

Technical Note

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Project title	IAMP	Job number	[REDACTED]
cc	[REDACTED]	File reference	[REDACTED]
Prepared by	[REDACTED] (Tweed Ecology)	Date	18 March 2016
Subject	IAMP: [REDACTED]		

Background

Tweed Ecology was commissioned by Arup to undertake a [REDACTED] carrying the River Don under the A19 at Downhill Lane, West Boldon, South Tyneside on 18 March 2016. Prior to undertaking the culvert inspection, confined spaces training was held with Mine Rescue Services (MRS) Training and Rescue at their offices at Houghton-le-Spring. The aim of the survey [REDACTED] of the culvert, and to advise on further surveys that may need to be undertaken.

Work Undertaken

[REDACTED] attended site on 18 March 2016. [REDACTED] in Scotland for over 20 years and holds a Natural England [REDACTED] which includes survey of hibernacula [REDACTED]

The survey was undertaken accompanied by a member of MRS Training and Rescue [REDACTED] with further team members in constant radio contact on the surface.

The culvert was surveyed with a high-powered Clulite CB2 Clubman torch, and where cavities with [REDACTED] were identified, closer inspection with a Petzl Tikka head torch and Ridgid SeeSnake CA100 endoscope were undertaken.

Notes were made of any [REDACTED] both within the culvert and 10m upstream and downstream of the culvert portals.

Results

Structure

The culvert extends for c.160m between National Grid Reference (NGR) NZ34026 59914 (upstream) and NGR NZ34133 60036 (downstream) and runs in a north-easterly direction under an embankment carrying the A19 trunk road. The culvert is approximately 2.5m in height and 4m

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wide and is lined for approximately 95% of its length with corrugated iron with a waterproof coating. At the south-western (upstream) end of the culvert, the portal is brick-lined (**Photo 1**) while at the north-eastern (downstream) end, no portal has been built around the corrugated iron (**Photo 2**).

The culvert substrate consists of silt (up to 0.2m in depth) and stones. In places, silt has been deposited at the sides of the culvert to create a solid terrace above low-water levels. It was clear from debris attached to the roof of the culvert that during flood conditions, water can fill the entire cross-section of the culvert.

Temperature and relative humidity at north-east portal were 8.4°C and 48% respectively, whilst in the centre of the culvert, they were 7.4°C and 64% respectively, indicating that environmental conditions within the culvert broadly follow those of the external environment.



Photo 1. South-east culvert portal



Photo 2. North-west culvert portal

Approximately 10m from the south-western end of the culvert, a 7m section of sandstone blocks forms the barrel of the culvert. Research suggests that this is a former railway underbridge on the Pontop and South Shields Branch Line of the London and North-East Railway, visible on 1892-1908 Ordnance Survey maps for the area (**Figure 1**).

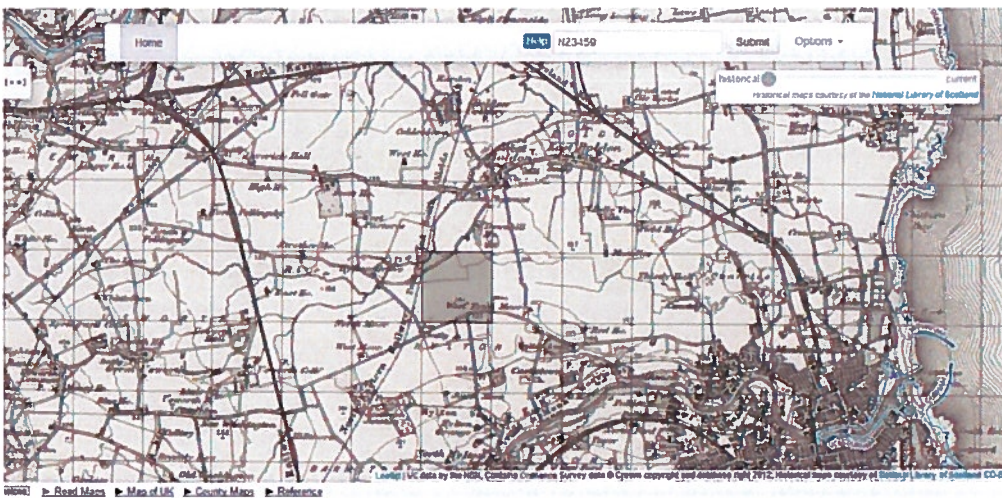


Figure 1. Ordnance Survey Map 1892-1908 showing A19 culvert location.

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Bats

No bats or signs of bats were found in the culvert during the inspection.

[REDACTED] no BRP was recorded in the culvert where corrugated iron formed the culvert lining. This small cavity was blocked with flood debris and was [REDACTED] Stones were used to block the entrance of the cavity [REDACTED] should the flood debris become displaced.

The 7m section of sandstone-lined bridge barrel (**Photo 3**) towards the south-western end of the culvert is assessed as having 'Moderate' BRP on account of multiple cavities between the sandstone blocks extending to >30cm depth, and which are sufficiently wide [REDACTED] There is also continuous cavity between the sandstone bridge barrel and the newer corrugated iron culvert on the upstream side, which also offers BRP.



Photo 3. Sandstone underbridge section

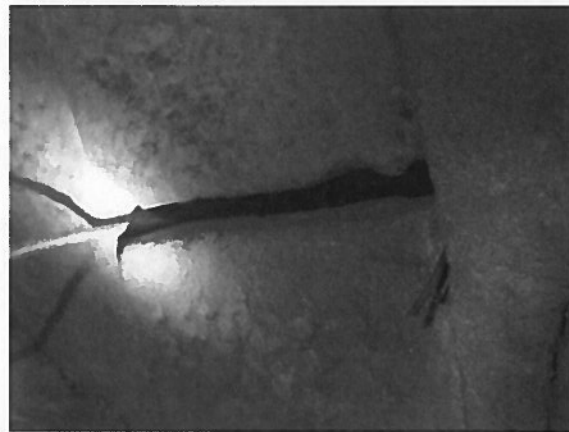


Photo 4. Typical cavity with endoscope inserted

Upstream of the culvert portal, the habitat consists of semi-improved grassland with hedgerows, isolated trees and small blocks of semi-natural woodland, while the road embankments have developed rank unimproved grassland and scrub. The River Don itself is well-vegetated with scrub, especially on the southern bank and is likely to be used as a commuting and foraging route by bats.

[REDACTED]

[REDACTED]

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Water vole

No evidence of water vole was found within the culvert.

A search of the river banks 10m upstream of the culvert revealed good potential habitat, a few potential burrows but no other evidence. Rat droppings were present.

Downstream of the culvert revealed a significant number of burrows on each bank, one of which was found to contain recently cut rush material. Though inconclusive without a direct sighting, latrines or droppings, it is considered likely that water vole are present in the section of the River Don below the culvert.

Recommendations



Winter

Hibernaculum checks (between November and February) can be restricted to the sandstone underbridge section towards the south-western end of the culvert.

DOCUMENT CHECKING

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Signature	[Redacted]		