
NORTH PENNINES ARCHAEOLOGY LTD

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**ARCHAEOLOGICAL
EXCAVATION AT
THE FORMER DURHAM
COUNCIL DEPOT,
PIT LANE,
FRAMWELLGATE MOOR,
CO. DURHAM**

**FOR
SCOTT WILSON LTD**

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Martin Railton BA (Hons) MA AIFA
North Pennines Archaeology Ltd
Nenthead Mines Heritage Centre
Nenthead
Alston
Cumbria CA9 3PD
Tel: (01434) 382045
Fax: (01434) 382043
Email: m.railton@nparchaeology.co.uk



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SUMMARY

Between 18th and 30th November 2007, North Pennines Archaeology Ltd, commissioned by Scott Wilson Ltd, undertook an archaeological excavation on land the Former Durham County Council Depot, Pit Lane, Framwellgate Moor, Durham, prior to a residential development at the site.

A previous desk-based assessment had identified the potential survival of 19th century coking ovens on the northwest part of the site, associated with Framwellgate Moor Colliery, which would be impacted by the proposed development. The excavation presented in this report was undertaken in order to preserve by record any archaeological evidence that would be impacted by the proposed development, and to attempt to reconstruct the history and use of the site.

The designed archaeological excavation comprised three open areas (Areas A-C). Archaeological features associated with the former coking works were revealed in each area, although large parts of the site had been heavily truncated by modern activity. Twelve brick-built coking ovens and two associated wagon ways were revealed. All the ovens appear to have been contemporary, although there was tentative evidence for several phases of wagon way construction. The establishment of the coking works on former agricultural land was indicated by the presence of a post-medieval land drain. However no other earlier features were revealed to confirm this.

It is proposed that the results of the excavation will be published in a suitable journal, together with a detailed description of the form of the coking ovens used at the site.

ACKNOWLEDGEMENTS

North Pennines Archaeology Ltd are grateful to the site manager and staff of Encia, for facilitating the archaeological excavation, and to Miller Homes (North East) Ltd and Scott Wilson Ltd for commissioning the work. Thanks are also due to Lee White, Assistant County Archaeologist at Durham County Council, for her assistance with the project.

The fieldwork was undertaken by Tony Liddell, (NPA Project Supervisor), Angus Clarke, Kevin Mounsey, Frances Wood and David Jackson (NPA Project Assistants), and was managed by Martin Railton (NPA Senior Project Officer).

This report was written and illustrated by Martin Railton (NPA Senior Project Officer), and was edited by Matthew Town (NPA Senior Project Officer).

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 Planning permission for a residential development at the Former Durham Council Depot, Pit Lane, Framwellgate Moor, Co. Durham had been granted subject to an archaeological planning condition. Scott Wilson Ltd., commissioned by Miller Homes (North East) Ltd., produced a desk-based assessment for the site (Scott Wilson 2006). This identified the potential survival of 19th century coking ovens on the northwest part of the site, which would be impacted by the proposed development.
- 1.1.2 The excavation presented in this report formed part of the mitigation strategy for the development, devised by Scott Wilson Ltd. The archaeological excavation was undertaken by North Pennines Archaeology Ltd., in accordance with a project design produced by Scott Wilson Ltd. (Scott Wilson 2007), and approved by Durham County Council Archaeology Section. The excavation was undertaken in order to target the areas of the former coking ovens, as depicted on historic Ordnance Survey maps of the site.
- 1.1.3 Framwellgate Colliery opened in 1841. A coking works was established around the same time, and formed an integral part of the complex. By the end of the 19th century, 293 beehive coking ovens are known to have existed at the site, with half the total coal yield of the colliery being converted into coke. The output of the colliery declined in the 20th century, until production was so low that the coking works had to close down. The colliery finally ceased production in 1924. The colliery and coking works was subsequently demolished.

1.2 LOCATION, TOPOGRAPHY AND GEOLOGY

- 1.2.1 The development area is situated to the north of the city of Durham, centred on NGR NZ 2702 4524 (Figure 1). The proposed development area is located on the west side of Pit Lane, Framwellgate Moor, with Low Carr Park to the north, and a school playing field to the south. The development area was occupied by the buildings, fuel tanks, car parks and storage areas of the former Durham Council Depot at the time of the excavation (Figure 2).
- 1.2.2 The site was predominantly level, but sloped gradually upwards from north to south, with elevations ranging between 93m and 98m above Ordnance Datum (OD). The ground to the west and south of the development area sloped downhill steeply to an area of parkland which bounds the site to the west.
- 1.2.3 The solid geology of the area comprises Carboniferous Coal Measures (BGS 2001), overlain by glacial deposits of boulder clay, sands and gravels, including areas of quicksand. The Low Main, Hutton, Busty, Harvey and Brass Thrill coal seams are located in the area.

2. PROJECT DESIGN AND METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 The project design was submitted by Scott Wilson Ltd., in response to a brief issued by Durham County Council Archaeology Section (DCCAS). A previous desk-based assessment (Scott Wilson 2006) had indicated that 19th century coking ovens may survive at the northeast side of the site, which would be impacted upon by the proposed development.

2.1.2 Scott Wilson Ltd were commissioned by Miller Homes (North East) Ltd., to review all existing documentation, in order to devise an appropriate focussed archaeological mitigation strategy for the new development. The resulting project design for this work (Scott Wilson Ltd 2007) was approved by Lee White, Assistant County Archaeologist at DCCAS.

2.2 EXCAVATION METHODOLOGY

2.2.1 The designed archaeological excavation comprised three open areas (Areas A-C). Area A measured 15m by 15m, Area B measured 15m by 20m, and Area C measured 9m by 15m (Figure 2). The excavation was undertaken in order to achieve the following:

- to preserve by record the archaeological evidence contained within the site that will be impacted by the proposed development;
- to identify the presence/absence of archaeological remains;
- to determine the condition/state of preservation of any archaeological deposits or features encountered;
- to determine the likely range, quality and quantity of any artefacts and environmental evidence recovered.

In addition the specific aims of the excavation were:

- to identify the form of the coking ovens at this particular colliery;
- to try to identify the earlier coking ovens and compare with the later ovens;
- to identify the industrial processes, products, by-products and residues of the coking process;
- to identify how the coking process fitted in with the overall colliery operation;
- to enhance knowledge about the coking process in the northwest of England in regional coal mining and collieries;
- to contribute and answer research objectives posed by the North-East Regional Research Framework for the Historic Environment. For example, linking the results into research into the process of invention, innovation and incremental development in industrial process (Petts & Gerrard 2006, 225).

