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DATA STRUCTURE REPORT OF AN ARCHAEOLOGICAL EVALUATION AT THE FORMER BRUNTON WIREWORKS, MUSSELBURGH

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MA(Hons)

PROJECT SUMMARY SHEET

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<i>Council</i>	EAST Lothian
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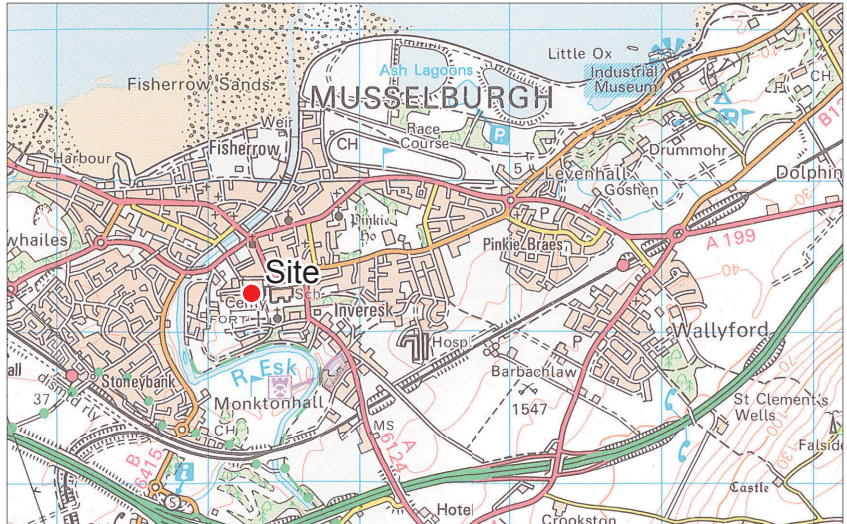
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Simon Stronach BSc(Hons) MIFA, Project Manager

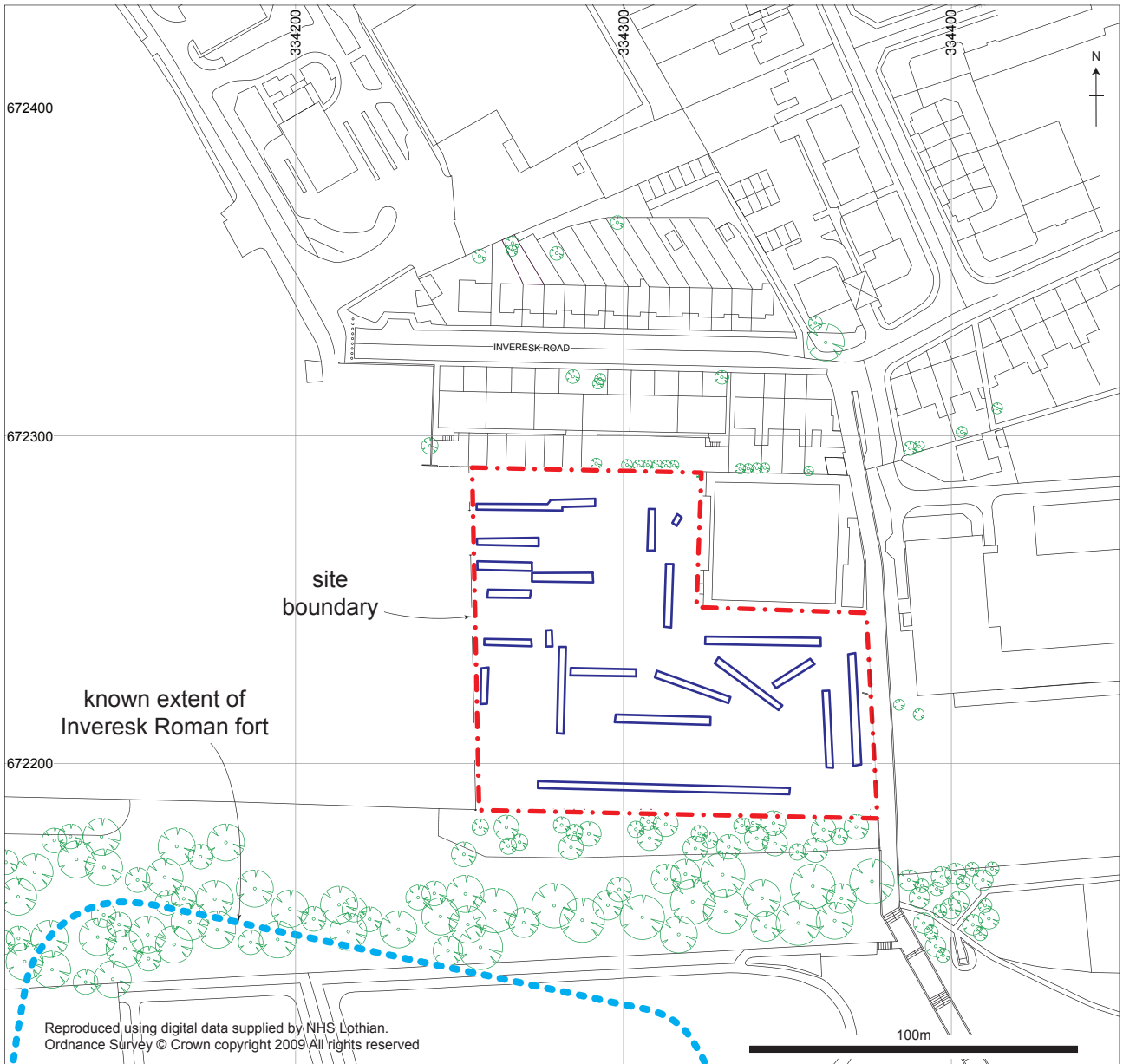
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Illus 1
 Location plan

DATA STRUCTURE REPORT OF AN ARCHAEOLOGICAL EVALUATION AT THE FORMER BRUNTON WIREWORKS, MUSSELBURGH

by Alistair Robertson

Headland Archaeology Ltd undertook an archaeological evaluation on the site of the former Brunton Wireworks in Musselburgh, which lies to the immediate north of the Scheduled Ancient Monument of the Roman fort at Inveresk (SAM No. 3285). The work was undertaken in response to a condition on outline consent placed by East Lothian Council on a proposed development by NHS Lothian. The work was commissioned by NHS Lothian and undertaken in accordance with a Written Scheme of Investigation submitted to, and approved by, the East Lothian Council Archaeology Officer.

A 10% sample of the proposed development area was subject to trial trenching (equating to 518m of linear trenching), which revealed that former topsoil survives across the entire evaluated area beneath modern concrete and levelling associated with the Wireworks complex.

The topsoil seals archaeologically significant features which are assumed to be Roman in origin on the basis of the recovered artefacts. The features include several ditches and pits cut into the underlying sand, as well as two upstanding linear features, comprising cobbles capped with clay, that may represent rampart bases or roads. Beneath the former topsoil to the south of the site, a midden-rich deposit was revealed overlying two ditches and an early ground surface. This deposit contained cattle, pig and horse bones as well as domestic Roman pottery. The discarded material may come from the fort itself, or from a civilian settlement associated with the fort; of which the proposed development site may have been part.

A cremation was also identified, possibly the remains of a child, in the southeastern part of the site; adjacent to a ditch containing Roman pottery. As there are only three Roman cremation burials confirmed in Scotland, this feature is in itself of great significance.

The evaluation has confirmed the presence of archaeological deposits of high importance within the proposed development site.

1 INTRODUCTION

Headland Archaeology Ltd. was commissioned to carry out an archaeological evaluation on the eastern part of the former Brunton Wireworks site at Inveresk Road, Musselburgh. The work was carried out in order to satisfy a condition (06/0070/OUT) placed on outline planning consent for the construction of a primary care centre on the site and adhered to a Written Scheme of Investigation agreed with East Lothian Council Archaeology Service.

