

# **Archaeological monitoring in the streets of Musselburgh: recent discoveries**

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# 1 ABSTRACT

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Archaeological monitoring of water mains renewal in Musselburgh has provided new information on the medieval and post-medieval development of the burgh, as well as adding to known information on the *vicus* of the Roman fort, the Newbigging pottery and the town mill lade. Activity associated with the Newbigging pottery seems to have extended further to the west than the boundaries of the pottery indicated on 19th-century maps of the town, while Roman remains associated with the *vicus* survive in places beneath the road surface of Inveresk Brae. However, while archaeological deposits related to the medieval burgh were located broadly where

expected, they were fragmentary in comparison with similar deposits from pipeline monitoring schemes in Perth, North Berwick and Crail. The data from Musselburgh are in part less coherent due to the kinds of work monitored within the burgh core, but it is probable that they also reflect a lesser degree of preservation of archaeological deposits beneath the road surface. This is partly due to modern development, and partly due to the geographic situation of the burgh, which does not appear to have encouraged the formation of stratified deposits sealed by wind-blown sand, as in North Berwick, or the anaerobic preservation conditions prevalent within Perth.

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## 2 INTRODUCTION

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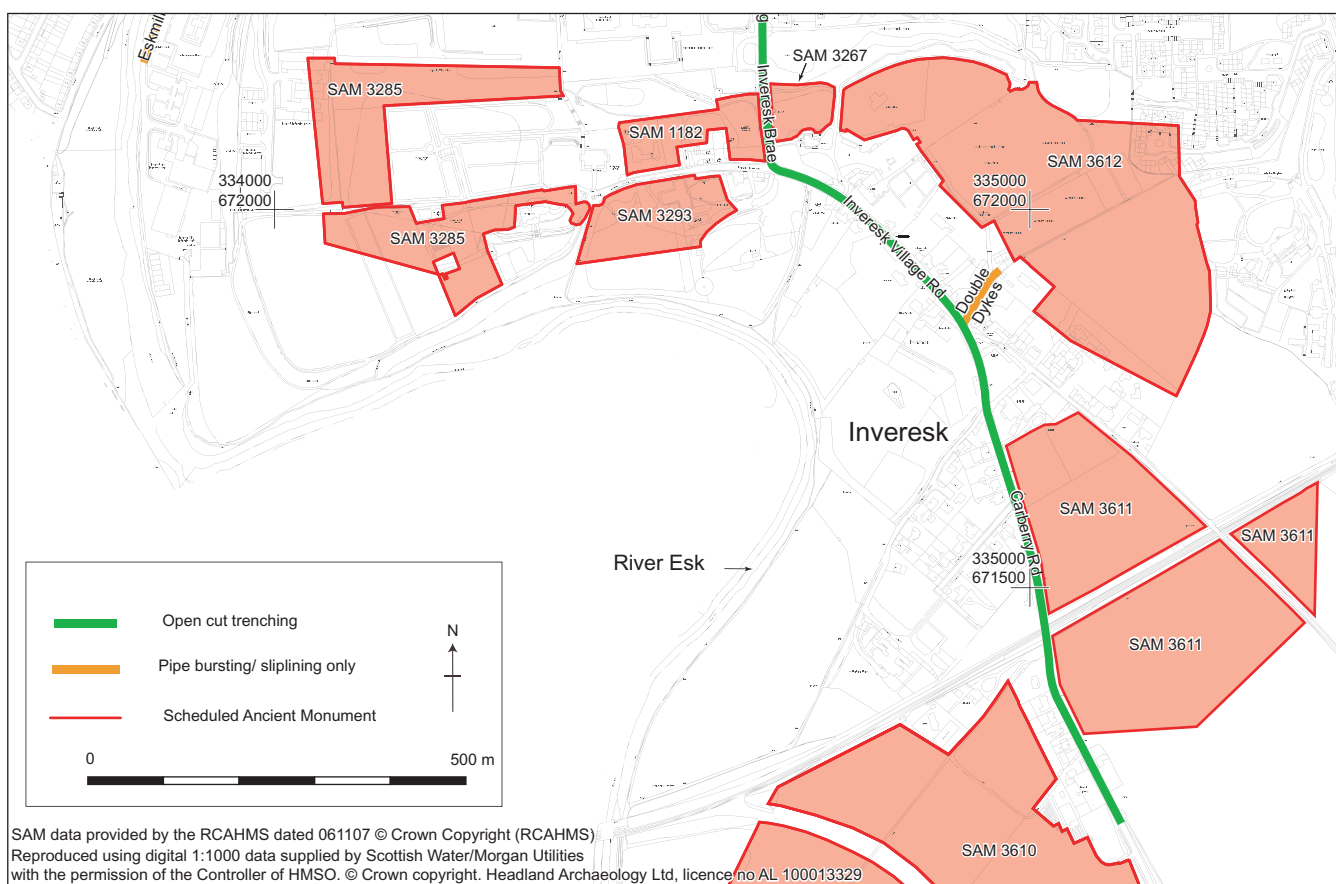
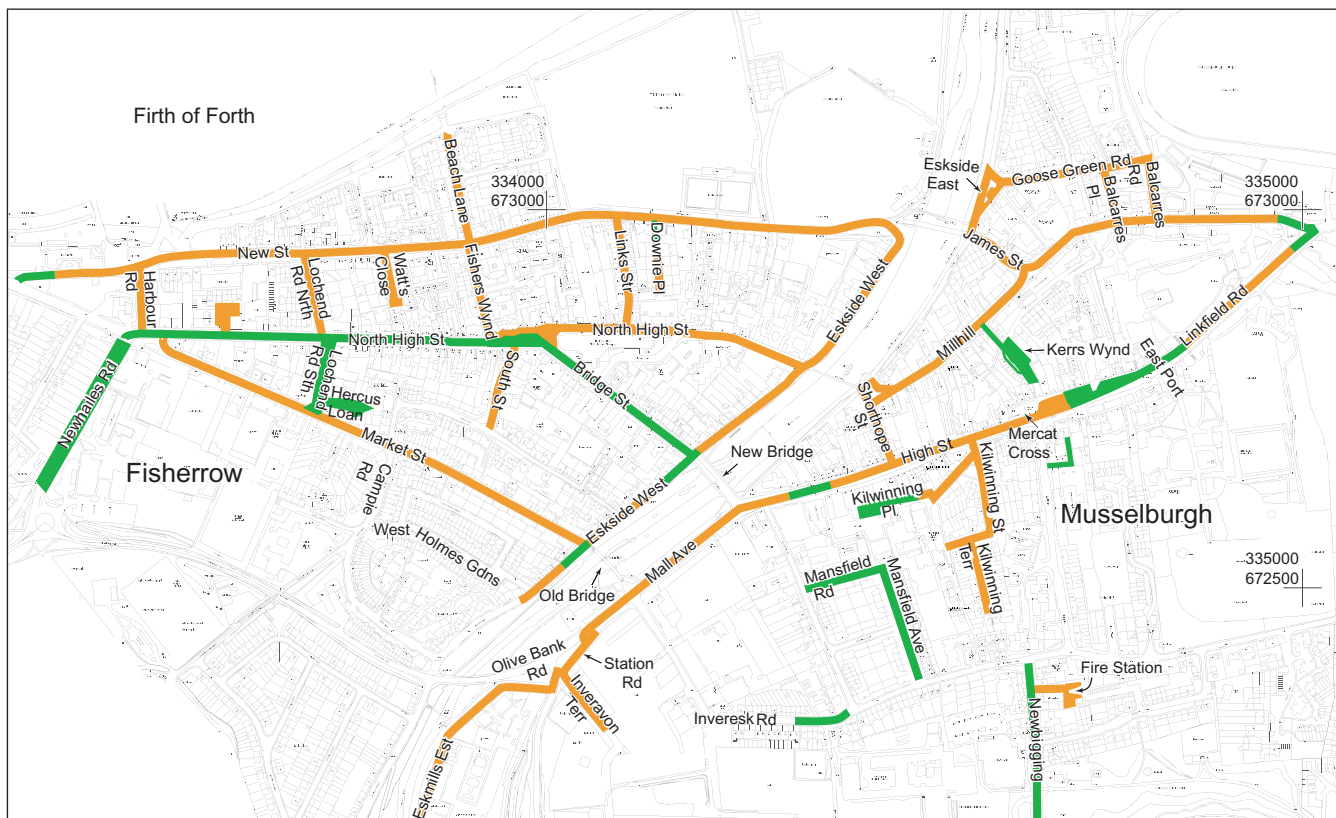
The renewal of water mains within Musselburgh by Scottish Water between March 2003 and May 2004 provided an opportunity for archaeological monitoring of extensive groundworks within and adjacent to the medieval core of the burgh, and adjacent to the *vicus* of the Roman fort in Inveresk. Headland Archaeology Ltd was commissioned by Scottish Water's contractor, Morgan Utilities, to monitor the works (Kimber 2004).