An assessment of the industrial processes and any machinery used will be included, in accordance with Section MOi (Petts & Gerrard 2006, 193).

- 2.2.2 The work was undertaken under the management of Martin Railton, NPA Senior Project Officer. All staff were fully briefed on the project background, made aware of the work required outlined in the project design, and understood the projects aims and methodologies.
- 2.2.3 Made ground was removed using a 360° mechanical excavator fitted with a toothless ditching bucket and stored on site. All machine work was carried out under direct archaeological supervision.
- 2.2.4 The site was subsequently cleaned by hand and base plans were produced at an appropriate scale. The limits of the site and all excavated archaeological features were surveyed using a Trimble 3605DR Geodimeter total station, and the captured data was downloaded onsite into a computer for manipulation.
- 2.2.5 Identified archaeological features within the stripped area were excavated by hand to the depth of their cuts, in accordance with the North Pennines Archaeology Excavation Manual (Giecco 2003).
- 2.2.6 A detailed record of the stratigraphic sequence was made, in accordance with the recommendations of the Institute of Field Archaeologists (IFA 2001b).
- 2.2.7 All written records utilised the North Pennines Archaeology Ltd., pro-forma record sheets.
- 2.2.8 Plans and sections were drawn on water resistant permatrace. Plans were drawn at a scale of 1:20 or 1:50, and sections at 1:10 or 1:20. The captured data was digitised using AutoCAD software.
- 2.2.9 Colour slide and monochrome negative photographs were taken in 35mm format. Digital photographs were also taken, a selection of which are included in this report.
- 2.2.10 All finds belong to the landowner, Miller Homes (North East) Ltd., but were initially taken to the premises of North Pennines Archaeology at Nenthead where the assessment was undertaken.

2.3 ASSESSMENT METHODOLOGY

- 2.3.1 This document is the post-excavation assessment of the excavation at the Former Durham Council Depot, Pit Lane, Framwellgate Moor, and includes an initial finds assessment and a review of site data. The assessment was undertaken in accordance with the process set out in the Management of Archaeological Projects 2nd edition (English Heritage 1991).
- 2.3.2 Key features of this report include:
- a site location plan related to the national grid;
 - dates on which the project was undertaken;
 - a concise non-technical summary of the data;

- a description of the methodology employed, work undertaken and an outline of results obtained;
- plans and sections at an appropriate scale showing the locations and positions of deposits and finds;
- a description of the deposits identified;
- a statement of the archaeological potential of the site data, conclusions and recommendations for further work;

2.4 ARCHIVE

- 2.4.1 A full professional archive has been compiled in accordance with the project design, and in accordance with current UKIC (1990) and English Heritage guidelines (1991). The archive is currently held at the North Pennines Archaeology Offices at Nenthead, but will be deposited in an appropriate museum in due course.
- 2.4.2 North Pennines Archaeology Ltd., is registered with the **Online AccesS** to the **Index** of archaeological InvestigationS (**OASIS**). The **OASIS** reference for this project is northpen3-40717.

3. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

3.1 HISTORICAL BACKGROUND

- 3.1.1 **Introduction:** The following section provides a summary of the historical and archaeological background of the site, which has already been presented in a desk-based assessment, produced for Miller Homes (North East) Ltd. (Scott Wilson 2006). It is compiled mostly from secondary sources, intended only as a summary of historical developments around the proposed development area.
- 3.1.2 **Prehistoric and Roman (up to 5th century AD):** There is no direct evidence for prehistoric or Roman activity in the vicinity of the proposed development area.
- 3.1.3 **Medieval (5th century - 1540):** The first known documentary reference to Framwellgate Moor is in Boldon Book (dated 1183), which describes the area as a hunting ground for the Bishop of Durham (Surtees Society 1852). Parts of this area may also have been used as agricultural land in the medieval period, although land to the west is very marshy and low-lying, and would not have been suitable for cultivation.
- 3.1.4 **Post Medieval (1540 - 1840):** Framwellgate Moor was enclosed following an Enclosure Act of 1801, at which time Front Street probably became a turnpike road. After enclosure the majority of the land was owned by Rev. R. H. Williamson, apart from the marshy land to the west, known as The Carr (Scott Wilson 2006).
- 3.1.5 The Northern Coal Mining Company was formed in 1837 with a capital of £500,000, and they leased land in Framwellgate Moor from Rev. Williamson, including parts of the development area. The first shaft was sunk on 5th January 1838 to reach the Busty Seam. However problems soon arose due to the presence of quicksand, and a large amount of piling was required to carry the shaft 120ft to the rock head, resulting in a shaft that was 9.1m in diameter at the surface (Brown 1974, 1).
- 3.1.6 **Industrial Period (1840 - 1914):** The Framwellgate Moor Colliery finally opened in 1841. However the company soon failed and was declared bankrupt the same year. It was held for a short time by Lord Londonderry, before it was sold to the Framwellgate Moor Coal and Coke Company. Once in operation the company prospered, and in 1861 a new shaft was sunk down to the Busty Seam. In 1894 a new pit was opened near Cator House, c.1km to the west. Thereafter the original shaft was known as 'Old Pit' and the new shaft 'New Pit'. The two pits were linked by rail above, and below ground (Land 2004). As a result the area prospered and new housing was built for the workers in Framwellgate Moor. As well as coal and coke production, firebrick manufacture took place at Framwellgate Moor using local shale, until the shale was depleted in 1890. The colliery reached its peak at the turn of the century, when around a 1000 men were employed in the colliery, producing 1000 tons of coal a day, half of which was converted to coke on site.
- 3.1.7 The 1st Edition Ordnance Survey map of 1857 shows the layout of the 'Old Pit' at Framwellgate Moor Colliery, the Framwellgate Moor Railway, and associated structures. Three batteries of coking ovens are shown in the vicinity of the present excavation, in two rows, with wagon ways running either side.

- 3.1.8 After 1900 the colliery went into decline as the Busty coal seam became exhausted. Eventually there was not enough coal to be converted into coke, and coke production at the site ceased some time before World War I. After 1914 the number of men working at the colliery had fallen to 500 (Scott Wilson 2006).
- 3.1.9 The 2nd Edition Ordnance Survey map of 1896 shows the development of the colliery and coking works to include three larger batteries of coking ovens in the vicinity of the present excavation with associated buildings and wagon ways. These were still in existence by the time of the 3rd Edition Ordnance Survey map of 1920, even though the production of coke had ceased at the site by this time.
- 3.1.9 ***Modern Period (1914 - present):*** The colliery closed in 1924 and most of the colliery buildings were demolished and the wagon ways were taken up. However, some of the colliery buildings survived and were converted into the Durham County Council Repair Depot, which was established at the site (Scott Wilson 2006).

