

# GUARD ARCHAEOLOGY



## Broken Cross Surface Mining: Phase 3 Extension Archaeological Evaluation Project 3350

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## **Broken Cross Surface Mining: Phase 3 Extension**

### **Archaeological Evaluation**

**On behalf of:** Scottish Coal

**NGR:** NS 84324 38716



**Project Number:** 3350

**Project Manager:** John Atkinson

**Report by:** Maureen C. Kilpatrick and Kevin Mooney

**Illustrations:** Fiona Jackson

**Approved by:**

**Date:**

*This document has been prepared in accordance  
with GUARD Archaeology Limited standard operating procedures.*

**GUARD Archaeology Limited**  
**52 Elderpark Workspace**  
**100 Elderpark Street**  
**Glasgow**  
**G51 3TR**

**Tel: 0141 445 8800**  
**Fax: 0141 445 3222**  
**email: [info@guard-archaeology.co.uk](mailto:info@guard-archaeology.co.uk)**



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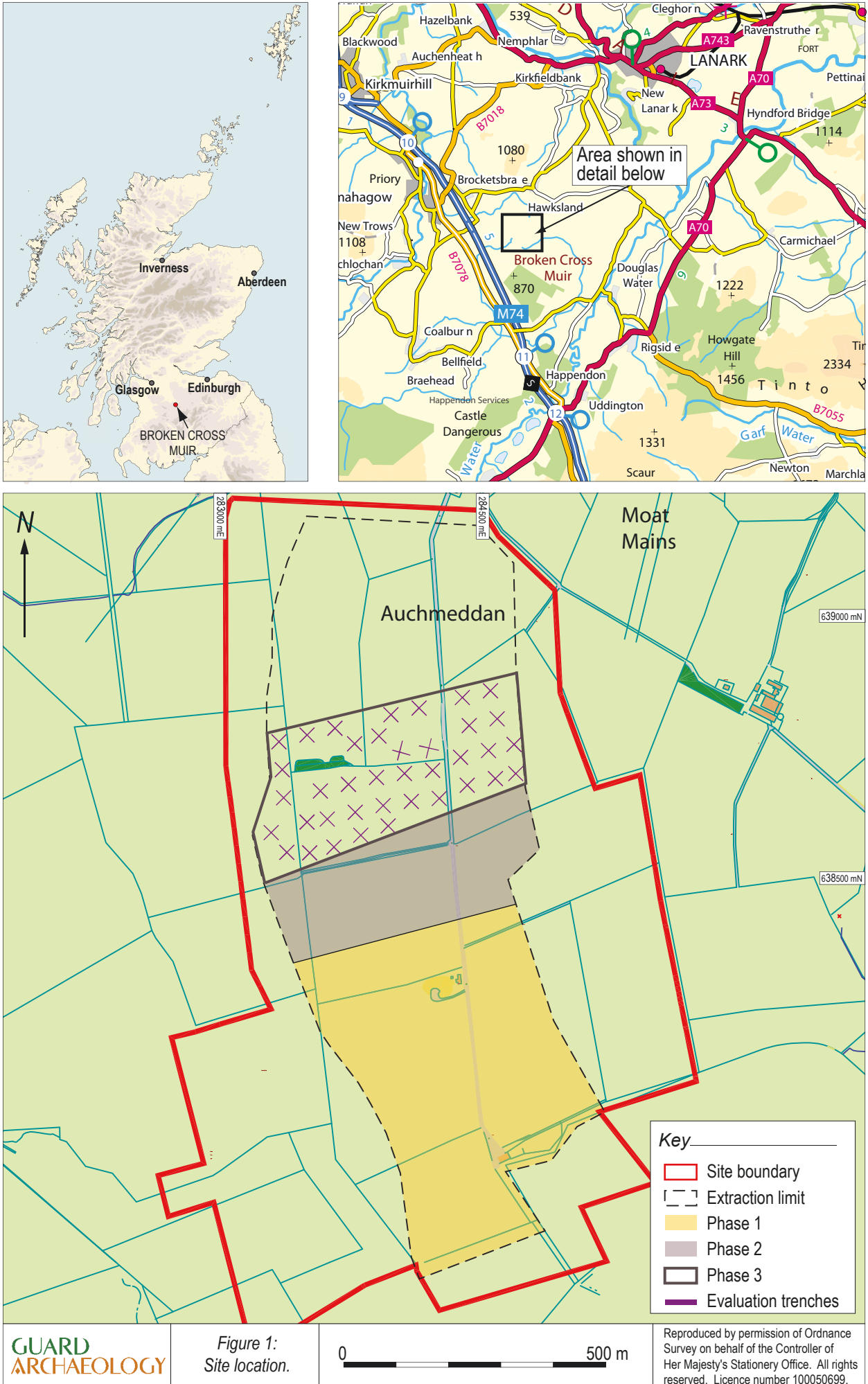
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## Executive Summary

- 1.1 An archaeological evaluation was carried out by GUARD Archaeology Ltd, on behalf of Scottish Coal, at Broken Cross Surface Mine, near Devonburn, South Lanarkshire. The work was carried out to satisfy Condition 18 of Planning application P/PP/75/96/SR/90 and comprises a phased approach to investigation at the site. The trial trench evaluation comprised a 5% evaluation of the Phase 3 area in advance of coal extraction, followed by a phase of post-strip walkover survey. No significant archaeological features were encountered during the evaluation or walkover except a field drainage system relating to agricultural improvement works in the 19th and 20th centuries.

## Introduction

- 2.1 This report sets out the results of a third archaeological evaluation undertaken by GUARD Archaeology Ltd, on behalf of Scottish Coal on the Phase 3 area prior to coal extraction at Broken Cross North.

