

Archaeological Observation

On behalf of

Amey Construction Ltd

Concerning

**Water Pipeline Replacement
Works
Rainbow Hill
Worcester**

July 2016



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Cover: View southwest showing work in progress in Lansdowne Walk

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1 Executive Summary

Border Archaeology Ltd (BAL) was commissioned by Amey Construction Ltd on behalf of Severn Trent Water to undertake a programme of Archaeological Observation in connection with approximately 800m of water pipeline replacement works in Worcester affecting Rainbow Hill, Lansdowne Crescent Lane, Lansdowne Walk, part of Lansdowne Crescent and Roger's Hill (fig. 1). These streets all lay in an area with the potential to encounter deposits of Roman, medieval and Civil War date.

The majority of the work was carried out by means of open-cut trenching, with some sections employing trenchless pipe-bursting, involving the excavation of access-pits. In addition, a number of initial trial-pits were excavated to locate services and mains.

All features and deposits encountered during the course of the engineering groundworks related to modern road surfaces and existing pipes and services. The open-cut trenching largely followed the route of an existing cast-iron main and any archaeological features or deposits which may have been present would probably have been damaged prior to commencement of the present scheme.

Although areas of natural clay were revealed, particularly on Rainbow Hill and Lansdowne Walk, no evidence of archaeological features or early road surfaces was present and it would appear likely that these must have been removed during construction of the existing road. However, the fact that no residual finds or material were seen suggests that archaeological activity in this area was limited and that, prior to residential development in the 19th century and subsequently, it may have lain under cultivation.

The reported discovery of musket balls, clay pipe and a stamped silver coin on allotments at the northeast end of Lansdowne Walk may relate to the Civil War period but no evidence for features or deposits of that date was seen in the nearby access pits.

2 Introduction

Border Archaeology Ltd (BAL) was commissioned by Amey Construction Ltd on behalf of Severn Trent Water to undertake Archaeological Observation of approximately 800m of water pipeline replacement works affecting streets on the E side of Worcester, namely, Rainbow Hill, Lansdowne Crescent Lane, Lansdowne Walk, Elgar Court and part of Lansdowne Crescent (*fig.1*). The area occupies sloping ground varying between 33m AOD at the SW end of Rainbow Hill and 48mAOD at its NE extent.

Archaeological Observation took place between 18th November 2015 and 20th June 2016.



Fig 1: Plan showing location of water pipeline replacement ground works

2.1 Soils & Geology

The Soil Survey of England & Wales classifies Worcester as an unsurveyed urban area (SSEW 1982). The British Geological Survey states that the Bedrock Geology consists of mudstone of the Sidmouth Mudstone Formation. No superficial geology is recorded (www.bgs.ac.uk).

3 Aims & Objectives

The aim of the Archaeological Observation was to locate and record any archaeological finds, features or deposits within the groundworks area and to confirm that no impact on the archaeological resource occurred during the course of the groundworks without the implementation of this proposed programme of archaeological work.

Specific aims relating to research themes identified in the *Worcester Urban Archaeological Strategy* (WCC 2007) were as follows:

- *RP3.7 Roman road network*: Rainbow Hill follows the line of the Roman road from Birmingham via Bromsgrove, Droitwich and Worcester to Gloucester (Margary 1955, 287)
- *RP6.15 The landscape of the 1651 battle*: Whilst most of the action during the Battle of Worcester (1651) took place to the S of the city, it is considered likely that troops may have been positioned in the Rainbow Hill area. Gun emplacements were established on the slope of Roger's Hill during the siege of Worcester (Mason 2015).

4 Historical and Archaeological Background

4.1 Prehistoric

A Late Bronze Age socketed axe head (now in the Ashmolean Museum) was found on Lowesmoor, to the SW of the scheme, indicating prehistoric activity in the area.

4.2 Roman

It was thought possible that archaeological remains from the Roman period might be present as Rainbow Hill follows the line of the Roman road from Birmingham, which ran through Bromsgrove and Droitwich, entering Worcester by the Astwood Road, which runs into Rainbow Hill. The road continues to Gloucester (Margary 1955, 287).

4.3 Medieval and Post-medieval

The site lay outside the medieval and post-medieval cities; a map of the parish of Claines dating to 1753 shows the site to be agricultural land, both pasture and arable, owned by the bishop of Worcester.

