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The Results of an Archaeological Field Evaluation by Trial Trenching at Castlandhill Hill, Rosyth (Land Parcel 1)

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Report Status: Approved



Executive Summary

Headland Archaeology conducted an archaeological evaluation by trial trenching on the Forth Replacement Crossing at Castlandhill Hill Rosyth (Land Parcel 1), NGR: NT 1222 8196 (centred), to assess the presence/absence of archaeological remains or deposits in an area identified as having good archaeological 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.

Twenty-two trenches totalling 1630m² were excavated comprising just over a 5% sample of Land Parcel 1. A metal detector survey of the trench locations and the spoil arising from the trial trenching was also undertaken.

The Parcel was divided between two fields, Field A and Field B. Field A was on the south eastern slopes of Castlandhill Hill. No archaeological remains or deposits were discovered during the trial trenching and no significant finds were recovered during the metal-detecting survey in Field A.

Field B was located on flat ground to the south and east of Field A and a number of features were identified, generally concentrated at the southern end of the field. Trench 9 contained a small pit from which burnt chert was recovered indicating a prehistoric date for the pit, Trench 9 also contained a shallow gully feature and the terminal end of a ditch, which continued to the north-west. Trench 8 contained a wide shallow ditch and Trench 5 contained a large pit; neither of these features contained dateable artefacts. There were also a series of narrow drainage channels, of 19th century or later date running across the southern half of the site. At the northern end of Field B was a shallow ditch, which was dated to the 18th/19th century by the artefacts recovered from it.

A number of metal artefacts were recovered during the metal-detecting survey in Field B. These were concentrated in the trenches on the eastern side of the field nearest the B980 and consisted mainly of railway 'staples', fragments of agricultural implements and aluminium cans.

ARCHAEOLOGICAL EVALUATION

Forth Replacement Crossing: Land Parcel 1, Whinny Hill, Rosyth

PROJECT SUMMARY SHEET (FRCE10)

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<i>Consultant</i>	Jacobs Arup
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<i>Schedule</i>	
Fieldwork	20 th – 25 th April 2011
Report	May 2011

CONTENTS

1	Introduction	5
	1.1 <i>General</i>	5
	1.2 <i>Project Background</i>	5
	1.3 <i>Aims and Objectives of the Archaeological Works</i>	5
2	Site Background	6
	2.1 <i>Archaeological and Historical Background</i>	6
	2.2 <i>Site Topography and Land Use</i>	6
	2.3 <i>Site Geology</i>	6
3	Methodology	7
4	Results of Fieldwork	7
	4.1 <i>Trial Trenching</i>	7
	4.2 <i>Metal detector survey</i>	9
5	Conclusions	9
6	References	9
	6.1 <i>Bibliographic References</i>	9
	6.2 <i>Cartographic References</i>	9
7	Appendices	10
	<i>Appendix 1: Trench Register</i>	10
	<i>Appendix 2: Context Register</i>	12
	<i>Appendix 3: Trench Matrices</i>	13
	<i>Appendix 4: Photographic Register</i>	15
	<i>Appendix 5: Drawing Register</i>	16
	<i>Appendix 6: Sample Register</i>	17

1 Introduction

1.1 General

1.1.1 This draft 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 Between the 20th and 25th April 2011, Headland Archaeology (UK) Ltd. undertook a programme of archaeological evaluation by trial trenching and metal detecting on Land Parcel 1 on the northern side of the landfall for the FRC (Illus 1). The project was managed by Edward Bailey (Project Manager), the fieldwork and reporting was overseen by Liz Jones. Six 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 recommend measures to mitigate identified 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 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 Land Parcel 1 was identified as a site of potential cultural heritage significance due to the presence of Castlandhill House to the west. Recent research confirms that Castlelandhill Hill was used as a defensive position by the Scottish Royalist forces at the Battle of Inverkeithing fought in 1651.

2.1.3 Pre-historic activity in the wider area is evidenced by the discovery in 1961 of an axe head rough out on Castlandhill Farm to the north. Reports of the presence of a lead mine in the area from the 18th century give an indication of previous land use.

2.2 *Site Topography and Land Use*

2.2.1 The site is located to the south-east of the Rosyth and is bounded by the B980 to the east, Castlandhill Woods to the north and west and Ferry Toll Road to the south. The Land Parcel comprised two areas, designated Field A and Field B. Field A was situated on the south eastern slopes of Castlandhill Hill and comprised rough grazing and gorse. Field B situated to the south and east of Field A was generally flat arable land and at the time of the evaluation was under young crop. The site is under the ownership of C R M Franks, G W Bruce and R D Pierotti.

