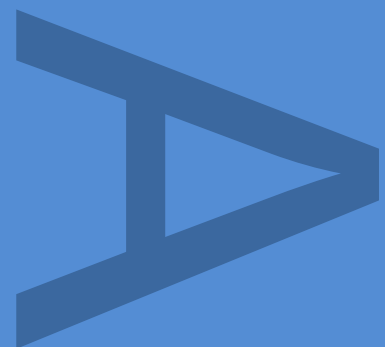


**HISTORIC BUILDING
RECORDING OF THE
REDUNDANT RAILWAY
VIADUCT, WESTFIELD WAY,
LONDON BOROUGH OF
TOWER HAMLETS, E1**

PCA REPORT NO. R11459

SEPTEMBER 2013



PRE-CONSTRUCT ARCHAEOLOGY

DOCUMENT VERIFICATION

REDUNDANT RAILWAY VIADUCT, WESTFIELD WAY, LONDON BOROUGH OF TOWER HAMLETS

HISTORIC BUILDING RECORDING

Quality Control

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Historic Building Recording of the Redundant Railway Viaduct, Westfield Way, London Borough of Tower Hamlets, E1

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1 NON-TECHNICAL SUMMARY

- 1.1.1 Pre-Construct Archaeology was commissioned by CgMs on behalf of Network Rail to undertake building recording of a railway viaduct, off Westfield Way, London Borough of Tower Hamlets. The work was carried out in response to a condition on planning permission for its replacement with student apartments. The building recording was undertaken in June and September 2013 in accordance with English Heritage Level 4 prior to its demolition.
- 1.1.2 Documentary evidence and the analysis of the historic fabric has confirmed that all twenty-five of the arches of the former Devonshire Street Goods Depot Viaduct were erected by the Eastern Counties Railway (ECR) in the mid-1850s. The initial impetus for the construction of the viaduct was a demand for additional sidings. By the time the company decided to proceed with the proposed works in 1854, the railway company also proposed to establish a coal depot on the south side of the main line at Devonshire Street. The new coal depot would allow coals brought in by rail to be loaded into barges for onward distribution via the adjacent Regent's Canal.
- 1.1.3 Because the mainline at Devonshire Street was carried on an embankment, it was necessary to construct the sidings at the same level. Having convinced the Board of the ECR that the cost of building a brick viaduct was less than that of widening the embankment, the railway company ensured that a dual purpose structure was built, from which coal could be discharged from wagons via shoots to ground level. The railway company failed to acquire all of the land necessary, which meant that the viaduct was built but the depot was not. The plans of the ECR were not realised until the mid-1860s, when its successor the Great Eastern Railway (GER) acquired the land and developed the coal depot.
- 1.1.4 The Devonshire Street coal depot was completed in 1865 by which date accommodation at the arches had been let out to a number of coal merchants. The building recording and documentary evidence suggests that the arches were built as coal drops from the outset. The 1870 Ordnance Survey map depicted five sidings terminating at the eastern end in a bank of three wagon turntables. Investigations by Peter Kay and Malcolm Tucker concluded that the central track was used for returning empties, which were manoeuvred onto the siding via the turntables. The outer pair of sidings received trains of loaded coal wagons, which discharged their loads sideward via the drop holes, which were situated between the outer pair of sidings. Thus discharged, the coal was stored in the arches below prior to onward distribution by road or canal. This fits well with the locations of the original coal drops, which were placed toward the northern and southern ends of each arch suitable for the use of side-loading wagons.
- 1.1.5 Within four years of the coal depot becoming fully operational, competition from the GER's own coal handling facility at Whitechapel for coal merchants' business meant that "a large portion of the coal traffic from Devonshire Street" had been taken by its larger rival. The two westernmost arches were converted to receive and store grain and malt respectively and by the early 1890s Arch 22 had been converted into a bottle store.
- 1.1.6 Whilst all of the drops in the western half of the viaduct and several in the eastern half were blocked, a number remained open. The use of the former coal depot as a yard for sand and aggregates after 1962 prolonged the working life of the drops in this half of the viaduct. The sand yard closed in the early 1990s.
- 1.1.7 The viaduct structure mainly survives intact with very little alteration. Its most significant rebuilding event occurred around the south-eastern corner of the structure. This work seems carried out during or shortly after the Second World War, in order to make good bomb damage.

2 INTRODUCTION

2.1 Background

- 2.1.1 Pre-Construct Archaeology Limited was commissioned by CgMs Limited acting on behalf of Network Rail to undertake a programme of historic building recording and archaeological monitoring on a redundant railway viaduct (known as the Mile End Sand Drops), situated north of Pooley House, off Westfield Way, Mile End, Tower Hamlets. The recording and monitoring were scheduled to take place prior to and during the demolition of the viaduct and its replacement with two blocks of student apartments. The work was carried out in response to an archaeological planning condition, imposed by the Local Planning Authority (LPA), the London Borough of Tower Hamlets, on the planning permission, gained following a planning appeal, APP/E5900/A/12/2173692 by the applicant.
- 2.1.2 The building recording and monitoring was undertaken in accordance with a Written Scheme of Investigation (WSI) agreed in advance of the work with the LPA and their archaeological advisor (Meager and Matthews, 2013). The works are in accordance with National Planning Policy Guidance, specifically the National Planning Policy Framework (NPPF) (2012) and the LPA's policy towards built heritage and archaeology.
- 2.1.3 The aim of the building recording and monitoring were to provide a detailed English Heritage Level 4 record of the structure prior to and during its demolition. The purpose of the project is to clarify the development of the site and to compile a final record of the viaduct, its historic and structural development, fabric, current spatial relationships and fixtures and fittings which will be lost as a result of the future development. The results will then form part of an ordered archive and report that will preserve 'by record' those areas affected by the works, the findings of which can be disseminated to mitigate the loss of the building.

2.2 Site Location

- 2.2.1 The development site is situated within the London Borough of Tower Hamlets, to the north of the Mile End Road (A11) and immediately west of the course of the Regents Canal, north of Mile End Lock. The site is accessed from the west via Longnor Road and comprises a linear brick-built railway viaduct situated to the north of Pooley House along the northern boundary of the Queen Mary University of London site (**Figures 1 and 2**).
- 2.2.2 The immediate environs of the site are dominated by the buildings, tutorial and student accommodation of Queen Mary University, London and to a lesser degree those of the Mile End Hospital to the south-west. The site comprises a linear viaduct aligned east-west built along the southern side of the present Liverpool Street to Stratford railway line. It is formed of 25 arched vaults, which at the time of the survey were in use as storage for the University or as commercial lettings within Apple Tree Yard (arches 1-7). The high level sidings have until recently been used by Network Rail to accommodate storage containers.
- 2.2.3 The site does not contain any nationally designated heritage assets, such as scheduled monuments, listed buildings or registered parks and gardens and does not lie within a Conservation Area. It does, however, partly fall within an Archaeological Priority Area, as designated by the LPA.

3 PLANNING BACKGROUND

3.1 Introduction

- 3.1.1 National legislation and guidance relating to the protection of historic buildings and structures within planning regulations is defined by the provisions of the Town and Country Planning Act 1990. In addition, local planning authorities are responsible for the protection of the historic environment within the planning system and policies for the historic environment are included in relevant regional and local plans.

