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ARCHAEOLOGICAL INVESTIGATIONS AT THE YORK ENGINEERS' TRIANGLE SITE, CINDER LANE, OFF LEEMAN ROAD, YORK

ASSESSMENT REPORT

ARCHAEOLOGICAL INVESTIGATIONS AT THE YORK ENGINEERS' TRIANGLE SITE, CINDER LANE, OFF LEEMAN ROAD, YORK ASSESSMENT REPORT

Archaeological Investigations at the York Engineers' Triangle Site,

Cinder Lane, off Leeman Road, York

Central National Grid Reference: SE 459330 451500

Site Codes: YET 12, YEF 12, YEP 12, YET 13

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1.1 A phased programme of archaeological investigations was undertaken by Ramboll/Pre-Construct Archaeology at the York Engineers' Triangle (YET), a parcel of land within the curtilage of York Railway Station, off Cinder Lane, to the south-west of the main station building. The site is roughly triangular and covers c. 2.8ha, centred at National Grid Reference SE 459330 451500.

1.2 The YET site is being re-developed by Network Rail, with Ramboll partnering BAM Construction in delivery of a scheme which involves extensive new build. The Cultural Heritage and Archaeology Team of Ramboll was responsible for developing and implementing a strategy, in liaison with the City of York Archaeologist, to ensure that all constraints, risks and opportunities in relation to the historic environment were fully considered in the design of the scheme. Some components of the programme of archaeological investigations were undertaken ahead of the submission of the planning application for the re-development, the remainder being undertaken following the granting of planning permission in May 2012. A planning condition required the preparation of an Archaeological Remains Management Plan, a report on all archaeological interventions undertaken at the site and publication of the results.

1.3 Ahead of the programme of archaeological investigations, the YET site was considered to lie within an area of 'moderate' archaeological potential, with evidence of prehistoric and Roman activity considered most likely prior to the post-medieval industrial era. The site also had potential for palaeoenvironmental remains, despite evidence for extensive truncation of earlier ground surfaces by 19th-century development.

1.4 With York having been a core location in railway development in the north of England from the mid-19th century and the YET site itself having formed the very heart of the 'York South' depot, it was considered highly likely that the site would also contain remains of important elements of industrial era railway infrastructure, most notably a group of mid-19th-century engine sheds depicted on historic mapping within the central portion of the site. The potential for survival of buried remains associated with the rich and important railway heritage of the site therefore represented a key consideration in the design of the archaeological work.

1.5 The initial element of the programme of archaeological work comprised a trial trenching evaluation (Phase 1) undertaken December 2011-January 2012. Seven trenches were sited to provide a broad coverage of the site, whilst incorporating areas of the development footprint. Some trenches were also sited specifically to investigate the level of survival of key structures of the York South depot, namely a rectangular 'straight' engine shed, built in 1841 (the 1841 Engine Shed), and three roundhouse engine sheds (Roundhouses 1, 2 and 3 – RH1, RH2 and RH3) built in 1850/51, 1852 and 1864, respectively. While evaluation Phase 1 established that the site had limited potential for prehistoric, Roman, medieval and early post-medieval archaeological remains and palaeoenvironmental remains in general, the work identified exceptionally well-preserved remains of RH2 and RH3, less well-preserved remains of RH1 and some remains of the 1841 Engine Shed.

1.6 An extensive programme of archaeological excavation/recording (Phase 1) was undertaken January-March 2012 in order to inform the detailed design of the re-

development scheme. The work comprised exposure, hand cleaning and detailed photography and survey of the portions of RH1 and RH2 that lay within the site boundary and approximately two-thirds of the area of RH3. An octagonal structure at the intersection of RH1 and RH2 was also exposed and recorded during excavation/recording Phase 1.

1.7 Evaluation Phase 1 recorded only a small portion of the south-western corner of the 1841 Engine Shed, so that the overall degree of survival of that building was not certain. Therefore, an additional archaeological evaluation (Phase 2) was required for that part of the site in order to further inform the proposed design of the re-development scheme. Evaluation Phase 2, undertaken in May 2012, comprised three trial trenches which targeted the three previously unseen corners of the 1841 Engine Shed. This work established that there was exceptional survival of structural remains at each location investigated.

1.8 A second phase of archaeological excavation/recording (Phase 2) was undertaken in July-August 2012 across the western portion of the 1841 Engine Shed. Once the detailed engineering design of the re-development scheme had been finalised, further archaeological excavation/recording (Phase 3) was required ahead of the installation of foundation piles, services and a retaining wall, with this work taking place September-December 2013. A final phase of excavation/recording (Phase 4) was undertaken January-February 2013 in areas of the 1841 Engine Shed and RH3 which lay within the re-development footprint but had been previously inaccessible.

1.9 This Assessment Report contains the findings of all four phases of excavation/recording, including a 'watching brief' conducted in association with the final two phases, and also incorporates the results of evaluation Phase 2.

1.10 The 1841 Engine Shed was first depicted on the 1851 Ordnance Survey map as a three-road rectangular straight shed with entrances to the east and west. In total, c. 50% of the building was exposed during the various stages of fieldwork. Recorded elements included the remains of the external brick wall, three external chimneys, internal floor surfaces, the lower brick elements of the three internal inspection pits, while brick drainage culverts were recorded externally. Evidence was also recorded to demonstrate refurbishment of the inspection pits, through roads, internal surfaces and the external walls at each entrance, all during the lifetime of the building. Abutting the northern wall was a brick and concrete structure which probably represents a smithing or hot working area.

1.11 RH1, the earliest of the three roundhouses at the site, was built 1850-51 and is first depicted on the 1851 Ordnance Survey map. Contemporary design and construction drawings depict it as a 16-sided polygonal structure with 16 stalls, each with a linear inspection pit radiating outwards from a central turntable well. Only the north-westernmost portion of this structure lay within the site, this representing an estimated 19% of its total area. Destroyed by fire in 1921, this was the least well preserved of the structures recorded. Parts of six sides of the external stone wall were exposed and, at the interface of RH1 and RH2, a brick wall built directly over the original stone wall represents the location of the 'through road' between the two structures.

1.12 Internal features recorded within RH1 included a possible chimney stack associated with a smithing or hot working area, a rectangular brick structure depicted on a 19th-century plan as a 'paint shop', portions of four inspection pits, brick column bases for uprights to support the roof and brick drainage structures abutting the perimeter wall both externally and internally.

1.13 Design and construction drawings indicate that RH2, built in 1852, was identical to RH1. An estimated 87% of RH2 was exposed, with only its south-easternmost portion not seen. The building had 16 internal stalls, each with an inspection pit radiating outwards from a central turntable well. The construction cut for the external stone wall was recorded, along with the well-preserved internal elements including extensive areas of flooring, two chimneys and a series of concrete pads and posts, these possibly representing the base of a frame that straddled one inspection pit. At some point the inspection pits had been shortened to allow the installation of a high-pressure water system, while an external inspection pit to the north-east represents a 20th-century addition, built after the demolition of RH1. Several stone column bases for uprights to support the roof were exposed, the remainder represented by evenly-spaced areas of raised floor surface arranged in three concentric circles. The remains of a rectangular structure on the external wall of RH2 is annotated on a 19th-century plan as an office, while a stand-alone octagonal structure exposed immediately to the north-west of the junction of RH1 and RH2 is likely to have had a similar purpose.

1.14 RH3, the latest of the triplet of roundhouses, was built in 1864 to the west of RH2. It comprised an 18-sided polygonal structure with 18 stalls, each with an inspection pit radiating outwards from the central turntable well. The exposed portion represents an estimated 69% of the total area, with the majority of the western half not seen. The well-preserved internal elements of RH3 included extensive areas of flooring in which were again recorded three concentric circles of evenly-spaced column bases for uprights to support the roof, and the inspection pits, these built with brick floors and walls, capped with monumental sandstone masonry. A portion of surviving track recorded in the southernmost portion of the building represents the location of an entrance and through road leading to the external tracks. Other internal structures and features recorded included three chimneys abutting the external wall and a series of manholes and standpipes.

1.15 Part of a rectangular brick structure recorded external to the southern part of RH3 is depicted on 19th-century plans and annotated as a 'sand drying furnace'. An inspection pit recorded externally to RH3 extended to the north-east on the same alignment as one of the internal pits and was connected to it by a short length of track. A substantial brick culvert ran below both the external inspection pit and the corresponding internal pit to join a circular drainage system associated with the turntable well.

1.16 The investigations recovered a large finds assemblage, comprising metal objects, pottery, structural brick and stonework and locomotive firebricks.

1.17 The metalwork, mainly iron with a few copper and brass items, was for the most part recovered from the backfill of the inspection pits and turntable wells during archaeologically-supervised machine clearance of overburden. Also recovered by this means were a small number of timber, stone and ceramic objects. All items recovered during machine clearance of overburden were initially stored on site and subject to an initial specialist appraisal, with only items deemed to be of potential archaeological or historical significance being retained for further detailed assessment. To this end, a total of 123 'small finds' were retained, these being sub-divided into various categories: architectural/structural elements of the engine sheds; locomotive and workshop fittings; rail track elements; rail signage; signalling components; general equipment; and personal equipment.

1.18 Nearly 340 bulk stonework items were recovered during machine clearance of overburden. This material was subject to specialist appraisal on site, with some being then retained for re-use within the re-development and the remainder being re-buried at recorded locations beneath the new scheme. Most if not all of the material was derived from the demolished super-structure of the roundhouses. Some masonry retained elements of structural ironwork, or displayed recesses and sockets where ironwork had been attached and a few items had rail chairs – cast-iron mountings which fixed and supported rails - attached.

1.19 A large assemblage of locomotive firebricks and structural bricks were also recovered from the investigations. The entire assemblage was visually assessed on site and items of potential archaeological of historical interest were identified for further recording or retention. To this end, a total of 64 items were retained, including plinth bricks, stamped firebricks from the arches in locomotive fireboxes, bricks with various manufacturers' stamps and scoria/engineering bricks from the floor of RH2.

1.20 A small assemblage of pottery fragments, clay tobacco pipe and ceramic building material was also recovered by hand during the investigations. The majority of the material dates to the 16th to 19th centuries, with a single sherd of Roman pottery also recovered (further examples of Roman material were also recovered from the Phase 1 evaluation). The majority of the pottery and ceramic building material was recovered from a soil horizon excavated within the area of the 1841 Engine Shed.

1.21 This Assessment Report is divided into three parts. Part A, the Project Summary, begins with an introduction to the site, describing its location, geology and topography, as well summarising the planning and archaeological background to the project. The aims and objectives of the work are then set out, followed by full descriptions of the archaeological methodologies employed during both the fieldwork and the subsequent post-excavation work. This part concludes with an illustrated summary description of the archaeological sequence, with the majority of this necessarily dealing with the recorded structural remains. Part B, the Data Assessment, quantifies the written, graphic and photographic elements of the Site Archive and contains specialist assessments of all categories of artefactual evidence, with recommendations for any further work in each case. This part then sets out an archaeological summary discussion before summarising the potential for further analysis of all elements of the collected project data and publication proposals. Part C of the report contains acknowledgements and references. There are two appendices to the report; a 'context index' and a 'pile index', the latter containing brief details of the archaeological information recorded at each excavated pile/pilecap location.

2. INTRODUCTION

2.1 General Background

2.1.1 This report details the methodology and results of a phased programme of archaeological investigations undertaken by Ramboll/Pre-Construct Archaeology (PCA) on a parcel of land – the York Engineers' Triangle (YET) site – within the curtilage of York Railway Station (Figure 1). The site is being re-developed by Network Rail, with extensive new build within eastern portion of the site and also extending into the north-western portion, in a roughly T-shaped new build footprint.

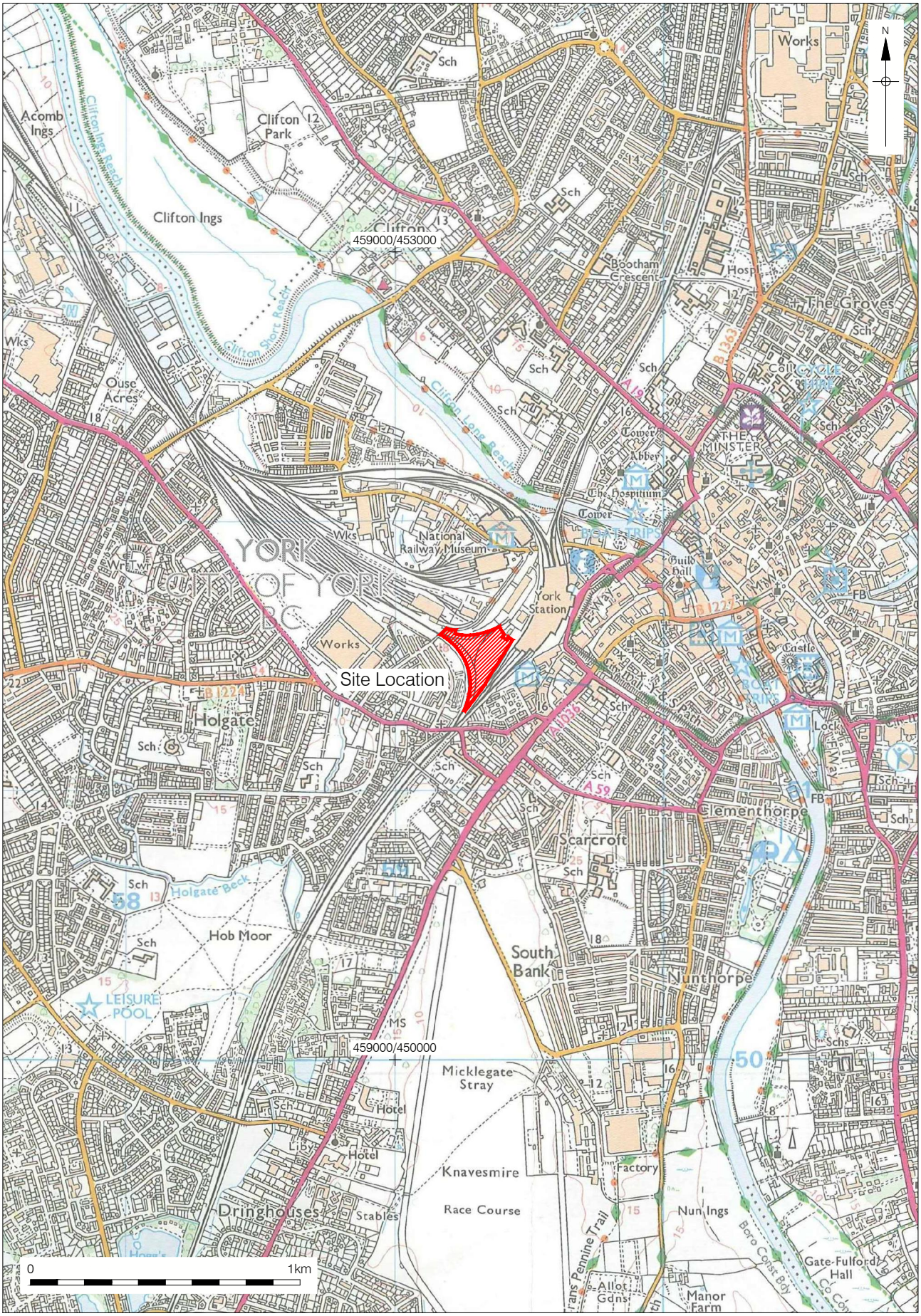
2.1.2 Ramboll is partnering Principal Contractor BAM Construction in delivery of the scheme for Network Rail. Ramboll – through its Cultural Heritage and Archaeology Team - acted in close liaison with the City of York Archaeologist to ensure that all constraints, risks and opportunities in relation to the historic environment were fully considered in the design of the scheme. Ramboll prepared an interim Heritage Statement (Ramboll 2012a) in support of the planning application for the re-development and while some components of the programme of archaeological investigations were undertaken ahead of the submission of the planning application for the re-development, the remainder were undertaken following the granting of planning permission in May 2012. More detailed documentary research, cartographic analysis and comparison with other sites, were undertaken for a full Heritage Statement (Ramboll 2012b), but the issue of this document was pre-empted by planning permission being granted. A planning condition required preparation of an Archaeological Remains Management Plan (ARMP) (Ramboll 2012c), a report on all archaeological interventions undertaken at the site and publication of the results.

2.1.3 The site has been the subject of previous archaeological interventions and research. Of note was a desk-based assessment (DBA) which considered the archaeological and historical potential of a large area of land, including the YET site, to the south-west of the River Ouse (Archaeological Services Durham University 2005). The DBA concluded that the YET site was located within an area of overall 'moderate' archaeological potential, with evidence of prehistoric and Roman activity considered most likely prior to the post-medieval industrial era, but with high potential for remains of important elements of industrial era railway infrastructure, most notably a group of mid-19th-century engine sheds depicted on historic mapping within the central part of the site, which lay at the core of the 'York South' railway depot.

2.1.4 Ramboll/PCA undertook an initial phase (Phase 1) of archaeological evaluation of the YET site in December 2011-January 2012. A Project Design was prepared (Ramboll/PCA 2011) and the work comprised seven machine-excavated trial trenches located either as 'judgment' trenches to assess the general archaeological potential of available parts of the site or to target specific locations of railway structures depicted on historic mapping site. The potential survival of extensive buried remains associated with important railway heritage of York represented a key consideration in the design of the archaeological investigation.

2.1.5 Evaluation Phase 1 identified significant below-ground structural elements of three mid-19th-century roundhouse engine sheds, Roundhouses 1, 2 and 3 (hereafter RH1, RH2 and RH3) (Ramboll/PCA 2012a). In addition, the north-western corner of a rectangular engine 'straight' shed built in 1841 (hereafter the 1841 Engine Shed) was also exposed, this the

Figure 1 Site Location



20/05/13 MR

Figure 1
Site Location
1:20,000 at A4

earliest structure to be recorded at the site. In sum, therefore, evaluation Phase 1 indicated that the site contained extensive, highly significant industrial era structural remains associated with the development of the railway infrastructure of York.

2.1.6 A second phase (Phase 2) of evaluation was undertaken in May 2012 to further investigate the extent of survival of the 1841 Engine Shed and thus further inform design of the new build sub-structure. The work comprised three trial trenches targeting the three corners of the building not seen in the earlier work. Again, a Project Design was compiled (Ramboll/PCA 2012b). The work established that sub-surface structural remains of the 1841 Engine Shed survived to an exceptional degree at each location investigated (Ramboll/PCA 2012c).

2.1.7 In total, four phases of exposure, excavation and recording (Phases 1-4) of the surviving remains of the main 19th-century railway structures were undertaken at the site (Figures 2 and 3). A Project Design was prepared ahead of excavation/recording Phase 1 (Ramboll/PCA 2012d) and updated to reflect the subsequent phases, as appropriate. The Project Design and its updated versions set out the aims and research objectives of the work and, in a series of detailed methods statements, described the techniques and approaches to be employed.

2.1.8 Excavation/recording Phase 1 – undertaken January-March 2012 – entailed exposure, some excavation and full recording of the easternmost approximately two-thirds of RH3, the majority of RH2 within the site boundary, and the north-westernmost portion of RH1 within the site boundary. Phase 2 – undertaken July-August 2012 – entailed exposure, some excavation and full recording of the westernmost portion of the 1841 Engine Shed. Phase 3 – undertaken September-December 2013 – entailed full excavation and recording of structural remains at the locations of invasive elements of the construction programme, specifically foundation piles, services and a retaining wall. Phase 4 – undertaken January-February 2013 – entailed exposure, some excavation and full recording of areas of the 1841 Engine Shed and RH3 which lay within the re-development footprint but which had been previously inaccessible.

2.1.9 The project as a whole was designed in accordance with the format set out in Management of Research Projects in the Historic Environment (MoRPHE) (English Heritage 2006). This Assessment Report details the results of excavation/recording Phases 1-4, including a 'watching brief' conducted in association with the final two phases, and also incorporates the results of the Phase 2 evaluation. The report therefore fulfils one requirement of the planning condition relating to archaeology as described in the ARMP.

2.1.10 The Site Archive for all phases of work is currently held at the Northern Office of PCA and the retained element, comprising the written, drawn and photographic records, as well as the retained artefactual material, will ultimately be deposited with an appropriate repository, likely to be the Yorkshire Museum. The Online Access to the Index of Archaeological Investigations (OASIS) reference number for the excavation/recording phases of the project is: preconst1-154167.

2.1.11 To date, provisional insights from the archaeological project have been disseminated to interested parties via local press and media, railway magazines, public open days (27 and 28 April 2012) and a note in an academic newsletter (Emery and Goode 2012).

2.2 Site Location and Description

2.2.1 The YET site is located to the south-west of York Railway Station, off Cinder Lane, which runs south from Leeman Road. Centered at National Grid Reference SE 459330 451500, the site is roughly triangular and covers c. 2.8ha (Figures 1 and 2). The triangle is derived from the very beginnings of the railway infrastructure in the city in the mid-19th century, when the separate lines of the York and North Midland Railway and the Great North of England Railway were connected by a curving link line which bypassed the original station, built in 1841.

2.2.2 Today the site is bounded to the west/south-west by the modern version of the curving link line at Holgate Junction, beyond which lies a modern housing development, St. Paul's Mews. To the east/south-east it is bounded by the tracks of the East Coast Mainline Railway on the approach from Holgate Junction to the existing station building, built in 1875, while to the north it is bounded mostly by a station car park on Cinder Lane. To the north-east the site is bounded by various station facilities, including a signalling house and telephone exchange.

2.2.3 At the time of writing the re-development scheme is well advanced, with the majority of the groundworks completed and the new buildings being erected. At the onset of the archaeological work, the site was mostly open waste ground with a small one-storey disused brick building adjacent to the south-eastern site boundary, various spoil heaps and areas of hardstanding and the triangular arrangement of railway tracks still in place and occasionally used for turning locomotives. At the conclusion of the archaeological work, the brick building had been demolished and the turning triangle of railway tracks had been decommissioned and was in the process of being removed, a replacement turning facility – a turntable – having been completed to the west of the site. By this time the previously exposed parts of Roundhouses 1-3 and the 1841 Engine Shed had been carefully reburied and the piling operation for the new build was underway.

2.3 Geology and Topography

2.3.1 The solid geology of the area of the YET site comprises sandstone bedrock of the Sherwood Sandstone Group (information from the British Geological Survey website). The site lies to the south of the River Ouse and within its floodplain, in an area where the superficial geology is complex. Devensian Till (boulder clay) is predominant but pockets of glaciofluvial and/or morainic sand and gravel are also known, as well as alluvial material, mostly clay and silt, but also sand and gravel.

2.3.2 The YET site is fairly level, with the current ground level at c. 13.0m OD. Along the central eastern margin ground level is c. 13.10m OD, in the northernmost portion it is c. 12.90m OD, in the north-westernmost portion it is c. 12.80m OD and at the southern end it is c. 12.75m OD, these values demonstrating that on the whole there is relatively little variation in ground level.

2.4 Planning Background

2.4.1 A planning application (reference 12/01176/FULM) for re-development of the YET site was submitted in March 2012 with permission granted in May 2012. On completion, the site will be occupied by a rail operating centre and workforce development centre. The majority of the new build will occupy the eastern portion of the site but also extending into the north-western portion in a roughly T-shaped new build footprint.

2.4.2 Ramboll is partnering BAM Construction in delivery of the scheme for Network Rail. From its inception, Ramboll liaised closely with the City of York Archaeologist to ensure that constraints, risks and opportunities in relation to the historic environment were fully considered in the design of the scheme. A Heritage Statement was prepared in support of the planning application and the Phase 1 archaeological evaluation was undertaken to inform the Heritage Statement.

2.4.3 The requirement to undertake archaeological investigations at the YET site is in line with planning policy at a national level. The National Planning Policy Framework (NPPF) (Department of Communities and Local Government 2012) came into effect on 27 March 2012, replacing Planning Policy Statement 5: 'Planning for the Historic Environment' (PPS5) (Department of Communities and Local Government 2010). The NPPF requires applicants to provide early consideration of the potential for 'heritage assets' (those parts of the historic environment that have significance because of their historic, archaeological, architectural or artistic interest) on their sites, a description of the significance of those heritage assets and an assessment of the potential impact of the proposed development on the significance of those heritage assets.

2.4.4 The requirement for archaeological work at the site is also in accordance with 'Policy HE10 -Archaeology' of the City of York's Draft Local Plan Incorporating the 4th set of changes, Development Control Local Plan (City of York 2005), currently being replaced by a Local Development Framework. The site is located within the City Centre Area of Archaeological Importance (see Appendix D of the Local Plan).

2.4.5 With evaluation Phase 1 – undertaken December 2011-January 2012 – having established exceptional survival of some elements of the historic railway structures known to have occupied the site, it was recommended that archaeological recording and excavation tasks that might normally be undertaken as part of a post-planning mitigation stage be brought forward to provide a sound basis for detailed engineering design of the scheme. Therefore, excavation/recording Phase 1 began at the earliest opportunity in late January 2012, ahead of determination of the planning application.

2.4.6 Planning permission had a condition (Condition 21) attached relating to archaeology and this required the submission of the aforementioned Archaeological Remains Management Plan (ARMP) and listed eleven specific aspects which that document should cover. The ARMP, submitted in October 2012, should be consulted for full details, but of particular significance in terms of this report is f) Full report on all archaeological interventions which shall be produced and deposited with the City of York HER and an appropriate body, approved by the Local Planning Authority, and the results published.

2.4.7 As detailed in Section 2.1, in addition to two phases of archaeological evaluation, four phases of excavation/recording were eventually undertaken to expose, record and undertake limited excavation of, as required, the historic structures at the site. Excavation/recording Phase 3 comprised enabling works entailing dismantling of structural remains in specific locations where impact on historic structures by construction groundworks was unavoidable, with this component of the work therefore serving to mitigate the impact of destructive elements of the scheme on the structures.

2.5 Archaeological and Historical Background

2.5.1 The aforementioned DBA undertaken in 2005 concluded that the YET site was located within an area of overall 'moderate' archaeological potential. The aforementioned evaluation Phase 1 undertaken by Ramboll/PCA in 2011-12 did not record any prehistoric, Roman, medieval or pre-industrial post-medieval archaeological deposits (although residual artefactual material of Roman date was recovered). With the focus of the investigations herein described being the 19th-century railway structures, the background to earlier archeological eras has been omitted from this report – the report on evaluation Phase 1 should be consulted for further details.

2.5.2 The ARMP contains both a detailed historical background of the YET site and a statement of significance of the 19th-century railway structures and should be consulted for full details including references. A summary of the historical background is provided below and, in addition to the sources referenced in the ARMP, a series of publications – Hoole 1972 and 1976, Appleby 1993, Rose 1994, Griffiths and Hooper 2000 – have also provided information.

2.5.3 York was, and remains, the epicentre of the railway system in the North of England, forming a hub for lines travelling in all directions. Driven chiefly by Yorkshire's own 'Railway King', George Hudson, the railways first arrived in York in 1839 with the construction of the York and North Midland Railway (YNMR) to Normanton and Leeds. This was soon joined by the Great North of England Railway (GNER) to Darlington, and the two planned a joint station, duly constructed in 1841 inside the city walls, adjacent to Tanner Row. As previously mentioned, the triangular form of the YET site arose when the separate lines of YNMR and the GNER were connected by a link line – the North Junction–Holgate Bridge Junction curve – which bypassed the original station (replaced in 1875 by the current building). The YET site thus became the key component of the 'York South' depot.

2.5.4 When the first services operated by the GNER reached York in 1850, there were already several locomotive sheds in place at York South. One of these was a three road straight/rectangular shed completed in 1841 for the GNER. The date of construction of the shed is supported by documentary evidence in the form of a contract between the GNER and Crawshaws of York to build the 'Engine House at York', submitted 22 September 1840. The Crawshaws partnership was dissolved by 1842 and the shed had presumably been completed by this time. Costing £1,534 and designed by George Townsend Andrews, this shed was built of brick with a hipped, slated roof, and had three through roads.

2.5.5 The 'straight' engine shed first appears on the Ordnance Survey 1st edition map of 1851 as a rectangular three-road structure. The 1st edition depicts the structure with two rectangular projections located externally to each of the north and south walls, these probably representing four chimney stacks. The shed broadly retains a similar form throughout subsequent editions of the Ordnance Survey map, with the exception of the 1892 edition, which shows the addition of two end-to-end rectangular structures, external to the north wall. This map also shows that, by this date, the four chimney stacks depicted on the earlier map were no longer in existence.

2.5.6 A photograph of the 1841 Engine Shed, thought to have been taken after 1923, shows a rectangular building of brick construction with door pillars between the three roads and a slate roof incorporating a large clerestory (see Plate 10.1). The roof depicted in this photograph is possibly part of the original build, however the original entrances to the shed were probably arched, later replaced by steel-framed doorways probably during the late 19th or early 20th century.

2.5.7 The 1841 Engine Shed was used by the GNER until it was taken over by the London Midland and Scottish Railway in 1932. It is likely that it was refurbished at this time, with the roof replaced. A mid-20th-century photograph shows the western entrance to the shed, with a shallow arched roof with brick fascia (see Plate 10.2) and another photograph taken around the same time shows the arched roof fascia of the eastern entrance arched clad with vertical boarding. The shed was later used for storing locomotives until its demolition in 1963.

2.5.8 RH1, the first of the circular roundhouses, was constructed in 1850/51. This was followed by RH2, an identical building, in 1852. Both were probably designed by YNMR chief engineer Thomas Cabry (Fawcett 2001, 108). A letter from Cabry to the directors of the YNMR indicates that some of the materials had already been purchased and the reduced cost of the roundhouse built in 1852 was £1,600. This suggests that construction of a connected pair of roundhouses had always been his plan. The roundhouses were 16-sided polygons in plan. The outer wall was constructed of brick, possibly terracotta coloured, upon a foundation of stone blocks, with 16 roads fanning out from a central 42ft (c. 12.80m) turntable. Inside, the floors were brick, and the tracks of each stall were bolted onto stone blocks, forming the capping stones for the linear engine inspection pit retaining walls. The two roundhouses abutted each other on one face, sharing a wall which contained the arched opening providing access between the two.

2.5.9 RH1 and RH2 were originally open at the centre, above the turntable. In this respect they were similar in design to a surviving NER roundhouse at Leeds. The stalls were covered by pitched roofs with a level ridge. The roofs were rebuilt in 1889-90 by NER architect William Bell, who re-designed them to have a stepped conical shape with the central portion raised above a louvered ventilator, supported on a ring of iron columns. The doorways were also rebuilt at this time from their original round arched form to segmented arch, to enable better clearance. Located centrally in the angle between the northern sides of the two roundhouses was a smaller polygonal building with a conical roof surmounted by a domed lantern. This is likely to have been an office and would also have been used for the storage of oil lamps.

2.5.10 RH1 remained in use until 1921 when it was being used as an area to repair sheet wagons. It was also being used to store a petrol area inspection saloon and it was destroyed by fire in October of that year. RH2 remained in use, for the stabling of pilot

engines, until 1961 and it was demolished in 1963. Its eastern wall was truncated, probably during the 1930s when the station was enlarged.

2.5.11 RH3 was designed by Thomas Prosser, NER architect 1854-74, and was built in 1863-64. Contemporary design plans show a polygonal structure, slightly larger than RH2 and RH3, with 18 sides, constructed in terracotta-coloured brick with 18 roads radiating from a 45ft (c. 13.70m) turntable. As designed, the base of the turntable pit was concrete with retaining walls built in terracotta brick with sandstone coping. The ground level floor of the shed comprised stone cobbles and the inspection pit stairs were of terracotta-coloured brick. There were four internal chimney stacks placed symmetrically; two on the north and two on the south side of the building.

2.5.12 Externally, RH3 was architecturally distinct from the two earlier roundhouses on the site and more decorative in character. Each of the enclosed 18 bays had a separate gable end with decorative brickwork in the classical style. Most had three-arched iron-framed windows, above which a string course acted as the base of a pediment, reminiscent of a classical temple, within which was a semi-circular opening. The main entrances for rail traffic were square, with classical style 'columns' in brick either side. Between each gable the wall was recessed, thereby emphasising the gable.

2.5.13 The roof structure of RH3 was of two distinct parts. In the centre it was of three consecutive conical sections which, according to contemporary plans, reached 55ft (c. 16.75m) at its peak. It was adorned with a large weather vane, in the shape of a locomotive. This conical dome section was supported on a central ring of cast iron columns and the valley beams of each gable roof were then supported on two intermediate columns between the centre and the exterior wall. The pitched gable roofs were of slate with raised ridge skylights for ventilation and illumination.

2.5.14 RH3 was originally used by the North Eastern Railway (NER), but from 1879 was used by the Midland Railway to provide accommodation for its engines under an agreement with the NER. After grouping in 1923, engines of the London and North Eastern Railway (LNER) were stabled there. From 1948 it was used, along with RH2, to stable station pilots. The roof deteriorated and was removed as unsafe by 1953 by which time the building was used to store engines awaiting scrapping. With steam in decline and a new diesel Motive Power Depot (MPD) planned at the York North depot, the roofless shed was closed in 1961 and demolished in 1963 at the same time as the rest of the York South depot.

3. PROJECT AIMS AND RESEARCH OBJECTIVES

3.1 Project Aims

3.1.1 From the outset, the overarching aims of the phased programme of archaeological investigations undertaken in association with the re-development of the YET site were:

- to characterise the nature, extent, distribution and degree of survival of buried archaeological remains across the site;
- to assess the significance of buried archaeological remains;
- to assess the likely impact of the re-development upon buried archaeological remains;
- to inform the detailed engineering design of the re-development scheme;
- to provide a basis for exploring the feasibility of preserving, in situ, any remains deemed regionally or nationally significant through the engineering design;
- to inform the scope and design of other archaeological mitigation measures, should they be required.

3.1.2 Additional aims of the project were:

- to compile a Site Archive consisting of all site and project documentary and photographic records, as well as all artefactual and palaeoenvironmental material recovered;
- to compile a report that contains an assessment of the nature and significance of all data categories, stratigraphic, artefactual, etc.

3.1.3 The first archaeological evaluation, Phase 1, established that:

- the YET site had some, albeit evidently very limited, potential for prehistoric and Roman period palaeoenvironmental and archaeological remains;
- the YET site had been severely impacted upon from the mid-19th century by its on-going development at the core of the York South depot;
- the YET site contained below-ground structural remains representing historically significant elements of York's railway infrastructure, specifically the exceptionally well-preserved remains of RH2 and RH3, built in 1852 and 1864, respectively, along with the remains of the 1841 Engine Shed, this the earliest historic structure to be located, and the less well-preserved remains of RH1, built in 1851.

3.1.4 The potential survival of extensive buried remains associated with the important railway heritage of the site was always a key consideration in the design of the archaeological project. In anticipation of the need to define opportunities for preserving such remains, the exposure and detailed recording of a substantial portion of the relevant structures formed a crucial component in the initial and developing scope of the programme of archaeological investigations herein described.

3.2 Research Objectives

3.2.1 Given the results of evaluation Phase 1, the project was considered to have little or no potential to contribute to existing knowledge of prehistoric, Roman, medieval or early post-medieval York.

3.2.2 The results of evaluation Phase 1 indicated that the project had very high potential to contribute to existing detailed important knowledge of the late post-medieval industrial era railway archaeology of York and the region in general. As previously mentioned, the ARMP contains a detailed statement on the significance and heritage value of the physical remains of the 19th-century railway buildings at the site. It takes into account the evolution of the YET site from its early 19th-century origins and the form of construction and setting of the buildings, placing the entire complex into the context of the development of the British railway system as a whole, the regional rail network, and the immediate infrastructure within York itself. The ARMP concluded that the value of these remains is greater than the sum of their parts since what survives of the York South depot are not merely isolated structures but a preserved rail landscape – a set of inter-related buildings that needs to be considered as an integral entity. The couplet of roundhouses built in the early 1850s (RH1 and RH2), together with the 1864 roundhouse (RH3), form a triple roundhouse complex which is potentially a unique archaeological survival in the UK.

3.2.3 In general, preservation in situ of important archaeological remains is almost always the preferred option in any development scheme. In the majority of cases, however, this is not possible, with the result that appropriate and satisfactory provision for the recording of archaeological remains is usually implemented, followed by post-excavation analysis and publication of results. In the case of the YET site, the City of York Archaeologist stated that for its (then) proposed development 'the key principle should be that the remains of Roundhouses 2 and 3 and the 1841 rectilinear engine shed will be preserved underneath the new development after construction has taken place'. In practice, the foundation design, using piles, would almost certainly not allow for total preservation in situ of the railway structures. However, the City of York Archaeologist was of the opinion that information recovered from an appropriately specified piece of archaeological work 'should be used to inform and refine the development of a foundation system, sub-structure design, servicing strategy, and construction methodology that will ensure the preservation of at least 95% of Roundhouses 2 and 3 and the 1841 engine shed'.

3.2.4 Therefore, the principal research objective of the phased programme of archaeological investigations herein described was to further expose, record and sample excavate the 1841 Engine Shed, the triplet of roundhouse engine sheds and associated structures, in order to gather information on construction techniques and materials and phases of development and refurbishment associated with these historically important buildings. As detailed herein, existing site constraints required that exposure and recording of the remains of the buildings was undertaken in a phased manner.

4. ARCHAEOLOGICAL METHODOLOGIES

4.1 Fieldwork

4.1.1 The overall phased programme of archaeological fieldwork at the YET site was undertaken December 2011-Feburary 2013. All fieldwork was undertaken in accordance with the relevant standard and guidance documents of the Institute for Archaeologists (IfA 2008a and 2008b). PCA is an IfA-Registered Organisation. The fieldwork programme involved two phases (Phases 1 and 2) of trial trenching evaluation and four phases (Phases 1-4) of excavation/recording (Figure 3). The methodology of each element of the fieldwork is summarised below, with the general approach then set out.

Evaluation Phase 1 (YET 11)

4.1.2 Evaluation Phase 1 was undertaken 6 December 2011-11 January 2012. The Project Design for that element of the work should be consulted for full details and methodologies regarding archaeological excavation, recording and sampling (PCA/Ramboll 2011). A total of seven trenches (Trenches 1-7) were located across the YET site area to provide broad coverage, whilst taking into consideration the proposed development footprint and existing constraints, in order to provide the most productive archaeological information. Some trenches were also located specifically to investigate elements of industrial era railway infrastructure, most notably the group of mid-19th-century engine sheds known from cartographic sources to have occupied the site.

4.1.3 Evaluation Phase 1 established that the site appeared to have limited potential for prehistoric, Roman, medieval and early medieval archaeological remains and for palaeoenvironmental remains in general (PCA/Ramboll 2012a). However, it was evident that although the site had been severely impacted upon from the mid-19th century, historically significant elements of York's railway heritage survived to an exceptional degree as below-ground archaeological remains. The exceptionally well-preserved structural remains of the 1841 Engine Shed, RH2 and RH3 were exposed in Trenches 2, 4 and 7, respectively. The report on Phase 1 of the evaluation detailed the results of evaluation Trenches 1-3 and 5-6, with Trenches 2, 4 and 7 becoming incorporated into the subsequent Phases 1 and 2 of the excavation/recording.

Excavation/Recording Phase 1 (YET 12)

4.1.4 Excavation/recording Phase 1 followed on almost directly from evaluation Phase 1, with the work undertaken 23 January-16 March 2012. The work involved exposure, hand cleaning, recording and investigation of parts of RH1, RH2, RH3 and an octagonal building associated with RH1 and RH2. In total, the area investigated covered c. 3,550m2, incorporating evaluation Trenches 4 and 7. The work was undertaken according to a Project Design compiled by PCA and Ramboll (PCA/Ramboll 2012d).

4.1.5 Only the north-westernmost portion of RH1 lay within the eastern boundary of the site. The majority of this structure – if it survives – therefore lies under the current arrangement of track forming the southern approach to York Station. The exposed portion of the structure measured c. 37.80m NE-SW by c. 11m NW-SE, this representing just under 20% of the total structure within the limits of the investigation area (Figure 3).

4.1.6 Approximately 80% of RH2 lies within the site, with the south-eastern extent of the structure also underlying the current arrangement of tracks – again if it survives. The majority of the structure within the site was exposed in this phase of work, the southernmost portion having to remain uncovered due to the requirement to maintain access. Approximately 65% of RH3 was exposed – the eastern half and part of the western half – in this phase of work, with the remainder of the structure underlying a section of the turning-triangle 'live' rail track (see Figure 2). During the exposure of RH2, the remains of

an octagonal ancillary building located adjacent to the north-east of RH2 were encountered. This was deemed to be of significance and therefore was fully exposed (Figure 3).

4.1.7 Targeted sample excavations were undertaken in RH1, RH2 and RH3 to determine the form of structural elements. These areas were sited in places where floor surfaces had been disturbed. Within the north-western quadrant of RH2, a sample excavation which measured c. 15m NW-SE x c. 1m wide was sited immediately adjacent to an inspection pit, extending across the external wall (see Figure 5). Two sample excavations were located within the northern portion of RH3. The southernmost was sited immediately to the east of an inspection pit and measured c. 6m x 1m (see Figure 10). The northernmost was sited between two inspection pits, extending across the external wall of the engine shed, and measured c. 11m north-south x up to 1.80m wide.

4.1.8 During the mechanical removal of overburden and backfill deposits, assorted railway paraphernalia and structural material – most of this probably being derived from the demolished buildings themselves – was recovered. The bulk of this material was recovered from the backfill of the inspection pits and turntable wells of RH2 and RH3. The metalwork assemblage broadly comprised architectural/structural elements from the engine sheds, locomotive or workshop fittings and tools, rail track elements and other various railway related objects. The masonry primarily comprised large stone blocks, a small number of which had metal structural and rail track elements attached. The bulk of the masonry recovered is likely to be from the eaves course of the demolished perimeter wall of RH2, while stone blocks with rail chairs still attached were probably derived from damaged inspection pits. Large slabs of stone – possibly flooring - and window sills/lintels were also recovered from the turntable well of RH3. The bulk of the metalwork and masonry assemblage was generally collected as bulk finds, with each assemblage stored within separate dedicated areas on site for specialist inspection to advise on retention for further assessment and recording or discard, as appropriate. Full details are provided in Sections 7 and 8 of this report.

Evaluation Phase 2 (YES 12)

4.1.9 Further trial trenching, evaluation Phase 2, was undertaken 14-25 May 2012; a Project Design being compiled in advance (PCA/Ramboll 2012b). Evaluation Phase 1 had exposed only the south-west corner of the 1841 Engine Shed, therefore the degree of survival of this building was the least characterised of the 19th-century railway structures at the site. Three trial trenches (Trenches 8-10) were located at three corners of the predicted footprint of the 1841 Engine Shed, in order to provide a model for the survival of the building: Trench 8 measured 10.50m east-west x 5.40m north-south and was targeted to test the north-western corner; Trench 9 measured 6.40m east-west x 5.50m north-south and was targeted to test the north-eastern corner; Trench 10 measured 5.70m east-west x 5.10m north-south and was targeted to test the south-eastern corner.

Figure 2 Trench Location

05/07/13 MR

Figure 2
Areas of Investigation
1:2,000 at A4

4.1.10 A report was prepared detailing the methodology and results of the Phase 2 evaluation which established that, at each location investigated, sub-surface structural remains of the 1841 Engine Shed survived to an exceptional degree (PCA/Ramboll 2012c).

Excavation/Recording Phase 2 (YEF 12)

4.1.11 Further archaeological fieldwork – excavation/recording Phase 2 - was undertaken 16 July-10 August 2012 with the Project Design for Phase 1 being updated ahead of the work, which had two distinct components. The first was exposure of the southernmost portion of RH2, the area which had not been accessible during Phase 1. This area measured c. 22.00m NE-SW x 6.50m NW-SE and exposed more of the inspection pits and floor surfaces previously recorded (Figure 3). The second was exposure of approximately the westernmost third of the 1841 Engine Shed. An area measuring c. 22.30m north-south x c. 16.60m east-west was examined, incorporating Trench 8 from evaluation Phase 2 (Figure 3). At this time, the remainder of the structure that lay within the footprint of the proposed new build lay below a section of the turning-triangle 'live' rail track and remained unavailable for investigation (see Figure 2).

Excavation/Recording Phase 3 (YEP 12)

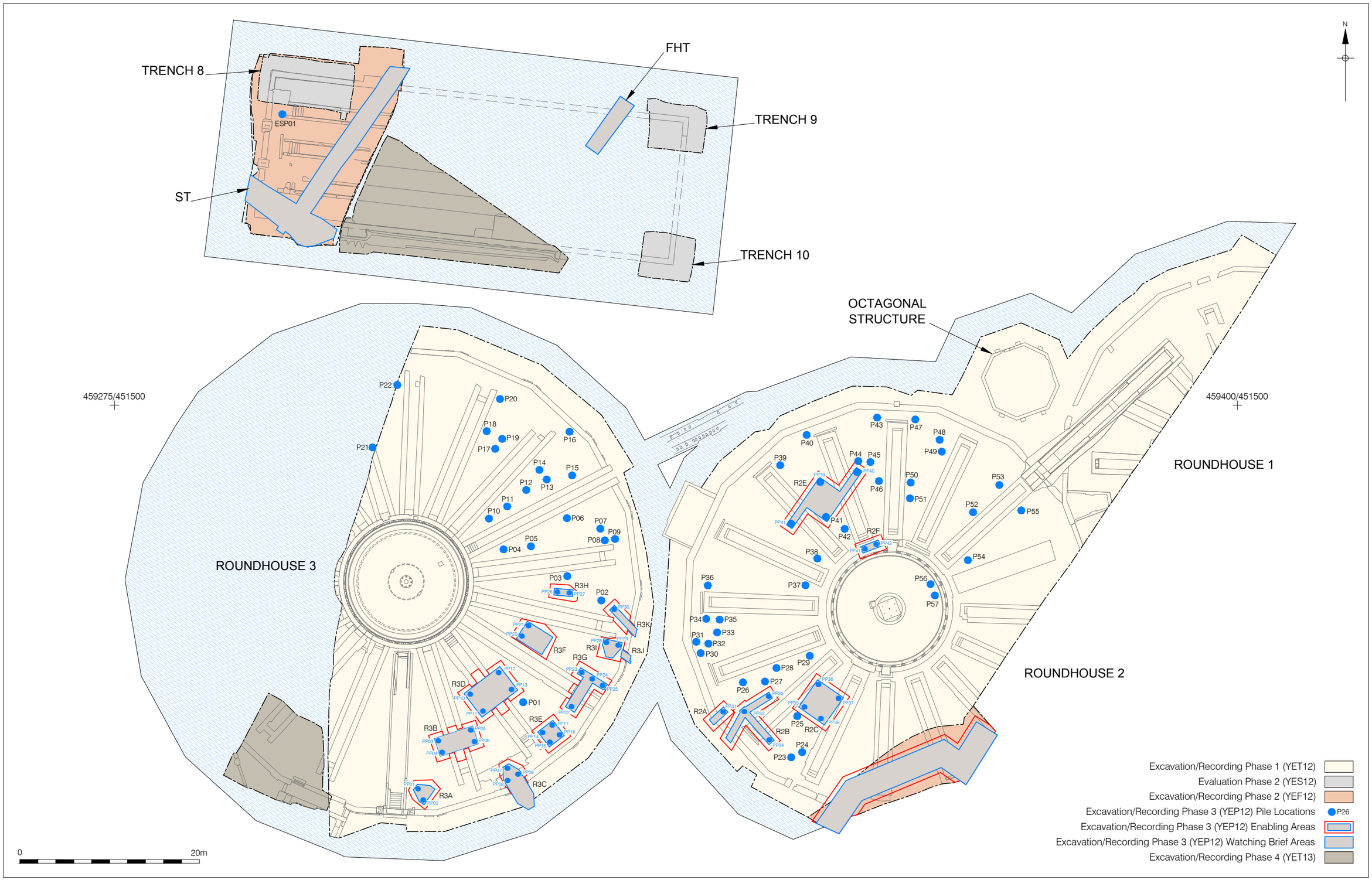
4.1.12 When the detailed engineering design of the new build had been finalised, further archaeological investigation – excavation/recording Phase 3 -– was required to enable various groundworks, with this phase of work undertaken 10 September-22 November 2012. The work entailed excavation of enabling holes for discrete piles in RH2, RH3 and the 1841 Engine Shed, excavation of geometric enabling areas for pilecaps and service elements in RH2 and RH3, excavation of an arrangement of linear enabling trenches for a retaining wall in RH2 and excavation of two arrangements of linear enabling trenches for services in the 1841 Engine Shed. Again, the Project Design for excavation/recording Phase 1 was updated ahead of the work. The centre point of each discrete pile, the corner points of each pilecap, service element/trench or the retaining wall footprint were set out using GPS with pre-programmed Ordnance Survey data.

4.1.13 Structural fabric was dismantled by hand at each location where possible. Larger masonry was lifted by c. 8-tonne tracked mechanical excavator using a wide ditching (non-toothed) bucket. Dismantled masonry elements with dimensions of 300mm or greater were individually numbered and marked. Masonry elements up to 300mm were allocated group context numbers but not physically marked.

4.1.14 Hand excavation of 50 no. discrete pile locations in RH3 (P1-22, PP1-PP17 & PP20-30), 46 no. discrete pile locations in RH2 (P23-55 & PP31-PP42) and 1 no. discrete pile location in the 1841 Engine Shed (ESP1) was undertaken (Figure 3). Summary details of the archaeological information recorded at each pile location are contained within Appendix 2. Prior to excavation at each location, surface material was removed and stored in a nearby roundhouse inspection pit. Each discrete pile excavation measured c. 0.75m in diameter, to allow a buffer zone, and was excavated by hand to a maximum depth of 1.20m. Where structural material likely to present an obstruction to piling remained at this depth, a mechanical excavator with a narrow bucket and breaker attachment were employed, all such work being undertaken under archaeological supervision.

4.1.15 Further dismantling, excavation and recording was undertaken within areas of RH2 and RH3 which were to be the location of pilecaps, lift pits and manholes and the retaining wall in RH2. This work comprised six enabling areas in RH2 (R2A-R2F) and eleven in RH3 (R3A-R3K) (Figure 3). The locations of pilecaps R3I and R3J were sited within close vicinity of

Figure 3 All Phases of Work



05/07/13 MR

Figure 3
YET, all phases of work
1:400 at A3

each other and were amalgamated (R3I-J). Each enabling area was excavated to the basal depth of construction, as provided by BAM. Where historic structural fabric was encountered, archaeological recording was undertaken and the material was subsequently removed either by hand or c. 8-tonne tracked 360° mechanical excavator, as previously described.

4.1.16 Each enabling area for pilecaps, service elements and the retaining wall in RH2 was enlarged by c. 0.50m in each direction to allow a buffer zone (as shown in red outline on Figure 3). This involved dismantling and storage, as described above, of all surface masonry within these areas. The dimensions of the enabling area for each pilecap, lift pit and manhole in RH2 and RH3 and for the retaining wall in RH2 are detailed in Table 4.1.

Structure	Enabling Area	Dimensions
RH2	R2A, pile cap	3.00m NE-SW x 1.90m NW-SE x c. 0.45m deep
RH2	R2B, pile cap	8.00m NE-SW x 6.00m NW-SE x c. 0.30m deep
RH2	R2C, lift pit	4.80m NE-SW x 4.50m NW-SE x c.1.00m deep
RH2	R2D, retaining wall	23.00m NE-SW x 6.50m NW-SE x c. 0.30m deep
RH2	R2E, lift pit	10.60m NE-SW x 4.50 NW-SE x c. 1.00m deep
RH2	R2F, pile cap	3.00m ENE-WSW x 1.60m NNW-SSE x c. 1.00m deep
RH3	R3A, pile cap	3.00m NE-SW x 3.00m NW-SE x c. 0.65m deep
RH3	R3B, manhole	5.50m ENE-WSW x 3.00m NNW-SSE x c. 1.00m deep
RH3	R3C, pile cap	2.70m NE-SW x 3.50m NW-SE x c. 0.72m deep
RH3	R3D, manhole	6.00m NE-SW x 4.50m NW-SE x c. 1.00m deep
RH3	R3E, pile cap	3.00m NE-SW x 3.00m NW-SE x c. 0.90m deep
RH3	R3F, manhole	3.20m NE-SW x 4.50m NW-SE x c. 1.00m deep
RH3	R3G, pile cap	5.60m NE-SW x 4.00m NW-SE x c. 0.80m deep
RH3	R3H, pile cap	2.10m E-W x 1.50m N-S x c. 0.20m deep
RH3	R3I-J, pile cap	2.40m NNE-SSW x 3.40m WNW-ESE x c.

		0.70m deep
RH3	R3K, pile cap	4.20m NW-SE x 2.00m NE-SW x c. 0.70m deep

Table 4-1 Dimensions of enabling areas (including 0.50m buffer zone)

4.1.17 The arrangement of enabling trenches for services in the 1841 Engine Shed comprised a T-shaped trench (ST) located in the western part of the structure and a linear trench (FHT) for a fire hydrant located in its north-eastern portion. The NE-SW element of the ST trench measured c. 22m long x 2m wide x up to 0.50m deep and the NW-SE element measured 11.50m long x up to 3.50m wide x up to 1.20m deep. The FHT trench measured 6.60m NE-SW x 2m wide x up to 0.90m deep.

4.1.18 As before, dismantled masonry in the 1841 Engine Shed service trench enabling areas was either removed by hand or by c. 5-tonne tracked 360° mechanical excavator and retained on site within a nearby inspection pit. Where the external wall of the structure was encountered in the ST and FHT trenches, this required removal and the work was undertaken under archaeological supervision with a c. 5-tonne mechanical excavator with breaker attachment.

4.1.19 During excavation/recording Phase 3, various enabling groundworks for the re-development were being undertaken at the site. Of note were the capping and removal of 19th-century brick drainage culverts and the installation of substantial drainage attenuation tanks. Where any groundwork had potential to impact upon the 19th-century railway buildings an archaeological watching brief was implemented. A 5m buffer zone was established around each of the 19th-century railway structures with any groundworks undertaken within this zone being monitored (Figure 3).

Excavation/Recording Phase 4 (YET 13)

4.1.20 The final phase of fieldwork – excavation/recording Phase 4- was undertaken 7 January-1 February 2013 within the areas of the 1841 Engine Shed and RH3 that had been previously unavailable as they underlay sections of the turning-triangle 'live' rail track. By the time of this phase of work, the track had been decommissioned and was in the process of been dismantled. Within the 1841 Engine Shed, a triangular trench measuring 25.50m WNW-ESE x up to 13m NNE-SSW was investigated immediately to the east of the excavation/recording Phase 2 area (Figure 3). In RH3 an irregularly shaped trench measuring up 12m WNW-ESE x up to 10m NNE-SSW was located immediately to the west of the area investigated in excavation/recording Phase 1, in the south-western quadrant of the roundhouse.