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 small patches of free-draining sands and larger bands of bedrock.
- 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 Land Parcel 1 was 32, 425 m² and just over a 5% sample (or 1630 m²) of this was investigated by trial trenching. An indicative trench plan was agreed with the consultant archaeologists, Jacobs Arup. A number of the trenches in Field A could not be excavated due to their location on steep or gorse-covered slopes. These were moved and relocated within the same field where possible. A number of additional trenches were excavated at the southern end of Field B in order to ensure the full sample was excavated and to clarify the extent of features encountered in that area.
- 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 13 ton 360° tracked mechanical excavator, fitted with a 2 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 met 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.
- 3.1.3 Bulk soil samples were collected from secure archaeological contexts for processing and assessment. Where possible a 30 litre bulk sample was collected from each archaeological deposit and given a unique number (Transport Scotland 2010, 59). All finds were recorded by individual context and their cleaning, storage and conservation undertaken in accordance with the Institute for Archaeologists Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials (Transport Scotland 2010, 65-66).

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

4.1 *Trial Trenching*

- 4.1.1 A total of 22 trenches were excavated across Land Parcel 1 (Illus 2) with a combined total area of 1630 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 [020] in the trenches in Field A was generally reddish brown to grey clay, with exposed bedrock occurring in most of the trenches. This was generally overlain by 0.30 m – 0.40 m of mid brown clayey silt topsoil [001]. In Trenches 13 and 15, towards their southern ends, the natural was overlain by up to 0.30 m of colluvium[023] comprised of brown clayey silt, which was overlain by topsoil [001]. At the north-east end of trench 18 the natural was overlain by colluvium[023] up to 0.60 m deep, this was overlain by topsoil [001]. The topsoil [001] contained occasional recent ceramic material.
- 4.1.3 The natural geology [021] in Field B varied from orange brown/grey clay to reddish brown/grey gravel across the site. This was overlain by mid brown clayey silt topsoil [001] 0.30 m – 0.50 m in depth. Colluvium comprised of light brown sandy silt [024] was encountered in trenches 3, 4, 5 and 10. This was generally towards the southern and western ends of the trenches and varied from 0.20 m to 0.60 m in depth, with the deeper deposits of colluvium recorded in trenches 3 and 4 at the northern end of the field.
- 4.1.4 Trench 1 was located at the north end of the field within an area of boggy ground that was uncultivated. It contained 0.20 m of mid brown clayey silt topsoil [001] over a thin layer of light grey clay subsoil [025] 0.10 m deep. This overlay a deep deposit of peat [022], a machine excavated sondage was excavated through the peat, revealing it to be at least 1 m in depth. The full extent of the peat was not established as excavation of the trench ceased at 1.2m, for health and safety reasons.
- 4.1.5 Trench 2 contained a ditch oriented north-east to south-west across the trench (Illus 3). The ditch [015] was 0.50 m wide and 0.15 m deep with near vertical sides and a flat base. It was filled with dark grey fine clay with occasional small (6 - 20mm) stone inclusions [014] containing white glazed ceramic fragments.
- 4.1.6 Trench 5 contained a sub-circular pit [011]. The pit measured 1.70 m by 1.30 m and was 0.40 m in depth (Illus 3 & 4). The pit had gradually sloping sides and a concave base that was filled with mid brown clayey silt [010] with gravel inclusions. A lense of charcoal was present within [010]. To the south of the pit was a possible posthole [012], 0.40 m in diameter and 0.22 m deep, with steep sides and an irregular base. It was filled with orange brown fine clayey sand [013].
- 4.1.7 Trench 8 contained a broad ditch [007] oriented roughly north to south across the trench (Illus 3 & 5). The ditch was 0.35 m wide and 0.24 m deep. The sides were irregular and the base was concave. It was filled with orange brown clayey sand [006] with occasional small stones. The ditch continued into Trench 20, where it turned to the south-west.

