# Water Lane Embankment

## Case Study

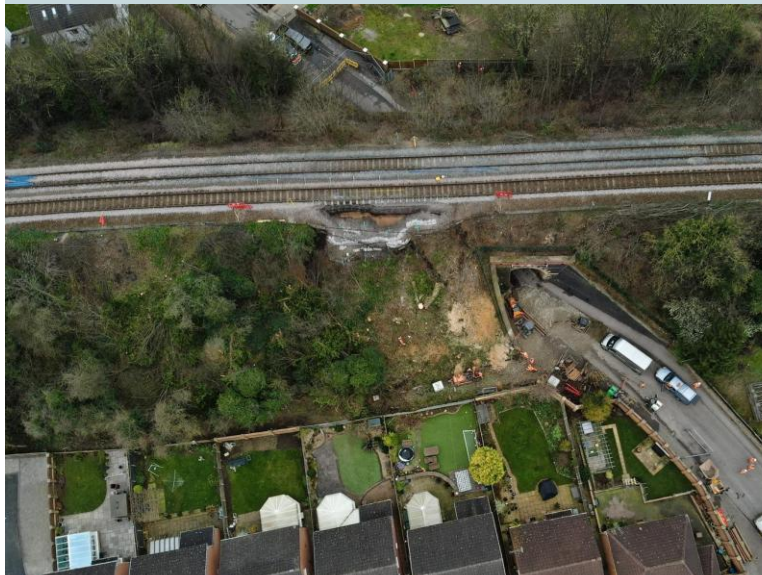
**Client:** AMCO Giffen

### Design Services Provided

- Form G permanent design of all implemented Works
- Emergency support services
- Ground Assessment and Slope Stability Analysis
- Design of toe retention
- 24-hour site supervision of Remedial works
- Ground Investigation and Reporting including a GIR and GDR
    - Window sampling
    - Dynamic probes
    - Rotary drilling
    - Ground penetrating radar
    - 24-hour site supervision of Remedial works

## Overview

On 10th March 2024, a landslip occurred on the Wakefield to Goole train line, east of Monkhill station in Pontefract, resulting in the closure of the down line. JNP group provided immediate support by deploying 24-hour site supervision and engineers to survey the area, carry out ground inspections, and design remedial solutions to enable the line to be reopened in a timely manner. The WAG1 line was successfully reopened seven weeks later, on the 29th April 2024.



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## Project Solutions

This scheme involved a failure of the embankment that supported the Wakefield to Goole train line, in close proximity to residential properties. This resulted in the down line being fully unsupported and the whole of the line being unserviceable. JNP Group immediately sent out our on-call director to ascertain the most likely cause by a visual inspection. This was followed by the wider team to carry out services including window sampling, dynamic probes, rotary drilling, and ground penetrating radar to determine the ground model and contributing factors of the landslip. JNP provided a multidisciplinary team for 24-hour supervision, 7 days a week, on-site alongside client representatives and contractors throughout the entirety of the works.

Due to the time-sensitive nature of the scheme, works began within 24 hours of the initial call. We began outlining preliminary designs to enable the principal contractor to start planning their program and source materials. This was in conjunction with the site works and completed in a way that allowed for real-time input from the site regarding design parameters. The ground model was built and formed in such a way that it could be efficiently adapted as new information came to light through the investigations.

The swift deployment of JNP engineers enabled contractors to commence with the removal of failed materials and the procurement of components to implement the design. Following the mobilisation of a team, a scheme was delivered, including the removal of 2000 tonnes of failed material, suitable ground preparation, and then replacement with an abutment stone and a new RAMWall retaining structure 45m long, 4m high, and 2.2m deep, all achieved within seven weeks. A final soil-nailed geomembrane was installed to encourage vegetation growth and provide wider biodiversity.