3.2 Legislation and Planning Guidance

- 3.2.1 Statutory protection for historically important buildings and structures is derived from the Planning (Listed and Conservation Areas) Act 1990. Guidance on the approach of the planning authorities to development and historic buildings, conservation areas, historic parks and gardens and other elements of the historic environment is provided by the National Planning Policy Framework (NPPF), which was adopted on 27 March 2012 and supersedes the Planning Policy Statements (PPSs).
- 3.2.2 Historic buildings are protected through the statutory systems for listing historic buildings and designating conservation areas. Listing is undertaken by the Secretary of State; designation of conservation areas and locally listed buildings is the responsibility of local planning authorities. The historic environment is protected through the development control system and, in the case of historic buildings and conservation areas, through the complementary systems of listed building and conservation area control.
- 3.2.3 Planning permission for two blocks of student accommodation was granted on appeal (APP/E5900/A/12/2173692) under section 78 of the Town and Country Planning Act 1990. The appeal was lodged by Network Rail against the decision of the Council of the London Borough of Tower Hamlets to refuse planning permission on PA/10/01458.
- 3.2.4 The development proposed is the erection of two separate four storey podium blocks of student apartments with the easterly block flanked by two eight storey towers and the westerly block flanked by an eight storey tower and, at its western end, a ten storey tower. The development would contain 412 student rooms including 332 en-suite single rooms, 58 self contained studios, 22 rooms designed for students with disabilities, 62 kitchen/diners and communal facilities; the proposal also includes storage facilities for students with disabilities, 62 kitchen/diners and communal facilities; the proposal also includes storage facilities for Queen Mary College at the western end of the site.
- 3.2.5 An historic building record at Level 4 as set out in English Heritage (2006) *Understanding Historic Buildings: A Guide to Good Recording Practice* and archaeological monitoring during the demolition of the viaduct, has been requested by the Greater London Archaeological Advisory Service (GLAAS) Officer advisor to the London Borough of Tower Hamlets, as a condition attached to the consented scheme (Planning ref: APP/E5900/A/12/2173692). The condition reads:

'No development shall take place until details of a programme for recording the historic fabric of the railway viaduct, to be demolished as part of the approved works, has been submitted to and approved in writing by the local planning authority. The programme shall include making a record of the building structure, architectural detail and any archaeological evidence. The development shall be carried out in accordance with the approved programme.'

4 METHODOLOGY

4.1 Aims and Objectives

- 4.1.1 The aim of the recording is to provide an English Heritage Level 4 record of the structure prior to its demolition. The objectives of the recording exercise are to compile a final record of the structure, to chart its historical and structural development, and record the historic fabric, current spatial relationships and any original fixtures and fittings which will be lost as a result of the proposed development. The recording is intended to provide a better understanding of the structure, to compile a lasting record and to analyse and disseminate the results.

4.2 Documentary Research

- 4.2.1 Documentary and cartographic research was carried out at The National Archives, Kew and the Tower Hamlets Local History Library and Archives. A number of historical contractor's drawings drawn from the Network Rail Archive were supplied by the client. Additional information was kindly supplied by the historic railway specialist Peter Kay and by Malcolm Tucker of the Greater London Industrial Archaeology Society (GLIAS). This material incorporated primary research undertaken by themselves, Tom Ridge (GLIAS) and others. The primary documentary resource for the present research was the collection of minute books produced by the Eastern Counties Railway (ECR) and its successors the Great Eastern Railway (GER), the London & North-Eastern Railway (LNER) and British Railways, which are held by The National Archives. The results of this research are presented in Section 5 of this report.

4.3 On-Site Recording

- 4.3.1 The first phase of historic building recording of the viaduct was undertaken between 17th June 2013 and 19th June 2013 (inclusive). Lower and upper level plans and elevations were provided by the client and were checked on site for accuracy, amended with historic detail where appropriate and used as a basis for the illustrations in this report (**Figures 13 and 14**).
- 4.3.2 A second phase of historic building took place on Wednesday and Thursday 4th and 5th September 2013, following the removal of internal structures from Arches 1-6 and 11-16, the interiors of which had previously been inaccessible.
- 4.3.3 A photographic survey including high quality digital and 35mm black and white images was carried out to record key features and interior spaces, as well as the external elevations of the viaduct. A selection of photographs has been included in this report (**Plates 1 to 50**).

4.4 Project Archive

- 4.4.1 The project archive is currently held at the offices of Pre-Construct Archaeology Limited in Brockley, London, under the Site Code RWV13. It is anticipated that the archive (copies of the report, drawings and photographs) will be lodged with the LAARC (London Archaeological Archive and Research Centre). The report will be prepared as soon as possible after completion of the on-site work and will be submitted to CgMs Limited for onward distribution to the Client, English Heritage (GLAAS), GLHER (Greater London Historic Environment Record) and the London Borough of Tower Hamlets.

4.5 Guidance

- 4.5.1 All works were undertaken in accordance with standards set out in:
- Association of Local Government Archaeological Officers (1997) *Analysis and Recording for the Conservation and control of works to historic buildings*
 - British Archaeologists and Developers Liaison Group (1986) *Code of Practice*

- British Standards Institution (1998) *Guide to the Principles of the Conservation of Historic Buildings (BS 7913)*
- English Heritage (Clark, K.) (2001) *Informed Conservation: Understanding historic buildings and their landscapes for conservation,*
- English Heritage (2000) *The presentation of historic building survey in CAD*
- English Heritage Greater London Archaeological Advisory Service (2009) *Standards for Archaeological Work. External Consultation Draft*
- IfA (1996, revised 2001 and 2008) *Standard and guidance for the archaeological investigation and recording of standing buildings or structures*
- English Heritage (2006) *Understanding Historic Buildings: A Guide to Good Recording Practice*

5 HISTORICAL BACKGROUND

5.1 The construction of the Eastern Counties Railway London Viaduct, 1839-40

- 5.1.1 In July 1836 a Parliamentary Act was passed permitting the development of a new railway line to link London, Colchester, Ipswich and Norwich. The Act was promoted by the Eastern Counties Railway Company, which appointed the prolific inventor and railway pioneer John Braithwaite (1797-1870) to act as Engineer to the scheme.
- 5.1.2 Owing to the density of residential development at the London end of the new line, Braithwaite was obliged to construct a 2,300 yard-long viaduct to carry the tracks from the passenger terminus at Shoreditch to Devonshire Street in Mile End (Kay, 2013: 90). The line east of Devonshire Street was to be carried along an embankment to the Regent's Canal, east of which it would continue along a low embankment to Grove Road. Contracts for the construction of the viaduct were awarded between October 1838 and March 1839, and construction of the easternmost section of the viaduct was already underway by February 1839 (*ibid*). With the construction of the Cambridge Road to Devonshire Street section of the line beset by delays, the railway company decided to construct a temporary passenger terminus at the latter location. The temporary station and the line to Romford were both opened to traffic in June 1839. Construction of the viaduct west of Cambridge Road proceeded fitfully throughout the remainder of 1839, accelerating during the following spring. The line to Shoreditch was finally opened at the beginning of July 1840 (*ibid*: 91).

5.2 The construction of the Devonshire Street Arches and Sidings, 1854-5

- 5.2.1 In the morning of Thursday 19th January 1854, an Eastern Counties Railway passenger train travelling from Cambridge to London collided with a coal train as it was approaching Stratford Station (Board of Trade Accident Report, 13/02/1854, online at: <http://www.railwaysarchive.co.uk/docsummary.php?docID=1477>). In accordance with established procedure, the circumstances of the accident were investigated shortly afterwards by the Railway Department of the Board of Trade (*ibid*). In a report outlining the findings of the investigation, Lieutenant H.W. Tyler R.E described how the crew of the coal train had been shunting wagons from sidings across the main line when the collision occurred. Tyler concluded that the frequency of traffic using the line made it all but impossible for the railway company's employees to follow the company's safety regulations when forming up trains on the mainline (*ibid*). For this reason, Tyler recommended that in future the company should work the traffic between Lea Bridge Station and Stratford by electric telegraph (TNA RAIL 186/30: 445). When the Eastern Counties Traffic and Locomotive Committee met in early March 1854 to discuss the report's findings, members agreed that rather than adopting Tyler's recommendations, the railway company would provide extra sidings at Stratford so that shunting could take place there without interfering with main line traffic (*ibid*).¹ Further relief would be provided by the provision of extra siding accommodation at Devonshire Street, where the company already owned what was described a "small timber yard" (*ibid*). In fact the railway company had been in possession of a goods yard at Devonshire Street for a number of years, which was situated in a large plot of land bounded to the south by the main line viaduct,

¹ The matter was also discussed at a meeting of the Officers' Committee of the ECR on 28th February (TNA RAIL 186/63). Thanks are given to Malcolm Tucker and Peter Kay for drawing the author's attention to this source

the north by Victoria Park Cemetery and the east by the Regent's Canal.² The committee ordered that tenders for all of these works be obtained forthwith.