- 4.1.8 Trench 9 contained the possible terminal end of a ditch [008], which ran roughly north to south and appears to continue into Trench 21 to the north (Illus 3). The ditch was 1.95 m wide and 0.26 m in depth and had gently sloping sides and a concave base. It was filled with dark greyish brown clayey silt [009] with occasional small to large stones. To the north-east of this feature was a U-shaped cut [019], with shallow sides and a flat base (Illus 6). The feature was 2 m in total width, with the 'arms' measuring 0.75 m wide and 0.10 m deep. It was filled with loose yellow sand [018]. Immediately east of this was an oval pit [017], which measured 1.20 m by 0.45 m and was 0.19 m deep. It had steep sides, a concave base and was filled with orange brown fine clayey sand. Two burnt chert fragments were recovered from the fill.
- 4.1.9 Trench 10 contained two narrow linear features [003] and [005], oriented east to west and north-west to south-east respectively. Cut [003] was 0.32 m wide and 0.28 m deep with near vertical sides and a concave base. It was filled with orange brown clayey sand with occasional inclusions of small stone and charcoal flecks [002]. Cut [005] was similar in form and filled with similar material [004]. It was 0.35 m wide and 0.15 m deep. The narrow width and near vertical sides suggest these are drainage channels.
- 4.1.10 Trenches 19 – 22 were additional trenches excavated to compensate for the reduced area excavated in Field A. They were sited to confirm the continuation of features seen in trenches 5, 9, & 10. Trenches 20 and 21 demonstrated the possible continuation of ditches [007] and [008] (see above). Trenches 19 and 22 contained no features. A wide band of clay observed in Trench 6 was found on investigation to be a geological test pit.
- 4.1.11 Rubble drains were recorded in most of the trenches in Field B. These were oriented in varying directions suggesting a network of drains that fed into each other were spread across the field. A number of plastic and ceramic drains were also recorded.

4.2 *Metal Detector Survey*

- 4.2.1 Prior to the excavation of the trenches the area to be excavated was surveyed using metal detectors. No finds were recovered from Field A during the survey. A number of metal artefacts were recovered from the trench locations in Field B. These were mostly concentrated in the trenches on the eastern side of the site, nearest the B980 and comprised railway 'staples', fragments of agricultural implements and aluminium cans. No finds related to the Battle of Inverkeithing were recovered.

5 **Conclusions**

- 5.1.1 The evaluation has revealed a small group of features on the south side of the site that appear to be prehistoric in date. These comprise the two ditches, which although shallow may relate to an enclosure of some kind and a small pit containing burnt chert. The U-shaped feature close to the pit may be associated with this activity and may represent the convergence of two gullies. However the sandy fill suggests it might be naturally formed. The larger pit to the north of these features is currently relatively isolated and undated; however it is possible it relates to the activity further down slope. Further excavation will clarify the nature and extent of the

archaeological deposits in this area and hopefully produce more precise dating evidence.

- 5.1.2 The ditch in Trench 2 and the narrow channels recorded in Trench 10 appear to be post-medieval in date and relate to the drainage of the field. The presence of rubble and ceramic drains elsewhere in the Parcel demonstrate the continued requirement for drainage of the field for agricultural purposes.
- 5.1.3 Based on the results of the evaluation it is recommended that further excavation be undertaken targeting features recorded in trenches (5, 8, 9, 10, 20 & 21) to the south of the site.