The mains replacement involved both open-cut trenching and smaller interventions in the roads and pavements of large parts of the burgh (illus 1). Guided by the area of archaeological potential suggested by the Scottish Burgh Survey for Musselburgh (Dennison & Coleman 1996), the monitoring covered most streets within the town centre. In Inveresk, monitoring was extended outwith this area along Inveresk Village Road and Carberry Road due to the close proximity to the road of Scheduled areas including field systems, prehistoric settlement and Roman camps (SAMs 3610 & 3611). Archaeological monitoring of the renewal works began following the discovery of a stone culvert on Carberry Road at the instigation of the East Lothian Council archaeologist, Biddy Simpson. Most of the open-cut trenching on Musselburgh High Street – one of the key areas of the

medieval burgh – was undertaken without an archaeologist present and thus was largely unrecorded.

The archaeological remains located in the course of the monitoring fall into two categories. The first is that of deposits or structures that can be related to previously known sites. The new information about these three sites – the *vicus* of Inveresk Roman Fort, the Newbigging pottery and the town mill lade – is considered first, along with the implications of future development in their vicinity. The second category of remains – archaeological structures and deposits related to the growth and development of the burgh – is discussed following this, and considered in relation to the development of the burgh from the medieval period.

The final section of this article attempts to explain the much more fragmentary evidence for medieval and later deposits recorded in Musselburgh, as compared with the far better preserved sequences recorded from similar projects in North Berwick (Dingwall 2004, Dingwall forthcoming), Crail (Lowe 2001) and Perth (Glendinning 2002). The implications this comparison has for the preservation of archaeological horizons within Musselburgh and for the methodology of future fieldwork there will then be discussed.



*Illus 1 Location of monitored interventions*



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## 3 HISTORICAL BACKGROUND

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Musselburgh is situated on a raised beach at the mouth of the River Esk. Historically, Musselburgh proper is that part of the town that grew up on the east bank of the Esk, while the settlement on the west bank is known as Fisherrow. The small and affluent village of Inveresk occupies an area of higher ground overlooking Musselburgh from the south, and originally grew up along the road to the east of St Michael's parish church. Between Musselburgh and Inveresk lies the area known as Newbigging, originally a separate hamlet, but now subsumed within Musselburgh.

### 3.1 Roman Inveresk

The first major settlement around Musselburgh was the Antonine-period Roman fort and *vicus* at Inveresk. The development of the area around the parish church, which is in fact situated practically in the centre of the fort (Leslie 2002), has thrown up many examples of Roman remains over the past several centuries. For example, it was reported in the *Old Statistical Account* (OSA) for Inveresk that in the late 18th century, workmen in the grounds of Inveresk House uncovered the floors of several Roman buildings forming part of the civil settlement, including the remains of a bath-house, although at least some of these remains were later destroyed in the course of the work that uncovered them (OSA 1791–99, 4). However, the remains of a hypocausted building at the eastern edge of the grounds of Inveresk House survive today, and were re-excavated in the 1980s (Thomas 1988b), along with other parts of the civil settlement at Inveresk Gate, excavated in the 1970s (Thomas 1988a). Further investigations in this area in the 1990s produced finds that suggest occupation of the civil settlement continued past the end of Roman military occupation of the area (Bishop 2002, 34). Along with evidence for post-Roman activity in the field systems immediately south-east of Inveresk (Cook 2004), this offers clues that the area may have continued as a focus for settlement up until its emergence in historical records in the medieval period.

Information concerning the extent to which Roman settlement extended west of the Esk is almost completely lacking. The OSA mentions a tradition that the remains of Roman buildings were frequently uncovered in Fisherrow in the vicinity of the harbour (OSA 1791–99, 5). Evidence for the occurrence of Roman remains in this area has yet to be confirmed by modern work.

### 3.2 The medieval period and later

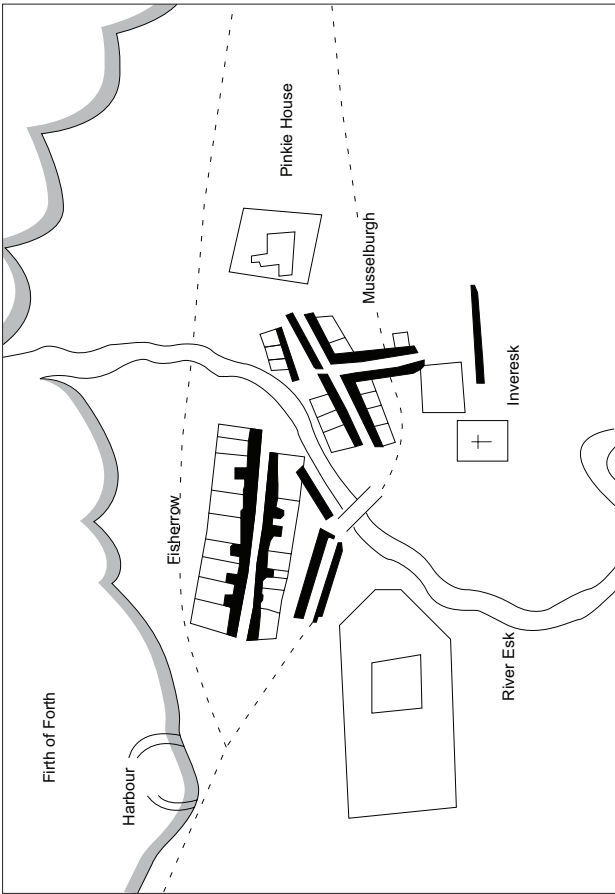
Modern-day Musselburgh has origins at least as early as the 11th century AD, as a possession of Dunfermline Abbey. The elevated position of the church overlooking Musselburgh – by no means unique for a Scottish burgh (Mair 1988, 59–60) – may relate to the burgh's original status. It is possible that a visible display of the Church's relationship to the inhabitants was felt desirable by the ecclesiastical authorities.

