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GREYFRIARS KIRKHOUSE, CANDLEMAKER ROW, EDINBURGH

Data Structure Report of an Archaeological Evaluation

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HEADLAND ARCHAEOLOGY Ltd

PROJECT SUMMARY SHEET

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Parish	EDINBURGH
Council	CITY OF EDINBURGH
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Report	JUNE 2010

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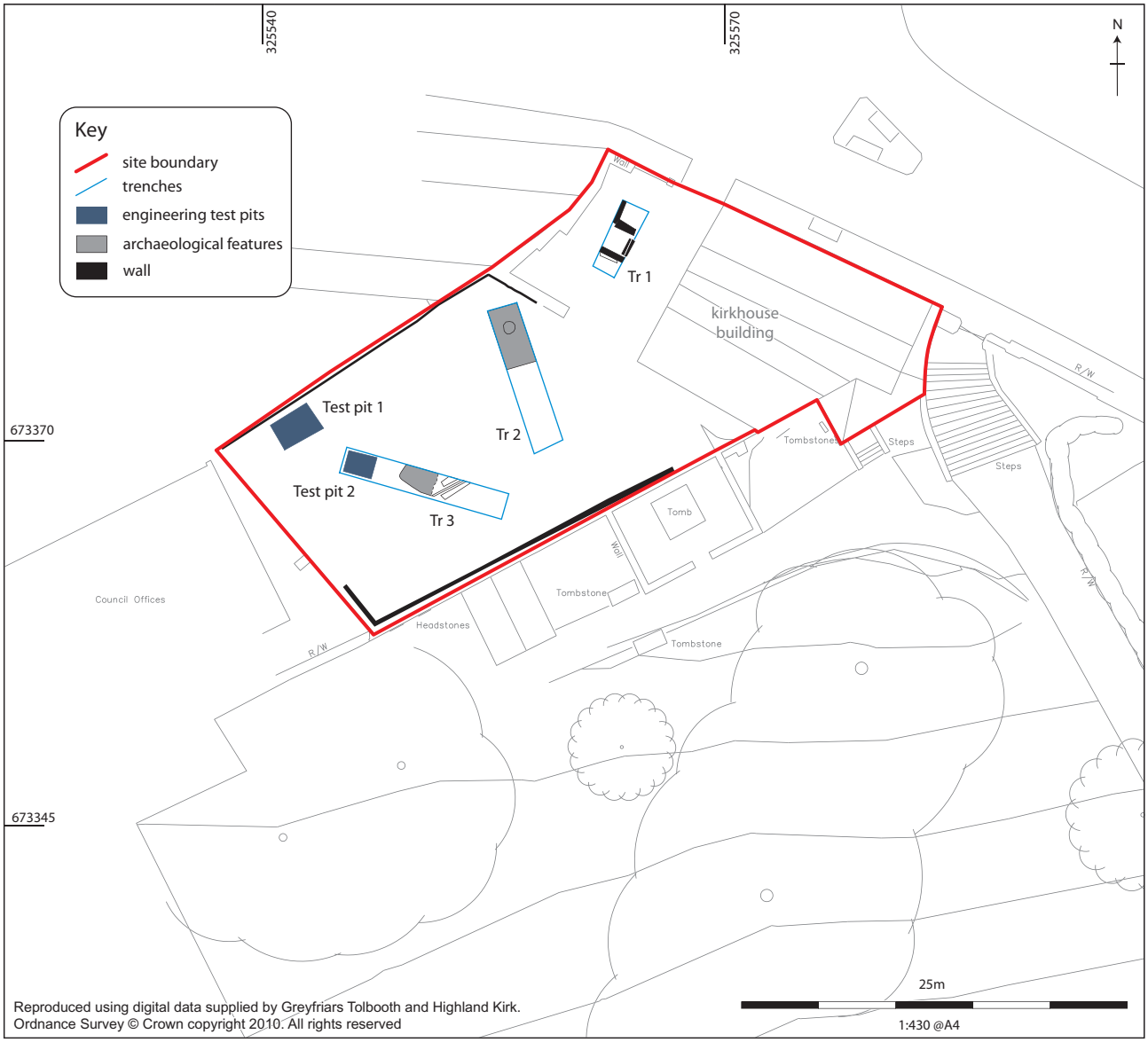


Illus 1
Location plan

GREYFRIARS KIRKHOUSE, CANDLEMAKER ROW, EDINBURGH

Data Structure Report of an Archaeological Evaluation

by James McMeekin

Headland Archaeology conducted an evaluation at the site of Greyfriars Kirkhouse, Candlemaker Row, Edinburgh in order to satisfy a planning condition set by the City of Edinburgh Council. The work was commissioned by Greyfriars Tolbooth and Highland Kirk and followed previous phases of trial trenching and historic building recording.

Three trial trenches were excavated revealing a cellar, possibly associated with the 20th century tenements on the site and two large negative features, possibly large pits or ditches of medieval date lay beneath the recently demolished warehouses dating from the 18th–19th centuries.

The two large negative features contained pottery dating to the 12th – 15th centuries AD and may relate to the original expansion of the medieval burgh and/or the foundation of Greyfriars monastery. Further medieval finds dating to the 13th–15th centuries AD, were recovered from a deposit within an engineering test pit located towards the north-west corner of the site, though the presence of modern material may indicate that the medieval finds in this deposit were redeposited in the 19th century or later. Further excavation is required to further characterise the archaeological features identified during the evaluation.

1. INTRODUCTION

Headland Archaeology (UK) Ltd was commissioned by Greyfriars Tolbooth and Highland Kirk to undertake a programme of archaeological works at Greyfriars Kirkhouse, Candlemaker Row, Edinburgh in connection with a planning condition set out by the City of Edinburgh Council on the proposed development of the site. This programme comprised an evaluation through trial trenching and photographic recording of historic structural remains, agreed by the City of Edinburgh Archaeology Service (CECAS) which advises the planning authority on archaeological matters.