## Site Location, Topography and Geology

- 3.1 The proposed development location lies to the east of Devonburn (centred on NGR: NS 84324 38716) with the present area under investigation covering approximately 123,825 m<sup>2</sup> (Figure 1).
- 3.2 The site is broadly rectangular in shape and consists of rolling agricultural fields used in crop production and as pasture and is located within an agricultural landscape used primarily for grazing. It is located to the immediate north of the present area of surface mining which was evaluated in April 2010 (Atkinson 2010). Auchmeddan and Moat Mains Farm are located to the north with the present area forming part of their lands.
- 3.3 The underlying drift geology consists of Devensian Till, while the solid geology consists of Limestone Coal Formation (Geological Digimap; <http://digimap.edina.ac.uk>)

## Archaeological Background

- 4.1 A review of desk-based sources undertaken in advance of trenching revealed a small number of sites relating to 19th century coal and limestone extraction within the area. These include Auchmeddan Colliery (NMRS: NS83NW 40), a small disused coal pit (NS 8439 3905) and a disused limestone pit (NS 8444 3791). A stone hammer is also reported within the vicinity (NMRS: NS83NW 21). Two mid 18th century farmsteads are also noted by Roy although they are outwith the application area at Auchmeddan (NS 844 393) and Brae (NS 850 388). A 'C'(s)-listed farmstead is located at West Hawksland (NS83NW 29). A previous evaluation of earlier phases of extraction areas of Broken Cross North encountered no significant archaeology other than evidence of 19th-20th century field improvements and coal mining (Will 2010, 165).

## Aims and Objectives

- 5.1 The aims and objectives of the archaeological work were to:
- establish the presence or absence of archaeological resources within the area of development under targeted archaeological evaluation conditions
  - determine the character, extent and significance of any archaeological deposits encountered;
  - excavate and record any significant archaeological remains should they be encountered;
  - undertake funded post-excavation analysis and publication of the results on the archaeological works should they be warranted.



## Methodology

- 6.1 Topsoil was stripped using a mechanical excavator, fitted with a flat-bladed ditching bucket, under close archaeological supervision. The topsoil was removed in linear trenches to the surface of the subsoil or the first significant archaeological horizon. The trenches were in general approximately 40 metres long by 2 metres wide. Trenches were located to provide a 5% sample of the area under investigation and were arranged in an offset cross pattern (Figure 1).
- 6.2 The evaluation was followed by a phase of post-topsoil strip walkover survey, conducted to identify any features missed by the evaluation phase.
- 6.3 All on-site recording, written, drawn and photographic, was to the standards normally pertaining in archaeological fieldwork and to IfA standards. Trenches were surveyed and located within the National Grid using a sub-centimetre DGPS (R100) Smart Rover.

## Results

7.1 The work was undertaken between 13th June 2011 and 20th June 2011. During the course of the evaluation a total of 6,080 m<sup>2</sup> of trenching was undertaken, spread over 76 individual trenches arranged in an offset cross pattern across the site (Figure 1), the results of which are set out in Appendices B-C. During the course of the evaluation no features of archaeological significance were encountered. For the majority of the area, trenches revealed a mid-brown sand silt topsoil (0.22 to 0.35 m thick), which lay over natural yellow/brown silt sand subsoil (Plate 1). Two trenches (25 and 26) also contained a patchy brown/black organic silt deposit (depth 0.04 m) below the topsoil deposit. This was deemed to be of natural origin and was located in natural 'dips' within the topography.



Plate 1.

- 7.2 During the evaluation very few artefacts were recovered from topsoil deposits and those that were comprised modern pottery sherds. None were retained.
- 7.3 On the 16th May 2012 a post-strip walkover survey was conducted over three areas, which had previously been trenched in June 2011 (see above). The scope of the visit included walkover of areas to the West of the immediate working area and the other two lay to the North and to the East. The areas exposed were relatively flat and well drained and sloped towards the North. The topsoil itself had been removed down to the depth of the subsoil – it is unknown the actual depth of the soil removed – but it appeared to be no more than 0.40 – 0.50 metres in depth. The underlying subsoil was a sandy silty layer with many stone/pebble inclusions. No obvious archaeology was noted during the walkover in any of the three areas. An area to the North of the three areas surveyed remains to be stripped of topsoil.

## Discussion

- 8.1 The evaluation trenching only identified field drainage relating to agricultural land improvements during the 19th and 20th centuries.

## Conclusions

- 9.1 The evaluation and walkovers demonstrated that no archaeologically sensitive deposits or features exist within the present Phase 3 area set aside for coal extraction. It is however recommended that further walkover surveys of the Phase 3 area be conducted (as defined in the WSI – see attached) after the topsoil has been removed. Once all surveys have been completed the report will be finalised.

- 9.2 GUARD would stress that these recommendations are intended for guidance only. While the recommended mitigation strategy was developed following consultation with Paul Robins of WoSAS, final decisions on the nature and extent of any future archaeological work rest with the planning authority.

## Acknowledgements

- 10.1 GUARD would like to thank Scottish Coal and Mr Jim Struthers for their assistance on site. Plant and drivers were supplied by Blackwood Plant Hire. Technical support was from Aileen Maule and John Kiely. A survey of trench locations was conducted by Fiona Jackson. The illustrations were produced by Fiona Jackson. The report was desk top published by Jen Cochrane. The project was managed for GUARD by John Atkinson.