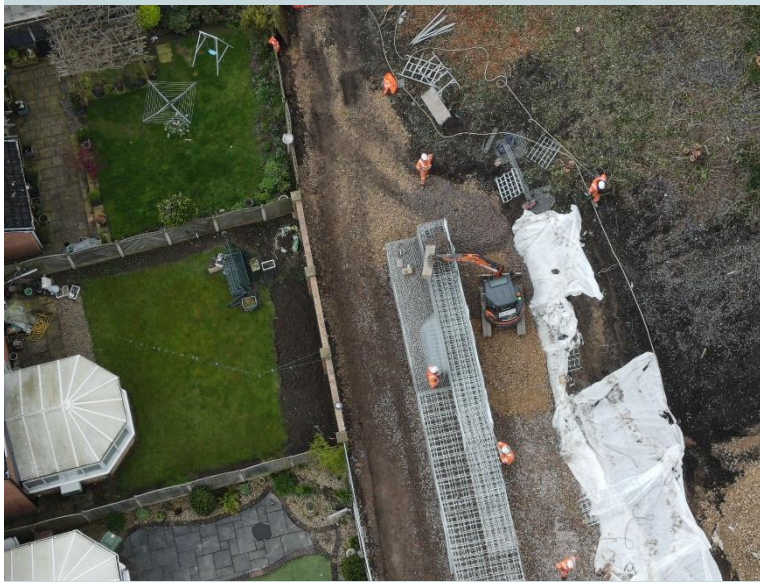
# Case Study

## Project Challenges

- Emergency nature of the works
- Design with resources in mind
- Time pressures for re-opening
- Spatial constraints
- Visual Impact

## Project Solutions

- Providing 24-hour supervision
- Utilising local available materials
- Real time reporting of investigation outputs
- The use of a hybrid buttress and structural retention
- Collaborative design approach for aesthetic solutions.



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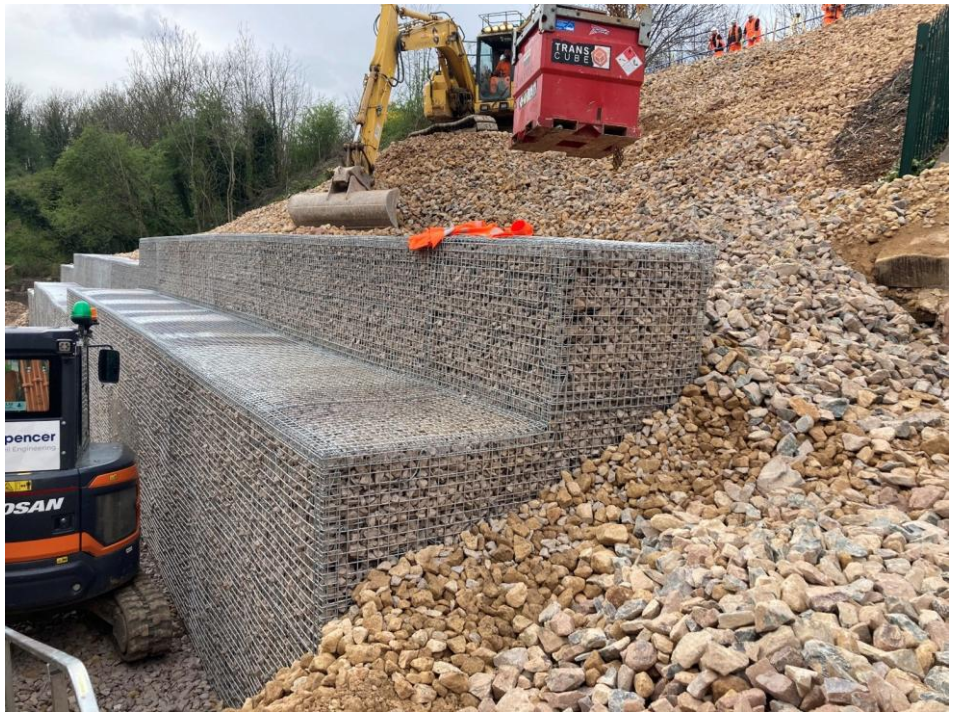
## Summary

This scheme was a reactive project to assess the extent of the landslip in the embankment, create design solutions, and enable works to get started as soon as possible to ensure the train line could be back up and running in the shortest timeframe possible. Through JNP's immediate provision for continuous site supervision, the team was able to react to any arising issues as well as form a close working relationship with the client, keeping the program on track. The retaining RAMwall was designed to allow for fast installation, longevity, and the use of efficient materials that could be assembled in a spatially constrained setting. Meticulous planning and prioritising of investigation lead to the smooth running of the project, allowing the WAG1 line to be reopened in only 7 weeks, which is a triumph.




# Case Study

### JNP Group Project Team

**Project Manager:**

Phil Taylor

**Project Team:**

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