2 SITE LOCATION AND DESCRIPTION

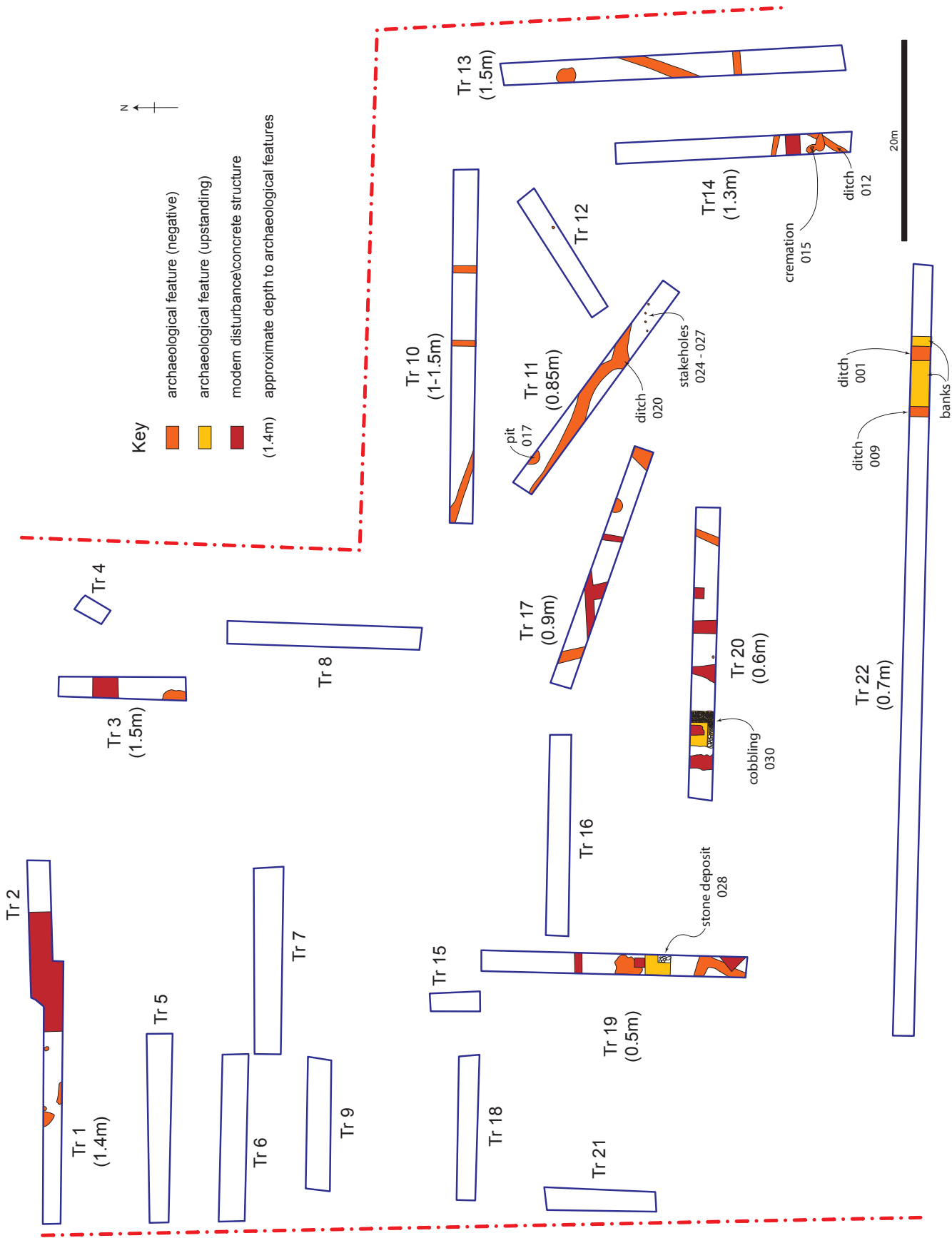
The proposed development area covers 1.3 hectares of level ground on the eastern part of the former Brunton Wireworks site (Illus 1). It is enclosed by a high brick wall to the north and east, while the southern limit is represented by the base of a slope that rises sharply to the south towards St. Michael's Kirk burial ground. To the west lies derelict land that represents the remainder of the former Wireworks site. The ground within the development area comprises concrete slab incorporating

steel rails, machine bases and raised concrete beams which have become overgrown with vegetation and trees (Illus 3).

3 ARCHAEOLOGICAL BACKGROUND

In the vicinity of the proposed development site a cremation cemetery attributed to the Bronze Age was discovered in the 19th century, with 19 vessels recorded (NT37SW 7). In 1985 at least 5 Roman burials, along with pottery dated to the 2nd century AD, were found by work-men excavating a trench for machinery within the Brunton Wireworks (NT37SW 161).

To the immediate south of the site, the Roman fort at Inveresk is located at the top of a steep slope that would have provided a natural defence. The Scheduled area of the fort extends to the base of the slope (SAM No. 3285). Two phases of fort occupation dating to the Antonine period (2nd century AD) have been established (Richmond 1980, 294), whilst evidence for an associated civilian settlement extending eastward from the fort has also been revealed through excavation (Thomas 1988, 139). With its close proximity to



Illus 2

Plan of archaeological features

**Illus 3**

Ground conditions on site. St. Michael's Kirk in background

this known Roman military base and civil settlement, there was recognised potential for associated remains to exist on the development site. Specifically it was thought that the site may have been crossed by a Roman road linking the fort to the Old Bridge, thought to be Roman in origin and from which apparently Roman masonry was recovered during repairs in 1809 (Thomas 1988, 139).

Medieval deposits reflecting predominantly agricultural activity were recorded during excavations in 1993 on land to the north of the development site (Ewart & Triscott 1993), while archaeological works were most recently carried out on land adjoining the proposed development site to the west; also part of the former Brunton Wireworks site (AOC 2008, 2009). In the latter works the only surviving archaeology related to structures associated with the Wireworks and dated from the late 19th century; any earlier archaeological remains were thought to have been destroyed during development of the factory.

4 AIMS AND METHODS

10% of the proposed development area was evaluated by means of machine-excavated trial trenches (Illus 1 & 2). The aim of the evaluation was to determine the

character, extent, condition, date and significance of any buried archaeological remains within the area to allow the planning authority to make an informed decision regarding any further mitigation requirements relating to archaeological remains.

Groundworks were carried out in two phases due to the nature of the site. Initially, 22 trenches were marked out on the ground and a 14 tonne tracked excavator equipped with a concrete breaker was used to break out the concrete slab over the trench locations. Trenches were positioned to provide good coverage; however this was constrained by ground conditions. An area of hydrocarbon contamination at the centre of the site was excluded for Health and Safety reasons and the presence of raised concrete beams and heavy steel rail and machine bases also restricted trench locations. Broken concrete was removed by the excavator by means of a toothed bucket.

The second stage involved excavation of soft deposits below concrete in the trenches. This was carried out by the tracked excavator fitted with a flat bladed ditching bucket, operating under continuous archaeological supervision. Excavation was undertaken until the first significant archaeological horizon or clean geological deposits were reached.

Archaeological features and deposits were hand excavated and recorded using standard archaeological methods and pro-forma record sheets. The excavated trenches and any



Illus 4

Linear feature at 1.2m below present ground level in Trench 10

archaeological contexts were recorded using a combination of AutoCAD and TheoLT survey related to the National Grid, as well as hand drawing where appropriate. Sediment samples and finds were collected from secure archaeological contexts for processing and assessment.

5 RESULTS

5.1 Trench 1

Pale yellow sand, interpreted as a natural deposit, was exposed at a depth of 1.4m. Cut into this were three possible features: two sub-round pits (045 & 046) approximately 0.4m in diameter and a larger pit (047) with diffuse edges only partially exposed in the trench to a width of 1.2m. The features were filled by a light brown sand deposit. None could be excavated due to their depth and consequent safety concerns. Overlying these was undisturbed former topsoil with two clear horizons. The lower constituted mid brown silty sand 0.4m deep, while the upper comprised dark brown sandy silt 0.8m deep. The former topsoil was sealed by a layer of concrete 0.2m thick.

5.2 Trench 2

Pale yellow sand was exposed at a depth of 1.5-1.6m. The only feature noted in this trench was a substantial

concrete base associated with the former wireworks. The former topsoil was up to 0.2m deeper than in Trench 1, suggesting a former natural slope down from west to east in this area. As in Trench 1 the former topsoil contained two horizons.

5.3 Trench 3

In the southern half of the trench pale yellow sand was revealed at 1.5m below the current ground surface. Cut into this was a possible pit, 037, only partially exposed to a length of 2m, which was filled by dark brown silty sand (038). The pit was not excavated due to safety concerns. Overlying this was former topsoil comprising a basal horizon of orange brown silty sand 0.4m deep and an upper horizon of dark brown sandy silt, also 0.4m deep. Sealing this was a layer of broken tar and clinker 0.1m deep which was capped by reinforced concrete 0.6m thick. In the northern half of the trench, cables and a substantial machine base 2.5m wide and at least 1m deep were exposed immediately below the concrete, these are assumed to be associated with the former wireworks.