**Broken Cross Surface Mining:  
Phase 3 Extension  
Archaeological Evaluation**

**Section 2: Appendices**



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## Appendices

### Appendix A: Bibliography

Atkinson, J 2010 Broken Cross North (BXN) Surface Mine (unpublished DSR report 3098)

Geological Digimap (<http://digimap.edina.ac.uk>)

National Monuments Record for Scotland, [www.rcahms.gov.uk](http://www.rcahms.gov.uk)

West of Scotland Archaeology Service (WoSAS) Sites and Monuments Record. Available from <http://www.wosas.net/wosas>

Will, B 2010 'Broken Cross North Evaluation and Walkover Survey', in *Discovery and Excavation in Scotland*, volume 11 (2010), 165.

### Appendix B: Trench Records

Tr No	Length (m)	Width (m)	Depth (m)	Topsoil/Overburden	Subsoil	Details
1	40	2	0.35	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified
2	40	2	0.3	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified
3	40	2	0.3	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified
4	40	2	0.4	Mid-brown sand silt (depth 0.28m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified
5	40	2	0.3	Mid-brown sand silt (depth 0.20m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drain orientated E-W across trench
6	40	2	0.4	Mid-brown sand silt (depth 0.28m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drain orientated E-W across trench
7	40	2	0.4	Mid-brown sand silt (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drain orientated E-W across trench
8	40	2	0.4	Mid-brown sand silt (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drain orientated E-W across trench
9	40	2	0.4	Mid-brown sand silt (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drain orientated E-W across trench
10	40	2	0.35	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains orientated E-W across trench and spaced 7m apart.
11	40	2	0.3	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.

Tr No	Length (m)	Width (m)	Depth (m)	Topsoil/Overburden	Subsoil	Details
12	40	2	0.3	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains orientated E-W across trench.
13	40	2	0.4	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
14	40	2	0.3	Mid-brown sand silt (depth 0.2m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
15	40	2	0.45-0.50	Mid-brown sand silt (depth 0.3m)	Yellow brown silt sand with occasional pebbles and gravel inclusions	No archaeological features or finds identified.
16	40	2	0.30-0.40	Mid-brown sand silt (depth 0.2-0.3m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
17	40	2	0.35	Mid-brown sand silt (depth 0.25m)	Yellow/orange/brown silt sand with occasional pebbles	No archaeological features or finds identified.
18	40	2	0.4	Mid-brown sand silt (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drain orientated north-south across trench
19	40	2	0.36	Mid-brown sand silt (depth 0.31m)	Yellow brown silt sand with occasional pebble and cobble sized stone inclusions	No archaeological features or finds identified. Two field drains orientated WNW-ESE across trench
20	40	2	0.35	Mid-brown sand silt (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drain orientated north-south across trench
21	40	2	0.39	Mid-brown sand silt (depth 0.35m)	Yellow/orange/brown silt sand with occasional sub-rounded pebble and cobble inclusions	No archaeological features or finds identified.
22	40	2	0.3	Mid-brown sand silt (depth 0.27m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
23	40	2	0.41	Mid-brown sand silt (depth 0.36m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
24	40	2	0.3	Mid-brown sand silt (depth 0.22m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
25	40	2	0.36-0.50	Mid-brown sand silt (depth 0.36m). Below was occasionally found a brown/black organic silt deposit (depth 0.04m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. A rubble filled drain and tile drains were found orientated north-south across the trench.
26	40	2	0.30-0.40	Mid-brown sand silt (depth 0.22m). Below was occasionally found a brown/black organic silt deposit (depth 0.04m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
27	40	2	0.4	Mid-brown sand silt (depth 0.35m)	White grey silt sand with occasional pebbles	No archaeological features or finds identified. Field drain orientated north-south across the trench.

Tr No	Length (m)	Width (m)	Depth (m)	Topsoil/Overburden	Subsoil	Details
28	40	2	0.36-0.50	Mid-brown sand silt (depth 0.29m)	Grey/orange/brown sand	No archaeological features or finds identified. Field drain orientated north-south across the trench and rubble drain.
29	40	2	0.35-0.38	Mid-brown sand silt (depth 0.34m)	Brown orange coarse sand	No archaeological features or finds identified.
30	40	2	0.35	Mid-brown sand silt (depth 0.29m)	Yellow/orange/brown silt sand with occasional sub-rounded pebble and cobble inclusions	No archaeological features or finds identified. Rubble field drain orientated east-west across trench
31	40	2	0.35-0.38	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains located in trench
32	40	2	0.4	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified
33	40	2	0.45	Mid-brown sand silt (depth 0.35m)	White grey sand with occasional angular cobble inclusions	No archaeological features or finds identified
34	40	2	0.3	Mid-brown sand silt (depth 0.20-0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. A rubble field drain and ceramic filled drain orientated north-south across trench
35	40	2	0.3	Mid-brown sand silt (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Rubble field drain found in trench
36	40	2	0.4	Mid-brown sand silt (depth 0.35m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
37	40	2	0.3	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Drain filled with brick fragments and orientated north-south across trench
38	40	2	0.45	Mid-brown sand silt (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified
39	40	2	0.4	Mid-brown sand silt (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
40	40	2	0.4	Mid-brown sand silt (depth 0.30m)	White grey sand with occasional pebbles	No archaeological features or finds identified. Debris, including stone and concrete found at southern end of trench
41	40	2	0.3	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
42	40	2	0.35	Mid-brown sand silt (depth 0.35m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench

