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Client: Transport Scotland
Date: 6th April 2011

The Results of an Archaeological Field Evaluation by Trial Trenching at Milrig Farm, Kirkliston (Land Parcel 22)

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Report Status: Approved



Executive Summary

Headland Archaeology conducted an archaeological evaluation by trial trenching at Milrig Farm, Kirkliston (Land Parcel 22), NGR: NT 11904 73694 (centred), to establish 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.

Thirteen trenches totalling 1490m² were excavated comprising a 5% sample across the Land Parcel.. Trenches were sited to ensure good spatial coverage. No archaeological remains or deposits were identified during the evaluation.

ARCHAEOLOGICAL EVALUATION
Forth Replacement Crossing: Land Parcel 22

PROJECT SUMMARY SHEET (FRCE10)

<i>Client</i>	Transport Scotland
<i>Consultant</i>	Jacobs Arup
<i>National Grid Reference</i>	NT 11904 73694
<i>Project Manager</i>	Edward Bailey
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<i>Schedule</i>	
Fieldwork	24 th – 28 th 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 Between the 24th and the 28th March 2011, Headland Archaeology (UK) Ltd. undertook a programme of archaeological evaluation by trial trenching on Land Parcel 22 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 Ian Hill. Three 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.

1.2.2 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 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 The ES identified a total of 356 sites (within a study area ranging from 500m from the development corridor to 6km from the proposed main crossing), whilst an archaeological desk-based assessment of a wider study area undertaken at route corridor selection stage of the proposed scheme, identified a total of 1200 cultural heritage sites (Transport Scotland, 2010, 30). The results from these studies show that the proposed development corridor and the wider study area collectively constitute 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 21 (50 m to the east of Land Parcel 22) and indicate the potential for prehistoric and medieval settlement in the area.
- 2.1.3 No known sites were identified within Land Parcel 22; however two sites were identified immediately to the west of the site. These are a quarry pit (site no 1247) present on the 1st edition OS map and a cropmark of unknown date (site no 1248; Jacobs Arup, 2009a).

2.2 *Site Topography and Land Use*

2.2.1 The site consisted of the eastern part of an arable field that was under crop at the time of the evaluation. The site was split by a small burn running east to west towards the northern part of the site. The southern part of the site consisted of a small hill with a flat plateau and steep slopes running away to the south and the north. The site is under the ownership of C E Maclachlan.

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 firm to very stiff boulder clay deposits with occasional granular till deposits. The trial trenching (below) has identified small patches of free-draining sands and bands of shale outcrops.

2.3.2 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 28,572 m², of which a 5% sample (1490 m²) was investigated by trial trenching. An indicative trench plan was agreed with the consultant archaeologists, Jacobs Arup. Trenches were sited to test blank areas and to provide good spatial coverage of the entire site. It was ensured that no trenches were placed close to overhead power lines running approximately east to west at the northern end of the site.

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 13 ton 360° tracked mechanical excavator, fitted with a 2m 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.

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

4.1 *Trial Trenching*

- 4.1.1 Thirteen trenches were excavated across Land Parcel 22 (Illus 2) with a combined total area of 1490 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 seen in the trenches was largely yellowy grey clay [003/006], with occasional bands of sands and gravels [004], and occasional shale outcrops [005]. In general this was overlain by up to 0.10 m of subsoil [002] – an orangey brown sandy silt, however the depth of this deposit increased to up to 1.55 m in trenches 1-4. This likely represents a build up of colluvium at the southern end of the site. Topsoil [001] was between 0.30 m and 0.50 m deep and contained little in the way of recent ceramic material.
- 4.1.3 Seven of the trenches contained rubble and ceramic field drains. Locations of these were noted on trench record sheets, and any damaged drains were repaired before the trenches were back-filled.
- 4.1.4 Of the thirteen trenches, only Trench 11 contained archaeological remains. A deposit of loose shale (007) was revealed within a vertically sided pit towards the western end of the trench measuring 7 m in width. A sondage was excavated into the feature by machine. It was excavated to a depth of 2 m, removing very loose, wet shale. The sondage began to rapidly fill with water and the edges began to collapse in on themselves so the sondage was immediately backfilled for health and safety reasons. The deposit may represent a backfilling event of either a modern dump, or coal pit.

5 Conclusions

- 5.1 The evaluation has established that the only archaeological remains discovered in Land Parcel 22 was a large, shale filled pit, likely a modern dump, or possible coal pit.
- 5.2 No other archaeological remains or deposits were revealed during the evaluation, and it is taken that the large pit is an isolated feature and is not deemed to be archaeologically significant.
- 5.3 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

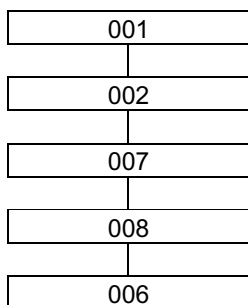
Trench No	Length (m)	Depth (m)	Description
1	50	1.35	ENE-WSE orientated. No features
2	50	1.6	NE-SW orientated. No features
3	85	2	NNW-SSE orientated. No features
4	100	1.2	NNE-SSW orientated. No features
5	50	0.4	ENE-WSW orientated. No features
6	50	0.4	ENE-WSW orientated. No features
7	100	0.4	NW-SE orientated. No features
8	50	0.35	E-W orientated. No features
9	30	0.4	NW-SE orientated. No features
10	50	0.4	NE-SW orientated. No features
11	45	0.35	NE-SW orientated. Possible coal pit
12	65	0.43	NW-SE orientated. No features
13	20	0.75	N-S Orientated. No features

Appendix 2: Context Register

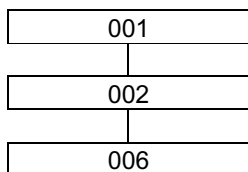
Context No.	Area	Description
001	Across Site	Topsoil
002	Across Site	Subsoil/Colluvium
003	Tr. 1-13	Natural, sterile glacial till
004	Tr. 3-4	Natural, sterile gravels
005	Tr. 4	Natural shale outcrops
006	Tr. 4	Natural sterile, brownish-grey clays
007	Tr. 11	Loose shale fill of possible coal pit. Fill of 008
008	Tr. 11	Cut of backfilled modern pit. Measures 7 m by 2 m (to LOE). Measures at least 2 m deep. Not bottomed for health and safety reasons

Appendix 3: Trench Matrices

Trench 11



Remaining Trenches



Appendix 4: Photographic Register

Photo No.	Direction facing	Description
01	-	Registration Shot
02	NE	General Shot of Trench 1
03	NE	General Shot of Trench 2
04	NW	General Shot of Trench 3 (0-60m)
05	NW	General Shot of Trench 3 (60-70m)
06	NW	General Shot of Trench 3 (70-85m)
07	SW	General Shot of Trench 4
08	WSW	General Shot of Trench 5
09	ENE	General Shot of Trench 6
10	SE	General Shot of Trench 7
11	ENE	General Shot of Trench 8
12	SE	General Shot of Trench 9
13	SW	General Shot of Trench 10
14	WSW	General Shot of Trench 11
15	NW	General Shot of Trench 12
16	SW	General Shot of Trench 13