General Methodology

4.1.21 During the majority of the fieldwork, overburden was removed by a c. 13-tonne tracked 360° mechanical excavator fitted with a wide blade ditching bucket (with no teeth). Such a machine was employed to expose the structural elements of the 1841 Engine Shed, RH1, RH2 and RH3 engine sheds and the octagonal ancillary building (Figure 3). During the removal of overburden, backfill was also removed from the central turntable wells of RH2 and RH3 and from the exposed portions of inspection pits within the 1841 Engine Shed and RH2 and RH3. However, not all inspection pits were excavated; backfill was removed from the westernmost portions of three inspection pits in the 1841 Engine Shed, fifteen inspection pits in RH2 and two inspection pits in RH3. On occasion, smaller mechanical excavators were utilised during the fieldwork, notably a c. 5-tonne tracked machine (excavation/recording Phase 3) and a c. 8-tonne 'back-acting' machine (evaluation Phase 2 and excavation/recording Phase 3). Such machines were generally used when tracking over exposed portions of structures was unavoidable. Machines with rubber tracks were used and surface protection was provided by timber boards as necessary. For the most

part they were used either when undertaking sample excavation or when removing structural remains at the locations of piles, pilecaps or new services.

4.1.22 Following machine removal of overburden and backfill deposits, exposed surfaces and elevations of all structural remains were hand cleaned using appropriate hand tools. This was followed by detailed photographic and written/drawn recording and outline electronic survey. In addition, detailed 3D laser scanning/survey was undertaken.

4.1.23 All archaeological structures and features were recorded in accordance with the methodologies set out in Fieldwork Induction Manual. Operations Manual I (PCA 2009) and Archaeological Site Manual, Third Edition (Museum of London 1994). The majority of the archaeological contexts defined relate to structural elements and were individually recorded on pro-forma 'Masonry Recording Sheets'. Deposits and feature cuts were individually recorded on pro-forma 'Context Recording Sheets'. For each phase of fieldwork all site records were attributed a unique-number 'Site Code', these being mentioned above.

4.1.24 A detailed survey of the structural remains exposed during all phases of work was undertaken using Leica Viva Smart Rover Global Navigation Satellite System (GNSS) in order to produce outline drawings to be used in conjunction with, and facilitate, standard recording. All investigation areas, trenches and pile/pilecap/service element locations were set out using the Smart Rover GNSS. Temporary Bench Marks (TBMs) were also established by the Smart Rover GNSS. The heights of all principal strata and features were calculated relative to Ordnance Datum using the TBMs and indicated on the appropriate plans and sections.

4.1.25 A detailed photographic record was compiled using SLR cameras (35mm film black and white prints and colour transparencies) supplemented by digital photography. During excavation/recording Phase 1 a truck-mounted access platform with articulated and telescopic boom was utilised to undertake general overview photography of the exposed portions of the structures. All photographs include a legible graduated metric scale. The photographic record was also supplemented by 'working shots' to illustrate more generally the nature of the archaeological operation undertaken.

4.1.26 During the excavation/recording Phases 1, 2, and 4, a programme of 3D laser scanning/surveying was undertaken. This allowed the structural remains to be quickly and precisely measured using millions of measurements (a 'point cloud'). The measurement mesh is typically so fine that the data can appear to be a solid. This was combined with digital photography, by using a camera mounted on the scanner, allowing the point cloud to be given appropriate colour. When imported into Building Information Modelling (BIM) software using hybrid CAD, the point cloud can be used to accurately define the position of structural remains.

4.1.27 Sample excavation was undertaken using a combination of hand excavation and c. 5- and 8-tonne mechanical excavators fitted with narrow-blade ditching buckets (with no teeth). All archaeological features (layers, cuts, fills and structures), encountered within sample excavations and groundwork enabling areas, were recorded in plan at 1:20 and where appropriate in section at 1:10 using standard 'single context recording' methods. All drawings were compiled on polyester-based drawing film and located either by GPS or survey points established across the site.

4.1.28 In excavation/recording Phase 1 a substantial quantity of ex situ structural masonry was encountered during the removal of overburden and backfill deposits from the turntable wells and inspection pits of the engine sheds. This was separated and stored in a designated area on site, with material from each building stored together. The material was examined on site by an appropriate specialist to identify items for either further recording or retention, with a quantity of masonry also retained for re-use within the re-development. Full details are given in Section 8.

4.1.29 All masonry material not retained for re-use within the re-development, including masonry excavated from groundwork enabling areas, was placed within either the turntable wells or

inspection pits of the engine sheds for long term storage. The majority of the masonry recovered by machine excavation during the exposure of RH1, RH2 and RH3 was stored in the RH3 turntable well. Masonry, including surface components, dismantled during the excavation of groundwork enabling areas within RH3 was also stored in RH3, the larger stone blocks in the turntable well and surface components in the inspection pits. Masonry, including surface components, dismantled during the excavation of groundwork enabling areas in RH2 was stored in RH2. The majority of the material was stored in the inspection pits, with a small quantity of larger stone blocks stored in the turntable well. All masonry stored within inspection pits was covered with sand, while masonry stored within the turntable wells was covered either with sand or soft bulk material derived from the excavations.

4.1.30 Upon completion of the archaeological investigations the inspection pits and turntable wells were infilled with sand. A geotextile membrane was laid upon the exposed structures and a layer of sand c. 150mm thick was laid on the membrane. Soft bulk material to a thickness of c. 0.50m was then laid, this forming the basis of the piling 'mat' from which foundation pile holes were augered.

4.2 Post-excavation

4.2.1 The stratigraphic data generated by the project is represented by the written, drawn and photographic records. A total of 840 archaeological contexts were defined during the excavation/recording phases of work (Appendix 1). The contents of the paper and photographic elements of the Site Archive from all phases of investigation are quantified in Section 6. Post-excavation work involved checking and collating site records, grouping contexts and phasing the stratigraphic data. The archaeological remains were assigned to broad structural phases of activity. A written summary of the archaeological sequence was then compiled, as described below in Section 5.

4.2.2 Artefactual material from the investigations comprised small assemblages of hand collected pottery, clay tobacco pipe and fragmentary ceramic building material, along with substantial assemblages of metalwork, masonry, structural bricks and locomotive firebricks. For each category of material, an assessment report has been produced including a basic quantification of the material and a statement of its potential for further analysis. The results are given in Sections 7-9. No other categories of inorganic artefactual material were represented.

4.2.3 The palaeoenvironmental sampling strategy of the project was to recover bulk samples where appropriate, from well-dated (where possible), stratified deposits covering the main periods or phases of occupation and the range of feature types represented, with specific reference to the project objectives. To this end, no bulk samples were collected during the four excavation/recording phases of work.

4.2.4 The complete Site Archive, in this case comprising the written, drawn and photographic records (including all material generated electronically during post-excavation) and the retained portion of the artefactual assemblage, will be packaged for long term curation.

4.2.5 In preparing the Site Archive for deposition, all relevant standards and guidelines referenced in the Archaeological Archives Forum guidelines document (Brown 2007) will be adhered to, in particular a well-established United Kingdom Institute for Conservation (UKIC) document (Walker 1990) and a more recent IfA publication (IfA 2008c). In addition, the depositional requirements of the receiving body will be met in full.

4.2.6 At the time of writing the Site Archive is housed at the Northern Office of PCA, Unit N19a Tursdale Business Park, Durham DH6 5PG. When complete, the Site Archive will be deposited with an appropriate repository, likely to be the Yorkshire Museum, under the various site codes as detailed in Section 4.1 above.

5. RESULTS: THE ARCHAEOLOGICAL SEQUENCE

5.1 Introduction

5.1.1 During the investigations, separate structural and stratigraphic entities were assigned unique and individual 'context' numbers, which are indicated in the following text as, for example, [100]. The archaeological sequence pre-dating construction of the engine sheds at the site is summarised before the descriptions of each building, from the earliest to the latest to be built, with each element within individual structures assigned to broad phases of construction for that particular building.

5.2 Natural Sub-stratum

5.2.1 The earliest deposits encountered at the site represent superficial geological material comprising glacial till with overlying alluvial and fluvial deposits in places. Geotechnical investigations undertaken in 2005 encountered glacial till comprising various compositions of clay, sand and silt at the site (Carl Bro Group Limited 2006). These deposits were encountered between 1.30m and 2.90m below the ground level at the time, at maximum and minimum heights of 11.56m OD and 10.45m OD, respectively. The exception was in the north-eastern portion of the site, where glacial till was encountered at a depth of c. 4m below ground level at a height of c. 8.82m OD. Deposits recorded overlying alluvium within that area were described as laminated clays with organic material, these probably representing fluvial deposits associated with the course of a palaeochannel.

5.2.2 Alluvial and fluvial deposits encountered during the geotechnical investigations comprised various compositions of silt, sand, clay and gravel with occasional peat layers. These deposits were recorded at variable depths across the site between c. 0.50m and 1.90m below ground level, at maximum and minimum heights of 12.36m OD and 11.00m OD, respectively.

5.2.3 Within the excavation/recording areas, the earliest deposits encountered were of probable alluvial origin. Such deposits were subject to limited exposure within the enabling trench for services in the 1841 Engine Shed and in sample excavations in RH2 and RH3. The deposits comprised various compositions of gravel, clay and sand.

5.2.4 Alluvial deposits, [993], [994], [936] and [1333], were recorded during sample excavations in the 1841 Engine Shed, and another deposit, [1220], was recorded within the NW-SE aligned element of the enabling trench for services in the south-western corner of the building. These deposits generally comprised clayey sand, with the exception of a deposit of gravelly sand, [1333], and were encountered at maximum and minimum heights of 12.24m OD and 11.90m OD, respectively.

5.2.5 A sandy clay alluvial deposit, [860/861], was recorded immediately to the north-west of the external wall of RH2 during a sample excavation, at a height of c. 11.35m OD (see Section 2, Figure 8). It is likely that this had suffered horizontal truncation during levelling activity associated with the construction of RH2 and it is surmised that the natural sub-stratum was probably horizontally truncated across the entire footprint of the building during its construction, possibly to depth of at least 1.80m. Two piles (P56 and P57) located within the turntable well of RH2 recorded clayey sand alluvial material at a maximum height of 10.94m OD.

5.2.6 Alluvial deposits were recorded in RH3 during sample excavations located between inspection pits [709] and [713]. Two deposits, [871] and [870], were exposed immediately north of the external wall, [708] (see Section 5, Figure 12) these comprising sand and clayey sand, respectively, the uppermost recorded at 12.48m OD. Again this material had probably suffered horizontal truncation during construction of the building. A sample excavation located immediately east of inspection pit [713] recorded a clayey sand alluvial deposit, [839], at a maximum height of 11.68m OD (see Section 6, Figure 12).

The construction cut, [835], for inspection pit [713] was recorded at this height and it is surmised that most if not all construction groundworks for RH3 were probably undertaken at this reduced ground level following landscaping/levelling.

5.3 Sub-soil

5.3.1 Traces of a sub-soil, up to c. 0.36m thick, were recorded overlying alluvial deposits in the area of the 1841 Engine Shed. This material was recorded as deposit [992] external to the structure to the north and south, and also internally, as deposits [991] and [1194], in both NE-SW and NW-SE aligned elements of the enabling trench for services (Figure 4). The sub-soil comprised silty sand or clayey sand and was recorded at maximum and minimum heights of 12.58m OD and 12.32m OD, respectively. The presence of sub-soil within the area of the 1841 Engine Shed suggests that landscaping/levelling was perhaps undertaken to a lesser degree than in the area of the roundhouses.

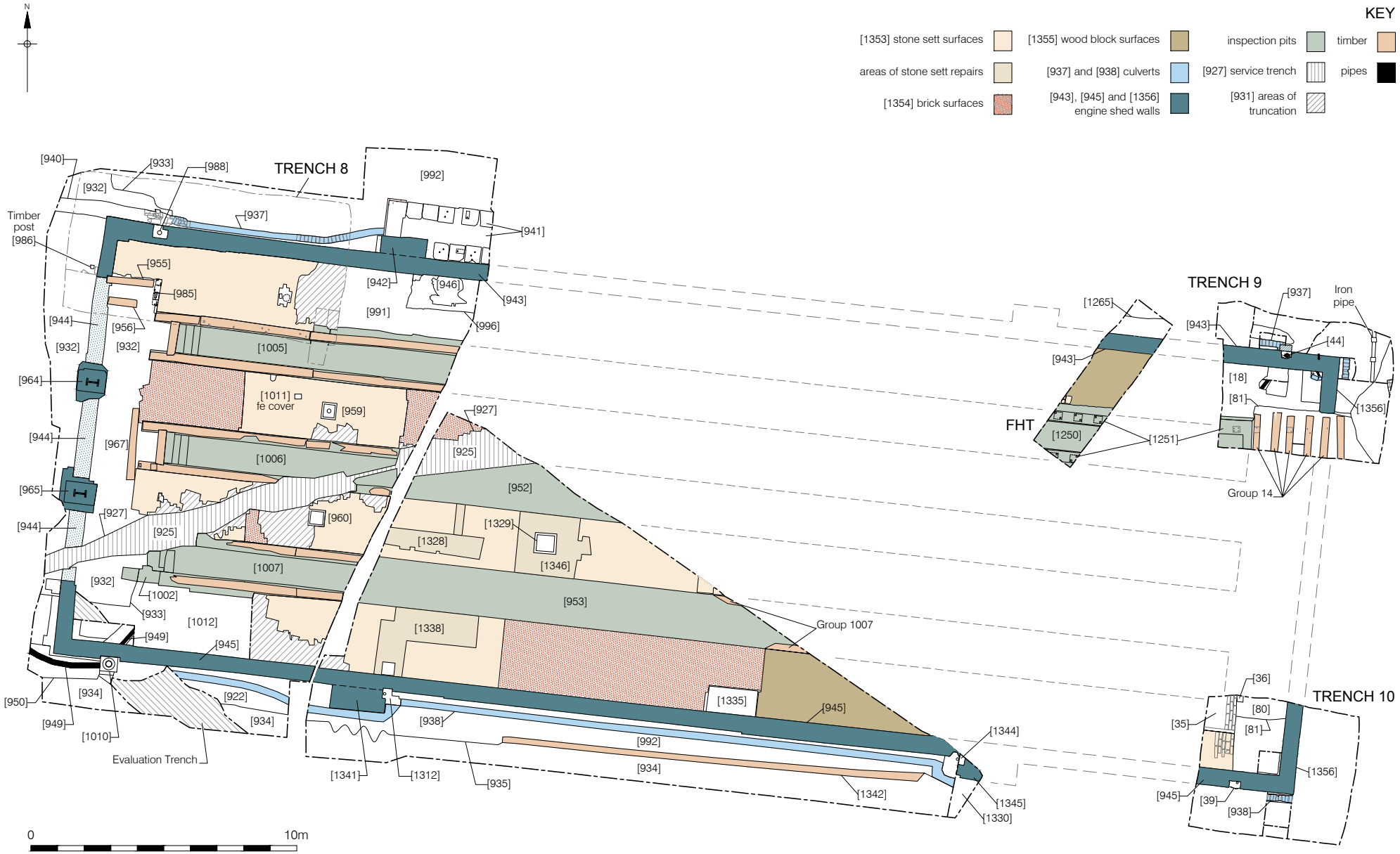
5.4 The 1841 Engine Shed (Figure 4)

5.4.1 This straight shed was one of the earliest locomotive sheds built at York South, in place by the time the first services of the GNER reached the city in 1850. It was built in 1841, on the south side of the GNER lines, and is first depicted on the Ordnance Survey 1st edition map of 1851 as a rectangular three-road structure with entrances to the east and west. The map depicts two rectangular projections located externally to each of the north and south walls, these probably representing four chimney stacks. Although this shed remained in place until its demolition to ground level in 1963, substantial refurbishment of its internal elements, entrance and roof is known to have been undertaken throughout its lifetime.

5.4.2 The 1841 Engine Shed was first exposed during the Phase 1 evaluation when its south-western corner was recorded in Trench 2, with the Phase 2 evaluation exposing the other three corners. These evaluations indicated that the structural remains of the building survived to an exceptional degree below ground. The full extent of the 1841 Engine Shed as exposed in the evaluation trenches was c. 46.80m (153ft, 6in) WNW-ESE by c. 16.40m (53ft, 10in) NNE-SSW, these identical to the dimensions depicted on the Ordnance Survey 2nd edition map of 1892.

5.4.3 Excavation/recording Phases 2 and 4 exposed a substantial part of the western half and a small part of the eastern half of the 1841 Engine Shed while Phase 3 included excavation of the aforementioned T-shaped enabling trench (ST) for services across its western portion and the NE-SW aligned enabling trench (FHT) for a fire hydrant in its north-eastern portion. In total, approximately 50% of the 1841 Engine Shed was exposed within all phases of excavation/recording and evaluation.

Figure 4 Engine Shed



15/05/13 MR

Figure 4
1841 Engine Shed, all phases
1:200 at A4

5.4.4 The exposed portions of the external brick walls, [943], [944], [945] and [1356], were for the most part uniformly c. 0.60m wide, with the exception of the north-western corner of the structure where the wall varied in thickness from up to 0.68m for the north wall, [943], and up to 0.50m for the west wall, [944] (Plate 5.1). The NNE-SSW aligned west wall, [944], was the only wall to be fully exposed in the excavation/recording work, this being 16.40m in length. Approximately 34m of the WNW-ESE aligned south wall, [945], was exposed out of its total length of 46.80m. The east wall, [1356], was only partially exposed within evaluation Phase 2 trenches while three separate sections of the north wall, [937] were exposed. In both west and east ends of the building, where the entrances were located, the walls were truncated by substantial features associated with the later refurbishment of the through roads.

5.4.5 All external walls of the 1841 Engine Shed were similarly constructed using a combination of shallow frogged and unfrogged red bricks (230mm x 115mm x 75mm) in English bond with lime mortar. Generally up to five courses of brick were exposed, to a maximum height of 0.41m, the exception being the westernmost portion of the south wall, [945], where up to 13 courses were exposed, to a maximum height of 1.28m, this within the Phase 3 excavation/recording ST enabling area. Within this area the stepped foundation of the wall was exposed, with basal width 1.20m (Plate 5.2). A narrow construction cut, [1222], for south wall [945], was recorded at this location, cutting the aforementioned sub-soil, [991/992], with an associated backfill, [1221]. This indicated that the external walls of the building were trench-built although no evidence for a construction cut was recorded in the evaluation Phase 2. The maximum height recorded on any part of the external wall of the 1841 Engine Shed was 12.79m OD.

5.4.6 Three small rectangular brick structures, [942], [1341] and [1345], were recorded adjoining the exterior of the long walls of the 1841 Engine Shed. These structures are depicted on the Ordnance Survey 1st edition map of 1851 which shows the building with two rectangular projections located externally to each of the long walls. They are thought to represent four chimney stacks associated with areas for smithing and various other hot works. The three structures exposed were similarly constructed with unfrogged red bricks (230mm x up to 120mm x up to 80mm) bonded by lime mortar. Structure [942], adjoining the north wall, measured 1.90m WNW-ESE, projecting out c. 0.90m from the wall, and was exposed to a maximum height of 0.47m. This structure had been incorporated into a later brick and stone block structure, [941].

5.4.7 Structure [1341] adjoined the south wall and measured 2.07m WNW-ESE, projecting out c. 0.86m from the wall, and was exposed to a maximum height of 1.28m, this also being the full height of the wall at this location (Plate 5.3). Part of a similar structure, [1345], adjoined the south wall to the east and this measured at least 0.95m WNW-ESE, projecting out c. 0.82m, and was exposed to exposed to a maximum height of 0.26m.

5.4.8 Two brick culverts, [937] and [938], ran parallel to the external elevations of the north and south walls, respectively, with a short length of a similar structure also exposed within a sample excavation parallel to the external elevation of the east wall at the north-eastern corner of the building. These culverts 'skirted' around the three chimney stacks, suggesting that they were contemporary with or later than the original building. The culverts were similarly constructed, with a base formed by a row of bricks laid on bed and sides formed by two brick walls laid in stretcher courses. Each wall was four courses (c. 0.25m) high, bonded with lime mortar and capped by a row of bricks laid on bed. Unfrogged red bricks (230mm x 110mm x 80mm) had been used throughout, the majority of which were covered in lime mortar, suggesting that they were re-used.

Inspection pits of the 1841 Engine Shed

5.4.9 Three internal WNW-ESE aligned inspection pits, [1005], [1006] and [1007] were recorded (Plates 5.1 and 5.4). Only the westernmost portion and small areas of the eastern extent of inspection pit [1005] and the western and central portions of inspection pits [1006] and [1007] were exposed. In the exposed portions, infill material, [951], [952] and [953],

respectively, was excavated only in the westernmost portions. The full, albeit interrupted, extent of the northernmost inspection pit, [1005], was recorded and this measured c. 41.50m in length by c. 1.80m wide and up to 0.68m deep. It is likely that all inspection pits in this building were of similar dimensions.

5.4.10 Inspection pits [1005], [1006] and [1007] were all built within narrow construction cuts, [1212], [1285] and [1195], backfilled by crushed coal deposits, [1211], [1216] and [1197], respectively. Concrete formed the uppermost backfill deposit within construction cut [1195]. The pits were similarly constructed and comprised two parallel track walls c. 1.10m apart with access steps to the west. Further access steps were likely to be located to the east, however these were not exposed. The floor of each inspection pit was formed by a slightly concave brick surface, with the bricks laid in rows of stretchers.

5.4.11 The lower portion of each track wall comprised up to three courses of red brick (average size 230mm x 110mm x 80mm) up to 0.23m high, capped by large dressed stone blocks (620mm x 600mm x 260mm). Brickwork was bonded by lime mortar, suggesting this could be contemporary with the original build. The stone block capping was bonded by a combination of lime and cementitious mortar, suggesting that this had been repaired. The capping stones in turn housed substantial timbers forming the waybeams which were placed on a c. 30mm thick concrete pad. The waybeam would have housed the rail track and a c. 0.20m wide linear groove was observed within the upper surface of the well preserved portion of the southern waybeam for inspection pit [1005], representing the location of the rail track. The waybeams comprised a series of rectangular box-halved timbers in various states of preservation measuring c. 0.32m wide by 0.16m high, with the longest complete timber measuring 6.20m in length. The waybeams were fixed to the stone capping by a series of substantial iron fixing bolts located centrally c. 1.60m apart.

5.4.12 The end-to-end joints between waybeams were half-lapped scarves with square abutments (Plate 5.5) with the maximum combined length of waybeam exposed across inspection pit [1005] measuring at least 11.60m, but they would have extend across the lengths of all inspection pit track walls. Further iron fixtures were recorded on the surface of all waybeams, including iron spikes and square iron plates associated with the fixing of the rail track element to the waybeam. Also of note was a series of shallow linear grooves recorded c. 1.90m apart. Each groove measured c. 50mm wide by c. 20mm deep extending widthways across the upper surface of all waybeams and these may have assisted drainage.

5.4.13 At the western end of each inspection pit were up to three access steps (Plate 5.6). In inspection pits [1005] and [1006] the lowermost two steps were formed by stone blocks (1080mm x 250mm x 190mm) with the uppermost step formed by a concrete slab (1200mm x 300mm x 200mm) beyond which lay a timber (1280mm x 300mm) that adjoined the waybeams. Although the upper portion of the access forming the western access for inspection pit [1007] was disturbed by a modern service trench, a similar arrangement of two lowermost stone steps and an uppermost concrete step is likely, with only a portion of the lowermost stone step surviving. As with the waybeam element of the inspection pits, it is likely that the upper concrete and timber element of the access steps is a 20th-century addition, with the lowermost stone element possibly forming part of the original 19th-century build.

5.4.14 At some time, probably during the early 20th century, the inspection pits were extended. Within a sample excavation undertaken at the western extent of the southern track wall of inspection pit [1007] a section of brick track wall, [1002], including the back of the inspection pit, was recorded. This measured c. 1.37m WNW-ESE by c. 0.47m wide and was exposed to a maximum height of 0.30m in up to four courses brick (average brick size 230mm x 110mm x 70mm) bonded by lime mortar.

5.4.15 5.3.15 A further rebuilding/repair was evidently carried out later in the 20th century in the eastern portion of inspection pit [1005], this exposed within evaluation Trench 9 and enabling trench FHT. Within these areas the track walls, [1251], were built c. 1.08m apart in concrete, with internal elevations formed by a single skin of brick (Plate 5.7). The

concrete element was recorded intermittently for a total distance of 7.40m ENE-WSW by at least 2.30m wide. Recorded across the upper surface of the concrete track walls were a series of square impressions, c. 0.45m apart. Each impression measured 0.28m by 0.28m and within each was a square socket measuring 50mm by 50mm which represent the location of an iron rail chair. The internal brick facing of the inspection pit was only exposed within enabling trench FHT to a maximum height of 0.10m, this comprising two courses of frogged brick (220mm x 110mm x 80mm) bonded by concrete. The depth of the inspection pit was not established within these areas as the rubble backfill, [1250], contained quantities of asbestos sheeting and was left in situ.

5.4.16 The inspection pits were backfilled by rubble deposits, [951], [953], [952] and [1250], comprising brick fragments within a crushed coal and ash matrix. Such deposits encountered within the Phase 2 excavation/recording area were fully excavated and were up to c. 0.60m thick. These deposits left in situ within subsequent phases of work.

Floor surfaces and associated structures of the 1841 Engine Shed

5.4.17 The various floor surfaces exposed within the 1841 Engine Shed included areas of granite setts, [1353], brick, [1354], timber boarding and wood blocks, [1355], and concrete, [18] (Figure 4; Plate 8). The majority of the internal floor area comprised rectangular granite setts [1353] (up to 450mm x 190mm x 130mm), laid in rows perpendicular to the north wall and inspection pits and bonded with lime mortar. Within the sett surfaces located at the north-western corner and central portions of the building the regular rows were interrupted by separate rows of larger, rectangular (up to 1000mm x 300mm) and square (up to 290mm x 290m) granite setts. The areas of stone sett surfaces measured c. 2.40m wide between inspection pits and external walls and were exposed for minimum and maximum distances of 6m and 19.20m WNW-ESE, respectively. The floor surfaces were relatively level, recorded at maximum and minimum heights of 12.80m OD and 12.66m OD, respectively, with the variation in heights probably caused by subsidence. A compact crushed coal deposit, [1215], c. 0.10m thick, was exposed within enabling trench ST for a maximum distance of up to 1.90m NE-SW by at least 2.40m NW-SE and this was the bedding material for the sett surface within the western central portion of the engine shed.

5.4.18 The internal brick surface, [1354], was constructed with bluish grey highly fired bricks (220mm x 120mm x 100mm and 250mm x 120mm x 120mm) laid in rows perpendicular to the southern external wall and inspection pits, bonded by a combination of lime and cementitious mortar. All areas of brick surface were c. 2.40m wide, with two separate areas of brick surface recorded to the east and west between inspection pits [1005] and [1006], measuring c. 3m and c. 4m WNW-ESE, respectively, and one area of brick surface between inspection pit [1007] and the external wall measuring c. 10m WNW-ESE.

5.4.19 Two areas of internal timber block surface, [1355], were exposed (Plates 5.7 and 5.8). Generally these surfaces were in a poor state of preservation with the upper portion substantially degraded and in places only the outline of the lime mortar bonding surviving. The timber surfaces were exposed in the eastern extent of the excavation/recording Phase 4 area and also within enabling trench FHT. Both surfaces were similarly constructed using roughly rectangular wood blocks (260mm x 125mm x 120mm) bonded by lime mortar.

5.4.20 A further internal timber surface was exposed at the north-western corner of the building. This comprised two WNW-ESE aligned rectangular timbers, [955] and [956], measuring up to 1.74m long by 0.26m wide and the remains of five timber blocks, [985], measuring up to 255mm by 110mm and up to 112mm high. The timber block surface was recorded abutting granite surface [1353] with all timber surface elements in this area directly overlying a ballast deposit, [932]. All the timbers were generally in a poor state of preservation, with the timber blocks for the most part only evident as impressions in the ballast.

5.4.21 Later, probably 20th-century, surface repairs, [1328], [1338] and [1346], were recorded across the central portion of granite sett surface [1353]. These areas of repair were distinctive and interrupted the regular rows of setts and were bonded by cementitious

mortar. Each of the surfaces were constructed primarily of rectangular (up to 450mm x 180mm) and roughly square granite setts (up to 370mm x 330mm) similar to that of the surrounding surface and it is almost certain that the materials used for these areas of repair derived from the original surface.

5.4.22 Two of the granite sett surface repairs, [1328] and [1338], were located either side of inspection pit [1007]. The southernmost repair, [1338], was L-shaped in plan measuring c. 3.60 WNW-ESE by c. 2.50m NNE-SSW and the northernmost repair was linear in plan measuring 3.60m ENE-WSW by 0.80m NNE-SSW, with a further NNE-SSW linear element measuring c. 1.10m by 0.38m wide extending northwards. Within both areas of repair substantial settlement was observed, suggesting the possibility of the presence of an underlying structure.

5.4.23 A roughly square-shaped granite sett surface repair, [1346], was recorded between inspection pits [1006] and [1007], measuring up to 2.80m east-west by 2.20m north-south. The area of surface repair is likely to be associated with the installation of a square standpipe well, [1329], located centrally to this area of repair and discussed in due course.

5.4.24 Later, probably 20th-century, portions of concrete slab surfaces, [18] and [35], were exposed within the evaluation Trenches 9 and 10 at the north-eastern and south-eastern corners of the building. Concrete slab surface [18] was partially exposed in Trench 9 for a distance of 3.77m east-west by up to 2.04m north-south and was 70mm thick. This was relatively level and was recorded at a maximum height of 12.52m OD. This surface was punctuated by two rectangular-shaped areas measuring up to 1.18m north-south by 0.78m east-west. It is unclear if these areas were contemporary with the concrete surface or represent later truncations.

5.4.25 A concrete surface, [35], c. 0.16m thick, was partially exposed in evaluation Trench 10 for a maximum distance of 1.14m east-west by 1.43m north-south, this abutting the granite sett surface [1353]. A lattice of rectangular impressions recorded across the surface is likely to represent a crude attempt to imitate the adjacent granite stone sett surface. Of note is that the southern edge of the concrete surface was on the same alignment as the portion of the truncated east external wall, [1356]. This indicates that the concrete surface was laid down after the removal or abandonment of the track that formed the southernmost through road.

5.4.26 Three square structures, [959], [960] and [1329], were recorded within granite surface [1353] or its repair [1346]. The two westernmost structures, [959] and [960], measured up to 0.60m by 0.60m and were exposed to a maximum depth of up to 0.60m (Plate 5.9). Their lower portions were brick-built (220mm x 100mm x 80mm) with at least two courses of brick, bonded by lime mortar, with the upper c. 0.43m formed by timber retaining boards (600mm x 430mm 20mm). The timber boards were generally in poor condition with only the impression of the timbers surviving within structure [959]. The base of an iron bayonet type connection (SF111) for a high-pressure water system was recovered from structure [959]. Although no such connector was present within structure [960], both are likely to represent standpipe wells. Similar bayonet type connections were recorded within RH2 (SF36) and it is possible that these components were fitted at the same time. Within evaluation Trench 9 a substantial iron pipe was recorded external to and running parallel with the east wall and this was potentially a further element of the high-pressure water system.

5.4.27 In the excavation/recording Phase 3 area, ceramic drainpipes were recorded adjoining standpipe well [959] and inspection pits [1005] and [1006]. Both the ceramic pipes and standpipe well occupied a broad construction cut, [1217], backfilled by a silty sand deposit, [1218]. Another roughly east-west aligned element of this cut probably contained the high-pressure water pipe, however this was not established for certain. Standpipe well [960] was also housed within a broad construction cut, [1205], backfilled by a sandy clay deposit, [1206]. A c. 0.58m wide roughly east-west aligned element of this construction cut extended c. 1.50m to the west and probably housed an element of the high-pressure

water system. Where this element of the cut terminated, a small iron hatch, [1011], within the surface may represent the location of a stop tap.

5.4.28 Standpipe well [1329], located in the excavation/recording Phase 4 area, measured 0.85m east-west by 0.73m north-south. Only the upper portion of this structure was exposed and this comprised timber retaining boards (580mm x 30mm thick) similar to that of the aforementioned standpipe wells.

5.4.29 A rectangular area of internal granite sett surface, [1335], abutted the south wall (Plate 5.8). This measured c. 1m north-south by 1.94m east-west and was recorded at a height of 12.65m OD. It comprised rectangular (280mm x 110mm) and roughly square (360mm x 300mm) granite setts laid in rows perpendicular to the wall. At the northern and western interfaces of this surface and brick surface [1354] were c. 100mm thick timber boards. The function of this small area of surface is unclear, but it may perhaps represent a storage area or work area.

5.4.30 The western portion of a brick and concrete structure, [946], was partially exposed abutting the internal elevation of the north wall. Its construction cut, [996], measured at least 2.52m east-west by 1.28m north-south and was up to 0.20m deep and the concrete forming the footing had been poured directly into this. The upper portion of structure was in a poor state of preservation with this brick element surviving for a distance of 1.86m east-west by 1.27m north-south by up to 0.15m high. This was a single skin of bricks (230mm x 110mm x 80mm), bonded by mortar, with a brick rubble and mortar core. Due to its poor state of preservation the function of the structure is unclear, but given its position in relation to the external chimney, it may represent the remains of a smithing area.

5.4.31 The western portion of a substantial stone block and brick structure, [941], was partially exposed abutting the external elevation of the north wall, this also incorporating brick chimney [942] (Plate 5.10). Prior to its construction, consolidation layers, [1214] and [1229], with a combined maximum thickness of c. 0.20m were laid down, these directly overlying brick culvert [937]. The western extent of the structure comprised a short length of brick wall measuring 1.40m NNE-SSW by c. 0.70m wide, surviving to four courses of unfrogged brick (230mm x 110mm x 80mm), bonded by lime mortar, to a maximum height of 0.51m. This portion of wall had a stepped foundation with the lower two courses projecting out c. 60mm. The northern part of the structure comprised substantial stone blocks (average block size 600mm x 600mm x 260mm) and a small area of brick infill, bonded by mortar, which was exposed for a distance of 3.20m ENE-WSW by 0.60m wide. A further row of stone blocks (600mm x 600mm x 260mm), 0.26m high, abutted the external elevation of wall [943], exposed for a distance of c. 2.10m x 0.60m wide.

5.4.32 The majority of sandstone masonry within structure [941] had either rectangular recesses and/or round sockets within their upper surfaces, suggesting they were re-used, possibly from one of the roundhouse engine sheds. The remainder of this structure was infilled by at least two courses of unfrogged brick (230mm x 110mm x 80mm), bonded by lime mortar. The bricks and possibly the stone blocks are likely to represent the floor surface at this level. The date of construction of this structure is uncertain, but it is first depicted on the 1892 Ordnance Survey map as two adjacent rectangular structures of similar size. The function of these structures is unclear, but they may represent platforms enabling access to locomotives from the track road located immediately to the north.

Refurbishment of the track roads in the 1841 Engine Shed

5.4.33 Substantial cut features, [933] and [81], were recorded at the western and eastern entrances of the 1841 Engine Shed, respectively, these associated with refurbishment of the three roads which probably occurred in the 20th century. The westernmost construction cut, [933], was irregularly shaped and extensive, with its maximum length being 16.30m north-south and width being at least 5.00m east-west. This truncated the west wall, [944], for a distance of c. 11.60m with further truncation occurring where substantial concrete and brick-built column bases, [964] and [965], had been installed.

The column bases measured up to 1.67m by 1.40m and were exposed up to 0.35m high. Both were similarly constructed with brick (230mm x 110mm x 70mm) with centrally located cast iron I-section columns (flanges 180mm x 460mm) set in concrete.

5.4.34 The column bases in turn were overlain by various deposits of compact crushed coal, ash and clinker, [999], [998], [997] and [932], with a combined maximum thickness of c. 0.50m, forming the ballast material associated with the three roads. Imbedded within upper ballast deposit [932] was a single timber sleeper, [967], located at the end of inspection pit [1006], which measured 2720mm x 250mm x 110mm. This was the only surviving element of the rail track.

5.4.35 A substantial upright timber post, [986], was recorded adjacent to the west wall, cutting through ballast deposit [932]. The post, 180mm square and exposed to a maximum height of 600mm, was set within a circular posthole of c. 0.50m diameter and backfilled by a crushed coal and sandy silt deposit, [1000]. The function of this post was not established, but it may represent the lower element of a telegraph pole or signal light.

5.4.36 Evidence for similar track refurbishment was recorded at the eastern entrance of the engine shed within evaluation Trenches 9 and 10. A substantial, presumed linear feature, [81], was exposed and in total measured c. 12.0m north-south by at least 4.60m east-west. As with the western entrance, this construction cut truncated the external wall. Its single fill, [80], comprised compact crushed coal and ash, this representing the track ballast.

5.4.37 Elements of the road track comprising six timber sleepers, [14], were partially exposed within evaluation Trench 9 (Plate 5.11). These were set between 0.47m and 0.30m apart and measured at least 1.64m long, continuing beyond the southern limit of investigation, by up to 0.27m wide and were c. 0.12m thick. Their upper surfaces were relatively level and, where these survived in a good state of preservation, they were recorded at a height of 12.52m OD. Although the upper surfaces were badly degraded, square areas of iron staining (0.20m x 0.20m) and sockets for fixings were visible on the majority, these representing the locations of rail chairs that would have secured the rail for the northernmost road into the shed.

5.4.38 A potential element of the southernmost road track was recorded in evaluation Trench 10. This comprised part of a timber, [36], directly overlying the ballast deposit within this area. The exposed portion of timber measured at least 0.30m long, continuing beyond the northern limit of investigation, by 0.25m wide and 0.12m thick; it possibly represents a sleeper element of the southernmost road track.

Later 20th-century drainage features

5.4.39 Six drainage features truncated the upper portions of the north and south walls of the 1841 Engine Shed. To the north, drains [39], [44], [1312] and [1344] were similarly constructed in construction cuts, [78], [45], [1343] and [1352], respectively. Where these cuts truncated the wall they measured up to 0.42m by 0.26m and where they truncated the earlier culvert at ground level they measured up to 1.0m north-south by up to 0.80m east-west. Each drain contained the remains of a c. 100mm (4in) diameter lead or iron downpipe that presumably adjoined the earlier 19th-century brick culverts [937] and [938], this established for drains [44], [1343] and [1344].

5.4.40 Within a sample excavation undertaken within evaluation Trench 9, construction cut, [45], for drain [44] truncated ground raising/consolidation layers on a NE-SW alignment below concrete surface [18]. This was recorded for a maximum distance of 0.45m NE-SW by at least 0.34m wide and 0.40m deep and contained a c. 120mm (4¾in) diameter ceramic drainpipe. All of the construction cuts were backfilled by various compositions of ash, clinker and rubble material.

5.4.41 Two drains, [988] and [949], were recorded at the north-west and south-west corners of the building, respectively. The construction cut, [940], for drain [988] was recorded within the upper surface of the wall; it measured 0.56m east-west by 0.46m north-south and

contained a c. 120mm (4¾in) diameter iron drainpipe consolidated with brick fragments and stone. The iron drainpipe element probably represents the basal portion of a downpipe. A sample excavation external to the building established that this drain adjoined a c. 120mm (4¾in) diameter ceramic drain that extended to the west within a roughly east-west aligned element of construction cut [940], this exposed for a maximum distance of c. 4.30 east-west by up to 0.59m wide. This drain did not adjoin the earlier brick culvert [937], and is likely to represent the latest, 20th-century, phase of drainage features.

5.4.42 Drain [949] comprised a square brick structure with a substantial pre-cast concrete cap, [1010], and ceramic drain [949]. Housed within a narrow construction cut, [950], the brick element was built using unfrogged bricks (230mm x 1110mm x 70mm), bonded by cementitious mortar, and measured up to 0.77m east-west by 0.68m north-south exposed to a maximum height of 0.14m. This in turn was capped by a substantial pre-cast concrete drain cover (600mm x 600mm) with a centrally located c. 200mm diameter aperture. This adjoined a c. 150mm (6in) diameter ceramic drainpipe that ran parallel to the external elevation of the engine shed, exposed for a distance of 2.60m on a roughly east-west alignment, this turning to a NE-SW alignment where it truncated the shed wall. The NE-SW aligned element of the drain was exposed for a maximum distance of c. 1m NE-SW. The element of the construction cut that housed the ceramic drain was up to 1.20m wide with all elements of this backfilled by a sandy silt deposit, [947]. Where the drain truncated the wall, the upper portion had been infilled by four courses of brick and brick fragments, [948], bonded by cementitious mortar.

External road

5.4.43 The northernmost portion of a substantial east-west aligned feature, [935], ran parallel to the south wall of the building, truncating sub-soil [992]. This was exposed for a maximum distance of c. 34.60m east-west by at least 1.50m north-south. It represents the location of a roughly east-west aligned track road and was filled by a compact crushed coal deposit, [934], this being the ballast material upon which tracks would have been laid. Although no elements of the track itself survived, a group of possible sleeper impressions were observed across the western portion of this deposit. A narrow linear timber, [1342], ran along the northern edge of the easternmost part of the road exposed, this measuring c. 16m east-west by 0.24m wide. Due to the poor state of preservation, its function was not ascertained and it may represent a track element or alternatively part of a drainage feature.

Modern levelling/demolition

5.4.44 Brick rubble within a lime mortar matrix, [1260], was recorded within enabling trench FHT, at a height of 12.28m OD. Similar materials were recorded in evaluation Trench 9 where they were c. 0.32m thick, with such deposits interpreted as representing material derived from the demolition of the engine shed. In turn, this was overlain by a group of levelling deposits comprising various compositions of crushed coal, clinker and sand, [1254], [1248], [1249] and [1247], with a combined maximum thickness of 0.40m. Crushed brick and sandy silty clay deposits, [1246] and [1245], respectively, c. 0.10m thick, formed the most recent surface deposits.

5.4.45 Modern, post-demolition, levelling deposits extended across all areas of the exposed portions of the engine shed. In both excavation/recording areas the earliest levelling deposit encountered comprised crushed coal, [989], up to 0.10m thick. This was overlain by a road surface comprising crushed stone, [921], up to 0.40m thick. The latest deposits recorded in this area comprised very recently laid levelling deposits of various compositions of crushed stone, sand and clay, [924] and [922], which had a combined maximum thickness of 0.44m. Similar deposits interpreted as levelling and ground-raising deposits were also recorded within evaluation Trenches 9 and 10, with a maximum thickness of 0.67m and 0.77m, respectively.

5.4.46 Located within the northern extent of enabling trench FHT was a small portion of a feature, [1265], which cut levelling deposit [1254], and was exposed for a distance of 1.50m east-west by 0.60m north-south and was at least 0.35m deep. Its single fill, [1264], comprised various quantities of crushed coal, silty sand and mortar. Due to the limited exposure of this feature its function is uncertain although is likely to be of 20th-century origin.

5.5 Roundhouse 1 (Figure 5)

5.5.1 RH1, the earliest of the three roundhouse engine sheds at York South, was brought into use by c. 1851, the structure being shown on the Ordnance Survey 1st edition map of this date. Further 19th-century maps and architectural drawings show RH1 as a 16-sided polygonal structure measuring c. 46.5m in diameter with 16 stalls, each with an inspection pit, radiating outwards from a central turntable measuring c. 13.70m in diameter (Plate 5.12). An elevation and cross-section of RH1, as designed by William Bell, shows the replacement conical louvered roof and its support structure (National Archives reference – NA ref. - RAIL 527.590z).

5.5.2 With the arrangement of track on the southern approach to York Station having seen significant re-positioning since the 19th century, only the north-westernmost portion of RH1 was exposed within the eastern boundary of the YET site. The exposed portion measured c. 37.80m NE-SW by c. 11m NW-SE, this representing just under 20% of the total structure.

5.5.3 RH1, which was destroyed by fire in 1921, was by far the least well preserved of the three roundhouse engine sheds at the site. Substantial horizontal truncation has resulted in the removal of most interior floor surfaces and the uppermost course of masonry in the inspection pits. Further truncation occurred during the construction of a later (presumably 20th-century) inspection pit associated with RH2.

5.5.4 Six sides of the external wall, [734], of RH1 were either partially or wholly exposed within the limit of investigation, with the fully exposed sides each measuring 9.00m in length externally. The building was exposed for a maximum distance of c. 37.50m NE-SW by 11m NW-SW. No construction cut for the wall was identified and it is presumed that the whole area of the footprint was reduced during construction. The surviving part of the external wall foundation was constructed using roughly hewn stone blocks (700mm x 690mm x 300mm) bonded with lime mortar. Up to five courses of masonry survived, with the structure up to 1.50m high by up to 0.60m wide. The foundation had a stepped footing with the lowermost two courses projecting outwards by up to 0.15m. The southernmost exposed portion of the external wall of RH1 was a probable later addition, likely to be associated with the construction of RH2 where the through rail was located. Here the uppermost three courses were brick (230mm x 110mm x 70mm) bonded with lime mortar and capped by a layer of lime mortar and pieces of slate. This segment of wall, which was 0.50m wide and 0.36m high, was exposed for a length of 2.94m.

5.5.5 A section of wall, [764], recorded at the interface of RH1 and RH2 was exposed for a length of c. 3m. It was 0.50m wide by 0.36m high and was built in three courses of brick (230mm x 110mm x 70mm) bonded by lime mortar. This portion of wall was built directly over the external wall, [734], of RH1. It is at this location where the former through-road joining RH1 and RH2 was located and the brick element of this portion of wall represents infilling of the road, probably undertaken during the demolition of RH1 and the installation of a new entrance c. 5m to the north-west, as represented by concrete structures [570] and [696].

Figure 5 Roundhouse 1

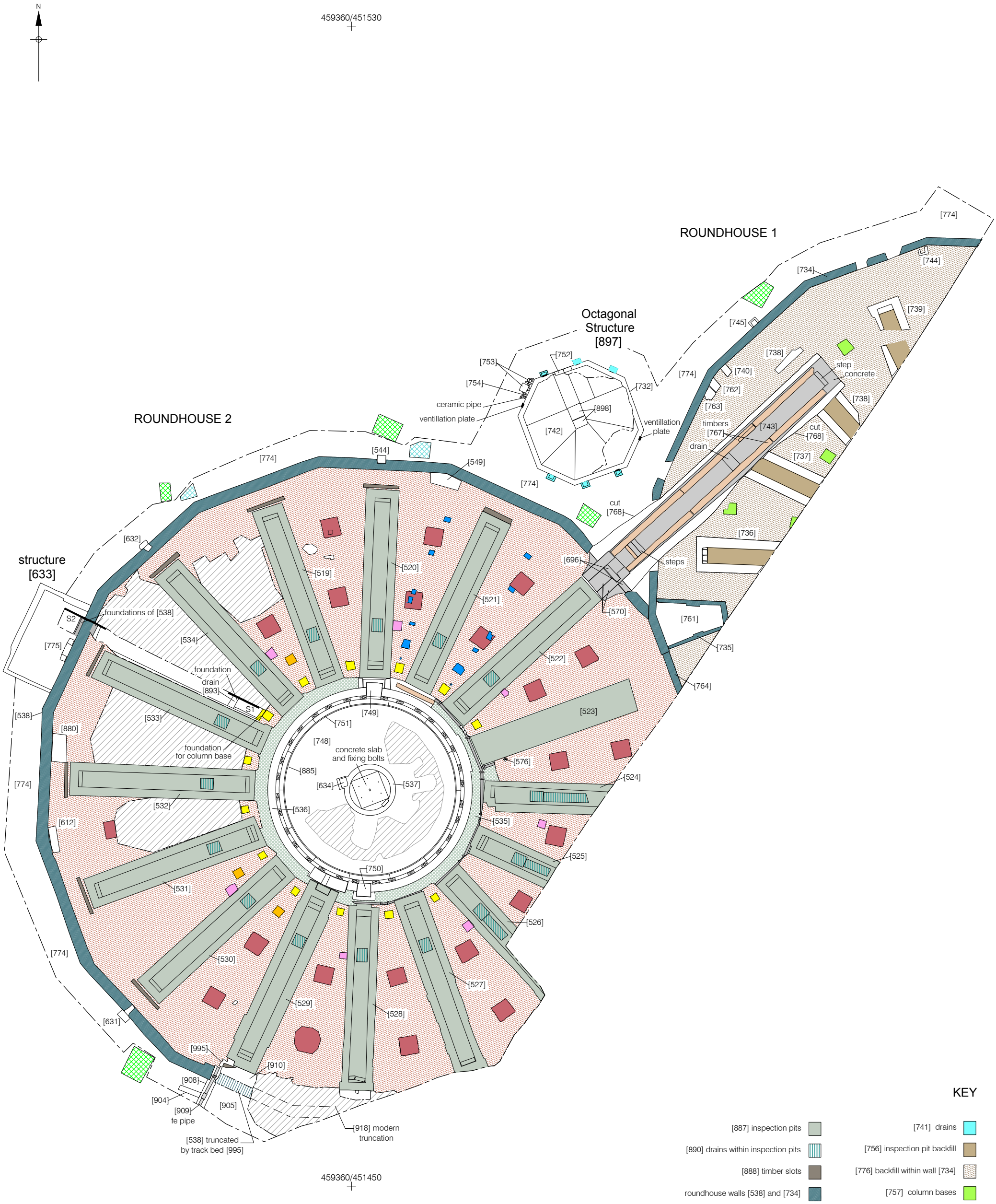


Figure 5
Detail of Octagonal Building and RH1 and RH2
1:250 at A3

5.5.6 Two small rectangular brick structures, [740] and [762], located c. 0.80m apart, abutted the internal elevation of the external wall of RH1. These measured up to 0.72m by 0.60m and at least 0.20m high and probably represent the surviving structural elements of a smithing or hot-works area as shown on a proposed ground plan of the building (NA ref. RAIL 527.590r).

5.5.7 Three square drainage structures, [763], [745] and [744], containing ceramic pipes, abutted external wall [734], two internal and the other external. These measured 0.67m square and were at least 0.10m high, with just one course of brick exposed in each.

5.5.8 Parts of four rectangular inspection pits, [736], [737], [738] and [739], were exposed within RH1. All had been horizontally truncated with the upper capping course having been removed. Further substantial truncation had occurred with the construction of a presumed 20th-century inspection pit, [743], associated with RH2 and modern services. Each inspection pit was similarly constructed, with two parallel walls, c. 1.10m apart, recorded at a maximum height of 12.54m OD. The walls were built with red brick (230mm x 120mm x 80mm) bonded with lime mortar. Access to the inspection pits was via stone slab steps (0.34m x 1.10m) which survived within at least two of the pits. A sample excavation undertaken across inspection pit [737] recorded the walls surviving to a height of at least 0.60m. Between the walls, the base of each inspection pit was formed by a slightly concave brick surface laid in stretchers, recorded at a height of 12.04m OD. Each inspection pit was backfilled by a crushed coal deposit, [756], containing various quantities of brick rubble.

5.5.9 A group of four similarly constructed square structures, [757], was recorded within RH1. Each was built with red brick (210mm x 110mm x 80mm) bonded with lime mortar and measured up to 0.93m by 0.77m and was at least 0.15m high. These structures probably represent column bases that would have provided support for the roof structure.

5.5.10 At the south-western extent of RH1, a tapered rectangular structure, [735], abutted the internal elevation of the external wall (Plate 5.13). This measured c. 4.80m east-west by up to 3.60m north-south. The two east-west aligned wall elements of this structure measured up to c. 4.75m by up to 0.25m wide with each wall incorporating a central brick buttress and projecting c. 0.13cm from the internal elevation. The north-south 'end' wall element measured 1.06m by 0.37m wide. All three walls were constructed with unfrogged red bricks (230mm x 110mm x 70mm) in English bond bonded with lime mortar. The wall survived to at least ten courses high (0.93m high) and was recorded at a maximum height of 12.71m OD. This structure is depicted on a proposed ground plan of RH1 and RH2 (NA ref. RAIL 527.590r), where it is annotated 'paint shop', located on the north side of the through-rail to RH2. Also shown on this plan is a similar structure located on the south side of the through-rail with a similar arrangement of a further two identical structures located at the opposite side of the roundhouse, also flanking a through-rail. All three structures are annotated on the plan of RH1 as 'stores'.

5.5.11 A compact sandy gravel deposit, [776], was contained within the internal area of RH1 and was up to 0.20m thick, recorded at a maximum height of 12.45m OD. This deposit probably represents a bedding or consolidation deposit associated with the original floor surface.

5.6 Roundhouse 2 and Octagonal Office Structure (Figure 5)

5.6.1 RH2 was built c. 1852 abutting RH1 and in largely identical form. The south-easternmost portion of the structure lies beyond the limit of the YET site, below the current arrangement of tracks, with the remains exposed during the excavation/recording work representing 87% of the entire plan area of the structure.

5.6.2 The external wall, [538], of RH2 was a 16-sided polygon measuring c. 46.50m in diameter (Plate 5.14). A narrow construction cut, [854], for the wall foundation was recorded external to the building within a sample excavation in the eastern portion of RH2 (Figure 5). This indicates that, as proposed for RH1, the entire footprint was reduced before the external wall foundation and associated inspection pits and turntable were built and the construction cut backfilled. At the interface of the external walls of the two roundhouses, the wall of RH2 abutted that of RH1.

5.6.3 Parts of eleven sides of the structure were exposed within the limit of the area of investigation with each section measuring 4.50m externally and c. 4.30m internally. The wall foundation was constructed using predominantly roughly hewn stone blocks (540mm x 490mm x 160mm) bonded with lime mortar. A sample excavation across the line of the external wall in the north-western quadrant of the building recorded the full extent of the foundation; it survived to seven courses (1.76m high), recorded at a maximum height of 12.81m OD (Section 2, Figure 8). The uppermost portion was up to 0.75m wide, while the lowermost portion had been constructed with a stepped footing, with the lowermost four courses measuring up to 1.17m wide.

5.6.4 A substantial linear feature, [858], running parallel and external to wall [538] was exposed for a distance of c. 1.40m NE-SW by up to 0.92m wide to a maximum depth of 1.24m with a single fill silty clay fill, [857] (Section 2, Figure 8). Only a small portion of this feature was exposed within the sample excavation and therefore its function was not established for certain. In the deepest exposed portion was part of a poorly-preserved timber that may represent part of a drainage structure. This feature truncated natural alluvial deposits [860] and [861] and its south-eastern edge was truncated by the construction cut for the roundhouse wall, demonstrating that the probable drainage feature was installed prior to the construction of the roundhouse; nevertheless it was likely to be in use contemporaneously with the building.