There is evidence for activity relating to the mid-17th century Civil War, notably the gun emplacements created on the slope of Roger's Hill during the siege of Worcester (1646). The majority of the action during the 1651 battle of Worcester took place to the S of the city but it seems likely that troops were positioned in the Rainbow Hill area (Mason 2015).

Cole and Roper's map of 1806 also shows little development along Rainbow Hill and in the region of the site.

By the time of the 1886 Ordnance Survey (OS) Town Plan, houses were laid out along the W side of Lansdowne Crescent Lane, roughly corresponding to the modern layout, but the E side remained open. Some houses were shown along Lansdowne Walk and Rainbow Hill but development was far less dense than the modern layout.

The 1905 and 1928 OS maps reflect a gradual build-up of residential development, although the area was still not completely covered at this time and it was not until the post-war period that the Rainbow Hill area acquired its modern residential character, as shown on later OS mapping

That part of the scheme subject to Archaeological Observation lies close to the route of the Worcester and Birmingham Canal, which was constructed between 1792 (at the Birmingham end) and 1815. Elgar Court occupies the site of 'Marl Bank', the residence of Sir Edward Elgar from 1929 until his death in 1934. The house was demolished in 1969.

Mains water was first supplied to the majority of the city of Worcester in the middle of the 19th century (Harris 1994).

5 Methodology

The archaeological programme of work was carried out in accordance with *Standard and Guidance for an archaeological watching brief* (ClfA 2014), *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* (ClfA, 2014) and *Management of Research Projects in the Historic Environment* (MoRPHE) (Lee 2015). BAL adheres to the *ClfA Code of conduct* (2014).

Groundworks were either excavated by machine and toothless bucket or were hand-excavated by contractors under archaeological supervision. Open-cut trenching was opened along much of the pipeline route, with some sections employing pipe-bursting, involving the excavation of access pits (*fig. 1*). Areas of pipe-bursting included Roger's Hill and the NE part of Lansdowne Walk, to the junction with Lansdowne Crescent Lane. Trenching was opened in the remaining areas. In addition, a number of initial trial-pits were excavated to locate services and mains.

Full written and photographic records were made in accordance with BAL's *Archaeological Field Recording Manual* (2014). Annotated drawings were made on archive-stable polyester-based drafting film, as no deposits or features of archaeological significance were present. The photographic record comprises high-resolution digital images of all excavated contexts and archaeological features and structures, these being indexed and cross-referenced to written site records. Details concerning subject and direction of view are maintained in a photographic register, indexed by frame number.

As no archaeological features or deposits were encountered during the groundworks, a general record of non-archaeological features and deposits was made to indicate variation in natural deposition and disturbance caused by existing surfaces.

No finds were present or were recovered from the site and no deposits suitable for palaeoenvironmental sampling purposes were encountered.

6 Results

6.1 Area 1: Roger's Hill

NGR: SO 85449 55853 to SO 85568 55864

The following contexts were present on Roger's Hill:

Item	Context No.	Type	Interpretation	Discussion	Finds					Dating
					Small Find	Pot	Bone	Misc.	Sample No.	
1	(101)	Layer	Existing road surface & sub-base	Black tarmac & stone/aggregate; extended over all trenches maximum depth 0.50m. Overlying (102), (103)	-	-	-	-	-	Modern
2	(102)	Layer	Natural geology	Bright red clay; occasional greenish flecks. Beneath (101), (102)	-	-	-	-	-	N/A
3	(103)	Layer	Levelling layer - tarmac fragments possibly from previous road surfaces	Fairly friable dark grey / black rubble; tarmac fragments. Overlying (102), cut by [104]	-	-	-	-	-	Modern
4	[104]	Cuts	Existing service trenching	Linear; break of slope top sharp, sides vertical, break of slope base & base unknown. Cut (103), filled by (105)						Modern
5	(105)	Fills	Existing service trench backfill	Moderately compacted redeposited red clay & road stone/aggregate. Underlying (101), fill of [104]						Modern

6.1.1 Discussion

Pipeline replacement on Roger's Hill took place using pipe-bursting throughout. No archaeological features or deposits were present in either the initial trial-pitting or subsequent access-pit excavations on Roger's Hill. Context numbers were not allocated for individual cuts and fills of modern service trenches.