- 5.2.2 In a letter to the Board of Trade outlining the measures that the railway company proposed to take in response to Tyler's report, J.B. Owen (Secretary of the Eastern Counties Railway) wrote that the new siding accommodation at Stratford and Devonshire Street represented the most effective solution to the problem that caused the accident in the first place, namely the greatly increased volume of traffic using the line (Owen to Galton, 11/03/1854, online at: <http://www.railwaysarchive.co.uk/docsummary.php?docID=1477>). When it met a few days earlier on 8th March, the Traffic and Locomotive Committee observed that the latter chiefly comprised goods and coal traffic, for which insufficient provision had been made when the line was originally built. In order to remedy the shortage of suitable accommodation for this traffic, the committee authorised the completion of a number of works additional to those that it had proposed to the Board of Trade (TNA RAIL 186/30: 445). These included the installation of new crossings at Bishopsgate, improved accommodation for the inland coal trade at Mile End and at Stratford, as well as the enlargement of the company's premises at Devonshire Street.
- 5.2.3 At the meeting of 8th March, the committee approved plans to construct a number of new sidings at Devonshire Street, which were to be laid between the embankment of the railway mainline and the west bank of the Regent's Canal. The development of additional sidings at Devonshire Street had in fact originally been mooted at a meeting of the Officers' Committee of the ECR held the previous September, when the committee read a proposal which recommended that "sidings be made at Devonshire Street for the purposes of relieving the main line of goods trains arriving at such hours as would interfere with the progress of the passenger traffic" (TNA RAIL 186/63, 06/09/1853). These proposals were not acted upon until after the accident that took place at Stratford the following January.
- 5.2.4 At least part of the land earmarked for the new sidings was not in the possession of the railway company when the scheme was devised, obliging the company's land agent to enter into negotiations with a number of local landowners. A sketch plan prepared for the company by a Mr Osborn, since lost, showing the ownership of the site of the proposed development was inspected by the Traffic and Locomotive Committee at the 8th March meeting (TNA RAIL 186/30: 445). The first plot of interest to the company was situated at the London (i.e. west) end of the proposed development, comprising "a piece of the garden belonging to the sexton of Whitechapel church", which was required "so as to give an easy and a larger entrance" into the Devonshire Street site (TNA RAIL 186/30: 445). The committee noted somewhat enigmatically that the acquisition of this new entrance would allow "the present hole [to] to be filled up", although the location and nature of said hole is unknown (*ibid*). The area to be developed within the site proposed for the new sidings was located "on the banks of the canal on the south side of the railway", where the ECR proposed to lay two lines of rails "with an incline at the outside of the intended additional piece [of land] to be taken where wagons can be passed backwards and forwards" (*ibid*). Two of the "outside lines of the new branch" were to be used as coal lines, "with framing

² The First Edition Ordnance Survey map (Figure 4) indicated that the latter site was a railway goods yard by 1870, although Stanford's map of 1862 showed no detail within its boundaries (Figure 3). Minutes of a meeting of the Officers' Committee of the ECR held in October 1851 contain a reference to "new sidings now completed at that station" [i.e. Devonshire Street], which are likely to have been associated with a contemporary application by the ECR to enlarge a "Goods Station at or near Devonshire Street East" (TNA RAIL 186/63, 28/10/1851; 'Notes from Tom Ridge, May 2012' re: LMA MR/UP/372). Although not depicted on Stanford's map, 'Cross's New Plan of London' of 1861 (not illustrated) clearly indicated a 'Sta[tion]' at the latter location, which was not shown on an earlier (1851) edition of the same map (see <http://mapco.net/cross1861/cross20.htm> and <http://london1851.com/cross07b.htm>)

passing over the rails laid on the wharf and filled with shoots for loading barges in the canal of which there is an opening for a large trade" (*ibid*: 446).³ Thus the railway company appears to have envisaged that the facilities at Devonshire Street would not only include at least two sidings for wagons, but also two further lines of elevated track that would lead to an interchange between rail and canal traffic at which coal was to be unloaded from wagons via overhead coal drops to a 'wharf' below. The entire scheme was sanctioned by the Board of the ECR at a meeting held on 9th March (TNA RAIL 186/10: 386).

- 5.2.5 Two weeks later the Officers' and Traffic and Locomotive Committees authorised the construction of an additional siding at Devonshire Street for the use of the hay, straw and manure traffic (TNA RAIL 186/30: 451). It was argued that the latter siding "would relieve the line leading to the waterside premises"; indicating that this line was located on the *north* side of the railway embankment. Expenditure of £328 for the construction of the hay, straw and manure siding was authorised by the Joint Committee of the Eastern Counties, Norfolk and Eastern Union companies six weeks later (*ibid*: 466).
- 5.2.6 By the beginning of May 1854 the railway company's land agent had made provisional arrangements with the Drapers' Company for the purchase of a plot of land "at Mile End next the Regent's Canal" of 3 roods and 8 poles in area (approximately 3,237m²), for the sum of £1,000 (TNA RAIL 186/30: 477). Less than a month later, permission was sought for the acquisition of the freehold of two houses and gardens belonging to a Mr Bradshaw in Globe Fields, Mile End for £150, as well as the leasehold interest in the same properties from a Mr Wilkinson for a further £395 (*ibid*: 495). In addition to these premises, approval was requested for the acquisition of the leasehold interest in a further four houses and land "adjoining the entrance to the company's timber station at Devonshire Street" for £300 (*ibid*: 495). It is not clear whether the railway company managed to acquire all of the property that it sought at Devonshire Street for the new sidings and wharf. In mid-June the ECR Finance and Stores Committee signed-off payments to the railway company's solicitors (Messrs Crowder and Maynard)⁴ for Bradshaw's freehold premises, Wilkinson's leasehold and a further £1,031.5.0 which was paid to the Sons of the Clergy, the latter amount possibly in payment for the plot of land formerly occupied by the sexton of Whitechapel church (*ibid*: 508). No mention was made of any payments made directly to the Drapers' Company, suggesting that the plot of land between the embankment and the Regent's Canal earmarked for the new coal shoots may not have been acquired in full at this time.
- 5.2.7 It may have taken Crowder and Maynard longer than anticipated to gain full possession of the company's new property at Devonshire Street, as it was not until 4th October 1854 that plans of the Devonshire Street yard were ready for inspection by the railway company's Traffic and Locomotive Committee (TNA RAIL 186/54: 5). The drawings were accompanied by two sets of estimates for the scheme; the first, which entailed the construction of the new sidings upon raised brick arches, cost £8,094, while the second comprised an embankment, which would cost £8,432 to construct. Given that railway sidings built alongside embankments were themselves typically embanked, it is somewhat surprising that the committee was offered a choice between this and a brick viaduct (Peter

³ In the early 1850s the majority of the coal brought into London via the Eastern Counties network came from coalfields in the north of England, from which it was carried to Peterborough, where the wagons containing it were coupled to locomotives belonging to the ECR (TNA RAIL 186/54: 375). The Eastern Counties coal trade came to be dominated by the Norfolk and Eastern Counties Coal Company, of which John Viret Gooch, Locomotive Superintendent of the ECR, was a partner. The discovery in 1855 that a number of loss-making contracts had been negotiated by senior officers of the company with firms in which they themselves had an interest brought an end to Gooch's career with the ECR (TNA RAIL 186/12: 'Report of the Committee of Investigation', 1855).

