# Castleward Derby: Park Street Canal Tunnel – Archaeological Recording

## Compendium Living

*Report prepared by:*
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**January 2016**

# ECUS Ltd

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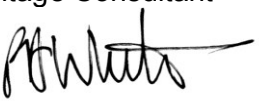
| Report to: | Compendium Living |
| Report Title: | Castleward Derby: Park Street Canal Tunnel – Archaeological Recording |
| Revision: | V1.1 |
| Issue Date: | January 2016 |
| Report Ref: | 7134_Castleward_Canal_AR_v1.1 |

Originated By:

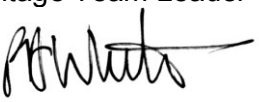
James Thomson
Heritage Consultant Date: 25.01.2016

Reviewed By:



Paul White
Heritage Team Leader Date: 25.01.2016

Approved By:



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# Executive Summary

*Ecus Ltd. were commissioned by Consortium Living in November 2015 to undertake a programme of archaeological recording at Park Street as part of the Castleward Urban Village regeneration scheme in Derby, situated at NGR 435988 335627.*

*The programme of archaeological works was undertaken between 17/11/2015 and 14/12/2015 and comprised a structural watching brief during the exposure and consolidation of an extant canal tunnel beneath Park Street.*

*The canal tunnel historically facilitated the continuation of the Bemrose Arm of the Derby Canal beneath Park Street, shortly beyond which it terminated at a wharf between Bemrose and Son Print Works and the Canal Street Iron Works. This canal arm was in decline during the twentieth century, had become disused by the 1950s and was subsequently lost beneath development by the end of the century.*

*The tunnel appears to have been redundant by the early twentieth century when the entrance from Bemrose and Son Print Works was partially blocked, preventing access from canal boats. The tunnel was fully blocked off at both ends during the mid to late twentieth century, leaving the main structure in situ beneath Park Street.*

*During the course of the archaeological recording the arch of the tunnel was removed and silt and rubble from the preceding demolition cleared from the interior of the canal enabling a record of its fabric and construction to be made. The masonry walls of the canal were left in situ and the interior back filled with a compacted stable material.*

# Contents

## Plates



## Figures

## Abbreviations and Conventions used in the text

| | |
|---|---|
| ADS | Archaeological Data Service |
| BGS | British Geological Survey |
| *c.* | circa |
| HE | Historic England |
| ha | hectares |
| HA | Heritage Asset reference |
| HER | Historic Environment Record |
| km | kilometres |
| m | metres |
| NHLE | National Heritage List for England |
| NPPF | National Planning Policy Framework |
| OS | Ordnance Survey |

## Assumptions and Limitations

This report is compiled using secondary information derived from a variety of sources, only some have been directly examined. The assumption is made that this data, as well as that derived from other secondary sources, is reasonably accurate.

# 1. Introduction

## 1.1 Introduction

1.1.1 Ecus Ltd. were commissioned by Consortium Living in November 2015 to undertake a programme of archaeological recording at Park Street as part of the Castleward Urban Village regeneration scheme in Derby (hereafter 'the Site'), situated at NGR 435988 335627.

1.1.2 The programme of archaeological works was undertaken between 17/11/2015 and 14/12/2015 and comprised a structural watching brief during the exposure and consolidation of an extant canal tunnel within Park Street. This programme of works was undertaken in line with a Written Scheme of Investigations (WSI) prepared by Ecus and approved by the Development Control Archaeologist for Derbyshire County Council (Ecus 2015a). The following report presents the results of this archaeological recording.

## 1.2 Site Location

1.2.1 The Site lies within Park Street situated to the southeast of Derby city centre, southwest of the River Derwent and running northwest-southeast between Canal Street and Midland Road.

1.2.2 At the time of the archaeological recording the land to the south was in the process of being redeveloped for new residential housing (**Plate 1**).

1.2.3 Superficial geology at the vicinity of the site is recorded as sand and gravels of the Allenton Terrace Deposits, overlying mudstone of the Mercia Mudstone Group (BGS Geology of Britain viewer 2015).