Indirect documentary evidence suggests that Musselburgh was granted burghal status in the later 12th century, but the first direct evidence of the special privileges associated with this status dates to the early 14th century (Dennison & Coleman 1996, 19). As the Scottish state grew through the medieval period and as its relationship with England waxed and waned, Musselburgh suffered from English military campaigns and was burnt at least once. The area was a target of raids during the 'rough wooing' and in 1547 the Battle of Pinkie was fought nearby. Among later military impositions was the occupation of Musselburgh by Oliver Cromwell in 1650 as his army pressed on Edinburgh following his victory at Dunbar.

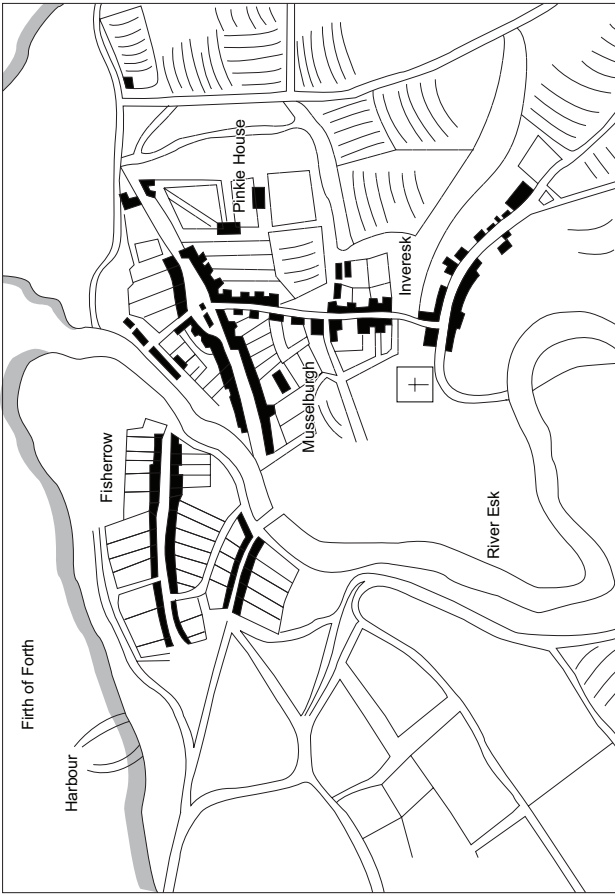
The burgh itself, while developing textile, leather-working and brewing industries from the 13th century onwards, seems not to have diversified further, or gained a native class of professionals (Dennison & Coleman 1996, 36). This undoubtedly relates to the distorting effect Edinburgh was having upon the markets and social structure of its smaller neighbours – for example, by the 16th century Edinburgh, through its port of Leith, was already beginning to dominate the export trade from the area, and its growing population was making it increasingly attractive to both importers and exporters (Lynch 1988, 279). The proximity of Musselburgh to Edinburgh and its markets brought benefits in the form of the settlement of the area by the gentrified elite and the Edinburgh literati in the 18th and 19th centuries, and the construction of new industries in the burgh, such as the Newbigging pottery and Brunton's Wire Works (Dennison & Coleman 1996, 41). The great expansion of housing in Musselburgh in the 20th century can in part be seen as the culmination of its success in becoming integrated with its dominant neighbour while retaining much of its distinct identity.

#### 3.2.1 Morphology of the burgh

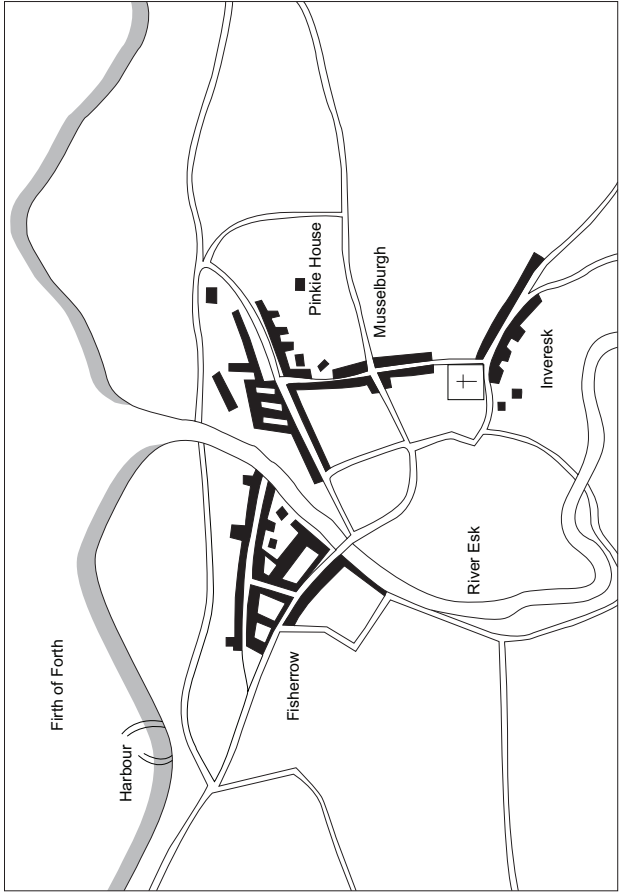
It has been suggested that the core of the medieval settlement was located near to the medieval or 'Old



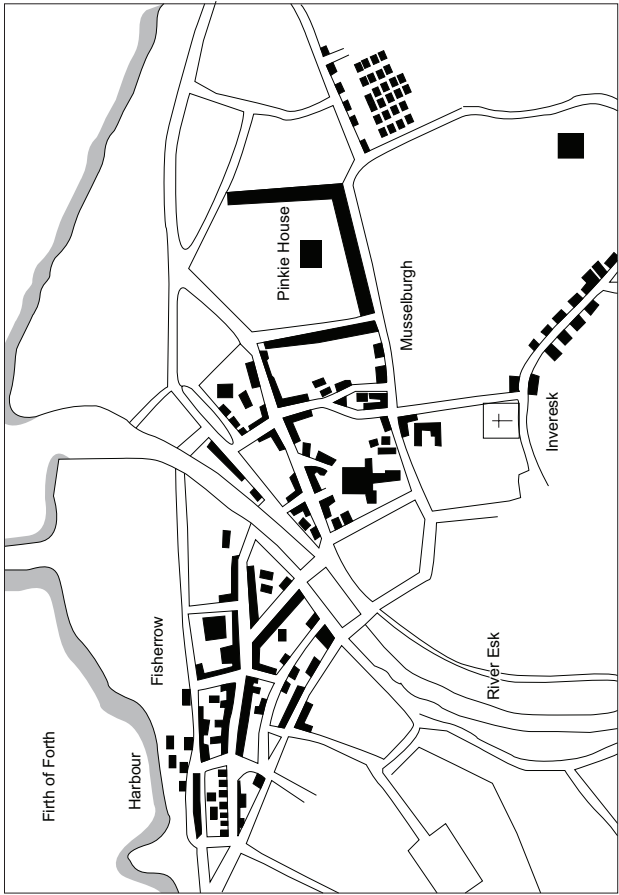
Adair 1682



Roy ca 1750



Laurie 1763



Knox 1816

*Illus 2 The development of Musselburgh from 1682–1816*





*Illus 3 Musselburgh in the 1850s (source: Ordnance Survey 1854, sheets III & VII). Reproduced by permission of the Trustees of the National Library of Scotland.*

