



West Bowling Golf Club,  
Rooley Lane, Bradford,  
West Yorkshire

Archaeological Mitigation



**WEST BOWLING GOLF CLUB, ROOLEY LANE  
BRADFORD, WEST YORKSHIRE**

**Archaeological Mitigation**

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BRADFORD, WEST YORKSHIRE****Archaeological Mitigation****Contents**

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**WEST BOWLING GOLF CLUB, ROOLEY LANE  
BRADFORD, WEST YORKSHIRE****Archaeological Mitigation****Summary of Results**

*Archaeological investigations were carried out within eight defined areas of the site in order to identify and record archaeological evidence for 18<sup>th</sup>- and 19<sup>th</sup>-century coal mines. The areas were selected by the West Yorkshire Archaeology Advisory Service following a walk-over survey undertaken by ARCUS.*

*Areas A, B, D and E focussed on spoil heaps, Areas C and H targeted tracks, Area F included the remains of a wall, and Area G was positioned to investigate an earthwork feature of unconfirmed origin.*

*The investigations found mining remains in Areas A and E, with those in Area A dating to the mid 18<sup>th</sup>- to early 19<sup>th</sup>-centuries and those in Area E dating to the early 19<sup>th</sup> century.*

*Area B was found to have been disturbed by geotechnical investigations and no further work was carried out in that area. Area D contained only faint traces of tracks and a large depression filled with clinker. No dating evidence was found in Area B or Area D.*

*Area C targeted a track that is depicted on an 1852 Ordnance Survey map. Investigation revealed evidence that the track had been used and modified during mining activity in the 19<sup>th</sup> century and also in the 20<sup>th</sup> century as part of the golf course. In Area H a 19<sup>th</sup>-century track overlay a possible dam or bank.*

*The stone wall in Area F was found to be of 19<sup>th</sup> or 20<sup>th</sup> century date. Area G was found to contain an obsolete golf course feature, probably a teeing ground.*

*All of the archaeological remains were investigated and recorded but none were of sufficient significance to warrant preservation 'in situ'.*

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**Archaeological Mitigation**

**Preface**

Wessex Archaeology (Sheffield) was commissioned by the University of Sheffield to amend and update an assessment report originally prepared by ARCUS in October 2008 (ARCUS report ref. 1104c.1(2)).

The additional work was defined by the West Yorkshire Archaeology Advisory Service (WYAAS) in letters sent to Under Construction Archaeology and ARCUS on 5<sup>th</sup> January 2009.

The site archive, including finds, had been accessioned by the Manor House Museum in Ilkley for long-term storage. Wessex Archaeology was granted access to the archive at the museum and permitted to make copies of the records and examine the finds; this was sufficient to carry out the required work.

Unfortunately, some of WYAAS's queries and concerns about the assessment report could not be resolved due to significant deficiencies in the site archive, including the absence of some finds that had been recommended for further analysis.

The report presented here is a fully edited and revised version of the assessment report. In some instances the interpretation of features has been amended following examination of the site archive. Many sections have been re-written entirely in order to clarify the results of the investigations and also to relate the results to the historic evidence. Where necessary the illustrations have also been corrected or amended for clarity.

**Acknowledgements**

This project was commissioned by the University of Sheffield, with the agreement of Prospect Archaeology (formerly Under Construction Archaeology) who act on behalf of the land developer ProLogis Developments Ltd.

Wessex Archaeology is grateful to the Manor House Museum, Ilkley for allowing and facilitating access to the site archive.

Analysis of the site archive was carried out by Justin Wiles. The report was prepared by Justin Wiles, James Thomson and Andrea Burgess, and the illustrations were updated by Chris Swales. The project was managed for Wessex Archaeology by Andrea Burgess.



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**WEST BOWLING GOLF CLUB, ROOLEY LANE,  
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**Archaeological Mitigation**

**1 INTRODUCTION**

**1.1 Project Background**

1.1.1 In 2007, ARCUS were commissioned by Under Construction Archaeology for ProLogis Developments Ltd to undertake targeted archaeological investigations and an earthwork survey in response to a condition attached to the planning consent (07/05869/FUL & 08/06132/VOC) to develop the former West Bowling Golf Club on Rooley Lane in Bradford (hereafter 'the Site').

1.1.2 ARCUS completed the fieldwork and prepared an Assessment Report in October 2008 which summarised the results of the archaeological work and outlined the potential for additional analysis and reporting.

1.1.3 In January 2009, the West Yorkshire Archaeology Advisory Service (WYAAS) finalised the scope of the additional analysis and reporting required to fulfil the planning condition. This work had not been completed in November 2009 when ARCUS was closed down by its parent organisation, the University of Sheffield.

1.1.4 In June 2010, the University of Sheffield commissioned Wessex Archaeology to complete the required analysis and reporting defined by WYAAS (see Preface for further information).

**1.2 Site Location and Land Use**

1.2.1 The Site (centred on SE 1708 2988) is located at the former West Bowling Golf Course, Rooley Lane, Bradford, West Yorkshire (**Illustration 1**).

1.2.2 The Site is bounded to the west by the M606 motorway and to the north by Rooley Lane. The southern limit backs onto an industrial estate and the eastern boundary is formed partly by a narrow but deep valley and a school playing field.

1.2.3 Prior to the archaeological work the site had been used as an 18-hole golf course. The greens and fairways were still visible, though overgrown. Trees had been planted to create the fairways and several mining spoil heaps – remnants of an earlier use of the Site - had been converted into either teeing grounds or holes.

1.2.4 The underlying geology comprises Lower Coal Measures overlain with boulder clay.

### 1.3 Historical and Archaeological Background

- 1.3.1 A settlement was recorded in the West Bowling area in the Domesday Book, but there is no evidence as to the location of this hamlet or village at that time. The first historical reference relating to the Site dates to the 12<sup>th</sup> century when the land was granted to the monks of Kirkstall Abbey in Leeds. It appears that the Site was known as *Kirkstall Grange* in the 13<sup>th</sup> century, but the next known written reference to the Site dates to the 17<sup>th</sup> century when 'Newhall' was constructed there (Tempest 1921).
- 1.3.2 Newhall still stands on the Site. It was built by the Richardson family and the construction is dated to 1672 by a date stone above the main door. The hall originally included a range of outbuildings and barns, many of which were removed in the 1970s. The hall is now a Grade II\* listed building.
- 1.3.3 Historical evidence for mining at the Site is provided by two leases for coal and ironstone mining dated 1802 and 1807 which describe 'a farm in North Bierley and Bowling called Newhall Hall farm'. The 1802 document describes the Newhall minerals as 'a bed of coal called the Lower or Better Bed' and 'ironstone called Black Bed Ironstone'. Both of these documents also link the mining at Newhall with ironworks located at Shelf (WYAS refs 68D82/6/6/C/370 & 375). Local evidence for mining is retained in the name of 'Pit Lane', which runs north to south across the Site.
- 1.3.4 A plan of the township of Bowling drawn in 1845 shows spoil heaps within the Site, including one fairly close to Newhall buildings (Dixon 1845; **Illustration 16**). The 1<sup>st</sup> Edition Ordnance Survey map of the area, dated 1852 (**Illustration 17**), depicts a concentration of 'Old Coal & Ironstone Pits' in the Bowling area, including at least one within the Site. These pits are described as 'old' at the time of the survey indicating that mining had ceased by the mid-19th century.
- 1.3.5 The West Bowling Golf Club was founded in 1898 and utilised the Newhall Hall farm-house as the clubhouse, but the condition and use of the outbuildings at this time is not known. The golf course was constructed across the former mining landscape to the south of the hall.
- 1.3.6 The known locations of former pit shafts were collated and mapped by BWB Consulting as part of the current development proposals (**Illustration 23**). Coal Authority and National Coal Board records identified 20 known shafts and wells within the development area, and included the names of many of the pits. The desk-based work was followed by intrusive geotechnical investigations undertaken to locate and characterise the mine shafts (Steele 2007).
- 1.3.7 The archaeological potential of the site was established by evaluations undertaken by Wessex Archaeology in 2004 (geophysical survey, auger survey and trial trenching) and by ARCUS in 2007 (trial trenching). These investigations located a range of buildings and mine shafts dating from the late 18th to the early 19th centuries. Two previously unknown backfilled mine shafts were also discovered.
- 1.3.8 A walkover survey, carried out by ARCUS in June 2007, mapped the visible features across the development area.

## 2 AIMS AND METHOD

### 2.1 Aims

2.1.1 The West Yorkshire Archaeology Advisory Service identified eight areas where further work was required to investigate landscape features that could relate to mineral extraction at the Site (**Illustration 2**). Areas A, B, C, D, E, G & H were the subjects of an archaeological 'Strip and Record' investigation, whilst work in Area F focussed on the analysis and recording of a stone wall.

- **Areas A and B** each targeted a possible low pit head and spoil heap. Pit heads suggests the use of engine-worked haulage at the shaft and there is potential for the survival of structural remains at the shafts. The landscape features corresponded with the *Upper Jordan Pit Shaft* and the *Lower Jordan Pit Shaft* as mapped by the National Coal Board.
- **Area C** targeted the junction of five raised footpaths that may incorporate remains of mineral railways or haul roads.
- **Area D** targeted a number of pit shafts visible on aerial photographs and close to a reservoir shown on a mid 19<sup>th</sup>-century map (Dixon 1845). The association of shafts and a reservoir suggests that pumping was taking place and indicates the possible presence of structural remains.
- **Area E** targeted a concentration of mine shafts identified by geophysical survey.
- **Area F** targeted a wall which appeared to contain re-used stone tramway sleepers.
- **Area G** targeted a stone platform that could possibly relate to either mining activity or the construction of the golf course.
- **Area H** targeted a low earthwork that could be either a 19<sup>th</sup>-century water-management feature or a raised footpath for the golf course.

### 2.2 Method

2.2.1 The fieldwork methodology is described in detail in the specification prepared by WYAAS (**Appendix 1**) and is summarised below.

2.2.2 An earthwork survey was carried out in Areas A, B, C and H, resulting in the production of hachured plans of the upstanding features.

2.2.3 Each of the areas, except Area F, was stripped of topsoil and subsoil using a mechanical excavator under archaeological supervision. All archaeological features were hand cleaned and recorded as appropriate. The wall in Area F was dismantled where necessary to retrieve re-used stones and recorded.

2.2.4 After the completion of the targeted Strip and Record excavations, WYAAS requested that a Watching Brief should be maintained during construction/enabling works in the vicinity of Areas A and D in order to

record remains (specifically mine shafts) that had not been present within the targeted investigations.

- 2.2.5 All fieldwork was carried out in accordance with the methodologies outlined in the Written Scheme of Investigation produced by WYAAS, with guidelines issued by the Institute of Field Archaeologists (1999) and English Heritage (1991), and with current industry best practice.
- 2.2.6 The fieldwork was undertaken during November and December 2007, January 2008 and April 2008.
- 2.2.7 During the fieldwork, David Hunter from Under Construction Archaeology made weekly site visits and Helen Gomersall from WYAAS also carried out monitoring visits.
- 2.2.8 The data from the earthwork survey were used to prepare accurate hachured plans of Areas A, B, C and H (**Illustrations 18-22**).
- 2.2.9 The results of the Strip and Record, wall recording and Watching Brief investigations are presented in the Results section below by Area. The finds are reported separately in Section 4. Context numbers are presented in bold and a complete list of contexts is provided in **Appendix 2**.

### **3 RESULTS**

#### **3.1 Summary**

3.1.1 In each of the investigated areas, the majority of the recorded features could be reasonably attributed to one of two dominant phases of activity at the Site.

- *Phase 1: Mineral extraction*
- *Phase 2: The golf course*

3.1.2 For ease of comparison of results across the Site the results for each area have been described within these defined phases. Sub-phases of activity are presented as phase 1a, phase 1b etc but, unless otherwise stated, these sub-phases cannot be considered to be contemporary across the Site as a whole.

#### **3.2 Area A**

3.2.1 Area A was located to examine the pit head of the *Upper Jordan Pit* (see **Illustration 23**) and a spoil heap shown on the 1845 Bowling Township Map (**Illustration 18**). An area measuring 18m by 18m was stripped by machine (**Illustration 3; Plate 1**).

3.2.2 The spoil heap was located in the south-west quarter of Area A. The shaft was not identified within the trench, and therefore WYAAS requested that a Watching Brief should be maintained during any further development-related groundworks in the vicinity. Whilst the mine shaft was observed during the Watching Brief its position and fill were not recorded. A single photo depicting the shaft within the site archive shows it as a curvilinear

feature which appears to have been truncated to a significant depth at time of observation (**Plate 27**).

#### *Phase 1*

3.2.3 The earliest deposit in Area A was described as 'dark brown chippings' in the site archive (**121**; likely a shale deposit resulting from colliery activity), which overlaid natural clay **116**. Above **121** the subsequent sequence of deposits formed a trackway running northwest to southeast across Area A, showing on the surface as deposit **106** (**Illustrations 3-4**). The track is formed by a series of deposits that appear to have been added gradually to maintain the track, rather than being a single 'designed' construction. The only significant interruption to this gradual build-up of layers occurred when a deposit of colliery waste **129** slumped onto the track, resulting in the track being resurfaced by **106**. Several single, but wide, wheel ruts were seen in the section, indicating that the track had seen heavy use (**Illustration 4**). Later in the sequence, colliery waste deposits were observed in the east-facing section overlying the final track surface - these may have been the result of landscaping for the golf course.

3.2.4 Three irregular shaped cut features (**109**, **110** and **118**) were located on the northern side of the track, each cut into natural clay. Although recorded as separate features with separate fills, all three were filled with a similar black clinker deposit. Therefore they may be the remnant of a single feature which had been truncated by golf course landscaping. A single piece of pottery dating from c.1740-1820 was found in the fill of **109**.

#### *Phase 2*

3.2.5 A land drain **115** crossed Area A, cutting through the track deposits. The drain cut was sealed by turf and clay deposits that had been laid as part of the construction of the golf course.

#### *Unphased and modern features*

3.2.6 A low curved sandstone slab wall **105** was also recorded in Area A (**Plate 2**). The wall was cut through at least one of the track deposits (**106**), but due to the level of truncation, its relationship with the individual track deposits could not be established with any precision. This wall appears to have been levelled during later alterations to the golf course.

3.2.7 Evidence of the recent geotechnical investigations (**103**) was seen in the south-eastern corner of the trench.

### **3.3 Area B**

3.3.1 Area B was located near the southern boundary of the Site and targeted the *Lower Jordan Pit* head. An area of 29m by 23.5m was stripped (**Illustration 5**; **Plate 3**).

3.3.2 Prior to the archaeological work in this area, the turf and topsoil had been disturbed by large-scale geotechnical investigations carried out to try to confirm the position of the mineshaft. The shaft was thought to be located in the centre of Area B (Steele 2007) but it was not identified by either the geotechnical investigations or the archaeological works.

*Modern*

- 3.3.3 The geotechnical works had cut through shale and colliery waste (**202**) which was visible around the edges of the area. Three machine-dug slots were excavated through the disturbed deposits in order to assess the condition of the underlying deposits (**Plate 4**). A number of bricks were recovered from an undisturbed part of spoil heap **202**; these have been dated to the mid 17<sup>th</sup> to mid 18<sup>th</sup> centuries.
- 3.3.4 The extent of disturbance was recorded and no further archaeological work was carried out in this area.

**3.4 Area C**

- 3.4.1 Area C was located along the western limit of the Site, and targeted several prominent converging tracks (**Plate 5**). The turf and topsoil of a 13m x 12m area was stripped by machine (**Illustration 6**). A further machine-dug slot was excavated through the centre of the trench to investigate the full depth of the stratigraphy.

*Phase 1a*

- 3.4.2 The earliest archaeological deposit was a thick layer of stony orange clay **330/310** (**Illustration 7**). This was interpreted as a bedding layer, although it is possible that it was used as a rudimentary track. The subsequent deposits of clinker and clay appeared to form a track of more deliberate construction. A number of compact layers (e.g. **306, 308, 316, 321 & 333**) were interleaved with layers of clay (**307, 309, 323 & 334**). The latter may have been laid deliberately or may have accumulated during the use of the track.

*Phase 1b*

- 3.4.3 To the north of the track (and visible only in section) lay shallow feature. It was not visible in plan and was originally interpreted as a hollow-way, but it is perhaps more likely to represent a discrete dish-shaped feature formed by repeated erosion at the junction of the tracks. It was defined in section by its fill (deposits **324, 325 & 327**).

*Phase 1c*

- 3.4.4 Above the eroded hollow were levelling deposits **327** and **329**, overlain by a dark brown ashy clinker layer (**336** - seen in plan and not visible in the section). A small area of paving (**335**) and a layer of cobbles (**337 & 338**) had been bedded into **336**; possibly representing a further attempt to consolidate the surface in this area (**Plate 6**).
- 3.4.5 A stone-built drain **318** (not visible in plan) was probably constructed at the same time as the cobbled surface, and both were sealed by a compact red clinker deposit **303** that probably represents the final use of the track (**Illustration 7, Plate 7**).

*Phase 2*

- 3.4.6 The final phase of activity was represented by a field drain containing a modern plastic pipe (**314**) and the, slightly later, deposition of loose black shale (**301**) across a large area; events probably dating to the mid-20<sup>th</sup>

century. The deposit of **301** sealed the track identified in earlier phases, presumably marking its abandonment by this phase.

- 3.4.7 The topsoil in this area contained a large quantity of late 18<sup>th</sup> to early 20<sup>th</sup> century pottery.

### 3.5 Area D

- 3.5.1 Area D measured 33.5m by 16m (**Illustration 8; Plate 8**) and targeted the former *Far Jordan Pit* head and a square structure shown on historic maps and thought by WYAAS to be a reservoir. The main phase of archaeological activity in this area related to mining but the area had also been disturbed and truncated by landscaping for the golf course.

- 3.5.2 The pit head was not identified within Area D and therefore WYAAS requested a Watching Brief during any further development-related groundworks in the vicinity. The mine shaft was recorded during the Watching Brief but no additional features could be recorded around the top of the shaft because the ground level was reduced by at least 1.2m without an archaeologist in attendance. The only record of this watching brief in the site archive is a single photograph (**Plate 28**) and a brief note of the shaft's dimensions and the nature of its fill. It has not been possible to locate the position of the shaft on a plan.

#### *Phase 1*

- 3.5.3 Although the top of the cut for the shaft had already been truncated by at least 1.2m at the time of recording, the surface dimensions of the shaft were recorded as 2.7m by 1.9m. The shaft was rectangular in plan at the surface and descended with vertical sides. The shaft was not lined and had been capped-off (presumably by the National Coal Board); two railway sleepers had been positioned across the shaft and a mixture of fly ash and clay had been deposited into the void. Below the fly ash was a mixed clay backfill that contained no artefacts or dateable material. The shaft was excavated to a total depth of 3m from the base of topsoil deposits.

- 3.5.4 A large regular cut feature **404** was identified within Area D, but it was spatially separate from the shaft and could not be assigned to Phase 1 stratigraphically. However, the historic maps (Dixon 1845, OS 1852; **Illustrations 16-17**) depict a possible reservoir in this location and the form of feature **404** corresponds very well with the mapped feature. Cut **404** had been backfilled with clinker and furnace-waste (**405; Plate 8**). A machine-cut slot located the base of **404** at a depth of 1.12m from the present ground surface.

- 3.5.5 Track **406** was recorded to the northeast of the 'reservoir' feature but only faint remnants survived.

#### *Phase 2*

- 3.5.6 Several narrow linear features (eg. **402** and **408**) were identified running across the trench. These probably represent drainage channels (**Illustration 9; Plates 9, 10 & 11**).

### 3.6 Area E

3.6.1 Area E targeted a concentration of shafts and a spoil heap identified by geophysical survey in the north-eastern corner of the Site. This area also corresponds with the location of the 'Sweet Pit Shaft'. An area measuring 26m by 10m was stripped (**Illustration 10**; **Plate 12**).

3.6.2 Although the area had formed part of the golf club's practice ground in the 20<sup>th</sup> century, Area E was found to have not been truncated by golf course landscaping and three phases of archaeological features were identified.

#### *Phase 1a*

3.6.3 The earliest activity identified within Area E was represented by a sub-circular feature **503**, measuring 6m in diameter and cut into natural clay deposits (**Plate 16**). The feature was identified as a mine shaft and machine-excavated to a depth of 5.75m, but not bottomed. The feature retained its sub-circular shape and vertical sides to the limit of excavation. The mine shaft is assumed to be the earliest feature in this area and it remained open and in use throughout Phases 1a to 1c.

3.6.4 A spoil heap **501** (not illustrated) that comprised of up-cast from the mine shaft overlaid the natural boulder clay to a depth of 3.46m (**Plate 13**). The absence of former topsoil and subsoil deposits beneath the spoil heap indicates that the area was probably cleared and stripped down to the natural clay prior to the excavation of the shaft. The stratigraphic and/or physical relationships between spoil heap **501** and shaft **503** are not preserved in the site archive.

3.6.5 To the south-west of the shaft lay an irregular feature filled with orange brick rubble **516**. This feature appears to represent a robbed footing, possibly of a machine-base related to the excavation, or early use, of the mine shaft.

3.6.6 North of **516** two curvilinear cuts were recorded comprising **507** and **509** (**Plate 14**). Whilst the relationship between the cuts was not defined in the site archive, the planned features (**Illustration 10**) illustrate the original excavator's interpretation. The features were both filled with mixed loose shaley deposits **506** and **508**, believed to be redeposited up-cast material. Combined, features **507** and **509** measured 4.85m by 5.75m with an uneven base approximately 0.27m deep at the lowest excavated point. It is probable that the cuts represent two closely dated events related to groundworks in the formation of shaft **503**.

#### *Phase 1b*

3.6.7 The second phase of activity relates to the use of the mine shaft. Approximately 5m to the south-west of the shaft, rectangular feature **505** (**Plate 14**) cut through Phase 1a features **516**, **507** and **509**. Measuring 2.5m by 1.95m and 0.63m deep, **505** was filled with orange-brown clay (**504**) containing brick and stone rubble inclusions. Partial excavation of the fill revealed three sandstone blocks laid on the base of the cut; two of which were placed directly on top of each other and were recorded as structure **515** (not shown on plan). Traces of mortar along the edges of the stones forming **515**, along with a redundant chamfered edge on the lower stone (**Plate 15**), indicated they had likely been reused. Because the stones comprised more than one course it is unlikely that they formed part of a



stone floor (as originally recorded) and, more likely, were part of a pad or machine base related to the mine workings.

- 3.6.8 Several bricks recovered from fill **504** indicate that backfilling occurred no earlier than the mid 18<sup>th</sup> century.

*Phase 1c*

- 3.6.9 The final phase of activity within Area E is recorded in the field archive to comprise loose black shale (**502**) that was used to backfill the mine shaft. This deposit is attributed to the closure of the mine shaft and demolition of associated structures. No dateable finds were recovered from the backfill.

### **3.7 Area F**

- 3.7.1 The work in Area F focussed on a wall along the western boundary of the Site (**Illustration 11; Plates 17-20**). The wall had been observed during the earlier walkover survey (Sparrow 2007) and identified as potentially significant due to the incorporation of possible tram-sleeper pads in its construction (**Plate 18**). The 1852 Ordnance Survey map (**Illustration 17**) shows a number of structures close to Area F, beyond the development area.

*Phase 2*

- 3.7.2 Wall **602** was originally constructed from sandstone blocks and it included later repairs made using brick and sandstone fragments (**Illustration 11, 12 and 22**). Comparison of the photographic record and elevation of **602** indicates that the upper courses of the wall represent a fairly extensive re-build of the structure.
- 3.7.3 At its maximum height (its northern end) the wall survived to a height of 0.92m – or seven courses. This part of the structure may originally have functioned as a gatepost (**Plate 17**). Tree roots had damaged the construction and stability of the wall and undermined parts of its length. On its north-western side, the wall was abutted by deposit **601**, and on the south-eastern side by deposit **600**. Both deposits contained late 19<sup>th</sup> and early 20<sup>th</sup> century artefacts.
- 3.7.4 The wall included a number of worked stones that had clearly originated in an earlier structure. These re-used stones appear to be confined to the upper - re-built - courses. The surface(s) of a number of the re-used stones had holes and ‘scars’ caused by pressure from rectangular stone or metal fixtures. These were initially thought to be sleeper pads from a dismantled tramway. A sample of the stones were drawn on site (**Illustration 22**) and are discussed in more detail in Section 5 below.

### **3.8 Area G**

- 3.8.1 The work in Area G targeted an earthwork feature that had been initially interpreted as a remnant of mining activity (Sparrow 2007).

*Phase 2*

- 3.8.2 Excavation revealed dry stone walls with a soil and rubble infill (**Illustration 13; Plates 21 to 24**). These walls had been constructed to support an earth

platform that was a component of the 20<sup>th</sup> century golf course rather than any earlier activity at the Site.

### 3.9 Area H

3.9.1 Area H was located within a sunken lane leading to the Newhall buildings (**Plate 25**), at the intersection of the lane and a dam shown on the 1845 Bowling Township Map (**Illustration 17**). A 17m by 2m slot was machine-excavated (**Illustrations 14 and 15**).

#### *Phase 1a*

3.9.2 The earliest feature was a compacted clay and stone dam [818] (**Illustrations 14 and 15**), constructed by excavation into natural clay deposits. This feature was not excavated and no dateable material was recovered.

#### *Phase 1b*

3.9.3 The dam was covered with a thick layer of yellow grey clay **815**. Above the clay were four compacted layers of clinker that formed the surface(s) of a track or road (**803, 804, 808 and 812; Plate 26**). Only a small quantity of dateable material was recovered from the track deposits, but the pottery evidence suggests that the lowest layer (**812**) was deposited in the early 19<sup>th</sup> century and the upper layers (**803, 804 and 806**) in the mid 19<sup>th</sup> century.

#### *Phase 2*

3.9.4 Several thick dark brown deposits (**802, 817, 823, 826 and 827**) had been laid along both sides of the track, creating a wider bank. This was probably carried out as part of the construction of the golf course.

3.9.5 Three field drains **810, 819 and 825** crossed the trench.

## 4 ARTEFACTS

### 4.1 Note on the Reporting of Artefacts

4.1.1 The artefact assemblage was assessed and reported at an earlier stage of the project (ARCUS 2008). The assessment of the pottery, ceramic building materials, clay tobacco pipe, metals and slag provided information which contributed to the interpretation of the Site. These assemblages are reported below. Other assemblages, such as the wood and animal bone, did not contribute the interpretation of the Site or have any intrinsic value as archaeological artefacts. The reports on these latter categories can be found in the ARCUS Assessment Report but are not included here.

4.1.2 Of the significant assemblages, slag from **800 and 803** was recommended for detailed analysis. Unfortunately the slag assemblage did not survive the closure of ARCUS and the recommended analysis could not be carried out.

4.1.3 In addition, an architectural fragment recorded in Area E was not assessed in the original report. This omission has been corrected.

4.1.4 The following are summaries of the artefact reports. The full unedited reports are included in **Appendix 3**.

#### **4.2 Pottery (Analysis by Dr C.G. Cumberpatch)**

4.2.1 The assemblage consists of 291 sherds of pottery weighing 2472 grams and representing a maximum of 263 vessels.

4.2.2 The greater part of the assemblage is of later 18<sup>th</sup> and 19<sup>th</sup> century date. The majority of the earlier material in the assemblage was associated with later material, indicating secondary deposition. The later material (in the form of *Bone China*, *Whiteware* and fragments of industrial ceramic) came from topsoil deposits in Areas C and H, a wall in Area F and a track in Area H.

4.2.3 The pottery assemblage includes later early-modern material and no post-medieval material. This would suggest little activity on the Site prior to the mid to late 18<sup>th</sup> century although thereafter it would seem that circumstances changed significantly with the deposition of material in a variety of types of context.

4.2.4 Whether the residual material of earlier date (*Creamware*, *Pearlware*, vernacular tablewares etc) was already on the Site and re-deposited as a result of later activity, or whether deposits of material of mixed date were dumped on the Site, is not clear from the evidence available.

#### **4.3 Ceramic Building Material (Analysis by J. Tibbles)**

4.3.1 The 35 examples of ceramic building material from the Site included both hand- and machine-made bricks and gave a date range between the late 16<sup>th</sup> and early 18<sup>th</sup> centuries. The quality of many of the bricks was poor with none that could be described as decorative and all appeared to be of a utilitarian function.