3.2 PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

- 3.2.1 A desk-based assessment of the development area has previously been undertaken (Scott Wilson 2006). No known evidence for prehistoric, Roman, or medieval activity was discovered in the immediate vicinity. The desk-based assessment identified that Framwellgate Colliery opened at the site in 1841, and that a coking works formed an integral part of the complex from the beginning. Archaeological, historical and cartographic research indicated the potential for archaeological remains to survive at the site relating to Framwellgate Colliery, in the form of coking ovens and colliery buildings.
- 3.2.2 Geotechnical investigations were undertaken at the site in September 2006, and revealed evidence for the survival of a portion of the coking ovens in the northwest part of the development area. This work also indicated that the majority of the site had been severely disturbed by the construction of council depot buildings, the burial of underground fuel tanks, and landscaping to create areas of hardstanding.

4. THE EXCAVATION

4.1 INTRODUCTION

- 4.1.1 The excavation of land at the Former Durham County Council Depot, Pit Lane, Framwellgate Moor took place between 18th and 30th November 2007. Three separate Areas were excavated (Areas A-C) on the eastern side of the site (Figure 2). The tarmac car park surface, and modern overburden were first removed using a 360° mechanical excavator, and stored on site. The excavation was undertaken under close archaeological supervision, to the top of the uppermost archaeological deposits, in each area.
- 4.1.2 Excavated features were cleaned by hand, photographed, and recorded using a Trimble 3605DR Geodimeter total station to produce a base plan of archaeological features (Figure 3). A sample of these were subsequently excavated by hand, to identify the full extent and depth of the deposits.
- 4.1.3 A sample of coke was also collected for industrial residue analysis. All of the artefacts revealed during the excavation were bagged and labelled on site, and subsequently removed to the company offices at Nenthead for processing. No suitable soil samples were recovered for environmental analysis.
- 4.1.4 A photographic record of the excavation was made in colour slide, and black & white print film, using Canon Eos 500 cameras. High resolution digital photographs and video were also taken, using a Canon 350D digital camera, and a Sony Handycam DCR-SR50E. A drawn record was also made on high quality draughting film.
- 4.1.5 The following section summarises the results of the excavation. In this description the context numbers are given for archaeological deposits in rounded brackets (), and the context numbers for structural or cut features are shown in square brackets []. A complete list of contexts is included in Appendix 1. The stratigraphic information is presented in Appendix 2 in the form of a Harris matrix for each area.
- 4.1.6 Following the completion of the archaeological excavation, the excavated areas were left open at the request of Miller Homes (North East) Ltd.

4.2 AREA A

- 4.2.1 Area A was located immediately to the south of the depot entrance onto Pit Lane, on the east side of the site. The excavated area was moved northwards by c.1.5m from the original proposed location, due to the presence of overhead telephone lines. This area was 15m square, and was situated to investigate a battery of coking ovens and associated wagon ways, which are shown on historic Ordnance Survey maps of the site.
- 4.2.2 A test pit/trench, which had previously been excavated at the site, was located on the south side of Area A, aligned approximately northeast to southwest. The cut of this trench [255] had truncated archaeological remains in this area. It was backfilled with a mixture of excavated archaeological material and modern tarmac (256).
- 4.2.3 **Natural subsoil (201):** The natural grey clay (201) was revealed at a depth of 1.2m below ground level (bgl) at the south side of Area A, where a 1m by 7m section was excavated by machine. The natural clay was also revealed at a depth of 0.7m bgl at the north side of Area A, where a 2m-wide section was excavated by machine, to test for earlier deposits, following recording of the coking ovens.
- 4.2.4 **Coking ovens (Ovens 1-8):** Above the natural subsoil, filling the northwest side of Area A, was a 8.2m-wide battery of brick-built coking ovens, aligned northeast to southwest (Plate 1). The bases of eight ovens were revealed in total (Ovens 1-8), all measuring 3.5m in diameter, with oven entrances and a mortared sandstone wall [231] on the southeast side (Figure 3).
- 4.2.5 The southeast wall of the battery of ovens [231] was 0.3m wide and 15m long, being 0.6m deep at the northern end and 1.3m deep at the southern end, where survival was greatest. The oven entrances were 0.9m wide and located at c.4m intervals along this wall. The northwest oven entrances and wall were not revealed within the excavated area. The spaces between the individual oven walls were in-filled with mortared bricks and sand stone pieces (216), to form a single solid structure.
- 4.2.6 Oven 1 was situated at the northern corner of Area A, at a depth of 0.4m bgl. The structure comprised a foundation layer of roughly-dressed sandstone blocks (234), above which was the circular oven wall [204]. This wall was 0.36m wide and 0.1m high being made from a layer alternating rectangular and *voussoir* bricks laid side-by-side, and an outer layer of rectangular bricks, laid end-to-end. A single course of the oven wall survived. The interior of this oven was excavated to reveal a 0.15m-deep bedding layer of grey-black stone and coal waste (235), interpreted as waste material from the colliery. Above this were two 0.14m-deep layers of crushed coal waste (252) and (204). No floor survived within this oven, which appeared to have been deliberately removed (Figure 4, Section 1).
- 4.2.7 Oven 2 was situated to the southeast of Oven 1, on the north side of Area A, and was of similar construction, with a 0.9m-wide entrance on the southeast side. The brick wall [206] of Oven 2 was 0.1m high, with only a single course of bricks surviving above floor level. The interior measured 3m in diameter and was filled with an original slab floor (226) made of c.0.3m-square 0.8m-thick grey slabs of heat-resistant firebrick (Plate 2). At the entrance, the floor was edged with moulded bricks

measuring 0.24m long, 0.1m wide and 0.07m deep, laid side-by-side, with a curved corner forming the outer lip of the oven entrance. The entrance was formed with large moulded red bricks, which measured 0.5m long, 0.3m wide and 0.1m deep, with a 0.4m-long, 0.03m-wide bonding groove running along the centre of the uppermost face (for construction detail see Figure 5, Plan A). The floor of the oven sloped gradually towards the entrance, presumably to facilitate the removal of coke and for drainage.