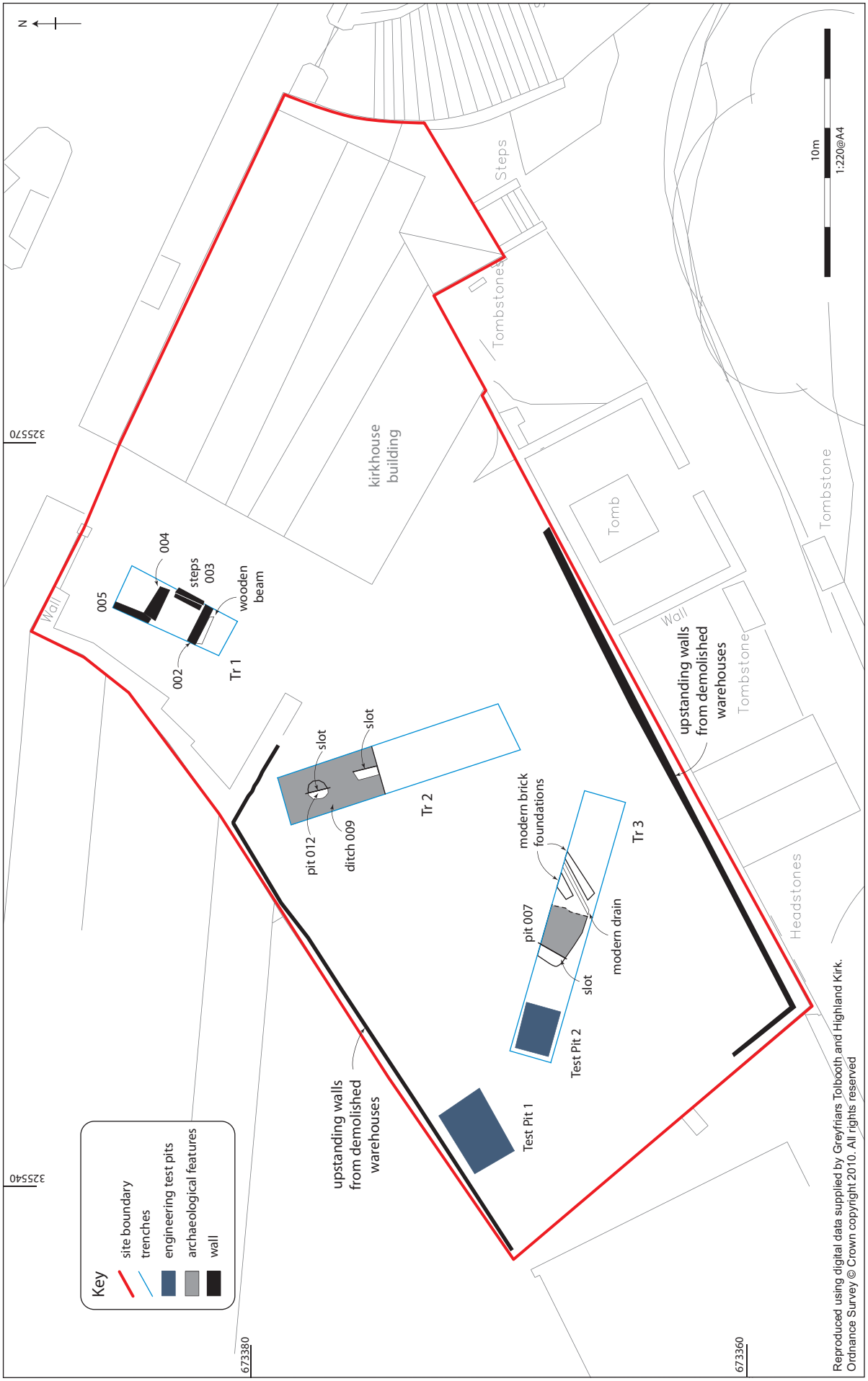
The development covers an area to the north of Greyfriars Kirkyard at the junction of Candlemaker Row and Cowgatehead (Illus 1) and is partially occupied by the standing Kirkhouse, which is currently being refurbished. A previous phase of building assessment and evaluation by means of test pits (Geddes 2005a, 2005b) was carried out prior to the demolition of the greater part of the three warehouse buildings that covered the western half of the site. At the time of the present evaluation, the remaining upstanding walls from these buildings continued to form the northern and southern boundary for the western half of the site (Illus 2).

2. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

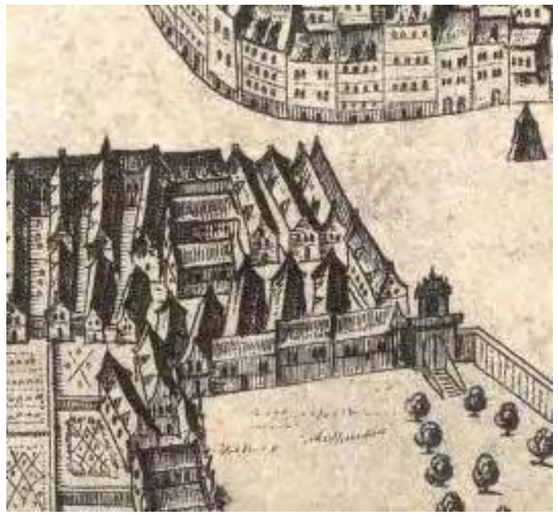
2.1 Historical Background

The Cowgate represents one of the first planned expansions of the medieval town around 1330 (Stevenson *et al.* 1981, 11). Recent excavations in the Cowgate suggest activity from the beginning of the 14th century (Dalland forthcoming; Jones forthcoming), whilst excavations in the Grassmarket encountered pre-burghal as well as medieval remains (McMeekin forthcoming).

The Greyfriars, or Franciscan, monastery was founded on the south-east corner of the Grassmarket in the 15th century but was destroyed by Reformers in 1559 and its yards (to the south of the development site) used as a municipal burial ground following a petition to the Queen in 1562 (Stevenson *et al.* 1981). The 15th century church appears to have lain closer to the Grassmarket than its modern counterpart and may have been built upon the site within the burgh bestowed on the friars by James Douglas of Casillis prior to 1479 (Cowan & Eason 1976, 131).