#### **4.4 Architectural Stone Fragment (Analysis by O. Jessop)**

4.4.1 A single fragment of dressed stone was recovered during the excavations, re-used as possible machine base in Area E (context **515**). The origin of the stone is uncertain. One possibility is that it derives from a demolished part of the extant 17<sup>th</sup> century house, New Hall, c.100m to the north. However upon closer examination of the building, this suggestion is unlikely for two reasons. Firstly, the form and size of the stone does not correlate with any of the architectural mouldings such as string courses, hood mouldings, jambs or copings used on the building. Secondly, the re-used block is fine-grained yellowish sandstone, very different to the coarse gritstone used for constructing the Hall.

4.4.2 The form of the block is a relatively undiagnostic shape and the lack of site records has made it difficult to assess each face of the stone in detail. One possible use however, is indicated by its length. If for example, the stone was set vertically upon end with the chamfered detailing at the top, it could have functioned as a gatepost.

#### 4.5 Clay Tobacco Pipe (Analysis by Dr S. White)

- 4.5.1 The majority of the pipe fragments recovered was plain stems. They are difficult to date closely and have a broad date-range of the 18<sup>th</sup> and 19<sup>th</sup> centuries.

#### 4.6 Metals and Slag (Analysis by Dr R. Mackenzie)

- 4.6.1 The metal finds are largely undiagnostic and the identifiable items appear to be relatively modern. The slag was visually assessed and closely resembles blast furnace tap slag (see paragraph 4.1.2 above).

### 5 DISCUSSION

#### 5.1 The Historical Evidence

- 5.1.1 The Site lies in an area of Bradford that was increasingly industrialised from the late 18<sup>th</sup> century onwards, with a distinct emphasis on extractive and iron working industries. A Demise and Indenture from 1802 record the transferral of land at the Site from agricultural use to mineral extraction, indicating the intended activities were to include “stacking, banking, laying and burning” – all processes associated with mining and processing (Under Construction Archaeology 2007, 21). The agreement was between Matthew Wilson of Eshton Hall and Samuel Aydon and William Elwell, both of Shelf. Aydon and Elwell were best known for establishing the Shelf Ironworks in 1794 (approximately 4 miles to the west of Newhall), which initially built steam engines and later specialised in the production of bridge components. In 1824 their firm was reported bankrupt, and the Shelf ironworks were taken over by the Low Moor Company (Skempton 2002, 26), possibly including the indenture for mineral extraction at the Site.
- 5.1.2 By the production of the first edition Ordnance Survey of 1854 (**Illustration 17**), mineral extraction operations within the Site appear to have ceased with a label of “Old Coal & Ironstone Pits” and “Pit Lane” comprising the only remaining evidence. The Bowling Township Map of 1845 and Tithe Award of 1849 offer slightly more information as to the location of the pits, indicating spoil heaps in fields named Gin House Pasture, Lower Jordan and Far Jordan.
- 5.1.3 The archives of the Coal Authority and the National Coal Board record at least eighteen former shafts within the Site (**Illustration 23**), of which eight have names – presumably indicating that these shafts were fairly long-lived or otherwise significant operations. The names are: ‘Keller Pit Shaft’, ‘Lane End Pit Shaft’, ‘Upper Jordan Pit Shaft’, ‘Lower Jordan Pit Shaft’, ‘Wood Pit Shaft’, ‘Far Pit Shaft’, ‘Sweet Pit Shaft’ and ‘Garden Pit Shaft’.
- 5.1.4 It appears that mining ceased during the mid 19<sup>th</sup> century and there is no historic evidence for any other activity at the Site until the opening of the West Bowling Golf Course in 1898. The golf course was expanded and remodelled during the 20<sup>th</sup> century and was closed in 2006.

## 5.2 The Limitations of the Archaeological Evidence

- 5.2.1 The archaeological evidence from the Site is fragmentary and therefore it has not been possible to compare the results across the excavation areas. All remains relating to mining activity have been attributed to 'Phase 1' but more refined chronological comparison is simply not feasible.
- 5.2.2 The cartographic evidence proved to be a useful and accurate source of information for mining activity across the Site and unfortunately the results from the archaeological investigations do not add significantly to the existing evidence. The paucity of new evidence is primarily due to the truncation of mining features by the construction and expansion of the golf course, and an absence of closely datable artefacts.
- 5.2.3 The limitations of artefact dating have been compounded by the nature of artefact deposition on this site where the main deposition context is backfill material which could have derived from primary deposits elsewhere on the Site, or beyond. For example, the bricks recovered from an undisturbed part of the spoil heap in **Area B** could suggest a mid 17<sup>th</sup> to mid 18<sup>th</sup> century date, but mid 17<sup>th</sup> to late 19<sup>th</sup> century brick wasters, kiln/furnace demolition debris and under-fired bricks were also recovered from **Area E** at the other end of the Site. It seems likely that the bricks were waste materials sourced from a local brick-maker for use as hardcore or backfill. Similarly, the analysis of the pottery has indicated that much of the assemblage is likely to be residual in later contexts.
- 5.2.4 Although it is likely that each shaft employed several people in its sinking and working plus the subsequent sorting and transportation of the extracted coal and ironstone, clay pipes represented the only 'personal artefacts' recovered from any of the excavated areas.

## 5.3 The Archaeological Evidence

- 5.3.1 Although no dating evidence was recovered from the mine shafts identified during the excavation (in **Areas D** and **E**), or from any stratigraphically related features, the archaeological evidence seems to confirm that mineral extraction took place during the later 18<sup>th</sup> to mid 19<sup>th</sup> centuries. In addition to the two undated shafts, mining activity was evidenced by track surfaces in **Area H**, a possible tank or reservoir in **Area D** and cut features in **Areas A** and **E**. Of these, only the cut features were not depicted on the 19<sup>th</sup> century maps.
- 5.3.2 Unfortunately the cut features had suffered severe truncation making meaningful interpretation difficult. However, it appears that the cut features in **Areas A** and **E** were remnants of pit-head structures, possibly platforms or bases for winding gear. That no structural remains were present may show that equipment was transferred to another nearby operation and masonry re-used in other areas, or in some cases this absence could result from later landscape re-modelling. However, it is still possible that important archaeological information relating to 18<sup>th</sup> and 19<sup>th</sup> century colliery layout and practice could survive at other, less truncated, sites.
- 5.3.3 Some dating evidence was found in **Area H**, where excavation targeted a dam at the intersection of a small watercourse and a lane shown on the 1845 map. (The lane led from the Newhall farmyard to a field boundary to

the south.) Notably the Ordnance Survey map, only seven years later, did not show either the watercourse or the pond at its western end but it does depict the lane and names it 'Pit Lane'. At the time of the archaeological surveys no evidence of the pond or stream was identified but the lane survived as a shallow sunken earthwork. The lane was found to comprise a sequence of deposits – the earliest was dated to the early 19<sup>th</sup> century (by a single fragment of pottery) with episodes of re-surfacing in the mid 19<sup>th</sup> century.

5.3.4 Evidence of the maintenance of track and lane surfaces was found in **Areas A and H**. The materials used were similar in both areas - comprising layers of compacted clinker interspersed with softer layers – suggesting that repairs were carried out during the period of mineral extraction at the Site.

5.3.5 The wall recorded in **Area F (602)** had been repaired with re-used stone. On inspection two were seen to have scars indicating they had once been tied to an iron structure. Evident on both stones were small centrally situated truncated iron pins, with one stone also exhibiting a rectangular scar (**Plate 18**). Whilst it is not feasible to conclusively ascertain the former use of the stones, it has been suggested they could be sleeper pads from a tramway. An example of such use is shown on **Plate 29**, and the fixtures could correspond to the observed scars on the stones from **602**. The rails were fixed to pads with cast-iron saddles, allowing the space between the rails to be kept clear for the ponies that would shunt wagons to and from the pit head. A tramway is illustrated just beyond the site boundary, close to Area F and this, or a smaller branch from it, could have been the source for these stones. Alternatively, the re-used stones could have been obtained from another wall or structure that had originally included fixed railings.

## 5.4 Conclusions

5.4.1 In conclusion, only limited evidence of mining processes were found in the areas investigated. This is mainly due to:

- the high level of truncation across the Site;
- the short period of use of the workings;
- the apparent dismantling and backfilling of the features with mining spoil, furnace waste and refuse from other local industries; and
- a high level of redeposition and the residual nature of the artefact assemblage.

5.4.2 While the remains of pithead structures were encountered, the evidence was insubstantial and no machinery had been left *in situ*.

## 6 BIBLIOGRAPHY

- Department of Environment 1990 *PPG 16 – Planning Guidance: Archaeology and Planning*
- English Heritage 1991 *The Management of Archaeological Projects* (2nd edition)
- Holderness, H. 2007 *Archaeological Evaluation of Land at West Bowling Golf Club, Rooley Lane, Bradford, West Yorkshire* unpublished ARCUS report 1104b
- Institute of Field Archaeologists 1999 *Standard and Guidance for Archaeological Field Evaluation*
- Skempton, A.W. 2002. *A Biographical Dictionary of Civil Engineers in Great Britain and Ireland: 1500-1830*. Thomas Telford: London.
- Sparrow, T. 2007 *Archaeological Walk-Over Survey: West Bowling Golf Club, Bradford, West Yorkshire* unpublished ARCUS report 1104.1
- Steele, S. 2007 *Further Mineshaft and Mine Workings Investigation Interpretative Report* unpublished BWB Consulting Limited report
- Tempest, E.B. 1921 'Notes on the early Bollings of Bolling' *Bradford Antiquary New Series* 4: 215-234
- Under Construction Archaeology 2007. *West Bowling Golf Club: Cultural Heritage Impact Assessment*. Report PLD04.
- Wessex Archaeology 2004 *West Bowling Golf Club, Rooley Lane, Bradford, West Yorkshire: Archaeological Evaluation* unpublished report 55690.01

### **Cartographic Sources Consulted**

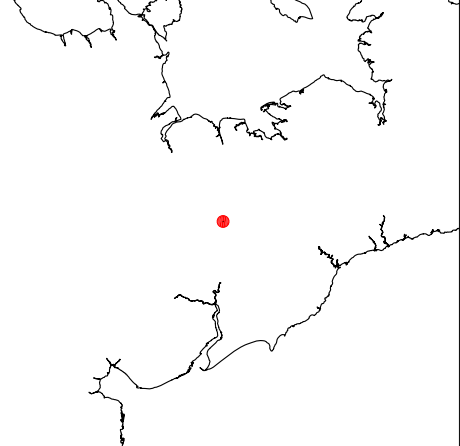
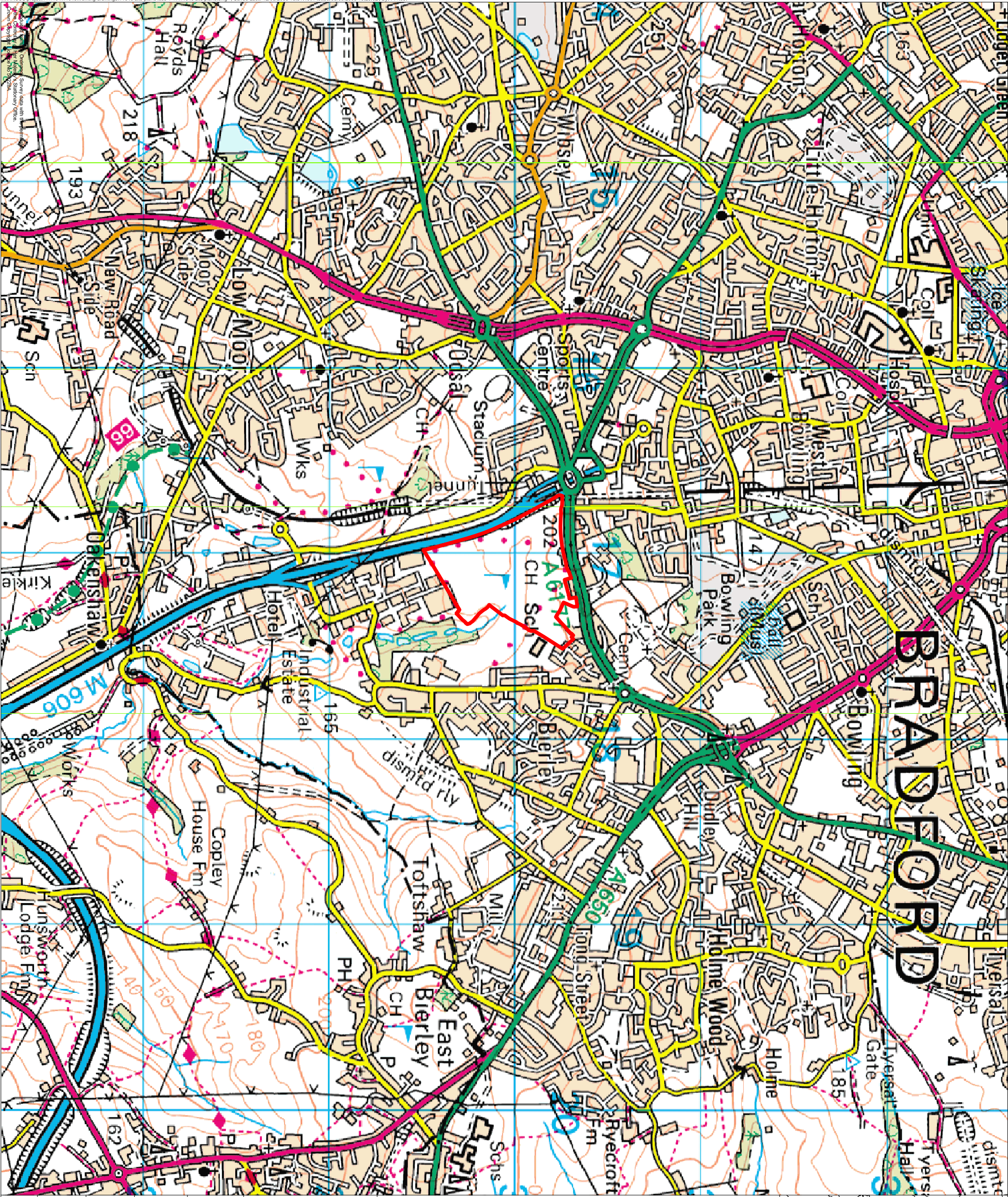
1852 Ordnance Survey 1:10,560 sheet 216

### **Archive Documents** (*West Yorkshire Archive Service: Bradford*)

- 52D79/3 Bowling Township Map. Surveyed by Thomas Dixon 1845
- SSD93/4b Bowling Parish Tithe Map 1847
- BC82068 Sir Matthew Wilson of Eshton Hall, Gargrave. Family and Estate Archive  
68D82/6/6/C/370 Demise – 1802  
68D82/6/6/C/375 Lease – 1807

**7 ILLUSTRATIONS AND PLATES**

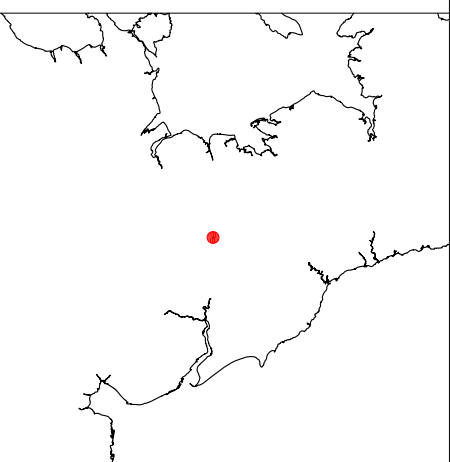




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**West Bowling Golf Club, Bradford**

Site Location	
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TES	

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Project No.	1104C
Ill. No.	1



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 Fax: 0154 2397158

**Project:**  
**West Bowling Golf Club, Bradford**

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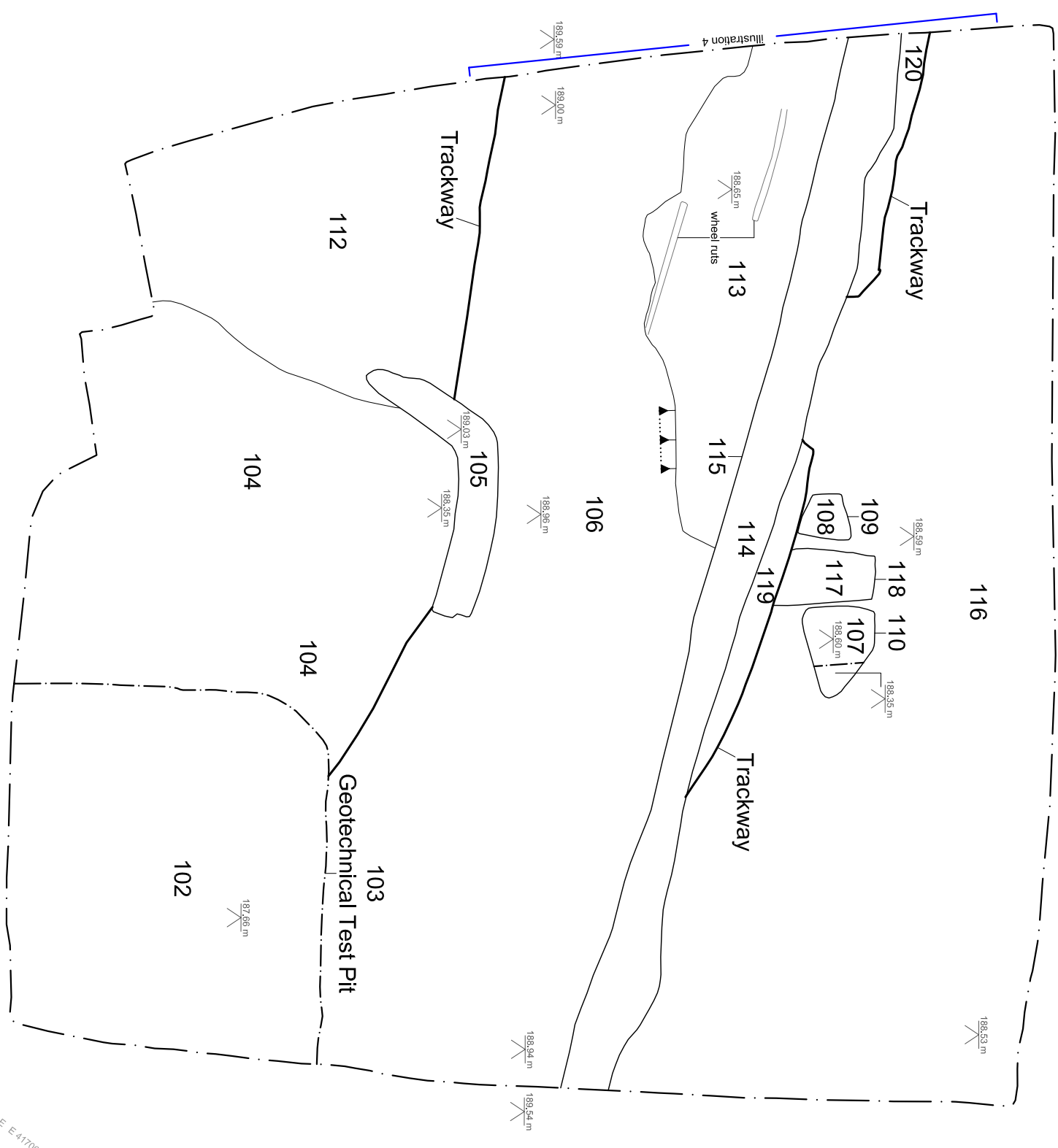
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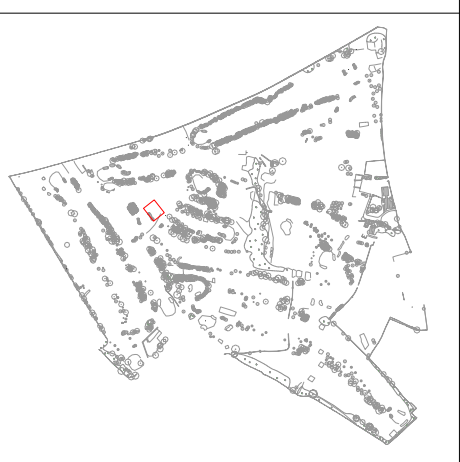
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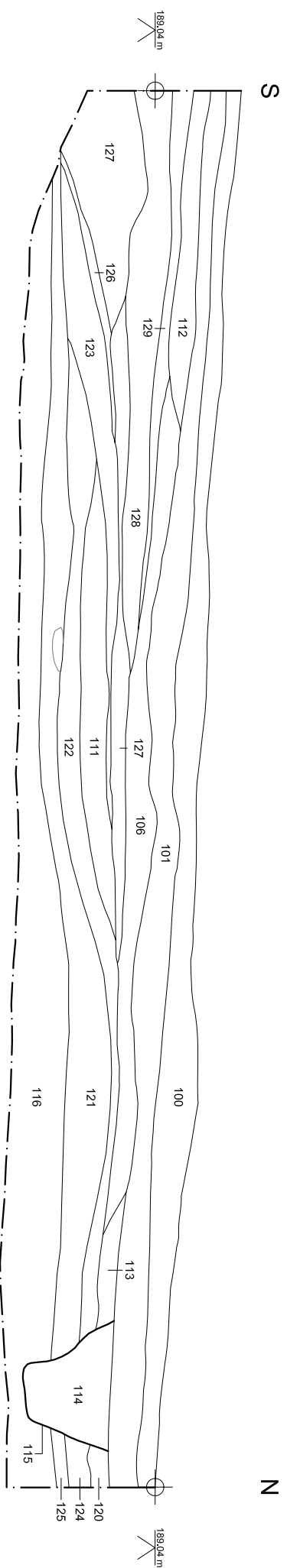
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Project:  
**West Bowling Golf Club, Bradford**

Title

**Area A section**

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Aug 08

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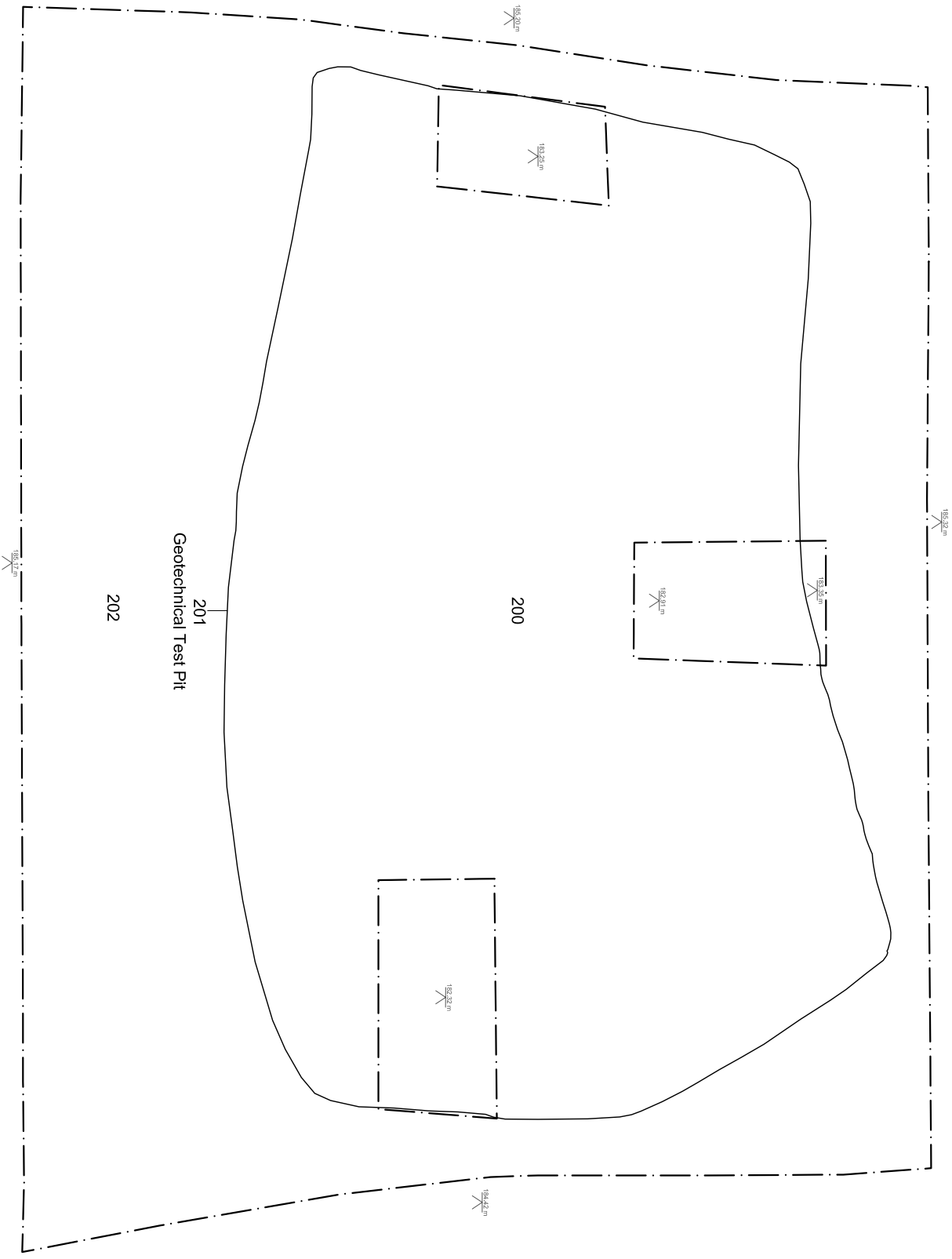
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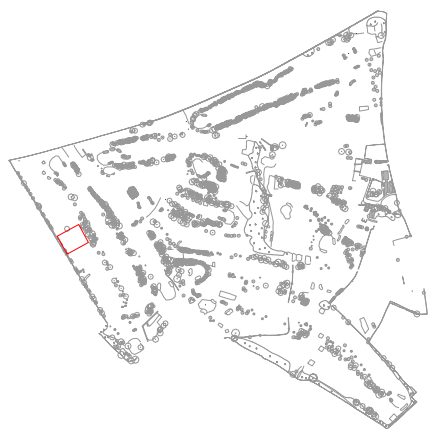
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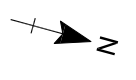
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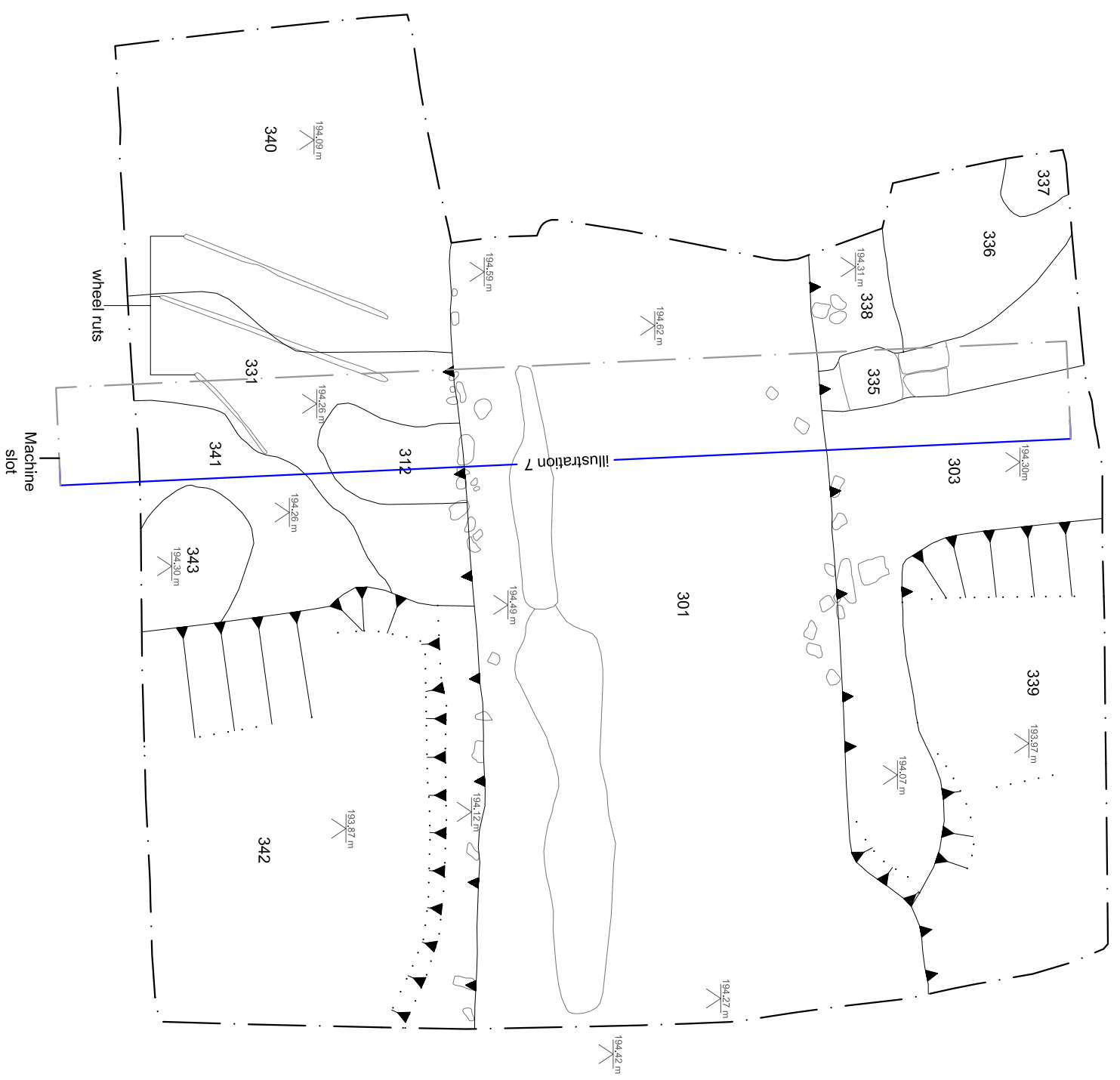
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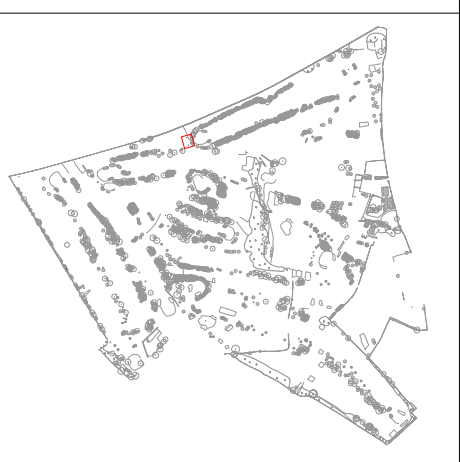


