An Archaeological Excavation and Watching Brief at Castleford Bus Station, West Yorkshire

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Castleford Bus Station, West Yorkshire

Report on an Archaeological Excavation and Watching Brief

ARS Ltd Report 2014/51

Archaeological Research Services Ltd

Contents

List of Figures

List of Tables

EXECUTIVE SUMMARY

Project Name: An Archaeological Excavation and Watching Brief at Castleford Bus Station, West Yorkshire
Site Code: CAS14
Planning Authority: West Yorkshire County Council
Geology: Pennine Middle Coal Measures, no record of superficial deposits present
NGR: SE 42481 25545
Date: April 2015

In April 2014 Archaeological Research Services Ltd was commissioned by Morgan Sindall Plc to undertake an archaeological excavation and watching brief at Castleford Bus Station, Castleford, West Yorkshire, in advance of a programme of works related to the modernisation of the bus station.

An archaeological evaluation conducted by Wessex Archaeology in May 2013 revealed significant remains related to both the Roman occupation of Castleford and the industrial development of the town in the 19th century. These remains were considered to be at risk from the construction works related to the modern bus station and required an archaeological excavation to mitigate impact. Consequently, the site was divided between two excavation areas, classified as Area A and Area B. Area A was located to the NW of the site and measured 86.81m x 20.05m. Area B was present at the SE extent of the site and measured 12.89m x 7.12m. Additionally, a watching brief was carried out upon all groundwork activity, which occurred upon site, beyond the extents of the designated excavation areas.

The archaeological features present within both Areas A and B revealed multi-phase periods of site occupation including two 20th century phases, multiple 19th century phases, periodic post-medieval activity and two phases of Roman occupation.

The Roman activity on site was divided between two distinct periods of occupation, separated by a series of potential flooding events evidenced by alluvial deposition. The earliest Roman features, formed prior to the flooding of the site, were characterised by a sequence of inter-cutting ditches dated between the late 1st and 2nd century AD. The presence of cow, sheep and pig bone recovered from the afore-mentioned linears may indicate that the ditches functioned as agricultural field boundaries associated with the Roman vicus. Timber structures, characterised by NW-SE aligned beamslots, overlay the dis-use silt deposits within the Roman field boundaries. The construction of timber structures, subsequent to the dis-use of the field boundaries, might be indicative of a gradual shift in land usage from an agricultural to domestic role. The partial change in function was tentatively attributed to an expansion in size of the civilian vicus in the mid-2nd century. Additionally, the dramatic decrease in frequency of Roman features towards the south-west of Area A may indicate that the Roman activity on site should be interpreted as being peripheral to the urban centre of the vicus.

A substantial decline in Roman activity occurred following a sustained period of alluvial deposition. Only five Roman features were identified that post-dated the flooding events within both excavation Area A and B. Consequently, the pattern of Roman occupation visible within Area B, coupled with the pattern revealed within Area A may be tentatively assigned to a post-alluvial shift in Roman activity away from the land south-west of the Roman fort during the later 2nd century. Similarly, the archaeological evidence revealed during the current phase of works, might indicate that mid to late 2nd century flooding events, could have been a contributing factor in the progressive and eventual abandonment of the civilian vicus.

Evidence for post-medieval land usage was restricted to a relatively small number of features. A single N-S orientated ditch provided an indication of post-medieval agricultural land-usage and a possible bell-pit and clay borrow pit provided fragmentary industrial evidence for broadly contemporaneous clay extraction and coal mining. In addition, the cartographic evidence coupled with the paucity of post-medieval features may indicate that the site remained semi-rural in form until the expansion of the glassworks in the mid to late-19th century.

The earliest phase of glass-working activity on the site was characterised by Building A at the western extent of Area A. Building A was located 17.3m north-east of the southern extent of Area A and consisted of two NW-SE orientated flues feeding into a larger central flue. The flues butted against a reddish-orange, sub-circular zone of heat affected alluvial silts which displayed eight sub-oval, yellowish-white, zones of heat-affected material

within a broadly circular formation. The heat affected silts were interpreted to be the fingerprint of a glass cone furnace for the melting of glass. The white, sub-oval zones of heat silts likely represented the location of the glass melting crucibles that were set into the floor of a glass furnace within Building A.

The potential glass-furnace situated within Building A likely represented the earliest evidence for glass-working on the site. A cambered road surface (227) and associated structure (Building B) were also constructed at a date considered to be broadly contemporary with Building A. Building B was interpreted as an ancillary structure to potential glass-works Building A.

The second major phase of glass-working activity related to a period of industrial growth during the second half of the 19th century which was principally characterised by the construction of glass-house Building C and a series of associated yard surfaces. The structural remains of Building C had been extensively truncated during demolition. However, the surviving archaeological features identified within Building C were centred upon a NW-SE orientated flue, a sandstone ramp, two flue surfaces and a number internal working surfaces. The subterranean flue was flanked by two rectangular brick structures, which were interpreted as furnace sieges for glass melting crucibles. A number of late 19th century domestic structures, Buildings E, F and G, were located at the eastern extents of the glassworks site. Buildings E, F and G were interpreted as workers housing due to the proximity of the structures to glassworks Building C.

A 20th century demolition deposit overlay the 19th century phase of activity and indicated that the early 1900's were initially characterised by the decommissioning and eventual demolition of the glassworks site. The destruction of the glassworks was *followed by an initial period of rapid, yard expansion (Building J) into the areas previously occupied by the glassworks. However, by the mid-20th century, the expanded yards had contracted to their pre-19th century extents and domestic Buildings E, F and G had been demolished. Furthermore, there was little evidence for major modification to the surviving 19th century buildings and limited evidence for development occurring upon the site from the early 1900's until the construction of the bus station in the 1960's.*

In summary, the archaeological evidence indicated that a period of rapid expansion, growth and urban remodelling occurred upon the site in the later 19th century. The near simultaneous construction of the glasshouse, associated yards and domestic residences was indicative of a pattern of growth characteristic of the changes occurring within glass production centres throughout the country in the mid-late 19th century. Conversely, the lack of archaeological evidence for 20th century development on the site may illustrate that during the late 19th and early 20th century the economy of Castleford had dramatically contracted in a manner which was reflective of a nationwide decline in the glass production industry.

1 INTRODUCTION

1.1 In April 2014 Archaeological Research Services Ltd was commissioned by Morgan Sindall PLC to undertake an archaeological excavation at Castleford Bus Station, Castleford, West Yorkshire, in advance of a programme of works related to the modernisation of the bus station.

2 LOCATION AND GEOLOGY

2.1 The geology of the site comprised Pennine Middle Coal Measures consisting of mudstone, siltstone and sandstone. There are no overlying superficial deposits recorded for the area (BGS, 2014). The site is centred upon grid reference SE42479 25550 (BGS, 2014).

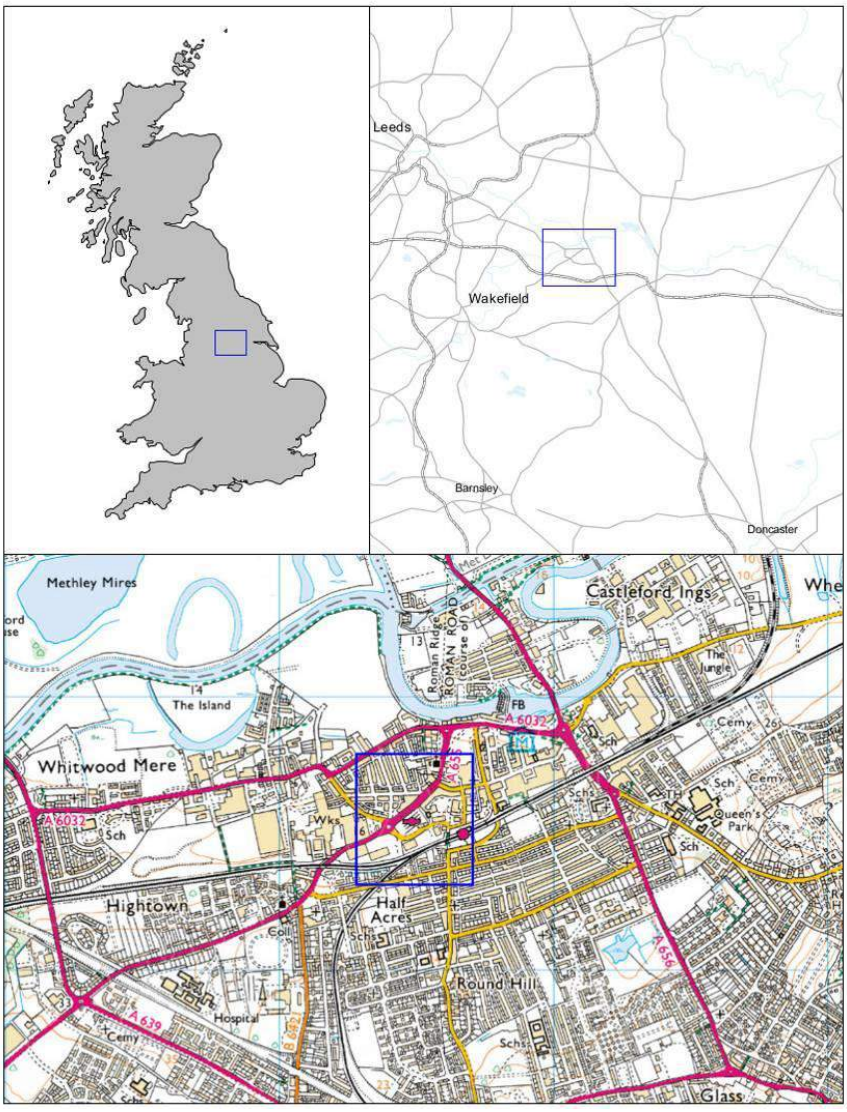

Figure 1: Site location

3. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

3.1 Introduction

3.1.1 The Specification for the Strip Map and Sample stipulated that prior to the commencement of fieldwork, the West Yorkshire Historic Environment Record (HER) should be visited by the site supervisor or project manager to familiarise themselves with the results of the previous evaluation of the site. The visit would also allow and to study papers relating to 19th century glass manufacture. This visit was undertaken by Antony Brown MCIfA, and this section provides an overview of the results of this research. The following section draws upon the results of the Desk Based Assessment and evaluation previously commissioned as part of the current project (Fairhead, 2013).

Prehistoric

3.1.2 There have been 75 residual prehistoric flint artefacts recovered during past excavations undertaken in Castleford, and these have included flakes, blades, cores scrapers, microliths, a tranchet arrow head and debitage. These finds attest to the prehistoric exploitation of the low ridge adjacent to the River Aire upon which Castleford is situated. Prehistoric land-usage, within the vicinity of Castleford, was likely utilised for hunting activity from the Mesolithic period onwards. A few sherds of residual Peterborough Ware pottery were recovered during excavations of Roman deposits in Castleford, and may testify to a Neolithic presence (Abramson *et al*, 1999). By the Iron Age, the wider landscape was densely settled and exhibited a network of fields, trackways and farmsteads. These were evidenced by the extensive cropmarks across the floodplain between the Aire and Calder 1km to the north-west of the Bus Station site. Further Iron Age activity was evidenced by the recovery of a finger ring of possible late Iron Age date during excavations in the vicinity of the Station Hotel, which lies 50m to the south-east of the Bus Station. Furthermore, recent re-assessment of skeletal remains from excavations at Castleford have also identified a potential Late Iron Age element to some of the remains (ASWYAS, 2010).

Roman

3.1.3 Castleford is situated at a pronounced bend in the River Aire which was forded by a section of the 'Great North Road' (Ermine Street) running between Doncaster (Danum) to Tadcaster (Calcaria). The north-south course of this road has been respected by Beancroft Lane and Welbeck Street (Margary, 1967), which passes 60m to the east of the Bus Station site. The ford across the Aire was located 300m to the north of the Bus Station, and a fort was constructed at this important strategic location on the south side of the river around AD 71-4. The precise location of the Phase I fort defences have not been located, although numerous buildings and a midden deposit relating to this early phase have been identified through excavation. Consequently, these excavations indicate that the fort was located on the east side of Ermine Street.

3.1.4 However, it has not been possible to positively identify the location of the Phase 1 civilian *vicus*, although it has been assumed that this was located either side of Ermine Street to the south of the fort. Excavations were undertaken in 1974 to the north of Booth Street, 50m to the east of the Bus Station, on the site of the later *vicus* (Abramson *et al* 1999). These investigations identified four phases of activity (Phases 1-4) commencing in the early Flavian period with the construction of three timber buildings perpendicular to Ermine Street. Further investigations in the area of the *vicus* were undertaken in 1981-3 in a location designated as Trench 10; an area bounded by Booth Street to the north, Dixon Street to the south, and Welbeck Street (Ermine Street) to the east. The western edge of Trench 10 was excavated in the 1980s and was located 10m to the east of Area B as excavated by Archaeological Research Services Ltd in 2014 (Figure 2).

3.1.5 The stratigraphic sequence in Trench 10 corresponded with the four phases identified during the 1974 excavations. The earliest phase was represented by a cluster of timber buildings surviving as beam slots and occasionally associated with hearths. An area between two of the timber buildings at the north of the trench contained multiple gullies, post holes and hearths. This area was interpreted as a possible yard containing a series of ephemeral buildings, the last of which were apparently destroyed by fire (Abramson *et al* 1999, 137).

3.1.6 A spread of burnt daub was also identified and was associated with the destruction of the Phase I fort. The daub deposit also produced a number of coins providing a secure *terminus post quem* of AD86 for this event. However, a second fort was constructed soon after this demolition phase, and the dating evidence indicated that the Phase II fort was constructed in the mid to late 80s AD, and was in use for a decade or slightly longer before falling out of use (*Ibid*, 296). The ramparts of the Phase II fort were excavated at various locations, allowing the circuit to be clearly identified on three sides. The south-west corner of the Phase II fort is known to have been located 100m to the north-west of the Bus Station, and therefore any activity to the south-west of this can be confidently assigned to the civilian *vicus*.

3.1.7 Phase 1 of the *vicus* spanned the occupation of both phases of military activity at the forts and the abandonment of the Phase 2 fort in the 90's AD may have acted as a catalyst for the development of the Phase 2 *vicus* (*Ibid*, 296). Phase 2 of the *vicus* was characterised by the demolition of the earlier timber buildings and the construction of a substantial gravel surface. The gravel surface was interpreted to be a road leading westwards from Ermine Street. The Phase 1 building at the north end of Trench 10 was rebuilt, and a timber building containing a sequence of hearths or ovens was constructed in the former yard area.

3.1.8 The third phase represented the peak of activity within the Roman *vicus* and was dated to AD 140-180. Phase 3 revealed that the pre-existing timber buildings and property boundaries removed and substantial stone buildings were constructed in their place. Two substantial stone structures from this phase were uncovered in Trench 10, one of which has been interpreted as a possible *mansio*. The *mansio* contained a possible statue plinth and a room identified as a granary. The second building to the south had two corridors which were interpreted as the sides of a three-sided structure fronting onto Ermine Street (Cool,

1999). To the west of these buildings were a number of substantial cut features, including a square, timber-lined well. Other timber-lined features were recorded in this area, as well as a pit containing a substantial quantity of animal bone and a grave-like cut which contained no skeletal material, but produced a number of hob-nails (*Ibid*, 150).

3.1.9 As previously mentioned, phase 3 of the *vicus* occurred between AD 140-180, although there is evidence for decline from AD 160 (*op cit*.). In the years following AD 180, the *vicus* was largely abandoned and the stone buildings were robbed of their construction materials to foundation level. An overlying layer of 'dark earth' later developed within which two coins of late 3rd century date were recovered. This final period of activity was attributed to Phase 4 of the *vicus* and was largely characterised by abandonment. However, the 1980's excavations revealed fragmentary evidence for sub-Roman activity within phase 4 of the *vicus*. This was due to the presence of a number of postholes, beamslots and graves excavated through the dark earth deposit (Abramson *et al* 1999, 151). The radiocarbon dates ascribed to the inhumations were revealed to be early 5th- 6th century and likely indicated a later sub-Roman phase of activity (ASWYAS 2010, 8).

3.1.10 The fort area had been abandoned since the turn of the 1st Century, and during Phase 3 of the *vicus* was apparently used as a source of building material and as a dumping ground for rubbish. However, the fort area was apparently re-occupied in the mid to late 3rd Century, evidenced by a new ditch system, buildings, kilns and inhumations and urned cremations. Seven 3rd and 4th centuries coins were recovered from the third phase of activity and the lack of later material suggests that the fort may have been largely abandoned subsequent to the later 4th century.

3.1.11 Recent investigations have provided greater evidence for Roman activity within the vicinity of the bus station. In 1993, a watching brief near Enterprise Way, immediately to the south of the Bus Station, located a wall of uncertain date, a pebbled surface and deposits containing Roman pottery sherds. In 1995, a watching brief at West Street, 130m to the north-west uncovered the remains of Roman limestone rubble foundations and associated Roman pottery. In 1996, an evaluation at the Salvation Army Citadel Building, 15m to the east of the Bus Station, encountered a post hole, stake holes and a linear feature containing occasional fragments of Roman pottery.

3.1.12 An archaeological evaluation of the Bus Station by Wessex Archaeology in 2013 also identified a number of Roman features. Trench 3 located a pit, a ditch and a beam slot cut into the natural clay at a depth of 1m below ground level. All of the afore-mentioned features contained Roman pottery in addition to a single fragment of Roman CBM (Fairhead, 2013).

Post Medieval

3.1.13 Reference to both the cartographic and archaeological data indicates that the bus station site had previously been developed by Albion Glassworks in the 19th century. The earliest mapping of the bus station site dates to 1822, and the desk based assessment carried out in 2013 erroneously states that a number of early 19th century buildings are depicted within the centre of the site (ASWYAS, 2013, Figure 5). A re-assessment of this map indicated that these buildings were actually located at the eastern extent of the modern bus station. The site straddled two 19th century plots of land which were separated by a north-south orientated lane. Although no structures related to glass-working were annotated upon the 1852 OS map it was likely that Albion Glassworks was founded by George Bradley upon the site during the 1850's (ASWYAS, 2013). Albion Glassworks was then sold as a functioning manufactory to T.R.Sykes and W.W Macvay in 1864 (ASWYAS, 2013).

3.1.14 The 1890's Ordnance Survey map indicates that by the later 19th century the glassworking structures present on site were centred upon a square building with a large chimney. Additionally, a north-west to south-east orientated building was identifiable at the western extent of the site and occupied the same location as the north-west to south-east oriented structure on the 1852 map. There were rows of probable housing to the east and north of the square structure and these may have functioned as either ancillary glass-working structures or domestic residences. In 1880, the amalgamation of the glassworks with the Codd Company allowed Albion Glassworks to manufacture the Codd bottle. In 1887 the revolutionary Ashley Plank Machine was also installed within Albion Glassworks and due to the success of the machine the factory was renamed the Ashley Bottle Co. in 1893. The Ashley Bottle Co. went out of business in 1894, and all of the glassworks were subsequently demolished (Turner. W, 1938). The 1908 Ordnance Survey map confirms that the furnace and numerous associated structures had been demolished by the early 20th century.

4. METHODOLOGY

4.1 Excavation

4.1.1 Two excavation areas, Area A and Area B, were established at the northern and eastern extents of the site (Figure 2). Both excavation areas were subject to machine excavation undertaken by of a 360 mechanical excavator equipped with a toothless bucket. All superficial deposits were removed, by machine excavation, to the first significant archaeological horizon or as far as was necessary to expose archaeologically significant remains.

4.1.2 All archaeological works were carried out by appropriately qualified and experienced archaeologists.

4.1.3 Plant was excluded from travelling across areas which had been stripped, except to carry out work under direct archaeological supervision where any areas to be crossed had been previously investigated to the satisfaction of the Local Authority Archaeologist.

4.1.4 Hand excavation with appropriate tools was undertaken to sample excavate all significant archaeological deposits and to clean surfaces, sections and elevations to allow interpretation and recording.

4.1.5 A sufficient example of all specific deposits, features or groups of features was taken to allow informed interpretation of the feature and its location within the stratigraphic sequence, and to recover a representative sample of any artefactual or ecofactual material associated with it or them. Typical sampling strategies included 10% of linear features and up to 50% of discrete deposits or cut features. Cut features less than 0.5m in diameter were to be fully excavated after initial half-sectioning. All structural features were hand-cleaned prior to being recorded by photograph. Structural features were only removed or dismantled as far as was necessary to understand the nature and sequence of their construction.

4.2 Recording

4.2.1 Site records comprised as a minimum:

- Single-context recording system on pro-forma recording sheets
- Appropriate plans, sections and elevation drawings
- Photographic records
- Measured survey.

4.2.2 The photographic record was maintained using digital photography with a minimum resolution of 10 megapixels. The archive will include a set of digital prints in black and white and colour to mitigate against potential loss or corruption of the digital master copy.

4.2.3 Suitable plans, sections and elevations were produced at recognisable planning scales appropriate to the size and complexity of the feature in question. All site plans were tied to the Ordnance Survey grid using a Leica TC307 total station based on control points established by survey-grade GPS.

4.3 Artefacts and Ecofacts

4.3.1 During project planning the recovery of appropriate samples of artefactual material was of key concern, but it was accepted that, given the nature of the site a total recovery policy was likely to be inappropriate. The artefact recovery policy, therefore, aimed at maximising the informative potential of the assemblage while minimising the collection of material with no analytical value. Based on this premise any sampling of artefactual material aimed to:

- Represent the types of material present within the deposit from which it was recovered
- Represent material from all phases of the processes that took place on the site
- Be able to be quantified as an approximate percentage of the material from the deposit from which it was recovered
- Represent material from the different phases of use on the site

4.3.2 Appropriately qualified and experienced specialists in the analysis of 19th century ceramics and glass-working were consulted and their advice sought on an on-going basis throughout the work.

4.3.3 Samples of ceramic building material (CBM) were obtained from structures including samples of all stamped bricks for dating.

4.3.4 Sampling was also to be undertaken for industrial residues and the recovery of small fragments of artefactual material.

4.4 Watching Brief

4.4.1 A watching brief was carried out upon all groundwork activity, which occurred upon site, beyond the extents of the designated excavation areas (Figure 2). The watching brief was focused upon identification of specific archaeological remains which were identified during the excavation phase of works and were inclusive of-

- identification of a late 19th century glasshouse flue/'cave' revealed within Excavation Area A

- identification of any archaeological features associated with Roman activity.

4.4.2 The watching brief included the following-

- Archaeological supervision of machine stripping (using a toothless bucket)

- The investigation, recording and sampling of archaeological features/deposits related to the 19th century glasshouse flue or localised Roman activity.
- Compilation of an archaeological record including site registers, pro-forma recording sheets (e.g. context record; sample record; human remains record), drawn plans and sections at the appropriate scale and photography in both digital and traditional formats.
- Examination of spoil for archaeological material by hand and eye and with a metal detector.
- Retrieval, processing, conservation and specialist examination of artefactual and environmental information. Finds should be recovered in line with the guidance given in Watkinson, D. and Neal, V. 1998. First Aid for Finds Rescue and in accordance with CIfA standards.

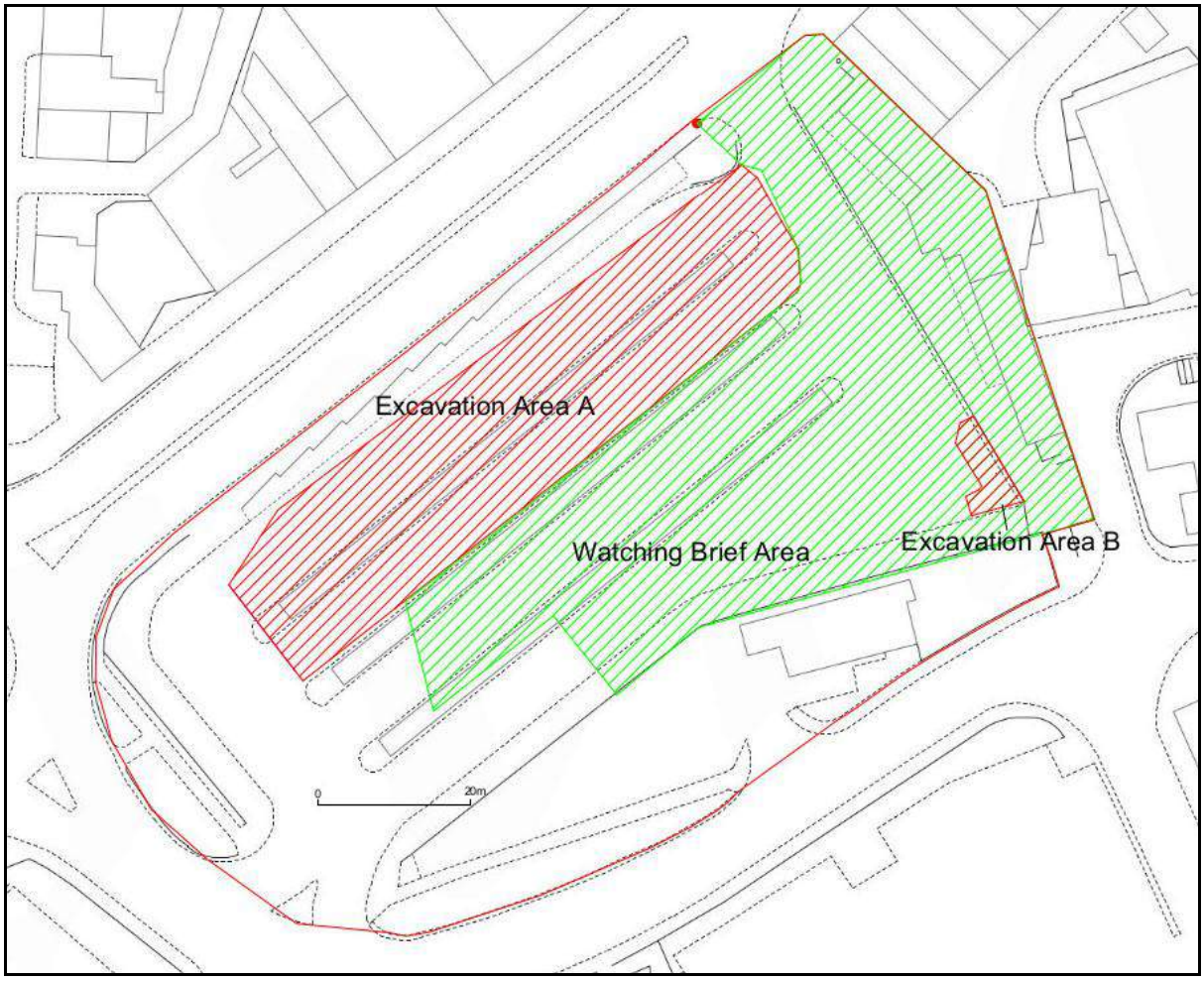

Figure 2: Excavation Areas and Watching Brief Area

5. RESULTS

5.1 Feature Summary

Roman

Ten Roman ditches
Three beamslots
Six pits

Post-Medieval

One ditch
Two potential borrow pits
One waste pit
One bell-pit

Mid-late 19th Century

One chimney base
Three flues
One roadway
Domestic structures with associated internal surfaces
Industrial structures with associated internal surfaces
One potential glass-cone
One glasshouse furnace

20th Century

Yard surfaces
Drain pipes with associated man holes
Modern truncation associated with the construction of 1960's bus station

5.2 The site was divided between two excavation areas, classified as Area A and Area B (Figure 2). Area A was located at the north of the site and measured 86.81m x 20.05m. Area B was present at the south-east extent of the site and measured 12.89m x 7.12m. A watching brief was conducted upon those areas of the site excluded from the excavation areas. The watching brief was tasked with the identification of all features of probable Roman date and the flue network associated with the glasshouse in Area A.

5.3 The Roman features were predominately dug into the natural clay (057) and partially sealed by alluvial deposits (128), (197) and (287). Within Area A, a Roman beam-slot (F.099) had been excavated into alluvial deposit (128). Similarly, in Area B pits F. 291, F.293 and linear F. 289 had also been excavated through alluvial deposit (287). The earlier post medieval features were also excavated into the natural clay (057) and were sealed by later

19th and 20th century structures. The later 19th and 20th century structures were constructed above alluvial deposits (197)/(287) and the natural clays (057).

5.4 The latest identifiable event which occurred within both excavation areas was the construction of the kerb and road surfaces related to the modern 20th century bus station. These were constructed above a compacted, red, crushed shale, bedding deposit (002) with an average depth of 0.35m. The crushed shale deposit (002) extended across the full extent of both excavation areas and sealed three poorly sorted deposits (003), (273) and (263). Deposits (003) and (273) were comprised of a greyish-black, silty-clay containing frequent glass and brick fragments. Both (003) and (273) were interpreted as early 20th century demolition events related to the destruction of 19th century structures. Demolition event (003) was located in Area A and deposit (273) was situated within Area B. Deposit (263) was a brownish-black, silty-clay deposit containing frequent fragments of 20th century construction and building material. Deposit (263) was therefore interpreted as a demolition deposit related to the clearance of the site prior to the construction of the modern bus station in the early 1960's. Deposit (263) was only identifiable in Area. A.

5.5 A sterile, greenish-brown, silty-clay deposit (197/287), measuring between 0.12m-0.25m extended NE-SW across the southern extent of both Area A and B. Deposit (197/287) has been interpreted as an alluvial flooding event post-dating a number of Roman features and physically overlying the natural clay (057). A distinction between two alluvial deposits was made between an upper alluvial deposit (197) and a lower alluvium (128) within the north-east corner of Area A. A single alluvial event (287) was identified in Area B. The natural substrate (057) at Castleford consisted of a whitish-yellow, silty-clay.

6. STRATIGRAPHIC REPORT

6.1 Excavation Area A- Roman

Linear Features

6.1.1.1 There were nine Roman linear features identified within Area A. These comprised linears F.118, F.084, F.086, F.092/F.064, F.108, F.056, F.054, F.166 and F.256 (Figures 80 & 81) Linear F.118 was located at a height of 16.49m aOD in the north-east extent of Area A and was orientated on an E-W alignment. Linear F.118 measured 11.42m x 0.85m x 0.21m and was comprised of cut [117] filled by deposit (118) (Figures 3, 116 & 120). Cut [117] was excavated through the natural clay substrate (057), had concave sides, a gradual break of slope at the top and a rounded, uneven base. Cut [117] was filled by a well sorted, greyish-brown, silty-clay deposit (118) containing occasional charcoal inclusions. Deposit (118) had also been truncated by 19th century landscape remodelling event [262] which was related to the construction of walls (112), (113), (114), (115), (138) and (142). Additionally, deposit (118) was physically overlain by demolition deposit (003) and wall (113) (Figure 3). No finds were recovered from F.118, however, the dimensions, form and fill were very similar to confirmed Roman features F.166 and F.256 at the southern extent of the site. F.117 was interpreted as a boundary ditch with a secondary drainage function.

6.1.1.2 Linear F.166 was located at a height of 15.96m aOD within the SW extent of Area A (Figure 81). Linear F.166 was orientated on a SSE-NNW alignment, measured 10.34m x 0.62m x 0.50m and displayed a concave sided cut [165] filled by deposit (166) (Figure 4 & 119). Cut [165] was excavated through natural clay substrate (057) had a gradual break of slope at the top, a non-perceptible break of slope at the bottom and a rounded, uneven base. Deposit (166) was the only fill identified in cut [165] and was a well-sorted, greyish-brown, silty-clay likely formed by natural silting (Figure 4). Deposit (166) contained one fragment of samian ware pottery, dated from 70-110AD and had been truncated by 20th century drain F.164.

Figure 3- E-facing shot of Roman ditch F.118 overlain by wall (113) (Scale- 2 x 2m)

6.1.1.3 Linear F.256 was located 15m south-west of F.166, in the southern corner of Area A and was orientated on a NNW-SSE axis (Figures 5, 81 & 118). F.256 comprised a single cut [255] and fill (256) which had been excavated through natural clay substrate (057). F.256 was also situated at a height of 16.28m aOD and measured 7.72m x 0.90m x 0.07m at its greatest extents. Cut [255] had concave sides, a gradual break of slope at the top, a non-perceptible break of slope at the base and a rounded base (Figure 5). Deposit (256) was a well-sorted, greyish-brown, silty-clay containing occasional charcoal inclusions and was overlain by alluvial deposit (197). F.256 was interpreted as a Roman boundary ditch, potentially related to agricultural practices.

Figure 4- SE-facing shot of Roman ditch F.166 with terminus (Scale- 1 x 2m)

Figure 5- SE facing shot of ditch F.256 (Scale- 1 x 1m)

6.1.1.4 Linear F.084 was located at the north-east extent of Area A, at a maximum height of 16.44m aOD and was orientated on a WSW-ENE alignment (Figure 80). F.084 had a maximum length of 22.95m, a width of 2.02m, a depth of 0.60m and was comprised of cut [083] filled by deposit (084) (Figures 6, 80 & 107). Cut [083] was excavated through the natural clay substrate (057), had convex sides, a gradual break of slope at the top, a gradual break of slope at the bottom and a rounded base (Figure 107) Deposit (084) was the only fill within ditch cut [083] and was comprised of a well sorted, yellowish-brown, silty-clay containing occasional charcoal inclusions. Deposit (084) contained six fragments of Roman pottery, primarily represented by late 1st to early 2nd century material although a single fragment of 2nd century samian ware was also identified. Deposit (084) was overlain by demolition deposit (263) and had been truncated by 20th century drain F.097. The animal bone recovered from fill (084) derived from a single pig, a sheep and a dog. No evidence for butchery was identified on any of the faunal remains recovered from linear F.084. The presence of pig and sheep within linear F.084, may suggest that the ditch operated as an agricultural field boundary ditch. F.084 also truncated N-S orientated, Roman ditch F.092 at its southern extent (Figures 7 & 80). It is worth noting that ditch F.084 was not visible beyond drain F.097 potentially due to further truncation by landscaping event [262] during the construction of the 19th century domestic residences evidenced by walls (112), (113), (114), (115), (138) and (142) (Figures 80, 83 & 86). Additionally, F.084 ran parallel to F.086 and truncated earlier ditch F.092, suggesting that both ditches may potentially have been broadly contemporary. Ditch F.084 was interpreted as a field boundary ditch associated with the Roman *vicus.*

Figure 6- ENE-facing shot of Ditch F.084 (Scale 1 x 2m)

Figure 7- ENE-facing shot of ditches F. 092 and F.084. Ditch F.084 is visible in the background truncated by drain F.097 (Scale 2 x 2m)

6.1.1.5 Linear F.086 was similarly aligned to linear F.084 on a WNW-ESE alignment in the north-east corner of Area A (Figures 8 & 80). Additionally, a N-S orientated branch of F.086 was present 4.4m from its eastern extent (Figure 80). The N-S orientated branch of linear F.086 measured 8.92m x 1.71m x 0.28m and the WNW-ESE segment measured 19.87m x 2.06m x 0.30m. (Figure 2, 80, 108, 111 & 115). F.086 comprised a concave sided cut [085]/[087], filled by orangey-brown, silty-clay deposits (086), (088) and (102) (Figures. 8, 9 & 10). Linear F.086 was excavated through the natural clay substrate (057), truncated pit F.063 and linear F.092. Deposit (086/102) was later truncated by Roman pit F.061, beamslot F.099, 19th century construction cut [107] for cellar (105), 20th century construction cuts [096] for drain F.097 and cut [261] for manhole (141). Fill (086) was overlain by later 20th century demolition deposit (263) at its northern extent and by lower alluvium (128) at its southern extent. F.086 has been interpreted as a boundary ditch broadly contemporary with F.084 and likely represented agricultural land divisions associated with the Roman civilian *vicus.*

6.1.1.6 Linear F.092 was located at the NE extent of Area A, was orientated on a NNW-SSE axis, and measured 10.38m x 1.28m x 0.24m (Figure 11 & 80). F.092 comprised a concave sided cut [091]/[064]/[134]with a gradual break of slope at both its upper and lower edges (Figure11). F.092 also displayed a rounded, uneven base and was filled by a well-sorted,

orangey-brown, silty-clay deposit (092)/(065)/(135) containing occasional charcoal inclusions. Deposit (092)/(065)/(135) had been truncated by 20th century drain F.097 and Roman linears F.084 and F.086 (Figure 80). Deposit (135) was overlain by demolition deposit (263), whilst deposits (092) and (065) were overlain by lower alluvium (128). F.092 truncated Roman gully F.124 and had been excavated through the natural clay (057). Additionally, ditch F.092 was later truncated by Roman linears F.084, F.086 and F.056. It should be noted that ditch F.092 terminates abruptly at the northern extent of linear F.054 and likely continued further north but was probably destroyed by 19th century landscape remodelling event [262](Figure 80). Ditch F.092 may have represented part of the earliest phase of Roman activity on the site as it was sealed by the lower alluvial deposit (128). The fills of linear F.092 were indicative of a natural silting of a boundary ditch associated with the Roman extra-mural settlement.

Figure 8- NE facing shot of ditch F.086 truncated by 20th century drain F.097 (Scale- 1 x 2m)

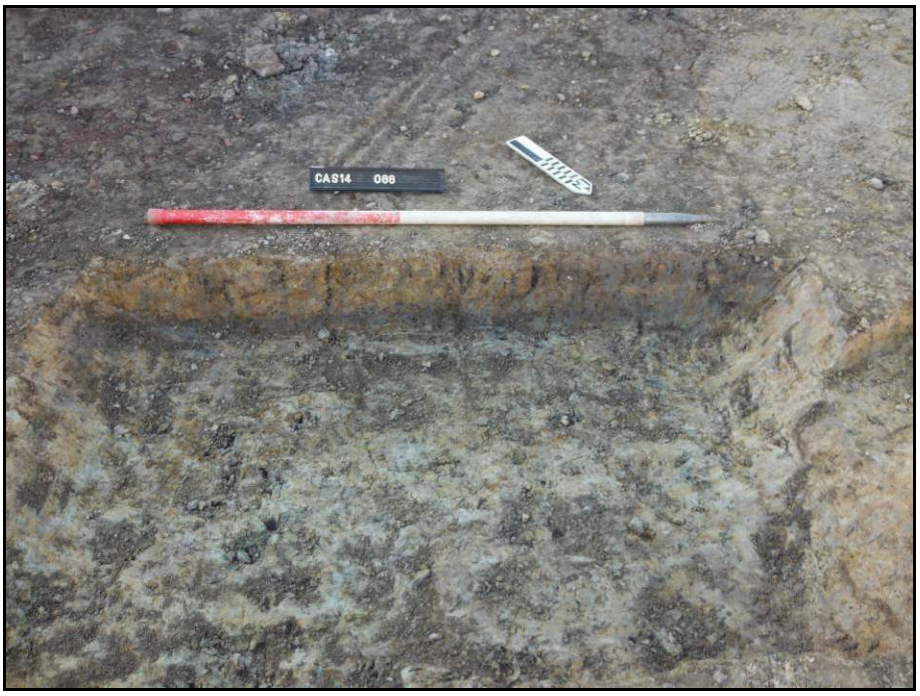

Figure 9 – SW facing shot of ditch F.086 (Scale- 1 x 1m)

Figure 10- SE facing shot of F.086, truncated by Roman pit F.061, overlain by lower alluvial deposit (128) (Scale- 1 x 0.2m)

Figure 11- SW facing shot of shallowest point of linear F.092, truncated by both linears F.084 and F.086 (Scale- 1 x 2m)

6.1.1.7 Linear F.054 was present at the southern extent of the NE corner of Area A at a height of 16.50m aOD (Figures 12 & 80). Linear F.054 measured 4.44m x 1.75m x 0.70m, displayed a concave sided cut [053] and had a rounded, even, base (Figure 12 & 106). Cut [053] was filled by a well sorted, orangey-grey, silty-clay (054) containing occasional fragments of charcoal, animal bone and rare fragments of human bone. The animal bone recovered included the remains of a single adult horse and a single adult cow. No evidence for butchery was identified in association with either animal. The presence of both horse and cattle bones within (054) may suggest that F.054 represented an agricultural enclosure ditch. The human bone recovered from fill (054) was from an unsexed individual and displayed wear consistent with redeposition and exposure. No independent cut indicative of secondary burial was identified within fill (054). Therefore, it seems likely that the fragments of human bone were redeposited into linear F.054 by low energy waterborne action from an unknown but proximate location. Deposit (054) was overlain by alluvium (128) and had been truncated by F.056 and beamslot F.059. As mentioned above, linear F.056 truncated F.054 and was interpreted as a recut broadly aligned along the route of earlier ditch F.054 (Figures 12, 80 & 106). Both F.054 and F.056 were orientated on a curving alignment moving from a NW-SE axis to a NE-SW axis. Linear F.056 measured 8.24m x 1.58m x 0.44m and had a concave sided cut, filled by a well-sorted, orangey-grey, silty-clay (056). The animal bones of a single adult horse, a single adult cow and a single adult pig were also recovered from fill (056). No evidence for butchery was identified upon the afore-mentioned faunal assemblages and may suggest that F.056 also functioned as an enclosure ditch potentially related to agricultural practices. F.056 was overlain by alluvium (128) and had been

truncated by construction cut [127] for wall (066). It should be noted that the majority of the pottery recovered from the base of both F.054 and F.056 was dated from the late 1st to 2nd century. However, occasional fragments of 3rd century pottery were also recovered from F.054 and F.056 but were regarded as intrusive and likely derived from later disturbance caused by post-medieval activity. This was further supported by the significant quantity of second century pottery recovered from alluvial deposit (128) within the area overlying linears F.054 and F.056.

Figure 12- ENE facing shot of linears F.054, F.056 and overlain by (066) (Scale- 1 x 2m)

6.1.1.8 Linear F.108 was located at a height of 16.39m aOD, was orientated on a N-S alignment and measured 3.41m x 1.79 x 0.56m (Figures 13, 80 & 105). F.108 had a concave sided cut [119], was excavated through the natural substrate (057) and was filled by deposits (108), (129) and (130). Deposit (130) was a well-sorted, orangey-grey, silty-clay containing occasional, small, stony inclusions and a fragment Romano-British quartz ware of uncertain date (Figure 13). Context (130) was interpreted as a naturally deposited, silting event formed after the initial excavation of the ditch and sealed by fills (129) and (108). Deposit (130) was overlain by a moderately-sorted, orangey-yellow, silty- clay (129) measuring 0.6m x 1.3m x 0.34m. Fill (129) was interpreted as redeposited natural, potentially representing erosion from the sides of the ditch or a partial collapse of an adjacent bank (Figure 13). Deposit (129) was overlain by a well-sorted, greyish-brown, silty-clay deposit (108) measuring 3.4m x 1.7m x 0.18m and interpreted as a final phase, dis-use layer. Deposit (108) was then sealed by lower alluvial deposit (128). Linear F.108 should be interpreted as a boundary ditch terminus likely associated with the Roman extra-mural settlement. It should be noted that, as a terminus ditch, F.108 may have had formed the southern-most division of an entrance to an enclosure. However, the construction cut [107]

for the 19th century residences, located at the northern extent of Area A, may have removed the opposing ditch terminus (Figure 80).

Figure 13- SW facing section through ditch terminus F.108 (Scale- 1 x 1m)

Discrete Features

6.1.2.1 Three NW-SE orientated beamslots, F.059, F.081 and F.099, were identified within the northern extent of Area A (Figure 14 & 80). Beamslot F.059 measured 1.78m x 0.28m x 0.12m and was comprised of a vertically sided cut [058] filled by a dark, greyish-brown, silty-clay (059). A single fragment of Romano-British pottery of uncertain date was also recovered from deposit (059). Cut [058] had a sharp break of slope at the top, a sharp break of slope at the bottom and flat, even base (Figure 14 & 109). Beamslot F.081 was located 0.48m north-east of F.059, measured 1.82m x 0.23m x 0.12m and comprised cut [080] filled by a dark, greyish-brown, silty-clay deposit (081) (Figure 14). Cut [080] had near vertical sides, a sharp break of slope at the top and a flat, uneven base. Both F.081 and F.059 truncated the final phase, dis-use deposits of ditch F.056 and were sealed by alluvial deposit (197). This relationship suggested that beamslots F.081 and F.059 were contemporary and may represent a later phase of Roman activity distinct from the earlier phase represented by boundary ditches F.056 and F.054. Beamslot F.099 measured 2.51m x 0.23m x 0.10m, displayed a vertical cut [098], a flat, even base and was filled by a single, greyish-brown, silty-clay (099) (Figure 113 & 114). Linear F.099 was the only Roman feature with Area A which truncated alluvial deposits (128) and (197). Additionally, beamslot F.099 contained a fragment of samian ware which was dated from the mid to late 2nd century AD. Consequently, beamslot F.099 has been attributed to the latest phase of Roman activity on site.

Figure 14- SE facing shot of beamslots F.059 and F.81 truncating ditch fill (056) (Scale- 1 x 1m)

Figure 15- Pits F.061 and F.063 overlain by lower alluvial deposit (128) and structure (066) (Scale- 1 x 2m)

6.1.2.2 Two pits F.061 and F.063 were identified within the NW extent of Area A (Figure 80). F.061 measured 2.65m x 0.92m x 0.32m and had a single cut [060], filled by a greyish-orange, silty-clay (061) (Figure 15 & 111). Cut [060] was sub-oval in plan, had a gradual break of slope at the top, concave sides and a flat, uneven base. Fill (061). Deposit (061) contained fragments of late 1st century to late 2nd century AD Roman pottery and was overlain by lower alluvial deposit (128). F.061 truncated both earlier pit F.063 and ditch F.056. Pit F.063 was situated to the NW and immediately adjacent to F.061. Pit F.063

measured 1.89m in length 0.88m in width and had a maximum depth of 0.20m (Figure 103). F.063 comprised a concave sided cut with a gradual break of slope at both the top and bottom in addition to being filled by a single, well sorted, dark, orangey-grey, silty-clay (Figure 15). Fill (063) contained both animal bone and fragments of Roman pottery dated from the late 1st to the early 2nd century AD. F.063 was excavated through the natural clay substrate and was truncated by ditch F.086 and pit F.061 (Figure 15). Both F.061 and F.063 have been interpreted as Roman waste pits.

6.2 Excavation Area A – Post-Medieval

6.2.1 *Linear Features*

6.2.1.1 Linear feature F.237 was located at a height of 16.02m aOD and predated the industrial phase of works on the site. F.237 was visible at the south-west extent of Area A, was orientated on a N-S alignment and measured 5.43m x 0.96m x 0.37m (Figure 16 & 82). F.237 displayed a concave sided cut [236] with a gradual break of slope at both the top, a rounded, even, base and was filled by a greyish-brown, silty-clay (237) (Figure 16 & 82). Linear F.237 was excavated through the natural clay substrate (057), was truncated by chimney base construction cut [195] and overlain by chimney demolition deposit (194). Deposit (237) contained a fragment of post-medieval pottery and was formed by natural silting. Linear F.237 has been interpreted as an agriculturally related boundary ditch with a secondary drainage function related to land-use prior to the construction of the glass works.