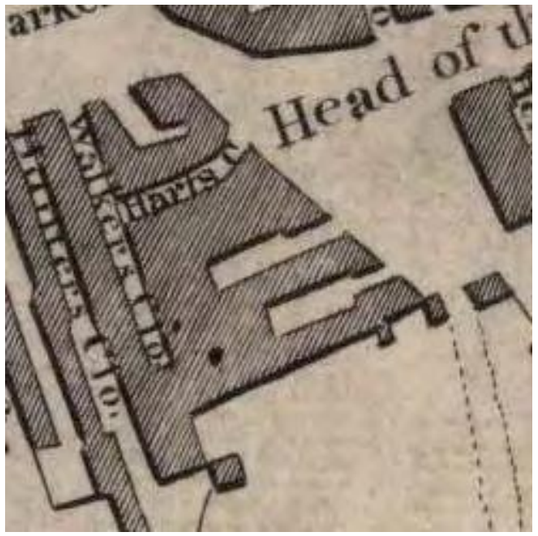


Illus 2
Plan of development area

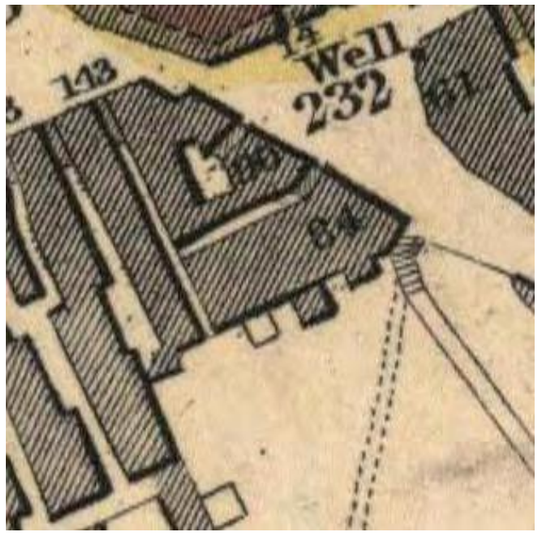


Gordon 1647

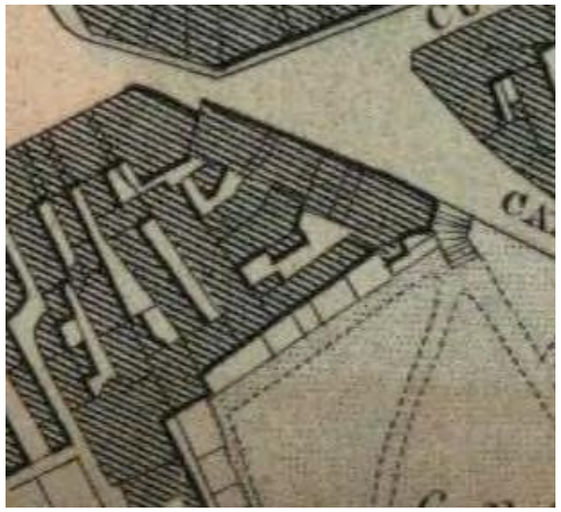
Ainslie 1782



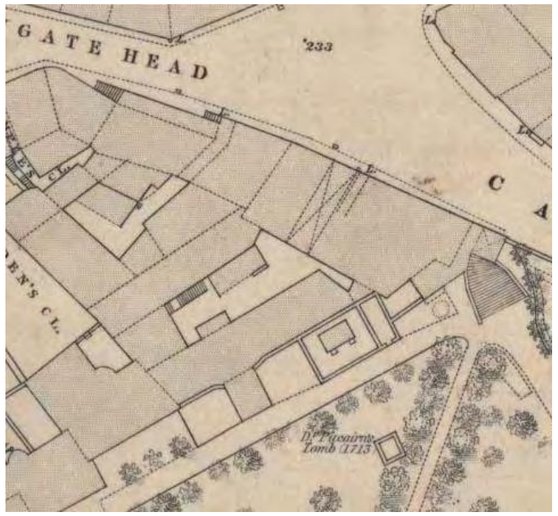
Kincaid 1784



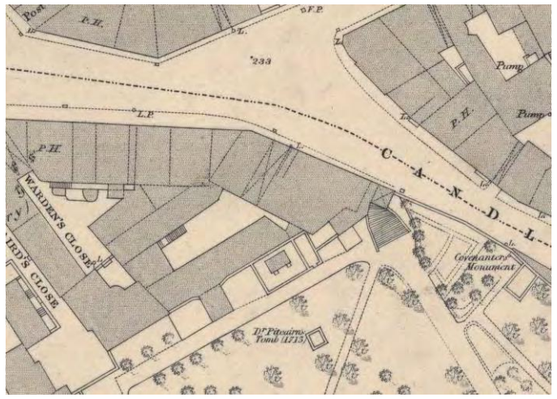
Kirkwood 1817



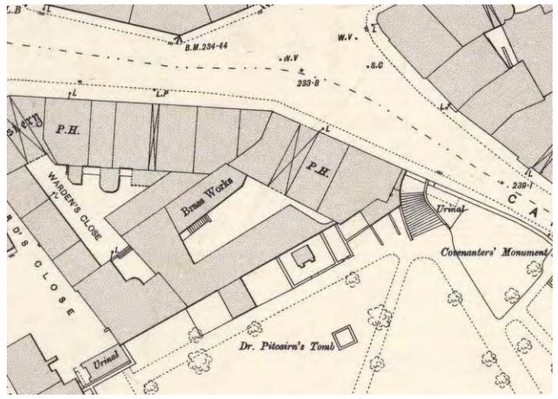
Lancefield Johnston 1851



Ordnance Survey 1st Edition, 1849-53



Ordnance Survey 2nd Edition, 1876-77



Ordnance Survey 3rd Edition, 1893-94

Illus 3
Historic maps of area

Illus 4
Steps [003] in Trench 1

Candlemaker Row led from the Grassmarket to the lands of Bristo and is visible on Gordon's town plan of 1647 (Stevenson *et al.* 1981, 12). In the 17th century the town magistrates designated the Row as the appropriate location for the candlemakers, removing the industry (and the associated odours and fire risk) from the High Street to the new location that was not yet considered part of the burgh. However, the appellation of Candlemaker Row is not recorded until 1722 (*ibid.*, 12-13).

Town plans by Kirkwood (1817) and Lancefield (1851) (Illus 3) suggest redevelopment of the site from the late 18th/early 19th century. The 19th century Ordnance Survey plans indicate that the buildings to the north-west and south-west of the development site had been demolished since 1850. The warehouse structures within the development site, now largely demolished, had 18th century origins. They are visible on the 19th century OS plans and were altered in the late 19th to 20th century (Geddes 2005a, 2005b). These structures were recorded during the 2005 phase of archaeological works (Geddes 2005b).

2.2 Archaeological Background

The 2005 archaeological investigations comprised the historic building recording of the upstanding structures within the development site and the excavation of six test pits. Rubble was encountered to a depth of 1.2m below present ground surface most likely resulting from the demolition of the 19th century tenement building that stood here until c.1950. This rubble was believed to fill cellars belonging to the tenement building located within the northern extent of the development site; a supposition confirmed by the 2010 results (see below). The results of the 2005 works also indicated that the site had been terraced, with geological deposits derived from glacial activity encountered at a depth of between 0.35m and 1.30m below present ground surface, averaging about 0.6m below present ground surface (Geddes 2005a).