Bridge' over the Esk, and then expanded eastwards along the line of the High Street throughout the medieval period (Dennison & Coleman 1996, 52). Excavations at Brunton's Wire Works, in the vicinity of the Old Bridge, recovered 13th- to 15th-century pottery from what have been described as 'agricultural deposits' (Ewart & Triscott 1993). Interventions around the High Street since the Burgh Survey was

published (for example Hastie 2001) have generally produced negative results, in part reflecting the modern development that has taken place in this area.

The first detailed map of Musselburgh, Fisherrow and Inveresk is Adair's 1682 map of Midlothian (illus 2). In general, the core street plan in existence then still forms the basis of the modern-day layout.

In Musselburgh, the High Street is aligned east-west, with Newbigging running south from the High Street, and the road to the Old Bridge bypassing the southern edge of the High Street backlands. The focus of settlement at this time appears to have been the intersection of the High Street and Newbigging, where the mercat cross is located today. Musselburgh Links is marked on the map to the north of the High Street. Settlement in Inveresk lies along the road running east from the parish church. In Fisherrow, the principal street is North High Street, with some settlement along Market Street, running down to the Old Bridge and along the west bank of the Esk. The harbour stands apart to the west. These two streets are separated by gardens or backlands.

This basic layout is confirmed, with more detail, on **Roy's** *Military Survey of Scotland* (1747–55), which also shows a small strip of settlement on the east side of the Esk to the north of Musselburgh's High Street, along the street that became Millhill. The High Street appears at the time of the survey to have lain along the route of a minor spur road that rejoined the main road from the Old Bridge further to the east. The town layout, as seen in the 17th and 18th centuries, suggests strongly that Musselburgh proper did not develop directly beside the Old Bridge, which appears to have been clear of buildings on the east side of the Esk, but was probably always focused on the area around the mercat cross and the High Street.

**Laurie's** map of 1763 shows the area in rather more detail, confirming the existence by this time of Hercus Loan, Lochend Road South and New Street in Fisherrow and Millhill in Musselburgh. One notable addition to the post-medieval street plan of Fisherrow is Bridge Street, first shown on **Knox's** map of 1816. This street connects North High Street in Fisherrow and High Street in Musselburgh, via the New Bridge which was built in 1806–07 and runs through what were formerly the backlands of the settlement along the North High Street.

Later additions to the street plan of Musselburgh proper, such as Mansfield Gardens and Kilwinning Terrace, appear to have been built on open gardens and backlands to the south of the town (**illus 3**). This area was largely undeveloped until the 20th century, with the exception of the Newbigging pottery and the narrow strip of housing that lay either side of the road south to Inveresk.

While the burgh has developed around its original street plan, the centre has seen some 20th-century development, particularly along the High Street west of Kilwinning Street, and in the plots to the rear of both frontages. The least affected area is the northern frontage east of Kilwinning Street, while in Fisherrow, the North High Street between Lochend Road North and Bridge Street appears to retain much of its 18th- and 19th-century character (**illus 2 & 3**).

## 4 SUMMARY OF KEY RESULTS

The type of work taking place in each area heavily influenced the impact of the works on archaeological remains. In streets where the new mains were installed using pipe-bursting or slip-lining techniques very little archaeology was encountered, as these methods involved the excavation of small trenches over the existing main. Likewise, the replacement of house-to-main services required only small trenches over the old service, and the majority of the deposits in these trenches were also disturbed. In contrast, archaeological remains were frequently encountered when the new mains were installed in open-cut trenches, although in some cases the new pipe track lay directly alongside other services and either largely or completely in disturbed ground. The main open-cut trenches varied in depth between 1m and 1.5m, and were usually around 0.5m wide. Other interventions depended on the depths of the existing services.

There were several factors that affected the quality of the data gathered. The most important, as mentioned above, was the lack of archaeological monitoring along much of the High Street. Archaeological deposits located in a few of the smaller house-to-main services in this area indicated that the potential for locating significant remains in the open-cut trenches would have been high. A lesser factor affecting the data gathering was, in some areas, the depth of the open-cut trenches, which in places exceeded safe working depths and required recording to be done from the road surface. Along those parts of the High Street that were monitored, variation in water levels within the trenches, probably caused by the

tides, periodically added to the difficulties of the archaeologists!

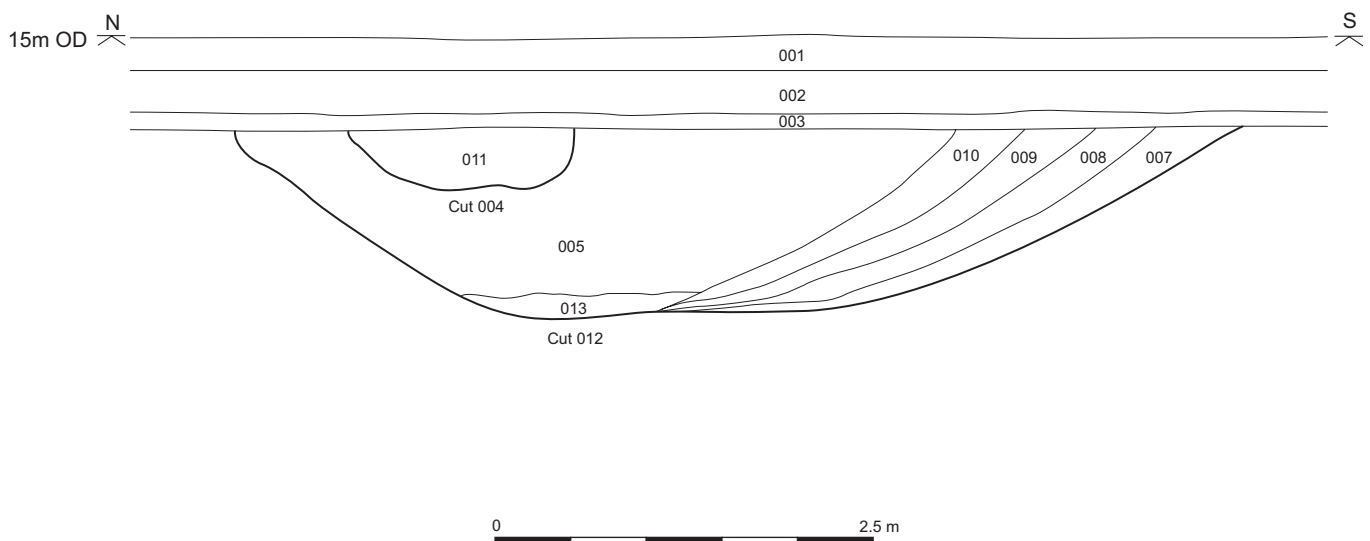
The final factor to be considered in assessing the quality of the results is the human factor. The course of the works was at times unpredictable or subject to short-notice changes of schedule in response to conditions on the ground. Levels of experience among the 13 archaeological staff engaged in the monitoring and recording also varied. Nevertheless the project archive is coherent and consistent, and provides a proper record of the nature, depth and extent of archaeological deposits beneath the road surfaces in Musselburgh.