Figure 16- NW facing shot of ditch F.237 (Scale 1 x 1m)

6.2.2 *Discrete Features*

6.2.2.1 Three discrete features of post-medieval date were located in the centre of Area A. These were classified as F.254, F.211 and F.231, all of which predated the earliest phase of industrial activity on the site (Figure 17, 18 & 82). F. 211 measured 8.3m in width, 9.14m in length and had a maximum depth of 0.42m. F.211 was comprised of a concave sided cut [281] and two silty-clay fills (211) and (186) (Figure 82 & 121). Cut [118] was excavated through the natural clay substrate (057), had a gradual break of slope at the top and displayed a rounded, even base. The primary fill identified within cut [118] was a whitish-brown, gravelly clay (186) measuring 0.66m x 2.3m x 0.18m (Figure 17, 82 & 121) containing occasional fragments of biscuit ware. Deposit (186) was sealed by a moderately sorted, silty clay deposit (211) which measured 5.2m x 8.3m x 0.22m at its greatest extents (Figure 121). Fill (186) was also truncated by cut [264], 20th century services F.097 and had been sealed by make-up layer (182) for red-brick, external yard surface (018). F.211 has been interpreted as a borrow pit for the excavation of the natural clays (057), which was later re-used partially as a dump for pottery production waste materials (186) and then backfilled with contaminated clays (211). Linear F.265 truncated pit F.211 and measured 3.90m in length, 0.28m in width and had a maximum depth of 0.32m (see Figure 17 & 82). F.265 comprised a vertically sided cut with a sharp break of slope at the top, a flat, even base and was filled by a poorly sorted, greyish-brown, silty-clay deposit (265). F.265 was overlain by make-up deposit (182) and has been interpreted as a construction cut for later 19th century services. Due to the poorly sorted composition of fill (266) and the lack of any recovered service piping, it seems likely that the services within cut [264] had been robbed out prior to the construction of yard surface (018).

Figure 17- SE facing shot of borrow pit F.211 and robbed service trench F.265 (Scale 1 x 2m)

6.2.2.2 F.231 was located 7.8m NE of borrow pit F.211 at a height of 15.70m aOD. Pit F.231 measured 1.0m x 1.15m x 0.47m and had been excavated through the natural clay substrate (057) (Figure 18, 82 & 117). F.231 displayed under-cut sides [230] and was filled by a poorly sorted, silty-clay deposit (231) containing a very high frequency of large to small shale inclusions (Figure 18). Deposit (231) was also sealed by wall (149), which was associated with later 19th century Building F, and demolition deposit (263). Due to the dimensions and under-cut form of [230] coupled with the extremely high frequency of shale inclusions within the fill, F.231 was interpreted as a post-medieval bell-pit. Consequently, F.231 was not bottomed and due to the instability of the sides was only excavated to a maximum depth of 0.47m.

6.2.2.3 Pit F.254 was identified 2.44m NE of Borrow pit F.211 at a height 16.00m aOD (Figure 82). F.254 measured 2.40m at its maximum width, 2.25m in length and was excavated to a depth of 0.80m. F.254 displayed a sub-circular cut [253] excavated through natural substrate (057) with a sharp break of slope at the top, near vertical sides and a gradual break of slope at the base. The base of the pit was flat, uneven and was filled by a poorly-sorted, reddish-brown, sandy-silt (254) containing frequent, small, redbrick fragments. Deposit (254) was sealed by make-up layer (158) for later 19th century internal surfaces (154) and (157). F.254 has been interpreted as a waste pit used prior to the construction of Building F.

Figure 18- NNW facing shot of Bell Pit F.231 (Scale 1 x 1m)

6.3 Excavation Area A- 19th Century

6.3.1 *Building A*

6.3.1.1 The features most likely related to glass manufacturing and production were located 17.3m north-east of the southern extent of Area A, within Building A. Building A consisted of two NW-SE orientated flues (199) and (200) feeding into a larger central flue (198) butting against a sub-circular zone of heat affected silts (203)(Figure 19-24, 83-85, 87, 92 & 96). A heavily truncated, sub-circular surface of brickwork (193) was identified 4.6m NW of (203)(Figure 83 & 25). Both (193) and (203) were partially bounded by parallel NW-SE orientated walls (205) and (233) (Figure 83).

6.3.1.2 Flues (199) and (200) were constructed of unfrogged, red-brick built to a single skin of thickness and regularly coursed (Figures. 19 & 20). Additionally, the individual bricks had consistent dimensions of 9 ¼" x 4 ½" x 3". Flue (200) survived at a depth of 16.25m aOD and flue (199) was present at a depth of 16.29m aOD. Both flues were constructed in two parallel courses with a gap of 0.25m present between the eastern and western faces. Flues (199) and (200) were set into construction cuts [201] and [202] respectively. Cut [201] measured 13.56m in length, 0.62m width and had a depth of 0.30m. Cut [202] measured 12.41m in length, 0.45m in width and had a maximum recorded depth of 0.28m. Both [201] and [202] were excavated through alluvium (197) (Figure 19-22 & 83). A brownish-white clay lining with a thickness of 0.04m was laid into the base of both construction cuts before the walls of the flue were constructed. These were identified as clay lining deposit (232) for flue (199) and lining deposit (238) for flue (200). The interior of the flues, including deposits (238) and (232) were overlain by demolition deposit (003) likely formed during the decommissioning and destruction of the glassworks. The roof of the flue was formed of a single course of 0.06m thick ceramic tiles, laid above the east and west superior surfaces of both (199) and (200). Both flues were heavily truncated by early 20th century drain F.097 and foundation events F.313 and F.314 related to the construction of the modern bus station (Figure 21).

6.3.1.3 Both flues (199) and (200) fed into a larger, heavily truncated, brick flue base (198). Flue base (198) was constructed using unfrogged, red bricks which were laid to a regular NNW-SSE orientation over alluvial deposit (197)(Figure 21 & 83). Additionally, the individual bricks had consistent dimensions of 9 ¼" x 4 ½" x 3" and were laid to a single course, at a height of 16.24m aOD. The flue base measured 3.2m x 1.8m x 0.12m and had been heavily damaged, at its northern and western extents, during the demolition phase. Due to the method of construction associating flue (200) and surface (198) the latter has been interpreted as a larger flue base that had originally been fed by smaller inlet flues (199) and (200) (Figure 21) Brick surface (122) abutted the NE extent of flue (198) and may have represented an extension or rebuild to the original flue. Surface (122) measured 0.69m x 0.93m x 0.08m and was constructed using regularly coursed, frogged red bricks, laid to an ENE-WSW orientation. Both (198) and (122) were orientated towards external wall (233) and may have provided access to the exterior of Building A in order to create a through-draught for a possible furnace.

6.3.1.4 As mentioned previously, flues (199), (200) and (198) were excavated through a silty-clay, alluvial deposit (197). A sub-circular zone of intensely heat-affected material (203) was identified at the north-western extent of both flues (199) and (200). Deposit (203) had a reddish-orange colour, measured 6.3m x 6.9m x 0.30m and has been interpreted as heat affected alluvium (197) scorched by a heat producing structure originally located above the limits of (203) (Figure 22-24 & 83). It should be noted that eight, sub-oval shaped, patches of whitish-orange heat-affected material were identified forming a rough circle on the periphery of the scorched area (Figure 24). Four were located at the north-western extent of (203) and four were located at the south-eastern extent of (203). These patches were regarded as being produced by the same processes that formed the orangey-red colour, present across the majority of (203). However, the whitish-orange, sub-oval areas likely highlighted the focal points of heat production and were evenly distributed around the periphery of deposit (203). Consequently, deposit (203) coupled with flues (199) and (200) have been interpreted as the fingerprint of a glass cone furnace for the melting of glass. Deposit (203) likely represented the area occupied by the fire-box within which the fire was set, whilst flues (199) and (200) served to create a draught, drawing air through the flues to feed the flames in the furnace and facilitate the removal of any toxic fumes (Figure 77) The white sub-oval zones of intense heat are indicative of the glass melting crucibles that were set into the floor of the cone and formed a circle within the interior of the structure (Figure 78).

6.3.1.5 A second structure (193) within Building A was located 4.6m north-west of deposit (203) at a depth of 16.13m aOD. Structure (193) measured 2.79m x 2.87m x 0.16m and was heavily truncated at its western extent but would originally have been of circular or sub-circular form (Figure 25 & 83). The surviving brickwork was comprised of 9 ¼" x 4 ½" x 3" handmade bricks bonded with a white lime mortar. A single course of structure (193) remained and was constructed of an outer ring of alternating headers and stretchers. The outer ring bordered fragmentary inner quadrants of brickwork divided by radiating spokes of doubled stretchers (Figure 25). Structure (193) was overlain by demolition deposit (194) and was constructed within a vertically sided construction cut [195]. Cut [195] was excavated through the natural clay (057), truncated earlier post-medieval linear F.237 and was filled by structure (193) and demolition deposit (194).

Figure 19- SE facing shot of flue (200) truncating alluvial deposit (197) (Scale 1 x 2m)

Figure 20- SE facing shot of flue (199) truncating alluvial deposit (197) (Scale 1 x 2m)

Figure 21- WSW facing shot of surface (198) fed by flues (199) and (200) set into alluvial deposit (197). Note 20th century truncation F.313 relating to the construction of the bus station (Scale 2 x 2m)

Figure 22- SE facing shot of flues (199) and (200) associated with heat affected deposit (203) (Scale- 2 x 2m)

Figure 23- NW facing shot of heat affected alluvial deposit (203) (Scale- 2 x 2m)

Figure 24- NNW facing shot of heat affected alluvial deposit (203) focusing on the probable glass crucible locations. (Scale- 2 x 2m)

Figure 25- SW facing shot of chimney base (193) located at the NE extent of Building A (Scale 2 x 2m)

6.3.1.6 Chimney (193) and scorched alluvial deposit (203) were partially bordered by parallel walls (205), (228) and (233) (Figure 83). Wall (205) measured 8.05m x 0.24m x 0.16m, was set within a vertically-sided, flat based construction cut [206] and was overlain by demolition deposit (003). Wall (233) survived to a length of 6.20m, a width of 0.34m, a depth of 0.29m and was constructed within an uneven construction cut [259]. Cut [259] appeared to have followed the contours of the natural clay substrate (057) and then later been filled with a dark, brownish-grey, levelling clay upon which wall (233) was then constructed (Figure 27). Wall (228) measured 1.91m in length, 0.30 in width and had a depth of 0.12m. In addition to being similarly aligned, walls (205), (233) and (228) were all orientated NW-SE and were constructed from unfrogged, 9 ¼" x 4 ½" x 3" red-bricks. Walls (205), (233) and (228) were all irregularly coursed to a header and stretcher bond of noticeably poor construction. The similarity between the materials utilised, and the structural form of walls (205), (228) and (233) was indicative of a possible mid-19th century construction date. Walls (205), (228) and (233) were interpreted as foundation footings for the external walls of Building A. This was based upon their relative proximity to glass cone deposit (203), chimney base (193) and a similar alignment to flues (199) and (200). The presence of heat affected deposit (203), parallel flues (199)/(200) and potential chimney base (193) suggest that Building A likely functioned as housing for industrial processes likely related to glass-working.

Figure 26- N-facing shot of Building A with wall (205) chimney base (193) and wall (233) visible in background (Scale- 1 x 2m)

Figure 27- WSW facing shot of wall (233). Note poor construction and use of levelling clay (192) below the brickwork at the northern extent (Scale- 1 x 2m).

Figure 28- SE facing shot of surface (229) (Scale 2 x 2m)

6.3.1.7 2.2m SW of Building A was a heavily truncated but regularly coursed, redbrick surface (229) bordered by header bricks along its NE edge (Figure 28, 29 & 83). The individual bricks within surface (229) all measured 9 ¼" x 4 ½" x 3" and were identified as unfrogged. Additionally, the brickwork was bonded with a whitish-grey, lime-mortar and was built to a depth of 6 courses above the natural clay substrate (057) (Figure 29). Surface (229) measured 6.76m in length, 7.46m in width and had a depth of 0.72m. The depth of the brickwork may suggest an attempt to provide increased foundation support to a loadbearing structure. The unusual form of surface (229) is indicative not of a domestic building and should be interpreted as a surface associated with industrial activity.

Figure 29- SW facing shot of brick foundations for surface (229) (Scale 1 x 1m)

6.3.2 *Building B*

6.3.2.1 Located 17.33m NE of the circular heat-affected deposit (203) was a multi-phase complex of walls, surfaces and foundations (Figure 30-43, 83-85, 87, 92 & 96). These were divided between two 19th century phases, identifiable as buildings B and C.
Building B represented the earliest identifiable building within the centre of Area A and was comprised of wall (257), surface (224) and associated road surface (227). Wall (257) was located 16m NE of flue (200) and was identifiable as two parallel NW-SE orientated segments, linked by a NE-SW orientated internal division wall (Figure 30 & 83). The three segments of wall (257) were all contemporary and measured 7.45m x 0.16m x 0.24m within the NW-SE orientated segment. The NE-SW element of wall (257) measured 3.39 x 0.24m x 0.24m. Wall (257) had a two skin thickness and was constructed from 9 ¼" x 4 ½" x 3", unfrogged, red-brick, laid to regular courses and bonded with lime mortar (Figure 30). At the SW extent of Building B was surface (224) which survived to a single course, was bounded by wall (257) and measured 3.18m x 2.77m x 0.08m. The construction materials utilised were unfrogged, handmade, redbricks measuring 9 ¼" x 4 ½" x 3". Surface (224) has been interpreted as an internal floor servicing Building B, due to being bounded by the northern and southern extents of wall (257). Road surface (227) was constructed parallel to wall (257), on a NW-SE orientation, and physically abutted the western-most extent of Building B. Surface (227) was constructed from unfrogged, unbonded, cream coloured bricks measuring 9 ¼" x 4 ½" x 3". The brickwork was regularly coursed and laid to a NE-SW orientated stretcher bond with a single skin border of stretcher bricks. The superior surface of (227) was heavily degraded and stained blackish-grey. Surface (227) was also truncated by 20th century services F.097 and had been constructed upon bedding deposit (234). Deposit (234) was a 0.12m thick, blackish-grey, sandy-silt containing frequent spacer fragments and a moderate quantity of biscuit ware. The presence of high quantities of

pottery production waste within (234) may be indicative of contemporaneous ceramics manufacturing occurring in close proximity to the construction of surface (227). Potentially suggesting that surface (227) was laid prior to the decommissioning of nearby Eagle ceramics in the early 1870's. Wall (257), surface (224), road (227) and deposit (234) are all constructed within foundation cut [258] which truncates alluvial deposit (197) and represents the footprint of both Building B and the external roadway (Figure 30). The presence of wall (257) and roadway (227) within cut [258] may also suggest that both structures were constructed contemporaneously.

Figure 30- E facing shot of road surface (227) with wall (257) visible towards the left of the photograph. Note also truncation F.097 through surface (227) and truncating structure (222) in the left foreground. (Scale- 2 x 2m)

6.3.2.2 Wall (257) was truncated to the north by wall (222) which represented the south-western extent of Building C. Wall (257) and surface (227) were also truncated, at their north-western extents, by 20th century foundation cut [082] which was excavated during the construction of the modern bus station (Figure 30). Additionally, road surface (227) and the superior surface of wall (257) were overlain by deposits (225) and (226). Deposit (225) was a whitish-yellow, sandy mortar measuring 1.18m x 1.56m x 0.04m and was present overlying surface (224). Deposit (226) was located 1.15m south-west of (225) and had the same whitish-yellow, sandy mortar composition as deposit (225). Sandy mortar (226) measured 2.14m x 1.12m x 0.04m and also overlay both wall (257) and road surface (227). The presence of deposit (226) over the superior surface of the wall (257) suggests that Building B had been partially demolished prior to the deposition of (226). Additionally, the mortar composition and substantial size of deposits (225) and (226) might be indicative of a dump of building materials related to the construction of later Building C. As mentioned previously, Building B has been interpreted as the earliest building within the centre of Area A. Building B was likely constructed prior to the early 1870's due to the high quantity of

pottery production waste in bedding deposit (234). No usage or occupation deposits were identified on either the road surface (227) or internal surface (224) so no interpretation related to the function of structure was attained.

6.3.3 *Building C*

6.3.3.1 The most identifiable feature within the centre of Area A was a NW-SE orientated substructure comprised of a recti-linear wall (169), a sandstone ramp (181) and two distinct internal surfaces (171) and (176) (Figure 31 & 83). A number of additional structures were identified within the substructure interior. These included two rectangular, redbrick foundation platforms (207)/(208) both bordering internal floor surface (176) and flanked by later brick pillars (175), (209) and (210) (Figure 32-34 & 83). The substructure and its afore-mentioned components have been classified as composite elements to Building C.
The substructure of Building C (169) was constructed within a vertically sided, NW-SE orientated construction cut [168] which had been excavated through the natural clay substrate (057). Cut [168] had a visible depth of 0.90m, measured 15.31m upon its NW-SE axis, before turning at a 90 degree and then running for a further 5.91m on a SW-NE alignment. The width of the cut [168] remained uniform at 2.5m throughout the majority of its extent. However, 8.91m south-east of the northern extents of (169), the construction cut widened into a 5.11m x 4.2m box within which was situated structures (207) and (208). Wall (169) was constructed against the eastern and western faces of cut [168] and, although heavily truncated, 6.71m of wall survived on the NW-SE orientation and 5.62m survived on the SW-NE axis. Wall (169) was also constructed from handmade, unfrogged, 9 ¼" x 4 ½" x 3" red brick and was bonded with a greyish-white, lime mortar. The brickwork was regularly coursed, displayed a two skin thickness and had survived to a maximum depth of 0.90m below ground level. The fragmentary remains of (169) were visible bordering the south-western extents of the box shaped zone, however, the majority of the brickwork comprising the wall appears to have been destroyed during a 'grubbing out' demolition event characterised by later truncating linear F.243 (Figure 37). Wall (169) was also truncated by early 20th century drain F.097 (Figure 32). The lowest three courses of brickwork within wall (169) were also stained by a dark black, sooty deposit (180).

Figure 31- SE facing shot of walls (169) and boxed construction cut [168] holding rectangular brick foundations (207) and (208) (Scale 2 x 2m)

Figure 32- NE facing shot of drain F.097 truncating wall (169) (Scale- 1 x 2m)

6.3.3.2 Contemporary to the construction of wall (169) was the creation of two substantial rectangular, red-brick foundation structures (207) and (208) (Figure 33 & 83). As previously mentioned, structures (207) and (208) were constructed within the box shaped section of cut [168]. Structure (207) measured 4.32m x 1.80m x 0.48m and was located on the south-western side of the substructure (169) at a height of 16.00m aOD. Foundation (208) measured 4.40m x 1.88m x 0.80m and was located immediately opposite (207) on the

north-eastern side of the substructure at a height of 15.89m aOD. Both (207) and (208) were constructed from unfrogged, regularly coursed, red bricks individually measuring 9 ¼" x 4 ½" x 3". The brickwork within both (207) and (208) was also bonded by a white lime mortar similar to the mortar identified within wall (169). This factor coupled with the similarity of construction materials used in (207), (208) and (169) suggested that the three structures were likely contemporaneous. Eight courses laid to a NE-SW orientated, header bond were visible within (208) whilst only five, similarly aligned courses, survived within (207). It is worth noting that the superior surface of all exposed bricks, within (207)/(208) displayed mortar residue and it seems probable that both rectangular structures had been constructed higher than the excavated height revealed. Structure (208) abutted both wall (169) and was abutted by floor surface (176) and later brick pillar additions (175) and (209) (Figure 33). Structure (207) also abutted both wall (169), floor surface (176) and was butted by later brick pillars (175) and (210). Three courses of brick work, on the north-eastern face of (207), displayed evidence of exposure to high temperatures due to a corroded and vitrified surface. The lower courses of both (207) and (208) also displayed dark black sooty staining from deposit (180). (207) and (208) have been interpreted as forming the loadbearing foundations to a square platform or chamber located above a tunnelled substructure (169).

Figure 33- SW facing shot of foundation structure (208) in the foreground, (207) in the background and brick pillar (175) on the left (Scale- 2 x 2m)

6.3.3.3 Abutting the lowest course of brickwork, within substructure (169), was a fine greyish-green, silty-sand (172) that had been used as a bedding deposit for surface (171) and sandstone ramp (181). Overlying (172) was surface (171) which was comprised of both reused firebricks and unfrogged redbricks, laid to a single course. The individual bricks

within (171) were unbonded and orientated NW-SE along the north-east base of sub-strucutre (169). Surface (171) measured 3.96m on its NE-SW axis, 6.6m on its NW-SE axis and had a uniform width of 2.09m (Figure 34 & 83). Surface (171) also butted against ramp (181), wall (169) and showed evidence of wear upon the superior surface of the brickwork. Additionally, surface (171) had been truncated by later surface (176) which was identified between foundation structures (207) and (208), at a depth of 15.33m aOD. It is worth noting that surface (171) had also been truncated by later 20th century drain F.164 presumably following the decommissioning of the glassworks.

Figure 34- SE facing shot of earlier substructure surface (171) (Scale- 1 x 1m & 1 x 2m)

6.3.3.4 A fragmentary ramp (181), constructed of sandstone slabs and contemporary to surface (171), was located at the northern most extent of Building C (Figure 35 & 83). Ramp (181) measured 3.23m x 1.90m x 0.12m, was truncated at its western extent, potentially during demolition, and was present at a depth of 15.85m aOD. The ramp may have served as access to the substructure of Building C (Figure 35). The lack of steps descending into the tunnel and the provision of a ramp might suggest a requirement for access by both foot traffic and small wheeled vehicles such as carts or barrows. Located 0.78m south-west of ramp (181) was a heavily truncated unbonded, re-used firebrick surface (187), measuring 1.65m x 0.90m x 0.08m. Surface (187) also had very similar construction materials to surface (171). This factor coupled with the proximity of (187) to ramp (181) may indicate that (187) represented the remains of a ground level surface that fed into sub-structure (169).

Additionally, surface (187) was truncated by construction cut [189] for wall (188) suggesting that building C, with associated substructure (169), was overlain by later Building J. Stratigraphically, floor surface (171), wall (169) and brick foundation structures (207) and (208) represented the initial phase of construction within the substructure of Building C. A later remodelling phase was comprised of two elevated floor surfaces (176)/(235) and the addition of four brick pillars (175), (266), (209) and (210).

Figure 35- ENE facing shot of Ramp (181) with surface (171) present in the background (Scale- 1 x 1m)

6.3.3.5 Floor surface (176) truncated earlier, worn, brick surface (171) and was located 6.6m from the northern extent of (169). Surface (176) was identifiable at a depth of 15.53m aOD (Figure 31). Surface (176) measured 5.8m x 1.35m x 0.16m, butted against foundation structures (207)/(208) and brick pillars (175), (266), (209) and (210). The principal construction materials, used within surface (176), were an assortment of reused firebricks, laid to an E-W orientated stretcher bond and stamped H.B. It seems likely that the afore-mentioned bricks were manufactured by Hartley & Co's works on Wellington Street, situated a short distance to the west of the excavation area, and imported onto the site during the construction of Building C. Consequnetly, the bricks were likely dated from the late 19th century and indicated that Building C was almost certainly constructed at this date. Also identified, but to a lesser extent, were a number of frogged, redbricks of a standard 9 ¼" x 4 ½" x 3". Neither brick type revealed any evidence for mortar bonding material. Additionally, a further floor surface (235) butts wall (169) to the east and west in addition to butting surface (176) at its south-eastern extent. Surface (235) measured 2.83m x 1.11m x 0.16m, was comprised of red frogged, engineering bricks and appeared to be roughly contemporary to surface remodelling event (176). The only variation between surface (176) and (235) was that the bricks of (235) were orientated on a NW-SE orientation.

6.3.3.6 The second component of the remodelling phase comprised four brick pillars (175), (266), (209) and (210). (175) and (209) were located on the eastern side of the substructure, abutting wall (169) and flanking brick foundation (208) (Figure 31, 32 & 83). (266) and (210) were situated on the western side of the substructure, abutting wall (169) and flanking brick foundations (207). All four pillars had near equal dimensions in plan, measuring 2m x 0.38m. Pillar (175) survived to a maximum height of 0.85m at 16.28m aOD, pillar (209) had a maximum recorded height of 0.48m at 15.92m aOD, pillar (210) measured 16.04m aOD with a height of 0.61m and pillar (266) had a maximum recorded height of 0.30m at 15.73m aOD. The four pillars were constructed of frogged, red engineering bricks measuring 9" x 4¼" x 3¼". The brickwork was laid to an English Garden Wall bond using a grey cementitious mortar (Figures. 31-33). Surface (176) respected the location of pillars (175), (209), (210) and (266) potentially suggesting that all five contexts were constructed at a roughly contemporaneous date (Figure 36). The materials used within both surface (176) and the four pillars were of a later 19th century date than the surrounding substructure (169), potentially characterising a repair or improvement to the pre-existing form of Building C. The construction of surface (176), through earlier surface (171) may represent surface degradation and a need for repair. This interpretation was partially supported by the obvious wear and fragmentary form of many bricks within earlier surface (171). Additionally, the four pillars (175), (209), (210) and (266) may have occupied a load bearing role or represented an attempt to reinforce the foundations of the original structure.

Figure 36- E facing shot of brick pillar (175) (Scale 1 x 1m)

6.3.3.7 Sealing both surface (171) and (176) was a fine, greyish-black, sooty deposit (180). The deposit had an average thickness of 0.03m but at its greatest extents had a maximum depth of 0.10m. The deposit was interpreted as a use deposit related to the tunnelled structure (169). A glass storage jar lid embossed, 'Sykes MacVay & Co.' was also recovered from usage deposit (180). T.R.Sykes and W.W.MacVay are known to have purchased Albion

Glass-works from 1864 (Fairhead, 2013). Consequently, the recovery of the storage jar lid within occupation/usage deposit (180) suggests that Building C may have been present on the site from 1864 onwards.

6.3.3.8 Deposit (180) was overlain by demolition deposit (003)/(243) which filled early 20th century linear F.243. F.243 was identifiable as a, NW-SE orientated, linear feature truncating surfaces (011), (007), (006), (033), (012) and heat affected deposit (027). F.243 also truncated components of the tunnelled substructure including wall (169), brick pillars (175), (209), (210), (266) and brick foundations (208)/(207) (Figure 37). F.243 had a vertically sided cut [028] filled by a poorly sorted, silty-clay deposit (243) containing frequent inclusions of brick and glass. There was a similarity in composition between late 19th/early 20th century demolition deposit (003) and fill (243), suggesting that the two events occurred roughly contemporaneously. Therefore, F.243 has been interpreted as a partial 'grubbing out' event likely related to the demolition phase of Building C in the late 19th/early 20th century.

Figure 37- SE facing shot of truncating linear F.243 above the line of the substructure in Building C. Note substructure partially visible in the bottom left foreground (Scale 2 x 2m)

6.3.3.9 A number of heavily truncated walls and surfaces were identified in association with substructure (169) and should be regarded as representative of the ground level to Building C. These included walls (017), (037), (032), (031), (041), (014), (222) and (008) in addition to surfaces (006), (007), (011), (013), (015), (033), (036) and (040) (Figure 83). Surfaces (007), (006), (033) and (040) were located south-west of substructure (169). Additionally, surfaces (007), (006) and (040) were all constructed of red-bricks, laid to a stretcher bond. The individuals bricks, within (007), (006) and (040), measured 9 ¼" x 4 ½" x 3". Surface (007) measured 2.55m x 3.11m x 0.08m and was present at 16.40m aOD. Additionally, surface (007) was overlain by demolition deposit (003) and was truncated by both demolition event F.243 and the foundation cut [082] for the modern bus station

(Figure 83). Surface (006) was identified at 16.32m aOD, measured 1.65m x 2.89m x .0.08m and abutted wall (037), (031) and (038). Context (006) was also truncated by demolition event F.243 and overlain by demolition deposit (003) (Figure 38). Surface (033) measured 3.16m x 2.11m x 0.08m, abutted walls (032) and (008) and was physically overlain by surface (036). (Figure 39). SE of surface (033) was surface (040), separated by dividing wall (008) and truncated by later wall (005) (Figure 39). Surface's (033), (040), (006), (007) and (037) have all been interpreted as internal floor surfaces (Figure 83). Additionally, (007) and (006) were divided by wall (037), which was identified at 16.42m aOD (Figure 38). Wall (037) measured 3.03m x 0.24m x 0.16m, had a two skin thickness and was truncated by 'grubbing out' event F.243. Wall (037), was constructed from handmade red-bricks, measuring 9 ½" x 4" x 3" and was bonded by a greyish-white lime mortar. Walls (031) and (032) were located 0.55m south of wall (037) and measured 0.90m x 0.12m and 0.53m x 0.12m respectively. Both walls were heavily truncated during the demolition phase but had been constructed from handmade, red-bricks measuring 9 ¼" x 4 ½" x 3". Additionally, walls (031) and (032) were also abutted by surface (006) and had been laid to NW-SE aligned, stretcher bond using a whitish-grey lime mortar. Single skin wall (032) butted the NW extent of surface (033), was partially overlain by later surface (036) and measured 1.75m x 0.12m x 0.08m. Wall (008) also butted surface (033), measured 2.88m x 0.20m x 0.24m and was truncated by construction cut [307] for wall (005). (Figure 39 & 83). Wall (008) was also constructed from unfrogged, red-bricks, laid to a header bond and measuring 9½" x 4" x 3".

Figure 38- Surface (006) and (007) divided by wall (037) (Scale 2 x 2m)

Figure 39- Surface (011) visible in the foreground with surface (040) and wall (005) present towards the left hand side of the picture. (Scale 2 x 2m)

6.3.3.10 Surfaces (007), (006) and (033) were all interpreted as internal floors, divided by walls (037), (031), (032) and (008). All of the afore-mentioned walls and surfaces were regarded as contemporaneous both with one another and sub-structure (169).
Surface (011) was located approximately 0.30m north-east of surface (033), at a height of 16.45m aOD and measured 2.58m x 1.05mm x 0.08m. Surface (011) was truncated to the east by 'grubbing out' event F.243 and by wall (005) to the west (Figure 39). Additionally, surface (040) was very similar in form to surface (011) and had also been truncated by later wall (005). Surface (040) was situated south east of wall (008), at a height of 16.44m aOD and measured 2.82m x 0.50m x 0.08m. Both surface (011) and (040) were constructed of unmortared, unfrogged, handmade red-bricks laid to a stretcher bond. The individual bricks in both surfaces measured 9½" x 4" x 3".
Surfaces (011) and (040) should be regarded as contemporary with (007), (006) and (033). This was due to a similarity in form, construction materials utilised and the presence of identical sooty black staining upon the superior surfaces of the brickwork. Surfaces (011), (007), (006), (033) and (040) all overlay alluvial deposit (197).

6.3.3.11 North-east of substructure (169) were two walls (017), (041) identified as contemporary with both substructure (169) and surfaces (007), (006) and (033) (Figure 40 & 83). Wall (017) was constructed on a NW-SE, alignment, measured 5.30m x 0.24m x 0.16m at its greatest extents and was identifiable at 16.52m aOD.
Wall (041) measured 2.47m x 1.24m x 0.24m, was sub-rectangular in form and butted against the north-east face of wall (017). Both walls (017) and (041) were constructed of unfrogged, red brick, bonded with lime mortar (Figure 40). The individual bricks used within both (017) and (041) measured 9 ¼" x 4 ½" x 3" and were laid to a N-S stretcher bond (Figure 40). Wall (041) was also regarded as broadly contemporary with wall (017). Wall

(017) and (041) are both regarded as forming part of the northern-eastern exterior walls of Building C. Consequently, both (041) and (017) were regarded as contemporary with surfaces (007), (006), (033), (013), (017) and walls (038), (032), (031), (005) and (169).

6.3.3.12 South-west of substructure (169) was a two skin, unfrogged, red brick wall (222), bonded with lime mortar and measuring 1.68m x 1.96m x 0.12m (Figure 30). Wall (222) was identifiable at a depth of 16.56m aOD and partially enclosed an unfrogged, red brick surface (223). Surface (223) measured 2.12m x 1.61m x 0.08m at its greatest extent and was also stained a dark, greyish black upon its superior surface. Both wall (222) and surface (223) overlay alluvial deposit (197) and were later sealed by late 19th/early 20th century demolition deposit (003). The similarity in form of wall (222) to wall (041), coupled with the black staining of surfaces (007), (006) and (223) suggest that both (222) and (223) likely formed the south-western extents of Building C (Figure 83).

6.3.3.13 North-east of substructure (169) were surfaces (013) and (015), divided by wall (014) and partially bordered by wall (017) (Figure 40). Contexts (013), (015) and (014) likely represented the northern extent of Building C. A modern geo-technical pit had been excavated through surface (013) and structure (012) (Figure 41). Surface (013) measured 4.3m x 3.87m x 0.08m, was present at a depth of 16.56m aOD and was constructed from unfrogged, red-bricks. It is also worth noting that surface (013) physically abutted the south-eastern face of wall (014) and overlay alluvial deposit (197). Surface (015) abutted the north-western face of wall (014), measured 2.66m x 3.85m x 0.08m and was constructed from identical materials to surface (013). Surface (015) also physically overlay a poorly sorted levelling deposit (029) (Figure 40). Deposit (029) had a thickness of 0.12m, comprised frequent brick fragments, frequent charcoal, a moderate quantity of biscuit ware and a moderate quantity of pottery spacers. Deposit (029) was interpreted as being utilised as a levelling layer for surface (015) utilising pottery manufacturing waste. Consequently, (029) may derive from the waste material produced by Eagle potteryworks which was associated with the site prior to its conversion into a glass-works in 1876/77. It seems likely that levelling layer (029) and internal surface (015) therefore pre-dated the mid 1870's. deposit (029) Deposit (029) physically overlay alluvial deposit (197) and it is of note that (197) measured 0.06m below (015) compared to the 0.20m thickness of the alluvium below surface (013). The deposition of levelling layer (029) below surface (015) should therefore be interpreted as a necessity caused by a variance in natural topography evidently visible during the construction of Building C. Both surface (015) and levelling deposit (029) were truncated by modern bus station foundation cut [082] at the north-western extent (Figure 83).

6.3.3.14 A two skin thick, regularly coursed, red-brick wall (014) separated both surfaces (013) and (015). The bricks present within wall (014) measured 9 ¼" x 4 ½" x 3" and had been laid to a stretcher bond with a greyish-white lime mortar. Wall (014) measured 3.4m x 0.24m x 0.24m on its NW-SE orientation and 3.91m x 0.24m x 0.24m on its NE-SW orientation (Figure 83-85). Cut [248] formed the construction cut for wall (014) and was filled by both wall (014) and a blackish-grey, silty-clay backfill deposit (249) (Figure 101).

6.3.3.15 Surfaces (013) and (015), wall (014) and levelling deposit (029) were all truncated at their western extents by later demolition 'grubbing out' event F.243 (Figure 40). Surfaces (013) and (015) should be interpreted as the internal surfaces within Building C. A change in the use of surface (013) was identifiable at the south-western extent of Building C and was evidenced by truncating construction cut [044] filled by structure (012) (Figures. 41 & 42). Cut [044] had near vertical sides, a flat, uneven base and was excavated through both surface (013) and alluvial layer (197). The first event to occur within cut [044] was the formation of a curvi-linear, four skin thick wall, constructed from both unfrogged, red-brick and unfrogged, white firebrick. Wall (012) measured 3.33m x 0.72m x 0.46m at its greatest extents and was orientated on a NW-SE axis before gently curving onto a NE-SW orientation (Figure 83-85). Structure (012) was bonded by a friable, heat affected, white lime-mortar and was abutted by deposits (244) and (245). Demolition cut [028] and robber cut [240] also truncated the northern and southern extents of wall (012). Deposits (244) and (245) were the next stratigraphic events to occur within cut [044]. Deposit (245) was a well sorted, yellowish-white, silty-clay which abutted wall (012) at its northern extent. Furthermore, deposit (245) was later truncated by robber cut [240] and was overlain by later deposits (247) and (246) (Figure 42 & 101). Fill (245) was very similar to the white clay lining (232) and (238) located at the base of both flues (200) and (199). Deposit (145) was interpreted as a heavily heat affected re-deposited alluvium. Fill (244) was also an extremely heat affected, reddish-orange, silty-clay deposit which was very poorly sorted and butted against curving wall (012) (Figure 42). Deposit (244) was bounded to the north by wall (012) and was truncated by demolition event F.243 at its south-western extents.

The presence of moderate quantities of brick and charcoal within fill (244) suggested that it had been deliberately backfilled and may represent a make-up layer for the base of an internal surface associated with structure (012). Overlying deposit (244) was a well-sorted, reddish-orange, silty-clay (027), likely indicative of an additional heat affected alluvium, similar to deposit (203), within Building A (Figure 42 & 101). Deposit (027) measured 1.76m x 1.43m x 0.16m, was bounded by structure (012) to the north and truncated by demolition event F.243 to the south. (Figure 40 & 41). Deposit (027) was interpreted as a likely make-up layer within the interior of a potential furnace. A poorly sorted clay-silt deposit (246), containing frequent quantities of slag and measuring 0.74m x 0.45m x 0.27m, was identified at the northern extents of (012). Deposit (246) was identified overlaying furnace structure (012), white clay deposit (245) and internal floor surface (013). Additionally, upon excavation of deposit (246) discreet patches of slag were identified adhering to the superior surface of the brickwork (013) immediately abutted by furnace (012). The presence of solidified slag adhering to an internal surface may indicate that a slag spillage had been allowed to cool *in situ* following contact with floor (013). Overlying (246) was a dark greyish-black ash deposit (247) which measured 0.38m x 0.20m x 0.17m and had been truncated at its northern extent by F.241. Both ash deposit (247) and slag rich deposit (246) were considered to have been heavily disturbed by demolition events F.243 and F.241. F.241 had a vertical sided cut [240], was visible principally in section and only identifiable in plan for a maximum of 0.32m west of the NW limit to Area A (Figure 42, 83-85 & 101). F.241 truncated the north-east extent of structure (012) and mirrored the route of construction cut [044] for wall (012) (Figure 42 & 83). Additionally, cut [240] was filled by a poorly sorted, deliberately backfilled deposit (241) containing 20th century pottery and frequent fragmentary brick

inclusions. F.241 should therefore be interpreted as a cut relating to the demolition and partial grubbing out of structure (012).
Structure (012), deposits (027), (241), (246) and (247) were all overlain by 20th century demolition deposits (242) and (243).
The presence of heat affected deposits (027) and (245); slag and ash deposits (246) and (247) and the heat affected brickwork on the western face of structure (012) likely indicate that (012) was the northern wall of a metal working furnace (Figure 42 & 101). The heat affected brickwork on the western face of (012) might also suggest that a more substantial brick or stone furnace base originally overlay heat affected, redeposited, alluvial layer (027). As previously mentioned surface (013) was truncated by furnace construction cut [044]. This factor coupled with the presence of solidified slag adhering to the suprerior surface of floor (013) indicates that furnace (012) was a later addition to a pre-existing room and may represent a change, or diversification, in function occurring within Building C.

Figure 40- SW facing shot of surface (013), (015), partition wall (014) and walls (041)/(017) at the left hand side of the picture (Scale- 2 x 2m)

Figure 41- NE facing shot of furnace (012) truncating surface (013) (Scale 2 x 2m)

Figure 42- South-west facing section through furnace structure (012) with associated deposits (Scale- 1 x 2m)

6.3.3.16 External to Building C, and on the same alignment as northern external wall (017), was a red brick surface (018) measuring 5.19m x 5.81m x 0.08m (Figure 43 & 83). Surface (018) was constructed of red, unfrogged, handmade bricks measuring 9 ¼" x 4 ½" x 3". The superior surface of the bricks within (018) displayed frequent evidence of wear, indicative of either intense use or natural weathering (Figure 43). Surface (018) was cut by modern truncation [035] at its north-eastern extent and by modern foundation cut [082] at its north-western extent. Surface (018) was present at a depth of 16.44m aOD and was constructed upon a 0.05m thick, bedding deposit of mortar (183) which was identifiable below the complete extent of (018). Mortar deposit (183) sealed a 0.12m thick, greyish-brown, silty-

clay deposit (182) containing frequent fragments of biscuit ware and kiln-spacer. It should be noted that deposit (182) was very similar to levelling deposit (029) located below interior surface (015). Yard surface (018) might therefore be contemporaneous with the construction of the interior surface of Building C and may, therefore, also postdate the early 1850's.

Figure 43- Surface (018) with modern truncation [035] filled by red crush (002) (Scale- 2 x 2m)

6.3.3.17 Overlying surface (018) at its southern and western extents was a poorly sorted, greyish black, clayey-silt deposit (022) containing frequent fragments of glass and butting against walls (017) and (041) of Building C. Deposit (022) has been interpreted as a refuse or dumping event against the side of Building C at the southern edges of surface (018). Surface (018) was also overlain by a 0.04m thick, blackish-grey, silty-clay deposit containing frequent fragments of glass. The clay composition of (021) coupled with the frequent glass fragment inclusions may indicate that (018) should be interpreted as an external yard surface and that deposit (021) represents a trample or use deposit related to glass production. The physical relationship of refuse deposit (022) over both yard surface (018) and against wall (017)/(041) suggests that both the wall of Building C and the yard may have been contemporary.

6.3.3.18 Building C therefore comprised red brick surfaces (006), (007) , (013), (015), (033) and (040) divided by interior walls (008), (037), (031), (038) (014) and (032), associated with exterior walls (017) and (041) (Figure-83-85). The afore-mentioned structures were all centred upon a NW-SE orientated, tunnelled, substructure (169). Substructure (169) bordered surfaces (171), (176) and (235); two rectangular brick foundation structures (207) and (208) and four brick pillars (175), (209), (210) and (266). Structure (169) was notably diagnostic in form and evidently had a very specific function. Additionally, the presence of sooty deposit (180) and the staining of surfaces (006), (007), (033) and (041) suggest that

Building C should be interpreted as an industrial structure, potentially related to glass production.

6.3.4 *Building D*

6.3.4.1 Building D was located 5.18m north-west of Building C, at the northern extent of Area A (Figure 96). Building D measured 8.4m x 4.83m x 0.30m at its maximum extent and was comprised of three walls (160), (161), (162) and four associated surfaces (151), (154), (155) and (157) (Figure 44 & 83). The earliest structure identified within Building D was a NW-SE orientated, two skin, brick wall (160) measuring 8.20m x 0.24m x 0.16m (Figure 44). Wall (160) was constructed from unfrogged, red bricks, regularly coursed and laid to a header bond. The bonding material identified within (160), was a whitish-yellow, sandy mortar dissimilar to the material used to bond walls (161) and (162). Wall (160) was abutted by bedding deposits (182) and (152), in addition to surfaces (154), (155) and (157) (Figure 44. The physical relationships exhibited by wall (160), coupled with the dissimilarity in mortar to walls (161) and (162), suggest that (160) was the earliest structure within this sequence. It seems likely that (160) may have originally served as a dividing wall between yard surfaces.
Abutting the western face of wall (160) was a poorly sorted, greyish-brown, silty-clay deposit (158) measuring 8.11m x 4.88m x 0.20m. Deposit (158) also contained frequent fragments of biscuit ware, frequent charcoal inclusions and moderate quantities of redbrick. As previously mentioned deposit (158) abutted wall (160) at its eastern extent and also lay below contexts (154), (155), (157), (161) and (162). The composition and location of deposit (158) suggests that it acted as both a bedding deposit and levelling layer within Building D. Deposit (158) was also very similar in form to deposits (182) and (029) which served as bedding layers for surfaces associated with Building B. It seems likely therefore that deposit (158) and associated surfaces (154), (155) and (157) could therefore be contemporaneous with Building B. Overlying deposit (158), at its south-western extent, was a two skin thick brick wall (161) (Figure 44). Wall (161) measured 6.65m x 0.24m x 0.26m and was constructed using unfrogged red bricks, laid to a stretcher bond and bound by a whitish-grey mortar. The north-western face of wall (161) was abutted by surface (157) and single skin, red brick, partition wall (162). Wall (162) measured 4.47m x 0.12m x 0.16m, was regularly coursed to a stretcher bond and also used a similar, whitish-grey, bonding material to wall (161). Additionally, wall (162) was abutted by surfaces (154), (155) and (157) on its western and eastern faces. Surface (157) was the largest identifiable surface in Building D and measured 6.65m x 3.91m x 0.10m (Figure 44). Surface (157) was also bounded by walls (160), (161) and (162), was butted against surface (154) and overlay bedding deposit (158). Surface (157) was identified at 16.39m aOD, was constructed from unfrogged redbricks, laid flat, to a NW-SE stretcher bond. It should also be noted that the superior face of the brickwork within surface (015) was heavily worn (Figure 44, 45 & 83-85).

Figure 44- Surface (157) with wall (160) identifiable on the left and circular depression (174) present in the centre of the photograph (Scale- 2 x 2m)

6.3.4.2 Furthermore, frequent small glass fragments were identified overlying surface (157). The highest concentration of glass fragments also appeared to be located within a sub-circular depression (174) in the brickwork of (157) (Figure 45). Additionally, the brickwork present at the base of circular depression (174) was not heat affected and only the upper break of slope was worn smooth by repetitive forces. The presence of (174), coupled with the frequency of glass fragments across the superior surface of (157) may indicate that (157) functioned as a working surface, associated with glass production or storage.

6.3.4.3 Butted against (157) at its south-eastern extent was a reused fire-brick surface (154), measuring 2.31m x 3.19m x 0.10m and laid flat to a NW-SE stretcher bond (Figure 46). Surface (154) was identified at 16.30m aOD, overlay bedding deposit (158) and was likely constructed contemporaneously to surface (157). Additionally, surface (154) was truncated at its south-eastern extent by wall (162). Both (157) and (154) had small glass fragments present on their superior surface.

Figure 45- Shot of circular depression (174) present within surface (157) (Scale- 1 x 1m)

Figure 46- Re-used firebrick surface (154) with associated wall (162) (Scale- 1 x 1m & 1 x 2m)

6.3.4.4 Surface (155) was located south-east of surface (154) and was identified at a level of 16.27m aOD (Figure 47). Surface (155) also measured 1.44m x 3.43m x 0.07m and was constructed from sub-rectangular, cream coloured, pavia floors tiles. The individual tiles measured 0.35m x 0.25m x 0.07m and were laid to a single course, overlying bedding

deposit (158). Tiled surface (155) abutted wall (161) at its north-eastern extent and was later truncated by F.097

Figure 47- Pavia floor surface (155) with associated wall (161) (Scale- 1 x 1m & 1 x 2m)

6.3.4.5 North-west of wall (160) was a frogged, red brick surface (151) measuring 2.25m x 1.46m x 0.10m (Figure 83-85). Surface (151) was laid to a SW-NE orientated stretcher bond and was identifiable at a height of 16.44m aOD. Additionally surface (151) overlay both wall (160) and a poorly sorted greyish-brown, silty-clay deposit (152). Deposit (152), abutted wall (160), contained frequent biscuit ware fragments and was very similar in composition to deposit (158). It should also be noted that the bricks present within surface (151) were of a later, 20th century, date than the 19th century building materials present within (154) and (157).