## 1.3 Background History of the Derby Canal

1.3.1 An Act of Parliament was granted Royal Assent in 1793 giving permission for the construction of the Derby Canal and associated railways. The Canal was to connect the River Trent near Swarkestone Bridge to the Erewash Canal near Sandiacre and to provide a navigable route which would connect collieries and quarries via both rail and canal into a wider transport system. The canal was constructed by the Derbyshire Canal Company and was completed in 1796. As part of the 1792 Act permission was granted to *the 'owners/miners of coal, ironstone, limestone or other minerals, to make any navigable cut or cuts through his, her or their own lands in such a manner as he, she or they shall think proper to communicate with the said canal'* as long as damage or drainage did not occur to the Derby Canal Company's structure. Permission was also granted to Lords of Manors and Owners of estates to make wharfs and erect warehouses, an offer which if they did not take up within 12 calendar months would entitle the Derby Canal Company to construct on their behalf.

1.3.2 The canal branch which passes under Park Street is likely to have been one of these subsidiary canal cuts. It is not known whether it was constructed by the Derby Canal Company or by a permitted estate owner, none-the-less the cut had been constructed by the publication of the 1852 Board of Health map of Derby leading from the Derby Canal at Siddals Bridge to terminate just beyond Park Street between Hall & Clarke Canal Street Iron Works and Bemrose and Son Print Works. It is from the latter that the arm derived its common name of *Bemrose Arm*. The 1883 Ordnance Survey map illustrates that the branch served several wharfs located behind buildings along Canal

Street and Calvert Street by the time of its production, with the canal narrowing just before the Park Street tunnel to a single vessel width. Of interest is the absence of both a tow path and winding hole at the canal head (for turning boats around in), indicating the canal arm may have been built for use by motorised boats.

1.3.3 By the publication of the 1901 OS map Bemrose and Sons print works had expanded into the adjacent iron works. This arrangement appears to have remained unchanged up until the publication of the 1947 OS Map. By 1947 the canal branch terminates at a wharf next to the timber yard just north of Park Street. A picture, possibly taken from Park Street, looking north along the canal arm was taken in 1948 shows the canal to be largely silted up (www.picturethepast.org.uk/frontend.php?keywords=Ref_No_increment;EQUALS;DMAG000552&pos=2&action=zoom).

1.3.4 By the time of the publication of the 1951 OS map the wharf had gone and the Canal Branch appears to stop just north of the timber yard. The canal branch is annotated as disused by the time of the publication of the 1968 OS map.

1.3.5 The relatively early truncation of the canal in 1901 alongside the expansion of the Bemrose & Son print works into the buildings of the adjacent iron works suggests that beyond the tunnel the canal branch had primarily served the iron works. This corresponds with the 1884 OS Map where the canal branch can be seen terminating against the iron works wall with a wharf or yard to the north. The canal would have provided easy transportation of coal and other raw materials directly from the collieries and quarries to the iron works.

**Plate 1:** View of the exposed upper surface of the tunnel, looking west along Park Street

**Plate 2:** View of the exposed upper surface of the tunnel, looking north towards Park Street

**Plate 3:** View of section through the top of the tunnel facing south

# 2. Methodology for Archaeological Recording

## 2.1 Aims and Objectives

2.1.1 The aim of the archaeological recording is to ensure the preservation by record of structures associated with the former Derby Canal.

2.1.2 The work will address the following research objective of the East Midlands Heritage Research Strategy (Knight et al, 2012):

- 9K Investigate further the industrialisation of the Derwent Valley

2.1.3 The site works and reporting will confirm to current national guidelines as set out in Historic England (2006) *Understanding Historic Buildings: a guide to good recording practice,* and Chartered Institute for Archaeologists standards and guidance (2014a and 2014b).

## 2.2 Recording Methodology

2.2.1 Recording of the standing extant remains of the canal structure/culvert primarily comprised a photographic record undertaken in accordance with the standards laid out in the WSI for the site for “Recording of Canal Structure” (Ecus 2014: Section 3).