5.4 Trench 4

A considerable steel machine base was exposed below the concrete surface and excavations could not be continued.

5.5 Trench 5

Pale yellow sand was exposed at a depth of 1.3m. Overlying this was a former topsoil comprising a basal horizon of orange brown silty sand 0.4m deep and an upper horizon of dark brown sandy silt, also 0.4m deep. This was sealed by a modern make-up layer of rubble,



Illus 5

Cremation deposit 015 and ditch 012, 1.3m below present ground level in Trench 14

ash and silt 0.4m deep, capped by concrete 0.1m thick. No archaeological features were observed, however the trench could not be entered on safety grounds.

5.6 Trench 6

Pale yellow sand was revealed at a depth of 0.95m below the surface. Overlying this was former topsoil, 0.7m deep, which comprised a lower horizon of orange brown silty sand 0.1m deep and an upper horizon of dark greyish brown silty sand, 0.6m deep. The former topsoil was sealed by rubble levelling and concrete, totalling 0.25m thickness. No archaeological features were recorded in the trench.



Illus 6

Pit 017 containing flat stones, 0.7m below present ground surface in Trench 11

5.7 Trench 7

Pale yellow sand was revealed at a depth of 1.2m below the ground surface. Overlying this was former topsoil 0.8m deep, consisting of dark brown silty sand. This was sealed by a 0.4m layer of rubble capped with concrete. No archaeological features were recorded in the trench.

5.8 Trench 8

Pale yellow sand was revealed at a depth of 1.5m at the northern end of the trench and at 1.1m at the southern end. Overlying this was buried former topsoil consisting of orange- brown silty sand 0.7m -0.9m deep. Above this was levelling material comprising ash, brick, tar and gravel 0.2-0.4m deep. This was overlain by rubble and then concrete 0.2m deep. No archaeological features were recorded in the trench.

5.9 Trench 9

Pale yellow sand was revealed at a depth of 1.1m below the ground surface. Overlying this was former topsoil, 0.8m deep. It comprised a lower horizon of orange brown silty sand 0.2m deep and an upper horizon of dark greyish brown silty sand, 0.6m deep. The topsoil was sealed by rubble levelling and concrete, totalling 0.3m thickness. No archaeological features were recorded in the trench.

5.10 Trench 10

Pale yellow sand was revealed at a depth of 1m at the western end of the trench and at 1.5m at the eastern end. A linear feature (039) aligned NW-SE was cut into

the sand at the western end (Illus 4). It was 0.7m wide and filled by a mid brown sand deposit, 0.40, but could not be excavated due to safety concerns. To the east of 039, two possible ditches were revealed-041 and 043. They were spaced 7m apart and both were 0.7m wide. Their respective fills, 042 and 044 were mid brown silty sand. Overlying this was former topsoil, 0.65m deep. It comprised a lower horizon of mid brown silty sand 0.35m deep and an upper horizon of dark greyish brown silty sand, 0.3m deep. Sealing this was a levelling deposit of brick and stone fragments which increased in depth from 0.2m at the western end of the trench to 0.7m at the eastern end. A layer of concrete 0.2m thick covered the levelling deposits.

5.11 Trench 11

Pale yellow sand was revealed at a depth of 0.85m below the ground surface. Several archaeological features were cut into the sand. Pit 017 was partially exposed at the northwestern end of the trench (Illus 6). It was at least 1.4m wide and excavated to a depth of 0.6m, where a layer of large, flat stones 018 was revealed. The remainder of the fill overlying 018 was light brown sand deposit 019, which had no inclusions. The function of Pit 017 is uncertain. As it could not be fully excavated, it is unclear as to whether the stone layer 018 forms the base of the pit or is in fact a form of capping in a much deeper feature.

Curvilinear ditch 020 passed Pit 017 1m to the south. It was 1.3m wide and 0.6m deep, with moderately sloping sides, steepening towards the base (Illus. 9). It followed an E-W alignment before curving to the south where it converged with a second ditch, 022. Ditch 020 contained fill 021; pale greyish brown sand with no inclusions. Ditch 022



Illus 7
Cobbling 030 and clay surface 031, 0.6m below present ground level in Trench 20

was approximately 1m in width. It ran west from the trench edge before curving south to converge with Ditch 020.

Approximately 2m to the south of Ditch 022, an arc of 4 stakeholes was identified; 024-027. They were evenly spaced at 0.8m apart and were all 0.1m in diameter.

All these features were covered by former topsoil to a depth of 0.55m, which comprised mid brown sandy silt. Sealing this was a levelling layer of rubble capped by concrete, 0.3m deep.

5.12 Trench 12

Pale yellow sand subsoil was revealed at a depth of 1.2m below the ground surface. Overlying this was former topsoil, 0.6m deep. It comprised a lower horizon of orange brown silty sand 0.2m deep and an upper horizon of dark greyish brown silty sand, 0.4m deep, which contained frequent charcoal inclusions. A possible stakehole 0.2m in diameter was identified in the trench (048). A layer of rubble capped by concrete sealed the former topsoil and was 0.6m deep.

5.13 Trench 13

Pale yellow sand was revealed at a depth of 1.5m below the ground surface. Cut into this was a sub-round feature, 049, approximately 2m in diameter and a linear feature aligned NE-SW, 1m in width (050). A further linear feature aligned E-W was identified, approximately 0.8m wide (051). The features were not excavated due to safety concerns. Overlying them was a former topsoil comprising dark greyish brown silty sand, 1.2m deep. The topsoil was sealed by rubble levelling, 0.15m deep, which itself was covered by a 0.15m thick layer of concrete.

5.14 Trench 14

Pale yellow sand was exposed at a depth of 1.3m below the ground surface. At the southern end of the trench

linear ditch 012 was cut into the sand. It was aligned NE-SW and was 0.6m wide by 0.5m deep. The NW side of 012 was near vertical, while the SE side had a break of slope midway down- almost stepped. Ditch 012 was filled with light brown- grey sand deposit 011, which contained no inclusions.

A partially exposed pit or ditch terminal, 014, cut into ditch 012. It was 0.9m in width and 0.5m deep. 014 was filled by dark brown silty sand 013 which contained occasional inclusions of charcoal, animal bone and Roman pottery sherds.

Abutting pit/ditch terminal 014 on its north side was pit 016. It was oval in plan, 1.1m in length, 0.8m in width and 0.15m deep. The sides were very shallow and the base was flat. It contained cremation deposit 015, which consisted of dark grey sandy gravel with abundant pieces of charcoal and burnt bone. The deposit was 0.28m in diameter and 0.05m deep (Illus 5). The circular nature of 015 suggests it was deposited in a vessel, possibly organic, which has not survived. 3m north of 015 a further linear feature was recorded, aligned E-W. It was left unexcavated but noted to be 0.4m wide.

Overlying these features was former topsoil 1.0m deep. It consisted of orange brown silty sand at the base, grading to greyish brown sandy silt at the top of the deposit. Two large concrete blocks 1.5-2m wide cut into the former topsoil, aligned E-W. They were situated 9m apart and seem to be foundation structures associated with the former wireworks. Sealing both the former topsoil and these structures was a levelling layer of rubble capped by concrete, totalling 0.3m thickness.

5.15 Trench 15

Pale yellow sand was exposed at a depth of 0.85m below the ground surface. This was covered by orange brown silty sand former topsoil, 0.55m deep. Overlying this was a levelling layer of rubble sealed by concrete, 0.3m deep. No archaeological features were recorded in the trench.



Illus 8
Linear stone deposit 028 and clay layer 029, 0.5m below present ground surface in Trench 19



Illus 9
NW facing section of Ditch 020 in Trench 11

5.16 Trench 16

Pale yellow sand was exposed at a depth of 0.9m below the ground surface. This was covered by orange brown silty sand former topsoil, 0.4m deep. No archaeological features were recorded in the trench. A modern pipe trench was noted, aligned N-S, as well as the edge of a concrete base. Overlying the former topsoil and modern features was a levelling layer of rubble sealed by concrete, 0.5m deep.

5.17 Trench 17

Pale yellow sand was exposed at a depth of 0.8m below the ground surface. Cut into this was a partially exposed pit (052), 1.5m wide, containing a deposit of large stones and charcoal (053). Two linear features were recorded in the trench, 054 & 055, aligned NE-SW and N-S respectively. They were 0.7-1m wide. The features were covered by former topsoil 0.5m deep which comprised orange brown sandy silt. Overlying this was a levelling layer of rubble sealed by concrete, 0.3m deep.

