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Broxburn to Humbie Farm Reinforcement Pipeline (Phase 2), Broxburn, West Lothian

Archaeological Works

Report no. 1626

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| Commissioned by | Land and Marine Project Engineering Ltd |
| Date issued | June 2009 |
| Version | 2 |
| OASIS Reference | cfaarcha1-58652 |
| Planning Application No | |
| Grid Ref | NT 1032 7284 - NT 1085 7467 |

This document has been prepared in accordance with CFA Archaeology Ltd standard operating procedures.

**Broxburn to Humbie Farm Reinforcement Pipeline,
(Phase 2)
Broxburn, West Lothian
Archaeological Works
Report no. 1626**

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1. INTRODUCTION

1.1 General

- 1.1.1 This report presents the results of an archaeological watching brief, monitored topsoil strip and subsequent mitigation undertaken by CFA Archaeology Ltd (CFA) between March and April 2009 during topsoil stripping operations for the second phase (Phase II) of works on a gas pipeline near Broxburn, West Lothian. The work was commissioned by Land and Marine Project Engineering Ltd.
- 1.1.2 A Written Scheme of Investigation (WSI) for the archaeological works was produced by CFA on behalf of Land and Marine. The WSI was based upon information supplied by RSK Environment Ltd (RSK) and Land and Marine Project Engineering Ltd, and was produced following consultation with West of Scotland Archaeology Service (WoSAS) and the City of Edinburgh Council Archaeology Service (CECAS). RSK were acting as archaeological consultants for Scotland Gas Networks Ltd.

1.2 Background

- 1.2.1 A gas pipeline is being installed to the east of Broxburn running from the north-east of Drumshoreland Muir (NGR: NT 0916 7090) to the south-west of Humble Farm (NGR: NT 1104 7493). The topsoil stripping operations were subject to an archaeological condition requiring a combination of watching briefs and monitored topsoil stripping.
- 1.2.2 This report covers the route of the pipeline from Newliston Historic Garden and Designed Landscape (NGR: NT 1032 7284) up to the M9 motorway to the north (NGR: NT 1085 7467). This section of the pipeline for the purpose of this report will henceforth be known as Phase II. Phase I was completed between August and October 2008 and covered Sections 0-8. The findings of the Phase I watching brief and subsequent mitigation excavations can be found in CFA Report No. 1562 (Moore & Kirby 2009). The Historic Garden and Designed Landscape at Newliston will henceforth be referred to as Newliston HGDL.
- 1.2.3 The route of the pipeline during construction was subdivided into a series of sections, usually defined by a boundary marker such as a road crossing or other substantial division in the landscape. Phase II of the pipeline covers sections 8-11 (Fig. 1a, b & c). Recent project developments have seen the pipeline shortened and its current termination is immediately south of the M9. As a consequence, the proposed Section 12 will form the basis of further work.
- 1.2.4 A desk-based assessment (DBA) and field reconnaissance survey (RSK 2008) for the pipeline was carried out by RSK Environment Ltd in January and February 2008 on behalf of Scotland Gas Networks Ltd. Numbers in the following text prefixed with RSK refer to sites identified in the desk-based assessment.

- 1.2.5 The desk-based assessment carried out by RSK identified one significant area of archaeological potential within the scope of Phase II. This consisted of an area of rig-and-furrow cultivation recorded from aerial photography (RSK DBA Site 32), and the site of a probable 18th century farmstead known as ‘Hill Law’, which is shown on Roy’s military map (1747-55) (RSK DBA Site 68). Topsoil and subsoil deposits in this area were removed under direct archaeological supervision (Section 10, Fig 1b, c).
- 1.2.6 The pipeline also passes through Newliston HGDL (RSK DBA Site 58). A programme of field boundary recording was undertaken at Newliston during Phase I. This was done using standard field recording techniques, in order to record the nature and condition of any landscape boundaries, prior to their removal during construction works and to facilitate and aid reinstatement. These field boundaries are listed in Appendix 2.
- 1.2.7 The total length of the pipeline measures 6.7km and it had a working width of 25m. The total length of the pipeline completed within Phase II is c. 2.8km.
- 1.2.8 A number of isolated features were identified during the watching brief. These features were excavated where applicable and recorded during the watching brief. The findings are reported in section 3.3.
- 1.2.9 No previous invasive archaeological fieldwork is known to have taken place within the development area prior to this programme of archaeological works.
- 1.2.10 The pipeline development falls within two catchment areas of local authority administration, namely West Lothian and City of Edinburgh Councils. The topsoil stripping undertaken in Sections 8 and 9 falls within the City of Edinburgh Council area and Sections 10 and 11 fall within the West Lothian Council area.

1.3 Objectives

- 1.3.1 The aims of the programme of archaeological works were:
- To determine the location, character, extent and quality of any features or objects of archaeological importance that may survive within the working width of the pipeline, and which may be damaged or destroyed by this development.
 - To determine if there were any remains associated with RSK DBA Site 32/RSK DBA Site 68.
- 1.3.2 Following the watching brief and monitored topsoil strip, the aims of the programme of archaeological works were to conduct mitigation excavations on the features identified.

2. WORKING METHODS

- 2.1 CFA Archaeology Ltd follows the Institute for Archaeologists' Code of Conduct, Standards and Guidance for Archaeological Watching Briefs (IfA 2008a, 2008b, 2008c).
- 2.2 The removal of soil deposits was carried out using 360° excavators equipped with smooth-bladed ditching buckets under constant archaeological supervision. All further works required to fulfil the terms of the brief were carried out by hand.
- 2.3 All excavation and on-site recording was carried out according to standard CFA procedures, principally by drawing, photography and completing standard CFA record forms.

3. ARCHAEOLOGICAL RESULTS

3.1 General

- 3.1.1 The area of topsoil deposits removed during Phase II consisted of a 25m working width with a length of c. 2.8km.
- 3.1.2 The topsoil throughout Phase II invariably consisted of soft clayey silts, dark grey in colour with deposits varying in depth from 0.25-0.45m. Stone inclusions within the topsoil were predominantly confined to occasional small and medium sandstone fragments which were often degrading. Very occasionally, large boulders up to 1m in size were encountered protruding from the mixed and stony underlying glacial till. Sherds of 19th and 20th century pottery were also observed within the topsoil, the frequency of which was generally evenly dispersed during all sections in Phase II.
- 3.1.3 Numbers in bold and parentheses refer to contexts, a list of which is contained in Appendix 1. Field boundaries in Newliston HGDL are prefixed FB. Road and river crossings are referred to in the text and abbreviated to RDX and RVX respectively (Fig. 1a, b & c).
- 3.1.4 Within all sections of Phase II evidence of extensive field drainage was found, with variations of ceramic, horse-shoe and rubble drains representing post-medieval attempts at land improvement. Higher concentrations of rubble field drains were noted in proportion to ceramic drains within Section 10 close to the Niddy Burn (RVX2). This activity represents a continued effort to drain this area during the post-medieval period.