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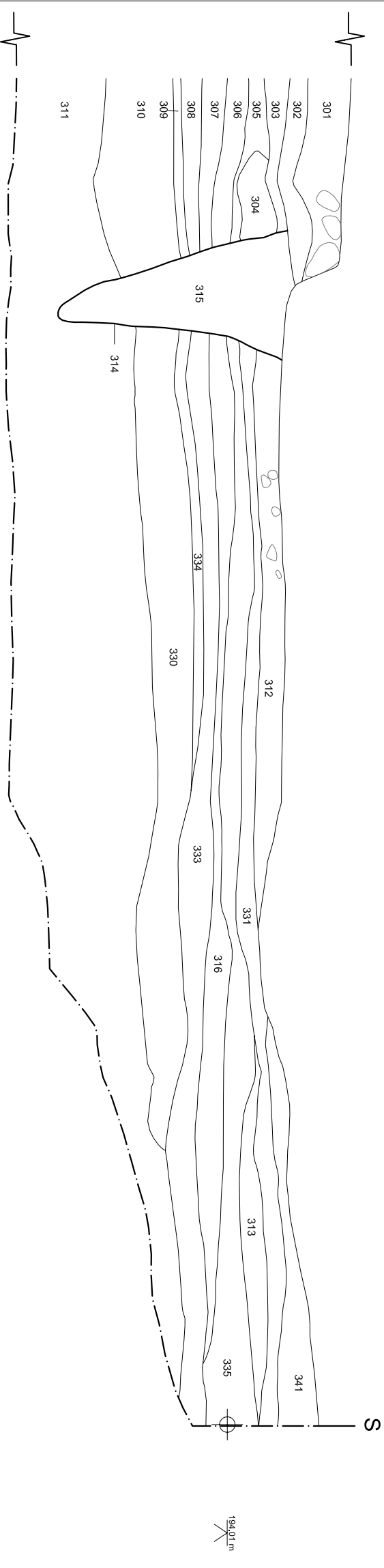
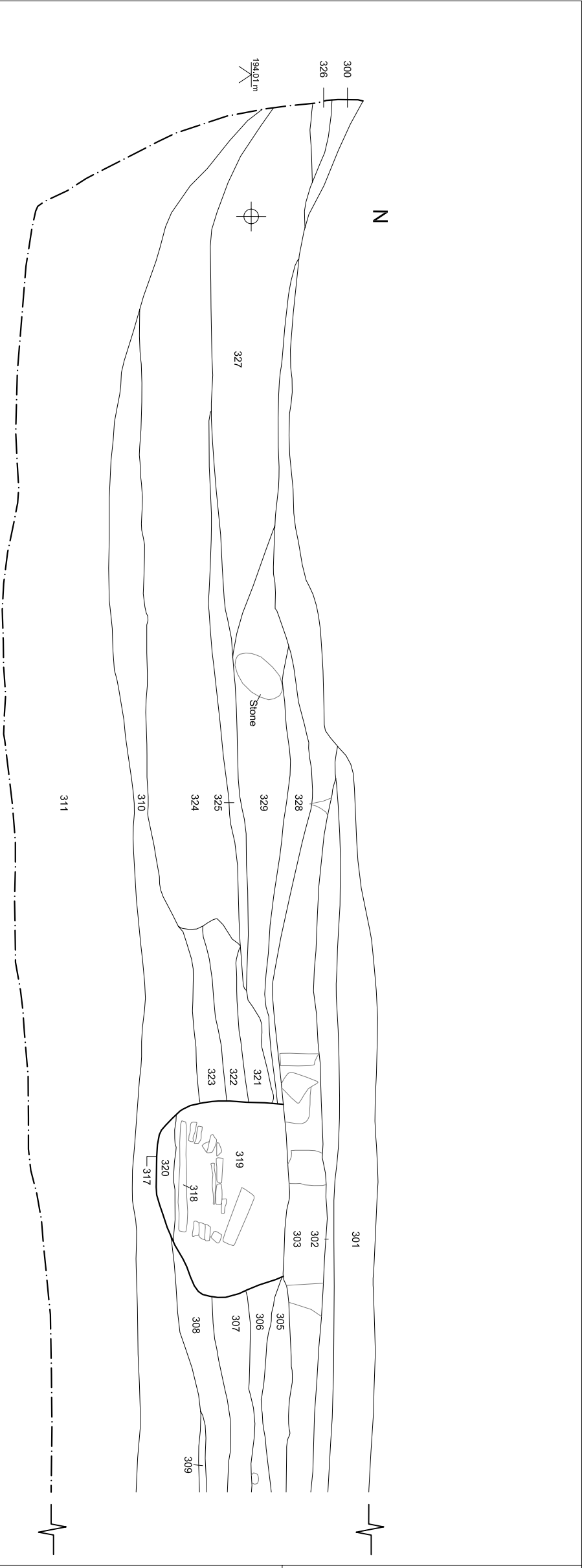
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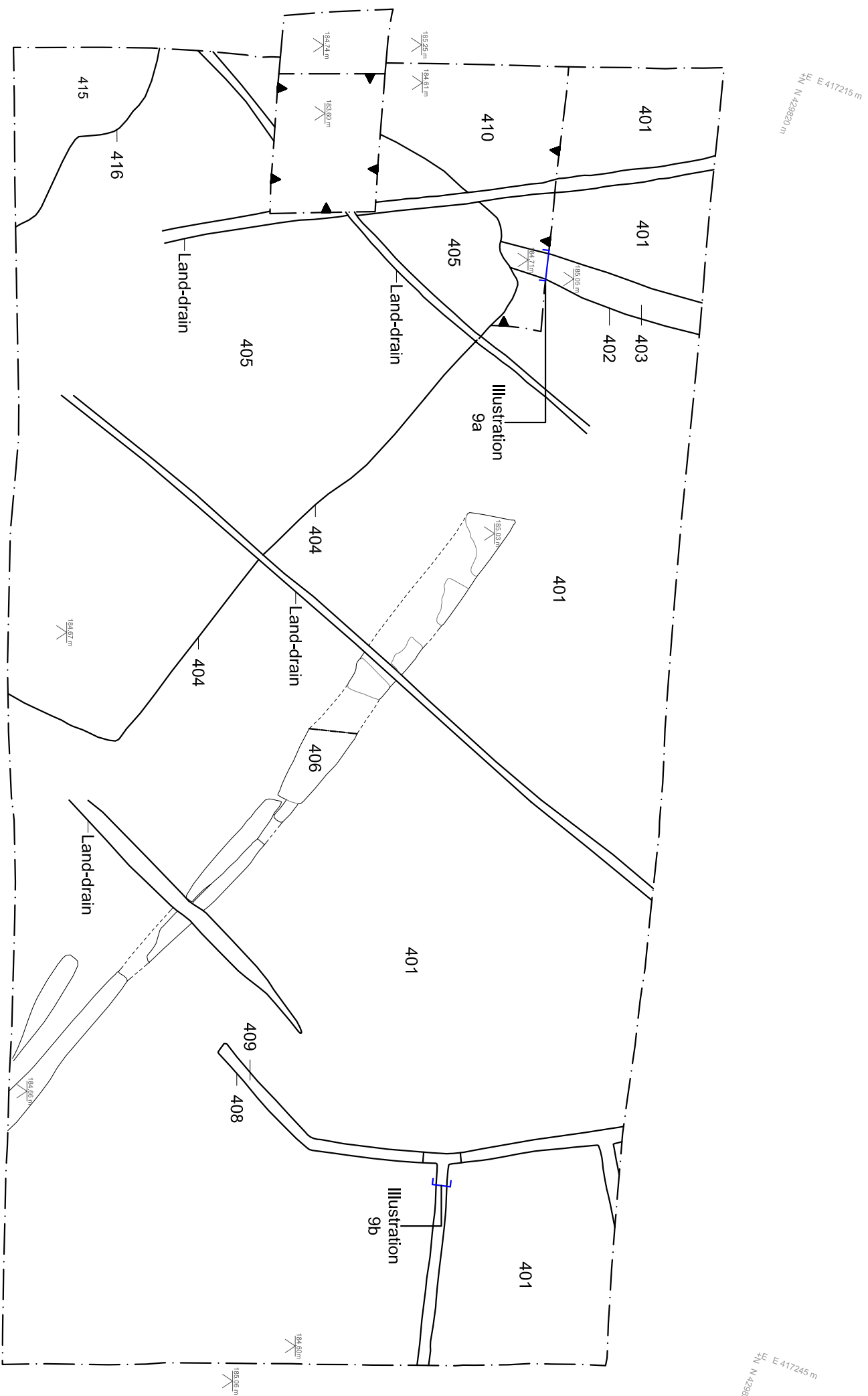
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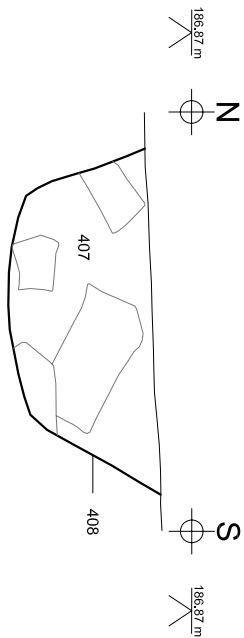
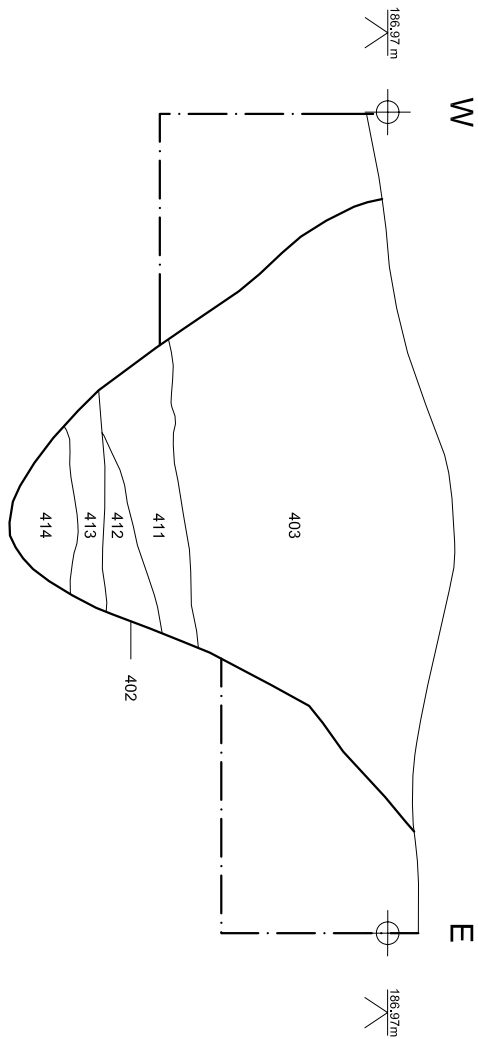
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**Project:**  
**West Bowling Golf Club, Bradford**

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<b>1104C</b>	<b>8</b>





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Project:

**West Bowling Golf Club,  
Bradford**

Title

**Area D Section through [402] and  
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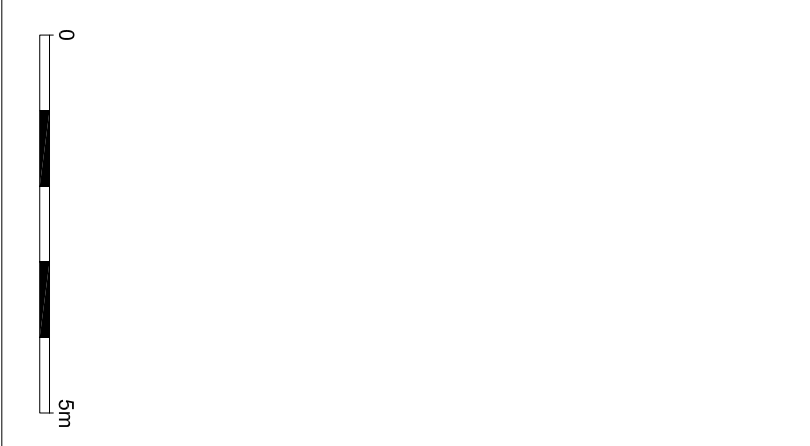
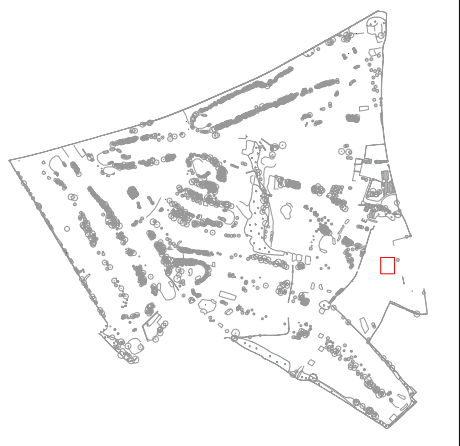
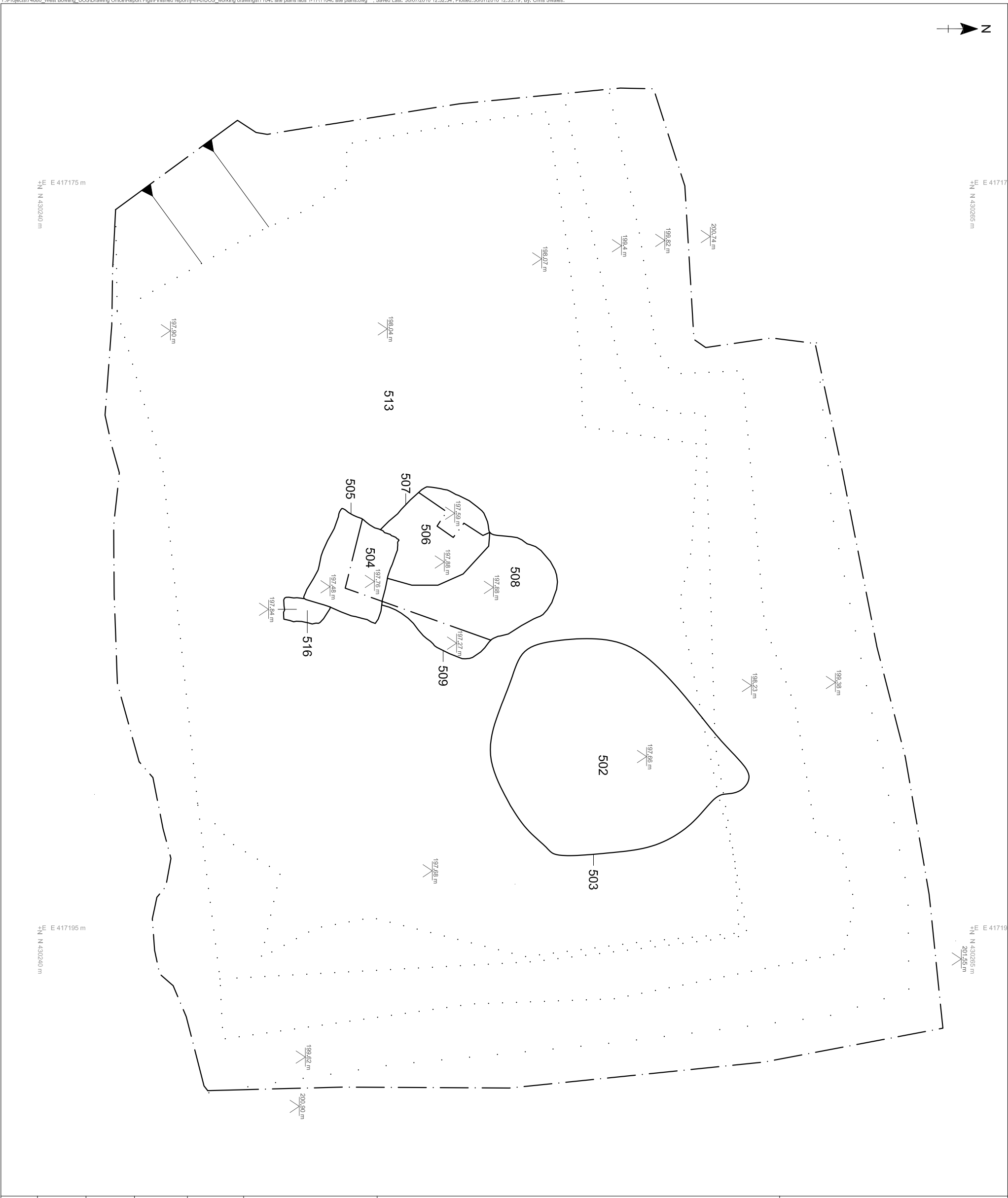
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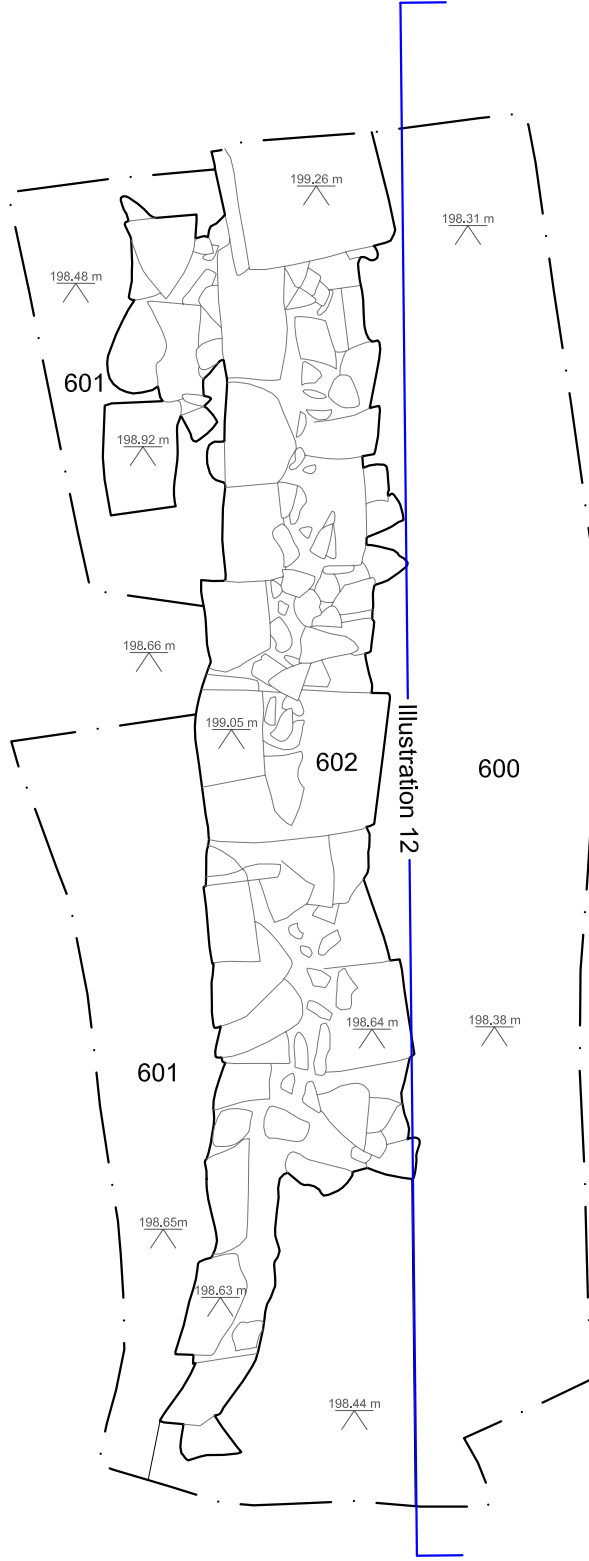
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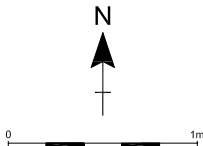
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E 416766 m  
N 430088 m

E 416769 m  
N 430088 m



Unit R6, Riverside Block  
Sheaf Bank Business Park  
Prospect Road  
Sheffield S2 3EN  
Tel: 0114 2225106  
Fax: 0114 2797158



Project:  
**West Bowling Golf Club, Bradford**

Title  
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Scale  
1:25 @ A4

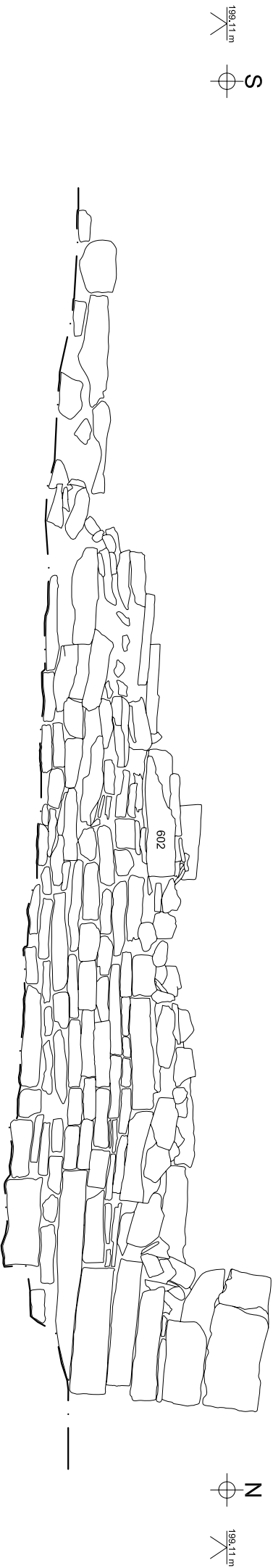
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Project No.  
**1104c**

Date  
Aug 08

Drawn  
TES

Illustration No.  
**11**



198.11m  
S

N  
198.11m



Unit 105, Riverside Block  
Shaw Bank Business Park  
Surrey, GU24 0JN  
Tel: 01482 222106  
Fax: 01482 222158

Project:  
**West Bowling Golf Club, Bradford**

Title  
**Area F elevation of [602]**

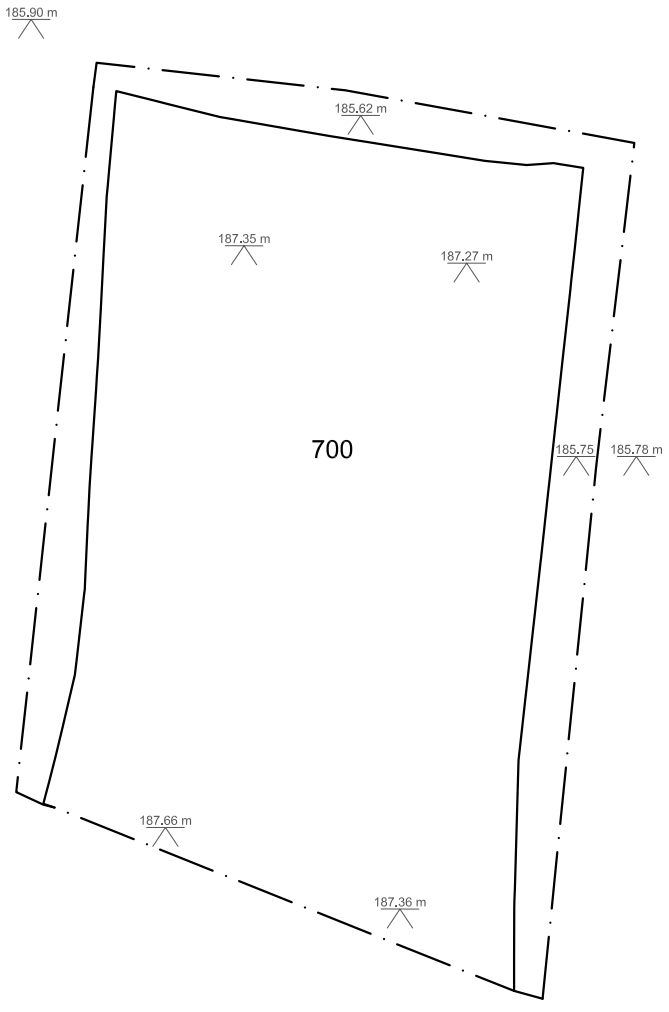
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SE171299	TES
Project No. <b>1104C</b>	Ill. No. <b>12</b>

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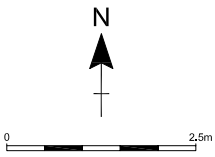
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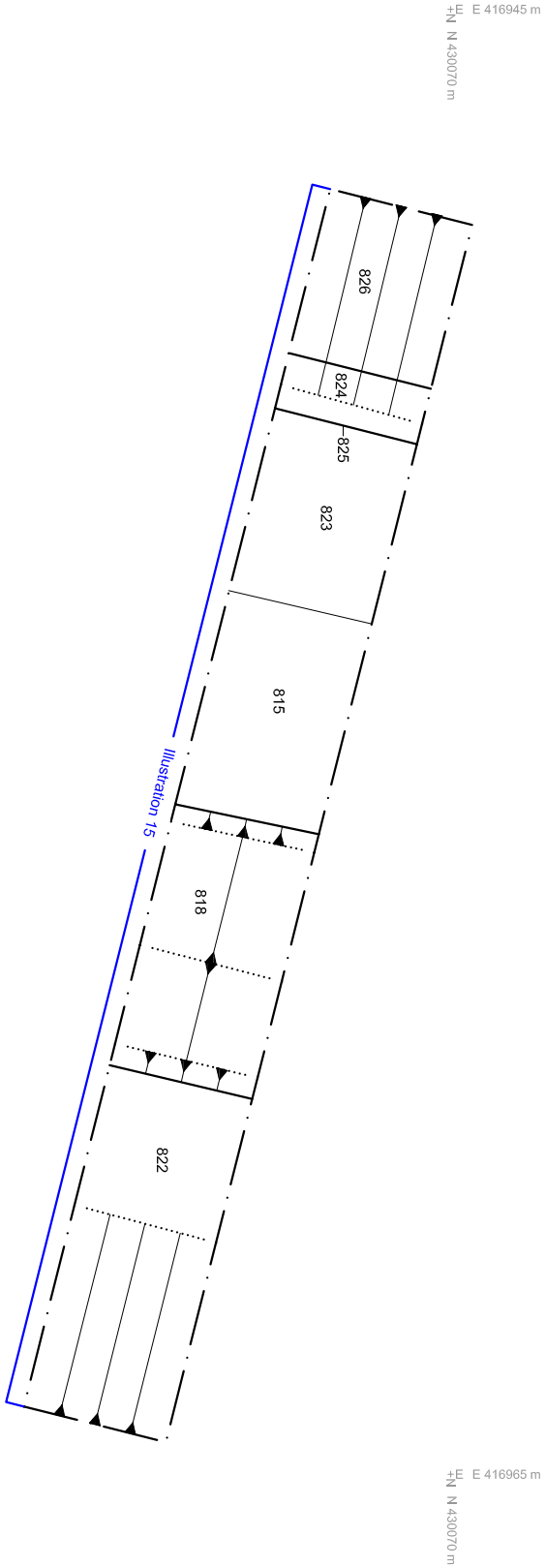