6.2 Area 2: Lansdowne Crescent Lane

NGR SO 85522 55710 to SO 85419 55927

The following contexts were present:

Item	Context No.	Type	Interpretation	Discussion	Finds					Dating
					Small Find	Pot	Bone	Misc.	Sample No.	
1	(201)	Layer	Existing road surface & sub-base	Black tarmac & aggregate/stone; extended trench-wide, maximum depth 0.35m. Overlying (202)	-	-	-	-	-	Modern
2	(202)	Fills	Existing service trenching backfill	Bright red redeposited natural clay; occasional stones, fragments of tarmac, road stone & aggregate. Fill of [203]	-	-	-	-	-	Modern
3	[203]	Cuts	Existing service trenching	Linear; NNW/SSE; break of slope top sharp, sides vertical, break of slope base & base unknown. Cut (204), filled by (202)	-	-	-	-	-	Modern
4	(204)	Layer	Natural geology	Firm bright red clay; few visible inclusions. Cut by [203]						N/A
5	(205)	Layer	Natural bedrock	Red mudstone						N/A

6.2.1 Discussion

It was originally intended that work on Lansdowne Crescent Lane would be undertaken using pipe-bursting. However, the discovery of a mains sewer in trial-pits, which were excavated prior to open-cut trenching, necessitated a change of engineering method to open-cut trenching, this extending over a distance of some 245m. The trench measured 0.40m wide and was excavated to a depth of c.0.90m. Context numbers were not allocated to individual modern service trenches and fills.



Plate 1: View NE at the junction of Lansdowne Crescent Lane and Lansdowne Walk showing existing ducts and natural bedrock

No archaeological finds or features were identified on Lansdowne Crescent Lane. Although open-cut trenching was employed, maximising the potential for archaeological discovery, the excavations followed the line of a disused cast-iron water main, the backfill of which was the only deposit seen over the majority of the groundworks area.

This backfill consisted of a fairly clean redeposited natural red clay and mudstone containing fragments of tarmac, presumably deriving from a contemporary road surface. Further disturbance was observed resulting from service installation and subsequent replacement leaving only very limited areas of archaeological potential, which were found to contain natural deposits, with bedrock visible at the junction with Lansdowne Walk (*Plate 1; fig. 1*). No residual finds, such as might have been expected had archaeological deposits or features been present, were seen in the backfill of the previous pipe-trench.

6.3 Lansdowne Walk

6.3.1 Lansdowne Walk - NNE access pits

NGR SO 88571 55820 to SO 85524 55706

The following contexts were present at the NNE end of Lansdowne Walk:

Item	Context No.	Type	Interpretation	Discussion	Finds					Dating
					Small Find	Pot	Bone	Misc.	Sample No.	
1	(301)	Layer	Existing road surface & sub-base	Black tarmac & aggregate/stone; extended trench-wide, maximum depth 0.35m. Overlay (302)	-	-	-	-	-	Modern
2	(302)	Fill	Fill of existing service trenching [303]	Bright red redeposited natural clay & mudstone; occasional stones, tarmac fragments, road stone & aggregate. Fill of [303]	-	-	-	-	-	Modern
3	[303]	Cuts	Existing service trenching	Linear; aligned NNE/SSW; break of slope to sharp, sides vertical, break of slope base & base unknown. Cut (304), filled by (302)	-	-	-	-	-	Modern
4	(304)	Layer	Natural geology	Firmly compacted bright red clay; few visible inclusions; present throughout. Cut by existing services						N/A
5	(305)	Layer	Bedrock	Red mudstone						N/A

6.3.2 Discussion

Work at the NNE end of Lansdowne Walk involved the excavation of access pits for pipe-bursting. In addition, a number of trial-pits were excavated to locate services and mains.

Considerable disturbance was observed in all trial-pits examined at the NE extent of Lansdowne Walk. The subsequent access pits were of limited size and were deliberately located over the existing main and services. Damage to any early deposits, had these been present, would therefore have been extensive.