⁴ Messrs Crowder and Maynard of 57 Coleman Street, City of London (*Post Office Directory of London with Essex, Hertfordshire, Kent, Middlesex, Surrey & Sussex (Small Edition)*, 1852)

Kay, pers. comm.). It is even more surprising that the viaduct was presented as the cheaper of the two options. Given the cheaper cost, the committee opted for the brick arches, and ordered that tenders were to be invited for their construction. In addition, it was decided to approach the Regent's Canal Company with a proposition to construct "a...communication from the proposed dock" into the canal; presumably a reference to the canal side wharf and coal shoots that the railway company still hoped to build at Devonshire Street (*ibid*).⁵

- 5.2.8 In addition to the cost of building the brick arches at Devonshire Street, the Superintendent of Works estimated that the cost of materials required for the sidings would amount to £1,528.15.10 (TNA RAIL 186/10: 473). This expenditure was authorised by the Board on 5th October and approved by the Joint Committee less than two weeks later (*ibid*; TNA RAIL 186/54: 14). By mid-October the railway company had received six tenders for the construction of the viaduct, the contract for which was awarded to William Hill of Brentwood the following month (TNA RAIL 186/54: 33).⁶ Hill was a prolific contractor for the Eastern Counties Railway, building both North Woolwich station and the coal sheds at Mile End at around the same time as the arches at Devonshire Street (*ibid*: 34, 53). Construction appears to have been underway by the beginning of December, when the Finance and Stores Committee authorised payment of £1,200 to Hill on account (*ibid*: 53).
- 5.2.9 Although the specification for the construction of the arches at Devonshire Street has been lost, it is clear that the sidings and viaduct originally formed a separate structure to the mainline railway embankment a short distance to the north. In early March 1855 the Officers' and Traffic and Locomotive and Traffic Committees of the Eastern Counties reconsidered this arrangement, and on 20th March Peter Bruff (ECR Engineer) was instructed to fill up the space between the embankment [of the mainline] "and the [north] face of the new viaduct at Devonshire Street and lay additional sidings thereon in lieu of the present decline road" (TNA RAIL 186/64: 20/03/1855). The Board approved the recommendations two days later, and instructed Bruff to compile an estimate of the cost of the proposed works for the Secretary to forward to the Joint Committee (TNA RAIL 186/12: 36). At the beginning of April the Joint Committee authorised expenditure of not more than £1,000 for "filling up the space between the mainline and new arches [at] Devonshire Street and making good between sidings and retaining wall" (TNA RAIL 186/54: 113).
- 5.2.10 Construction of the Devonshire Street arches continued throughout the spring and summer of 1855 (*ibid*: 164-5, 187). Hill received a final payment of £713.3.10 in respect of his original contract on 10th August, although work was apparently still ongoing in October (*ibid*: 225; RAIL 186/12). The process of infilling the space between embankment and viaduct also continued after August 1855, following which three additional 'up' sidings were laid upon the fill (Kay, 2013: 110). A report compiled at the end of February 1856 that itemised the balances of accounts due for new works then in hand, listed the new Devonshire Street sidings as one of a number of "works under completion by the company" (TNA RAIL 186/32: 10/03/1856). The balance due for the latter works was £1,700.

⁵ At the same meeting of 4th October the Traffic and Locomotive Committee read a letter from Mr E.A. Prior of the Norfolk and Eastern Counties Coal Company "in reference to accommodation for their [i.e. the coal company's] increased trade at Mile End, Barking and Devonshire Street", suggesting that coal was already being handled at Devonshire Street by this date, presumably in the yard on the north side of the main line (TNA RAIL 186/54: 4). The ECR and the coal company had previously entered into an agreement whereby the former agreed to carry 240,000 tons of the latter's coal to stations in the London district (TNA RAIL 186/54: 375). A rate of 2d per ton of coal was charged for loads carried by rail to depots at Bethnal Green, Mile End, Stratford, Blackwall and Devonshire Street (*ibid*: 376)

⁶ Whether Hill was actually based in Brentwood is not certain, as a directory of 1855 did not list either him or his business

- 5.2.11 The earliest large-scale map to depict the completed viaduct was Edward Stanford's Library Map of London and its Suburbs of 1862, which showed the extent of the 630' long structure but little else (**Figure 3**). The earliest map to show the structure in any detail was the First Edition Ordnance Survey map of 1870, which was published after the viaduct had been further adapted for use by the coal trade (**Figure 4**, see below).⁷
- 5.2.12 Towards the end of February 1856 Robert Moseley, General Manager of the ECR, submitted proposals to the Officers' Committee of revised arrangements for marshalling 'up' goods traffic heading into the goods yard at Brick Lane (TNA RAIL 186/64: 26/02/1856). Moseley proposed that 'up' goods trains be brought to the Devonshire Street sidings, where they would be held until their wagons were required at Brick Lane. The system would be controlled from a proposed new signal box at Devonshire Street, which would be connected via telegraph to the goods yard. Having reviewed Moseley's proposals, the committee instructed the Outdoor Superintendent to draw up the regulations necessary to manage the new system, and to submit them together with an estimate of the number of staff required to operate it (*ibid*). When completed, the signalling at Devonshire Street was controlled from two signal boxes, one at either end of the sidings, the Devonshire Street Box at the west and the Canal Box at the east (TNA MT 6/190/10).

5.3 The development of the Great Eastern Devonshire Street Coal Depot, 1864-65

- 5.3.1 On 7th August 1862 the Eastern Counties Railway was amalgamated with a number of smaller railway companies, including the Eastern Union Railway, the Norfolk Railway, East Norfolk Railway, the East Anglian Railway and the East Suffolk Railway to form the Great Eastern Railway Company.
- 5.3.2 Shortly before the formation of the Great Eastern, Robert Moseley had drawn the attention of the Traffic Committee to a shortage of adequate siding accommodation for goods wagons at Devonshire Street (TNA RAIL 227/89: 39). In October 1862 the Great Eastern Traffic Committee approved certain unspecified 'alterations' to the sidings at Devonshire Street, the cost of which amounted to £3,500 (*ibid*: 65). The following May the same committee authorised the purchase of about 23 perches (approximately 581.7m²) of land at Devonshire Street "for the purpose of improving the station yard" for an outlay of £300 (*ibid*: 283, 293). These works and acquisitions almost certainly relate to the continuing development of the goods yard on the north side of the railway embankment.
- 5.3.3 At the beginning of August 1864, Moseley (who had been appointed General Manager of the Great Eastern at its formation) submitted a report to the Traffic Committee in which he recommended that a cart road should be laid on the 'up' side of the line at Devonshire Street, in order to allow the arches there to be used for the storage of coal (TNA RAIL 227/90: 234). This plot was not in the possession of the railway company at this time, so Mr Dobbin, the company's land agent, was instructed to ascertain terms for its acquisition (*ibid*). Moseley's plans to build a new cart road to the Devonshire Street arches were frustrated in mid-August by the owner of the land, who demanded a price greater than that which the Great Eastern was prepared to pay (*ibid*: 249). A suggestion made by Robert Sinclair, the Great Eastern's Engineer and Locomotive Superintendent, that the company acquire a smaller plot of 22 rods (approximately 5.5 acres) in order to construct an alternative and cheaper entrance to the arches was approved instead (*ibid*).
- 5.3.4 In the meantime Sinclair compiled a detailed report into the conversion of the Devonshire Street arches into a coal depot for the railway company, which he

⁷ It has been suggested that a number of slightly ambiguous references contained in minutes of meetings of various ECR committees in 1858 and 1859 may refer to coal traffic on the viaduct sidings, although it has not been possible to consult these during the present research (Peter Kay, *pers. comm.*)

presented to the Traffic Committee on Wednesday 28th September (*ibid*: 287). Sinclair maintained in his report that the arches and depot could be fitted out for an outlay of £6,000, although the cost could be reduced by a further £1,000 if the company was to acquire “two small scraps of land” at the site (*ibid*). When complete, the depot would provide standing room for 160 trucks containing 1,200 tons of coal, in addition to stowage room for a further 15,000 tons of stacked coal (*ibid*). Having read Sinclair’s report, the committee resolved to obtain tenders for the proposed work and to make arrangements for the acquisition of the necessary land. Two weeks later Mr Dobbin informed the committee that he had secured the freehold of the land in question for £345, although the cost of acquiring the leasehold title (which included a house) necessitated the expenditure of a further £400 (*ibid*: 314).