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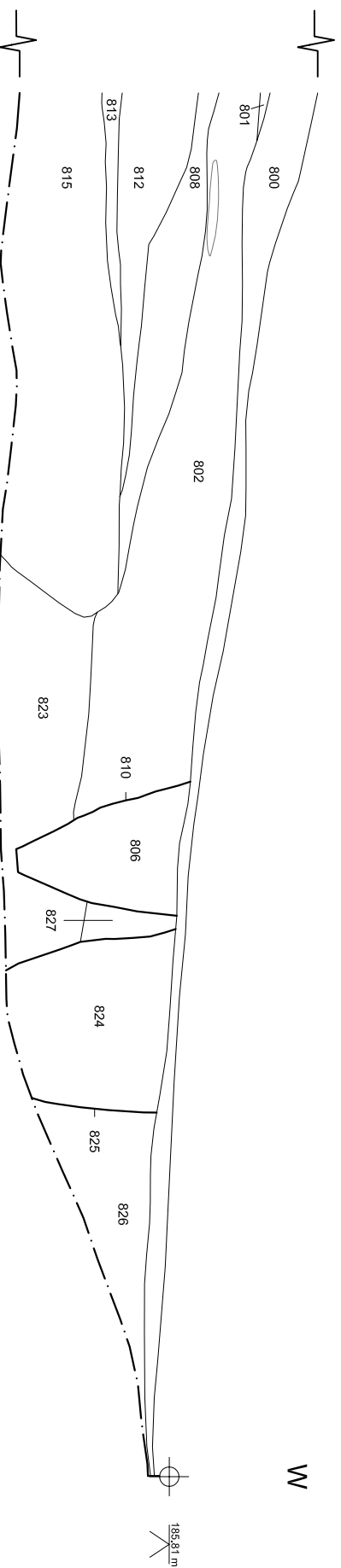
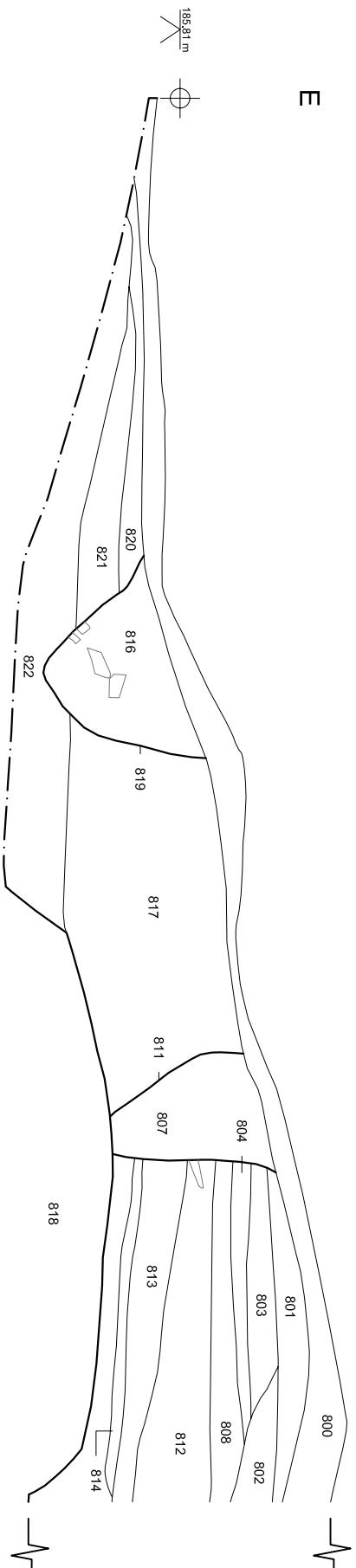
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**ARCUS**  
 Unit 60, Riverside Block  
 Shear Bank Business Park  
 Prospect Road  
 Sheffield S2 3EN  
 Tel: 0114 2225108  
 Fax: 0114 2797158

Project:		Scale		Date	
<b>West Bowling Golf Club, Bradford</b>		1:100 @ A4		Aug 08	
Title		NGR		Drawn	
<b>Area H Plan</b>		SE 1695630066		TES	
		Project No.		Illustration No.	
		<b>1104c</b>		<b>14</b>	



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Project:  
**West Bowling Golf Club, Bradford**

Title

**Area H section**

Scale

1 to 40 @ A3

Date

Aug 08

NGR

SE171299

Drawn

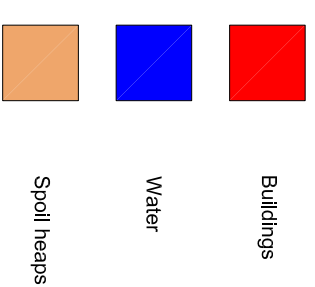
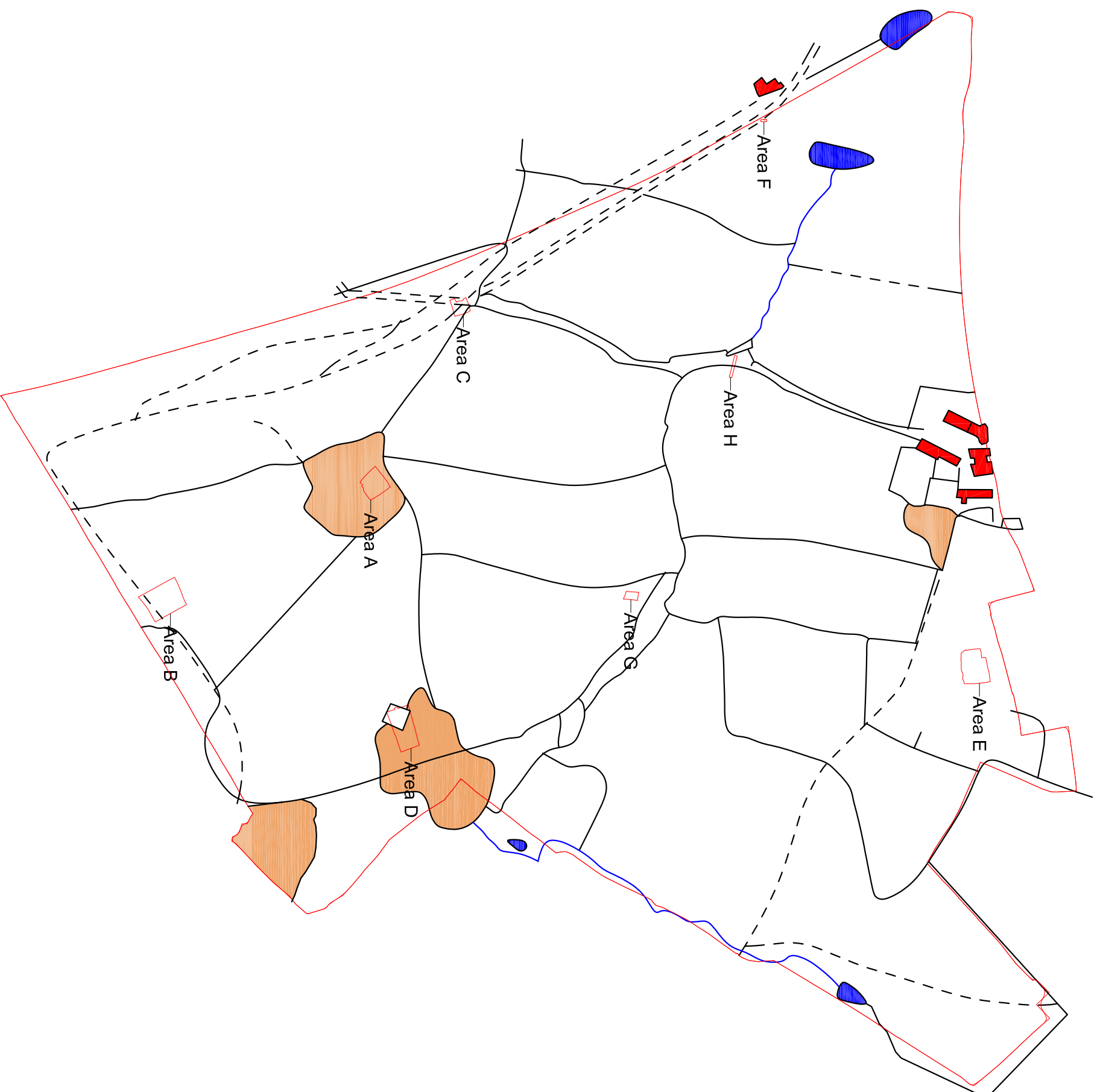
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Project No.

**1104c**

Ill. No.

**15**



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Project:

**West Bowling Golf Club, Bradford**

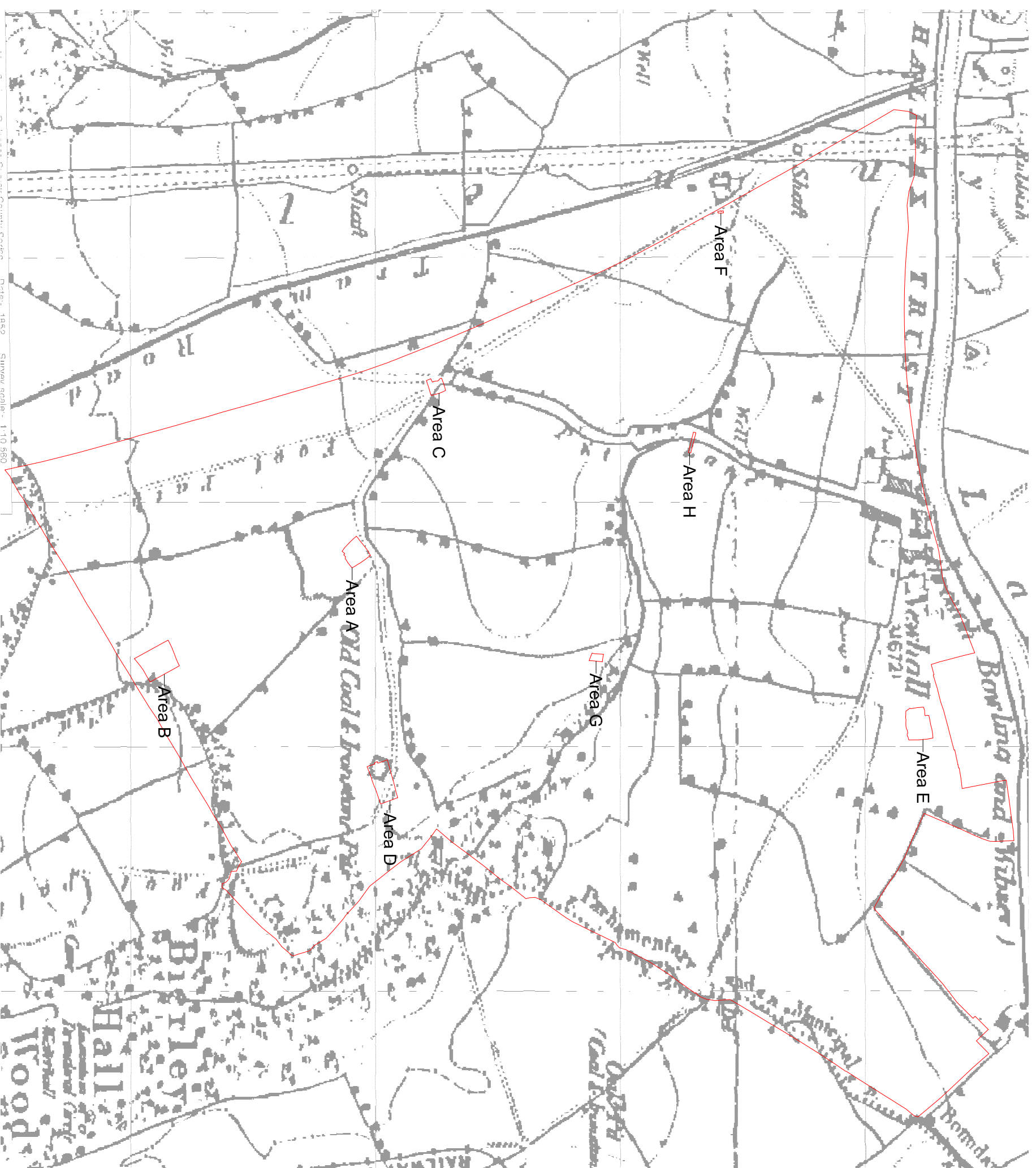
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Scale	Date
1:350	Aug 2008

NGR	Drawn
SE 171299	TES

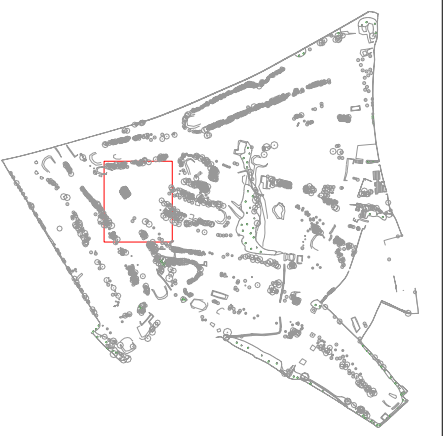
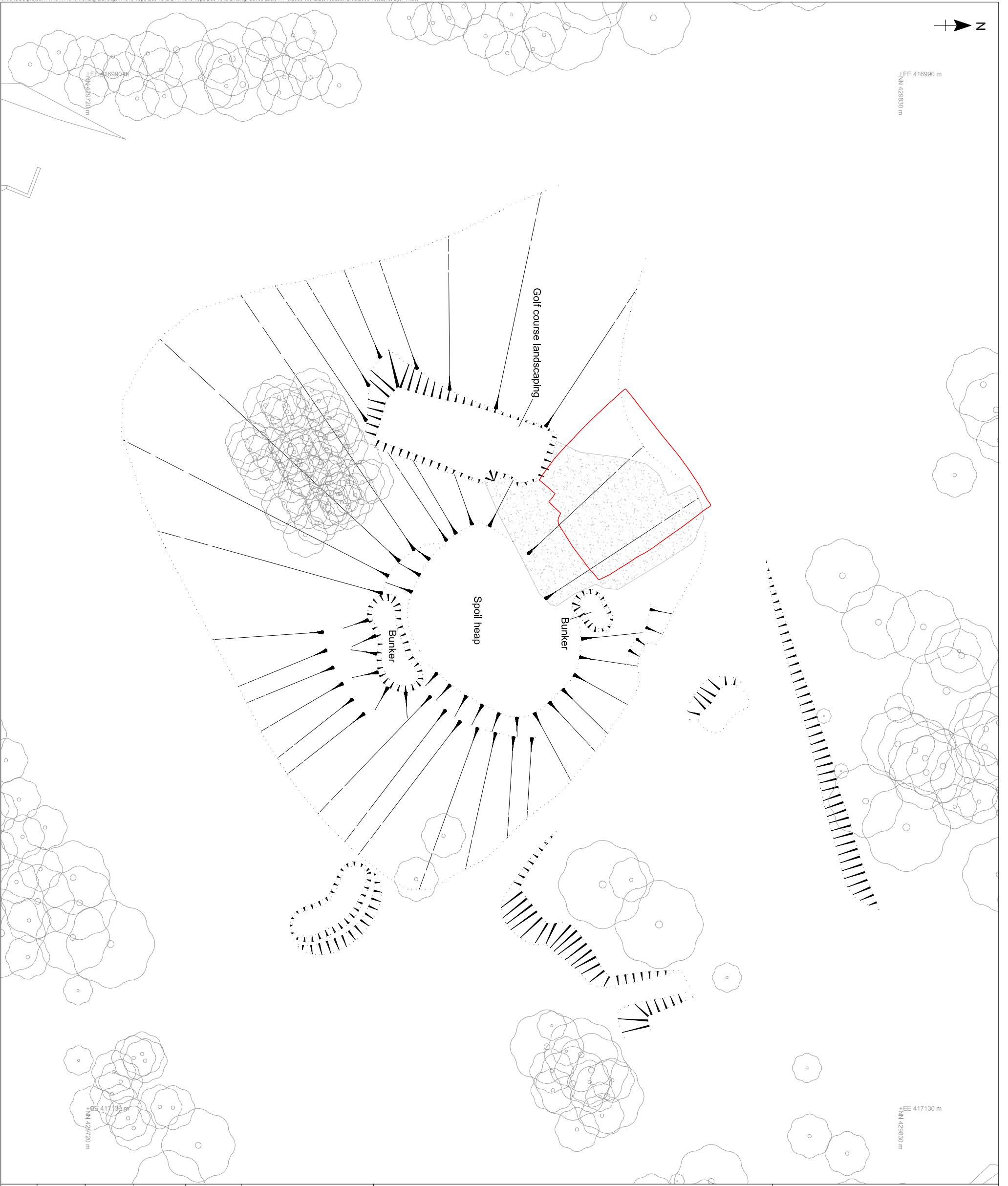
Project No.	Ill. No.
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






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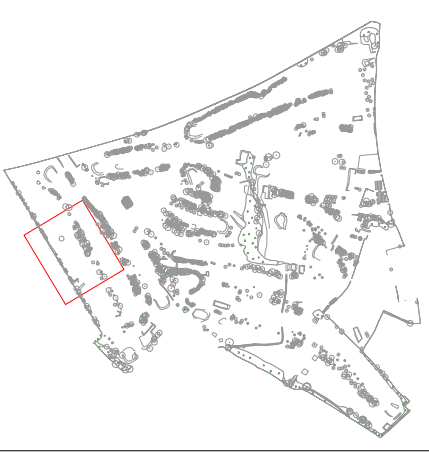
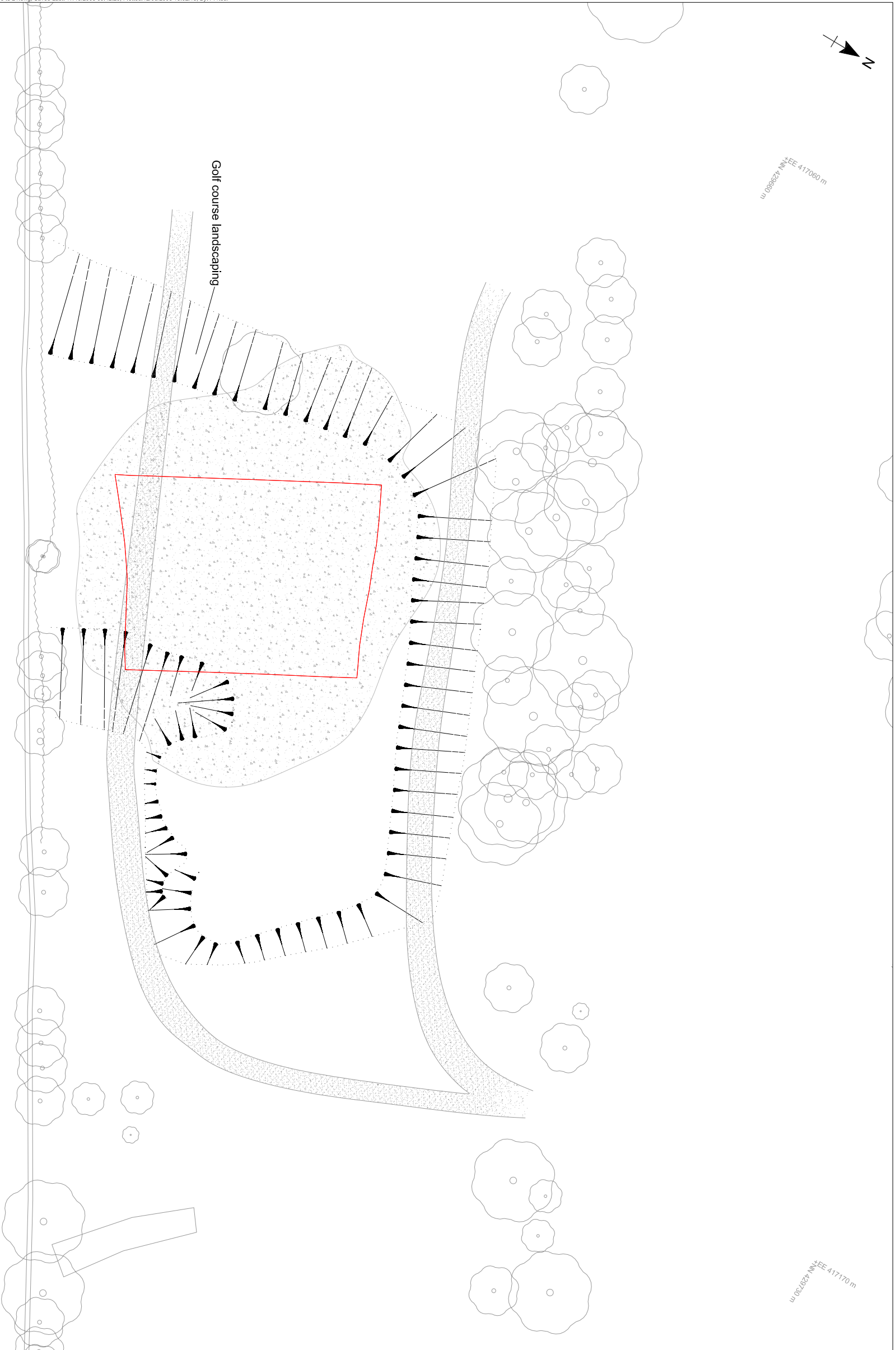
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<p> Wessex Archaeology</p>		<p>Scale 1:350 Date Aug 2008</p>	
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




-  Area of Disturbance
-  Track (Active at time of Survey)
-  Excavation



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<b>Project:</b> <b>West Bowling Golf Club, Bradford</b>	
<b>Title</b> <b>Topographic Survey of Area A</b>	
<b>Scale</b> 1 to 500 @ A3	<b>Date</b> Aug 08
<b>NGR</b> SE1706029774	<b>Drawn</b> TES
<b>Project No.</b> <b>1104c</b>	<b>Ill. No.</b> <b>18</b>



-  Area of Disturbance
-  Track (Active at time of Survey)
-  Excavation



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Project:

**West Bowling Golf Club, Bradford**

Title

**Topographic Survey of Area B**

Scale

1 to 500 @ A3

Date

Aug 08

NGR

SE1714129644

Drawn

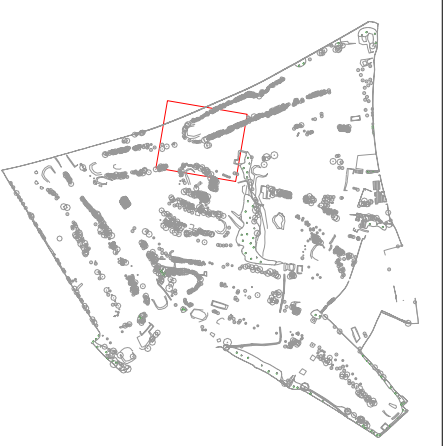
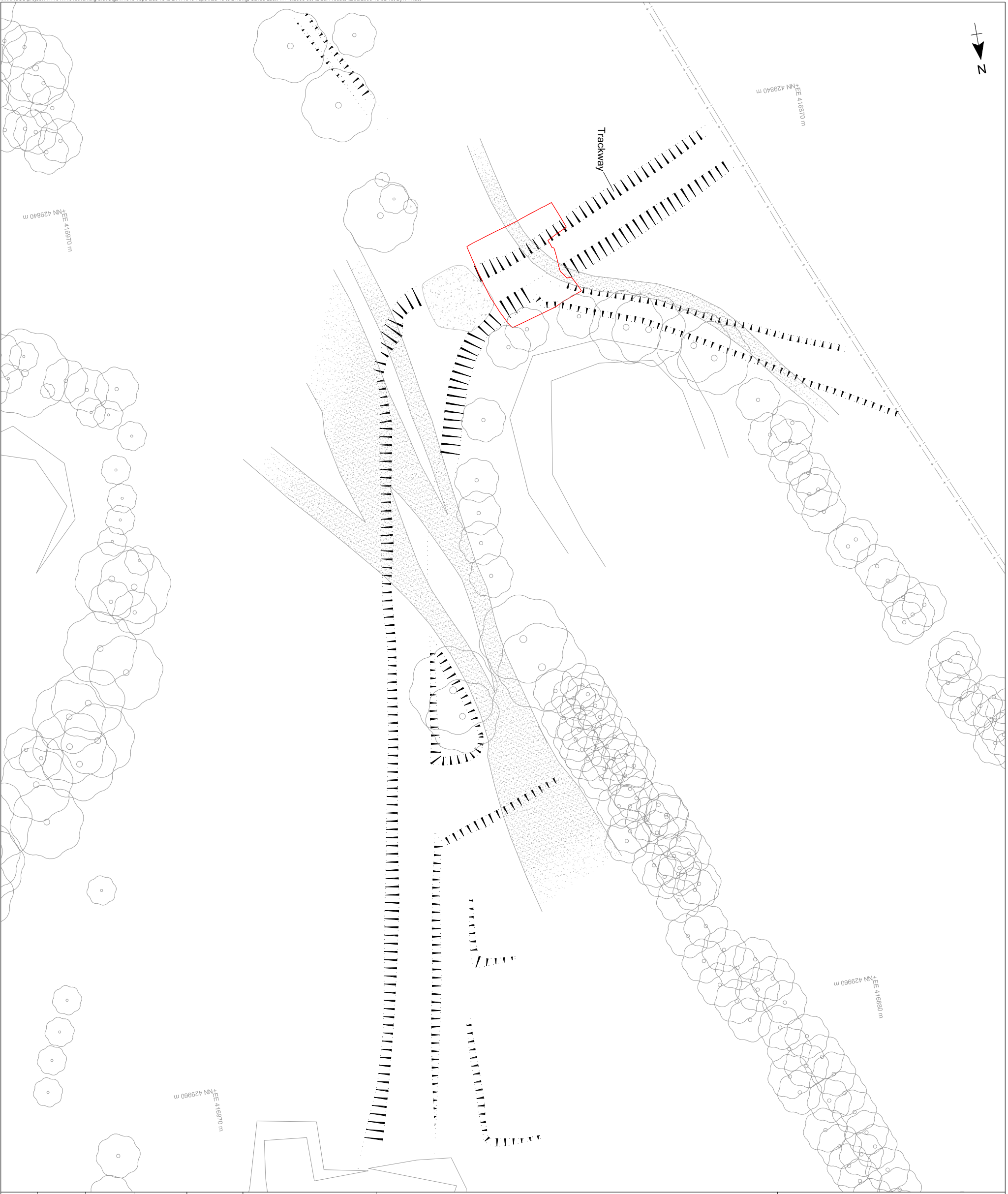
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


Project No.

**1104c**

Ill. No.