3.2 Field Boundary Recording

- 3.2.1 A programme of field boundary recording was undertaken within Newliston HGDL in order to record their character and preservation, prior to any dismantling or removal as a consequence of the construction activity (Moore & Kirby 2009). Using standard recording methods, a written and photographic appraisal of seven field boundaries was conducted (Fig. 16-25), a list of which is contained in Appendix 2.
- 3.2.2 The dismantling of these field boundaries was undertaken during Phase II and observed under watching brief conditions. As an addendum to the Phase I scheme of works, **FB07**, which was interpreted as the possible remains of a fragmentary drystone wall within Section 8, was found to consist of a surface scatter of medium to large sandstone boulders which probably accumulated in this location as a process of field clearance from ploughing activity during the late 19th century onward.
- 3.2.3 All the other field boundaries recorded during Phase I were found to be as described in Moore & Kirby 2009 and will be reinstated after the pipe laying process has finished.

3.3 Watching Brief

- 3.3.1 All the archaeological features recorded during the watching brief as part of Phase II occurred in isolation, with the exception of two linear ditches located in Section 9 (Fig. 2-4 & 6-8). All contexts identified and recorded during the watching brief operation are listed separately in Appendix 1.

Section 8

- 3.3.2 Two features were identified during topsoil removal within Section 8; these were the probable line of a drainage gully (**018**) and the route of a trackway (**037**). Field boundary **018** comprised a firm, greyish-white organic silty clay within a shallow depression, orientated east-west. The feature measured c. 1.5m in width and continued obliquely across the working width for a length of >25m. Feature **018** is interpreted as the probable silted remains of a truncated drainage gully, of late post-medieval origin, which may have fed the dried up pond in field 4.02 to the east of this location (Fig. 1a). A single cultivation furrow was also recorded, measuring c 2.2m in width by 0.05m in depth.
- 3.3.3 Trackway **037** was uncovered immediately south of RDX9 (NGR: NT 10149 73296 centred). The feature was seen in plan as an east-west orientated spread of compacted small to medium sized cobbles of mixed angularity within a very shallow depression. Interspersed within these cobbles were very rare inclusions of abraded brick or tile and 19th century white porcelain. The surface, which cambered slightly, showed some slight evidence of rutting. The remains measured c. 3m in width, and could be observed running parallel to RDX9 in both directions. This continuation was evidenced by a concentration of cobbles disturbed by ploughing in the adjacent fields (Fig. 13).

Section 9

- 3.3.4 Topsoil removal in Section 9 uncovered four features. These were: parallel ditches **023** and **030**; a solitary pit (**015**); and the foundations of a drystone wall (**004**).
- 3.3.5 Pit **015** (NGR: NT 10428 73963 centred) was sub-circular in plan, measuring 2.4m east-west by 1.8m north-south, with relatively steep sides tapering to a flat base. It was primarily filled by a mix of re-deposited sandy silt (**017**), with occasional rounded and sub rounded cobbles, to a depth of 0.34m. This was in turn overlain by **016**, a friable mid-grey sandy silt which produced fragments of 19th century white porcelain. The feature is interpreted as being of late 19th century origin and is probably the product of small scale gravel or sand extraction.
- 3.3.6 The remains of two parallel ditches (**023** & **030**) were uncovered and excavated immediately north of RDX9 (Fig. 1b), which is an east-west orientated tree lined avenue that runs from a public highway at West Lodge towards Newliston House. Both ditches were orientated northwest-southeast and were initially seen as a slump of compacted sterile dark grey silt (**029** &

034) which continued obliquely across the working width (Fig. 6). An area was cleaned by machine to remove residual deposits of subsoil (**002**), at which point both features became clearly visible.

- 3.3.7 Ditch **023** (Fig. 2 & 7) was c. 2.1m wide with moderately steep sides tapering to a slightly concave base at a maximum depth of 0.75m. A series of sequential fills were recorded. The primary fill (**024**) comprised sticky/soft, orangey-brown, sterile silty clay. This was in turn covered by mixed bluish-grey and waterlogged re-deposited boulder clay. Large fragments of un-worked, naturally deposited wood were preserved within this deposit and retained, along with a bulk soil sample for further analysis if required.
- 3.3.8 Further sequential deposits indicating a continued silting action of the ditch were also recorded; these were **026**, **027**, & **028**. The deposits were very similar in composition comprising greenish, dark grey clayey silt. Overall, the clarity of horizon of these fills was assessed as moderate, although slight variations in mineral content, such as fragments of coal, shale and crushed sandstone could be distinguished. The natural backfilling process was completed by the deposition of **029**. No material dating evidence was recovered from ditch **023**.
- 3.3.9 Ditch **030** (Fig. 3 & 8) measured 1.74m in width and 0.64m in depth with moderately steep sides tapering to a concave base. The horizon clarity was poor-moderate with a mix of mid-brown, greenish-grey soft silty sand forming the primary deposit (**031**). This was overlain by **032**, which was distinguishable from **031** by the presence of iron panning. Deposit **033** was similar in composition to **025** in ditch **023**. This waterlogged deposit also contained fragments of preserved wood. A slump of material which was presumably contemporary with **029** capped the ditch. No material dating evidence was recovered from ditch **030**.
- 3.3.10 The preferred interpretation for ditches **023** and **030**, given the absence of dating evidence, would be an earlier phase of land division such as a field boundary. Both features appear contemporary with each other and display similar characteristics in size, shape and the nature of the infilling deposits. Map regression shows the features pre-date the 1st Edition OS map (1856), century, although a linear field boundary is depicted on a plan of Newliston dated c. 1760 (NAS: RHP2150, interrogated as part of the DBA, RSK 2008). The map shows a plan of the parks to the south and east of Newliston with acreages, boundaries and plantations. Subsequent changes to the original layout of the estate are shown in later editions. The parallel ditches enclose a central 4m wide strip of land, which was absent of features, although it is reasonable to suggest the up-cast may have possibly formed a central bank of which no trace could be seen (Fig. 4). The last phase of large scale alteration to the landscaping occurred in 1835 by W.S. Gilpin (Inventory of Historic Gardens and Designed Landscapes) and included work on the east and west avenues. Since this time it is believed no major alterations have been made; however, formal construction of the gardens began in the 1720s (Inventory, *ibid*), and these features are probably mid-eighteenth century in date.

3.3.11 The foundations of a drystone wall (**004**) measuring 0.7m in width were uncovered for a total of 53m (Fig. 14) during breakthrough at RDX 10. The remains ran parallel to the existing highway, which runs generally in an east-west direction at this point. The foundation comprised large angular to sub-rounded cobbles, the largest example of which measured 0.45m by 0.25m by 0.26m.