- 5.3.5 In mid-October a contract worth £4,090 to convert the Devonshire Street arches into a functioning coal drop facility was awarded to Messrs Perry and Judson of Stratford (TNA RAIL 227/60,13/10/1864).⁸ The minutes of the various committees of the Great Eastern Railway give little indication of the tempo of development at Devonshire Street during the months that followed. In early January 1865 the Traffic Committee was informed that the demand for accommodation for coal at Devonshire Street was “far greater than the means of meeting it”, necessitating the acquisition of a plot of land of about 2-3 acres in extent abutting the Regent’s Canal, which was said to be “invaluable for the Company’s purposes” (TNA RAIL 227/90: 398). Dobbins was instructed to ascertain the terms for the purchase of the additional land, while Sinclair was asked to investigate the practicalities of establishing “an outlet for coal” on the bank of the Regent Canal, suggesting that the company was interested in establishing an interchange similar to that proposed by the Eastern Counties Railway more than ten years earlier (*ibid*).
- 5.3.6 The construction of the Devonshire Street coal depot progressed rapidly during the early months of 1865. On 15th February the Traffic Committee read a report on the state of the works, in which Sinclair stated that he hoped to complete the depot within three weeks (*ibid*: 430). At the same meeting the committee considered a request from Moseley to install a weighbridge at Devonshire Street in order to weigh road carts as they passed in and out of the depot (*ibid*: 438). A ‘weighing machine’ was shown at the entrance at the east end of the depot on the First Edition Ordnance Survey map of 1870 (**Figure 4**).
- 5.3.7 By mid-April 1865 the coal depot at Devonshire Street was complete and accommodation at the arches had been let out to a number of coal merchants. The earliest tenants of the yard were Messrs Booth Bros of Eastwood (Nottinghamshire), J, Coote and Sons of St Ives, Cambridgeshire, the Staveley Colliery Company of Staveley, Derbyshire, the Clay Cross Colliery Company of Clay Cross, near Alfreton Derbyshire, Mr K? Spark of Darlington, County Durham and Messrs Butcher and Girling of London (*ibid*: 484). With the exception of the latter company and Coote and Sons, who had a long-established business relationship with the Eastern Counties and Great Eastern companies, all of the early tenants of the coal depot represented collieries based in the coal-producing districts of the north of England.
- 5.3.8 The 1870 Ordnance Survey map showed the track configuration of the Devonshire Street viaduct shortly after the coal depot opened (**Figure 4**). The map showed five sidings (two pairs and a single central track), terminating at the eastern end in a bank of three wagon turntables. Beyond the turntables lay an earthen embankment, presumably erected in order to prevent wagons from toppling into the canal. An investigation conducted by Peter Kay and Malcolm Tucker for the Greater London Industrial Archaeology Society (GLIAS) into the

⁸ This reference was supplied by Peter Kay. John Perry & Charles Judson traded as ‘Builders, Contractors and Brickmakers’ from premises in the Broadway, Stratford and Ilford (*The London Gazette* no.22952, 28/03/1865: 40)

operation of the converted coal drops concluded that the central track was used for returning empties, which were manoeuvred onto the siding via the turntables at the east end (Kay, 2013: 110; Tucker, M. 2013 'Re: Historic Building Recording of Coal Drops at former Devonshire Street Goods & Coal Depot London E1' [email] message to Thompson, G. Sent: Thu 13/06/2013 00:03). The outermost paired sidings received trains of loaded coal wagons, which discharged their loads sideward via the drop holes, which were situated at regular intervals between each pair of sidings (*ibid*). Thus discharged, the coal was stored by the merchants in the arches below prior to onward distribution by road cart.

5.4 The impact of the Whitechapel Coal Drops upon the Devonshire Street Coal Depot, 1865-c.1870

- 5.4.1 The conversion of the viaduct sidings into a coal depot necessitated the construction of additional accommodation for goods wagons at Devonshire Street. In early August 1865 the Traffic Committee of the Great Eastern approved a proposal submitted by Robert Sinclair to construct three 'long sidings' to replace those lost to the coal depot for an outlay of £2,000 (TNA RAIL 227/91: 40).
- 5.4.2 Less than four months after the completion of the coal depot, Robert Sinclair proposed that the facility should be extended by building a new bridge across the Regent's Canal, which would provide improved road access to the yard from the east bank of the waterway (*ibid*: 49). Sinclair maintained that this arrangement would offer "much convenience as well as economy in the working of the traffic" (*ibid*). Sinclair's plans were stymied by the refusal of the owner of the land on the east bank of the canal to sell part of his property in order to make way for the proposed access road, while a proposal to extend the coal sidings to the east bank was not taken any further by the Traffic Committee of the Great Eastern (*ibid*: 140).
- 5.4.3 By the early 1860s the Great Eastern was keen to increase its capacity for storing and selling coal in the capital, and powers had already been obtained to build a new coal depot on a 9-acre site at Shoreditch/Whitechapel (Watling, 1989: 87). Construction of the new depot commenced in late 1864, although it was suspended in July 1867 when the Great Eastern was put into receivership, following the collapse of the Overend Gurney bank a year earlier (*ibid*; TNA RAIL 227/108: 139). Realising the financial potential of the new facility, the company resumed work at Whitechapel shortly afterwards, and the depot opened to traffic in mid-December 1868.
- 5.4.4 A description and drawings of the new depot at Shoreditch/Whitechapel was published in *The Engineer* shortly after it opened (*The Engineer*, 19/02/1869: 133). At the heart of the coal depot was a viaduct, 375 yards in length and 70' wide, which carried six coal lines; the two outer pairs received full wagons, while the empties were returned via the two central tracks. A traverser located at the end of the viaduct allowed wagons to be manoeuvred onto the empties lines. The drops could accommodate both bottom- and side-discharging wagons, unlike Devonshire Street, which could only handle the latter (Watling, 1989: 87, 91). Furthermore, the Whitechapel depot had a total of 51 arches, more than twice the number at Devonshire Street (*The Engineer*, 19/02/1869: 133). In contrast to the narrow entrance from Devonshire Street, the 7 acre yard at Whitechapel had three road entrances, each furnished with its own weighing machine (*ibid*).
- 5.4.5 Within six months of the opening of the Whitechapel depot, the Goods Manager of the Great Eastern wrote to the Way and Works Committee to warn about the effect that the new facility was having upon trade at Devonshire Street (TNA RAIL 227/109: 175). In a letter read by the committee on 5th May 1869, the Goods Manager claimed that the new depot had "diverted a large portion of the coal traffic from Devonshire Street", where a number of the coal arches had

already fallen vacant (*ibid*). Recognising that that the lost trade was unlikely to return to Devonshire Street any time soon, the Goods Manager proposed that the company take advantage of the situation by adapting at least part of the depot to the grain trade, from which the Great Eastern was excluded “for want of stowage room at Devonshire Street” (*ibid*). The potential significance of the depot to the grain trade lay in the fact that it was the Great Eastern’s only station in the capital to which the Great Northern Railway company (which dominated the trade in grain from Lincolnshire and thereabouts) would invoice at the same rate as its own goods station at King’s Cross, whereas it charged 1s/8d more per ton to other stations in London (*ibid*). The Goods Manager therefore recommended that the arch “nearest the entrance gate” at Devonshire Street should be “fitted up for the stowage of grain”, which could be achieved for an estimated outlay of £230. In addition to adapting one coal shoot for grain, the Goods Manager also proposed that the second arch from the entrance should be “fitted up with a shoot for the unloading of malt”, a commodity that the company already carried in large quantities from its East Anglian heartland (*ibid*). The cost of converting an arch and shoot to malt storage was estimated at £40, approval for which was granted by Moseley at the beginning of June (*ibid*: 205).

