



Diagnosis and Restoration of Four Historical Eiffel-Type Rail Viaducts

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Abstract

As part of the project management of the Auvergne rail restoration plan carried out by the Société d'études techniques et économiques (SETEC) on behalf of the French Rail Network (SNCFR, Société Nationale des Chemins de Fer Réseau), Diadès was responsible for the diagnosis evaluation of four wrought-iron nineteenth-century viaducts located on the Lavaufranche–Saint-Germain des Fossés line. Once the viaducts' archived documents had been analysed, a complete diagnostic and investigative programme was carried out, including taking dimensional measurements and samples, conducting detailed inspections, anti-corrosion diagnosis, spectrophotometry analysis of the gathered data and recalculation of the fatigue of the structures. These results were then used to create a procedure for the restoration and painting of two viaducts while addressing the problem of the presence of lead in the original paintwork.

The works were carried out on the Rouzat Viaduct by Lassarat, managed by Diadès.

Keywords: Eiffel, Viaducts, SETEC, SNCFR, Diadès, Auvergne Rail Lines, Restoration, wrought-iron

Introduction

As part of the Auvergne rail restoration plan agreed between the French government, the region of Auvergne and the French Rail Network (SNCFR, Société Nationale des Chemins de Fer Réseau), significant restoration works were carried out. These restoration works were carried out to the rail networks—including works to the

tracks, bridges and other civil engineering structures, tunnels and earthworks. The project management for this restoration work was undertaken by SETEC. The purpose of the works was to modernise, upgrade and ensure the safety of three rail lines in Auvergne, including the Bordeaux–Lyon line, precisely between Montluçon and Gannat (lines 705 000 and 707 000), in order to eliminate and prevent delays.