5.18 Trench 18

Pale yellow sand was exposed at a depth of 1.35m below the ground surface at the western end of the trench. Overlying this was orange brown silty sand former topsoil horizon, 0.5m deep. Over this was dark grey clayey silt deposit, 0.3m deep, which may represent another former topsoil horizon or a more modern levelling deposit. A modern pipe trench extended along the entire north side of the evaluation trench.

Overlying this and the former topsoil was a levelling layer of rubble sealed by concrete, 0.3m deep.

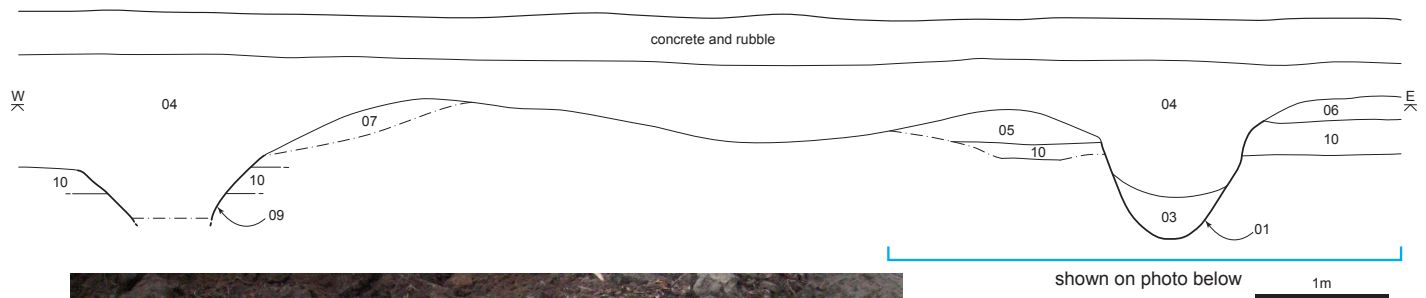
5.19 Trench 19

Pale yellow sand was exposed at a depth of 0.8-1.1m below the ground surface. At the southern end of the trench the corner of a ditch was revealed, approximately 1m wide (033). It was exposed to 4m in length running N-S and 2m in length running E-W. North of this was a linear setting of large stones, 028, aligned E-W and 2.2m wide (Illus 8). The stones were up to 0.45m in length. They formed a single course 0.2m high and were interspersed with smaller stones to provide a fairly flat surface. Sealing 028 was light grey sandy clay deposit 029. This was 0.1m deep and highly compacted. 028 and 029 appear to form the basal layers of an

upstanding trackway or boundary bank. The feature was identified 0.5m below the current ground surface. On the north side of 028 was an amorphous feature, 034, cut into the sand subsoil. It was approximately 2.5m in diameter. Overlying these features and the surrounding sand was a topsoil deposit up to 0.6m deep. It was orange brown silty sand from which a sherd of Roman pottery was retrieved near the base. Rubble levelling and concrete overlay the topsoil to a depth of 0.3m.

5.20 Trench 20

Pale yellow sand was exposed at a depth of 1m below the ground surface. At the eastern end of the trench a linear feature was revealed cut into the sand. It was aligned NE-SW and was 1m wide (056). Towards the western end of the trench a linear setting of upstanding rounded stones (030) was recorded on the sand (Illus 7). It was aligned N-S and was 3.2m wide by 0.2m in depth. The stones formed a single-coursed, flat surface. A feature of note was that the stones increased in size from the east side to the west side of 030, ranging from 0.05m to 0.25m in length. Sealing the stones was a highly compacted light grey sandy clay deposit (031), similar to deposit 029 in Trench 19. It was 0.11m in depth and identified 0.6m below the current ground surface. 030 and 031 may be associated with 028 and 029 in Trench 19, forming elements of the same structure. Overlying 031 and the surrounding sand was a former topsoil comprising orange brown silty sand, up to 0.5m deep. Modern concrete base foundations were located in the topsoil and also partially truncated deposits 030 and 031. Rubble levelling and concrete overlay the topsoil to a depth of 0.5m.



Illus 10
South facing section of Roman ditches, banks and midden in Trench 22 and plate showing ditch 001 with upcast yellow sand from 005 and 006 visible in trench section

5.21 Trench 21

Pale yellow sand was exposed at a depth of 1.2m below the ground surface. Overlying this was topsoil comprising orange brown silty sand, 0.7m deep. This was sealed by a mixed tar and grit make-up deposit 0.2m deep. Over this was a rubble layer capped by concrete, 0.3m deep. No archaeological features were recorded in the trench.

5.22 Trench 22

A comparatively deep soil profile was recorded in the western half of the trench. Mottled grey clayey sand was revealed up to 2m below the ground surface. Overlying this was former topsoil, 1.7m deep. It comprised a lower horizon of yellowish brown silty sand 0.2m deep and an upper horizon of mid brown silty sand, 1.5m deep. A reinforced concrete pad associated with the former wireworks cut the topsoil at the western end of the trench.

The depth at which sand was found reduced towards the east such that in the eastern half of the trench, sand was reached at 1.2m. In this area it consisted of pale yellow sand. Overlying the sand was a former topsoil horizon of greyish brown silty sand 0.2m deep (010). Cut into this deposit at the eastern end of the trench were two linear ditches aligned N-S; 001 and 009 (Illus. 10).

Ditch 001 was 1m wide and 0.8m deep, with steep sloping sides and rounded base. On either side of 001 was a bank of upcast deposit which comprised layers of pale

yellow sand and reddish brown silty sand. The bank on the west side, 005, was 2.4m wide and 0.28m deep. The bank on the east side, 006, was at least 1m wide and 0.2m deep. Ditch 001 contained a primary fill of pale grey silty sand, 003, which was 0.3m in depth.

6m west of Ditch 001 was Ditch 009. It was 1.2m wide and at least 0.4m deep. It had steep sloping sides, but the base was not reached. On its east side was a bank of mixed upstanding material (007) which was 3m wide and 0.5m deep. 007 was similar in character to 005 and 006.

Overlying ditches 001 and 009, as well as their associated upstanding banks 005-007, was a reddish brown sandy silt former topsoil horizon; 004. This deposit was 1m in depth and contained numerous pieces of Roman pottery as well as frequent animal bones, including horse. 004 may therefore incorporate Roman midden material spread over the ditches and banks. The finds were generally retrieved at the level of the upstanding bank deposits- approximately 0.7m below the current ground surface. A layer of rubble capped by concrete sealed former topsoil 004 and was 0.3m deep.

6 FINDS SUMMARY

Julie Lochrie & Julie Franklin

For a full report see Appendix 2. There were 41 sherds of Roman pottery, representing around 30 vessels. Black burnished ware was the most common, numbering 23 sherds. The largest sherd of pottery in the assemblage is

a piece of mortarium, a rim sherd showing the spout, the coarsely gritted interior and the remains of a maker's stamp. There are also 6 sherds of terra sigillata, two of which are decorated. The Roman finds were concentrated in Trench 22, contexts [002], [004] and [008], and in Trench 14, context [013]. A handful of sherds were also found unstratified in Trenches 17, 19 and 20.

Iron finds were also common, numbering 53 objects, mostly hobnails and larger woodworking nails. Three objects are as yet unidentifiable. Other finds include part of a brick and four fragments of colourless transparent glass. The glass fragments are too small to be diagnostic. Though these finds cannot positively be identified as Roman without further analysis, they were all from Context [013], associated with Roman pottery and there is no reason to suspect they are modern intrusions.

The finds must be related to the occupation of the adjacent Inveresk Roman Fort in the 2nd century AD. This is potentially primary midden material as the sherds are relatively large and unabraded and there is no sign of later disturbance. The same types of finds have been found during previous excavations at Inveresk (Richmond 1980; Hanson 1984; Thomas 1988). Analysis of this material by a specialist will add to the knowledge of the dating and nature of the activity there.

7 ENVIRONMENTAL SUMMARY

Dr Scott Timpany

For a full report see Appendix 3. Only a small quantity of charred plant remains was recovered from the site, with rare quantities of charred barley, oat and indeterminate cereal grain recovered, together with a single fragment of charred hazel nutshell.