### 4.1 Interventions around known sites

Several interventions took place in the vicinity of known sites (*illus 1*, *illus 5*). The results of these interventions are presented here, along with a brief interpretation of their significance, and an assessment of the further potential of the area

#### 4.1.1 The vicus

Level with the northern boundary of the Scheduled area of the *vicus* (SAM 1182) trenching along the southern part of Inveresk Brae located a ditch approximately 6.5m wide and 1.5m deep (T200/012; *illus 4*). This feature contained a number of weathering episodes (T200/007–010) along its southern edge, possibly indicative of the presence of a bank on the up-slope side. Fragments of glass, possibly



*Illus 4 Section of Roman ditch on Inveresk Brae*



Roman, were recovered from the first weathering episode. Following a brief period of stability, in which fine clay (T200/013) accumulated in the base of the ditch, the feature was backfilled (T200/005). A fragment of Samian ware was recovered from this deposit, which also contained fragments of sandstone and lime mortar, possibly indicating demolition in the vicinity. A shallow, sterile U-shaped feature (T200/004) had been cut into the final backfilling of the ditch, but yielded no dating evidence.

The upper fills of the ditch were sealed by a dark brown buried soil (illus 5: T200/003). In the vicinity of the ditch, this deposit contained fragments of roof tile and box-flue tiles, while further to the north it contained charcoal, oyster shell and small fragments of bone. To the north of the ditch this deposit ran beneath a layer of redeposited sand and gravel, which while relatively thin in the area of the ditch increased to a depth of around 1m to the north as the original ground slope fell away.

As mentioned above, Roman remains, including hypocaust structures using box-flue tiles, were encountered very near to this area during work at Inveresk House in the 18th century. It is also interesting to note that during this work the owner of Inveresk House apparently filled in the east ditch of the fort, which had been used as the public road to Inveresk from Musselburgh, and established Inveresk Brae in its present location to the east of this, in places cutting the road into the slope (de Cardonnel 1822, 164–5). The remains located in the course of the watching brief might be interpreted in relation to this information. The ditch seems to be a fairly secure Roman feature, and possibly formed some sort of boundary or enclosure related to the fort or to the *vicus*. Other archaeological work in the properties to either side of Inveresk Brae has been limited in extent (Rogers 2002; Thomas 1988b) and this ditch appears to be a previously unknown feature of the *vicus*. Its location, prior to the levelling effect of the made ground to the north, would have been at the top of a relatively steep slope. The buried soil overlying this feature, and extending down the hill, is probably the original post-medieval soil horizon prior to the establishment of Inveresk Brae. The Roman finds from this deposit and the shell, charcoal and bone may be material derived from the 18th-century disturbance of Roman buildings in this area. The substantial deposits of made ground to the north of T200/012 that seal the soil horizon are probably related to efforts during construction of the Brae intended to reduce the severity of the slope.

The work on Inveresk Brae has demonstrated the potential for Roman remains to survive beneath road surfaces within the vicinity of the Scheduled areas. Further work at the head of the Brae, on Inveresk Village Road, was almost entirely located over existing services. However, it is likely that undisturbed sections of the roadway in this area have similar potential to Inveresk Brae.

#### 4.1.2 The Newbigging pottery

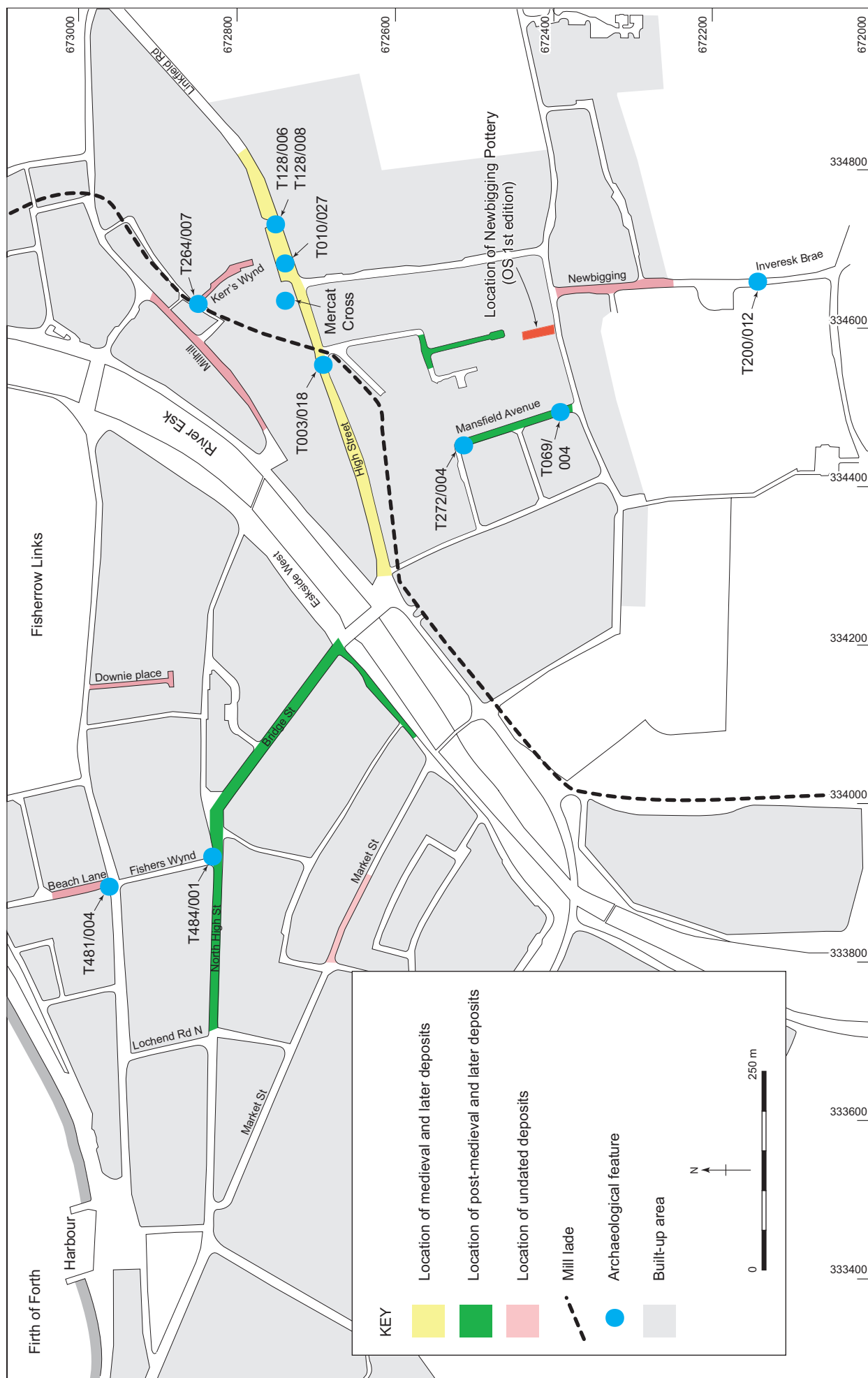
Open-cut trenching along the east side of Mansfield Avenue, towards the south end of the street, uncovered a substantial 2.5m wide ditch or pit filled with sand and large quantities of broken white china (illus 5: T69/004). A large deposit of brick and mortar demolition rubble, again rich in white china, was present in the northern end of the trench. Several other narrow-cut features crossing the northward continuation of this trench were probably furrows, the cultivation soil to which they were related contained fragments of early post-medieval pottery.