6 References

6.1 Bibliographic References

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

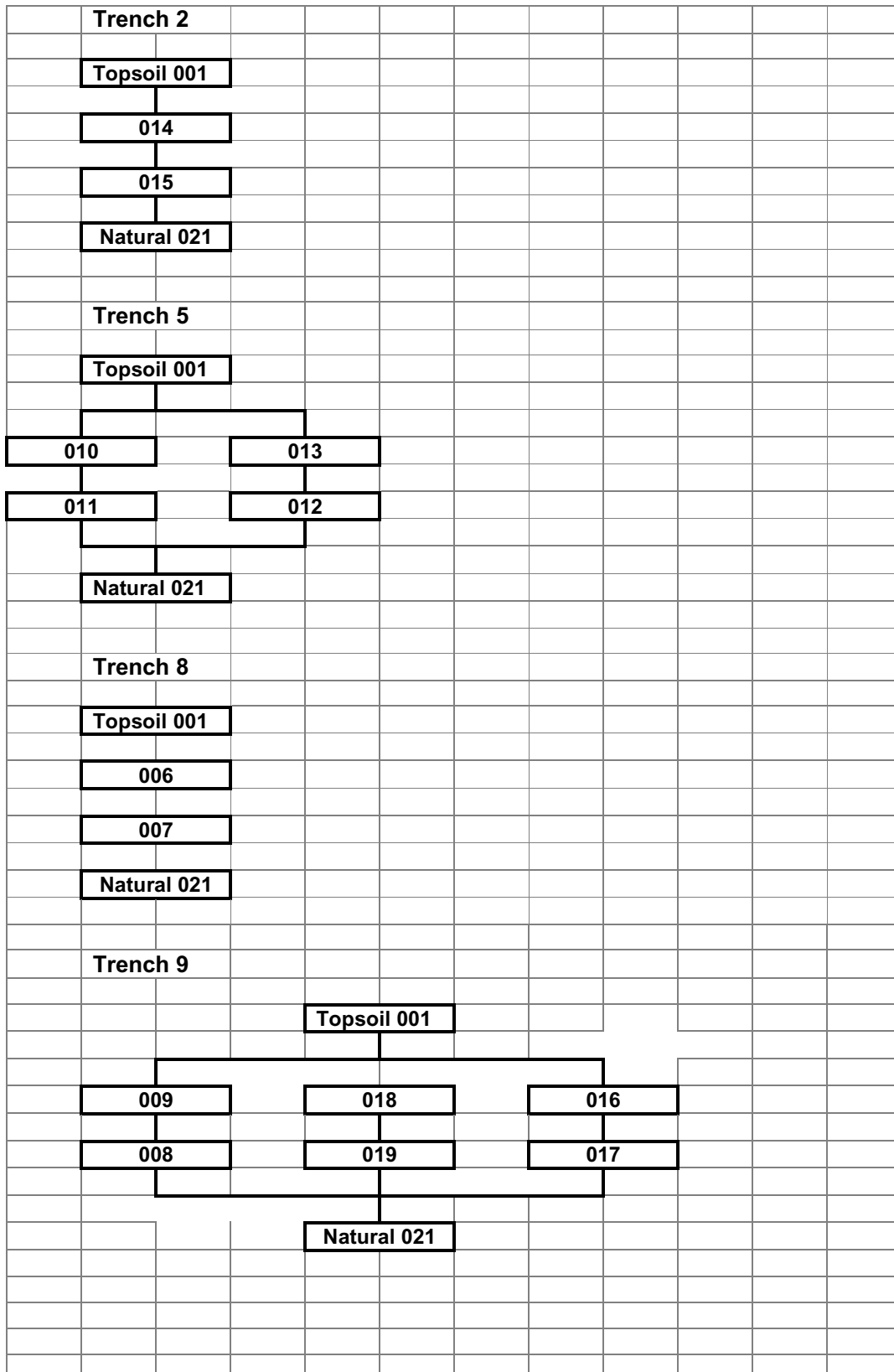
Trench No	Length (m)	Maximum Depth (m)	Description
1	50	1.2	SW-NE. Rubble drains N-S and E-W, ceramic drains N-S and E-W, peat
2	50	0.5	S-N. Ditch SW-NE (014), [015], rubble drain E-W, drain N-S
3	50	0.9	S-N. Rubble drains SE-NW and SW-NE, plastic drains SW-NE
4	50	1.0	S-N.
5	50	0.5	SW-NE. Drain S-N, ditch SE-NW, pits (013), [012] and (010), [011]
6	50	0.75	NW-SE. Rubble drain SW-NE
7	20	0.4	SW-NE.
8	50	0.6	W-E. Rubble drains SW-NE, N-S and NW-SE, ditches N-S (006) [007]
9	50	0.5	SW-NE. Ditch (009) [008], pits (018) [019], (016) [017], rubble drain S-N
10	50	0.5	N-S. Rubble drains NW-SE and NE-SW, ditches (004) [005] and (002) [003]
11	50	0.3	NW-SE.
12	25	0.4	S-N.
13	50	0.6	SW-NE.
14	25	0.4	SW-NE.
15	25	0.7	NW-SE.
16	25	0.4	SW-NE.
17	50	0.4	NW-SE.
18	25	0.6	SW-NE.
19	15	0.4	NW-SE.
20	30	0.5	E-W. Rubble drain N-S, drain N-S, continuation of ditches N-S and SW-NE in Trench 8

21	15	0.5	SW-NE. Continuation of N-S ditch in Trench 9
22	10	0.5	SW-NE.