A relatively large assemblage of animal bone was recovered from the proposed midden which consisted of *Sus* sp. (pig), *Bos* sp. (cattle) and *Equus* sp. (horse). The remains consist of a variety of fragments from the cranial and post cranial skeleton, the well preserved cranium of a horse was also recovered. Dental wear would indicate that some of the animals recovered from the site were of advancing years, three of the larger bone fragments exhibit signs of butchery.

The cremation consisted of approximately 4l of unurned, calcined human bone with limited pyre material. Brief, initial assessment indicates that the material is exceptionally well preserved considering the potentially acidic nature of the sand in which it was buried. The remains consist of white, or creamy white, calcined bone, which at this stage of assessment appears to consist largely of the post cranial skeleton and consisted of fragments as large as 31x18mm, which would indicate full cremation; in keeping with Roman practice (McKinley 2008a). At this stage, no teeth or evidence of either enamel fragments or dentine were observed. Whilst it is difficult to objectively define the age of the individual, bone mass and the size of the potentially recognizable fragments (e.g. ribs) would suggest that the remains are those of a juvenile, possibly a small child.

8 DISCUSSION

Former topsoil was found to survive across the entire evaluated area beneath modern concrete and levelling associated with the Brunton Wireworks complex. It was identified at a minimum depth of 0.2 m below the current ground surface and at locations across the site had been truncated by concrete foundations and machine bases associated with the Wireworks (Illus 2). The topsoil seals archaeologically significant features, which tend to survive cut into underlying sand, at a depth of between 0.85m-1.5m. An exception to this sequence seems to exist in the southern part of the site, where the most significant archaeological features were located. Here a number of upstanding archaeological features (possible surfaces and banks) survive within the former topsoil, as do former ground surfaces sealed by a midden-rich spread.

The natural subsoil into which the archaeological features were cut was composed of fine yellow sand. As the site lies more than 10m above sea level, it is unlikely that the sand represents a raised beach related to the main Holocene transgression. It more probably represents alluvial deposits, or dune systems associated with the Holocene raised beach. Only further environmental investigation would resolve this matter (Lancaster pers. comm.).

The soil profile of the former topsoil can be explained in part by the history of the proposed development site. Map evidence (AOC 2008) dating back to Adair's map of 1682 shows the site to be unoccupied until expansion of the Wireworks in the 20th century. Roy's map of 1747-55 indicates the land was however cultivated, with subsequent maps also reflecting agricultural land use until development by the Wireworks. This is reflected in the results of the evaluation where there appears to have been only low levels of disturbance to the ground, such as shallow ploughing and bioturbation prior to construction of the Wireworks, allowing survival of archaeological remains. Over most of the site the remains survive as negative cut features. However, at the southern extent of the site colluvial deposits from the slope to the south seem to have accumulated relatively quickly and so provided protection to the Roman remains from disturbance by ploughing and bioturbation. Here former ground surfaces and upstanding features have been preserved.

All the features recorded are assumed to be Roman in origin on the basis of the recovered artefacts, with the only evidence for later medieval activity a sherd of locally made white gritty ware retrieved from the upper levels of buried topsoil deposit 032 (Appendix 2).

The midden-rich deposit 004 identified in Trench 22 included pig, cattle and horse bones and the recovered ceramics have been identified as Roman (Appendices 2 & 3). This deposit is likely to originate from the Antonine fort that was located to the south of the site, currently incorporating St. Michael's Kirk burial ground. It appears to be limited in extent to the east end of Trench 22 and analysis of the pottery suggests this was a primary dump, rather than the material being transported there by means of soil migration down the slope. The midden deposit

would appear to have sealed an early ground surface. Colluvial soil deposits then accumulated over the midden and became the parent material for the overlying buried topsoil. The ceramics recovered from the midden deposit include those of a domestic nature, such as the piece of mortarium and so there remains the possibility that this material does not represent rubbish from the fort itself, but from civilian occupation of an associated annexe.

Further evidence that the development site covers part of an annexe of the fort or was part of an associated settlement was seen in the remainder of features uncovered. A significant number of ditches were identified in the evaluation, which may be ditch boundaries related to field systems, and the presence of pits and stakeholes also signifies settlement activity. The recovery of nails during post excavation analysis implies the existence of timber structures, although no physical traces of these were revealed during fieldwork.

Cremation 015 is likely to be that of a small child (Appendix 3) and was located beside a ditch containing Roman pottery. In the vicinity of the proposed development site a Bronze Age cemetery is already noted (NT37SW 7) as well as several Roman burials (NT37SW 161). Cremations from the Roman period in Scotland are rare; existing cremation burials are currently restricted to three: Cramond, Midlothian; Newstead, Roxburghshire and Croy Hill, Strathclyde. Possible cremation pits at Camelton in Falkirk are also noted (Breeze and Rich-Gray 1980, Frere 1977, Keppie 1986, in Collard and Hunter 2000, Curle 1911). This relative paucity of comparable evidence already renders this find of some significance. Despite some exceptions, such deposits are commonly found in clusters or groups (Hewson 2007) and it is likely that cremation 015 is not an isolated feature. Most forts would have had their own cemetery, situated beside the roads leading to and from the fort (Hanson & Maxwell 1983). This corresponds with the suggestion that a Roman road may have existed in the vicinity of the potential development site, connecting the fort to the 'Old Bridge' on the River Esk. The upstanding linear features recorded in Trenches 19 and 20, comprising cobbles and stone capped by compacted clay, may be the remains of such roads. Alternatively, they may represent the bases of ramparts constructed to form an annexe.

The evaluation has confirmed the presence of remains of high archaeological importance; principally in the southern part of the development area.

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APPENDICES

Appendix 1 – Site registers

1.1 Context Register

Context No	Trench	Description
001	23	Linear ditch oriented N-S, cut through buried soil 010. Depth of 0.8m, width of 1m. Contained fills 002 and 003.
002	23	Same as 004.
003	23	Primary fill of ditch 001, with a depth of 0.3m. Pale grey silty sand with no inclusions.
004	23	Reddish brown sandy silt sealing upcast deposits 005-007. Possible Roman midden. Contained frequent animal bones including horse, as well as Roman pottery.
005	23	Bank of upcast material on west side of ditch 001. Comprised layers of pale yellow sand and reddish brown sandy silt, sealing buried soil 010.
006	23	Bank of upcast material on east side of ditch 001. Mixed and layered deposit similar to 005, also sealing buried soil 010.
007	23	Upcast material on east side of ditch 009. Mixed and laminated material comprising pale yellow sand and red-brown silty sand.
008	23	Midden deposit filling ditch 009. Same as deposit 004.
009	23	Linear ditch oriented N-S. Depth exceeds 0.4m, width of 1.2m. Filled by midden deposit 008. It runs parallel to ditch 001, which is located 6m to the east of ditch 009.
010	23	Mid grey sandy silt forming a buried soil horizon. Cut by ditches 001 and 009. Sealed by upcast deposits 005, 006 and 007.
011	14	Light brown- grey sand. Fill of linear ditch 012.
012	14	Steep-sided linear ditch aligned NE-SW. Depth of 0.5m, width of 0.6m. Filled by deposit 011.
013	14	Fill of pit/ ditch terminal 014. Dark brown silty sand containing occasional inclusions of animal bone and pottery.
014	14	Cut of pit/ ditch terminal. Oval in plan and oriented E-W. Depth of 0.5m and width of 0.9m. Cuts ditch 012.
015	14	Cremation deposit. Very dark grey sand containing abundant charcoal and burnt bone. Depth of 0.05m and width of 0.28m. Sub circular in plan and possibly placed in larger pit 016.
016	14	Cut for pit containing cremation deposit 015. 0.15m in depth, 1.1m in length and 0.8m wide. Oval in plan and abuts pit/ditch terminal 014, although relationship unclear.
017	11	Partially exposed sub-circular cut for pit containing flat stones 018 and sand deposit 019. At least 0.6m deep, 1.4m long and 0.45m wide.
018	11	4 large stones in pit 017. Form a flat surface in the pit but function uncertain. Maximum length of 0.4m.
019	11	Yellowish brown sand deposit overlying stones 018 in pit 017.
020	11	Curvilinear ditch 0.6m deep by 1.3m wide. It contains fill 021. 020 runs E-W before curving south to converge with similar ditch 022.
021	11	Fill of ditch 020. Pale greyish brown sand. Compacted at base and more mixed towards top.
022	11	Curvilinear ditch 1m wide. Converges with ditch 020 to its northwest.
023	11	Fill of ditch 022. Similar to fill 021 though not excavated.
024-027	11	Row of 4 stakeholes spaced 0.8m apart, forming an arc. All approximately 0.1m in diameter and containing dark brown silty sand.
028	19	Single course of large stones on a linear alignment E-W. 0.15m deep by 2.2m wide. Packed with smaller stones to form a relatively flat surface. Overlain by clay deposit 029.
029	19	Highly compacted light grey sandy clay deposit, 0.08m thick, overlying stone layer 028.
030	20	Linear deposition of rounded stones aligned N-S, forming a cobbled surface. 030 survives as a single course, 0.2m deep by 3.3m wide. A notable feature is that the stones increase in size from east to west.
031	20	Highly compacted light grey sandy clay deposit, 0.11m thick, overlying cobble layer 030.
032	–	Buried topsoil covering site. Relatively undisturbed to at least 2m in places.