2.2.2 Specifically, the photographic record of the structure comprised:

- General external views of the canal structure, placing them within their setting;
- Detail views of the appearance of the upper arch of the canal showing all accessible elevations, giving an overall impression of its size, shape, and method of construction;
- Structural watching brief during the demolition of the canal arch to observe the method of construction and materials used in creating the canal arch;
- Detail views of the appearance of the inner elevations of the canal showing all accessible elevations, giving an overall impression of its size, shape, and method of construction;
- Any external or internal detail, structural or decorative, which does not show adequately on general photographs;
- Any machinery or other plant, or evidence for its former existence;
- Any dates or other inscriptions, any signage or graffiti which contribute to an understanding of the structures; and
- If present any contents or ephemera which have a significant bearing on the history of the structure.

2.2.3 Sketch plans and elevations were produced to illustrate photo location viewpoints and any observations made during the works and are reproduced as **Figure 2**.

# 3. Results of Archaeological Recording

## 3.1 Introduction

3.1.1 The following section describes the results of the archaeological recording of the Derby Canal Tunnel at Park Street, Derby. For completion, the section incorporates the results of an earlier phases of recording undertaken during the remediation of ground to the south of the road (for full details of this phase of works refer to Ecus 2015b; also available online at http://archaeologydataservice.ac.uk/archives/view/ecusltd1-200276/).

## 3.2 Building Recording of Derby Canal Tunnel

3.2.1 The Park Street Canal Tunnel formed part of the former Bemrose Arm of the Derby Canal, comprising a masonry and brick structure measuring 12.88 m long by 4.84 m wide with a height of approximately 3.25 m (**Plates 2, 3 & 4**).

3.2.2 Observations made of the southern portal during a previous phase of work (Ecus 2014) indicated that the portals of the canal tunnel possessed segmental arched entrances constructed of ashlar voussoirs (**Plate 5**).

3.2.3 The eastern and western walls of the canal tunnel were masonry built, comprising five courses of dressed sandstone blocks, laid to regular courses (**Plates 6-7**). Tooling was clearly evident across the majority of blocks, comprising rough pointed work. Whilst the foundation of the wall was not exposed, an additional wider masonry course was observed at depth below the main faces of the canal walls (**Figure 2**). Within the centre of the first course of each of the masonry walls was a rectangular void (**Plate 8**). Whilst there was no access to investigate these openings, it is hypothesised that they may have represented outfalls for water collected by drains on Park Street. This is due to the low level of cover between the top of the canal tunnel arch and the road surface of Park Street (less then 20cm), which evidently left insufficient room to accommodate drains across the top of the tunnel. A service run had been constructed along the eastern wall of the canal tunnel, comprising a large diameter cast iron pipe carried on regular iron brackets set into the masonry blocks of the canal wall (**Plate 4**).

3.2.4 Above the masonry wall laid a continuous band of ashlar, comprising the springer for the subsequent three course thick red brick arch which spanned the tunnel (**Plate 9**). The arch was formed from two types of red brick, comprising: a frogged brick (measuring 24 x 12 x 8 cm, with 'PATENT' stamp) commonly used within the soffit of the arch; and a non-frogged brick (measuring 24 x 11.5 x 7) commonly used in the outer two courses.

3.2.5 Whilst the true base of the canal was obscured by silt, monitoring of its clearance indicated the base of the canal was originally lined with puddling clay which would have formed an impervious layer above the mudstone, sands and gravels of the underlying geology of the local area.

3.2.6 The portals of the canal tunnel were blocked in a number of phases. The southern portal was initially partially blocked by a blue engineering brick pier, with a wide elliptically arched opening to the east and narrower opening to the west. The corner of what was possibly a masonry platform beneath the narrower opening in the southwest corner of the tunnel may have represented the level of the former wharf known to have been situated southwest of the tunnel in the nineteenth century. Both of the arched openings were blocked with blockwork. The northern portal was initially partially blocked by a mitred shuttered concrete structure with a central gap, and was evidently fully blocked later with red brick.