- 4.2.8 Oven 3 was located on the northwest side of Area A, adjacent to Oven 1, and was similar in construction, comprising a foundation layer of roughly-dressed sandstone blocks (244), above which were six courses of bricks forming the circular oven wall [207]. Half of the oven interior was excavated to reveal a 0.23m-deep bedding layer of broken stone and coal waste (243), above which were two brick floor surfaces (Plate 3). The lower floor surface (242) comprised a single layer of worn and broken red bricks laid side-to-side which filled approximately half of the interior, on the southwest side of the oven. Above this on the south side of the oven was a second similar brick floor (241), which filled approximately one quarter of the oven interior. Above this was a 0.2m-deep loose layer of brick rubble, crushed brick and mortar (203), which was interpreted as a demolition layer. The northwest side of the oven was filled by a 0.08m-deep layer of crushed coal waste (251), above which was a 0.2m-deep layer of brick rubble (246), interpreted as demolition material (Figure 4, Section 1). Both of the floors in this oven were believed to be later replacements, following removal of the original floor surface.
- 4.2.9 Oven 4 was similar to Oven 2, with a 0.9m-wide entrance on the southwest side (Plate 4). The oven wall [208] was only 0.05m high, within which was the original slab floor (227), similar to Oven 2 (for construction detail Figure 5, Plan 1).
- 4.2.10 Oven 5 was located on the northwest side of Area A, adjacent to Oven 3, and was similar in construction (Figure 5, Plan 1). The oven wall [209] was 0.15m-high, comprising two courses of bricks above floor level. The interior of the oven contained a floor of red bricks (245), laid side-to-side and end-to-end. Above this floor was a 0.13m-deep layer of brick rubble and coal waste (254), above which was a second 0.18m-deep similar layer of brick rubble and coal waste (246), interpreted as demolition material (Figure 4, Section 1).
- 4.2.11 Oven 6 was located to the southeast of Oven 5 and was the most complete oven revealed at the site (Figure 5, Plan 1). The oven wall [210] was 0.15m high, comprising two courses of bricks above floor level. The 0.9m-wide entrance on the southwest side was flanked with large moulded red bricks, which measured 0.5m long, 0.3m wide and 0.13m deep, with a 0.4m-long, 0.03m-wide bonding groove running along the centre of the uppermost face, similar to Oven 2, and Oven 4 (Plate 5). The interior measured 3m in diameter and was filled with an original slab floor (228) made of c.0.3m-square 0.8m-thick slabs. Above this floor was a 0.3m-deep layer of heat-fused demolition rubble comprising fragments of red brick and mortar (213). Some pieces of coke were recovered from this layer.
- 4.2.12 Oven 7 was located at the southwest corner of Area 1, and had been bisected by an earlier test pit/trench (Plate 6). The oven wall [211] was 0.36m wide and 0.1m high being made from a layer alternating rectangular and *voussoir* bricks laid side-by-side,

and an outer layer of rectangular bricks, laid end-to-end, similar to the other ovens in Area A. However, it was noted that the *voussoir* bricks making up the southwest section of this wall were marked with the Roman numeral 'I', whilst the rectangular bricks bore the number '1'. This suggested that the bricks may have been specially commissioned for the construction of the ovens, and were part of a numbered series of particular brick types (Plate 7). This oven retained the original slab floor (229), above which was a 0.18m-deep layer of coal waste (253). Above this was a 0.06m-deep compact layer of crushed and broken brick (247). These deposits were cut by the test pit/trench [255], which ran northwest to southeast across the oven (Figure 4, Section 1).

- 4.2.13 The final oven in Area A (Oven 8) was located on the southwest side of the excavated area, and was also bisected by the test pit/trench (Plate 8). A section was excavated through this oven where it was bisected by the test pit/trench (Figure 5, Section 2). The oven comprised a foundation layer of roughly-dressed sandstone blocks (233), above which was the circular oven wall [212]. The wall was 0.36m-wide and 0.45m-high, being preserved to the greatest height of all the ovens in this area (Plate 9). Four courses of alternating rectangular and *voussoir* bricks survived above the oven floor level. The interior of the oven contained a 0.5m-deep deposit of stone and coal waste (232), which was interpreted as colliery waste. This had been used as hardcore for the oven floor, and was blackened at the centre of the oven, but orange at the oven edges, due to the effect of heat from above. The original oven floor (230) survived and was made of square slabs, similar to the other ovens in Area A. Above this was a 0.4m-deep layer of crushed brick, brick pieces and mortar (248), interpreted as demolition rubble.
- 4.2.14 **Stone walls:** Immediately to the southeast of Oven 6 and Oven 8, above the natural clay subsoil (201), was the base of a mortared sandstone wall [214], which blocked the entrance to Oven 8. This wall ran southwest to northeast along the edge of the ovens for a distance of *c.*5m, being 0.8m wide and 0.2m high. This had been demolished at the northern end. The wall had been repaired on the southeast side with a 0.5m-long section of red bricks (220). The wall was interpreted as a later phase of building, which was undertaken after the coking ovens had gone out of use. Another sandstone wall abutted the southeast side of Oven 2 and Oven 4. This wall [217] was *c.*4m long and 0.3m high, being 0.6m wide at the southwest end, narrowing to only 0.1m wide at the northeast end. This wall had been expanded on the east and south sides, by constructing another section of wall [218] measuring *c.*4m long, 0.3m high, and between 0.5m and 1.3m wide. It is possible that these walls represent a later phase of activity following the decommissioning of the coking ovens, and may be associated with later colliery wagon ways.
- 4.2.15 **Wagon way:** Above the natural clay (201), on the southwest side of Area A, was a 0.3m-deep deposit of black crushed coal and stone (223) measuring at least 15m long and 7m wide, interpreted as colliery waste. This material had been used as a bedding layer for a wagon way, aligned southwest to northeast, on the southwest side of Area A (Plate 10). Four timber sleepers of the wagon way (236) were revealed at the southern corner of the excavation (Figure 6, Plan 2), each measuring *c.*2.1m long, 0.25m wide and 0.1m deep. Corroded iron deposits marked the former locations of the iron rails and fittings, which had been removed in this area. Two 0.35m-wide

slots, [237] and [239], measuring 1.5m long and 0.75m long respectively, marked the former locations of the iron rails of the wagon way. These slots were filled with compacted black sand, (238) and black-grey clay (240). To the north of these features, the original lines of the iron rails of the wagon way, were marked by lines of red bricks (249), which had been laid in the depressions left by the rails after they had been removed (Plate 11). Immediately to the northwest of the wagon way, and parallel with it, was a sandstone wall [222], which ran the entire length of Area A, being 15m-long, 0.6m wide and 0.45m high. Situated *c.*1m to the west of this wall was another stonewall [221], which measured 8.1m long, 0.45m wide and up to 0.12m high, with a slightly different alignment to the previous wall [222]. This second wall may have been associated with another wagon way, although no evidence for a second track survived in Area A.