**19**



-  Area of Disturbance
-  Track (Active at time of Survey)
-  Excavation



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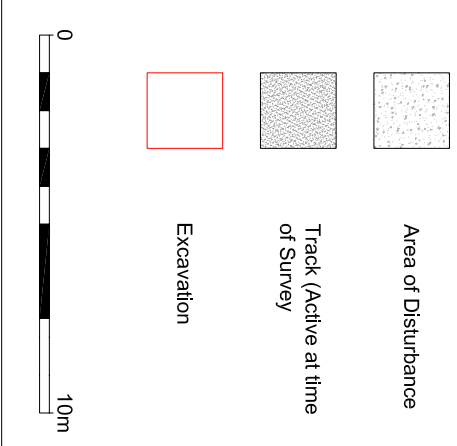
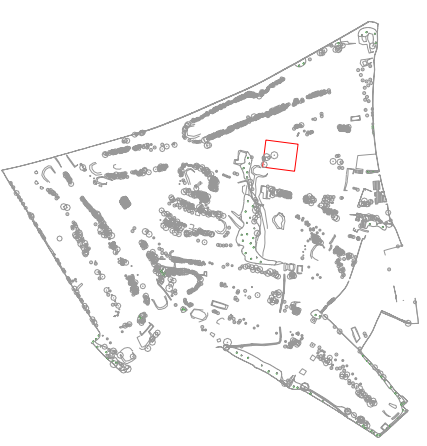
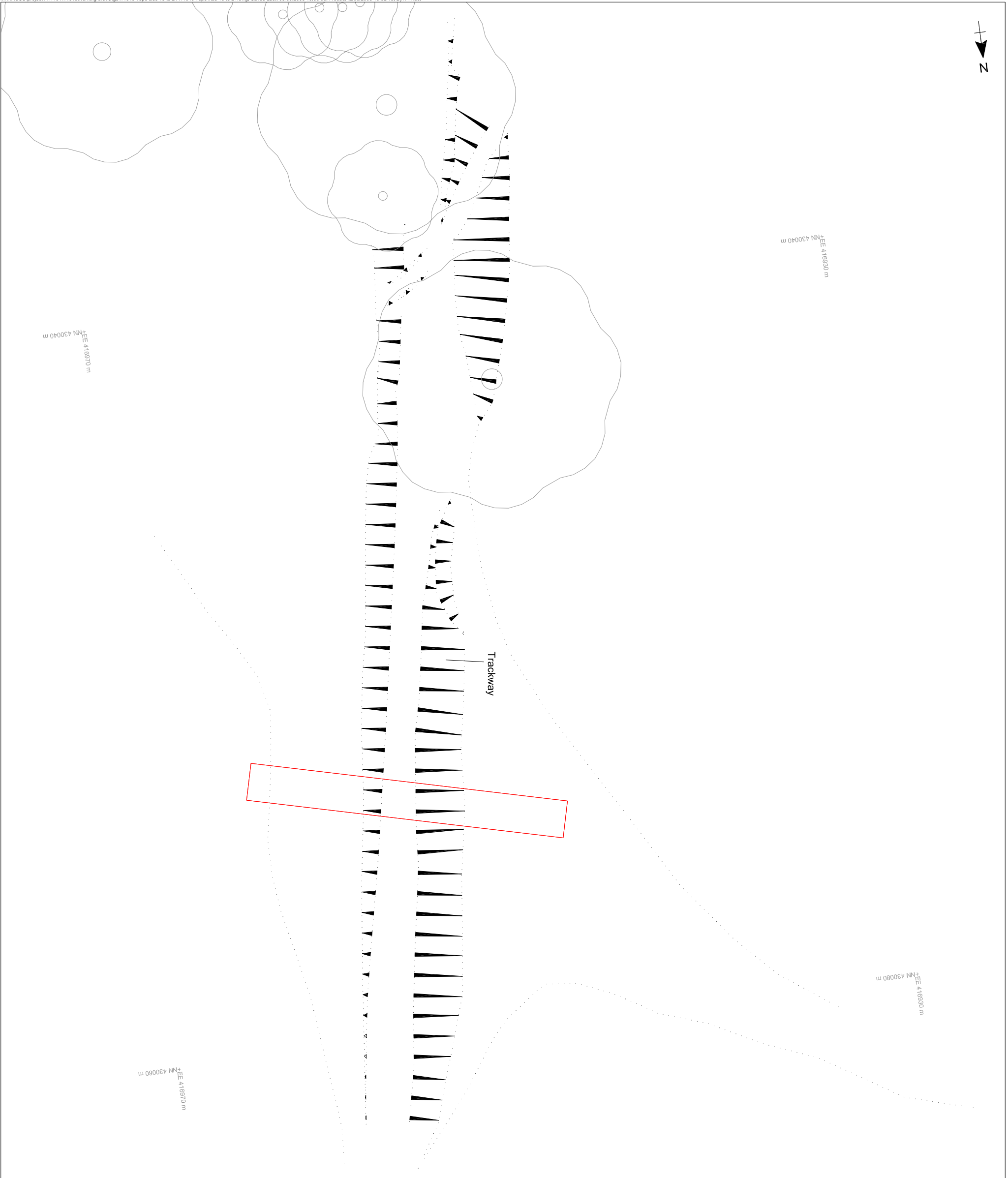
Project: **West Bowling Golf Club, Bradford**

Title: **Topographic Survey of Area C**

Scale	Date
1 to 500 @ A3	Aug 08

NGR	Drawn
SE1692029901	TES

Project No.	Ill. No.
<b>1104c</b>	<b>20</b>



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Project:  
**West Bowling Golf Club, Bradford**

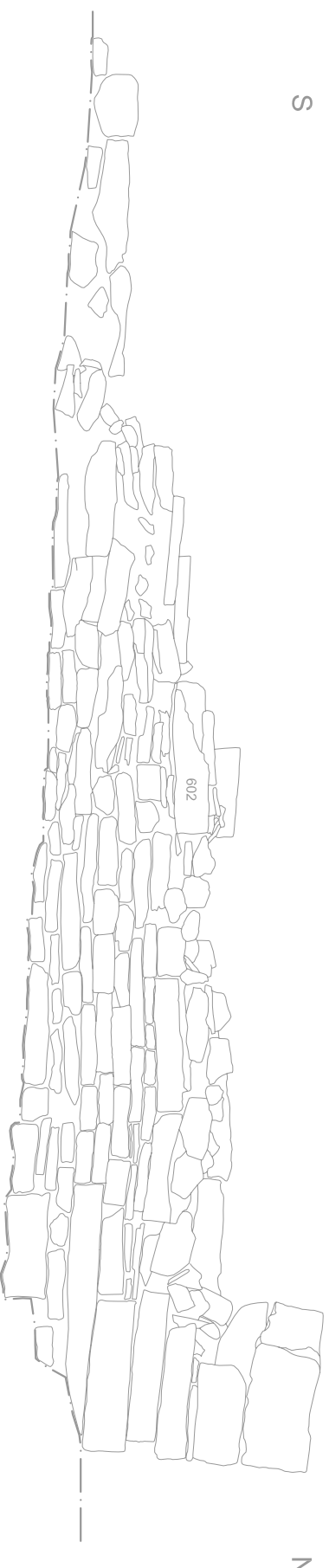
Title  
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Scale	Date
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Project No.	Ill. No.
<b>1104c</b>	<b>21</b>

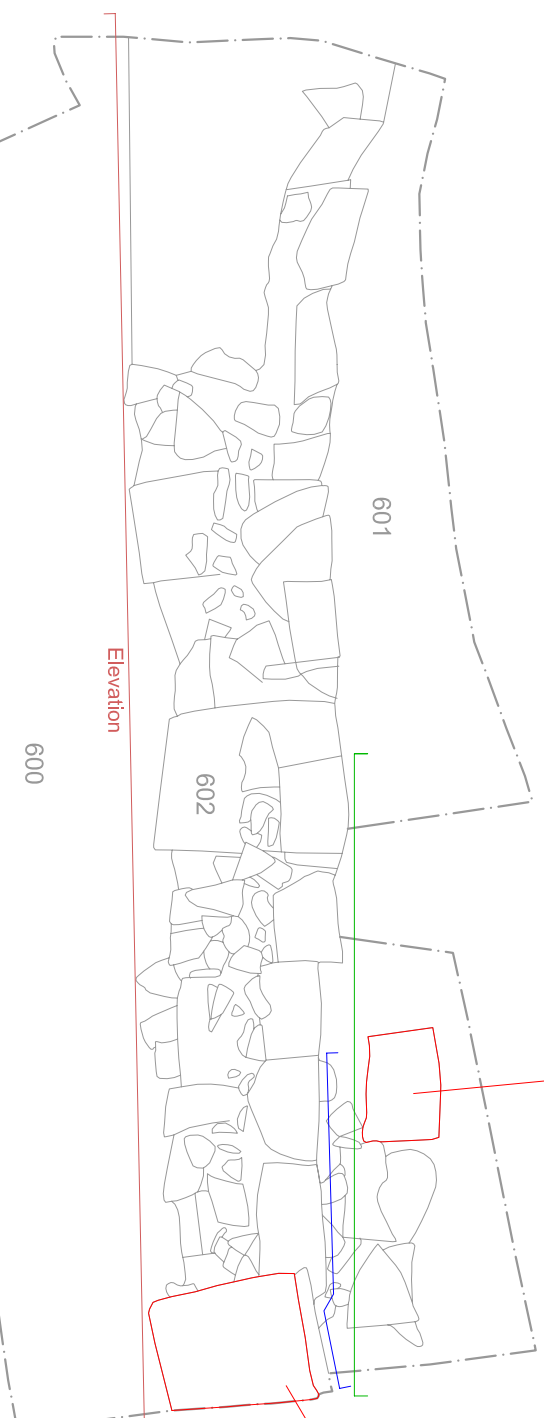
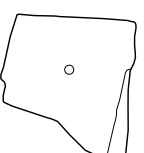
East face of wall 602. Photograph facing west.



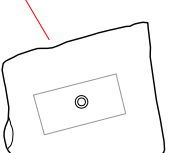
West face of wall 602. Photograph facing east.



NB. Reverse side of worked stone highlighted in red



West face of wall 602. Photograph facing east.



ARCUS Illustrations edited by Wessex Archaeology on behalf of the University of Sheffield

Project: **West Bowling Golf Club, Bradford**

Title

**Re-used stone in wall 602**

Scale

Main graphic - 1 to 25 @ A3

Date

Aug 08

NGR

SE1706029774

Drawn

CS

Project No.

**1104c**

Ill. No.

**22**





**Plate 1** – General view of Area A looking east



**Plate 2** – General view of Area A showing wall 105 within spoil heap





**Plate 3** – General view of Area B looking west



**Plate 4** – Detail of section from slot in Area B showing backfill of geotechnical test pit



**Plate 5** – General view of Area C looking west



**Plate 6** – Detail of paving 335 in Area C path



**Plate 7** – Detail of section through track in Area C showing drain **318**



**Plate 8** – General view of Area D showing rectangular feature **404** in background



**Plate 10** – Detail of section through ditch 402 showing fill 403



**Plate 9** – General view of Area D looking south, showing 402



**Plate 11** – Detail of **408** after excavation, Area D



**Plate 12** – General pre-excitation image of Area E



**Plate 13** – General post-excavation image of Area E, showing spoil heap in background



**Plate 14** – Detail of intercutting pits 505, 507, 509, and 516 in Area E



**Plate 15** – Detail of architectural stone fragment reused in structure **514** in Area E



**Plate 16** – General view of mine shaft **503** in Area E



**Plate 17** – General view of wall 602 in Area F



**Plate 18** – Detail of re-used masonry in 602 in Area F





**Plate 20** – General view of wall 602 in Area F post-excitation



**Plate 19** – General view of wall 602 in Area F pre-excitation



**Plate 21** – General view of Area G after vegetation clearance



**Plate 22** – Detail of retaining wall of platform in Area G, looking west



**Plate 23** – General view along western wall of platform in Area G



**Plate 24** – General view along eastern wall of the platform in Area G, following clearance



**Plate 25** – General view of Area H before excavation, looking south



**Plate 26** – Detail of section in Area H showing layers of metalling forming track way



**Plate 27** – General view of Area A during watching brief showing circular feature believed to be former mine shaft



**Plate 28** – General view showing mine shaft exposed during watching brief within Area D



**Plate 29** – Example of tramway sleeper pad and rail fixtures (photograph from ARCUS archive, original source unknown)

**APPENDIX 1: WYAAS SPECIFICATION**

**Specification for Archaeological Investigation  
Former West Bowling Golf Course, Rooley Lane, Bradford  
(SE 1708 2988)**

**Specification prepared on behalf of City of Bradford Metropolitan District Council at the request of Under Construction Archaeology**

**Planning Application ref: 07/05869/OUT**

**1. Summary**

1.1 Targeted archaeological work consisting of a combination of earthwork survey, archaeological strip and record and selective trenching is proposed to identify and record any archaeological remains related to 18<sup>th</sup> and early 19<sup>th</sup> century mining within the wider landscape of the former West Bowling Golf Course.

1.2 This specification has been prepared by the West Yorkshire Archaeology Advisory Service (WYAAS), the holders of the West Yorkshire Historic Environment Record in their capacity as Bradford District's officially retained professional advisors on the Historic Environment.

**1.3 Additional belowground archaeological investigation will be required in the immediate vicinity of Newhall (the Grade II\* Listed building at the northern edge of the site), and Building Recording will be required in the historic building. A separate specification for these works will be issued by the WY Archaeology Advisory Service.**

NOTE: The requirements detailed in paragraphs 6.2, 6.3, 6.4 and 9.1 are to be carried out by the archaeological contractor prior to the commencement of fieldwork and the attached notification form completed.

**2. Site Location & Description (Fig. 1)**

**Grid Reference: SE 1708 2988 (centred)**

2.1 The application site lies to the south of Rooley Lane and to the east of the M606. It is accessible from Rooley Lane.

2.2 The site lies in Bradford District and was historically within the Township of Bowling. The geology is boulder clay over the Lower Coal Measures.

**3. Background**

3.1 An Outline planning application for a mixed-use development on this site has been approved by Bradford District Council.

3.2 The Planning Authority have been advised by WYAAS that there is reason to believe that important archaeological remains may be affected by the proposed development and that a programme of archaeological work is required. WYAAS have advised that the archaeological work should be secured as a condition to the planning consent.



3.3 The site has been subject to partial geophysical survey and trial trenching, partial auguring, map regression and a Walkover Survey by experienced archaeological contractors. There is some circumstantial evidence for the survival of archaeologically significant remains on the site, but much of the site has been subject to landscaping and alteration during the period of operation of the golf course (1898-2006), and it is not possible to absolutely identify the presence of archaeological remains in most of the area which forms the subject of this specification. However, the circumstantial evidence (see 4.1.2) below is considered to be sufficiently strong to merit a degree of archaeological investigation prior to the large-scale landscaping of the site.

3.4 The developer has undertaken some elements of geotechnical investigation on this site. These appear to have included an attempt to locate and characterise extant mine shafts on the basis of survey information. Archaeological contractors should be aware that this work has resulted in a measure of ground disturbance in a number of the areas identified below as being of archaeological interest.

3.5 This specification has been prepared by the WY Archaeology Advisory Service, to detail what is required for the archaeological investigation and to enable an archaeological contractor to provide a quotation for the first stage of archaeological investigation required on this site. The specification has been issued to Under Construction Archaeology (82 Farm Road, Crossgates Leeds LS15 7LA, contact David Hunter ☎ 0113 264 1292; email [david@ucarc.com](mailto:david@ucarc.com)), who are acting as archaeological consultants for the developer. **NB: A separate specification will be issued for work in the vicinity of Newhall.**

## 4. Archaeological Interest

### 4.1 Historical Background

4.1.1 Part of the northern portion of the development area is occupied by Newhall, a Grade II\* Listed house of the 17<sup>th</sup> century with possible origins in the Medieval period. This building and the site of its attendant outbuildings are of regional and potentially national archaeological significance, and will form the subject of a separate specification.

4.1.2 The current specification concerns that portion of the proposed development site (approximately the southern and eastern 75% of the site) which lies in an area believed to have been subject to an organised programme of mineral extraction at some point prior to 1845. Coal and Ironstone extraction was common in the area by the late 18<sup>th</sup> century, and mines were present on land associated with Newhall (then Newhall Hall Farm) by 1802. Mining within the development area may have been instigated as the result of a mineral lease taken out by the partners of the Shelf Ironworks in 1802; active mining appears to have ceased by 1850. In addition to known areas of extraction previously identified and recorded in the north-eastern corner of the site, cartographic evidence suggests the following:

- The possible presence of one or more gin winders in the north-west corner of the site (the area of potential in this instance is very large and there are currently no means of identifying smaller areas of probable survival within it).
- An area of extraction in the south-central and south-eastern parts of the site, including a small reservoir (possibly associated)

- A series of tramways (or more probably, haul roads) linking these areas with each other, the main road, and (potentially) a wider tramway network known to have supplied the ironworks of the immediate vicinity, including that at Shelf

4.1.3 The evidence above, in combination with previous geophysical survey and trenching/auguring in the northern part of the site (Wessex 2003), results of a walkover survey (ARCUS, 2007) and examination of the available aerial photographs has identified features on the site which may confirm the survival of remains associated with mining on the site. Features of potential comprise:

- the possible survival of two low pit heaps (suggesting the presence of engine-worked haulage and therefore a potential for structural remains in this area) – A and B on the attached plan
- a small number of raised footpaths which may incorporate the remains of mineral railways or haul roads – C
- pit shafts apparently visible as cropmarks, apparently overlying ridge and furrow, in the vicinity of the reservoir noted in 4.1.2 above; the reservoir suggests pumping and may therefore indicate the presence of structural remains in the area – D
- an area of mine shafts identified by geophysical survey at the north-eastern corner of the site; the concentration may suggest a potential for associated remains – E
- worked stones which may include stone tramway sleepers preserved in a wall at the north-western edge of the site - F

In addition, a small number of well-defined features are visible which are of unknown origin but which (on the basis of their morphology) are equally likely to be mining features or the results of 20<sup>th</sup>-century landscaping. These comprise:

- a stone platform at the centre of the site which may be mining related or may be an early teeing-off point – G
- a low earthwork (now forming part of a footpath) which may have its origins in a dam or other water-management feature possibly extant in the early 19<sup>th</sup> century, or may be a raised footpath over boggy ground serving the golf course - H

The site also appears to encompass a small number of isolated shafts for which there is no evidence or suggestion of attendant structures. Individual shaft-heads are currently a low priority for archaeological investigation in West Yorkshire, and no further action is required on these features in this instance.

## 4.2 Impact of proposed development

It is the developers' intention to subject the whole of the site to comprehensive landscaping, and all areas of potential archaeological interest will be topsoil stripped and either be excavated out or covered over to a depth of up to 5 metres prior to the commencement of building work on the site. Any archaeological information present will therefore effectively be lost as a result of this development.

### **4.3 Research Priorities**

4.3.1 The general background and priorities for investigation of the archaeology of the West Yorkshire coal industry are outlined in the WYAAS Research Agenda for Industrial Archaeology (2003) at <http://www.archaeology.wyjs.org.uk/>. The industry has been the subject of a few technical histories, which have largely concentrated on developments in the coalfields of Shropshire, of South Wales and of the Northumberland/Durham region and then extrapolated national conclusions from this data. Because the nature of coal seams varies widely from area to area, the methods of drainage/haulage/ventilation etc. adopted to deal with them at different periods also varied widely. Little physical evidence has as yet been retrieved for the application and uptake of technology within the Yorkshire coalfield, and a study of such evidence has the potential to add considerably to a national overview of the development of the industry.

4.3.2 The current priority in West Yorkshire is the gathering of data on a range of typical colliery structures and practices over the whole of the working life of the coal field. At surface level, priority is being given to investigation and excavation on those sites which are likely to retain belowground remains of colliery structures which will either illustrate typical colliery layout and practice at a particular era or will provide evidence for layout and practice at crucial periods of technological transition such as the late 18<sup>th</sup>/early 19<sup>th</sup>.

4.3.3 Where remains which have the potential to fulfil these criteria have been positively identified, they would normally attract a recommendation for full, open-area archaeological excavation. However, it should be stressed that the landscape which forms the subject of this specification appears to have undergone substantial alteration during its use as a golf course over the course of the last century, and that the available physical evidence is subject to a variety of possible interpretations. For this reason, archaeological investigation will be confined to a more summary investigation of specific areas of potential.

### **5. Aims and Objectives**

5.1 The aim of the archaeological investigation is to identify and record the presence/absence, extent, condition, character and date (as far as circumstances permit) of any archaeological features and deposits within the areas marked in green on the attached plan.

5.2 The exercise is designed to mitigate the destruction of buried archaeological remains through 'preservation by record'.

### **6. General Instructions**

#### **6.1 Health and Safety**

6.1.1 The archaeologist on site will naturally operate with due regard for Health and Safety regulations. Some elements of this specification may need to be carried out during ground preparations on the site. Where archaeological work is carried out at the same time as the work of other contractors, regard should also be taken of any reasonable additional constraints that these contractors may impose.

6.1.2 The contractors' attention is drawn to the fact that the primary intention of this specification is the investigation of mining remains, and that some of the areas of

interest may include uncapped or insecurely capped shafts. Prior to the commencement of any work on site (and preferably prior to submission of the tender) the archaeological contractor is required to carry out a Risk Assessment in the areas where shafts have been identified by the developer (where these correspond with the areas of interest detailed in 7.1 below) in accordance with the Health and Safety at Work Regulations. On the basis of this Risk Assessment, the contractor should then submit in writing to the WY Archaeology Advisory Service and to Under Construction Archaeology a strategy for safe investigation of the area around these shafts, including any requirements for shoring, reinforced or load-dispersing trackways, etc.

6.1.3 The contractor is expected to make a reasonable effort to execute the recording work. If a portion of the site is legitimately judged to be inaccessible without breach of the Health and Safety at Work Regulations, even with the provision of additional measures, then confirmation of this judgement by a competent and appropriately qualified individual or organisation must be submitted in writing to the West Yorkshire Archaeology Advisory Service, along with a variation of the specification containing recommendations for an appropriate reduction in the scope of archaeological investigation and recording for consideration and approval by WYAAS on behalf of City of Bradford MDC. The WY Archaeology Advisory Service and its officers cannot be held responsible for any accidents or injuries which may occur to outside contractors engaged to undertake this survey while attempting to conform to this specification.

## **6.2 Confirmation of Adherence to Specification**

Prior to the commencement of any work, the archaeological contractor must confirm in writing adherence to this specification (using the attached form), or state in writing (with reasons) any specific proposals to vary the specification. Should the contractor wish to vary the specification, then written confirmation of the agreement of the WY Archaeology Advisory Service to any variations is required prior to work commencing. Unauthorised variations are made at the sole risk of the contractor (see para. 13.1, below). Modifications presented in the form of a re-written project brief will not be considered by the West Yorkshire Archaeology Advisory Service.

## **6.3 Confirmation of Timetable and Contractors' Qualifications**

Prior to the commencement of *any work*, the archaeological contractor must provide WYAAS in writing with:

- a projected timetable for the site work
- details of project staff structure and numbers
- names and CVs of key project members (the project manager, site supervisor, any proposed specialists, sub-contractors *etc.*)
- details of any specialist sub-contractors

All project staff provided by the archaeological contractor must be suitably qualified and experienced for their roles in accordance with PPG 16 para. 21. Either the project manager or the site supervisor must be able to demonstrate an appropriate specialist understanding of the development and technology of coal mining. The project manager or the site supervisor must also be able to demonstrate previous experience of archaeological excavation on a site or sites relating to coal mining.

The WY Archaeology Advisory Service may consider waiving this requirement if suitable professional expertise can be subcontracted and procedures approved by WYAAS are put in place to ensure that site attendance by the specialist subcontractor is sufficient to guarantee an appropriate level of overview. The timetable should be adequate to allow the work to be undertaken to the appropriate professional standard, subject to the ultimate judgement of WYAAS.

#### 6.4 Notification and Monitoring

6.4.1 The recording exercise will be monitored as necessary and practicable by WYAAS in its role as curator of the county's archaeology. WYAAS should be provided with as much notice as possible in writing (and certainly not less than one week) of the intention to start the watching brief. A copy of the archaeological contractor's risk assessment of the site should accompany the notification.

6.4.2 The museums officer named in paragraph 9.1 should be notified in writing of the commencement of fieldwork at the same time as WYAAS.

6.4.3 As a courtesy, the English Heritage Regional Scientific Advisor should also be notified of the intention to commence fieldwork (Andy Hammon, Tel:01904 601901, email [andy.hammon@english-heritage.org.uk](mailto:andy.hammon@english-heritage.org.uk)).

#### 6.5 Documentary Research

6.5.1 Prior to the commencement of *fieldwork*, the archaeological contractor (either the project manager or the site supervisor) must visit the WY Historic Environment Record in order to familiarise themselves with the archaeological/historical background of the site and environs, and to review the relevant sections of previous reports of archaeological work on this site. In addition to providing a knowledge base for the work in hand, the results of this assessment may be incorporated into the contractor's report where they are considered to contribute to that report, but any extraneous material should be omitted and the original sources should be appropriately acknowledged. Please note that the HER makes a charge for commercial visits.

### 7. Fieldwork Methodology

The archaeological investigation techniques required will vary from area to area. This section of the specification first sets out the requirements for individual areas of interest, and then provides detail of the required methodology for each investigative technique to be employed.

AREA NAME	ARCHAEOLOGICAL INTEREST	GRID REF. (CENTRED)	INVESTIGATIVE TECHNIQUE
<b>A</b>	Possible pit head with associated heap to south/south-west	410750/ 429770	Earthwork survey; strip and record
<b>B</b>	Possible pit head with associated heap to south/south-east	417170/ 429650	Earthwork survey; strip and record

AREA NAME	ARCHAEOLOGICAL INTEREST	GRID REF. (CENTRED)	INVESTIGATIVE TECHNIQUE
<b>C</b>	Junction of five footpaths which may constitute the remains of purpose-built tramways or haul-roads	416920/ 429880	Earthwork survey; sample section
<b>D</b>	Possible pit heads associated with adjacent reservoir	417260/ 429800	Strip and record
<b>E</b>	Cluster of mine shafts	417190/ 430260	Strip and record
<b>F</b>	Wall containing possible sleepers	416770/ 430090	Dismantle; sort for sleeper types (if found), drawn and photographic record (if found)
<b>G</b>	Stone platform	417131/ 422999	Plan; photographic record; strip and record
<b>H</b>	Possible dam	416966/ 430137	Earthwork survey; sample section

### 7.1 Earthwork Survey (Areas A, B, C, H)

All visible features should be recorded in summary form, including a written description (incorporating measurements), a measured sketch plan at an appropriate scale (not less than 1:1250), and a photographic record. If electronic survey equipment is to be employed, methodology must be agreed in writing by the WYAS Advisory Service prior to the commencement of fieldwork. Electronic data capture will only be permitted either if a system is employed which permits the checking of drawings (as opposed to data) in the field, or if gross detail and controls are established by EDM and fine detail and interpretation is then added in the field by hand using a recognised survey technique. The photographic record should include a light-coloured tape laid across each feature being photographed in order to accentuate the profile being recorded.

### 7.2 Sample Section (Areas C, H)

Each discrete linear feature identified by earthwork survey should be subject to a single hand-dug section no less than 1 metre wide, excavation and recording techniques to follow the requirements in section 7.3 below.

### 7.3 Strip and Record (Areas A, B, D, G, E)

#### 7.3.1 Method of Excavation

In each area, stripping should commence at the point where features are most likely to be present (e.g. in the area immediately in the vicinity of the shaft). Stripping should continue outward either until the full extent of the archaeology has been uncovered (it is anticipated that this may be an area of up to 400m<sup>2</sup> in each instance) or until it has been established that no archaeological remains requiring detailed examination survive in the area in question, subject to the ultimate judgement of the WY Archaeology Advisory Service. The areas may be opened using an appropriate machine fitted with a wide toothless ditching bucket. The topsoil and recent overburden should be removed down to the first significant archaeological horizon in successive level spits of maximum 0.2m thickness. Under no circumstances should the machine be used to cut arbitrary trenches down to natural deposits. All machine

work must be carried out under direct archaeological supervision and the machine halted if significant archaeological deposits are encountered. The top of the first significant archaeological horizon may be exposed by the machine, but must then be cleaned by hand and inspected for features. Excavation should then continue manually.