**Plate 4:** General view of the Park Street Canal Tunnel, looking north (2014)

**Plate 5:** Detail of sandstone voussoirs of the canal portal (2014)

**Plate 6:** General view of the interior of the canal tunnel following the removal of the arch, looking south

**Plate 7:** General view of the interior of the canal tunnel following the removal of the arch, looking north

**Plate 8:** View of the rectangular void within the centre of the west facing elevation of the canal tunnel wall. An identical void was present within the opposite wall.

**Plate 9:** Image taken during breaking out of the arch, looking south, illustrating its construction

# 4. Conclusions

## 4.1 Summary of Findings

### Park Street Canal Tunnel

4.1.1 The canal tunnel historically facilitated the continuation of the Bemrose Arm of the Derby Canal beneath Park Street, shortly beyond which it terminated at a wharf between Bemrose and Son Print Works and the Canal Street Iron Works. This canal arm was in decline during the twentieth century, becoming disused by the 1950s and was subsequently lost beneath development by the end of the century.

4.1.2 The tunnel comprised masonry walls with brick arch and clay-lined base. The materials and methods of construction are consistent with standard practices of the nineteenth and early twentieth century, and the workmanship was of good quality but utilitarian in design reflecting its industrial nature.

4.1.3 The tunnel appears to have been redundant by the early twentieth century when the entrance from Bemrose and Son Print Works was partially blocked, preventing access from canal boats. The tunnel was fully blocked off at both ends during the mid to late twentieth century, leaving the main structure in situ beneath Park Street.

## 4.2 Conclusions

4.2.1 Archaeological monitoring of the works in Park Street, Derby recorded the remains of a surviving nineteenth century canal tunnel associated with an arm of the Derby Canal.

4.2.2 During the course of the archaeological recording the arch of the tunnel was removed and silt and rubble from the preceding demolition cleared from the interior of the canal enabling a record of its fabric and construction to be made. The masonry walls of the canal were left in situ and the interior back filled with a compacted stable material.

4.2.3 The archaeological recording has captured information on a section of the Bemrose Arm of the Derby Canal which, it is hoped, may be of interest in comparing and contrasting the materials and construction techniques between the Bemrose Arm and other elements of the Derby Canal and thereby assist in understanding how this important transport corridor developed.

# 5. Archive

## 5.1 Deposition

5.1.1 The archive will be prepared for deposition with Derbyshire Record Office in line with current professional guidelines (SMA 1995, CIfA 2008, Brown 2011 and ADS 2013) under an accession number to be allocated by the Record Office on receipt of archive. The archive of this element of archaeological recording will be amalgamated with the existing records from previous archaeological work at the site (Ecus 2014).

## 5.2 OASIS

5.2.1 An online form has been submitted with the Online AccesS to the Index of archaeological investigationS (OASIS) database under the ID: **ecusltd1- 235975**.

# 6. References

## 6.1 Bibliography

ADS, 2013. *Caring for Digital Data in Archaeology: a guide to good practice. Archaeology Data Service.*

Brown, D.H. 2011. *Archaeological Archives: a guide to best practice in creation, compilation, transfer and curation.* IFA Archaeological Archives Forum.

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Ecus 2012. *Archaeological Desk Based Assessment: Castleward, Derby.* Unpublished report.

Ecus 2014. *Castleward, Derby, Derbyshire - Archaeological Recording and Monitoring Written Scheme of Investigation Prepared for Lovell and Derbyshire County Council.*

Ecus 2015a. *Castleward, Derby – Addendum to Written Scheme of Investigation.* Letter update to Ecus 2014 submitted to Steve Baker at Derbyshire County Council 16/11/2015.

Ecus 2015b. *Castlward Derby Area B5 – Archaeological Recording.* Ecus report ref. 5342. Available <http://archaeologydataservice.ac.uk/archives/view/ecusltd1-200276/>.

Historic England 2006. *Understanding Historic Buildings: a guide to good recording practice.* English Heritage.

Society of Museum Archaeologists (SMA) 1995. *Towards an Accessible Archaeological Archive.* Available www.socmusarch.org.uk/publica.htm.