033	19	Corner of possible ditch. 1m wide, 4m long N-S, 2m long E-W.
034	19	Amorphous negative feature. ~2.5m in diameter.
035	19	Fill of ditch 033. Mid-dark brown silty sand.
036	19	Fill of feature 034. Dark brown silty sand.
037	3	Cut for partially exposed pit. Exposed to 2m in length.
038	3	Fill of pit 037. Mid brown silty sand.
039	10	Possible ditch aligned NW-SE. 0.7m wide. Unexcavated due to depth of trench.
040	10	Fill of ditch 039. Mid brown silty sand.
041	10	Possible ditch, aligned N-S. 0.7m wide. Unexcavated due to depth of trench.
042	10	Fill of ditch 041. Unexcavated due to depth of trench.
043	10	Possible ditch, aligned N-S. 0.7m wide. Unexcavated due to depth of trench.
044	10	Fill of ditch 043. Unexcavated due to depth of trench.
045	1	Circular pit. 0.4m in diameter. Unexcavated due to depth of trench.
046	1	Circular pit. 0.4m in diameter. Unexcavated due to depth of trench.
047	1	Pit with diffuse edges. Exposed to 1.2m in width. Unexcavated due to depth of trench.
048	13	Possible stakehole. 0.1m in diameter.
049	13	Sub round pit. 2m in diameter. Unexcavated due to depth of trench.
050	13	Linear feature, aligned NE-SW. 0.9m wide. Unexcavated due to depth of trench.
051	13	Linear feature, aligned E-W, 0.8m wide.
052	17	Partially exposed pit, 1.5m wide.
053	17	Fill of pit 052. Frequent stones and charcoal in mid brown silty sand.
054	17	Partially exposed feature, exposed to 1.5m in width.
055	17	Linear ditch, aligned NE-SW. 1m in width.
056	20	Linear ditch. Aligned NE-SW. 1m in width.

1.2 Photographic Register

(Colour slides, colour print & digital)

Shot No.	Direction	Description
1	-	ID shot
2	NW	Section of Test Pit 14
3	N	Working shot
4	W	Section of Test Pit 17
5	E	Section of Test Pit 15
6	S	Section of Test Pit 17 showing pipe in cut
7	W	Trench 16 working shot
8	N	Trench 16 south facing section
9	W	Trench 3 working shot
10	E	Working shot of site
11	SE	General shot of site
12	E	Working shot
13	E	Trench 10 working shot

14	E	Trench 10 with scale
15	E	Trench 22
16	W	Trench 23
17	NE	Horse remains at east end of Trench 22
18	E	Trench 23
19	E	Trench 22
20	S	Trench 13. Possible pit at north end
21	SE	Trench 13 showing diagonal ditch
22	N	Trench 13 south end
23	W	Trench 10 east end
24	E	Trench 10 west end, with diagonal ditch
25	W	Trench 7
26	E	Trench 7
27	N	Ditch 001 in Trench 22
28	N	Ditch 001 in Trench 22
29	N	Slot through 004 b/w ditches 001 and 009
30	N	Ditch 009
31	E	Bank 007 to east of ditch 009
32	E	Pre-ex of cremation 016 and pit 014
33	E	Pre-ex of cremation 016 and pit 014
34	NE	SW facing section through ditch 012
35	–	ID shot
36	–	ID shot
37	SW	NE facing section through cremation 016
38	–	Void
39	NE	Stone filled pit 017 in Trench 11
40	NE	Stone filled pit 017 in Trench 11
41	SE	Section of ditch 020
42	NW	Stakeholes 024–027 at south end of Trench 11
43	NW	Ditches 020 and 022
44	E	Ditch 014
45	N	S facing section of ditch 014
46	E	Trenches 1 and 2
47	E	Trenches 1 and 2
48	S	Trench 1 section
49	N	Trench 3
50	NW	Trench 4
51	E	Working shot
52	E	Trench 6
53	S	Trench 6 section
54	E	Trench 7
55	N	Trench 7 section

56	N	Trench 8
57	SE	Unexcavated ditch in trench 14
58	N	Trench 14
59	E	Trench 10
60	SW	Trench 12
61	S	Cobbled surface 030
62	E	Cobbled surface 030
63	W	Linear stone feature 028
64	NW	Linear stone feature 028
65	NE	Linear stone feature 028
66	N	Trench 19
67	E	Trench 20
68	NE	Pit in Trench 17
69	NE	Pit in Trench 17
70	NW	Trench 17
71	W	Trench 16
72	-	Working shot
73	E	Trench 18
74	N	Trench 21
75	S	Trench 15

1.3 Drawing Register

Drawing No	Scale	Description
1	1:20	Section of ditches 001 & 009 in Trench 23
2	1:20	Cremation 015 & assoc. features 012, 014, 016 in Trench 14
3	1:10	Sections of features 012 & 014 in Trench 14

1.4 Sample Register

Sample No	Context No	Description
1	2	Fill of ditch 001
2	3	Lower fill of ditch 001
3	8	Fill of ditch 009
4	19	Backfill over stones 018 in top of pit 017
5	21	Fill of ditch 020
6	15	Cremation deposit in pit 016
7	13	Fill of ditch terminal/pit 014

Appendix 2 – Finds Assessment

Julie Lochrie & Julie Franklin

2.1 Finds Summary

A small assemblage of finds were retrieved from an evaluation carried out at the former Brunton Wireworks, Musselburgh. But for one sherd of medieval pottery, all the finds appear to be Roman in date. The Roman finds were concentrated in Trench 22, contexts [002], [004] and [008], and in Trench 14, context [013]. A handful of sherds were also found unstratified in Trenches 17, 19 and 20.

There were 41 sherds of Roman pottery, representing around 30 vessels. Black burnished ware was the most common, numbering 23 sherds. The largest sherd of pottery in the assemblage is a piece of mortarium, a rim sherd showing the spout, the coarsely gritted interior and the remains of a makers stamp. There are also 6 sherds of terra sigillata, two of which are decorated.

Iron finds were also common, numbering 53 objects, mostly hobnails and larger woodworking nails. Three objects are as yet unidentifiable. Other finds include part of a brick and four fragments of colourless transparent glass. The glass fragments are too small to be diagnostic. Though these finds cannot positively be identified as Roman

without further analysis, they were all from Context [013], associated with Roman pottery and there is no reason to suspect they are modern intrusions.

The medieval sherd of locally made white gritty ware is the only evidence for medieval activity on the site. It was found in Trench 9 in a buried topsoil.

The Roman finds must be related to the occupation of the adjacent Inveresk Roman Fort in the 2nd century AD. This is potentially primary midden material as the sherds are relatively large and unabraded and there is no sign of later disturbance. The same types of finds have been found during previous excavations at Inveresk (Richmond 1980; Hanson 1984; Thomas 1988). Analysis of this material by a specialist will add to the knowledge of the dating and nature of the activity there.