3. OBJECTIVES AND METHODOLOGY

3.1 Objectives

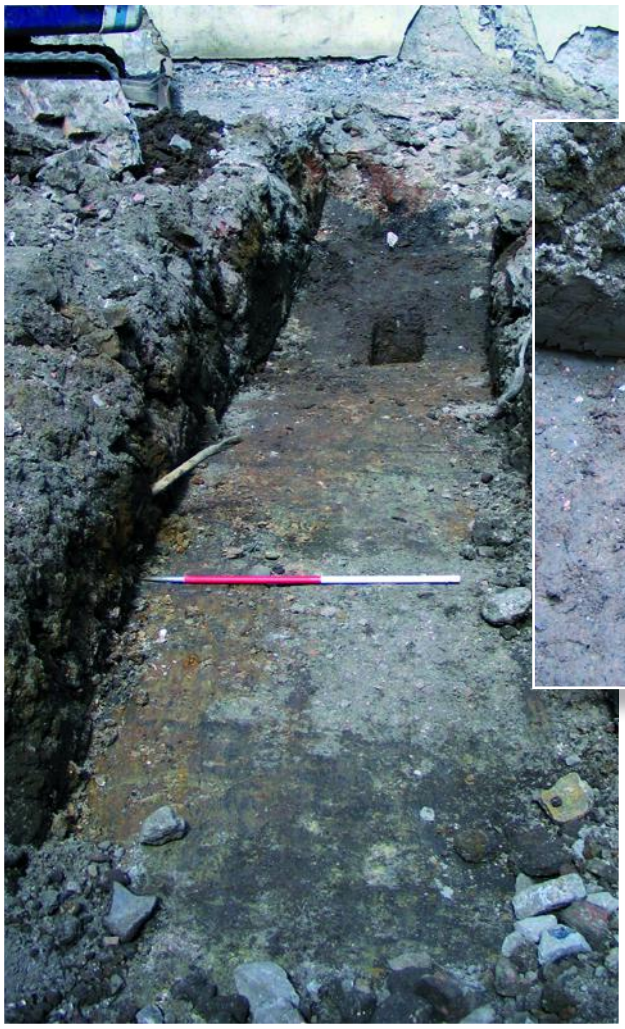
The objective of the work was to test the archaeological potential of the proposed development area by means of intrusive trial trenching and sample excavation in order to inform the scope of any required mitigation measures.

3.2 Methods

3.2.1 Archaeological Trial Trenches

A concrete slab covering the site was removed prior to archaeological supervision as agreed in the Written Scheme of Investigation. Three linear trial trenches covering a total of 40m^2 were excavated across the site area using a 5 ton 360° tracked mechanical excavator equipped with a 1.50m wide toothless ditching bucket, under direct archaeological supervision.

Colour transparencies, negative photographs and digital photographs were taken and unique numbers given to each trench, context and environmental sample. An overall site plan was created using a Total Station linked to a TheoLT digital mapping system.



Illus 5
Cut [009] in Trench 2

Illus 6
Slot through [009] in Trench 2

3.2.2 Structural Recording

Photographic recording of the exposed 19th century walls forming the northern and southern boundaries of the site was undertaken. Colour transparencies, negative photographs and digital photographs were taken of the upstanding structural remains. Digital survey of the walls including the overall height of the remains and the levels of the floors was also carried out.

3.2.3 Archaeological Monitoring

Two engineering test pits were excavated towards the north-west corner of the site (Illus 1) and were subject to archaeological monitoring. Archaeological deposits were recorded from above, the depth and limited size of the test pits prohibiting safe access.

3.3 Recording

All recording followed standard archaeological guidelines as set out by the Institute for Archaeologists (I*f*A). All contexts, small finds and environmental samples were given unique numbers and all recording was undertaken on pro forma record cards.

Colour transparency and digital photographs were taken and recorded in a photographic register. A graduated metric scale was clearly visible in record photographs of contexts.

An overall site plan was supplied by the client. Archaeological trenches and features were added to this using Total Station survey and TheoLT digital mapping software and related to the National Grid. The survey was related to height levels in m OD. Hand-drawn plans of individual features at a scale of 1:20 were drawn where appropriate. Sections and elevations were drawn at 1:10 where appropriate.

Illus 7
Pit [012] in Trench 2

Illus 8
Cut [007] in Trench 3

Illus 9
Slot through [007] in Trench 3

surface. This in turn sealed a rubble deposit [001], comprising modern ceramic sherds, brick, tile and general debris in an ash loam matrix overlying a wooden beam, several walls with lime mortar bonding and steps which lead down from the modern ground surface (Illus 4).

The structural elements are believed to represent the remains of a basement and were cleared of rubble to a maximum depth of 71.02m OD (0.50m beneath the current ground surface).

Finds recovered from deposit [001] were exclusively modern and indicated deposition in the 20th century (Appendix 2).

4.2 Trench 2

Trench 2 was excavated towards the centre of the site (Illus 2). Rubble backfill sealed both the archaeological and naturally derived deposits. Geological deposits comprising red brown clay deriving from glacial activity were encountered at a depth of 71.30m OD at the southern end of the trench sloping down in the north to a depth of 70.64m OD.

A large negative feature [009] cut into the clay was exposed (Illus 5). A slot was excavated into this feature to determine its nature and extent (Illus 6). Given the constraints of the size of the evaluation trench it was not possible to define the shape of the feature in plan; as such, cut [009] may be that of a very large pit, or more likely a ditch. The excavation of the 12th – 15th century and metalworking debris were recovered from the fill [008] (Appendix 2). Charred cereal grains present in a sample taken from deposit [008] represent a typical medieval assemblage of oat (*Avena sp.*), hulled barley (*Hordeum vulgare*) and club/bread wheat (*Triticum aestivo-compactum*) (Appendix 3).

A shallow sub-circular pit [012] was cut into ditch [009] towards the northern end of Trench 2 (Illus 7). Pit [012] was filled with a dark brown black coal-rich clay loam deposit [011]. No finds were recovered from this deposit.

4.3 Trench 3

Trench 3 was located towards the western end of the site (Illus 2). Rubble backfill sealed both the archaeological and geological deposits. A pottery sherd dating to the 16th/17th century was recovered from the rubble deposit (Appendix 2); a possible indication of activity in the area prior to 19th and 20th century disturbance. Brick-built foundations and a ceramic drain belonging to the recently demolished warehouse structure were encountered in the central area of the trench.

The same geologically derived clay found in Trench 2 was encountered at a depth of 71.33m OD at the southern end of Trench 3. The same deposit was also exposed at the northern end of Trench 3, though here it was slightly sandy in composition and at a depth of 71.00m OD. A pit [007] cut into this clay was exposed truncated to the south by the above mentioned modern foundations (Illus 8). The

Illus 10
Deposit [010] in Engineering Test Pit 1

exposed extent of the pit was 2.60m x 1.45m x 0.45m and it appeared to continue beyond the limit of excavation to the north and east (Illus 9). The cut was only partially visible in plan, with steep sloping sides leading to an uneven base. Finds including White Gritty Ware pottery, dating to the 12th – 15th century, and metalworking debris were recovered from the fill [006]. A sample taken from deposit [006] contained the same typical medieval charred cereal assemblage as deposit [008] as well as a small number of wild taxa (Appendix 3).