6.3.4.6 Building D can therefore be divided into three distinct phases. The first phase comprised the construction of wall (160), the deposition of layers (158) and (152) and the creation of surfaces (157) and (154). The similarity in form, of bedding deposits (158) and (152) to bedding deposits (029) and (182) within Building C suggests that all four layers may be contemporaneous. Therefore, the first phase likely represented the creation of yard surfaces, potentially servicing mid-late 19th century Building C. The second phase of Building D relates to the construction of walls (161) and (162) in association with the creation of pavia surface (155). This phase may represent either an internalisation of surfaces (157) and (154) or the compartmentalisation of yards surrounding Building C. The high frequency of glass fragments overlying the surface of (154), (155) and (157) also suggests that these surfaces were in use at a period when the glassworks was operational. The final identifiable phase of Building D was the creation of surface (151). As previously mentioned, the composite brickwork within (160) was of a later date than the brick present within both surface (154) and (157). Furthermore, excavation of surface (150) revealed that it partially

overlay wall (160). Consequently, surface (151) was interpreted as a replacement yard surface, laid in the early 20th century following the demolition of Building D.

6.3.5 *Building E*

6.3.5.1 1.80m east of Building D was a NNW-SSE orientated terrace of structures containing the footings for three separate buildings (Figure 48 & 83). The three structures were divided into Buildings E, F and G and were all overlain by 20th century demolition deposit (263). Building E was the most southerly structure within the terrace and was located 1.8m east of Building D at a height of 16.44m aOD.

Figure 48- SE facing shot of the terrace comprising Buildings E, F and G with Building G present in the foreground. (Scale 2 x 2m)

6.3.5.2 Building E measured 5.20m x 9m x 0.68m and was comprised of walls (019), (023) and (026) (Figure 49). Additionally, Building E was constructed within a sub-rectangular, vertically sided construction cut [074] measuring 5.48m x 9.3m x 0.70m. A two skin thick wall (019) was constructed using handmade, unfrogged, redbricks laid to a stretcher bond and placed at the base of cut [074]. Wall (019) survived to a height of 0.68m, was bonded with a whitish-grey lime mortar and was orientated NNW-SSE. Additionally, wall (019) measured 0.24m in thickness and was interpreted as the external wall footings to Building E. Two single skin, internal partition wall footings, (026) and (023), were then constructed. Foundation cut [074] also contained walls (023) and (026), which butted external wall footings (019) and survived to a maximum depth of 0.64m. Reference to Figure 83 indicates that internal partition wall footings (026) and (023) likely represented the location of rooms or compartments within the interior of Building E (Figure 49 & 96). Walls (019), (023) and (026) were all constructed upon a light, greyish-yellow deposit (030) which was interpreted as the natural clay substrate which had been partially disturbed during the construction of

Building E. Two additional deposits, (025) and (024) were also identified abutting the internal faces of wall (019) and were considered to have been deliberately dumped into foundation cut [074]. Deposit (024) was a poorly sorted, mid greyish-yellow, silty-clay which contained occasional fragments of brick and physically overlay disturbed natural deposit (030). Deposit (024) measured 0.55m in thickness and was present throughout the interior of Building E. Overlying deposit (024) was a dark greyish-black silty-clay (025) containing frequent fragments of brick, glass and biscuit ware. Deposit (025) measured 0.15m in thickness and was also present throughout the interior of Building E. Abutting the north-east external face of wall (019) was a poorly sorted, greyish-brown, silty-clay deposit (075). Deposit (075) contained frequent fragments of brick and charcoal and measured 9.3m x 0.90m x 0.70m. Deposit (075) was also truncated by drain F.077 and the construction cut [308] for Building F. Additionally, deposit (075) overlay the natural substrate (057), and was only located within the north-eastern portion of cut [074] that was external to wall (019).

Figure 49- E- facing shot of Building E displaying partial excavation of the internal substructure. Note modern red crush (002) filling robber cut [035] (Scale 2 x 2m)

6.3.5.3 Deposits (024) and (025) have both been interpreted as deliberately deposited make-up layers, acting as both bedding material for floor surfaces and internal foundation support for external wall (019). Deposit (075) has been interpreted as backfill within those areas of foundation cut [074] that were external to Building E. The presence of biscuit ware within both backfill deposits (024) and (025) coupled with the brickwork composition of walls (019) suggest that Building E may be of a mid-late 19th century date. Consequently, Building E may have been roughly contemporaneous to industrial Building C in the centre of excavation Area A. No finds or usage deposits were present within the interior of Building E so no indicator of the structures function was identified.

It is curious that foundation cut [074] was excavated to 15.84m aOD, before walls (019), (023) and (026) were constructed. Although no conclusive reason for the substantial depth

of [074] was attained it might be considered that Building E was originally intended to house a cellar before unknown constraints prevented cellar construction.

6.3.6 *Building F*

6.3.6.1 Building F was located 1m east of yard division wall (160) and butted the north-west facing wall (019) of Building E (Figure 48, 50 & 83). Building F was sub-rectangular in form, orientated ENE-WSW and comprised walls (148) and (149). Both walls (148) and (149) were constructed within foundation cut [308] which measured 5.88m x 4.05m x 0.28m. Cut [308] represented the footprint of Building F and truncated both the natural substrate (057) and backfill deposit (075). Wall (148) was constructed from regularly coursed, unfrogged red-bricks, laid to a stretcher bond. The footings of a potential brick-built buttress, measuring 1.42m x 0.40m x 0.26m, was also identifiable within the northern segment of (148) (Figure 83). The western, northern and eastern facing walls of (148) were all two skins thick, however, the south facing wall was only built to a thickness of one skin. The south facing segment of wall (148) also abutted the northern-most wall (019) of Building E. The physical relationship between walls (148) and (019) coupled with the thickness of wall (148), on its northern, western and eastern aspects, suggests that Building F likely postdated Building E. Furthermore, it is also of note that construction cut [308] for Building F truncated the construction cut backfill (075) of Building E.

Figure 50- WSW facing shot of Building F with the eastern face of wall (148) visible in the foreground (Scale- 2 x 2m).

6.3.6.2 A NNW-SSE orientated, single skin thick, internal dividing wall (149) was also identified within Building F (Figure 50 & 83). Wall (149) measured 3.51m x 0.12m x 0.16m and was constructed from unfrogged, handmade red-brick. The individual bricks within wall (149), measured 9 ¼" x 4 ½" x 3", were regularly coursed and laid to a stretcher bond using a

greyish-white lime mortar. A single sandstone slab (150), interpreted as a step, abutted the south-western face of wall (149) and overlay the natural substrate (057). Sandstone step (150) measured 0.72m x 0.30m x 0.10m, had been dressed to a smooth finish and may have represented access into a lower internal space.

No internal floor surfaces or use deposits survived within Building F so no indicator of function was identified.

6.3.7 *Building G*

6.3.7.1 Building G was the most northerly structure within the terrace and abutted the northern wall (148) of Building F. Building G was sub-rectangular in shape, was orientated NNW-SSE and measured 3.41m x 4.82m x 0.14m (Figure 48 & 83). A two skin thick wall (144) formed the exterior of the structure and was constructed from unfrogged, red-brick laid to a stretcher bond. A whitish-grey lime mortar was also identified as the principal boding material brickwork within (144). Wall (144) was only identified on the northern, eastern and western faces of the structure. No southern wall for Building G was constructed suggesting that the most northerly wall of Building F also serviced Building G. This factor may suggest that Building G formed the latest structure to be built within the terrace. A single skin interior partition wall (145) was also identified at the northern extent of Building G. Wall (145) measured 3.2m x 0.12m x 0.24m, abutted exterior wall (144) and was butted upon its northern face by floor surface (179) (Figure 83). Wall (145) was constructed from unfrogged, red-brick, regularly coursed and laid to a ENE-WSW aligned stretcher bond. The same whitish-grey lime mortar used as a bonding material within wall (144) was also present upon wall (145). As mentioned previously floor surface (179) was located north of wall (145) and was bounded by wall (144) to the north, east and west. Surface (179) was comprised of whitish-grey limestone slabs, individually measuring 0.90m x 0.50m x 0.12m and laid flat on a NW-SE orientated axis. Surface (179) measured 3.2m x 0.90m x 0.12m, overlay natural substrate (057) and likely formed the floor of a corridor within Building G. No finds or occupational deposits were identified on the superior face of surface (179). Contexts (144), (145) and (179) were all constructed within a sub-rectangular, vertically sided foundation cut [148]. Cut [148] had been excavated through the natural substrate (057), measured 3.45m x 4.85m x 0.14m and represented the floor plan of Building G at its greatest extent.

6.3.7.2 To summarise, it was apparent that the earliest structure within the terrace was Building E followed by Building F and then Building G. All of the structures were built from very similar materials and in a similar manner, suggesting that, despite their individual phasing, Buildings E, F and G were all roughly contemporary. Additionally, the orientation of the terrace, coupled with a similarity to building materials used within central Building C might suggest that Buildings E, F and G were associated with the mid to late-19th century glassworks. The lack of occupation deposits prevents any definitive identification regarding structure function but it is possible that Buildings E, F and G served as ancillary glass-working structures or worker housing.

6.3.7.3 A single external brick built drain (F.077) was located 0.69m north-east of Building E at a height of 16.52m aOD (Figure 51 & 83). F.077 was orientated on an identical, NNW-

SSE, orientation to Buildings E, F and G and survived to a maximum extent of 3.30m x 0.38m x 0.43m. Drain F.077 was constructed from frogged redbrick (047), laid to a stretcher bond using a whitish-grey cementitious mortar. Drain course (047) was three courses in height, had a three skin thick brick-built base and a three skin thick brick-built roof. Drain (047) also displayed a square profile centred upon a ceramic drain downspout measuring 0.30m x 0.30m. No ceramic piping was identified within the internal structure of drain (047). Abutting the south-western face of (047) were four shaped, rectangular, sandstone blocks (045) each measuring 0.38m x 0.10m x 0.40m. These stones have been interpreted as edging for drain (047) and may have been originally been visible from ground level. Drain (047) and sandstone edging (045) both physically overlay the natural substrate (057). Additionally, they were both laid within a vertically sided construction cut [048]. Cut [048] was excavated through alluvial deposit (197) and measured 3.50m x 0.62m x 0.43m. A poorly sorted, blackish-grey, clay backfill (077) was inserted as packing between drain (047) and construction cut [048].

Two factors indicate the drain F.077 that drain (047) was constructed later than Buildings E, F and G. The first factor to be considered was that drain construction cut [048] truncated Building E foundation cut fill (075). The second factor was that the walls of drain (047) were constructed from late 19th/early 20th century frogged bricks, stamped 'H. Castleford'. The stamp indicated that the brick was produced by Hartley's of Castleford between 1897 and 1912. Consequently, the brickwork composition of Buildings E, F and G was considered to be pre-date the bricks identified within drain F.077.

Figure 51-NW facing shot of drain F.077 (Scale 1 x 2m)

6.3.7.4 However, the orientation and location of F.077 indicated that the drain, although a later addition, appeared to respect the location of Buildings E, F and G. Therefore, it seems likely that when F.077 was constructed the 19th century terrace was still present and the drain was installed upon the border of a parallel road or yard.

6.3.8 *Building H*

6.3.8.1 Building H was located 23m north-east of Building E and was orientated on a NW-SE orientated axis (Figure 83). A single fragmentary, two skin thick, external wall (105) was identified on the northern, western and southern aspects of Building H. Wall (105) was revealed at a height of 16.79m aOD. Additionally, (105) measured 6.60m x 0.24m x 1.2m on its eastern aspect, 8.02m x 0.24m x 1.1m on its northern aspect and 1.95m x 0.24m x 1.12m on its southern aspect (Figure 52). As mentioned previously, wall (105) likely formed the footings for the external walls of Building H. However, the depth of the footings, coupled with paintwork on the interior facings of (105), suggest that the foundations of Building H likely functioned as cellars. Additionally, single skin walls (309), (310) and (311) abutted (105) and were interpreted as potentially representative of internal partition walls within Building H. The internal walls were constructed from unfrogged, red-brick laid to regular courses, within a NW-SE orientated stretcher bond. Furthermore, a greyish-white, lime mortar was used as a bonding material within walls (309), (310), (311) and (105). A sandstone surface (132) measuring 7.59m x 1.74m x 0.06m was also revealed at the base of the most northerly cellar. The individual flags measured 0.80m x 0.5m x 0.06m and were identified at a height of 15.64m aOD. Surface (132) has been interpreted as a floor surface to the most northerly cellar within Building H.

Figure 52- WSW facing shot of Building H with external wall (105) identifiable in the foreground (Scale 2 x 2m)

6.3.8.2 Building H was also constructed within foundation cut [107] which was identifiable on the northern, eastern and north-western aspect of the structure. The full extent of both

the interior of the structure and the extent of cut [107] were not revealed as further excavation within the vicinity of Building H was prohibited due to health and safety concerns.
Surface (132) and walls (105), (309), (310) and (311) were all overlain by late 19th century demolition deposit (003).
The construction materials used within the walls and surfaces of Building H were all of a mid-late 19th century date. Consequently, the presence of cellars, coupled with its relative distance from any identifiable industrial buildings, suggest that Building H likely represented the foundations of a mid-late 19th century domestic residence.

6.3.9 *Building I*

6.3.9.1 Building I was represented by a series of NW-SE orientated walls, (112), (113), (114) and (115), located at the north-east corner of Area A (Figure 53 & 83). The most northerly wall (112) measured 3.5m x 0.22m x 0.16m and was identified at a height of 16.73m aOD. Wall (112) was constructed from unfrogged, red-brick bonded with a greyish-white lime mortar. The brickwork, within wall (112), was two skins thick, survived to a height of two courses and was laid to a NW-SE orientated stretcher bond. Located 3.84m south-west of (112) was a single skin wall (113) measuring 3m x 0.22m x 0.16m. Wall (113) was constructed from regularly coursed, unfrogged, red-brick laid flat to a stretcher bond. Wall (114) was located 2.80m south-west of (113) at a height of 16.62m aOD. The materials used during the construction of wall (114) were identical to those used within walls (112) and (113). However, (114) was irregularly coursed and alternated between a header bond and a NW-SE orientated, two skin thick stretcher bond. Wall (114) was on a similar orientation to walls (112), (113) and (115) and measured 3.76m x 0.22m x 0.18m (Figure 53).

Figure 53- N facing shot of wall footings (112), (113) and (114). (Scale- 2 x 2m)

6.3.9.2 Two parallel walls (115) and (137) were identified flanking a whitish-grey concrete surface (136), 5.2m south-west of wall (114). Both walls (115) and (137) were constructed from unfrogged, red-brick, laid to a stretcher bond using a greyish-white lime mortar. Wall (115) was two skins thick, whilst wall (137) had a thickness of only one skin. Surface (136) abutted the south-western face of wall (115) and the north-eastern face of wall (137). Surface (137) was interpreted as a concrete floor likely indicative of an entrance corridor (Figure 54 & 55).

Figure 54- SE facing shot of wall (115) and concrete corridor surface (136) (Scale – 1 x 2m)

Figure 55- SW facing shot of walls (115), (137) and surface (136) (Scale – 2 x 2m)

6.3.9.3 A heavily truncated and fragmentary structure (138) was identified 0.68m south-west of wall (137) (Figure 83). Wall (138) was constructed from unfrogged, red-brick, irregularly coursed and laid to both a stretcher and a header bond. Wall (138) was divided between a NW-SE orientated aspect and a shorter, NE-SW aligned section. The NW-SE segment measured 1.54m x 0.22m x 0.08m and the NE-SW division survived to a total extent of 1.29m x 0.22m x 0.08m. A whitish-grey mortar was identified on the superior aspect of the brickwork (Figure 56)

Figure 56- SW facing shot of fragmentary wall footings (138) (Scale- 1 x 2m)

6.3.9.4 The best preserved segment of Building I was represented by wall (139) which was located 26.55m south-west of the north-eastern extent of Area. A (Figure 83). Wall (139)

survived to a height of three courses, measured 6.37m x 0.24m x 0.36m at its greatest extent and was constructed from unfrogged, red-brick. The brick work was laid to a stretcher bond with a greyish-white, lime mortar. Additionally, the highest level recorded for the wall was 16.62m aOD. A greyish-brown, redeposited natural (143) containing occasional brick and charcoal fragments, abutted wall (139) on its northern, western and eastern faces. Deposit (143) measured 5.8m x 2.56m x 0.09m and was interpreted as a levelling deposit inserted below the floor level of Building I (Figure 57).

6.3.9.5 Deposit (143), surface (136) and walls (112), (113), (114) (115), (137), (138) and (139) were all laid within the base of a NW-SE orientated cut [262]. Cut [262] had near-vertical sides and a flat, uneven base. Only the south-eastern extent of the cut was identifiable in plan and likely represented a landscape levelling event in advance of the construction of the structures within Building I. Furthermore, the similar orientation of the walls within Building I and the use of consistently similar building materials suggest that all of the composite walls were of a broadly contemporary date. It should also be noted that the construction materials identified in Building I were similar to those used in Building H suggesting that the entire structure had a mid-late 19th century date. Overlying the full extent of Building I was a poorly sorted, blackish-grey, silty-clay (263) containing frequent fragments of glass, brick and 20th century pottery. Deposit (263) has been interpreted as a 20th century demolition event likely indicating that Building I was still present prior to demolition preceding construction of the modern bus station in the 1960's.

6.3.9.6 To summarise, Building I has been interpreted as the fragmentary remains of a NE-SW aligned terrace of domestic residences. This is principally due to the similarity in orientation of both the internal and external walls to the alignment of nearby Albion Street.

Figure 57- WSW facing shot of wall (139) within Building I (Scale- 2 x 2m)

6.3.9.7 Two additional, but fragmentary, buildings were also identified within the north-eastern portion of Area A (Figure 83). Both structures were heavily truncated and likely represented only a small fraction of their original extents. The first structure (217) was located 7.73m west of Building H at a height of 16.01m aOD. It comprised a single skin, unfrogged red-brick wall (217), a brick surface (219), a bedding deposit (218) and a vertically sided construction cut [216] (Figure 58). Surface (219) was the latest identifiable event to occur within the structure and was constructed from unfrogged, unbonded, irregularly coursed bricks. Surface (219) measured 2.22m x 1.60m x 0.08m, was truncated at its north western extent and overlay bedding deposit (218). Additionally, surface (219) was bounded by wall (217) at its eastern, western and southern extents. Bedding deposit (218) also abutted wall (217) and was comprised of a blackish-grey, silty-clay containing occasional fragments of charcoal . As indicated above, bedding deposit (218), wall (217) and surface (219) were all laid within foundation cut [216]. Both (217) and (219) were both overlain by a terrace of mid-late 19th century domestic residences. The unfrogged red-bricks utilised during the construction of walls (217) and surface (219), were similar to those identified in 19th century Buildings C, E, F and G. Therefore, it seems likely that wall (217) and its associated surface may represent the heavily truncated remains of an earlier 19th century building that had originally fronted onto Albion Street.

Figure 58- SE facing shot of 19th century wall (217) and surface (219) (Scale 1 x 2m)

Figure 59- S facing shot of wall (095) (Scale 1 x 1m)

6.3.9.8 The second fragmentary structure (095) was located 6.94m north-east of Building F, at a depth of 16.44m aOD (Figure 83). Wall (095) was truncated at its northern extent and was orientated both N-S and E-W. The E-W component measured 1.71m x 0.24mm x 0.16m and the N-S aspect measured 1.18m x 0.24m x 0.16m. The principal material utilised during construction were frogged, red-bricks bonded with a greyish-white cementitious mortar (Figure 59). The bricks were regularly coursed, laid to a stretcher bond and set within a vertically sided construction cut [093] which was visible on the southern and eastern faces of wall (095). Construction cut [093] was excavated through the natural substrate (057) and had a sharp break of slope at both the top and bottom. No deposits indicating structure function were found in association with wall (095), although its presence below deposit (003) may indicate a late 19th or early 20th date.

6.4 Excavation Area A - 20th Century

6.4.1 *Building J and associated surfaces*

6.4.1.1 Building J was located 20.92m from the south-west extent of Area A. Building J was comprised of two walls (005) and (188), in addition to surfaces (036), (190), (195) and (196). Wall (005) was a two skin thick, red-brick wall, constructed from unfrogged brick and bonded with a grey, cementitious mortar (Figure 39). Wall (005) measured 7.32m x 0.36m x 0.20m, on a NW-SE orientation, before turning onto a NE-SW axis which measured 3.08m x 0.36m x 0.24m. The majority of wall (005) survived to a maximum depth of three courses, was visible at 16.64m aOD and was truncated at its northern extent by modern construction cut [082]. Wall (005) was built within a vertically sided construction cut [307]. Cut [307] truncated earlier surfaces (033) and (040) from Building C and was also excavated through

natural substrate (057). Associated with wall (005) was surface (036) which measured 2.11m x 1.99m x 0.20m and was identified at a depth of 16.54m aOD. Surface (036) was constructed from re-used, unfrogged, red-brick and reused, unfrogged, firebrick. Both brick types, within surface (036), were bonded with a grey cementitious mortar. Surface (036) also abutted wall (005) at its eastern extent and overlay both wall (008) and surface (033). Surface (036) was heavily truncated at its northern and western extents, likely caused during the demolition phase (Figure 88).

6.4.1.2 On a similar alignment to wall (005) but slightly offset, was wall (188) which was orientated NW-SE before turning sharply onto a NW-SE axis. Wall (188) measured 5.59m x 0.24m x 0.30m on its NW-SE axis and measured 2.16m x 0.24m x 0.32m on its NE-SW orientated axis (Figure 88). Wall (188) was also constructed from re-used, unfrogged red-brick and bonded by a whitish-grey cementitious mortar (Figure 60). Later 20th century construction trenches F.313 and F.314 both truncated wall (188) at its northern and southern extents, destroying any potential physical relationship with wall (005). Additionally, mid-20th century service trench F.097 was also excavated through wall (188), approximately 4.9m from its north-western face. Wall (188) was constructed within cut [189] which was also filled by deposits (191) and (192) (Figure 61). Deposit (192) was a greyish-brown, silty-clay, which directly overlay the natural clay substrate (057) and abutted wall (188) at its northern extents. No datable finds were recovered from deposit (192) although occasional brick fragments were identified. Deposit (192) measured 0.10m thickness at its southern extent before rapidly deepening to a maximum thickness of 0.25m at its northern limits (Figure 60). It is worth noting that the level of the natural substrate (057) becomes progressively lower under the northern extents of deposit (192). It seems likely that when construction cut [189] was excavated the naturally sloping topography was adhered to, necessitating the deposition of a levelling clay (192). Overlying deposit (192) was a 0.30m thick, poorly sorted, greyish-black, silty-clay deposit (191). Deposit (191) also contained frequent charcoal and brick inclusions. Deposit (191) has been interpreted as a redeposited demolition layer utilised as an additional make-up deposit necessary for the construction of surfaces (190) and (196).
Deposits (191) and (192) were both identifiable below surface (190) and were heavily truncated during demolition. Deposit (192) was present below both brick surface (190) and brick surface (196).

6.4.1.3 Surface (190) was a brick floor surface constructed from reused, unfrogged, red-brick, laid flat to a N-S stretcher bond. Surface (190) also measured 2.80m x 1.08m x 0.08m at its maximum extent and was identified at a depth of 16.60m aOD. At its southern extent, surface (190) was abutted by additional floor surface (1960 constructed from unfrogged red-brick, laid flat to an E-W stretcher bond (Figures 60 & 61). Surface (196) measured 2.70m x 2.48m x 0.08m and abutted wall (188) at its north-eastern extent. Additionally, surface (196) was truncated by modern bus station construction trenches F.313 and F.314. The presence of levelling deposit (191) below both surfaces (190) and (196) suggests that the two surfaces were contemporaneous and likely associated. Furthermore, both make-up layers (192) and (191) butt against wall (188) indicating that surfaces (190) and (196) were likely associated with wall (188).

6.4.1.4 The presence of a whitish-grey, cementitious mortar on the superior surface of wall (188) in addition to the re-use of earlier bricks suggests that wall (188) and associated surfaces (190) and (196) were of an early 20th century date. Wall (005), although slightly offset from wall (188), was also constructed using the same materials and had a similar form. Despite the destruction of the physical relationship between walls (188) and (005), the afore-mentioned factors indicate that both walls should be regarded as roughly contemporaneous and of early 20th century date. Additionally, the wear present on surfaces (190) and (196) was indicative of weathering likely identifiable of an external yard.

6.4.1.5 In summary surfaces (033), (190) and (196) should all be interpreted as early 20th century yard surfaces divided by walls (188) and (005). Furthermore, it seems likely that Building. J, inclusive of yards (033), (190) and (196), was constructed following the destruction of the 19th century glassworks. This is highlighted by the presence of a moderately thick demolition deposit (192) serving as a levelling material for surfaces (190) and (196). Additionally, the surfaces and walls of 19th century Building C were truncated by Building J construction cuts, [307] and [188].

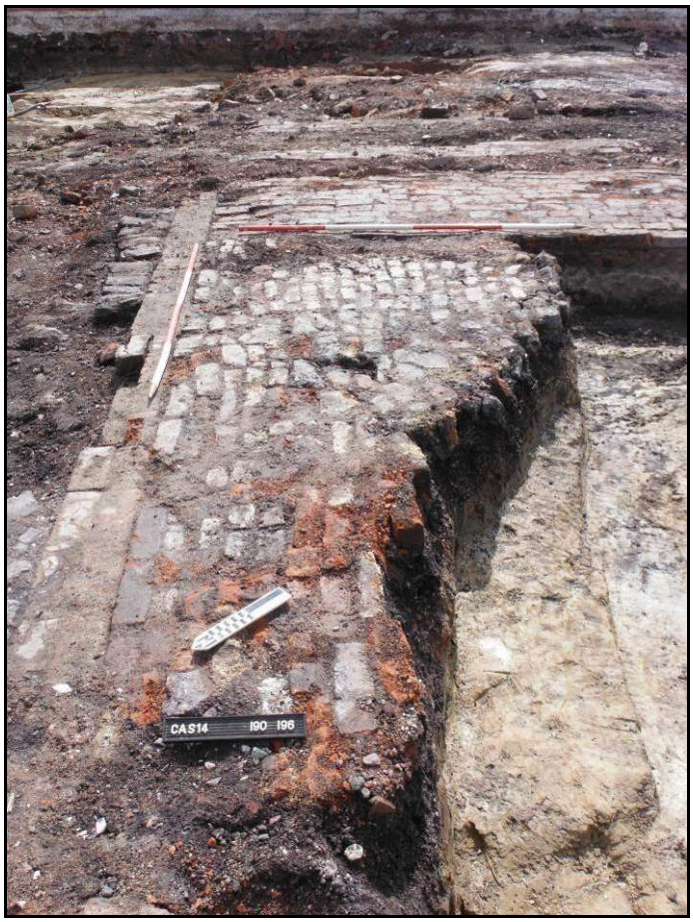

Figure 60- SE facing shot of wall (188) with associated surfaces (190) and (196) (Scale 2 x 2m)

Figure 61- E facing shot of surface (190) with demolition deposits (191) and levelling clay (192) (Scale- 2 x 2m)

6.4.2 *Building K*

6.4.2.1 Building K was located 49.5m north-east of Building J at a height of 16.84m aOD (Figure 88 & 96). Building K was constructed from frogged, machine made, red-brick and bonded with a greyish-white, cementitious mortar. The brickwork (066) survived to a height of three courses, was stepped and laid to a header bond. Building K was rectangular in shape with wall footing (066) comprising two NW-SE orientated walls and a single NE-SW orientated aspect (Figure 62). The south-western segment of (066) measured 5.44m x 0.24m x 0.24m, the north-eastern aspect 3.53m x 0.24m x 0.16m and the north facing segment measured 3.86m x 0.24m x 0.27m. Wall (066) was also truncated, at both its northern and southern extents, by evaluation trench 3 from the previous phase of works conducted by Wessex Archaeology . Additionally, wall (066) was laid within a vertically sided, flat bottomed, construction cut [127]. Cut [127] was excavated through both upper alluvial deposit (197) and lower alluvium (128). Wall (066) was abutted by both alluvial deposits (197) and (128) suggesting that (066) was trench built within a narrow foundation trench. The interior of Building K was comprised of 20th century demolition material (263) overlying both alluvium deposit (197) and wall (066). It should be noted that construction cut [127] was dug within terraced sections presumably in order to maintain a level base for Building K (Figure 62). The stepped formation of wall (066), coupled with the form of the construction materials utilised, suggests that (066) likely served as foundation footings to an early 20th century building. However, the function of Building K was not possible to determine as no internal occupation or use deposits were identified.

Figure 62- E-facing shot of Building K with wall footings (066) in the foreground and wall foundations (100) in the background. Note terracing of construction cut through alluvium (128) (Scale- 2 x 2m).

6.4.2.2 A NW-SE orientated wall (100) was also identified on a parallel axis to wall footings (066) (Figure 62). Wall (100) was located 1.14m north-east of (066), was identifiable at a depth of 16.91m aOD and measured 2.06m x 0.24m x 0.08m. Only a single course of brickwork was identified and was constructed from unfrogged red-brick, laid flat, to a header bond using a whitish-grey, cementitious mortar. Wall (100) was trench built within a vertically sided construction cut [133] and in a similar manner to footings (066). Cut [133] was also excavated through upper alluvial deposit (197). The similar alignment of wall (100) to wall (066), coupled with their relative proximity, suggests that both structures were likely associated and of a late 19th or early 20th date. Furthermore, wall (100) was physically overlain by 20th century demolition deposit (263) indicating that wall (100) was present prior to the demolition event preceding the construction of the modern bus station.

6.4.3 *Early 20th Century Services*

6.4.3.1 A NE-SW orientated drain F.097 was identified 6.03m from the north-east extent of Area A (Figure 88). Drain F.097 was comprised of a concave sided cut [096] filled by a reddish-orange, salt-glazed ceramic pipe overlain by a blackish-grey, silty-clay deposit (097). Deposit (097) was poorly sorted and contained frequent fragments of brick and 20th century pottery. Additionally, F.097 had multiple branches and parallel courses, all orientated either NE-SW or NW-SE. This was most visible in the north-east corner of Area A where F.097 has multiple, parallel NW-SE branches running beneath the location of Building K. It seems likely that each branch represents water or sewage services plumbed into a separate domestic residence within the extent of Building K. Two SW-NE orientated branches were fed from a square brick built manhole (141) measuring 1.36m x 1.16m x 0.70m. The most northerly SW-NE orientated branch of F.097 measured 25.32m x 0.54m x 0.40m. The longer, southern

branch of F.097 measured 65.2m x 0.54m x 0.42m and was truncated by modern linear F.312. A second NW-SE orientated branch measuring 8.49m x 0.35m x 0.40m was also identified truncating mid-late 19th century roadway (227). F.097 truncated Roman deposits (084) and (086), 19th century contexts (075), (025), (024), (019), (095), (148), (155), (188), (158), (203), (199) and (200) and late 19th/early 20th century yard surface (196) (Figure 30, 32, 36, 53 & 59). F.097 was, at its north-eastern extent, partially sealed by 20th century demolition deposit (263).

6.4.3.2 On a similar NE-SW orientation to F.097 was a second group of services F.164 (Figure 88). F.164 measured 8.39m x 0.54m x 0.20m on its NE-SW axis and 6.15m x 0.54m x 0.18m on its NW-SE alignment. F.164 had a concave sided construction cut with a rounded, unveven base [163]. Cut [163] was filled by a reddish-orange, salt glazed ceramic pipe, very similar to the pipework found within F.097. Construction cut [163] also contained a single, poorly sorted greyish-black, silty-clay (164). Deposit (164) physically sealed the ceramic service pipe and contained frequent fragmentary brick inclusions. Consequently, it seems likely that (164) was formed by the deliberate redeposition of material excavated during the creation of cut [163]. Services F.164 also truncated demolition deposit (003), roman ditch fill (166), Building C substructure (169) and associated surfaces (171) and (181) (Figure 32, 34 & 35). The similarity in dimensions of F.097 and F.164, coupled with the form of the ceramic pipe in both features, suggests that F.164 and F.097 were of a roughly contemporaneous early 20th century date.

6.4.4 *Modern*

6.4.4.1 A number of mid to late 20th century features were also identified within Area A. These were either slightly preceding, or directly related, to the construction of the bus station in the 1960's.

6.4.4.2 8.81m north-east of F.312 was a rectangular brick-built structure (141) measuring 1.89m x 1.12m x 0.48m (Figure 88). The individual bricks measured 9½" x 4" x 3½"and were irregularly coursed to a header and stretcher bond, using a greyish-white cementitious mortar. Structure (141) survived to a height of 5 courses, had a varying thickness of between one or two skins and was laid within a vertical sided cut [261] (Figure 63). Cut [261] was excavated through the natural substrate and truncated Roman linear F.086. Structure (141) was interpreted as being utilised for manhole access and may have been constructed in the mid 20th century, prior to the construction of the modern bus station.

Figure 63- NNW-facing shot of manhole access structure (141) (Scale- 1 x 2m).

6.4.4.3 A NW-SE orientated linear (F.312) was identified immediately south-west of late 19th century Buildings E and F. F.312 measured 18.02m x 0.74 x 0.67m at its greatest extent and displayed a near vertically sided cut [035] with a rounded, uneven base. Cut [035] was filled by a poorly sorted, red crush deposit (312), very similar in form to modern bedding deposit (002). Therefore, both (002) and (312) should be interpreted as the same event and occurred during the construction phase of the modern bus station. Both Buildings E and F were abutted by deposit (312) suggesting that the construction cut and backfill deposits of both structures had been removed during the excavation of linear F.312. It seems likely that F.312 was a modern robber trench demarcating the location of earlier 19th or 20th century services that were identified and removed during the construction phase of the modern bus station.

6.4.4.4 Two NE-SW orientated linears (F.313 & F.314) were also identified within the south-western extent of Area B. Linear F.313 measured 16.90m x 0.57m x 0.30m and was comprised of a vertically sided construction cut [260] filled by a tightly compacted greyish-brown, silty-clay (313). Deposit (313) contained frequent fragments of brick and occasional later 20th century pottery. F.313 truncated early 20th century contexts (195), (192) and (189) in addition to 19th century contexts (203), (200), (199) and (205). Linear F.314 measured 15.80m x 0.60m x 0.29m and also displayed a vertically sided construction cut [082] filled by a similarly tightly compacted greyish-brown, silty-clay (314). F.314 truncated early 20th century contexts (188), (196) and (192) in addition to 19th century contexts (199), (200), (203), (223) and (222). Both linears F.313 and F.314 were excavated through alluvium (197), natural substrate (057) and were overlain by red crush deposits (002). Both F.313 and F314 have been interpreted as foundation cuts relating to the construction of the modern bus stands.

6.5 Excavation Area B- Roman

6.5.1 The Roman features identified within Area B comprised four pits (F.293, F.291, F.294, F.304) and a single linear (F.289) (Figure 97 & 98). A greenish-brown, silty-clay, alluvial deposit (287) separated the Roman features into two separate phases. F.304 was the only feature sealed by alluvium (287) and was therefore, assigned to the earlier phase of Roman activity within Area B.

6.5.2 Pit F.304 was located 1.48m north of the southern extent of Area B at a height of 17.50m aOD. Pit F.304 had a concave sided cut [303] with a gradual break of slope at the top, a gradual break of slope at the bottom and a rounded, uneven base. Cut [303] was sub-circular in shape, measured 1.53m x 1.47m x 0.43m at its greatest extents and was filled by a brownish-grey, sandy-silt (304). Deposit (304) was well sorted, contained rare fragments of Roman pottery and occasional sub-rounded stony inclusions. Pit F.304 was also excavated through the natural substrate (057) and due to its location below alluvial layer (287) was considered the earliest feature within Area B (Figure 64). Although no substantial quantities of animal bone or domestic refuse were recovered from F.304 it seems likely that it had functioned as a waste pit.

6.5.3 Three Roman pits (F.291, F.293, F.294) and one Roman linear (F.289) were excavated through alluvial deposit (287). Consequently, the following Roman features have been assigned to the later of the two Roman phases identifiable within Area B.

6.5.4 Pit F.293 was located 1.43m north of the southern extent of Area B at a height of 17.58m aOD. Pit F.293 measured 0.53m x 0.46m x 0.08m, was sub-circular in shape and had a concave sided cut [292] (Figure 65). Cut [292] was filled by a well sorted, greyish-brown, sandy-clay containing no finds and occasional charcoal inclusions.

6.5.5 Linear F. 289 was located 0.07m north of pit F.293 and their relative proximity may indicate that the two features were roughly contemporaneous (Figure 65). F.289 was aligned on an E-W orientation, measured 6.98m x 0.64m x 0.11m and displayed a concave sided cut [288] with a rounded, uneven base. Additionally, cut [288] contained a well sorted, greyish-brown, sandy-clay fill (289) and displayed a gradual break of slope at both the top and bottom. Fill (289) contained occasional fragments of Roman pottery and rare sub-rounded stony inclusions.

Figure 64- SW facing shot of Roman pit F.304 identified below alluvial deposit (287) (Scale- 1 x 1m)

6.5.6 F.291 measured 1.55m x 0.44m x 0.31m and had been heavily truncated at its northern extent by 19th century construction cut [271]. F.291 was also located 0.66m north of the eastern extent of Roman linear F.289 at a height of 17.59m aOD (Figure 66 & 98). No datable finds were recovered from F.291 although occasional fragments of horse bone were identified against the southern edge of cut [290]. Cut [290] had concave sides, a rounded, uneven base and was filled by brownish-grey, silty-clay (291) (Figure 66). Although pit F.291 was undated, its proximity to Roman linear F.289 coupled with the similarity of both fills was suggestive of a Roman date.

6.5.7 Pit F.294 was located 2.86m south of the northern extent of Area B at a height of 17.68m aOD. Pit F.294 was sub-rectangular in shape and measured 1.25m x 0.57m x 0.23m at its greatest extent (Figure 98). The feature also displayed a near-vertically sided cut [293] with a flat, uneven base and was filled by a greyish-brown, silty-clay deposit (294). No datable finds were recovered from fill (294) so no secure date was assigned to the pit. However, (294) was partially overlain by post-medieval overburden deposit (287) and had a similar colour and composition to Roman deposit (289). These factors suggest that pit F.294 may be of Roman date and was therefore assigned to the later of the two Roman phases evident within Area B.

Figure 65- SW-facing shot through pit F.293 and linear F.289 (Scale- 1 x 1m)

Figure 66- E-facing section through pit F.291 and alluvial deposit (287) (Scale- 1 x 1m)

6.6 Excavation Area B- Post-Medieval

6.6.1 Two post-medieval events were present within Area B and these have been identified as drain F.301 and layer (297).

6.6.2 Deposit (297) was a greyish-brown, silty-clay layer that overlay alluvial deposit (287) and Roman pit F.294 (Figure 123). No finds were recovered from the deposit although it had been truncated by 18th century drain F.301. Consequently, deposit (297) has been interpreted as a post-medieval overburden deposit, likely formed by both natural and man-made processes. Deposit (297) was also truncated by 19th century drains F.269, F.286 and F.275; construction cuts [271] and [274] and was overlain by fill (296).

6.6.3 Drain F.301 was orientated on a roughly N-S axis and measured 6.2m x 0.36m x 0.15m. The drain was set into a vertically sided construction cut [278] with a flat, even base and was filled by deposits (300) and (301) in addition to brick lining (279) (Figure 67, 68 & 69). Construction cut [278] was excavated through post-medieval layer (297), natural substrate (057) and Roman pit F.294. The brickwork (279) was comprised of re-used, unfrogged handmade redbrick and roughly shaped limestone. The individual bricks measured 9" x 2½" x 4½" and were in a heavily degraded state of preservation. In addition, the bricks were laid to a stretcher bond, a single skin thick and set within two parallel courses. Both courses were separated by a 0.16m wide gap which was likely intended as the drainage passage. Roughly shaped limestone fragments overlay the superior surface of the brickwork (279) to form the roof of the drain. The bricks present within F.301 were of a probable late 18th century date and the state of preservation identifiable upon their surface was of a markedly poor quality. These factors suggest that structure (279) may have been constructed from re-used brick.

6.6.4 A brownish-grey, silty-clay (301) abutted the exterior faces of both the eastern and western courses of (279) and was interpreted as a backfill deposit within cut [278], likely formed during drain construction. The interior of the drain was filled by a whitish-grey, silty-clay (300) which probably represented the natural silting of the drain passage. Drain F.301 was truncated by 19th century drains F.282, F.269, F.286, F.275 and construction cut [296] for surface (267).

6.6.5 It should be noted that the passage of drain F.301 stopped abruptly at the location of 19th century wall (270). Furthermore, although the relationship between wall (270) and F.301 has been destroyed by drain F.275, it is not unreasonable to conclude that F.301 had serviced either structure (270) or an earlier building present at that location. The re-use of earlier brickwork within the structure of drain F.301 may also support this conclusion.

Figure 67- N-facing shot of drain F.301 (Scale- 2 x 2m)

Figure 68- E-facing shot of drain F.301 (Scale- 1 x 2m)

Figure 69- NE-facing shot of drain interior following removal of deposit (300) (Scale- 1 x 1m)

6.7 Excavation Area B- 19th Century

6.7.1 The 19th century features identified within Area B included four drains (F.282, F.269, F.286, F.277), a brick surface (267) and an E-W orientated wall footing (270).

6.7.2 Drain F.282 was located 1.73m south of the northern extent of Area B at a depth of 17.55m aOD. F.282 measured 2.61m x 0.83m x 0.36m and was orientated on an E-W axis (Figure 99). The drain was laid into a vertically sided cut [280] with a flat base and a sharp break of slope at both the top and bottom. Cut [280] was excavated through the natural substrate (057), filled by drainage pipe (281) and backfill deposit (282). The structure of the drain was constructed using a circular, reddish-brown ceramic pipe (281) which had been laid into the base of cut [280] (Figure 70). Pipe (281) measured 2.6m x 0.35m x 0.35m at its greatest extent and was sealed by a poorly sorted, yellowish-brown, silty-clay, backfill deposit (282).

6.7.3 A second phase of activity was also identified and likely related to the dis-use of F.282. This was characterised by E-W orientated linear F.299 which truncated the eastern extent of drain F.282 and the northern extent of 18th century drain F.301 (Figure 99). Linear F.299 measured 1.52m x 0.88m x 0.15m and displayed a concave sided cut [298] with a flat, uneven base. Cut [298] was filled by a fragmentary, red-brick structure (302), overlain by a moderately sorted, greyish-brown, silty-clay (299). Structure (302) was characterised by the deposition of nine, irregularly coursed fragmentary, red-bricks over the mouth of pipe (281). The individual bricks measured 9” x 3” x 4” and were stamped ‘Castleford’ on the superior surface (Figure 70). Additional fragmentary bricks were identified within pipe (281) and suggested that an attempt had been made to seal the drain. Deposit (299) overlay structure (302), natural substrate (057) and post-medieval over-burden deposit (297). Fill (299) also

contained moderate quantities of fragmentary brick, had a thickness of 0.15m and was interpreted as a heavily disturbed, redeposited natural backfill.

6.7.4 It is also worth noting that the 19th century brickwork within structure (302) was also identified within overlying surface (267). Therefore, linear F.299 has been interpreted as a later 19th century access trench related to the capping and decommissioning of drain F.282 immediately preceding to the construction of surface (267).

6.7.5 5.18m south of F.282 was an E-W orientated linear F.286 (Figure 99). F.286 measured 3.96m x 0.46m x 0.37m and was excavated through both the natural clay substrate (057) and layer (297). The cut for the linear [285] had a gradual a sharp break of slope at the top, a gradual break of slope at the bottom and a flat, even base. A single moderately sorted, blackish-grey, silty-clay (286) was revealed within cut [285]. Fill (286) contained moderate quantities of fragmentary, red-brick and occasional flecks of charcoal. F.282 was truncated at its eastern extent by later drain F.269 and has been interpreted as a robbed out, mid 19th drain (Figure 71).

Figure 70- Drain F.282 and associated capping deposit (302) (Scale- 1 x 2m)

Figure 71- NE facing shot of drain F.269 and linear F.286. Note wall footings (270) towards the right of the photograph (Scale- 1 x 1m)

6.7.6 The decommissioning of drains F.282 and F.286 were followed by the excavation of foundation cut [274] for surface (267) (Figure 72 & 73). Cut [274] displayed a flat, even base and was excavated through F.301, F.286, F.282 and layer (297) (Figure 100 & 123). The sides of the cut had been destroyed by truncation caused by drains F.269 and F.277 and later demolition event (273). Additionally, cut [274] was filled by a 0.10m thick, brownish-grey, bedding clay (275/296) overlain by brick surface (267). Surface (267) was constructed from red engineering bricks, stamped 'Castleford' and 'Hartleys of Castleford'. The brickwork was laid on edge to a N-S orientated stretcher bond. Similarly orientated edging bricks, also laid to a stretcher bond, were identified at both the northern and southern extents of (267). The individual bricks were in a fragmentary state of preservation, were frogged, and measured 9" x 3" x 4". It is worth noting that a moderate quantity of the bricks within surface (267) were rejects and considered abnormal in form. The maximum extents of (267) measured 5.94m x 3.89m x 0.09m and were, as mentioned previously, truncated by the installation of later 19th or early 20th century services F. 269 and F.277.

6.7.7 The fragmentary foundations of an E-W orientated structure (270) were identified 1.12m south of surface (267) (Figure 73, 74 & 100). Both wall (270) and surface (267) were regarded as associated although the physical relationship between the two features had been destroyed by drain F.277. The wall measured 5.47m x 0.37m x 0.59m and was constructed from unfrogged red-brick, regularly coursed and laid to a header bond. Four courses of brickwork were revealed within Area B, the upper two courses had a two skin thickness and displayed a greyish-white lime mortar upon the superior surface (Figure 71 & 74). The lower two courses likely represented wall footings and were laid to a stetcher bond, using a greyish-white lime mortar and had been constructed to a three skin thickness.

The individual bricks also measured 9” x 4½” x 3” and were of a very similar form to the bricks recovered from Building H in Area A.

