

Coltbridge Viaduct

Client: City of Edinburgh Council

Location: West Edinburgh

Value: £574k

Duration: 12 weeks

In Brief...

Coltbridge Viaduct is part of a disused Victorian railway line, located in the Roseburn/Murrayfield area of Edinburgh. The triple-arched viaduct spans the Water of Leith, Coltbridge Avenue and the Water of Leith Walkway.

The integrity of the structure was being compromised by the growth of vegetation and erosion of mortar on the underside of the arches, causing risk of falling debris.



Extensive scaffolding was erected then encapsulated



An example of the repairs done

Technical Features...

The scope comprised:

- Vegetation removal
- Drainage
- Masonry repairs
- Waterproofing
- Extensive scaffolding
- Other refurbishment works

Scaffolding

The first element of works to commence was the installation of extensive scaffolding. A structure was required to provide access to the underside of the viaduct arches.

The subcontractor design required Category 3 checks, and was assembled from the viaduct deck, working over edge of the parapets to suspend the scaffolding for access beneath the arches.

Masonry Repairs

Extensive repairs were required to all three arches. A comprehensive scaffolding/MEWP system was implemented to enable access. The repairs were varied, such as re-pointing mortar in joints that were failing and Lithomix repairs (dressing back, installing repair mortar, finishing with stone repair). All defects were individually identified for each arch and pier.

Vegetation Removal

This consisted of tree felling and removing vegetation that was growing from within the mortar. The majority of removal was easily undertaken from the scaffolding, with a small amount requiring rope access.

Drainage

2 no. drainage channel kerbs were installed along the viaduct, discharging into gullies. Pipework and soakaways were also installed to take water from the viaduct.

Waterproofing

New waterproofing was laid over the extent of the viaduct deck, comprising a waterproof membrane with protective layers above and below. The team first cleared 100mm before laying the membrane. They were careful to not remove more than the stipulated amount, as this would have exposed the stonework underneath. The deck was reinstated with 150mm of fill and further surfacing.

Access Stairs

Existing timber stairs from the viaduct to the Water of Leith Walkway were in poor condition so required replacing and re-stoning. The team replaced 50 no. steps and 15 no. posts, along with blasting and painting the hand rail off-site. While reinstating the stoning was only required on 50. no steps, the team decided to do all the steps to fully ensure the safety of users and to improve the overall aesthetic.



A MEWP was used for access to one of the arches



Stairs once repaired

This project was also shortlisted for the National Heritage Railway Awards, recognising the high standard of work that the team put into restoring the historic viaduct.

Customer Benefits/Feedback...

To protect both the workforce and nearby members of the public, the scaffolding was encapsulated. This prevented falling debris and enabled works to continue in storm conditions. This robust method of scaffolding enabled easy access to the works area for both the masonry repairs and regular client visits.

The original design of the scaffolding had included access for all three arches. However, it was decided that MEWP (Mobile Elevating Work Platform) access would be more efficient, providing a 4 week programme reduction and associated cost savings.

The viaduct is a well-used cyclist and pedestrian route, so maintaining access for the general public was of the utmost importance.

- The scaffolding was installed so as to maintain a clear, 2.5m wide route across the viaduct
- All scaffolding was fully encapsulated and hoarded to segregate the works and the passing public, heras fencing clearly demarcated the works area
- The deck waterproofing works were undertaken as the final element of works, with construction being done in two halves to provide a continued pathway
- When erecting scaffolding, banksmen on either side of the viaduct were present to ensure the safety of those using the road and pathway below
- Advance, detailed signage provided information about the works, and the Site Engineer provided updated drawings on a weekly basis to display on information boards

Public Value and Stakeholder Interface comprised:

- ICE Bridges to Schools activity with St George's School for girls
- Continual communication with a nearby nursery school. This school had designated a number of parking spaces for our site team to use, the team minimised the use of these spaces as much as possible, keeping them free for the staff and parents
- Access was required through the premises of the nearby bowling green for repairs to a retaining wall. Close communication with the president of the club ensured positive interactions, with the team undertaking repairs to a set of outdoor steps in goodwill
- When interacting with local residents, the team identified that a local drainage gully was blocked. To foster good relations the team arranged for the drain to be unblocked

This project scored highly on the Considerate Constructors Scheme Audit, being commended for interaction with the local community and proactive attitudes towards minimising disruption and environmental impact.