4.4 Engineering Test Pits

4.4.1 Test Pit 1

Test pit 1 was excavated in the north-west corner of the site (Illus 2) and was monitored for archaeologically significant remains. The purpose of the test pit was to determine the depth of the foundations of the wall on the northern site boundary. Rubble backfill extended to 70.85m OD, a depth of 0.80m beneath the current ground surface in this area. A soft, dark grey clay loam deposit [010] also 0.80m thick, with frequent inclusions of marine shell, animal bone, charcoal and sub-angular stone was encountered beneath this (Illus 10).

Medieval pottery sherds of locally produced White Gritty Ware and Redware jugs and cooking pots dated to between the 13th and 15th centuries were recovered from this deposit; a number of modern finds were also retrieved from the deposit (Appendix 2). A rubble sandstone deposit [013] with inclusions of marine shell was exposed beneath [010] at 70.08m OD, the limit of excavation. The foundations of the upstanding wall were exposed in the section and continued to approximately 70.50m OD.

4.4.2 Test Pit 2

The second engineering test pit was excavated through the glacially derived geological deposits in the north-western end of Trench 2 (Illus 2) and encountered no archaeological remains.

4.5 Structural Recording

The upstanding walls of the largely demolished warehouse buildings at the western end of the site retained some masonry in parts of their lower stages; the upper portions appeared to have been subjected to 20th century alterations. The walls had been painted and plastered obscuring detail. The remains of three staircases were visible in the section of wall to the immediate north-east of Trench 2 (Illus 11). The floor levels of the warehouses were visible in the standing sections of the walls (Illus 11-13).

Detailed assessment of the structures was carried out prior to their demolition (Geddes 2005b) and a photographic record of the demolition was kept by Gareth Hoskins Architects (Illus 14-18).

5. DISCUSSION

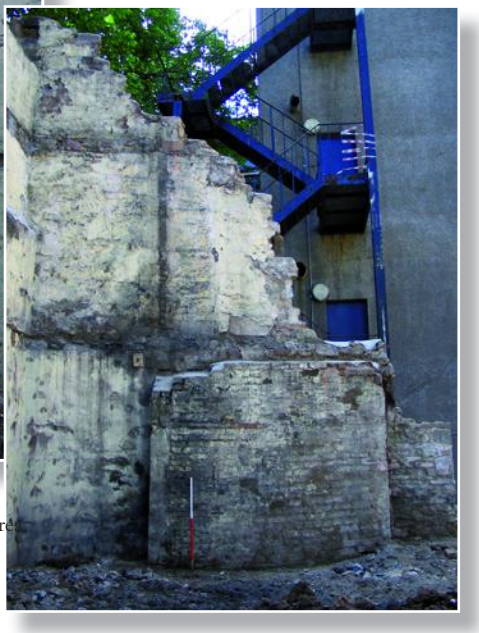
The structural remains encountered in Trench 1 most likely relate to a basement of the tenement building demolished in the 1940s. Finds recovered from the rubble backfill also suggest 20th century activity. Similar rubble backfill was encountered during the 2005 archaeological evaluation and was believed to fill the basements of the demolished structure (Geddes 2005a).

The natural ground surface in Trenches 2 and 3 sloped from south to north towards the base of the Grassmarket valley. The results from the archaeological test pits excavated in 2005 (Geddes 2005a) suggested that the site had been terraced in the 17th century and possibly again at a later stage. The sherd of 16th/17th century pottery from the rubble deposit in Trench 2 might be a remnant of activity prior to the development of the site in the 18th, 19th and 20th centuries.

Large negative features, pit [007] and the possible ditch [009], suggest that not all earlier activity has been obscured or removed by post-medieval alterations to the area. The small finds and environmental evidence indicate that these features were medieval in date, created at some point between the 12th and 15th centuries. Pit [007] was truncated by brick foundations and both features lay beneath the footprints of the now demolished warehouse structures. Further excavation would be required to determine the character of these features and their full archaeological significance.

Illus 11
Staircases in wall elevations (looking NE)

Illus 12
Wall elevation on south side of development are

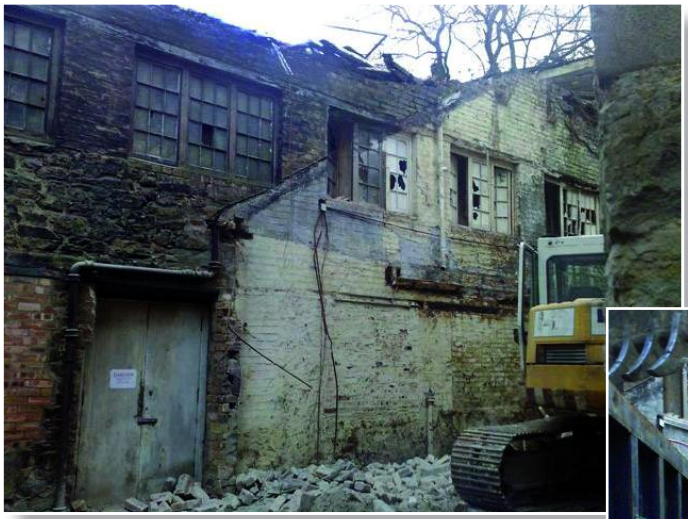


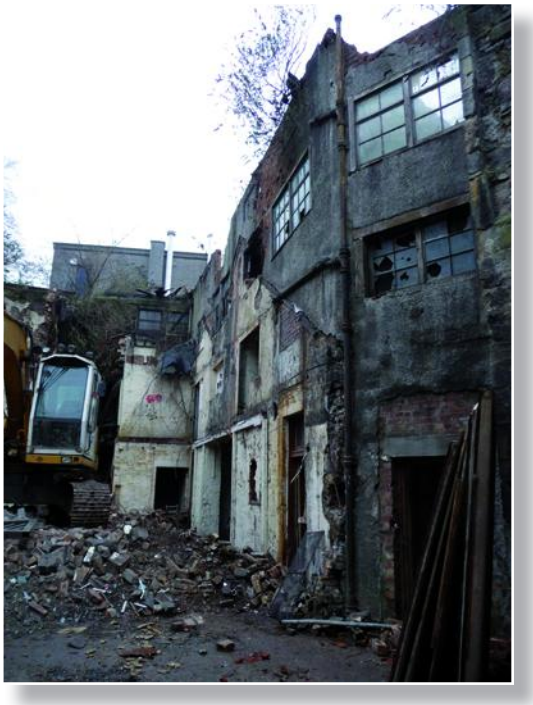
Illus 13
Wall elevation on west side of development area

[010] contained 12 sherds of medieval pottery, dating to between the 13th and 15th centuries; though these may all have been deposited during the 14th century (Appendix 2). The presence of modern finds and the rubble sandstone deposit [013] beneath [010] leaves open the possibility that this material may have been redeposited in the 19th century or later. Deposit [010] extended to a depth of 1.60m beneath the modern ground surface, 0.60m lower than the naturally derived clay at the north-western end of Trench 3. This would imply that the material within test pit 1 was the fill of a substantial pit, or that the area had been terraced, and possibly cut back into the natural slope. Such truncation of the natural slope has been observed on the north side of the Grassmarket and is believed to relate to the medieval expansion of the burgh (McMeekin forthcoming).

