Project code: FRCE10
Client: Transport Scotland
Date: 1st April 2011

The Results of an Archaeological Field Evaluation by Trial Trenching at Land near Humbie Farm, Kirkliston (Land Parcel 16)

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Report Authors: Donald Wilson
Report Status: Approved

Executive Summary

Headland Archaeology conducted an archaeological evaluation by trial trenching on the Forth Replacement Crossing near Humbie Farm, Kirkliston (Land Parcel 16) NGR: NT 11037 74756 (centred), to assess the presence/absence of archaeological remains or deposits in an area identified as having archaeological potential in the Forth Replacement Crossing Environmental Statement (Jacobs Arup, 2009a). The work was commissioned by Transport Scotland, managed and monitored by Jacobs Arup and undertaken in advance of the proposed commencement of construction works.

A total of 4 trenches totalling 256m^2 were excavated comprising a 5% sample of the land parcel. The trenches were excavated on 31st March 2011 and were sited to ensure good spatial coverage of the area under investigation, although constraints to the layout were imposed due to a gas main running through the middle of the area to be evaluated. The trial trenching revealed a number of rubble filled field drains relating to the post medieval agricultural activity on site. A modern ditch was also recorded but no other archaeological remains or deposits were identified during the evaluation.

ARCHAEOLOGICAL EVALUATION
Forth Replacement Crossing: Land Parcel 16, Land near Humbie Farm, Kirkliston

PROJECT SUMMARY SHEET (FRCE10)

Client	Transport Scotland
Consultant	Jacobs Arup
National Grid Reference	NT 10982 74620
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Schedule	
Fieldwork	31st March 2011
Report	April 2011

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1 Introduction

1.1 *General*

1.1.1 This Data Structure Report is submitted as a report on a programme of archaeological trial trenching to Jacobs Arup and Transport Scotland in respect of the proposed Forth Replacement Crossing (hereinafter 'FRC'), and in accordance with the mitigation measures recommended in the FRC Environmental Statement Chapter 14 (Cultural Heritage; Jacobs Arup 2009a) wherein the requirement for a programme of trial trenching was identified.

1.1.2 On the 31st March 2011, Headland Archaeology (UK) Ltd. undertook a programme of archaeological evaluation by trial trenching on Land Parcel 16 at the location of the M9 Junction 1a improvements (lllus 1). The project was managed by Edward Bailey (Project Manager), the fieldwork and reporting was overseen by Don Wilson. Two additional staff members were involved throughout the evaluation.

1.2 Project Background

1.2.1 In December 2007, following the completion of the FRC Study as part of the Strategic Transport Project Review (hereinafter 'STPR'), the Scottish Government confirmed the intention to provide a new cable-stayed bridge to the west of the existing Forth Road Bridge. Jacobs Arup (as a joint venture) was commissioned in January 2008 to assist Transport Scotland to develop the FRC proposals, to undertake an Environmental Impact Assessment (hereinafter 'EIA') and to prepare an Environmental Statement (hereinafter 'ES') (Jacobs Arup, 2009a).

1.2.2 The purpose of the cultural heritage component of the EIA was to identify the cultural heritage baseline, evaluate the likely significant impacts that the proposed development would have on this resource, and provide mitigation measures to ameliorate any impacts.

1.2.3 The cultural heritage baseline data for the EIA was obtained via a desk-based assessment and walkover survey undertaken in 2008-2009 in accordance with the principles set out in DMRB Volume 11, Section 3 Part 2 'Cultural Heritage' (HA 208/07; Highways Agency 2007). Further information was also gathered during archaeological watching briefs on Ground Investigations for the proposed scheme carried out during 2008 and 2009 by variously Jacobs Arup, Glasgow University Archaeology Research Division and Headland Archaeology Ltd in accordance with the requirements of Historic Scotland to whom the results were reported (Transport Scotland 2010, 30).

1.2.4 Based on the results of the EIA the ES recommended that a programme of invasive and non-invasive archaeological works be undertaken. This would include resistivity survey and evaluation by trial trenching (Jacobs Arup 2009a).