## 6.2 Derbyshire Record Office

**D28/1** Act of Parliament 13th of December 1792

**Q/RP1/79/1-2** Deposited plans and book reference of Derby Canals, from Smith houses near Kilburn to the Erewash Canal at Sandiacre with branches from Coxbench to Smalley Mill and from Derby to the Grand Trunk Canal at Swarkestone 1792.

Kelly's Directory 1881, 1887, 1891,1895, 1899, 1908, 1925, 1928, 1936, 1941 & 1945

Post office Directory 1848

## 6.3 Ordnance Survey Mapping

Derbyshire Sheet L.13 - 1:2500, 1884, 1900, 1914, 1947, 1951, 1968, 2005

# Appendix 2: OASIS Form

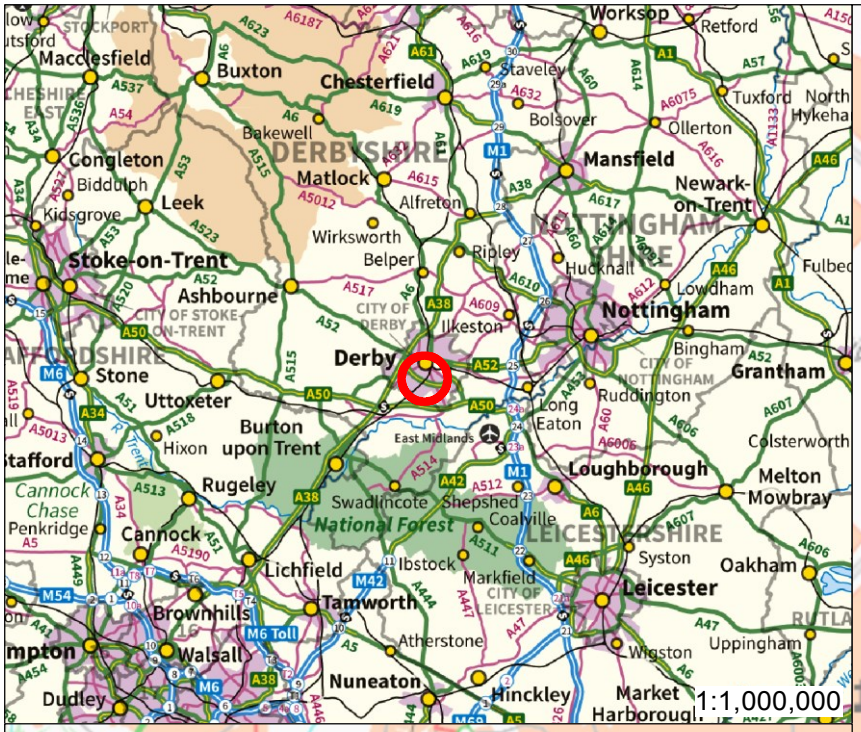
| OASIS ID: ecusltd1-235975 | |
|---|---|
| ***Project details*** | |
| Project name | Castleward: Park Street Canal Tunnel |
| Short description of the project:<br>*Ecus Ltd. were commissioned by Consortium Living in November 2015 to undertake a programme of archaeological recording at Park Street as part of the Castleward Urban Village regeneration scheme in Derby, situated at NGR 435988 335627. The programme of archaeological works was undertaken between 17/11/2015 and 14/12/2015 and comprised a structural watching brief during the exposure and consolidation of an extant canal tunnel beneath Park Street. The canal tunnel historically facilitated the continuation of the Bemrose Arm of the Derby Canal beneath Park Street, shortly beyond which it terminated at a wharf between Bemrose and Son Print Works and the Canal Street Iron Works. This canal arm was in decline during the twentieth century, had become disused by the 1950s and was subsequently lost beneath development by the end of the century. The tunnel appears to have been redundant by the early twentieth century when the entrance from Bemrose and Son Print Works was partially blocked, preventing access from canal boats. The tunnel was fully blocked off at both ends during the mid to late twentieth century, leaving the main structure in situ beneath Park Street. During the course of the archaeological recording the arch of the tunnel was removed and silt and rubble from the preceding demolition cleared from the interior of the canal enabling a record of its fabric and construction to be made. The masonry walls of the canal were left in situ and the interior back filled with a compacted stable material.* | |
| Project dates | Start: 17-11-2015 End: 14-12-2015 |
| Previous/future work | Yes / No |
| Any associated project reference codes | 7134 - Contracting Unit No. |
| Any associated project reference codes | ecusltd1-200276 - OASIS form ID |
| Type of project | Building Recording |
| Monument type | CANAL TUNNEL Modern |
| Significant Finds | NONE None |
| Methods & techniques | '"Photographic Survey"',"'Survey/Recording Of Fabric/Structure"' |
| Prompt | Planning condition |