In 1987–88 a limited excavation at the site of the Newbigging pottery located a sequence of kiln bases, in addition to huge numbers of pottery sherds (Haggarty & McIntyre 1996). Unfortunately, the china discovered during the monitoring on Mansfield Avenue, some 60–70 m to the west of the location of the Newbigging pottery, was not sampled, as the potential significance of the deposit was not realised at the time. Without sherds from the watching brief to compare with those known to have been made at the pottery, it is impossible to say for sure whether the deposits of china and rubble located on Mansfield Avenue bear any relation to activity at the pottery. However, a hypothesis that could potentially be confirmed by further work in this area is that the owners of the pottery may have made temporary use of the vacant High Street backlands to the west of the pottery for the disposal of waste pottery and rubble resulting from rebuilding at the factory. The Ordnance Survey town plans (1853 and 1894) give no indication of structures in this area, so it is possible that any activity either predated OS mapping, or was very transitory in nature.

#### 4.1.3 The mill lade

Trenching in Kerr's Wynd cut across a 3.5m-wide vaulted sandstone arch located directly beneath the road surface (illus 5: T264/007). The arch rested on substantial sandstone and brick walls, and was repaired in places with concrete and wooden sleepers. The interior of the arch was largely filled in with assorted demolition rubble and other detritus. A large modern pipe was visible within this material, which on inspection by the contractors proved to be carrying a strong flow of water.

A steady water supply was important to Musselburgh, not only for the industries that produced goods for trade and export, but for the mills that ground the corn for making bread. There is indirect evidence that the Esk was being harnessed for industrial purposes even before the end of the 13th century, and the town lade is historically attested from the 16th century when the existence of mills at the foot of Kerr's Wynd is also mentioned (Dennison & Coleman 1996, 19, 21). The existing mill lade runs to the rear of the southern frontage of the High Street, before crossing by the junction with Kil-



*Illus 5 Location of key sites and archaeological deposits*

winning Street and running along the rear of the burgage plots on the north side of the High Street. In the course of development within the burgh the lade has changed from a primarily open watercourse at the end of the 19th century ([Ordnance Survey 1894](#)) to one that is now largely culverted and piped. The structure located in Kerr's Wynd, while difficult to date in such a narrow slot, is part of a long tradition of lade bridges at this particular location.

A further section of the lade was identified on Kilwinning Place, to the south of the High Street,

during an archaeological evaluation, although the sandstone arch was not breached ([Mudie 2002](#)). The town lade is quite clearly still a part of the modern infrastructure of the burgh, and it would probably be unwise to compromise its structure should it be encountered during any future archaeological work. However, as the flow of water now appears to be piped, it is possible that future monitoring exercises will provide the opportunity to obtain samples from the base of the lade that could provide a date for the feature.



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## 5 DISTRIBUTION OF ARCHAEOLOGICAL DEPOSITS

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This section summarises the general archaeological landscape within historic Musselburgh, and Fisherrow (*illus 5*). The results have been tabulated in order to give an indication for each area of the nature and date of the archaeological deposits located during the watching brief.

There were three main types of archaeological deposit located in the course of the watching brief along the main streets of the burgh. The first is termed here ‘occupation deposit’ and generally consisted of relatively thin dark brown, sandy sediment containing small fragments of shell, coal, charcoal and pottery, usually in low concentrations. This type of deposit was mainly confined to the main thoroughfares of the burgh and probably formed during continuous use of these streets. It probably reflects an almost open-ended list of activities that may have contributed to its makeup. Work elsewhere has suggested that sediment deposition within medieval burghs is likely to derive partially from the decay and mixing of midden deposits and imported building materials such as timber and turf. Where these deposits exist in depth their presence probably reflects intensive activity within the areas in which they are found (*Carter 2001*). Many of the occupation deposits located in the streets of Musselburgh are not deep, suggesting that the intensive use of timber and turf constructions was focused away from the street frontage, with the added possibility that the ‘occupation deposits’ within the current roadways have been truncated.

The term ‘midden-type’ is used here to refer to the second type of deposit, which was very rich in shells, many complete, and which also contained pottery. This material often filled shallow cuts or appeared in discrete hollows or lenses. The sediment appeared largely unmixed and may represent deliberately deposited material.

In the back-street areas of the core settlement (Mansfield Avenue, Kilwinning Place) very dark soils containing occasional pottery fragments were frequently encountered and have been termed ‘cultivation soils’. The depth of these deposits was approximately half a metre, and appeared to show a single soil horizon overlying natural sediments. These deposits are likely to have formed at the interface between the backlands of the burgh and the surrounding agricultural fields.

Other cut features filled with homogenous sediments may have been boundaries or drainage features, and are summarised in the relevant section below.

Further out from the burgh core, along the fringes of Musselburgh, Fisherrow and in Inveresk, the only archaeological remains located were occasional

stone-built box culverts. Deep plough-soils were the only deposits encountered along Carberry Road to the south of Inveresk.

### 5.1 *Musselburgh: High Street, Millhill, Kerr’s Wynd, Mansfield Avenue, Kilwinning Place, Newbigging*

Open-cut trenching was monitored on the High Street between the mercat cross and East Port, and house-to-main services were recorded along the length of the street. As mentioned above, archaeological monitoring of the project did not commence until substantial sections of open-cut trench on the High Street had already been dug and backfilled.

The results of monitoring in this area are presented in *Table 1* below. The only evidence for medieval activity was located on the High Street. In this area the early archaeological horizons were generally sealed beneath redeposited beach gravels, possibly road surfaces, containing 18th- and 19th-century finds. Cut features were identified in several trenches along the High Street (*illus 5*: T003/018, T010/027, T128/008). Although their original function is unknown, one of these features (T010/027) was 0.5m deep and contained midden-type material and medieval pottery. These features seem unusual for a roadway, and may reflect earlier activity in these areas or changes in the street layout. Similarly, a north-south-aligned mortar-bonded wall footing located in one trench on the High Street (*illus 5*: T128/006) does not correspond to any known mapped boundary and could reflect alterations to the street frontage.

A series of five east-west-aligned cuts 2m wide and approximately 1m deep crossed Mansfield Avenue between its north and south ends and produced post-medieval pottery. These features were filled with the same cultivation soil horizon that was prevalent throughout this area. The east-west-aligned mortar-bonded wall footing located on Mansfield Avenue (*illus 5*: T272/004) appears to correspond to the rear boundary of one of the burgh plots shown on the OS first edition (*illus 3*).