4.2.16 **Modern wall:** Above the wagon way and walls [221] and [222] on the southeast side of Area A, was a 0.2m-deep layer of black colliery waste (215), interpreted as a levelling deposit. Cutting this deposit was the foundation slot [224] for a wall, which truncated part of the wagon way wall [222]. This slot was *c.*4m long, 0.75m wide and 0.12m deep, and was aligned northwest to southeast. The eastern end of this slot was filled with yellow sand (225) containing pieces of brick, small stones, mortar and fragments of modern pottery and window glass. The western end of the slot was filled by parallel lines of red bricks (219). This feature was interpreted as the foundation slot for a modern wall, and may be associated with the former Durham County Depot (Plate 12).

4.2.17 Above the coking ovens, wagon way and walls revealed in Area A, was a 0.12m-deep deposit of loose grey-brown sand and crushed brick (202), used as the bedding layer for the tarmac car park surface (200). Following the archaeological recording of the coking ovens in Area A, a 2m-wide section was excavated by machine, through Oven 1 and Oven 2, to reveal the natural clay subsoil (210) beneath. No earlier features were revealed in this area.

4.2.18 All of the finds recovered from Area A were modern, and were discarded.

4.3 AREA B

4.3.1 Area B was located to the west of Area A and measured 15m by 20m. This area was situated to investigate another battery of coking ovens and wagon way, as indicated on historic Ordnance Survey maps of the site.

4.3.2 A number of modern services truncated this trench including the cut [329] of a water pipe (330), aligned east to west, and the cut [334] of a drain (335) on the southwest side. A large part of the northwest side of Area B had been disturbed by modern excavation [332] and [333], and archaeological deposits had been seriously truncated in this area (Figure 3).

4.3.3 **Natural subsoil (301):** The natural yellow-grey clay (301) was revealed on the west side of Area B at a depth of 1.2m below ground level (bgl).

4.3.4 **Walls:** Above the natural clay (301), crossing the centre of Area B, was a sandstone wall [306], aligned northeast to southwest (Plate 13). The wall was 0.7m wide, 0.35m

high, and at least 15m long, with two courses surviving within the excavated area. Immediately to the southeast of this wall were two later walls, associated with a battery of coking ovens. The wall on the southwest side [303] was at least 20m long, 0.65m, wide and 0.33m high. This formed a platform on the southwest side of the coking ovens, and was associated with a wagon way. The third wall [305] filled the space between the earlier and later walls, and was at least 15m long, 1m wide and 0.35m high.

- 4.3.5 **Coking ovens:** Above the earliest wall [306], at the southwest side of Area B, were the remains of a battery of coking ovens. The fragmentary remains of four brick-built coking ovens (Ovens 9-12) were revealed in total (Plate 14). These were constructed in a similar way to the ovens in Area A, being 3.5m in diameter, with oven walls 0.36m wide and 0.1m high, made from alternating rectangular and *vousior* bricks laid side-by-side, and an outer layer of rectangular bricks, laid end-to-end. Only the oven floors and a single course of the oven walls survived. No oven entrances survived in Area B, due to modern disturbance in this area.
- 4.3.6 Oven 9 was situated on the south side of Area B, but was heavily truncated. A 4m-long section of the oven wall [308] survived, which was 0.15m high. Within the oven was a 0.35m-deep bedding layer of crushed brick sandstone pieces (317), above which was the fragmentary oven floor (307), made of firebrick slabs.
- 4.3.7 Oven 10 was situated to the south of Oven 9, and was the most complete of the ovens in Area B, although this had been disturbed on the southwest side by the cut for a modern drain cover [334], and had been truncated on the east side. The wall [310] of Oven 10 was only 0.1m high, within which was the original slab floor (309).
- 4.3.8 The northern half of Oven 11 was situated on the south side of Area B (Plate 15), and was bisected by a modern drain [334]. The oven wall [312] was 0.15m high and 0.36m wide. Within the oven were the remains of two floors. The lowest floor (313), was interpreted as the original floor, and was made of 0.3m-square, 0.08m-deep grey firebrick slabs. Above this was a bedding layer of heat-effected red-grey sand (318), above which was the second floor of red bricks (314), laid side-by-side and end-to-end.
- 4.3.9 The final oven, Oven 12, was situated to the west of Oven 10, and originally formed part of a second row of Ovens, most of which had been destroyed by modern ground disturbance. A single 2.5m-long 0.36m-wide section of this oven wall (311) survived (Plate 16).
- 4.3.10 **Wagon way:** Above the natural (301), immediately to the east of the walls and coking ovens in Area B, were the timber sleepers (315) of a wagon way, aligned northeast to southwest (Plate 17). Four sleepers were revealed in total, being on average 0.25m wide, 0.1m deep and between 2.1m and 1.6m long. Above the timber sleepers was a 0.12m-deep 3.2m-long, 2.33m-wide deposit of black crushed coal (316), above which was a 0.24m-deep deposit of loose black coal and stone pieces (325), interpreted as colliery waste (Figure 4, Section 3).
- 4.3.11 **Modern Disturbance:** Above the layer of colliery waste (325), on the east side of Area B, was a 3m-wide, 0.7m deep layer of red-brown clay (321) containing large quantities of brick rubble. Cutting this layer in the southwest section of Area B was a

0.83m-wide 0.52m-deep pit or trench [324], filled with crushed red brick and sand (323) containing brick rubble and coal waste (Figure 4, Section 3). To the northwest of this feature was a second feature [331] which was 1.05m wide and 0.58m deep, filled with crushed brick, sandstone pieces and brick rubble (326). Both of these features were interpreted as modern.