Turntable well of RH2

5.6.5 The central turntable well, [886], of RH2 measured c. 14.0m in diameter, from the external edges of its perimeter wall, with an internal diameter of c. 13.0m. It comprised an outer wall, [536], perimeter ('trod') rail, [751], and central pivot well, [537] (Figure 6, Plates 5.15-5.18). The outer wall, [536], measured c. 1m high by c. 0.60m wide, recorded at a maximum height of 12.68m OD. The lowermost three courses were built in regular courses of dressed stone blocks (560mm x 260mm) bonded with lime mortar. The uppermost capping course was built using generally more substantial dressed stone blocks (1280mm x 600mm x 290mm) with larger stone blocks (1330mm x 500mm x 600mm) corresponding with the ends of the inspection pits.

5.6.6 Two square stone and brick structures, [750] and [749], were incorporated into the southern and northern portion of the outer wall of the turntable well, respectively, located directly opposite each other. They measured 1.48m by 1.20m and up to 1.06m high. The floor surface of structure [749] comprised roughly hewn stone flags (up to 500mm x 400mm) bonded by lime mortar. The walls were brick-built (230mm x 100mm x 80mm)

Figure 6 Roundhouse 2

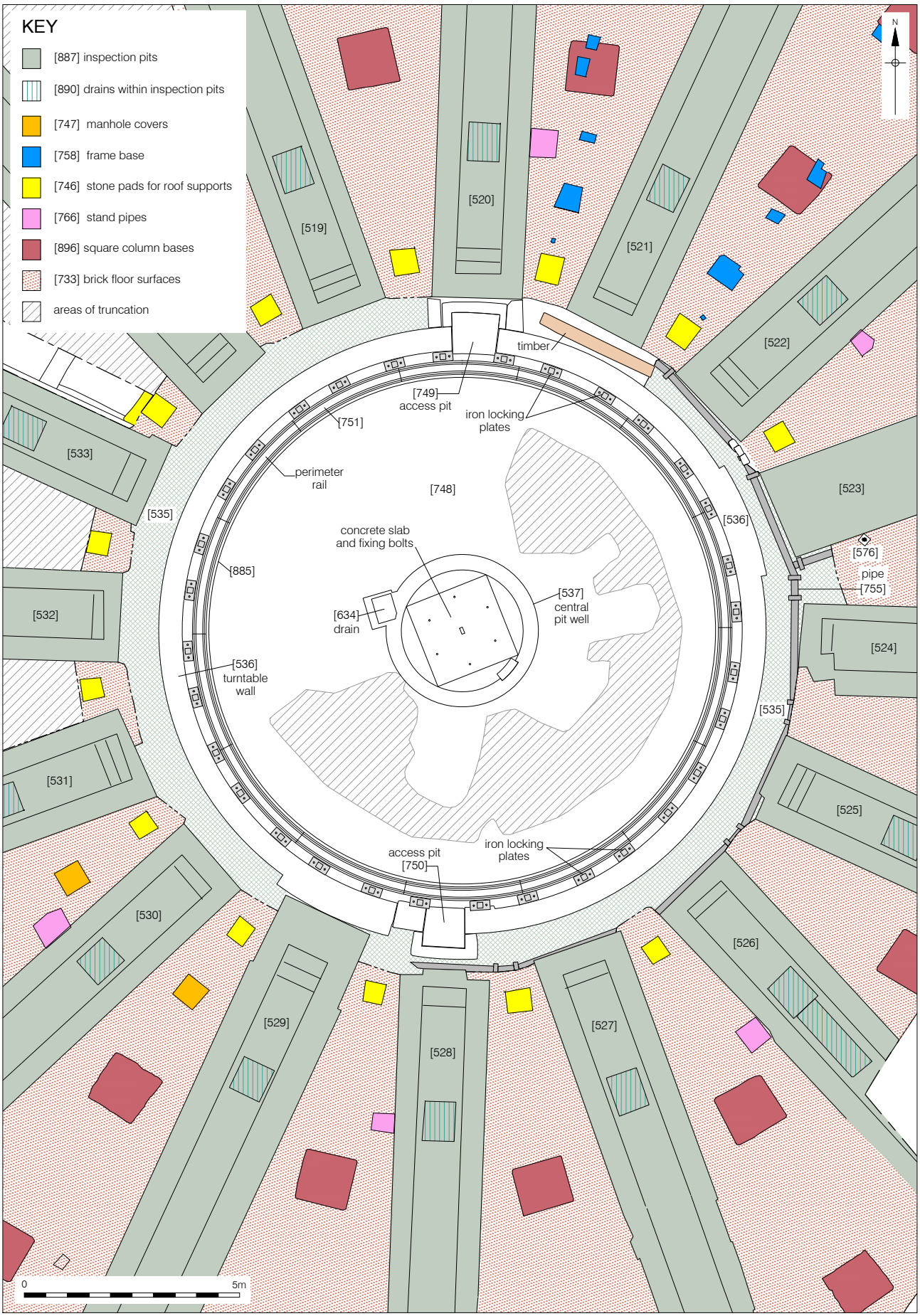


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Figure 6
RH2, detail of turntable pit [886] and pipe trench [535]
1:125 at A4

with the lowermost five courses generally in poor condition and bonded by lime mortar and the uppermost six courses built using later bricks and bonded by a cementitious mortar. The southernmost structure, [750], was built entirely in brick (230mm x 110mm x 80mm) with the brick forming the surface and lowermost course of the wall in poor condition, bonded by lime mortar, and the uppermost six courses comprising a later addition, this bonded by cementitious mortar. Both structures are likely to represent access pits for the turntable mechanism with refurbishment, as evidenced by the later brick and concrete bonding, probably taking place sometime during the early 20th century, probably when the high-pressure water system was installed.

5.6.7 The perimeter rail, [751], of the turntable well comprised 14 sections of rail and 32 associated locking plates (Plate 5.17). Each section of rail measured c. 2.78m in length by 0.30m wide and was joined by four fixing bolts at each corner and fixed to the surface by up to seven square-headed iron spikes. The cast iron locking plates measured 0.46m by 0.22m and were alternately set 0.61m and 0.92m apart between the rail and outer wall and secured to the surface by two fixing bolts. Both the perimeter rail and the locking plates were set into stone blocks, [885], which formed part of the floor surface of the turntable well. The majority of the surface was formed by a gently sloping layer of concrete, [748], c. 20mm thick.

5.6.8 The central pivot well, [537], measured c. 3.50m in diameter and was c. 0.53m deep, recorded at a maximum height of 11.36m OD (Plate 5.16). Its perimeter wall was built with red brick (230mm x 100mm x 80mm) in six courses of alternating headers and stretcher bonded with lime mortar. The wall incorporated a square brick drain, [634], measuring c. 0.80m by 0.60m with the outlet pipe located at the base of the wall. The pivot mounting was formed by a square concrete pad which measured c. 2m square and a circular arrangement of six fixing bolts and a central rectangular socket.

Inspection pits of RH2

5.6.9 A total of 16 rectangular inspection pits, [887], were recorded within RH2 (Plates 5.18-5.21). Of these, ten were fully exposed and mechanically emptied of their infill and five were partially exposed, these continuing beyond the limit of investigation. All inspection pits were generally in a good state of preservation with the exception of one where the capping stones had been disturbed and therefore this was not emptied. All inspection pits measured c. 12.90m long by c. 2m wide and up to 0.68m deep, with the top of the walls recorded at a highest level of c. 12.67m OD. All were similarly constructed, formed by two parallel walls, c. 1.10m apart with access steps at each end and with a brick floor surface incorporating a drain. The lowermost portion of each wall comprised up to four courses of red brick (230mm x 110mm x 80mm), these capped by large dressed stone blocks (620mm x 500mm x 280mm) bonded with lime mortar.

5.6.10 Within most inspection pits a later phase of repair or re-build was suggested by the uppermost two to three courses of bricks being in a better state of preservation than those below. The upper surface of the majority of the capping stones had various arrangements of circular bolt holes and rectangular recesses, to accommodate 'chairs' which would have held the rails. The rail chairs themselves would probably have been mounted on hardwood or wrought iron packing rather than being fixed directly to the capping stones.

5.6.11 The floor of each inspection pit was formed by a slightly concave brick surface, with the bricks laid in rows of stretchers. A drain, [890], was recorded within the floor surface of each inspection pit, c. 2.50m from the end of the inspection pit closest to the centre of the roundhouse. The majority of these drains remained in situ and although these were heavily corroded, they comprised roughly square pierced cast iron covers measuring up to 0.48m by 0.60m. Within three of the inspection pits, [524], [525] and [526], further drain elements comprising linear 0.60m wide extensions, also with cast iron covers, running towards the external wall were exposed for a maximum distance of 3.20m. The precise function of these drain extensions was not ascertained, but may indicate that an activity

that required more extensive drainage management was carried out in these particular inspection pits.

5.6.12 At both ends of each inspection pit were up to two access steps. These were predominantly cast iron, measuring c. 1.15m by 0.60m, with occasional stone and brick or concrete and brick steps with similar dimensions (Plates 5.20 and 5.21).

5.6.13 A single timber sleeper, [888], was recorded adjacent to the outer end of the majority of inspection pits, measuring up to 2.60m long by 0.20m wide. All were in a poor state of preservation and in some cases only an impression of the timber survived. These timbers probably represent fixing points for wheel stops to the rear of the inspection pits.

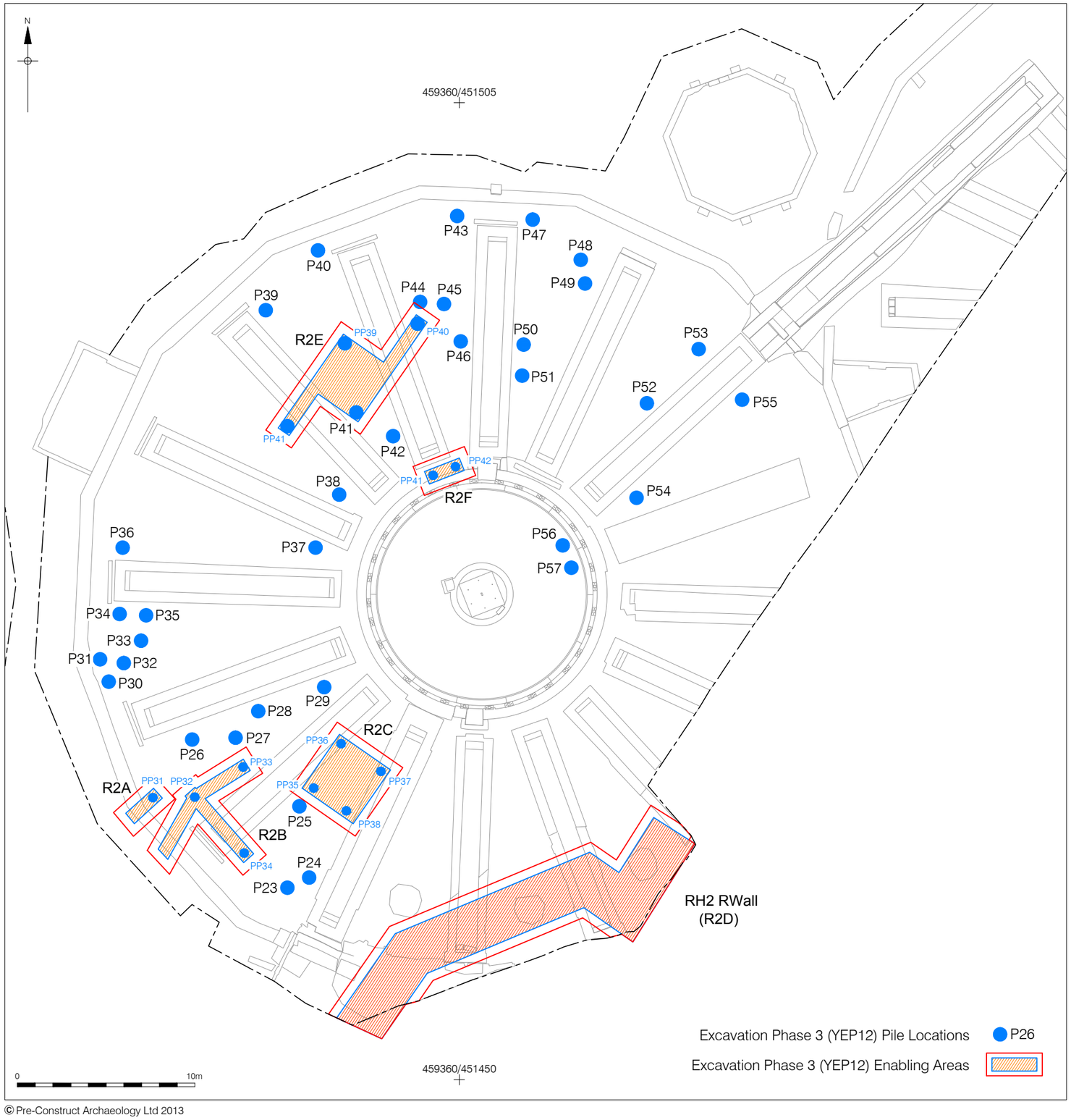
5.6.14 A group of nine concrete pads and four timber posts, [758], flanked inspection pit [521] in the north-eastern quadrant of the roundhouse. The concrete pads varied in size, up to 0.36m by 310mm, each with a central steel bar. The posts comprised two small square timber posts (102mm square) set into the brick surface and two larger timber posts (170mm x 100mm) set within postholes measuring up to 0.75m by 0.60m packed with stone. These may represent the base of a frame superstructure that straddled this inspection pit.

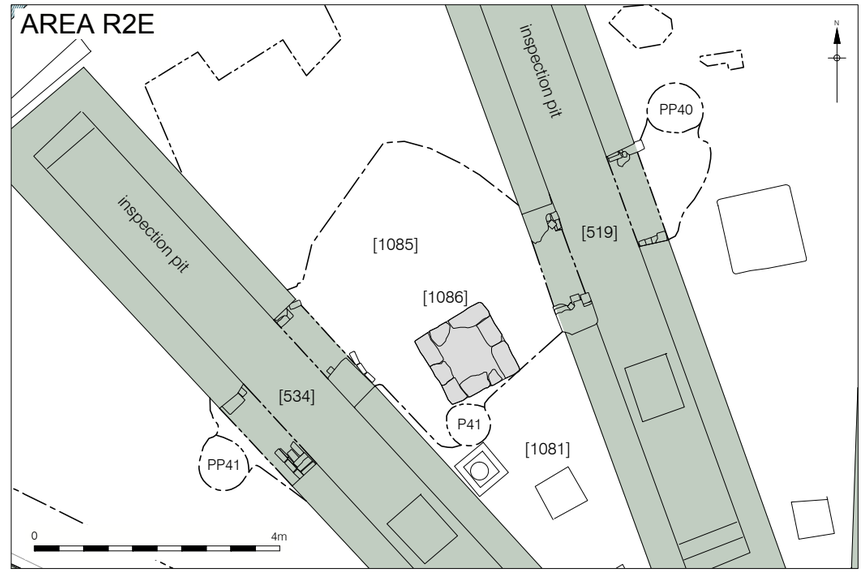
5.6.15 When built, all the inspection pits would have extended to the outer wall of the turntable well. However, at some stage the pits had been shortened by c. 0.70m to accommodate the installation of a pipe running around the circumference of the turntable outer wall (Plate 5.22). The cast iron flanged pipe, [755], was c. 160mm (6¼in) in diameter and had been constructed using alternating short and long sections measuring 0.44m and 2.60m, respectively. The broad construction cut, [535], for the pipe was up to 0.80m wide and exposed to a maximum depth of 0.70m. It was backfilled by compact sandy gravel, [511]. This pipe formed part of a high-pressure water system associated with the roundhouse, with further elements of the pipe, [909], exposed to the south running parallel to the western track wall of inspection pit [529] within enabling area R2C (Figure 7). On the east side of the turntable, a short length of this pipe was exposed for a distance of c. 1m projecting towards to the NNE and this presumably connected to a standpipe, [576] (Figure 6).

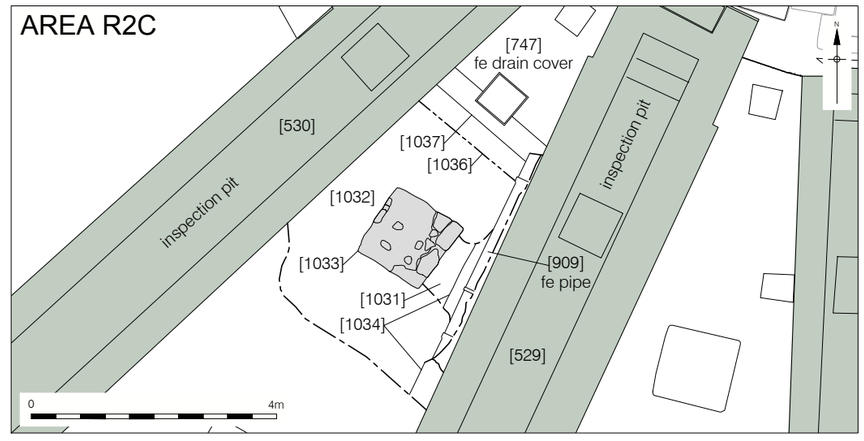
5.6.16 A further six standpipes, [766], were recorded within RH2 (Figure 5). All were similarly constructed within a square standpipe well measuring up to 0.60m square. The lower portion of each standpipe well was brick-built (230mm x 110mm x 80mm) with the upper portion formed by c. 30mm thick timbers, infilled by a compact crushed coal deposit. For the majority of these structures the cast iron bayonet connector remained in situ with one of these retained for specialist examination (SF111). A similar form of bayonet connector was also recorded within the 1841 Engine Shed and, as discussed above, the high-pressure water system may have been installed contemporaneously within both buildings sometime time during the late 19th or early 20th century.

5.6.17 A later inspection pit, [743], was recorded external to RH2 extending north-eastwards from inspection pit [522]. This measured c. 20m long by c. 2m wide and up to 0.56m deep, with the top of the walls recorded at a maximum height of c. 12.49m OD. The exact date of construction for this pit is unclear but it is first depicted on the 1937 Ordnance

Figure 7 Roundhouse 2 Enabling Area







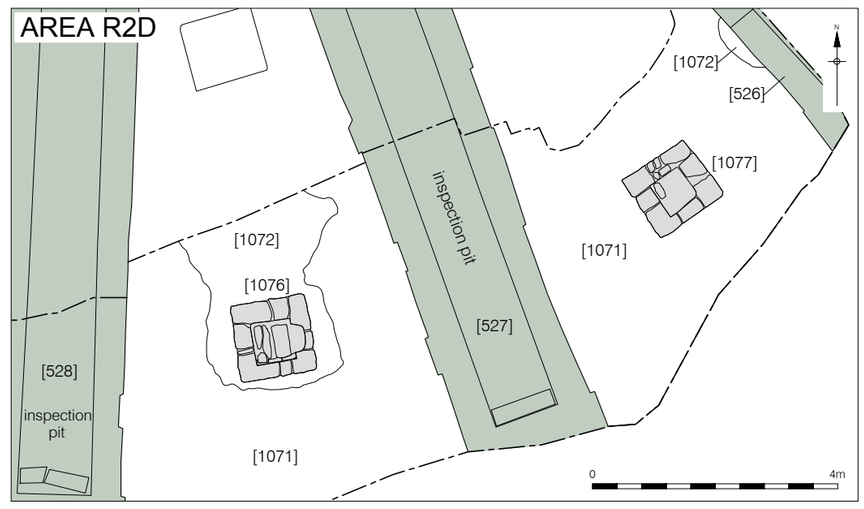


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Figure 7
Enabling Areas within RH2
Plan - 1:250, Details - 1:100 at A3

Survey map and therefore pre-dates this and it is likely that it post-dates demolition of RH1 in the early 1920s. Concrete structures, [570] and [696], which comprised various elements including short lengths of track walls measuring c. 2.68m NE-SW and associated concrete surfaces and external walls, truncated the external wall, [538], of RH2. The concrete track wall element joined external inspection pit [743] to internal inspection pit [522]. A series of rectangular and square sockets were situated across the upper surface of the track walls and probably represent fixing points to house rail chairs.

5.6.18 Inspection pit [743] comprised two parallel track walls, c. 1.10m apart, with concrete access steps at each end and a concrete floor surface incorporating a drain. The floor of the inspection pit was formed by a slightly convex concrete surface with a centrally located drain measuring 1.10m x 0.62m. Each wall was built in concrete with the internal elevations of the inspection pit comprising a single skin of brick (230mm x 110mm x 80mm) five courses high, bonded by cementitious mortar.

5.6.19 Each track wall supported three substantial timber waybeams, [767], connected end-to-end with half-lapped scarf joints. Each timber waybeam was 0.40m wide and 0.19m high, with the longest c. 7.40m in length. The waybeams were fixed to the concrete track walls by a series of substantial iron bolts. No further iron fixtures were identified across the waybeam and it is unclear if the track was fixed directly to the waybeam or secured by rail chairs, although the latter is considered the most likely.

Floor surfaces and internal features of RH2

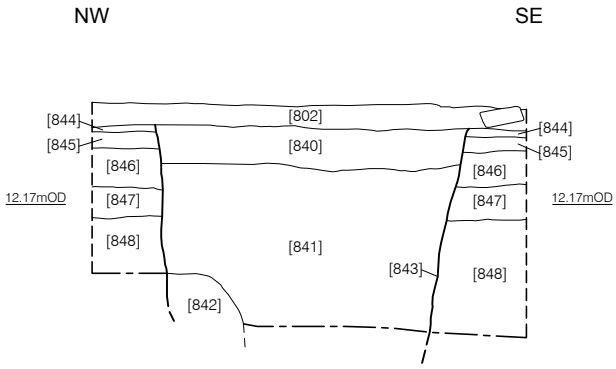
5.6.20 Once the main structural elements of RH2, including the external wall, inspection pits, column bases and turntable well, had been built, it is likely that the footprint of the structure was infilled. The earliest deposits associated with this were exposed within sample excavations in the north-western quadrant of the roundhouse and comprised levelling deposits with varying compositions of clay, sand and silt, [850], [849] and [848], and a clinker deposit, [847] (Section 2, Figure 8). These deposits had a maximum combined thickness of 1.20m.

5.6.21 The uppermost infill deposit was directly overlain by a compact sand and cobble consolidation deposit, [846], c. 0.20m thick, in turn overlain by a clinker levelling deposit, [845], c. 80mm thick. The latest deposit exposed was a c. 70mm thick lime mortar, [844], forming the bedding for the engine shed scoria brick surface, [733]. This sequence was encountered across the whole of the engine shed and was recorded within the majority of the enabling areas and pile locations across RH2, as discussed below.

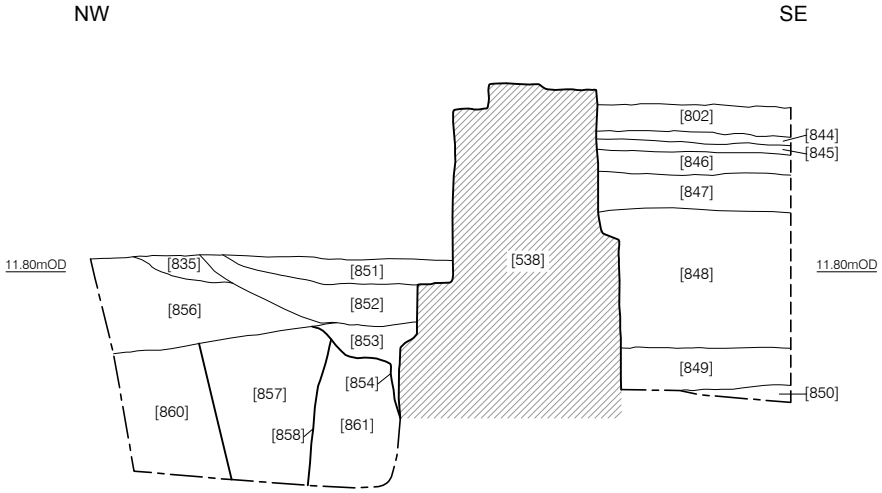
5.6.22 The floor surface, [733], of each wedge-shaped area between the inspection pits was constructed with bluish grey scoria bricks (225mm x 120mm x 120mm) bonded by lime mortar, laid in rows of stretchers orientated generally perpendicular to one of the adjacent inspection pits (Plate 5.23). These surfaces were generally level and were recorded at a height of c. 12.66m OD. In the north-western quadrant of the roundhouse, substantial areas of floor were missing, the result of bricks being removed for re-use elsewhere.

5.6.23 Recorded within each of the wedge-shaped floor areas were two raised areas, c. 3m apart, each measuring c. 1.20m square. All represent the positions of column bases, [896], for two concentric rings of roof supports, situated towards the outer wall. Within enabling areas R2C, R2D and R2E the column bases were exposed, [1033], [1086], [1076] and [1077] (Figure 7). They measured 1.20m square and were at least 0.74m high and each was built of roughly hewn stone blocks (up to 580mm x 280mm x 250mm) with a stone rubble core bonded by lime mortar.

Figure 8 Roundhouse, representative parts of southwest facing section



Section 1
Southwest facing showing cut for drainage feature [843]



Section 2
Southwest facing showing Roundhouse 2 external wall

Figure 8
RH2, representative parts of southwest facing section
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5.6.24 Between each inspection pit and adjacent to the turntable wall was a ring of 13 square stone pads, [746], for roof supports (Plate 23). Each measured 0.59m square and ten still had an iron base plated attached, fixed by four bolts in each corner and a central bolt (Plate 24). A portion of the column base upon which the stone pad sat was exposed to at least 1.20m high within the eastern extent of the sample excavation located between inspection pits [533] and [534]. This was built using stone blocks (400mm x 300mm), bonded by lime mortar, with the lower exposed portion of the column base adjoining inspection pit [523].

5.6.25 Three square cast iron manhole covers, [747], which formed access points to the drainage system, were recorded between inspection pits in the western half of the roundhouse, external to the internal ring of roof supports (Plates 5.23 & 5.25). These measured 0.57m square. Within enabling area R2C, a brick element, [1037], for the manhole was exposed for a maximum distance of c. 2m NW-SE by 0.50m NE-SW and was at least c. 1m high (Figure 7). This was built within a broad construction cut, [1036], and backfilled by clayey silt deposit, [1269].

5.6.26 Three square drainage structures, [544], [631] and [632], abutted the external elevation of the roundhouse wall. Each was built with red brick (225mm x 120mm x 80mm), measured up to 0.85m by 0.54m and up to 0.61m high and contained a ceramic pipe that presumably connected to a corresponding inspection pit.

5.6.27 In the north-western quadrant of the roundhouse, a substantial NE-SW aligned linear feature, [843], was recorded within a sample excavation adjacent to the turntable. This was exposed for a maximum distance of c. 1m by up to 1.65m wide and was at least 1.05m deep (Section 1, Figure 8). At the base of the feature was the upper portion of a substantial concrete structure, [842], this at least 0.40m wide and 0.27m thick. This is likely to represent part of a drainage structure that probably joined drain [890], located within inspection pits [533] and [534]. This feature was backfilled by two deposits; a c. 0.85m thick sandy clay deposit, [841], and a c. 0.23m thick clinker deposit, [840]. This feature truncated mortar bedding deposit [844] for the roundhouse floor, indicating that it was not an original element and was probably installed sometime in the 20th century.

5.6.28 Two rectangular structures, [549] and [612], measuring up to c. 2m by 0.87m abutted the internal elevation of the external wall, each within one of the wall angles. Both were built with roughly hewn stone blocks (380mm x 300mm) bonded with lime mortar. Both structures are depicted on a 19th-century ground plan of RH2 (NA ref. RAIL 527.2369) and represent chimneys probably associated with smithing areas. Due to the location of pile P31 it was necessary to remove chimney [612]. This exposed the full extent of the structure; in total it was 1.80m high with a stepped foundation which, at its base, projected out from the external wall by c. 1m.

External features of RH2

5.6.29 Four levelling deposits situated external to the roundhouse comprised various compositions of clay, silt and sand, [856/775/859], [835], [852] and [851], with a combined maximum thickness of at least 0.40m. The earliest of such deposits directly overlay the backfill, [853], of the construction cut for the external wall of the building (Section 2, Figure 8).

5.6.30 In the southern part of the roundhouse, the brick floor surface and external wall were truncated by a substantial linear construction cut, [995], that was exposed for a distance of at least c. 4m NE-SW by 2.90m wide and was up to 0.40m deep. This feature probably represents part of a 20th-century through-road forming the entrance to the engine shed. The lower three fills, [913], [912] and [911], comprised various compositions of compact crushed stone and pea gravel within a sandy matrix, with a maximum combined thickness of up to 0.30m, these representing track bed consolidation deposits.

5.6.31 The uppermost of the consolidation deposits was overlain by a c. 0.12m thick crushed coal deposit, [910], which formed the ballast. Within the ballast was a timber sleeper, [995]

(610mm x 70mm x 60mm) which represents the only surviving element of the track. Only the western extent of this survived, this in a poor state of preservation, with the eastern portion only surviving as a timber impression. The portion of pipe, [909], associated with the high-pressure water system that was exposed within this area was housed within a construction cut, [908]. This truncated the uppermost track bed consolidation deposit, [911], and extended along its western edge. The upper ballast deposit of the track bed, [910], directly overlay the upper backfill deposit, [916], of the pipe trench, indicating contemporaneity.

5.6.32 To the south of the roundhouse, a substantial modern feature, [918], truncated the eastern edge of the track bed, [995], the external wall, [538], and a portion of the brick floor surface, [733]. This was exposed for a maximum extent of c. 10m east-west by c. 5m north-south and a maximum depth of 0.90m. The function of this feature is unclear, but it may be associated with the relatively recent installation of railway junction boxes located immediately to the south.

Ancillary office building in RH2

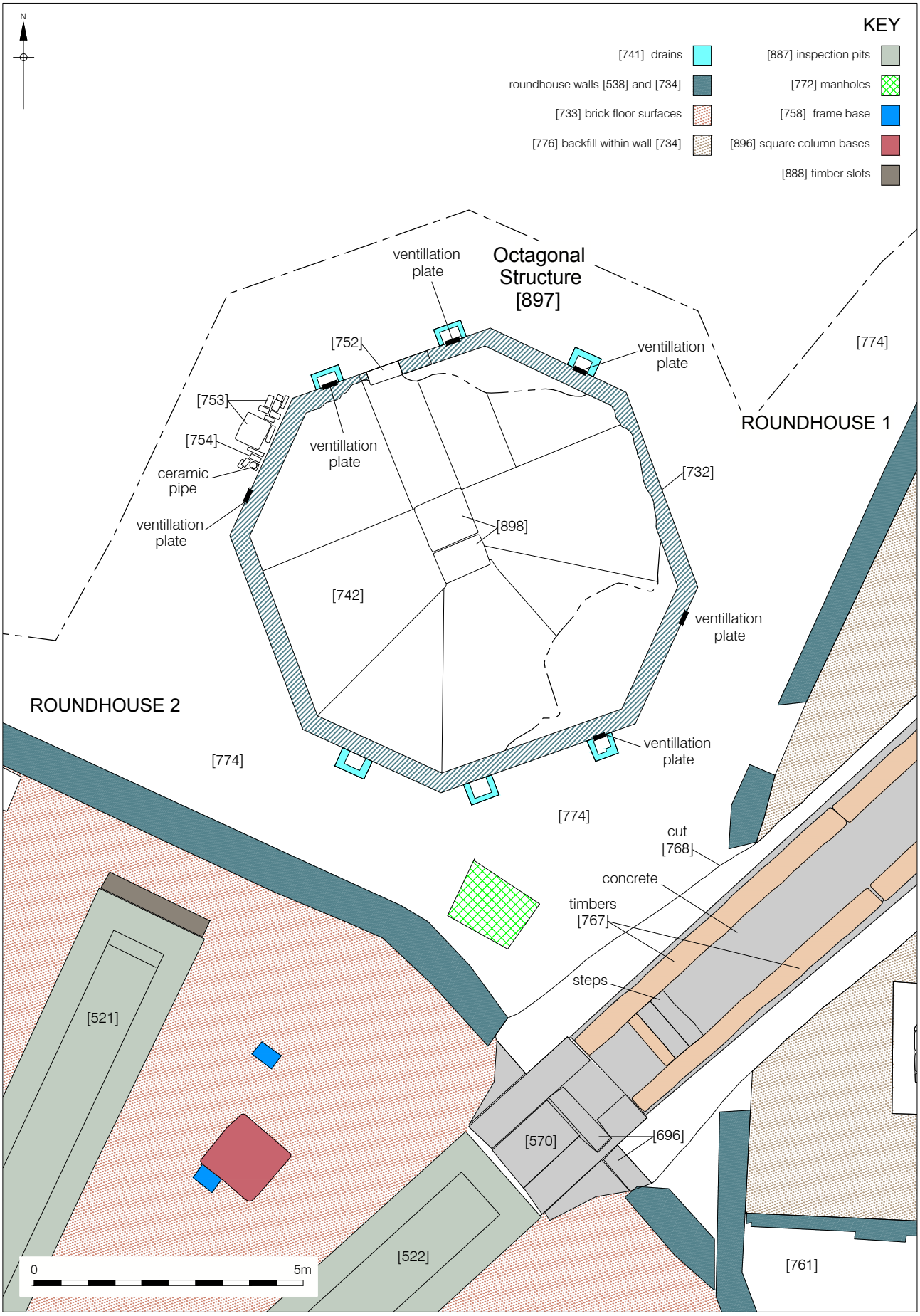
5.6.33 A rectangular structure, [633], which measured c. 3.60m NW-SE by 6.57m NE-SW abutted the north-western external elevation of RH2, recorded at a maximum height of 12.76m OD (Figure 5). The walls of this structure were constructed with red bricks (240mm x 110mm x 80mm) and survived to at least eight courses (0.75m) high. Internal to this were two roughly square brick buttresses, [775], measuring up to 0.53m by 0.42, which abutted the external wall of RH2. This structure is depicted on 19th-century plans as 'Proposed office for loco foreman workers' with the entrance and two windows to the north-west and a single window each to the north-east and south-west (NA ref. s RAIL 527.2368g and 527.2369i). The brick buttresses, [775,] are in roughly the same location as the entrance leading into the roundhouse and probably represent an element of the entrance.

Octagonal office structure (Figure 9)

5.6.34 An octagonal structure, [732], which measured c. 7.90m NE-SW by c. 7.90m NW-SE was recorded north of the interface between RH1 and RH2 (Plate 5.26). This structure comprised an octagonal external brick wall, concrete floor surface and drainage features. This structure is depicted on several 19th-century plans and, although it is never annotated, it is likely to have been used as a shed office for both RH1 and RH2.

5.6.35 The octagonal structure comprised four segments of wall that measured 3.80m externally and 3.50m internally and four segments that measured 2.80m and 2.50m respectively. The external wall survived to a maximum of seven courses of stretchers (c. 0.59m) and comprised two parallel rows of red bricks (240mm x 110mm x 80mm) bonded with lime mortar and a rubble and mortar core. The floor surface, [742], comprised poured concrete, recorded at a maximum height of 12.82m OD with two substantial stone flags, [898], (800mm x 900mm) centrally located. Incorporated within the NNW wall elevation was a substantial stone threshold, overlain by a smaller concrete threshold, [752], and this was probably the location of the entrance into the building.

Figure 9 Detail of Octagonal Building



05/07/13 MR

Figure 9
Detail of Octagonal Building [897]
1:100 at A4

5.6.36 Six roughly square brick drainage structures, [741], were recorded external to the perimeter wall on the southern and northern sides. These measured c. 0.51m by 0.38m and up to 0.34m high. Each was built with predominantly red brick (220mm x 110mm x 80mm) with the exception of one, this built with fire brick (230mm x 120mm x 80mm). Associated with each structure was a rectangular cast iron ventilation grille set into the external wall elevation.

5.6.37 Located to the north-east of the octagonal structure were the remnants of a possible external yard surface, [753], measuring 1.10m by 0.60m, built with red brick (210mm x 120mm x 80mm) and a single dressed stone block (460mm x 540mm x 200mm).

RH2 enabling areas (R2A-R2F) and pile locations (P23-P55 & PP31-PP42) (Figure 7)

5.6.38 Excavation was necessary within five areas of RH2; these enabling works were associated with pilecaps and lift pits to the west and a retaining wall to the south (Figure 7). Within these areas, excavation was undertaken either by hand or by mechanical excavator, as necessary, to expose and record any structural remains and archaeological deposits associated with the roundhouse. The dimensions of each enabling area is summarised within Table 4.1 (Section 4).

5.6.39 In enabling area R2A, a roughly square brick drainage structure, [1019], abutted the internal elevation of the external wall. This measured 0.87m NW-SE by 0.62m NE-SW and as exposed was up to 0.46m high. It was built with brick (up to 140mm x 120mm x 90mm) and brick fragments, bonded by lime mortar, with a concrete slab base. Its narrow construction cut, [1020], was backfilled by sandy silt, [1018]. A NW-SE aligned drainage element, [1016], comprising a c. 200mm (8in) diameter ceramic pipe adjoined the north-western portion of structure [1019] continuing north-west beyond the limit of investigation. Its construction cut, [1017], truncated drainage structure [1019] indicating that this element was a later addition and was exposed for a maximum distance of 0.70m NW-SE by 0.38m wide and was at least 0.28m deep.

5.6.40 As discussed above, four square column bases, characterised by roughly square raised areas in the brick surface [896], were exposed within three enabling areas; [1033] in area R2C, [1086] in area R2E and [1076] and [1077] in area R2D. The column bases measured c. 1.20m square and were exposed to a maximum height of 0.74m, this in R2E. In each case no construction cut was encountered (Plate 5.27).

5.6.41 In enabling area R2C, further structures were encountered, including the southern portion of the brick-built element of manhole [1307] and the NNE-SSW aligned portion of an iron pipe which formed part of the high-pressure water system, as described above. The brick element of the manhole was exposed for a maximum distance of up to c. 2m NW-SE by at least 0.50m NE-SW and was exposed to at least c. 1m high. This was built within a broad construction cut, [1036], and backfilled by a clayey silt deposit, [1269]. The iron pipe, [909], was exposed for a maximum distance of 3.60m NNE-SSW, running parallel to the western track wall of inspection pit [529]. Its narrow construction cut, [1034], was backfilled by sandy clay, capped by a c. 20mm thick layer of concrete, [1089]. It is likely that the high-pressure water system and the manhole are contemporary with the brickwork of the manhole incorporating the iron pipe.

5.6.42 Within all enabling areas, including pile locations, a similar sequence of levelling and consolidation deposits was recorded throughout RH2. The earliest deposits comprised various compositions of sand, silt and clay, [1027], [1046], [1032] and [1085], with a combined maximum recorded thickness of 0.85m (Pile P31) and a maximum recorded height of c. 12.39m OD. These deposits represent levelling deposits associated with the infilling of the footprint of the roundhouse structure, probably undertaken when the main structural elements had been built, as previously discussed.

5.6.43 The levelling deposits were directly overlain by a compact sandy, cobble deposit, [1024], [1031], [1045], [1071] and [1084], varying in thickness from a maximum of c. 0.50m in enabling area R2B to a minimum of 0.22m in enabling area R2A and recorded at maximum

and minimum heights of 12.44m OD and 12.28m OD, respectively. All of these deposits encountered within the enabling areas and pile locations were similar in composition and were probably laid down as a single event representing consolidation extending across the entire footprint of the engine shed. Further consolidation deposits were recorded within enabling areas R2A, R2B, R2C and R2E, comprising various compositions of compact coal, sand and gravel, [1021], [1022], [1023], [1029], [1030], [1056], [1057], [1058], [1082] and [1083], with a maximum combined thickness of c. 0.30m.

5.6.44 The latest deposits in this sequence are associated with the surface of the roundhouse. This comprised c. 20mm thick lime mortar deposit, [1014], [1047], [1069], [1270], [1271], forming the bedding for the scoria brick paving, [733].

5.7 Roundhouse 3 (Figures 10, 11 & 12)

5.7.1 Built 1863-64, RH3 was erected to the west of RH2, immediately adjacent to the earlier building (see Figure 3). The floor plan comprised an 18-sided polygonal structure measuring c. 52.50m in diameter with 18 stalls, each with an inspection pit, radiating outwards from the central turntable well, which was c. 13.90m in diameter (Plate 5.28). Approximately 69% of this roundhouse was exposed within the limits of the investigation area.

5.7.2 Parts of 12 sides of the perimeter wall, [708], of RH3 were exposed within the limit of investigation, with each segment measuring 4.50m externally and 4.30m internally (Figure 10). A narrow construction cut, [879], was recorded on the external side of the wall foundation, indicating a similar method of construction to that of RH2.

5.7.3 The external wall had a c. 0.23m thick concrete slab foundation, [863], that was exposed for a distance of at least 1m north-south by 0.62m east-west upon which the brickwork had been laid, using red bricks (230mm x 110mm x 80mm) bonded with lime mortar (Plate 5.29). A sample excavation across the wall revealed that the wall survived to nine courses high (c. 0.90m), recorded at a maximum height of 12.97m OD. The upper portion of the wall was up to c. 0.75m wide and the internal elevation had been constructed with a stepped footing, with the lower three courses up to c. 0.85m wide (Section 5, Figure 12).

5.7.4 Located at each wall angle, and incorporated into the external elevation, were two brick buttresses, [808], each c. 0.58m high exposed to six courses of brick (240mm x 120mm x 80mm), bonded by lime mortar, and measuring c. 1m by 0.20m. The majority of these buttresses had been later reinforced with further courses of brickwork, [862], comprising a c. 0.50m high single column of bricks (210mm x 110mm x 80mm), also bonded by lime mortar (Plate 5.30). The reinforced areas abutted the interface between the external wall elevation [708] and the original buttresses [808], and in some cases where the reinforcement brickwork did not survive these were only evident as a lime mortar outline.

Figure 10 Detail of Roundhouse 3

KEY

- [891] inspection pits
- [728] inspection pit backfill
- [708] roundhouse wall
- [808] buttresses
- [777] floor surfaces
- standpipes
- walls
- timber
- [809] column bases
- [805] manholes
- misc. features
- areas of truncation

N

459310/451520

[865] pipe
S5
[868] pipe
[879]
[863]
[713]
[800] (Fe)
[790]
[832]
S8
[707]
[801]
[835]
[839]
S6
[709]
[800] (Fe)
[894]
[717]
[702]
[791]
[792]
[636]
[800] (Fe)
[720]
[712]
[782]
[722]
[793]
[689]
[778]
Turnatble well
[804]
[724]
[730]
[729]
[781]
[779]
[789]
[800] (Fe)
[726]
[635]
[780]
[731]
[688]
[682]
[783]
[801]
[641]
[643]
[680]
[681] timber surface
[794]
[800] (Fe)
[671]
[673]
[795] timber rails
[643]
[648]
[637]
[675]
[1313]
[1309]
[653]
[661]
[800] (Fe)
[1301]
[1324]
[648]
[799]
[801]
[800] (Fe)
[1319]
[1317]
[674]
[1322]
[1315]
[1317]
[800] (Fe)
[798]
[800] (Fe)
[796]
[797]
Structure [1348]
Structure [1349]
[654] Sand drying furnace
[824]
[824]
[806]
[823]
[800] (ceramic)
[655]

[1238] inspection pit

459310/451445

0 10m

05/07/13 MR

Figure 10
Detail of RH3
1:250 at A3

5.7.5 Within the sample excavation located in the northern extent of RH3 were two intercutting parallel east-west aligned drainage features, [708], running external to the roundhouse wall. The earliest of these was a c. 0.23m (9in) diameter ceramic drainpipe, [868], housed within a narrow construction cut, [689], backfilled by ashy, sandy clay, [867] (Section 5, Figure 12). The northern edge of the construction cut was truncated by a 0.60m wide by at least 0.60m deep construction cut, [866], for a c. 0.18m (7in) diameter ceramic pipe, [865]. These probably represent drainage features depicted on the 19th-century construction and design plans for the building.

5.7.6 A group of eight cast iron drainage pipes, [800], each c. 0.12m (5in) in diameter, were recorded inside the roundhouse, located in the angles of adjacent lengths of perimeter wall. A single example was situated external to the building in the north-eastern quadrant, along with a ceramic drainage pipe, [800], 0.13m in diameter, which was located adjacent to the southern wall.

5.7.7 Three brick structures, [674], [688] and [707], measuring up to c. 2.20m by 1.50m abutted the internal elevation of the roundhouse external wall (Plate 5.31). Each was similarly constructed comprising two lengths of wall up to 1.40m long by c. 0.45m wide, set c. 1.30m apart and built with red bricks (230mm x 110mm x 65mm) bonded with lime mortar. These structures are depicted on a design plan of the building (NA ref. RAIL 527.2369) as chimneys and were thus probably associated with smithing or hot work areas. The plan shows a total of five such structures.

5.7.8 Further excavation of chimney [674] was necessary as it was located within enabling area R3C (Plate 5.32). This exposed an earlier structural element comprising a similar arrangement of brick walls, [1079] and [1080], (240mm x 115mm x 80mm) bonded by lime mortar. These measured up to c. 1.30m in length by c. 0.45m wide and were exposed to a maximum height of c. 0.65m. The stepped foundation for wall [1080] was partially exposed within a pile location (PP09) and this projected outwards c. 50mm. This element of the structure probably represents the earliest build of the chimney and is therefore of probable 19th-century date. The 19th-century wall element of this structure was overlain by levelling deposits, [1093] and [1092], associated with the initial backfilling of the engine shed structure, which had a maximum combined recorded thickness of 0.20m.

5.7.9 Later, probably 20th-century, structural elements of the chimneys were associated with extension in the height and length of the walls and an associated floor surface. The wall extensions were represented by the uppermost courses of brickwork, [1272] and [1273], and a c. 0.12m extension in length. The brickwork (red bricks, 230mm x 110mm x 65mm) forming this element of the structure was bonded by cementitious mortar. A consolidation deposit for the floor surface comprised a c. 0.10m thick concrete slab directly overlain by a 40mm thick layer of sand bedding for the brick surface, [1274]. The floor was constructed with yellow fire bricks (230mm x 110mm x 65mm) laid on edge in 18 rows parallel to the walls. No bonding material was used. This was the only surface, associated with the chimneys, that survived.

5.7.10 Immediately below the brick surface was a 30mm diameter iron pipe, [1275], which truncated the earlier wall elements and probably represents a gas supply, suggesting that the earlier coal-fuelled smithing areas were converted to gas. The pipework entered the structure from the west extending parallel to the external wall and turned at a right angle to extend along the external elevation of the original eastern wall element, [1080], of structure [674], where it was attached to an iron bracket, [1275]. The pipe then turned again at a right angle to enter the structure and projected through the floor surface, where it presumably attached to a furnace.

Turntable well of RH3

5.7.11 The central turntable well, [804], of RH3 comprised an outer wall, [635], perimeter rail, [778], locking mechanism, [779], and central pivot [780] (Plates 5.33 and 5.34). The well was c. 15.0m in diameter from the exterior of its outer wall, with an internal diameter of 13.90m measured from the edges of the locking plates. The outer wall, [635], was c.

1.05m high by c. 0.60m wide, and recorded at a maximum height c. 12.88m OD. The lowermost portion comprised seven courses of red brick (240mm x 110mm x 80mm) in alternating bonds of headers and stretchers bonded with lime mortar. The upper capping course comprised large dressed stone blocks (1000mm x 600mm x 280mm). The upper surface of each block had various arrangements of sockets, presumably to house rail chairs.

5.7.12 Two roughly square brick structures, [782] and [783], measuring up to c. 1.10m by 0.90m and up to c. 1m high, had been incorporated into the outer wall of the turntable well (Plates 5.35 & 5.36). These were located on opposing sides of the turntable, in the north-east and south-west quadrants. Both are interpreted as access pits for the turning mechanism. The lower portion of access pit [782] was brick-built (230mm x 110mm x 75mm) in seven courses of stretcher bond bonded by lime mortar with the surface formed by a single stone slab (100mm x 600mm). At some stage, probably during the early 20th century, this access pit has been adapted to incorporate a 150mm (6in) diameter cast iron pipe, [803], with the upper portion of the turntable access projecting over the pipe and almost certainly a contemporary feature. The upper portion of the turntable access, [807], was constructed in brick (230mm x 110mm x 80mm), bonded by cementitious mortar, forming the upper four courses in alternating stretcher and header bonds with the lower course formed by a single c. 70mm thick stone slab. The cast iron pipe was only observed within the recess of access pit [782] and probably represents part of a high-pressure water system similar to that recorded within RH1 and the 1841 Engine Shed.

5.7.13 The lower portion of turntable access pit [783] comprised four courses of brick (240mm x 110mm x 80mm), bonded by lime mortar in stretcher bond, and with the surface constructed with stone flags (up to 400mm x 400mm) also bonded by lime mortar. The upper portion of the turntable access pit, [810], was brick-built (230mm x 110mm x 70mm), bonded by cementitious mortar, with the lowermost six courses in stretcher bond and the uppermost a rowlock course. As with access pit [782], the upper portion of this structure probably dates from the 20th century and may be associated with the installation of the iron pipe for the high-pressure water system that presumably continued around the circumference of the turntable well.

5.7.14 The turntable perimeter rail, [778], comprised eight sections of rail and an associated locking mechanism (Plate 5.34). Each section of rail measured c. 5.0m in length by 0.10m wide. The cast iron locking mechanism, [779], comprised 18 notched cast iron plates each secured by six fixing bolts. The mechanism was flush with the wall of the turntable well and the void between the locking mechanism and rail was infilled with concrete. Both the locking mechanism and the rail were fixed to a row of stone blocks (600mm x 580mm), forming the outermost portion of the floor surface, [789], of the turntable well.

5.7.15 The remainder of the floor surface of the well sloped down gently inwards and was formed by a c. 60mm thick concrete slab, [781]. A circular impression within the concrete surface measuring c. 11.90 in diameter by c. 0.10m wide may represent a rail impression or a drainage feature. Another circular impression measuring c. 4.0m in diameter and 50mm wide is likely to represent a drainage feature. Two roughly square cast iron grille drain covers, [730] and [731], were associated with this feature, each measuring up to 0.38m by 0.28m.

5.7.16 The central pivot was formed by a circular concrete pad, [780], which measured c. 4.60m in diameter and a circular arrangement of eight fixing bolts within this would have secured the turning mechanism.

Inspection pits of RH3

5.7.17 Parts of 18 rectangular inspection pits were situated within RH3 (Plates 5.28 and 5.37). Of these, two were mechanically emptied of their infill, [728]. In total, 11 inspection pits were fully exposed within the area of investigation and a further seven were partially exposed, these continuing to the west beyond the limit of investigation. All inspection pits measured c. 16.10m long by c. 2.20m wide and were up to 0.82m high, their walls

recorded at a maximum height of c. 12.85m OD. All the pits were similarly constructed, formed by two parallel walls c. 1.10m apart with stone access steps at each end and a brick floor surface which incorporated a drain. The lowermost portion of each wall was built using up to five courses of red brick (220mm x 90mm x 80mm) capped by large dressed stone blocks (720mm x 440mm x 219mm) bonded with lime mortar. The majority of the capping stones displayed various arrangements of sockets. A linear impression extending the length of each inspection pit wall corresponded to the position of the rail, suggesting that at some point chairs were not used and the rail was either fixed directly to the capping stones or a less substantial plate was used instead of chairs. The floor of each inspection pit that was exposed was formed by a concave brick surface, with bricks laid in rows of stretchers. Each pit floor incorporated a drain, with perforated cast iron cover. Access at both ends of each inspection pit was provided by a flight of three steps, each step measuring c. 1.08m by up to 0.28m. These were built with stone slabs overlying a course of brick.

5.7.18 The only location where a construction cut for the inspection pits was encountered was within the southernmost sample excavation in the northern part of RH3. Here a narrow construction cut, [835], for the east wall of inspection pit [713] cut alluvial deposit [839] (Figure 10). This was exposed for a maximum distance of 3.20m north-south by 0.26m wide and was backfilled by coarse sand, [834]. This was directly overlain by deposit [838], the earliest of the levelling deposits that backfilled the engine shed upon the completion of its structural elements, described below.

5.7.19 Contemporary design and construction drawings for RH3 (NA ref. RAIL 527.2368 and 527.2369) include an annotated cross-section of an inspection pit and its associated drainage. This shows the inspection pit with track wall dimensions annotated 3ft 7in high (c. 1.10m) and concrete foundations measuring 2ft 8in deep (c. 0.80m) and 9ft 6in wide (c. 2.90m), gradually becoming deeper to incorporate the drain. The drain is shown in detail, with the main drain well measuring 9in (c. 0.23m) deep with a projecting 5in (c. 0.13m) diameter pipe that adjoins a flanged, presumably ceramic, pipe. A good example of the perforated cast iron drain cover depicted in the drawings was exposed within the surface of inspection pit [637]. The drain is depicted on the drawings feeding into a main circular drainage system which, as recorded, incorporated all inspection pit drains and manholes (group no. [805]). This system fed into a more substantial brick culvert, [1240], located below inspection pit [636] and continuing north-eastwards below external inspection pit [1238]. Both external inspection pit and the underlying culvert were exposed during the watching brief phase of fieldwork, as discussed below.

5.7.20 Elements of external inspection pit, [1238], feeding into inspection pit [636] within the north-eastern quadrant of RH3, were partially exposed during a watching brief undertaken during groundworks to cap the underlying brick culvert (Plate 5.38). The external inspection pit is first depicted on the 1892 Ordnance Survey map and was presumably contemporary with the construction of RH3. Design and construction drawings also depict this inspection pit with a substantial culvert running beneath it, the dimensions shown being 60ft (c. 18.30m) in length. The exposed portion of inspection pit [1238] and brick culvert [1240] measured c. 10.0m by 2.50m wide and, in total, the structures were exposed to a maximum depth of c. 2.0m (Plate 5.39). The structures had been built within a narrow construction cut, [1242]. The culvert was exposed to a maximum depth of 0.60m and was recorded at a maximum height of 11.32m OD. It comprised an arched structure built with a single skin of bricks (230mm 110mm x 80mm) laid on edge, bonded by lime mortar, with internal dimensions of 0.60m wide, exposed for a maximum height of 0.50m. The design drawings for this structure depict an arched structure with ovoid section and internal dimensions measuring 2ft wide (c. 0.60m) and 3ft high (c. 0.90m) with the combined height of the culvert and inspection pit 10ft 5in high (c. 3.20m). The material backfilling the culvert comprised small limestone fragments within a lime mortar matrix, [1239], onto which the inspection pit element was built directly.