### 5.2 *Fisherrow: North High Street, Market Street, Bridge Street*

Open-cut trenching in this area exposed post-medieval occupation horizons on North High Street, Bridge Street, Eskside West and Market Street (*Table 2*). In general, the archaeological deposits consisted

**Table 1 Distribution of archaeological deposits: Musselburgh**

	Midden-type			Occupation deposits	Cut features		Cultivation soil	Wall footings	Culverts
High Street	M	PM	ND	PM	M	ND		ND	
Millhill	ND								ND
Kerr's Wynd				ND					ND
Mansfield Av					PM		PM	PM	
Kilwinning Place							PM		
Newbigging				ND	ND				

M Medieval
 PM Post-medieval
 ND No date

**Table 2 Distribution of archaeological deposits: Fisherrow**

	Midden-type			Occupation deposits	Cut features		Cultivation soil	Wall footings	Culverts	
North High St				PM	PM			ND	PM	ND
Downie Place							ND			
Beach Lane								ND		
Market Street				ND						
Bridge Street	PM						PM			ND
Eskside West	PM									

M Medieval
 PM Post-medieval
 ND No date

of a single horizon stratified between the natural sands and gravels and modern road material, and included intermittent occupation deposits, patches of midden-type material and cut features crossing the trench. The cut features on North High Street were filled with deposits similar to the homogenous deposits that underlay the modern road surface and their bases were rarely reached within the service trenches. The presence of these features along a roadway is unusual. These may be later features backfilled with redeposited occupation deposits, or may represent activity pre-dating organised settlement on the west side of the Esk.

On Bridge Street, which cuts across the former backlands of North High Street, in situ midden

deposits and cultivation soils were more common than re-worked occupation deposits. This appears to fit well with this area's status as backlands prior to the 19th century.

Small trenches dug over the existing water main on Market Street indicated the presence of undated occupation deposits in areas where settlement is depicted on the 17th-century maps. Neither the north-south-aligned mortar-bonded wall footing located on North High Street (*illus 5*: T848/001) nor one located on Beach Lane could be related to mapped structures or boundaries.

In contrast to the High Street in Musselburgh, dated evidence for settlement in Fisherrow seems to be exclusively post-medieval and later.

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## 6 ARTEFACTS AND THEIR DISTRIBUTION

*by Julie Franklin*

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### 6.1 Roman finds

Several Roman finds came to light, though all were fragmentary and probably redeposited. Not surprisingly, these were concentrated towards the south end of the area, in the vicinity of the Roman fort and settlement of Inveresk. They were found in Trench 199 and Trench 200 towards the south end of Inveresk Brae, at the north end of the Scheduled area, near the site of a possible bath-house. Neither of these trenches produced any material of demonstrably later date.

The finds included one undecorated rim fragment of Samian ware from the backfill of the ditch (T200/005). This is from a plate or bowl possibly of Drag. form 31, 37 or 38 or similar (see [Oswald & Pryce 1920](#), Pl.XLV, Pl.LXXII, Pl.LXXV). These types were all produced in 2nd-century central Gaul. Forms 31 and 37 are known in Scotland, being found at nearby Cramond ([Dickinson 2003](#), 42).

Four fragments of clear glass were recovered from deposits associated with the weathering of the ditch cut (T200/007). These appear to be flat, and thus are probably window glass. They are in very good condition, with only a slight laminating effect on the surface of some. They could be post-medieval, but given the context, a Roman date is possible.

Other finds are all of ceramic building material. There is one sherd of box-flue tile (T200/003), with a knife-trimmed edge and combed, keyed surface. It is of a hard-fired light-red gritty fabric, with a light-grey core. Box-flue tiles were stacked together to

form hollow ducts to carry heat through the walls. It probably derives from the bath-house, as do the box-flue tiles from Cramond Roman Fort ([Franklin & Collard 2003](#)).

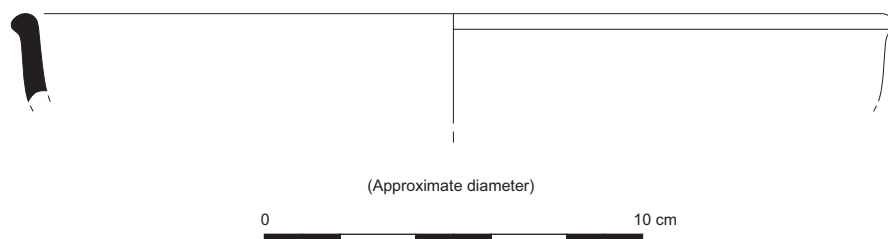
There are several unstratified sherds of tegula roof tiles from T200 and one unstratified lump of brick (T199), none large enough to give information about size or form. The fabric varies from red to light-red, with quartz and iron oxide inclusions, sometimes with occasional mica and streaks of white clay. These correspond to Crowley's Inveresk Fabrics 1 and 2 ([Crowley forthcoming](#)).

### 6.2 Medieval and post-medieval finds

Medieval finds were limited to 11 sherds of White Gritty ware, produced in south-east Scotland between the 12th and 15th centuries. Sherds were most common on the High Street (T30 and T39), though two redeposited fragments were also found across the Esk at Bridge Street (T659).

Early post-medieval wares number 33 sherds, and by contrast with earlier wares are concentrated on the west side of the river on the North High Street. They include fragments of imported German stoneware, delftware and slipware, from the Netherlands or England.

Modern finds are naturally the most numerous. These include the usual types of utilitarian redwares, creamware, bottle glass, clay pipes and pantiles. These are most common on Eskside West and North High Street.



*Illus 6 Sherd of Samian ware recovered from T200/012*

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## 7 DISCUSSION AND INTERPRETATION

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The interventions around the three known sites have been discussed in the preceding section. This section addresses the general archaeological landscape of medieval and later Musselburgh, as reflected by the results of the watching brief, and contrasts these results with those from similar exercises in other Scottish burghs.

### 7.1 *The archaeology of Musselburgh*

#### 7.1.1 Distribution of deposits

In situ archaeological deposits appear to survive well in the core of the historic burgh, and in the vicinity of the *vicus*. Additionally, deposits probably related to the smaller satellite settlements such as Newbigging and the burgage plots on Market Street appear to survive, although dating evidence was not recovered. Culverts and other early drainage structures were generally well preserved, and in places old property boundaries may survive.

#### 7.1.2 Medieval Musselburgh

The monitoring exercise provided a partial transect through the core of medieval Musselburgh. The fill of a cut feature to the east of the mercat cross in this area (*illus 5*: T010/027) contained early medieval pottery, and a layer of midden material to the east of this contained both late medieval pottery and post-medieval roof tile. Combined with the cartographic evidence discussed above, there is as much evidence for the location of the burgh nucleus being along the current course of the High Street, as there is for a location in the vicinity of the Old Bridge. However, the occurrence of cut features in the areas monitored along the High Street suggests that the precise development of this area remains to be fully understood. It is difficult to establish what the original focus for settlement would have been – the Old Bridge origin was suggested partly because of the potential for economic exploitation of the river crossing (Dennison & Coleman 1996, 18) – but the laying-out of formal burgage plots was probably a reorganisation of existing settlement in an area with a long tradition of habitation. On its current alignment, the eastern end of the High Street is far more suited for the positioning of burgage plots than the west, as in this direction the available land behind the northern street frontage becomes progressively shortened by the course of the Esk.