Section 10

3.3.12 Topsoil and subsoil removal in Section 10 was done under direct archaeological supervision in order to determine if there were any remains associated with RSK DBA Sites 32 and 68. The area of monitored topsoil removal extended from RDX10 northwards, and included all land up to the Niddry Burn (RVX2) (Fig. 1b, 1c). The topography crested and sloped downward towards the Niddry Burn, which resulted in topsoil deposits ranging from 0.20m deep at higher datum to 0.40m deep. As the working width continued toward the Niddry Burn, the depth of subsoil (**002**) increased up to depths of 0.40m below the subsoil. In the close vicinity of the Niddry Burn itself a thin, dark grey layer of sterile colluvium (**003**) was noted with visible plough scars on the surface. A test pit in this area recorded overlying deposits up to 0.95m in depth before natural gravel deposits were reached. Due to the depth of underlying subsoil, a series of strips were cleaned across the working width to the required archaeological horizon (Fig. 11).

3.3.13 No evidence of 'Hill Law' farmstead (RSK DBA Site 32) was identified. Two lengths of north-south orientated broad rig cultivation (**011** & **013**) were exposed on level ground close to RDX 10. Both furrows measured c. 2 – 2.3m in width and were spaced 9m apart centre to centre. Subsequent agricultural cultivation had truncated both furrows to depths of <0.05m and both features were seen as fragmentary strips of subsoil (**002**) in very shallow linear depressions (Fig. 15).

3.3.14 A series of intercutting pits (**005**, **007** & **009**) were excavated on level ground near to RDX 10 (NGR: NT 10376 74095). Pits **005** and **007** were cut into a mix of natural sand and gravel to depths of 0.34m and 0.46m respectively. Pit **005** was rapidly backfilled by deposits **008**, **019** & **020**. These deposits were characteristically similar in composition comprising a slightly greenish/dark grey mix of compacted sand and silt with varying degrees of coal and stone inclusions. Pit **005** had a single fill (**006**) which was generally as described above; although it was more friable when disaggregated. The evidence for pit **009** and fill **010** is more circumstantial and is based on slight nuances seen in section and plan (Fig. 5), particularly faint tip lines of re-deposited bands of sand in deposits **008** and **010**. All pits contained 19th century pottery and window and bottle glass in their basal deposits, which were retained.

3.3.15 It is the preferred interpretation that pits **005**, **007** & **009** are the product of late post-medieval mineral extraction on a small scale, with similar 18th century marl pits having been recorded in cartographic sources from the local area (NAS: RHP2150, interrogated as part of the DBA, RSK 2008)

- 3.3.16 North of the Niddry Burn, the remains of a steep-sided sub-rectangular pit (**021**) orientated northwest-southeast, >1.8m by 0.98m in width was excavated at NGR: NT 10407 74203. The pit contained a single fill of firm, greenish/dark grey re-deposited boulder clay, with occasional small to large cobble inclusions. Excavation of the fill produced fragments of 19th century white porcelain and the feature is interpreted as late post-medieval agricultural activity of unknown purpose.
- 3.3.17 At NGR: NT 10661 74283 the remains of **035**, a probable late 19th century mineshaft, was partially excavated. Once the nature of the feature had been established, machine excavation removed a mixed re-deposited boulder clay infill up to a depth of c.1.3m, removing a series of angular and irregularly deposited rubble capstones (**036**) in the process. Finds of 19th century white porcelain were excavated at all depths. The desk-based assessment (RSK 2008) identified a number of similar quarries active at the turn of the 19th century in this area (RSK DBA Sites 70, 73, 74, 76 & 77). The presence of a mine shaft in this area is not unusual, given the large amount of shale oil extraction that has occurred in the region during the late nineteenth and early twentieth centuries.

Section 11

- 3.3.18 No archaeological features were uncovered during topsoil removal in Section 11.

4. CONCLUSIONS

4.1 An archaeological watching brief and monitored topsoil strip carried out by CFA Archaeology Ltd during soil stripping for Phase II of a gas pipeline identified a number of isolated archaeological features. These sites were subject to a programme of archaeological excavation and are classified as follows:

- A series of isolated pits in were excavated in Sections 9 & 10: **(015)** and **(005, 007, 009 & 021)** respectively. These have been interpreted as late post-medieval in origin and probably connected to continued agricultural activity in these areas or small scale mineral extraction.
- A number of sections totalling 15% of the available features were excavated through parallel ditches **023 & 030** in Section 9. Excavation revealed two substantial earthworks running obliquely across the working width in a northwest-southeast direction. Both ditches appeared to have been filled by natural processes. The preferred interpretation, given the lack of material dating evidence, is that these features are possibly mid-18th century or earlier in origin and formed part of an earlier and substantial land boundary such as a shelterbelt or avenue in Newliston HGDL.
- No remains associated with ‘Hill Law’ farmstead (RSK DBA Site 32) were uncovered.
- Fragmentary evidence of rig-and-furrow cultivation could be seen in Sections 8 and 10. Predominantly this comprised very truncated, shallow furrows, with a tendency towards north–south orientation. The evidence in Section 8 comprised a single furrow while in Section 10, within RSK DBA Site 32, only two furrows were recorded.
- The foundation remains of a drystone wall **(004)** were located parallel to the existing road at RDX10.
- A truncated stone trackway **(037)** and a silted drainage channel **(018)**, which were both interpreted as relatively modern in origin, were identified in Section 8.

4.4 No other archaeological features were discovered.

4.5 The project archive, comprising all CFA record sheets, maps and reports, will be deposited with the National Monuments Record of Scotland (NMRS) and copies of reports will be lodged with the West Lothian Sites and Monuments Record and the City of Edinburgh Council Sites and Monuments Record.

4.6 A summary statement of the results of this watching brief will be submitted for publication in *Discovery and Excavation in Scotland* (Appendix 5), incorporating the results of Phase I.

5. REFERENCES

An Inventory of Gardens and Designed Landscapes in Scotland. Web address: <http://www.historic-scotland.gov.uk/index/heritage/gardens.htm>.

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APPENDIX 1: Context Register

| Context no. | Section | Description |
|-------------|---------|--|
| 000 | All | Natural |
| 001 | All | Topsoil |
| 002 | All | Subsoil |
| 003 | 10 | Colluvial Layer |
| 004 | 9 | Foundations of drystone wall |
| 005 | 10 | Cut of pit |
| 006 | 10 | Fill of pit (005) |
| 007 | 10 | Cut of pit |
| 008 | 10 | Fill of pit (007) |
| 009 | 10 | Cut of possible pit |
| 010 | 10 | Fill of Pit (009) |
| 011 | 10 | Cut of furrow |
| 012 | 10 | Fill of furrow (011) |
| 013 | 10 | Cut of furrow |
| 014 | 10 | Fill of furrow (013) |
| 015 | 9 | Cut of pit |
| 016 | 9 | Fill of pit (015) |
| 017 | 9 | Primary fill of pit (015) |
| 018 | 8 | Probable line of hedge-bank |
| 019 | 10 | Fill of pit (007) |
| 020 | 10 | Fill of pit (007) |
| 021 | 10 | Cut of probable pit |
| 022 | 10 | Fill of (021) |
| 023 | 9 | Cut of Ditch |
| 024 | 9 | Primary fill of ditch (023) |
| 025 | 9 | Fill of ditch (023) containing organic remains |
| 026 | 9 | Fill of ditch (023) |
| 027 | 9 | Fill of ditch (023) |
| 028 | 9 | Fill of ditch (023) |
| 029 | 9 | Slumped deposit and upper fill of ditch (023) |
| 030 | 9 | Cut of ditch parallel to (023) |
| 031 | 9 | Fill of ditch (030) |
| 032 | 9 | Fill of ditch (030) |
| 033 | 9 | Fill of ditch (030) containing organic remains |
| 034 | 9 | Fill of ditch (030) |
| 035 | 10 | Cut of probable mineshaft |
| 036 | 10 | Mixed fill of mineshaft (035) |
| 037 | 8 | Route of trackway parallel to RDX9 |