Appendix 2: Context Register

Context No.	Trench	Description
001	10	Topsoil
002	10	Fill of cut [003], orangey brown clayey sand with occasional small stones and charcoal flecks.
003	10	Linear cut with very steep sides and a concave base, filled by (002). W: 0.32 m, D: 0.28 m.
004	10	Fill of cut [005], mid orangey brown fine clay sand with occasional small stones and charcoal flecks.
005	10	Linear cut with very steep sides and a slightly concave base, filled by (004). W: 0.35 m, D: 0.15 m.
006	8	Fill of cut [007], orangey brown fine clayey sand with occasional small stones.
007	8	Linear cut with steep sides and slightly concave base, filled by (006). W: 1.34 m, D: 0.24 m.
008	9	Semi-linear cut with sloping sides and a rounded base, filled by (009). W: 0.74 m, D: 0.26 m.
009	9	Fill of cut [008], dark grayish brown clayey silt with occasional small and large stones.
010	5	Fill of cut [011], mid brown clayey silt with gravel and occasional angular stones and frequent gravel towards the deposit's base.
011	5	Sub-circular cut with gradually sloping sides and concave base. Dia: 1.7m, Depth: 0.40 m. Filled by (010)
012	5	Sub-circular cut with steep sides and irregular base, filled by (013). Dia: 0.40 m, Depth: 0.22 m.
013	5	Fill of cut [012], orangey brown clayey sand with frequent small stone inclusions.
014	2	Fill of [015], dark grey fine clay with occasional small stones.
015	2	Linear cut with steep-to-vertical sides and flat base, filled by (014). W: 0.50 m, D: 0.15 m.
016	9	Fill of [017], orangey brown fine clayey sand with frequent small stones.
017	9	Sub-rectangular cut with steep sides and a concave base, filled by (016). L: 1.20 m, W: 0.48 m, D: 0.19 m.
018	9	Fill of cut [018], yellow sand with occasional small stones.
019	9	Irregular 'U-shaped' cut with shallow sides and a flat base, filled by (018). L: 2 m, W: 2 m, D: 0.06-0.10 m.
020		Natural reddish brown clay encountered in trenches in Field A
021		Natural deposits encountered in trenches in Field B; These varied from orange brown/grey clay to reddish brown/grey gravel
022		Peat deposit encountered in trench 1. Full thickness not known, but at least 1m.
023	13, 15 & 18	Deposit of brown silty clay. Colluvium within Field A
024	3, 4, 54 & 10	Deposit of light brown sandy silt. Colluvium within Field B.
025	1	Light grey clay subsoil
026	5	Lense of charcoal within fill deposit [010] of cut [011]

Appendix 3: Trench Matrices



	Trench 10																		
	Topsoil 001																		
	004			002															
	005			003															
	Natural 021																		

	Remaining trenches		
	Topsoil 001		
	Natural 020, 021		

Appendix 4: Photographic Register

Photo No.	Direction	Description
663	NE	LP 1. Trench 1, general shot
664	NW	LP 1. Trench 1 showing peat deposits in section to 1.2m
665	N	LP 1. Trench 2, general shot
666	N	LP 1. Trench 3, general shot
667	N	LP 1. Trench 4, general shot
668	NE	LP 1. Trench 5, general shot
669	SE	LP 1. Trench 6, general shot
670	E	LP 1. Trench 8, general shot
671	E	LP 1. Trench 9, general shot
672	SE	LP 1. Trench 10, general shot
673	NE	LP 1. Trench 7, general shot
674	NW	LP 1. Trench 11, general shot
675	N	LP 1. Trench 12, general shot
676	SW	LP 1. Trench 13, general shot
677	S	LP 1. Trench 14, general shot
678	S	LP 1. Trench 15, general shot
679	SE	LP 1. Trench 16, general shot
680	SW	LP 1. Trench 18, general shot
681	NW	LP 1. Trench 17, general shot
682	W	LP 1. View of linear cut [003]
683	W	LP 1. View of linear cut [005]
684	S	LP 1. View of linear cut [007]
685	W	LP 1. View of linear cut [007]
686	W	LP 1. West facing quadrant section of semi-circular cut [008]

Appendix 5: Drawing Register

Drawing No.	Plan	Section	Description
1	1:10		South east facing section of pit [011], Trench 5

Appendix 6: Sample Register

Sample No.	Context No.	Description
001	009	Fill of butt-end of ditch [008], Trench 9
002	010	Fill of pit [011], Trench 5
003	016	Fill of pit [017], Trench 9