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- Thomas 1988 'Excavations at the Roman civil settlement at Inveresk, 1976-77.' *Proceedings of the Society of Antiquaries of Scotland*. 118 (1988), 139-176

Trench	Context	Sample No	Material	Qty	Object	Description	Period
09	U/S	-	Pottery	1	Medieval	White gritty body sherd	Medi
14	013	-	CBM	1	Brick	Brick; squared end; red fabric	?Roman
14	013	7	Fe	1	Object	small rod like fragment	?Roman
14	013	-	Glass	3	Frag	Three small fragments of clear glass	
14	013	1	Glass	1	Frag	Small fragment of clear glass	
14	013	-	Pottery	1	Roman	Possible pottery sherd; coarse cream fabric	Roman
14	013	-	Pottery	4	Roman	Black Burnished Ware; one rim sherd and three body sherds; burnished with a lattice pattern	Roman
14	013	-	Pottery	1	Roman	Body sherd; sandy brown/buff fabric	Roman
14	013	-	Pottery	2	Roman	Terra Sigillata; rim sherd and body sherd	Roman
14	013	-	Pottery	1	Roman	Possibly Black Burnished Ware; Body sherd; black/brown sandy fabric	Roman
14	013	-	Pottery/ CBM	1	Roman	Thick sandy red/brown sherd which has a rounded curving edge; appears burnished	Roman
14	015	6	Pottery	1	Roman	Grey sherd	Roman
17	U/S	-	Pottery	1	Roman	Black Burnished Ware; body sherd with lattice design burnished onto surface	Roman
19	U/S	-	Pottery	1	Roman	Black Burnished Ware; body sherd with black/grey fabric	Roman
20	U/S	-	Pottery	1	Roman	Possible Mortaria rim sherd; orange fabric	Roman
23	U/S	-	Pottery	1	Roman	Mortaria; sherd from spout, includes flanges and part of stamp (may be an M); coarse grits can be seen in internal fabric	Roman
23	U/S	-	Pottery	1	Roman	Terra Sigillata; pedestal base sherd; decorated	Roman
23	002	-	Fe	1	Nail	Nail with square shaft	?Roman

23	002	1	Fe	1	Nail	Nail with square sectioned shaft	?Roman
23	002	1	Fe	47	Nails	Small hobnails and hobnail fragments	Roman
23	002	1	Fe	1	Object	Two conjoining fragments of iron; flat and thin	?Roman
23	002	1	Fe	1	Object	Small lump of iron; may be same object as other fragments from same context	?Roman
23	002	-	Pottery	3	Roman	Black Burnished Ware; rim sherd, neck sherd and body sherd; black/grey burnished vessel with lattice pattern burnished onto two sherds	Roman
23	002	2	Pottery	2	Roman	Neck sherd and fragment of orange fabric	Roman
23	002	-	Pottery	2	Roman	Terra Sigillata; rim sherd and base sherd, possibly from 2 vessels	Roman
23	002	-	Pottery	1	Roman	body sherd of coarse cream fabric	Roman
23	002	1	Pottery	1	Roman	Body sherd of buff sandy fabric	Roman
23	002 (Ditch 1)	-	Pottery	1	Roman	Black Burnished Ware; everted rim sherd	Roman
23	004	-	Pottery	1	Roman	Black Burnished Ware; body sherd; black/buff with lattice pattern burnished onto surface	Roman
23	004	-	Pottery	1	Roman	Terra Sigillata; body sherd; faint traces of decoration remain	Roman
23	004	-	Pottery	1	Roman	Possibly Black Burnished ware; body sherd of grey sandy fabric	Roman
23	004	-	Pottery	3	Roman	Black Burnished Ware; rim sherd and two body sherds from burnished black/grey vessel with burnished lattice pattern; MNI-2	Roman
23	008	-	Fe	1	Nail	Large nail with square sectioned shaft	?Roman
23	008	1	Pottery	2	Roman	Black Burnished Ware; rim and body sherd; black/grey fabric with lattice pattern burnished onto surface	Roman
23	008	1	Pottery	1	Roman	Orange fragment	Roman
23	008	-	Pottery	1	Roman	Mortaria; Rim sherd; orange fabric	Roman
23	008	-	Pottery	5	Roman	Black Burnished Ware; Two rims sherds, one base sherd and two body sherds from black/grey burnished vessel; lattice patterned burnished onto 3 of the sherds' MNI-3	Roman
23	008	-	Pottery	1	Roman	Thin body sherd with sandy red/orange fabric	Roman

Table A2.1
Finds Catalogue

Appendix 3 – Environmental Assessment

Dr Scott Timpany, Dr Emma Tetlow & S-J Haston

3.1 Introduction

Seven samples from the evaluation stage of works from the Former Brunton Wireworks, Musselburgh were taken from a series of features including ditches, pits and a cremation deposit for processing. The aim of the processing was to primarily identify material which could be used to date the site and to glean any further information on the activities taking place at the site from palaeoenvironmental remains. Evidence from finds collected at the site has pointed to a probable Roman date for the site.

3.2 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 stereomicroscope 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).

A small amount of material from the cremation (015) was processed for the recovery of burnt human bone. For the purposes of this assessment, where present, larger bone fragments were removed during processing where present. The sample was sieved to 500µm and the residue <500µm and >500µm were retained for further, full analysis if appropriate.

The animal bone assessed was recovered by hand from features and contexts where and when encountered. At this evaluation stage, methodical, bulk sampling of these contexts was not deemed appropriate to gain an objective view of site potential.

3.3 Results

The results of the sample processing are provided in Tables A3.1 (Retent finds) and A3.2 (Floatation finds). Suitable material for AMS dating is also identified within each table.

3.4 Plant remains

Charcoal fragments are present in all samples, although only three samples (002, 003 and 007) contain charcoal fragments of a size suitable for identification and/or Accelerated Mass Spectrometry (AMS) dating (see Tables A3.1 and A3.2). Charred cereal grain of hulled barley (*Hordeum vulgare*), oat (*Avena*, sp) and indeterminate grain (*Cerealia* indet.) were recovered in rare quantities within three samples (003, 004 and 007) (see Tables A3.1 and A3.2). Wild taxa of common fumitory (*Fumaria officinalis*) and goosefoot (*Chenopodium* sp.) were also found in two samples (002 and 007) (see Table A3.2). A single charred hazel (*Corylus avellana*) nutshell fragment was recovered from Sample 003 (see Table A3.1).

3.5 Other finds

Fe objects (largely nails) were the most common other finds within the processed samples, while smaller quantities of

pottery fragments, lithics and glass were also recovered (see Table A3.1). Mussel shell fragments were present in one sample (003); with unburnt bone (including horse) found in significant quantities in three samples (001, 003 and 007). Burnt bone including fish bone was also recovered within the samples (see Table A3.1), the most abundant quantity coming from the cremation deposit (Sample 006). For further detail on the finds recovered please see the Finds Report.

3.6 Human and Animal Bone

Cremated human bone and animal bone was received for assessment from the site of the former Brunton Ironworks, Musselburgh, East Lothian. A Bronze Age cemetery, which included cremations and cists, had already been identified to the north of the current site during previous archaeological investigation (Cook *et al* 2008, Lowe and Anderson 1894). Remedial work within the confines of the factory itself in the 1980's also produced human remains and animal bone. Several 'U' shaped features were also recorded during the earlier excavation which mirror those identified during this current phase of evaluation, and were suggested to be graves (Gallagher and Clarke 1993).

3.7 The Cremation

The cremation consisted of approximately 2l of unurned, calcined bone with limited pyre material. When viewed *in situ* (Illus 5), the cremation appeared relatively undisturbed and formed a discrete, well defined deposit. The small amount of bone recovered from the cremation would suggest that the deposit was truncated by machining when the trench was initially opened, upon excavation, the material was found to be no more than 0.05m deep.

Brief, initial assessment, indicates that the material is exceptionally well preserved considering the potentially acidic nature of the sand in which it was buried. The remains consist of white, or creamy white, calcined bone which indicates combustion at >600°C (Brickley and McKinley 2004), which, at this stage of assessment, appears to consist largely of the post cranial skeleton. The cremated material consisted of fragments as large as 31x18mm, which would indicate full cremation, in keeping with Roman practice (McKinley 2008a). At this stage, no teeth or evidence of either enamel fragments or dentine were observed. Whilst it is difficult to objectively define the age of the individual, bone mass and the size of the potentially recognizable fragments (e.g. ribs) would suggest that the remains are those of a juvenile, possibly a small child. A small quantity of charred *Quercus* sp. (oak) was also recovered, which is probably derived from the pyre material.