APPENDIX 2: Field Boundary Register

| Context no. | Section | Description |
|-------------|---------|--|
| FB01 | - | Drystone wall, the remains of a tree-lined avenue and parallel to FB02 |
| FB02 | - | Drystone wall, the remains of a tree-lined avenue and parallel to FB01 |
| FB03 | - | Low earthwork with accompanying fence line |
| FB04 | - | Substantial drystone wall in good repair |
| FB05 | - | 'Ha-ha' comprising water-filled ditch, drystone wall and tree cover |
| FB06 | - | North boundary of tree-lined avenue: drystone wall and earth bank |
| FB07 | - | South boundary, parallel to above; evidence of stone wall and earth bank |

APPENDIX 3: Photographic Register

Digital

| Shot | Description | From | Conditions |
|------|--|------|------------|
| 1 | Shot of foundation for drystone wall (004), Section 9 | E | Sunny |
| 2 | Working shot of removal of bank material over 004, Section 9 | E | Sunny |
| 3 | Shot of FB04 during breakthrough, Section 9 | S | Sunny |
| 4 | SE facing section through drystone wall FB04, Section 9 | SE | Sunny |
| 5 | Working shot of FB05 'Ha-ha' during preparation for partial removal, Section 9 | W | Cloudy |
| 6 | Working shot of FB05 'Ha-ha' during preparation for partial removal, Section 9 | W | Cloudy |
| 7 | SE facing section through drystone wall FB04, Section 9 | SE | Cloudy |
| 8 | General shot of continuing preparation for partial demolition of FB05 'Ha-ha', Section 9 | W | Cloudy |
| 9 | Working shot of FB05 'Ha-ha' being removed by hand | W | Cloudy |
| 10 | Working shot of area south of FB05 | N | Clear |
| 11 | Working shot of area south of FB05, post breakthrough | N | Clear |
| 12 | General shot of FB05 'Ha-ha' post breakthrough | S | Clear |
| 13 | General shot of FB06, prior to breakthrough, RDX9+ | N | Sunny |
| 14 | General shot of FB06 after removal by machine | E | Sunny |
| 15 | General shot of area in vicinity of FB06 after breakthrough | NE | Sunny |
| 16 | Void | - | - |
| 17 | Northeast facing section of earth bank and FB06 after removal, RDX9+ | NE | Sunny |
| 18 | Remains of field drain uncovered during breakthrough at RDX10+ | E | Cloudy |
| 19 | Remains of earth bank at RDX10+ during breakthrough | W | Cloudy |
| 20 | Remains of earth bank at RDX10+ during breakthrough | W | Cloudy |
| 21 | General shot of Section 10 after topsoil removal | E | Sunny |
| 22 | General shot of Section 10 after topsoil removal | S | Sunny |
| 23 | Working shot of topsoil removal within Section 10 | S | Sunny |
| 24 | General shot of area after topsoil removal south of RVX2 | SW | Sunny |
| 25 | Western elevation of drystone wall in Section 10 prior to removal | W | Sunny |
| 26 | South facing section of Drystone wall prior to removal, Section 10 | S | Sunny |
| 27 | Eastern elevation of Drystone wall prior to removal, Section 10 | E | Sunny |
| 28 | General shot of working width at RVX2 | NE | Sunny |
| 29 | Working shot of topsoil removal within Section 10 | S | Clear |
| 30 | Possible rig-and-furrow cultivation within monitored area of Section 10 | SW | Sunny |
| 31 | General shot of Section 10 after monitored topsoil removal | SE | Sunny |
| 32 | General shot of Section 10 after monitored topsoil removal | SE | Sunny |
| 33 | General shot of Section 10 after monitored topsoil removal | NE | Sunny |
| 34 | General shot of Section 10 after monitored topsoil removal | N | Sunny |
| 35 | Possible rig-and-furrow cultivation within monitored area of Section 10 | S | Overcast |
| 36 | Possible rig-and-furrow cultivation within monitored area of Section 10 | S | sunny |

| Shot | Description | From | Conditions |
|------|---|------|------------|
| 37 | Pits (005, 007 & 009) after topsoil removal, Section 10 | W | Sunny |
| 38 | General shot of test pit in Section 10 through colluvial layer (003) | S | Overcast |
| 39 | Working shot of targeted sub-soil removal, Section 10 | NW | Overcast |
| 40 | Working shot of targeted sub-soil removal, Section 10 | NW | Overcast |
| 41 | Shot of strip, with rubble drain in foreground, Section 10 | NW | Overcast |
| 42 | Shot of strip after subsoil removal, Section 10 | NW | Cloudy |
| 43 | Shot of strip after subsoil removal, Section 10 | NW | Cloudy |
| 44 | Shot of strip after subsoil removal, Section 10 | SE | Cloudy |
| 45 | Shot of strip after subsoil removal, Section 10 | SE | Cloudy |
| 46 | Shot of strip after subsoil removal, c/w possible rig-and-furrow cultivation | E | Cloudy |
| 47 | General shot of Section 10 after sub-soil removal | SE | Cloudy |
| 48 | Rig-and-furrow cultivation within monitored sub-soil strip | S | Sunny |
| 49 | General shot of sub-soil strip featuring interconnecting pit (005, 007 & 009) | S | Sunny |
| 50 | General shot of Section 10 after sub-soil removal | SE | Sunny |
| 51 | Part excavation shot of interconnecting pits (005, 007 & 009), Section 10 | S | Sunny |
| 52 | Part excavation shot of interconnecting pits (005, 007 & 009), Section 10 | W | Sunny |
| 53 | Part excavation shot of interconnecting pits (005, 007 & 009), Section 10 | S | Sunny |
| 54 | Part excavation shot of interconnecting pits (005, 007 & 009), Section 10 | S | Sunny |
| 55 | General shot of working width during topsoil removal, Section | S | Cloudy |
| 56 | Shot of probable mineshaft (035) after topsoil removal | NW | Sunny |
| 57 | Shot of probable mineshaft (035) after topsoil removal | S | Sunny |
| 58 | General shot of topsoil removal at RVX2+ | NE | Sunny |
| 59 | Shot of working width during topsoil removal RVX2+ | W | Sunny |
| 60 | General shot of RVX2+ after topsoil removal | E | sunny |
| 61 | General shot of working width and mineshaft (035) in background | SW | Sunny |
| 62 | Field drain uncovered during further exploratory work in Section 10 | W | Sunny |
| 63 | Field drain uncovered during further exploratory work in Section 10 | W | Sunny |
| 64 | Shot of pit (021) after topsoil removal RVX2+ | - | Fog |
| 65 | Shot of pit (021) after topsoil removal RVX2+ | - | Fog |
| 66 | General shot of working width within Section 9 | NE | Sunny |
| 67 | Pit (015) uncovered during topsoil removal, Section 9 | E | Sunny |
| 68 | Pit (015) uncovered during topsoil removal, Section 9 | W | Sunny |
| 69 | General shot of working width during topsoil removal, section 9 | SW | Sunny |
| 70 | Working shot of topsoil removal at FB04, Section 9 | NE | Sunny |
| 71 | Working shot of topsoil removal south of FB05 'Ha-ha' | N | Overcast |
| 72 | General shot of working width from RDX9+ toward FB05 | SW | Clear |
| 73 | Ditch (023) seen in plan after topsoil removal RDX9+ | SE | Overcast |
| 74 | General shot of RDX9+ after topsoil removal | S | Overcast |
| 75 | Shot of parallel ditches (023 & 030) after topsoil removal, RDX9+ | SE | Overcast |
| 76 | Shot of trackway (037) immediately negative of RDX9 | S | Sunny |
| 77 | Continuation of (037) seen as a cobble spread in the adjacent field | W | Sunny |