Whilst it is noted that a stamped silver coin and a number of musket balls, together with clay tobacco pipe, were apparently recovered from allotments adjacent to the NNE end of Lansdowne walk, no residual finds and no features of archaeological significance were seen in any of the pits excavated in this area.

6.3.3 Lansdowne Walk – SSW open-cut trenching

NGR SO 85526 55707 to SO 85487 55621

The following contexts were present at the SSW end of Lansdowne Walk:

Item	Context No.	Type	Interpretation	Discussion	Finds					Dating
					Small Find	Pot	Bone	Misc.	Sample No.	
1	(401)	Layer	Existing road surface & sub-base	Black tarmac & aggregate/stone; extended trench-wide, maximum depth 0.35m. Overlying (402)	-	-	-	-	-	Modern
2	(402)	Layer	Previous surface or aggregate for existing surface	Dirty mixed stone; 60mm thick. Underlying (401), overlying (405)	-	-	-	-	-	Modern
3	(403)	Layer	Natural deposition	Red clay; outcrops of stone; present to base of trench. Cut by [404]	-	-	-	-	-	N/A
4	[404]	Cut	Existing service trench	Linear; aligned NNE/SSW; break of slope to sharp, sides vertical, break of slope base sharp, base flat. Cut (403), filled by (405)						Modern
5	(405)	Layer	Fill of existing service trench	Redeposited red natural stone. Fill of [404], underlying (402).						Modern

6.3.4 Discussion

From the junction with Lansdowne Crescent Lane to that with Lansdowne Crescent, work took place by means of open-cut trenching, maximising the potential for the discovery of archaeological features (*Cover & fig. 1*).



Plate 2: Base of a Schweppes 'torpedo' soda bottle, dating from between 1831 and 1895

Trenching followed the line of a disused cast-iron main and the majority of deposits were thus heavily disturbed. However, at the junction of Lansdowne Walk with Lansdowne Crescent Lane undisturbed natural deposits were observed. These demonstrated the presence of bedrock at a shallow depth on the S slope of the hill.

A single find, not retained, (*Plate 2*) comprised the lower part of a 'torpedo' soda bottle, probably manufactured for Schweppes and dating to the 19th century, when these bottles were manufactured in large numbers. The word 'STREET' was visible and may refer to Schweppes' Margaret Street premises in London. Small fragments of modern (white) ceramics were also seen in the trench backfill.

6.4 Lansdowne Crescent

NGR SO 85792 56027 to SO 85615 55716

The following contexts were present on Lansdowne Crescent:

Item	Context No.	Type	Interpretation	Discussion	Finds					Dating
					Small Find	Pot	Bone	Misc.	Sample No.	
1	(501)	Layer	Existing road surface & sub-base	Black tarmac & aggregate/stone; extended trench-wide, maximum depth 0.20m. Overlying (502)	-	-	-	-	-	Modern
2	(502)	Fill	Fills of existing service trenching	Bright red redeposited natural clay; occasional stones, fragments of tarmac, road stone & aggregate. Underlying (501), fill of [503]	-	-	-	-	-	Modern
3	[503]	Cuts	Existing service trenching	Linear; aligned NW/SE; break of slope top sharp, sides vertical, break of slope base & base unknown. Cut (504), filled by (502).	-	-	-	-	-	Modern
4	(504)	Layer	Natural geology	Firmly compacted bright red clay; few visible inclusions. Overlying (505), cut by [503]						N/A
5	(505)	Layer	Bedrock	Red mudstone. Underlying (504)						N/A

6.4.1 Discussion

Open-cut trenching was observed for a short distance at the SE end of Lansdowne Crescent to its junction with Rainbow Hill, a distance of some 59m. It was not possible to establish within the narrow trench whether the deposit of 19th -or 20th -century rubbish, including oyster shell, white ceramic and blast furnace slag in the base of the trench, was backfill of an earlier main. If not, it may have comprised a dump of rubbish drawn from a number of sources and used as levelling material. A layer of red clay above was apparently redeposited natural material.

No archaeological finds or features were encountered during work on Lansdowne Crescent.