The 12th – 15th century pottery and the nature of the charred cereal remains suggest these features are associated with the medieval expansion of the area, around the time of the creation of the Cowgate in the 14th century and the founding of the Greyfriars monastery in the 15th century.

Further excavation would be required to determine the exact nature of these remains and their possible significance for the expansion of the medieval burgh.





Illus 14–18
Demolition of warehouses

6. REFERENCES

6.1 Cartographic Sources

Ainslie, J 1780 *City of Edinburgh*.

Ainslie, J 1804 *Old and new town of Edinburgh and Leith with the proposed docks*. (1 mile/14")

Edgar, W 1765 *City and Castle of Edinburgh*.

Gordon, J 1647 *Viro amplissimo Edinodunensis*.

Kincaid, A 1784 *A plan of the city and suburbs of Edinburgh*.

Kirkwood, R 1817 *This plan of the city of Edinburgh and its environs*.

Lancefield, A 1851 *Johnston's Plan of Edinburgh and Leith*.

Ordnance Survey 1853 *Edinburgh and Environs Sheet 35*. (1:10560)

Ordnance Survey 1880? *Edinburgh and Environs Sheet 35*. (1:10560)

Ordnance Survey 1896 *Edinburghshire Sheet III*.7. (1:2500)

Ordnance Survey 1908 *Edinburghshire Sheet III*.7. (1:2500)

Ordnance Survey 1914 *Edinburghshire Sheet III*.7. (1:2500)

Ordnance Survey 1933 *Midlothian Sheet III*.7. (1:2500)

Ordnance Survey 1947 *Plan 36/2573SE*. (1:1250)

Ordnance Survey 1951 *Plan NT 2573 SE*. (1:1250)

Ordnance Survey 1962 *Plan NT 2573 SE*. (1:1250)

Wood, J 1823 *Plan of the city of Edinburgh*.

6.2 Bibliography

Cowan, I B & Easson, D E 1976 'Medieval Religious Houses Scotland' Longman

Dalland, M forthcoming 'The King's Wall: Excavations at 144-166 Cowgate, Edinburgh' *Scottish Archaeological Internet Reports*

Geddes, G 2005a (September) *Archaeological Evaluation at Greyfriars Community Project 84-92 Candlemaker Row, Edinburgh*. Headland Archaeology Ltd (unpublished client report)

Geddes, G 2005b (November) *Building Assessment at Greyfriars Community Project 84-92 Candlemaker Row, Edinburgh*. Headland Archaeology Ltd (unpublished client report)

Jones, E J forthcoming 'Through the Cowgate: Life in 15th Century Edinburgh as revealed by excavations at St Patrick's Church' *Scottish Archaeological Internet Reports*

McMeekin, J W T forthcoming 'Beetles and Bullocks: Early Historic Settlement beneath the Grassmarket in Edinburgh'

Stevenson, S, Turner Simpson, A & Holmes, N 1981 'Historic Edinburgh, Canongate and Leith: the archaeological implications of development.' *Scottish Burgh Survey*

APPENDICES

Appendix 1 – Site registers

Context register

Context No.	Trench No.	Description
001	1	Rubble backfill underlying modern concrete surface
002	1	West wall of stepped basement entrance
003	1	Basement steps
004	1	Wall on NE side of steps
005	1	NE-SW aligned wall. Possible return of wall [004]
006	3	Fill of pit [007]
007	3	Cut of large pit
008	2	Grey clay loam deposit. Fill of [009]
009	2	Cut of possible ditch
010	Test Pit 1	Midden like deposit
011	2	Fill of pit [012]
012	2	Cut of small coal-rich pit
013	Test Pit 1	Sandstone rubble deposit beneath [010]

Drawing register

Drawing No.	Scale	Plan/Section	Description
1	1:20	Plan	Plan of Trench 1
2	1:20	Section	NW facing section of Trench 1
3	1:20	Section	SW facing section of Trench 2

Photographic register

Photo No.	Colour Print	Colour Slide	Digital	Direction Facing	Description
1	x	x	x	–	ID Shot Film 1
2	x	x	x	N	Elevation of wall on north side of site (x 6)
3	x	x	x	SE	Trench 3
4	x	x	x	SE	Pre-excavation shot of pit [007] in Trench 3
5	x	x	x	SW	Trench 1 with features [002] to [005]
6	x	x	x	NW	Wall [002] in Trench 1
7	x	x	x	SE	Steps [003] in Trench 1
8	x	x	x	SW	Steps [003] with wall [002] behind in Trench 1
9	x	x	x	NW	Walls [004] and [005] in Trench 1
10	x	x	x	NW	Basement entranceway [002] to [004]
11	x	x	x	SE	NW facing section Trench 1 (NE end)
12	x	x	x	SE	NW facing section Trench 1 (SW end)
13	x	x	x	NE	SW facing section of Trench 2 (x 3)
14	x	x	x	S	Slot in pit [007]

15	x	x	x	E	Slot in pit [007]
16	x	x	x	SW	N-E facing section of Trench 3
17	x	x	x	S	Upstanding north facing wall from west to east (x 5)
18	x	x	x	W	East facing upstanding wall remains
19	x	x	x	E	West facing upstanding wall remains
20	x	x	x	–	ID Shot Film 2
21	x	x	x	N	Trench 2 post-excavation
22	x	x	x	S	North facing upstanding wall. Western half with scale
23	x	x	x	W	East facing upstanding wall with scale
24	x	x	x	E	West facing section of pit [012] in Trench 2
25	x	x	x	N	South facing section of Test Pit 1
26	x	x	x	S	Section through pit [007]
27	x	x	x	E	Slot through ditch [009]
28	–	–	x	E	Mid-excavation shot of deposit [010]

Sample register

Sample No.	Context No.	Description
1	008	Clay loam fill of possible ditch [009] in Trench 2
2	006	Clay loam fill of pit [007] in Trench 3
3	010	Midden deposit in Test Pit 1

Appendix 2 – Finds Assessment

Julie Franklin

Finds Summary

The assemblage was small, numbering 24 sherds of pottery, a clay pipe stem, an iron nail, four glass sherds, two plastic fittings and some fragments of building materials and metalworking debris. The earliest finds were 20 sherds of medieval pottery. These were of locally produced White Gritty Ware and Redware jugs and cooking pots and were deposited between the 12th and 15th centuries, though it is possible that all were deposited during the 14th century. One further sherd of pottery (Trench 2, unstratified) was also of some age, probably dating to the 16th or 17th centuries. Other finds were either undatable or modern.