- 5.4.6 The impact that the success of the Whitechapel coal depot had on trade at Devonshire Street continued to be a cause of concern to the Great Eastern throughout 1869, prompting the company’s senior officers to investigate alternative means of raising income from the latter depot. As early as April of that year the Goods Manager had ascertained that the company’s principal rivals (the Great Northern and the Midland companies) carried little or no traffic in street sweepings, an unsavoury, but potentially profitable commodity used by brick makers (*ibid*: 137). Towards the end of May the Great Eastern entered into a draft agreement with the parish authorities of Mile End to remove its street sweepings, following which the company approached the Corporation of London with a view to transporting its street waste (*ibid*: 197, 311). By the beginning of September plans had been prepared for a depot at Devonshire Street for transporting street sweepings, although permission to develop the facility was withheld until the proposed agreement with the Corporation of London had been signed (*ibid*: 323, 331). A ‘Dust Yard’ shown on the Second Edition Ordnance Survey map of 1894 in the south-east corner of the Devonshire Street coal depot was the belated legacy of these negotiations (see below; **Figure 7**).⁹

5.5 Devonshire Street Depot Coal Merchants, c.1870-c.1890

- 5.5.1 Despite the apparent reduction in coal traffic received at Devonshire Street in the late 1860s, the capital’s increasing demand for coal ensured that the depot continued to attract representatives of the trade over the years that followed. By the late 1870s, the majority of the coal dealers and merchants who had moved into the arches more than a decade earlier had either taken their business elsewhere (e.g. the Staveley and Clay Cross Colliery Companies) or had ceased trading altogether. A directory of 1878 listed six businesses trading from the Great Eastern Coal Depot at Devonshire Street: Henry Richard James Braine, Day, Brown & Co, Joseph Cade, George Fletcher, the Cannock Chase Railway Colliery Co and J and H Girling (*Post Office London Directory*, 1878).¹⁰ Four years later three of these businesses had left, leaving Henry Braine, Joseph

⁹ The Dust Yard shown on the Second and Third Edition Ordnance Survey maps was listed in a directory of 1915 as the Dust Depot of the Borough of Stepney, which was formed in 1900 from the merger of the vestry of Mile End Old Town and a number of other local parishes (*Post Office London Directory*, 1915: 463)

¹⁰ The Cannock Chase Railway Colliery Co was listed as an occupant of premises in Bancroft Road in directories published between 1867 and 1878 (‘Notes from Tom Ridge, May 1912’).

Cade and J. and H. Girling as the remaining occupants of the coal depot (*Post Office London Directory*, 1882: 385).

- 5.5.2 In 1882 Henry Richard James Braine (1859-1921) was only 22 years old, the Greenwich-born son of a dock master who lived with his parents and two sisters at 225 Burdett Road, Limehouse (TNA RG 11/470/50: 19). Two years later Henry had moved to 12 Grove Road on the east side of the canal, from which he continued to trade as a coal merchant (*Business Directory of London*, 1884: 76). Within the space of the following seven years, Braine had left the coal trade, moved to Jersey, met and married his wife Elvina, relocated to Gloucester and entered the hospitality business (TNA RG 12/2010/75: 2). By 1891 Braine was the proprietor of the Wellington Hotel in George Street, Gloucester, which he continued to run for the remainder of his working life.
- 5.5.3 Joseph Cade (c.1844-1923) was born in the Cambridgeshire village of Eltisley, from which he migrated to Mile End Old Town at some point in the 1860s. By the early 1870s he was living with his new wife Alice (née Parsons) in White Horse Lane, Stepney, and working as an agent for a coal merchant (TNA RG 10/564/76: 10). Census returns recorded that by 1881 the couple lived with their three young children and a domestic servant at 58 White Horse Lane, where they were still living ten years later (TNA RG 11/482/18: 32; TNA RG 12/308/15: 24). A directory of 1884 suggested that Cade's principal business premises were located at the Devonshire Street coal depot, although he was also listed at both 58 and 54 White Horse Lane (*Business Directory of London*, 1884: 104; TNA RG 11/482/18: 33). Cade remained active in the coal trade at Devonshire Street for many years; he was one of thirteen coal dealers and merchants listed at the Great Eastern coal depot in a directory of 1895, and one of eleven in 1899 (*Post Office London Directory*, 1895: 498; *Post Office London Directory*, 1899: 549). In addition to the premises that he leased from the Great Eastern, Cade also rented premises at other railway companies' coal depots by the 1890s. By the middle of the decade his company was renting premises at the Great Northern Railway's Cambridge Street depot at King's Cross (Turton, 2006: 35).
- 5.5.4 By the early years of the 20th century the profits of the coal trade had enabled the Cade family to move out of Mile End and to relocate to the leafier surroundings of Snaresbrook Road, Wanstead (TNA RG 13/2608/32: 9). In 1911, aged 66, Cade was still working in the coal trade, although the profits of his business had enabled the family to live in some comfort in an eleven-room house in High Road, Buckhurst Hill (TNA RG 14/9766). By the middle of the second decade of the 20th century the company founded by Joseph Cade had premises at Devonshire Street (renamed the Great Eastern coal depot, Longnor Road since c.1887; see below), 58 White Horse Lane, 25 Alderney Road, Mile End, Cambridge Street, St Pancras and units 1-6 at the Elephant and Castle Depot, Rockingham Street, London SE1 (*Post Office London Directory*, 1915: 463, 1512). The company retained a presence at the Longnor Road coal depot throughout the first half of the 20th century, although it had left by the early 1950s (*Post Office London Directory*, 1945: 430; *Post Office London Directory*, 1952: 474).
- 5.5.5 The third firm of coal merchants trading from the Devonshire Street coal depot in 1882 was both the largest and longest established. James (1830-1885) and Henry Harrison (1842-1878) Girling were respectively the eldest and youngest sons of a veterinary surgeon named John Morris Girling and his wife Ann. The family led a peripatetic life during the 1830s and 1840s; James was born in Chichester whilst Henry was born in Northampton, where their father ran a veterinary practice (*Pigot's Directory of Northamptonshire*, 1841: 20). By the early 1850s the family had settled in Charles Street, Finsbury, where John Girling continued to practice as a vet, assisted by James, who worked as a clerk (TNA HO 107/1520/239: 6). Within a decade James Girling had left the family home, entered the coal trade and married Elizabeth Hubbard of Cloudesley Terrace, Islington (TNA RG 9/797/20: 34; TNA HO 107/1499/574: 5). In 1861 the

couple lived at a property in Brook Place, Edmonton, with their three young daughters and Elizabeth's younger sisters Ann and Ellen (TNA RG 9/797/20: 34).

- 5.5.6 It is probable that James was a partner in Butcher and Girling, the firm of coal merchants that acquired premises at the Devonshire Street coal depot in the mid-1860s. A directory of 1869 listed a coal merchant named Girling as the occupant of 256 Devonshire Street, a property that remained in the possession of J and H Girling until at least 1915 and which continued to be used by the coal trade until the mid-20th century (*Post Office London Directory*, 1869; *Post Office London Directory*, 1915: 1513; *Post Office London Directory*, 1955: 451). Other than a reference to the business in the minutes of the Great Eastern Traffic Committee, next to nothing is known about Butcher and Girling. It does appear, however, that the relationship with the Great Eastern was critical to the subsequent development of the business by the Girling brothers.
- 5.5.7 The firm of J and H Girling, which traded as 'Wholesale Coal, Coke and Salt Merchants,' was a remarkably successful concern that established coal offices at locations across the Great Eastern network during the 1870s. In the capital, the company maintained a head office at 8 and 9, Devonshire Chambers, Bishopsgate, with branches at the Devonshire Street Depot, at 256 Devonshire Street and at Buck Row, Whitechapel (*Post Office London Directory*, 1882: 97; *The London Gazette* no. 24635, 22/10/1878: 24). The company also had branches in Essex at Southend, Buckhurst Hill, Leytonstone, Loughton, Snaresbrook, Ongar, Chingford, Leigh, Pitsea, Colchester, West Tilbury and Romford, as well as offices in Waltham Cross (Hertfordshire), Peterborough, Great Yarmouth, Lowestoft, Norwich and Enfield (*Post Office Directory of Essex*, 1874: 324, *Kelly's Directory of Essex, Hertfordshire and Middlesex*, 1894: 283).
- 5.5.8 By 1871 James Girling and his extended family were still living in Brook Place, Edmonton, while Henry, his wife Eliza and their infant daughter Florence were residing in the suburban surroundings of Northumberland Park, Tottenham (TNA RG 10/1339/15: 21; TNA RG 10/1339/37: 1). Henry however, appears to have suffered from poor health, and on 18th October 1878 the partnership was dissolved by mutual consent, James continuing the business alone (*The London Gazette* no. 24635, 22/10/1878: 24). Within four weeks of the announcement Henry died, aged 35 (*The London Gazette* no. 24666, 07/01/1879: 25).
- 5.5.9 By the early 1880s the profits of the business had enabled James and Elizabeth Girling to move to a substantial villa called Northampton House in Seven Sisters Road, Finsbury Park, where James died aged 56 in January 1885 (TNA RG 11/281/90: 25; *The London Gazette*, no. 25473, 26/05/1885: 20). Following James' death the business of J and H Girling continued to trade under the management of Charles Wood (b.1839) of Chigwell, Essex, an executor of both brothers' wills and a partner in the business (*The London Gazette* no. 25474, 29/05/1885: 28). Throughout the remainder of the 1880s and the early 1890s the company was controlled by Wood and his son Charles Bennett Wood, who instituted proceedings to wind-up the business in December 1894 (*The London Gazette* no. 26578, 11/12/1894: 32). It appears that these proceedings may have been associated with the recapitalisation of the business, which was still trading from the Longnor Road coal depot the following year (*Post Office London Directory*, 1895: 498). Although Charles Wood senior remained active in the company at the turn of the 20th century, by 1911 Charles Bennett Wood had inherited both the family home and the principal share of the business (TNA RG 14/9765). A directory of 1915 indicates that J and H Girling continued to operate from premises in Devonshire Square EC1, 256 Devonshire Street and at the Longnor Road coal depot (*Post Office London Directory*, 1915: 1513). The company retained a presence at Longnor Road in 1919, although it had ceased trading there by the mid-1920s (*Post Office London Directory*, 1919: 452; *Post Office London Directory*, 1926: 433).