6.5 Rainbow Hill

6.5.1 Junction of Lansdowne Crescent to Kenilworth Close

NGR SO 85552 55571 to 85502 55545

The following contexts were present at the SW end of Rainbow Hill:

Item	Context No.	Type	Interpretation	Discussion	Finds					Dating
					Small Find	Pot	Bone	Misc.	Sample No.	
1	(601)	Layer	Existing road surface & sub-base	Black tarmac & aggregate/stone; extended trench-wide, maximum depth 0.32m. Overlying (602)	-	-	-	-	-	Modern
2	(602)	Fill	Fill of existing service trenching	Bright red redeposited natural clay; occasional stones, fragments of tarmac, road stone & aggregate. Underlying (601), fill of [603]	-	-	-	-	-	Modern
3	[603]	Cuts	Existing service trenching	Linear; aligned NE/SW; break of slope top sharp, sides vertical, break of slope base & base unknown. Filled by (602), (604)	-	-	-	-	-	Modern
4	(604)	Layer	Concrete surrounding services, pipes and ducts	Indurated concrete & steel shoring. Fill of [603], below (601).						Modern

6.5.2 Discussion

A short length of trenching was cut from the end of Lansdowne Crescent to Kenilworth Close, which lay outside the area of Archaeological Observation.

A length of an iron post set in concrete was identified as the base of the previous bus stop, close to that used at present.

No evidence for archaeological finds, features or deposits was present, with a substantial amount of disturbance having taken place during previous mains installation and subsequent maintenance. Natural deposits were not encountered in this part of the scheme.

6.5.3 Rainbow Hill from Mayfield Road to Reservoir Lane

NGR SO 85792 56027 to SO 85615 55716

The following contexts were present between Mayfield Road and Reservoir Lane:

Item	Context No.	Type	Interpretation	Discussion	Finds					Dating
					Small Find	Pot	Bone	Misc.	Sample No.	
1	(701)	Layer	Existing road surface & sub-base	Black tarmac & aggregate/stone; extended trench-wide, maximum depth 0.35m. Overlying (702)	-	-	-	-	-	Modern
2	(702)	Fill	Fill of existing service trenching	Bright red redeposited natural clay; occasional stones, fragments of tarmac, road stone & aggregate. Underlying (701), fill of [703]	-	-	-	-	-	Modern
3	[703]	Cuts	Existing service trenching	Linear; aligned NW/SE; break of slope top sharp, sides vertical, break of slope base & base unknown. Cut (706), filled by (702).	-	-	-	-	-	Modern
4	(704)	Layer	Natural geology	Firmly compacted bright red clay; few visible inclusions. Overlying (705)						Modern
5	(705)	Layer	Bedrock	Red & grey mudstone. Underlying (704)						N/A
6	(706)	Layer	Possible earlier road surface	Indurated concrete; 100mm thick. Beneath (701), cut by [703]						Modern

6.5.4 Discussion

Work took place using open cut trenching throughout with a number of trial-pits excavated prior to trenching. The trench to insert the main on Rainbow Hill measured 0.30m in width.



Plate 3: Concrete beneath existing road surface and bedrock in base of trench on Rainbow Hill; view SW

No archaeological features were present on Rainbow Hill. It is possible that earlier road surfaces and any other archaeological deposits which may have been present were removed during the installation and subsequent removal of lines for the electric tramway which ran along Rainbow Hill to Astwood Cemetery. The lines were installed in 1903/4 and were in use only until 1928 when the first motor buses came into use in the city. It is certain that in the centre of Worcester work to lay down the lines for the electric trams involved tearing up the existing roads meaning that it is possible that any surviving archaeological features, including previous road surfaces, may have been destroyed at about this time. One possible interpretation of the substantial layer of concrete (*Plate 3*) which was present intermittently along the trench is that it may have been associated with the tramway.

7 Overall Discussion

Observation of all intrusive groundworks was carried out within the designated parts of the scheme area.

Trenching excavations and access pits followed the line of existing services and this may account to a large extent for the absence of archaeological features and deposits. Natural deposits were seen in limited areas, particularly at the junction of Lansdowne Crescent Lane and Lansdowne Walk, and intermittently at the NE end of Rainbow Hill itself; however, these lay immediately beneath modern deposits.

It was considered likely that any previous surfaces, particularly on Rainbow Hill itself, may have been removed during road resurfacing work and during insertion and maintenance of existing and earlier mains and services.

Access pits for service connections throughout the scheme demonstrated repeated disturbance.

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