5.7.21 The external inspection pit was identical in construction to the internal inspection pits of RH3. The lower portion of the track walls were brick-built (230mm x 110mm x 80mm),

bonded by mortar in seven courses of brick c. 0.56m high and capped by large dressed stone blocks (720mm x 440mm x 219mm) bonded with lime mortar. A series of rectangular and square recesses across the exposed portion of the upper surface of the stone capping marked the location of rail chairs. The slightly concave floor surface of the inspection pit was brick built (230mm x 110mm x 80mm), bonded by lime mortar. The inspection pit backfill, [1298], comprised brick rubble within a crushed coal matrix, similar to the material contained within the internal RH3 inspection pits.

5.7.22 Two similarly constructed concrete and timber structures flanked the central portion of inspection pit [673] within the south-eastern quadrant of the roundhouse (Figure 10). The structure located to the north, [680], comprised a substantial timber measuring c. 4.0m long by 0.30m wide, partially set into a concrete slab (c. 3.05m x 0.95m) and a remnant of the granite sett surface, [777]. The structure to the south, [671], comprised a timber of similar dimensions, also partially set within a concrete slab (c. 4.0m x 0.62m) to the north and the same granite sett surface to the south. Both timber elements contained a series of iron bars and fixing bolts that probably represent the fixing points for a frame that straddled the inspection pit. Further structural elements of this structure were exposed during the excavation of enabling area R3F, discussed below.

5.7.23 Sections of timber track were recorded at two locations where locomotives would have accessed external lines. A short length of track, [792], located within the north-eastern quadrant of RH3 was exposed for a maximum distance of 2.0m. This comprised three timber sleepers, each c. 0.20m apart, measuring up to 2.30m long by 0.25m wide. The sleepers were embedded in a compact ash and cinder ballast deposit, [894]. This portion of exposed road carried the track from inspection pit [791] north-eastwards to the external inspection pit, [1238], from where the engines would have accessed the main external lines.

5.7.24 In the southern part of RH3, elements of track, [798], comprising timber sleepers and waybeams were recorded at the southern end of inspection pit [653], with further waybeam elements exposed at its northern extent (Plate 5.40). Four timber sleepers survived, these were embedded in a stone and clinker ballast and were set up to c. 0.30m apart with each timber measuring 2.07m by 0.25m. Another sleeper, which measured 2.60m by 0.25m, was located adjacent to the external elevation of the engine shed wall. The sleepers were overlain by elements of north-south aligned 0.40m wide timber waybeams (set c. 1.20m apart) which were exposed for distances of up to c. 4.0m and 5.0m within the southern and northern ends of the inspection pit. The waybeams were fixed to the sleepers with a combination of iron square-headed bolts and spikes. This portion of exposed through-road carried the track southwards to the external main lines. Two stone pads, [824], flanked track [798] in the southernmost portion of the external wall and these probably housed the frame for the entrance to the engine shed.

Floor surface of RH3

5.7.25 As with RH2, it appeared that once the external walls, turntable and inspection pits of RH3 had been constructed, the remainder of the footprint of the building where ground level had been reduced was infilled. The sequence of relevant deposits was recorded within sample areas excavated within the northern part of RH3. Towards the centre of the structure, deposits with a combined thickness of c. 0.65m, [838], [837], and [836] were recorded directly overlying alluvial deposit [839] (Section 6, Figure 12). Further levelling deposits, [830] and [829], were recorded to the north (Section 8, Figure 12). A levelling deposit, [877], recorded in the northernmost area of excavation (Section 5, Figure 12) had been truncated by a substantial cut, [876], backfill [875]. It was not possible to ascertain its purpose within the limit of investigation, but it was presumably a construction cut for a later addition to the building. The floor surface did not survive in the three sample excavation areas and the uppermost deposits, [827], [828], and [893], were of more recent origin.

5.7.26 Further evidence for levelling and ground consolidation activity was recorded in the enabling areas and pile locations and is described below.

5.7.27 The floor surface, [777], within each wedge-shaped area between the inspection pits of RH3 predominantly comprised rectangular granite setts (up to 630mm x 170mm) laid in rows perpendicular to the corresponding inspection pits. The setts were mostly bonded with lime mortar, although in isolated areas within the northern portion of the roundhouse, bitumen had been used. The floor surface was relatively level, recorded at a height of c. 12.87m OD.

5.7.28 Repairs to the surface comprised areas of brick, concrete and timber boarding. Located within the north-eastern quadrant of the engine shed between inspection pits [636] and [689] was an extensive area of brick surface, [793], which measured c. 9.75m NE-SW by up to 5.0m wide. This comprised rows of unfrogged red brick and brick fragments (225mm x 70mm), bonded by lime mortar. Generally this surface was in poor condition with large portions of the upper surface fractured and weathered.

5.7.29 Located within the south-eastern quadrant of RH3 was an area of concrete floor surface, [675], measuring 5.70m by 1.70m which abutted the external wall. A further area of repair within the south-eastern quadrant, also abutting the external wall, comprised an area of timber boards, [681], measuring c. 4.60m by up to 2.0m. The exposed timbers were laid in two rows and were generally in a very poor state of preservation and in places only evident as an impression with each timber measuring up to 2.80m x 0.31m. It is of note that the most substantial areas of surface repair were situated within the vicinity of inspection pit [673] and the associated frame structures [671] and [680] and it is presumed that whatever activity occurred within this area resulted in the significant wear of the surface, necessitating the observed repair.

5.7.30 Surface repair [799], also in the south-eastern quadrant, measured c. 6.0m by 1.06m and comprised eleven rows of rectangular scoria brick (260mm x 130mm x 120mm), with each scoria brick formed to resemble two cobble setts. This surface was located immediately to the north-west of the smithing or hot works structure, [674], and is probably of a similar 20th-century date. Numerous areas of surface truncation were located across the floor of RH3, ranging in size from c. 2.0 by 2.0m to the south, with more extensive areas of truncation measuring up to c. 15.0m by 10m to the north. It is unclear when this truncation occurred, but it may have resulted from the salvaging of materials prior to, or during, demolition.

5.7.31 Three evenly-spaced concentric circles of column bases, [809], were recorded on the floor surface of RH3. This arrangement of columns is depicted on 19th-century design and construction drawings (NA ref. RAIL 527.2368 and 527.2369) and the footings for these column bases are also shown on a transverse section across the engine shed (NA ref. RAIL 527.2368). This depicts the columns and the stone column bases on a brick pier, these built on concrete footings with each footing becoming more substantial towards the turntable well. A total of 32 column bases were recorded, each measuring up to 1.12m by 0.92m, in various states of preservation. Where survival was good, the base for the cast iron column comprised a square sandstone slab with a centrally located octagonal socket, within which there were four deeper rectangular sockets (50mm x 70mm) (Plate 5.41). A single example retained its associated fixing bolts and the remains of a circular iron plate.

5.7.32 The columns had been removed, probably during the 20th century, and two column bases within the north-eastern quadrant of RH3 had been infilled with brick (230mm x 70mm), while others were entirely or partially infilled with concrete. This infilling of the column bases probably represents the repair of these areas following removal of the roof and its supporting columns, when the engine shed began to be used to store locomotives prior to their decommissioning. Further structural elements of the column bases were exposed below floor level within various enabling areas and are discussed below.

5.7.33 Ten square structures, [805], were exposed across RH3 forming a concentric circle c. 4.50m from the outer wall of the turntable well. Each structure was c. 1.0m square in plan

and varying states of preservation were recorded. The majority of the structures had been backfilled with brick rubble within a sandy silt matrix, with the exception of two located within the south-eastern quadrant which retained their stone slab covers and one which retained its cast iron cover. These represent manholes depicted on contemporary design and construction drawings showing the circular drainage system connecting all manholes and drains within inspection pits (NA ref. RAIL 527.2368 and 527.2369). The structures are annotated 'Bell Trap Cock Pit' and 'Shaft', alternating around the circular drainage system. The pits are depicted as square structures with internal elements comprising a square within a circle and a centrally located circular dot, this probably representing a pipe. This was presumably a standpipe associated with the high-pressure water system, a small portion of the pipework for which was exposed within the turntable well [782], as discussed above. The shafts are depicted on the plans as squares and probably represent access points to the underlying circular drainage system.

5.7.34 Part of a manhole, [831], representing one of the 'Shaft' structures, was partially exposed within the southernmost sample excavation located adjacent to the eastern track wall of inspection pit [835] in the northern part of RH3 (Section 8, Figure 12). This exposed the c. 0.12m thick concrete footing, [832], upon which the brick element, [831], of the manhole was built. The upper portion of the manhole was exposed for a maximum distance of 0.95m north-south by 0.40m east-west. The bricks (230mm x 120mm x 80mm) were bonded by lime mortar, in eight courses of alternating headers and stretchers c. 0.70m high. A narrow construction cut, [883], was recorded, backfilled by clayey sand and crushed coal and cinder, [881] and [882]. This cut truncated levelling deposits, [830] and [829], which infilled the footprint of the roundhouse, as well as the construction cut, [876], for the column base. The concrete footings for all structural elements of the engine shed are depicted on a contemporary drawing (NA ref. RAIL 527.2368). This shows the concentric rings of concrete footings associated with all manholes and column bases. A further concrete footing element, [1148], associated with column base [1134] (Group [809]), was partially exposed within enabling area R3D for a distance of c. 1.0m.

Sand-drying furnace associated with RH3

5.7.35 The northernmost portion of a rectangular structure, [654], and associated surfaces and yard walls were situated external to the southern portion of RH3, with its north wall incorporated into the perimeter wall of the roundhouse. This structure is depicted in various degrees of detail on 19th-century construction and design plans and on one example is annotated 'Sand Drying Furnace' (NA RAIL 527.2368 & 527.2369). It is shown as a rectangular structure with an internal partition wall delimiting a narrow corridor adjacent to the roundhouse wall and a larger room to the south with the rear (south) wall internal elevation incorporating a square chimney.

5.7.36 The portion of the building exposed within the investigation area measured c. 7.80m by 4.0m. The corridor measured 6.80m by 1.20m internally and the wall, [1317], forming the north side of the corridor measured 5.0m by 0.46m wide and was exposed to c. 0.42m high (Plate 5.42). The lowermost two courses of brickwork comprised yellow firebricks (230mm x 50mm), bonded by lime mortar. The uppermost three courses were red bricks (230mm x 110mm x 80mm) bonded by lime mortar. A threshold, [1318], formed the entrance from the furnace corridor to the engine shed and was located between the external engine shed wall, [708], and the furnace wall, [1317]. This comprised a lower sandstone slab (1480mm x 300mm) and an upper sandstone slab (1480mm x 300mm x 200mm) embedded within the granite sett floor, [777], of the roundhouse. A section of iron rail was attached to the upper surface of the lower sandstone slab, possibly forming part of a threshold. The surface of the corridor was built in yellow firebricks (220mm x 65mm) in up to twenty rows laid on edge, bonded by lime mortar. This brick element of the corridor surface was exposed during the excavation/recording Phase 4 for a maximum distance of c. 5.0m by 1.30m. During the excavation/recording Phase 1 only a small portion of the corridor surface at its eastern extent was exposed within a sample excavation and in this location the floor comprised a substantial iron sheet. Only a small portion of this was exposed and its full extent was not established. A stone slab (980mm x

300mm) threshold was located at the west end of the corridor which led to an external brick yard area, [1319].

5.7.37 The south wall of the corridor was formed by the north side of furnace structure [654] and measured c. 8.0m by 0.50m wide and was exposed for a maximum height of five courses of brickwork (c. 0.40m). The corridor was backfilled by a c. 0.40m thick ash and coarse sand deposit, [1306], which may represent waste material derived from the last use of the furnace.

5.7.38 The external elevation of wall [654] was built with yellow firebricks (230mm x 110mm x 70mm) with the remainder, red bricks (230mm x 110mm x 80mm), bonded by lime mortar. Incorporated into the western portion of wall [654] was a 0.64m wide chamber, [1348], exposed for a maximum distance of c. 1.0m and at least 0.37m high. The base of the chamber comprised a substantial iron sheet, [1320], while the entrance was infilled by three stone blocks, [1314], (240mm x 200mm x 220mm), these presumably left in place after the last firing and then backfilled by a ashy coarse sand, [1305].

5.7.39 The east wall of structure [654] was only exposed for a distance of c. 2.0m by 0.80m wide and was at least 0.40m high. Within this location the chamber remained unexcavated with its rubble backfill left in situ. A small portion of a 0.90m wide chamber, [1349], located a short distance to the east of chamber [1348], was only partially expose for a distance of 0.10m, continuing beyond the southern limit of investigation. The chamber was left unexcavated with the firmly cemented burnt chalk infill, [1304], left in situ.

5.7.40 External to the sand-drying furnace were elements of yard areas represented by brick surfaces and walls. To the west of the furnace, the yard area was delimited by a 0.26m wide NW-SE aligned brick wall, [1322]. This was exposed for a distance of c. 4.0m and survived as a single course of stretcher bond, bonded by cementitious mortar. Partially exposed at the south-eastern extent of the wall was a stone slab (0.30mm x 0.29mm), which probably represents a threshold, with an integral square socket (90mm x 90mm) for securing the door case to the structure.

5.7.41 The brick surface, [1319], contained within yard wall [1322] and furnace structure [654], was exposed across an area measuring c. 6.40m by 3.0m and was built in red brick (240mm x 110mm x 70mm) with 72 rows on edge, bonded by fine sand. Elements of the yard wall and brick surface were truncated by a modern feature, [1324].

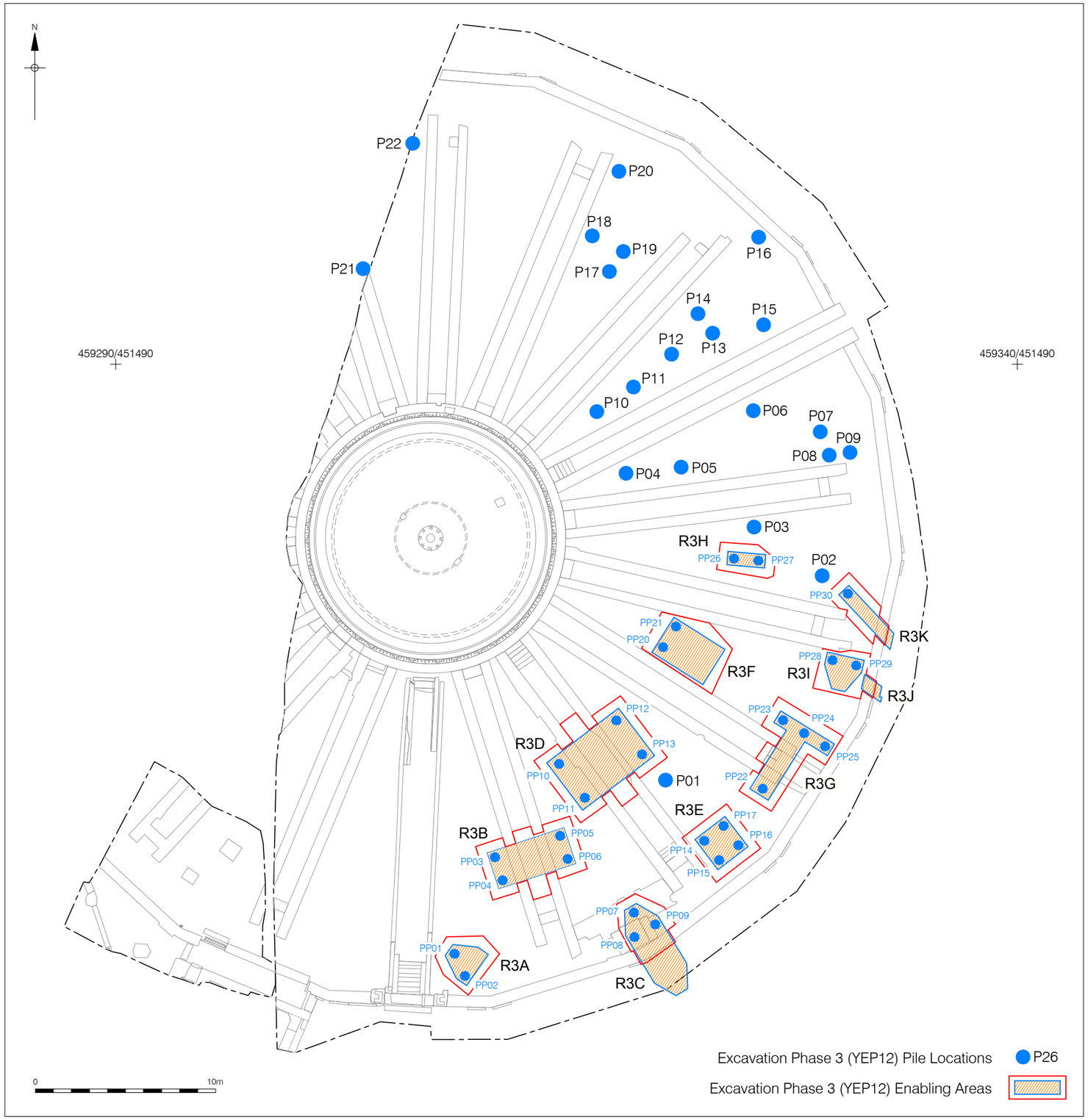
5.7.42 Located to the east of the furnace structure were further elements of the external yard, including a yard wall and remnants of the brick surface (Plate 5.43). The wall, [806], was exposed for a distance of c. 1.0m north-south and was c. 0.90m wide and survived to two courses in stretcher bond, c. 0.16m high, bonded by lime mortar. The brick surface, [655], contained within the wall and furnace structure, was exposed for a distance of c. 2.40m by 1.80m and was similarly constructed to that of surface [1319] to the west. The full extent of the yard walls and associated surfaces are depicted on the 19th-century design and construction drawing (NA ref. RAIL 527.2368) which also shows that a further structure stood to the south.

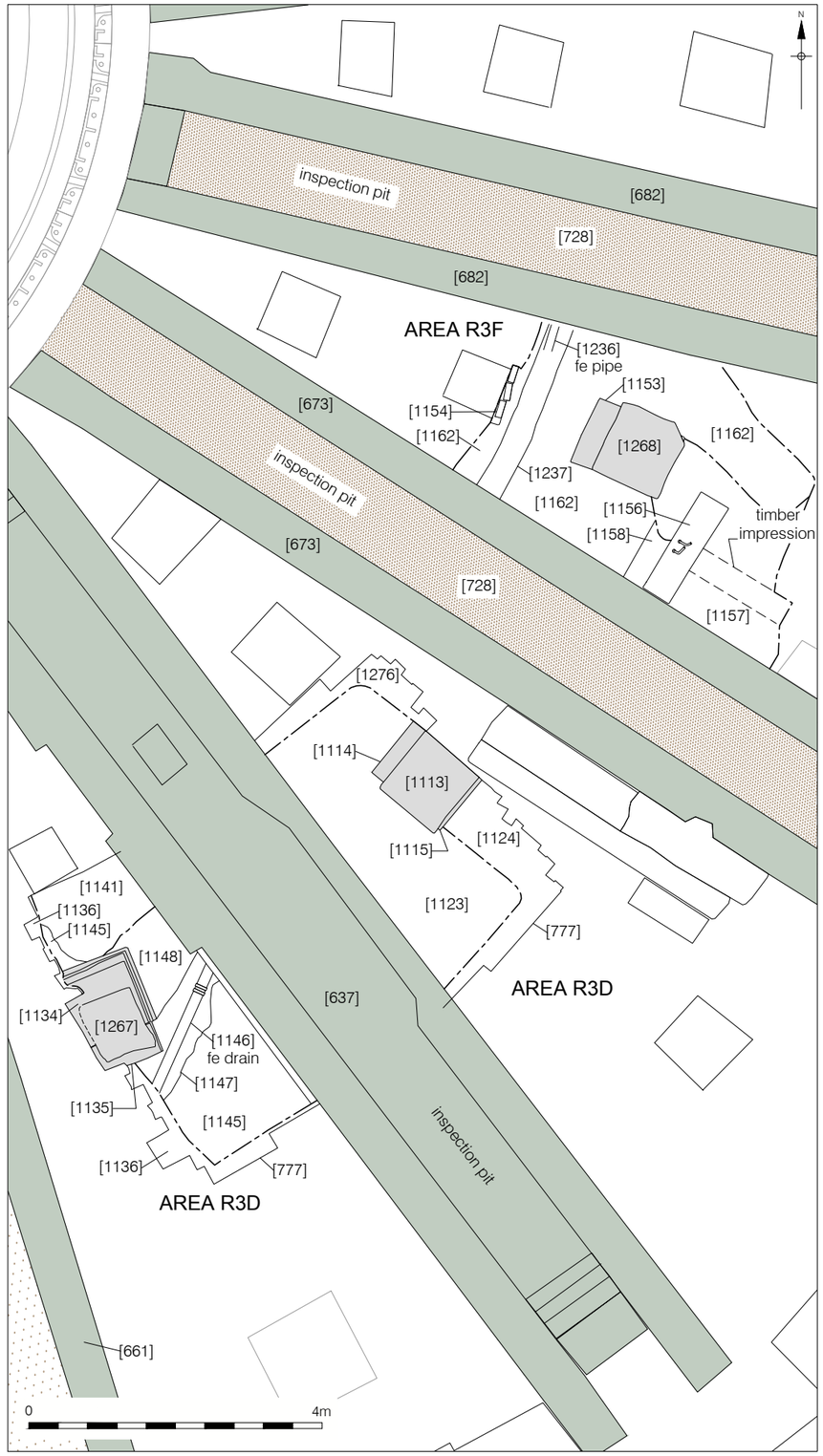
RH3 enabling areas (R3A-R3K) and pile locations (P01-P22 & PP01-PP17, PP20-PP30) (Figure 11)

5.7.43 Excavation was necessary within ten areas in the south-eastern quadrant of RH3, these being enabling areas for pilecaps and manholes (Figure 11). The removal of surface material and subsequent excavation was undertaken either by hand or by mechanical excavator to expose and record any below ground structural remains and archaeological deposits. The dimensions of each enabling area within RH3 is summarised in Table 4.1 (Section 4).

5.7.44 The 19th-century structural elements of a chimney exposed within enabling area R3C are discussed above.

Figure 11 Roundhouse 3 Enabling Detail

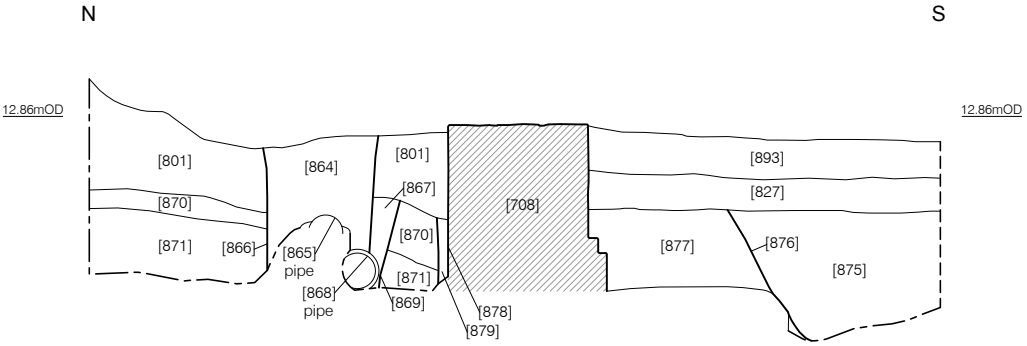




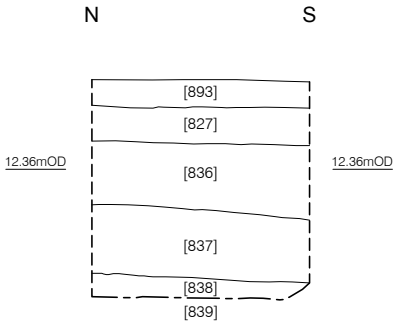
05/07/13 MR

Figure 11
Enabling Areas within RH3
Plan - 1:250, Detail - 1:80 at A3

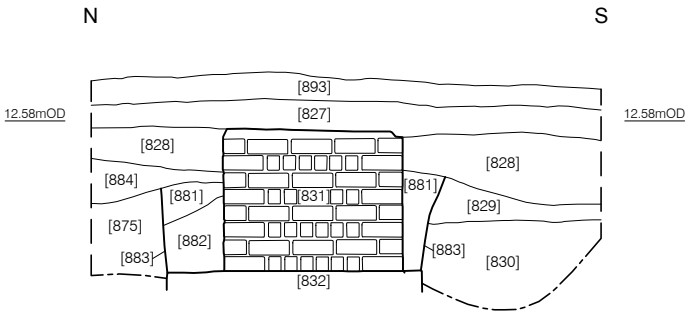
Figure 12 Roundhouse 3, representative parts of west facing section



Section 5
West facing across Roundhouse 3 external wall



Section 6
West facing showing sample of levelling deposits in Roundhouse 3



Section 8
West facing across manhole[831]
Roundhouse 3

Figure 12
RH3, representative parts of west facing section
1:40 at A4

10/05/13 MR

5.7.45 Further structural elements associated with column bases [809] were exposed within enabling areas R3D and R3F (Plate 5.44). All were similarly constructed and comprised a lower brick-built mount with stone column base above. The three sub-surface piers to be exposed comprised a square structure, [1114] and [1134] (Area R3D Figure 11) and [1152] (Area R3F, not visible in plan) each measuring c. 0.80m square and exposed to a maximum height of 0.77m. All were built in red brick (230mm x 110mm x 80mm), up to nine courses in stretcher bond, bonded by lime mortar.

5.7.46 Structures [1114] and [1134] were later extended in height and to the south-east by brickwork, [1115] and [1135], respectively, abutting the original structure. Structure [1152] was enlarged to the north-west and in height by brickwork [1153]. The lower portions of the extensions measured c. 0.80m by 0.30m and were exposed to c. 0.55m high and the upper portions comprised two courses of brickwork c. 0.20m high, this extending across the area of the earlier brick element and measured c. 0.80m by 1.20m. These extensions were similarly constructed in brick (230mm x 110mm x 80mm) as the earlier structures with the brick coursing at similar heights. It is unclear if the extension represents a later arrangement of column locations or if the columns were initially constructed in the wrong location and the extension constructed largely contemporaneously with the original structure to correct the mistake, with the latter interpretation perhaps more likely. The square stone column bases, [1113], [1267] and [1268] (group [809]), respectively, were located tight to the south-easternmost limits of the revised brickwork.

5.7.47 A portion of a NE-SW aligned iron pipe, [1146], c. 0.12m (4¾in) in diameter was exposed for a maximum distance of c. 6.0m within the south-eastern portion of enabling area R3D (Figure 11). Its broad, c. 2.0m wide, construction cut, [1147,] was backfilled with sandy clay [1143]. A further NE-SW aligned element of this pipe, [1236], was recorded within enabling area R3F for a distance of 1.20m. Its c. 1.0m wide construction cut, [1237], was recorded for a distance of 7.80m NE-SW and was backfilled by sand and ash, [1167]. Both portions of pipe probably represent elements of the high-pressure water system that was likely to have been installed sometime in the early 20th century.

5.7.48 Structural elements of the possible frame that straddled inspection pit [637] were further exposed within enabling area R3F (Plate 5.45). This comprised a substantial poured concrete footing within a narrow construction cut, [1235], that was constructed in two stages; a c. 0.25m thick concrete deposit, [1158], overlain by a c. 0.34m thick concrete deposit, [1157]. The upper footing was exposed for a maximum distance of 7.40m by 6.20m. Set within the upper surface of the concrete footing was a substantial rectangular timber, [1156], which measured 1.65m by 0.42m by 0.23m. This timber contained two centrally located iron bars to which the NW-SE aligned timber, forming part of the frame in surface [680], would have been fixed.

5.7.49 Structure [1154], located at the west end of enabling area R3F, represents the external structural elements of the features labelled as 'Bell Trap Cock Pit' on the design and construction drawings for the building (NA ref. RAIL 527.2368 and 527.2369). This feature was exposed in section (Plate 5.46); the footing was constructed in a narrow construction cut, [1155], and comprised at least two courses of brickwork, 0.80m long NE-SW and at least 0.30m high. The upper portion comprised three retaining timbers (700mm x 170mm x 20mm), up to 0.50m high.

5.7.50 Within three enabling areas, R3E, R3G and R3I-J, substantial consolidation deposits, [1133/1192] and [1176], respectively, were located to the rear of inspection pits [673] and [682]. These deposits comprised compact fragments of limestone within a mixed sand and lime mortar matrix. Such deposits were exposed for a maximum distance in R3G of c. 1.0m by 2.37m wide and at least 0.55m thick. These deposits only occurred within the rear of the inspection pits and may have been required to support the weight of the locomotives.

5.7.51 Within all enabling areas and pile locations in RH3 a similar sequence of levelling and consolidation deposits were recorded throughout. The earliest deposits encountered

comprised various compositions sand, silt and clay, [912], [1042], [1043], [1044], [1092], [1093], [1100], [1102], [1103], [1101], [1108], [1109], [1110], [1111], [1121], [1122], [1123], [1130], [1131], [1132], [1133], [1141], [1142], [1145], [1162/1166], [1173], [1174], [1184], [1185], [1190] and [1191], with a maximum recorded combined thickness of 0.65m in enabling area R3B. They were encountered at maximum and minimum heights of c. 12.54m OD and 12.27m OD, respectively. These deposits represent levelling deposits associated with the infilling of the footprint of RH3, undertaken once the main structural elements, including the inspection pits, turntable well, column bases and external walls, were built.

5.7.52 These levelling deposits were directly overlain by a compact deposit comprising varying compositions of limestone and brick rubble within a sand and lime mortar matrix, [1040], [1041], [1107], [1091], [1099], [1129], [1139], [1165], [1172], [1183], [1189] and [1278], varying in thickness from a maximum of 0.20m in enabling areas R3E and R3F to a minimum of 0.05m in enabling area R3G. They were encountered at maximum and minimum heights of 12.71m OD and 12.45m OD, respectively. All these deposits were similar in composition and were probably laid down as a single event representing a consolidation deposit that extended across the footprint of the engine shed.

5.7.53 Further levelling deposits, [1106], [1097], [1098], [1137], [1128], [1129], [1138], [1159], [1160], [1161], [1164], [1170], [1171], [1181] [1182] and [1188], directly overlay the above mentioned consolidation deposits and had a maximum combined thickness of c. 0.35m, recorded in R3G.

5.7.54 The latest deposits in this sequence are associated with the granite sett surface, [777], of RH3. The bedding deposits, [1105], [1062], [1163], [1180], [1187] and [1276], for the surface generally comprised various compositions of ash, silt, gravel, up to 0.20m thick. The exceptions were deposits [1039] and [1172] where the bedding was formed by limestone chippings in a bitumen matrix and deposit [1126], a lime mortar.

Plate 5-1 Overview of 1841 Engine Shed, looking NNE (scale 1m & 2m)

Plate 5-2 Detail of 1841 Engine Shed external wall footings [945], south-west corner, looking south-west (scale 1m)

Plate 5-3 1841 Engine Shed, detail of chimney stack, looking north (scale 1m)

Plate 5-4 1841 Engine Shed, inspection pits [1005] & [1006], also showing granite setts [1353] and scoria brick [1354] surfaces, looking west (scale 2m)

Plate 5-5 1841 Engine Shed, detail of inspection pit [1005] with L-shaped tenon joint in waybeam, looking north (scale 1m)

Plate 5-6 1841 Engine shed, access steps in inspection pit [1006], looking west (scale 1m)

Plate 5-7 1841 Engine Shed (FHT), overview showing concrete inspection pit [1251], looking north-east (scale 2m)

Plate 5-8 1841 Engine Shed, timber block surface [1355], also showing scoria brick surface [1354] and structure [1335] in the background, looking west (scale 2m)

Plate 5-9 1841 Engine Shed, detail of standpipe well [959] showing in situ iron bayonet type connection (SF111), looking west (scale 1m)

Plate 5-10 1841 Engine Shed platform structure [941], looking west (scale 1m)

Plate 5-11 1841 Engine Shed Trench 9 (Evaluation Phase 2), showing timber sleeper track elements [14] of refurbished road [81], looking west (scale 1m)

Plate 5-12 RH1 and RH2 and octagonal building [897], overview (from access platform), looking south-east

Plate 5-13 RH1, structure [735], looking north-west (scales 1m and 0.5m)

Plate 5-14 RH2, overview (from access platform), looking south-east

Plate 5-15 RH2, turntable well, looking south-east (scales 2 x 2m)

Plate 5-16 RH2, central pivot well [537], looking west (scales 1m and 0.5m)

Plate 5-17 RH2, turntable well, looking south-east (scales 2 x 2m)

Plate 5-18 RH2, inspection pit [531], looking ENE towards central turntable (scales 2m and 1m)

Plate 5-19 RH2, inspection pit [529], looking NNE towards central turntable (scales 2m and 1m)

Plate 5-20 RH2, central pivot well [537], looking west (scales 1m and 0.5m)

Plate 5-21 RH2, detail of stone steps in inspection pit [529], looking NNE towards central turntable (scale 1m)

Plate 5-22RH2, service trench with cast iron water pipe, shows original length of inspection pit, looking WNW (scale 0.5m)

Plate 5-23 RH2, scoria brick floor surface detail [733], with stone pad for roof support [746] and manhole [747], looking south-west (scales 2m and 1m)

Plate 5-24 RH2, stone support pad [746], looking east (scale 0.5m)

Plate 5-25 RH2, detail of manhole [747], looking south-west (scale 0.5m)

Plate 5-26 Octagonal structure [897], overview (from access platform), looking ENE (scale 2 x 2m)

Plate 5-27 RH2 Enabling Area R2E, showing detail of sandstone block column [1086], looking south-east (scale 1m)

Plate 5-28 RH3, overview (from access platform), looking south-west

Plate 5-29 RH3, concrete slab footing [863] for external wall [708], looking east (scale 1m)

Plate 5-30RH3, detail of buttress [808], looking south (scale 0.5m)

Plate 5-31 RH3, chimney stack [688], looking west (scales 1m and 0.5m)

Plate 5-32 RH3, detail of chimney stack [674], looking north-west (scale 1m)

Plate 5-33 RH3, turntable well, looking south-east (scales 2 x 2m)

Plate 5-34 RH3, detail of perimeter track [778] and locking mechanism [779] (scale 0.5m)

Plate 5-35 RH3, turntable well access pit [782], looking north-east (scale 1m)

Plate 5-36 RH3, turntable well access pit [783], looking south-west (scale 1m)

Plate 5-37 RH3, inspection pit [637], looking north-west (scales 2m x 1m)

Plate 5-38 RH3, external inspection pit [1238], looking ENE (scales 2 x 2m)

Plate 5-39 RH3, external inspection pit [1238] with culvert [1240] below, looking south-west (scales 2 x 2m, 1 x 1m)

Plate 5-40 RH3, inspection pit [653] show timber track elements [798], looking north (scales 2m and 1m)

Plate 5-41 RH3, detail of stone column base [809] (scale 1m)

Plate 5-42 RH3 sand-drying furnace [654], looking ENE (scale 1m)

Plate 5-43 RH3, brick yard surface [1319] and yard wall [1322], looking north-east (scale 2m)

Plate 5-44RH3 enabling area R3D, column base elements [1134], [1135] and [1267], looking north-east (scale 1m)

Plate 5-45 RH3 enabling area R3F, concrete [1158] and timber [1156] structure, looking north-west (scale 1m)

Plate 5-46RH3 enabling area R3F, 'Bell Trap Cock Pit' [1154], looking north-west (scale 1m)

PART B: DATA ASSESSMENT

6. QUANTIFICATION OF THE ARCHIVE

6.1 Paper Records

The paper element of the Site Archive is as follows:

Item	No.	Sheets
Evaluation Phase 1 (YET		
Context register	1	8
Context/Group sheets	410	410
Environmental sample	1	1
Environmental sample	3	3
Section register	1	1
Section drawings	12	53
Plans	7	49
Evaluation Phase 2 (YES		
Context register	1	2
Context/Group sheets	82	76
Environmental sample	0	0
Environmental sample	0	0
Section register	1	1
Section drawings	4	8
Plans	6	15
Excavation Phase 1 (YET		
Context register	1	23
Context/Group sheets	233	233
Environmental sample	0	0
Environmental sample	0	0
Section register	1	1
Section drawings	17	18
Plans	28	46
Excavation Phase 2 (YEF		
Context register	1	23
Context/Group sheets	124	124
Environmental sample	0	0
Environmental sample	0	0
Section register	1	1
Section drawings	10	18
Plans	4	7
Excavation Phase 3 (YEP		
Context register	1	23
Context/Group sheets	361	361
Environmental sample	0	0
Environmental sample	0	0
Section register	1	1
Section drawings	18	32
Plans	28	53
Excavation Phase 4 (YET		
Context register	1	23
Context/Group sheets	68	68
Environmental sample	0	0
Environmental sample	0	0

Section register	0	0
Section drawings	0	0
Plans	1	2

All Phases Total		
Item	No.	Sheets
Context register	6	102
Context/Group sheets	1278	1272
Environmental sample register	1	1
Environmental sample sheets	3	3
Section register	3	3
Section drawings	61	129
Plans	74	172

Table 6-1 Contents of the paper archive

6.2 Photographic Records

6.2.1 The photographic element of the Site Archive is as follows:

Item	**No.**	**Sheets**
Evaluation Phase 1 (YET 11)		
Monochrome print registers	3	5
Monochrome prints	81	11
Monochrome negatives	81	5
Colour slide registers	3	5
Colour slides	80	5
Digital photograph registers	1	7
Digital photographs	190	n/a
Evaluation Phase 2 (YES 12)		
Monochrome print registers	2	3
Monochrome prints	55	8
Monochrome negatives	55	3
Colour slide registers	2	3

Colour slides	55	3
Digital photograph registers	1	3
Digital photographs	66	n/a
Excavation Phase 1 (YET 12)		
Monochrome print registers	9	14
Monochrome prints	264	37
Monochrome negatives	264	12
Colour slide registers	9	14
Colour slides	282	18
Digital photograph registers	1	17
Digital photographs	502	n/a
Excavation Phase 2 (YEF 12)		
Monochrome print registers	2	4
Monochrome prints	68	9
Monochrome negatives	68	4
Colour slide registers	2	4
Colour slides	66	4
Digital photograph registers	2	7
Digital photographs	150	n/a
Excavation Phase 3 (YEP 12)		
Monochrome print registers	4	7
Monochrome prints	110	15
Monochrome negatives	110	5
Colour slide registers	4	7
Colour slides	115	7
Digital photograph registers	1	11
Digital photographs	227	n/a

Excavation Phase 4 (YET 13)		
Monochrome print registers	1	2

Monochrome prints	30	4
Monochrome negatives	27	1
Colour slide registers	1	1
Colour slides	27	2
Digital photograph registers	1	3
Digital photographs	56	n/a
Digital photographs of masonry (from all phases)		
Digital photograph registers	1	4
YET 12 masonry (on site)	25	n/a
YET 12 masonry retained (on site) records	52	n/a
YET 12 masonry (off site) records	131	n/a
Digital photographs of small finds (from all phases)		
Digital photograph registers	1	4
YET12 SFs (on site)	55	n/a
YET12 SF records	138	n/a

All Phases Total		
Item	**No.**	**Sheets**
Monochrome print registers	21	35
Monochrome prints	608	84
Monochrome negatives	605	30
Colour slide registers	21	34
Colour slides	625	39
Digital photograph registers	11	56
Digital photographs	1592	n/a

Table 6-2 Contents of the photographic archive

6.3 Artefactual Archive

6.3.1 The artefactual element of the Site Archive from all phases of investigations is as follows:

Item	**No.**
Registered small finds	123
Masonry (off site)	64
Pottery	23
Ceramic building material fragments	34
Clay tobacco pipe fragments	3

Table 6-3 Contents of the artefactual archive

6.4 Site Archive

6.4.1 The complete Site Archive, including the paper and photographic records, is currently housed at the PCA Northern Regional Office.

6.4.2 The Site Archive will be deposited with Yorkshire Museum under the relevant site codes for permanent storage; the detailed requirements of the repository will be met prior to deposition.

7. SMALL FINDS

By: Roderick Mackenzie

7.1 Introduction

7.1.1 Various items were recovered during the YET investigations. The majority were recovered from the turntable wells or inspection pits of RH2 and RH3. The majority were metal, mostly iron with a few copper and brass items also recovered, along with a few timber, stone and ceramic objects.

7.1.2 An initial visual assessment of the assemblage has been carried out and this report summarises the results of the assessment, and gives recommendations for any further action required. The main aim of the assessment has been to identify any items of potential archaeological or historical significance.

7.2 Methodology

7.2.1 The overall quantity and type of objects meant that it was not practicable or necessary to record every metal item recovered in detail. However, the entire assemblage was visually assessed and any items of potential further interest or importance were set aside and recorded as small finds. Details of these objects are given in Table 7.1. Photographs were taken of each small find and a selection is included with this report (Plates 7.1-7.22).

7.2.2 The metal objects of less importance were arranged into groups by archaeological context and recorded by digital photography on site. Some of the contexts contained a concentration of metal objects of the same type; where this was the case, the objects were sorted into sub-groups and photographed separately.

7.3 Results

7.3.1 The small finds assemblage can be sub-divided into the following categories:

- architectural/structural elements from the 1841 Engine Shed and roundhouses (35 no.);
- locomotive or workshop fittings (26 no.);
- locomotive or workshop tools (24 no.);
- rail track elements (18 no.);
- rail signage (7 no.);
- signalling component (5 no.);
- general equipment (7 no.);
- railway worker personal equipment (1 no.).

7.3.2 As one might expect from large demolished structures of this type and age, the metal assemblage predominantly consists of structural/architectural fittings and these include parts of roof beams, brackets, trusses and tie bars and fragments of cast iron window frames (SF59: Plate 7.1).

7.3.3 A substantial quantity of ferrous metal tubes of various diameters was recovered. Some were clearly lengths of electrical conduit, with pre-1960s rubber and cloth insulated wiring

Table 7-1 Small Finds Catalogue

Table 7.1: Small Finds Catalogue

SF No.	Context	Site Code	Roundhouse/ Other Location	Material	ID 1	ID 2	Additional Detail	Weight	General Dimensions	Technical Dimensions	Notes
1	640	YET 12	3	Fe	Locomotive tool	Long fire iron	Head is 'arrow-head' shaped; looped end	9.2kg	2.45m long (bent)	c. 25mm (1 inch) diameter iron rod	Fire 'dart'; looped end (internal diameter 90mm) formed by bending the rod around; 'arrow' end measures 11mm wide x 10mm high
2	640	YET 12	3	Fe	Locomotive tool	Long fire iron	Head formed from two (welded?) bars in a 'V' shape head; looped end	6.6kg	2.13m long (bent)	c. 25mm (1 inch) diameter iron rod	A 'pricker' - clinker breaker; looped end (internal measurements 80mm x 60mm) is a solid additional piece joined to the shaft; bars of head measure 170mm long x 50mm wide
3	640	YET 12	3	Fe	Locomotive tool	Short fire iron	Right angled end, looped end	1kg	410mm x 120mm	c. 25mm (1 inch) diameter iron rod	A 'pricker'
4	640	YET 12	3	Fe & Timber	Locomotive tool	Coal hammer head	Socketed headed; pick end & hammer end	2.4kg	345mm x 90mm x 55mm		Section of timber shaft survives in socket
5	640	YET 12	3	Fe	Locomotive fitting	Injector steam control valve wheel		1.2kg	210mm x 130mm x 30mm		
6	640	YET 12	3	Fe	Locomotive fitting	Firebar		8.8kg	750mm x 110mm x 45mm		Replaceable cast-iron bar that formed the base of the firebox and supported the fire
7	502	YET 12	2	Fe & Cu	Signalling component	Telegraph insulator & wall bracket		4.6kg	400mm x 200mm x 140mm		
8	503	YET 12	2	Fe	Roundhouse? fitting	Door handle and bar (in 2 parts)		1=8.4kg ; 2=5kg	1=2.30m long; 2=1.85m long x 140mm (this with fixings attached)	c. 22mm (1 inch) diameter rod	
9	510	YET 12	2	Fe	Locomotive tool	Spike/hook	Spike is twisted into a hook, the other end is flanged for attachment to pole	0.6kg	310mm x 70mm x 50mm		End of a locomotive shunting pole; the hook was used to lift the standard three-link coupling on or off the hook on the next wagon
10	511	YET 12	2	Fe	Locomotive tool	Short fire iron	Straight with pointed end, looped end	3.2kg	870mm long	c. 25mm (1 inch) diameter iron rod	A 'pricker' - TBC; looped end is oval (internal measurements 95mm x 60mm) formed by bending the rod around
11	511	YET 12	2	Fe	Locomotive or workshop tool	File	½ inch round file	0.6kg	180mm x 45mm x 20mm		
12	512	YET 12	2	Fe	Roundhouse fitting	Lampshade		0.8kg	360mm x 250mm x 90mm		
13	512	YET 12	2	Fe	Roundhouse fitting	Lampshade		0.8kg	360mm x 350mm x 50mm		
14	512	YET 12	2	Fe	Locomotive fitting	Firebar		9.2kg	740mm x 110mm x 35mm		Replaceable cast-iron bar that formed the base of the firebox and supported the fire
15	512	YET 12	2	Fe	Locomotive fitting	Firebar		8.4kg	650mm x 110mm x 35mm		Replaceable cast-iron bar that formed the base of the firebox and supported the fire
16	512	YET 12	2	Fe & Ceramic	Signalling component	Telegraph insulation hub		1.2kg	260mm x 120mm x 90mm		
17	512	YET 12	2	Cu	Locomotive or workshop fitting	Boiler washout plug		0.6kg	80mm x 40mm in diameter	9 threads per inch (TPI) (compared to BR/LNER plugs which had 12 TPI)	Probably from a steam crane or pressure vessel rather than a locomotive
18	512	YET 12	2	Fe	Locomotive or workshop fitting	Waterjet nozzle	An element of the internal mechanism	0.6kg	230mm x 33mm in diameter		
19	512	YET 12	2	Fe	Locomotive or workshop tool	Bucket		1kg	380mm x 360mm x 140mm		
20	512	YET 12	2	Fe	Locomotive or workshop tool	Bucket handle		0.2kg	370mm x 220mm x 37mm		
21	512	YET 12	2	Fe & Glass	Roundhouse fitting	Window frame		4.2kg	470mm x 240mm x 95mm		Angled fragment with small triangular pane of glass surviving
22	512	YET 12	2	Fe	Locomotive tool	Firing shovel head		1.6kg	660mm x 250mm x 90mm		British Railways Eastern Region made by 'Lucas'; probably had a short T-shaped wooden handle
23	512	YET 12	2	Fe	Roundhouse fitting?	Structural tie		1kg	230mm x 60mm x 30mm		
24	514	YET 12	2	Fe	Roundhouse fitting?	Handrail stanchion		6.4kg	1.05m x 165mm	Rail is c. 28mm (1 inch) diameter; screw thread on one end part is c. 25mm (1 inch) diameter	Probably railing from roundhouse turntable deck
25	514	YET 12	2	Fe	Locomotive tool	Slag shovel		5.6kg	1.92m long (bent) x 280mm		Long handled, all cast iron, with looped end
26	640	YET 12	3	Fe	Roundhouse fitting?	Handrail stanchion		11.6kg	1.18m x 900mm x 70mm		Probably railing from roundhouse turntable deck
27	515	YET 12	2	Fe	Roundhouse fitting	Lampshade		1.2kg	410mm x 390mm x 40mm		
28	515	YET 12	2	Fe	Roundhouse fitting	Lampshade		1.2kg	430mm x 260mm x 210mm		
29	515	YET 12	2	Fe	Roundhouse fitting?	Handrail stanchion		8.2kg	1.05m x 1.02m	Rail is c. 25mm (1 inch) diameter	Probably railing from roundhouse turntable deck
30	515	YET 12	2	Fe	Rail track element	I-beam rail with fixing bolt holes	Deliberately curved?	23.2kg	1.0m x 130mm x 60mm	Holes are c. 30mm (1 1/4 inch and c. 25mm (1 inch) diameter	
31	518	YET 12	2	Fe	Rail signage	Warning sign		1.4kg	302mm x 302mm x 1mm		Red and white quartered warning sign. 'Warning. Limited clearance': The 'Limited clearance' warning sign was introduced by British Railways in 1952. It comprises a red and white chequered board with the words "Warning - Limited clearance" (the earliest examples had the words written in capital letters). Exhibited at each end of a structure close to the track to provide a warning to any staff walking on the line that there is no position of safety along the length of the structure.
32	512	YET 12	2	Fe	Locomotive or workshop tool	Spanner	3 $^{1/4}$ inch brake rigging spanner - TBC	13.4kg	1.09m long and maximum thickness c. 40mm	Head is 7 1/2 inches wide; jaws are 3 1/4 inch wide	3 $^{1/4}$ inch brake rigging spanner
33	639	YET 12	3	Fe	Rail track element	Rail	Worn rail head	45.6kg	1.36m x 130mm x 63mm		BS85 bullhead rail 85 lb/yd
34	639	YET 12	3	Timber	General equipment	Part of wheelbarrow?	Curved timber	5kg	940mm x 100mm x 130mm		Part of socket survives at one end; rebated along inner length
35	640	YET 12	3	Unidentified	Locomotive or workshop fitting	ID sign		92g	110mm x 105mm x 14mm		Fragment of branding sign 'NER'

Table 7.1: Small Finds Catalogue

36	605	YET 12	2	Fe	Locomotive or workshop fitting	Standpipe connection	High pressure water connection	21kg	310mm x 210mm in diameter		
37	512	YET 12	2	Fe	Rail track element	Rail chair	Complete chair; screw holes in diagonally opposite corners of baseplate (other two appear not to have been drilled), 2 no. chair bolts in place; packing timber (150mm x 70mm) survives in base of rail seating	21.2kg	285mm x 160mm x 167mm	Baseplate measures 11 1/4 inches x 6 1/4 inches x c. 1/12 inches thick; weight is 46.7lbs; 2 no. 6 inch bolts in place with hexagonal nuts securing to baseplate; one bolt has Pb packing surviving around lower part	Probably a common chair (the S1 type weighed 46lb, with a recognisable 'triangular' arrangement of 3 no. fixing holes)
38	512	YET 12	2	Fe	Rail signage	Warning sign		1.2kg	900mm x 154m x 1mm		Text is illegible
39	u/s	YET 12	2	Fe	Railway worker personal equipment	Enamel armband		67g	100mm x 78mm x 2mm		Text (red on white background) reads 'LOOK-OUT'
40	503	YET 12	2	Fe	Locomotive or workshop fitting	Flue tube		2kg	600mm x 160mm x 70mm		
41	503	YET 12	2	Fe	Locomotive or workshop fitting	Pipe	With gasket	9.8kg	930mm x 140mm in diameter		
42	501	YET 12	2	Fe	Roundhouse fitting	Rainwater downpipe		4.4kg	460mm x 200mm x 140mm		
43	502	YET 12	2	Fe	Locomotive fitting	Firehole protector ring		3kg	450mm x 88mm x 10mm		
44	503	YET 12	2	Fe	Locomotive or workshop fitting	Fire grate		4kg	300mm x 280mm x 140mm		
45	503	YET 12	2	Fe	Locomotive tool	Long fire iron	Very bent; right angled end, looped end	1.8kg	870mm x 120mm x 20mm	25mm diameter iron rod	A 'pricker'
46	512	YET 12	2	Fe	Locomotive or workshop tool	File	'Bastard' file	1kg	415mm x 43mm x 12mm		
47	512	YET 12	2	Fe	Locomotive or workshop tool	File	'Bastard' file	0.6kg	435mm x 39mm x 12mm		
48	512	YET 12	2	Fe	Roundhouse fitting?	Electric cable conduit		0.6kg	575mm x 25mm in diameter		
49	512	YET 12	2	Fe	General equipment	Ladder	Probably from a signal pole	5.4kg	770mm x 277mm x 46mm		
50	513	YET 12	2	Fe	Locomotive or workshop tool	Spanner	1 ⅝ inch double ended general spanner	0.8kg	290mm x 110mm x 15mm		
51	514	YET 12	2	Fe	Roundhouse fitting?	Handrail		8.8kg	1670mm x 1060mm x 52mm		Probably railing from roundhouse turntable deck
52	514	YET 12	2	Fe	Roundhouse fitting?	Gas pipe	T-connector with three short sections of pipe in place	4.2kg	820mm x 220mm x 60mm		
53	515	YET 12	2	Fe	Roundhouse fitting?	Door lintel		9.6kg	740mm x 120mm x 88mm		
54	516	YET 12	2	Fe	Rail signage	Warning sign		2.2kg	355mm x 305mm x 3mm		Text is illegible but possibly 'NOT TO BE MOVED'
55	516	YET 12	2	Fe	Locomotive fitting	Brake	Element of brake mechanism	6kg	1.27m long (bent)	c. 22mm (1 inch) diameter rod; 'paddle' ends have c. 19mm (3/4 inch) hole through them	
56	516	YET 12	2	Fe	Roundhouse fitting	Standpipe	Connector at one end	2.4kg	690mm x 80mm in diameter		
57	518	YET 12	2	Fe	Rail track element	Fish plate	Rail connector with four bolt holes	5.4kg	448mm x 85mm x 27mm		Measures c. 18" x 3&3/8"; weight is 12 lb
58	638	YET 12	3	Fe	Roundhouse fitting	Window catch		1.2kg	150mm x 80mm x 60mm		
59	639	YET 12	3	Fe & Glass	Roundhouse fitting	Window frames		28.6kg	50mm thick		6 pieces; rounded and square panes evident
60	639	YET 12	3	Cu	Locomotive fitting	Cylinder cover packing ring		0.2kg	455mm x 10mm x 4mm		Kept joint 'steam-tight'
61	639	YET 12	3	Timber	General equipment	Part of chair?		0.6kg	540mm x 55mm x 55mm		This may be a chair arm - TBC; nail holes observed
62	640	YET 12	3	Fe	Locomotive fitting	Firehole baffle plate	Technically a 'deflector plate' but also known as a 'baffle' or 'flame scoop'	6.8kg	580mm x 390mm x 50mm		Fitted inside the firehole to block cold air from the fire
63	640	YET 12	3	Fe/Rubber	Locomotive or workshop fitting	Steam heat pipe		3kg	770mm x 100mm x 68mm diameter		
64	640	YET 12	3	?Cu	Locomotive fitting	Cylinder cover steam-tight packing ring		0.2kg	520mm x 15mm x 4mm		
65	640	YET 12	3	Fe	Locomotive or workshop tool	Adjustable spanner		2.6kg	370mm x 96mm x 28mm		Possibly for austerity loco lubricator
66	640	YET 12	3	Fe	Roundhouse fitting	Turntable locking arm handle		1.2kg	230mm x 120mm	Formed from 1 1/2 inch wide 3/8 inch thick iron bar	Appears to be welded where the two bar ends join
67	512	YET 12	2	Fe	Rail signage	Warning sign		0.8kg	305mm x 228mm x 1mm		Red and white quartered warning sign. 'WARNING. LIMITED CLEARANCE'
68	517	YET 12	2	Fe	Rail signage	Warning sign		0.6kg	300mm x 204mm x 1mm		Red and white quartered warning sign. 'WARNING. LIMITED CLEARANCE'
69	512	YET 12	2	Fe	Rail signage	Warning sign		0.4kg	503mm x 503mm x 1mm		Red text on white background warning sign 'DANGER ELECTRIC CABLES'
70	640	YET 12	3	Fe	Rail signage	Warning sign			138mm x 20mm x 1mm		Illegible '...DRE...'?
71	640	YET 12	3	Fe	Roundhouse fitting	Lampshade			350mm x 300mm x 60mm		
72	640	YET 12	3	Fe	Roundhouse fitting	Pulley	Single wheel	25kg	600mm x 450mm x 150mm	Baseplate is c. 405mm (16 inch) long and c. 22mm (3/4 inch) thick; grooved wheel is c. 165mm (6 1/2 inch) diameter; axle bolt in place	Through the baseplate run 4 no. 16 inch long 3/4 inch square bolts; these are square-headed with lowermost (i.e. at the baseplate end) c. 1 1/2 inch rounded and threaded with hexagonal nuts in place
73	512	YET 12	2	Fe	Roundhouse fitting?	Lintel support		9.8kg	1.49m x 150mm x 80mm		
74	u/s	YET 12	N/a	Fe	Rail track element	Rail spike/screw/bolt	4 no. 6 inch rail spikes	1.6kg	150mm x 20mm in diameter	Square head 35mm x 35mm	6 inch spikes to hold rails to timber blocks
75	u/s	YET 12	N/a	Fe	Locomotive fitting?	Uncertain		2kg	160mm x 130mm x 90mm		
76	501	YET 12	2	Fe	Locomotive fitting?	Uncertain	Bar part with c. 20mm (3/4 inch) bolt passing through hole; bolt has nut at one end and square washer at head end	1.8kg	260mm x 250mm		

