



Bridge of the Month No65, May 2016 Bittaford, Railway Viaduct



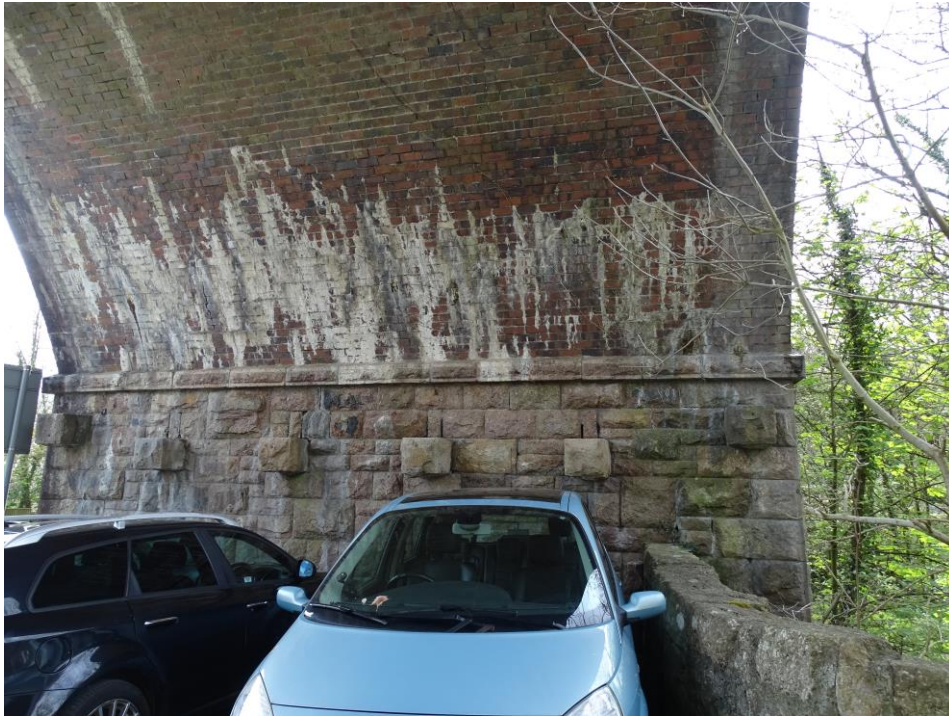
Late again this month. Life is remarkably busy. Just a week till I set off for a round tour taking in Archie Seminars in Charlestown (in Fife) and in Leeds with visits to Natland, Comrie, Dundee, Newcastle as well.

I stopped half way through the collection of bridges in Bittaford, so here is the big one.

From this level, it doesn't, look so grand, but those legs go down some distance and the spans are actually 15m, with 8 rings of brick in the arches.



I started at the little parking space under the last but one arch above. and was confronted with a view that is rarely so easily visible.



Here we see the corbel stones positioned to support the centring, four across the width and one each end set about a foot (300mm) higher. That implies either different centres or something odd in the seating system. The outer ones, especially, are very close to the top and would not support any serious weight without a good deal of material above. But then the arch is built from the bottom up.



Looking the other way, there are no corbels at all, but the ground is close, this is the abutment.

The water marks are different on the two sides of the span. I wonder why that would be? Here, though, there is one very clear line of lime runs and then further runs from above.

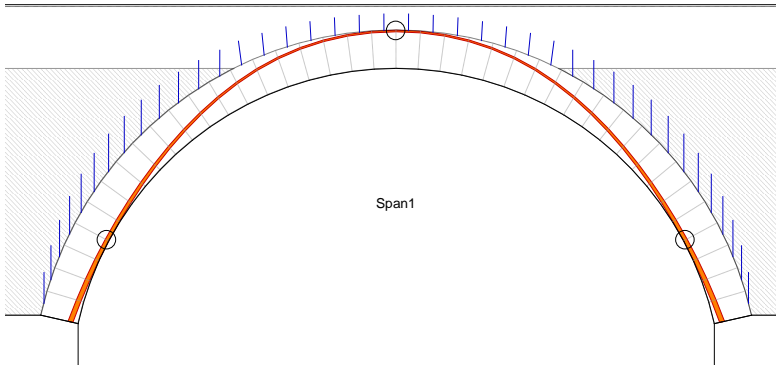


This slightly higher shot shows two obvious lines of runs in the abutment end. The lower one is the more pronounced and surely represents the top of solid material behind while the upper one might be the top of arches over the internal spandrel walls.

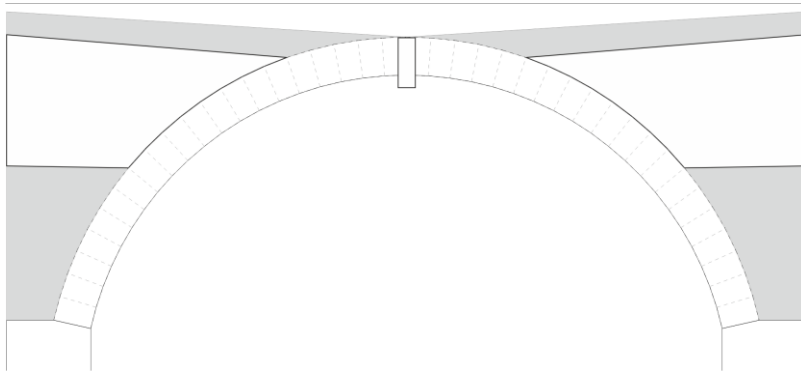


Looking straight upwards shows a drain at the centre of the crown and lime runs roughly equidistant each side. These rings are thick so the top of backing is likely to be further back from the crown, though why, then, is there a drain at the centre? Does the backing actually slope downwards? I have seen drawings of such bridges in Austria.

The minimum backing one might expect is level with the crown intrados (though we know that GW Buck working in the North West stopped at about 2/3 height). Oh, and, despite 8 rings of brick that looks remarkably like a spandrel crack developing.



This wouldn't explain the water marks or the drain, though.



To suit the water marks and drain hole, hollow backing with the upper surface sloping down towards the crown would be needed, as here.



Now that is interesting. Two spans along, the corbels are all level. There is no sign of a drain coming out through this face or on the other side.



This oblique shot from below shows bands of brickwork with solid and eroded mortar. The erosion almost certainly corresponds to areas where there is water penetration from behind.



This view of the north side shows no drains either but it does show dark staining below what is presumably a more or less waterproof layer through the bridge.



From a lower viewpoint we can see most of the arch soffit in a single view, though it is slightly distorted by the camera inclination. The drain hole must be slightly off centre because the wet patch is all to one side (the left in this view). The water/lime runs do not appear to be symmetrical either. Perhaps when I have a little more time I will be able to look in more detail at that. On this trip I was really aiming for the bigger viaduct at Ivybridge and got distracted on the way.

Heading North in a week's time so will look out for some interesting bridges further afield. In the meantime there are still places on seminars in:

The Scottish Lime Centre, Charlestown, Fife on 16th June

Followed by the SLCs own Arch Bridge Masterclass on 17th. and

Leeds University on 21st

Contact Philip@obvis.com for the seminars and

<http://www.scotlime.org/en/masonry-arch-bridge-masterclass/> for the masterclass