Discussion

The finds from Test Pit 1 all came from context [010] and included medieval and modern material. The medieval pottery might all have been deposited in the 14th century but was mixed with modern building materials, glass and clay pipe, indicating it was probably redeposited in the 19th or 20th centuries.

The finds from Trench 1 all came from context [001] and were all modern. They point towards deposition in the 20th century.

There were few finds from Trench 2 and hence any dating evidence should be used with caution. The dating of the finds is not necessarily a reliable guide to the dating of the deposits. Finds from context [008] include pottery and metalworking debris. The pottery is medieval in date deposited between the 12th and 15th centuries. One later sherd dating to the 16th or 17th centuries was found unstratified in the same trench.

There were even fewer finds from Trench 3. They include pottery and metalworking debris, all from context [006]. The pottery is again of medieval date, between the 12th and 15th centuries.

Table A2.1
Finds catalogue

Trench / Test Pit	Context	Sample No	Material	Qty	Weight (g)	Object	Description	Spot Date	Period
Tr.1	001	-	Fe	1	-	Nail	small head	-	Mod
Tr.1	001	-	Glass	1	-	Bottle	bright green fragment	19th/20th	Mod
Tr.1	001	-	Plastic	1	-	Pendant	Chanel pink & white pendant fitting	20th	Mod
Tr.1	001	-	Plastic	1	-	Object	small conical fitting	20th	Mod
Tr.1	001	-	Pottery	3	-	Modern	Whiteware, Trans printed, Porcelain	19th/20th	Mod
Tr.2	U/S	-	Pottery	1	-	Post-Med	PMO jug sherd, olive glazed	16th/17th	PM
Tr.2	008	1	Industrial Waste	-	1	Slag	–	-	-
Tr.2	008	1	Industrial Waste	-	-	Mag Res	–	-	-
Tr.2	008	1	Pottery	4	-	Medieval	WG jug and jar sherds	12th/15th	Medi
Tr.3	006	2	Industrial Waste	-	2	Slag	–	-	-
Tr.3	006	2	Industrial Waste	-	1	Mag Res	–	-	-
Tr.3	006	2	Pottery	2	-	Medieval	WG, jug sherd and fragment	12th/15th	Medi
TP 1	010	3	Building Material	-	52	Mortar	lumps	-	-
TP 1	010	3	CBM	1	-	Brick	large fragment, burnt	-	Mod
TP 1	010	-	Clay Pipe	1	-	Stem	narrow bore	L.18th/ e.20th	Mod
TP 1	010	3	Glass	3	-	Window	clear, good condition	-	Mod
TP 1	010	3	Pottery	2	-	Modern	stoneware & redware fragments	18th/19th	Mod
TP 1	010	3	Pottery	4	-	Medieval	RW & WG jug sherds	13th/15th	Medi
TP 1	010	-	Pottery	8	-	Medieval	WGW jar rim & base, sooted, piecrust rim; jug rim and sherds; MRW jug strap handle and incised handle terminal	13th-15th	Medi

Appendix 3 – Environmental Assessment

Dr. Scott Timpany

Introduction
Three samples were taken during the evaluation works at Greyfriars Kirkhouse, Candlemaker Row, Edinburgh and all were processed for palaeoenvironmental assessment. The samples were taken from ditch, pit and midden features discovered during the evaluation. The assessment aims to look at what the palaeoenvironmental potential of the material from these features is and to provide recommendations and advice for any further archaeological works at the site.

Method
Samples were processed in laboratory conditions using a standard floatation method (*cf.* Kenward *et al.*, 1980). All plant macrofossil samples were analysed using a stereo-microscope at magnifications of x10 and up to x100 where necessary to aid identification. Identifications were confirmed using modern reference material and seed atlases including Cappers *et al.* (2006).

Results
The results of the sample processing are provided in Tables 1 (Retent finds) and 2 (Floatation finds). Suitable material for AMS dating is also identified within each table. Plant remains were largely preserved through charring.

Plant remains
Charred cereal grains were present in small quantities within all samples (see Table A3.2). The grains present are typical of medieval assemblages with oat (*Avena sp.*), hulled barley (*Hordeum vulgare*) and club/bread wheat (*Triticum aestivo-compactum*) all occurring in the assemblage. Preservation of the grains was generally poor, with grains being broken and abraded. This is also shown by the presence of indeterminate cereal grains (*Cerealia indet.*) within the assemblage; grains too degraded to be able to identify the type (see Table A3.2).

A small number of wild taxa were found within one sample (002); containing charred sedge (*Carex sp.*) nutlets and mustard (*Sinapis sp.*) seeds. Uncharred remains of elder (*Sambucus nigra*) seeds were also present in the assemblage. Although uncharred the seeds of elder are quite resilient to decay and given the (relatively recent) age of the deposits these seeds could theoretically date to this deposit.

Charcoal fragments although present were sparse within the samples, with only small quantities of small-sized fragments present (see Table A3.2). Given the medieval date for the deposits this is unsurprising as coal would have been the major fuel type used. This is also shown in the samples, with coal present in all (see Tables 1 and 2). Of those charcoal fragments present, they were largely observed to be non-oak; with oak fragments only recovered from one sample (003) (see Table A3.2).

Other finds
Together with the plant remains a number of other finds were recovered from the samples (see Table A3.1). Pottery sherds of medieval to post medieval date were found in all samples. Building materials of mortar and ceramic building material (CBM), together with glass sherds were present in one sample (003). Evidence of industrial activity in the form of iron slag and magnetic residue were found in two samples (001 and 002). Probable food waste of burnt bone and unburnt mammal bone were recovered in all samples, with one sample (003) also containing unburnt fish bone and marine shell (oyster and mussel). As noted above coal fragments were present in all samples.

Discussion
The discussion below focuses on the palaeoenvironmental potential of the samples in terms of further works due to be carried out at the site.