- 4.3.12 Above the natural clay, to the west of the coking ovens was a 1.05m-wide 0.56m-deep deposit of crushed brick, sandstone and brick rubble (326) and a similar 1.6m-wide, 0.3m-deep deposit of crushed brick, sandstone and brick rubble (328), above which was a 2.6m-wide, 0.2m-deep layer of red-orange sand (327). This layer was cut by the 0.7m-wide, 0.4m-deep trench [329] for a water pipe (330).
- 4.3.13 Sealing these deposits in Area B was a 0.2m-deep layer of black coal waste (322), above which was a 0.13m-deep compact layer of crushed red brick and mortar (319). Above this was a 0.16m-deep layer of modern hardcore (320) and orange-brown clay (302), used as bedding for the car park tarmac surface (300).
- 4.3.14 No artefacts were recovered from Area B.

4.4 AREA C

- 4.4.1 Area C was located to the north of Area A, and measured 15m by 9m. This area was situated to investigate another battery of coking ovens as shown on historic Ordnance Survey maps of the site, as it was believed that ovens in this area might be chronologically later than the ovens in Area A and Area B.
- 4.4.2 Area C was moved 1m to the south from the original proposed location, in order to avoid a modern service trench [107], which was identified on the north side of Area C (Figure 3).
- 4.4.3 **Natural subsoil:** The natural yellow-grey clay (101) was revealed at a depth of 1m below ground level (bgl), above which was a 0.16m-deep layer of grey-brown clay (105), which was interpreted as a contaminated layer of natural clay. A 1.5m-long, 1m-wide *sondage* was excavated by machine on the northwest side of Area C, as the natural clay appeared darker in this area. A possible palaeochannel [117] was identified in this area, filled by a 0.8m-deep deposit of grey sandy-clay (113) and a 1m-deep deposit of grey clay (116), above which was a 0.1m-deep deposit of yellow-grey clay (115).
- 4.4.4 **Land Drain [118]:** Cutting the natural clay (105) at the south side of Area C was the trench [118] for a 8m-long timber-lined land drain (106), which was forked at the south end (Plate 18). This contained a ceramic drainpipe, and was almost certainly post-medieval in date. Above this was a 0.02m-deep layer of brown silty sand (121).
- 4.4.5 Covering the natural clay, filling the whole of Area C, was a 0.02m-deep deposit of black coal, cinders and stone pieces (104/112), interpreted as colliery waste (Figure 4, Section 4).
- 4.4.6 **Wall and wagon way:** Above the layer of colliery waste (104/112), running along the northeast side of Area C, was the foundation of a mortared sandstone wall [103], which was 0.62m-wide, 0.22m high and at least 15m long (Plate 19). The wall was

truncated at the north end by a modern service trench [107]. Immediately to the east of the wall, at the northern corner of Area C were two timber sleepers (122) of a wagon way (Plate 20). These were not fully exposed in the excavated area, but were at least 1.16m long, 0.09m wide and 0.08m deep. A single 0.48m-long, 0.09m wide and 0.1m-deep section of iron rail, with a 0.04m wide track, was revealed sitting on top of the timber sleepers in this area (Figure 6, Plan 3). The rail was bolted to the sleepers with two square iron brackets.

- 4.4.7 Above the wall and wagon way, on the east side of Area C, was a 0.2m-deep layer of black coal waste and brick rubble (102). To the west of the wall was a 0.3m-deep layer of yellow-brown sand (110). Several modern tip lines were also identified on the west side of this area; a 0.04m-deep layer of crushed red brick (114) was overlain by a 0.3m-deep layer of fuel ash waste, coal, brick pieces and clay (124), above which was a 0.3m-deep layer of brown sandy clay (111). This was overlain by another 0.22m-deep layer of crushed brick rubble (120), above which was a 0.1m-deep layer of brown sandy clay (109). These deposits were sealed beneath the tarmac car park surface (100).

5. INTERPRETATION AND DISCUSSION

5.1 STRATIGRAPHIC SEQUENCE

- 5.1.1 The earliest archaeological feature identified at the site was potentially a post-medieval land drain [118]. Industrial activity at the site is recognised by widespread deposits of coal and stone pieces, interpreted as 19th century colliery waste (104), which overlies the land drain in Area C.
- 5.1.2 **Late 19th century coking ovens and wagon ways:** The most significant features revealed by the excavation are the remains of two batteries of 19th century coking ovens (Area A and Area B), and associated wagon ways (Area A, Area B and Area C). Twelve brick-built coking ovens were identified in total, all of which appear to have been contemporary. These can be dated to the late 19th century as their locations match those shown on the 1st and 2nd Edition Ordnance Survey maps of the site (dated 1857 and 1896).
- 5.1.3 Adjacent to the coking ovens are the remains of at least two wagon ways, and associated stonewalls. A series of timber sleepers (236) and a wall [227] in Area A, are on a similar alignment to the timber sleepers (122) and wall [103] in Area C, and are likely to be sections of the same wagon way. These are in the same locations as a wagon way depicted on the 2nd Edition Ordnance Survey map of the site, dated 1896. Similarly, the locations of the timber sleepers (315) and wall [303] in Area B, match the location of a wagon way depicted on the 2nd Edition Ordnance Survey map.
- 5.1.4 No trace of the coking ovens survived in Area C, due to the high level of truncation in this area. The only surviving evidence for the coking works in Area C, was a wagon way, and the base of an associated wall. It was noted that the wagon ways were constructed c.0.5m lower than the bases of the coking ovens in Area A and Area B, in order to facilitate the removal of coke into the wagons. All traces of the ovens in Area C had been removed by later developments at the site.
- 5.1.5 The excavated evidence (and historic map evidence) indicated that the wagon ways were rebuilt over the course of the coking works. A wall [306] in Area B, which predated the coking ovens in this area, may be associated with a wagon way from an earlier phase of activity. By comparison, in Area A, a wall [214], which postdates the use of the coking ovens in this area, may be associated with a later phase.
- 5.1.6 There is good evidence that some of the ovens on the northwest side of Area A were reused as coal stores after being decommissioned as coking ovens. The original floors were removed and new brick floors placed in two of the ovens (Oven 3 and Oven 5), above which were deposits of crushed coal. By comparison, the ovens on the southeast side in Area A, appear to have been abandoned (still containing the original floors) at the end of their use. The entrances were blocked by the construction of a wall. Oven 6 contained fused brick and mortar, suggesting that the structure was burned down, or had collapsed soon after the final firing.