Figure 72- SE-facing shot of surface (267) (Scale 2 x 2m)

Figure 73- NW-facing shot of surface (267) with wall (270) identifiable in the foreground (Scale- 2 x 2m)

6.7.8 Wall (270) was constructed within a similarly aligned, vertically sided, foundation cut [271]. Cut [271] measured 5.47m x 3.23m x 0.26m, was excavated through natural substrate (057) and layer (297). It is worth noting that the dimensions of [271] did not solely respect the location of wall (270) and likely represented a levelling of the natural topography within the footprint of a larger structure. Cut [271] was filled by both wall (270) and a brownish-grey, silty-clay deposit (272). Deposit (272) measured 2.90m x 6.77m x 0.44m, contained frequent fragments of brick, occasional flecks of charcoal and abutted the southern face of (270). Consequently, (272) has been interpreted as a levelling clay, deposited at the base of cut [271], to provide both support for (270) and as a foundation for the interior surfaces of the structure (Figure 74).

Figure 74- NE-facing shot of wall (270) (Scale- 1 x 2m)

6.7.9 In summary, wall (270) and associated levelling deposit (272) represent the heavily truncated remains of a mid-late 19th century building. No occupation or use deposits survived so no indication of building function was ascertained. Additionally, although the installation of drain F. 277 destroyed the physical relationships between wall (270) and surface (267), both features were stratigraphically contemporaneous. Therefore, it seems likely that surface (267) may have originally been a yard or street that serviced the northern exterior of structure (270).

6.7.10 Construction of surface (267) was then followed by the installation of both drains F.277 and F.269. Drain F.277 was comprised of a concave sided, flat based cut [276], filled by a poorly sorted, greyish-black, silty-clay (277). A length of 0.04m wide, tubular lead pipe was set into the base of [276] and was sealed by the deliberate deposition of (277) (Figure 73 & 74). Deposit (277) contained frequent fragments of brick and was truncated by later drain F.269. Additionally, both cut [276] and fill (277) measured 1.0m x 3.93m x 0.21m at their greatest extents and were physically overlain by demolition deposit (273). Drain F.277 was excavated through layer (297), surface (267) and abutted the northern face of wall footings (270). It was apparent that drain F.277 was orientated on an identical alignment to wall (270) and seems likely to have been installed at a date when the building was still present. The north-east extent of drain backfill deposit (277) was later truncated by NW-SE orientated drain F.269.

6.7.11 Drain F.269 represents one of the latest identifiable events within Area B and truncated drain F. 277, drain F. 286, surface (267), deposits (273), (297), (296/275) and natural substrate (057). F.269 had a near vertically sided cut [268], filled by a 0.25m thick, reddish-brown, ceramic pipe which was overlain by a greyish-black, silty-clay backfill (269). Backfill deposit (269) was overlain by a poorly sorted, blackish-grey, silty-clay deposit (273). The form of the ceramic pipe suggests that F.269 likely had an early 20th century date.

6.7.12 Deposit (273) sealed brick surface (267), drain F. 269, drain F.277, wall (270) and levelling deposit (272). No datable finds were recovered from (273), although frequent fragments of brick and glass were identifiable within the deposit. Deposit (273) also measured 13.41m x 6.55m x 0.10m at its maximum extents and was identifiable at a height of 18.10m aOD. The prevalence of broken brick and glass suggest that (273) should be interpreted as a 20th century demolition deposit likely related to the destruction of structure (270) and other contemporaneous buildings present within the area prior to the construction of the modern bus station.

6.7.13 Demolition event (273) was sealed by a 0.52m thick, red crush levelling layer (002). A 0.20m thick modern concrete raft (306) overlay levelling deposit (002) which was later sealed by a tarmac surface (305) with a depth of 0.04m (Figure 122).

6.8 Watching Brief

6.8.1 No structures of deposits associated with the glasshouse flue were identified during the watching brief phase of works. It was noted in Excavation Area A that the glasshouse flue had been truncated by demolition cut [028] which was interpreted as a ‘grubbing out’ event. It is not unreasonable to assume that the demolition of the glasshouse structure, characterised by [028], also occurred within the watching brief area and had removed the eastern extent of the flue, ‘cave’.

6.8.2 No features of deposits associated with the Roman occupation of the site were encountered during the course of the watching brief.

7. SPECIALIST REPORTS

7.1 Animal Bone Report *by Milena Grzybowska*

7.1.1 Material

7.1.1.1 The material consisted of 1 kg of hand collected animal bones and teeth derived from multiple features of Romano-British origin in addition to a single deposit dated to the late 19th century (Table 1).

Context number	Size	Weight (grams)	Fragmentation	Dating	Feature
024	1 small finds bag	18.3	minimal	Late 19th Century	Make-up layer
054	1 medium finds bag	255.7	moderate	Romano-British	Ditch
056	2 medium finds bags	362.0	moderate	Romano-British	Ditch
061	1 medium finds bag	49.8	moderate	Romano-British	Pit
081	1 medium finds bag	5.0	moderate	Romano-British	Beam slot
084	1 medium finds bag	76.2	high	Romano-British	Boundary ditch
130	1 medium finds bag	21.8	high	Romano-British	Ditch
289	1 medium finds bag	24.0	high	Romano-British	Gully
291	1 large finds bag	468.0	high	Romano-British	Pit

Table 1: Animal bone under analysis.

7.1.2 Methods

7.1.2.1 The analysis follows English Heritage MAP2 (1991) and Animal bones and Archaeology: Guidelines for best practice, Consultation draft developed by English Heritage (Baker and Worley 2013).

7.1.2.2 The specimens were classified to a species or taxonomic group when possible. Full speciation was attempted with reference to close taxonomic groups, e.g. red vs fallow deer (Lister 1996). Taphonomic traces were recorded. The state of preservation was scored using a four stage system (excellent, good, fair and poor). Age was established on the basis of epiphyseal fusion as well as of wear of bovid mandibular dentition (Grant 1984, Greenfield and Arnold 2008) and wear-height of equid teeth (Levine 1982). Sex assessment was attempted based on the presence of morphological traits. A zone recording system was also applied (Dobney and Rielly 1988) and identification of butchery marks was carried out. Fragment counts and Number of Identified Specimens (NISP) and the Minimum Number of Individuals (MNI) per context and per phase were calculated. Due to high fragmentation and/or poor preservation no standard measurements of the specimens were taken, with the exception of the equid teeth.

7.1.2.3 Tabulation of the results is provided in Appendix I.

7.1.3 Results

7.1.3.1 A total assemblage of animal bone was analysed. Six fragments of human remains identified within context (054) were discussed in section 7.2.

7.1.4 Preservation and Taphonomy

7.1.4.1 The animal bones were in a good to poor state of preservation (Appendix I). The majority of the assemblage was of fairly uniform light brown coloration. Some evidence of carnivore gnawing was present. The fragmentation of the material was moderate to high, with the majority of the bones measured under 80mm.

7.1.5 Taxonomic distribution

7.1.5.1 The assemblage comprised domesticated and wild species. The taxa identified included cattle (*Bos taurus*), equid (*Equus* sp.) red deer (*Cervus elaphus*), pig (*Sus scrofa*), sheep/goat (*Ovis aries/Capra hircus*), dog (*Canis familiaris*), large mammals and medium mammals (Table 2).

7.1.5.2 The MNI estimated for Romano-British phase (Table 2) indicated that all identified taxa occurred with similar frequency. The presence of red deer, dog and mussel in each case was identified on the basis of just one specimen.

Feature	Equid	Cattle	Pig	Sheep/goat	Red Deer	Dog
54	1 adult	1 adult	0	0	0	0
56	1 adult (6-8y)	1 adult	1	0	1	0
61	0	1	0	0	0	0
84	0	0	1 adult	1 young adult (4-6y)	0	1
291	1 adult	1	0	0	0	0
R-B MNI	1	1	1	1	1	1

Table 2. Minimum number of individuals for Romano-British phase.

7.1.6 Butchery marks and pathological changes

7.1.6.1 The assemblage displayed relatively little butchery marks. Poor preservation of the material deemed a percentage of the bones 'unobservable' for butchery or pathological changes. No examples of the latter were identified.

7.1.7 Ageing

7.1.7.1 On the basis of dental wear, pig and sheep/goat mandibular dentition and maxillary cheek teeth of a horse were classified as 'adult'.

7.1.8 Sexing

7.1.8.1 No sexing was possible for this material.

7.1.9 Ditches F.054, F.056, F.084

7.1.9.1 F.054 contained disarticulated remains from multiple bodyparts of large mammals that included equid, cattle and large mammal remains. The assemblage comprised elements of unattractive areas of the body for consumption (skull, mandible and teeth) and their dominant character within the deposit implied it represents a butchery waste material. The overall preservation was good to fair. This context contained also disarticulated re-deposited human remains (tibia), discussed in Section 8.

7.1.9.2 The taxa identified within the material from ditch F.056 comprised predominantly of domesticated species, namely horse, cattle and pig. A single specimen represented red deer. The anatomical distribution of this assemblage and paucity of evidence of butchery implied that this assemblage represents predominantly a disposal of a large mammal carcass.

7.1.9.3 The assemblage of ditch F.084 predominantly consisted of extremity elements (mandibles and teeth) of sheep/goat and pig, indicative of butchery waste material. Dog was represented by a single bone fragment, on which no butchery marks were identified.

7.1.10 Conclusion and recommendation

7.1.10.1 It was possible to identify domesticated and wild species that included cattle, equid, red deer and sheep/goat, pig and dog. Due to high fragmentation of the assemblage that precludes metric analysis it is not recommended to retain the material.

7.1.11 References

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7.2 Human Bone Report *by Milena Grzybowska*

7.2.1 Introduction

7.2.1.1 During the analysis of the faunal remains recovered from Romano-British ditch (F.054), a small amount of human bone was identified.

7.2.2 Aims and objectives

7.2.2.1 The aim of the analysis was to inform on age, sex and stature of the individual as well as to record non-metric traits and identify and diagnose skeletal manifestations of disease and trauma.

7.2.3 Methodology

7.2.3.1 The human remains were analysed according to the standards laid out in '*Guidelines to the Standards for Recording Human Remains'* (Brickley and McKinley 2004) recommended by the British Association of Biological Anthropologists and Osteologists in conjunction with the CIfA, as well as in *'Human Bones from Archaeological Sites: guidelines for producing assessment documents and analytical reports'* compiled by English Heritage (2004) and finally in '*Standards for data collection from human skeletal remains'* (Buikstra and Ubelaker 1994).

7.2.3.2 The human remains were analysed in detail. The completeness and preservation of the material recovered was assessed. The skeletal material has been analysed macroscopically and where necessary with the aid of a magnifying glass. The photographic record of the pathological changes to the bone and all other relevant features has been created using a Nikon D7100 DSLR with a resolution of 24.1MP.

7.2.4 Results

7.2.4.1 Surface erosion and fragmentation (post-mortem breaks) of the bone may pose limiting factors to the osteological analysis therefore are important to record. Poor

preservation of bone will influence any estimation of age, the stature of an individual and the capacity to observe pathological changes to the bone.

7.2.4.2 A number of intrinsic and extrinsic factors affect skeletal preservation. Intrinsic factors include age and sex of the individual, size, shape and robusticity of the bone. Extrinsic factors include post-depositional disturbance, burial environment and post-excavation handling.

7.2.4.3 Surface preservation is assessed visually using a six-point grading system (0-5; section 5.3.2. in Brickley and McKinley 2004), where '0' represents excellent preservation and '5' signifies complete obscuring of the cortical surface with modification of profile. Fragmentation is recorded using a grading system of five categories: minimal, slight, moderate, severe, extreme. Overall surface preservation of the skeletal remains was of grade 2, while the fragmentation was moderate. Old dry bone breakages have been identified on all the fragments.

7.2.4.4 The condition of the bone may aid in the interpretation of the mortuary practice, particularly in prehistoric contexts. No evidence of post-mortem anthropogenic modifications was found in the analysed material.

Completeness

7.2.4.5 Feature F.054 contained the remains of one individual. It comprised five matching fragments of mid and distal diaphysis (zones 9, 10; Knüsel and Outram 2004) and two fragments of unidentified long bones. The overall appearance of the specimens and the consistent pathological changes observed proved that these are remains of the same individual. The analysed skeletal material was represented therefore by less than 5% of the original skeletal elements.

Sex Determination

7.2.4.6 Visual techniques of sex determination are predominantly based upon morphological features of the skull and pelvis and their application is limited to post-pubertal individuals. Assessment of sex was not possible for this assemblage using standard macroscopic osteological methods (as per listed guidelines).
The overall robusticity of the specimens that would suggest male sex, most likely resulted from pathological changes to the bone (Section 7.2.5).

Age Assessment

7.2.4.7 There exists a variety of methods for estimating the age of an individual, however the most reliable rely on the presence of the pelvis and are based on different stages of bone development and degeneration. Age categories range from foetus (up to 40 weeks intra-uterine life), neonate (around the time of birth up to first month of extra-uterine life), infant (newborn to one year), juvenile (1-12 years), adolescent (13-17 years), young adult (18-25 years), young middle adult (26-35 years), old middle adult (36-45 years), mature adult (46+) to adult (applied to individuals of 18 years or older, that could not be determined more accurately). Due to the lack of any diagnostic zones required for application the standard ageing techniques allowed for only tentative estimation of age based upon the overall size of the bone. The individual was of adolescent or older age.

Metric Analysis

7.2.4.8 Stature is shaped by a number of factors including heredity and environmental influences such as health and nutritional status of an individual. It exhibits diachronic fluctuation hence its estimation aids identification of secular trends. It is possible to establish the living height of an individual based upon the measurement of fully fused complete long bones. The femur and tibia are the most reliable source of information for this process. Stature was calculated using a regression formula developed upon individuals of known stature (Trotter 1970).

7.2.4.9 Due to incompleteness and fragmentation of the bones, metric analysis was not possible.

Non-Metric Traits

7.2.4.10 Non-metric traits are relatively rare osteological features of varying aetiology. The majority of non-metric traits suggest hereditary affiliation, while some are the result of mechanical stress and environmental factors.

7.2.4.11 No skeletal elements were present for observation of non-metric traits.

Pathological Analysis

7.2.4.12 Palaeopathological studies provide answers to specific archaeological problems and address broader questions such as the adaptation of populations to their environment. Detailed observation of the morphology of the skeleton might identify particular diseases, trauma to the bone and soft tissue as well as aid in the identification of an individual's occupation.

7.2.4.13 Pathological conditions are categorised according to their aetiologies: congenital, infectious, joint and neoplastic diseases. All pathological changes to the bone as well as size, location and distribution of lesions are described. A differential diagnosis for lesions is provided.

Periostitis

7.2.4.14 Periostitis is a non-specific inflammation of the periosteum; a layer of soft tissue covering the outer surface of the bone. It affects predominantly tibiae, and in palaeopathology is most frequently observed among settled agricultural populations (Roberts and Manchester 2010). A variety of reasons have been proposed for the inflammation, including bacterial infections, varicose veins and minor trauma, treponemal disease and leprosy. It manifests as fine pitting, longitudinal striation and eventually plaque-like new bone formation, however it is very unlikely to produce debilitating symptoms.

7.2.4.15 Well-remodelled, longitudinally striated bone formation has been observed on the medial aspect of the tibia (Figure 75).

Osteitis

7.2.4.16 Osteitis is a non-specific inflammatory condition within compact bone. It is often associated with infection but, similarly to the periostitis, it may be caused by other pathological conditions.

7.2.4.17 All internal surface of cortex in medullary cavity manifested lamellar bone formation (Figure 74). The cross-section of the tibia revealed endosteal thickening of the cortex and consequent narrowing of the medullary cavity (Figure 75).

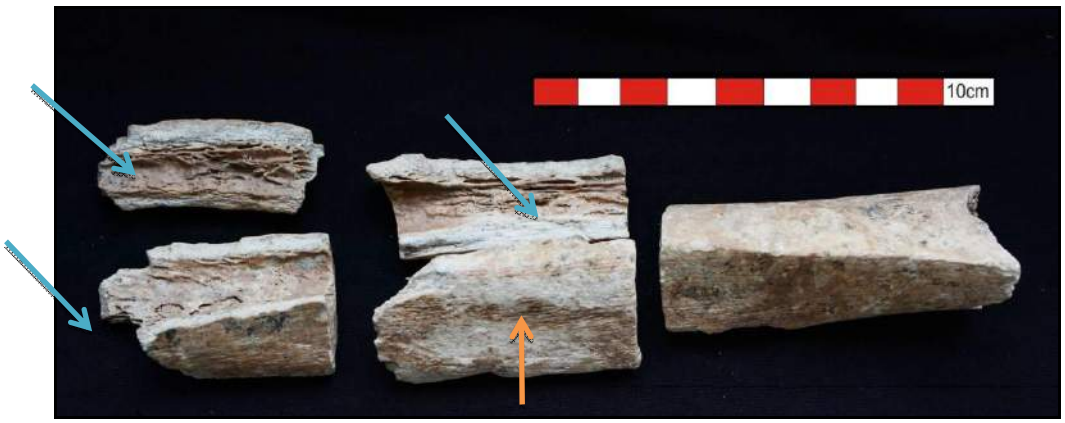

Figure 75- New bone formation in the medullary cavity (blue arrows) and striated new bone formation of the medial aspect (orange arrow).

7.2.5 Summary

7.2.5.1 The overall appearance of the remains indicated that the remains represented an adult individual of unknown sex. Pathological conditions have been recognized. These included periostitis and osteitis of all the long bone fragments present. The observed changes were consistent with the current knowledge of health during the Romano-British period. Periostitis was observed to be the most prevalent of all the non-specific infections for that period, occurring with frequency 6.7% (Roberts and Cox 2003); the presence of osteitis was noted with less frequency (0.3%, *ibidem*) however the prevalence may have been artificially lowered by the lack of fragmented bone or radiographic record of complete bones that is required for the diagnosis.
The presence of dry bone breakages indicated that the remains have been re-deposited.

7.2.6 Recommendations

7.2.6.1 Radiocarbon dating is recommended to confirm the dating of the re-deposited human remains.

7.2.7 References

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7.3 Castleford Roman Pottery Report *by R.S.Leary*

7.3.1 Description

7.3.1.1 An archive catalogue was compiled for all the pottery according to the standard laid down by the Study Group for Romano-British Pottery (Darling 2004). Pottery was recorded detailing specific fabrics and forms, decorative treatment, condition, cross-joins/same vessel and was quantified by sherd count, weight and rim percentage values, giving estimated vessel equivalents. All the pottery from the site was catalogued in the archive. National fabric collection codes (Tomber and Dore 1998) are included where possible and the fabric codes are correlated with those used in Rush et al 2000 where possible.

7.3.1.2 81 sherds of Romano-British coarse ware were identified (Table 3) dating to the late first to late second to third century AD. The majority of the pottery was locally made but seven of the grey ware sherds had the medium, rounded quartz inclusions typical of the South Yorkshire kiln products and sherds of Parisian ware are also likely to be from this kiln group, specifically the Rossington Bridge kilns (Buckland and Magilton 1980 and Buckland et al 2001). Another grey ware fabric which stood out was GRB4, which compared well with north Lincolnshire grey wares of the late first-second century (Darling and Precious 2014 136 form B334). Although not given a separate fabric number in Rush 2000, it is likely that Rush 2000 no's 58 and 107 came from these industries although no. 107 was in a different fabric to our GRB4. It is likely that the oxidised wares are all of local origin and the white and white-slipped wares are also likely to have been made at the local Castleford kilns where white ware mortaria are thought to have been made in the second century. Fines wares from the Argonne and the Nene Valley have been identified previously at Castleford.

Fabric	Count	Weight (g.)	Rim %	Nat fabric code	Rush 2000	Common name
BB1	11	93.4	10	DOR BB1	79	BB1
CC4	3	4.4		ARG CC	13	Argonne roughcast ware
FLA1	1	2			34	White ware, fine
FLA2	7	91.7			39	White ware, medium
FLB	4	81.6			45	White-slipped ware
GRA1	1	2.1				Grey ware,

Fabric	Count	Weight (g.)	Rim %	Nat fabric code	Rush 2000	Common name
						fine
GRB1	7	104	30		67	Grey ware, South Yorkshire?
GRB2	12	127	45		67	Grey ware, local
GRB4	7	35.4			73 or 67?	Grey ware, North Lincolnshire
NSP	3	11.5				Medium quartz-tempered ware, indeterminate
NV1	4	15.3		LNV CC	9	Nene Valley colour-coated ware
OAA1	4	10.7			41	Oxidised ware fine
OAB1	16	63			51	Oxidised ware medium
PART	1	3.7		ROS FR	61?	Parisian ware
Total	**81**	**913.1**	**85**			

Table 3- Pottery Wares

7.3.1.3 This small assemblage came from a stratified number of features. Although Flavian-Trajanic pottery was present, none of the coarse pottery groups had to belong to the Flavian period and most were given a *terminus post quem* in the second century by the presence of Hadrianic-Antonine types such as BB1. The only exceptions to this is ditch 165 which was dated to AD70-110 by the samian and contained only one indeterminate and undatable scrap of quartz tempered coarse pottery. Flavian-Trajanic types such as neckless everted-rim jars and rusticated jars (Gillam 1970 no's 96-8 and 101-5) as well as Argonne roughcast colour-coated wares, were present in pit 60, pit 62, ditch 102 and linear 288 but pits 60 and 62 and ditch 102 also contained BB1 jars sherds and linear 288 contained samian dated

AD100-30. The Flavian-Trajanic sherds may indicate the date of the initial use of the ditches and pits with the latest sherds dating to AD120-200 giving the date of final infilling since these were excavated as single fill features. Features 83, 88 and 119 fill 111 contained sherds datable to the late first to second century with sherds of Hadrianic-Antonine BB1 ware or grey ware copies of BB1 jars with acute lattice (including form Gillam 1976 no. 2, early to mid-second century). Features 124 and beams lot 58 contained undiagnostic Romano-British bodysherds which could not be dated more precisely. The alluvium layer 128 included CC4 roughcast ware dated to cAD80-130 and less precisely dated sherds of the late first to second century. The samian from this layer gave more precision including sherds dated AD120-200 as well as Flavian-Trajanic sherds. The latest pottery, sherds from Nene Valley indented scale beakers of the late second to third century (Perrin 1999, 93-4) came from features 56 and 294 with a grey ware indented jar of beaker of similar date from feature 53.

7.3.2 Condition

7.3.2.1 The sherds were small and abraded with a low average sherd weight of 8g. One grey ware GRB2 sherd from 289 was burnt but otherwise no evidence of use or repair was identified amongst the assemblage.

7.3.3 Assemblage character and comparison with other Castleford groups

7.3.3.1 It is not possible to compare this very small group with the other much larger groups from Castleford statistically (Rush et al 2000) but the types could all be paralleled in the published groups and were consistent with periphery activity dating to the second century and declining by the late second or early third century. The coarse ware includes Trajanic pieces such as the flat-rim bowl and Flavian-Trajanic types such as the neckless jars with everted rims and rusticated jars but these were found with sherds of BB1 of Hadrianic-Antonine date and could be part of deposition in the early second century rather than any earlier. Nothing amongst the coarse pottery had to be of first century date. The types present would be consistent with those previously found from the end of phase 2 to the end phase 3 or early in phase 4 of the vicus (Rush 2000, 3).

7.3.3.2 No amphora or *mortarium* wares were found and the jar group dominated the assemblage overall. The group is too small to compare with the previously excavated material in any meaningful way but it is consistent with an area on the periphery of the settlement. Although samian ware was relatively common, Monteil notes that it lacks decorated pieces. This is consistent with the absence of military activity associated with the settlement at this time (Cool 1999, 300-1) and the nature of the coarse ware pottery but contrasts with the relatively high levels of decorated samian recorded from the assemblages from vicus phases 2-4 (Rush et al 2000, tables 8-11).

7.3.4 Pottery Catalogue

Context	Count	Fabric	Part	Weight	Form description	Vessel type	RimD	RimP	Condition	Comments	Decorative technique	Decorative motif	Position of decoration	Spot date
54	1	GRB2	RIM	17.6	everted	J	18	6						2?
54	6	GRB4	BDY	26.2	carinated beaker/bowl	B								L1-2
54	1	GRB2	BDY	21.1	Folded beaker/jar	J/BKR								L2-3
54	2	FLB	B+B	45.5	? Carinated or hemi-spherical bowl	B					rouletted		outside the lower body	L1-E2
56	2	FLA2	B+B	29.7		F								L1-2
56	1	NSP	BDX	6										? INDETERMINATE QUARTZ-T WARE
56	1	OAB1	BDX	1.9										RB
56	1	OAA1	BDX	6.5										RB

Context	Count	Fabric	Part	Weight	Form description	Vessel type	RimD	RimP	Condition	Comments	Decorative technique	Decorative motif	Position of decoration	Spot date
56	3	NV1	BDY	14.3	scale beaker folded	BKR					applied	scales	outside body	L2-3
56	2	GRB1	BDY	35.7	closed vessel	J								RB
59	1	OAB1	BDX	4.3	closed vessel									RB
61	1	OAB/C1	BDX	5.2										RB
61	2	BB1	BDY	27.6	jar	J					burnished	acute lattice	outside body	120-200
61	2	BB1	BAS	16.1		B/D								120+
61	1	GRB2	B+B	18.7	turned	J								RB
61	4	OAB1	BDX	18.7										RB
61	1	GRB2	BDY	6.7	rusticated jar	J					rusticated	linear	outside body	L1-E2
61	1	STONE								PALETTE				RB
61	1	GRB4?	BAS	9.2	turned	J								M1-E2
61	2	CC4	BDY	3.6	roughcast beaker	BKR								L1-E2
63	1	BB1	BAS	21.7	simple base	J								120-200
63	1	TEG		73.7										RB
63	1	FLA2	B+B	14.2	simple base	F								L1-2
63	2	BB1	BDY	15.2	jar	J								120-200

Context	Count	Fabric	Part	Weight	Form description	Vessel type	RimD	RimP	Condition	Comments	Decorative technique	Decorative motif	Position of decoration	Spot date
63	3	GRB2	R+B	19.8	jar with short everted rim	J	12	14			groove	double	outside shoulder	L1-E2
63	1	GRB1	BAS	6.2	simple base	J								2
63	1	PART	BDY	3.7	hemi-spherical bowl	B					combed	vertical	outside body	L1-E2
63	1	OAB1	BDY	6.3	closed vessel									RB
84	1	FLB	BDY	2.4	closed vessel	F								L1-2
84	1	OAB1	BDY	9.2	closed vessel									L1-2
84	1	GRB1	R+B	27.2	plain-rim bowl	B	18	10						E2
84	1	GRB2	BDY	4.8	jar	J				Wheel thrown	burnished	acute lattice	outside body	E-M2
88	1	GRB1	RIM	23.3	everted rim jar	J	14	20						E2
88	1	BB1	RIM	8.5	necked jar with fairly upright neck	J	14	10						E-M2
102	1	NSP	BDX	2.4										?RB
102	1	FLA1	V	2	flagon neck	F								L1-2, OPT L1-E2

Context	Count	Fabric	Part	Weight	Form description	Vessel type	RimD	RimP	Condition	Comments	Decorative technique	Decorative motif	Position of decoration	Spot date
102	3	BB1	BDY	4.3	jar	J								120-200
102	1	GRA1	BDY	2.1	rusticated jar	J								L1-E2
111	1	FLB	HA	33.7	three ribbed handle	F								L1-2
111	2	GRB1	BDY	11.6	closed vessel	J					burnished	acute lattice?	outside body	120-200
111	1	FLA2	BDY	28.6	closed vessel	F								L1-2
124	1	GRB2	BASE	10.8	simple base	JAR								RB
126	3	OAA1	BDY	4.2	closed vessel	JAR/BKR								M1-2
128	2	BRCK?		48.5										?
128	2	STONE												Natural
128	4	OAB1	BDY	10.7	closed vessel									RB
128	3	FLA2	BDY	19.2	closed vessel	F								L1-2
128	1	GRB2	BDY	6.5	closed vessel									RB
128	1	CC4	BDY	0.8	roughcast beaker	BKR								80-130
130	1	OAB?	BDY	3.8										RB

Context	Count	Fabric	Part	Weight	Form description	Vessel type	RimD	RimP	Condition	Comments	Decorative technique	Decorative motif	Position of decoration	Spot date
166	1	NSP	BDX	3.1										? INDETERMINATE QUARTZ-T WARE
289	1	GRB2	BDY	9.4	closed vessel	J			BR	burnt S Yorkshire type grey ware				2+
289	1	GRB2	R+B	11.6	jar with short everted rim	SJ	10	25						L1-E2
294	1	NV1	BDY	1	indented scale beaker	BKR					applied	scales	outside body	L2-3
294	2	OAB1	BDX	2.9										RB

Table 4- Pottery Catalogue

BB1	Black burnished ware, Tomber and Dore 1998 DOR BB1
CC4	Argonne colour coated ware, Tomber and Dore 1998, ARG CC
FLA1	Fine white ware, rare, medium quartz and rounded iron oxides and white inclusions
FLA2	Medium quartz tempered white ware, medium, subangular and subrounded opaque and pinkish quartz and sparse red/brown inclusions
FLB	White slipped ware. Fairly fine, moderate to sparse fine and medium quartz and sparse medium red/brown inclusions.
GRA1	Fine grey ware. Light grey with moderate fine quartz and mica.
GRB1	Medium grey ware, moderate, medium, rounded and subrounded quartz.
GRB2	Medium grey ware, moderate, medium angular and subangular quartz and sparse black inclusions
GRB4	Dark grey ware. Dark grey surface with brown margins, sparse, medium, subangular quartz and rare vesicles
NSP	Indeterminate quartz-tempered scrap
NV1	Tomber and Dore 1998 LNV CC
OAA1	Fine oxidised ware
OAB1	Medium quartz-tempered oxidised ware
PART	Parisian ware, Tomber and Dore 1998 ROS FR

7.3.5 Bibliography

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7.4 Samian Ware Report *by G.Monteil*

7.4.1 Introduction

7.4.1.1 A total of 22 sherds of samian ware were examined for this report. The fabric of each sherd was examined, after taking a small fresh break, under a x 20 binocular microscope and was catalogued by context number. Each archive entry consists of a context number, fabric, form and decoration identification, condition, sherd count, rim EVEs (Estimated Vessel Equivalents), rim diameter, weight, notes and a date range.

7.4.1.2 A catalogue of the decorated ware was compiled and is provided at the end of the report (Cat. Nos. 1 – 4). The material is very fragmentary and small which renders precise identification difficult. Rubbings of the decorated fragments were undertaken during analysis. They were mounted, scanned and submitted as illustrations.

7.4.2 Condition

7.4.2.1 The assemblage is small with 22 sherds for a total weight of 74g and a total rim EVES figure of 0.4 (Table 5). No repairs, traces of burning or wear were noticed during recording. The average weight is very low at 3.7g which suggests that this material is re-deposited.

7.4.3 Assemblage chronology and composition

7.4.3.1 South Gaulish material consists of small and abraded fragments (average weight of 1.8g) and the few forms that can be identified are Flavian (fill of pit [060], alluvial deposit (128)).The majority of the samian assemblage is Central Gaulish in origin (Table 5) and dates to the entire period of import. There is some Trajanic material as the presence of four vessels from Les Martres-de-Veyre attests. Three were recovered from alluvial deposit (128), two cups form Dr27 and a bowl form Dr37 with a little decoration remaining (Cat. No.4). The fourth fragment is a flake recovered from the fill of linear [288] in area B.
Hadrianic material is present too with a few Central Gaulish vessels in the fill of pits [060], [062] and linear [064]. There are no Central Gaulish vessels more typical of the 2nd half of the 2nd c. AD however.The latest samian vessel is an East Gaulish Dr.31R recovered in the fill of Roman boundary ditch [119].

7.4.4 Concluding remarks

7.4.4.1 The samian group from the recent excavations in Castleford is small and the diagnostic pieces present within it are fewer and much more fragmentary than the previous samian groups recovered from various areas excavated in the *vicus* (Dickinson, Hartley 2000). The group is too small to attempt any kind of statistical or functional analysis but some remarks can be made. The forms and fabrics represented are in keeping with the evidence provided by the larger samian assemblages recovered from other areas in the *vicus* - a main phase of occupation from the Flavian period to the mid Antonine period and a little material dating beyond AD 160 (ibid, 55 and Fig.42).

7.4.4.2 Although the assemblage is small, there is relatively little decorated material which is unusual considering the location of the site within a *vicus*. Samian assemblages from for extra-mural occupation at military site/*vici* tend to have high percentages of decorated vessels (Willis 2005, table 35 and chart 14), especially in the region – see decorated percentages well above 30% for Bainesse, Castleford *Vicus* and Healam Bridge (Monteil forthcoming, Table 8).

7.4.5 Decorated samian catalogue

7.4.5.1 The following catalogue lists the decorated pieces recovered from the site that could be attributed to individual potters or groups of potters. The material is very fragmentary and small which renders precise identification difficult. The catalogue is organized in context order, each entry gives a catalogue number, the excavation context number with details of the decoration.
The letter and number codes used for the non-figured types on the Central Gaulish material –such as B223, C281, etc are the ones created by Rogers (1974). The figured-types referred to as Os. *** are the ones illustrated by Felix Oswald in his *Index of figure-types on terra sigillata* (1936).
The Inventory Numbers (Inv. No.) quoted are taken from *European intake of Roman Samian ceramics.* http://www2.rgzm.de/samian/home/frames.htm .

Cat. No. 1- (61), one bodysherd, Dr.37, La Graufesenque, very little of the decoration remains but the form is Flavian.

Cat. No. 2- (84), one bodysherd, Dr.37, Lezoux. Not enough of the decoration survives to fully identify this piece. Hadrianic-Antonine

Cat. No. 3- (99), one bodysherd, Dr.37, Lezoux. Abraded slip. The mane, head and partial front leg of a lion are all that remains, perhaps from Os.1379. Hadrianic-Antonine

Cat. No. 4- (128), one bodysherd, Dr.37, Les Martres-de-Veyre. Very little decoration remains, the core of a saltire with astragali, beaded borders and acanthus leaf (K23?). A similar arrangement is known on a bowl attributed to potter X-13 (Stanfield and Simpson 1990, pl.48, no. 570). AD 100-120

7.4.6 Bibliography

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	South Gaulish				Les Martres				Lezoux				East Gaulish				Total			
	sh	wgt	RE	MNV	sh	wgt	RE	MNV	sh	wgt	RE	MNV	sh	wgt	RE	MNV	sh	wgt	RE	MNV
cup	1	2		1													1	2		1
dish									2	4		2					2	4		2
DR18/31	1	3	0.1	1					1	8		1					2	11	0.1	2
DR18/31R									2	6	0.04	1					2	6	0.04	1
DR27					3	10	0.16	3	1	2	0.05	1					4	12	0.21	4
DR31R													1	21	0.05	1	1	21	0.05	1
DR36									1	2		1					1	2		1
DR37	1	2		1	1	3		1	2	7		2					4	12		4
unid	3	2		3					2	2		2					5	4		5
Total	**6**	**9**	**0.1**	**6**	**4**	**13**	**0.16**	**4**	**11**	**31**	**0.09**	**10**	**1**	**21**	**0.05**	**1**	**22**	**74**	**0.4**	**21**

Table 5: Samian fabrics and forms present in the group

Location	context	vessel part	fabric	form	funct	decoration	condition	wear	no of vessels	sherd count	weight	Rim Eve	rim Diam	Base Eve	Edate	Ldate
Castleford	61	bodysherd	SAMLG	DR37	dec bowl	DEC			1	1	2				70	110
Castleford	61	rim	SAMCG	DR18/31R	dish				1	2	6	0.04	280		120	180
Castleford	63	rim	SAMCG	DR27	cup				1	1	2	0.05	110		120	160
Castleford	65	base	SAMCG	DR18/31	dish				1	1	8				120	160
Castleford	84	bodysherd	SAMLG	cup	cup				1	1	2				70	110
Castleford	84	flake	SAMLG						2	2	1				70	110
Castleford	84	flake	SAMCG						1	1	1				120	200
Castleford	84	bodysherd	SAMCG	DR37	dec bowl	DEC			1	1	3				120	200
Castleford	99	bodysherd	SAMCG	DR37	dec bowl	DEC			1	1	4				120	200
Castleford	111	bodysherd	SAMCG	DR36	dish				1	1	2				120	200
Castleford	111	rim	SAMEG	DR31R	bowl				1	1	21	0.05	260		150	250
Castleford	128	rim	SAMMV	DR27	cup				1	1	4	0.08	140		100	130
Castleford	128	rim	SAMMV	DR27	cup				1	1	3	0.08	100		100	130
Castleford	128	rim	SAMLG	DR18/31	dish				1	1	3	0.1	180		70	110
Castleford	128	bodysherd	SAMMV	DR37	dec bowl	DEC	abr		1	1	3				100	130
Castleford	128	bodysherd	SAMCG	dish	dish				1	1	2				120	200
Castleford	128	base	SAMCG	dish	dish				1	1	2			0.05	120	200
Castleford	128	flake	SAMCG						1	1	1				120	200
Castleford	166	flake	SAMLG						1	1	1				70	110
Castleford	289	flake	SAMMV	DR27	cup				1	1	3				100	130

Table 6- Samian characteristics and date

7.5 Environmental Analysis *by Laura Strafford*

7.5.1 Introduction

7.5.1.1 In total two environmental samples were submitted for assessment. The samples came from a representative selection of linear features from across the site, detailed in Table 7, below.

Sample Number	Context Number	Context Description	Volume of Sediment	Site Notes
003	084	Fill of linear, animal bones present. Roman. Associated with vicus.	10L	Orange-grey silty clay, occasional charcoal
004	054	Fill of linear. Roman. Associated with vicus	10L	Yellow-brown silty clay, occasional charcoal

Table 7. Table of samples

7.5.2 Methodology

7.5.2.1 Samples were processed on-site for the recovery of charred plant remains (CPR) using bucket flotation. The flots were collected on a 300µm mesh and the heavy residue was sieved to 1mm, after which both were air-dried at room temperature, after which the residue was sorted by eye for artefacts and ecofactual remains. The flots were scanned for charred plant remains using a binocular microscope at between x12 and x40 magnification. One hundred percent of each flot was scanned.

7.5.3 Results

7.5.3.1 The results of the assessment are presented in Table 8, below. Both of the samples produced evidence of burning in the form of charcoal, however in both cases only few fragments survived and all of the fragments were too small to be able to determine identification. Apart from the charcoal, no other charred material was present in the flots.

7.5.3.2 Whilst assessing the flots, suitability of the charcoal for radiocarbon determination was considered. Round wood (small twigs/ branches of less than 10 – 15 years growth) is considered the most suitable material for radiocarbon determination, or fragments from short-lived species. None of the charcoal in either of the samples represented a round-wood fragment, nor was any short-lived taxa identified, hence none of the material in the samples is suitable for radiocarbon determination.

7.5.4 Conclusion and recommendations

7.5.4.1 The samples were very poor and only highly fragmented charcoal fragments were present. Based on the information gained from these samples alone, little can be said of the site or its immediate hinterland during the Roman period. The small charcoal fragments may be indicative of burning activity occurring nearby, however the lack of species identification

or any other plant microfossils makes it difficult to suggest a function for the features from which these samples were taken.

Sample Number	Context Number	Feature	Sample Size (litres)	Date	Flot volume (ml)	Assessed volume	Charcoal	Grain	Notes	Analysis?	C14
003	084	Linear	?	R	<0.5ml	100%	+	+?	Majority of flot volume comprised from small particles of un-washed sediment. Very occasional charcoal flecks, all <3mm , hence unidentifiable. One possible fragment of cereal grain, but incomplete and poorly preserved, hence a more definite ID is not possible.	No	No
004	054	Linear	?	R	<3ml	100%	++		Majority of flot volume comprised from small particles of un-washed sediment. Occasional charcoal, largest fragments 6mm in length, however small fragments of sediment are adhered to the internal structure of the wood renders ID impossible. No further CPR observed.	No	No

Table 8- Table of Sample Details

7.6 Brick Report *by Ian Miller*

7.6.1 Material

7.6.1.1 In total, 29 samples of ceramic bricks, tiles and refractory materials were recovered from the excavation at Castleford. All of the sampled material was examined visually, and details are summarised in *Appendix 1*.

7.6.1.2 The assemblage comprised examples of common bricks (14 samples), engineering bricks (three samples), industrial tiles (five examples), and a small range of refractory bricks and blocks (ten samples). The majority of the bricks had a date range spanning the second half of the nineteenth and early twentieth centuries, although a few examples of hand-made bricks from context (279) probably date to the eighteenth or early nineteenth century, and potentially earlier. Of particular interest was a group of common brick 'wasters', recovered from context (267), and again dating to the late nineteenth or early twentieth century. Most of the bricks, including the 'wasters', derived from the large local brickworks of Hartley & Co, which was established in the mid-nineteenth century and continued trading until 1969. The firm concentrated production initially on chimney pots, but soon diversified into bricks, sanitary pipes and refractory materials, and also carried on a successful trade in the manufacture of domestic pottery and stonewares (Wilder 2002).

7.6.2 Common and Red Engineering Bricks

7.6.2.1 Common red bricks represented the largest component of the sampled assemblage. Many of these bricks were of a low quality, and had probably been manufactured using the local natural clay resource. The size of the common bricks varied slightly, reflecting that they were not all machine-made. Fragments of hand-made examples from context (279), measuring only 52mm thick, were notably more slender than any other bricks. This suggests an earlier date of manufacture, probably in the eighteenth century and prior to the introduction of the Brick Tax in 1784, which encouraged larger bricks to be made.

7.6.2.2 Another hand-made common brick, recovered from context (199), had a more standard thickness of 80mm and also incorporated a crude 'frog' on one face (Figure 128). The use of a recess, or frog, on one face of a brick was introduced in the late seventeenth century, and was intended primarily to provide a key for mortar. The earliest frogs were created by the brick maker scooping a slot across one face of a brick using a finger after the brick had been moulded (Harley 1974, 80). The shape of the frogs in the excavated example may have been created in this manner. A slightly more advanced technique that employed a projecting piece of wood attached to the top of the mould stock appears to have come into use during the eighteenth century. However, this method tended to produce a frog that was deeper than that on the excavated example.

Engineering Bricks: three of the samples, recovered from contexts (151), (193) and (279), were identified as engineering-type bricks. They are characterised by their increased weight, and often greater size than common red bricks. They were made from superior shale clays, and had a much higher crushing strength and a reduced porosity, making them ideal for heavy structural load. They were introduced in the mid-nineteenth century, but would not have been suitable for use within a glass furnace or associated flues, as despite their strength, they were not designed to withstand the extreme heat of the furnace. One of the excavated examples was stamped 'H Castleford', almost certainly deriving from Hartley & Co's brickworks.

7.6.3 'Wasters'

7.6.3.1 A small group of brick 'wasters' from context (267) comprised three blocks of two half-bricks fused together and three distorted complete bricks, provide good evidence for brick manufacturing in the locale. The wasters were stamped 'Harley & Co, Castleford' (133 & 134). This firm operated two successful brickworks and a pottery in Castleford until 1969. All of the bricks were machine made, with frogs on both surfaces, and had probably been manufactured in the late nineteenth or early twentieth century.

7.6.4 Tiles

7.6.4.1 Fragments of two large 'common' tiles were recovered from contexts (007) and (155), with similar-sized tiles in refractory material being discovered in contexts (155), (176) and (227). The size of the ceramic tiles, coupled with their fairly crude fabric and the presence of thick sooting deposits, implied that they had been intended for an industrial function. The character of the 'common' tiles was reminiscent, for example, of types used in drying kilns at a brick and tile works, but may equally have been employed at a glassworks. Only one of the tiles, a refractory example from context (155), retained a manufacturer's stamp (Figure 132). This was not clearly legible, but appeared to read 'NORTH WORTLEY', suggesting that it may have derived from the Leeds area. Whilst none of the tiles are closely datable, it is probable that they were all produced in the nineteenth century.

7.6.5 Refractory Material

7.6.5.1 In addition to the three large tiles, the refractory material included four standard refractory bricks, all of very slightly different dimensions, and all displaying signs of use in a high-temperature environment, with traces of sooting and heat damage. Traces of vitreous waste adhering to the surface of examples recovered from contexts (176) and (227) was consistent with glass manufacturing, and may have formed a structural element of a glass furnace. None of these standard bricks had a manufacturer's stamp, although a small refractory block from context (176) was stamped 'HB' (Figure 133). The block displayed evidence for exposure to extreme temperature, and one end was covered in vitreous waste with damage that may have derived from contact with alkaline molten glass, consistent with it having formed part of a furnace. An elongated brick from the same context may potentially have been an end wedge or under-pinning brick used in the structure of a furnace or associated flue; this brick was similarly stamped 'HB' (Figure 134). It was common practice for firebrick manufacturers to stamp code numbers or letters enable end

users to understand easily where each variant was to be used, just as masons' marks were very common on roofing timbers. In this instance, it is possible that the 'H' stands for 'Hartley', with 'B' representing the variant code.

7.6.6 Potential

7.6.6.1 The assemblage of brick and refractory material recovered from the excavation has no potential for further analysis, and will not contribute further to the accurate dating of the site. Similarly, the assemblage has little or no potential to inform any further understanding of the technological aspects of the Albion Glass Works.

7.6.6.2 The inclusion of several common brick wasters is of some interest, although the archaeological importance of this small group is somewhat reduced by the absence of any physical evidence for a brick kiln within the excavation areas. This suggesting that the material had been imported to the site, perhaps deriving from Hartley & Co's works on Wellington Street, situated a short distance to the west of the excavation area.