Table 7.1: Small Finds Catalogue

77	502	YET 12	2	Fe	Roundhouse fitting	Girder		11.2kg	500mm x 150mm x 60mm		Two conjoined sections - forming angle? Includes eight bolted nuts and other bolt holes
78	640	YET 12	3	Fe	Locomotive tool	Shovel	Firing shovel head	3.2kg	510mm x 220mm x 50mm		
79	639	YET 12	3	Fe	Locomotive tool	Shovel	Coal shovel head	1.2kg	650mm x 290mm x 50mm		
80	639	YET 12	3	Fe	Locomotive tool	Shovel	Firing shovel head	2kg	290mm x 280mm x 30mm		
81	640	YET 12	3	Fe	Locomotive tool	Shovel	Firing shovel head	1kg	410mm x 200mm x 35mm		
82	640	YET 12	3	Fe	Locomotive tool	Shovel	Coal shovel head	1.2kg	560mm x 300mm x 40mm		
83	640	YET 12	3	Fe & Timber	Locomotive tool	Shovel	Coal shovel head	1.2kg	330mm x 210mm x 40mm		Part of wooden handle survives
84	512	YET 12	2	Fe	Locomotive or workshop fitting	Pipe	With pressure gauge mounting?	1.2kg	500mm long	Pipe is c. 19mm (3/4 inch) external diameter); gauge mounting is c. 165mm (2 1/2 inch) diameter	
85	513	YET 12	2	Fe	Locomotive fitting?	Uncertain		4.6kg	360mm x 360mm x 40mm		
86	513	YET 12	2	Fe	Locomotive fitting?	Firehole baffle plate?	Technically a 'deflector plate' but also known as a 'baffle' or 'flame scoop'	15.8kg	495mm x 450mm x 150mm		
87	501	YET 12	2	Fe	Locomotive or workshop fitting	Uncertain		5.2kg	430mm x 150mm x 130mm		
88	501	YET 12	2	Fe	Locomotive fitting?	Firehole baffle plate?	Technically a 'deflector plate' but also known as a 'baffle' or 'flame scoop'	14.6kg	550mm x 305mm x 50mm		
89	639	YET 12	3	Fe	Locomotive tool	Long fire iron	Twisted; pointed end - possibly missing 'tool'?; looped end	4.6kg	1.50m (bent/twisted)		Fire 'dart' - TBC; sub-circular looped end (internal measurements 95mm x 90mm) formed by bending the rod around
90	638	YET 12	3	Fe	Roundhouse fitting?	Window frame?		7.2kg	1000mm x 60mm x 50mm	Arched	
91	638	YET 12	3	Fe	Roundhouse fitting?	Window frame?		3.5kg	600mm x 50mm x 50mm	Arched	
92	501	YET 12	2	Fe	Rail track element	Rail chair	Complete chair; 'flat' screw holes in diagonally opposite corners of baseplate (other appear not to have been drilled), 2 no. chair screws in place; packing timber (150mm x 70mm) survives in base of rail seating	18kg	292mm x 160mm x 170mm	Baseplate measures c. 11 1/2 inches x 6 1/4 inches x c. 1 1/4 inches thick; weight is c. 40lbs; 6 inch round-headed screws	Probably a common chair (these were rectangular, e.g. the S1 type, weighed 46lb, but had a recognisable 'triangular' arrangement of 3 no. fixing holes)
93	640	YET 12	3	Fe	Rail track element	Rail chair	Complete chair; 'coned' screw holes in each corner of baseplate, no chair screws in place	16.9kg	350mm x 205mm x 130mm	Baseplate measures 13 3/4 inches x 8 inches x c. 3/8 inch thick; weight is c. 37.5lbs	Probably a common chair (these were rectangular, e.g. the S1 type, weighed 46lb, but had a recognisable 'triangular' arrangement of 3 no. fixing holes)
94	512	YET 12	2	Fe	Rail track element	Rail chair	Complete chair; 'flat' screw holes in each corner of baseplate, one with chair screw in place	16.8kg	282mm x 160mm x 170mm	Baseplate measures 11 inches x 6 1/4 inches x c. 1 1/2 inches thick; screw holes are 1 1/4 inc diameter; weight is c. 37.5lbs; 6 inch round-headed screw	Probably a common chair (these were rectangular, e.g. the S1 type, weighed 46lb, but had a recognisable 'triangular' arrangement of 3 no. fixing holes)
95	u/s	YET 12	N/a	Fe	Rail track element	Rail chair	Broken chair; 2 no. 'coned' screw/bolt holes in corners of surviving end of base; these contain cylindrical timber reducers (1 1/2 inch to 1 inch) for the screws/bolts	14.2kg	260mm x 200mm x 150mm	Baseplate is 8 inches wide and c. 10mm (3/8 inch) thick; weight of surviving part is c. 31lbs	Type TBC
96	60	YES 12	1841 Engine Shed	Ceramic	Signalling component	Telegraph insulator		0.12kg	height 35mm x maximum diameter 66mm	internal dimameter 16mm	Light orange brown ceramic. Short, double cylindrical insulator
97	26	YES 12	Trench 9, 1841 Engine Shed	Fe	Engine Shed fittings?	Window frame		1.24kg	Longest 124mm x 35mm x 33mm		3 no. Fe fragments of window frame
98	6	YES 12	Trench 9, 1841 Engine Shed	Fe	Rail track element	Rail spike/screw/bolt	Too corroded to identify	0.6kg	190mm x 50mm x 35mm		
99	6	YES 12	Trench 9, 1841 Engine Shed	Fe	Rail track element	Rail spike/screw/bolt	Too corroded to identify; possibly a dog spike?	0.4kg	220mm x 35mm x 35mm		
100	6	YES 12	Trench 9, 1841 Engine Shed	Fe	Rail track element	Rail spike/screw/bolt	Too corroded to identify	0.6kg	150mm x 35mm x 35mm		
101	6	YES 12	Trench 9, 1841 Engine Shed	Fe	Rail track element	Rail spike/screw/bolt	Too corroded to identify	0.8kg	240mm long		
102	6	YES 12	Trench 9, 1841 Engine Shed	Fe	Rail track element	Rail chair	Broken chair; severely corroded - base not visible at all; 1 chair screw survives in place	12kg	200mm x 200mm x 200mm	Baseplate is c. 8" wide; weight of surviving part is c. 26.5lbs	Type TBC
103	71	YES 12	Trench 8, 1841 Engine Shed	Fe	Rail track element	Rail spike		0.39kg	145mm x 19mm x 19mm	T-shaped head 36mm x 32mm	
104	20	YES 12	Trench 9, 1841 Engine Shed	Cu	Engine Shed fitting?	Tap		0.2kg	78mm x 40mm x 22mm diameter		
105	952	YEF 12	1841 Engine Shed	Cu & Fe	Engine Shed fitting	Lampshade	Includes light fitting	1.4kg	430mm x 290mm x 70mm		
106	952	YEF 12	1841 Engine Shed	Cu & Fe	Engine Shed fitting	Lampshade	Includes light fitting	3kg	400mm x 340mm x 70mm		

Table 7.1: Small Finds Catalogue

107	952	YEF 12	1841 Engine Shed	Cu	Engine Shed fitting	Light fitting			130mm in diameter x 60mm deep		
108	952	YEF 12	1841 Engine Shed	Cu	Engine Shed fitting	Light fitting		0.4kg	230mm in diameter x 130mm deep		
109	952	YEF 12	1841 Engine Shed	Fe	Rail track element	Fish plate	Rail connector with 4 no. bolts in place	9.4kg	460mm x 82mm x 26mm	Plate is 18 inches long x 3 1/4 inch wide x 1 inch thick; 6 inch round headed bolts	6 inch bolts with 1 inch diameter shaft, 1 3/4 inch diameter head
110		YEP 12	3, PP26	Fe	Rail track element	Spike	Rectangular headed spike; straight with pointed end	4.2kg	670mm x 32mm in diameter	Rectangular head 80mm x 50mm x 30mm	26 inch rail spike with 1 1/4 inch diameter shaft tapering to a point
111	959	YEP 12	1841 Engine Shed, ST	Fe	Locomotive or workshop fitting	Standpipe connection	High pressure water connection	20kg	310mm x 210mm in diameter		
112	1102	YEP 12	3, R3B	Stone	General equipment	Sharpening stone fragment		22kg	410mm x 240mm x 152mm	Eye measures 90mm x 80mm	Millstone fragment recovered from Roundhouse 3 levelling deposit; part of SF 113
113	1102	YEP 12	3, R3B	Stone	General equipment	Sharpening stone fragment		6kg	270mm x 190mm x 90mm		Millstone fragment recovered from Roundhouse 3 levelling deposit; part of SF 112
114		YEP 12	3, P11	Cu	Coin	One penny			30mm diameter x 2mm		Recovered from Roundhouse 3 levelling deposit
115	71	YES 12	Trench 8, 1841 Engine Shed	Fe	Engine Shed fitting?	Hook		0.49kg	81mm x 17mm x 15mm	Loop 90mm wide	
116	71	YES 12	Trench 8, 1841 Engine Shed	Fe	Engine Shed fitting	Window frame	2 x fragments of frame	0.70kg	Longest 170mm x 34mm x 14mm		
117	20	YES 12	Trench 9, 1841 Engine Shed	Fe	Engine Shed fitting?	Bolt		0.46kg	102mm x 32mm diameter	Hexagonal head 42mm x 42mm	
118	20	YES 12	Trench 9, 1841 Engine Shed	Fe	Engine Shed fitting?	Washer		0.61kg	14mm thick x external diameter x 105mm internal diameter 50mm		
119	20	YES 12	Trench 9, 1841 Engine Shed	Fe	Rail track element	Spike	Square headed spike; straight with pointed end	0.56kg	159mm x 27mm x 27mm		
120	20	YES 12	Trench 9, 1841 Engine Shed	Brass	General equipment	Plate	Plate used for repairs, offcuts taken from this plate?	0.20kg	140mm x 76mm x 3mm		
121	60	YES 12	1841 Engine Shed	Ceramic	Signalling component	Telegraph insulator	7 x ceramic insulators	each 0.14kg	79mm x 42mm	external diameter 26mm internal diameter 14mm	Orange brown ceramic. Cylindrical hour glass shaped with one side flat
122	60	YES 12	1841 Engine Shed	Ceramic	Signalling component	Telegraph insulator	3 x ceramic insulators	each 0.14kg	76mm x 41mm	external diameter 26mm internal diameter 12mm	Light grey ceramic
123	1101	YEP12	3, R3B	Metal	General equipment	Crucible	6 fragments	1.77kg	thickness 15mm		Large crucible

still inside. Other tubing appears to be sections of handrail, water pipes, including a standpipe connection from a high pressure water connection recovered from the 1841 Engine Shed (SF111; Plates 7.2 and 7.3; see Plate 5.9), and possibly steam boiler tubing. Some of the lengths of handrail are still attached to stanchions (SF29: Plate 7.4), and the archaeological contexts and dimensions of these suggest that these were probably from the handrails that ran along each side of the locomotive turntables.

7.3.4 One of the more unusual structural-type metal finds was a one-way valve with bayonet fitting (SF36; Plate 7.5), which appears to be part of a high pressure water supply system that is thought to have been retrospectively installed in RH2.

7.3.5 Other structural type fittings include some metal lampshades some of which have traces of (possibly their original) coloured paint still attached (SF28; Plate 7.6 and SF106; Plate 7.7 and 7.8) and part of a door mechanism (SF8; Plate 7.9).

7.3.6 Locomotive and/or workshop parts and fittings also make up a significant part of the small finds assemblage; these mainly comprise cast iron firebars from locomotive firebox grates (SF6; Plate 7.10 and SF14; Plate 7.11). A small number of firebars recovered are still in one piece, although the majority are broken into large fragments; initial inspection suggests that the firebars came from a range of locomotives. One of the firebars found is much different to the others, and is possibly from a later British Railway 'standard' type of locomotive equipped with a rocking-grate type firebox.

7.3.7 The other metal locomotive parts recovered include parts of three firehole baffle plates (SF62, SF86 and SF88), a bronze boiler washout plug (SF17), an injector valve wheel from a locomotive cab (SF5; Plate 7.12) and part of a brake mechanism (SF55).

7.3.8 The tools recovered include a range of shovels (SF22; Plate 7.13, SF25; Plates 7.14 and 7.15), files, spanners, buckets, a fireman's coal pick and fire-irons of various types and sizes; although some of these items are badly corroded and/or bent out of shape, most are still identifiable.

7.3.9 The majority of the locomotive parts and tools assemblage appear to relate to the type of routine operation and servicing of locomotives that were typical of those carried out in a steam-era locomotive shed. However, the presence and abundance of some items could relate to the final disposal of fire and water from locomotives prior to their being scrapped.

7.3.10 The track components mainly comprise rail chairs (SF37; Plate 7.16) and fixing bolts. Two short lengths of rail were found and one of these (SF33; Plate 7.17) appears to have been worn to a point where it has started to fail. A fishplate (SF57; Plate 7.18) was also recovered.

7.3.11 Parts of several badly damaged signs were recovered, mainly warning signs, along with an enamel 'look out' armband (SF39; Plate 7.10) and a fragment of a NER branded sign (SF35; Plate 7.20), this item being non-metallic, possibly Bakelite, an early plastic introduced in the early 20th century.

7.3.12 Items identified as signalling components comprise a telegraph insulator with wall bracket (SF7; Plate 7.21) and four different types of ceramic telegraph insulator (SF16; Plate 7.22, SF96, SF121 and SF122).

7.3.13 General finds included a fragment of timber that may have come from a wheelbarrow (SF34) and part of an iron ladder (SF49).

7.3.14 Initial inspection of the material on site suggested that both lengths of rail and some of the tubes/pipes may be wrought iron, which makes them potentially unusual and interesting finds.

7.4 Discussion

7.4.1 The assemblage is largely composed of items that directly relate either to the fabric of the engine sheds or their day-to-day use. Although much of the assemblage is of limited significance, it does appear to contain some original equipment or fittings dating from the construction of the engine sheds. In many railway environments, especially those in use over an extended period, items subject to wear or functional structural elements, such as track, signalling, lighting, handrails, etc. are typically replaced or upgraded over time, so original 19th-century materials and fittings are now quite unusual.

7.4.2 From a historical and archaeometallurgical perspective, what is interesting is that the date of construction of the earlier roundhouses (RH1 and RH2) and the later RH3 span the date when Bessemer steel was invented and had started to become commercially available. Bessemer steel (which is commonly referred to by the generic term mild steel) was a cheaper, more reliable and much harder wearing alternative to traditional wrought iron, and railway companies were some of the first to use the new material. The initial on-site inspection of the metals assemblage suggested that it potentially contains physical evidence for the early use of Bessemer steel.

7.5 Recommendations

7.5.1 A very interesting archaeometallurgical exercise would be to investigate whether the handrail stanchions recovered from the turntable pit of RH2 are made from wrought iron, and whether those from the (later) RH3 are mild steel. It would also be interesting to investigate whether the section of heavily worn rail recovered from RH3 is of wrought iron or mild steel.

7.5.2 If further examination confirms that the handrail stanchions, tubing and railway rails are wrought iron or potentially early Bessemer steel, it is strongly recommended that some basic metallographic analysis is carried out to characterise the metal and investigate its quality.

7.5.3 It is also recommended that all of the registered small finds are kept for more detailed off-site inspection and recording. A publication report should be produced with an interpretation of the assemblage and any metallurgical analysis carried out for inclusion in the published results of the work.

Plate 7-1 SF59 fragments of window frame from RH3 (scale 0.20m)

Plate 7-2 SF111 high-pressure water system standpipe connection from 1841 Engine Shed (scale 0.20m)

Plate 7-3 SF111 high-pressure water system standpipe connection from 1841 Engine Shed, top view (scale 0.20m)

Plate 7-4 SF29 handrail stanchion from RH2 (scale 0.50m)

Plate 7-5 SF36 one-way valve with bayonet fitting from high-pressure water supply system, from RH2 (scale 0.20m)

Plate 7-6 SF28 lampshade from RH2 (scale 0.20m)

Plate 7-7 SF106 lampshade from 1841 Engine Shed, top view (scale 0.20m)

Plate 7-8 SF106 lampshade from 1841 Engine Shed, bottom view (scale 0.20m)

Plate 7-9 SF8 door handle and bar from RH2 (scale 0.50m)

Plate 7-10 SF6 firebar from RH3 (scale 0.50m)

Plate 7-11 SF14 firebar from RH2 (scale 0.50m)

Plate 7-12 SF5 injector valve wheel from a locomotive cab, from RH3 (scale 0.20m)

Plate 7-13 SF22 firing shovel head from RH2 (scale 0.20m)

Plate 7-14 SF25 long-handled slag shovel from RH2 (scale 0.50m)

Plate 7-15 SF25 long-handled slag shovel from RH2, detail of loop end (scale 0.50m)

Plate 7-16 SF37 rail chair from RH2 (scale 0.20m)

Plate 7-17 SF33 worn rail head from RH3 (scale 0.50m)

Plate 7-18 SF57 fishplate from RH2 (scale 0.50m)

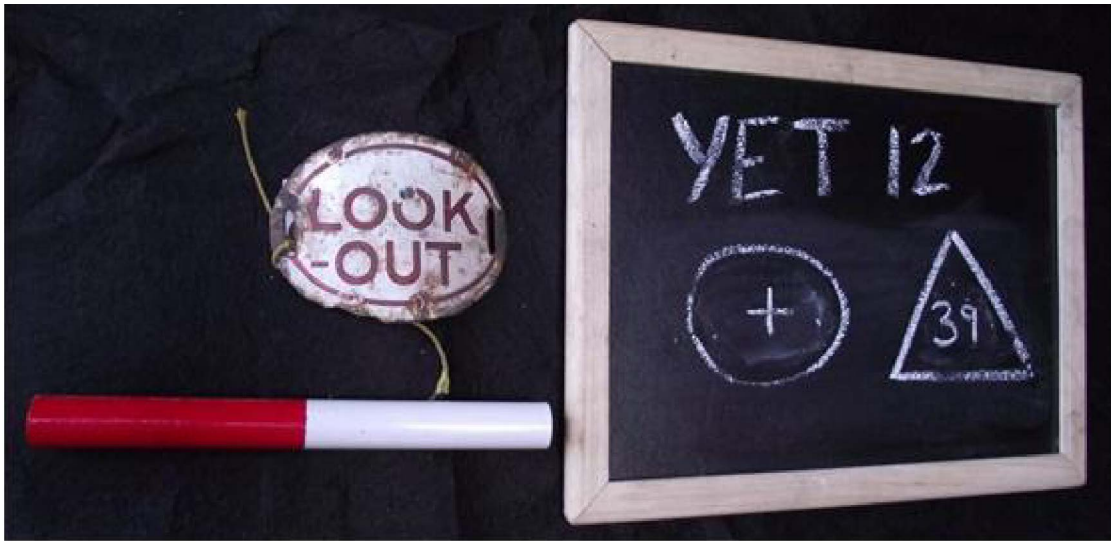


Plate 7-19 SF39 armband from RH2 (scale 0.20m)

Plate 7-20 SF35 NER branded sign from RH3 (scale 0.20m)

Plate 7-21 SF7 telegraph insulator and wall bracket from RH2 (scale 0.20m)

Plate 7-22 SF16 telegraph insulation hub from RH2 (scale 0.50m)

8. STRUCTURAL STONEWORK AND BRICKS AND LOCOMOTIVE BRICKS

By: Roderick Mackenzie and Robin-Taylor Wilson

8.1 Introduction

8.1.1 A total of 337 bulk structural stone items were retained and examined on site (this material is not listed in Table 8.1). The assemblage was, for the most part, bulk stone masonry recovered from the overburden, turntable wells or inspection pits of RH2 and RH3 during excavation/recording Phase 1 (YET 12). A selection was retained for use in the re-development, with the remainder placed in the turntable well of RH3 prior to infilling.

8.1.2 An assemblage of structural/'house' bricks (38 no.) and locomotive firebricks (16 no.) recovered during the investigations was retained for assessment (see Table 8.1). In addition, eight scoria bricks retained as samples of the floor surface of RH2 and two items of worked sandstone masonry were also examined (see Table 8.1).

8.1.3 The main aim of the assessment was to identify any items of potential archaeological or historical interest that could add to the existing knowledge of the engine sheds or their use.

8.2 Methodology

8.2.1 The quantity of bulk stone masonry, combined with existing knowledge of the structures, meant that it was not practicable or necessary to record every stone individually. However, as part of the assessment, the entire assemblage was visually assessed and any items of potential interest were photographed and notes recorded.

8.2.2 The retained structural bricks, locomotive firebricks, floor surface scoria bricks and worked sandstone fragments were measured (see Table 8.1). Six samples were collected from bulk masonry in RH1 and RH2 for petrological analysis during excavation/recording Phase 3 (YEP 12) (see Table 8.1).

8.2.3 A selection of photographs of bulk stone masonry, retained structural bricks and locomotive firebricks is included herein (Plates 8.1-8.16).

8.3 Results

8.3.1 The majority of bulk stone masonry assemblage was recovered during mechanical excavation of the turntable well in RH2 and are likely to have derived from the superstructure immediately following demolition. Some stone blocks have remnants of structural iron work attached, or traces of where similar ironwork had originally been attached, and the initial inspection on site suggested that most of these pieces probably related to the roof of the roundhouse. The bulk of the assemblage consists of stone blocks of a very similar width and depth, and many of these have simple carved details (Plates 8.1-8.3).

8.3.2 Pieces of non-roof related ironwork were also still attached to a small number of stone blocks, including three with the remnants of iron hinges set into the ends of a rebate (Plate 8.4).

Table 8-1 Masonry Catalogue

Table 8.1: Masonry Catalogue

Site Code	Context No.	Location	Material	Description	Dimensions	Notes
YET 12	U/S		Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: HARTLEY
YET 12	U/S		Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: HARTLEY
YET 12	U/S		Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: HARTLEY
YET 12	U/S		Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: I(?degraded) W
YET 12	U/S		Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: H CASTLEFORD
YET 12	U/S		Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: HEALDFIELD CASTLEFORD
YET 12	U/S		Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: ARMITAGE
YET 12	U/S		Brick	Frogged bullnose red brick	230mm x 110mm x 80mm	Bullnose on end
YET 12	U/S		Brick	Stamped (in frog) red brick fragment	>200mm x 110mm x 80mm	Stamped: ARMITAGE
YET 12	U/S		Firebrick	Stamped firebrick with tongue	>310mm x 178mm x 125mm	Broken end (from dismantling?); stamped: 453 2
YET 12	U/S		Firebrick	Standard firebrick with tongue	>360mm x 190mm x 128mm	Broken end (from dismantling?); not stamped
YET 12	U/S		Firebrick	Stamped firebrick with tongue	>390mm x 190mm x 128mm	Broken end (from dismantling?); stamped: DYKE….
YET 12	U/S		Firebrick	Stamped long curved firebrick	>600mm x 180mm x 128mm	Broken end (from dismantling?); stamped: S453 45
YET 12	502	RH2	Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: HEALDFIELD CASTLEFORD
YET 12	502	RH2	Firebrick	Stamped firebrick	230mm x 110mm x 65mm	Stamped: N . B
YET 12	503	RH2	Firebrick	Stamped stepped edge/plinth firebrick	228mm x 124mm x 60mm	Stamped: BURN G
YET 12	503	RH2	Firebrick	Stamped stepped edge/plinth firebrick	228mm x 124mm x 60mm	Stamped: BURN G
YET 12	510	RH2	Firebrick	Stamped firebrick fragment with groove	>185mm x 127mm x 180mm	Stamped: HB
YET 12	510	RH2	Firebrick	Stamped firebrick with tongue	>210mm x 127mm x 177mm	Broken end (from dismantling?); stamped: S453 6
YET 12	510	RH2	Firebrick	Stamped firebrick with groove	>340mm x 180mm x 128mm	Stamped: HB
YET 12	510	RH2	Firebrick	Stamped firebrick with tongue	>360mm x 180mm x 128mm	Broken end (from dismantling?); stamped: S453 6
YET 12	510	RH2	Firebrick	Stamped firebrick with tongue	>315mm x 177mm x 129mm	Broken end (from dismantling?); stamped: S453 7
YET 12	512	RH2	Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: H CASTLEFORD
YET 12	512	RH2	Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: HARTLEY & Co. CASTLEFORD
YET 12	512	RH2	Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: H CASTLEFORD
YET 12	512	RH2	Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: HARTLEY & Co. CASTLEFORD
YET 12	512	RH2	Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: HEALDFIELD CASTLEFORD
YET 12	512	RH2	Brick	Stamped (in frog) red brick fragment	190mm (broken) x 110mm x 80mm	Other brick fragment mortared to base; stamped: RIDGEFIELD CASTLEFORD
YET 12	512	RH2	Firebrick	L shaped firebrick fragment	230mm x 107mm x >119mm	
YET 12	512	RH2	Firebrick	Stamped long firebrick with tongue	>320mm x 176mm x 176mm	Broken end (from dismantling?); stamped: S453 7
YET 12	515	RH2	Brick	Stamped (in frog) red brick	225mm x 108mm x 80mm	Stamped: H CASTLEFORD
YET 12	638	RH3	Brick	Unfrogged brick	230mm x 110mm x 75mm	
YET 12	638	RH3	Brick	Stamped (in frog) red brick	230mm x 110mm x 75mm	Stamped: I . W
YET 12	638	RH3	Brick	Stamped (in frog) red brick	230mm x 110mm x 75mm	Stamped: H D CASTLEFORD
YET 12	638	RH3	Brick	Stamped (in frog) red brick fragment	230mm x 110mm x 80mm	Stamped: HEALDFIELD CASTLEFORD
YET 12	638	RH3	Brick	Red plinth(?) brick with stepped & bullnose edge	247mm x 120mm x 80mm	Frogged on base
YET 12	638	RH3	Brick	Red plinth(?) brick with stepped & bullnose edge	247mm x 120mm x 80mm	Frogged on base
YET 12	638	RH3	Brick	Red plinth(?) brick with stepped & bullnose edge	247mm x 120mm x 80mm	Frogged on base
YET 12	638	RH3	Brick	Large corner(?) red plinth brick with stepped & bullnose edge	248mm x 208mm x 80mm	Broken corner but all dimensions survive; not frogged on base
YET 12	638	RH3	Sandstone	Worked masonry fragment	495mm x >240mm x 80mm	Tool marks
YET 12	639	RH3	Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: I . W
YET 12	639	RH3	Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: I . W
YET 12	639	RH3	Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: J . C
YET 12	639	RH3	Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: J . C

Table 8.1: Masonry Catalogue

YET 12	639	RH3	Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: J . C
YET 12	639	RH3	Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: S .Y
YET 12	639	RH3	Brick	Stamped (in frog) red brick	230mm x 110mm x 80mm	Stamped: H D CASTLEFORD
YET 12	639	RH3	Brick	Slottted top brick	230mm x 110mm x 80mm	Flat-bottomed slot, one side angled, cut/moulded across top, 75mm wide
YET 12	639	RH3	Brick	Large stamped (in frog) red brick	330mm x 120mm x 80mm	Stamped: J . S . Y
YET 12	639	RH3	Brick & Fe	Large corner(?) red plinth brick with stepped & bullnose edge	320mm x 235mm x 180mm	Plinth brick has other part brick mortared to it & Fe attachment
YET 12	639	RH3	Sandstone	Worked masonry fragment, slab with chamferred edge	>233mm x 235mm x 60mm	n/a
YET 12	639	RH3	Firebrick	Stamped long firebrick with tongue	400mm x 185mm x 125mm	Broken end (from dismantling?); stamped: WD P
YET 12	674	RH3	Firebrick	Stamped firebrick	237mm x 114mm x 63mm	Stamped, but text not legible: ? & ?
YEP 12	1019	RH2, R2A	Brick	Brick fragment, unfrogged	210mm x 115mm x 80mm	
YEP12	P.29	RH2	Brick	Stamped red brick, unfrogged	225mm x 105mm x72mm	Stamped: NC
YEP 12	P.29	RH2	Scoria brick	Floor sett	230mm x 120mm x 100mm	
YEP 12	P.29	RH2	Scoria brick	Floor sett	230mm x 110mm x 65mm	
YEP 12	P.29	RH2	Scoria brick	Floor sett	230mm x 120mm x 100mm	
YEP 12	P.29	RH2	Scoria brick	Floor sett	230mm x 120mm x 100mm	Groove in top of brick
YEP 12	P.29	RH2	Scoria brick	Floor sett	230mm x 120mm x 100mm	
YEP 12	P.29	RH2	Scoria brick	Floor sett	230mm x 120mm x 100mm	
YEP 12	P.29	RH2	Scoria brick	Floor sett	230mm x 120mm x 100mm	
YEP 12	P.29	RH2	Scoria brick	Floor sett	230mm x 120mm x 100mm	
YEP 12	n/a	RH1	Sample	Petrological sample	n/a	Sample no. 1, RH1, Block no. 2
YEP 12	n/a	RH2	Sample	Petrological sample	n/a	Sample no. 2, RH2, Block no. 16
YEP 12	n/a	RH2	Sample	Petrological sample	n/a	Sample no. 3, RH2, Block no. 27
YEP 12	n/a	RH2	Sample	Petrological sample	n/a	Sample no. 4, RH2, Block no. 39
YEP 12	n/a	RH2	Sample	Petrological sample	n/a	Sample no. 5, RH2, Block no. 43
YEP 12	n/a	RH2	Sample	Petrological sample	n/a	Sample no. 6, RH2, Block no. 63
YEP 12	R2B	RH2	Brick	Stamped (in shallow frog) red brick	230mm x 110mm x 79mm	Stamped: HARTLEY
YEP 12	674	RH3	Brick	Concrete brick	230mm x 110mm x 60mm	Stamped: RBC
YEP 12	674	RG3	Brick	Concrete brick	230mm x 110mm x 60mm	Stamped: RBC

8.3.3 A small number of stone blocks were found with cast iron rail chairs still partially attached; the footprint of the most complete rail chair measured approximately 11in by 6¼in(Plate 8.5).

8.3.4 The stonework recovered during the excavation of RH3 consists of large slabs of stone flooring (Plate 8.6), together with complete and partial window sills and/or lintels (Plates 8.7-8.9). The two complete pieces have what appear to be stonemasons' marks cut into the surfaces that would have been covered by adjoining masonry or stonework when the structure was complete (Plates 8.8 and 8.10). Some of the large floor slabs have rebates/lap joints cut into their edges where, presumably, the slabs would have abutted one another; and at least one of the slabs has a drainage slot cut into its upper surface.

8.3.5 The firebrick assemblage (see Table 8.1) comprised mostly stamped items, the majority of which were likely to have been used to build arches in steam locomotive fireboxes (16 no. examples), including several large curved refractory bricks (Plates 8.11 and 8.12). Stamps were either manufacturers' stamps, such as 'DYKE…', 'N.B', 'Burn G' and 'I.W', while others were numbers, such as 'S453 6' and 'S453 7'. Structural details such as L-shaped firebricks, rebates and tongues (Plate 8.13) were noted on some firebricks.

8.3.6 Structural bricks included frogged bricks with manufacturers' stamps in the frog (25 no. examples), bricks from several different brickmakers being present: Armitage, Hartley, Healdfied Castleford, I.W., J.C. and J.S.Y. The remaining items were the scoria bricks from floor surfaces in RH2 along with a few unfrogged bricks and plinth bricks with stepped and bullnose edges (Plate 8.14).

8.4 Discussion

8.4.1 From their size, archaeological contexts, contemporary design and construction drawings and photographs of the roundhouses, the majority of stone blocks appear to be coping stones that would have formed a continuous ring around the top of the main wall of the polygonal RH2 (see Plate 10.5).

8.4.2 Distinctive angled stone blocks are from the wall 'corners' and these also have simple carved edge detail as seen on the more numerous rectangular block stones (Plates 8.15 and 8.16). Many of the blocks appear to have had holes or sockets for structural ironwork cut prior to being built into the wall, or before the roof had been installed; whereas others appear to have been drilled and shaped whilst in situ. Replacement of the roof of RH2 in 1889-90 may have resulted in the modification of some blocks accommodate the new roof structure.

8.4.3 Blocks with hinge parts and rebates could be from the former entrances and it is interesting to note that there is documented evidence of the doorways of RH1 and RH2 being altered at the same time as the roof rebuilds of 1889-90.

8.4.4 Stone blocks with rail chairs attached probably derive from damaged roundhouse inspection pits.

8.4.5 Some of the larger stone slabs recovered from RH3 had drainage channels cut into them, suggesting that they were located in an area where boiler washouts were being carried out, or possibly in an outdoor area which required surface water drainage. Precisely where these items were installed is not certain, since the main flooring material in RH3 was stone setts; given their form and dimensions it is possible that they were derived from dismantled platforms.

8.4.6 Archive photographs of RH3 suggest that some of the stone sills recovered may have been from the main windows of the roundhouse. Of particular interest are stonemasons marks on one end of each sill, presumably these were to guide orientation and placement of the sills during construction.

8.4.7 The curved locomotive firebricks used in fireboxes are of particular interest. 'Firebrick arches' were an important feature of steam locomotives as, amongst other things, they improved airflow to the fire and maximised the combustion of gases in the firebox. The firebrick arches would typically need to be either patched up or replaced between the locomotives major overhauls. Replacement and repair of firebrick arches would be the type of routine maintenance job that would be carried out at the locomotive shed. The firebricks from the YET site appear to be unused spares that would have been of little use following the demise of steam traction.

8.5 Recommendations

8.5.1 The stone samples collected for petrological analysis should be subject to specialist incorporated into the published results of the work.

8.5.2 Following further specialist examination, a report on the structural stonework, locomotive firebricks, scoria surface bricks and structural bricks should be prepared for inclusion in the published results of the work.

Plate 8-1 General view of stonework from RH2 (scale 1m)

Plate 8-2 Underside of coping stone from RH2, with remnants of brickwork attached (scale 1m)

Plate 8-3 Example of topside of a coping stone from RH2 (scale 0.50m)

Plate 8-4 Parts of door or window hinge from RH2 (scale 1m)

Plate 8-5 Side view of rail chair from RH2, showing remains of wooden pad (scale 0.50m)

Plate 8-6 Stone slabs recovered from area of RH3 (scale 1m)

Plate 8-7 Upper surface of window sill with rebate from RH3 (scale 1m)

Plate 8-8 Underside of second window sill from RH3, showing mason's mark (scales 0.5m and 1m)

Plate 8-9 Top surface of second window sill from RH3 (scale 0.50m)

Plate 8-10 Possible mason's mark on end of rebated window sill from RH3

Plate 8-11 Curved firebrick from locomotive firebox (scale 0.20m)

Plate 8-12 Firebricks from locomotive firebox from RH2 (scale 0.50m)

Plate 8-13 Curved firebrick with tongue from locomotive firebox, from RH2 (scale 0.20m)

Plate 8-14 Large corner plinth brick with frogged brick attached, from RH3 (scale 0.20m)

Plate 8-15 Roof support pad from RH2 (scale 0.50m)

Plate 8-16 Roof (rafter) support coping stone from RH2 (scale 0.50m)

9. POTTERY, CLAY TOBACCO PIPE AND CERAMIC BUILDING MATERIAL

9.1 Finds from Excavation/Recording Phase 3 (YEP 12)

By: Jenny Vaughan with Alex Croom

9.1.1 Summary

9.1.1.1 A small assemblage of 13 ceramic items of post-medieval date was recovered from the YEP12 phase of work: six pottery fragments, four of clay pipe and three of ceramic building material. The date range of the material was possibly 16th to 19th century. Two sherds of Roman pottery and one sherd of Roman or medieval pottery were also recovered.

9.1.2 Pottery

9.1.2.1 Context [1194], developed soil: 1841 Engine Shed, ST

- Two sherds of reduced green-glazed pottery. Fabric fine and mid grey in colour. These appeared to be from the same vessel and were glazed inside and out. There were impressions on the outside of one sherd, possibly thumb prints. The glaze and general character suggest this is an early post-medieval vessel.
- A flake of grey fabric possibly the same vessel as above.
- Sherd similar to above but rather darker grey with an oxidised patch.
- Rim sherd (lid-seated) of red earthenware with brown glazed inside and out. External glaze has a dull patina.
- Flat fragment, possibly from base, of Staffordshire-type slipware with brown/yellow combed slip pattern. Buff fabric with a red clay slip coating with a combed white layer over it.

9.1.2.2 The presence of the Staffordshire-type slipware suggests a late 17th- to 18th-century date, though the other sherds could be earlier.

9.1.2.3 Context [1191], levelling/consolidation deposit: RH3, R3G

- Body sherd of gritty oxidised ware (Roman or medieval).
- Ebor ware base sherd of bowl with footring, Roman.

9.1.2.4 RH2, P33: basal levelling layer

- Rim of hemispherical flanged bowl with red/brown colour-coat, burnt on rim and flange, 3rd or 4th century AD.

9.1.3 Ceramic building material

9.1.3.1 Context [1191], levelling/consolidation deposit: RH3, R3G

- Small fragment of red earthenware, unidentifiable as to form, could be brick or tile.

9.1.3.2 Context [1194], developed soil: 1841 Engine Shed, ST

- Dark red roof tile fragment c. 12mm thick. Post-medieval.

- Light red flake ?tile, not possible to date.

9.1.4 Clay tobacco pipe

9.1.4.1 Context [1101] levelling/consolidation deposit: RH3, R3B

- Complete spurred bowl with sailing ship on one side and elaborate floral arrangement on the other, combining thistles, shamrocks and rose.
- Bowl and stem fragment with partial ribbing.
- Small stem fragment.

9.1.4.2 RH3, PP.26: levelling deposit

- Complete spurred bowl with sailing ship on one side and standing figure on the other.

9.1.4.3 The clay tobacco pipes are all of 19th-century date.

9.2 Finds from Evaluation Phase 2 (YES 12, 1841 Engine Shed)

By: Alex Croom

9.2.1 Pottery

9.2.1.1 Context [40], ground raising deposit: Trench 10

- Body sherd, samian Central Gaulish (Lezoux), 2nd century AD, probably Form 18/31 or 31.
- Body sherd blue and white transferware, late 18th century or later.

9.2.1.2 Context [68], ground raising deposit: Trench 8

- Oxidised body sherd, unknown period.

9.2.2 Tile

9.2.2.1 Context [40], ground raising deposit: Trench 10

- Body sherd of possible Roman tegula, but featureless and could be post-Roman.
- Three scraps, unidentifiable.

9.3 Discussion

9.3.1 The post-medieval pottery and ceramic building material is of no particular interest other than giving a broad indication of date. The two complete pipe bowls have intrinsic interest and may have some local significance.

9.3.2 The Roman material is entirely residual in context and is of no specific interest.

9.4 Recommendations

9.4.1 Further investigation and/or illustration of the complete pipe bowls could take place, if required, for inclusion in the published results of the work.

10. SUMMARY DISCUSSION OF THE ARCHAEOLOGICAL FINDINGS

10.1 Natural Sub-stratum

10.1.1 The earliest deposits recorded at the YET site represent the natural drift geological material, comprising glacial till overlain by alluvial deposits. Glacial till was, however, recorded only during previous geotechnical investigations, at a maximum height of 11.56m OD. At one location, in the north-eastern part of the site, glacial till was recorded at a height of c. 8.82m OD, overlain by material described as laminated clays with organic materials. This material probably represents fluvial deposits associated with the course of a palaeochannel.

10.1.2 The earliest deposits encountered in the phased investigations herein described were probably of alluvial origin. These deposits, comprising various compositions of gravel, clay and sand, were recorded within various sample excavations, enabling areas and pile locations in the 1841 Engine Shed, RH2 and RH3. In the 1841 Engine Shed, such deposits were encountered at a maximum height of 12.24m OD. In RH2, alluvial material was exposed within a sample excavation at a height of c. 11.35m OD, and in two pile locations (P56 & P57) within the central turntable well at a maximum height of 10.94m OD. Similar alluvial material was recorded during sample excavations in RH3, immediately north of the external wall at a height of c. 12.48m OD and internally at a maximum height of c. 11.68m OD.

10.1.3 It is concluded that alluvial material seen within the footprints of RH2 and RH3 had been substantially truncated by levelling activity associated with the construction of the buildings.

10.2 Sub-soil

10.2.1 Alluvial material in the 1841 Engine Shed was overlain by a sub-soil which produced a small assemblage of pottery and ceramic building material of post-medieval date. This layer probably developed during agricultural use of the area in the post-medieval period or earlier.

10.3 1841 Engine Shed

10.3.1 The 'straight' engine shed was one of a small group of such buildings constructed in the first half of the 19th century to the south-west of the original station, which lay to the north-east, within the city wall. The straight shed was built in 1841 for the GNER, on the south side of one of its lines. A contract document between the GNER and the firm Crawshaws of York dates to 1840 and this details the required works, materials used and overall costs.

10.3.2 The 1841 Engine Shed was the only straight shed to be recorded in the archaeological excavation/recording phases of work (evaluation Trench 3 recorded the well-preserved remains of a straight shed built in the southern part of the site between 1892 and 1909) and survival of its below-ground structural remains was exceptional. The building was first depicted on the Ordnance Survey 1st edition map of 1851 as a three-road rectangular structure. All four corners of the building were recorded, along with a large proportion of the western half of the structure and, in total, c. 50% of its complete footprint was exposed. The dimensions as recorded on the ground, c. 46.80m (153ft 6in) WNW-ESE x c. 16.40m (53ft 10in) NNE-SSW, are identical to those of the building depicted on the 1892

Ordnance Survey map at precisely the same location, demonstrating excellent concordance between the archaeological remains and the historical documentation.

10.3.3 Designed by George Townsend Andrews, the 1841 Engine Shed was initially built in brick, with a slated hipped roof, at a cost of £1,534. A photograph, thought to have been taken in 1923, shows the early elements, with the slate roof incorporating a large clerestory with later, probably 19th- or early 20th-century, steel-framed doorways (Plate 10.1). The shed was used by the GNER until it was taken over by the London Midland and Scottish Railway in the 1930s. It is likely that the shed was refurbished at this time, with the roof replaced. A mid-20th-century photograph shows the western entrance, with a shallow arched roof with brick fascia (Plate 10.2). The shed was later used for storing locomotives, until its demolition in 1963.

10.3.4 Original mid-19th-century structural elements of the straight shed to survive include the external brick wall and associated chimneys. Brick culverts running parallel to the external elevations of the north, south and east walls and skirting around the chimneys were for drainage and were probably associated with the original construction.

10.3.5 Relatively little remains of the original internal structure of the 1841 Engine Shed, with portions of the three inspection pits representing part of the original build, comprising the lowermost portion of the brick track walls, the brick floor, and the lower stone-slab portions of the access steps. The extant paved areas within the shed comprise a variety of materials including granite setts, scoria bricks, timber blocks and concrete. Of these, it is likely that only the sett surfaces represent the original 19th-century internal floor, with the remaining materials of early 20th-century or later date. Within the sett surfaces, areas of repair were recorded and although these were repaired with the same setts, they were bonded with cementitious mortar.

10.3.6 A substantial stone block and brick platform abutting the external elevation of the north wall of the 1841 Engine Shed probably represents the means of access for locomotives from roads immediately to the north. Although the date of construction for this platform is not certain, it is certainly later than the original building and incorporates an earlier chimney stack; since it is depicted on the 1892 Ordnance Survey map, it must pre-date this. A brick structure with concrete footing abutting the internal elevation of the north wall, interpreted as a possible smithing or hot works area, could potentially be contemporary with the external platform.

10.3.7 The majority of the internal structural elements of the 1841 Engine Shed, including the uppermost portions of the inspection pits, the majority of the floor surfaces and repairs, standpipe wells and drainage structures, represent refurbishment during the early and mid-20th century. Refurbishment of the inspection pits included the upper courses of the brick track walls, stone capping stones, timber waybeams and the upper concrete access steps, with all masonry bonded with cementitious mortar. It is possible that the stone capping for the track walls was reused from the original build. The eastern extent of the northernmost inspection pit was entirely fabricated using concrete, with brick forming the internal elevations, this representing a complete re-build, probably during the mid-20th century.

10.3.8 Surfaces associated with early 20th-century refurbishment/repair comprised areas of scoria bricks and areas of wooden block. Later, probably mid-20th-century, concrete surfaces were exposed at the eastern extent of the building, with some having rectangular impressions in imitation of the granite sett surface. The variation in surface material is likely to be the result of ongoing repair, although it is possible that the variations relate to

different types of locomotive maintenance being undertaken in certain areas. In addition, two areas of granite sett surface repairs to the north and south of the southernmost inspection pit were notable for the extent of differential settlement, perhaps suggesting the presence of an underlying structure.

10.3.9 Three standpipe wells recorded between the inspection pits of the 1841 Engine Shed represent part of a wider high-pressure water system recorded at the YET site. One example still housed the bayonet style connector that would have adjoined an upstanding hose connection. Similar standpipe structures and associated pipework were recorded in RH2 and RH3 with identical bayonet style connectors recorded within RH2. It is postulated that the high-pressure water system was installed at the York South depot in one episode, probably during the early 20th century.

10.3.10 Refurbishment of the three roads of the 1841 Engine Shed is represented by substantial construction cuts at the east and west entrances. In both areas the original brick external wall had been truncated and two iron pillars, set in concrete and brickwork, inserted. These areas were backfilled with ballast deposits. The track was represented only by a group of sleepers located at the north-east corner of the building and a single sleeper at the western end of the central inspection pit. The northern edge of a further road running parallel and external to the south wall is probably contemporary with refurbishment of the three roads.

10.4 Roundhouse 1

10.4.1 RH1, the first of the roundhouses to be built at the York South depot, was constructed in 1850-51. A nearly identical structure (RH2) was constructed in 1852 immediately to the south-west of and connecting with RH1. Both structures were probably designed by the YNMR chief engineer Thomas Cabry with the outer walls constructed in brick on stone foundations. A contemporary architectural drawing depicting all the engine sheds at the site includes the adjoining RH1 and RH2 (Figure 13).

10.4.2 RH1 is shown on the 1st edition Ordnance Survey map of 1851 and is depicted on contemporary architectural drawings as a 16-sided polygonal structure measuring c. 46.50m (152ft 6in) in diameter with 16 stalls, each with an inspection pit, radiating outwards from a central turntable c. 13.70m (45ft) in diameter. A proposed plan of RH1 shows the general layout of the structural elements (Figure 16). The roofs of RH1 and RH2 were initially open at the central locations above the turntables and the stalls covered by pitched roofs with a level ridge. Both structures were refurbished in 1889-90 to designs by NER architect William Bell. An elevation and cross-section of RH1, as designed by Bell, shows the conical replacement louvered roof and its support structure (Figures 14 and 15).

10.4.3 Only the north-westernmost portion of RH1 was exposed, the remainder lying beyond the site boundary below the current arrangement of tracks to the south-east. The exposed portion measured c. 37.80m NE-SW by c. 11.0m NW-SE, this representing just under 20% of the total structure. RH1, which was destroyed by fire in the early 1920s, was the least well preserved of the three roundhouse engine sheds at the site with substantial horizontal truncation having resulted in the removal of the interior floor surfaces and the uppermost portions of the inspection pits. Further truncation had also occurred during the construction of a later inspection pit, probably associated with major alterations to RH2 in the 1930s.