- 5.1.7 **Modern features:** The excavation revealed evidence for modern structures, including the foundation trench [219] for a wall in Area A. This was probably associated with the former Durham County Council Depot.
- 5.1.8 Significant ground disturbance had taken place across the site. This had removed all traces of the coking ovens in Area C, and most of the structures in Area B had suffered damage through this, and the provision of services to the Former Durham Council Depot.

5.2 THE COKING WORKS

- 5.2.1 During the late 19th century the coking works at Framwellgate Moor Colliery comprised between two and three batteries of beehive coking ovens, linked to the colliery by a series of wagon ways. Each battery comprised two rows of ovens, constructed back to back, with outer walls of sandstone.
- 5.2.2 The excavated evidence has shown that the individual ovens were *c.*3.5m in diameter, and constructed on foundations of roughly-shaped sandstone blocks. The oven walls were 0.36m wide, being made from layers of alternating rectangular and *voussoir* bricks laid side-by-side, and outer layers of rectangular bricks, laid end-to-end. Some of the bricks were numbered suggesting that they were specially selected for this purpose. The 0.9m-wide entrances were constructed with large moulded red bricks, which measured 0.5m long, 0.3m wide and 0.13m deep, with a 0.4m-long, 0.03m-wide bonding groove running along the centre of the uppermost face. The spaces between the individual ovens were in-filled with mortared brick and sandstone to form a solid structure. The oven interiors measured 3m in diameter, with slab floors made of *c.*0.3m-square 0.8m-thick grey slabs of heat-resistant firebrick. These floors were inclined slightly towards the entrances to facilitate drainage and the removal of coke. At the entrance, the floor was edged with moulded bricks measuring 0.24m long, 0.1m wide and 0.07m deep, laid side-by-side, with a curved corner forming the outer lip of the oven entrance.
- 5.2.3 The entrances would have been bricked-up during firing, and the ovens charged with coal from above. This was burned in a reduced-oxygen atmosphere for up to three days to form coke. The side entrances would then be opened, and the coke cooled with water, before being unloaded into railway wagons (Land 2004). The wagon ways were located either side of the batteries of coking ovens, built of timber sleepers on which iron rails were bolted. The excavated evidence indicates that at the Framwellgate Moor Colliery 1.2m gauge wagonways were used. Most of the iron rails and timber sleepers were removed following the closure of the coking works, and the voids filled with bricks.
- 5.2.4 A single sample of coke was recovered from Oven 6 in Area A. It was hoped that samples of coke would be recovered from several ovens of different dates, in order to identify changes in the coking processes at the site. However, all of the ovens revealed at the site were contemporary, and no comparable material was available.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

- 6.1.1 The following section presents initial conclusions that can be drawn from the assessment of the stratigraphic data, in relation to the aims and objectives set out in Section 2.2.1.

6.2 CONCLUSIONS

- 6.2.1 The excavation has confirmed the presence of a late 19th century coking works at Framwellgate Moor Colliery, as indicated on historic Ordnance Survey maps, and has been successful in identifying the form of the coking ovens at the site. Twelve coking ovens have been revealed during the excavation, along with at least two associated wagon ways, which were used for transporting the finished product. All the ovens appear to have been contemporary, although there was tentative evidence for several phases of wagon way construction.
- 6.2.2 The establishment of the coking works on former agricultural land was indicated by the presence of a post-medieval land drain. However no other earlier features were revealed to confirm this.
- 6.2.3 A single sample of coke was recovered from the floor of one of the coking ovens. The lack of comparable material makes it impossible to perform any useful analysis on the changes in industrial processes at the site.
- 6.2.4 No artefacts were recovered with which to date excavated features. The only pottery recovered was modern and this was discarded.
- 6.2.5 One of the specific aims of the excavation was to attempt to identify the earlier coking ovens and compare with the later ovens. However all the excavated ovens are believed to be contemporary, and so this comparison was not possible.

6.3 POTENTIAL FOR FURTHER WORK

- 6.3.1 Archaeological features were severely truncated across large parts of the site. Preservation was greatest in Area A, especially on the south side of this area. Whilst it is possible that further evidence for the coking works survives in this area, additional excavation is unlikely to provide any further useful information.
- 6.3.2 No further work is recommended on the coke sample.

6.4 ARCHIVE DEPOSITION

- 6.4.1 On completion of the analysis and publication, the site archive will be prepared for deposition in the Durham Fulling Mill Museum.
- 6.4.2 One copy of this report will be deposited with the Durham County Council Sites and Monuments Record, where viewing will be available on request.

- 6.4.3 The project is also registered with the **Online Access to the Index of archaeological investigationS (OASIS)**, where a digital version of this report will be made available. The **OASIS ID** for this project is: northpen3-40717.

6.5 PUBLICATION REPORT

- 6.5.1 It is proposed that a publication report will be produced for inclusion in a suitable journal, in agreement with the client and DCCAS.
- 6.5.2 A summary of the project background and results will be submitted for inclusion of the Durham Archaeology Magazine.

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APPENDIX 1: LIST OF CONTEXTS

Context	Description	Note	Above	Below	Cuts	Cut by	Filled by	Fill of
100	Tarmac	Area C	102,109					
101	Natural Substrate	Area C		105,117		107,117,118		
102	Backfill	Area C	123,103	100				
103	North- South Wall	Area C	104	102				
104	Waste Cinders	Area C	121	122,103				
105	Natural Upper Horizon	Area C	101	121				
106	Void							
107	Service Trench Cut	Area C	101	108	103,100		108	
108	Fill of Service Trench	Area C	107	100				107
109	Demolition, Levelling	Area C	110,120	100				
110	Industrial Tip Line	Area C	112	109				
111	Tip Line	Area C	124	120				
112	Primary Site Deposit	Area C	115,113	110,114				
113	Fill of Palaeochannel	Area C	117	112				
114	Tip Line	Area C	112	124				
115	Fill of Palaeochannel	Area C	116	112				
116	Fill of Palaeochannel	Area C	117	115				
117	Palaeochannel Cut	Area C	101	116, 113	101			
118	Service Trench Cut	Area C	101	119	101		119	
119	Fill of Service Trench	Area C	118	112				118
120	Tip Line	Area C	111	109				
121	Silt Layer	Area C	105	104				
122	Railway Sleeper	Area C	104	123				
123	Iron Rail	Area C	122	102				
124	Tip Layer	Area C	114	111				
200	Tarmac	Area A	202					
201	Natural Substrate	Area A		231				
202	Bedding Layer	Area A	220,218,219	200				
203	Rubble Backfill	Area A	241	251				
204	Oven 1 Base	Area A	234	235				
205	Coking Process Waste	Area A	214,217	252				
206	Oven 2 Brickwork	Area A	201	226				
207	Oven 3 Brickwork	Area A	244	243				
208	Oven 4 Brickwork	Area A	201	227				
209	Oven 5 Brickwork	Area A	201	245				
210	Oven 6 Brickwork	Area A	201	228				
211	Oven 7 Brickwork	Area A	201	229				
212	Oven 8 Brickwork	Area A	233	232				
213	Oven 6 Demolition Rubble	Area A	228	214,217				
214	Late Wall	Area A	213	220				
215	Black Colliery Waste	Area A	221,249	224				