7.6.7 Brick References

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Wilders, D, 2002 *Harleys: Brick by Brick – Pot by Pot*, Castleford

Context	Brick type	Comment	Measurement	Stamp	Mortar
Common Bricks					
012	Common red brick	Wire-cut brick without a frog, probably dating to the second half of the nineteenth century. Fairly crude fabric	238 x 110 x 72mm	-	None
015	Common red brick	Machine-made brick with frog dating to the late nineteenth century. Poor quality.	245 x 115 x 80mm	-	Traces of mortar
041	Common red brick	Wire-cut brick without a frog, probably dating to the second half of the nineteenth century.	238 x 110 x 80mm	-	Grey mortar adhered to one surface
047	Common red brick	Poorly made machine-made brick with large rectangular frog manufactured by Hartley & Co and dating to the late nineteenth century.	224 x 106 x 78mm	H CASTLEFORD	None
100	Common red brick	Wire-cut brick without a frog, probably dating to the second half of the nineteenth century.	228 x 108 x 76mm	-	Mortar adhered to both surfaces
112	Common red brick	Wire-cut brick without a frog, probably dating to the second half of the nineteenth century.	238 x 110 x 80mm	-	Traces of mortar
157	Common red brick	Machine made brick with very narrow rectangular frog, probably dating to the late nineteenth or early twentieth century.	230 x 110 x 80mm	CASTLEFORD R	None
199	Common red brick	Wire-cut brick with a crude narrow frog, probably dating to the nineteenth century. Traces of sooting.	245 x 110 x 80mm	-	None
200	Common red brick	Wire-cut brick without a frog, probably dating to the mid- or second half of the nineteenth century.	246 x 105 x 75mm	-	Mortar on one face
213	Common red brick	Five small fragments of common bricks	-	-	-
229	Common red brick	Wire-cut brick with a frog on one surface, probably dating to the second half of the nineteenth century. Clear indication of heat damage.	238 x 116 x 78mm	-	Grey mortar adhered to one surface
270	Common red brick	Wire-cut brick without a frog, probably dating to the second half of the nineteenth century.	242 x 115 x 78mm	-	Mortar on all faces
279	Common	Three fragments of common	-	-	Traces of lime-based

	red brick	hand-made bricks, with an average thickness of 52mm, suggesting an eighteenth- or early nineteenth-century date of manufacture.			mortar

Context	Brick type	Comment	Measurement	Stamp	Mortar
Engineering Bricks					
151	Engineering brick	Poorly made machine-made brick with large rectangular frog and dating to the late nineteenth century. Vitreous waste attached, and heat damage. Stamped 'H CASTLEFORD', which probably refers to Hartley & Co.	224 x 104 x 78mm	H CASTLEFORD	Traces of cement-based mortar
193	Engineering brick	A poorly made engineering brick with a dense matrix and very shall rectangular frog. Machine made, probably dating to the late nineteenth century. Some sooting and distortion due to heat exposure. Stamped 'HARTLEY'.	224x 110 x 55mm	HARTLEY	Slight traces of mortar
279	Engineering brick	A thin engineering brick with a dense matrix, displaying evidence for expose to high temperatures. Probably dates to the mid- to late nineteenth century.		-	Lime-based mortar of all surfaces

Context	Brick type	Comment	Measurement	Stamp	Mortar
Brick Wasters					
267	Wasters	Nine 'wasters', comprised three blocks of two half-bricks fused together, and three distorted complete bricks. All machine made with frogs on both surfaces.	227 x 104 x 77mm	HARTLEY & CO CASTLEFORD	None

Context	Brick type	Comment	Measurement	Stamp	Mortar
Refractory Bricks					
033	Standard refractory	Standard refractory brick with slight sooting and damage to one end.	215 x 110 x 66mm	-	Slight traces of mortar
154	Standard	Crudely manufactured	238 x 118 x	-	None

	refractory	refractory brick with large inclusions	74mm		
176	Small refractory	Vitreous waste attached, and heat damage from glass waste exposure. Almost certainly derived from a glass furnace.	185 x 107 x 65	HB	None
176	Specialist refractory	Elongated refractory brick	298 x 110 x 66	HB	None
177	Standard refractory	Standard refractory brick with considerable heat damage and vitreous waste attached	248 x 115 x 68mm	-	None
Context	**Brick type**	**Comment**	**Measurement**	**Stamp**	**Mortar**
223	Small refractory	Two fragments of small refractory bricks, both retaining evidence for heat damage, with vitreous waste attached to one of the bricks.		-	None
227	Standard refractory	Standard refractory brick with vitreous waste and clear indication of heat damage.	225 x 102 x 70mm	-	None

Context	**Brick type**	**Comment**	**Measurement**	**Stamp**	**Mortar**
Tiles					
007	Tile	Fragment of a large, industrial, floor tile. Hand made, probably dating to the mid-nineteenth century	210 x 210 x 56mm	-	None
155	Tile	Fragment of a large, industrial, floor tile, with thick sooting deposit on one face. Hand made, probably dating to the mid-nineteenth century	?? x 298 x 70mm	-	None
155	Refractory tile	Two adjoining fragments of a large refractory tile. Clear evidence of heat damage.	?? x 325 x 70mm	?? NORTH WORTLEY	None
176	Refractory tile	Two adjoining fragments of a large refractory tile	?? x 326 x 70mm	-	None
227	Refractory tile	Two adjoining fragments of a large refractory tile with traces of vitreous waste derived from the glass-manufacturing process	255 x 220 x 72mm	-	None

Table 9- Table of CBM data

7.7 Glass Report *by Ian Miller*

7.7.1 In total, five utilitarian glass objects were recovered from the excavation, most of which represented vessels (Table 1). The glass objects were in good condition, and comprised four near-complete vessels, recovered from context (177), and a single complete vessel lid from context (180) (Figure 135).

Context	Count	Description	Date
177	1	90% complete moulded Codd mineral water bottle bearing the manufacturer's stamp of Fred Davies of Burton Salmon.	Late nineteenth / early twentieth century
177	1	80% complete moulded Codd mineral water bottle bearing the manufacturer's stamp of Fred Davies of Burton Salmon.	Late nineteenth / early twentieth century
177	1	70% complete moulded Codd mineral water bottle bearing the manufacturer's stamp of Morrison Towhead of Castleford.	Late nineteenth / early twentieth century
177	1	40% complete moulded mineral water bottle, probably of the Codd design, bearing the part of the manufacturer's stamp of Morrison Towhead of Castleford.	Late nineteenth / early twentieth century
180	1	Complete glass lid, 88mm diameter, manufactured by Sykes, Macvay & Co at the Albion Glass Works in Castleford.	Late nineteenth / early twentieth century

Table 10: Glass objects recovered from the excavation

7.7.2 The small assemblage was dominated by mineral water bottles, which all dated to the late nineteenth or early twentieth centuries. At least three of the vessels are Codd bottles, or 'marble stoppers', following a design that was introduced by Hiram Codd in 1873. As is frequently the case with this type of vessel, the upper part of all the bottles had been smashed, presumably to remove the marble that facilitated the gas-tight seal.

7.7.3 Manufacturers' names were present on all the mineral water bottles, and comprised two bottles of Morrison & Towhead, mineral-water manufacturers of Castleford, and two bottles of Frederick Davies of Burton Salmon, near Wakefield. Frederick Davies established a mineral water manufactory in the 1870s, and appears to have remained in business until *c* 1912. All of these bottles had been used, perhaps by the glassmakers labouring at the Albion Works, rather than having been produced on site. Conversely, the fifth glass object from the excavation, recovered from context (180), is likely to have been manufactured within the excavation area. This object comprised a complete lid (Plate 1) for a small glass storage vessel (Plate 2), similar to a Kilner jar, and is stamped 'Sykes Macvay & Co'.

7.7.4 Operating at the Albion Glass Works in the late nineteenth century, Sykes Macvay & Co was noted for manufacturing their screw-mouth bottle for aerated water (patented 1877) and, in 1890, is reputed to have been the first firm to produce glass bottles by machine. The glass lid recovered from the excavation was probably manufactured during this period, with a date range spanning the late nineteenth and early twentieth centuries.

7.8 Slag Report *by Gerry McDonnell*

7.8.1 Introduction

7.8.1.1 This assessment report describes the material classified as slag recovered from Castleford. A brief overview of the material from the site is provided, followed by a discussion of the possible source of the slags. The assessment report follows the guidelines issued by English Heritage (Jones 2001, 7).

7.8.2 Methodology and Slag Classification

7.8.2.1 The slag samples were visually examined and the classification is based solely on morphology. The debris associated with metalworking, or submitted in the understanding that they are associated with metalworking, can be divided into three broad groups, residues diagnostic of a particular metallurgical process or non-diagnostic residues that may derived from any pyrotechnological process (McDonnell 2001). The diagnostic ferrous debris can be attributed to a particular ironworking process; these comprise ores and the ironworking slags, i.e. the macro, hand recovered smelting and smithing slags and the micro-residues such as hammerscale and slag fragments recovered from sieving programmes.

7.8.2.2 The second group, are the diagnostic non-ferrous metalworking debris, e.g. crucibles and moulds. Thirdly, there are the non-diagnostic slags, which could have been generated by a number of different processes but show no diagnostic characteristic that can identify the process. In many cases the non-diagnostic residues, e.g. hearth or furnace lining, may be ascribed to a particular process through archaeological association. In addition slag-like residues can be generated in fireboxes of steam-powered machines of the post- industrial revolution period.

7.8.3 Description

7.8.3.1 The slag samples are black fayalitic slags, with some red colouring. They are dense, but with evidence of gas bubbles. They have brick fragments adhering to the slag. The slag has been subjected to very high temperatures, probably in excess of 1000^{o}C.

7.8.4 Interpretation

7.8.4.1 The genesis of the slag is unclear. The slag probably formed in the lining of a high temperature firebox or flue. Although coal fragments were not visible the slag had some similarities to slags or clinker formed by a coal fired hearth or furnace.. If it derived from a reverberatory type furnace or hearth the firebox would reach very high temperatures with the flames feeding a hearth or kiln or furnace operating at low temperature. The possible options are it derived from a hearth of a steam powered engine or the flue of a reverberatory type kiln or furnace. The slag itself is not indicative what could have been fired in the kiln.

7.8.5 References

Jones D.M. (Ed.) 2001 *Centre for Archaeology Guidelines: Archaeometallurgy*. English Heritage

McDonnell J.G. 2001 "Pyrotechnology" in Brothwell, D. and Pollard A.M.P. (eds) *Handbook of Archaeological Sciences*, John Wiley & Sons, London pp. 493-506,

8 DISCUSSION

8.1 Roman

8.1.1 The Roman activity present within excavation Areas A and B displayed two phases of Roman occupation separated by a series of alluvial flooding events characterised by deposits (128)/(197)/(287). The majority of Roman activity within Area A was characterised by inter-cutting but roughly contemporary ditches (F.054), (F.056), (F.084), (F.086), (F.092) which were dated from the 1st - 2nd century AD. The presence of cow, sheep and pig bone recovered from deposits (054), (056) and (084), suggested that the afore-mentioned linears functioned as agricultural field boundaries associated with the Roman fort of *Lagentium*. Following the disuse of linears F.054, F.056 and F.086 it was evident that similarly aligned timber structures were constructed. The timber structures were characterised by the presence of beamslots F.059 and F.081 which were dated to the 2nd century and had been excavated through the upper dis-use deposits of ditches F.054 and F.056. Consequently, it seems plausible that, within the bounds of the excavation areas, there may have been a shift in land usage from agriculture to domestic settlement . The partial shift in function may be tentatively attributed to an expansion in size of the civilian *vicus* in the late 1st and 2nd centuries. Previous excavations within Castleford identified that, from the late 1st to late 2nd century, the civilian *vicus* at *Lagentium*, was characterised by military abandonment of the fort but expansion of the civilian extra-mural settlement. A similar trend was identified during the current phase of works, as the limited quantity of samian ware, coupled with the high frequency of late 1st and 2nd century coarse wares, may be characteristic of military abandonment but continued civilian activity during the late Flavian and Antonine periods.

8.1.2 It should be noted however, that despite the possible shift in land usage from an agricultural focus into a partially domestic environment, the Roman activity on site was interpreted as being peripheral to the urban centre of the *vicus.* This may be evidenced by the dramatic drop in the frequency of Roman features towards the south-west of Area A and the relatively low quantity of Roman pottery recovered from across the site.

8.1.3 As previously mentioned, the majority of Roman activity identified within Area A was sealed by two alluvial deposits (128)/(197), which was indicative of two potential flooding events. The only identifiably Roman feature postdating deposits (128) and (197) was beamslot F.099 which contained a single fragment of mid-late second century samian ware. Consequently, it seems likely that the afore-mentioned flooding events occurred during the mid-late second century and were followed by a significant decline in Roman activity within Area A.

8.1.4 Conversely, the sequence of Roman events within Area B were dissimilar to those identified within Area A. For example, alluvium (287), from Area B, was very similar in appearance and composition to alluvial deposit (197), from Area A. Consequently, deposits (197) and (287) were tentatively attributed to the same flooding event during the mid to late second century. However, contrary to the pattern of events displayed within Area A, the majority of Roman activity post-dated the deposition of alluvium (287). This later Roman phase was characterised by pits F.294, F.293 and F.291 coupled with linear F. 289. Both pit F.294 and linear F.289 produced pottery dated from the late 2nd or 3rd century. Only a single pit, F.304, predated the deposition of alluvial deposit (287). Consequently, the pattern of Roman occupation visible within Area B, coupled with the pattern revealed within Area A may be tentatively assigned to a post-alluvial shift in Roman activity away from the land south-west of the Roman fort during the later second century. It might be possible to argue that flooding events prompted a shift in the pattern of settlement within the vicus and may have been a contributing factor in the progressive and eventual abandonment of the civilian settlement.

8.2 Post-Medieval

8.2.1 Evidence for post-medieval land usage within Area A was restricted to a relatively small number of features (F.237, F.211, F.231 and F.213) likely formed within a semi-rural setting. Reference to the cartographic data (Figure 91) indicated that excavation Area A was only partially urbanised by the mid-19th century and was bounded by a network of field systems to both the south and east. It is not unreasonable to assume that the land occupied by Area A was still being partially utilised for agriculture purposes prior to the 19th century. This interpretation may be supported by post-medieval field boundary ditch F.237 which predated the early to mid-19th century industrial activity upon the site.

8.2.2 Additional post-medieval activity was characterised by pits F.211, F.231 and F.254 which were all potentially indicative of early industrial activities, occurring upon the site,

prior to the establishment of the glassworks. For example, sub-circular pit F.231, displayed undercut sides and was filled by a poorly sorted silt deposit containing a very high frequency of shale inclusions. The form of the feature coupled with the high frequency of shale may indicate that pit F.231 represented the shaft of a post-medieval Bell pit. A Bell pit was formed by the creation of a shaft sunk onto a horizontal deposit of coal or ironstone and then worked laterally, until the need for support or drainage made further work impractical. The shaft was then abandoned, and another pit excavated nearby with its spoil being used to fill the first shaft (Galloway, 1898). Coal is often found within horizontal seams and can be overlain by beds of shale which were truncated during the excavation of the shaft and then undermined by the extraction of the coal. The poorly sorted composition of pit fill (231) coupled with the high frequency of shale may be indicative of the re-deposition of spoil associated with the excavation of a Bell pit (Figure 76). Unfortunately, the lack of any datable finds recovered from fill (231) restricted secure dating. However, a post-medieval date may be tentatively assigned to pit F.231 due to its location below Building F indicating that pit F.231 pre-dated the construction of the glassworks in the mid to late 19th century.

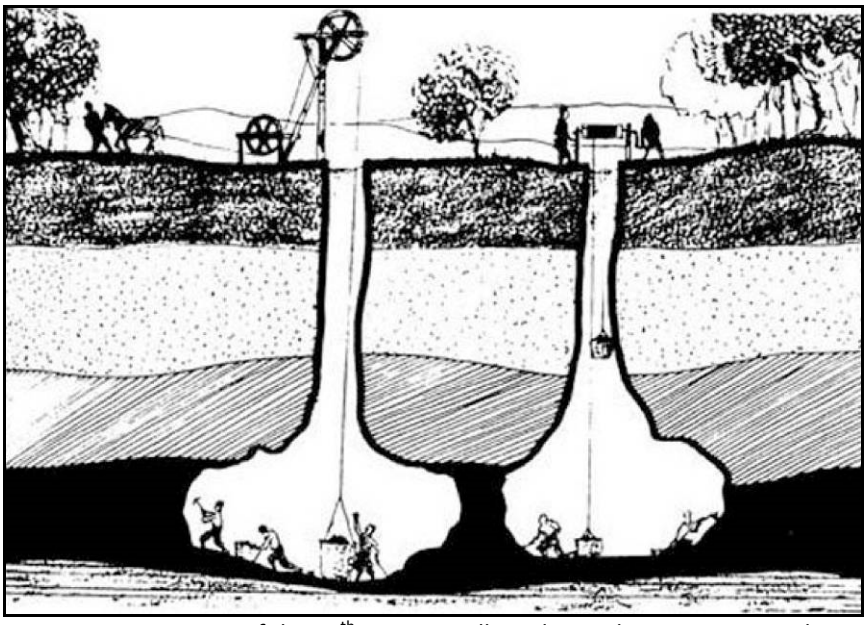

Figure 76- Artists impression of the 17th century Bell pits located at Stotties Wood, Gateshead

8.2.3 A second discrete feature, characterised by pit F.211, was located below glass-works yard surface (018) and was tentatively interpreted as a borrow pit for the extraction of natural clays. This interpretation derived from the size and form of pit F.211 coupled with the lack of any consistent and repeated phases of dumping associated with waste disposal.

8.2.5 A third post-medieval feature, pit F.254, was sealed by later 19th century Building D and contained a moderate quantity of highly fragmented, unfrogged brick. Consequently, pit F.254 was interpreted as a waste pit potentially relating to the demolition of pre-existing structures within Area A prior to the construction of the 19th century glass-works.

8.2.6 The post medieval activity within Area B was restricted to the use of earlier 18th century brickwork (279) for the construction of drain F.301. As mentioned previously, the brickwork present within drain F.301 displayed wear consistent with re-use. It might be reasonable to assume that the brickwork present within (279) derived from an earlier 18th century structure which had existed upon the site. Consequently, the presence of post-medieval bricks within the structure of drain F.301 was not interpreted to indicate that the drain was of a post-medieval date. It seemed more probable that the drain was constructed to service later 19th century buildings using earlier construction materials and was interpreted as associated with this later phase of activity.

8.2.7 In summary, the post-medieval activity within Area A was restricted to limited indications of agricultural land-usage (F.237) and fragmentary industrial evidence for clay extraction (F.211) and coal mining (F.231). The land occupied by Area's A and B appeared to have remained semi-rural in form until the expansion of the glassworks in the mid to late-19th century.

8.3 19th Century Glassworks- Phase I

8.3.1 The earliest identifiable phase of glass-working which was revealed upon site was likely represented by Building A (Figure 96). The sub-circular deposit of scorched alluvium characterised by (203) was interpreted as displaying the probable location of a glass furnace structure. None of the brickwork relating to the foundations of the glass furnace survived so the diagnostic form of deposit (203) coupled with the two NW-SE orientated brick lined flues were the only indicators of the buildings function. Reference to late 18th and early 19th century glass-cones revealed a similarity between the plan of the scorched area identifiable in Building A to the floor plan of the eighteenth century glass cone at Catcliffe in South Yorkshire (Figure 78 & 83). It seems possible,that the industrial processes used at the Catcliffe glass-cone were similar to those used within Building A at Castleford. Glasscones were concically shaped structures centred around a fire-box or furnace. The glass was melted in oval or circular crucibles which were almost entirely enclosed, aside from a small opening through which the molten glass was accessed (Dodsworth, 1982). It seems likely that the sub-oval, yellowish-white areas of scorching within deposit (203) represented the location of the glass-melting crucibles and the orange heat affected component of (203) was formed by consistently high temperatures radiating from the central furnace. The identification of flues (199) and (200) suggested that airways were installed below the fire-box in order to provide oxygen to the furnace, to regulate temperature and to create an updraught necessary for the removal of toxic air from the working floor of the glasshouse.

8.3.2 Consequently, despite the lack of structural evidence for a conical structure it seems probable that the circular zone of scorching coupled with the location of the two parallel flues may be suggestive for the location of a possible glass-furnace within NW-SE orientated rectangular Building A.

8.3.3 It should also be noted that the similarities displayed by the footprint of the possible glass furnace in Building A and the floorplan of the mid eighteenth century glasscone at Catcliffe indicate that glassworking may have been taking place on the site at a date earlier than previously considered.

8.3.4 Reference to the 1852 OS map indicated that Building A and the potential glass-cone structure were not present on the site prior to the compilation of the OS map in the late 1840's (Figure 91). Additionally, no known glass-cones were constructed, within Britain, beyond the 1830's (Dodsworth, 1982). However, the similarity in form between the plan of the Catcliffe glass-cone and the features within Building A were close enough to warrant further consideration. The possibility exists that either a glass cone had been constructed upon the site post-dating the 1840's or that late eighteenth to early nineteenth century glass-working technologies were used within the construction of a glass furnace within Building A. Certainly, the size of the area occupied by a glass furnace within Building A when compared with the size of the flue, sieges and work space within glass-house Building C suggest that Building A was operating on a smaller, less industrialised, scale. Additionally, it was known that George Bradley founded a glass-works upon the site prior to the 1860's and that Albion Glassworks was purchased by Sykes and Macvay, as an operational glass production centre, in 1864. These factors when coupled with the diagnostic glass-cone plan may suggest that Building A represented the earliest fragmentary evidence for glass-working on the site.

8.3.5 Subsequent to the possible establishment of Albion Glassworks on the site in the 1850's both Building B and a roadway (227) were constructed. The roadway was built upon a bedding deposit displaying high quantities of pottery production waste and butted against Building B. Reference to the cartographic evidence suggests that Building B was a short-lived structure as it was not present on the 1850's OS map and had been overlain by the construction of Building C by the early 1890's (Figure 91 & 92). This interpretation was also supported by the archaeological evidence, as surface (224) from Building B was truncated by walls related to later Building C.

8.3.6 The archaeological evidence also suggested that road (227) was roughly contemporary with Building B. For example, the road physically abutting the footings of Building B and was also orientated on the same alignment as both Building's A and B. The similarity of alignment, may suggest that road (227) was constructed at a date when both Buildings A and B were present (Figure 96). It is also worth noting that road (227) likely continued in use following the destruction of Building B. This is supported by reference to the 1890's OS map which indicates that a yard or roadway was present at the location of (227) during the late nineteenth century. Furthermore, the projected route of (227) continued below a covered access route, or possible factory entrance, fronting onto Albion Street to the north-west. Unfortunately, the fragmentary form of Building B, precluded any understanding of structure function as no occupation or use deposits were identified.

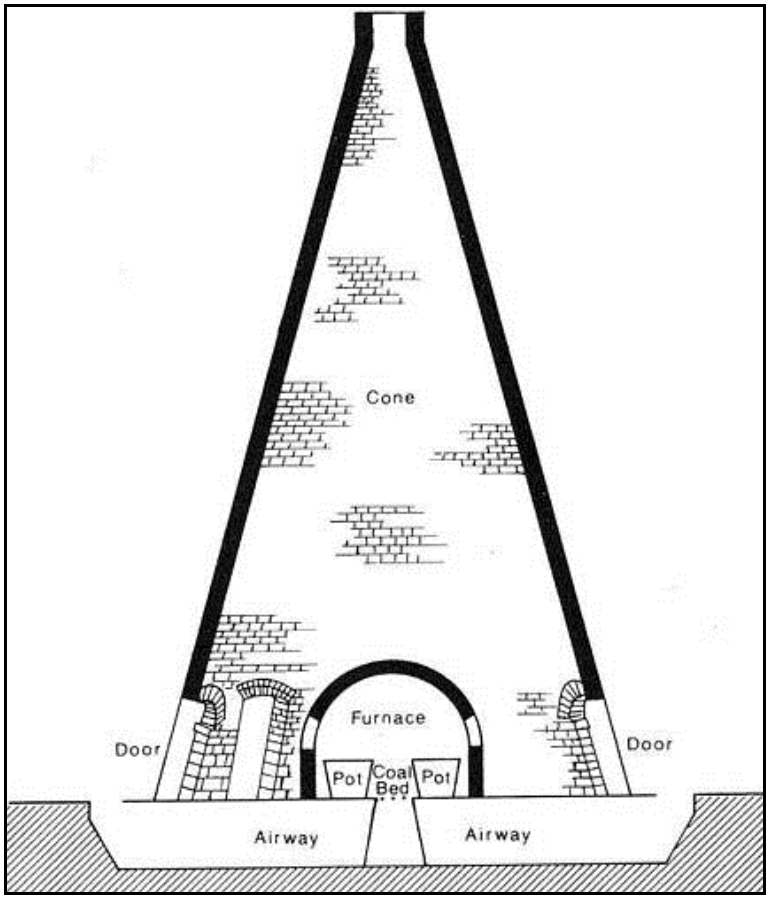

Figure 77- Profile of the mid-18th century glass-cone from Catcliffe, South Yorkshire (G. D. Lewis, 1965)

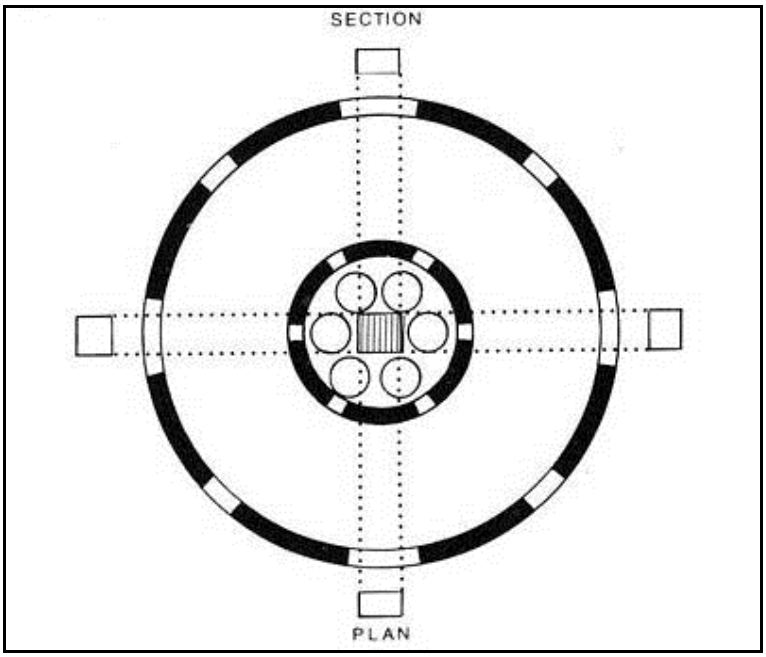

Figure 78- Plan of the mid-18th century glass-cone from Catcliffe, South Yorkshire (G. D. Lewis, 1965)

8.3.7 The initial phase of glass-working activity on the site was therefore characterised by the presence of a possible glass-furnace (203) within a NW-SE orientated terrace of structures (Building A). Building A may have functioned in association with a broadly contemporaneous ancillary structure (Building B) and road (227).

8.4 19th Century Glassworks- Phase II

8.4.1 The second major phase of glass-working activity appeared to relate to a period of industrial growth and expansion characterised by the construction of Building C and a series of associated yard surfaces (Figure 83 & 92). The structural remains of Building C were extensively truncated during the demolition phase, however the identification of a NW-SE orientated substructure (169) was of fundamental importance due to its distinctive and potentially diagnostic form (Figure 31 & 93).

8.4.2 When comparing the surveyed archaeological features with the structures displayed on the 1890's OS map it was apparent that substructure (169) bisected the subterranean levels of a square or sub-rectangular structure centred upon a square chimney (Figure 92). The 1890's OS map also indicated that the SW-NE orientated ramped section (181) of the substructure appeared to be located beyond the exterior walls of the square shaped building and below an ambiguously annotated box structure. Additionally, the location of the substantial rectangular brick foundations (207) and (208) were also centred immediately below the position of the chimney, as it appeared on the 1890's OS map, and were almost certainly related to the buildings function. A useful source of information regarding the likely function of the anonymous structure was provided by a contemporary account of a guided tour around the Percival, Vickers & Co. glassworks in Manchester during the mid-19th century. The account described the interior of the glasshouse as,

'…one of the most picturesque places conceivable…a great, grimy place, with a dark, high roof and having in the centre a brick-built erection…springing direct from the floor and passing upwards through the roof. This is the outer shell of the furnace…' (Miller. I, 2007)

8.4.3 Additionally, an engraving of the London-based Falcon Glassworks depicted a glasshouse interior of the type that had replaced the earlier glass-cone structures by the mid nineteenth century (Figure 79) (Dodsworth, 1982). The illustration depicted the later type of glasshouse as a square or rectangular structure centred upon a much larger furnace connected to a central chimney. There was a marked similarity in form between Building C, as it appeared on the 1890's OS map, and the mid-19th century depictions of a glasshouse furnace.

8.4.4 This dramatic shift in the apparent size and form of the glasshouse, identifiable between the later 18th and the mid-19th centuries, was caused by an increasing reliance on coal and a desire to increase both yield and profitability. Coal burnt with a shorter flame and encouraged glass melting crucibles to be shifted closer to the furnace. Coal also required more oxygen than was required for the combustion of earlier fuels, such as wood, and

produced heavier, dirtier smoke. Consequently, the production of glass required a stronger updraught necessitating the need for a larger flue. (Miller. I, 2007).

8.4.5 In 1849, glassware manufacturer Apsley Pellatt described the flues at the Falcon Glassworks as,

'…large caves extended through the subterranean area of the glasshouse, connecting with the open air at each end, running under the bars of the furnace, to receive the fallen cinders and supplying oxygen for the combustion of the fuel. At right angles with the large cave, are smaller caves…so as to collect the wind from as many directions as possible…' (Pellatt. A, 1849)

8.4.6 Pellatts description of the flue network below the Falcon Glassworks was similar to the form of the subterranean structure located below Building C at Castleford. Additionally, similarly constructed flues were identified during the excavation of the mid-19th century glassworks at Hopton Street in Stourbridge, at Jersey Street in Manchester and at Nailsea Glassworks in North Somerset (Miller. I; Ridgeway. V & Smith. A). It seems likely that substructure (169) operated as a substantial flue for the provision of oxygen to a centrally located glass furnace. Furthermore, according to Pellatts description, the ramped structure at the northern extent of Building C was likely constructed as a form of wind trap designed to catch the prevailing winds and better direct them towards the furnace (Figure 92).

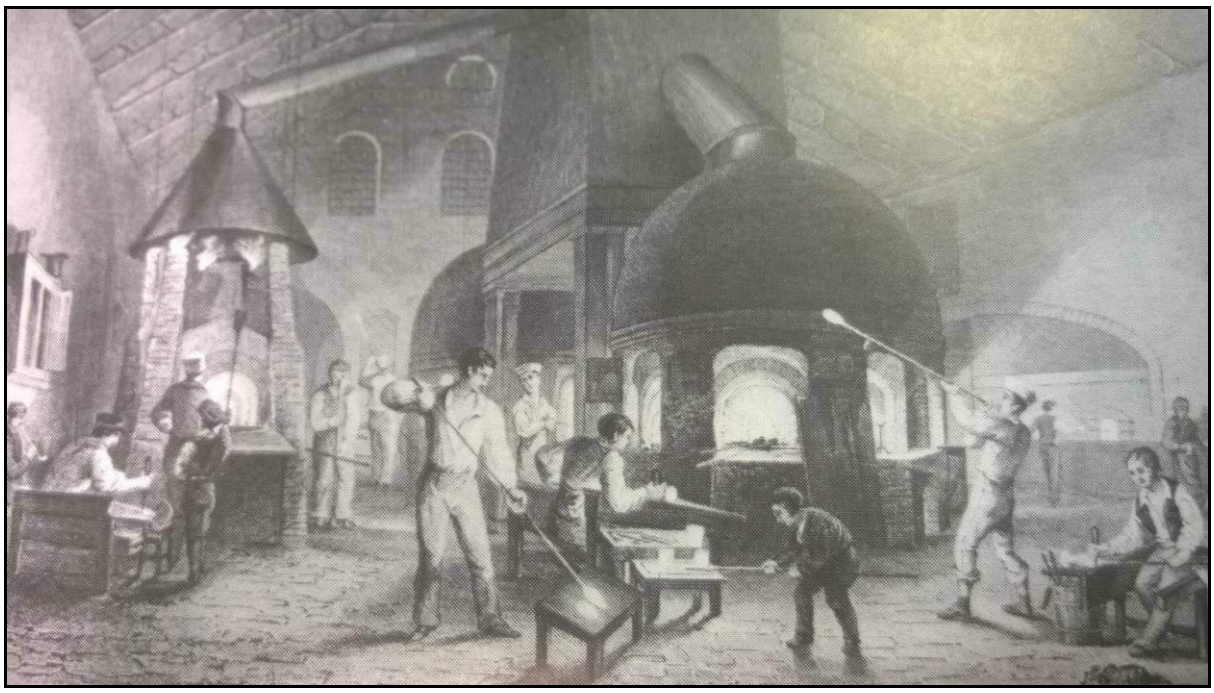

Figure 79- An illustration by T. Allom of the glass-furnace at the Falcon Glassworks, London in 1842 (Dodsworth, 1982)

8.4.7 The proposed interpretation of substructure (169) as a glasshouse flue also suggested that the two rectangular brick foundation structures, (207) and (208), were likely foundations for the glasshouse sieges. The siege was a bench-like structure upon which the glass melting pots, or crucibles, were placed (Miller, I. 2007). The siege was not exposed to the working floor of the glasshouse and was generally encased within a brick shell or pothouse arch (Figure 79). This interpretation was supported by the excavation of similar brick foundation structures at the glass-working sites of Jersey Street, Nailsea and Hopton Street, London (Miller. I; Ridgeway. V & Smith. A). The Jersey Street structures also displayed clear evidence for crucible scarring on the superior surface of the brickwork and were interpreted to be glasshouse sieges (Miller. I, 2007). No scarring was identifiable on brick foundations (207) and (208), however, there were distinct structural similarities between the Jersey Street sieges and the rectangular brick foundations at Castleford. It might be of interest to also note that the use of a rectangular siege was a distinctive British fashion and not emulated on the continent where a preference for a semi-circular siege was more desirable (Miller, 2007).

8.4.8 The sieges were centred around a fire-box or furnace that was set onto an iron grate, suspended above the cave or flue. The height and width of the flue served not only to provide oxygen to the furnace in the grate but also allowed the workmen, known as teasers to regulate air-flow and clear out ash and clinker from the grate. Clues as to this practice were highlighted by the first-hand account of a retired mid-19th century glassworker Francis Mountain,

'The furnaces were worked from underground caves leading from one end to the other. Bars of iron…were also used to keep up the fire in the furnace…'(Mountain. F, 1914)

8.4.9 Additionally, Marson provided greater detail regarding the function of the cave within mid to late-19th century glass furnaces and described the role of the workers within the tunnelled flues,

'Passing under the fire-box and across the whole width of the furnace, there is an underground tunnel called a 'cave', each end of which is exposed to the outside air. These caves are of sufficient width to allow the fireman or *tiseur*…to rake out the dead ash…and stir the fires through the bars with a long poker.' (Marson. E, 1938)

8.4.10 Unfortunately, no evidence for the grate or fire-box was identified within Building C, however, a number of factors may indicate its likely location prior to demolition. The first factor concerns the presence of a black, sooty use deposit (180) overlying the floor of sub-structure/flue (169) and may be representative of furnace waste material that had dropped down from a fire-box above. Additionally, the significantly higher percentage of re-used firebricks present within the construction of flue surface (176) between siege structures (207) and (208) may be representative of an area anticipated to be regularly heat affected. Furthermore, the proximate location of both siege structures (207/208) to the square chimney on the 1890's OS map may suggest that a furnace was likely situated between (207) and (208) at a point above the location of surface (176).

8.4.11 Reference to the 1890's OS map indicated that surfaces (015), (013), (006), (007) and (033) should be interpreted as the internal floors of glasshouse Building C(Figure 83 & 92). The lack of occupation or use deposits overlying the internal surfaces restricted our understanding of the likely functions taking place within the glasshouse. However, reference to Alloms' mid-19th century engraving of the Falcon Glassworks displays numerous glass production activities taking place within the glasshouse structure (Dodsworth, 1982). The production activities that took place within Building C may have included glassblowing, the maintenance of the furnace and the manipulation of the glass within the crucibles.

8.4.12 It should also be noted that the interior of Building C had numerous internal partition walls (017), (032) and (014) suggesting that the internal workspace of the glasshouse was much more compartmentalised than the Falcon Glassworks in London (Figure 79).

8.4.13 The archaeological evidence also identified a later 19th century remodelling phase within the interior of glasshouse Building C. The remodelling events were characterised by the addition of four brick pillars (266), (175), (209) and (210), the installation of firebrick flue base (176) and the insertion of a metalworking furnace into the ground level working surface of the glasshouse.

8.4.14 The brick pillars inserted into the subterranean flue (169) were constructed from later 19th century, frogged, machine made bricks and appeared to have been introduced at a period broadly contemporary with surface (176). The reason for the introduction of the brick pillars to the flue was unclear, however, it is not unreasonable to assume that the pillars may have represented a remodelling and change to the form of the fire-box or furnace located immediately above them. The addition of a later fire-brick surface (176) between sieges (207) and (208) may have been prompted by a desire to replace earlier worn or damaged brick work. The use of fire-brick between the sieges certainly suggested that heat damage was a recognised danger within the location occupied by surface (176). Pellatt alludes to this risk when he stated,

'Occasionally, too, when the centre part of the siege has been partly destroyed by the flame, a pot full of liquid glass has been known to fall back into the fire-grate… the author has been present on such an occasion, and finds it difficult to describe the awful beauty of the prismatic colours of the liquid fire, as it showered into the cave (Pellatt. A, 1849).

8.4.15 The third remodelling event identifiable within Building C was characterised by the introduction of an iron working furnace (012) into internal working surface (013) (Figure 83). The addition of a metal working furnace into the interior of Building C might have been caused by a need to diversify manufacturing within the glassworks. Alternatively, an increased desire for self-sufficiency often demanded that many later 19th century glassworks maintained numerous secondary industries (Dodsworth, 1982). The larger works often had their own pot-making and mould-making departments in addition to various cutting, etching and engraving workshops. Nailsea glassworks in particular was documented as incorporating a carpenters, a joiners and most notably a metal working furnace (Smith. A,

2004). The form of the constituent brickwork coupled with the presence of slag deposits on the working floor (013) of the glasshouse suggested that the iron working furnace (012) was in operation towards the later 19th century. Consequently, the introduction of furnace (012) may have occurred towards the end of the operational life-span of the glassworks.

8.4.16 Reference to both the cartographic, archaeological and written sources suggested that glasshouse Building C may have been present on the site from the 1860's. The dating is based partially on the quantity of pottery production waste material identified within bedding deposit (029) for internal surfaces (013) and (015). It has been considered that the pottery production waste material within deposit (029) likely derived from the operation of the nearby Eagle Pottery works dated from 1853 to 1874/5. Additionally, a glass storage jar lid, embossed, 'Sykes MacVay & Co.', was also found in association with flue (169). Consequently, Building C was almost certainly present upon the site subsequent to the purchase date of Albion Glassworks by Sykes & Macvay in 1864. Furthermore, the Royal Commission of Labour details that in 1893 Albion Glassworks employed workers across two sites, described as the Old Yard and the New Yard. The New Yard was described as having two glass furnaces whilst the Old Yard was described as having three (Royal Commission of Labour 1893: 634). Therefore, it seems plausible that Building C may have been one of the glassworking furnaces described as being under operation within the glassworks in 1893. The glassworks was renamed the Ashley Bottle Co. in 1893, went out of business in 1894 and was subsequently demolished (Turner. W, 1938). The exact date of demolition was hard to identify as the demolition deposit (003/243) sealing both Building C and filling the interior of the flue contained both later 19th century and early 20th century material. However, reference to the 1908 OS map confirms that by the early 20th century Building C had been demolished.

8.4.17 A number of surfaces (018/154/157) were identifiable to the north-east of glass-furnace Building C and reference to the 1890's OS map confirms that surface (018) operated as a yard servicing the northern extent of the glasshouse. Additionally, a marked similarity was identifiable between bedding deposit (029) below the internal surfaces of Building C and bedding deposits (182/158) below external surfaces (018), (154), (155) and (157). It seems likely therefore that surfaces (018), (154), (155) and (157) were constructed contemporaneously with glass-furnace Building C. Conversely, the 1890's OS map has no reference to the structure identified as Building D being present on the site in the later 19th century (Figure 92). A wall of similar dimensions and orientation to Building D's wall (160) was present in 1890 and suggested that wall (160) originally formed the north-east boundary of the yard area bordering the glasshouse. However, Building D's additional walls (161) and (162) were apparently not present in 1890. The archaeological evidence indicated that surface (157) and (154) were constructed prior to the installation of later walls (161) and (162). Consequently, it seems likely that an external yard surface(157/154), north east of glass-house Building C, had been internalised to form Building D. Additionally, it is interesting to note that the 1890 OS map recorded the presence of a curving wall to the north-west of Building D. The wall was apparently attached to (160) and curves southwards towards wall (161) (Figure 83 & 92). In isolation the curving wall appears peculiar and serves

little apparent function however, if we consider the curving wall in association with (161) it seems as though the two walls may be related. A tentative conclusion might be that the curving wall illustrates that Building D was under construction and had not yet been built prior to 1890. Despite the ambiguous date associated with Building D, the glass fragments overlying surface (157) suggested that Building D likely operated as an ancillary structure associated with glass storage or production. Therefore, it is not unreasonable to assume that Building D was also in use, during the later 19th century, at a date contemporaneous with the operation of glasshouse Building C.

8.4.18 The NW-SE orientated terrace of structures defined by Buildings E, F and G were considered to have been constructed at a period roughly contemporary with the creation of Building C. Principally because Buildings E, F and G were all constructed from materials similar to those used during the construction of Building C. However, no occupation or use deposits, indicating structure function were located within Buildings E, F and G. Additionally, the correlation between the surveyed archaeological features and the 1890's OS map suggested that Buildings E, F and G formed a terrace of structures that fronted onto Wainwrights Yard. The cartographic evidence was unclear as to whether Wainwrights Yard was directly associated with the glassworks or formed a street frontage to domestic residences.

8.4.19 However, it should be noted that reference to the 1901 census indicated that a widowed lady, Mrs Mary Ann Belsher, occupied a residence within Wainwrights Yard at the beginning of the 20th century. Furthermore, the 1908 OS map illustrated that Buildings E, F and G survived the eventual demolition of the glassworks and could, therefore, have been disassociated from glass manufacture (Figure 94). Consequently, Buildings E, F and G have been tentatively interpreted as domestic residences.

8.4.20 The construction of both Buildings H and I, continued the pattern of growth and expansion evident on the site in the later nineteenth century. For example, the NE-SW orientated terrace of fragmentary structures, characterised by Building I, were almost certainly the remnants of a terrace of domestic residences that fronted onto Albion Street. The 1890's OS map indicates that the terrace was present in the late nineteenth century and had survived, relatively unmodified until its demolition in the mid-20th century (Figure 93 & 94). The archaeological evidence also supported the cartographic data as all of the walls present within Building I were constructed from mid-late 19th century brick, whilst concrete surface (136) was almost certainly a 20th century addition. Furthermore, Building I was also sealed by a 20th century demolition deposit (263) containing fragments of mid-20th century pottery and plastic. Interestingly, reference to the 1890's OS map also indicated that the south-western walls of Building I, (115), (137), (138) and (139), likely represented the fragmentary remnants of The Queens Head Inn public house.

8.4.21 Building H was constructed in a similar form, using similar materials to the terrace of structures characterised by Building I. Consequently, it seems likely that both Building I and Building H were constructed at a roughly contemporaneous date in the second half of the

19th century. This was further supported by the map data which indicated that Building H was present in the early 1890's and existed until the mid-20th century when it was removed during the demolition phase that preceded the construction of the 20th century bus station (Figure 93 & 95). The map data also indicated that the cellars represented by Building H served two domestic residences and originally belonged to house numbers 10 and 12 Wainwright Street.

8.4.22 Coincidentally, reference to the 1890's OS map also indicated that red brick surface (267), located to the north of wall (270) in Area B, was almost certainly representative of the fragmentary remains of Wainwrights Street at the intersection with Albion Place. Consequently, wall (270) has been interpreted as the footings of a domestic residence fronting onto Albion Place (Figure 93).

8.4.23 The archaeological evidence, revealed within the bounds of excavation Areas A and B suggested that there was a period of rapid expansion, growth and urban remodelling occurring upon the site in the later 19th century. Furthermore, the pattern of 19th century growth, revealed within the bounds of the site, was characteristic of the changes occurring nationwide within glass production centres during the mid to late 19th century.

8.4.24 A motivating factor for the national expansion of the glass production industry in the mid to late 19th century was the repeal of the Excise Act in 1845. This change legislative change removed a heavy burden of taxation from the glass manufacturing industry and resulted in renewed interest and greater investment into the glass production (Dodsworth, 1982). It has been attested that the repeal of the glass tax in 1845 was a major factor in the rapid and dramatic expansion of the Midlands based glassworks of Hawkes, Rice Harris and Bacchus & Green between 1840 and 1870 (Wakefield, 1961). The rapid expansion of the glassworks at Castleford as epitomised by the construction of Building C and its associated ancillary structures, might be reflective of the national trend towards increased glass production during the mid to late-19th century. Especially when considering that by 1890 four other substantial glass-working furnaces, in addition to Building C, had been constructed within the vicinity of the site (Royal Commission of Labour, 1893).

8.4.25 Additionally, a principal technological reason for the rapid expansion of the English glass industry in the mid-19th century may be attributed to the increasing use of coal (Smith. A, 2004). As previously mentioned, coal demanded larger flues and necessitated the need for larger glasshouses for the creation of an updraught sufficient for the removal of heavier, dirtier air. Presumably the larger furnaces combined with the greater heat provided by the combustion of coal also sped up the speed at which the glass melted. Consequently, an increased number of workers became necessary to keep up with production. The larger glasshouses which evolved during the mid-late 19th century reflected not simply a response to an increased furnace size but also an increased demand for space, necessary for more workers to operate around a larger furnace (Smith. A, 2004). This increase in the size of the glass furnaces may be illustrated by the comparative difference in size between the footprint of the possible glass-furnace within Building A and the size of 19th century glass

furnace Building C (Figure 93). The size and form of Building C was certainly representative of the later type of glass furnace that had antiquated the smaller glass-cones of the later 18th and early 19th century (Dodsworth, 1982).

8.4.26 The archaeological evidence also indicated that the construction and expansion of the glassworks broadly coincided with the formation of a number of domestic residences fronting onto Albion Street, Wainwrights Street, Albion Place and Wainwrights Yard (Figure 92). It is not unreasonable to assume that the expansion and construction of numerous glass and pottery works within Castleford in the second half of the 19th century was linked to a growth in population due to an increased labour force. This interpretation was supported by reference to the 1881 census for Wainwright Street which indicated that 18 of the 21 male residents questioned were employed within localised glass production (Appendix V). Furthermore, 15 of the 18 glass-workers resident on Wainwright Street, appeared to have been immigrants to Castleford, categorised as having a place of birth external to the town. It was also apparent that the employment trend set by Wainwright Street was not an isolated example of the close relationship between population expansion and industrialisation within Castleford. For example, the 19th century census data for Castleford also indicated that, simultaneous to the expansion in glass production and pottery manufacture, the population had expanded from 4365 residents in 1871 to 14143 residents by 1891. Therefore, the presence of the domestic residences, characterised by Building E, F, G, H and I, may serve to illustrate not only the speed of urban expansion in the town during the later 19th century but also highlighted the social impact of industrialisation upon Castleford.

8.5 20th Century phase

8.5.1 The presence of early 20th century demolition deposit (003) above the 19th century phase of activity indicates that the early 1900's was initially characterised by the decommissioning and eventual demolition of the glassworks site. Reference to the 1900 OS map, supports the archaeological evidence as the cartographic data indicates that glass-working Buildings A and C had been demolished prior to 1908 (Figure 94). Demolition of the glassworks was followed by an expansion of the yards south of the domestic residences fronting onto Albion Street (Figure 94). Interestingly, despite the rapid expansion of the yards during the early 1900's, reference to both the 1890 and 1950 maps indicate that the yards had contracted back to their original later 19th century extent by 1950 (Figure 92 & 94). Evidently, a period of fluid yard expansion, either associated with the domestic residences or a business, was occurring upon the site during the early half of the 20th century. Consequently, Building J has been attributed to the early 20th century phase of rapid yard expansion despite not appearing on any cartographic data. This is due to a number of factors. Notably, the use of cementitious mortar as a bonding material within walls (005) and (033) in addition to the recycled form of the constituent brick composition of yard surfaces (033), (190) and (196). Furthermore, the construction cuts for Building J, [307] and [188], truncate the interior surface (033) of 19th century glasshouse Building C.