Musselburgh was quite clearly being bypassed to the south by the main road running from the Old Bridge by the 17th century. The bypassing may be original to the layout of the burgh, but could also be related to the post-medieval economic decline of the burgh, when it was no longer worthwhile for travellers on the road to or from Edinburgh to pass through the town.

#### 7.1.3 Fisherrow

The date of settlement in Fisherrow has up until now been unclear. It has been suggested that the harbour at Fisherrow began to replace a harbourage on the Esk in the medieval period, although historical sources only begin to refer to it by name in the 16th century. To date archaeological discoveries have indicated only post-medieval activity in this area (*ibid*, 70). The evidence gathered by the monitoring in Fisherrow – where archaeological sampling was far more comprehensive than in Musselburgh – largely confirms the post-medieval date of significant settlement west of the Esk. Activity along the core North High Street dates only to the 16th century or later, while the middens located on Bridge Street and Eskside West are of 17th- or 18th-century date. The occupation deposits located on Market Street – which correspond to the location of burgage plots on Adair's map of 1682 – may be of similar post-medieval date. It is possible that these plots were only laid out west of the Esk after development along the High Street in Musselburgh proper had run up against the river bank. The expansion of organised settlement west of the Esk probably reflects the growing importance of the Fisherrow harbour to the townsfolk in this period. The occurrence of imported pottery in this area probably reflects a degree of international traffic into Fisherrow harbour, despite the dominance of nearby Leith.

### 7.2 *Pipeline transects in historic burghs*

The archaeological deposits located within the core of Musselburgh are noticeably different in character from those found on similar monitoring exercises in Crail, North Berwick and Perth (Lowe 2001, Dingwall forthcoming, Glendinning 2002) particularly in the absence of stratified deposits. The occupation deposits located within Musselburgh and Fisherrow generally consisted of a single occupation horizon of mixed date, with occasional more secure pockets of material, such as shell midden filling pits.

In contrast, the monitoring of water mains renewal in North Berwick located successive medieval and post-medieval surfaces, interspersed with deep layers of wind-blown sand, and rarely encountered underlying natural deposits. In Crail, monitoring of the installation of a new sewage network again located in places successive medieval and later road surfaces.

#### 7.2.1 Reasons for variation – population and development

There are several probable factors lying behind the differences between the results of the three different monitoring exercises. The first, as has been stressed before, is methodological. It is entirely possible that the most well-preserved and well-stratified medieval deposits within Musselburgh are located in that part of the High Street west of the mercat cross, where no open-cut trenching was monitored. However, the monitoring exercise was comprehensive throughout Fisherrow, where a deposit sequence from at least as early as the 16th century could reasonably have been expected, yet present was the same kind of single-horizon deposits as those encountered on the other bank of the Esk.

Variation could also be attributed to the contrasting histories of the three burghs. The most obvious difference between Musselburgh, Crail and North Berwick is that of scale. Crail and, to a lesser extent, North Berwick were both important trading and economic centres in the medieval period, whilst the economy of Musselburgh seems to have suffered through the burgh's proximity to Edinburgh. However, over time this situation seems to have reversed. The economic fortunes of the three burghs diverged markedly following the medieval period, with Musselburgh generally gaining prosperity and becoming industrialised, while Crail and North Berwick were reduced to relatively minor backwaters. In the 20th century Musselburgh has far outstripped Crail and North Berwick in population. The 2001 census gives the adult population in Musselburgh as 17,476, as opposed to 4,938 in North Berwick and 1,383 in Crail. The relative sizes in the three populations can obviously have correlations to the degree of modern disturbance of archaeological remains, particularly as the historic cores of these burghs remain their centres of social and economic activity. In Musselburgh, this disturbance not only includes the construction of the modern shopping buildings at the west end of the High Street, but also extends to infrastructure development, such as the laying of services and improvements of the roadway. Modern development in Musselburgh may have truncated or obliterated archaeological horizons

around more significant developments. However, Perth is obviously a far larger town than Musselburgh, and archaeological preservation within Perth town centre is excellent.

The data from Musselburgh indicate that at either end of the High Street the archaeological deposits were relatively intact and had been sealed by redeposited beach gravels. Along North High Street, where modern development has generally been less intense, the archaeological horizon appeared in places to have been truncated by the modern road surface, but again the finds assemblage indicates that the surviving horizon is representative of the whole period between the 16th and 19th centuries.

#### 7.2.2 Reasons for variation – geography

It therefore seems likely that while the methodology of the watching brief and modern development have had an impact on the survival of archaeological deposits in Musselburgh, additional factors are involved in generating the single mixed-date horizon that characterises the data from the watching brief. The most striking difference with the results from North Berwick is the lack of deep wind-blown sand. It has been suggested that inundation by wind-blown sand was a seasonal problem in North Berwick, and that many of the deposits seen beneath the roads represent attempts to reconsolidate the surface and create metalled surfaces out of midden material ([Dingwall forthcoming](#)). Conditions in Perth, where deep stratified midden deposits also survive beneath the road surface, could also be contrasted with Musselburgh – in this case anaerobic preservation appears to have prevented the breakdown and reworking of archaeological deposits ([Glendinning 2002](#), 96).

The geographic situation of Musselburgh is quite different from that of Perth and North Berwick. It is further from the coast than North Berwick, and the seaward land is generally consolidated as links, rather than open beach as at North Berwick. This may be why sedimentation in the roadways seems to have been far less active, while unlike in Perth, the waterlogging of archaeological deposits is probably far more periodic in Musselburgh. The combination of soil conditions and a lack of active natural sedimentation in Musselburgh and the absence of built road surfaces probably allowed for frequent disturbance and mixing of material deposited in the streets, forming the homogenous sediments observed during the monitoring. Processes such as street cleaning or road resurfacing may also have contributed to the truncation of the resulting mixed-date archaeological horizon, possibly accounting for its shallow depth in most central areas of the burgh.



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## 8 CONCLUSION

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The recent work in Musselburgh has demonstrated the survival of archaeological deposits relating to existing sites, Scheduled areas and the historic burgh core. In general, extant horizons appear to match closely with known areas of Roman and medieval settlement, but have been damaged in places by the creation of modern roads and services. Areas of particular sensitivity are the High Street, North High Street, Newbigging and Inveresk Brae.

It cannot be denied that, had archaeological monitoring of the water mains renewal commenced sooner in Musselburgh, the data would be far superior. As the data from Musselburgh stand, generalisations given here on the development of the medieval burgh should be taken as models open to further testing.

As archaeological deposits are difficult to interpret in section in narrow slot-trenches, finds distributions are probably the most valuable information that can be obtained from pipeline monitoring and the retrieval of securely stratified finds of all periods must be the main priority for further work of this nature in Musselburgh, and in other historic burghs where similar sedimentary sequences are predicted.

A final point to make is that permitted developments such as water mains renewal can have large cumulative impacts upon archaeological remains. In Musselburgh, the disturbance by existing services of this finite resource is already severe. Priority should be given to ensuring that work within the roadways of historic burghs is rigorously controlled.

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