

HERITAGE IMPACT ASSESSMENT

PROPOSED WORKS:

Reconstruction of parapet using original masonry where possible. Any shortfall in the length will be made good with new sandstone colour matched to the original. Where possible larger localised areas of damage will be repaired with masonry indents. These will be made from the off cuts from the original parapet. Smaller areas will be repaired with suitable colour matched lime repair mortar.

OBJECTIVE:

To repair a length of masonry parapet which was struck and displaced by a vehicle. A combination of original masonry and new masonry will be required to reconstruct the parapet so that it best matches the existing bridge. This is to minimise the visual impact on the structures character while still providing a minimum vehicle containment so that the carriageway can be safely reopened to two way traffic.

SIGNIFICANCE OF AFFECTED FABRIC:

Barton's Bridge said to have been built in 1819 by Thomas Telford when he was County Surveyor for Shropshire. It carries the B5069 over Shell Brook which forms the border between Wales and England in the counties of Wrexham and Shropshire. Located approximately 4KM SW of Overton, it provides a vital link for local communities.

The masonry parapet constructed from large red sandstone is an integral part of the structure providing strength to the deck, it provides vehicle containment to help prevent vehicles from leaving the carriageway, as proven by this RTA. Once repaired the parapet performance will be improved.

ASSESSING BENEFICIAL IMPACT:

Visually the structures appearance will improve. The existing parapet alignment will be corrected which will improve the line of the carriageway. The reconstructed length will provide better containment and have more resilience to impact in the future. This will provide longevity to the whole structure. The existing historic areas of hard mortar repair which have a negative effect on the sandstone will be removed and replaced with masonry indents or repaired using colour matched lime mortar.

ASSESSING HARMFUL IMPACT:

Some of the original material has been lost so there will be a minor change to the appearance of the reconstructed parapet. Some corroded pins and broken or missing cramps at joints will have to be replaced with new steel. Some sandstone indents will be required to repair large spalls.

PROPOSED SOLUTION:

Reconstruction and localised repair work to minimise impact. Original masonry is to be reused where possible. New masonry has been sourced by the Mason from chosen supplier Cumbrian Stone Ltd. The masonry will be selected from the 'St Bees' Sandstone range test samples can be supplied to ensure a best match to the existing stone. Any small defects will be repaired with colour matched lime repair mortar, by Conserv or Similar approved. A test patch will be carried out to establish a good colour match. Larger areas will be repaired using sandstone indents. If possible these indents will be made from off cuts of the original parapet stone. Broken cramps and locating pins at joints will be refurbished or renewed. This will improve the overall strength of the parapet.

I don't favour the use of hot mix lime mortar for this project because I see no definitive evidence that its use will have a marked advantage on the overall characteristic of the structure. Also there are specific Health & Safety requirements that need to be addressed and the technical procedure for the application may require site staff to be trained prior to use.

The original parapet is red sandstone it is reasonably dense in nature and the individual units are in a fair condition despite a few knocked edges, there is little scaling. An NHL 2 lime mortar is considered too soft and is unsuitable for the exposed location. Excessive weathering is likely to erode the mortar and weaken the parapet. NHL 5 is a much stronger mortar suitable for exposed locations. With a higher compressive strength, lower permeability and flexibility. However I am concerned that this may have an adverse effect on the surrounding masonry resulting in cracking or damage as a result of freeze thaw action. With this in mind I have recommended using a NHL 3.5 lime mortar as a considered choice.

The masonry units will be bedded on a NHL 3.5 lime mortar. This is a medium strength mortar with good permeability which allows moisture to leave the structure unimpeded by the joints. This reduces the risk of freeze thaw action damaging the masonry. Its low compressive / flexural strength accommodates movement and limits the stresses on the surrounding masonry so prevents cracking. There are no additional requirements for its preparation and it can be purchased in bags, so easily transported and stored on site.