

A565 Great Howard Street Bridge, Liverpool

Improving traffic flow in Liverpool city centre

£6.5m

/ Project value

July 2016

/ The project commenced

April 2017

/ The project was completed

Working collaboratively with Liverpool City Council (LCC) in our role as principal contractor, the A565 Great Howard Street Bridge project has significantly improved traffic flow along a crucial Liverpool city centre arterial route. Completed in ten months, this important road network upgrade centred on the replacement of a 'weak' bridge that accommodates the transport of traffic over a disused railway line to north Liverpool docks. The four-lane carriageway carries approximately 25,000 vehicles each day. Through the implementation of "innovative construction techniques" and alternative traffic management proposals, we ensured that motorists and businesses endured less disruption than originally estimated (road closure duration reduced by four weeks).

The Brief

Under a 'NEC2 Option C' contract, LCC appointed us to complete the demolition of the existing bridge and tunnel over a disused railway line and the subsequent construction of a new replacement concrete deck bridge. The strengthening of a 170m long brick retaining wall was also part of the brief.



"This scheme is absolutely essential to improving traffic flow. We need to invest in our infrastructure, so we are able to handle the increasing amount of businesses, freight and people travelling to and through Liverpool,"

Councillor Malcolm Kennedy
Liverpool City Council

“We have collaborated closely with Liverpool City Council to propose innovative construction techniques that will keep Great Howard Street open to traffic for longer than initially envisaged. This gives us a great opportunity to help local businesses to plan their activities around these major works on a key arterial route into the city,”

Dave Brown
GRAHAM Highways Director

The challenges

A major consideration during our planning of the bridge demolition was the protection of the Network Rail Hawkshaw Grand Arch, which was immediately adjacent to the bridge. This involved 24/7 monitoring of the Grand Arch using the latest technology. The historic brick arch that was built in 1849 carries the live railway to the north of Liverpool. To ensure a successful demolition programme, and to limit the damage or negative impact to the rail structures and the Mersey Tunnel, we enlisted local, specialist demolition experts who applied appropriate methods, including hand demolition to free the bridge members from the arch brickwork prior to the mechanical demolition works.

GRAHAM's solution

Awarded through Highways England's (HE) Collaborative Delivery Framework (Lot 2 – but with LCC as the client), this technically challenging scheme involved the demolition of the existing bridge and tunnel over a disused railway and the subsequent construction of a new replacement concrete deck bridge. The £6.5m project, which commenced in July 2016, also incorporated the strengthening of a 170m long brick retaining wall by installing ground anchors and pattress plates. The 38m long precast beams utilised on the project were installed by single crane lifts while the high containment parapet wall was cast off-site in 20tn precast units and supported on temporary false work supports from ground level, allowing the deck slab to be poured in one continuous pour. The Behavioural Maturity Framework, a HE management tool to track behavioural experiences of stakeholders, such as LCC (client) and Amey (designer), was piloted on this scheme – a first for a non-HE project.

Outputs & Benefits

- / **Minimising Disruption:** We adopted an alternative traffic management proposal, changing the specimen methodology to carry out enabling works in lane closures, which reduced road closure duration by four weeks
- / **Dualling Works:** As part of the Phase 1a dualling works (Paisley Street to Vandries Street), we installed the central reserve, and completed footways, carriageway resurfacing, drainage, traffic signal relocation and associated highways works
- / **Highways England Tools:** Used as a pilot scheme on a non-HE project, we implemented HE management tools including Collaborative Planning, Behavioural Maturity Framework and Lean (HELMA/SLCA)
- / **Road Restraint Systems:** We constructed new Road Restraint Systems, including reinforced concrete parapets and associated ground beams, metal safety barriers and metal pedestrian guardrails



For more information on how we're delivering lasting impact:

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