



Upgrading of an old railway bridge – the Old Årsta Bridge

Tore Lundmark

Ramböll, Luleå, Sweden

Robert Hällmark

Trafikverket & Luleå University of Technology, Luleå, Sweden

Lars Dahlman

Trafikverket, Eskilstuna, Sweden

Peter Collin

Luleå University of Technology & Ramböll, Luleå, Sweden

Contact: robert.hallmark@ltu.se

bstract

The old Årsta Bridge, a double track railway bridge with a main span carried by a truss arch, was opened in 1929. Due to high fatigue loading and the low ductility of the rail girders and the cross girders, it was decided to replace the bridge deck in year 2015. This paper describes the project from the design stage to the reopening of the upgraded bridge.

Keywords: Bridge; steel; assessment; rehabilitation; strengthening; fatigue; truss arch.

1 Introduction

The utilization of the railway capacity in the centre of Stockholm has been high for a long time, resulting in delays and congestions. Today there are only two tracks that are heading south from the Stockholm Central Station, but in 2017 the Stockholm City Line is planned to be finished. It is a 6 km long commuter train tunnel, with two tracks, which connects the existing railway tracks in northern and the southern part of the centre of Stockholm. The new tunnel will double the track capacity in a section that today is crossed by 550

trains per day, of which approximately 60% is commuter trains. [1]

The Old Årsta Bridge is a part of the railway directly south of the new Stockholm City Line, and will mainly carry the commuter trains in the future. The bridge was opened in year 1929 and has two tracks. In 2005 the capacity was doubled in this section, when the parallel New Årsta Bridge was finished. To secure the future traffic the old bridge has been rehabilitated in several stages. This paper presents the latest upgrading of the main span of the bridge.