| Shot | Description | From | Conditions |
|-------------|--|-------------|-------------------|
| 78 | Part excavation shot of trackway (037) RDX9- | N | Sunny |
| 79 | Oblique shot of trackway (037) RDX9- | W | Sunny |
| 80 | Shot of trackway (037) in plan RDX9- | S | Sunny |
| 81 | Oblique shot of trackway (037) and cobble spread in adjacent field RDX9- | W | Sunny |
| 82 | West facing section through trackway (037) RDX9- | W | Sunny |
| 83 | Shot of excavated trackway (037) at RDX9- | S | Sunny |
| 84 | West facing section through trackway (037) RDX9- | W | Sunny |
| 85 | Part excavation shot of ditch (023) and slump (029) | SE | Clear |
| 86 | Part excavation shot of ditch (023) RDX9+ | SW | Clear |
| 87 | Southeast facing section of ditch (023) RDX9+ | SE | Clear |
| 88 | Southeast facing section of ditch (023) RDX9+ | SE | Clear |
| 89 | Shot of ditch (023) in plan | SW | Clear |
| 90 | Shot of ditch (023) and wood deposits in situ RDX9+ | SW | Clear |
| 91 | Southeast facing shot of ditch (023) RDX9+ | SE | Clear |
| 92 | Close up shot of southeast facing section of ditch (023) | SE | Clear |
| 93 | General shot of working width after topsoil removal, RDX9- | NW | Clear |
| 94 | Shot of ditch (030) seen in plan after cleaning | SE | Clear |
| 95 | Shot of ditch (027) seen in plan after cleaning | SE | Clear |
| 96 | Shot of probable hedge bank (018), Section 8 | NW | Sunny |
| 97 | Remains of rig-and-furrow cultivation within Section 8 | S | Sunny |
| 98 | General shot of Section 8 after topsoil removal | S | Sunny |
| 99 | Southeast facing section of ditch (030), RDX9+ | SE | Sunny |
| 100 | Southeast facing section of ditch (030), RDX9+ | SE | Sunny |
| 101 | Southeast facing section of ditch (023), RDX9+ | SE | Sunny |
| 102 | North facing section of probable mineshaft (036) | N | Sunny |
| 103 | North facing section of probable mineshaft (036) | N | Sunny |
| 104 | Oblique shot of pipeline Sections 9 and 10 | N | Clear |
| 105 | Oblique shot of pipeline Sections 10 and 11 | W | Clear |
| 106 | Oblique shot of monitored area Section 10 | N | Clear |
| 107 | Oblique shot of RDX11- / Section 10 | NW | Clear |
| 108 | Oblique shot of RDX11- / Section 10 | NW | Overcast |
| 109 | Pre-excavation shot of pit (021), RVX2+ | SW | Overcast |
| 110 | Shot of pit (021), post excavation, RVX2+ | SE | Overcast |
| 111 | Southwest facing section of pit (021) RVX2+ | SW | Overcast |
| 112 | Shot of pit (021), post excavation, RVX2+ | SE | Overcast |
| 113 | Post excavation shot of pit (015) RDX10- | SW | Sunny |
| 114 | West facing section of pit (015) RDX10- | W | Sunny |
| 115 | South facing section of pit (015) RDX10- | S | Sunny |
| 116 | Post excavation shot of pit (015) RDX10- | W | Sunny |
| 117 | Shot of rig-and-furrow cultivation in Section 10 | E | Clear |
| 118 | Shot of Section 10 after monitored sub-soil strip | SE | Clear |
| 119 | Shot of Section 10 after monitored sub-soil strip | E | Clear |
| 120 | Shot of rig-and-furrow cultivation (011 & 013), Section 10 | E | Clear |
| 121 | Shot of rig-and-furrow cultivation (011 & 013), Section 10 | SE | Clear |
| 122 | Post excavation shot of pits (005, 007 & 009), east facing section | E | Sunny |
| 123 | General shot of pits (005, 007 & 009) post excavation | S | Sunny |
| 124 | Post excavation shot of pits (005, 007 & 009), east facing section | S | Sunny |
| 125 | Post excavation shot of pits (007 & 009), east facing section | S | Sunny |

APPENDIX 4: Drawings Register

| Sheet No | Drawing No | Scale | Section/Plan | Contexts |
|----------|------------|-------|--------------|--|
| 1 | 1 | 1:20 | Plan | Section 10, Plan of interconnecting pits (005, 007 & 007) |
| 1 | 2 | 1:20 | Section | Section 10, East facing section of interconnecting pits (005, 007 & 009) |
| 1 | 3 | 1:20 | Section | Section 10, East facing section of interconnecting pits (007 & 009) |
| 1 | 4 | 1:20 | Section | Section 9, RDX10-, West facing section of pit (015) |
| 1 | 5 | 1:20 | Plan | Section 9, RDX10-, Plan of pit (015) |
| 1 | 6 | 1:20 | Section | Section 10, RVX2+, Southwest facing section of pit (021) |
| 1 | 7 | 1:20 | Plan | Section 10, RVX2+, Plan of pit (021) |
| 2 | 8 | 1:20 | Section | Section 9, RDX9+, Southeast facing section of ditch (023) |
| 2 | 9 | 1:20 | Section | Section 9, RDX9+, Southeast facing section of ditch (030) |
| 3 | 10 | 1:50 | Plan | Section 9, RDX9+, Plan of ditches (023 & 030) |
| 3 | 11 | 1:20 | Plan | Section 10, RDX11-, Plan of probable mineshaft (035) |
| 2 | 12 | 1:20 | Section | Section 9, RDX9+, Southeast facing section of ditch (023) |