Tr No	Length (m)	Width (m)	Depth (m)	Topsoil/Overburden	Subsoil	Details
43	40	2	0.4	Mid-brown sand silt (depth 0.3-0.35m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
44	40	2	0.4	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
45	40	2	0.35	Mid-brown sand silt (depth 0.35m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
46	40	2	0.35	Mid-brown sand silt (depth 0.30-0.35m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
47	40	2	0.4	Mid-brown sand silt (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
48	40	2	0.4	Mid-brown sand silt (depth 0.35m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
49	40	2	0.4	Mid-brown sand silt (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
50	40	2	0.35-0.38	Mid-brown sand silt (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
51	40	2	0.4	Mid-brown sand silt (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
52	40	2	0.4	Mid-brown sand silt (depth 0.35m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
53	40	2	0.4	Mid-brown sand silt (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
54	40	2	0.4	Mid-brown sand silt (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
55	40	2	0.4	Mid-brown sand silt (depth 0.27m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
56	40	2	0.3	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drain found in trench
57	40	2	0.4	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
58	40	2	0.3	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
59	40	2	0.4	Mid-brown sand silt (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
60	40	2	0.3	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench

Tr No	Length (m)	Width (m)	Depth (m)	Topsoil/Overburden	Subsoil	Details
61	40	2	0.35	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
62	40	2	0.35-0.45	Dark brown sand silt (depth 0.35m)	Light grey sand clay	No archaeological features or finds identified. Field drain orientated east-west across trench
63	40	2	0.4	Mid-brown sand silt (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
64	40	2	0.3	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
65	40	2	0.3	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
66	40	2	0.35	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
67	40	2	0.38	Mid-brown sand silt (depth 0.34m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
68	40	2	0.38	Mid-brown sand silt (depth 0.35m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Three field drains orientated north west – south east across trench
69	40	2	0.35	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
70	40	2	0.39	Mid-brown sand silt (depth 0.36m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Four field drains orientated north-south across trench
71	40	2	0.3	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
72	40	2	0.3	Mid-brown sand silt (depth 0.20m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
73	40	2	0.3	Mid-brown sand silt (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
74	40	2	0.35	Mid-brown sand silt with occasional stone inclusions (depth 0.30m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified. Field drains found in trench
75	40	2	0.35	Mid-brown sand silt with occasional stone inclusions (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.
76	40	2	0.3	Mid-brown sand silt with occasional stone inclusions (depth 0.25m)	Yellow brown silt sand with occasional pebbles	No archaeological features or finds identified.

## Appendix C: Photographic Record

File No.	Frame	Area/Trench No.	Context No.	Subject	Taken From
-	1	-	-	Project ID shot	-
-	2	46	-	ID shot	-
-	3	46	001, 002	South-west facing section	SW
-	4	46	002	Post excavation	NW
-	5	43	-	ID shot	-
-	6	43	001, 002	South-west facing section	SW
-	7	43	002	Post excavation	NW
-	8	36	-	ID shot	-
-	9	36	001, 002	South-west facing section	SW
-	10	36	002	Post excavation	NW
-	11	33	-	ID shot	-
-	12	33	001, 002	North-east facing section	NE
-	13	33	002	Post excavation	NW
-	14	31	-	ID shot	-
-	15	31	001, 002	South-west facing section	SW
-	16	31	002	Post excavation	NW
-	17	48	-	ID shot	-
-	18	48	001, 002	North-east facing section	NE
-	19	48	002	Post excavation	NW
-	20	45	-	ID shot	-
-	21	45	001, 002	South-west facing section	SW
-	22	45	002	Post excavation	NW
-	23	44	-	ID shot	-
-	24	44	001, 002	South-east facing section	SE
-	25	44	002	Post excavation	SW
-	26	35	-	ID shot	-
-	27	35	001, 002	North-west facing section	NW
-	28	35	002	Post excavation	SW
-	29	34	-	ID shot	-
-	30	34	001, 002	South-east facing section	SE
-	31	34	002	Post excavation	SW
-	32	32	-	ID shot	-
-	33	32	001, 002	South-east facing section	SE
-	34	32	002	Post excavation	SW
-	35	47	-	ID shot	-
-	36	47	001, 002	North-west facing section	NW
-	37	47	002	Post excavation	NE
-	38	27	-	ID shot	-
-	39	27	001, 002	North-east facing section	NE
-	40	27	002	Post excavation	SE
-	41	26	-	ID shot	-
-	42	26	001, 002	North-west facing section	NW
-	43	26	002	Post excavation	NE
-	44	24	-	ID shot	-
-	45	24	001, 002	North-west facing section	NW
-	46	24	002	Post excavation	SE
-	47	22	-	ID shot	-
-	48	22	001, 002	North-west facing section	NW
-	49	22	002	Post excavation	SE
-	50	37	-	ID shot	-
-	51	37	001, 002	South-east facing section	SE
-	52	37	-	Brick rubble – drain	-
-	53	37	002	Post excavation	SW



File No.	Frame	Area/Trench No.	Context No.	Subject	Taken From
-	54	39	-	ID shot	-
-	55	39	001, 002	South-east facing section	SE
-	56	39	002	Post excavation	SW
-	57	41	-	ID shot	-
-	58	41	001, 002	South-east facing section	SE
-	59	41	002	Post excavation	SW
-	60	50	-	ID shot	-
-	61	50	001, 002	North-west facing section	NW
-	62	50	002	Post excavation	NE
-	63	49	-	ID shot	-
-	64	49	001, 002	North-east facing section	NE
-	65	49	002	Post excavation	SE
-	66	42	-	ID shot	-
-	67	42	001, 002	North-east facing section	NE
-	68	42	002	Post excavation	SE
-	69	40	-	ID shot	-
-	70	40	001, 002	North-east facing section	NE
-	71	40	002	Post excavation	SE
-	72	38	-	ID shot	-
-	73	38	001, 002	North-east facing section	NE
-	74	38	002	Post excavation	SE
-	75	20	-	ID shot	-
-	76	20	001, 002	North-east facing section	NE
-	77	20	002	Post excavation	SE
-	78	17	-	ID shot	-
-	79	17	001, 002	North-west facing section	NW
-	80	17	002	Post excavation	NE
-	81	12	-	ID shot	-
-	82	12	001, 002	North-west facing section	NW
-	83	12	002	Post excavation	NE
-	84	6	-	ID shot	-
-	85	6	001, 002	South-east facing section	SE
-	86	6	002	Post excavation	SW
-	87	5	-	ID shot	-
-	88	5	001, 002	North-east facing section	NE
-	89	5	002	Post excavation	SE
-	90	7	-	ID shot	-
-	91	7	001, 002	South-east facing section	SE
-	92	7	002	Post excavation	SW
-	93	9	-	ID shot	-
-	94	9	001, 002	South-east facing section	SE
-	95	9	002	Post excavation	SW
-	96	10	-	ID shot	-
-	97	10	001, 002	North-east facing section	NE
-	98	10	002	Post excavation	SE
-	99	8	-	ID shot	-
-	100	8	001, 002	South-west facing section	SW
-	101	8	002	Post excavation	NW
-	102	11	-	ID shot	-
-	103	11	001, 002	South-west facing section	SW
-	104	11	002	Post excavation	NW
-	105	18	-	ID shot	-
-	106	18	001, 002	North-east facing section	NE
-	107	18	002	Post excavation	SE
-	108	14	-	ID shot	-