3.8 Animal Bone

A relatively large assemblage of animal bone was recovered from the midden (context 22) which consisted of *Sus* sp. (pig), *Bos* sp. (cattle) and *Equus* sp. (horse), in excess of 30l of animal bone was recovered by hand. The material is exceptionally well preserved and displays no evidence of being reworked or subject to redeposition, hence it is

Context No	Sample No	Feature	Retent Vol (l)	Pottery	Glass	Lithics	Fe Object	Mussel Shell	Burnt Bone	Unburnt Bone	Burnt fishbone	Charred Cereal Grains	Charred Corylus Nutshell	Charcoal Qty	Charcoal max size (cm)	Cinders	Coal	Material available for AMS	Comments
002	001	Fill of Ditch 001	10	+	+	+	++++	-	+	++++	-	-	+	+++	0.5	+	+	-	Coal and cinders not retained.
003	002	Lower fill of ditch 001	10	-	-	-	-	-	-	-	-	-	-	++	2.0	-	-	Charcoal ++	-
008	003	Fill of Ditch 009	10	+	-	-	-	++	+	+++	-	+	-	++	1.0	-	-	Charcoal +	Grain = Avena sp.
019	004	Top of Pit 017	10	-	-	-	-	-	+	-	+	-	-	+	0.5	-	-	-	-
021	005	Dill of Ditch 020	10	-	-	-	-	-	-	-	-	-	-	+	0.5	-	-	-	-
015	006	Cremation Deposit in Pit 016	10	-	-	-	-	-	++++	-	-	-	-	+	0.5	-	-	Burnt bone +++	-
013	007	Fill of ditch terminal/pit 014	20	+	+	+	+	-	+	++++	-	+	-	++	1.0	-	-	Charcoal ++	Grain = Hordeum vulgare +

Key

- +
- +
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NB charcoal over 1cm is suitable for identification and AMS dating

Table A3.1
Retent Sample Results

safe to suggest that this material was recovered from a primary midden deposit. The remains consist of a variety of fragments from the cranial and post cranial skeleton, the well preserved cranium of a horse was also recovered. Dental wear would indicate that some of the animals recovered from the site were of advancing years, three of the larger bone fragments exhibit signs of butchery.

3.9 Discussion

Only a small quantity of charred plant remains was recovered from the site, with rare quantities of charred barley, oat and indeterminate cereal grain recovered, together with a single fragment of charred hazel nutshell. The grain was observed to be poorly preserved, being both abraded and broken. In some cases this led to the grain being unidentifiable to family level (indeterminate cereal). The small quantity and the poor preservation of grain suggest it was present on the ground surface for some time before becoming incorporated into the [negative feature] deposits. It is likely the grain has been incorporated through mechanical transport (e.g. windblow, surface runoff) into the features from activity nearby (e.g. cooking, baking). The wild taxa recovered, common fumitory and goosefoot are both arable weeds (Clapham *et al.*, 1962; Stace, 1997) and are likely linked to the processing or drying of grain somewhere in the area.

The recovery of a cremation in the Brunton Wireworks site, considering its proximity to a recognized Bronze Age cemetery and the recovery of human remains from trenches within the former wireworks, is unsurprising. Cremations from the Roman period in Scotland are rare, existing cremation burials are currently restricted to three, from Cramond, Midlothian, Newstead, Roxburghshire, and Croy Hill, Strathclyde and possible pits at Camelon, Falkirk (Breeze and Rich-Gray 1980, Frere 1977, Keppie 1986, in Collard and Hunter 2000, Curle 1911). This relative paucity of comparable evidence already renders this find of some significance. Cremations are seldom found in exclusivity, Romano-British and earlier prehistoric cremation cemeteries have been found at a number of sites e.g. Perry Oaks (part of the Heathrow Terminal 5 complex), Middlesex, Stansted Airport, Essex, and Whitemoor Haye, Staffordshire (Hewson 2007, McKinley 2007, 2008b). Individual cremated burials have also been recorded in Scotland the wider British Isles e.g. Cramond, Perry Oaks and a possible lone cremation at Deepark, Co. Galway, and Ballygawley (K. Dingwall pers. Comm., McKinley 2008, Wilkins *et al.* 2007). Whilst individual cremations are not unknown, this phenomena appears to be a relatively rare occurrence (Collard and Hunter 2000, McKinley 2008). Such deposits are more commonly found in cemetery-forming clusters or groups, it is more than likely that further

Context No	Sample No	Feature	Total flot Vol (ml)	Hordeum vulgare	Cerealia indet.	Other plant remains	Charcoal Qty	Charcoal Max size (cm)	Comments
002	001	Fill of Ditch 001	30	-	-	-	++	<0.5	Modern root debris ++++
003	002	Lower fill of ditch 001	8	-	-	-	-	-	Archaeologically sterile
008	003	Fill of Ditch 009	-	-	-	-	-	-	-
019	004	Top of Pit 017	5	-	+	Fumaria officinalis. +, Chenopodium sp +	+	0.5	-
021	005	Dill of Ditch 020	-	-	-	-	-	-	No flot produced
015	006	Cremation Deposit in Pit 016	-	-	-	-	-	-	No flot produced
013	007	Fill of ditch terminal/pit 014	20	+	+	Fumaria sp. +	++	0.5	Modern root debris +++

Key

+	rare
++	occasional
+++	common
++++	abundant

NB charcoal over 1cm is suitable for identification and AMS dating

Table A3.2
Flotation Sample Results

open area excavation will reveal more of these deposits at Inveresk (Hewson 2007, McKinley 2007, 2008b).

The animal bone from this site is of equal importance, again the recovery of comprehensive animal bone assemblages from Roman sites in Scotland appears to be very rare. Previous work at Inveresk in the 1970 produced an assemblage comprised of cow, pig and sheep/goat, once again, heavy wear on the animals teeth indicate that they were kept until and advanced age (Thomas 1988). A large assemblage was also recovered from the Fort at Newstead, Roxburghshire, the assemblage was similar to that from Brunton Wireworks and Inveresk and consisted of horse, cow, pig and sheep/goat (ovi/caprid). Tooth wear also indicates that the horses at the site were elderly at the time of death (Curle 1911). Further animal bone was recovered from Newstead during much later excavation in 1996 (Clarke and Wise 1999). Animal bone associated with Roman activity was also found at Cramond and produced a substantial fauna, the mammalian assemblage included cattle, pig, sheep/goat, and red deer, a small avian assemblage was also recovered. It is interesting to note that equine remains were virtually absent (Holmes 2003).

3.10 Recommendations

Due to the general paucity of cremated human remains and animal bone from Roman sites in Scotland, it is strongly recommended that both groups of material are subject to further, full analysis.

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Appendix 4 – DES Entry

LOCAL AUTHORITY:	East Lothian
PROJECT TITLE/SITE NAME:	Former Brunton Wireworks, Musselburgh
PROJECT CODE:	FBWW09
PARISH:	Inveresk Parish
NAME OF CONTRIBUTOR(S):	Alistair Robertson
NAME OF ORGANISATION:	Headland Archaeology Ltd
TYPE(S) OF PROJECT:	Evaluation
NMRS NO(S):	n/a
SITE/MONUMENT TYPE(S):	Roman settlement
SIGNIFICANT FINDS:	Roman Samian ware and mortarium piece
NGR (2 letters, 8 or 10 Figures)	NT 3428 7224
START DATE (this season)	23rd November 2009
END DATE (this season)	9th December 2009
PREVIOUS WORK (incl. DES ref.)	–
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	<p>A 10% sample of the proposed development area was subject to trial trenching (equating to 518m of linear trenching), which revealed that former topsoil survives across the entire evaluated area beneath modern concrete and levelling associated with the Wireworks complex.</p> <p>The topsoil seals archaeologically significant features which are assumed to be Roman in origin on the basis of the recovered artefacts. The features include several ditches and pits cut into the underlying sand, as well as two upstanding linear features, comprising cobbles capped with clay, that may represent rampart bases or roads. Beneath the former topsoil to the south of the site, a midden-rich deposit was revealed overlying two ditches and an early ground surface. This deposit contained cattle, pig and horse bones as well as domestic Roman pottery. The discarded material may come from the fort itself, or from a civilian settlement associated with the fort; of which the proposed development site may have been part.</p> <p>A cremation was also identified, possibly the remains of a child, in the southeastern part of the site; adjacent to a ditch containing Roman pottery. As there are only three Roman cremation burials confirmed in Scotland, this feature is in itself of great significance.</p> <p>The evaluation has confirmed the presence of archaeological deposits of high importance within the proposed development site.</p>
PROPOSED FUTURE WORK:	Further excavation recommended
ARCHIVE LOCATION (intended/deposited)	Report to be lodged with East Lothian SMR and NMRS.
SPONSOR OR FUNDING BODY:	NHS Lothian
CAPTION(S) FOR ILLUSTRS:	Cobbling with clay surface, indicative of road or rampart base.
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