



Client

Keighley and Worth Railway

Project Description

Renewal of a rail underbridge on the Keighley & Worth Valley Railway by volunteers. A single track, two span metal trough girder bridge with timber longitudinal waybeams on masonry abutments and pier, over Bridgehouse Beck, was renewed with a single 23m span steel through girder structure on new abutments supported on 12No, 15m reinforced concrete piles.

The KWVR is heritage railway and a volunteer run charity based in Haworth. This was the largest civils project in its 62-year history and was led by project team of 20 volunteers who worked in their spare time (over 6,000 hours) over four years to successfully deliver this project.

Cass Hayward Role(s)

- Optioning and concept design
- Supporting volunteers in delivering the scheme
- Design of piles, pile caps and all welded steel deck
- Site support during erection

Project Statistics

- Original structure constructed in 1867
- Main steel lift of 50T
- Erection with 450T crane
- Limited construction depth of 200mm
- Direct track fixing of 113A rail with Pandrol plates

Special Features

- Technical Approvals based on Network Rail processes.
- Use of RB loading at 4.5 rev per second to match actual train use
- Fatigue design based on BS5400 Part 10 – simplified method without damage and NR/GN/025 with damage to determine fatigue life.
- Precast run on run off slabs
- Packs introduced between Pandrol plates and steel structure to cater for erection and fabrication tolerances