| ***Project location*** | |
|---|---|
| Country | England |
| Site location | DERBYSHIRE DERBY DERBY Castleward: Park Street Canal Tunnel |
| Study area | 0 Hectares |
| Site coordinates | SK 35988 35627 52.916539089005 -1.464726911976 52 54 59 N 001 27 53 W Point |

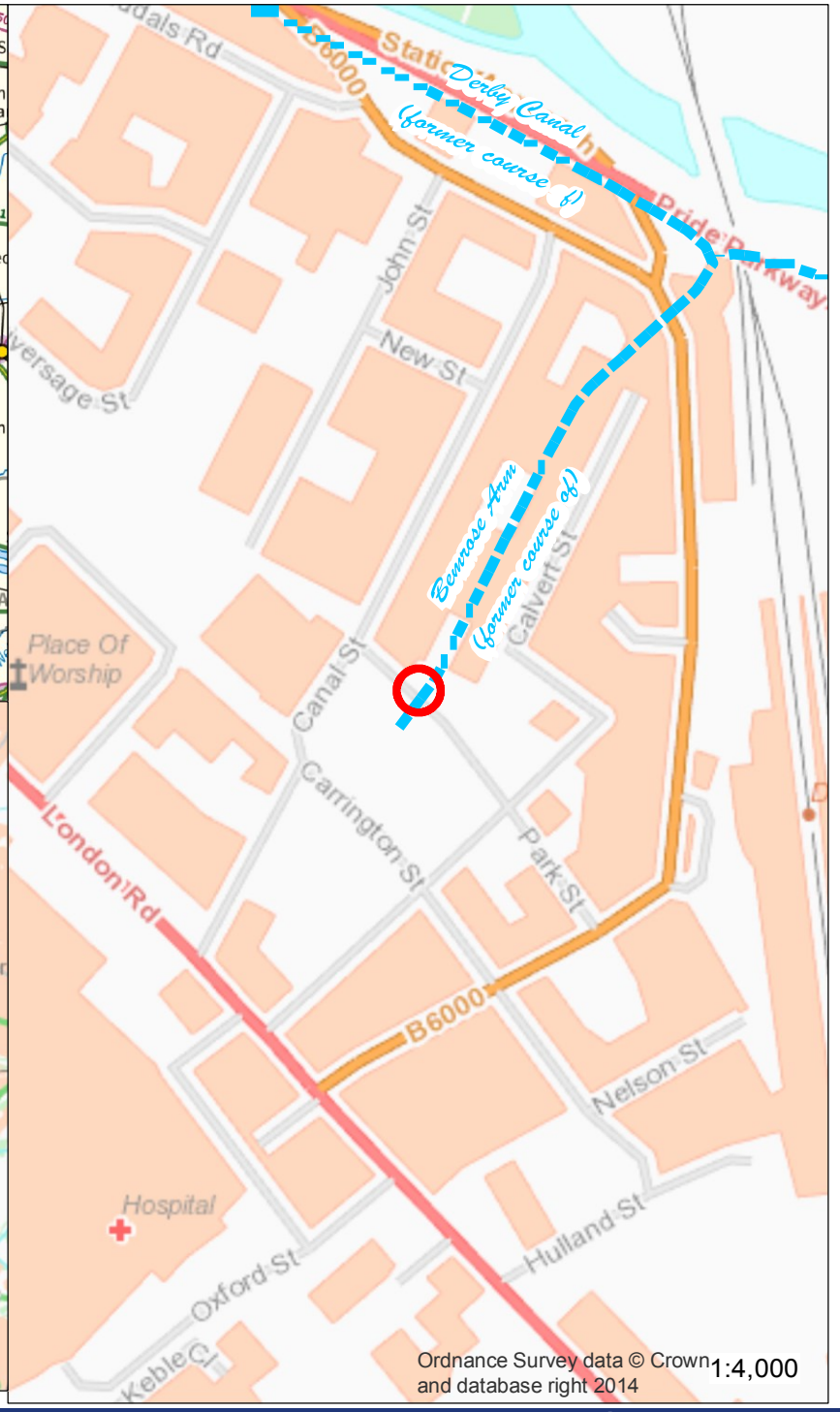
| ***Project creators*** | |
|---|---|
| Name of Organisation | ECUS ltd |
| Project brief originator | Local Authority Archaeologist and/or Planning Authority/advisory body |
| Project design originator | ECUS ltd |
| Project director/manager | Paul White |
| Project supervisor | James Thomson |
| Type of sponsor/funding body | Developer |

