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Client: Transport Scotland
Date: 27th May 2011

The Results of an Archaeological Field Evaluation by Trial Trenching near Overton Farm, Kirkliston (Land Parcel 18)

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Report Status: Approved



Executive Summary

Headland Archaeology conducted an archaeological evaluation by trial trenching on the Forth Replacement Crossing near Overton Farm, Kirkliston (Land Parcel 18) NGR: NT 11134 74585 (centred), to assess the presence/absence of archaeological remains or deposits in an area identified as having good potential in the Forth Replacement Crossing Environmental Statement (Jacobs Arup, 2009). 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 5 trenches totalling 181 m² were excavated comprising a 5% sample across two fields. The trenches were excavated on 26th May 2011 and were sited to ensure good spatial coverage of the area under investigation. The trial trenching identified evidence of large scale infilling relating to the construction of the M9 to the north, along with a number of agricultural furrows. No other remains or deposits of archaeological significance were identified during the evaluation.

ARCHAEOLOGICAL EVALUATION
Forth Replacement Crossing: Land Parcel 18, Kirkliston

PROJECT SUMMARY SHEET (FRCE10)

<i>Client</i>	Transport Scotland
<i>Consultant</i>	Jacobs Arup
<i>National Grid Reference</i>	NT 11008 74636
<i>Project Manager</i>	Edward Bailey
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<i>Schedule</i>	
Fieldwork	26 th May 2011
Report	May 2011

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1 Introduction

1.1 General

1.1.1 This Data Structure Report is submitted as a report on the results of a programme of archaeological trial trenching undertaken on behalf of 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 26th May 2011, Headland Archaeology (UK) Ltd. undertook a programme of archaeological evaluation by trial trenching on Land Parcel 18 in advance of the M9 Junction 1a improvements for the FRC (Illus 1). The project was managed by Edward Bailey (Project Manager), the fieldwork and reporting was overseen by Kirsty Dingwall. One additional staff member was involved during 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 recommend measures to mitigate identified impacts.

1.2.2 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).

1.2.3 Based on the results of the EIA the ES recommended that a programme of invasive and non-invasive archaeological works be undertaken to 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 (Illus 1)**

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 18 and indicate the potential for prehistoric and medieval settlement in the area.

2.1.3 Previous archaeological work took place in the fields to the west of the site during the archaeological monitoring of the Broxburn to Humbie Farm Reinforcement Pipeline. The monitoring did not identify any archaeological remains or deposits. (Moore 2009).

2.2 *Site Topography and Land Use*

2.2.1 The land parcel comprised the northern end of two small fields defined by the M9 embankment to the north, an unclassified road to the west and arable fields to the south and east. Both fields were under pasture for sheep at the time of evaluation. The site is under the ownership of M R Arbuckle and S Meikle.

2.3 *Site Geology*

2.3.1 The results of geotechnical investigations (Jacobs Arup 2009b) carried out demonstrate that the subsurface stratigraphy underlying the development corridor 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**

3.1.1 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 3460 m², of which a 5% sample (181 m²) was investigated by trial trenching. An indicative trench plan, designed to provide good spatial coverage of the entire site, was agreed with the consultant archaeologists, Jacobs Arup prior to the trial trenching.

3.1.2 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 turf, topsoil and subsoil were removed down to the first archaeological horizon or clean geological deposits, whichever was encountered first. Turf 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 list of the photographs can be found in Appendix 3.

4 **Results of Fieldwork (Illus 2)**

4.1 *Trial Trenching*

- 4.1.1 Five trenches were excavated across Land Parcel 18 (Illus 2) with a combined total area of 181 m² comprising 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 majority of trenches was a very firm yellow slightly sandy clay, becoming slightly browner to the west. In Trenches 1, 2 and 5 this was overlain by 0.40 m of topsoil (001). The western end of Trench 3 and eastern end of Trench 4 contained a large amount of dumped modern debris, including brick, glass, china, shale, gravel and plastic within a dark silty matrix. This deposit (003) was 1.6 m in depth in Trench 4 and was excavated by means of a sondage. The dumped material had been used to level out low ground within the field in the last few decades (Mr Arbuckle, pers comm).
- 4.1.3 Furrows [004, 006, 008, 010 & 012] were seen in Trenches 2 and 3. Aligned roughly north to south in trench 3 and north-west to south-east in trench 2, the furrows were up to 1.5 m wide. One furrow [006] was sample excavated; it had maximum depth of 0.20 m and was filled by a deposit of brown silty clay (007). Rubble field drains were recorded across the Parcel. No other remains or deposits of archaeological significance were identified during the evaluation.

5 Conclusions

- 5.1.1 The evaluation has established that this area appears not to have been extensively used for human settlement activity. The only archaeological remains or deposits identified during the evaluation relate to agricultural activity in the area and to landscaping as a result of the construction of the M9 to the north.
- 5.1.2 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.

Moore, P. 2009 *Broxburn to Humble Farm Reinforcement Pipeline (Phase 2) Broxburn, West Lothian*. CFA Archaeology Ltd Unpublished client report.