10.4.4 Surviving, original, 19th-century structural elements of RH1 include the stone external wall, inspection pits, column bases and an internal brick structure. Six sides of the external

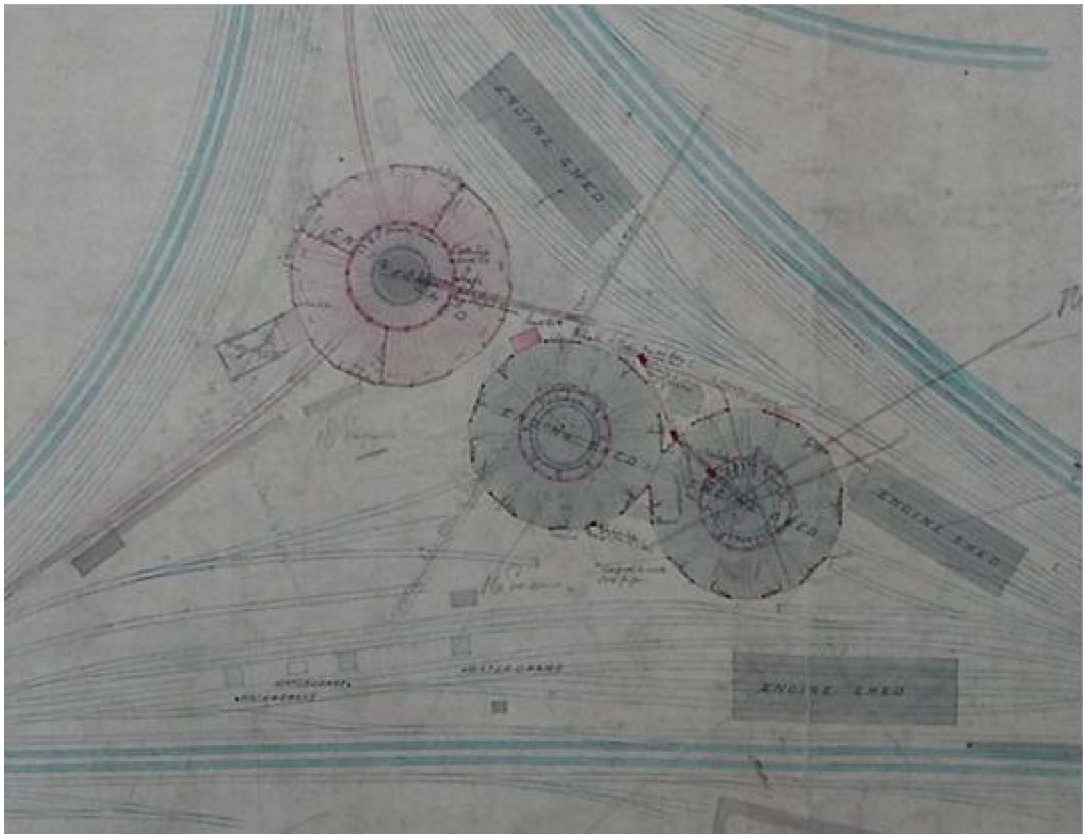


Figure 13 NER proposals plan for RH3 (built c. 1863), with overview of the YET site (NA RAIL 527.2369)

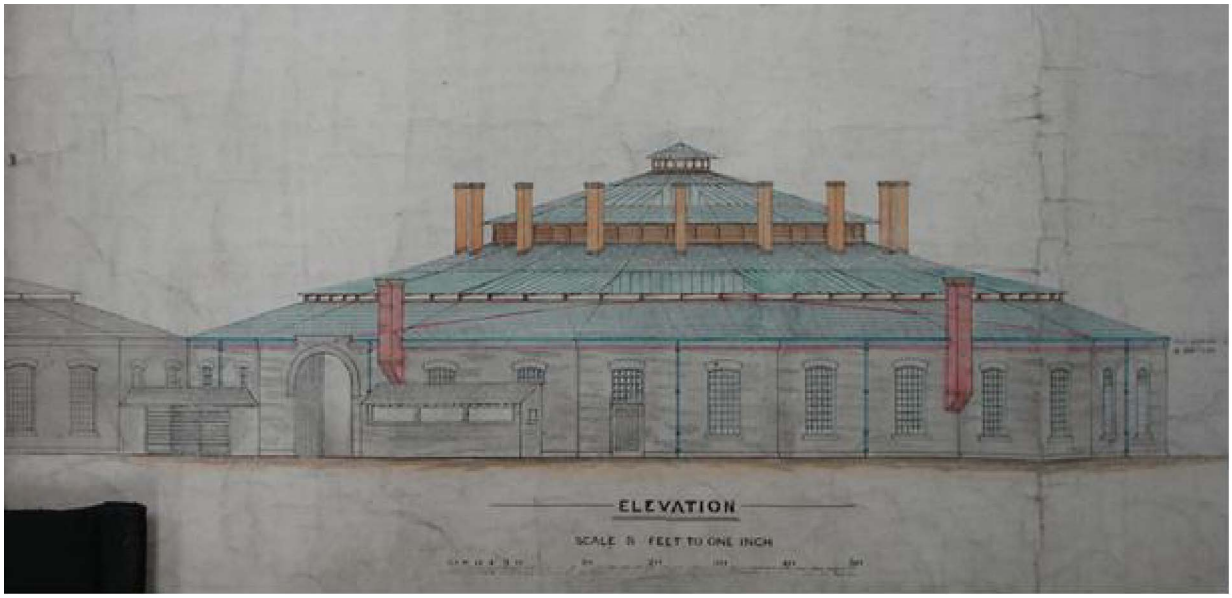


Figure 14 External elevation of RH1, with new roof c. 1890 designed by W. Bell (NA RAIL 527.590)

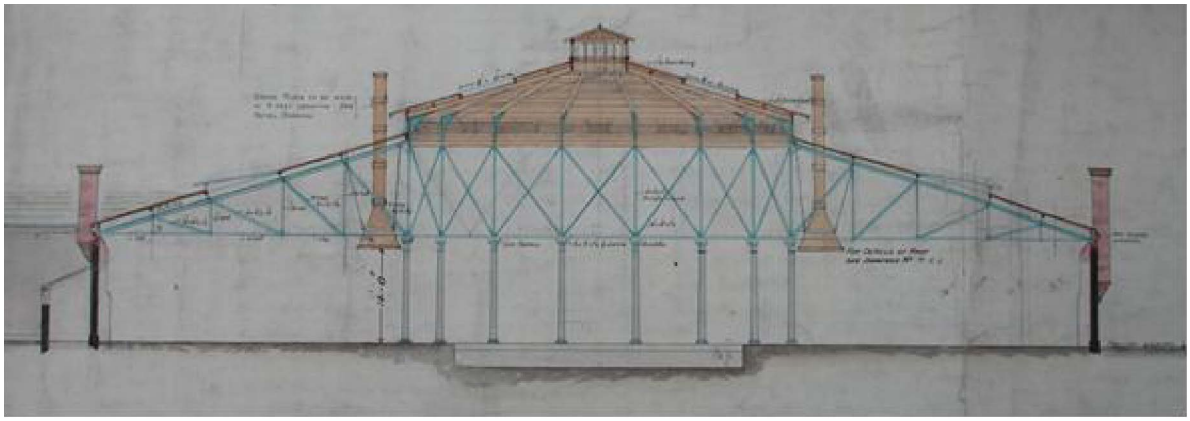


Figure 15 Cross-section of RH1, with new roof c. 1890 designed by W. Bell (NA RAIL 527.590)

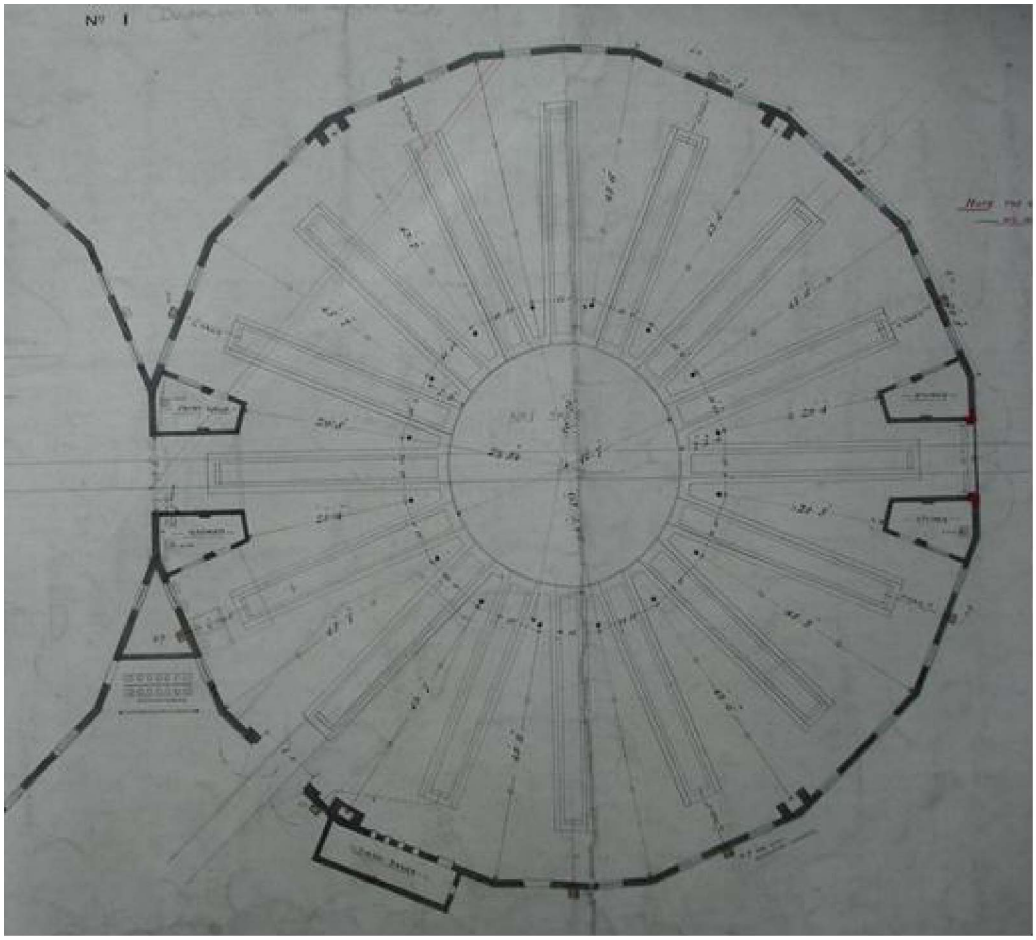


Figure 16 Plan of RH1, as re-designed c. 1890 by W. Bell (NA RAIL 527.590)

wall were either partially or wholly exposed within the area of investigation. The four sides of the external wall to be exposed fully each measured 9.0m (29ft 6in) in length, and presumably each of the original 16 sides was of the same dimension. At the southern extent of the exposed portion of external wall the uppermost courses were built in brick. This occurs at the interface between RH1 and RH2 and represents the location of the through-road between the two. The architects' plan of the building shows two external entrances, with one to the north-east following the alignment of the through road between the engine sheds and a further entrance to the SSE. The architects' elevation drawing shows the exterior wall in some detail, with the SSE entrance comprising a rounded arch and the windows segmented arches (Figure 14). Fawcett (2001) notes that, at some stage, the original rounded arched entrances were replaced with segmented arches and although this is not depicted on the aforementioned elevation drawing, this change may have been undertaken during refurbishment. Also of note on the elevation drawing are two structures. The first, located to the east of the SSE entrance, is a rectangular structure with single pitch roof, annotated 'sand dryer' on the architects' ground plan, while the second is shown adjoining RH2 and probably represents an access between the buildings.

10.4.5 The end portions of only four inspection pits of RH1 were exposed. These examples all comprised brick track walls, with other structural elements including stone slab access steps exposed in two inspection pits and a shallow concave brick surface exposed within a sample excavation. The uppermost portion of the inspection pit walls were presumably formed by stone capping blocks that would have underlain the track, however, these did not survive.

10.4.6 The architects' ground plan of the 1841 Engine Shed depicts three concentric circles of column bases within RH1. Four such column bases, forming parts of the two outermost rings, were exposed, partially or wholly, within three areas between the inspection pits. All were of similar dimensions where fully exposed and built in brick.

10.4.7 A tapering rectangular structure abutting the internal elevation of the perimeter wall of RH1 at the interface with RH2 is depicted on the architects' plan, annotated 'paint store' (Figure 16). The plan shows a similar structure on the opposite site of the through-road, this annotated 'stores'. Where the through-road exits to the north-east, a similar arrangement of identical structures is depicted, also annotated 'stores'. Four chimneys are depicted on the architects' plan, two of which are also depicted on the elevation drawing. One chimney, comprising two short lengths of brick wall abutting the internal elevation of the perimeter wall, was exposed within the investigation area. This probably represents a smithing or hot working area.

10.4.8. A square, brick drainage structure abutting the external elevation of the perimeter wall of RH1 is depicted on the architects' ground plan, annotated 'DP'. Two other brick drainage structures were recorded abutting the internal elevation of the perimeter wall. These structures are not shown on the architects' ground plan and may therefore represent late 19th- or early 20th-century additions.

10.5 Roundhouse 2 and Associated Octagonal Building

10.5.1 RH2 was built in 1852, soon after RH1. Correspondence between Thomas Carby and the directors of the YNMR suggest that some of the materials had already been purchased for the construction of RH2, presumably during the construction of RH1, and the reduced cost for the RH2 engine shed is stated as being £1,600. This indicates that the two engine sheds were planned as a pair.

10.5.2 Contemporary design and construction drawings show that RH2 was largely identical to RH1; a 16-sided polygonal structure measuring c. 46.50m (152ft 6in) in diameter with 16 stalls, each with an inspection pit, radiating outwards from a central turntable measuring c. 13.0m (42ft 7in) in diameter (Figure 17). The majority of this structure was exposed within the area of investigation with only the extreme south-easternmost portion lying beyond the site boundary, below the current arrangement of tracks, so that the exposed portion represents an estimated 87% of the entire structure.

10.5.3 The original surviving structural elements of RH2 include the external wall, the lowermost portions of the inspection pits, column bases and the turntable well. Refurbishment was undertaken in 1889-90, involving the roof being re-built, with other refurbishment also probably undertaken at this time. During the early 20th century, the south-eastern extent of RH2 was truncated to accommodate the expansion of the railway tracks, probably when the new station was enlarged. This would have resulted in a shortening of the corresponding inspection pits, possibly making them unusable (Plate 10.3).

10.5.4 In terms of design and construction, the stone perimeter wall of RH2 was similar to that of RH1, with each section of wall being 9.0m (29ft 6in) in length. A sample excavation revealed a stepped wall foundation, although the construction cut was recorded only at the external elevation. This indicates that ground reduction was carried out across the entire footprint of the building, followed by construction of the main structural elements, including the perimeter wall, turntable well, inspection pits and column bases, with the construction cut then backfilled. The entrance to the building is depicted on a contemporary design and construction plan to the SSW (Figure 16). No traces of the original entrance were recorded within the limit of investigation; at its assumed location, a substantial construction cut filled with consolidation and ballast material truncated the external wall. Although this represents a later road element, the original road into the engine shed is assumed to have been similarly located.

10.5.5 All 16 inspection pits to be revealed were similarly constructed with brick track walls capped with stone blocks and a shallow concave brick surface incorporating a drain covered with an iron plate. At the end of each inspection pit were up to two steps, mostly cast iron, with occasional stone or brick examples also recorded.

10.5.6 The lowermost portion of the inspection pits, including track walls, represent the original build, with the uppermost courses of brickwork, the stone capping and possibly the surface, representing elements of the aforementioned late 19th-century refurbishment of both roundhouses. Sockets and recesses within the stone blocks capping the track walls represent fittings that would have housed the rail track. Set into the brick surface at the back of the majority of inspection pits were timber sleepers, these probably to provide a means of fixing wheel stops, also likely to be associated with the later refurbishment.

10.5.7 When built, the inspection pits of RH2 were flush with the external wall of the central turntable well. At some stage, possibly when the late 19th-century refurbishment took place, the pits were shortened to accommodate a circuit of iron pipework forming part of an extensive high-pressure water system. Further elements of the pipework were exposed extending southwards beyond the building and these probably represent supply pipes. Eight standpipe structures were recorded within RH2, with the majority still containing their bayonet connector. These connectors were identical to the type recovered from the 1841 Engine Shed and, as discussed above, it is considered likely that the whole system was installed in one episode. A 19th-century design and construction drawing (NA ref. RAIL 527.590, not reproduced herein) depicts the system of pipes and location of

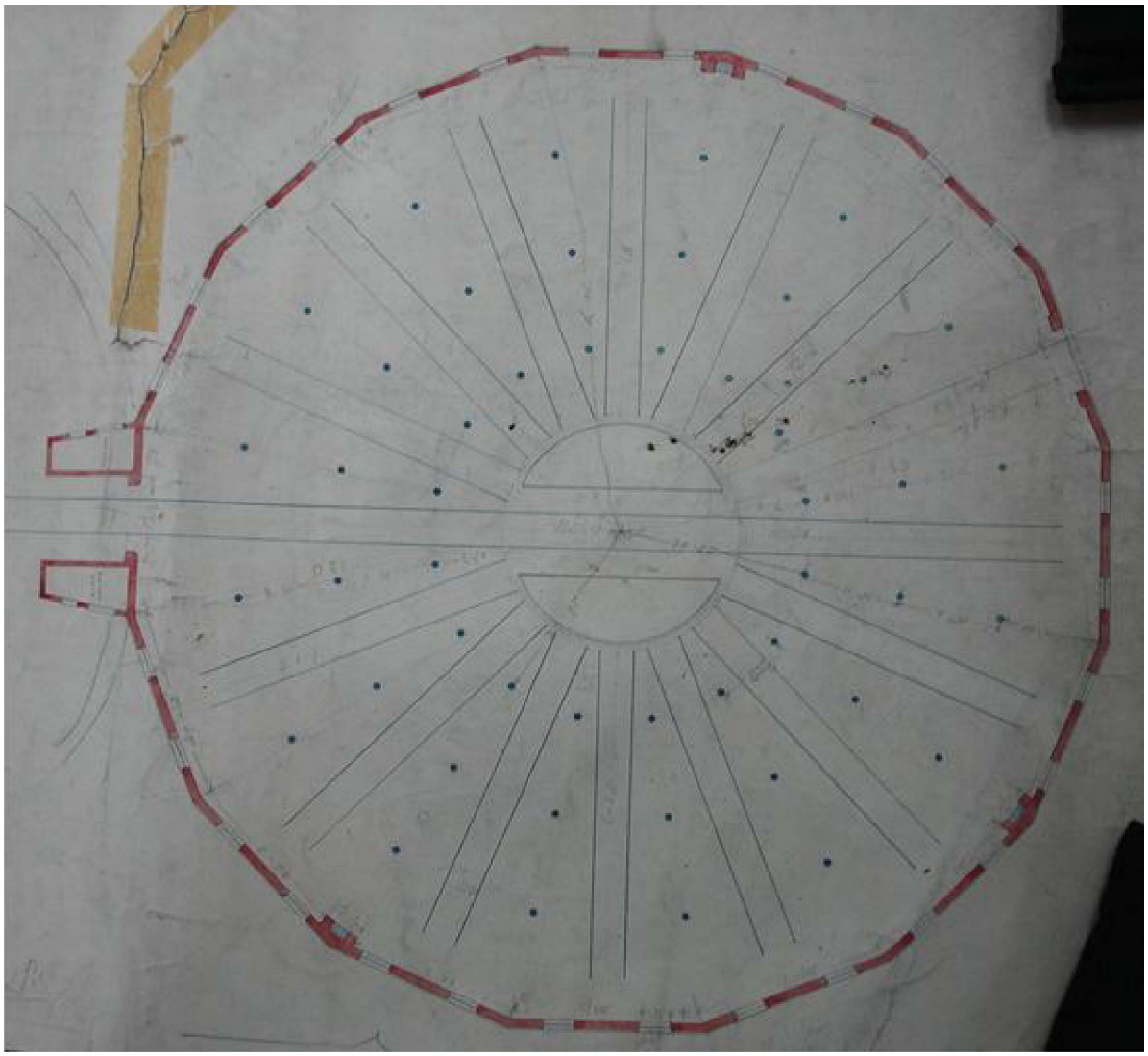


Figure 17 Plan of RH2, as built (NA RAIL 527.2369)

standpipes, as well as the circular drainage system into which the inspection pit drains connect. Three manholes with cast iron covers that formed access points to the drainage system were recorded in areas of scoria brick surface within the building, c. 3.0-3.5m from the edge of the turntable well.

10.5.8 A contemporary design and construction drawing of RH2 depicts three concentric rings of 16 columns internal to the building (Figure 17). The column bases of the innermost ring were initially exposed, with those of the two outer rings situated below the extant scoria brick surface, but with their locations indicated by raised, roughly square areas in the surface. Four column bases of the outer rings were subsequently exposed in various enabling areas, all being square and constructed in stone. Presumably each column base would have been surmounted by a stone pad on which the column would have been supported.

10.5.9 The two outer rings of columns were probably removed during the refurbishment of both RH1 and RH2 in 1889-90 when the original roof was replaced with a steep conical roof. The innermost ring of 16 column bases remained in the refurbished building, these comprising square pads, 10 of which still had the iron base plate attached by fixing bolts.

10.5.10 Another structure recorded below the brick surface within an enabling area in the south-western quadrant of RH2 was a brick drain abutting the internal elevation of the perimeter wall, which pre-dates the late 19th-century refurbishment of RH2. Three brick- drainage structures abutting the external elevation of the perimeter wall are more likely of 20th-century date.

10.5.11 The internal and external diameters of the turntable well were c. 13.0m (42ft 7in) and c. 14.0m (46ft) respectively. Surviving elements were the outer wall, perimeter rail, locking mechanism and central pivot well. The lowermost portion of the outer wall was built in brick with stone capping blocks above. Where the locomotives were brought in from the original entrances and the through-road to RH1, the corresponding capping stones were substantially larger, probably to accommodate more frequent use of these elements.

10.5.12 The perimeter rail and locking mechanism in the turntable well were fixed to a row of substantial stone blocks. The remainder of the surface was formed by a thin concrete slab, with a more substantial stone rubble and lime mortar footing, which gradually sloped downwards to the well that housed the central pivot. The pivot well was a circular brick structure measuring c. 3.50m (11ft 6in) in diameter and c. 0.53m deep, with the pivot mounting a substantial concrete block. Incorporated into the outer wall to the north and south were two square pits giving access to the turntable well, presumably to allow maintenance. It is likely that the extant elements of the turntable represent part of the original structure, with no obvious evidence of later repair or refurbishment.

10.5.13 Three chimneys are depicted on a contemporary design and construction drawing for RH2, and the remains of two of these were exposed within the investigation area, one in the north-east quadrant of the building, the other in its western half. The surviving components were rectangular stone structures adjoining the internal elevation of the perimeter wall. The easternmost was within the area of a pile and was excavated to a maximum depth of 1.80m, the same depth as the wall.

10.5.14 The extant internal surface of RH2 was entirely composed of scoria bricks. This paving was probably laid down as part of the refurbishment undertaken in 1889-90 and directly overlay the aforementioned disused two outer rings of stone column bases. A group of concrete pads and posts set within this surface either side of one of the inspection pits in

the north-east quadrant of the building probably represents the base of a framed structure that straddled the inspection pit.

10.5.15 A rectangular brick structure measuring c. 3.60m by 6.60m, abutting the external elevation of the perimeter wall of RH2, is depicted on a design and construction drawing for RH3 (NA ref. RAIL 527.2368, not reproduced herein), suggesting that it was a later addition, presumably built in 1864 at the same time as RH3. On the drawing, the structure is annotated 'proposed office for loco foreman workers'.

10.5.16 The latest structure associated with RH2 is a substantial concrete inspection pit, this constructed to its north-east, following demolition of RH1. The inspection pit extended north-eastwards from an inspection pit within RH2, the exterior wall was truncated and a length of concrete road inserted to join the internal and external pits. The construction date for this external pit is unclear, however its depiction on the 1937 Ordnance Survey map provides a terminus ante quem. Construction of the new access road for RH2 was apparently to replace the connecting road formerly between RH1 and RH2 and this work seems likely to have been associated with the significant alterations to RH2 to accommodate an additional station platform.

10.5.17 Located immediately to the north-east of the interface between RH1 and RH2 is an octagonal building which measures c. 7.90m across, probably representing the locomotive foreman's office for both RH1 and RH2. This building had an outer brick wall and internal concrete surface with centrally located stone slabs. Its entrance lay to the north-east as attested by the presence of elements of a stone and concrete threshold. The building is depicted on a mid-20th-century photograph with an ornate conical roof with domed lantern and central chimney (Plate 10.4). The central stone slabs are most likely to have supported a stove. Another photograph shows the building with the roof removed and rounded arched windows in brick (Plate 10.5).

10.6 Roundhouse 3

10.6.1 RH3 was designed by NER architect Thomas Prosser and built in 1863-4, immediately to the west of RH2. The structure is depicted on contemporary NER design and construction drawings as an 18-sided polygonal structure measuring c. 52.50m (172ft) in diameter with 18 stalls, each with an inspection pit, radiating outwards from the central turntable well, shown with an internal diameter of 13.90m (45ft 7in) (Figures 18 and 19).

10.6.2 When built, RH3 was noticeably different from RH1 and RH2. The central portion of the roof comprised three graduated conical sections reaching a height of 55ft and supported by a central ring of columns and the 18 stalls each had a gable roof supported by two intermediate columns between the central columns and the outer wall. Each gable end comprised decorative brickwork incorporating rounded arched iron-framed windows in groups of three. The entrances were square with segmental arch overhead. All of these structural elements are detailed on a 19th-century transverse section drawing (Figure 20).

10.6.3 Approximately 69% of RH3 was exposed within the investigation area, with the westernmost portion lying within the site boundary but beyond the new build footprint in the re-development and therefore left in situ. It was established that the method of construction was similar to that recorded for RH2, with ground reduction evidently undertaken across the entire footprint of the building and the main structural elements, including the external wall, inspection pits, column base and turntable well erected, prior to backfilling of the construction cut.

10.6.4 The foundation elements comprising the external wall, column bases and inspection pits are depicted on a contemporary design and construction plan of RH3 (Figure 18). Part of the c. 0.23m thick concrete footing upon which the brick external wall was constructed was recorded. Two narrow buttresses recorded at the corner of each segment of wall were possibly built for additional structural support, however their relatively insubstantial nature perhaps suggests a purely decorative function.

10.6.5 Six chimneys which represent smithing or other hot working areas are depicted on contemporary design and construction drawings (Figures 18 and 19) and three of these were exposed within the investigation area, abutting the perimeter wall internally. All were similarly constructed with two parallel brick walls. Two examples were poorly preserved, with only the south-easternmost retaining its brick surface, although this element probably represents an early to mid-20th-century alteration since the surface incorporated pipework for a gas supply. This indicates that the earlier, presumably coal-fuelled, chimneys had been converted. This chimney structure had to be largely dismantled due to its location within an enabling area and the earlier 19th-century elements of the two walls were recorded.

10.6.6 Parts of 18 inspection pits were exposed within RH3, with a further external inspection pit located to the north-east. Two of the internal pits were emptied of their infill. All inspection pits measured c. 16.10m long by c. 2.20m wide and where excavated were up to 0.82m deep. These were similarly constructed with brick track walls, capped with stone blocks, and a shallow concave brick surface incorporating a drain. At each end of the inspection pit were access steps comprising a course of brick overlain by stone slabs. Sockets and linear impressions on the capping stones probably represent fixing points for track, with the recesses likely to indicate the location of packing below the rail.

10.6.7 The inspection pits of RH3 are depicted on contemporary design and construction drawings. An annotated transverse cross-section of the inspection pit and associated drains shows the inspection pit with the track wall and its concrete foundations (Figure 21). The drain is also shown in detail, with the main drain well and the cast iron pierced drain cover, one of which survived in situ within the inspection pit excavated in the south-eastern quadrant of the building.

10.6.8 A circular drainage system, incorporating all recorded inspection pit drains and manholes, is also depicted on the aforementioned design and construction drawings. It is shown feeding into a substantial brick culvert located below inspection pit [636] in the north-eastern quadrant of the building, continuing north-eastwards below the external inspection pit. Details of this drainage system are depicted on several 19th-century drawings (NA RAIL 527.2369 and 527.2368, not reproduced herein).

10.6.9 The inspection pit external to RH3 was located immediately beyond its north-eastern entrance, aligned with internal inspection pit [636] and joined by a short length of track. As part of the groundworks for the re-development it was necessary to remove the external inspection pit and this exposed a section of the inspection pit and the underlying brick culvert. An identical construction technique had been used for the external pit as for the internal pits, suggesting that they were probably constructed contemporaneously. The design and construction drawings depict the external inspection pit with a substantial culvert running beneath it and the pit is shown as being 60ft (c. 18.30m) in length. The culvert comprised an arched brick structure with internal dimensions of 0.60m wide, exposed for a maximum height of 0.50m. The construction plans depict it as an ovoid-shaped arched structure with internal dimensions of 2ft (c. 0.60m) wide and 3ft (c. 0.90m)

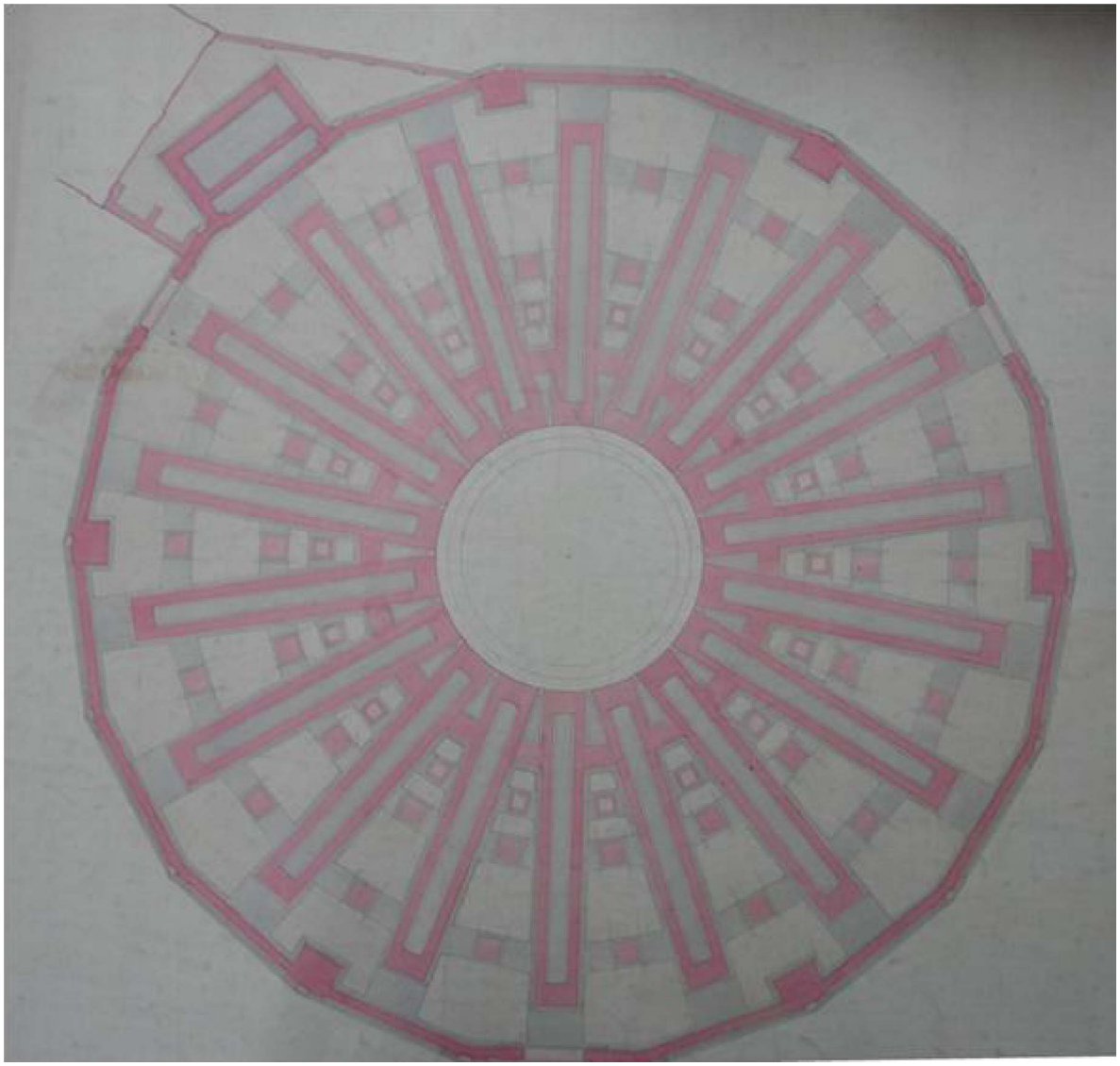


Figure 18 Plan of RH3, as designed, showing foundation structures (NA RAIL 527.2368)

high with the combined height of the culvert and inspection pit 10ft 5in (c. 3.20m) high (Figure 22).

10.6.10 The majority of the extant floor surface of RH3 comprised granite setts which are likely to represent the original surface. Repairs of probably early to mid-20th-century date included a substantial area of brick surface within the north-eastern quadrant of the building and smaller areas of concrete, scoria brick and timber boarding within the south-eastern quadrant.

10.6.11 The design and construction drawings for RH3 depict three evenly-spaced concentric circles of internal column bases (Figures 18 and 19). In total, 32 column bases were recorded, in various states of preservation, the majority infilled with various materials. Where these survived in good condition, the base for the cast iron column comprised a square sandstone slab with a central octagonal socket, within which were four deeper rectangular sockets, with a single example retaining its fixing bolts and the remains of a circular iron plate. Exposed within two enabling areas were three brick mounts which housed the stone column bases. In each case this comprised an original square brick mount with brick extensions. It is considered most likely that the extensions represent an attempt to rectify an error in the initial construction.

10.6.12 The surviving elements of the central turntable well of RH3 comprised an outer wall, perimeter rail, locking mechanism and central pivot. The turntable well measured c. 15.0m (c. 49ft) in diameter from the exterior of its outer wall with an internal diameter of 13.90m (c. 45ft) measured from the edges of the locking plates. The turntable is shown with a diameter of 45ft on the contemporary design and construction drawings, demonstrating close concordance between historical documentation and the archaeological remains as recorded. Two brick and stone structures incorporated into the outer turntable wall to the north-east and south-west represent access pits for maintenance. Recessed into the back wall of the north-eastern access pit was an exposed section of iron pipe. This pipe probably extends around the circumference of the turntable well joining further supply pipes and represents a high-pressure water system similar to that exposed within the 1841 Engine Shed and RH2. It is unknown whether the water system was retrospectively fitted or part of the original build of RH3.

10.6.13 Ten square structures forming a concentric circle lying c. 4.50m from the outer wall of the turntable well have been interpreted as a system of standpipes and manholes. They are depicted on contemporary design and construction drawings, alternately annotated 'Bell Trap Cock Pit' and 'Shaft' around the underlying circular drainage system which also incorporates the drains within the inspection pits (Figure 19).

10.6.14 Two timber and concrete structures, probably representing the footings for a framed structure straddling inspection pit [673], were recorded in the south-eastern quadrant of RH3. Further elements of this structure were exposed within an enabling area, comprising a timber set into a concrete footing, with the timbers fixed by two iron bars that in turn would have secured the superstructure of the frame.

10.6.15 Another original element of RH3 was the northern portion of a rectangular structure lying external to the south perimeter wall. This structure and its associated yard area are depicted on a contemporary design and construction drawing, annotated 'sand drying furnace' (Figure 19). As exposed within the limit of investigation, this comprised a narrow corridor with its north wall formed by the external wall of RH3 and a partition wall forming

its south wall, beyond which lay a larger room, which for the most part remained uncovered. A chimney is shown on the aforementioned plan abutting the internal southern

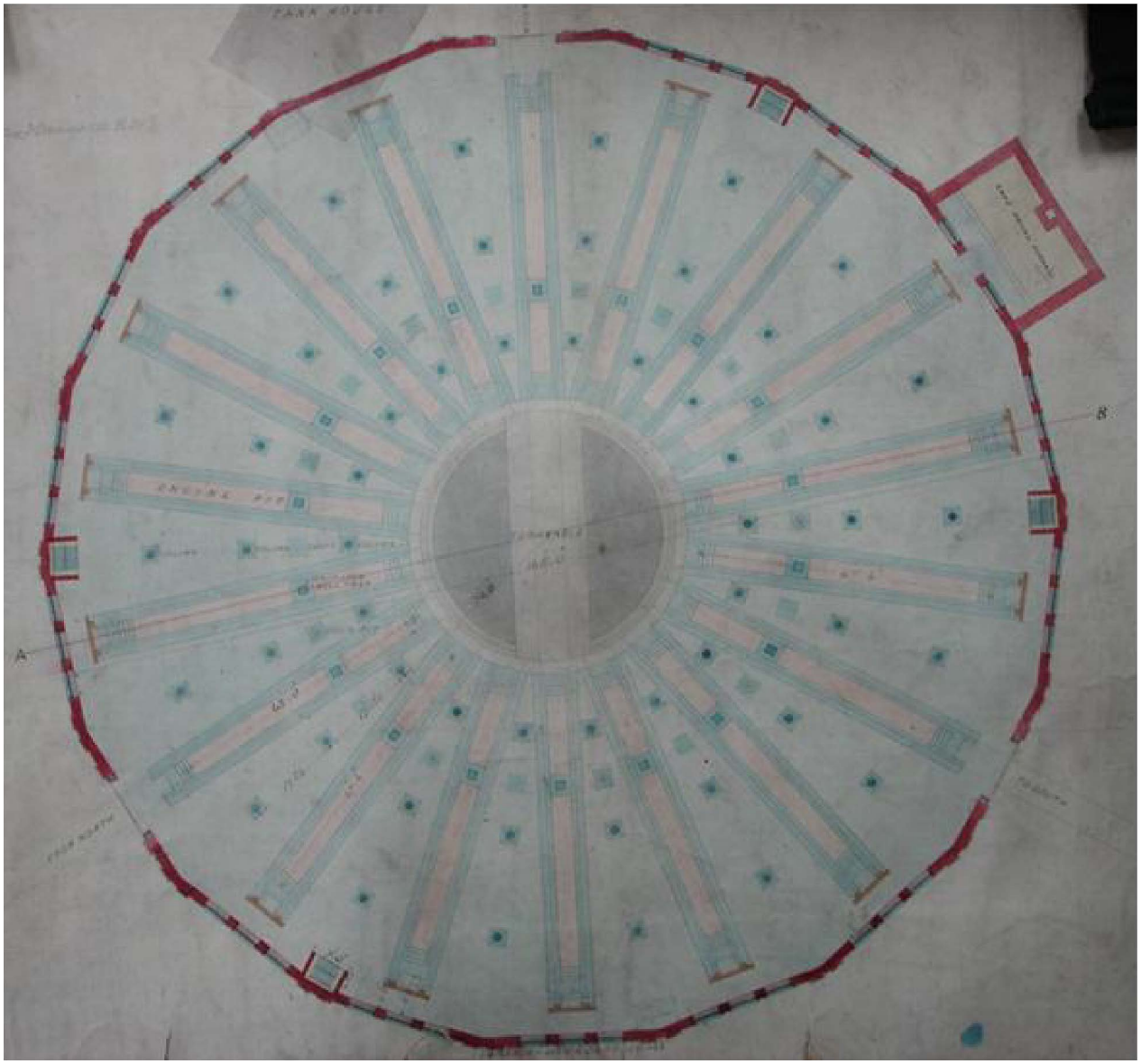


Figure 19 Plan of RH3, as designed (NA RAIL 527.2369)

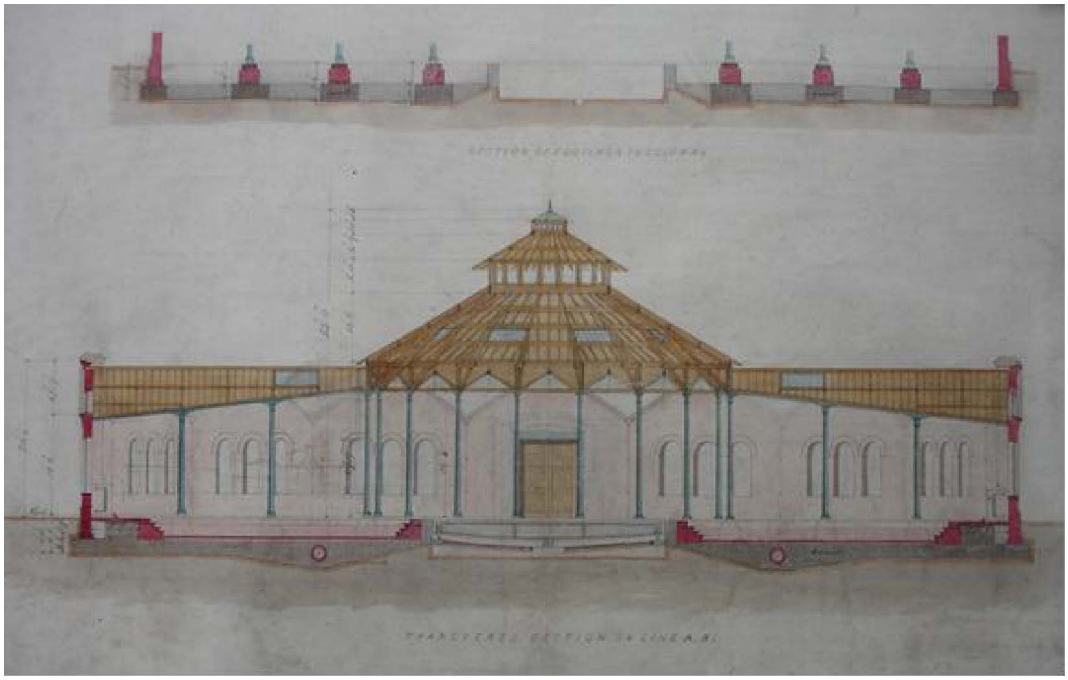


Figure 20 Cross-section of RH3, as designed (NA RAIL 527.2368)

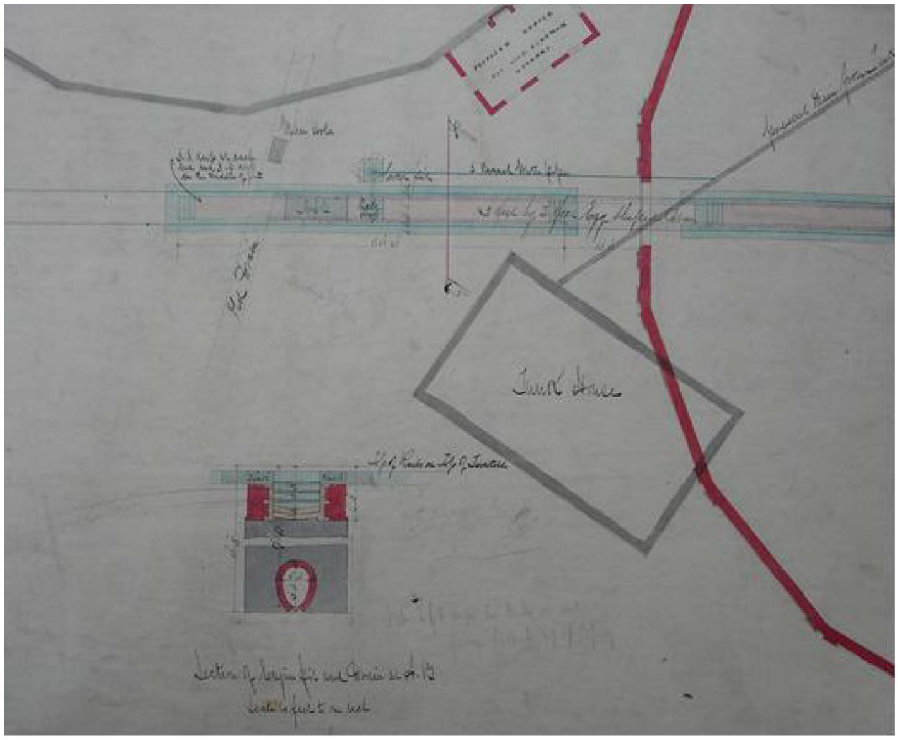


Figure 21Cross-section of external inspection pit and culvert, as designed (NA RAIL 527.2368)

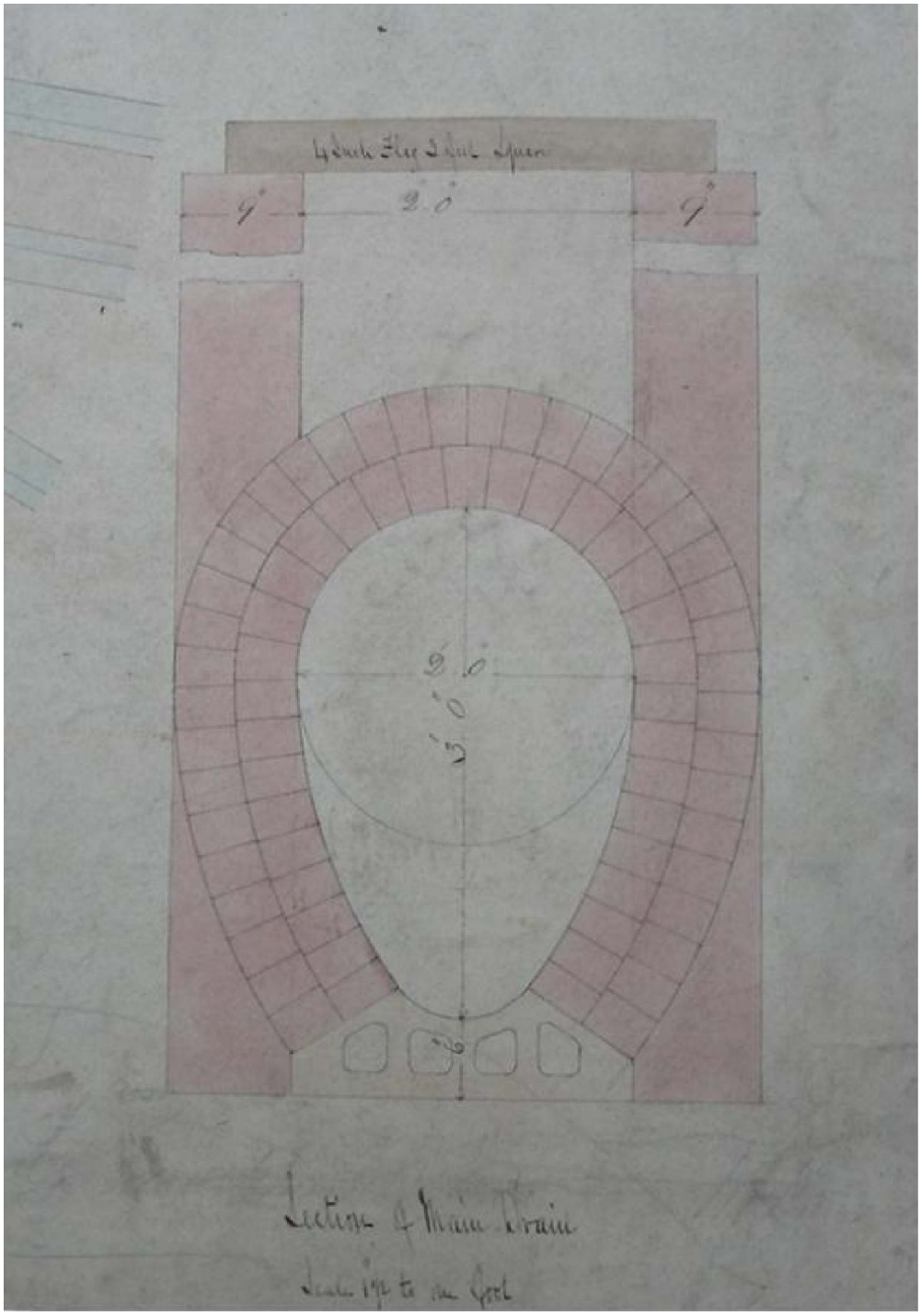


Figure 22 Cross-section of culvert, as designed (NA RAIL 527.2368)

wall of the larger room. A small chamber was exposed within the partition wall between the corridor and the main room at its south-western extent which had been blocked by stone infill. A small portion of a further chamber was also recorded immediately to the east. The function of these was not ascertained. Sand would have been sprayed onto the rail track in front of the driving wheels and was essential for traction in wet or greasy conditions. Locomotives' sand boxes were supplied from the sand-drying furnace, where the sand was dried, processed and stored. Parts of external yard surfaces associated with this building were recorded to the east and west.

Plate 10-1 Photograph (taken after c. 1923) of the 1841 Engine Shed, showing clerestory roof (Hoole 1983, 71)

Plate 10-2 Photograph (taken mid-20th century) of the 1841 Engine Shed, showing arched brick roof (Rose 1994, 21)

Plate 10-3 Photograph of York South, with RH2 to right, showing truncation at south-eastern extent, and RH3 to left (Hoole 1972, 122)

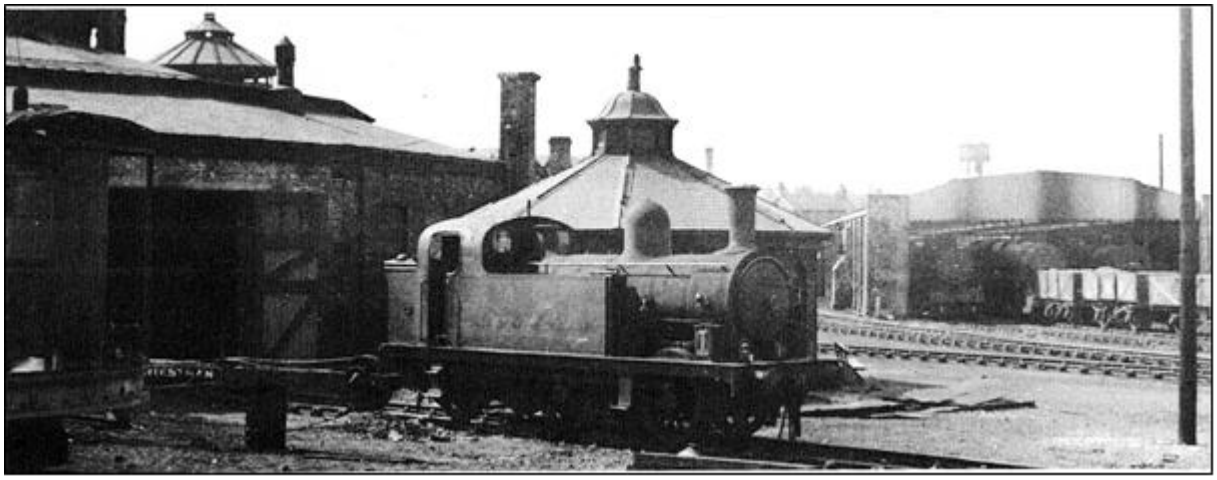


Plate 10-4 Photograph (taken mid-20th century) showing Octagonal Building beside RH2 entrance to left, and 1841 Engine Shed in right rearground (Bolger 1984, 10)

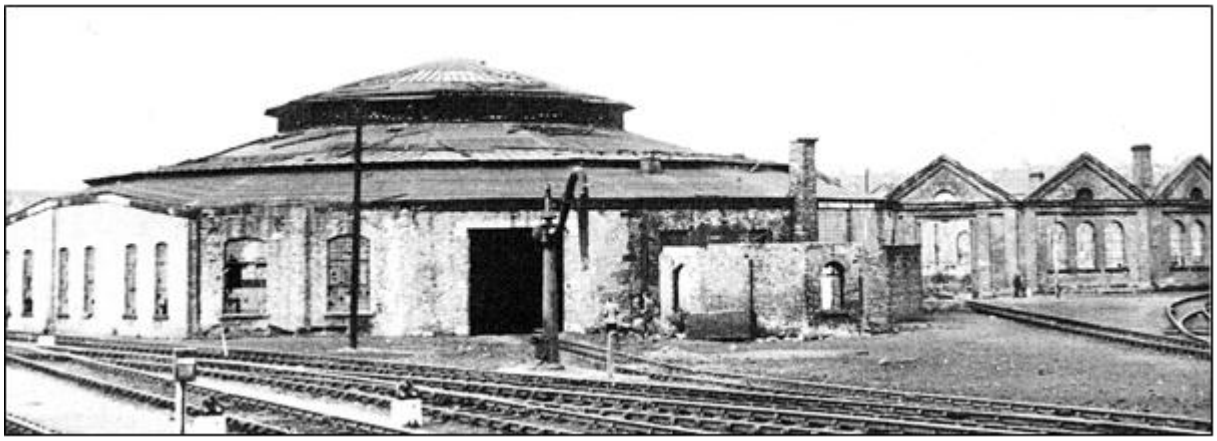


Plate 10-5 Photograph (taken mid-20th century) showing RH2 to left, Octagonal Building partly demolished, and RH3, roofless, in right rearground (Bolger 1984, 10)

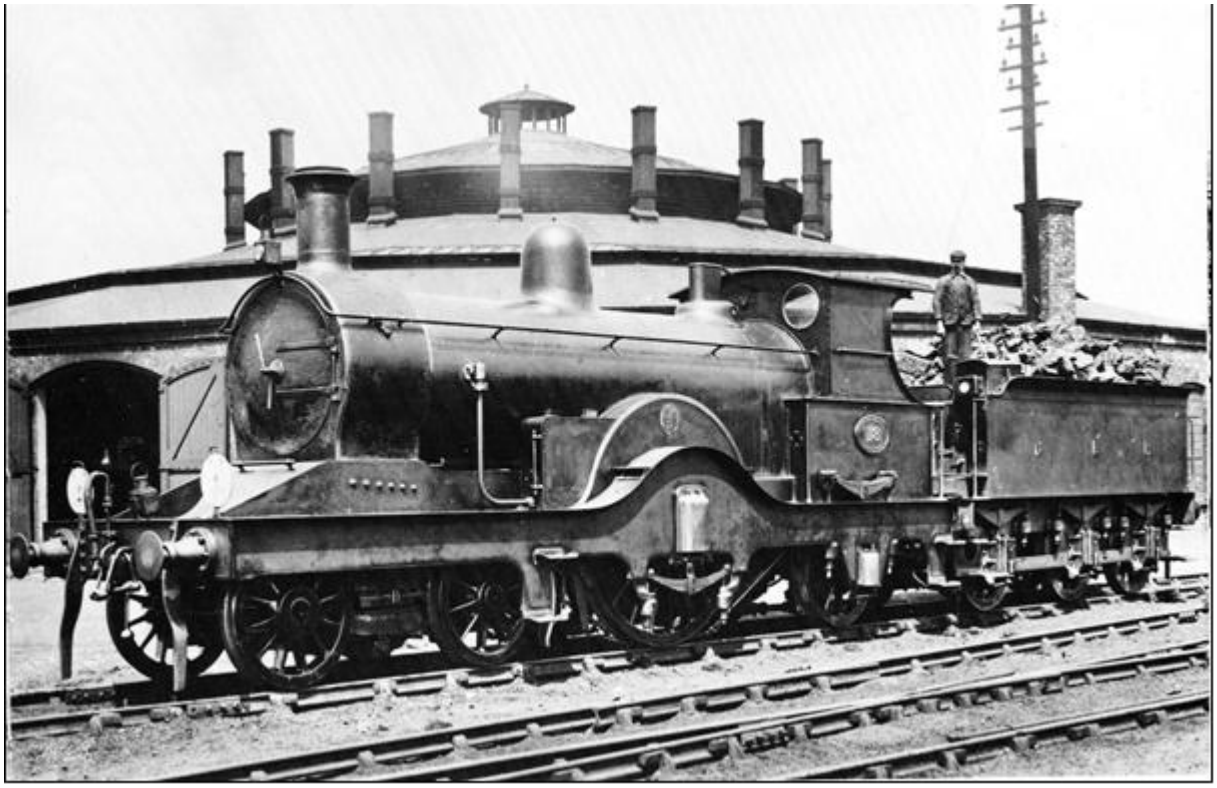


Plate 10-6 Photograph (taken early to mid-20th century) showing southern entrance of RH2 in rearground (Hoole 1983, 71).

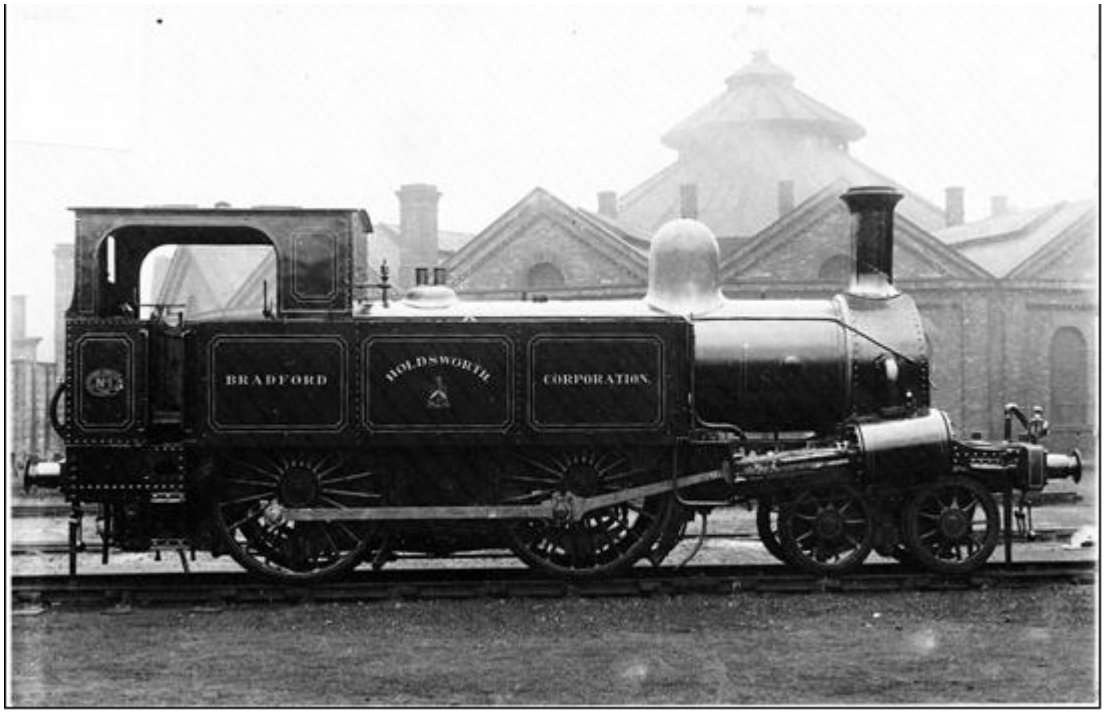


Plate 10-7 Photograph (taken mid-20th century) showing RH3 in rearground (Hoole 1983, 74)

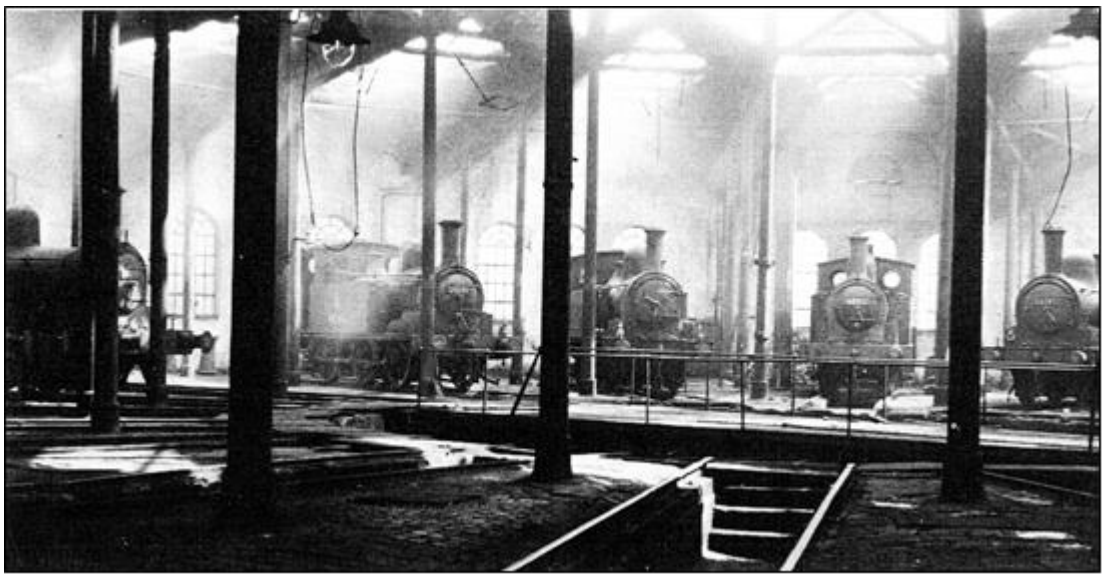


Plate 10-8 Photograph (taken 1952) of interior of RH3 showing turntable well, roof columns and stabled locomotives (Bolger 1984, 10)

Plate 10-9 Photograph (taken mid-20th century) showing interior of RH3 interior, with detail of squared entrance with segmental arch in rearground (Rose 1994, 80)

11. SIGNIFICANCE OF THE PROJECT DATA AND RECOMMENDATIONS FOR FURTHER WORK

11.1 Summary of the Significance of the Site Data

11.1.1 The phased archaeological investigations at the YET site have demonstrated the remarkable preservation of the below-ground remains of structures, within what was the core element of the York South depot. Given the extent of survival and the detailed level of recording undertaken, the archaeological work substantially enhances our understanding of this historic operational focus of York's railway infrastructure. In addition, the remains themselves may be recognised as forming a highly significant part of the rich and important railway heritage of the City of York and the region in general.