7.3.2 All archaeological remains will be hand excavated in an archaeologically controlled and stratigraphic manner sufficient to meet the aims and objectives of the project. The excavation will record the **complete** stratigraphic sequence, down to naturally occurring deposits and will investigate and record **all** inter-relationships between features. The following excavation strategy will be employed:

- Discrete features (linear): linear features such as ditches and trackways will be subject to a minimum sample of 20% of each feature. Each section should be at least 1m wide and, where possible, sections will be located and recorded adjacent to the trench edge. All intersections will be investigated to determine the relationship(s) between the component features. All termini will be investigated.
- Discrete features (non-linear) **except extraction shafts**: All stake-holes, post-holes, pits, and other non-structural industrial features will be 50% excavated in the first instance, recorded in section, and then fully excavated. All intersections will be fully investigated to determine the relationship(s) between the component features.
- Built structures: walls, floors, flues and machine- and crane bases etc will be excavated sufficient to establish their form, phasing, and construction techniques. The feature(s) will then be fully excavated, unless the nature of the underlying stratigraphy can be established by other means. All intersections will be investigated to determine the relationship(s) between the component features. With regard to the necessary level of investigation and recording, a distinction may be drawn between substantive component features or modifications, and historic repairs which are clearly minor in nature; if any doubt exists about the nature of an intervention, it should be investigated and recorded in detail.
- **Extraction shafts**: the outline of each extraction shaft encountered should be cleaned and recorded in plan. After the completion of other archaeological investigations in the area of interest, the shaft and an area around it consistent with safe working will be excavated in successive level spits (subject to the maximum depth required in the area by the development, and consistent with Health and Safety Requirements). Changes in shaft circumference and lining should be appropriately recorded.

7.3.3 All artefacts are to be retained for processing and analysis except for unstratified 20<sup>th</sup>-century material, which may be noted and discarded. Finds will be stored in secure, appropriate conditions following the guidelines in First Aid for Finds (3<sup>rd</sup> edition).

### 7.3 Method of Recording – All Areas of Excavation

7.3.1 Stripped and sectioned areas are to be recorded according to the normal principles of stratigraphic excavation. The stratigraphy of the area is to be recorded, even when no archaeological deposits have been identified.

7.3.2 Section drawings (at a minimum scale of 1:20) must include heights A.O.D. Plans (at a minimum scale of 1:50) must include O.D. spot heights for all principal strata and any features. At least one section of the trench edge, showing a representative and complete sequence of deposits from the modern ground surface to the natural geology, will be drawn.

7.3.3 The actual areas of excavation and all archaeological (and possibly archaeological) features should be accurately located on a site plan and recorded by photographs, scale drawings and written descriptions sufficient to permit the preparation of a detailed archive and report on the material. The trench location, as excavated, will be accurately surveyed, tied into the O.S. National Grid and located on an up-to-date 1:1250 O.S. map base.

#### **7.4 Drawn and photographic record (Areas F, G)**

7.4.1 The plan of the platform in Area G should be drawn at 1:50. All worked faces of any sleeper blocks identified in Area F should be drawn at 1:10.

7.4.2 Photographs of structural elements within Area G should if possible be taken with a camera with perspective control (Medium Format or 35mm). All photographs must contain a graduated photographic scale of appropriate dimensions (measuring tapes and surveying staffs are not considered to be acceptable scales in this context).

#### **7.5 Use of Metal Detectors**

7.5.1 Spoil heaps are to be scanned for ferrous and non-ferrous metal artefacts using a metal detector capable of making this discrimination, operated by an experienced metal detector user (if necessary, operating under the supervision of the contracting archaeologist). Modern artefacts are to be noted but not retained (19<sup>th</sup>-century material and earlier should be retained.)

7.5.2 If a non-professional archaeologist is to be used to carry out the metal-detecting, a formal agreement of their position as a sub-contractor working under direction must be agreed in advance of their use on site. This formal agreement will apply whether they are paid or not. To avoid financial claims under the Treasure Act a suggested wording for this formal agreement with the metal detectorist is: "In the process of working on the archaeological investigation at [*location of site*] between the dates of [*insert dates*], [*name of person contributing to project*] is working under direction or permission of [*name of archaeological organisation*] and hereby waives all rights to rewards for objects discovered that could otherwise be payable under the Treasure Act 1996."

#### **7.6 Conservation Strategy**

7.6.1 A conservation strategy must be developed in collaboration with a recognised laboratory. All finds must be assessed in order to recover information that will contribute to an understanding of their deterioration and hence preservation potential, as well as identifying potential for further investigation. Furthermore, all



finds must be stabilised and packaged in accordance with the requirements of the receiving museum. As a guiding principle, only artefacts of a “displayable” quality would warrant full conservation, but metalwork and coinage from stratified contexts would be expected to be x-rayed if necessary, and conservation costs should also be included as a contingency.

## **7.7 Human Remains**

7.7.1 Any human remains that are discovered must initially be left *in-situ*, covered and protected. WYAAS will be notified at the earliest opportunity. Removal must comply with the relevant legislation, a Dept of Constitutional Affairs licence and local environmental health regulations.

## **7.8 Treasure Act**

7.8.1 The terms of the Treasure Act 1996 must be followed with regard to any finds that might fall within its purview. Any finds must be removed to a safe place and reported to the local coroner as required by the procedures as laid down in the “Code of Practice”. Where removal cannot be effected on the same working day as the discovery, suitable security measures must be taken to protect the finds from theft.

## **7.9 Unexpectedly Significant or Complex Discoveries**

7.9.1 Should there be unexpectedly significant or complex discoveries made that warrant, in the professional judgement of the archaeologist on site, more detailed recording than is appropriate within the terms of this specification, then the archaeological contractor should urgently contact WYAAS with the relevant information to enable them to resolve the matter with the developer.

## **8. Monitoring**

8.1 The project will be monitored as necessary and practicable by WYAAS, in its role as curator of the county’s archaeology and advisor to the local Planning Authority. WYAAS’s representative will be afforded access to the site at any reasonable time. It is usual practice that the visit is arranged in advance, but this is not always feasible.

8.2 WYAAS’s representative will be provided with a site tour and an overview of the site by the senior archaeologist present and should be afforded the opportunity to view all trenches, any finds made that are still on site, and any records not in immediate use. It is anticipated that the records of an exemplar context that has previously been fully recorded will be examined. Any observed deficiencies during the site visit are to be made good to the satisfaction of WYAAS’s representative, by the next agreed site meeting. Access is also to be afforded at any reasonable time to English Heritage’s Regional Archaeological Scientific Advisor.

## **9. Archive Deposition**

9.1 Before commencing the fieldwork, the archaeological contractor must determine the requirements for the deposition of the excavation archive with Manor House Museum, Castle Yard, Ilkley LS29 9DT; District Archaeologist, Gavin Edwards.

9.2 It is the policy of Bradford Museum Service to accept complete excavation archives, including primary site records and research archives and finds, from all excavations carried out in the District which it serves.

9.3 It is the responsibility of the contractor to endeavour to obtain consent of the landowner, in writing, to the deposition of finds with the Manor House Museum.

9.4 The archaeological contractor must meet the Manor House Museum's requirements with regard to the preparation of fieldwork archives for deposition.

## 10. Post-excavation Assessment and Analysis

### 10.1 Initial Treatment of Artefacts and Samples

10.1.1 Upon completion of fieldwork all finds will be cleaned, identified, marked (if appropriate) and properly packed and stored in accordance with the requirements of national guidelines. Metalwork will be x-rayed and assessed by a conservator. Any samples taken shall be processed appropriately.

### 10.2 Archive Consolidation

10.2.1 The site archive will be checked, cross-referenced and made internally consistent. A fully indexed archive shall be compiled consisting of all primary written documents, plans, sections, photographic negatives and a complete set of labelled photographic prints/slides.

10.2.2 Standards for archive compilation and transfer should conform to those outlined in *Archaeological Archives – a guide to best practice in creation, compilation, transfer and curation* (Archaeological Archives Forum, 2007). The contractor should also take account of any additional requirements imposed by the recipient museum (see section 9 above).

10.2.3 The original archive is to accompany the deposition of any finds, providing the landowner agrees to the deposition of finds in a publicly accessible archive (see paragraph 9.3 above). In the absence of this agreement the field archive (less finds) is to be deposited with the West Yorkshire Archaeology Advisory Service.

### 10.3 Assessment - Artefacts

10.3.1 All artefacts must be assessed by a qualified and experienced specialist. Assessment should be generally based on MAP2 but should include:

- preparation of a descriptive catalogue;
- dating (where possible);
- an assessment of the significance of the assemblage;
- an assessment of the potential for further analysis to contribute to the interpretation of the archaeology of this site;
- an assessment of the potential for further analysis to contribute to artefact studies;
- recommendations for additional artefact illustration/photography;
- an assessment of the condition of the assemblage and recommendations for conservation, retention/discard and archiving.

### 10.4 Assessment - Samples

10.4.1 All environmental material must be assessed by a qualified and experienced specialist. Assessment should be generally based on MAP2 but should include:

- preparation of a descriptive table/catalogue;
- identification of material suitable for scientific dating;
- an assessment of the significance of the assemblage;
- an assessment of the potential for further analysis to contribute to the interpretation of the archaeology of this site;
- an assessment of the potential for further analysis to contribute to environmental studies;

- an assessment of the condition of the assemblage and recommendations for retention/discard and archiving.

## 10.5 Dating

10.5.1 Scientific dating should be undertaken at this stage if it is required to fulfil the aims of the project.

## 11 Reporting (Stage 1) – Interim Assessment of Potential

11.1 Following the return of the specialist reports to the archaeological contractor, but prior to the commencement of preparation of the detailed site report, the contractor should arrange a meeting with the WY Archaeology Advisory Service and (at his discretion) English Heritage's Regional Science Adviser (Andy Hammon, English Heritage, 37 Tanner Row, York YO1 6WP). The purpose of this meeting is to discuss the results of the initial stratigraphic synthesis and initial scientific analyses, and to determine any requirement for further scientific analyses prior to the formulation of the full report on the site. The meeting may take the form of a telephone discussion, at the discretion of the WY Archaeology Advisory Service.

11.2 Prior to the meeting, documentation sufficient to enable the Advisory Service and English Heritage's Regional Science Adviser to evaluate any proposals for further analysis should be made available to WYAAS and EH. This documentation should consist of the following as a minimum, but should not include a detailed site narrative or constitute a draft of the final report:

- A brief narrative outline of the results of the archaeological investigation (**N.B.** this is not intended to be a detailed description of the stratigraphic sequence, but should provide sufficient detail to permit the form and development of the site to be understood by a third party who has not visited the excavation);
- Detailed description of any features/feature groups, the interpretation of which may be affected by the results of further scientific analysis;
- A re-evaluation of the aims and objectives of the project in the light of the initial specialist analysis;
- A descriptive context catalogue;
- Unedited copies of specialist reports;
- Detailed and specific recommendations for further artefact and environmental analysis;
- Detailed and specific recommendations for any additional scientific dating;
- Detailed and specific recommendations for further documentary research;
- Costings for any recommended further research, scientific analysis or dating;
- Recommendations for general publication in monograph form or in an appropriate journal, if warranted by the results of the excavation.

Illustrations should be sufficient to permit the summary discussion to be understood by a third party, and should include:

- Location plan;
- Trench locations (as excavated), overlaid on an up-to-date 1:1250 O.S. map base;

- Draft phase plans (these should be at a scale sufficient to illustrate major context and feature groups important to an understanding of the site narrative)
- Plans, sections and photographs sufficient to permit the narrative outline to be understood, and to support recommendations for further specialist analysis. Draft drawings and marked-up digital photographs are acceptable as long as these are legible.

## **12. Reporting (Stage 2) – Full Report**

12.1 If further specialist analysis is judged by the WY Archaeology Advisory Service to be necessary and appropriate, this work should be commissioned and the results incorporated into a full report. If no further specialist analysis is required, then a full report will be produced.

12.2 Details of the style and format of the full report are to be determined by the archaeological contractor. However, it should be produced with sufficient care and attention to detail to be of academic use to future researchers. The report should be fully illustrated and include:

- background information;
- a description of the methodology;
- a full description of the results;
- an interpretation of the results in a local/regional/national context as appropriate;
- a full bibliography.

Appendices to the report should include:

- Unedited copies of final specialist reports;
- a quantified index to the site archive
- written confirmation from the relevant museum or other repository that the archive has been accepted for long-term storage, with full location details of the archive
- a copy of this specification.

12.3 Location plans should be produced at a scale which enables easy site identification and which depict the full extent of the site. A scale of 1:50,000 is not regarded as appropriate unless accompanied by more detailed plan(s). The location of the trenches (as excavated) should be overlaid on an up-to-date 1:1250 O.S. map base.

12.4 All illustrations should be executed to publication standard. Site plans should be at an appropriate, measurable scale showing the trenches as excavated and all identified (and, if possible, predicted) archaeological features/deposits. Trench and feature plans must include O.D. spot heights for all principal strata and any features. Section drawings must include O.D heights and be cross-referenced to an appropriate plan.

12.5 Finds that are critical for dating and interpretation should be illustrated.

12.6 Discrete features crucial to the interpretation of the site should be illustrated photographically.

12.7 In addition to the full report to be deposited with the WY Historic Environment Record, the results of this excavation may merit publication in monograph form or in a suitable archaeological journal (subject to the judgement of the WY Archaeology Advisory Service). If further publication is considered to be necessary, the archaeological contractor will be expected to approach the editor of the appropriate publication (after discussions with WYAAS) to confirm the journal's requirements and views with regard to the suitability of the proffered material.

12.8 The full report will be submitted directly to the WY Archaeology Advisory Service within a timescale agreed by both parties. The report will then be assessed by WYAAS to establish whether or not it is suitable for accession into the WY Historic Environment Record. Any comments made by WYAAS in response to the submission of an unsatisfactory report will be taken into account and will result in the reissue of a suitably edited report to all parties, within a timescale which has been agreed with WYAAS. Completion of this project and a recommendation from WYAAS for the full discharge of the archaeological condition is dependant upon receipt by WYAAS of i) a satisfactory full report and, should publication be warranted, ii) a copy of a letter from an appropriate journal editor or publisher confirming acceptance of the article.

12.9 The full report, once accepted by WYAAS, will be supplied on the understanding that it will be added to the West Yorkshire Historic Environment Record and will become a public document after an appropriate period of time (generally not exceeding six months).

12.10 The attached summary sheet should be completed and submitted to the West Yorkshire Archaeology Advisory Service for inclusion on WYAAS's website.

### **13. General Considerations**

#### **13.1 Authorised Alterations to Specification by Contractor**

13.1.1 It should be noted that this specification is based upon records available in the West Yorkshire Historic Environment Record and a series of brief inspections by WYAAS personnel. It is recommended that archaeological contractors should carry out a site inspection prior to submitting a tender. If, upon visiting the site or at any time during the course of the recording exercise, it appears in the archaeologist's professional judgement that:

- i) a part or the whole of the site is not amenable to recording as detailed above, and/or
- ii) an alternative approach may be more appropriate or likely to produce more informative results,

then it is expected that the archaeologist will contact WYAAS as a matter of urgency. If contractors have not yet been appointed, any variations which WYAAS considers to be justifiable on archaeological grounds will be incorporated into a revised specification, which will then be re-issued to the developer for redistribution to the

tendering contractors. If an appointment has already been made and site work is ongoing, WYAAS will resolve the matter in liaison with the developer and the Local Planning Authority.

### **13.2 Unauthorised Alterations to Specification by Contractor**

13.2.1 It is the archaeological contractor's responsibility to ensure that they have obtained WYAAS's consent in writing to any variation of the specification prior to the commencement of on-site work or (where applicable) prior to the finalisation of the tender. Unauthorised variations may result in WYAAS being unable to recommend either further work or the discharge of the planning condition to the Local Planning Authority based on the archaeological information available and are therefore made solely at the risk of the contractor.

### **13.3 Technical Queries**

13.3.1 Any technical queries arising from the specification detailed above should be addressed to WYAAS without delay.

### **13.4 Publicity**

13.4.1 If the project is to be publicised in any way (including media releases, publications etc.), then it is expected that WYAAS will be given the opportunity to consider whether its collaborative role should be acknowledged, and if so, the form of words used will be at WYAAS's discretion.

### **13.5 Valid Period of Specification**

13.5.1 This specification is valid for a period of one year from date of issue. After that time it may need to be revised to take into account new discoveries, changes in policy or the introduction of new working practices or techniques.

**Helen M. Gomersall**  
**West Yorkshire Archaeology Advisory Service**

**October 2007**

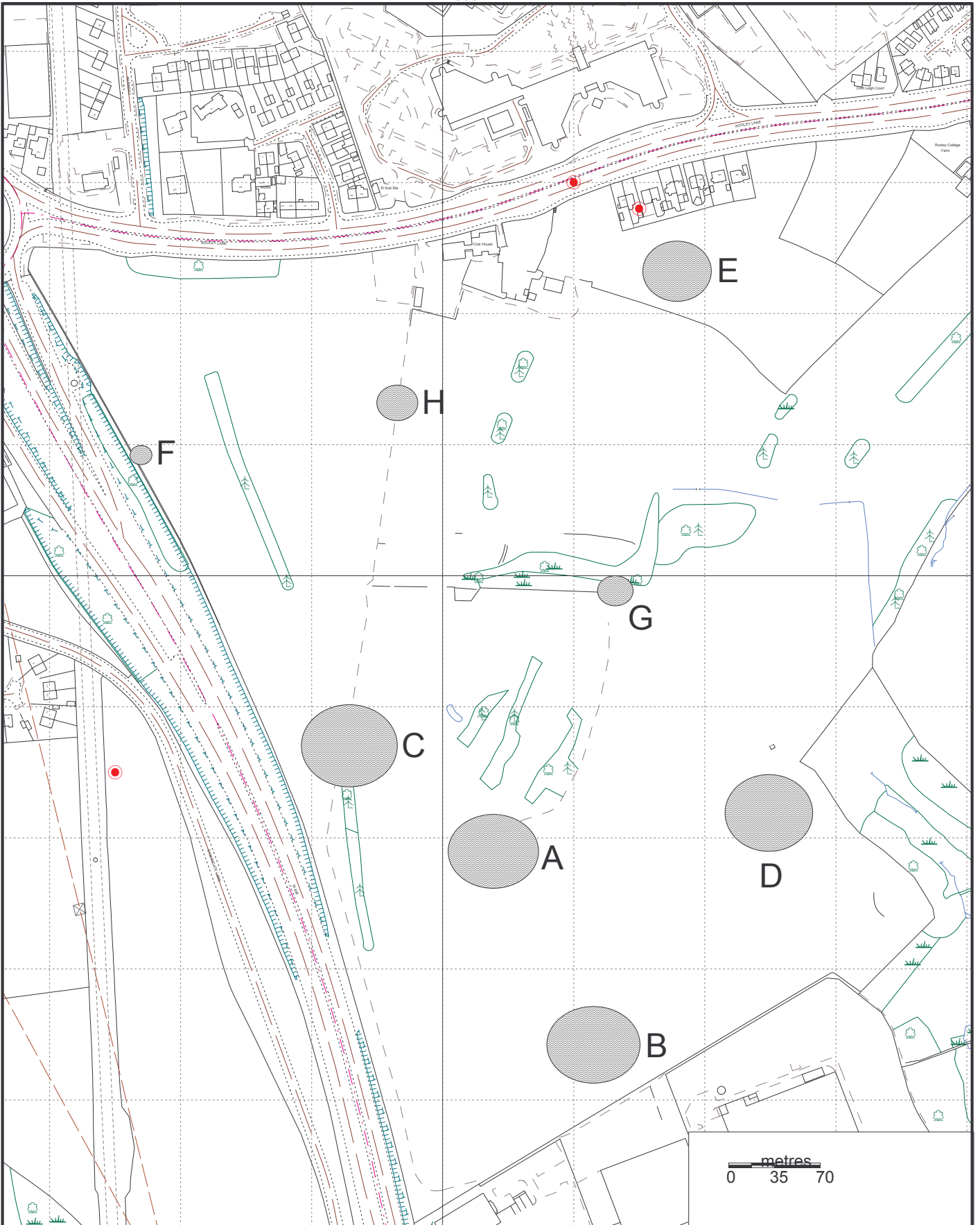
West Yorkshire Historic Environment Record  
West Yorkshire Archaeology Advisory Service  
Registry of Deeds  
Newstead Road  
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WYAS Advisory Service  
 County Sites and Monuments Record  
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 Wakefield WF1 2DE  
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Archaeological Investigation, Rooley Lane Bradford

Drawn By: WYAAS

Date Plotted: 23/10/2007

Sheet No.: SE1729NW

Scale 1: 4000



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**APPENDIX 2: LIST OF CONTEXTS**

<b>Site sub-division</b>	<b>Context number</b>	<b>Context type</b>	<b>Description</b>
Area A	100	Deposit	Topsoil
Area A	101	Deposit	Yellow clay
Area A	102	Deposit	Backfill of investigation trench
Area A	103	Cut	Cut of investigation trench
Area A	104	Deposit	Slag + shale
Area A	105	Structure	Placed stones centre of trench
Area A	106	Deposit	Black ash/slag track
Area A	107	Deposit	Fill of rhomboid feature [110]
Area A	108	Deposit	Fill of sub-circular feature [109]
Area A	109	Cut	Sub-circular feature
Area A	110	Cut	Rhomboid feature
Area A	111	Deposit	Compact layer black
Area A	112	Deposit	Colliery waste
Area A	113	Deposit	Compact black clinker trackway
Area A	114	Deposit	Modern field drain
Area A	115	Cut	Cut for drain
Area A	116	Deposit	Natural
Area A	117	Deposit	Black ash, loose backfill
Area A	118	Cut	Cut for [117]
Area A	119	Deposit	Same as [113]
Area A	120	Deposit	Same as [113]
Area A	121	Deposit	Dark brown chippings
Area A	122	Deposit	Dark grey brown gravelly clay
Area A	123	Deposit	Grey black well mixed loamy clay
Area A	124	Deposit	Same as [122]
Area A	125	Deposit	Same as [121]
Area A	126	Deposit	Dark grey brown/black gritty loam
Area A	127	Deposit	Grey gritty loam
Area A	128	Deposit	Brown gritty loam
Area A	129	Deposit	Colliery waste
Area B	200	Deposit	Backfill of investigation trench
Area B	201	Cut	Cut for shaft investigation
Area B	202	Deposit	Shale + colliery upcast
Area B	300	Deposit	Topsoil
Area C	301	Deposit	Loose black shale at top of sect 21-track surface
Area C	302	Deposit	Compact black shale below [301]
Area C	303	Deposit	Crushed brick immediately below [302]
Area C	304	Deposit	Pink/purplish rubble
Area C	305	Deposit	Black compact silty rubble
Area C	306	Deposit	Compact purplish rubble
Area C	307	Deposit	Dark grey sandy clay
Area C	308	Deposit	Light grey clay with stones
Area C	309	Deposit	Soft purplish sandy loam
Area C	310	Deposit	Stony clay
Area C	311	Deposit	Soft clay (natural)
Area C	312	Deposit	Stony layer possibly surface
Area C	313	Deposit	Crushed brick make up at south end
Area C	314	Cut	Modern drain cut
Area C	315	Deposit	Backfill of [314]
Area C	316	Deposit	Red brick crush-loose same as [306]
Area C	317	Cut	Stone drain cut of SH 18

Site sub-division	Context number	Context type	Description
Area C	318	Structure	Stone drain
Area C	319	Deposit	Backfill above [318]
Area C	320	Deposit	Firm grey clay below [318]
Area C	321	Deposit	Same as [306]
Area C	322	Deposit	S/S block
Area C	323	Deposit	Same as [307]
Area C	324	Deposit	Grey clay-infill of hollow way
Area C	325	Deposit	Sandy brown loam
Area C	326	Deposit	Same as [303]
Area C	327	Deposit	Grey shale
Area C	328	Deposit	Loamy sand (red)
Area C	329	Deposit	Clay + loam mix
Area C	330	Deposit	Same as [310]
Area C	331	Deposit	Same as [304]
Area C	332	Deposit	Same as [305]
Area C	333	Deposit	Same as [308]
Area C	334	Deposit	Same as [309]
Area C	335	Deposit	Track
Area C	336	Deposit	Bedding material
Area C	337	Deposit	Cobbles
Area C	338	Deposit	Cobbles
Area C	339	Deposit	Disturbed dark loam
Area C	340	Deposit	Loose reddish brown surface
Area C	341	Deposit	Dark brown loam/clinker
Area C	342	Deposit	Same as [341]
Area C	343	Deposit	Cobbles
Area D	400	Deposit	Topsoil
Area D	401	Deposit	Clay
Area D	402	Cut	Ditch
Area D	403	Deposit	Fill of [402]
Area D	404	Cut	Pit?
Area D	405	Deposit	Fill of [404]
Area D	406	Deposit	Trackway, black clinker
Area D	407	Deposit	Lighter brown part of trackway
Area D	408	Cut	Possible drain
Area D	409	Deposit	Fill of [408]
Area D	410	Deposit	Natural clay
Area D	411	Deposit	Backfill
Area D	412	Deposit	Backfill
Area D	413	Deposit	Silty ash deposit
Area D	414	Deposit	Primary drain backfill for [402]
Area D	415	Deposit	Sand for bunker
Area D	416	Cut	Cut for bunker
Area E	500	Deposit	Topsoil
Area E	501	Deposit	Spoil heap
Area E	502	Deposit	Backfill in shaft
Area E	503	Cut	Cut of shaft
Area E	504	Deposit	Backfill of [505]
Area E	505	Cut	Cut of rectangle
Area E	506	Deposit	Fill of cut [507]
Area E	507	Cut	Blob to north of [505] Interpreted as = [509] by WA
Area E	508	Deposit	Fill of [509]
Area E	509	Cut	Cut to NE of [507] Interpreted as = [507] by WA
Area E	510	Deposit	Fill of [511]

Site sub-division	Context number	Context type	Description
Area E	511	Cut	Posthole? Interpreted as lens from layer above by WA.
Area E	512	Deposit	Red deposit Interpreted as = [516] by WA
Area E	513	Deposit	Natural clay
Area E	514	Structure	S/S block
Area E	515	Structure	S/S block to E of [514] Interpreted by WA to include the sandstone block directly below it.
Area E	516	Deposit	Red brick rubble fill. Interpreted as = [516] by WA
Area F	600	Deposit	SE of wall
Area F	601	Deposit	NW of wall
Area F	602	Structure	Wall
Area F	603	Deposit	Mid brown loam
Area F	604	Deposit	Yellow grey clay subsoil
Area F	605	Deposit	Rubble from wall
Area H	800	Deposit	Grass and topsoil
Area H	801	Deposit	Loosely metallated surface
Area H	802	Deposit	Gravelly surface
Area H	803	Deposit	Purple/red layer
Area H	804	Deposit	Crunch brown gravels
Area H	805	Deposit	Clay and sandstone surface
Area H	806	Deposit	Purple and red deposits at west of trench
Area H	807	Deposit	Clay and sandstone deposit E-end of trench
Area H	808	Deposit	Red metallated surface
Area H	809	Deposit	Clay below [806]
Area H	810	Cut	Cut w end of trench
Area H	811	Cut	Cut of [807] E end of trench
Area H	812	Deposit	Hard compact surface mid trench
Area H	813	Deposit	Mid-brown grey stony layer
Area H	814	Deposit	Compact dark grey layer
Area H	815	Deposit	Grey clay and soil mixture
Area H	816	Deposit	Dark brown with stones, field drain backfill
Area H	817	Deposit	Thick layer of dark brown soil
Area H	818	Deposit	Compact mixture of clay and sandstone, possible dam
Area H	819	Cut	Cut for field drain [816]
Area H	820	Deposit	Redeposited yellow clay
Area H	821	Deposit	Purple brown gritty soil
Area H	822	Deposit	Yellow grey clay – possibly natural
Area H	823	Deposit	Yellow grey clay – natural
Area H	824	Deposit	Mixed brown soil with stones for field drain
Area H	825	Cut	Cut for [824]
Area H	826	Deposit	Same as [802]
Area H	827	Deposit	Same as [802]

## **APPENDIX 3: SPECIALIST REPORTS**

## Ceramics by Dr. C.G. Cumberpatch

### Introduction

The pottery assemblage from West Bowling Golf Course (ARCUS 1104c) was examined by the author on 15<sup>th</sup> and 16<sup>th</sup> April 2008. The data is presented in Table .

### Type series

The greater part of the assemblage is of later 18<sup>th</sup> and 19<sup>th</sup> century date and includes formal table wares (*Whiteware, Banded wares, Cane Coloured ware*) and utilitarian wares (*Brown and Yellow Glazed Coarseware, Stoneware*) with only occasional sherds of 18<sup>th</sup> century vernacular tableware (*Mottled ware, Slip Coated ware*). A number of sherds listed as Pearlware were of uncertain type, being crazed and discoloured and may, in fact be later Whitewares.