File No.	Frame	Area/Trench No.	Context No.	Subject	Taken From
-	109	14	001, 002	North-west facing section	NW
-	110	14	002	Post excavation	NE
-	111	3	-	ID shot	-
-	112	3	001, 002	South-east facing section	SE
-	113	3	002	Post excavation	NE
-	114	4	-	ID shot	-
-	115	4	001, 002	South-west facing section	SW
-	116	4	002	Post excavation	NW
-	117	13	-	ID shot	-
-	118	13	001, 002	South-west facing section	SW
-	119	13	002	Post excavation	NW
-	120	15	001, 002	North-west facing section	NW
-	121	15	002	Post excavation	NE
-	122	2	001, 002	South-east facing section	SE
-	123	2	002	Post excavation	NE
-	124	1	-	ID shot	-
-	125	1	001, 002	North-east facing section	NE
-	126	1	002	Post excavation	SW
-	127	16	-	ID shot	-
-	128	16	001, 002	North-east facing section	NE
-	129	16	002	Post excavation	SE
-	130	51	-	ID shot	-
-	131	51	001, 002	South-west facing section	SW
-	132	51	002	Post excavation	NW
-	133	52	-	ID shot	-
-	134	52	001, 002	North-west facing section	NW
-	135	52	002	Post excavation	NE
-	136	53	-	ID shot	-
-	137	53	001, 002	North-east facing section	NE
-	138	53	002	Post excavation	NW
-	139	54	-	ID shot	-
-	140	54	001, 002	North-west facing section	NW
-	141	54	002	Post excavation	NE
-	142	55	-	ID shot	-
-	143	55	001, 002	North-east facing section	NE
-	144	55	002	Post excavation	SE
-	145	57	-	ID shot	-
-	146	57	001, 002	North-east facing section	NE
-	147	57	002	Post excavation	SE
-	148	60	-	ID shot	-
-	149	60	001, 002	North-east facing section	NE
-	150	60	002	Post excavation	SE
-	151	59	-	ID shot	-
-	152	59	001, 002	North-west facing section	NW
-	153	59	002	Post excavation	NE
-	154	58	-	ID shot	-
Digi 1	155	58	001, 002	North-west facing section	NW
Digi 1	156	58	002	Post excavation	NE
Digi 1	157	56	-	ID shot	-
Digi 1	158	56	001, 002	North-west facing section	NW
Digi 1	159	56	002	Post excavation	NE
Digi 1	160	62	-	ID shot	-
Digi 1	161	62	001, 002	North-east facing section	NE
Digi 1	162	62	002	Post excavation	NW
Digi 1	163	61	-	ID shot	-

File No.	Frame	Area/Trench No.	Context No.	Subject	Taken From
Digi 1	164	61	001, 002	North-west facing section	NE
Digi 1	165	61	002	Post excavation	NE
Digi 1	166	63	-	ID shot	-
Digi 1	167	63	001, 002	North-east facing section	NE
Digi 1	168	63	002	Post excavation	NW
Digi 1	169	64	-	ID shot	-
Digi 1	170	64	001, 002	North-east facing section	NE
Digi 1	171	64	002	Post excavation	SW
Digi 1	172	66	-	ID shot	-
Digi 1	173	66	001, 002	South-east facing section	SE
Digi 1	174	66	002	Post excavation	SW
Digi 1	175	65	-	ID shot	-
Digi 1	176	65	001, 002	North-east facing section	NE
Digi 1	177	65	002	Post excavation	NW
Digi 1	178	76	-	ID shot	-
Digi 1	179	76	001, 002	South-west facing section	SW
Digi 1	180	76	002	Post excavation	NW
Digi 1	181	75	-	ID shot	-
Digi 1	182	75	001, 002	South-east facing section	SE
Digi 1	183	75	002	Post excavation	SW
Digi 1	184	74	-	ID shot	-
Digi 1	185	74	001, 002	South-west facing section	SW
Digi 1	186	74	002	Post excavation	NE
Digi 1	187	73	-	ID shot	-
Digi 1	188	73	001, 002	South-east facing section	SE
Digi 1	189	73	002	Post excavation	SW
Digi 1	190	72	-	ID shot	-
Digi 1	191	72	001, 002	North-west facing section	NW
Digi 1	192	72	002	Post excavation	SW
Digi 1	193	71	-	ID shot	-
Digi 1	194	71	001, 002	South-west facing section	SW
Digi 1	195	71	002	Post excavation	SE
Digi 1	196	69	-	ID shot	-
Digi 1	197	69	001, 002	South-west facing section	SW
Digi 1	198	69	002	Post excavation	SE
Digi 1	199	70	-	ID shot	-
Digi 1	200	70	001, 002	South-east facing section	SE
Digi 1	201	70	002	Post excavation	SW
Digi 1	202	68	-	ID shot	-
Digi 1	203	68	001, 002	South-east facing section	SE
Digi 1	204	68	002	Post excavation	SW
Digi 1	205	67	-	ID shot	-
Digi 1	206	67	001, 002	South-east facing section	SE
Digi 1	207	67	002	Post excavation	SW
Digi 1	208	-	-	Backfilled trenches	SW
Digi 1	209	-	-	Backfilled trenches	NE
Digi 1	210	-	-	Backfilled trenches	NW
Digi 1	211	-	-	Backfilled trenches	SW
Digi 1	212	-	-	Backfilled trenches	SE
Digi 1	213	-	-	Backfilled trenches	SE
Digi 1	214	-	-	Backfilled trenches	E
Digi 1	215	-	-	Backfilled trenches	NE
Digi 1	216	-	-	Backfilled trenches	SE
Digi 1	217	-	-	Backfilled trenches	E
Digi 1	218	-	-	Backfilled trenches	NE