APPENDIX 5: Samples Register

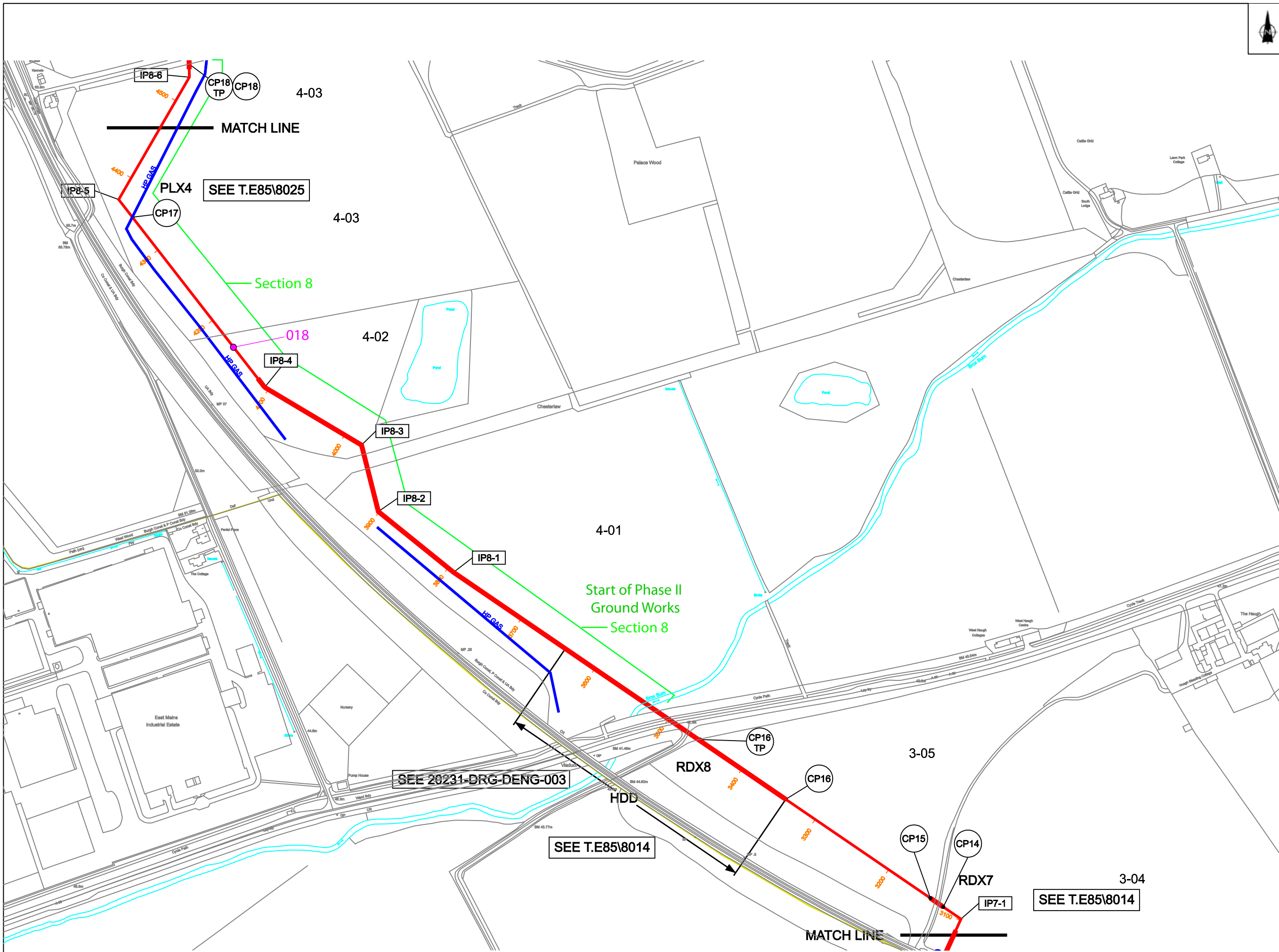
| Sample no. | Context | Site/Section | Comment | Litres |
|------------|---------|--------------|--|--------|
| 1 | 025 | 9 | Waterlogged deposit within ditch (023) containing deposits of wood | 10L |
| 2 | 025 | 9 | Large pieces of preserved wood within fill of ditch (023) | 1 Bag |

APPENDIX 6: Discovery & Excavation in Scotland Entry

| | |
|---|--|
| LOCAL AUTHORITY: | West Lothian, City of Edinburgh |
| PROJECT TITLE/SITE NAME: | Broxburn to Humbie Farm Reinforcement Pipeline Phase II |
| PROJECT CODE: | STPI |
| PARISH: | Kirkliston |
| NAME OF CONTRIBUTOR: | Phil Moore |
| NAME OF ORGANISATION: | CFA Archaeology Ltd |
| TYPE(S) OF PROJECT: | Watching Brief, Monitored Topsoil Removal and Excavation |
| NMRS NO(S): | N/A |
| SITE/MONUMENT TYPE(S): | Ditches, isolated pits and landscape boundaries, rig and furrow, designed landscape features |
| SIGNIFICANT FINDS: | |
| NGR (2 letters, 8 or 10 figures) | NT 0916 7090 to NT 1104 7493 |
| START DATE (this season) | March 2009 |
| END DATE (this season) | April 2009 |
| PREVIOUS WORK (incl. DES ref.) | N/A |
| MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields) | <p>An archaeological watching brief was conducted on a section of gas pipeline during ground breaking activity. This archaeological monitoring also included one sections of controlled topsoil removal under direct archaeological supervision on sites of significant potential identified from desk based research.</p> <p>Work on the gas pipeline formed the basis of two separate phases of construction. This report details the findings of the watching brief during Phase II, with Phase I completed by CFA in 2008.</p> <p>The watching brief carried out during groundworks identified a series of archaeological features which included a pair of substantial parallel ditches situated in Newliston Historic Garden and Designed Landscape. These features correspond with a linear field boundary shown on a plan of Newliston dating to c. 1760. The features are therefore interpreted as a field boundary probably dating to the mid 18th century, which may have been altered since the original inception of the boundary in this location.</p> <p>Other features included: a series of isolated pits which were attributed to late post-medieval agricultural activity, or small-scale gravel extraction; the foundation remains of a drystone wall running parallel to the existing road running E-W between Overton and Niddry Castle and the remains of a cobble trackway badly damaged by ploughing running parallel to the existing access to Newliston from the east.</p> <p>The length of the Phase II operation was shortened and topsoil removal ceased immediately south of the M9.</p> |
| PROPOSED FUTURE WORK: | None |
| CAPTION(S) FOR ILLUSTRS: | N/A |
| SPONSOR OR FUNDING BODY: | Land and Marine Project Engineering Ltd |
| ADDRESS OF MAIN CONTRIBUTOR: | Old Engine House, Eskmills Park, Musselburgh, East Lothian EH21 7PQ |
| EMAIL ADDRESS: | Info@cfa-archaeology.co.uk |
| ARCHIVE LOCATION (intended/deposited) | Archive to be deposited with NMRS; reports to be deposited with West of Scotland Archaeology Service and City of Edinburgh Council Archaeology Service SMR. |