| Project archives | |
|---|---|
| Physical Archive Exists? | No |
| Digital Archive Exists? | No |
| Paper Archive recipient | Derbyshire Record Office |
| Paper Contents | "none" |
| Paper Media available | "Context sheet","Diary","Drawing","Photograph" |

# Illustrations





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ENVIRONMENTAL CONSULTANTS

Site Boundary

**Compendium Living**
Park Street Canal Tunnel

**Site Location**

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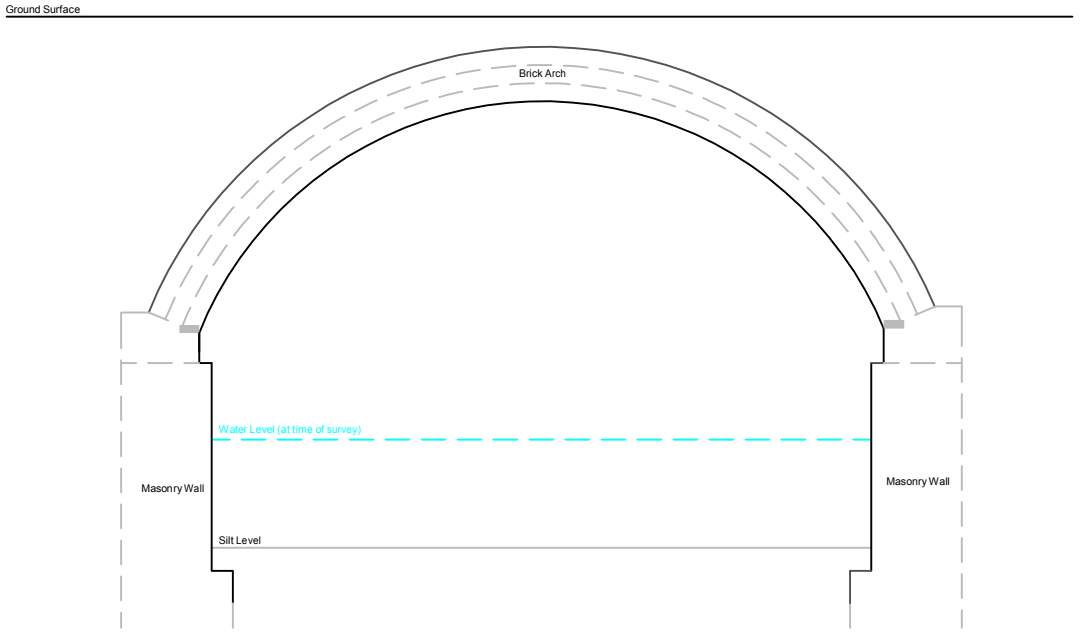


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GRAPHIC SCALE

Metres 0.5 0 1 1.5

**Compendium Living**

Park Street Canal Tunnel

**Sketch Section**



Date: Jan 2016 Approx. Scale: 1:50 @ A4 Figure 2