8.5.2 As previously mentioned, the 1908 OS map indicated that the probable domestic residences fronting onto Wainwrights Yard, represented by Buildings E, F and G, survived the destruction of the glassworks in the later 19th/early 20th century. However, the cartographic data suggests that Building E, F and G were demolished prior to 1950 due to the apparent expansion of Wainwrights Yard. It was also evident from both the cartographic and archaeological data that Building K was constructed within the interior of Wainwrights Yard, at an unknown date between 1890 and 1908 (Figure 92 & 94). The function of Building K remains unclear but it may have operated as a store or garage until its destruction prior to the construction of the modern bus station in the 1960's. Similarly, the domestic residences, characterised by 19th century Buildings H and I remained present until they were also demolished preceding the construction phase of the modern bus station in the second half of the 20th century. It should be noted that during the early 20th century the terrace of houses at the eastern extent of Building I were also provided with drainage, by service pipe network F.097. It seems likely that service pipe F. 164 in Area A and F. 269 in Area B were also constructed at a roughly contemporaneous time and may all be representative of a period of localised early-mid 20th century drainage remodelling.

8.5.3 In summary, the 20th century activity was characterised by an initial period of rapid, but limited, yard expansion into the areas previously occupied by the glassworks. However, by the mid-20th century, the expanded yards had contracted to their pre-19th century extents and the terrace of domestic structures bordering Wainwrights Yard had been demolished. Furthermore, there is little evidence for major modification to the surviving 19th century buildings and limited development occurred upon the site of the glassworks from the early 1900's until the construction of the bus station in the 1960's. Consequently, the lack of 20th century activity on the site was likely representative of a period of rapid decline and dis-use potentially linked to the nationwide contraction of the glass-making industry during the later 19th and early 20th century. It is notable that Castleford had 10 major glass working centres by 1880 and was one of the largest glass production centres in the country (Gomersall, 2006). Therefore, it is reasonable to assume that the economy of the town was inextricably linked to the British glass production industry. It seems likely that the growth in strength of workers associations, coupled with aggressive overseas competition caused many English glassworks, inclusive of those in Castleford, to cease production and close by the later 19th and early 20th century.

8.5.4 As one writer to The Pottery Gazette in 1897 stated,

'... we have much to fear from Germany & Belgium; they have conquered us entirely; we have nursed the glass trade for its protection until there is little to protect…where we have failed in glass making is not from the want of talent but from adaptability; we have not adapted our labour and products to the want of the community nor have we adapted our make to the improvements of the time…'
(The Pottery Gazette, May 1897)

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APPENDIX I

Context register

1	Modern Tarmac
2	Red-crush levelling deposit
3	Demolition deposit
4	VOID
5	NE-SW red brick wall- Building C
6	Brick surface- Building C
7	Brick surface- Building C
8	Red brick wall- Building C
9	VOID
10	VOID
11	Red brick surface
12	Furnace Wall
13	Red brick surface- Building C
14	Red brick wall- Building C
15	Red brick surface- Building C
16	VOID
17	Red brick wall- Building C
18	Red brick surface- Building C
19	Red brick wall- Building E
20	VOID
21	Use deposit containing glass fragments overlying surface (018)- Building C
22	Glass production waste- Building C
23	Red brick wall- Building E
24	Make-up/Levelling deposit- Building E
25	Make-up/Levelling deposit- Building E
26	Red brick wall- Building E
27	Heat affected re-deposited natural within furnace (012)- Building C
28	Demolition cut/Grubbing out event above substructure of Building C
29	Bedding deposit for surface (015)- Building C
30	Contaminated natural substrate below Building E
31	Red brick wall- Building C
32	Red brick- Building C
33	Fire-brick surface- Building C
34	VOID
35	Modern truncation filled by (312)
36	Red brick surface- Building C
37	Red brick wall- Building C
38	Red brick wall- Building C

39	Red brick surface (Same as 033)- Building C
40	Red brick surface- Building C
41	Red brick wall- Building C
42	VOID
43	Clay bedding for (013) and (015)- Building C
44	Construction cut for furnace (012)- Building C
45	Sandstone edging for drain (047)
46	VOID
47	Drain
48	Construction cut for drain (047)
49	VOID
50	VOID
51	VOID
52	VOID
53	Cut for linear- Roman
54	Fill of linear [053]- Roman
55	VOID
56	VOID
57	Natural substrate- Yellow silty-clay
58	Cut of Beamslot- Roman
59	Fill of Beamslot [058]
60	Cut of pit- Roman
61	Fill of pit [060]
62	Cut of pit- Roman
63	Fill of pit [062]
64	Cut of linear- Roman
65	Fill of linear [064]
66	Red Brick Footings- Building K
67	VOID
68	VOID
69	VOID
70	Cut of linear; same as [119]
71	Fill of linear (070); same as (108)
72	VOID
73	VOID
74	Construction Cut- Building E
75	Backfill of [074]
76	VOID
77	Backfill in cut [048]
78	Greenish-brown Alluvium (same as 197)
79	VOID
80	Cut of Beamslot- Roman

81	Fill of [080]
82	Modern construction cut for bus station
83	Linear- Roman
84	Fill of linear [083]
85	Cut of linear- Roman
86	Fill of linear [085]
87	Cut of linear- Roman
88	Fill of linear [087]
89	Cut of Beamslot- Roman
90	Fill of beam slot [089]
91	Cut of linear- Roman
92	Fill of linear [091]
93	Construction cut for wall (095)
94	Backfill in [093]
95	Structure in [093]
96	Construction cut for drain
97	Fill of drain cut [096]
98	Cut of Beamslot- Roman
99	Fill of [098]
100	Red brick footings- Building K
101	VOID
102	Fill of linear [085]
103	VOID
104	VOID
105	Red Brick walls- Building H
106	VOID
107	Construction cut for (105)
108	Fill of [119]
109	VOID
110	VOID
111	VOID
112	Red Brick wall footing- Building E
113	Red Brick wall footing- Building E
114	Red Brick wall footing- Building E
115	Red Brick wall footing- Building E
116	VOID
117	Cut of ditch- Roman
118	Fill of ditch [117]
119	Linear filled by [108]
120	Foundation cut; same as [074]
121	VOID
122	Extension to flue (198)

123	VOID
124	VOID
125	VOID
126	VOID
127	Cut /foundation trench 066
128	Lower Alluvial Deposit
129	Re-deposited natural in ditch 119
130	Primary fill of ditch 119
131	Construction cut for 066
132	Cellar floor structure 105
133	Construction cut for 100
134	Void
135	Void
136	Concrete surface (interior)
137	Internal one skin red brick partition
138	Internal wall
139	2 skin red brick external wall
140	Internal partition
141	2 skin wall, modern structure
142	Construction foundation cut
143	Backfill/grey levelling clay in 142
144	2 skin red brick external wall
145	One skin red brick internal
146	Construction cut structure 144
147	Backfill in cut 146
148	2 skin red brick wall
149	Internal red brick one skin partition
150	Stone step
151	Red brick surface
152	Black gravely bedding
153	Use deposit glass
154	Fire brick surface
155	Fire clay paviour surface
156	Use deposit with spacers
157	Red brick surface
158	Bedding deposit
159	Construction cut for 160
160	2 skin external wall
161	2 skin red brick footings
162	One skin partition
163	Drain cut
164	Fill of drain

165	Cut of Roman ditch
166	Fill of Roman ditch [165]
167	Construction cut 162, 161, 160
168	Construction cut cellar 169
169	Cellar with ramp
170	2 skin red brick wall
171	Red brick surface
172	Green sand bedding
173	Backfill in construction 168
174	Ash and charcoal-rich deposit; frequent glass inclusions
175	Red brick cellar remodelling
176	Later red brick cellar floor
177	Fill of drain
178	Cut of 177 in basement
179	Surface in building 144
180	Sooty usage deposit in cellar 169
181	Stone paving ramp
182	Spacer/biscuit ware bedding 018
183	Mortar bedding for surface 018
184	Re-deposited natural/levelling deposit s. 018
185	Cut sub-oval pit under 184
186	Fill of 185
187	Surface butting 188
188	Structure, one skin red brick wall
189	Construction cut 188
190	Surface (interior) butting 188
191	Production waste /demo ceramics used as bedding 190
192	Levelling clay below 191, 193
193	Chimney base
194	Demo in chimney base cut 195
195	Cut for chimney base
196	Red brick surface
197	Buried land surface below furnace; same as 078
198	Flue base
199	Flue
200	Flue
201	Construction cut for flue 199
202	Construction cut flue 200
203	Heat affected/ buried land surface sandy clay
204	Construction cut 193
205	Red brick 2 skin wall footings
206	Construction cut for 205

207	Red brick surface associated with passage 176; also contains fire-brick
208	Re-used fire-brick surface raised
209	Red brick consolidation structure
210	Red brick consolidation structure
211	Latest/uppermost clay fill in 185
212	Cut of large pit at NE of site
213	Fill of 212
214	Cut of pit
215	Fill of pit 214
216	Construction cut for 217
217	Structure, 19th C cellar below 136
218	Backfill in construction cut 216
219	Surface – cellar 217
220	Void
221	Void
222	Red brick wall
223	Red brisk surface
224	Red brick surface
225	Cobbles above mortar 226
226	Mortar deposit /bedding for 225
227	Red brick surface
228	2 skin red brick wall
229	Red brick surface
230	Cut of possible Bell pit
231	Poorly sorted shale fill of 230
232	Clay flue lining 199
233	2 skin red brick wall bordering chimney base 193
234	Demo/spacer biscuit wall deposit
235	Surface associated with 207, 208
236	Ditch
237	Cut of ditch 235; post-medieval
238	Clay flue lining 200
239	Void
240	Modern, possible robber cut
241	Deliberate backfill of 240
242	Demolition layer
243	Demolition layer
244	Surface (compacted) in furnace 012
245	Heat affected natural or flue lining
246	Slag deposit associated with furnace 012
247	Ash deposit associated with furnace 012
248	Construction cut 014

249	Backfill in cut 248
250	Demolition layer associated with basement 169
251	Demolition layer associated with flue 199
252	Demolition layer associated with flue 200
253	Modern pit
254	Brick rubble fill of pit 253
255	Shallow heavily truncated ditch
256	Secondary fill of ditch 255
257	2x skin red brick wall
258	Construction cut for 257
259	Construction cut for 233
260	Modern Truncation related to bus station construction
261	Construction cut for C.20th manhole 141
262	Landscaping event for the construction of structures (112), (113), (114), (115), (137), (138), (139)
263	C.20th Demolition deposit
264	Construction cut for C.19th services
265	Fill of cut [264]
266	Brick Foundation pillar in sub-structure (169)
267	Brick surface
268	Truncating cut through surface 267
269	Fill of [268]
270	2x skin red brick wall
271	Construction cut for wall 270
272	Deposit abutting wall 270
273	Black gravelly silt demolition deposit
274	Foundation cut for surface 267
275	Backfill of construction cut [274]
276	Construction cut for drain
277	Backfill of construction cut [276]
278	Construction cut for drain
279	Early 19th century drain
280	Construction cut for early 19th century drain
281	19th century drain in cut [280]
282	Backfill of construction cut [280]
283	Service cut
284	Fill of service cut [283]
285	Service cut
286	Fill of service cut [285]
287	Redeposited natural
288	East to west orientated Romano-British linear
289	Fill of linear [288]

290	Romano-British pit
291	Fill of pit [290]
292	Cut of pit
293	Fill of pit [292]
294	Black silty fill of pit [295]
295	Square Romano-British pit cut
296	Bedding clay for surface 267
297	Post-medieval overburden layer
298	Cut for capping/prospection event
299	Fill of [298]
300	Fill of 18th century drain 279
301	Backfill in drain 279
302	Capping of drain 279
303	Cut of Romano-British pit
304	Fill of pit [303]
305	Modern tarmac surface- Area. B
306	Modern concrete raft overlain by (305)
307	Construction cut for wall (005)
308	Construction cut of Building F
309	Partition wall in Building H
310	Partition wall in Building H
311	Partition wall in Building H
312	Red crush fill of [035]- same as (002)
313	Fill of construction cut [260]
314	Fill of construction cut [082]

Appendix II

Photographic registers

Black/white

Shot No.	Direction	Scale	Context numbers	Description
1.	-	-	-	Id shot
2.	SW	2m	024, 025, 026	NE facing section of 026, foundation
3.	NE	2m	024, 025, 026	SW facing section of 026, foundation
4.	SE	2x2m	018, 035	Shot of surface 018, modern truncation 035
5.	SE	2x2m	018, 035	Shot of surface 018, modern truncation 035
6.	SE	2x2m	013, 014, 015	Shot of surface 015, 013, and wall 014
7.	SE	2x2m	013, 014, 015	Shot of surface 015, 013, and wall 014
8.	NE	2x2m	027, 029	Furnace, 012, 029
9.	NE	2x2m	027, 029	Furnace, 012, 029
10.	NW	2x2m	006, 007, 037, 038	Surface 006, 007, 037, 038
11.	NW	2x2m	006, 007, 037, 038	Surface 006, 007, 037, 038
12.	SW	2x2m	011, 005, 008	Shot of surface 011, and walls 005, 008
13.	SW	2x2m	011, 005, 008	Shot of surface 011, and walls 005, 008
14.	NE	2x2m	036, 008, 005	Surface 036, structure 008, 005, 040
15.	NE	2x2m	036, 008, 005	Surface 036, structure 008, 005, 040
16.	E	2m	062, 060, 066	Section through ditches 062, 060
17.	E	2m	062, 060, 066	Section through ditches 062, 060
18.	E	2m	062, 060, 066	Section through ditches 062, 060
19.	SE	1m	120, 015	Surface 015, foundation cut 120
20.	SE	1m	120, 015	Surface 015, foundation cut 120
21.	E	2x2m	066	Foundations/footings 066
22.	E	2x2m	066	Foundations/footings 066
23.	NE	2m	060, 062	SW facing section of pits 061, 063
24.	NE	2m	060, 062	SW facing section of pits 061, 063
25.	SW	1m	108, 111, 119	NE facing section of features 111 and 108
26.	SW	1m	108, 111, 119	NE facing section of features 111 and 108
27.	SW	1m	087, 088	NE facing section of ditch 088
28.	SW	1m	087, 088	NE facing section of ditch 088
29.	NE	2x2m	112, 113, 114	Shot of footings 112, 113
30.	NE	2x2m	112, 113, 114	Shot of footings 112, 113
31.	SW	1m	108, 119	Linear 108
32.	SW	1m	108, 119	Linear 108
33.	SW	2m	083	Section through ditch

34.	SW	2m	083	Section through ditch
35.	NW	2m	045, 047	Shot of drain 047 with modern truncation
36.	NW	2m	045, 047	Shot of drain 047 with modern truncation
37.	SE	2x2m	105	Structure 105
38.	SE	2x2m	105	Structure 105
39.	E	2m	112, 113, 118	Linear 118
40.	E	2m	112, 113, 118	Linear 118
41.	E	-	117, 118	W facing section through linear 117
42.	E	-	117, 118	W facing section through linear 117
43.	SE	2x2m	019, 026	Structure 019
44.	SE	2x2m	019, 026	Structure 019
45.	SE	0.25m	098	Section through T-shaped beam slot
46.	SE	0.25	060, 102	Relationship slot of pit 060 and layer 102
47.	NE	2m	100	Wall 100
48.	SE	1m	059, 081	Beam slots 059, 081
49.	S	1m	095	Wall 095
50.	NE	-	-	Services in east of site
51.	NE	2x2m	096	Drains 096 truncating shot
52.	NE	2x2m	096	Drains 096 truncating shot
53.	W	2m	013, 083, 085	E-facing relationship section ditches 083, 085
54.	W	2m	013, 083, 085	E-facing relationship section ditches 083, 085
55.	SW	2x2m	115, 137, 138	Overview of structures
56.	SE	2m	115	Wall 115
57.	SE	2m	137	Wall 137
58.	SW	2m	138	Wall 138
59.	SW	2x2m	139, 140, 141	Overview of structures
60.	NW	2m	139, 140	Structures 139, 140
61.	NW	2m	141	Structure 141
62.	SW	2x2m	148, 149, 150	Structure
63.	SE	2x2m	144, 145	Structure
64.	SE	2x2m	144, 145	Structure
65.	E	2x2m	019	Structure
66.	E	2x2m	019	Structure
67.	SE	2x2m	157	Surface 157
68.	SE	2x2m	157	Surface 157
69.	SE	1m	157, 174	Location of 174 on surface 157
70.	SE	1m	157, 174	Location of 174 on surface 157
71.	NE	2m	155, 156	Location of 156 on surface 155
72.	NE	2m	155, 156	Location of 156 on surface 155
73.	NE	1m, 2m	154	Firebrick surface 154

74.	NE	1m, 2m	154	Firebrick surface 154
75.	SE	1m, 2m	165	Pre-ex ditch 165
76.	SE	1m, 2m	165	Pre-ex ditch 165
77.	SE	1m, 2m	169, 172, 175, 176	Basement 169
78.	SW	1m, 2m	169, 172	Basement 169
79.	NE	1m	169, 175	Relationship of structures in basement
80.	E	1m	169, 175	Relationship of structures in basement
81.	SE	1m, 2m	169, 175	Extent of basement construction cut 168
82.	NW	1m, 2m	172, 176	Surfaces in basement 169
83.	SE	1m	165	Section across ditch
84.	NW	0.25	165	Section across ditch terminus
85.	NE	2x2m	028	Truncation demo cut 028
86.	NE	2x2m	028	Truncation demo cut 028
87.	S	2x2m	193	Surface (chimney base) 193
88.	E	2x2m	190, 196	Surface, section
89.	E	2x2m	190, 196	Surface, section
90.	SE	2x2m	190, 196	Plan of surfaces 190, 196
91.	SE	2x2m	190, 196	Plan of surfaces 190, 196
92.	SW	2x2m	198, 203	Heat affected surface and flue
93.	SE	2m	176	Basement surfaces
94.	SW	2x2m	176	Basement surfaces
95.	SW	2x2m	176	Basement surfaces
96.	SE	2x2m	176	Basement surfaces
97.	SE	2m	185	Large modern pit
98.	SE	2m	019, 025	Section through structures and layers
99.	SW	2m	193	Wall and levelling deposit
100.	NW	2m	188	Wall and levelling deposit
101.	SE	2m	217	Basement overview
102.	NW	1m	230	Bell pit
103.	E	2x2m	217, 222	Surfaces
104.	N	2x2m	217, 222	Surfaces
105.	NE	1m	096, 169	Service trench 096 cutting wall 169
106.	SW	2m	233	Wall and levelling deposit
107.	NW	2x2m	199, 200, 203	Flues 200 and 199, heat affected buried land surface
108.	NW	2x2m	199, 200, 203	Flues 200 and 199, heat affected buried

				land surface
109.	NW	2x2m	199, 200, 203	Flue 200 and heat affected buried land surface
110.	NW	2x2m	199, 200, 203	Flue 200 and heat affected buried land surface
111.	NWN	2x2m	199, 200, 203	Flue 200 and heat affected buried land surface
112.	NWN	2x2m	199, 200, 203	Flue 200 and heat affected buried land surface
113.	NE	2x2m	199, 200, 203	Flue 200 and heat affected buried land surface
114.	SE	2x2m	199, 200, 203	Flue 200 and heat affected buried land surface
115.	SE	2x2m	199, 200, 203	Flue 200 and heat affected buried land surface
116.	SE	2x2m	229	Surface 229
117.	N	2x2m	193, 205	Wall 205 and chimney sub-structure 193
118.	N	2x2m	193, 205	Wall 205 and chimney sub-structure 193
119.	NW	1m	236	Ditch 236
120.	SE	2m	012, 027	Section through furnace base 012 and heat affected deposit
121.	SE	2m	012, 027	Section through furnace base 012 and heat affected deposit
122.	SE	2m	200, 238	Flue section
123.	SE	2x2m	199, 232	Flue section
124.	NW	1m	230, 231	Bell pit
125.	NW	1m	253	Modern brick filled pit
126.	SE	0.25	255	Possible RB ditch
127.	SE	1m	255	Possible RB ditch
128.	SE	1m	255	Possible RB ditch
129.	SW	1m	229	Structure

Digital

Shot No.	Direction	Scale	Context numbers	Description
1.	-	-	-	Id shot
2.	SW	2m	024, 025, 026	NE facing section of 026, foundation
3.	NE	2m	024, 025, 026	SW facing section of 026, foundation
4.	SE	2x2m	018, 035	Shot of surface 018, modern truncation 035
5.	SE	2x2m	018, 035	Shot of surface 018, modern truncation 035
6.	SE	2x2m	013, 014, 015	Shot of surface 015, 013, and wall 014

7.	SE	2x2m	013, 014, 015	Shot of surface 015, 013, and wall 014
8.	NE	2x2m	027, 029	Furnace, 012, 029
9.	NE	2x2m	027, 029	Furnace, 012, 029
10.	NW	2x2m	006, 007, 037, 038	Surface 006, 007, 037, 038
11.	NW	2x2m	006, 007, 037, 038	Surface 006, 007, 037, 038
12.	SW	2x2m	011, 005, 008	Shot of surface 011, and walls 005, 008
13.	SW	2x2m	011, 005, 008	Shot of surface 011, and walls 005, 008
14.	NE	2x2m	036, 008, 005	Surface 036, structure 008, 005, 040
15.	NE	2x2m	036, 008, 005	Surface 036, structure 008, 005, 040
16.	E	2m	062, 060, 066	Section through ditches 062, 060
17.	E	2m	062, 060, 066	Section through ditches 062, 060
18.	E	2m	062, 060, 066	Section through ditches 062, 060
19.	SE	1m	120, 015	Surface 015, foundation cut 120
20.	SE	1m	120, 015	Surface 015, foundation cut 120
21.	E	2x2m	066	Foundations/footings 066
22.	E	2x2m	066	Foundations/footings 066
23.	NE	2m	060, 062	SW facing section of pits 061, 063
24.	NE	2m	060, 062	SW facing section of pits 061, 063
25.	SW	1m	108, 111, 119	NE facing section of features 111 and 108
26.	SW	1m	108, 111, 119	NE facing section of features 111 and 108
27.	SW	1m	087, 088	NE facing section of ditch 088
28.	SW	1m	087, 088	NE facing section of ditch 088
29.	NE	2x2m	112, 113, 114	Shot of footings 112, 113
30.	NE	2x2m	112, 113, 114	Shot of footings 112, 113
31.	SW	1m	108, 119	Linear 108
32.	SW	1m	108, 119	Linear 108
33.	SW	2m	083	Section through ditch
34.	SW	2m	083	Section through ditch
35.	NW	2m	045, 047	Shot of drain 047 with modern truncation
36.	NW	2m	045, 047	Shot of drain 047 with modern truncation
37.	SE	2x2m	105	Structure 105
38.	SE	2x2m	105	Structure 105
39.	E	2m	112, 113, 118	Linear 118
40.	E	2m	112, 113, 118	Linear 118
41.	E	-	117, 118	W facing section through linear 117
42.	E	-	117, 118	W facing section through linear 117
43.	SE	2x2m	019, 026	Structure 019
44.	SE	2x2m	019, 026	Structure 019
45.	SE	0.25m	098	Section through T-shaped beam slot
46.	SE	0.25	060, 102	Relationship slot of pit 060 and layer 102
47.	NE	2m	100	Wall 100

48.	SE	1m	059, 081	Beam slots 059, 081
49.	S	1m	095	Wall 095
50.	NE	-	-	Services in east of site
51.	NE	2x2m	096	Drains 096 truncating shot
52.	NE	2x2m	096	Drains 096 truncating shot
53.	W	2m	013, 083, 085	E-facing relationship section ditches 083, 085
54.	W	2m	013, 083, 085	E-facing relationship section ditches 083, 085
55.	SW	2x2m	115, 137, 138	Overview of structures
56.	SE	2m	115	Wall 115
57.	SE	2m	137	Wall 137
58.	SW	2m	138	Wall 138
59.	SW	2x2m	139, 140, 141	Overview of structures
60.	NW	2m	139, 140	Structures 139, 140
61.	NW	2m	141	Structure 141
62.	SW	2x2m	148, 149, 150	Structure
63.	SE	2x2m	144, 145	Structure
64.	SE	2x2m	144, 145	Structure
65.	E	2x2m	019	Structure
66.	E	2x2m	019	Structure
67.	SE	2x2m	157	Surface 157
68.	SE	2x2m	157	Surface 157
69.	SE	1m	157, 174	Location of 174 on surface 157
70.	SE	1m	157, 174	Location of 174 on surface 157
71.	NE	2m	155, 156	Location of 156 on surface 155
72.	NE	2m	155, 156	Location of 156 on surface 155
73.	NE	1m, 2m	154	Firebrick surface 154
74.	NE	1m, 2m	154	Firebrick surface 154
75.	SE	1m, 2m	165	Pre-ex ditch 165
76.	SE	1m, 2m	165	Pre-ex ditch 165
77.	SE	1m, 2m	169, 172, 175, 176	Basement 169
78.	SW	1m, 2m	169, 172	Basement 169
79.	NE	1m	169, 175	Relationship of structures in basement
80.	E	1m	169, 175	Relationship of structures in basement
81.	SE	1m, 2m	169, 175	Extent of basement construction cut 168

82.	NW	1m, 2m	172, 176	Surfaces in basement 169
83.	SE	1m	165	Section across ditch
84.	NW	0.25	165	Section across ditch terminus
85.	NE	2x2m	028	Truncation demo cut 028
86.	NE	2x2m	028	Truncation demo cut 028
87.	S	2x2m	193	Surface (chimney base) 193
88.	E	2x2m	190, 196	Surface, section
89.	E	2x2m	190, 196	Surface, section
90.	SE	2x2m	190, 196	Plan of surfaces 190, 196
91.	SE	2x2m	190, 196	Plan of surfaces 190, 196
92.	SW	2x2m	198, 203	Heat affected surface and flue
93.	SE	2m	176	Basement surfaces
94.	SW	2x2m	176	Basement surfaces
95.	SW	2x2m	176	Basement surfaces
96.	SE	2x2m	176	Basement surfaces
97.	SE	2m	185	Large modern pit
98.	SE	2m	019, 025	Section through structures and layers
99.	SW	2m	193	Wall and levelling deposit
100.	NW	2m	188	Wall and levelling deposit
101.	SE	2m	217	Basement overview
102.	NW	1m	230	Bell pit
103.	E	2x2m	217, 222	Surfaces
104.	N	2x2m	217, 222	Surfaces
105.	NE	1m	096, 169	Service trench 096 cutting wall 169
106.	SW	2m	233	Wall and levelling deposit
107.	NW	2x2m	199, 200, 203	Flues 200 and 199, heat affected buried land surface
108.	NW	2x2m	199, 200, 203	Flues 200 and 199, heat affected buried land surface
109.	NW	2x2m	199, 200, 203	Flue 200 and heat affected buried land surface
110.	NW	2x2m	199, 200, 203	Flue 200 and heat affected buried land surface
111.	NWN	2x2m	199, 200, 203	Flue 200 and heat affected buried land surface
112.	NWN	2x2m	199, 200, 203	Flue 200 and heat affected buried land surface
113.	NE	2x2m	199, 200, 203	Flue 200 and heat affected buried land surface
114.	SE	2x2m	199, 200, 203	Flue 200 and heat affected buried land surface
115.	SE	2x2m	199, 200, 203	Flue 200 and heat affected buried land

				surface
116.	SE	2x2m	229	Surface 229
117.	N	2x2m	193, 205	Wall 205 and chimney sub-structure 193
118.	N	2x2m	193, 205	Wall 205 and chimney sub-structure 193
119.	NW	1m	236	Ditch 236
120.	SE	2m	012, 027	Section through furnace base 012 and heat affected deposit
121.	SE	2m	012, 027	Section through furnace base 012 and heat affected deposit
122.	SE	2m	200, 238	Flue section
123.	SE	2x2m	199, 232	Flue section
124.	NW	1m	230, 231	Bell pit
125.	NW	1m	253	Modern brick filled pit
126.	SE	0.25	255	Possible RB ditch
127.	SE	1m	255	Possible RB ditch
128.	SE	1m	255	Possible RB ditch
129.	SW	1m	229	Structure
130.	NW	2x2m	267	Brick yard surface
131.	SE	2x2m	267	Brick yard surface
132.	NE	2m	265, 270	Wall and lead pipe
133.	NE	1m	267, 274	Brick surface and foundation cut
134.	NE	1m	267, 274	Brick surface and foundation cut
135.	NE	1m	268	Pipe trench
136.	NE	-	268	Pipe trench
137.	N	2x2m	278, 279, 281	18th century drain
138.	E	2m	279	18th century drain
139.	E	1m	281	18th century drain
140.	E	1m	281	18th century drain
141.	S	1m	279, 294	Drain 279
142.	E	1m	297, 298	Cut 298 and post-medieval layer 297
143.	SW	1m	288, 292	Section through gully and pit
144.	NW	1m	279	Drain, post-excavation
145.	NW	1m	279	Drain, post-excavation
146.	NW	1m	269	Drain cut
147.	E	1m	269	Drain cut
148.	E	1m	269	Drain cut
149.	NW	1m	289, 291	Section through gully and pit
150.	NW	1m	289, 291	Section through gully and pit
151.	W	1m	303, 304	Excavated section pit

Appendix III

Drawings Register

Drawing number	Scale	Description and context numbers
1.	1:20	N facing section through foundation cut 120 and 015
2.	1:20	SW facing section of footings 066 and pits 061, 063
3.	1:20	S facing section of ditch 087 and 088
4.	1:20	N facing section of ditch 119 and 108
5.	1:20	SW facing section of ditches 054 and 056 and footings 066
6.	1:20	W facing section of ditch 084 and 083
7.	1:20	W facing section of ditch 086 and drain 097
8.	1:20	N facing section of beam slot 059
9.	1:20	N facing section of beam slot 081
10.	1:10	SE facing section of pit 060 and layer 102; relationship slot
11.	1:10	Various directional section showing beam slot 099
12.	1:10	S facing section of beam slot 099
13.	1:10	W facing section of beam slot 099
14.	1:20	SW facing section of ditches 083, 085, 134; relationship slot
15.	1:10	W facing section across ditch 117
16.	1:10	W facing section across ditch terminus 117
17.	1:50	NW facing section of pit 185
18.	1:20	NW facing section of furnace 012, 027 and building 013 and 014
19.	1:10	W facing section of Roman ditch 166
20.	1:10	N facing section of Roman ditch 118
21.	1:20	Bell pit 230
22.	1:10	RB ditch 255
23.	1:20	Section through drain 279 and F.299
24.	1:20	Plan of drain 279
25.	1:10	E-facing section pit F.293 and F.289
26.	1:10	W-facing section pit F.291 and linear F.289
27.	1:10	E-facing section pit F.304

Appendix IV

Levels Register (expressed in metres aOD)

	Reduced level	CONTEXT
1.	16.46	Wall 005
2.	16.60	Wall 005
3.	16.64	Wall 005
4.	16.44	Surface 040
5.	16.50	Surface 040
6.	16.34	Fire-brick surface 033
7.	16.28	Fire-brick surface 033
8.	16.32	Brick surface 006
9.	16.44	Brick surface 006
10.	16.42	Wall 037
11.	16.42	Wall 037
12.	16.40	Brick surface 007
13.	16.48	Brick surface 011
14.	16.45	Brick surface 011
15.	16.24	Wall 012
16.	16.44	Wall 012
17.	16.14	Heat-affected buried landsurface 027
18.	16.40	Redbrick surface 013
19.	16.39	Redbrick surface 013
20.	16.56	Redbrick surface 013
21.	16.26	Redbrick wall 014
22.	16.52	Structure 017
23.	16.60	Redbrick Structure 041
24.	16.52	Deposit 022
25.	16.46	Deposit 022
26.	16.49	Deposit 022
27.	16.48	Deposit 022
28.	16.50	Redbrick surface 018
29.	16.40	Redbrick surface 018
30.	16.42	Redbrick surface 018
31.	16.46	Wall 019
32.	16.44	Wall 019
33.	16.45	Structure with cellar 026
34.	16.45	Structure with cellar 026
35.	16.26	Structure with cellar 026
36.	16.40	Structure with cellar 026
37.	15.84	Levelling deposit 030

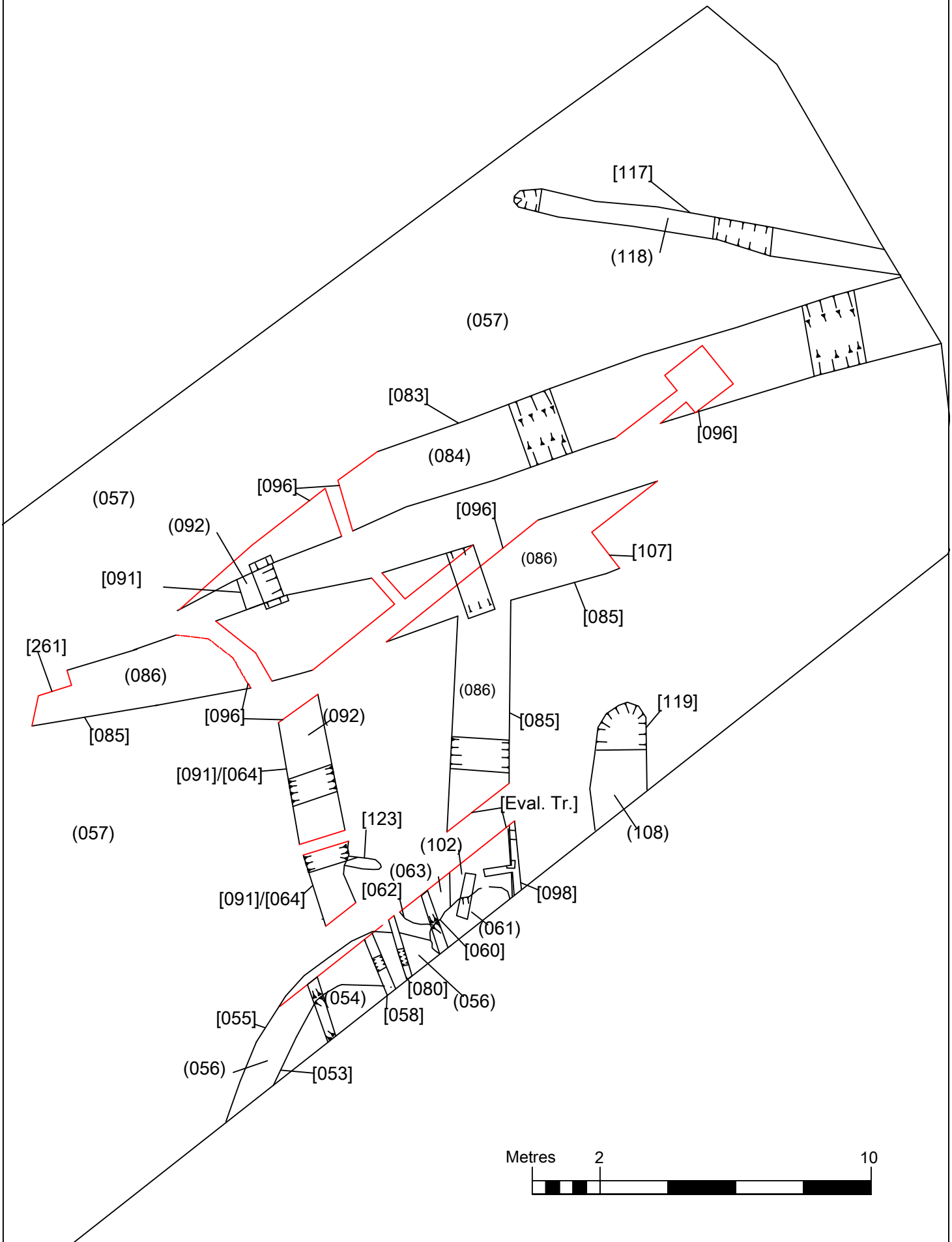
38.	16.55	Structure 045
39.	16.37	Fill 056
40.	16.72	Structure 066
41.	16.93	Structure 100
42.	16.44	Structure 095
43.	16.38	Fill 097
44.	16.43	Fill 097
45.	16.73	Structure 2
46.	16.49	Fill 118
47.	16.79	Structure 105
48.	15.64	Cellar floor structure 132
49.	16.73	Structure 112
50.	16.79	Structure 113
51.	16.62	Structure 114
52.	16.39	Fill 108
53.	16.62	Structure 139
54.	16.50	Structure 141
55.	16.41	Drain 096
56.	16.55	Structure 144
57.	16.38	Surface 119
58.	16.49	Structure 148
59.	16.44	Surface 151
60.	16.39	Surface 157
61.	15.96	Fill 166
62.	16.27	Surface 155
63.	15.97	Structure 169
64.	15.33	Surface 171
65.	15.23	Surface 176
66.	15.85	Surface 181
67.	16.91	Wall 100
68.	16.01	Surface 219
69.	15.97	Top of pit 212
70.	15.24	Bottom of pit 212
71.	15.70	Bell pit 230
72.	16.14	Top of pit 185
73.	15.45	Bottom of pit 185
74.	15.53	Surface 176 (SE)
75.	16.04	Wall 210
76.	15.92	Wall 209
77.	15.89	Surface 208
78.	16.00	Surface 207
79.	16.55	Surface 187

80.	16.60	Surface 190
81.	16.39	Wall 233
82.	15.93	057 at base of 233
83.	16.13	Chimney substructure 193
84.	16.24	Flue base 198
85.	16.25	Deposit 203
86.	16.56	Surface 223
87.	16.58	Surface 196
88.	16.47	Surface 224
89.	16.53	Surface 227
90.	16.58	Deposit 225 (SW)
91.	16.25	Flue 200
92.	16.29	Flue 199
93.	16.28	Surface 229
94.	16.00	Top of pit 253
95.	15.65	Bottom of pit 253
96.	15.79	Top of 189
97.	15.43	Bottom of 189
98.	16.42	Top of 165
99.	16.13	Bottom of 165
100.	16.28	Top of 255
101.	16.19	Bottom of 255
102.	16.02	Top of ditch terminus 237
103.	15.71	Bottom of ditch terminus 237
104.	16.36	Furnace 12 section
105.	17.97	Section F267
106.	18.01	Section F267
107.	18.01	Wall 270
108.	18.01	Cut 268
109.	18.02	Deposit 272
110.	18.22	Deposit 272
111.	17.73	String line DWG#23
112.	17.72	String line DWG#23
113.	17.53	Drain 281
114.	17.66	Deposit 294
115.	17.65	F269
116.	17.99	Wall 270
117.	17.64	F291 top
118.	17.36	F291 bottom
119.	17.59	F289 top
120.	17.51	F289 bottom
121.	17.63	F293 top

122.	17.59	F293 bottom
123.	17.68	287 Alluvium
124.	17.70	Service 286 top
125.	17.29	Service 286 bottom
126.	17.01	Drain 269 bottom
127.	17.75	Section line F268
128.	17.65	Section line F291
129.	17.63	String line F293
130.	17.52	String line F304

Appendix V- 1881 Census, Wainwright Street, Castleford, West Yorkshire

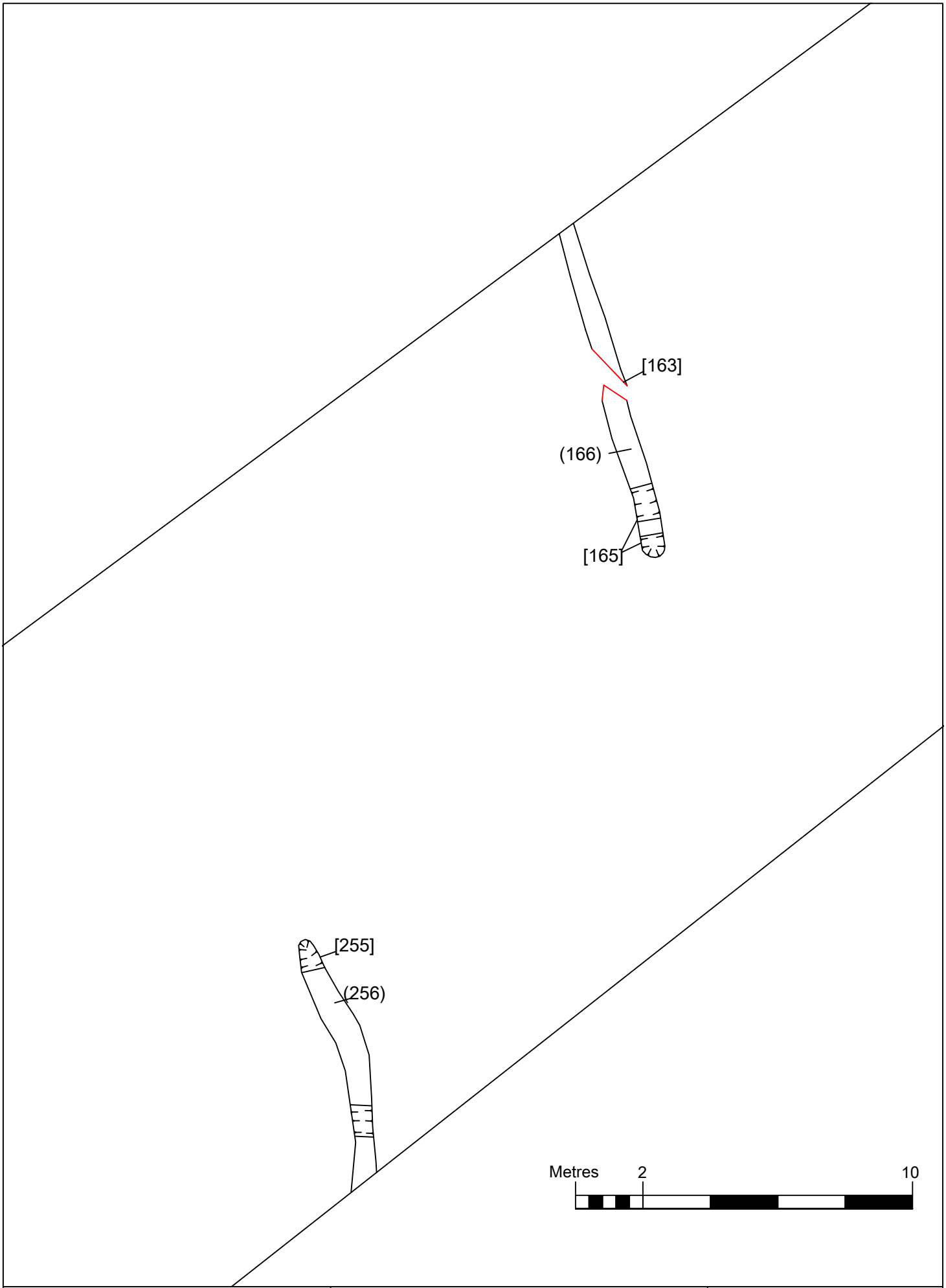
Name	Address	Occupation	Age
Henry Cobbs	2 Wainwright St	Blacksmith	41
George Ash	2 Wainwright St	Glass Blower	25
William. Hy. Cobbs	2 Wainwright St	Glass Works Labourer	15
John Chapel	4 Wainwright St	Glass House Founder	52
Henry Chapel	4 Wainwright St	Glass Blower	21
Thomas Carbutt	5 Wainwright St	Glass Blower	21
Thomas Gomersall	6 Wainwright St	Glass Founder	40
George. T. Gomersall	6 Wainwright St	Glass Works Labourer	15
Ben Williamson	6 Wainwright St	Glass Blower	60
Samuel Lund	12 Wainwright St	Glass Blower	37
Alfred Hanson	13 Wainwright St	Glass Blower	19
Robert Hanson	13 Wainwright St	Glass Blower	15
Dick Hodgson	14 Wainwright St	Apprentice Glass Works	16
Thomas Smith	15 Wainwright St	Labourer Glass Works	25
Joseph Chapell	17 Wainwright St	Glass Blower	25
Samuel Hayward	18 Wainwright St	Coal miner	64
John .W.H.Hayward	18 Wainwright St	Coal Miner	20
James Appleyard	19 Wainwright St	Glass Blower	37
Geo. Schofield	19 Wainwright St	Glass Blower	27
Will. Winterbottom	19 Wainwright St	Glass Blower	30
George.W.Masterman	Wainwright St	Glass Blower	25



Title: Figure 80 - Plan of Roman features at NE extent of Area A
Scale:1:150 @ A4
Drawn: RL

Key: - Truncation

N



Title: Figure 81- Plan of Roman features at SW extent of Area A
Scale:1:150 @ A4
Drawn: RL

Key:

