Project code: FRCE10
Client: Transport Scotland
Date: 29th March 2011

The Results of an Archaeological Field Evaluation by Trial Trenching at Milrig Farm (Land Parcel 20), near Kirkliston

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Report Status: Approved

Executive Summary

Headland Archaeology conducted an archaeological evaluation by trial trenching on the Forth Replacement Crossing at Milrig Farm (Land Parcel 20), NGR: NT 11739 74106 (centred). The aim of the evaluation was to establish the presence or absence of archaeological remains or deposits and to record the nature, character and extent of any remains or deposits encountered. The work was commissioned by Transport Scotland, managed by Jacobs Arup and undertaken in advance of the proposed commencement of construction works.

Twelve trenches totalling 940m² comprising a 5% sample were excavated across two fields either side of Niddry Burn. The field to the south of the burn had been recently ploughed; to the north of the burn was rough pasture, sloping downhill from woodland at Lindsay's Crags. A line of large rounded stones was found in one of the trenches towards the base of the slope, running east to west. This corresponds with the line of a former bank of the burn, which is clearly visible as a landscape feature further to the east. No walls are shown on any of the early Ordnance Survey maps of the area in this location and it is concluded that the stones represent the edge of the former course of the burn and have been naturally deposited. With the exception of field drains, no archaeological remains or deposits were identified during the evaluation.

ARCHAEOLOGICAL EVALUATION
Forth Replacement Crossing: Land Parcel 20, near Kirkliston

PROJECT SUMMARY SHEET (FRCE10)

Client	Transport Scotland
Consultant	Jacobs Arup
National Grid Reference	NT 1171 7409
Project Manager	Edward Bailey
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Schedule	
Fieldwork	25th – 29th March 2011
Report	April 2011

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1 Introduction

1.1 *General*

1.1.1 This Draft Data Structure Report reports on a programme of archaeological investigation 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 2009a) wherein a programme of trial trenching was recommended. The report was initially submitted to Jacobs Arup and Transport Scotland.

1.1.2 Between the 25th and 29th 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 Elizabeth Jones. Three further staff assisted during the fieldwork.

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 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 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 21 (approximately 100 m south-east of Land Parcel 20) and indicate the potential for prehistoric and medieval settlement in the area.

2.2 Site Topography and Land Use (Illus 1)

2.2.1 The site was located to the south-west of the village of Kirkliston, to the west of the M9. It was bounded by the woodland of Lindsay's Crags to the north and a farm track to the east. The Niddry Burn ran across the southern part of the site. The majority of the site was on south facing sloping grassland, with an area of flatter ground at the base of the slope. On the south side of the burn was a recently ploughed field; only two trenches were located in this field. 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.

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 18,916 m², of which a 5% sample (940 m²) was investigated by trial trenching. An indicative trench plan was agreed with the consultant archaeologists, Jacobs Arup. Trenches were sited to provide good spatial coverage of the entire 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 JCB back actor fitted with 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.

4 Results of Fieldwork (Illus 2)

4.1 Trial Trenching

4.1.1 Twelve trenches were excavated across Land Parcel 20 (Illus 2) with a combined total area of 940 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 In general the natural geology [004] comprised an orange brown – grey sandy clay and gravel, with occasional outcrops of bedrock however at the base of the slope the natural geology [004] comprised greyish brown clayey silt, derived from flooding of the Niddry Burn to the south. The deposits in trenches 1, 2, 9 and 12 comprised 0.30 – 0.60m of topsoil [001], overlying 0.00 – 0.40m of subsoil [002] a reddish brown silty clay, overlying natural [004]. The deposits in the remaining trenches comprised an average of 0.30m of topsoil [001], overlying natural [004]. The topsoil [001] contained occasional fragments of recent ceramic material, which was not collected.

4.1.3 At the south end of Trench 12 was a deposit of poorly sorted large angular stones [003], 1.50 m wide set into the natural. The stones lay 0.40 m below the surface in a rough line running east to west across the trench, around 20 m from the burn (Illus 3).