File No.	Frame	Area/Trench No.	Context No.	Subject	Taken From
Digi 1	219	-	-	Backfilled trenches	SW
Digi 1	220	-	-	Backfilled trenches	N
Digi 1	221	-	-	Backfilled trenches	W
Digi 1	222	-	-	Backfilled trenches	S
Digi 1	223	-	-	Backfilled trenches	S
Digi 1	224	-	-	Backfilled trenches	SW
Digi 1	225	-	-	Backfilled trenches	N
Digi 1	226	-	-	Backfilled trenches	N
Digi 2	1	21		ID shot	-
Digi 2	2	21	001, 002	North-west facing section	NW
Digi 2	3	21	002	Post excavation	SW
Digi 2	4	23	-	ID shot	-
Digi 2	5	23	001, 002	North-west facing section	NW
Digi 2	6	23	002	Post excavation	SW
Digi 2	7	25	-	ID shot	-
Digi 2	8	25	001, 002	North-west facing section	NW
Digi 2	9	25	002	Post excavation	SW
Digi 2	10	28	-	ID shot	-
Digi 2	11	28	001, 002	North-west facing section	NW
Digi 2	12	28	002	Post excavation	SW
Digi 2	13	29	001, 002	North-west facing section	NW
Digi 2	14	29	-	ID shot	-
Digi 2	15	29	002	Post excavation	SW
Digi 2	16	30	-	ID shot	-
Digi 2	17	30	001, 002	South-west facing section	SW
Digi 2	18	30	-	West facing section of rubble drain	W
Digi 2	19	30	002	Post excavation	SE
Digi 2	20	-	-	Trenches 21-50	E
Digi 2	21	-	-	Trenches 21-50	NE
Digi 2	22	-	-	Trenches 21-50	N
Digi 2	23	-	-	Trenches 1-20	SW
Digi 2	24	-	-	Trenches 1-20	SW
Digi 2	25	-	-	Trenches 1-20	SW
Digi 2	26	-	-	Trenches 52-60	SE
Digi 2	27	-	-	Trenches 52-60	E
Digi 2	28	-	-	Trenches 52-60	SE
Digi 2	29	19	-	ID shot	-
Digi 2	30	19	001, 002	North-east facing section	NE
Digi 2	31	19	002	Post excavation	NW
Digi 2	32	-	-	Pre-excavation of trenches 61-66	W
Digi 2	33	-	-	Pre-excavation of trenches 61-66	W
Digi 2	34	-	-	Backfilling of trenches	SE

**Appendix D: DES Entry**

LOCAL AUTHORITY:	South Lanarkshire
PROJECT TITLE/SITE NAME	Broken Cross North Phase 3
PROJECT CODE:	3350
PARISH:	Lesmahagow
NAME OF CONTRIBUTOR(S):	Maureen C. Kilpatrick
NAME OF ORGANISATION:	GUARD Archaeology Ltd
TYPE(S) OF PROJECT:	Archaeological Evaluation
NMRS NO(S):	-
SITE/MONUMENT TYPE(S):	-
SIGNIFICANT FINDS:	None
NGR (2 letters, 6 figures)	NS 84324 38716
START DATE (this season)	13 <sup>th</sup> June 2011
END DATE (this season)	20 <sup>th</sup> June 2011
PREVIOUS WORK (incl. <i>DES</i> ref.)	Will, R 2010 Broken Cross North Evaluation
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	An archaeological evaluation was carried out by Guard Archaeology Ltd at Broken Cross Surface Mine, near Devonburn, South Lanarkshire. The work was carried out in a phased approach and represents the evaluation of the Phase 3 extension area. No significant archaeological features were encountered during the evaluation except a field drainage system relating to agricultural improvement works in the 19 <sup>th</sup> and 20 <sup>th</sup> centuries.
PROPOSED FUTURE WORK:	None
SPONSOR OR FUNDING BODY:	Scottish Coal
CAPTION(S) FOR ILLUSTRS:	--
ADDRESS OF MAIN CONTRIBUTOR:	GUARD Archaeology Limited, 52 Elderpark Workspace, 100 Elderpark Street, Glasgow, G51 3TR
EMAIL ADDRESS:	bob.will@guard-archaeology.co.uk
ARCHIVE LOCATION (intended/deposited)	Archive will be deposited in NMRS.