N

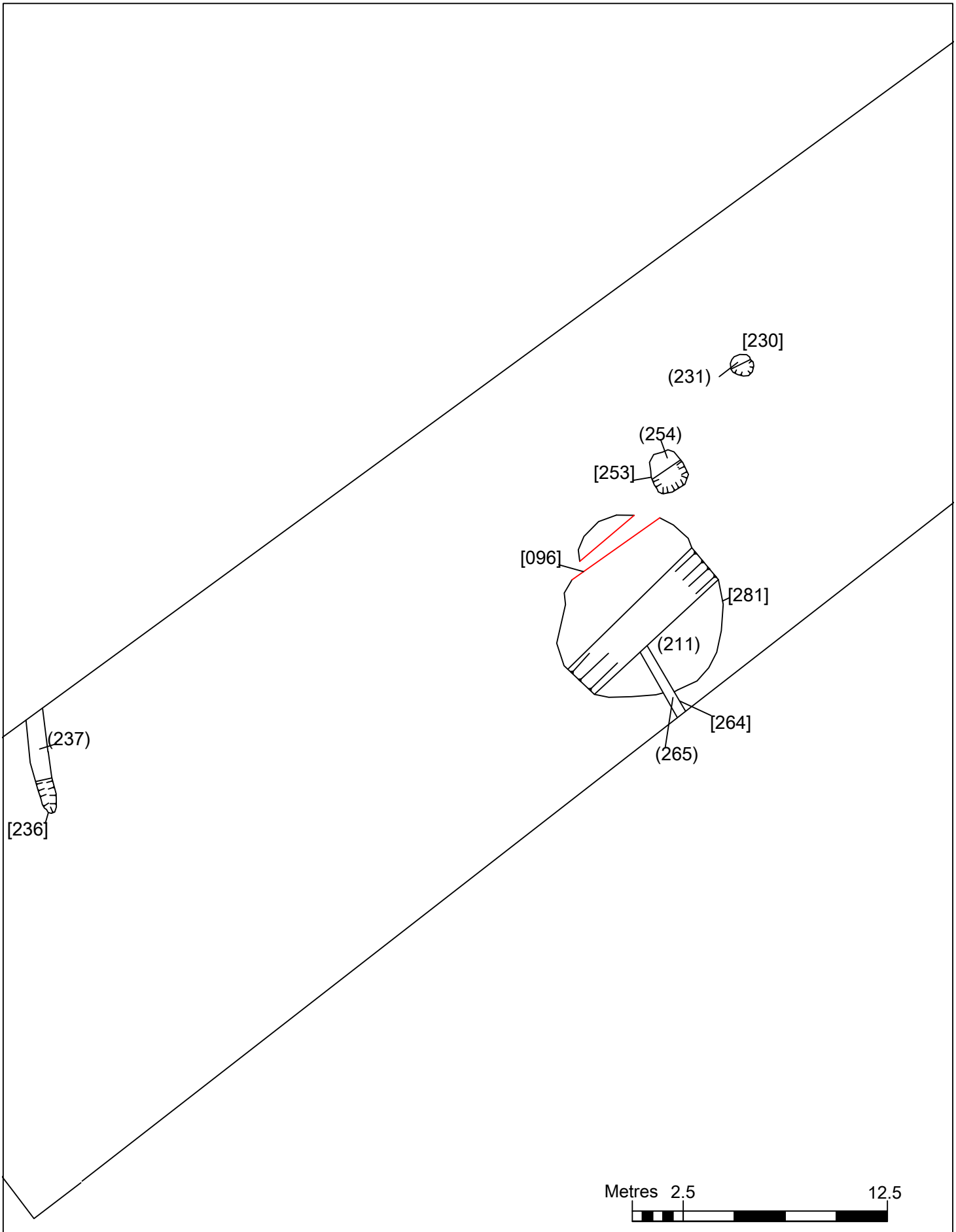


Figure 82- Post-Medieval Features within Area. A
Scale:1:250 @ A4
Drawn:RL

Key: - Truncation

N

Figure 83 - Plan of Late 19th Century Features in Area. A
Scale: 1:250 @ A3
Drawn: RL

Key:

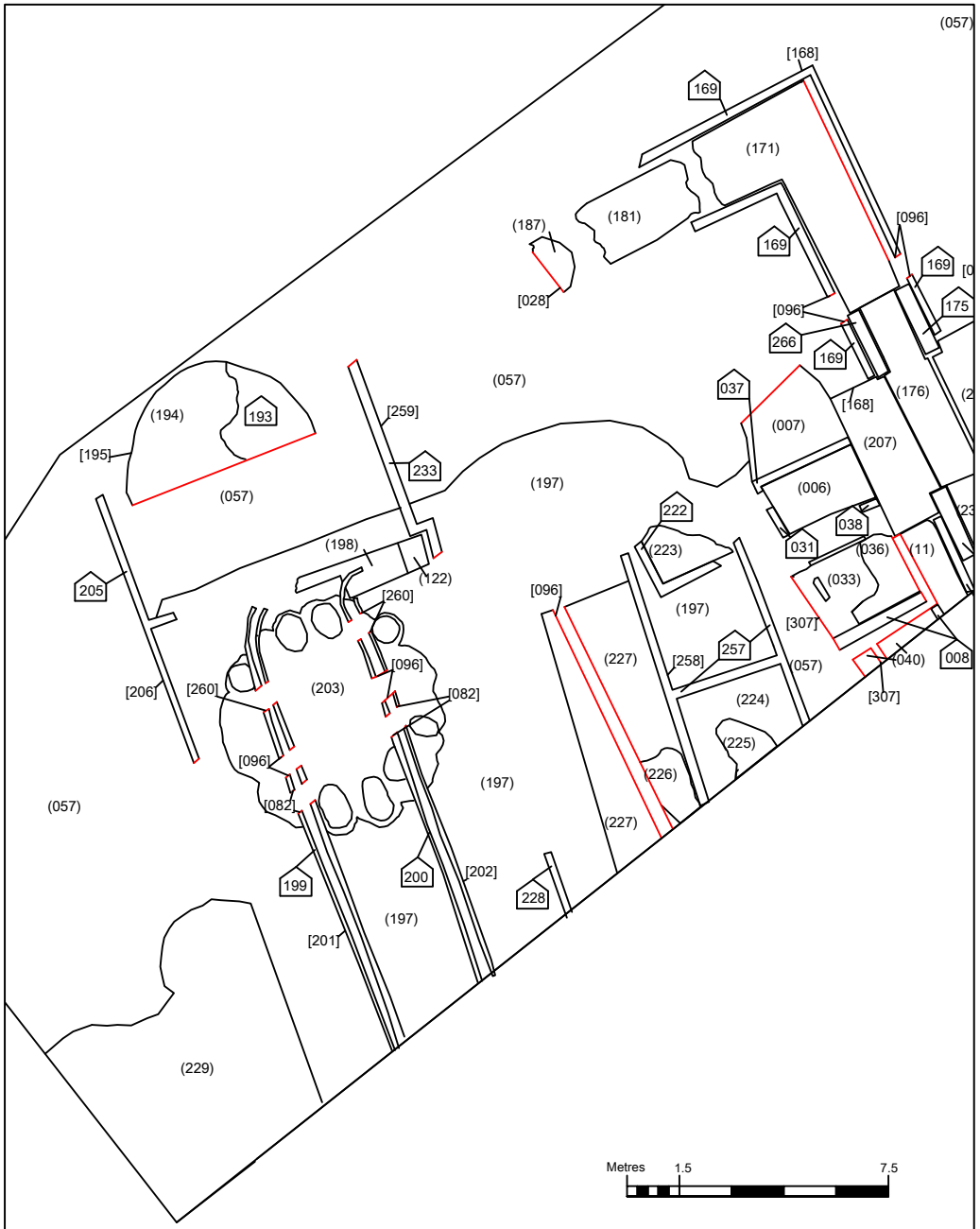


Figure 84 - Plan of Late 19th Century Features in SW corner of Area A
Scale:1:150 @ A4
Drawn: RL

Key: ——— - Truncation

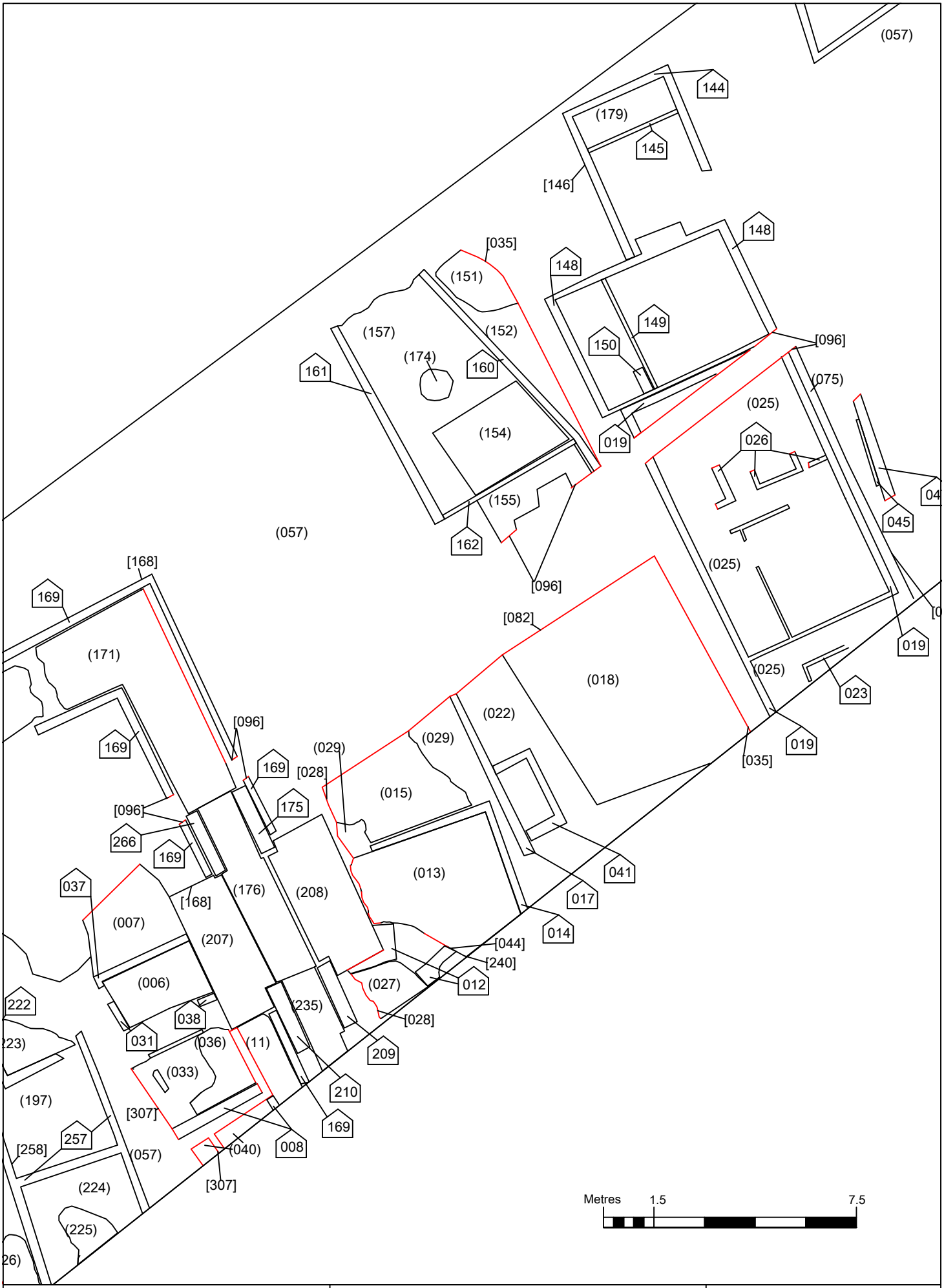


Figure 85- Plan of Late 19th Century Features in the centre of Area A
Scale:1:150 @ A4
Drawn: RL

Key: ——— - Truncation

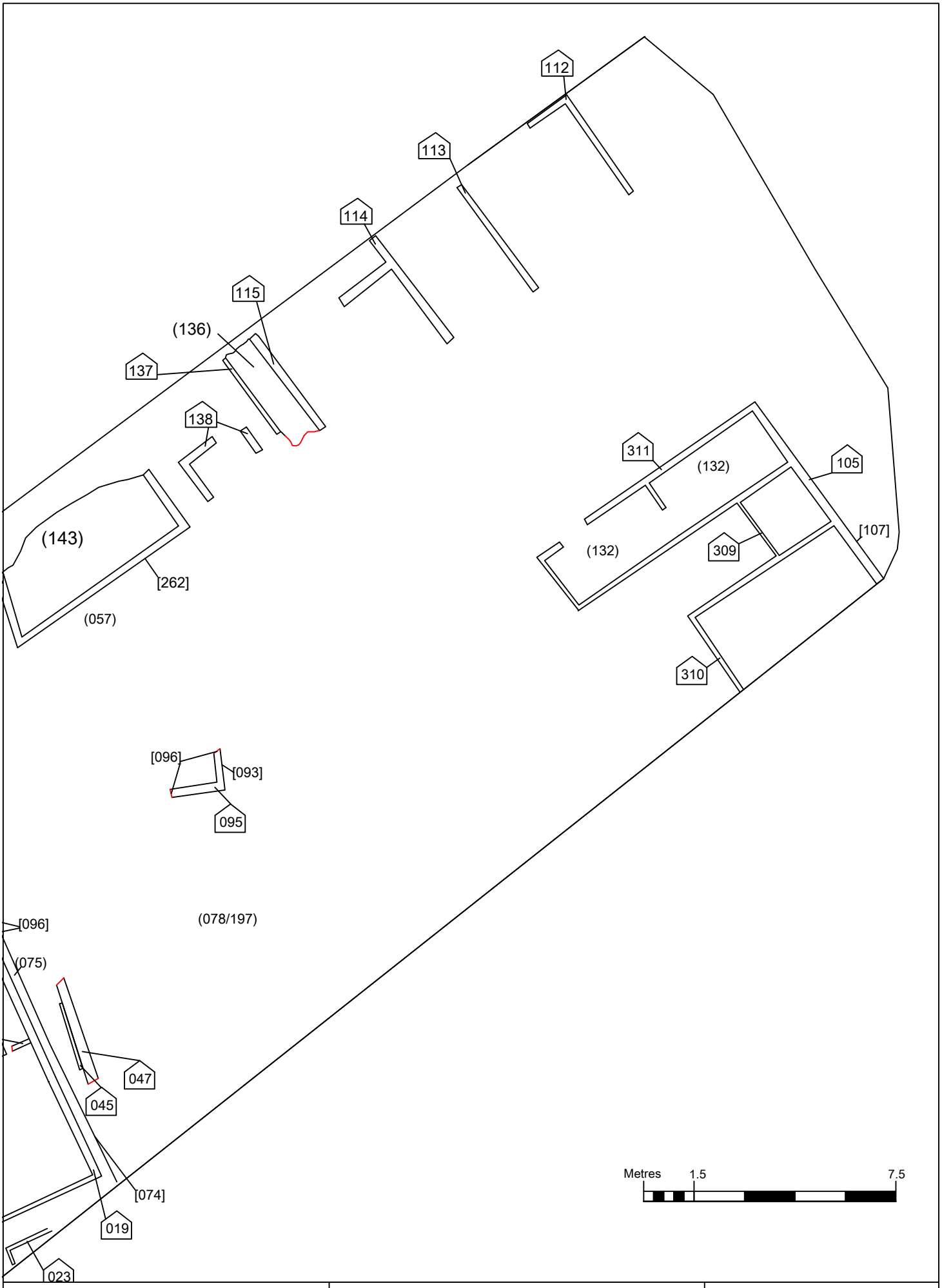


Figure 86 - Plan of Late 19th Century Features in NE corner of Area A
Scale: 1:150 @ A4
Drawn: RL

Key: ——— - Truncation

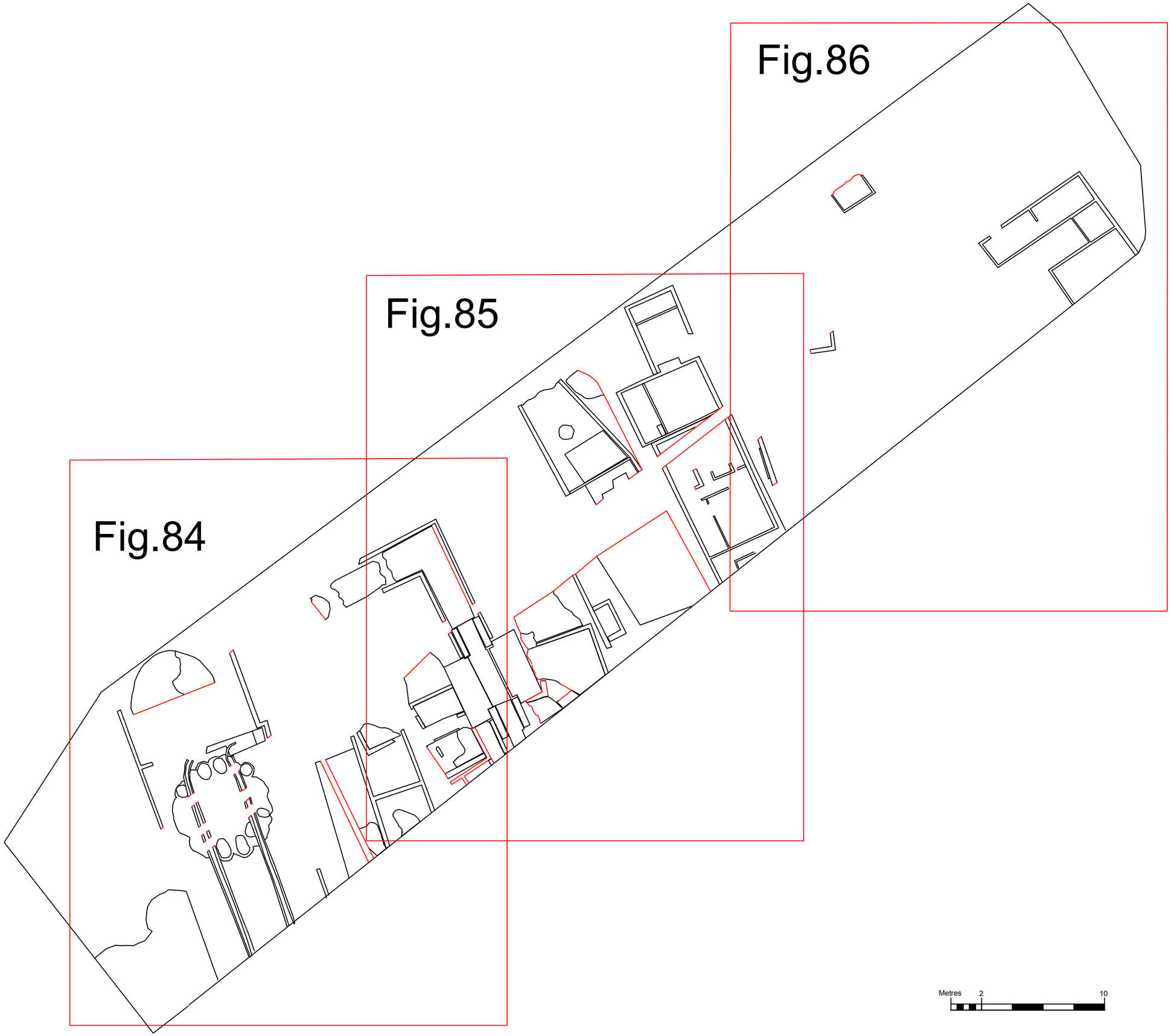
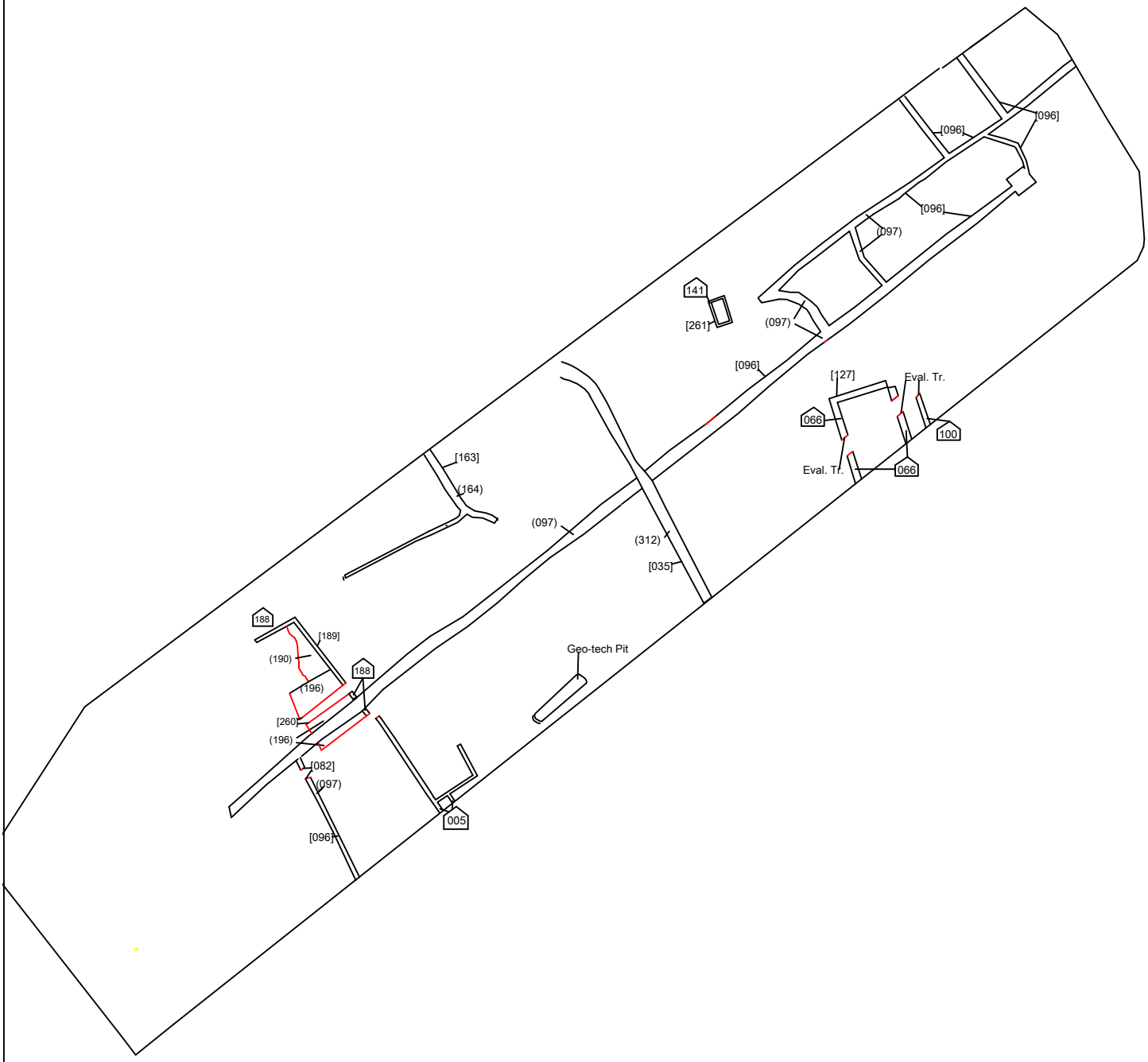


Figure 87- Late 19th Century Figure Locations within Area A
Scale:1:250
Drawn: RL

Key:

N

Metres 2 10



Title: Figure 88- 20th Century Features in Area A
Scale:1:400 @ A4
Drawn: RL

Key:

N

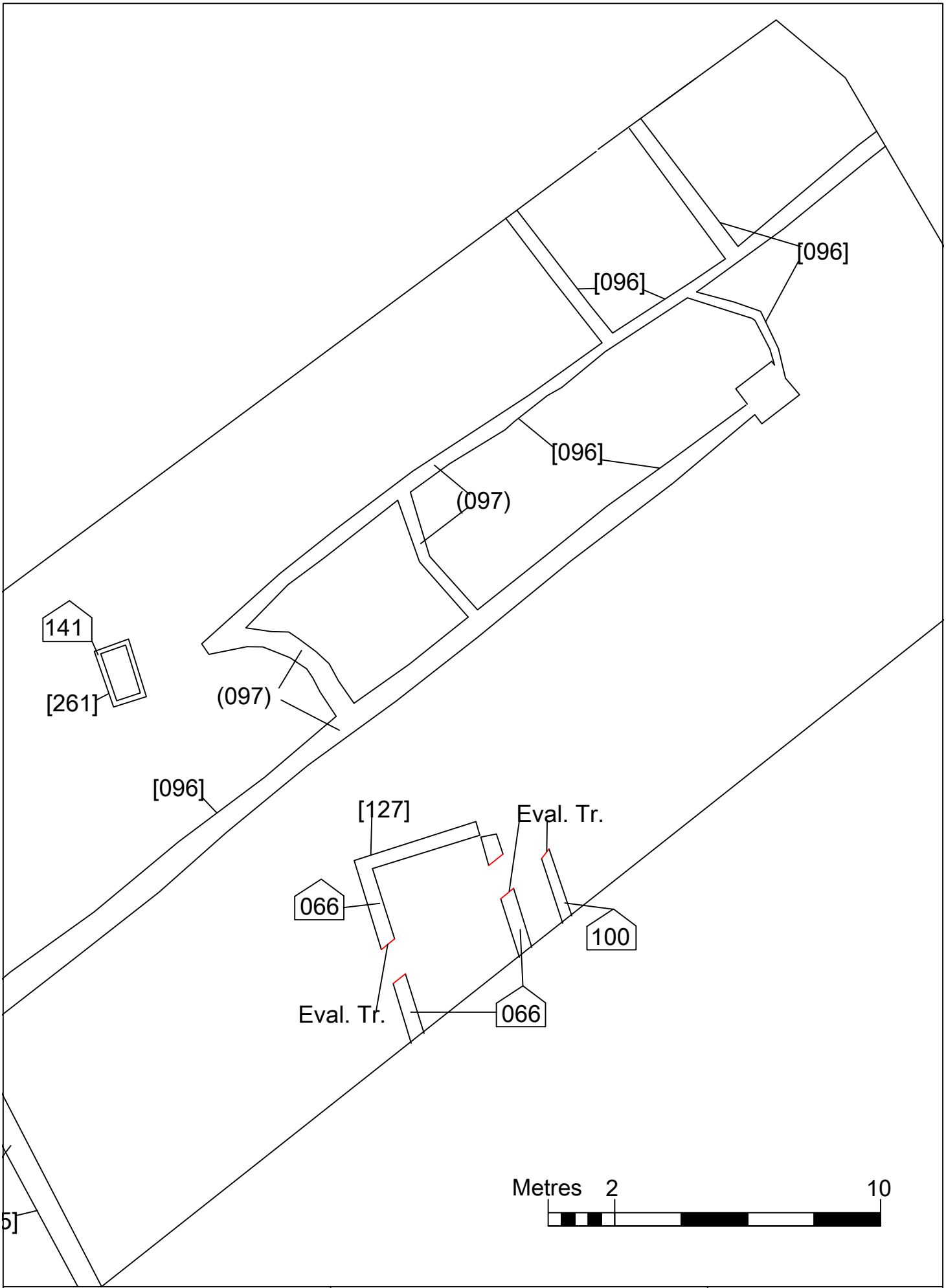


Figure 89- 20th Century features at NW extent of Area A
Scale:1:150 @ A4
Drawn by- RL

Key: - Truncation

N

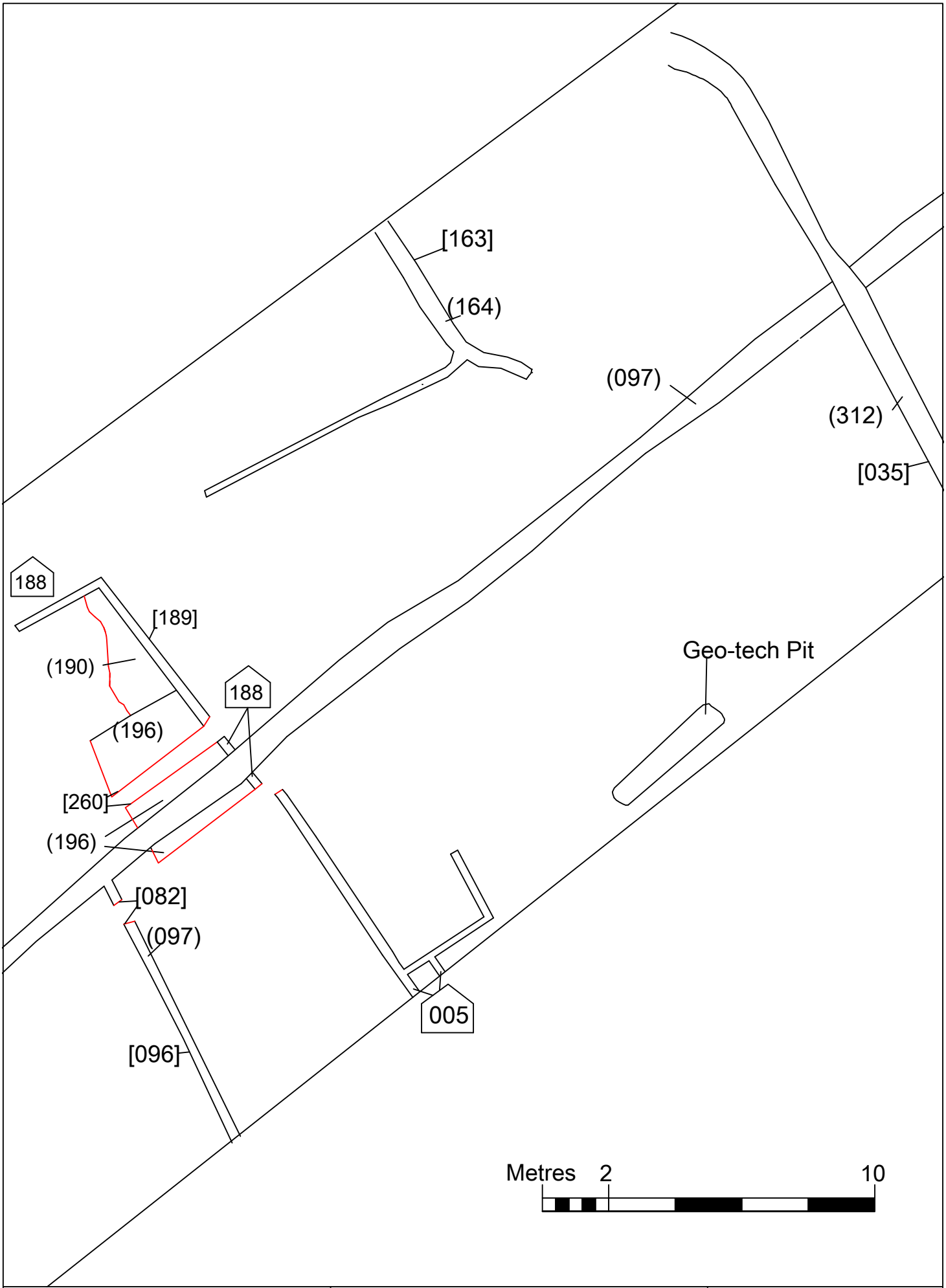


Figure 90- Plan of 20th Century Features
at SW extent of Area. A
Scale:1:150 @ A4
Drawn: RL

Key: ——— - Truncation

N

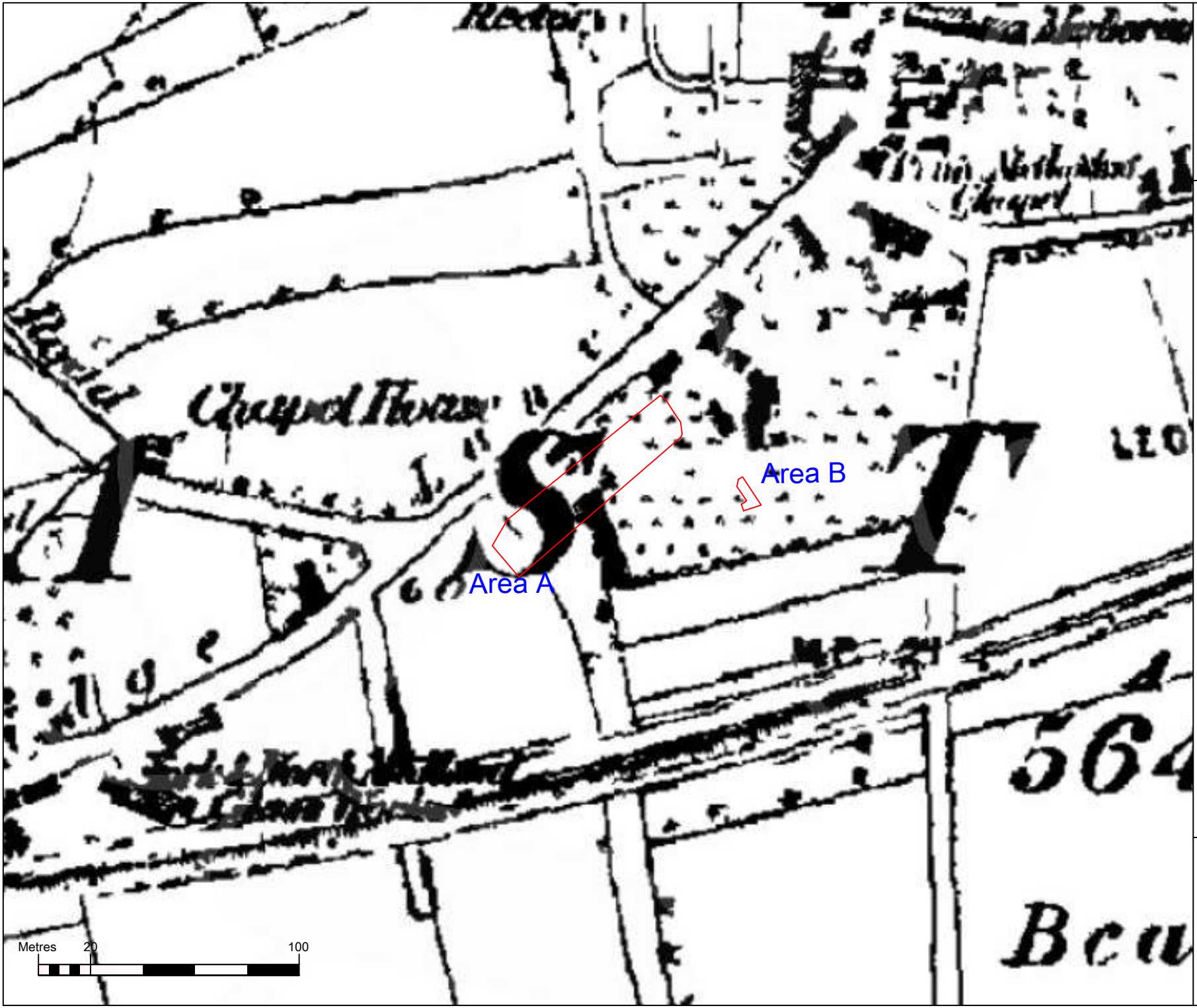


Figure 91 - Location Areas A and B with 1852 OS Map Overlay
Scale: 1:2000 @ A4
Drawn: RL

Key:

N

Figure 92- Plan of Excavated Features
with 1890's OS Map Overlay
Scale: 1:250 @ A3
Drawn: RL

Key:

N

Figure 93- Plan of excavated features in Area A and B with 1890's OS Map Overlay
Scale: 1:250 @ A3
Drawn: RL

Key:

N

Metres 2 10

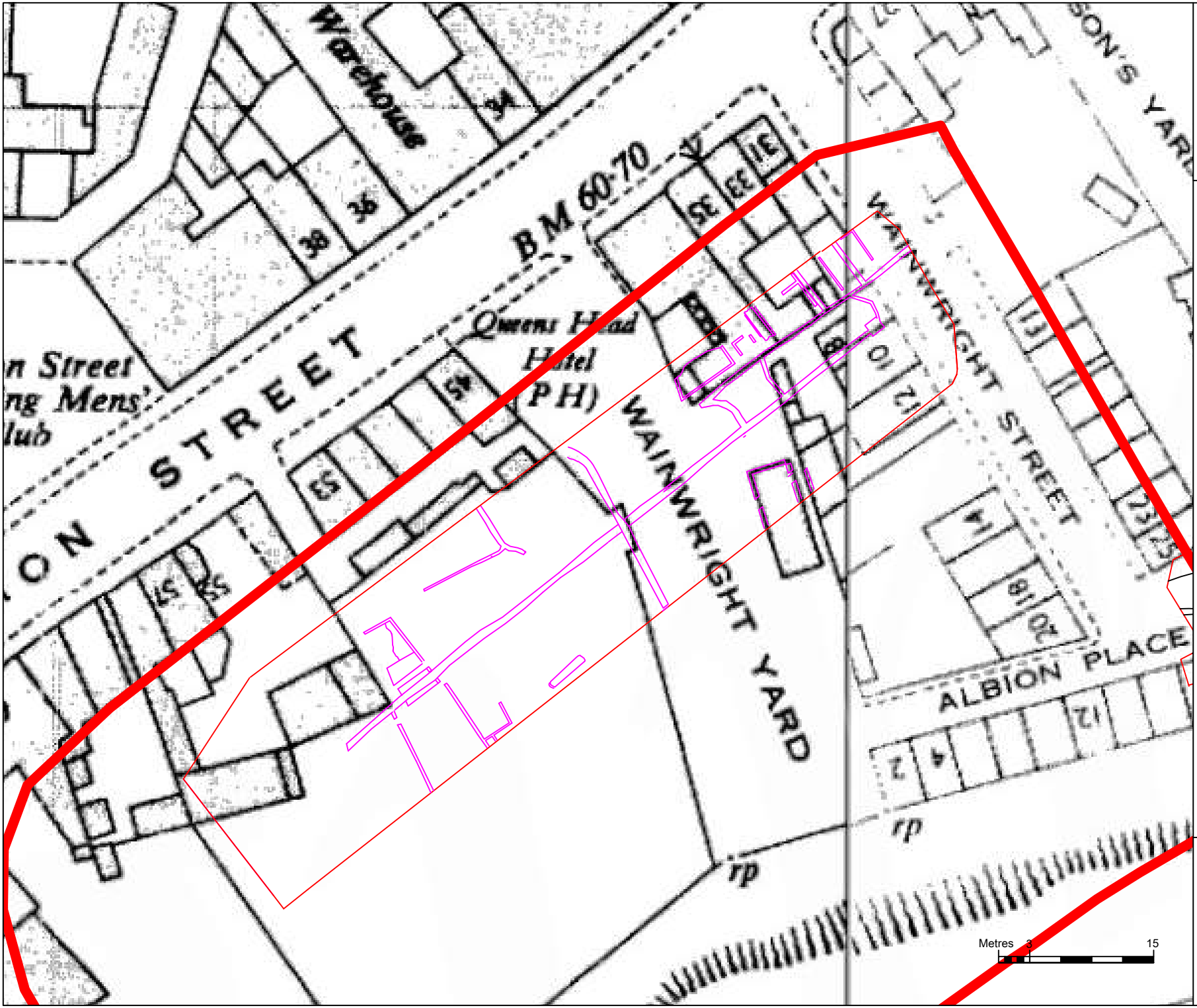


Figure 94- Plan of Excavated Features with 1900's OS Map Overlay
Scale: 1:500 @ A4
Drawn: RL

Key:

N

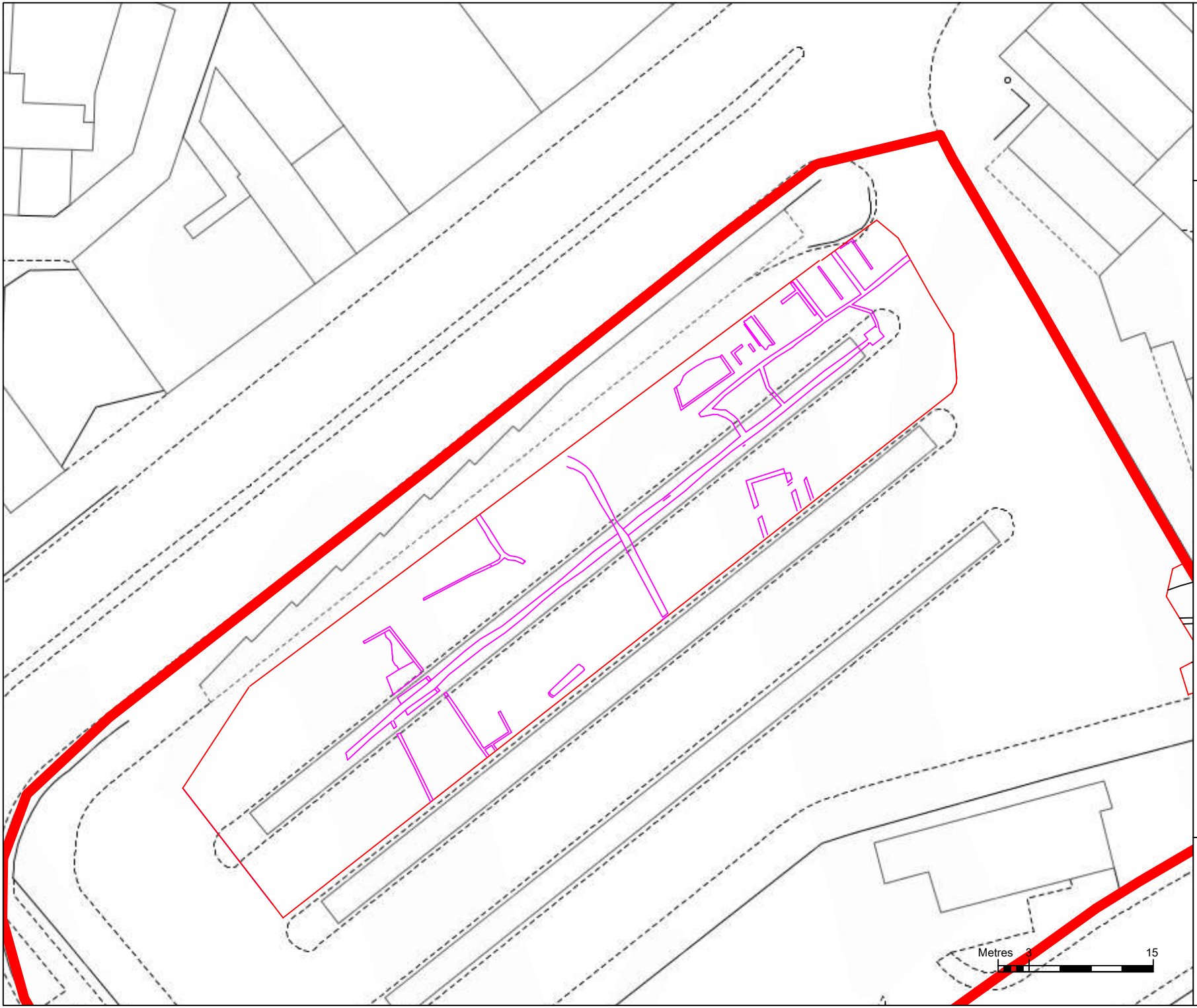


Figure 95- Plan of Excavated Features with 1960's OS Map Overlay
Scale: 1:500 @ A4
Drawn: RL

Key:

N

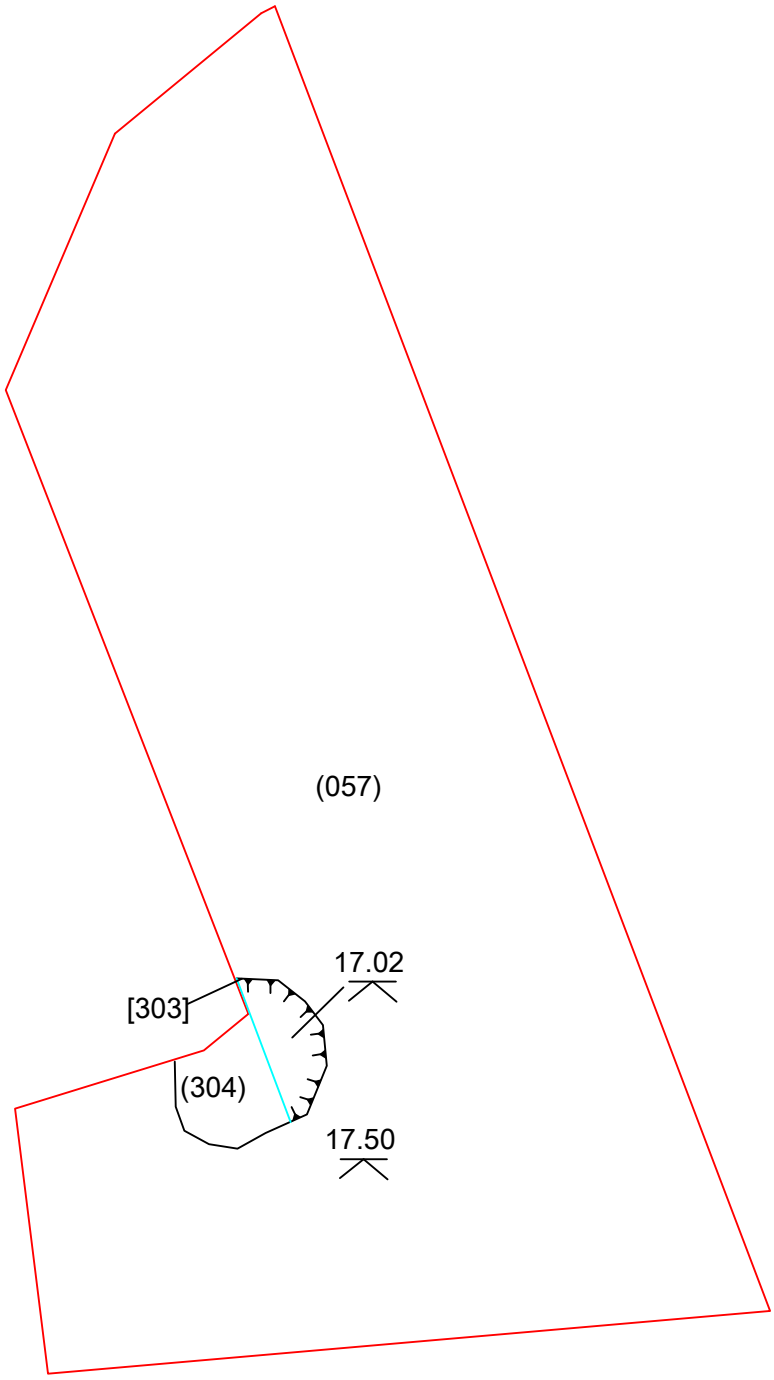
Figure 96 - Building Location Plan
Scale:1:250 @ A3
Drawn: RL

Key:

- Building A
- Building B
- Building C
- Building D
- Building E
- Building F
- Building G
- Building H
- Building I
- Building J
- Building K

N

Metres 4 20



Metres 1 5

Figure 97- Roman Pit sealed by Alluvial Deposit (287)- Area B at 17.50m aOD
Scale: 1:75 @ A4
Drawn: RL