Palaeoenvironmental potential
The charred cereal grain assemblage from Greyfriars Kirkhouse is a typical medieval/post-medieval assemblage of oat, hulled barley and club/bread wheat. The preservation of the grain, however, is particularly poor with grains largely degraded showing abrasion and many being broken. The poor preservation, together with the small quantities of the grain indicates that the assemblage represents secondary material rather than primary material; the grain being scattered material from activities (*e.g.* domestic cooking, commercial) taking place in the area. As such it is likely to have been transported through natural agencies such as windblow, which has caused the abrasive damage evidenced on the grains. Given the poor preservation and limited quantity of grain it is suggested that unless further excavation reveals features of greater potential (*e.g.* associated with brewing, baking etc) that further work on charred cereals would have limited potential.

The material which has the most palaeoenvironmental potential recovered from the site is the burnt and unburnt bone material. These have the potential to inform on the economy of the time from the types of animals being consumed and hence warrant examination by a faunal bone specialist. Together with the identification of mammals and fish consumed on the site the bones may also hold evidence of butchery techniques and potential for other uses such as in tanneries etc. Marine shell present at the site also has the potential to provide information on diet and economy (and trade) and thus should also be viewed as having good palaeoenvironmental potential.

The majority of the bone, together with the marine shell was found within the midden deposit [010] uncovered on site. From those samples processed the midden represents the deposit with the greatest palaeoenvironmental potential and thus any future work at the site should take into consideration the information offered by this deposit-type for further sampling and analyses.

Conclusion

Only a limited charred plant assemblage was recovered from the site with those grains present being poorly preserved. Thus the charred plant assemblage has only low palaeoenvironmental potential.

The mammal and fish bone recovered together with the marine shell from the site offers the greatest potential for further study. Analyses of these remains may provide information on the diet and economy of the inhabitants of Edinburgh's Old Town during the medieval/post-medieval period.

The midden deposits on site offer the best potential for recovering material of palaeoenvironmental significance and thus should be targeted for further sampling.

Recommendations

Only a limited charred plant assemblage was recovered from the site with the cereal grains being largely broken and abraded. Therefore no further work is recommended on the charred plant remains recovered from the site.

The burnt and unburnt bone should be looked at by a faunal bone specialist in order to identify the mammal and fish species present in the samples, particularly those from the midden deposit. This analysis will provide further information on the diet and economy of this period. Therefore it is recommended that faunal bone analysis be undertaken on the burnt and unburnt bone recovered from the Greyfriars Kirkhouse samples. This will be undertaken as part of the final post excavation phase resulting from the main excavation phase which is to follow.

References

Cappers, R T J, Bekker, R M & Jans, J E A 2006 *Digital seed atlas of the Netherlands*. Barkhuis Publishing and Groningen University Library: Groningen

Kenward, H K, Hall, A R & Jones, A K G 1980 *A tested set of techniques for the extraction of plant and animal macrofossils from waterlogged archaeological deposits*. Science and Archaeology 22, 3-15

Table A3.1
Retent sample table

Context No.	Sample No.	Feature	Sample Vol (l)	Ceramic		Other Building Material (mortar)	Glass	MWD		Burnt bone (mammal)	Unburnt bone		Shell (marine)	Material available for AMS Dating	Coal	Comments
				Pottery (medi-pm)	CBM (brick)			Fe slag	Mag res		Mammal	Fish				
008	001	Clay loam fill of Possible Ditch [009] (Trench 2).	10	+	–	–	–	+	++	+	+++	–	–	Unburnt Bone +++	+++	–
006	002	Clay loam fill of pit [007] (Trench 3).	10	+	–	–	–	+	+	+	++	–	–	Burnt Bone +, Unburnt Bone ++	++	–
010	003	Midden Deposit in Test Pit 1.	10	++	+	++	+	–	–	+	++	+	+++	Unburnt Bone ++	++	Oyster and mussel shell present.

Key: + = rare, ++ = occasional, +++ = common and ++++ = abundant
NB charcoal over 1cm is suitable for identification and AMS dating

Table A3.2
Flotation sample results

Context No.	Sample No.	Feature	Total flot Vol (ml)	Cereal grain				Other plant remains	Charcoal qty	Charcoal max size (cm)	Material available for AMS	Comments
				Avena sp.	*Hordeum vulgare*	*cf. Triticum aestivo-compactum*	*Cerealia indet.*					
8	1	Fill of possible ditch [009]	10	–	–	+	+	–	+	<1	–	Coal ++, cinder +, charcoal non-oak
6	2	Fill of pit [007]	<10	+	+	+	+	Sambucus nigra* +, Carex sp. +, Sinapis sp. +	++	<1	–	Coal +, charcoal non-oak
10	3	Midden deposit	10	++	+	+	++	–	+	<1	Charred cereal grain ++	Cinder +++, charcoal non-oak and oak fragments

Key: + = rare, ++ = occasional, +++ = common and ++++ = abundant
NB charcoal over 1cm is suitable for identification and AMS dating

Appendix 4 – DES Entry

LOCAL AUTHORITY:	City of Edinburgh
PROJECT TITLE/SITE NAME:	Greyfriars Kirkhouse, Edinburgh
PROJECT CODE:	GKHE10
PARISH:	Edinburgh
NAME OF CONTRIBUTOR(S):	J. McMeekin
NAME OF ORGANISATION:	Headland Archaeology (UK) Ltd
TYPE(S) OF PROJECT:	Archaeological evaluation
NMRS NO(S):	NT27SE.1441, NT27SE.5948
SITE/MONUMENT TYPE(S):	medieval / post-medieval deposits and 18th-19th century structural remains
SIGNIFICANT FINDS:	medieval pottery
NGR	NT2552 7340
START DATE (this season)	16th June 2010
END DATE (this season)	17th June 2010
PREVIOUS WORK (incl. DES ref.)	DES 2006, 70-71
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	An evaluation of a proposed development site was carried out 16-17 June 2010 and followed a prior phase of archaeological works in 2005. Rubble deposits sealed the cellar of a tenement that had been largely demolished in the mid-20th century. Two medieval features, a large pit and a possible ditch, were encountered in trial trenches. Both features lay beneath the footprint of recently demolished warehouses dating from the 18th-19th century and contained White Gritty Ware pottery dating to the 12th to 15th centuries AD and charred cereal grains including oat, hulled barley and club/bread wheat. Medieval pottery sherds from the 13th-15th century were recovered from a deep deposit in an engineering test pit towards the NW corner of the site.
PROPOSED FUTURE WORK:	Excavation
ARCHIVE LOCATION i(intended/deposited)	Archive to be deposited in NMRS and report lodged with CECAS.
SPONSOR OR FUNDING BODY:	Greyfriars Tolbooth and Highland Kirk
CAPTION(S) FOR ILLUSTRS:	n/a
ADDRESS OF MAIN CONTRIBUTOR:	Headland Archaeology (UK) Ltd, 13 Jane St, Edinburgh. EH6 5HE
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