- Key:
- Existing Pipeline
 - New Pipeline Phase II
 - Archaeological features
 - Council boundary
 - Archaeological Sections



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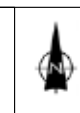
Fig. No: **1 a** Revision:

Title:
Location Map

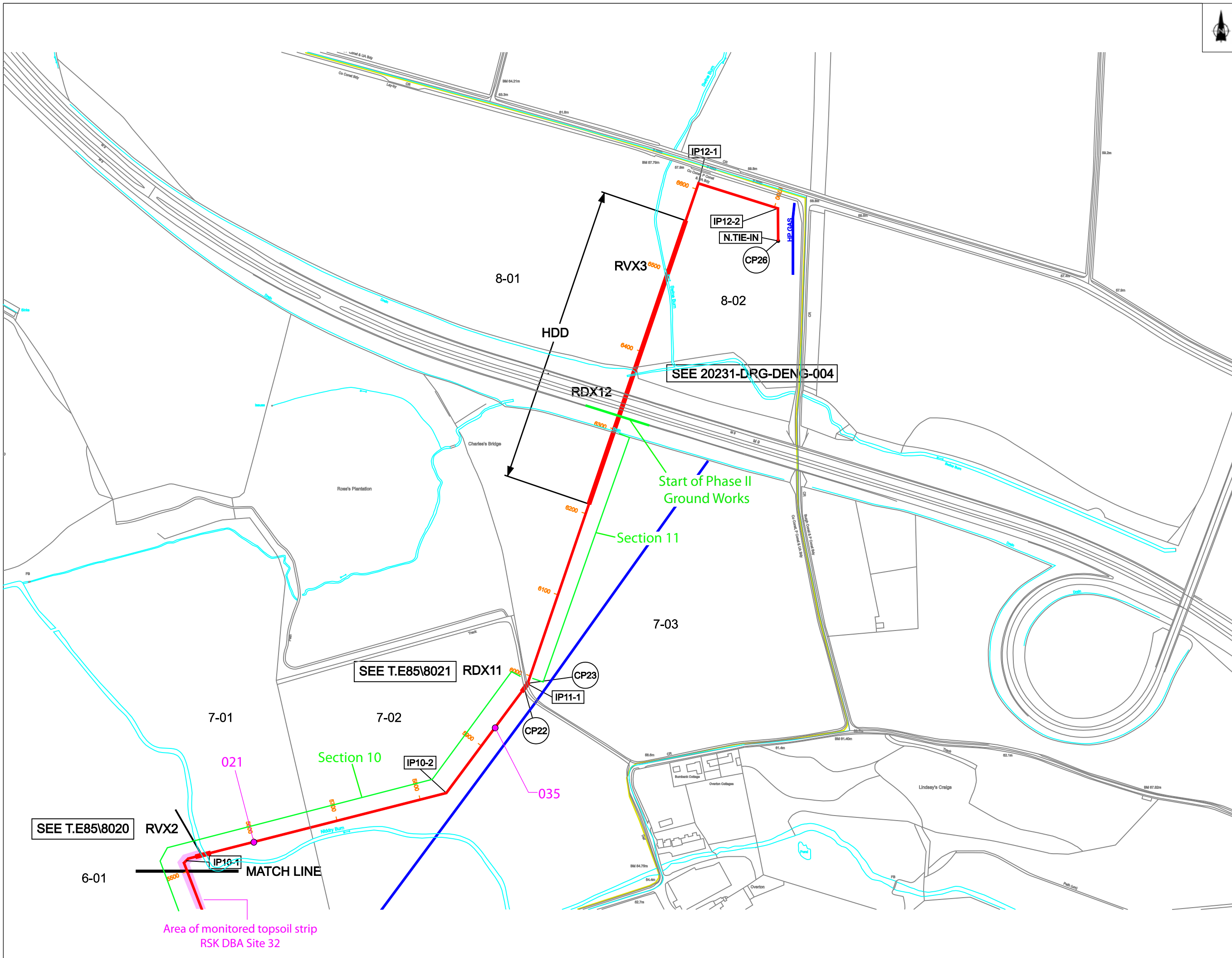
Project:
**Broxburn to Humble Farm
 Reinforcement Pipeline, (Phase
 2) Broxburn, West Lothian.
 Archaeological Works**

Scale:
1:4000 @ A3

Client:
**Land and Marine Project
 Engineering Ltd**



- Key:
- Existing Pipeline
 - New Pipeline Phase II
 - Archaeological features
 - Council boundary
 - Archaeological Sections



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Fig. No: **1c** Revision:

Title:
Location Map

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 Archaeological Works**

Scale:
1:4000 @ A3

Client:
**Land and Marine Project
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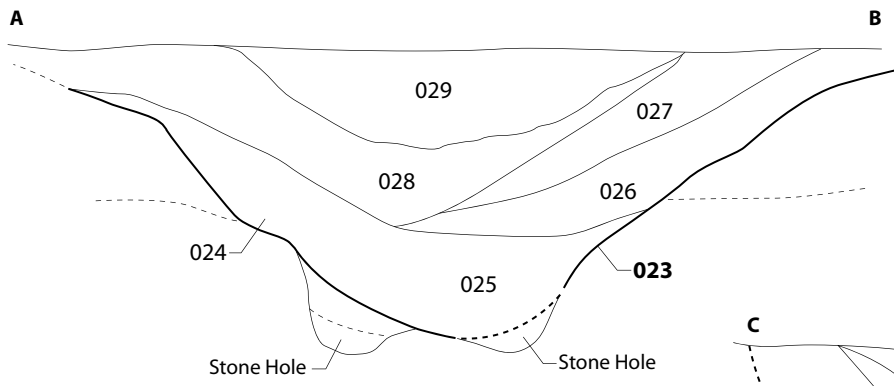