5.6 The Devonshire Street to Bow main line widening and the enlargement of the Devonshire Street Coal Depot, 1882-c.1890

- 5.6.1 Following the opening of Liverpool Street passenger station in 1874, the Great Eastern decided to quadruple the old Eastern Counties mainline in East London in order to carry the increased volume of suburban passenger traffic. The company's plans for the widened line included the provision of a number of new passenger stations; in the Mile End area these included Globe Road and Devonshire Street station, which was to be built near to the site of the former Devonshire Street temporary terminus, while the Coborn Road Station (built in 1864 and opened as 'Old Ford Station' the following year) was to be relocated and rebuilt to accommodate the additional railway lines (Kay, 2013: 109-11; TNA RAIL 227/131: 125). In April 1879 the Great Eastern Board resolved to give notice to landowners of property between Bow and Devonshire Street of the company's intention to widen that stretch of the line (TNA RAIL 227/15: 66-7). Detailed plans and estimates of the proposed quadrupling of the mainline were approved by the Board in June 1880, although contracts for the Devonshire Street section of the line were not issued until 1882, the same year that the new Coborn Road Station was built (TNA RAIL 227/122). The proposed works necessitated the widening of the Braithwaite Viaduct and the construction of retaining walls and a new viaduct on the north side of the line at Devonshire Street to carry the new tracks. At the beginning of May 1882 a contract worth £2,980 to build new retaining walls at Devonshire Street was awarded to Messrs W. Bangs & Co; six weeks later the Way and Works Committee of the Great Eastern awarded a tender worth £38,950 to the same company for the construction of the new viaduct at the same location (TNA RAIL 227/122: 77, 96). The viaduct was completed the following year (Kay, 2013: 110).
- 5.6.2 A contract worth £31,000 for the construction of the new Globe Road and Devonshire Street Station was awarded to Messrs Perry & Co in mid-July 1883 on condition that the works were completed within 23 weeks of the award; the station entered service just under a year later (TNA RAIL 227/124: 5, 14). Construction of the new station also necessitated the erection of a new bridge at the junction of Devonshire and Morpeth Streets, the cost of which was shared by the railway company and the vestry of Mile End Old Town in late 1883 (Mile End Old Town Vestry Minutes No. 23: 49, 56). The construction of the bridge (Bridge 36) and the new viaduct on the north side of the main line was accompanied by a number of alterations to the Devonshire Street goods depot. The Second Edition Ordnance Survey map of 1894 indicated that the quadrupling of the line necessitated the demolition of Prospect Row, which had previously served as the entrance to the goods yard (**Figure 7**). This in turn allowed the construction of a new access road from the Morpeth Street Bridge, a new office building at the entrance to the yard and additional accommodation for traders in the north-west corner of the yard. A number of sidings were re-laid close to the northern boundary with Victoria Park Cemetery (renamed Meath Gardens in 1894), and a new 30-ton steam crane was purchased for service in the goods depot in April 1886 (TNA RAIL 227/124: 389, 419). The cumulative effect of these alterations and additions can be seen on a Goad Fire Insurance plan of 1891 and the Second Edition Ordnance Survey map of 1894 (**Figures 6 and 7**).
- 5.6.3 The completion of the new passenger station may also have encouraged the local vestry to improve Devonshire Street itself. In October 1884 the vestry of Mile End Old Town considered a proposal to pave Devonshire Street between Globe Road and the parish boundary with Kincardine granite setts, in place of the existing macadamized road surface (Mile End Old Town Vestry Minutes No. 23: 376). The proposal was approved the following January and a contract to pave the carriageway was awarded to John Mowlem & Co in May 1885 (*ibid*: 440; Mile End Old Town Vestry Minutes No. 24: 139).
- 5.6.4 The Goad plan and Second Edition Ordnance Survey map both indicate that some of the most significant changes that followed the quadrupling of the line at

Devonshire Street took place in the Great Eastern coal depot. These changes included the construction of three ground level sidings that connected the goods depot on the north side of the mainline with the enlarged coal yard to the south. These sidings were carried through the embankment into the coal depot via Arches 16, 20 and 21 of the coal drops viaduct (Kay, 2013: 110). A fourth ground-level siding was laid in a curve around the east end of the embankment and viaduct, and new arches (numbered 750-755 inclusive on the Goad plan) were constructed adjoining the east wall of coal drop viaduct Arch 25 (**Figure 6**). The Goad plan also indicated that Arches 24 and 25 of the existing coal drops viaduct were extended southward in order to support a siding carried on a girder bridge to a series of coal shoots mounted on a trestle viaduct known locally as 'the toboggan', which ran parallel to the canal, the latter realising the scheme first proposed by the Eastern Counties Railway in 1854 (Watling, 1989: 63; **Plate 39**). Arch 22 was identified as a 'bottle store' on both the 1891 (**Figure 6**) and 1921 (not illustrated) Goad plans; presumably its contents were delivered by road rather than by rail. Vehicular access to the coal yard from the local road network was gained via an entrance at the north-east end of Longnor Road.

- 5.6.5 Documentary evidence for the improvement of facilities at the coal depot is somewhat fragmentary. As might be expected, the records of the Great Eastern Way and Works Committee covering the period January 1882 to June 1887 contained no reference to the enlargement of the Devonshire Street coal depot, while a company plan of the drainage arrangements of the goods and coal depots dated December 1886 indicated that the additional structures had not been built by that date (TNA RAIL 227/123; THLHLA 'GER Devonshire Street Goods Yard, proposed connection with parish sewer', 03/12/1886; **Figure 5**). The latter drawing was prepared in association with the installation of water closets in Arch 16 of the viaduct, approval for which was granted by the Great Eastern Way and Works Committee in October that year (TNA RAIL 227/124: 494).¹¹ These closets cannot have been in use for very long, as both the 1894 Ordnance Survey map and the Goad fire insurance plan indicated that they were built in one of the three arches through which railway sidings were laid soon afterwards (**Figures 5,6 and 7**).
- 5.6.6 In May 1888 the vestry of Mile End Old Town submitted an application to the Great Eastern for a new siding to be laid down from the latter's "coal yard at Devonshire Street into the adjoining ground which the vestry are about to rent from Messrs Gardner and Co" (TNA RAIL 227/99: 87). The latter premises were shown on the 1886 drainage plan, on the west bank of the Regent's Canal south-east of the coal drops viaduct (**Figure 5**). The vestry planned to build a refuse depot at this location, to which material would be brought in by road and barge (TNA RAIL 227/99: *ibid*). The refuse would then be 'sifted' at the proposed depot, following which it would be sent out by rail, over the proposed siding. Approval for the new siding, together with a roadway providing access to the refuse depot across the south and south-western end of the coal yard was granted on 15th May, and the completed works were shown on the 1894 Ordnance Survey map (**Figure 7**).
- 5.6.7 Two months after the new siding and roadway were approved, the Way and Works Committee of the Great Eastern approved the construction of a 'locomotive coal stage' at Devonshire Street for the outlay of £85 (TNA RAIL 227/124: 115). The exact location of this structure is not known. The minutes of the Way and Works Committee indicate that further improvements were made to facilities at Devonshire Street over the following two years. These included the "enlargement of [a] shed" at the depot (almost certainly a goods shed on the north side of the main line), which was approved at the beginning of December 1890 (*ibid*: 381). The contract for these works was awarded to Mr J.R. Hunt of