#### *Brown and Yellow Glazed Coarsewares*

Brown glazed utilitarian wares (pancheons, jars and cisterns) form a major part of pottery assemblages dating to the period between the 17<sup>th</sup> and early 20<sup>th</sup> centuries but remain the least investigated of any major class of domestic pottery within this period. For this reason, and in spite of clear differences in both the details of vessel form and fabric, it is exceptionally difficult to provide adequate date ranges for particular sub-types. The wide date ranges suggested in Table 1 represents the maximum possible range and where more closely datable material (normally tablewares) can be identified, these are a more reliable indicator of the possible date of the group or assemblage. A synthetic approach to the data from the wider region might be of value in identifying changes in coarseware vessels over time but this must await the identification of a sequence of chronologically reliable groups containing significant quantities of these wares.

Two groups of wares have been identified within this broad utilitarian ware group.

The origin of the *Brown Glazed Coarsewares* can be traced back to the 16<sup>th</sup> and early 17<sup>th</sup> centuries (Cumberpatch 2003) and similar wares remained in production throughout the 18<sup>th</sup> and 19<sup>th</sup> centuries and into the early years of the 20<sup>th</sup> century (Cumberpatch 2007b). The commonest vessel form is the pancheon, a narrow-based wide-mouthed bowl, typically glazed internally. The numbers of these vessels excavated from all types of site is vast and it seems that they must have fulfilled a variety of domestic functions. Production is poorly understood and documented but must have played a significant part in the economy of many areas throughout the period of their use. A smaller number of large jars usually glazed internally and externally, has been noted on many sites, including the present one (e.g. contexts 806). Cisterns are a rarer and earlier form but may be confused with jars when the spigot hole is missing. They rarely seem to occur after the later 18<sup>th</sup> century and it is probable that they were superseded by stoneware cisterns and water coolers. The suggested date ranges for individual vessels and groups of vessels from the site have been ascribed on this somewhat insecure basis with narrower ranges proposed where the technical characteristics of the sherds suggest that this is appropriate.

*Brown Glazed Finewares* form the second group within this tradition, a group which consists mainly of smaller hollow wares (jars, jugs etc) and appears to be principally of later 17<sup>th</sup> and 18<sup>th</sup> century date and to occur in 19<sup>th</sup> century contexts only as a residual element. It is scarcely surprising that such wares were barely represented in the West Bowling assemblage, the only sherd of this type being recovered from context 601. Even this sherd was not a typical example of a Brown Glazed Fineware,

hence the suffix 'type'. Although a later 18<sup>th</sup> century date cannot be ruled out, a later date is far more likely and indicates the need for further work on this neglected class of domestic pottery.

#### *Yellow Glazed Coarseware*

Yellow Glazed Coarseware is defined and distinguished from the commoner Brown Glazed Coarseware by the presence of white slip and clear glaze internally (the ware taking its name from the resulting yellow colour) is a relatively rare find on most urban sites but is much commoner on rural sites. Unlike Brown Glazed Coarseware the range of vessels is limited to pancheons and other open forms (bowls, dishes) and this is reflected in the examples from West Bowling, the majority of which were pancheons (contexts [300], [600]) with only two examples of smaller vessels (contexts [601] and [800]).

#### *Unglazed Red Earthenware*

Although the term Unglazed Red Earthenware is sometimes used to describe a class of large thick-walled jars and industrial vessels, the commonest type of unglazed pottery found in 18<sup>th</sup> and 19<sup>th</sup> century contexts are flowerpots and related horticultural wares and this was the case at West Bowling with only one group of sherds (context [600]) being identifiable only as hollow wares. The remainder (contexts [600] and [601]) were identifiable as flower pots.

#### *Brown Salt Glazed Stoneware and other Stoneware*

Brown Salt Glazed Stonewares are ubiquitous on 18<sup>th</sup> and 19<sup>th</sup> century sites throughout northern England (and more widely). The group as a whole can be divided into three sub-groups; tablewares, cooking/storage wares and retail or transport vessels (bottles, flagons etc). Tablewares are typically of 18<sup>th</sup> century date and include mugs and tankards, jugs and bowls (e.g. Jennings 1981: Fig 100). Such vessels become rarer in the later 18<sup>th</sup> and 19<sup>th</sup> centuries and production appears to have shifted towards the manufacture of utilitarian wares including bottles, flagons and flasks, cooking vessels (loaf pots, stew pots, souse pots) and storage jars (Walter 1999). In part this was connected with the rise of the coal fired domestic cooking range incorporating an oven which allowed families to prepare a wider range of food in their own homes and so created a demand for a range of durable cooking vessels suitable for oven use. It was also linked with the decline in the importance of vernacular tablewares and the spread of everyday tablewares in refined earthenware bodies. The larger jars and cooking wares were typically decorated with bands of rouletting around the body, frequently combined with repeated stamped patterns consisting of stars, wheel patterns and short curved or angular lines. The presence or absence of such designs is indicated in the data tables as is the date range of the individual vessels.

Flavons, bottles, jars and other wholesale and retail vessels were typically used for a range of beverages both alcoholic and non-alcoholic and preserves notably jam and marmalade. These vessels were frequently finished in buff, grey or cream colours rather than the brown used for the kitchen wares.

Stonewares of all types were commonest on site 1104c and included a range of jars and similar hollow wares in Brown Salt Glazed Stoneware and jars in other types of Stoneware (contexts [300], [600], [601] and [804]). One sherd carried part of a black printed label identifying the contents as Keiller's Dundee Marmalade (context [601]) and two had the characteristic fluted profile associated with jam and marmalade jars (contexts [300] and [605]).

### *Creamware*

The general date range for Creamwares, the first of the refined lead-glazed earthenwares, is generally taken as c.1740 – c.1820, based on the evidence from Staffordshire (Barker and Ford 1999). The date of the earliest production in South and West Yorkshire is unclear, but manufacture at the Swinton Pottery was underway by June 1770, the date of the first documentary reference to the ware and the earliest marked piece dates to 1771 (Cox and Cox 2001:34). Creamware appears to have been a major element in the earlier phases of activity at the Don Pottery (established in 1801) where production continued until well into the 1820s (Griffin 2001:104) and at the Leeds Pottery from its establishment in 1770 (Griffin 2001, 2005). It was also manufactured widely at other potteries in South and West Yorkshire (Lawrence 1974). In Staffordshire it was in production from the mid-18<sup>th</sup> century, hence the early start-date (c.1740) indicated in the tables. Barker and Ford have suggested that the popularity of the ware began to decline after c.1780 when transfer printed Pearlwares became popular, but the continuation of production at the Don Pottery into the 19<sup>th</sup> century suggests that such changes in fashion took place at different times and perhaps at different rates in different places throughout the country.

In his discussion of the relative dating of Creamware at the Leeds pottery, Griffin has noted that  
“creamware continued to be made, alongside pearlware, well into the third decade of the nineteenth century” (2005:193)

It should not, therefore, be assumed that the Creamwares from sites in Sheffield necessarily predate the Pearlwares, as production of the latter appears to have begun, at the Don Pottery at least, in the first decade of the 19<sup>th</sup> century (Griffin 2001:104). Creamwares were present, contexts [103], [807] and [812]. The group was diverse and included hollow wares including a bowl or dish.

### *Pearlware*

A broad date range of c.1780 – c.1840 has been ascribed to the Pearlwares on the basis of Barker’s dating of the industry in Staffordshire and additional evidence available from Yorkshire potteries, notably the Don Pottery and the Leeds Pottery. It should be noted that Pearlwares are somewhat more difficult to identify precisely than are Creamwares. The chief characteristic, a blue-white tint to the glaze, obtained by including small quantities of cobalt and copper in the glaze (Barker and Ford 1999), is not one which is particularly distinctive as the later Whitewares occasionally appear to have been subject to slight ‘bluing’ as the colour from the transfer printed designs can leach into the surrounding glaze. In other cases, weathering and discolouration, sometimes enhanced by the crazing of the glaze, can discolour the sherds to the extent where the original finish is obscured.

The first reference to transfer printed wares at Swinton (later the Rockingham pottery) dates to 14<sup>th</sup> July 1788 and early printed wares from the pottery appear to have been in both black and blue (Cox & Cox 2001:70-2). Production of Pearlwares continued after the pottery was taken over by the Bramelds in 1806 with transfer printed patterns in blue, brown and black. Brameld and earlier marks appear to be rare on sites in Sheffield generally (see Cumberpatch, in prep. for a more detailed discussion of marked sherds and their implications) but as Cox and Cox have noted

“Unlike their later products, the Bramelds’ pre-1820 earthenwares were rarely marked ... When marks do occur, they are found on the main items in a tea service, the teapot, sugar and cream jug, not on cups and saucers ...” (2001:132).

After 1820 a wider range of printed designs were manufactured and individual pieces continue to be described as Pearlware by Cox and Cox up until c.1830, although production of transfer printed wares continued up until the closure of the pottery in 1842, presumably with a progressive whitening of the glaze, as seen elsewhere.

If identifiable wares from the Rockingham pottery are generally rare, the same cannot be said of the Don Pottery where, as noted above, production began in 1801. Barker period marks and designs are relatively common across Sheffield, as discussed elsewhere (Cumberpatch, in prep.). In terms of the identification of Pearlwares, Griffin has noted that

“Don Pearlware ranges from a very obvious addition of cobalt, one may at times be tempted to say ‘over generous’ to a glaze where it is hardly discernable at all” (2001:104).

*Edged wares* form a distinctive group within the wider Pearlware category. The particular characteristic of these wares is the moulded ‘Grass’ pattern edge emphasised with blue or, less commonly, green paint. Barker and Ford (1999) have suggested that Edged ware, which was easy and cheap to manufacture, was popular from c.1810 to the early 1830s. It was manufactured widely in South and West Yorkshire and elsewhere but, as individual vessels are rarely marked, it is virtually impossible to ascribe particular examples to specific potteries. Sherds of Edged ware were noted (contexts [600] and [601]) they lacked the distinctive moulding and were probably of a somewhat later date, as indicated in Table C1.

#### *Bone China and transfer printed Bone China*

Bone china is a type of soft paste porcelain which became the standard type of Staffordshire body by c.1810 (Barker and Ford 1999). It consisted of a mixture of china clay, china stone and up to 50% calcined bone and was normally lead glazed. The result was a distinctive very white body with a ‘crystalline’ appearance in cross-section. Bone china was in widespread production by 1810 and a variety of decorative techniques were employed including sprigging, transfer printing, overglaze paint and lustre.

Bone China was present in the assemblage as discussed here, it which included transfer printed and gold lustre decoration, as detailed in Table C1. A variety of tablewares were represented including cups, saucers, plates and dishes and a small sub-rectangular dish with a partially preserved (but unidentifiable) maker’s mark on the underside. As noted in Table C1, the date range of these vessels appears to be relatively late with some of probable 20<sup>th</sup> century date. The transfer printed designs were unidentifiable but one of the vessels (context [300]) had a drilled perforation with a small piece of lead wire still in place, indicating that it had been repaired after being broken.

#### *Whiteware and transfer printed Whiteware*

The distinction between Pearlwares and Whitewares can be difficult to establish, particularly where sherds are weathered or discoloured. In archaeological terms, Whitewares are a typological development from the earlier Pearlwares and are characterised by a white finish generally without the deliberate ‘bluing’ characteristic of the Pearlwares. The changes in the character of the transfer printed designs



during the later 18<sup>th</sup> and 19<sup>th</sup> centuries have been discussed in detail elsewhere and need not be repeated here (Coysh and Henrywood 1997:8-11). Like Pearlware, Whiteware is a lead glazed refined earthenware, often decorated with underglaze transfer prints or a variety of overglaze techniques. The start date is difficult to define accurately, given the difficulties of definition (it is not a term that was used in the 19<sup>th</sup> century) but seems to have been the standard body in Britain from the 1830s onwards (Barker and Ford 1999).

Whitewares, both plain and transfer printed were present. The plain wares from both sites included a range of tablewares; cups, mugs, plates and unidentified hollow wares. The transfer printed wares included examples of the Willow and Asiatic Pheasants patterns along side other, less easily identified, designs. Some of these appeared to be quite late in date, including the brown printed design showing a Chinese figure on a bridge over a river containing fish (context [300]). Although precise dating is difficult, none of the sherds seemed quite as late as the Bone China, some of which was probably of early 20<sup>th</sup> century date.

#### *Slip Banded Whiteware*

Banded wares, both blue painted and decorated with a variety of coloured slips, are a common find on sites throughout Yorkshire and Derbyshire (as well as beyond) and, as one of the cheapest decorated hollow wares available during the 19<sup>th</sup> century, clearly represented a significant part of many domestic ceramic assemblages. Slip banded decoration is found on both Whiteware and Cane Coloured ware (discussed below) bodies and the combination of band and line widths and colours is highly variable. Inevitably, given the fragmentation of the vessels, it is rarely possible to determine the precise combination of lines and bands which make up individual motifs or, indeed the extent to which there were regular patterns shared by particular vessel types or sets of complementary vessels.

According to Barker and Ford (1999) slip decoration first appears on Staffordshire Creamwares and Pearlwares around 1775 and on whitewares from the 1830s / 1840s. Banded wares continued in production into the 20<sup>th</sup> century (and are still manufactured under the name Cornish ware), but as the 19<sup>th</sup> century progressed the numbers of banded mugs declined and the number of bowls, particularly the carinated or 'London' form, increased. Barker and Ford suggest that the rounded bowls are generally pre-1815 in date with the carinated bowls becoming popular subsequently. This having been noted, it should be said that the rounded bowls from sites in South and West Yorkshire generally do not seem to be as early as this; the vessels lack the thin, fine finish which seems to be characteristic of Pearlwares and the ring-foot bases have a thick, rounded profile which is a trait perhaps more commonly associated with Whitewares. Further work is required on regional variation in these and related wares before the exact details of the typological variation become clear.

Blue Banded wares were present (contexts [601], [803], ) with other colours present on a group defined simply as Banded wares from site 1104c (contexts [600], [601], [803] and [806]). The group included a jug and unidentified hollow wares.

#### *Cane Coloured ware and related types*

Cane Coloured wares, which Barker and Ford suggest were in common use from the 1830s/1840s onwards, were present on the site in both slip banded and plain varieties, although in relatively small quantities. The name 'Cane Coloured ware' has been preferred to 'Yellow ware' (as used by Barker and Ford, 1999) to avoid confusion with the 16<sup>th</sup> and 17<sup>th</sup> century Yellow wares and the Yellow Glazed

Coarsewares. Contemporary 19<sup>th</sup> century names included yellow ware, yellow cane ware and Derbyshire ironstone cane ware. It was made very widely but is often associated particularly with Sharpe's pottery at Swadlincote and other Derbyshire potteries, although excavations on sites in the Don Valley have produced numerous examples of wares manufactured locally (e.g. Griffin 2001:212, Plate 300) and it should not be thought of as a regionally restricted ware in any sense. All types of Cane Coloured ware are common on sites in Yorkshire but marked pieces are rare although not unknown. Cane Coloured wares were not abundant on the site and were present in only one context [806].

Slip Banded Cane Coloured ware as the name implies is Cane Coloured ware decorated with a variety of coloured slip lines and bands, generally brown, white and blue. The degree of fragmentation of the vessels has precluded any attempt to link particular combinations of colours with specific vessel types and there does not seem to be any chronological aspect to the use of particular colours. The type was not common amongst the West Bowling assemblage and was found only in context [600] where hollow wares with blue and white slip bands were identified.

*Mocha ware* is a distinctive variant of the slip banded wares with dendritic 'trees' and 'bushes' formed by dropping a spot of a weak acidic solution onto wet slip. Mocha wares are generally a common find on sites in Yorkshire, but were uncharacteristically rare on the West Bowling sites with only one small sherd identified (context [601]). As with the Cane Coloured wares described above, Mocha ware has been linked with Sharpe's pottery in Derbyshire but was certainly manufactured much more widely (including in the Don Valley) from the 1790s to c.1895 and should not be considered as a regionally restricted ware in any sense.

#### *Colour Glazed ware*

The term Colour Glazed ware refers to vessels with whiteware bodies decorated with coloured glaze. The best known example is the brown 'Rockingham' style teapot which was first manufactured at the Rockingham Pottery at Swinton (Cox and Cox 2001) and thereafter widely copied in progressively cheaper forms. Even today, brown teapots are often styled 'Rockingham' and are similar in form to those of the later 19<sup>th</sup> century. The dating of colour glazed wares is far from straightforward but while the original Rockingham teapots date from the latter part of the 18<sup>th</sup> century (they were popular with the Marchioness of Rockingham who purchased no less than 230 between 1770 and 1804) they remained in widespread production throughout the 19<sup>th</sup> century and, as noted above, versions are still available today. Their popularity was enhanced by the patronage of George, Prince of Wales (later George IV) who ordered a quantity of them from the Rockingham Pottery after visiting Wentworth in 1807 (Cox and Cox 2001:116-7). Other tablewares were also produced as colour glazed wares and while a number of the sherds identified simply as hollow wares in the data tables are probably teapots (contexts [600] and [605]) others may be from other types of vessel.

In addition to the brown glazed wares, other colours were also present, these included all-over blue and yellow finishes (context [300]).

#### *Sponged ware*

Like the slip banded wares, Sponged and Sponge Printed wares were a cheap and easily mass-produced form of decorated ware which appeared in the first half of the 19<sup>th</sup> century with the cut sponges used for sponge printing from c.1840 onwards. Sponged wares were produced at many potteries throughout Britain but it is rarely possible to ascribe examples to particular factories as few are marked.

The Sponged wares from West Bowling were decorated with blue paint (other colours are known from other sites) and the range of identifiable vessel types was limited to a plate (context [605]) and a jug (context [600]) with other sherds only identifiable as hollow wares and flatwares (contexts [600], [601] and [605]).

A small number of other types of pottery were also present on the sites. These included a sherd of *Lustre ware* from context [601], *Fine Redware* from contexts [300] and [601] and *Late Slipware* from context [601]. All of these are wares dating to the mid to later 19<sup>th</sup> century and so are consistent with the dating evidence provided by the greater part of the assemblage. In addition a number of sherds were identified as of non-domestic type and are listed as *Utilitarian Whiteware* (context [605]) and *Industrial Ceramic* (contexts [800], [803] and [807]). The former consisted of eight fragments from a sink or similar sanitary installation and bore a stamped number '25'. The Industrial Ceramic consisted of six sherds, seemingly from a hollow item but which were far too thick and heavy to have been a normal domestic utensil. In the absence of a definite identification it is suggested that these may be part of an electrical installation although it is not clear what this could have been.

Two ceramic balls were included in the assemblage (contexts [601] and [605]). Neither appeared to be knurr balls in that the example from context [601] was too small (only 12.5mm in diameter which is small even for a marble) and the example from [605] was unglazed although closer in size to a knurr ball (22.5mm) and was made from a refined earthenware body.

## Discussion

The data tables present a concise overview of the composition of the assemblages from the West Bowling sites and, with the information given above in the type series, there seems little need to reiterate the points made regarding the specific characteristics of the assemblage. The following notes are intended to assist in relating the pottery to the information derived from reports on other aspects of the assemblage and to the information from the observations made on site.

### Summary

The site assemblage consisted of 291 sherds of pottery weighing 2472 grams representing a maximum of 263 vessels. Although the assemblage included some sherds of Creamware, Pearlwares were absent and the sherds of Edged ware were of a late and atypical type. In all cases except context [103], the Creamware sherds were associated with later material, indicating that they are likely to be residual in character. The same is most probably true of context [807] where two sherds of Creamware were found alongside a much later (late 19<sup>th</sup> to 20<sup>th</sup> century) sherd of industrial ceramic.

Contexts [300], [605], [800], [803] and [807] produced the latest material from the site in the form of Bone China, Whiteware and the fragments of industrial ceramic. It is unclear how far these results reflect chance factors affecting the formation of the archaeological deposits and how far they can be relied upon as indicators of the chronology of the various parts of the site.

## Conclusion

In the absence of stratigraphic and structural information, few definite conclusions can be reached concerning the pottery assemblage from the West Bowling golf club site. The pottery assemblage includes later early modern material and no post-medieval material. This would suggest little activity on the site prior to the mid to late 18<sup>th</sup> century although thereafter it would seem that circumstances changed significantly with the deposition of material in a variety of types of context. Whether

the residual material (Creamware, Pearlware, vernacular tablewares etc) was already on the site when later activity led to its disturbance and the deposition of later material alongside it or whether mixed deposits of material were dumped on the site for reasons unknown is not clear from the evidence available.

### **Bibliography**

- Barker, D. & Ford, D. 1999, Data sheets produced to accompany an English Heritage sponsored course on post-medieval and early modern ceramics Stoke-on-Trent 1999
- Cox, A & Cox A. 2001 *Rockingham 1745 – 1842* Antique Collectors Club
- Coysh, A.W. & Henrywood, R.K. 1997, *The Dictionary of Blue and White Printed Pottery 1780 – 1880 Volumes 1 & 2* Antique Collectors Club
- Cumberpatch, C.G. 2003, 'The transformation of tradition; the origins of the post-medieval ceramic tradition in Yorkshire' *Assemblage*, available online at <http://www.shef.ac.uk/assem/issue7/cumberpatch.html>
- Cumberpatch, C.G. 2007a, *Pottery from West Bowling Golf Course, Bradford: An Assessment* unpublished ARCUS assessment report 1104b
- Cumberpatch, C.G. 2007b, *Pottery from Excavations in Eleanor Street and Darnall Road, Darnall, Sheffield* unpublished ARCUS report 1008
- Griffin, J.D. 2001, *The Don Pottery 1801 – 1893* Doncaster Museum Service
- Griffin, J.D. 2005, *The Leeds Pottery 1770 – 1881* Leeds Art Collections Fund
- Jennings, S. 1981, *Eighteen Centuries of Pottery from Norwich* East Anglian Archaeology 13 Norfolk Museums Service
- Lawrence, H. 1974, *Yorkshire Pots and Potters* David and Charles
- Walter, J. 1999, *Brampton Pots in the Kitchen* University of Derby

Table C1 - Ceramics

Context	Type	No.	Wt.	ENV	Part	Form	Decoration	Date Range	Notes
103	Creamware	6	7	1	BS	Hollow ware	Rilled ext	c.1740 c.1820	- Shattered and flaked
300	BGCW	2	34	2	BS	Hollow ware	Brown glaze int & ext	LC18th C19th	-
300	Bone China	3	17	2	Rim	Saucer	Two thin overglaze gold lines int	LC19th EC20th	-
300	Bone China	1	18	1	Base	Plate	Gold circular line int	LC19th EC20th	-
300	Bone China	1	6	1	Footring base	Plate	U/Dec	LC19th EC20th	-
300	Bone China	1	8	1	Rim	Saucer	Gold circular line int	LC19th EC20th	-
300	Bone China	1	14	1	Footring base	Cup	U/Dec	LC19th EC20th	-
300	Bone China	2	11	2	Rim & BS	Hollow ware	Overglaze pink band below rim and above thin gold line	LC19th EC20th	-
300	Bone China	4	14	4	Rim & BS	Hollow ware	U/Dec	LC19th EC20th	-
300	Bone China	1	2	1	BS	Hollow ware	Gold overglaze 'teardrop' design ext	LC19th EC20th	-
300	Bone China	1	1	1	Handle	Cup	U/Dec	LC19th EC20th	-
300	Bone China	1	6	1	BS	Hollow ware	Relief moulded 'grapevine' design on a stippled background	M - LC19th	Possibly a coffee pot or vase
300	BSGSW	2	62	2	Rim & BS	Bowl/dish	Grey int, brown ext	C19th	
300	Colour Glazed ware	1	20	1	BS	Hollow ware	Mottled brown glaze int & ext on a buff body	C19th	Rockingham style finish
300	Colour Glazed ware	1	3	1	BS	Hollow ware	Black glaze on a fine red body	C19th	
300	Colour Glazed ware	4	12	4	BS	Flatware	All over blue surface int	M - LC19th	

Context	Type	No.	Wt.	ENV	Part	Form	Decoration	Date Range	Notes
300	Colour Glazed ware	2	12	2	BS	Hollow ware	All over blue surface ext	M - LC19th	
300	Colour Glazed ware	1	1	1	BS	U/ID	One side all-over yellow	M - LC19th	Possibly part of a very small pot disc
300	Fine Redware	2	13	1	BS	Hollow ware	Clear glaze int & ext on a very fine red body	C19th	
300	Stoneware	1	13	1	BS	Hollow ware	Honey coloured glaze int	M - LC19th	
300	Stoneware	3	16	3	BS	Jar	Fluted body	M - LC19th	
300	TP Bone China	1	33	1	Rim	Jar	Underglaze black printed tree with underglaze painted green detailing	M - LC19th	Repair hole with part of lead wire in situ
300	TP Whiteware	2	40	2	Rim	Plate	Asiatic Pheasant	M - LC19th	One crazed and discoloured
300	TP Whiteware	4	52	3	Footring base	Plate	Asiatic Pheasant	M - LC19th	One flaked and discoloured
300	TP Whiteware	2	9	2	BS	Plate	Asiatic Pheasant	M - LC19th	
300	TP Whiteware	3	29	2	Rim & BS	Mug/jug	Brown printed design with Chinamen on a bridge with fish in a river	M - LC19th	Simple style of printing
300	TP Whiteware	1	3	1	BS	Hollow ware	Brown printed geometric border design	M - LC19th	
300	TP Whiteware	1	2	1	BS	Hollow ware	Brown printed plant design ext	M - LC19th	
300	TP Whiteware	5	51	5	Rim & BS	Mug/jug	Chinese landscape ext	M - LC19th	Unidentified design
300	TP Whiteware	1	5	1	BS	Hollow ware	Trace of blue TP decoration ext	M - LC19th	
300	TP Whiteware	1	1	1	BS	Flatware	Stylised blue TP floral design int	M - LC19th	
300	TP Whiteware	1	1	1	BS	Hollow ware	Thin green line ext	M - LC19th	
300	TP Whiteware	3	5	3	BS	Hollow ware	U/ID TP designs ext	M - LC19th	

Context	Type	No.	Wt.	ENV	Part	Form	Decoration	Date Range	Notes
300	TP Whiteware	3	4	2	Flakes	Flatware	Asiatic Pheasant	M - LC19th	
300	TP Whiteware	1	3	1	Rim	Plate	Blue band around edge of plate	M - LC19th	
300	TP Whiteware	1	3	1	BS	Whiteware	Large floral design int	M - LC19th	
300	Whiteware	2	24	2	Footring base	Plate	U/Dec	M - LC19th	
300	Whiteware	5	24	5	BS	Hollow ware	U/Dec	M - LC19th	
300	Whiteware	3	22	2	Footring base	Plate	Overglaze gold line int	LC19th - EC20th	
300	Whiteware	4	50	1	Rim	Plate	Red lines around ext of rim and on internal edge of rim	M - LC19th	
300	YGCW	1	105	1	Rim	Pancheon	White slip int under clear glaze int	C18th - C19th	Heavy triangular rim
300	YGCW	7	89	6	BS	Pancheon	White slip int under clear glaze int	C18th - C19th	
504	Mottled Coarse Yellow ware	1	52	1	Base	Bowl	White slip int under clear glaze with diffuse brown streaks and mottling	LC18th - C19th	
504	Slip Banded ware	2	4	1	BS	Hollow ware	Black slip lines with diffuse blue painted lines	LC18th - C19th	Turned slip decoration
600	Banded ware	1	2	1	Rim	Hollow ware	Green ext	C19th	Crazed and spalled
600	BGCW	2	102	1	BS	Hollow ware	Rilled int with brown glaze, unglazed ext	LC18th - C19th	
600	BGCW	6	43	6	BS	?Pancheon	Brown glaze int only	LC18th - C19th	
600	BGCW	1	27	1	Base	U/ID	Brown glaze int with some mottling	LC18th - C19th	
600	Bone China	1	10	1	Rim	Plate	Wavy edge rim	M - LC19th	
600	Bone China	3	7	3	Footring base	Flatware	U/Dec	C19th	
600	Bone China	1	2	1	Rim	Hollow ware	U/Dec	M - LC19th	