## Appendix E: Written Scheme of Investigation

### GUARD 3350: Broken Cross Surface Mining, South Lanarkshire

#### Written Scheme of Investigation

##### 1.0 Introduction

###### 1.1

This Written Scheme of Investigation sets out a scheme for the archaeological mitigation of a site proposed for coal extraction at Broken Cross North OCCS, South Lanarkshire at approximately NGR: NS 844 383. The proposed development will take place on land that was granted planning permission (P/PP/75/96/SR/90) on the 16 October 2006. This planning permission has a condition in it (Condition 18) that necessitates the production of a WSI to establish a scheme for the implementation of a programme of archaeological work prior to development proceeding.

A programme of archaeological intervention will include in this case field walking assessments and targeted evaluation of the area of coal extraction at the site. The archaeological evaluation will be undertaken in a maximum of three phases (figure 1).

###### 1.2

No scheduled ancient monuments or A-listed buildings are present within the development area or its immediate surrounds. A single C-listed farmstead is located at West Hawksland (NMRS site: NS83NW 29) some 750 m from the application area.

A small number of sites associated with nineteenth century coal and limestone extraction are located within the application area, including Auchmeddan Colliery (NMRS site: NS83NW 40), a small disused coal pit (NS 8439 3905) and a disused limestone pit (NS 8444 3791). A single findspot (a stone hammer) is reported from the vicinity (NMRS site: NS83NW 21), however its provenance is unknown. Two mid-eighteenth century farmsteads are noted by Roy beyond the bounds the application area at Auchmeddan (NS 844 393) and Brae (NS 850 388).

###### 1.3

Following consultation with Paul Robins of West of Scotland Archaeology Service (WoSAS), it was agreed that a field walking assessment should be conducted over the whole application area before and after topsoil stripping. In addition to this, evaluation would be targeted within the zone defined as the limit of extraction and be equivalent to a 5% sample. It was also agreed that the area visible as overlap between the Broken Cross Muir site and the current application would be excluded from any archaeological investigations. It was agreed that a Written Scheme of Investigation (WSI) would be prepared to assist in the development of a suitable strategy for mitigating any archaeological discoveries encountered at the site, and to set out a funded scheme for bringing the results of the archaeological works together for publication (should this be merited).

###### 1.4

Condition 18 of the planning application (planning permission P/PP/75/96/SR/90) requires that:

*No development will take place on site until the developer has secured the implementation of a programme of archaeological works in accordance with a written scheme of investigation, which has been submitted by the applicant, and approved by the planning authority. Thereafter the developer shall ensure that a programme of archaeological works is fully implemented and that all recording and recovery of archaeological resources within the site is undertaken to the satisfaction of the planning authority.*



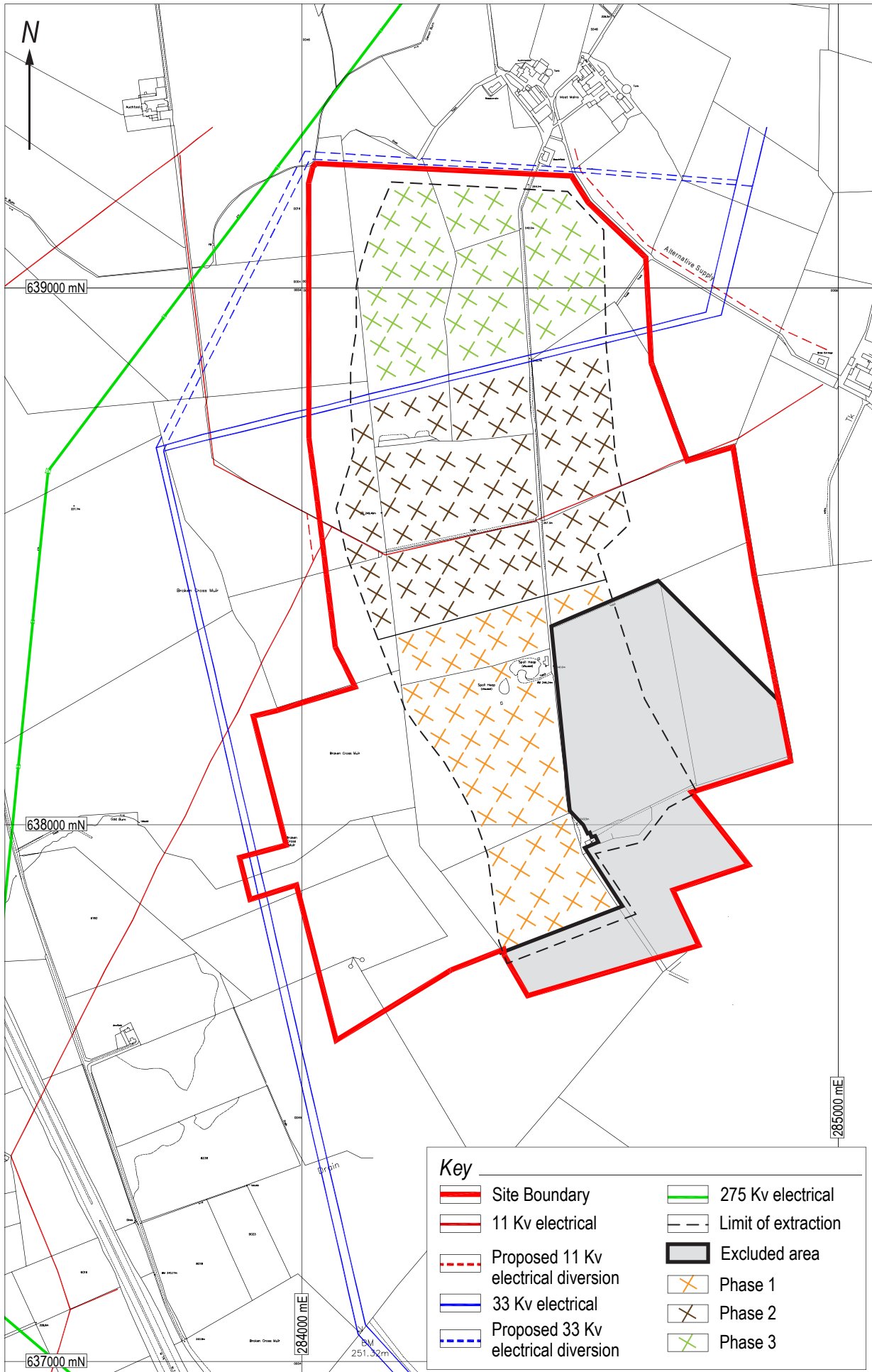


Figure 1: Location of proposed trenches.