Key: Sondage

N

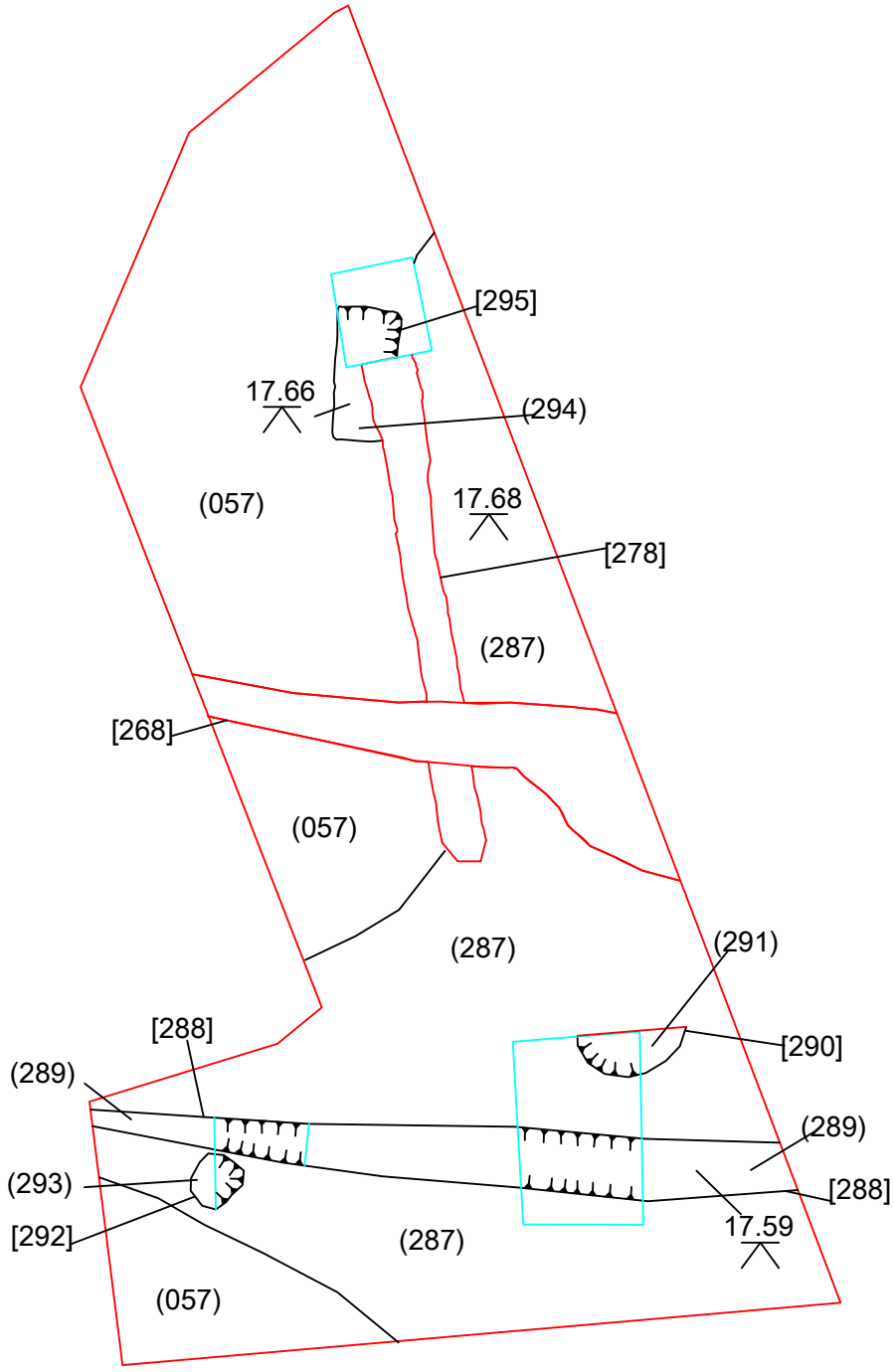
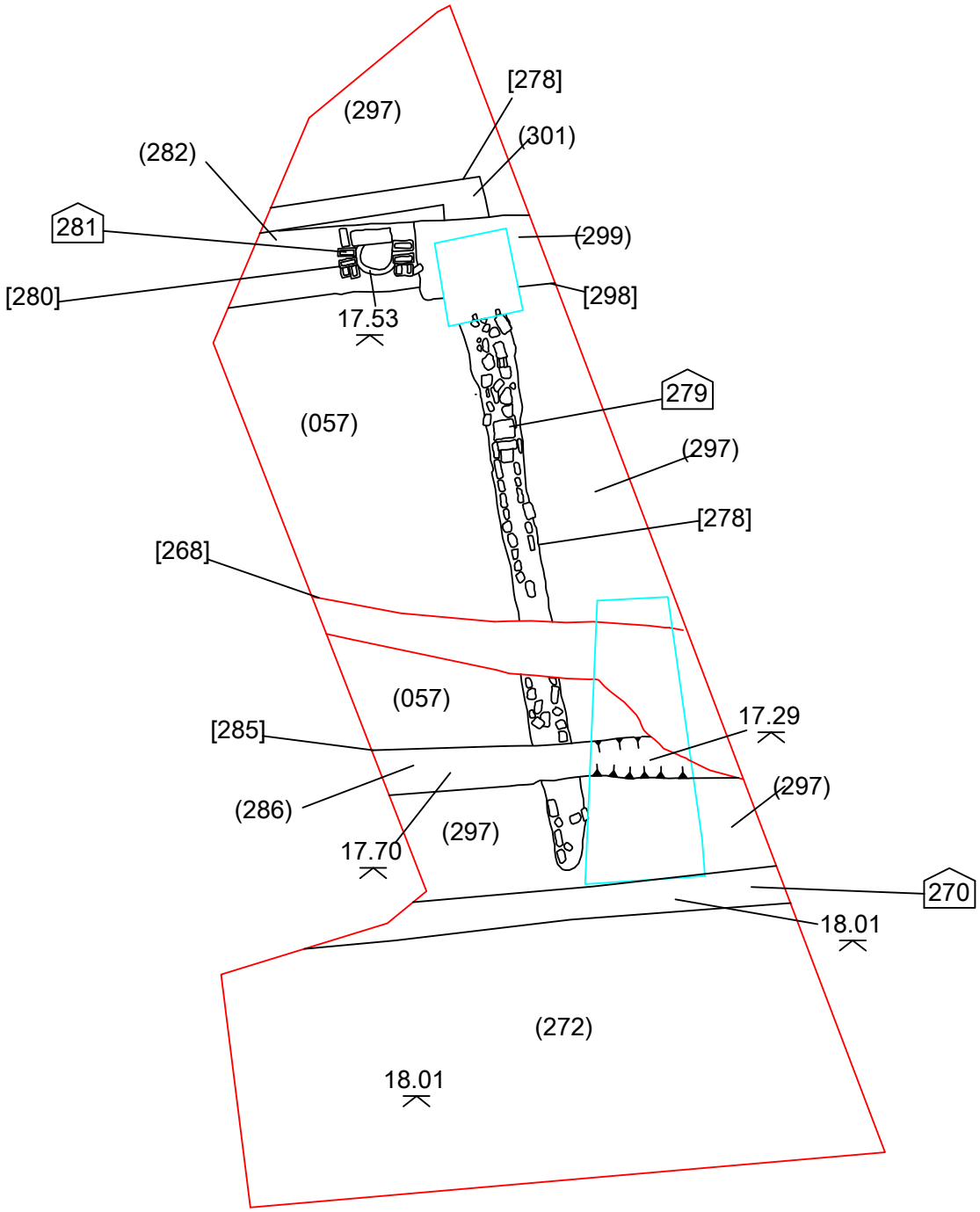


Figure 98- Roman Features truncating Alluvial Deposit (287) at 17.68m aOD - Area B
Scale: 1:50 @ A4
Drawn: RL

Key:
Sondage
Truncation

N



Metres 1 5

Figure 99- Services predating Late 19th Century Surface (267) at 18.00m aOD- Area B
Scale: 1:75 @ A4
Drawn: RL

Key: Truncation
Sondage

N

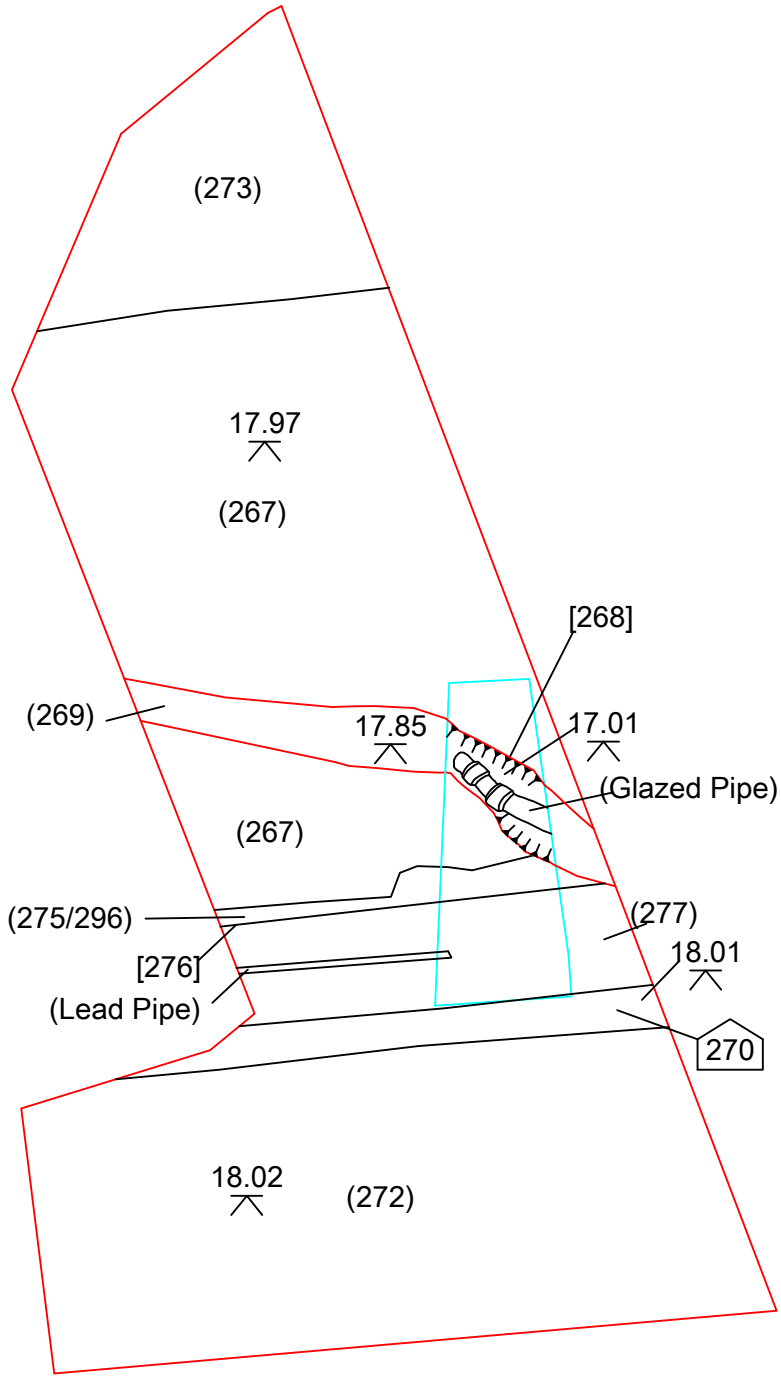


Figure 100- Late 19th Century Surface (267) and assoicated Features at 18.02m aOD - Area B
Scale: 1:75 @ A4
Drawn: RL

Key:
Sondage
Truncation

N

Figure 101- NW Facing Section through Furnace (012)
Scale:1:25 @ A3
Drawn: RL

Key:

BR- Brick Fragments

North-west facing section through furnace structure (012) and associated surface (013)

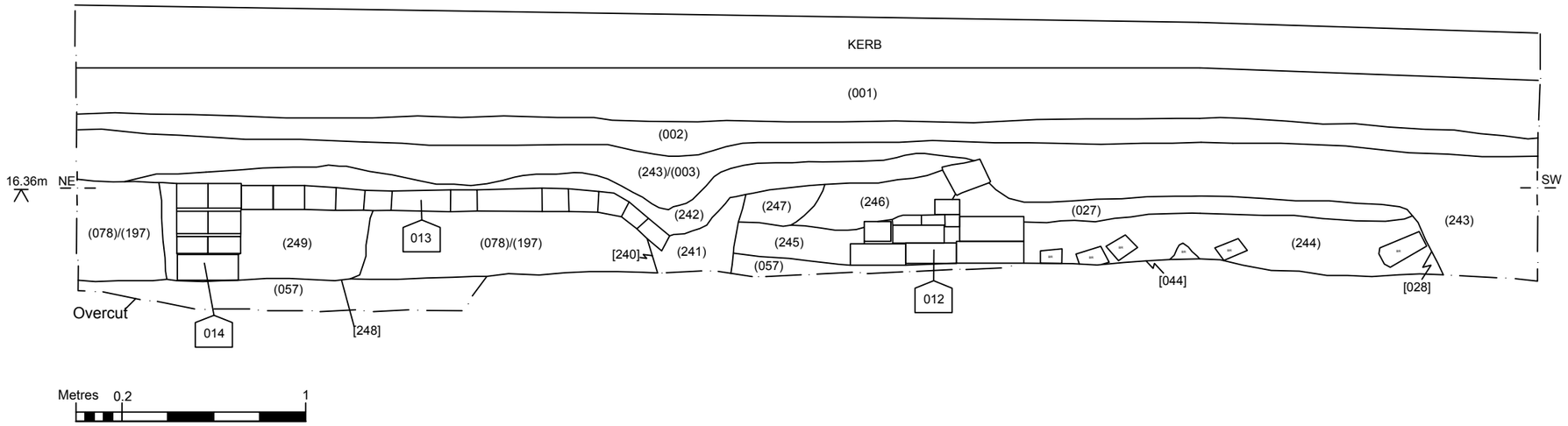


Figure 102- NW Facing Section through Surface (015)

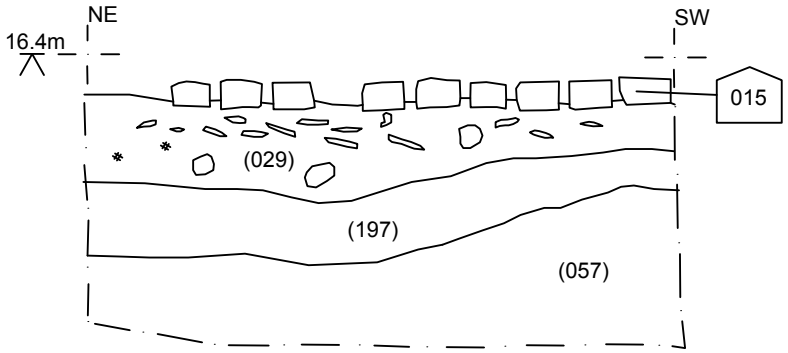


Figure 103- SW Facing Section through Wall (066) and Roman Pits F.061, F.063

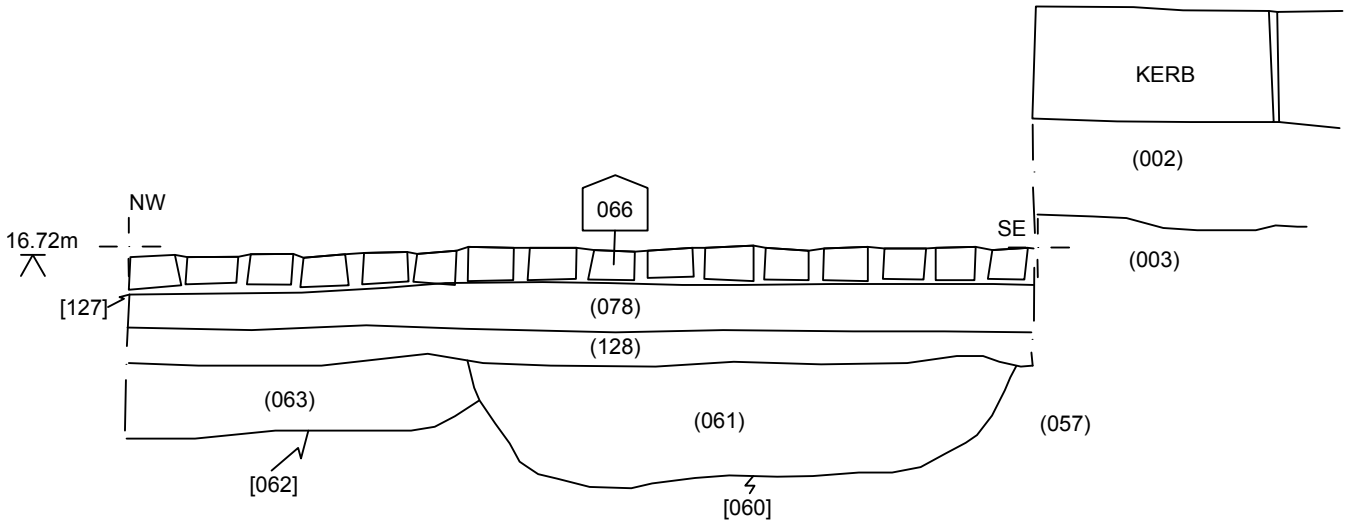


Figure 104- S- Facing Section through F.088

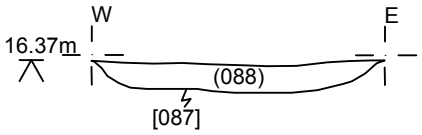
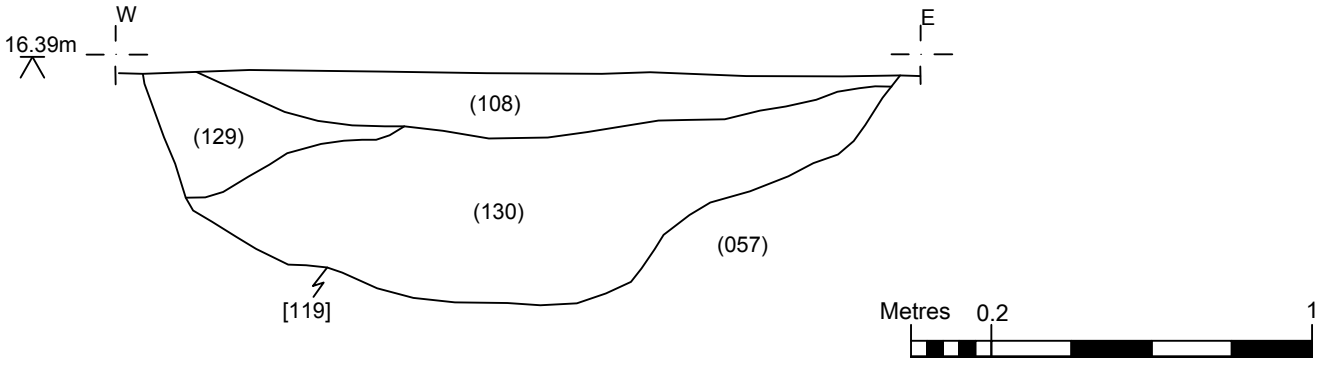


Figure 105- S-Facing Section through F.108



Figures 102 - 105- Area A Scale- 1:20 @ A4 Drawn- RL	Key:	Copyright/ Licencing This Drawing © A.R.S. Ltd Ordnance Survey data if applicable © Crown Copyright, all rights reserved reproduction with permission. Licence No. 100045420

Figure 106- SW-Facing Section through Wall (066) and Linears F.054 and F.056

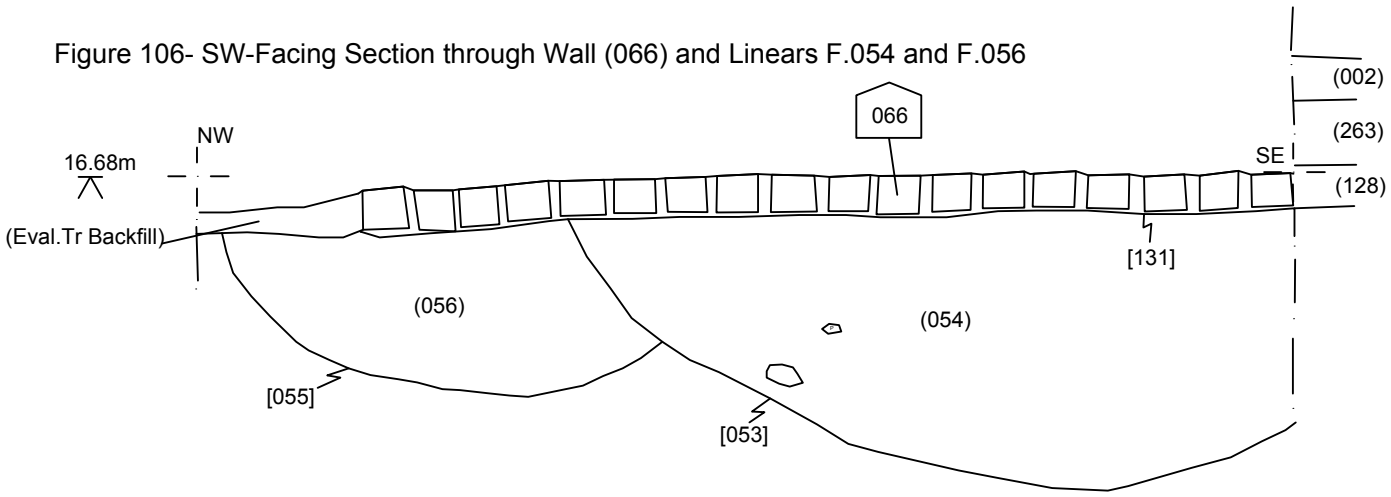


Figure 107- W-Facing Section through Linear F.084

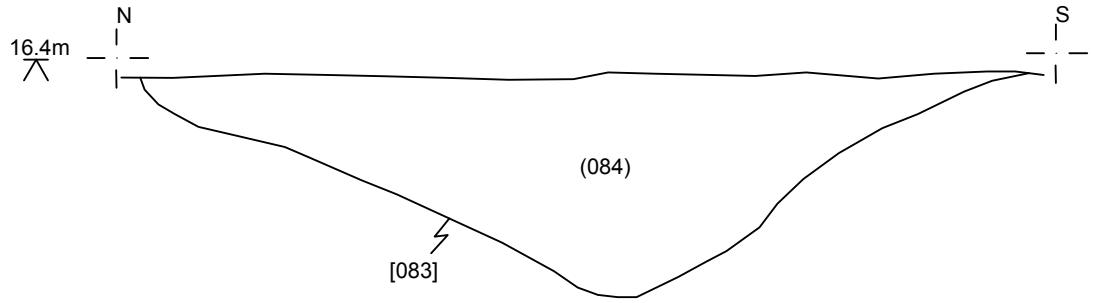


Figure 108- W-Facing Section through Drain F.097 and Linear F.086

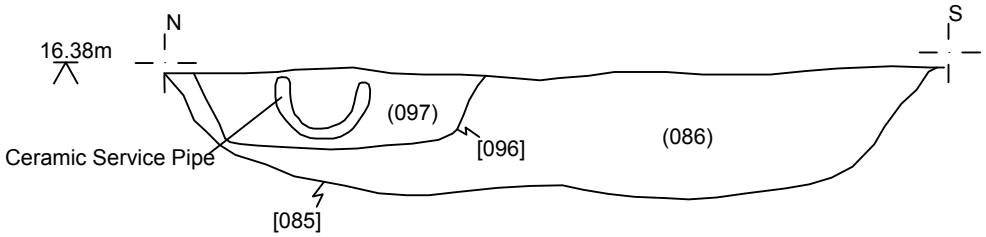


Figure 109- S-Facing Section through Beamslot F.059

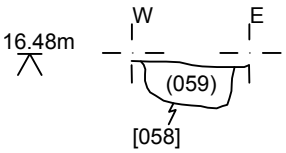
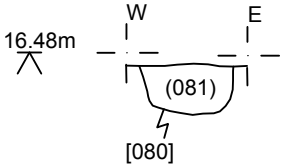


Figure 110- S-Facing Section through Beamslot F.081



Figures- 106-110- Area. A
Scale: 1:20 @ A4
Drawn- RL

Key:

Figure 111- NW-Facing Section through Linear F.086 and F.061

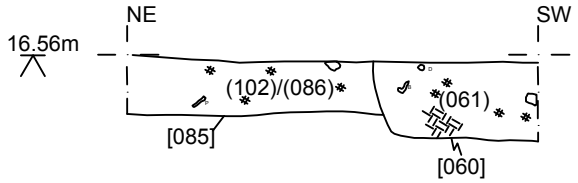


Figure 112- Multiple Sections through Beamslot F.099

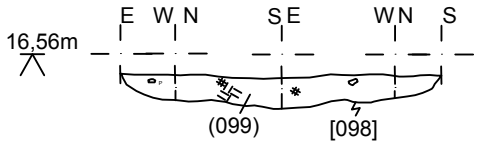


Figure 113- S-Facing Section through Beamslot F.099

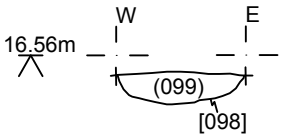


Figure 114- E-Facing Section through Beamslot F.099

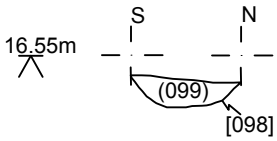


Figure 115- NE- Facing Section through Linears F.086, F.084 and F.135

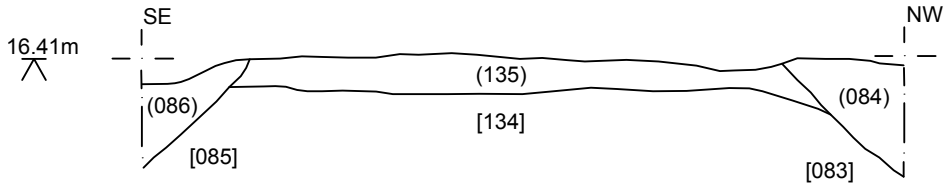


Figure 116- W-Facing Section through Roman Linear F.118

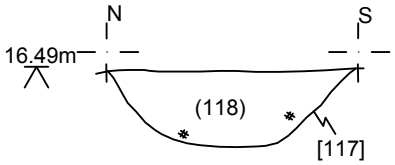


Figure- 111-116 - Area A Scale- 1:20 @ A4 Drawn- RL	Key:	Copyright/ Licencing This Drawing © A.R.S. Ltd Ordnance Survey data if applicable © Crown Copyright, all rights reserved reproduction with permission. Licence No. 100045420

Figure 117- NW- Facing Section through potential Bell Pit F.231

Figure 118- NW- Facing Section through Roman Linear F.256

Figure 119- W-Facing Section through Linear F.166

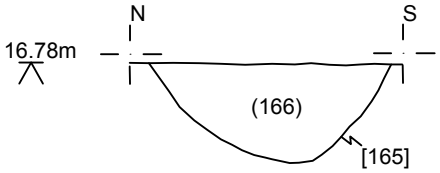


Figure 120- N-Facing Section through Linear F. 118

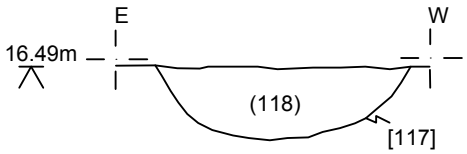
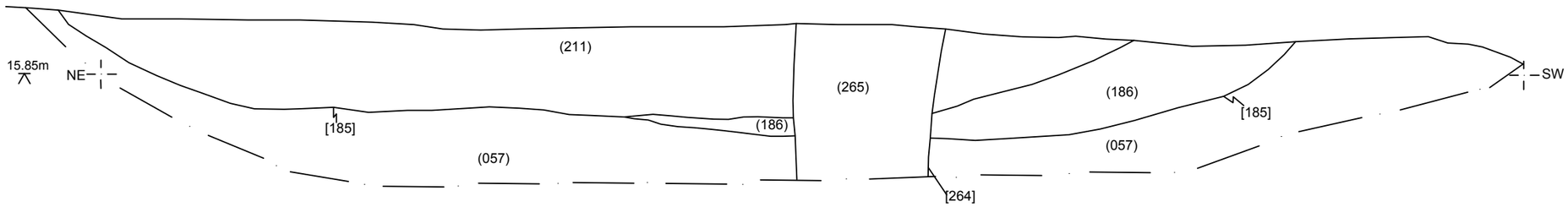


Figure 117-120- Area. A Scale: 1:20 @ A4 Drawn: RL	Key:	Copyright/ Licencing This Drawing © A.R.S. Ltd Ordnance Survey data if applicable © Crown Copyright, all rights reserved reproduction with permission. Licence No. 100045420

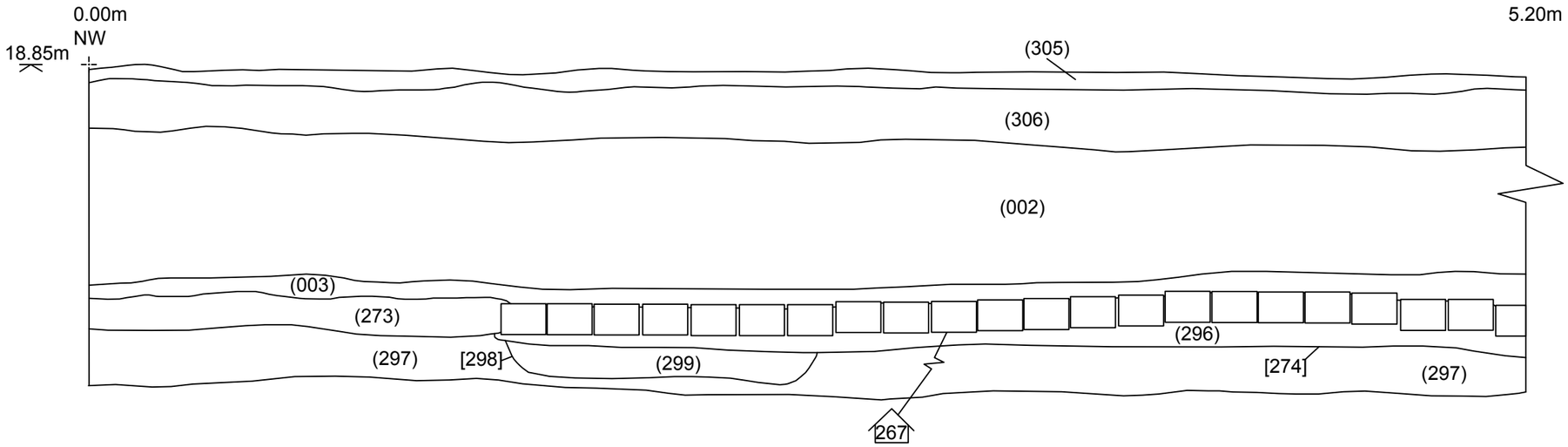
Figure 121- NW- Facing Section through Borrow Pit F.211
Scale-1:15 @ A3
Drawn- RL

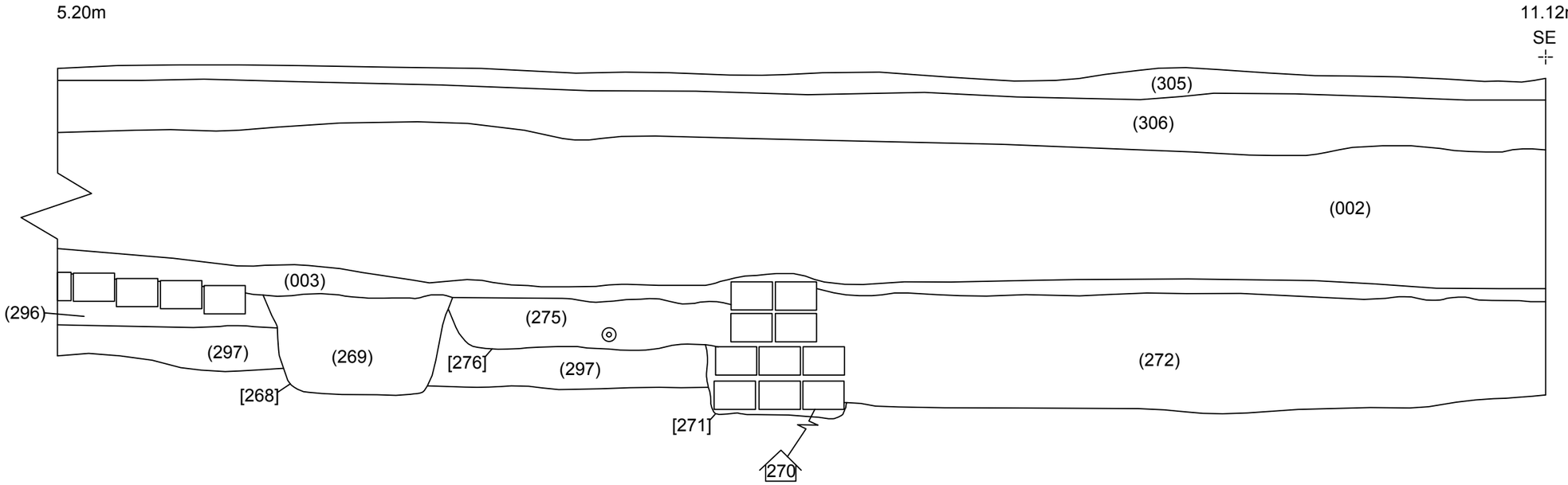


Key:

Figure. 122- SW Facing Section of Trench
Extent- Area B
Scale- 1:20 @ A3
Drawn- RL

Key:





Metres 0.2 1

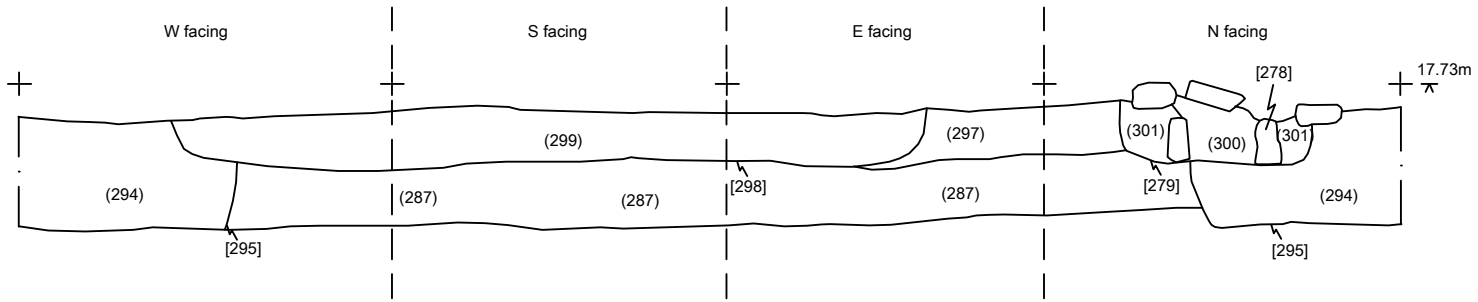


Figure 123- Multiple Sections of Drain F.301 and F.299- Area B
Scale: 1:20 @ A4
Drawn- GE

Key:

Metres 0.2 1

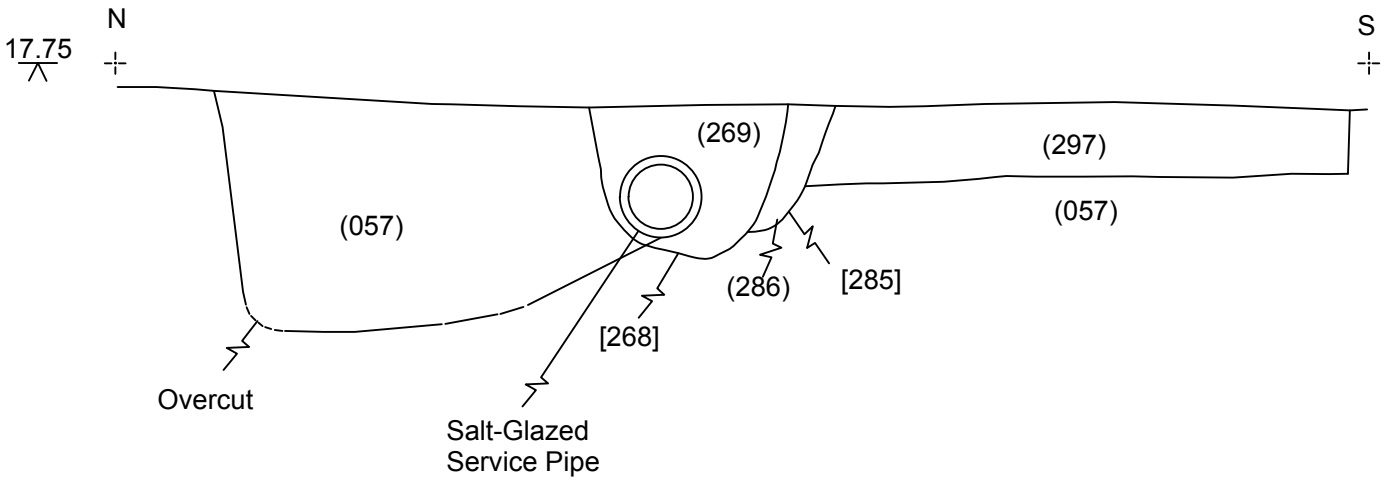


Figure 124- West Facing Section through Services F.269 and F.286- Area. B
Scale: 1:20 @ A4
Drawn by: JT

Key:

Figure 125: E-Facing Section Pit F.304

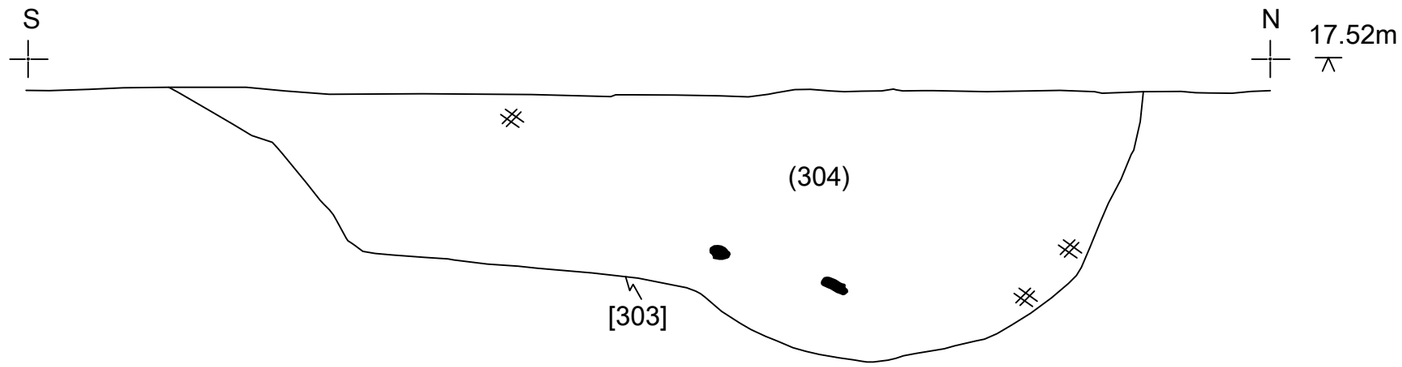


Figure 126: E-Facing Section through Pits F.293 and F.289

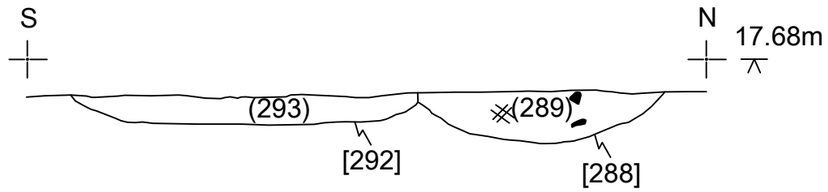


Figure 127: W-Facing Section through Pit F.291 and Linear F.289

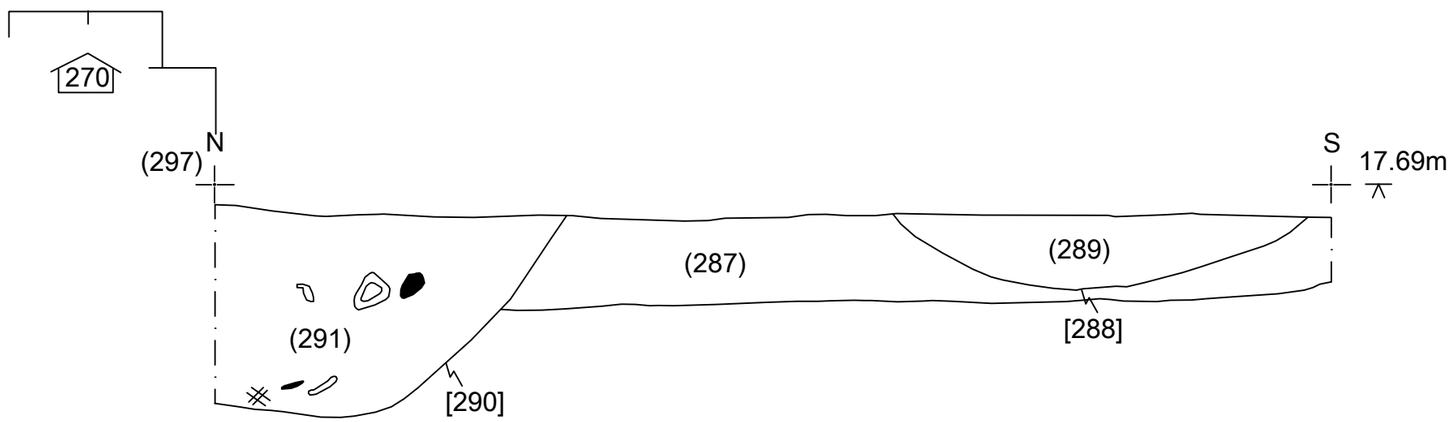


Figure- 125-127- Section drawings from Area B
Scale- 1:10 @ A3
Drawn- GE

Key:

bone

stone

charcoal

Appendix VII- Specialist Figures

Figure 128*:* Common brick recovered from context (199), with crude frog scored into one surface

Figure 129: Stamped engineering brick recovered from context (151)

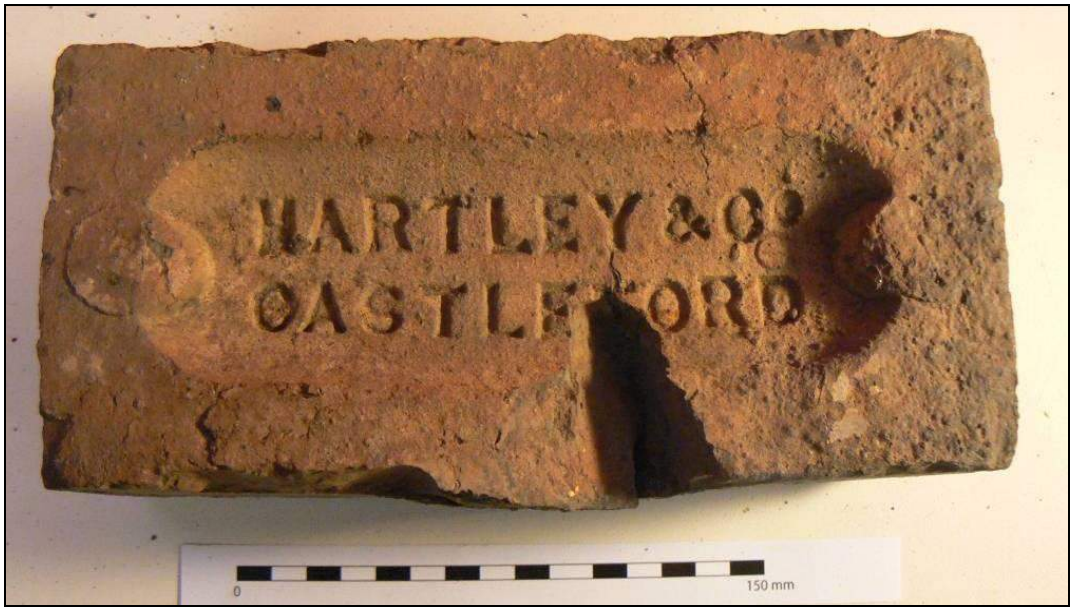


Figure 130: Example of a 'waster' recovered from context (267)

Figure 131: Fragments of two bricks fused together during the firing process

Figure 132: Refractory tile recovered from context (155), with faint manufacturer's stamp

Figure 133: Small, stamped refractory brick recovered from context (176)

Figure 134: Elongated, stamped refractory brick recovered from context (176)

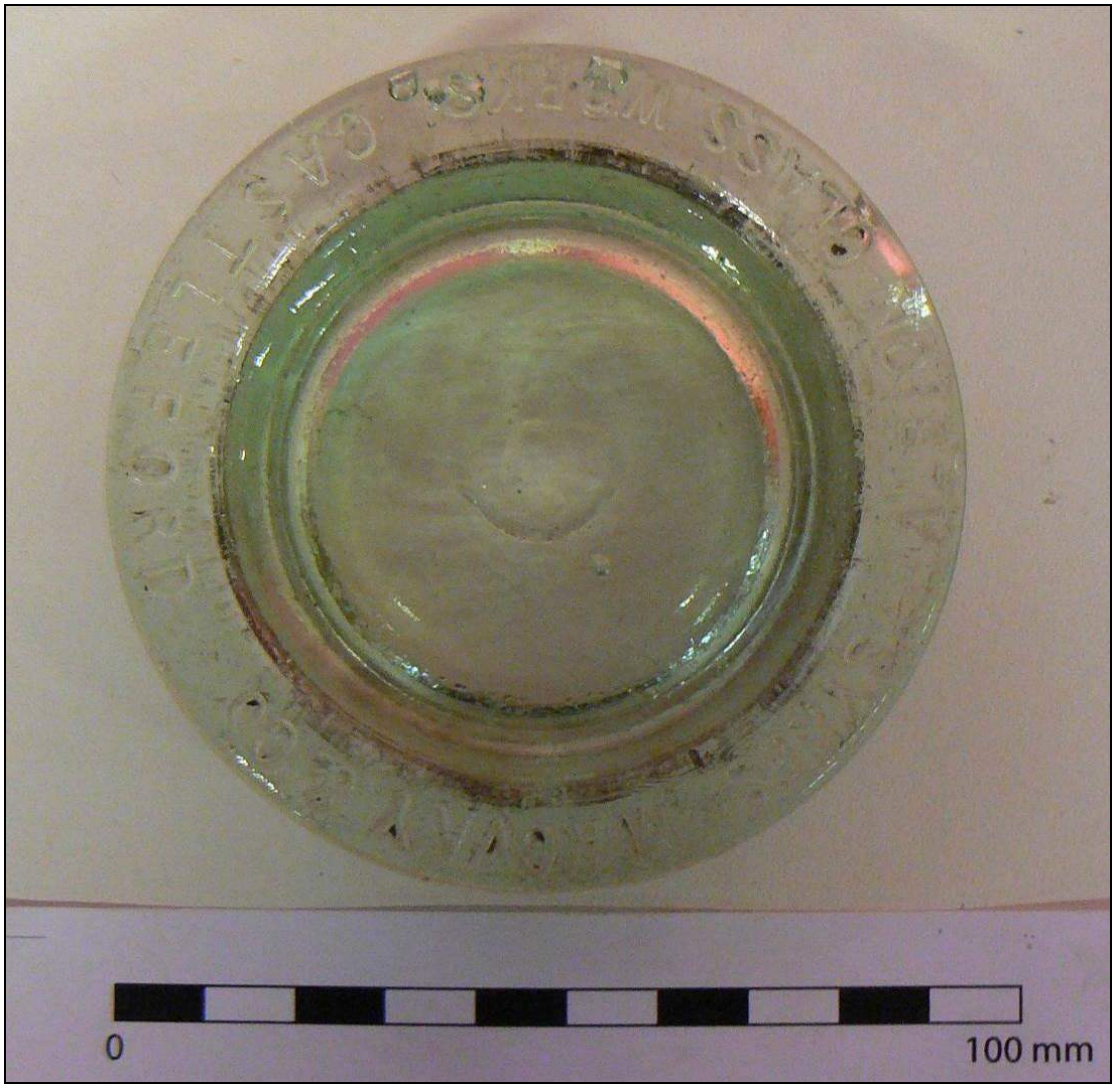


Figure 135: Glass lid manufactured by Sykes Macvay & Co, and recovered from context (180)