11.1.2 The principal remains identified at the YET site comprise the 1841 'straight' Engine Shed, the 1850/1852 couplet of roundhouses (RH1 and RH2), with an associated freestanding octagonal office building, and the 1864 individual roundhouse (RH3). As highlighted in the ARMP, the three roundhouses at the YET site are a rare, if not unique, survival of a triplet of such buildings in the UK. Given the excellent state of preservation and substantial completeness of below-ground fabric of RH2 and RH3, as demonstrated by the investigations, it is concluded that these archaeological remains, along with those of the 1841 Engine Shed, are of, at least, regional significance. The general association of York's rail development with visionary railway entrepreneur George Hudson, and the more specific relationship, through NER architect Thomas Prosser, between the 1864 structure, RH3, and the magnificent current York Station, can only be considered to compound the importance of the remains.

11.1.3 The rich resource of historical documents associated with the structures at the site adds considerable further significance to the archaeological remains. Architects' drawings and other documentary sources provide details which do not survive as archaeological remains, such as construction techniques for walls and roofs, materials used to build such above-ground elements and views of the buildings as originally designed showing external elevations and roofs. The range of historic photographs illustrating the use, form and decline, further enhances the significance of the site by shedding light on the internal workings of the roundhouses during their operational life in the 19th and 20th centuries. Such resources have helped to elucidate certain aspects of the in situ archaeological remains and the associated finds.

11.1.4 Initial exposure and recording of the historic structures allowed their extent and – for the 1841 Engine Shed and RH2 and RH3 – their excellent degree of survival to be appreciated. Subsequent enabling works for the re-development scheme necessitated targeted dismantling and recording of the fabric of the structures, and this work in particular provided intimate insights into the construction, use, repair and adaptation of the buildings. The results of this invasive work therefore complemented and shed new light upon the information provided by the documentary sources, adding further significance to the archaeological data. The significance of the in situ remains is further enhanced by the recovered assemblage of architectural items and artefacts associated with activities at the site up until the demolition of the buildings.

11.1.5 Finally, the site is of particularly high value to architectural historians and archaeologists of the industrial period as a source of information about this period of York's history, and

as material evidence for 19th- and 20th-century industrial railway technology, which is increasingly at risk. Along with the archaeological and architectural significance of the project data, the site of the York South depot and its archaeological remains hold value for a number of different communities and groups, such as railway enthusiasts, former railway workers, local residents and students of all ages.

11.2 Summary of Potential for Further Analysis

11.2.1 Some correlation of documentary evidence with the remains as recorded during the investigations has been undertaken as part of this assessment. Further examination and analysis of documentary material in relation to the recorded evidence is required to refine the dating of various alterations and additions to each of the structures. In addition, examination of data from other recorded contemporary examples of roundhouses and engine sheds elsewhere in the UK, including both published sources and grey literature, will inform further interpretation of the project results. Such documentary research can also aid interpretation of the function of various elements of the recorded structures and may allow the full range of activities carried out in various parts of the engine sheds and associated structures to be ascertained.

11.2.2 In terms of the metalwork component of the artefactual material recovered, further examination is required to determine whether the handrail stanchions recovered from the turntable pit of RH2 are made from wrought iron, and whether those from RH3 are mild steel. Work is also required to determine whether the section of heavily worn rail recovered from RH3 is of wrought iron or mild steel. If such examination confirms that the handrail stanchions, tubing and railway rails are wrought iron or potentially early Bessemer steel, then basic metallographic analysis would need to be carried out to characterise the metal and investigate its quality. The results of such work would be incorporated into a report summarising the metalwork assemblage for inclusion in the published results of the investigations.

11.2.3 In terms of the masonry component of the artefactual material recovered, further work is required to determine the source of the stone used in the buildings through petrological analysis of stone samples collected and further specialist examination of the locomotive firebricks and structural bricks is required along with additional research. The results of such work would be incorporated into a report summarising the masonry assemblage for inclusion in the published results of the investigations.

11.3 Publication Proposal

11.3.1 The overarching conclusion of the assessment is that, given the extent to which the archaeological investigations at the YET site have enhanced our understanding of a key component of York's historic railway infrastructure, the results should be published to bring them to the attention of interested readers. The proposed form of publication is a paper in Industrial Archaeology Review, the peer-reviewed academic journal of the Association for Industrial Archaeology, as agreed between Network Rail and the City of York Archaeologist following issue of the ARMP (Ramboll 2012c).

11.3.2 Publication of the results of the archaeological investigations at the YET site will include a brief outline of the background to the work and the scope of the work undertaken. A detailed integrated description of the structural remains recorded during all phases of work at the site will be presented, setting them within the context of the wider development of the York South Motive Power Depot. The paper will explore the recorded archaeological evidence in the light of historical sources such as architects' drawings,

maps and other documentary evidence, such as contemporary accounts of the railway industry, supported by the insights from specialist examination of the artefacts recovered and associated scientific analysis.

11.3.3 Illustrations will include interpretative plans, selected sections, elevations and photographs of rail structures based on the archaeological site drawings, as well as historic maps, photographs and architects' drawings, and photographs of key artefacts.

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13. ACKNOWLEDGEMENTS AND CREDITS

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PCA Credits

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Post-excavation Manager: Jennifer Proctor

Fieldwork: Aaron Goode (Site Supervisor and Survey), Anne Anderson (Survey), Elizabeth Collison, Steven Collison, David Erickson, Kevin Horsley, Sophie Laidler, James O'Brien, Kamil Orzechowski, Amy Roberts, Ruth Soames, Duncan Stirk, Scott Vance, Ryan Wilson

Archive consolidation: Aaron Goode, Scott Vance and Sophie Laidler

Report: Aaron Goode

Illustrations: Mark Roughley

Bricks: Robin Taylor-Wilson

Other Credits

Pottery and clay tobacco pipe: Jenny Vaughan (NCAS) and Alex Croom (Tyne and Wear Museums Archaeology)

Metalwork and other small finds: Roderick Mackenzie

Masonry: Roderick Mackenzie

14. APPENDIX 1

YET 12, YEF 12, YEP 12 YET 13: CONTEXT INDEX

Context	*Site Code*	*Structure*	*Type 1*	*Type 2*	*Interpretation*
500	YET12	2	Deposit	Layer	Levelling deposit
501	YET12	2	Deposit	Fill	Fill of inspection pit [519]; group [889]
502	YET12	2	Deposit	Fill	Fill of inspection pit [520]; group [889]
503	YET12	2	Deposit	Fill	Fill of inspection pit [521]; group [889]
504	YET12	2	Deposit	Fill	Fill of inspection pit [522]; group [889]
505	YET12	2	Deposit	Fill	Fill of inspection pit [523]; group [889]
506	YET12	2	Deposit	Fill	Fill of inspection pit [524]; group [889]
507	YET12	2	Deposit	Fill	Fill of inspection pit [525]; group [889]
508	YET12	2	Deposit	Fill	Fill of inspection pit [526]; group [889]
509	YET12	2	Deposit	Fill	Fill of inspection pit [527]; group [889]
510	YET12	2	Deposit	Fill	Fill of inspection pit [528]; group [889]
511	YET12	2	Deposit	Fill	Fill of pipe trench [535]
512	YET12	2	Deposit	Fill	Fill of turntable well [536]
513	YET12	2	Deposit	Fill	Fill of inspection pit [534]; group [889]
514	YET12	2	Deposit	Fill	Fill of inspection pit [533]; group [889]
515	YET12	2	Deposit	Fill	Fill of inspection pit [532]; group [889]
516	YET12	2	Deposit	Fill	Fill of inspection pit [531]; group [889]
517	YET12	2	Deposit	Fill	Fill of inspection pit [530]; group [889]
518	YET12	2	Deposit	Fill	Fill of inspection pit [529]; group [889]
519	YET12	2	Masonry	Structure	Inspection pit; filled by [501]; group [887]
520	YET12	2	Masonry	Structure	Inspection pit; filled by [502]; group [887]
521	YET12	2	Masonry	Structure	Inspection pit; filled by [503]; group [887]
522	YET12	2	Masonry	Structure	Inspection pit; filled by [504]; group [887]
523	YET12	2	Masonry	Structure	Inspection pit; filled by [505]; group [887]
524	YET12	2	Masonry	Structure	Inspection pit; filled by [506]; group [887]
525	YET12	2	Masonry	Structure	Inspection pit; filled by [507]; group [887]
526	YET12; YEF12	2	Masonry	Structure	Inspection pit; filled by [508]; group [887]
527	YET12; YEF12	2	Masonry	Structure	Inspection pit; filled by [509]; group [887]
528	YET12; YEF12	2	Masonry	Structure	Inspection pit; filled by [510]; group [887]
529	YET12; YEF12	2	Masonry	Structure	Inspection pit; filled by [518]; group [887]
530	YET12	2	Masonry	Structure	Inspection pit; filled by [517]; group [887]
531	YET12	2	Masonry	Structure	Inspection pit; filled by [516]; group [887]
532	YET12	2	Masonry	Structure	Inspection pit; filled by [515]; group [887]
533	YET12	2	Masonry	Structure	Inspection pit; filled by [514]; group [887]
534	YET12	2	Masonry	Structure	Inspection pit; filled by [513]; group [887]
535	YET12	2	Cut	Linear	Cut for pipe trench; filled by [511] containing Fe pipe [755]
536	YET12	2	Masonry	Structure	RH2 turntable well; group [886]
537	YET12	2	Masonry	Structure	RH2 central shaft for turntable well [536]; group [886]
538	YET12	2	Masonry	Structure	External wall for RH2; same as [915] & [1025]
539	YET12	2		Structure	Drain within inspection pit [519]; group [890]
540	YET12	2	Timber	Horizontal	RH2 timber; group [888]
541	YET12	2	Masonry	Surface	RH2 brick surface; group [733]
542	YET12	2	Masonry	Surface	RH2 brick surface between inspection pits [519] & [520]; group [733]
543	YET12	2	Masonry	Structure	Stone pad roof support; group [746]
544	YET12	2	Masonry	Structure	Brick drain external to RH2
545	YET12	2		Structure	Drain within inspection pit [520]; group [890]
546	YET12	2	Timber	Horizontal	RH2 timber; group [888]
547	YET12	2	Masonry	Surface	RH2 brick surface; group [733]
548	YET12	2	Masonry	Surface	RH2 brick surface between inspection pits [520] & [521]; group [733]
549	YET12	2	Masonry	Structure	Brick buttress internal to RH2
550	YET12	2	Masonry	Structure	Stone pad roof support and Fe base plate; group [746]
551	YET12	2	Masonry	Structure	Posthole; group [758]
552	YET12	2		Structure	Fe standpipe mounting; group [776]
553	YET12	2	Deposit	Structure	Concrete pad; group [758]
554	YET12	2	Deposit	Structure	Concrete pad; group [758]
555	YET12	2	Deposit	Structure	Concrete pad; group [758]
556	YET12	2	Deposit	Structure	Concrete pad; group [758]
557	YET12	2	Deposit	Structure	Concrete pad; group [758]
558	YET12	2		Structure	Drain within inspection pit [521]; group [890]
559	YET12	2	Timber	Horizontal	RH2 timber; group [888]
560	YET12	2	Masonry	Surface	RH2 brick surface; group [733]
561	YET12	2	Masonry	Structure	Stone pad roof support and Fe base plate; group [746]
562	YET12	2	Masonry	Structure	Posthole; group [758]
563	YET12	2	Masonry	Structure	Posthole; group [758]
564	YET12	2	Deposit	Structure	Concrete pad; group [758]
565	YET12	2	Deposit	Structure	Concrete pad; group [758]

YET 12, YEF 12, YEP 12 YET 13: CONTEXT INDEX

Context	*Site Code*	*Structure*	*Type 1*	*Type 2*	*Interpretation*
566	YET12	2	Deposit	Structure	Concrete pad; group [758]
567	YET12	2	Deposit	Structure	Concrete pad; group [758]
568	YET12	2	Masonry	Surface	RH2 brick surface between inspection pits [521] & [522]; group [733]
569	YET12	2		Structure	Drain within inspection pit [522]; group [890]
570	YET12	2	Deposit	Structure	Two concrete pads and concrete slab infill; inspection pit [743]
571	YET12	2	Masonry	Surface	RH2 brick surface between inspection pits [522] & [523]; group [733]
572	YET12	2	Masonry	Structure	Stone pad roof support and Fe base plate; group [746]
573	YET12	2	Masonry	Structure	Fe standpipe mounting; group [776]
574	YET12	2	Masonry	Surface	RH2 brick surface; group [733]
575	YET12	2	Masonry	Surface	RH2 brick surface between inspection pits [523] & [524]; group [733]
576	YET12	2		Structure	Fe standpipe mounting; group [776]
577	YET12	2		Structure	Drain within inspection pit [506]; group [890]
578	YET12	2	Masonry	Surface	RH2 brick surface between inspection pits [524] & [525]; group [733]
579	YET12	2		Structure	Fe standpipe mounting; group [776]
580	YET12	2		Structure	Drain within inspection pit [506]; group [890]
581	YET12	2		Structure	Drain within inspection pit [525]; group [890]
582	YET12	2		Structure	Drain within inspection pit [525]; group [890]
583	YET12	2	Masonry	Surface	RH2 brick surface between inspection pits [525] & [526]; group [733]
584	YET12	2		Structure	Drain within inspection pit [526]; group [890]
585	YET12	2		Structure	Drain within inspection pit [526]; group [890]
586	YET12	2	Masonry	Surface	RH2 brick surface between inspection pits [526] & [527]; group [733]
587	YET12	2		Structure	Fe standpipe mounting; group [776]
588	YET12	2	Masonry	Structure	Stone pad roof support and Fe base plate; group [746]
589	YET12	2		Structure	Drain within inspection pit [527]; group [890]
590	YET12	2	Masonry	Surface	RH2 brick surface between inspection pits [527] & [528]; group [733]
591	YET12	2	Masonry	Structure	Stone pad roof support; group [746]
592	YET12	2		Structure	Drain within inspection pit [528]; group [890]
593	YET12	2	Masonry	Surface	RH2 brick surface between inspection pits [528] & [529]; group [733]
594	YET12	2	Masonry	Structure	Fe standpipe mounting; group [776]
595	YET12	2	Masonry	Structure	Stone pad roof support and Fe base plate; group [746]
596	YET12	2		Structure	Drain within inspection pit [529]; group [890]
597	YET12	2	Timber	Horizontal	RH2 timber; group [888]
598	YET12	2	Masonry	Surface	RH2 brick surface between inspection pits [529] & [530]; group [733]
599	YET12	2	Masonry	Structure	Brick manhole with Fe cover; group [747]
600	YET12	2	Masonry	Structure	Stone pad roof support and Fe base plate; group [746]
601	YET12	2		Structure	Drain within inspection pit [530]; group [890]
602	YET12	2	Timber	Horizontal	RH2 timber; group [888]
603	YET12	2	Masonry	Surface	RH2 brick surface; group [733]
604	YET12	2	Masonry	Surface	RH2 brick surface between inspection pits [530] & [531]; group [733]
605	YET12	2	Masonry	Structure	Fe standpipe mounting; group [776]
606	YET12	2	Masonry	Structure	Brick manhole with Fe cover; group [747]
607	YET12	2	Masonry	Structure	Stone pad roof support and Fe base plate; group [746]
608	YET12	2		Structure	Drain within inspection pit [531]; group [890]
609	YET12	2	Timber	Horizontal	RH2 timber; group [888]
610	YET12	2	Masonry	Surface	RH2 brick surface; group [733]
611	YET12	2	Masonry	Surface	RH2 brick surface between inspection pits [531] & [532]; group [733]
612	YET12	2	Masonry	Structure	Brick buttress internal to RH2
613	YET12	2	Masonry	Structure	Stone pad roof support and Fe base plate; group [746]
614	YET12	2		Structure	Drain within inspection pit [532]; group [890]
615	YET12	2	Timber	Horizontal	RH2 timber; group [888]
616	YET12	2	Masonry	Surface	RH2 brick surface; group [733]
617	YET12	2	Masonry	Surface	RH2 brick surface between inspection pits [532] & [533]; group [733]
618	YET12	2	Masonry	Structure	Stone pad roof support and Fe base plate; group [746]
619	YET12	2		Structure	Drain within inspection pit [533]; group [890]
620	YET12	2	Timber	Horizontal	RH2 timber; group [888]
621	YET12	2	Masonry	Surface	RH2 brick surface; group [733]
622	YET12	2	Masonry	Surface	RH2 brick surface between inspection pits [533] & [534]; group [733]
623	YET12	2	Masonry	Structure	Stone pad roof support; group [746]
624	YET12	2		Structure	Drain within inspection pit [534]; group [890]

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Context	*Site Code*	*Structure*	*Type 1*	*Type 2*	*Interpretation*
625	YET12	2	Timber	Horizontal	RH2 timber; group [888]
626	YET12	2	Masonry	Surface	RH2 brick surface; group [733]
627	YET12	2	Masonry	Surface	RH2 brick surface between inspection pits [534] & [519]; group [733]
628	YET12	2		Structure	Fe standpipe mounting; group [776]
629	YET12	2	Masonry	Structure	Brick manhole with Fe cover; group [747]
630	YET12	2	Masonry	Structure	Stone pad roof support and Fe base plate; group [746]
631	YET12	2	Masonry	Structure	Brick drain external to RH2 containing ceramic pipe
632	YET12	2	Masonry	Structure	Brick drain external to RH2 containing ceramic pipe
633	YET12	2	Masonry	Structure	Rectangular brick structure external to RH2
634	YET12	2	Masonry	Structure	Brick drain associated with RH2 turntable well [536]
635	YET12	3	Masonry	Structure	RH3 turntable well stone block wall; group [804]
636	YET12	3	Masonry	Structure	Inspection pit filled by [638]; group [891]
637	YET12	3	Masonry	Structure	Inspection pit filled by [639]; group [891]
638	YET12	3	Deposit	Fill	Fill of inspection pit [636]
639	YET12	3	Deposit	Fill	Fill of inspection pit [637]
640	YET12	3	Deposit	Fill	Fill of turntable well [635]
641	YET12	3	Masonry	Structure	Inspection pit; filled by [728]; group [891]
642	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [641] & [643]; group [777]
643	YET12	3	Masonry	Structure	Inspection pit; filled by [728]; group [891]
644	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [643] & [648]; group [777]
645		3	Masonry	Structure	Stone column base; group [809]
646	YET12	3	Masonry	Structure	Backfilled drainage structure; group [805]
647	YET12	3	Masonry	Structure	Stone column base; group [809]
648	YET12	3	Masonry	Structure	Inspection pit; filled by [728]; group [891]
649	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [648] & [653]; group [777]
650	YET12	3	Masonry	Structure	Stone column base; group [809]
651	YET12	3	Masonry	Structure	Stone column base; group [809]
652	YET12	3	Masonry	Structure	Stone column base; group [809]
653	YET12	3	Masonry	Structure	Inspection pit filled by [728]; group [891]
654	YET12, YET13	3	Masonry	Structure	Sand drying furnace
655	YET12	3	Masonry	Surface	Brick surface
656	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [653] & [661]; group [777]
657	YET12	3	Masonry	Structure	Stone column base; group [809]
658	YET12	3	Masonry	Structure	stone drainage cover; group [805]
659	YET12	3	Masonry	Structure	Stone column base; group [809]
660	YET12	3	Masonry	Structure	Stone column base; group [809]
661	YET12	3	Masonry	Structure	Inspection pit; filled by [728]; group [891]
662	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [637] & [661]; group [777]
663	YET12	3	Masonry	Structure	Stone column base; group [809]
664	YET12	3	Masonry	Structure	Backfilled drainage structure; group [805]
665	YET12	3	Masonry	Structure	Stone column base; group [809]
666	YET12	3		Structure	Fe drain within inspection pit [637]
667	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [637] & [673]; group [777]
668	YET12	3	Masonry	Structure	Stone column base; group [809]
669	YET12	3	Masonry	Structure	Stone drain cover; group [805]
670	YET12	3	Masonry	Structure	Stone/concrete column base; group [809]
671	YET12	3	Masonry	Structure	Concrete and timber structure abutting inspection pit [637]
672	YET12	3	Masonry	Structure	Stone column base; group [809]
673	YET12	3	Masonry	Structure	Inspection pit; filled by [728]; group [891]
674	YET12	3	Masonry	Structure	Structure formed by two brick walls and a brick surface with projecting Fe pipe
675	YET12, YEP12	3	Deposit	Surface	Concrete surface
676	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [673] & [682]; group [777]
677	YET12	3	Masonry	Structure	Stone column base; group [809]
678	YET12	3	Masonry	Structure	Backfilled drainage structure; group [805]
679	YET12	3	Masonry	Structure	Stone column base; group [809]
680	YET12, YEP12	3	Deposit	Structure	Concrete footing and timber structure abutting inspection pit [637]; same as structure [1280]
681	YET12	3	Timber	Horizontal	Group of fourteen timbers forming part of a surface repair
682	YET12	3	Masonry	Structure	Inspection pit filled by [728]; group [891]
683	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [682] & [689]; group [777]

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Context	*Site Code*	*Structure*	*Type 1*	*Type 2*	*Interpretation*
684	YET12	3	Masonry	Structure	Stone column base; group [809]
685	YET12	3	Masonry	Structure	Fe drain cover; group [805]
686	YET12	3	Masonry	Structure	Stone column base; group [809]
687	YET12	3	Masonry	Structure	Stone column base; group [809]
688	YET12	3	Masonry	Structure	Structure formed by two brick walls
689	YET12	3	Masonry	Structure	Inspection pit; filled by [728]; group [891]
690	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [663] & [689]; group [777]
691	YET12	3	Masonry	Structure	Stone column base; group [809]
692	YET12	3	Masonry	Structure	Backfilled drainage structure; group [805]
693	YET12	3	Masonry	Structure	Stone column base; group [809]
694	YET12	3	Masonry	Structure	Stone column base; group [809]
695	YET12	3	Masonry	Structure	RH3 external wall
696	YET12	2	Deposit	Structure	Concrete structure associated with inspection pit [743]
697	YET12			Structure	Fe drain within inspection pit [636]
698	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [636] & [702]; group [777]
699	YET12	3	Masonry	Structure	Stone column base; group [809]
700	YET12	3	Masonry	Structure	Backfilled drainage structure; group [805]
701	YET12	3	Masonry	Structure	Stone column base; group [809]
702	YET12	3	Masonry	Structure	Inspection pit; filled by [728]; group [891]
703	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [702] & [709]; group [777]
704	YET12	3	Masonry	Structure	Stone column base; group [809]
705	YET12	3	Masonry	Structure	Stone column base; group [809]
706	YET12	3	Masonry	Structure	Stone column base; group [809]
707	YET12	3	Masonry	Structure	Structure formed by two brick walls
708	YET12, YET13	3	Masonry	Structure	RH3 external wall; same as [695]
709	YET12	3	Masonry	Structure	Inspection pit; filled by [728]; group [891]
710	YET12	3	Masonry	Structure	RH3 stone sett surface between inspection pits [709] & [713]; group [777]
711	YET12	3	Masonry	Structure	Stone column base; group [809]
712	YET12	3	Timber	Horizontal	Trapezoidal wooden pad sett within RH3 turntable well wall [635]
713	YET12	3	Masonry	Structure	Inspection pit; filled by [728]; group [891]
714	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [713] & [717]; group [777]
715	YET12	3	Masonry	Structure	Stone column base; group [809]
716	YET12	3	Masonry	Structure	Backfilled drainage structure; group [805]
717	YET12	3	Masonry	Structure	Inspection pit; filled by [728]; group [891]
718	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [717] & [720]; group [777]
719	YET12	3	Masonry	Structure	Stone column base; group [809]
720	YET12	3	Masonry	Structure	Inspection pit; filled by [728]; group [891]
721	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [720] & [722]; group [777]
722	YET12	3	Masonry	Structure	Inspection pit; filled by [728]; group [891]
723	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [722] & [724]; group [777]
724	YET12	3	Masonry	Structure	Inspection pit; filled by [728]; group [891]
725	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [724] & [726]; group [777]
726	YET12	3	Masonry	Structure	Inspection pit; filled by [728]; group [891]
727	YET12	3	Masonry	Surface	RH3 stone sett surface between inspection pits [642] & [726]; group [777]
728	YET12	3	Deposit	Fill	Fill of inspection pits [891]
729	YET12	3	Masonry	Structure	Brick drain within RH3 turntable well; group [804]
730	YET12	3		Structure	Fe drain within RH3 turntable well; group [804]
731	YET12	3		Structure	Fe drain within RH3 turntable well; group [804]
732	YET12	n/a	Masonry	Structure	External brick wall for octagonal building
733	YET12, YEF12, YEP12	2	Masonry	Surface	Group number for RH2 brick surfaces; [541], [542], [547] - [558], [560], [568], [571], [574], [575], [578], [583], [586], [590], [593], [598], [603] - [604], [610] - [611], [616], [617], [621] - [622], [626] - [627], [1028], [1031], [1068]
734	YET12	1	Masonry	Structure	External stone wall for RH1
735	YET12	1	Masonry	Structure	Tapered rectangular brick structure internal to RH1
736	YET12	1	Masonry	Structure	RH1 inspection pit
737	YET12	1	Masonry	Structure	RH1 inspection pit
738	YET12	1	Masonry	Structure	RH1 inspection pit
739	YET12	1	Masonry	Structure	RH1 inspection pit
740	YET12	1	Masonry	Structure	Brick buttress internal to RH1
741	YET12	n/a	Masonry	Structure	Six brick drains external to octagonal building [732]

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Context	*Site Code*	*Structure*	*Type 1*	*Type 2*	*Interpretation*
742	YET12	n/a	Masonry	Surface	Concrete and stone slab floor surface for octagonal building [732]
743	YET12	2	Masonry	Structure	Group number for 20th century inspection pit
744	YET12	1	Masonry	Structure	Brick drain internal to RH1
745	YET12	1	Masonry	Structure	Brick drain external to RH1
746	YET12	2	Masonry	Structure	Group number for thirteen stone pads [543]; [550]; [561]; [572]; [588]; [591]; [595]; [600]; [607]; [613]; [618]; [623]; [630]
747	YET12	2	Masonry	Structure	Group number for three manholes [599], [606], [629]
748	YET12	2	Deposit	Surface	Concrete surface within turntable well [536]; group [886]
749	YET12	2	Masonry	Structure	Access pit for RH2 turntable well [536]; group [886]
750	YET12	2	Masonry	Structure	Access pit for RH2 turntable well [536]; group [886]
751	YET12	2		Structure	Fe perimeter rail for RH2 turntable well [536]; group [886]
752	YET12	n/a	Masonry	Structure	Stone slab and concrete lintel for octagonal building [732]
753	YET12	n/a	Masonry	Surface	Brick and stone block surface external to octagonal building [732]
754	YET12	n/a	Masonry	Structure	Drain external to octagonal building [732]
755	YET12	2		Structure	Fe pipe within trench [535]
756	YET12	1	Deposit	Fill	Fill of inspection pits [736], [737], [738] & [739]
757	YET12	1	Masonry	Structure	Four brick column bases internal to RH1
758	YET12	2	Deposit	Structure	Group number for nine concrete pads [553], [554], [555], [556], [557], [564], [565], [566], [567] and four postholes [551], [562], [563], [759]
759	YET12	2	Masonry	Structure	posthole; group [758]
760	YET12	2	Timber	Horizontal	Timber sleeper within pipe trench [535]
761	YET12	1	Deposit	Fill	Backfill of structure [735]
762	YET12	1	Masonry	Structure	Brick buttress internal to RH1
763	YET12	1	Masonry	Structure	Brick drain internal to RH1
764	YET12	2	Masonry	Structure	Brick wall; later addition to wall [734] associated with RH2
765	YET12	1	Deposit	Fill	Fill of inspection pit [743]
766	YET12	2		Structure	Group number for eight Fe stand-pipe mountings [522], [573], [576], [579], [587], [594], [605], [628]
767	YET12	2	Timber	Horizontal	Timber rail for inspection pit [743]
768	YET12	2	Cut	Linear	Construction cut for inspection pit [743]; filled by [771]
769	YET12	2	Deposit	Structure	Concrete steps for inspection pit [743]
770	YET12	2	Deposit	Structure	Concrete drainage feature within inspection pit [743]
771	YET12	2	Deposit	Fill	Backfill of construction cut [768]; inspection pit [743]
772	YET12	1 & 2	Masonry	Structure	Five brick manholes external to Roundhouses 1 & 2
773	YET12	2	Masonry	Structure	Two brick manholes external to RH2
774	YET12	2	Deposit	Layer	Levelling deposit
775	YET12	2	Deposit	Layer	Levelling deposit; same as [851], [852], [859]
776	YET12	1	Deposit	Fill	Backfill of RH1
777	YET12, YEP12, YET13	3	Masonry	Structure	Group number for RH3 floor surfaces [642], [644], [649], [656], [662], [667], [676], [683], [690], [698], [703], [710], [714], [718], [721], [723], [725], [727], [895], [1038], [1096], [1104]
778	YET12	3		Structure	Fe perimeter rail for RH3 turntable well; group [804]
779	YET12	3		Structure	Fe locking mechanism for RH3 turntable well; group [804]
780	YET12	3	Deposit	Structure	Central concrete pad and Fe fixing bolts for turning mechanism within RH3 turntable well; group [804]
781	YET12	3	Deposit	Surface	Concrete surface within RH3 turntable well; group [804]
782	YET12	3	Masonry	Structure	Brick access pit for RH3 turntable well; group [804]
783	YET12	3	Masonry	Structure	Brick access pit for RH3 turntable well; group [804]
784	YET12	2	Masonry	Structure	Inspection pit [522]; group [887]
785	YET12	2	Masonry	Structure	Inspection pit [524]; group [887]
786	YET12	2	Masonry	Structure	Inspection pit [525]; group [887]
787	YET12	2	Masonry	Structure	Inspection pit [526]; group [887]
788	YET12	2	Masonry	Structure	Inspection pit [527]; group [887]
789	YET12	3	Masonry	Structure	Stone block bedding for perimeter rail [778] and locking mechanism [779]; group [804]
790	YET12	3	Masonry	Structure	Brick wall external to RH3
791	YET12	3	Masonry	Structure	Stone sett surface between capping stones of inspection pit [636]
792	YET12	3	Timber	Horizontal	Three timber sleepers forming a section of track
793	YET12	3	Masonry	Structure	Brick surface between inspection pits [636] & [689]
794	YET12	3	Masonry	Structure	Brick access with Fe standpipe mounting
795	YET12	3	Timber	Horizontal	Two timber rails located at the back of inspection pit [673]
796	YET12	3	Masonry	Structure	Brick drain external to RH3
797	YET12	3	Masonry	Structure	Brick drain external to RH3
798	YET12	3	Timber	Horizontal	Five timber sleepers and four timber rails
799	YET12	3	Deposit	Surface	Cast concrete block surface
800	YET12, YET13	3		Structure	Group number of eleven ceramic and Fe drains
801	YET12	3	Deposit	Layer	Levelling deposit
802	YET12	2	Deposit	Layer	Areas of truncation within RH2 floor surfaces [733]
803	YET12	3		Structure	Fe pipe contained within RH3 turntable well wall [635] and access [807]

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Context	*Site Code*	*Structure*	*Type 1*	*Type 2*	*Interpretation*
804	YET12	3	Masonry	Group	Group number for RH3 turntable well comprising [635], [729], [730], [731], [778], [779], [780], [781], [782], [783], [789]
805	YET12	3	Masonry	Structure	Group number for ten drainage structures [646], [658], [664], [669], [678], [685], [692], [700], [716], [833]
806	YET12	3	Masonry	Structure	Brick yard wall
807	YET12	3	Masonry	Structure	Brick repair for access pit [782]
808	YET12	3	Masonry	Structure	Group number for ten brick buttresses adjoining the external elevation of wall [695]
809	YET12	3	Masonry	Structure	Group of thirty three stone; brick and concrete column bases [645], [647], [650], [651], [652], [657], [659], [660], [663], [665], [677], [668], [670], [672], [679], [684], [686], [687], [691], [693], [694], [699], [701], [704], [705], [706], [711], [715], [719], [811], [812], [831], [1302]
810	YET12	3	Masonry	Structure	Brick repair for access pit [783]
811	YET12	3	Masonry	Structure	Stone column base; group [809]
812	YET12	3	Masonry	Structure	Brick column base; group [809]
813	YET12	3		Structure	Fe drain internal to RH3
814	YET12	3		Structure	Ceramic drain external to RH3
815	YET12	3		Structure	Fe drain internal to RH3; group [800]
816	YET12	3		Structure	Fe drain internal to RH3; group [800]
817	YET12	3		Structure	Fe drain internal to RH3; group [800]
818	YET12	3		Structure	Fe drain internal to RH3; group [800]
819	YET12	3		Structure	Fe drain internal to RH3; group [800]
820	YET12	3		Structure	Fe drain internal to RH3; group [800]
821	YET12	3		Structure	Fe drain external to RH3; group [800]
822	YET12	3		Structure	Fe drain internal to RH3; group [800]
823	YET12	3	Masonry	Structure	Brick threshold associated with entrance to RH3
824	YET12	3	Masonry	Structure	Two stone pads for Roundhouse 3 door frame
825	YET12				Number not used
826	YET12				Number not used
827	YET12	3	Deposit	Layer	Later levelling deposit
828	YET12	3	Deposit	Layer	Later levelling deposit
829	YET12	3	Deposit	Layer	Levelling deposit
830	YET12	3	Deposit	Layer	Levelling deposit
831	YET12	3	Masonry	Structure	Brick column base; group [809]
832	YET12	3	Deposit	Structure	Concrete slab foundation for column base [831]
833	YET12	3	Masonry	Structure	Brick manhole; group [805]
834	YET12	3	Deposit	Fill	Fill of inspection pit [713] construction cut [835]
835	YET12	3	Cut	Linear	Construction cut for inspection pit [713] filled by [834]
836	YET12	3	Deposit	Layer	Levelling deposit
837	YET12	3	Deposit	Layer	Levelling deposit
838	YET12	3	Deposit	Layer	Levelling deposit
839	YET12	3	Deposit	Layer	Natural alluvial deposit
840	YET12	2	Deposit	Fill	Backfill of drain [843]
841	YET12	2	Deposit	Fill	Backfill of drain [843]
842	YET12	2	Deposit	Structure	Concrete drain contained within [843]
843	YET12	2	Cut	Linear	Drain filled by [840], [841], [842]
844	YET12	2	Deposit	Layer	Bedding deposit for brick surface [733]
845	YET12	2	Deposit	Layer	Levelling deposit
846	YET12	2	Deposit	Layer	Levelling deposit
847	YET12	2	Deposit	Layer	Levelling deposit
848	YET12	2	Deposit	Layer	Levelling deposit
849	YET12	2	Deposit	Layer	Levelling deposit
850	YET12	2	Deposit	Layer	Levelling deposit
851	YET12	2	Deposit	Layer	Levelling deposit
852	YET12	2	Deposit	Layer	Levelling deposit
853	YET12	2	Deposit	Fill	Backfill of construction cut [854]
854	YET12	2	Cut	Linear	Construction cut for wall [538] filled by [853]
855	YET12	2	Deposit	Layer	Levelling deposit
856	YET12	2	Deposit	Layer	Levelling deposit; same as [775]
857	YET12	2	Deposit	Fill	Fill of drain [858]
858	YET12	2	Cut	Linear	Drain filled by [858]
859	YET12	2	Deposit	Layer	Levelling deposit; same as [775]
860	YET12	2	Deposit	Layer	Natural alluvial deposit, same as [861]
861	YET12	2	Deposit	Layer	Natural alluvial deposit, same as [860]
862	YET12	3	Masonry	Structure	Buttress abutting wall [695]
863	YET12	3	Deposit	Structure	Concrete slab foundation for wall [695]
864	YET12	3	Deposit	Fill	Backfill of drain [866]
865	YET12	3		Structure	Ceramic pipe contained within [866]
866	YET12	3	Cut	Linear	Drain filled by [865]; [864]
867	YET12	3	Deposit	Fill	Backfill of drain [869]
868	YET12	3		Structure	Ceramic pipe contained within [869]
869	YET12	3	Cut	Linear	Drain filled by [868], [867]

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Context	*Site Code*	*Structure*	*Type 1*	*Type 2*	*Interpretation*
870	YET12	3	Deposit	Layer	Natural alluvial deposit
871	YET12	3	Deposit	Layer	Natural alluvial deposit
872	YET12	3	Deposit	Layer	Levelling deposit
873	YET12	3	Deposit	Layer	Levelling deposit
874	YET12	3	Deposit	Layer	Levelling deposit
875	YET12	3	Deposit	Fill	Fill of construction cut [876]
876	YET12	3	Cut	Linear	Construction cut for unidentified element
877	YET12	3	Deposit	Layer	Levelling deposit
878	YET12	3	Deposit	Fill	Fill of construction cut [879]
879	YET12	3	Cut	Linear	Construction cut for wall [695]
880	YET12	2	Masonry	Structure	Brick floor surface repair
881	YET12	3	Deposit	Fill	Fill of construction cut [883]
882	YET12	3	Deposit	Fill	Fill of construction cut [883]
883	YET12	3	Cut	Linear	Construction cut for column base [831]
884	YET12	3	Deposit	Layer	Levelling deposit
885	YET12	2	Masonry	Structure	Stone block bedding for perimeter rail [751]; group [886]
886	YET12	2	Masonry	Structure	Group number for RH2 turntable well; [536], [537], [634], [748], [749], [750], [751] & [885]
887	YET12	2	Masonry	Structure	Group number for sixteen RH2 inspection pits [519] - [534]; including inspection pit wall stubs [784] - [788]
888	YET12	2	Timber	Horizontal	Group number for nine timbers [540], [546], [597], [559], [602], [609], [615], [620], [625]
889	YET12	2	Deposit	Fill	Group number for inspection pit fills [501] - [510], [513] - [518], same as [900]
890	YET12	2		Structure	Group number for drains contained within inspection pits [519] - [522], [524] - [534]
891	YET12, YET13	3	Masonry	Structure	Group number for eighteen RH3 inspection pits [636], [637], [641], [643], [648], [653], [661], [673], [682], [689], [702], [709], [713], [717], [720], [722], [724], [726], [1303], [1310]
892	YET12	3	Deposit	Structure	Concrete infill between perimeter rail [778] and locking mechanism [779]
893	YET12	3	Deposit	Layer	Areas of truncation within RH3
894	YET12	3	Deposit	Layer	Ballast for timber sleepers [792]
895	YET12	3	Masonry	Surface	Stone sett surface between capping stones of inspection pit [673]
896	YET12; YEF12	2	Masonry	Structure	Group number for the location of twenty square column bases evident as areas of raised ground
897	YET12		Masonry	Structure	Octagonal building
898	YET12		Masonry	Structure	Stone block surface or column base located centrally to structure [897]
899	YEF21	2	Timber	Horizontal	Timber sleeper
900	YEF12	2	Group	Fill	Group number for fill of inspection pits [526] - [529]; same as [889]
901	YEF12	2	Deposit	Layer	Levelling deposit
902	YEF12	2	Deposit	Layer	Levelling deposit
903	YEF12	2	Deposit	Fill	Backfill of drain [904]
904	YEF12	2	Cut	Linear	Drain filled by [903]
905	YEF12	2	Deposit	Layer	Levelling deposit; same as [906]
906	YEF12	2	Deposit	Layer	Levelling deposit; same as [905]
907	YEF12	2	Deposit	Fill	Backfill of pipe trench [908]
908	YEF12	2	Cut	Linear	Pipe trench filled by [907]; [916]; [909]
909	YEF12	2		Structure	Fe pipe
910	YEF12	2	Deposit	Fill	Ballast deposit within cut [995]
911	YEF12	2	Deposit	Fill	Trackbed deposit in cut [995]
912	YEF12	2	Deposit	Fill	Trackbed deposit in cut [995]
913	YEF12	2	Deposit	Fill	Trackbed deposit in cut [995]
914	YEF12	2	Deposit	Layer	Levelling/consolidation deposit
915	YEF12	2	Masonry	Wall	External wall for RH2; same as [538]
916	YEF12	2	Deposit	Fill	Fill of pipe trench [908]
917	YEF12	2	Cut	Linear	Drain filled by [1008]; [1009]
918	YEF12, YEP12	2	Cut	Discrete	Modern truncation filled by [920]; same as [1067]
919	YEF12	2	Deposit	Layer	Levelling deposit
920	YEF12, YEP12	2	Deposit	Fill	Backfill of modern truncation [918]; same as [1066]
921	YEF12	1841	Deposit	Layer	Road surface
922	YEF12	1841	Deposit	Surface	Gravel surface
923	YEF12	1841	Deposit	Layer	Levelling deposit
924	YEF12	1841	Deposit	Layer	Levelling deposit
925	YEF12, YET13	1841	Deposit	Fill	Fill of service trench [927]; same as [1202]
926	YEF12	1841	Deposit	Structure	Plastic pipe contained within service trench [927]
927	YEF12, YET13	1841	Cut	Linear	Service trench; filled by [925], [926]; same as [1201]

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Context	*Site Code*	*Structure*	*Type 1*	*Type 2*	*Interpretation*
928	YEF12	1841	Deposit	Fill	Fill of YET11 trial trench
929	YEF12	1841			Fill of YET11 trial trench
930	YEF12	1841	Deposit	Fill	Fill of modern truncation [931]
931	YEF12	1841	Cut	Discrete	Modern truncation; filled by [930]
932	YEF12	1841	Deposit	Fill	Ballast within cut [932]
933	YEF12	1841	Cut	Linear	Cut for ballast; filled by [932], [984], [997], [998], [999]
934	YEF12, YET13	1841	Deposit	Fill	Ballast within cut [935]
935	YEF12, YET13	1841	Cut	Linear	Cut for ballast; filled by [935]
936	YEF12	1841	Deposit	Layer	Natural alluvial deposit
937	YEF12	1841	Masonry	Structure	Brick culvert
938	YEF12, YET13	1841	Masonry	Structure	Brick culvert filled by [1226] in construction cut [1225]
939	YEF12	1841	Deposit	Fill	Backfill of drain [940]
940	YEF12	1841	Cut	Linear	Drain filled by [939], [988], [987]
941	YEF12	1841	Masonry	Structure	Brick and stone block chimney structure
942	YEF12	1841	Masonry	Structure	Brick buttress/chimney structure
943	YEF12	1841	Masonry	Structure	Northern external wall of 1841 Engine Shed; same as [1253]
944	YEF12	1841	Masonry	Structure	Western external wall of 1841 Engine Shed
945	YEF12	1841	Masonry	Structure	Southern external wall of 1841 Engine Shed
946	YEF12	1841	Masonry	Structure	Brick structure and concrete footing
947	YEF12	1841	Deposit	Fill	Backfill of drain [950]; same as [1227], [1232]
948	YEF12	1841	Masonry	Structure	Brick infill associated with drain [950]=[1228]
949	YEF12	1841	Deposit	Structure	Ceramic pipe contained within [950]; same as [1234]
950	YEF12	1841	Cut	Linear	Drain filled by [947]=[1227]=[1232], [948], [949], [1010]; same as [1228], [1233]
951	YEF12	1841	Deposit	Fill	Backfill of inspection pit [1005]
952	YEF12	1841	Deposit	Fill	Backfill of inspection pit [1006]; same as [1331]
953	YEF12	1841	Deposit	Fill	Backfill of inspection pit [1007]; same as [1332]
954	YEF12	1841	Masonry	Structure	Stone sett surface
955	YEF12	1841	Timber	Horizontal	Timber decking
956	YEF12	1841	Timber	Horizontal	Timber decking
957	YEF12	1841	Masonry	Structure	Brick surface
958	YEF12	1841	Masonry	Structure	Stone sett surface
959	YEF12	1841	Masonry	Structure	Brick and stone block standpipe well with bayonet valve fitting
960	YEF12	1841	Masonry	Structure	Brick and timber constructed standpipe well; same as [1210]
961	YEF12	1841	Masonry	Structure	Stone sett surface
962	YEF12	1841	Masonry	Structure	Brick surface
963	YEF12	1841	Masonry	Structure	Stone sett surface
964	YEF12	1841	Masonry	Structure	Concrete and brick footing for vertical girder
965	YEF12	1841	Masonry	Structure	Concrete and brick footing for vertical girder
966	YEF12	1841	Timber	Horizontal	Sleeper forming back of inspection pit [1005]
967	YEF12	1841	Timber	Horizontal	Sleeper
968	YEF12	1841	Timber	Horizontal	Timber sleeper forming back of inspection pit [1006]
969	YEF12	1841	Timber	Horizontal	Waybeam; inspection pit [1005]
970	YEF12	1841	Masonry	Structure	Sandstone capping; inspection pit [1005]
971	YEF12	1841	Masonry	Structure	Brick track walls of Inspection pit [1005]
972	YEF12	1841	Masonry	Structure	Brick surface of inspection pit [1005]
973	YEF12	1841	Masonry	Structure	Concrete and sandstone steps; inspection pit [1005]
974	YEF12	1841	Timber	Horizontal	Waybeam; inspection pit [1006]
975	YEF12	1841	Masonry	Structure	Sandstone capping; inspection pit [1006]
976	YEF12	1841	Masonry	Structure	Brick track walls of inspection pit [1006]
977	YEF12	1841	Masonry	Structure	Brick surface of inspection pit [1006]
978	YEF12	1841	Masonry	Structure	Concrete and sandstone steps; inspection pit [1006]
979	YEF12	1841	Timber	Horizontal	Waybeam; inspection pit [1007]
980	YEF12	1841	Masonry	Structure	Sandstone capping; inspection pit [1007]
981	YEF12	1841	Masonry	Structure	Brick track walls of Inspection pit [1007]
982	YEF12	1841	Masonry	Structure	Brick surface of inspection pit [1007]
983	YEF12	1841	Masonry	Structure	Sandstone and brick steps; inspection pit [1007]
984	YEF12	1841	Deposit	Structure	Pb pipe
985	YEF12	1841	Timber	Horizontal	Two timber blocks forming edging for timber decking [955], [956]
986	YEF12	1841	Timber	Vertical	Post
987	YEF12	1841	Deposit	Structure	Ceramic and Fe pipe contained within pipe trench [940]
988	YEF12	1841	Masonry	Structure	Brick infill for drain [940]
989	YEF12	1841	Deposit	Layer	Levelling/ground raising dump
990	YEF12	1841	Masonry	Structure	Brick buttress
991	YEF12	1841	Deposit	Layer	Developed soil
992	YEF12, YET13	1841	Deposit	Layer	Developed soil
993	YEF12	1841	Deposit	Layer	Natural alluvial deposit
994	YEF12	1841	Deposit	Layer	Natural alluvial deposit

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Context	*Site Code*	*Structure*	*Type 1*	*Type 2*	*Interpretation*
995	YEF12	2	Cut	Linear	Cut for trackbed and ballast filled by [910]; [911]; [912]; [913]
996	YEF12	1841	Cut	Discrete	Foundation for structure [946]
997	YEF12	1841	Deposit	Fill	Ballast in cut [933]
998	YEF12	1841	Deposit	Fill	Ballast in cut [933]
999	YEF12	1841	Deposit	Fill	Ballast in cut [933]
1000	YEF12	1841	Deposit	Fill	Backfill of posthole [1001]
1001	YEF12	1841	Cut	Discrete	Posthole filled by [1000], timber post [986]
1002	YEF12	1841	Masonry	Structure	Brick extension to western track wall; inspection pit [1007]
1003	YEF12	2	Deposit	Layer	Levelling/consolidation deposit
1004	YEF12	2	Deposit	Layer	Levelling/consolidation deposit
1005	YEF12	1841	Group	Structure	1841 Engine Shed; northern inspection pit comprising [966], [969], [970], [971], [972], [973], [1211]
1006	YEF12, YEP12, YET13	1841	Group	Structure	1841 Engine Shed; central inspection pit comprising [968], [974], [975], [976], [977], [978], [1285], [1216]
1007	YEF12, YET13	1841	Group	Structure	1841 Engine Shed; southern inspection pit comprising [979], [980], [981], [982], [983], [1195]=[1203], [1196], [1197]=[1024]
1008	YEF12	2	Deposit	Structure	Ceramic pipe contained within drain [917]
1009	YEF12	2	Deposit	Fill	Backfill of drain [917]
1010	YEF12	1841	Masonry	Structure	Brick drain associated with [950]
1011	YEF12	1841	Deposit	Structure	Fe cover
1012	YEF12	1841	Deposit	Layer	Levelling deposit
1013	YEP12	2; R2A	Masonry	Structure	Brick surface within RH2 Area R2A; group [733]
1014	YEP12	2; R2A	Deposit	Layer	Lime mortar bedding for brick surface [1013]
1015	YEP12	2; R2A	Deposit	Fill	Fill of construction cut [1017]
1016	YEP12	2; R2A		Structure	Ceramic pipe contained within [1017]
1017	YEP12	2; R2A	Cut	Linear	Drain; filled by [1014], [1015], [1016]
1018	YEP12	2; R2A	Deposit	Fill	Fill of construction cut [1020]
1019	YEP12	2; R2A	Masonry	Structure	Brick drain
1020	YEP12	2; R2A	Cut	Discrete	Drain; filled by [1018], [1019], [1026]
1021	YEP12	2; R2A	Deposit	Layer	Levelling/consolidation deposit
1022	YEP12	2; R2A	Deposit	Layer	Levelling/consolidation deposit
1023	YEP12	2; R2A	Deposit	Layer	Levelling/consolidation deposit
1024	YEP12	2; R2A	Deposit	Layer	Levelling/consolidation deposit
1025	YEP12	2; R2A	Masonry	Structure	External stone wall for RH2 in area R2A; same as [538]
1026	YEP12	2; R2A	Deposit	Fill	Fill of drain [1019]
1026	YEP12	2; R2A	Deposit	Layer	Levelling/consolidation deposit
1028	YEP12	2; R2C	Masonry	Structure	Brick surface within RH2 Area R2C; group [733]
1029	YEP12	2; R2C	Deposit	Layer	Levelling/consolidation deposit
1030	YEP12	2; R2C	Deposit	Layer	Levelling/consolidation deposit
1031	YEP12	2; R2C	Deposit	Layer	Levelling/consolidation deposit
1032	YEP12	2; R2C	Deposit	Layer	Levelling/consolidation deposit
1033	YEP12	2; R2C	Masonry	Structure	Stone column base within RH2 Area R2C
1034	YEP12	2; R2C	Cut	Linear	Pipe trench filled by [1035], [1089]
1035	YEP12	2; R2C		Structure	Fe pipe
1036	YEP12	2; R2C	Cut	Discrete	Manhole filled by [1037], [1269]
1037	YEP12	2; R2C	Masonry	Structure	Brick manhole
1038	YEP12	3; R3A	Masonry	Structure	RH3 stone sett surface within Area R3A; group [777]
1039	YEP12	3; R3A	Deposit	Layer	Tar bedding for stone setts within RH3 Area R3A
1040	YEP12	3; R3A	Deposit	Layer	Levelling/consolidation deposit
1041	YEP12	3; R3A	Deposit	Layer	Levelling/consolidation deposit
1042	YEP12	3; R3A	Deposit	Layer	Levelling/consolidation deposit
1043	YEP12	3; R3A	Deposit	Layer	Levelling/consolidation deposit
1044	YEP12	3; R3A	Deposit	Layer	Levelling/consolidation deposit
1045	YEP12	2; R2B	Deposit	Layer	Levelling/consolidation deposit
1046	YEP12	2; R2B	Deposit	Layer	Levelling/consolidation deposit
1047	YEP12	2; R2B	Deposit	Layer	Levelling/consolidation deposit
1048					Number not used
1049					Number not used
1050					Number not used
1051					Number not used
1052					Number not used
1053					Number not used
1054					Number not used
1055					Number not used
1056	YEP12	2; R2B			Levelling/consolidation deposit
1057	YEP12	2; R2B			Levelling/consolidation deposit
1058	YEP12	2; R2B			Levelling/consolidation deposit
1059	YEP12	3; R3C	Deposit	Layer	Bedding for brick surface [1274]; structure [674]
1060	YEP12	3; R3C	Deposit	Surface	Concrete slab; structure [674]
1061	YEP12	3; R3C	Deposit	Layer	Make-up for concrete slab [1060]
1062	YEP12	3; R3C	Deposit	Layer	Levelling/consolidation deposit

