity of bridges worldwide. This paper presents a comprehensive analysis of corrosion-related issues

in the Galecopper bridge cables and discusses their implications for other bridges facing similar challenges. The study encompasses the detection, assessment, and temporary strengthening of damaged strands.

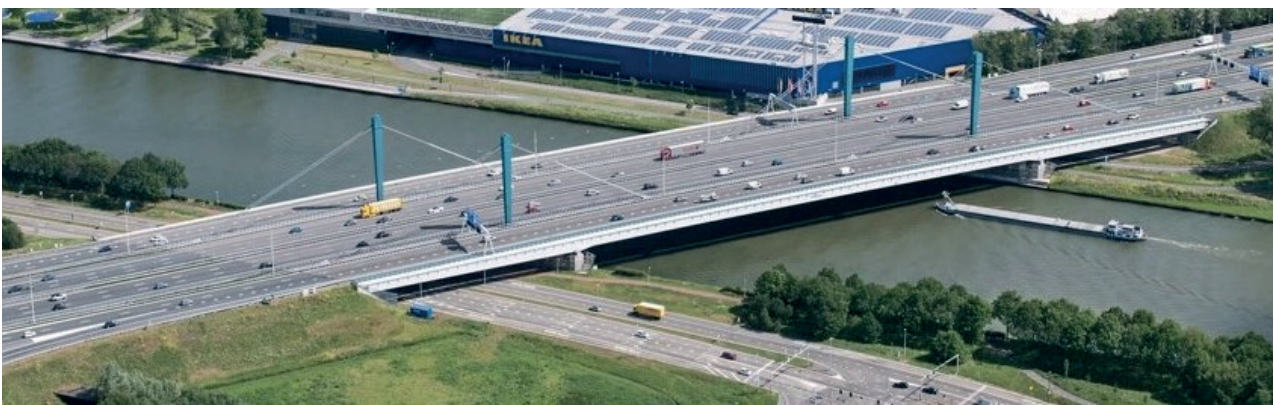


Figure 1: Galecopper Bridge