Context	Description	Note	Above	Below	Cuts	Cut by	Filled by	Fill of
216	Structural Infill	Area A	231	214,217				
217	Sandstone Wall	Area A	?	218				
218	Foundation of N-S Wall	Area A	217	202				
219	Brick Wall Foundation	Area A	225	202				
220	Brick Facing	Area A	214	202				
221	North-South Wall	Area A	223	215				
222	North- South Wall	Area A	223	215				
223	Colliery Waste	Area A	201	221,222,236				
224	Modern Wall Cut	Area A	215	225			225	
225	Fill of Modern Wall Cut	Area A	224	219				224
226	Oven 2 Floor	Area A	206	202				
227	Oven 4 Floor	Area A	202	208				
228	Oven 6 Floor	Area A	210	213				
229	Oven 7 Floor	Area A	211	253				
230	Oven 8 Floor	Area A	232	248				
231	Facing Wall	Area A	201	216				
232	Oven 8 Floor Bedding	Area A	212	230				
233	Oven 8 Foundation	Area A	201	212				
234	Oven 1 Foundation	Area A	201	204				
235	Oven 1 Waste Layer	Area A	204	252				
236	Railway Sleepers	Area A	223	215				
237	Cut for Rails	Area A	236	238			238	
238	Fill of Cut for Rails	Area A	237	215				237
239	Cut for Rails	Area A	236	240			240	
240	Fill of Cut for Rails	Area A	215	239				
241	Oven 3 Brick Floor	Area A	242	203				
242	Oven 3 Lower Brick Floor	Area A	243	241				
243	Oven 3 Bedding Layer	Area A	242	207				
244	Oven 3 Foundation	Area A	201	207				
245	Oven 5 Brick Floor	Area A	209	254				
246	Oven 3 Demolition Layer	Area A	251	202				
247	Oven 7 Brick Rubble	Area A	253	202				
248	Oven 8 Demolition Layer	Area A	230	202				
249	Brick Infilling	Area A	236	215				
250	Brick Infilling	Area A	215	202				
251	Oven 3 Coal Waste Layer	Area A	203	246				
252	Oven 1 Coal Waste Layer	Area A	235	205				
253	Oven 7 Coal Waste Layer	Area A	229	247				
254	Oven 5 Coal Waste Layer	Area A	246	245				
255	Cut for Test Trench	Area A	201	256				
256	Fill of Test Trench	Area A	255	200				
300	Tarmac	Area B	302					
301	Natural Substrate	Area B		306				
302	Hardcore	Area B	320	300				

Context	Description	Note	Above	Below	Cuts	Cut by	Filled by	Fill of
303	North-South Wall	Area B	301					
304	Brick Wall	Area B	305					
305	Sandstone Wall	Area B	301	305				
306	Early Wall	Area B	301					
307	Oven 9 Floor	Area B	317					
308	Oven 9 Brickwork	Area B		317				
309	Oven 10 Floor	Area B	310					
310	Oven 10 Brickwork	Area B		309				
311	Oven 12 Brickwork	Area B						
312	Oven 11 Brickwork	Area B		313				
313	Oven 11 Floor	Area B	312	318				
314	Oven 11 Tertiary Floor	Area B	318					
315	Railway Sleepers	Area B	301	316				
316	Coal Waste	Area B	315					
317	Rubble Backfill	Area B	301	307				
318	Oven 11 Secondary Floor	Area B	313	314				
319	General Waste Deposit	Area B	322	320				
320	Hardcore	Area B	300	319				
321	Tip Line	Area B	325	324				
322	Coke Waste	Area B	330,323,326	319				
323	Modern Service Cut	Area B	324	322			322	
324	Modern Service Cut	Area B	301	322,323				
325	Coke Waste	Area B	301	321,331				
326	Modern Fill	Area B	331	322				331
327	Demolition Debris	Area B	328	329				
328	Brick Oven Debris	Area B	301	327				
329	Cut for Modern Sewer	Area B	301	330			330	
330	Fill of Modern Sewer	Area B	329	322				329
331	Cut for Service Trench	Area B	301	326			326	

APPENDIX 2: SITE MATRICES

APPENDIX 3: ILLUSTRATIONS

APPENDIX 4: PLATES



Plate 1: Coking ovens (Ovens 1-8) in Area A (looking North)



Plate 2: Oven 2, showing original slab floor, looking northwest towards Oven 1



Plate 3: Oven 3 in Area A, showing two brick floors (looking east)



Plate 4: Oven 4 in Area A, (looking northwest)



Plate 5: Oven 6 in Area A, showing entrance detail, looking northwest towards Oven 5



Plate 6: Oven 7 in the southwest corner of Area A, (looking southwest)



Plate 7: Numbered bricks in the southern wall of Oven 7 (looking southeast)



Plate 8: Section through Oven 8 in Area A (looking northeast)



Plate 9: Detail of the oven wall on the west side of Oven 8 (looking north)



Plate 10: Remains of a wagon way on the east side of Area A (looking northeast)



Plate 11: Brick in-fill marking the location of the wagon way on the east side of Area A (looking south)



Plate 12: Modern wall foundation [219], seen cutting through the wagon way wall [222]
(looking east)



Plate 13: Stone walls in Area B, with coking ovens beyond (looking southwest)



Plate 14: Surviving Ovens (Ovens 9-12) in Area B, showing damage to west side (looking northeast)



Plate 15: Oven 11 in Area B showing modern drain (looking south)



Plate 16: Remains Oven 12 in Area B, looking southeast towards Oven 10



Plate 17: Remains of a wagon way in Area B (looking west)



Plate 18: Area C showing land drain [118] (looking north)



Plate 19: Sandstone wall [102] of a wagon way in Area C (looking south)



Plate 20: Detail of timber sleepers and iron rail of wagon way in Area C (looking north)