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Context	*Site Code*	*Structure*	*Type 1*	*Type 2*	*Interpretation*
1063	YEP12	2; R2D	Deposit	Layer	levelling deposit
1064	YEP12	2; R2D	Deposit	Layer	levelling deposit
1065	YEP12	2; R2D	Deposit	Fill	Fill of inspection pit [526]; same as [508] group [889]
1066	YEP12, YEF12	2; R2D	Deposit	Fill	Fill of modern truncation [1067]; same as [920]
1067	YEP12, YEF12	2; R2D	Cut	Discrete	Modern truncation; filled by [1066] same as [918]
1068	YEP12	2; R2D	Masonry	Structure	Brick surface within RH2 Area R2D; group [733]
1069	YEP12	2; R2D	Deposit	Layer	Lime mortar bedding for brick surface [1068]
1070	YEP12	2; R2D	Deposit	Layer	Levelling/consolidation deposit
1071	YEP12	2; R2D	Deposit	Layer	Levelling/consolidation deposit
1072	YEP12	2; R2D	Deposit	Layer	Levelling/consolidation deposit
1073	YEP12	2; R2D	Masonry	Structure	Inspection pit; same as [528]
1074	YEP12	2; R2D	Masonry	Structure	Inspection pit; same as [527]
1075	YEP12	2; R2D	Masonry	Structure	Inspection pit; same as [526]
1076	YEP12	2; R2D	Masonry	Structure	Stone column base within RH2 Area R2D
1077	YEP12	2; R2D	Masonry	Structure	Stone column base within RH2 Area R2D
1078	YEP12	2; R2B	Masonry	Structure	Inspection pit; same as [530]
1079	YEP12	3; R3C	Masonry	Structure	brick wall; structure [674]
1080	YEP12	3; R3C	Masonry	Structure	brick wall; structure [674]
1081	YEP12	2; R2E	Masonry	Surface	Brick surface within RH2 Area R2E; group [733]
1082	YEP12	2; R2E	Deposit	Layer	Levelling/consolidation deposit
1083	YEP12	2; R2E	Deposit	Layer	Levelling/consolidation deposit
1084	YEP12	2; R2E	Deposit	Layer	Levelling/consolidation deposit
1085	YEP12	2; R2E	Deposit	Layer	Levelling/consolidation deposit
1086	YEP12	2; R2E	Masonry	Structure	Stone column base within RH2 Area R2E
1087	YEP12	2; R2E	Masonry	Structure	Inspection pit; same as [534]
1088	YEP12	2; R2E	Masonry	Structure	Inspection pit; same as [519]
1089	YEP12	2; R2C	Deposit	Fill	Fill of pipe trench [1034]
1090	YEP12	3; R3C	Deposit	Layer	Levelling/consolidation deposit
1091	YEP12	3; R3C	Deposit	Layer	Levelling/consolidation deposit
1092	YEP12	3; R3C	Deposit	Layer	Levelling/consolidation deposit
1093	YEP12	3; R3C	Deposit	Layer	Levelling/consolidation deposit
1094	YEP12	3; R3C	Deposit	Structure	Concrete foundation; wall [708]
1095	YEP12	3; R3C	Deposit	Layer	Levelling deposit/natural
1096	YEP12	3; R3B	Masonry	Surface	Stone sett surface within RH3 Area R3B; group [777]
1097	YEP12	3; R3B	Deposit	Layer	Levelling/consolidation deposit
1098	YEP12	3; R3B	Deposit	Layer	Levelling/consolidation deposit
1099	YEP12	3; R3B	Deposit	Layer	Levelling/consolidation deposit
1100	YEP12	3; R3B	Deposit	Layer	Levelling/consolidation deposit
1101	YEP12	3; R3B	Deposit	Layer	Levelling/consolidation deposit
1102	YEP12	3; R3B	Deposit	Layer	Levelling/consolidation deposit
1103	YEP12	3; R3B	Deposit	Layer	Levelling/consolidation deposit
1104	YEP12	3; R3B	Masonry	Surface	Stone sett surface within RH3 Area R3B; group [777]
1105	YEP12	3; R3B	Deposit	Layer	Levelling/consolidation deposit
1106	YEP12	3; R3B	Deposit	Layer	Levelling/consolidation deposit
1107	YEP12	3; R3B	Deposit	Layer	Levelling/consolidation deposit
1108	YEP12	3; R3B	Deposit	Layer	Levelling/consolidation deposit
1109	YEP12	3; R3B	Deposit	Layer	Levelling/consolidation deposit
1110	YEP12	3; R3B	Deposit	Layer	Levelling/consolidation deposit
1111	YEP12	3; R3B	Deposit	Layer	Levelling/consolidation deposit
1112	YEP12	3; R3B	Deposit	Layer	Levelling/consolidation deposit
1113	YEP12	3; R3D	Masonry	Structure	Sandstone plinth for column base [1114], [1115]
1114	YEP12	3; R3D	Masonry	Structure	Brick column base within RH3 Area R3D
1115	YEP12	3; R3D	Masonry	Structure	Brick extension to column base [1114]
1116					number not used
1117					number not used
1118	YEP12	3; R3D	Cut	Discrete	Construction cut for structure [1280] within RH3 Area R3D
1119	YEP12	3; R3D	Deposit	Structure	Concrete footing for structure [1280]
1120	YEP12	3; R3D	Deposit	Fill	Fill of construction cut [1118]; structure [1280]
1121	YEP12	3; R3D	Deposit	Layer	Levelling/consolidation deposit
1122	YEP12	3; R3D	Deposit	Layer	Levelling/consolidation deposit
1123	YEP12	3; R3D	Deposit	Layer	Levelling/consolidation deposit
1124	YEP12	3; R3D	Deposit	Layer	Bedding for stone sett surface [777] in RH3 Area R3D
1125	YEP12	3; R3E	Deposit	Layer	Bedding for concrete surface [675]
1126	YEP12	3; R3E	Deposit	Layer	Bedding for stone sett surface [777] in RH3 Area R3E
1127	YEP12	3; R3E	Deposit	Layer	Levelling/consolidation deposit
1128	YEP12	3; R3E	Deposit	Layer	Levelling/consolidation deposit
1129	YEP12	3; R3E	Deposit	Layer	Levelling/consolidation deposit
1130	YEP12	3; R3E	Deposit	Layer	Levelling/consolidation deposit
1131	YEP12	3; R3E	Deposit	Layer	Levelling/consolidation deposit
1132	YEP12	3; R3E	Deposit	Layer	Levelling/consolidation deposit

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Context	*Site Code*	*Structure*	*Type 1*	*Type 2*	*Interpretation*
1133	YEP12	3; R3E	Deposit	Layer	Ballast deposit
1134	YEP12	3; R3D	Masonry	Structure	Brick column base within RH3 Area R3D
1135	YEP12	3; R3D	Masonry	Structure	Brick extension to column base [1134]
1136	YEP12	3; 3RD	Deposit	Layer	Bedding for stone sett surface [777] in RH3 Area R3D
1137	YEP12	3; R3D	Deposit	Layer	Levelling/consolidation deposit
1138	YEP12	3; R3D	Deposit	Layer	Levelling/consolidation deposit
1139	YEP12	3; R3D	Deposit	Layer	Levelling/consolidation deposit; same as [1278]
1140	YEP12	3; R3D	Deposit	Layer	Levelling/consolidation deposit
1141	YEP12	3; 3RD	Deposit	Layer	Levelling/consolidation deposit
1142	YEP12	3; R3D	Deposit	Layer	Levelling/consolidation deposit
1143	YEP12	3; R3D	Deposit	Fill	Fill of pipe trench [1147]
1144	YEP12	3; R3D	Deposit	Fill	Fill of pipe trench [1147]
1145	YEP12	3; R3D	Deposit	Layer	Levelling/consolidation deposit
1146	YEP12	3; R3D		Structure	Fe pipe
1147	YEP12	3; R3D	Cut	Linear	Pipe trench; filled by [1143], [1144], [1146]
1148	YEP12	3; R3D	Deposit	Layer	Levelling/consolidation deposit
1149	YEP12	3; R3D	Deposit	Fill	Fill of manhole construction cut [1150]
1150	YEP12	3; R3D	Cut	Discrete	Manhole filled by [1149], [1151], [1279]
1151	YEP12	3; R3D	Timber	Horizontal	Plank; revetment for manhole; group [805]
1152	YEP12	3; R3F	Masonry	Structure	Brick column base within RH3 Area R3F
1153	YEP12	3; R3F	Masonry	Structure	Brick extension to column base [1152]
1154	YEP12	3; R3F	Masonry	Structure	Brick element of manhole [1155]; group [805]
1155	YEP12	3; R3F	Masonry	Structure	Cut of brick [1154] and timber plank [1281] constructed manhole; group [805]
1156	YEP12	3; R3F	Timber	Horizontal	Timber beam; structure [1280]
1157	YEP12	3; R3F	Deposit	Structure	Concrete slab; structure [1280]
1158	YEP12	3; R3F	Deposit	Structure	Concrete slab; structure [1280]
1159	YEP12	3; R3F	Deposit	Layer	Levelling/consolidation deposit
1160	YEP12	3; R3F	Deposit	Layer	Levelling/consolidation deposit
1161	YEP12	3; R3F	Deposit	Layer	Levelling/consolidation deposit
1162	YEP12	3; R3F	Deposit	Layer	Levelling/consolidation deposit
1163	YEP12	3; R3F	Deposit	Layer	Bedding deposit for stone sett surface [777]
1164	YEP12	3; R3F	Deposit	Layer	Levelling/consolidation deposit
1165	YEP12	3; R3F	Deposit	Layer	Levelling/consolidation deposit
1166	YEP12	3; R3F	Deposit	Layer	Levelling/consolidation deposit
1167	YEP12	3; R3F	Deposit	Fill	Backfill of service trench [1237]
1168	YEP12	3; R3F	Deposit	Layer	Bedding deposit for stone sett surface [777]
1169	YEP12	3; R3I, R3J	Deposit	Layer	Bedding deposit for stone sett surface [777]
1170	YEP12	3; R3I, R3J	Deposit	Layer	Levelling/consolidation deposit
1170	YEP12	3; R3I, R3J	Deposit	Layer	Levelling/consolidation deposit
1171	YEP12	3; R3I, R3J	Deposit	Layer	Levelling/consolidation deposit
1172	YEP12	3; R3I, R3J	Deposit	Layer	Levelling/consolidation deposit
1173	YEP12	3; R3I, R3J	Deposit	Layer	Levelling/consolidation deposit
1174	YEP12	3; R3I, R3J	Deposit	Layer	Levelling/consolidation deposit
1175	YEP12	3; R3I, R3J	Deposit	Layer	Levelling/consolidation deposit
1176	YEP12	3; R3I, R3J	Deposit	Layer	Ballast deposit
1177	YEP12	3; R3I, R3J	Masonry	Structure	Extension to southern track wall; inspection pit [682]
1178	YEP12	3; R3E	Masonry	Structure	Extension to southern track wall; inspection pit [673]
1179	YEP12	3; R3F	Deposit	Fill	Backfill of structure [1235]
1180	YEP12	3; R3K	Deposit	Layer	Bedding deposit for stone sett surface [777]
1181	YEP12	3; R3K	Deposit	Layer	Levelling/consolidation deposit
1182	YEP12	3; R3K	Deposit	Layer	Levelling/consolidation deposit
1183	YEP12	3; R3K	Deposit	Layer	Levelling/consolidation deposit
1184	YEP12	3; R3K	Deposit	Layer	Levelling/consolidation deposit
1185	YEP12	3; R3K	Deposit	Layer	Levelling/consolidation deposit
1186					Number not used
1187	YEP12	3; R3G	Deposit	Layer	Bedding deposit for stone sett surface [777]
1188	YEP12	3; R3G	Deposit	Layer	Levelling/consolidation deposit
1189	YEP12	3; R3G	Deposit	Layer	Levelling/consolidation deposit
1190	YEP12	3; R3G	Deposit	Layer	Levelling/consolidation deposit
1191	YEP12	3; R3G	Deposit	Layer	Levelling/consolidation deposit
1192	YEP12	3; R3G	Deposit	Layer	Ballast deposit
1193	YEP12	1841; ST	Deposit	Layer	Levelling deposit
1194	YEP12	1841; ST	Deposit	Layer	Developed soil
1195	YEP12	1841; ST	Cut	Linear	Inspection pit; filled by [953], [979]-[983], [1196], [1197]; group [1007]
1196	YEP12	1841; ST	Deposit	Fill	Backfill of inspection pit [1007] construction cut [1195]=[1203]
1197	YEP12	1841; ST	Deposit	Fill	Backfill of inspection pit [1007] construction cut [1195]=[1203]; same as [1204]
1198	YEP12	1841; ST	Cut	Linear	Pipe trench; filled by [1199], [1200], [1243]
1199	YEP12	1841; ST		Structure	Ceramic pipe within [1198]
1200	YEP12	1841; ST	Deposit	Fill	Backfill of pipe trench [1198]

YET 12, YEF 12, YEP 12 YET 13: CONTEXT INDEX

Context	*Site Code*	*Structure*	*Type 1*	*Type 2*	*Interpretation*
1201	YEP12	1841; ST	Cut	Linear	Modern service trench; same as [927]
1202	YEP12	1841; ST	Deposit	Fill	Fill of modern service trench [1201]; same as [925]
1203	YEP12	1841; ST	Cut	Linear	Inspection pit; filled by [953], [979]-[983], [1196], [1197]; group [1007]; same as [1195]
1204	YEP12	1841; ST	Deposit	Fill	Backfill of inspection pit [1077] construction cut [1203]=[1195]; same as [1197]
1205	YEP12	1841; ST	Cut	Linear	Construction cut for standpipe well; filled by [1210]=[960], [1206]
1206	YEP12	1841; ST	Deposit	Fill	Backfill of standpipe structure [1210]=[960] construction cut [1205]
1207	YEP12	1841; ST	Cut	Discrete	Possible pit; filled by [1208]
1208	YEP12	1841; ST	Deposit	Fill	Fill of possible pit [1207]
1209	YEP12	1841; ST	Deposit	Fill	Fill of modern truncation [1286]
1210	YEP12	1841; ST	Masonry	Structure	Brick and timber plank constructed standpipe well; same as [960]
1211	YEP12	1841; ST	Deposit	Fill	Backfill of inspection pit [1005] construction cut [1212]
1212	YEP12	1841; ST	Cut	Linear	Inspection pit [1005] construction cut; filled by [951], [969]-[973]
1213	YEP12	1841; ST	Deposit	Layer	Levelling deposit
1214	YEP12	1841; ST	Deposit	Layer	Levelling/consolidation deposit
1215	YEP12	1841; ST	Deposit	Layer	Bedding deposit for stone sett surface [958]
1216	YEP12	1841; ST	Deposit	Fill	Backfill of inspection pit [1006] construction cut [1285]
1217	YEP12	1841; ST	Cut	Linear	Construction cut for standpipe well and pipe trench; filed by [959], [1218]
1218	YEP12	1841; ST	Deposit	Fill	Fill of standpipe well and pipe trench [1217]
1219	YEP12	1841; ST	Deposit	Layer	Levelling deposit
1220	YEP12	1841; ST, RBT	Deposit	Layer	Natural alluvial deposit
1221	YEP12	1841; RBT	Deposit	Fill	Backfill of 1841 Engine Shed external wall [945]
1222	YEP12	1841; RBT	Cut	Linear	Construction cut for the 1841 Engine Shed external wall [945]
1223	YEP12	1841; RBT	Deposit	Layer	Levelling deposit
1224	YEP12, YEF12, YET13	1841; RBT	Deposit	Fill	Backfill of culvert [1225]
1225	YEP12, YEF12, YET13	1841; RBT	Cut	Linear	Construction cut for brick culvert [938]; filled by [1224], [1226]
1226	YEP12	1841; RBT	Deposit	Fill	Fill of brick culvert [938] cut [1225]
1227	YEP12	1841; RBT	Deposit	Fill	Backfill of drain [1228]; same as [950], [1232]
1228	YEP12	1841; RBT	Cut	Linear	Drain filled by [947]=[1227]=[1232], [948], [949]=[1234], [1010]
1229	YEP12	1841; ST	Deposit	Layer	Levelling/consolidation deposit
1230	YEP12	1841; RBT	Deposit	Fill	Backfill of construction cut [1231]
1231	YEP12	1841; RBT	Cut	Linear	Construction cut for 1841 Engine Shed wall [944]; filled by [1230]
1232	YEP12	1841; RBT	Deposit	Fill	Backfill of drain [1228]; same as [1227], [947]
1233	YEP12	1841; RBT	Cut	Linear	Drain; same as [950], [1228]
1234	YEP12	1841; RBT		Structure	Ceramic pipe within [1233]
1235	YEP12	3; R3F	Cut	Discrete	Cut for structure [1280]; filled by, [1156], [1157], [1158], [1179]
1236	YEP12	3; R3F		Structure	Fe pipe within serviced trench [1237]
1237	YEP12	3; R3F	Cut	Linear	Service trench; filled by [1167], [1236]
1238	YEP12	3; WB	Masonry	Structure	Inspection pit; filled by [1298]; group [1284]
1239	YEP12	3; WB	Deposit	Fill	Consolidation deposit; group [1284]
1240	YEP12	3; WB	Masonry	Structure	Brick arched culvert below inspection pit [1238], group [1284]
1241	YEP12	3; WB	Deposit	Layer	Levelling deposit
1242	YEP12	3; WB	Cut	Linear	Construction cut for inspection pit [1238] and brick culvert [1240]; group [1284]
1243	YEP12	1841; RBT	Masonry	Structure	Brick drain associated with ceramic drain [1199]
1244	YEP12	1841; RBT	Deposit	Layer	levelling deposit
1245	YEP12	1841; FHT	Deposit	Layer	levelling deposit
1246	YEP12	1841; FHT	Deposit	Layer	levelling/consolidation deposit
1247	YEP12	1841; FHT	Deposit	Layer	levelling deposit
1248	YEP12	1841; FHT	Deposit	Layer	levelling deposit
1249	YEP12	1841; FHT	Deposit	Layer	levelling deposit
1250	YEP12	1841; FHT	Deposit	Fill	Fill of inspection pit [1251]
1251	YEP12	1841; FHT	Masonry	Structure	Inspection pit; filled by [1250]
1252	YEP12	1841; FHT	Timber	Surface	Wood block surface
1253	YEP12	1841; FHT	Masonry	Structure	Northern external wall of 1841 Engine Shed; same as [943]
1254	YEP12	1841; FHT	Deposit	Layer	Levelling deposit
1255	YEP12	1841; FHT	Masonry	Surface	granite sett surface
1256	YEP12	1841; FHT	Deposit	Surface	Concrete surface
1257	YEP12	1841; FHT	Deposit	Layer	Concrete mortar bedding for surface [1252]
1258	YEP12	1841; FHT	Deposit	Layer	Levelling/consolidation deposit
1259	YEP12	1841; FHT	Deposit	Layer	Levelling deposit
1260	YEP12	1841; FHT	Deposit	Layer	Demolition deposit
1261	YEP12	1841; FHT			Number not used
1262	YEP12	1841; FHT			Number not used
1263	YEP12	1841; FHT			Number not used
1264	YEP12	1841; FHT	Deposit	Fill	Fill of modern feature [1265]

YET 12, YEF 12, YEP 12 YET 13: CONTEXT INDEX

Context	*Site Code*	*Structure*	*Type 1*	*Type 2*	*Interpretation*
1265	YEP12	1841; FHT	Cut	Discrete	Modern feature; filled by [1264]
1266	YEP12	3; R3B	Deposit	Layer	Concrete bedding for stone sett surface [1096]
1267	YEP12	3; R3D	Masonry	Structure	Sandstone plinth for column base [1134], [1135]
1268	YEP12	3; R3F	Masonry	Structure	Sandstone plinth for column base [1153], [1153]
1269	YEP12	2; R2C	Deposit	Fill	Fill of manhole [1036]
1270	YEP12	2; R2C	Deposit	Layer	Lime mortar bedding for brick surface [1028]
1271	YEP12	2; R2E	Deposit	Layer	Lime mortar bedding for brick surface [1081]
1272	YEP12	3; R3C	Masonry	Structure	Brick wall; structure [674]
1273	YEP12	3; R3C	Masonry	Structure	Brick wall; structure [674]
1274	YEP12	3; R3C	Masonry	Surface	Brick surface; structure [647]
1275	YEP12	3; R3C		Structure	Fe gas pipe
1276	YEP12	3; R3D	Deposit	Layer	Bedding deposit for stone sett surface [777]
1277	YEP12	3; R3D	Deposit	Layer	Levelling/consolidation deposit
1278	YEP12	3; R3D	Deposit	Layer	Levelling/consolidation deposit; same as [1139]
1279	YEP12	3; R3D	Deposit	Structure	Concrete slab for manhole [1151]; group [805]
1280	YEP12, YET12	3; R3F, R3D	Deposit	Structure	Structure comprising timber [1156] and concrete [1119], [1157], [1158]; part of YET12 structure [680] and [671]
1281	YEP12	3; R3F	Timber	Horizontal	Plank; revetment for manhole [1155]; group [805]
1282	YEP12	3; R3H	Deposit	Layer	Bedding deposit for stone sett surface [777]
1283	YEP12	3; R3G		Structure	Ceramic pipe
1284	YEP12	3; WB	Group	Structure	Inspection pit and culvert [1238]-[1240], [1242], [1298]
1285	YEP12	1841; ST	Cut	Linear	Construction cut for Inspection pit; filled by [952], [974]-[978], [1216]; group [1006]
1286	YEP12	1841; ST	Cut	Discrete	Modern truncation; filled by [1209]
1297	YEP12	1841; ST	Cut	Linear	Construction cut for wall [943]
1298	YEP12	3; WB	Deposit	Fill	Fill of inspection pit [1238]; group [1284]
1299	YEF12	1841	Deposit	Fill	Backfill of construction cut [1300]; culvert [937]
1300	YEF12	1841	Cut	Linear	Culvert; filled by [937], [1299]
1301	YET13	RH3	Masonry	Structure	Slag brick surface repair
1302	YET13	RH3	Masonry	Structure	Sandstone column base; group [809]
1303	YET13	RH3	Masonry	Structure	Inspection Pit; group [891]
1304	YET13	RH3	Deposit	Fill	Fill of eastern chamber of sand drying furnace [654]
1305	YET13	RH3	Deposit	Fill	Fill of western chamber/flue of sand drying furnace [654]
1306	YET13	RH3	Deposit	Fill	Infill of sand drying furnace [654]
1307	YET13	RH3	Deposit	Layer	Modern levelling deposit
1308	YET13	RH3	Deposit	Fill	Ballast
1309	YET13	RH3	Cut	Linear	Road filled by [1308]
1310	YET13	RH3	Masonry	Structure	Inspection pit; group [809]
1311	YET13	RH3	Deposit	Fill	Fill of Inspection Pit [1310]
1312	YET13	1841	Cut	Discrete	Drain [1343]
1313	YET13	RH3	Deposit	layer	Bedding deposit for surface [777]
1314	YET13	RH3	Masonry	Structure	Three fragments of sandstone blocking chamber/flue of sand drying furnace [654]
1315	YET13	RH3	Masonry	Surface	Fire brick surface, sand drying furnace [654]
1316	YET13	RH3	Masonry	Structure	Rectangular stone threshold, sand drying furnace [654]
1317	YET13	RH3	Masonry	Structure	External brick wall for RH3 also forming part of the sand drying furnace [654]
1318	YET13	RH3	Masonry	Structure	Rectangular stone slab and iron rail structure associated with the sand drying furnace [654]
1319	YET13	RH3	Masonry	Structure	Brick yard surface
1320	YET13	RH3		Structure	Fe base plate for sand drying furnace [654]
1321	YET13	RH3	Deposit	Fill	Infill of structure [1318]
1322	YET13	RH3	Masonry	Structure	Brick yard wall
1323	YET13	RH3	Deposit	Fill	Fill of modern truncation [1324]
1324	YET13	RH3	Cut	Discrete	Modern truncation filled by [1323]
1325	YET13	RH3	Deposit	Layer	Levelling deposit
1326	YET13	1841	Masonry	Surface	Stone sett surface
1327	YET13	1841	Masonry	Surface	Stone sett surface
1328	YET13	1841	Masonry	Surface	Stone sett surface repair
1329	YET13	1841	Masonry	Structure	Standpipe well filled by [1340]
1330	YET13	1841	Deposit	Layer	Modern overburden
1331	YET13	1841	Deposit	Fill	Backfill of Inspection Pit [1006]; same as [952]
1332	YET13	1841	Deposit	Fill	Backfill of Inspection Pit [1007]; same as [953]
1333	YET13	1841	Deposit	Layer	Natural alluvial deposit
1334	YET13	1841	Timber	Surface	Wood block surface
1335	YET13	1841	Masonry	Surface	Stone sett surface
1336	YET13	1841	Masonry	Surface	Slag brick surface
1337	YET13	1841	Deposit	Structure	Concrete pad/surface repair
1338	YET13	1841	Masonry	Surface	Stone sett surface repair
1339	YET13	1841	Masonry	Surface	Stone sett surface
1340	YET13	1841	Deposit	Fill	Infill of standpipe well [1329]

YET 12, YEF 12, YEP 12 YET 13: CONTEXT INDEX

Context	*Site Code*	*Structure*	*Type 1*	*Type 2*	*Interpretation*
1341	YET13	1841	Masonry	Structure	Brick chimney
1342	YET13	1841	Timber	Horizontal	Unknown structure
1343	YET13	1841	Masonry	Structure	Drain comprising iron downpipe and stone slab cap
1344	YET13	1841	Masonry	Structure	Drain comprising lead downpipe and brick packing
1345	YET13	1841	Masonry	Structure	Brick chimney/buttress
1346	YET13	1841	Masonry	Surface	Stone sett surface repair
1347	YET13				number not used
1348	YET13	RH3	Masonry	Structure	Western chamber/flue associated with sand drying furnace [654]
1349	YET13	RH3	Masonry	Structure	Eastern chamber/flue associated with sand drying furnace [654]
1350	YET13	1841	Deposit	Structure	Structure comprising concrete footing and horizontal timber
1351	YET13	1841	Deposit	Fill	Fill of drain [1352] construction cut [1352]
1352	YET13	1841	Cut	Discrete	Drain filled by [1344], [1352]
1353	YET13	1841	Group	Surface	Stone sett surfaces [954], [958], [961], [963], [1255], [1327]
1354	YET13	1841	Group	Surface	Brick surfaces [957], [962], [1336]
1355	YET13	1841	Group	Surface	Wood block surfaces [1252], [1334]
1356	YET13, YES12	1841	Masonry	Wall	Eastern external wall of 1841 Engine Shed exposed during YES12

15. APPENDIX 2

YEP 12: PILE INDEX

Pile	Location	Top OD Height	Depth from GL (m)	Thickness of Deposit (m)	Description
P01	RH3	12.808	0.00	0.17	Stone setts
			0.17	0.10	Bedding deposit for stone setts
			0.27	0.06	Consolidation layer
			0.33	0.38	Levelling deposit
			0.71	0.33	Levelling deposit
			1.04	n/a	Levelling deposit at base of pile
				1.04	
P02	RH3	12.805	0.00	0.17	Stone setts
			0.17	0.10	Bedding deposit for stone setts
			0.27	0.06	Consolidation layer
			0.33	0.25	Levelling deposit
			0.58	0.09	Levelling deposit
			0.67	0.10	Levelling deposit
			0.77	0.42	Levelling deposit
				1.19	
P03	RH3	12.782	0.00	0.15	Stone setts
			0.15	0.07	Bedding deposit for stone setts
			0.22	0.10	Consolidation layer
			0.32	0.13	Levelling deposit
			0.45	0.19	Levelling deposit
			0.64	0.14	Levelling deposit
			0.78	0.22	Levelling deposit
				1.00	
P04	RH3	12.802	0.00	0.10	Brick surface
			0.10	0.02	Bedding for brick surface
			0.12	0.12	Concrete
			0.24	0.08	Bedding for concrete
			0.32	0.08	Consolidation layer
			0.40	0.18	Levelling deposit
			0.58	0.20	Levelling deposit
			0.60	0.07	Fe pipe
			0.78	0.22	Levelling deposit
				1.00	
P05	RH3	12.791	0.00	0.10	Brick surface
			0.10	0.02	Bedding for brick surface
			0.12	0.12	Concrete
			0.24	0.10	Bedding for concrete
			0.34	0.10	Levelling deposit
			0.44	0.23	Levelling deposit
			0.67	0.45	Levelling deposit
			0.00	1.12 to L.O.E	Manhole
				1.12	
P06	RH3	12.723	0.00	0.10	Brick surface
			0.10	0.02	Bedding for brick surface
			0.12	0.10	Concrete
			0.22	0.08	Bedding for concrete
			0.30	0.09	Levelling deposit
			0.39	0.22	Levelling deposit
			0.61	0.39	Levelling deposit
				1.00	
P07	RH3	12.831	0.00	0.16	Brick surface
			0.16	0.08	Bedding for brick surface
			0.24	0.14	Consolidation layer
			0.38	0.48	Levelling deposit
			0.86	0.18	Levelling deposit
				1.04	

YEP 12: PILE INDEX

Pile	Location	Top OD Height	Depth from GL (m)	Thickness of Deposit (m)	Description
P08	RH3	12.822	0.00	0.17	Stone setts
			0.17	0.10	Bedding for stone setts
			0.27	0.04	Consolidation layer
			0.31	0.19	Levelling deposit
			0.50	0.15	Levelling deposit
			0.65	0.38	Levelling deposit
				1.03	
P09	RH3	12.833	0.00	0.17	Stone setts
			0.17	0.09	Bedding for stone setts
			0.26	0.06	Consolidation layer
			0.32	0.25	Levelling deposit
			0.57	0.12	Levelling deposit
			0.69	0.41	Levelling deposit
				1.10	
P10	RH3	12.555	0.00	0.17	Stone setts
			0.17	0.04	Bedding for stone setts
			0.21	0.07	Consolidation layer
			0.28	0.10	Consolidation layer
			0.38	0.10	Levelling deposit
			0.48	0.32	Levelling deposit
			0.80	0.17	Levelling deposit
			0.97	0.33	Levelling deposit
				1.30	
P11	RH3	12.759	0.00	0.20	Stone setts
			0.20	0.03	Bedding for stone setts
			0.23	0.10	Consolidation layer
			0.33	0.20	Levelling deposit
			0.53	0.15	Levelling deposit
			0.68	0.32	Levelling deposit
				1.00	
P12	RH3	12.792	0.00	0.20	Stone setts
			0.20	0.08	Bedding for stone setts
			0.28	0.18	Consolidation layer
			0.36	0.23	Levelling deposit
			0.59	0.10	Levelling deposit
			0.69	0.31	Levelling deposit
				1.10	
P13	RH3	12.86	0.00	0.18	Stone sett surface
			0.18	0.08	Bedding for stone setts
			0.26	0.18	Consolidation layer
			0.44	0.20	Levelling deposit
			0.64	0.36	Levelling deposit
				1.00	
P14	RH3	12.844	0.00	0.17	Stone sett surface
			0.17	0.10	Bedding for stone setts
			0.27	0.19	Consolidation layer
			0.46	0.28	Levelling deposit
			0.74	0.26	Levelling deposit
				1.00	
P15	RH3	12.794	0.00	0.25	Stone setts
			0.25	0.16	Consolidation layer
			0.41	0.15	Levelling deposit
			0.56	0.20	Levelling deposit
			0.76	0.24	Levelling deposit
				1.00	

YEP 12: PILE INDEX

Pile	Location	Top OD Height	Depth from GL (m)	Thickness of Deposit (m)	Description
P16	RH3	12.877	0.00	0.13	Stone setts
			0.13	0.05	Bedding for stone setts
			0.18	0.10	Levelling deposit
			0.28	0.18	Consolidation layer
			0.46	0.35	Levelling deposit
			0.81	0.24	Levelling deposit
				1.05	
P17	RH3	12.821	0.00	0.17	Stone setts
			0.17	0.11	Bedding for stone setts
			0.28	0.10	Consolidation layer
			0.38	0.02	Levelling deposit
			0.40	0.46	Levelling deposit
			0.86	0.22	Levelling deposit
				1.08	
P18	RH3	12.764	0.00	0.16	Stone setts
			0.16	0.08	Bedding for stone setts
			0.24	0.06	Levelling deposit
			0.30	0.10	Consolidation layer
			0.40	0.35	Levelling deposit
			0.75	0.05	Levelling deposit
			0.80	0.26	Levelling deposit
				1.06	
P19	RH3	12.831	0.00	0.18	Stone setts
			0.18	0.07	Bedding for stone setts
			0.25	0.15	Consolidation layer
			0.40	0.34	Levelling deposit
			0.74	0.41	Levelling deposit
				1.15	
P20	RH3	12.803	0.00	0.17	Stone setts
			0.17	0.03	Bedding for stone setts
			0.20	0.17	Consolidation layer
			0.37	0.08	Levelling deposit
			0.45	0.59	Levelling deposit
				1.04	
P21	RH3	12.86	0.00	0.17	Stone setts
			0.17	0.10	Bedding deposit for stone setts
			0.27	0.03	Levelling deposit
			0.30	0.06	Levelling deposit
			0.36	0.02	Levelling deposit
			0.38	0.08	Consolidation layer
			0.46	0.32	Levelling deposit
			0.00	0.78 to L.O.E	Inspection pit [717]
				0.78	
P22	RH3	12.80	0.00	0.13	Stone setts
			0.13	0.09	Bedding for stone setts
			0.22	0.07	Consolidation layer
			0.29	0.04	Levelling deposit
			0.33	0.05	Levelling deposit
			0.38	0.68	Levelling deposit
				1.06	
P23	RH2	12.729	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.10	Consolidation layer
			0.23	0.11	Consolidation layer
			0.34	0.26	Levelling deposit
			0.60	0.40	Levelling deposit
				1.00	

YEP 12: PILE INDEX

Pile	Location	Top OD Height	Depth from GL (m)	Thickness of Deposit (m)	Description
P24	RH2	12.66	0.00	0.12	Brick surface
			0.12	0.10	Bedding deposit for brick surface
			0.22	0.14	Consolidation layer
			0.36	0.22	Consolidation layer
			0.58	0.57	Levelling deposit
				1.15	
P25	RH2	12.654	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.10	Levelling deposit
			0.23	0.13	Consolidation layer
			0.36	0.23	Consolidation layer
			0.59	0.41	Levelling deposit
				1.00	
P26	RH2	12.671	0.00	0.12	Brick paved surface
			0.12	0.02	Mortar bedding for brick surface
			0.14	0.16	Consolidation layer
			0.30	0.30	Consolidation layer
			0.60	0.02	Levelling deposit
			0.62	0.40	Levelling deposit
				1.02	
P27	RH2	12.697	0.00	0.12	Brick surface
			0.12	0.04	Mortar bedding for brick surface
			0.16	0.05	Consolidation layer
			0.21	0.17	Consolidation layer
			0.38	0.32	Consolidation layer
			0.70	0.30	Levelling deposit
				1.00	
P28	RH2	12.68	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.08	Consolidation layer
			0.21	0.17	Consolidation layer
			0.38	0.37	Consolidation layer
			0.75	0.30	Levelling deposit
			0.40	0.63 to L.O.E	Column base
				1.05	
P29	RH2	12.751	0.00	0.12	Brick surface
			0.12	0.04	Bedding for brick surface
			0.16	0.07	Consolidation layer
			0.23	L.O.E	Manhole
				0.23	
P30	RH2	12.69	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.10	Consolidation layer
			0.23	0.32	Consolidation layer
			0.55	0.57	Levelling deposit
				1.12	
P31	RH2	12.729	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.09	Consolidation layer
			0.22	0.19	Consolidation layer
			0.70	0.96	Levelling deposit
			1.66	0.18	Levelling deposit
			0.00	1.8 to L.O.E	Chimney stack
				1.55	

YEP 12: PILE INDEX

Pile	Location	Top OD Height	Depth from GL (m)	Thickness of Deposit (m)	Description
P32	RH2	12.676	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.20	Consolidation layer
			0.23	0.31	Consolidation layer
			0.54	0.46	Levelling deposit
				1.10	
P33	RH2	12.666	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.13	Consolidation layer
			0.26	0.29	Consolidation layer
			0.55	0.45	Levelling deposit
				1.00	
P34	RH2	12.649	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.08	Consolidation layer
			0.21	0.27	Consolidation layer
			0.48	0.55	Levelling deposit
				1.03	
P35	RH2	12.641	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.07	Consolidation layer
			0.20	0.23	Consolidation layer
			0.45	0.57	Levelling deposit
				1.00	
P36	RH2	12.622	0.00	**0.12**	Brick surface
			0.12	**0.01**	Mortar bedding for brick surface
			0.13	**0.87**	Levelling deposit
			0.72	0.17	Fe pipe
				1.00	
P37	RH2	12.625	0.00	0.10	Demolition deposit
			0.10	0.16	Consolidation layer
			0.26	0.07	Consolidation layer
			0.33	0.19	Levelling deposit
			0.52	0.48	Levelling deposit
			0.42	1m to L.O.E	Column base
				1.00	
P38	RH2	12.544	0.00	0.14	Demolition deposit
			0.14	0.10	Mortar deposit
			0.24	0.14	Consolidation layer
			0.38	0.62	Levelling deposit
				1.00	
P39	RH2	12.646	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.10	Levelling deposit
			0.23	0.32	Consolidation layer
			0.55	0.45	Levelling deposit
				1.00	
P40	RH2	12.588	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.05	Levelling deposit
			0.18	0.02	Consolidation layer
			0.20	0.27	Consolidation layer
			0.47	0.53	Levelling deposit
				1.00	

YEP 12: PILE INDEX

Pile	Location	Top OD Height	Depth from GL (m)	Thickness of Deposit (m)	Description
P41	RH2	12.765	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.12	Levelling deposit
			0.25	0.28	Consolidation layer
			0.53	0.47	Levelling deposit
				1.00	
P42	RH2	12.734	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.14	Consolidation layer
			0.27	0.11	Levelling deposit
			0.21	0.38 to L.O.E	Manhole
				0.38	
P43	RH2	12.657	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.15	Consolidation layer
			0.28	0.28	Consolidation layer
			0.56	0.64	Levelling deposit
				1.20	
P44	RH2	12.673	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.17	Consolidation layer
			0.30	0.25	Consolidation layer
			0.55	0.45	Levelling deposit
				1.00	
P45	RH2	12.675	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.01	Levelling deposit
			0.14	0.24	Consolidation layer
			0.38	0.26	Consolidation layer
			0.64	0.56	Levelling deposit
				1.20	
P46	RH2	12.669	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.29	Consolidation layer
			0.42	0.28	Consolidation layer
			0.70	0.40	Levelling deposit
				1.10	
P47	RH2	12.684	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.17	Consolidation layer
			0.30	0.29	Consolidation layer
			0.59	0.61	Levelling deposit
				1.20	
P48	RH2	12.653	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.18	Consolidation layer
			0.31	0.11	Consolidation layer
			0.42	0.10	Consolidation layer
			0.52	0.48	Levelling deposit
				1.00	
P49	RH2	12.664	0.00	0.12	Brick surface
			0.12	0.01	Mortar bedding for brick surface
			0.13	0.17	Consolidation layer
			0.30	0.19	Consolidation layer
			0.49	0.51	Levelling deposit
				1.00	

YEP 12: PILE INDEX

Pile	Location	Top OD Height	Depth from GL (m)	Thickness of Deposit (m)	Description
P50	RH2	12.675	0.00	0.12	Brick surface
			0.12	0.02	Mortar bedding for brick surface
			0.14	0.09	Levelling deposit
			0.23	0.17	Consolidation layer
			0.40	0.30	Consolidation layer
			0.70	0.55	Levelling deposit
				1.25	
P51	RH2	12.694	0.00	0.12	Brick surface
			0.12	0.02	Mortar bedding for brick surface
			0.14	0.14	Consolidation layer
			0.28	0.32	Consolidation layer
			0.60	0.64	Levelling deposit
			0.47	0.77 to L.O.E	Column base
				1.24	
P52	RH2	12.68	0.00	0.12	Brick surface
			0.12	0.02	Mortar bedding for brick surface
			0.14	0.31	Consolidation layer
			0.45	0.16	Consolidation layer
			0.61	0.49	Levelling deposit
				1.10	
P53	RH2	12.673	0.00	0.12	Brick surface
			0.12	0.02	Mortar bedding for brick surface
			0.14	0.11	Consolidation layer
			0.25	0.28	Consolidation layer
			0.53	0.47	Levelling deposit
				1.00	
P54	RH2	12.694	0.00	0.12	Brick surface
			0.12	0.02	Mortar bedding for brick surface
			0.14	0.08	Consolidation layer
			0.22	0.20	Consolidation layer
			0.42	0.68	Levelling deposit
				1.10	
P55	RH2	12.708	0.00	0.12	Brick surface
			0.12	0.02	Mortar bedding for brick surface
			0.14	0.10	Consolidation layer
			0.24	0.22	Consolidation layer
			0.46	0.15	Levelling deposit
			0.62	0.42	Levelling deposit
				1.03	
P56	RH2	11.646	0.00	0.03	Concrete surface
			0.03	0.04	Gravel bedding for brick surface
			0.07	0.17	Levelling deposit
			0.24	0.46	Foundation for central turntable well
			0.70	0.40	Alluvial deposit
				1.10	
P57	RH2	11.641	0.00	0.03	Concrete surface
			0.03	0.11	Gravel bedding deposit for concrete
			0.14	0.16	Levelling deposit
			0.30	0.40	Foundation of central turntable well
			0.70	0.30	Alluvial deposit
				1.00	

YEP 12: PILE INDEX

Pile	Location	Top OD Height	Depth from GL (m)	Thickness of Deposit (m)	Description
PP01	RH3	12.77	0.00	0.20	Demolition deposit
	R3A		0.20	0.20	Levelling deposit
			0.40	0.37	Levelling deposit
			0.77	0.45	Levelling deposit
				1.22	
PP02	RH3	12.84	0.00	0.18	Stone setts
	R3A		0.18	0.12	Bedding for stone setts
			0.30	0.14	Consolidation layer
			0.44	0.40	Levelling layer
			0.84	0.26	Levelling layer
				1.10	
PP03	RH3	12.83	0.00	0.17	Stone setts
	R3B		0.17	0.09	Bedding for stone setts
			0.26	0.15	Consolidation layer
			0.41	0.07	Consolidation layer
			0.48	0.39	Levelling deposit
			0.87	0.10	Levelling deposit
				0.97	
PP04	RH3	12.83	0.00	0.15	Stone setts
	R3B		0.15	0.06	Bedding for stone setts
			0.21	0.05	Consolidation layer
			0.26	0.05	Consolidation layer
			0.31	0.34	Levelling deposit
			0.65	0.15	Levelling deposit
			0.80	0.17	Levelling deposit
				0.97	
PP05	RH3	12.90	0.00	0.15	Stone setts
	R3B		0.15	0.11	Bedding for stone setts
			0.26	0.04	Consolidation layer
			0.30	0.09	Consolidation layer
			0.39	0.03	Levelling deposit
			0.42	0.17	Levelling deposit
			0.59	0.03	Levelling deposit
			0.62	0.07	Levelling deposit
			0.69	0.28	Levelling deposit
				0.97	
PP06	RH3	12.88	0.00	0.15	Stone setts
	R3B		0.15	0.07	Bedding for stone setts
			0.22	0.05	Consolidation layer
			0.27	0.08	Consolidation layer
			0.35	0.22	Levelling deposit
			0.57	0.39	Levelling deposit
				0.96	
PP07	RH3	12.91	0.00	0.15	Brick surface
	R3C		0.15	0.10	Bedding for brick surface
			0.25	0.15	Consolidation layer
			0.40	0.60	Levelling deposit
				1.00	
PP08	RH3	12.95	0.00	0.10	Brick surface
	R3C		0.10	0.04	Bedding for brick surface
			0.14	0.10	Concrete pad (smithing area)
			0.24	0.06	Bedding for concrete pad
			0.30	0.08	Bedding for concrete pad
			0.38	0.10	Consolidation layer
			0.48	0.52	Levelling deposit
				1.00	

YEP 12: PILE INDEX

Pile	Location	Top OD Height	Depth from GL (m)	Thickness of Deposit (m)	Description
PP09	RH3	12.96	0.00	0.15	Brick surface
	R3C		0.15	0.10	Bedding for brick surface
			0.25	0.15	Consolidation layer
			0.40	0.55	Levelling deposit
			0.95	0.05	Levelling deposit
				1.00	
PP10	RH3	12.88	0.00	0.14	Stone setts
	R3D		0.14	0.10	Bedding deposit for stone setts
			0.24	0.07	Consolidation layer
			0.31	0.09	Consolidation layer
			0.40	0.14	Consolidation layer
			0.54	0.36	Levelling deposit
			0.90	0.06	Levelling deposit
				0.96	
PP11	RH3	12.83	0.00	0.14	Stone setts
	R3D		0.14	0.06	Bedding deposit for stone setts
			0.20	0.04	Consolidation layer
			0.24	0.10	Consolidation layer
			0.34	0.24	Levelling deposit
			0.58	0.14	Levelling deposit
			0.72	0.36	Levelling deposit
				1.08	
PP12	RH3	12.89	0.00	0.16	Stone setts
	R3D		0.16	0.04	Bedding for stone setts
			0.20	0.07	Consolidation layer
			0.27	0.07	Consolidation layer
			0.34	0.04	Levelling deposit
			0.38	0.18	Levelling deposit
			0.56	0.16	Levelling deposit
			0.72	0.30	Levelling deposit
				1.02	
PP13	RH3	12.85	0.00	0.15	Stone setts
	R3D		0.15	0.03	Bedding for stone setts
			0.18	0.06	Levelling deposit
			0.24	0.08	Levelling deposit
			0.32	0.10	Consolidation layer
			0.42	0.15	Levelling deposit
			0.57	0.35	Levelling deposit
			0.92	0.08	Levelling deposit
				1.00	
PP14	RH3	12.76	0.00	0.15	Stone setts
	R3E		0.15	0.07	Bedding layer for stone setts
			0.22	0.05	Levelling deposit
			0.27	0.05	Levelling deposit
			0.32	0.08	Consolidation layer
			0.40	0.44	Levelling deposit
			0.84	0.16	Levelling deposit
				1.00	
PP15	RH3	12.80	0.00	0.14	Stone setts/ concrete surface
	R3E		0.14	0.06	Bedding deposit for stone setts
			0.20	0.09	Levelling deposit
			0.29	0.15	Consolidation layer
			0.44	0.30	Levelling deposit
			0.74	0.28	Levelling deposit
				1.02	

YEP 12: PILE INDEX

Pile	Location	Top OD Height	Depth from GL (m)	Thickness of Deposit (m)	Description
PP16	RH3	12.74	0.00	0.17	Stone setts
	R3E		0.17	0.11	Bedding for stone setts
			0.28	0.08	Consolidation layer
			0.36	0.09	Consolidation layer
			0.45	0.14	Levelling deposit
			0.59	0.21	Levelling deposit
			0.80	0.20	Levelling deposit
				1.00	
PP17	RH3	12.78	0.00	0.17	Stone setts
	R3E		0.17	0.07	Bedding for stone setts
			0.24	0.06	Levelling deposit
			0.30	0.15	Consolidation layer
			0.45	0.21	Levelling deposit
			0.66	0.30	Levelling deposit
			0.96	0.10	Levelling deposit
				1.06	
PP18	VOID				
PP19	VOID				
PP20	RH3	12.86	0.00	0.16	Stone setts
	R3F		0.16	0.06	Bedding for stone setts
			0.22	0.10	Consolidation layer
			0.32	0.07	Levelling deposit
			0.39	0.06	Levelling deposit
			0.45	0.55	Levelling deposit
				1.00	
PP21	RH3	12.87	0.00	0.16	Stone setts
	R3F		0.16	0.08	Bedding for stone setts
			0.24	0.18	Consolidation layer
			0.42	0.12	Levelling deposit
			0.54	0.46	Levelling deposit
				1.00	
PP22	RH3	12.75	0.00	0.17	Stone setts
	R3G		0.17	0.04	Bedding for stone setts
			0.21	0.06	Levelling deposit
			0.27	0.08	Consolidation layer
			0.35	0.13	Consolidation layer
			0.48	0.49	Levelling deposit
			0.97	0.10	Levelling deposit
				1.07	
PP23	RH3	12.68	0.00	0.09	Timber surface
	R3G		0.09	0.05	Bedding for timber
			0.14	0.09	Consolidation layer
			0.23	0.10	Consolidation layer
			0.33	0.08	Levelling deposit
			0.41	0.28	Levelling deposit
			0.69	0.31	Levelling deposit
				1.00	
PP24	RH3	12.72	0.00	0.08	Timber surface
	R3G		0.08	0.06	Bedding for timber
			0.14	0.20	Consolidation layer
			0.34	0.10	Consolidation layer
			0.44	0.12	Levelling deposit
			0.56	0.20	Levelling deposit
			0.76	0.24	Levelling deposit
				1.00	

YEP 12: PILE INDEX

Pile	Location	Top OD Height	Depth from GL (m)	Thickness of Deposit (m)	Description
PP25	RH3	12.80	0.00	0.07	Timber surface
	R3G		0.07	0.05	Bedding for timber
			0.12	0.06	Consolidation layer
			0.18	0.14	Consolidation layer
			0.32	0.18	Levelling deposit
			0.50	0.44	Levelling deposit
				0.94	
PP26	RH3	12.86	0.00	0.17	Stone setts
	R3G		0.17	0.03	Bedding for stone setts
			0.20	0.10	Consolidation layer
			0.30	0.36	Levelling deposit
			0.66	0.07	Levelling deposit
			0.75	0.27	Levelling deposit
				1.00	
PP27	RH3	12.82	0.00	0.16	Stone setts
	R3H		0.16	0.03	Bedding for stone setts
			0.19	0.07	Consolidation layer
			0.26	0.21	Levelling deposit
			0.47	0.14	Levelling deposit
			0.61	0.25	Levelling deposit
			0.86	0.14	Levelling deposit
				1.00	
PP28	RH3	12.81	0.00	0.17	Demolition deposit
	R3I		0.17	0.07	Bedding layer
			0.24	0.10	Levelling deposit
			0.34	0.10	Levelling deposit
			0.44	0.08	Consolidation layer
			0.52	0.23	Levelling deposit
			0.75	0.25	Levelling deposit
				1.00	
PP29	RH3	12.82	0.00	0.13	Demolition deposit
	R3I		0.13	0.13	Levelling deposit
			0.26	0.06	Levelling deposit
			0.32	0.13	Levelling deposit
			0.45	0.09	Consolidation layer
			0.54	0.40	Levelling deposit
			0.94	0.06	Levelling deposit
				1.00	
PP30	RH3	12.78	0.00	0.14	Stone setts
	R3K		0.14	0.02	Bedding for stone setts
			0.16	0.11	Levelling deposit
			0.27	0.10	Levelling deposit
			0.37	0.08	Consolidation layer
			0.45	0.14	Levelling deposit
			0.59	0.41	Levelling deposit
				1.00	
PP31	RH2	12.74	0.00	0.13	Brick surface
	R2A		0.13	0.02	Bedding for brick surface
			0.15	0.08	Consolidation layer
			0.23	0.09	Consolidation layer
			0.32	0.14	Levelling deposit
			0.46	0.22	Levelling deposit
			0.68	0.32	Levelling deposit
				1.00	

YEP 12: PILE INDEX

Pile	Location	Top OD Height	Depth from GL (m)	Thickness of Deposit (m)	Description
PP32	RH2	12.69	0.00	0.11	Brick surface
	R2B		0.11	0.03	Bedding for brick surface
			0.14	0.04	Consolidation layer
			0.18	0.03	Consolidation layer
			0.21	0.15	Consolidation layer
			0.36	0.33	Consolidation layer
			0.69	0.36	Levelling deposit
				1.05	
PP33	RH2	12.70	0.00	0.11	Brick surface
	R2B		0.11	0.03	Bedding for brick surface
			0.14	0.04	Bedding for brick surface
			0.18	0.03	Consolidation layer
			0.21	0.20	Consolidation layer
			0.41	0.31	Consolidation layer
			0.72	0.28	Levelling deposit
				1.00	
PP34	RH2	12.72	0.00	0.12	Brick surface
	R2B		0.12	0.06	Bedding for brick surface
			0.18	0.17	Consolidation layer
			0.35	0.36	Consolidation layer
			0.71	0.41	Levelling deposit
				1.12	
PP35	RH2	12.69	0.12	0.12	Brick surface
	R2C		0.20	0.08	Bedding for brick surface
			0.32	0.12	Consolidation layer
			0.56	0.24	Consolidation layer
				0.44	Levelling deposit
				1.00	
PP36	RH2	12.68	0.00	0.27	Sandstone block of inspection pit
	R2C		0.27	0.73 to L.O.E	Sandstone and brick wall of inspection pit
				1.00	
PP37	RH2	12.70	0.00	0.35	Sandstone block of inspection pit
	R2C		0.35	0.65 to L.O.E	Sandstone and brick wall of inspection pit
				1.00	
PP38	RH2	12.65	0.00	0.11	Brick surface
	R2C		0.11	0.03	Bedding for brick surface
			0.14	0.06	Bedding for brick surface
			0.20	0.13	Consolidation layer
			0.33	0.23	Consolidation layer
			0.56	0.47	Levelling deposit
			0.49	0.17	Fe pipe
				1.03	
PP39	RH2	12.66	0.00	0.20	Demolition deposit
	R2E		0.20	0.10	Levelling deposit
			0.30	0.25	Consolidation layer
			0.55	0.47	Levelling deposit
				1.02	
PP40	RH2	12.67	0.00	0.12	Brick surface
	R2E		0.12	0.01	Bedding for brick surface
			0.13	0.08	Consolidation layer
			0.21	0.31	Consolidation layer
			0.52	0.48	Levelling deposit
				1.00	

YEP 12: PILE INDEX

Pile	Location	Top OD Height	Depth from GL (m)	Thickness of Deposit (m)	Description
PP41	RH2	12.72	0.00	0.15	Brick surface
	R2E		0.15	0.03	Bedding for brick surface
			0.18	0.16	Bedding for brick surface
			0.34	0.32	Consolidation layer
			0.66	0.34	Levelling deposit
				1.00	
PP41	RH2	12.70	0.00	0.13	Demolition deposit
	R2F		0.13	0.19	Levelling deposit
			0.32	0.18	Fe pipe
			0.50	0.21	Levelling deposit
			0.71	0.29	Brick wall of inspection pit
				1.00	
PP42	RH2	12.71	0.00	0.13	Demolition deposit
	R2F		0.13	0.01	Mortar spread
			0.14	0.19	Levelling deposit
			0.33	0.16	Fe pipe
			0.49	0.18	Levelling deposit
			0.67	0.30	Limestone blocks of inspection pit base
				0.97	
ESP01	1841 Engine Shed	12.26	0.00	0.12	Ballast
			0.12	0.03	Levelling Deposit
			0.15	0.03	Inspection pit
			0.45	0.29	Ballast
			0.74	0.06	Levelling deposit
			0.80	0.59	Natural
				1.12	