Context	Type	No.	Wt.	ENV	Part	Form	Decoration	Date Range	Notes
600	Bone China	1	1	1	Rim	Flatware	Wavy edge rim	M - LC19th	
600	Bone China	1	1	1	Rim	Flatware	U/Dec	M - LC19th	
600	Bone China	1	2	1	Footring base	Cup/bowl	Rounded ring foot base	M - LC19th	
600	BSGSW	1	5	1	Rim	Jar	U/Dec	LC18th - C19th	Lid seated rim, probably a small jar
600	BSGSW	1	5	1	BS	Hollow ware	Stamped star designs ext	LC18th - C19th	
600	BSGSW	1	2	1	BS	Hollow ware	U/Dec	LC18th - C19th	
600	Colour Glazed ware	3	5	3	BS	Hollow ware	Green ext, buff int	C19th	Crazed glaze
600	Colour Glazed ware	1	1	1	Rim	Hollow ware	Brown glaze int & ext	C19th	Lid seated rim, possibly a teapot
600	Colour Glazed ware	1	1	1	BS	Hollow ware	Brown glaze int & ext	C19th	
600	Colour Glazed ware	1	23	1	Profile	Lid	Moulded lid with brown glaze all over	C19th	Probably a teapot lid
600	Edged ware	4	4	4	Rim	Plate	Blue feather-edged painted edge	EC19th	No moulding
600	Redware type	1	9	1	BS	Flatware	Clear glaze int	C18th	Harder than typical C17th Redware
600	Slip Banded CC ware	3	6	3	BS	Hollow ware	White slip lines ext	C19th	
600	Slip Banded CC ware	1	1	1	Rim	Hollow ware	Blue band below rim	C19th	
600	Slip Banded CC ware	1	1	1	Rim	Hollow ware	Light blue line below rim	C19th	
600	Slip Banded ware	1	1	1	BS	Hollow ware	Thin black slip lines ext	LC18th - EC19th	Turned slipware
600	Slip Banded ware	2	2	2	Rim & BS	Hollow ware	Diffuse blue band below rim with curvilinear incised design with black slip	LC18th - EC19th	Turned slipware
600	Sponged	1	15	1	Handle	Jug	Low relief moulding on	c.1830+	



Context	Type	No.	Wt.	ENV	Part	Form	Decoration	Date Range	Notes
	ware						handle with blue sponged paint		
600	Sponged ware	1	2	1	BS	Flatware	Blue sponging int	c.1830+	
600	Sponged ware	1	1	1	BS	Hollow ware	Blue sponging ext	c.1830+	
600	TP Whiteware	6	8	6	BS	U/ID	Various unidentified TP designs	M - LC19th	
600	Unglazed Red Earthenware	1	8	1	Rim	Flowerpot	U/Dec	C19th	
600	Unglazed Red Earthenware	5	22	5	BS	Hollow ware	U/Dec	C19th	
600	Whiteware	7	14	7	BS	Hollow ware	U/Dec	M - LC19th	Crazed and flaked
600	Whiteware	5	7	5	BS	Flatware	U/Dec	M - LC19th	
600	Whiteware	1	3	1	BS/handle	Mug/jug	U/Dec	M - LC19th	
600	YGCW	10	46	10	BS	Pancheon	White slip int under clear glaze int	C18th - C19th	
601	Banded ware	1	1	1	BS	Hollow ware	Diffuse brown bands ext	M - LC19th	Very small fragment
601	BGCW	1	46	1	BS	Pancheon	Brown glaze int, rilled profile ext	LC18th - C19th	
601	BGFW type	1	7	1	BS	Hollow ware	Brown glaze int & ext	LC18th - C19th	Later than normal BGFW
601	Blue Banded ware	8	8	8	BS	Hollow ware	Blue bands and lines ext	C19th	
601	Bone China	1	18	1	Ring foot base	Server/bowl	U/Dec	C19th	Part of a green printed label; 'CHOLA ... / COAL...' with a crown design
601	Bone China	1	4	1	Ring foot base	Plate	U/Dec	LC19th - EC20th	
601	Bone China	1	2	1	Rim	Hollow ware	U/Dec	C19th	
601	Bone China	1	1	1	BS	Flatware	Relief moulded design int with pink finish	M - LC19th	

Context	Type	No.	Wt.	ENV	Part	Form	Decoration	Date Range	Notes
601	BSGSW	1	1	1	BS	Hollow ware	U/Dec	C19th	
601	Ceramic ball	1	3	1	Profile	?Marble	U/Dec	C18th - C19th	Small (12.5mm) buff fired clay ball with a pitted surface; small for a marble
601	Colour Glazed ware	1	8	1	Rim	Dish/bowl	Light brown finish int & ext with moulded rim	M - LC19th	
601	Edged ware	1	3	1	Rim	Plate	Blue painted edge; no moulding	C19th	Could be later than normal Edged ware
601	Fine Redware	4	12	3	BS	Hollow ware	White slip int only	C19th	Very fine red fabric
601	Lustre ware	1	1	1	Rim	?Flatware	Pink lustre line inside rim	M - LC19th	Very small fragment
601	Mocha ware	1	1	1	BS	Hollow ware	Blue Mocha tree on a white slip band	C19th	Cane coloured body
601	Slipware	1	3	1	Rim	Dish/bowl	Clear glaze on a pale red fabric with a thin white slip line inside the rim	C19th	Not Type 1 Slipware although it resembles it superficially
601	Sponged ware	1	1	1	Rim	Hollow ware	Blue sponging int & ext	c.1830+	
601	Stoneware	1	9	1	BS	Jar	Black printed Keiller Dundee marmalade jar label	M - LC19th	
601	TP Whiteware	3	3	3	BS	U/ID	U/ID TP designs	M - LC19th	Two burnt
601	TP Whiteware	1	1	1	Rim	Plate	Willow border	M - LC19th	
601	TP Whiteware	1	4	1	BS	Plate	Blue floral design int	M - LC19th	
601	TP Whiteware	2	2	2	Rim	Hollow ware	U/ID TP designs int	M - LC19th	
601	TP Whiteware	3	7	3	BS	Hollow ware	U/ID Flow Blue designs int	c.1840+	
601	Unglazed Red Earthenware	1	3	1	Rim	Flowerpot	U/Dec	C19th	

Context	Type	No.	Wt.	ENV	Part	Form	Decoration	Date Range	Notes
601	Unglazed Red Earthenware	3	33	3	BS	Flowerpot	U/Dec	C19th	
601	Whiteware	1	14	1	Base	Flatware	U/Dec	M - LC19th	Stamped '12' on underside
601	Whiteware	6	7	6	BS	Various	U/Dec	M - LC19th	Small flakes and abraded sherds
601	Whiteware	2	2	2	Rim	Hollow ware	U/Dec	M - LC19th	Plain rims
601	Whiteware	2	6	2	BS	Flatware	U/Dec	M - LC19th	Burnt
601	YGCW	1	6	1	BS	Bowl/pancheon	White slip int under clear glaze int	C18th - C19th	
605	BGCW	1	20	1	BS	Hollow ware	Brown glaze int	LC18th - C19th	
605	Bone China	2	11	2	Rim	Hollow ware	U/Dec	LC19th - C20th	
605	Bone China	2	7	2	BS	Hollow ware	U/Dec	LC19th - C20th	
605	Ceramic ball	1	12	1	Complete	Ball	U/Dec	C18th - C19th	White clay ball, regular (22.5mm), unglazed
605	Stoneware	1	24	1	BS	Jam jar	Fluted body	M - LC19th	
605	TP Bone China	3	14	2	Rim	Mug	Finely printed blue TP design featuring a cottage or barn	M - LC19th	Could be EC20th
605	TP Whiteware	2	2	1	BS	Hollow ware	Fluted body with black printed floral design	M - LC19th	
605	Utilitarian whiteware	8	258	1	Fragments	Object	Plain white int & ext	LC19th - C20th	Stamped '25'; probably fragments from a sink or similar item
650	Whiteware	1	3	1	Base	Cup	U/Dec	M - LC19th	
605	Whiteware	1	6	1	Recessed base	Hollow ware	U/Dec	LC19th - EC20th	
605	Whiteware	1	2	1	BS	Hollow ware	White glaze int, unglazed int	MC19th - EC20th	
800	Industrial Ceramic	1	56	1	Rim	Hollow ware	U/Dec	LC19th - EC20th	Hollow item but it may be an electrical component or

Context	Type	No.	Wt.	ENV	Part	Form	Decoration	Date Range	Notes
									similar
800	Industrial Ceramic	1	8	1	Rim	Hollow ware	U/Dec	LC19th - EC20th	Hollow item but it may be an electrical component or similar
800	Whiteware	1	1	1	Rim	Plate	Blue line around edge of rim	M - LC19th	Crazed and abraded
800	Whiteware	1	1	1	Rim	Plate	U/Dec	M - LC19th	
800	YGCW	1	7	1	Rim	Bowl/dish	White slip int under clear glaze int	C18th - C19th	Sooted ext
803	Banded ware	1	2	1	BS	Hollow ware	Blue and black bands ext	C19th	
803	Blue Banded ware	2	2	2	BS	Hollow ware	Blue bands and lines ext	C19th	
803	Blue Banded ware	1	1	1	Rim	Jug	Moulded rim with blue band on body	C19th	
803	Bone China	1	8	1	Footring base	Cup/bowl	U/Dec	M - LC19th	Rounded ring foot base
803	Bone China	1	1	1	Handle	Cup	Moulded handle	M - LC19th	
803	Colour Glazed ware	1	1	1	BS	Hollow ware	Brown glaze ext	C19th	
803	Industrial Ceramic	2	8	2	Rim	Hollow ware	U/Dec	MC19th - EC20th	?Components
803	TP Whiteware	1	1	1	Rim	Dish/bowl	Willow border	M - LC19th	
803	TP Whiteware	1	1	1	Footring base	Plate	U/ID TP design int	M - LC19th	
803	TP Whiteware	1	1	1	BS	U/ID	U/ID TP design ext	M - LC19th	
804	BSGSW	1	7	1	BS	Hollow ware	U/Dec	C19th	
806	Banded ware	6	53	5	Rim, base & handle	Mug	Broad brown bands flanked by thin black lines with moulded handle terminal and footed base	C19th	Freshly broken, no abrasion; probably one vessel
806	Banded ware	3	43	3	Base & BS	Mug	Footed base, thin blue lines on body	C19th	Freshly broken, no abrasion; probably one

Context	Type	No.	Wt.	ENV	Part	Form	Decoration	Date Range	Notes
									vessel
806	BGCW	1	379	1	Base	Jar	Brown glaze int & partially ext	C18th - C19th	
806	Bone China	1	2	1	Rim	Flatware	U/Dec	M - LC19th	
806	Bone China	1	1	1	BS	Hollow ware	U/Dec	M - LC19th	
806	Bone China	1	1	1	Handle	Cup	Moulded cup handle	M - LC19th	
806	Cane Coloured ware	1	1	1	BS	Hollow ware	U/Dec	C19th	
806	TP Whiteware	1	2	1	Rim	Plate	Moulded 'bead and reel' rim with blue printed scroll pattern	M - LC19th	
806	TP Whiteware	1	1	1	Rim	Hollow ware	Purple printed leaf motif int, cable pattern ext	M - LC19th	
807	Creamware	1	4	1	Ring foot base	Bowl/dish	U/Dec	c.1740 - c.1820	
807	Creamware	1	1	1	Recessed base	Hollow ware	U/Dec	c.1740 - c.1820	
807	Industrial Ceramic	2	10	2	Rim	Hollow ware	U/Dec	LC19th - EC20th	Hollow item but it may be an electrical component or similar
812	Creamware	1	1	1	Rim	Plate	U/Dec	c.1740 - c.1820	Crazed and discoloured
812	TP Whiteware	1	1	1	BS	Flatware	U/Dec	M - LC19th	
		<b>291</b>	<b>2472</b>	<b>263</b>					

## **Ceramic Building Material by Dr. J. Tibbles**

### **Summary**

The assemblage contained late post-medieval to modern brick which included both hand-made and machine-made bricks. The sample bricks from Area B gave a date range between the late 16th-early 18th century based upon comparable brick sizes in other areas. The quality of some of the bricks within Area E assemblage is fairly poor with examples of brick wasters, kiln/furnace demolition and underfired bricks. The rectangular stamp identified containing the letters JM may represent Joseph Morton of Cinderhills as the manufacturer.

### **Introduction and methodology**

Thirty-five examples of brick were recovered from 4 contexts within 4 areas producing a total weight of 44539 gms. Assessment of the assemblage was based on a visual scan of all the retained material. Information regarding the dimensions, shape and fabric of the material was recorded.

It should be noted that the diversity of size and colour within brick and tile caused during the manufacturing process must be taken into consideration when comparing examples within collected assemblages and local typologies. The varying sizes and colours can be attributed to the variation in the clays used, shrinkage during drying, firing within the kiln or clamp and the location of the brick/tile within the kiln. The dating of ceramic building material can be highly contentious due to its re-usable nature.

The assemblage was examined using a x15 magnification lens where applicable, to aid dating, though fabric analysis was not undertaken as was considered beyond the scope of this assessment. Information regarding the dimensions, shape and fabric (where applicable) was recorded and catalogued accordingly and a Munsell colour code has been incorporated where appropriate.

### **The assemblage**

All the assemblage was generally of a post-medieval to modern date and was manufactured in six different fabrics (F1-F6). An assemblage of 28 part bricks and 7 complete bricks, with a combined weight of 44539 gm was submitted for assessment. The majority bore evidence characteristic of their method of manufacture. i.e. the hand-made material included, moulding lips, grass/straw impressions and 'slop' marks. The machine-made bricks displayed their characteristic sharp arises and stamped frogs.

Dating of bricks is highly contentious due to their potential for re-use as a valuable building commodity. The standardisation of bricks by Parliament over the centuries helped to create a more uniform brick and better architecture. However, it should be noted that although these statutes were binding with severe finds for those contravening, it would be naive to believe that all pre-mechanical brickmakers adhered strictly to these sizes at all times.

None of the assemblage could be described as decorative bricks and all appeared to be of a utilitarian function.

**Area B**

Four complete bricks were recovered (see Table CBM1). All of the bricks were earlier than the late 18th century.

**Area C***Context [303]*

A single complete machine-made brick was retrieved displaying dimensions of 235mm x 114mm x 80mm (9 ¼" x 4 ½" x 3⅛"). A rectangular stamp with rounded corners was impressed on both stretcher surfaces one containing the letters JM (Possibly Joseph Morton of Cinderhills). Machine-made bricks are generally accepted as c.1840 as the earliest date of manufacture and stamped bricks with makers' name or initials towards the end of the 19th century.

**Area E***Context [504]*

Backfill [504] contained the largest assemblage of bricks, none of which were complete (see Table CBM4). Twelve of the fragments were half bricks enabling a best fit policy to be applied to enable an approximate date of manufacture to be applied: which suggest date ranges of between mid-late 17th century and late 18th-early 19th centuries. The remaining fragments displayed thickness only however, they are consistent with the fabrics and measurable dimensions of the more complete examples within the assemblage from this context.

Hand-made manufacturing techniques were evident on most of the samples in the form of moulding lips, rain pitting and grass/straw impressions, the latter from the pre-kiln drying. Mortar adhesions were evident on three fragments. A diagonal pressure mark (skintling), formed from the stacking of bricks within the kiln, was identified on a part brick from context [504]. Generally diagonal marks suggests a pre-late 18th century date of manufacture (Campbell & Saint 2002).

The quality of some of the bricks within this context assemblage is fairly poor with examples of brick wasters, kiln/furnace demolition and underfired bricks. Part bricks are more difficult to allocate a category due to the width and thickness corresponding to more than one type. The majority of the brick assemblage falls within the categories based upon a best-fit policy. Identification of a small proportion of examples from the assemblage was not possible due to abraded surfaces and size.

*Context [512]*

Five fragments of brick, of which two were joining fragments. All the fragments bar the two joining fragments are non-diagnostic. The diagnostic fragments displayed thickness only of 62mm (2 ½") which is indicative of manufacture between 14th-18th centuries. However, manufacturing characteristics and fabric (F3) tend to suggest a late 17th-18th century date of manufacture. All fragments display overfiring and evidence of vitrification suggesting that they originate as part of kiln/furnace fabric. Alternately, they may represent overfiring within their original manufacture and sold as seconds.

**Area F***Context [600]*

Two complete machine-made bricks were retrieved displaying dimensions of 234mm x 112mm x 74mm (9 ¼" x 4 ½" x 3") and 230mm x 110mm x 78mm ((9 " x 4 ⅜" x 3") respectively. Rectangular frog with rounded ends impressed on one stretcher surface. The frog is similar to the stamped brick in context [303] and is likely to have

been made by the same maker although letters within the stamp are omitted. The manufacture date is therefore the same.

### **Recommendations**

No further work is regarded as necessary on these assemblages, which are of limited evidential value. It is recommended upon completion of work on the ceramic building material assemblage, samples of selected brick should be retained and a selective discard policy implemented prior to deposition of the finds assemblage as whole within the appropriate museum.

### **Bibliography**

Campbell, J. & Saint, A. 2002, The Manufacture and Dating of English Brickwork, 1600-1720. *Proceedings of the Royal Archaeological Institute 159, 2002*

Foreman, M. 1977, *Trial Excavations at Sammy's Point Hull*. HAR Report No 16

Lloyd, N. 1925, *A History of English Brickwork* (reprinted 2003)



Table CBM1: CBM data

Context	Wgt gms	Size mm	Size inches	Fabric	Notes	Approx. date
303	3564	235 x 114 x 80	9.25 x 4.5 x 3.1	F7	Rectangular stamped frog on both stretcher faces. One display letters JM	Very late 19c
504	1479	?x 106 x 57	? x 4.25 x 2.25	F2	Diagonal Skintling.	16th-early 18th
504	803	?x ?x 64	?x ?x 2.5	F3b		
504	1101	?x 110 x 65	?x 4.25 x 2.5	F3	Rain pitting	
504	727	?x 110 x 65	?x 4.25 x 2.5	F3	Mortar adhesions	
504	782	?x?x 65	?x ? x 2.5	F3b		
504	783	?x?x 63	?x ? x 2.5	F3	Rain pitting	
504	921	?x 110 x 63	?x 4.25 x 2.5	F2		
504	888	?x 105 x 64	?x 4.1 x 2.5	F6	Stretcher shows vitrification.	
504	1117	?x 115 x 70	?x 4.25 x 2.75	F3b	Rain pitting	
504	1177	?x 110 x 65	?x 4.25 x 2.5	F2	Rain pitting	
504	1272	?x 109 x 63	?x 4.25 x 2.5	F2	Slop moulded. Rain pitting.	
504	862	?x 110 x 63	?x 4.25 x 2.5	F3	Slop moulded. Burning on header. Frequent lithics to 25mm	
504	414	?x?x 60	? x ? x 2.4	F3	Poorly made. Mortar adhesions. Grass/straw impressions	
504	813	?x 115 x 70	?x 4.25 x 2.75	F3	Rain pitting	
504	579	?x 115 x 65	?x 4.25 x 2.5	F2	Mortar over break	
504	516	?x?x 64	?x ? x 2.5	F2	Slop moulded	
504	372	?x?x 65	?x ? x 2.5	F3	Abraded. Soft under-fired fabric	
504	898	?x?x 65	?x ? x 2.5	F3	Slop moulded. Grass impression	
504	394	?x?x 69	?x ? x 2.75	F3		
504	942	?x 110 x 65	?x 4.25 x 2.5	F3	Mortar adhesions	
504	383	?x?x 65	?x ? x 2.5	F3		
504	446	?x?x 65	?x ? x 2.5	F2		
504	450	?x?x 65	?x ? x 2.5	F3	Stretcher shows vitrification. Kiln fabric or waster	
504	1210	?x 102 x 65	?x 4 x 2.5	F5	Reduced fabric. Rain pitting. Original thickness distorted by overfiring	
512	317			F3	Non-diagnostic. Overfired. Displays vitrification	
512	69			F3	Non-diagnostic. Overfired. Displays vitrification	
512	43			F3	Non-diagnostic. Overfired. Displays vitrification	
512	567	?x?x 62	?x ? x 2.5	F3	Two joining fragments. Partially vitrified.	
600	2953	234 x 112 x 74	9.25 x 4.4 x 3	F1		early-mid 19c
600	3450	230 x 110 x 78	9 x 4.25 x 3.1	F4	Rectangular frog. Opposite face shows >>>>>Machine-made	Late 19th century

**Table CBM2: Data from Area B**

<b>Context</b>	<b>Wgt gms</b>	<b>Size mm</b>	<b>Imperial size</b>	<b>Fabric</b>	<b>Notes</b>	<b>Approximate date</b>
Brick 30	2641	230 x 110 x 63	9" x 4.25 x 2.5"	F3b	Mortar adhesions	Mid 17th-E 18th
Brick 29	3050	237 x 115 x 63	9.25" x 4.5" x 2.5"	F6c	Mortar adhesions. Rain pitting	18th century
Brick 31	2584	247 x 115 x 50	9.75" x 4.5" x 2"	F6c	Mortar	Mid 16th-17th
Brick 28	2408	230 x 110 x 70	9" x 4.25 x 2.75"	F3b		Mid 18th century

**Table CBM3: Assemblage analysis**

<b>Areas</b>	<b>No of Fragments</b>	<b>Weight</b>
Area B	4	10683
Area C	1	3564
Area E	28	20325
Area F	2	9967
<b>Total</b>	<b>35</b>	<b>44539 gm</b>

**Table CBM4: Part-brick grouping (context 504)**

<b>Incomplete brick size</b>	<b>Quantity</b>	<b>Approximate date</b>
?mm x 109-110mm x 63-65mm	7	mid-late 17th – e 18th c
?mm x 115mm x 65mm	1	mid 18th c
?mm x 115mm x 70mm	2	Late 18th-e 19th
?mm x 102-105mm x 64-65mm	2	Late 17th-18th
?mm x 106mm x 57mm	1	mid-late 17th
?mm x ?mm x 60-65mm	10	L17th-E18th
?mm x 106mm x 57mm	1	Mid-late 17thc

## Clay Pipe by Dr S. White

### Summary

33 fragments were recovered from six stratified contexts. These items are described in the table below.

### Nature of sample

The majority of pipe fragments recovered from this site were plain stems. Plain stems are difficult to date accurately and have therefore have been given a broad date range. Most appear to be late eighteenth or nineteenth century. The remains of yellow glaze or wax was visible on two stem fragments. Coating substances were occasionally used to smooth the area around the pipe mouthpiece or broken ends.

Two mouthpiece fragments were recovered. The first was recovered from [300] and had a circular profile and rounded 'nipple' nib. The second was from [806] and was smaller, circular in profile and cut straight.

Four bowl fragments were recovered. A single fragment from [300] was marked on either side of the spur with a double ring motif. This motif is common in the north of England and is likely to date between 1820 and 1870. Three bowl fragments were recovered from [600], one of which was plain aside from narrow raised 'ribs' on the front and back of the bowl. This looks ostensibly like a 'cutty' or short pipe and may date to the mid or late-nineteenth century.

The table below (Table CP1) presents details of the clay tobacco pipes recovered from the site. This table is arranged in context number order. In each case the number of bowls (B), stems (S), and mouthpieces (M) is given followed by the total number of fragments from each context. The date range is then given. Details of decorated (Dec.) fragments are then given, followed by general comments for each context.

### Recommendations

The majority of the assemblage consists of plain stems. There are three bowl fragments and two mouthpieces. No further work is recommended on the assemblage due to its small size and fragmentary nature.

**Table CP1: Clay pipe**

<b>Context</b>	<b>B</b>	<b>S</b>	<b>M</b>	<b>Total</b>	<b>Sta.</b>	<b>Dec.</b>	<b>Date range</b>	<b>Description and measurements</b>
300	1	9	1	<b>11</b>	1		1820 - 1870	Mouthpiece with round nipple; plain stems, one with yellow glaze adhering; 1 bowl fragment thin sectioned with long flat bottomed spur. Bowl has moulded double ring motif on either side of spur.
600	3	7		<b>10</b>		1	18/19 <sup>th</sup> C	7 plain stems, one with part of bowl attached; 3 bowl fragments one of which appears to be a 'cutty' pipe with no spur and a raised line along front/back of bowl. One bowl fragment with faint traces of decoration.
601		2		<b>2</b>			18/19 <sup>th</sup> C	Plain stems
800		1		<b>1</b>			18/19 <sup>th</sup> C	Plain stem.
803		6		<b>6</b>			18/19 <sup>th</sup> C	Plain stems; one with yellow glaze.
806		2	1	<b>3</b>			18/19 <sup>th</sup> C	Two plain stems; 1 flat 'cut' mouthpiece.
<b>Total</b>	<b>4</b>	<b>35</b>	<b>2</b>	<b>41</b>	<b>1</b>	<b>1</b>		

## **Metals and Slag by Dr. R. Mackenzie**

### **Introduction**

The metals and metal-related process residues recovered during archaeological fieldwork have been visually examined to assess their archaeometallurgical significance and potential to provide further information about the site. Tables M1 and M2 below summarise the findings of the assessment. It should be noted that, as no metallographic or chemical analysis has been performed, the findings should be treated as provisional.

### **Discussion**

#### *Metals*

The material contained in the assemblage is largely undiagnostic and the 'identifiable' items appear to be relatively modern. The hose pipe nozzle components from [601] do not appear to be from a 'domestic' type hose-pipe and are more likely to relate to something like a commercial premises fire-hose, or agricultural hose-pipe.

#### *Slag*

The industrial process residues have been visually assessed, and they most closely resemble blast furnace tap slag. It should be noted that, as no chemical or metallurgical analysis of the residues has been carried out, the results should be regarded as provisional.

### **Summary of potential**

#### *Metals*

The metals assemblage contains very little of archaeometallurgical potential and it does not contain enough diagnostic material to suggest specific activities at the site.

#### *Slag*

There is no supporting historical or archaeological evidence of iron smelting at the site, although it was being carried out at the nearby Shelf Ironworks during the 18<sup>th</sup> and 19<sup>th</sup> centuries. There is some historical evidence to suggest that ironstone and coal mined at the site was being supplied to Shelf Ironworks, there is also historical, and possibly archaeological, evidence to suggest that the two locations may have been linked by a trackway or tramway (H.Holderness *pers comm.*). It therefore seems very likely that the slag originated at Shelf Ironworks, and some of the fragments found may date from the 18<sup>th</sup> or early 19<sup>th</sup> century.

Blast furnace slags from this period are significant and chemical analysis of the slag could determine whether it is blast furnace slag. Chemical analysis can also provide information on the furnace charge, fuel type and smelting conditions.

The slags could potentially be a useful resource for any future studies into iron production at Shelf Ironworks.

### **Recommendations**

No further archaeometallurgical work on the metals is recommended on the material covered by this assessment and the items can be disposed of.

No further analysis is recommended on the fragments of slag at this stage. However, the fragments from [800] and [803] should be retained in the site archive, as they are potentially 'early' in date.

The remaining fragments of slag can be disposed of.

**Table M1: Summary of Metal finds**

<b>Context no.</b>	<b>Description</b>	<b>Number of pieces</b>
300	Undiagnostic threaded ferrous metal bolt	1
300	Ferrous metal nail, very heavily corroded	1
300	Undiagnostic off-cuts of thin copper sheet	2
600	Undiagnostic strip of ferrous metal, measures approx. 80mm x 10mm x 5mm	1
601	Fragments of sheet ferrous metal, approx 1mm thick, with regular pattern of perforations – possibly from filter	14
601	Undiagnostic ferrous metal wedges	2
601	Undiagnostic fragment of heavily corroded ferrous metal	1
601	Ferrous metal washer	1
601	Fragments of corroded ferrous metal washer	2
601	Possible fragment of galvanised ferrous nail or pin	1
601	Fragments of ferrous metal rod or wire (approx. 3mm diameter) with heavily weathered rubber/plastic coating	3
601	Short lengths of heavily corroded ferrous metal wire, approx 3mm diameter	2
601	Corroded components of adjustable hose pipe nozzle	5

**Table M2: Summary of industrial process residues (slag)**

<b>Context no.</b>	<b>Description</b>	<b>Number of pieces</b>	<b>Weight</b>
600	Probable blast furnace slag	1	100g
800	Probable blast furnace slag	2	121g
803	Probable blast furnace slag	1	16g



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