1.3 Aims and Objectives of the Archaeological Works

1.3.1 The general objectives of the programme of archaeological works (Transport Scotland 2010) were to:

- ensure that significant archaeological or palaeoenvironmental remains shall be neither needlessly destroyed, nor destroyed without record;
- identify any unknown archaeological remains that may be affected by the scheme;
- enable a more confident assessment of the impact of construction of the proposed scheme on archaeological remains;
- enable the identification and design of any measures that may be necessary to mitigate the impact of the proposed scheme on newly identified archaeological remains, and
- enhance available information about known archaeological remains, where existing information is insufficient to enable a full assessment of impact or the design of mitigation measures.

2 Site Background

2.1 Archaeological and Historical Background

2.1.1 Within a study area ranging in extent from 500m from the proposed route to 6km from the proposed main crossing a total of 356 cultural heritage sites were identified by the ES, whilst a desk-based assessment of a wider study area undertaken at route selection stage, identified a total of 1200 cultural heritage sites (Transport Scotland 2010, 30). The results from these studies show that the scheme is located in a landscape containing archaeological evidence dating from the Mesolithic period, through the prehistoric and medieval periods, up to post-medieval and modern times.

2.1.2 Within the vicinity of the of the M9 Junction 1a improvements (Illus 1) prehistoric activity has been recorded in the form of a Late Bronze Age socketed axe found near Kirkliston. Latterly there are written records from 1513 that refer to a Kirkliston House acquired by the Commandery of Torphichen although the exact location of the house is not recorded. Based on the coordinates provided by the Royal Commission on the Ancient and Historic Monuments of Scotland both these sites are located within 1 km of Land Parcel 16 and indicate the potential for prehistoric and medieval settlement in the area.

2.2 Site Topography and Land Use

2.2.1 The site comprised part of a large field defined by a large hedge along the eastern boundary and a copse of trees to the south. The field had recently been ploughed at the time of evaluation. The field sloped gradually to the south where the field was significantly wetter. The site is under the ownership of J.G Dudgeon and Sons and Scotia Gas Networks.

2.3 Site Geology

2.3.1 The results of geotechnical investigations (Jacobs Arup 2009b) carried out demonstrate that the subsurface stratigraphy generally constitutes glacial till deposits of varying thickness; these are predominantly comprised of firm to very stiff boulder

clay deposits with occasional granular till deposits. The trial trenching (below) has identified that the boulder clays predominate in this area

2.3.1 The solid geology of the site is typified by igneous alkali dolerite (British Geological Survey 2008). The alkaline nature of the bedrock geology has the effect of breaking up the structure of clays within the soil matrix which negatively affects its water holding capacity, similar to the effect agricultural lime has on arable soils.

3 Methodology

3.1 All works were undertaken in accordance with the specification in the contract documents (Transport Scotland 2010), which had been agreed with Historic Scotland and Transport Scotland. The total area of the Land Parcel measured 3836 m², of which a 5% sample (256 m²) was investigated by trial trenching. An indicative trench plan was agreed with the consultant archaeologists, Jacobs Arup in order to provide good spatial coverage of the entire site. Due to the location of a gas pipeline running north to south through the middle of the site all the trenches had to be repositioned to ensure a minimum 6 m wayleave to either side of the gas pipe centreline.

3.2 All trenches were individually numbered and located using a pole-mounted Trimble G6 differential GPS programmed with the trench coordinates. The trenches were excavated using a JCB mechanical excavator, fitted with a back actor and a 1.6 m wide flat-bladed ditching bucket. The machine operated under continuous archaeological supervision and topsoil and subsoil were removed down to the first archaeological horizon or clean geological deposits, whichever was encountered first. Topsoil and subsoil were stored separately. Any potential features identified were hand cleaned and investigated appropriately. Archaeological features and deposits were hand excavated and recorded using standard archaeological methods and pro-forma record sheets. The excavated trenches and any archaeological contexts were recorded using a Trimble G6 differential GPS, as well as hand drawing where appropriate. Photographs were taken using colour slide film, black and white film, and digital. A full photographic register can be found in Appendix 2.