4.1.4 No archaeological remains or deposits were identified during the evaluation.

4.1.5 Rubble and ceramic field drains were encountered in Trenches 3, 6 and 8. These ran on both north-east to south-west and north-west to south-east alignments. A plastic drain was found in Trench 4 running north to south.

5 Conclusions

5.1 The line of large rounded stones in Trench 12 corresponds with the line of a former bank of the burn, which is clearly visible as a landscape feature further to the east. No walls are shown on the six-inch first edition Ordnance Survey map (1856) of the area in this location and it is concluded that the stones represent the edge of the former course of the burn and have been naturally deposited. With the exception of field drains, no archaeological remains or deposits were identified within the area evaluated.

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.

Ordnance Survey 1856 *Linlithgowshire*, Sheet 6, 1:10560. Surveyed 1854 – 5.

7 Appendices

Appendix 1: Trench Register

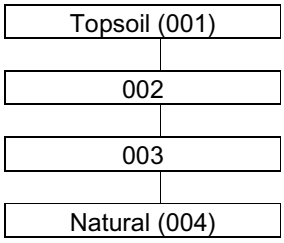
Trench	Dimensions (m)	Maximum depth (m)	Description
1	1.6 x 100	0.75	Excavated alongside eastern boundary of land parcel, running roughly north to south down slope. Accumulation of colluvium deposits towards base of slope.
2	1.6 x 50	0.90	Excavated alongside eastern edge of woodland, runs NE-SW. Deepest part at centre of trench.
3	1.6 x 50	0.55	Parallel to Trench 2, runs roughly NE-SW.
4	1.6 x 45	0.50	Excavated in ploughed field on S side of burn, runs NE-SW.
5	1.6 x 35	0.55	Excavated in ploughed field on S side of burn, runs NW-SE.
6	1.6 x 30	0.50	Excavated in centre of field, runs N-S, deepest at N end.
7	1.6 x 50	0.80	Runs E-W along base of slope, deepest at W end.
8	1.6 x 37	0.80	L-shaped trench, runs roughly NE-SW towards burn, deeper at base of slope.
9	1.6 x 60	0.95	Runs NE-SW towards base of slope on N side of burn. Bluish grey clayey silt natural at base of slope.
10	1.6 x 65	0.40	Runs E-W at top of slope alongside wall to woodland.
11	1.6 x 20	0.60	Runs NW-SE from western corner of land parcel.
12	1.6 x 45	0.90	Runs NE-SW towards burn, bluish grey clayey silt natural. Contains [001].

Appendix 2: Context Register

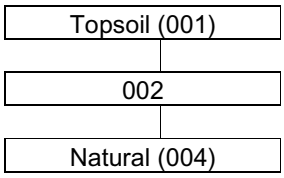
Context	Trench	Description
001	12	Dark greyish brown clayey silt. Topsoil, 0.3m deep.
002	12	Dark reddish brown silty clay. Subsoil, 0.3m deep.
003	12	Line of large angular stones, E-W across trench. Remains of former river bank.
004	12	Greyish brown clay – orange brown clay. Natural geology.

Appendix 3: Trench Matrices

Trench 12



Remaining Trenches



Appendix 4: Photographic Register

Photo	Direction	Description
7	SE	LP20 General shot of Trench 1
8	SW	LP20 General shot of Trench 2
9	SW	LP20 General shot of Trench 3
10	SW	LP20 General shot of Trench 4
11	E	LP20 Trench 4 – fixed field drain
12	SE	LP20 General shot of Trench 5
13	S	LP20 General shot of Trench 6
14	W	LP20 General shot of Trench 7
15	S	LP20 General shot of Trench 8 (30m stretch)
16	SW	LP20 General shot of Trench 8 (from 7m stretch)
17	NE	LP20 General shot of Trench 9
18	W	LP20 General shot of Trench 10
19	NNW	LP20 General shot of Trench 11
20	S	LP20 General shot of Trench 12
21	N	LP20 Trench 12 - Possible base of wall [003]
26	-	LP20 Trench 8 – repaired field drain