## 1.5

This document sets out a project design for a targeted archaeological approach to the potential archaeological resources within the previously undisturbed areas of the proposed development. The results of the investigation will be sent to WoSAS to allow them to assess the significance of the archaeological remains and the impact that the proposed development will have on them.

## 2.0 Aims and Objectives

### 2.1

The aims and objectives of the archaeological work are to:

- establish the presence or absence of archaeological resources within the area of proposed coal extraction under targeted archaeological evaluation conditions,
- determine the character, extent and significance of any archaeological deposits;
- excavate and record any significant archaeological remains should they be encountered;
- undertake funded post-excavation analysis and publication of the results on the archaeological works should they be warranted.

## 3.0 Methodology

### 3.1 Field Walking Assessments

An initial field walking assessment of the application area will be conducted to identify any potential archaeological sites, not previously recognised across the application area. In the event that sites are located they will be recorded utilising standard techniques, including proforma record sheets, a drawn record (if appropriate) and a photographic record. Sites will be accurately located using a sub-metre DGPS system.

A secondary field walking assessment will be undertaken over the application area as a follow on to topsoil stripping operations. This will be specifically targeted on the areas outside the limits of extraction and will be conducted to identify any surviving negative-cut archaeological features. In the event that sites or features are located they will be recorded using standard techniques and accurately located using a sub-metre DGPS system. Any features that are identified will be investigated to determine age, extent and significance.

### 3.2 Evaluation Trenches

Evaluation of the site will be focussed within the limits of coal extraction and will exclude the area previously covered by the Broken Cross Muir application. Trenching will cover approximately 5% of the area of extraction (c. 51.59 ha) at the site. All trenches will be one bucket in width, but may be widened if archaeological remains are uncovered. Excavation will initially be by machine under close archaeological supervision. The exposed areas will then be cleaned by hand to identify any archaeological features.

Any features that are identified during the evaluation will be investigated to determine their age, extent and significance. Recording will be by pro-forma sheets, drawings and photographs. Potentially significant features will be partly excavated to determine the date of the deposits and their extent. This information will inform any mitigation strategies for any further work that may be required.

In the event that no significant remains are encountered, the findings of the evaluation will be notified, verbally and in writing, to the WoSAS and Scottish Coal, so that each area can be signed-off as quickly as possible.

### 3.3 Further Mitigation

Should significant archaeological deposits be encountered, an excavation and post-excavation phase of

work may be necessary. In this scenario, an amendment to the written scheme of investigation will be produced to accompany any further work, with further costs for the various stages.

## **4.0 Products**

The products of this programme of work will be:

- a preliminary data structure report after completion of the evaluation and field assessment phases of work for submission to the Planning Authority and the local Sites and Monuments Record, which may include a further mitigation strategy;
- a brief summary of results of the fieldwork to be submitted to Discovery and Excavation in Scotland;
- a costed assessment for post-excavation analysis and publication should it be warranted.

## **5.0 Copyright**

Copyright for any report resulting from the archaeological work undertaken as part of the project will be deemed the intellectual property of University of Glasgow. However, copies of the report will be available for consultation at the NMRS and local SMR.

## **6.0 Archive Arrangements**

### **6.1**

Once all fieldwork is completed, all materials from the programme of work will be prepared to the appropriate archive standard. GUARD will undertake to deposit the resultant archive to the NMRS on final completion of the project and any subsequent phases of work.

### **6.2**

All finds will be reported to the Treasure Trove Advisory Panel, and GUARD will undertake to ensure their safe deposition within the designated museum at the appropriate time.

## **7.0 Timetable**

GUARD will be able to begin work on request, subject to receiving ten working days notice.

On completion of the walkover survey and field evaluation a report to data structures level will be completed within four weeks.

Should post-excavation analysis and reporting be merited, a Post-Excavation Research Design will be produced within three months of completion of all fieldwork at the site.

Submission of final publication reports, should they be warranted, will be undertaken within a year of agreement of the PERD.

## **8.0 Staffing**

The programme of work will be conducted by professional archaeologists from GUARD. The project will be directed by one of GUARD's experienced Field Officers.. A full CV for this individual will be made available on request and prior to fieldwork beginning.

## **9.0 Health and Safety Method Statement, Issues and Insurance**

### **9.1**

The removal of topsoil will initially be by mechanical excavator, working a safe distance from the archaeologists who will be wearing high-visibility safety gear, safety boots and hard hats. The spoil will be removed from the excavation to be dumped a safe distance from the edges of the evaluation

**GUARD Archaeology Limited**  
**52 Elderpark Workspace**  
**100 Elderpark Street**  
**Glasgow**  
**G51 3TR**

**Tel: 0141 445 8800**

**Fax: 0141 445 3222**

**email: [info@guard-archaeology.co.uk](mailto:info@guard-archaeology.co.uk)**



**[www.guard-archaeology.co.uk](http://www.guard-archaeology.co.uk)**