

# Braehead Rail Bridge (M8/M73/M74 upgrade)

Design, build, testing and commissioning, entry into service, and handback of a 400m section of railway across a **new bridge** to replace the existing line previously on embankment. We integrated the new section replacing the **Permanent-Way** (ballast track), **overhead line equipment (OLE)**, **signalling, telecoms**, and **electrification** and plant (E&P) systems.



Scottish  
Roads  
Partnership



£6.7m



2015



Design  
& Build



## ADDED VALUE

Our solution minimised impacts and possession durations by:

- Steel twin box girder ‘through’ construction with composite floor. Prefabricated offsite and assembled on site at the bridge platform prior to the main possession for their movement onto its final position
- Permanent piles executed during four weekends (54-hour weekend possessions) in April 2015 prior to the main possession
- Deck slid into place during blockade. The bridge was launched to its final position using heavy-lifting equipment to move around 2,000tn. A total of 6no SPMT “trains” (72 axle) were used along the length of the deck.
- For timely railway reopening, we completed track, electrification and communication works before excavating for the motorway.

The project featured four main line rail interfaces, the most complex interface was with the Rutherglen-Coatbridge railway. This included constructing the new Braehead Rail Bridge offline, using heavy lifting techniques to launch the 126m, 2,000t structure, connecting with the existing rail bridge. Ground investigation was carried out in advance to reduce construction risks and programme impact. We used four weekend track possessions for substructure and a separate possession for reinstatement, handing back the track on time. Maximising offline methods accelerated the programme by approximately ten months.

Works were divided into three phases:

- Phase 1.1 (cabling) - Existing cable removal, following Network Rail (NR) procedures
- Phase 1.2 (removal) - Remaining NR equipment, e.g. overhead posts, track and ballast was removed from the future location of the new rail structure.
- Phase 2 (bridge installation) - Existing embankment excavation, temporary platforms construction, bridge launched into final position using six SPMT ‘trains’ along the deck, linked to a control panel to ensure uniform movement
- Phase 3 (reinstatement) - The final days were used for the installation of ballast, track and all cabling including overhead electrification.



### Quality Systems

We worked to NR’s standards and developed key plans in order to deliver the works. This included the CPP which comprised key sub-plans, e.g. the Emergency Preparedness Plan, developed in line with NR’s National Emergency Plan (NR/L2/OPS/250) and CDM 2015 Regulation 30. In addition, an Asset Management Plan was developed, detailing maintenance, interface management, as-built drawings, certificates, testing and commissioning, as well as the operation and maintenance manual.

**126m**

Pre-assembled  
bridge

**54 hour**

Weekend Possession

**6**

SPMT ‘trains’

**2,000t**

Structure

**Category 2**

Upgrade of both  
lines from Category  
3 & 4

**16 day**

Planned possession