Fig. 2 - Southeast-facing section of ditch 023

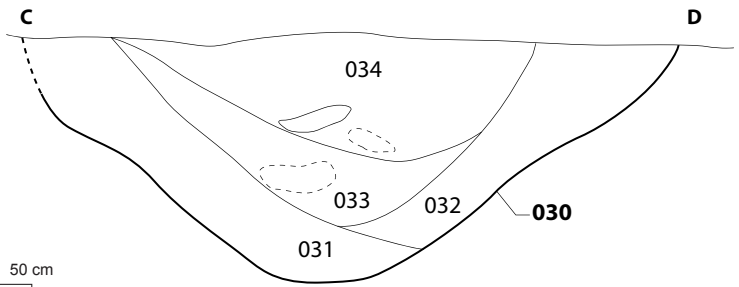


Fig. 3 - Southeast-facing section of ditch 030

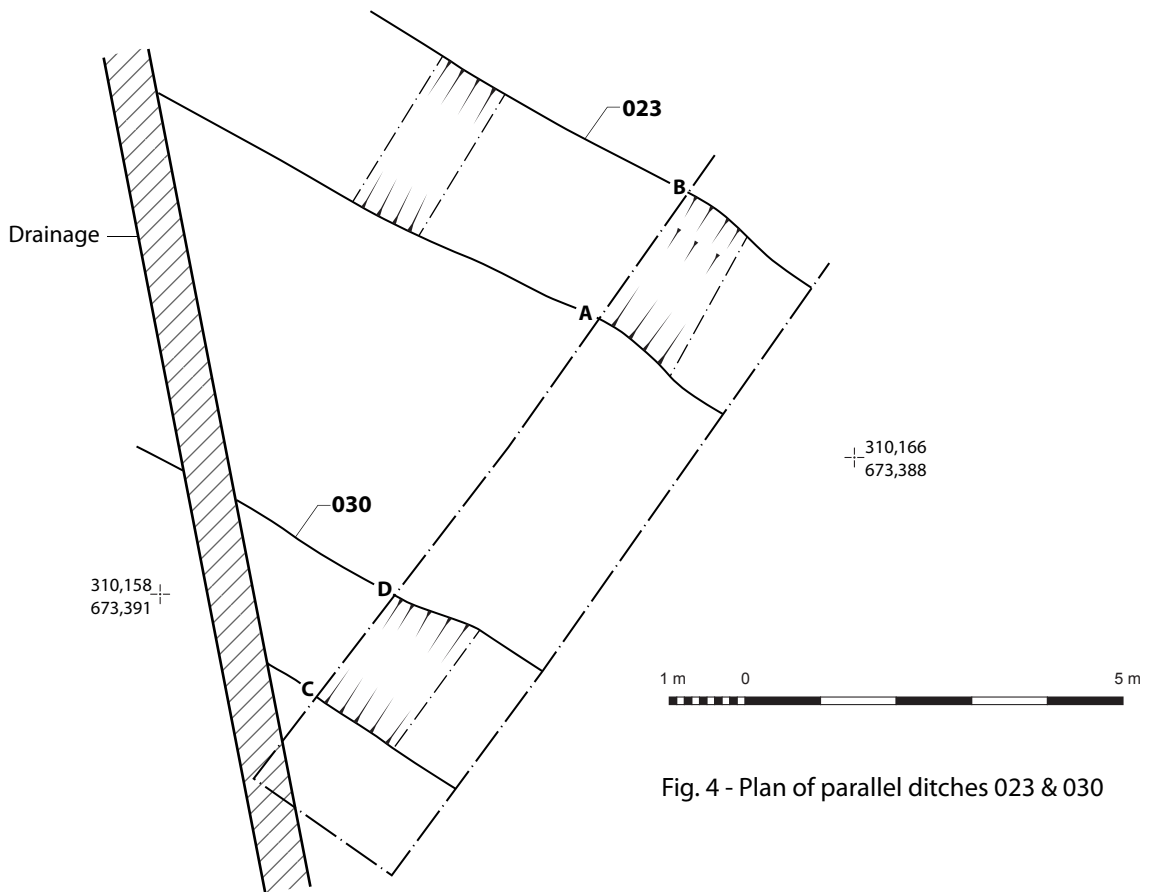


Fig. 4 - Plan of parallel ditches 023 & 030

Key:

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|----------|--|-----------|---|---------|---|
| Fig. No: | 2-4 | Revision: | A | Client: | Land and Marine Project Engineering Ltd |
| Title: | Sections & Plan | | | | |
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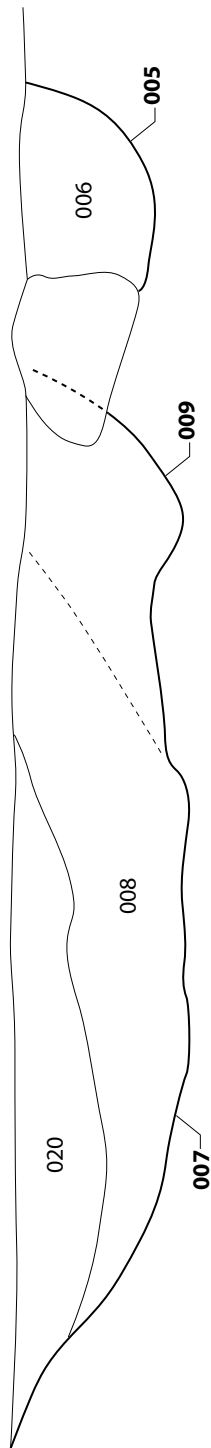


Fig. 5 - East-facing section of cutting pits 007, 009 & 005



Key:

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| Fig. No: | 5 | Revision: | A | Client: | Land and Marine Project Engineering Ltd |
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Fig. 6 - General shot of ditches 023 & 030, after topsoil removal section 9



Fig. 7 - Southeast-facing section of ditch 023, section 9



Fig. 8 - Southeast-facing section of ditch 030, section 10



Fig. 9 - General shot of section 9 after topsoil removal

Key:

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|----------|---|-----------|----------|---------|---|
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Fig. 10 - General shot of intercutting pits 005, 007 & 009, section 10



Fig. 11 - General shot of section 10 after monitored subsoil removal



Fig. 12 - Southwest-facing section of pit 021, section 10



Fig. 13 - General shot of trackway 037, section 8


| | | | | | | | |
|--------|----------|--|---|----------|--|---|------|
| Key: | Fig. No: | 10-13 | Revision: | A | Client: | Land and Marine Project Engineering Ltd | |
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Fig. 14 - General shot of Wall foundation 004, section 9



Fig. 15 - Evidence of rig-and-furrow cultivation, section 10


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Fig. 16 - Pre-demolition shot of wall FB01



Fig. 17 - Pre-demolition shot of wall FB02



Fig. 18 - Pre-demolition shot of bank/fence FB03



Fig. 19 - Pre-demolition shot of wall FB04



Fig. 20 - General view of avenue FB06/FB07



Fig. 21 - Pre-demolition shot of wall FB06


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Fig. 22 - Pre-demolition shot of boundary FB05




Fig. 23 - Pre-demolition shot of boundary FB05



Fig. 24 - Flume pipe in place within ditch and demolition of upper courses of boundary wall FB05 in progress



Fig. 25 - Completed access point across the top of the flume pipe and boundary wall FB05

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