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

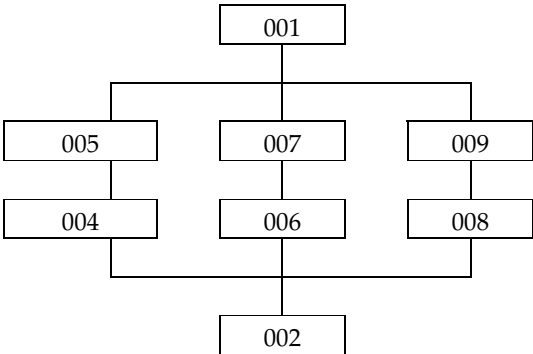
Trench No	Length (m)	Depth (m)	Description
1	10.2	0.4	SE-NW. Rubble drain N-S NE-SW. Rubble drains (3)
2	26.3	0.5	SE-NW. Furrows [004, 006 & 008] (3) SE-NW NW-SE. Furrows [010 & 011] N-S. Modern dumping in NW extent of trench. Trench shortened by 2.5m due to presence of sleep
3	25	0.5	slope (motorway cut) NE-SW. Rubble drain N-S. Modern rubbish dump
4	25	1.6	located in NE end of trench
5	26.8	0.5	NW-SE

Appendix 2: Context Register

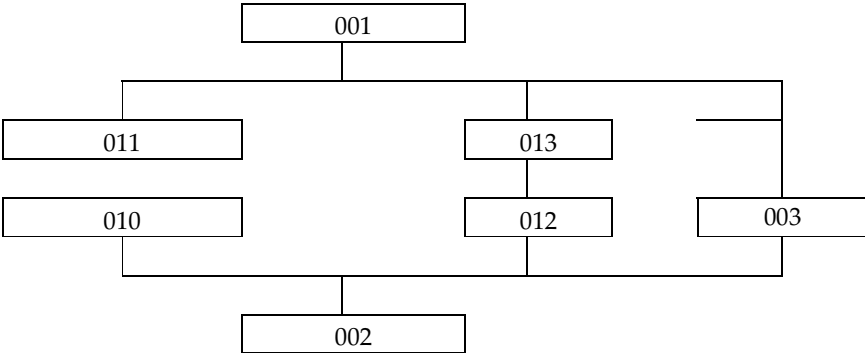
Context	Location	Description
001	All	Topsoil. Dark brown clayey silt loam.
002	All	Natural. Yellow sandy clay
003	3 & 4	Modern debris, including brick, glass, china, shale, gravel and plastic within a dark silty matrix
004	2	Cut of furrow aligned north-west to south-east. Measures 1.6 m in length and 1.5 m wide. Not excavated.
005	2	Fill of furrow [004]
006	2	Cut of furrow aligned north-west to south-east. Measures 1.6 m in length and 1 m wide. Depth was 0.20 m.
007	2	Brown grey silty clay. Fill of furrow [006]
008	2	Cut of furrow aligned north-west to south-east.
009	2	Fill of furrow [008].
010	3	Cut of furrow aligned north to south. Measures 1.60 m in length by 1.50 m wide. Not excavated
011	3	Fill of furrow [010]
012	3	Cut of furrow aligned north to south. Measures 1.60 m in length by 1.50 m wide. Not excavated
013	3	Fill of furrow [012]

Appendix 3: Trench Matrices

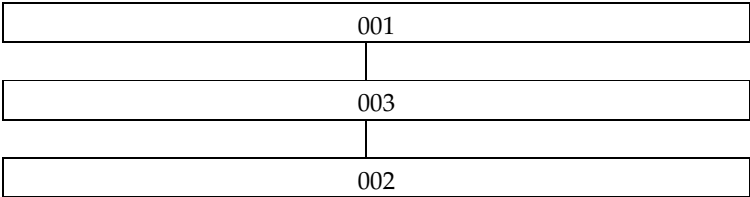
Trench 2



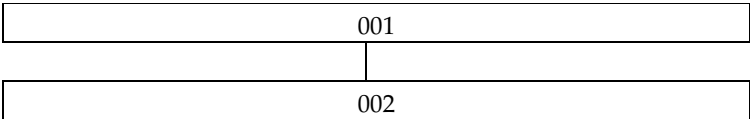
Trench 3



Trench 4



Remaining trenches



Appendix 4: Photographic Register

Photo No.	Direction facing	Description
314	SE	Trench 1. General
315		ID SHOT
316	NE	Trench 2. General
317	S	Trench 2. Drain (rubble, west end of trench
318	N	Trench 2. Furrow and section, centre of trench
319	S	Trench 2. Furrow and rubble drain, east end of trench
320	SE	Trench 3. General
321	N	Trench 3. Furrow/rubbish pit, south-facing section
322	W	Trench 4. General
323	S	Trench 4. Pit, north-facing section
324	SE	Trench 4. Pit, north-facing section
325	NW	Trench 5. General