4 Results of Fieldwork (Illus 2)

4.1 Trial Trenching

4.1.1 Four trenches were excavated across Land Parcel 16 (Illus 2) with a combined total area of 256 m² comprising just over a 5% sample of the Parcel. Full detailed descriptions of each trench are provided in Appendix 1 and individual contexts are presented in Appendix 2. The results of the evaluation are summarised below.

4.1.2 The natural geology [002] seen in the trenches was largely yellow/grey mottled boulder clay with frequent small stone inclusions and occasional small areas of firm yellow clay. In general this was overlain by between 0.25 m and 0.35 m of topsoil [001] which contained little in the way of recent ceramic material.

4.1.3 Within Trench 1 a steep sided pit/ditch was recorded although this was considered to have been the result of modern disturbance as a large fragment of modern glass was

recovered from the fill at a depth of 0.70 m. This may have been the result of disturbance associated with the laying of the gas pipe that ran parallel to the trench 8 m to the west. The only other features of note in Trench 1 were a series of four north-south aligned rubble field drains cut into natural.

4.1.4 The three further trenches revealed no archaeological remains or deposits with Trench 2 being sterile and Trenches 3 and 4 containing further rubble field drains.

5 Conclusions

5.1 The evaluation has established that this area appears not to have been extensively used for human settlement activity. The only archaeological remains identified relate to post-medieval agricultural activity in the area and consist of field drains running across the site on a north-south alignment.

5.2 Based on the results of the fieldwork in which no environmental samples or finds were retrieved, the archaeological archive is assessed as having no potential and therefore no further works are recommended.

6 References

6.1 Bibliographic References

Highways Agency *et al* 2007 *DMRB Volume 11 Cultural Heritage, Section 3, Part 2, Revision HA 208/07*. The Highways Agency, Transport Scotland, Welsh Assembly Government and the Department for Regional Development Northern Ireland, August 2007.

Jacobs Arup 2009a *Forth Replacement Crossing: Environmental Statement*. November 2009.

Jacobs Arup 2009b *Transport Scotland Forth Replacement Crossing: Network Connections – South Ground Investigations Report.* Jacobs Arup November 2009.

Transport Scotland 2010 *Forth Replacement Crossing.* 'Competition for the Land Based Invasive and Non-Invasive Archaeological Survey and Evaluation Contract Volume 2: Tender Document.'

6.2 *Cartographic References*

British Geological Survey 2008 *Linlithgow,* S032W, (version B&Sup), 1: 50 000.

7 Appendices

Appendix 1: Trench Register

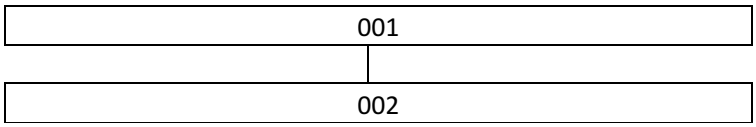
Trench No	Length (m)	Depth (m)	Description
1	47	0.40	NE-SW running. Included 4 rubble field drains all aligned N-S and a modern pit/ditch (not visible in the trenches to either side)
2	35	0.40	N-S running trench with no features recorded
3	50	0.35	NE-SW running. Included six rubble field drains all aligned N-S
4	28	0.35	NE-SW running. Included five rubble field drains all aligned N-S

Appendix 2: Context Register

Context	Location	Description
001	All	Topsoil. Dark brown clayey silt loam.
002	All	Yellow grey boulder clay-Natural geology.

Appendix 3: Trench Matrices

All trenches



Appendix 4: Photographic Register

Photo No.	Direction	Description
01	SE	General shot of Trench 1
02	NW	Detail of the modern pit feature in Trench 1
03	S	General shot of Trench 2
04	SW	General shot of Trench 3
05	SW	General shot of Trench 4