¹¹ The minute referred to the installation of "closets in one of the company's arches" on the "south side" of the Devonshire Street Goods Station for an outlay of £45 (TNA RAIL 227/124/494)

Bow Common for £371 the following April (*ibid*: 421-2). In February 1891 expenditure of £330 was authorised for the construction of an “extra siding and slewing [i.e. changing the alignment of] two others” at Devonshire Street for hay and straw traffic; again this probably related to alterations in the track layout in the north yard at the depot (*ibid*: 401).

- 5.6.8 Further evidence for the improvement of facilities at the coal depot towards the end of the 1880s is suggested by directories, which began to distinguish between the ‘Great Eastern Coal Depot’ in Devonshire Street (located to the east of Globe Road and Devonshire Street Station on the north side of the street) and the ‘Great Eastern Coal Depot’ in Longnor Road (*Post Office London Directory*, 1889: 463; *Post Office London Directory*, 1895: 318, 498). Directory entries suggest that a clear distinction emerged between the types of companies that occupied premises at the two depots; by the 1890s the ‘Devonshire Street Depot’ was occupied by a lime merchant’s office, a mason (William Griffiths) and a salt merchant (D. Bumstead & Co.), while the ‘Longnor Road Depot’ was occupied solely by coal merchants and dealers during that period (*Post Office London Directory*, 1895: 318, 498; *Post Office London Directory*, 1899: 347, 549). William Griffiths’ stone yard was located on the north side of the railway embankment, indicating that the publishers of the directories used the prefix ‘Devonshire Street’ to denote the goods depot, which they at least, considered to be a separate entity from the Longnor Road coal depot (**Figure 5**). By the second decade of the 20th century directories listed the two yards as separate concerns (the GER Goods Depot and the GER Coal Depot); although documents produced by the railway company (both the Great Eastern and its successor the London and North-Eastern) continued to refer to a single Devonshire Street Depot, albeit drawing a distinction between the North and South Yards situated on either side of the mainline (*Post Office London Directory*, 1915: 295, 463; TNA RAIL 227/127: 32; TNA RAIL 390/329).¹²

5.7 The Mile End and Devonshire Street Depot, c.1890-c.1939

- 5.7.1 Directory listings suggest that the Great Eastern’s investment in the improvement of the coal depot at Longnor Road paid off. In 1889 there were ten coal merchants and dealers trading from premises in the depot, in addition to a solitary brick and tile manufacturer (*Post Office London Directory*, 1889: 463).¹³ Seven years later twelve coal merchants and dealers were based at the yard, while there were thirteen by 1899 (*Post Office London Directory*, 1895: 498). A number of these businesses traded from the depot for several decades: Edwin Edgley and Co was there for at least 30 years (c.1889-1919), while Robert Brook and Sons worked at the depot for at least 37 years (c.1889-c.1926). After Joseph Cade (c.60 years) and J and H Girling (c.50 years) the next longest lasting was Charles Fardell and Sons, which traded from premises at the depot for at least 48 years (c.1895-c.1943).
- 5.7.2 The records of the Great Eastern Railway suggest that the majority of works undertaken at the Devonshire Street/Longnor Road depots during the first two decades of the 20th century were mainly confined to the improvement of facilities in the goods yard (e.g. TNA RAIL 227/127: 32, 48; TNA RAIL 227/130 no. 3454, 04/07/1912). Drawings prepared by the Great Eastern Southern District Civil Engineer’s Office in May 1920 indicate that it was proposed to erect a canvas

¹² The name of the entire yard was formally known as the ‘Mile End and Devonshire Street Goods Depot’ from September 1922 (Watling, 1989: 63; Peter Kay, *pers. comm.*). An LNER mileage diagram of 1932 identified the land to the coal drops viaduct as part of the ‘Devonshire Street Goods Yard’, while the ground-level area to the south of the viaduct was described as the ‘Coal Yard’ (TNA RAIL 783/83). The name of the whole yard was changed to Mile End in January 1939, with the upper (viaduct) level being described as the ‘high level’ (NR 5342420_LTN_138). By the 1980s the upper level of the viaduct appears to have been known as the ‘Mile End Top Yard’ (NR 5342425_LTN_138)

¹³ In addition to Cade and Girling, these included Brewis Bros, George Brooks, Henry Brooks, Robert Brooks (each trading on their own account), Edwin Edgley & Co, Hinde & Watkiss, William and Edward James & Co and F.J. Pringle & Co. The brick and tile manufacturer was Goodman & Co

wind screen along the outside edge of 'the toboggan'; however the proposal did not merit a mention in the minutes of the Way and Works Committee, suggesting that the matter may have been addressed elsewhere in the company (NR 5342427_LTN138 GER Dwg no. S13912, 18/05/1920).

- 5.7.3 By the end of the First World War nine coal dealers and merchants traded from the coal depot at Longnor Road (*Post Office London Directory*, 1919: 452). These included long-term occupants such as Brooks, Cade, Edgley, Fardell and Girling, as well as new arrivals George William Drake, Thomas William Mason and George and Edward Range (*ibid*). Later directories indicate that Drake subsequently acquired the premises at 256 Devonshire Street/Bancroft Road previously occupied by J and H Girling (*Post Office London Directory*, 1955: 1357). At some point between 1926 and 1930 these businesses were joined by A. Lawson and Co of Wilmot Mews, Bishopsgate, which together with Drake's company, was to be one of the longest-lasting firms that moved into the depot during the inter-war period. Throughout the course of the 1920s the number of merchants trading from premises at the depot remained relatively constant, fluctuating between seven and ten (*ibid*; *Post Office London Directory*, 1926: 433; *Post Office London Directory*, 1930: 449).
- 5.7.4 As part of a wide-ranging programme to maintain and renew goods roadways belonging to the company, the recently established LNER agreed in the spring of 1923 to pave a number of goods yards (TNA RAIL 390/329, 25/04/1923). The South Yard at Devonshire Street was one of three facilities in the capital to benefit from the scheme, and in June of that year a contract worth £850 was awarded to William Griffiths and Co of Hamilton House, Bishopsgate to pave the yard with second-hand granite setts (TNA RAIL 390/329, 23/06/1923).
- 5.7.5 An interwar aerial photograph of the canal and coal depot, showing wagons on the sidings, viaduct and 'the toboggan' is reproduced here as **Plate 51**.

5.8 The Mile End Depot during the Second World War, 1939-1945

- 5.8.1 A little over a month after the start of the London Blitz in September 1940, the first enemy bombs fell on the depot. At approximately 1.30 am on 9th October 1940, during one of the heaviest raids of the Blitz to date, a number of bombs fell on the main line railway embankment and in the South Yard (Brooksbank, 2007: 28). Although the type of bombs was not recorded, it was reported that the coal wharf was set on fire, while the 'up through' line on the embankment was also blocked for a number of hours. In fact these bombs destroyed 'the toboggan', the remains of which were subsequently demolished and never replaced (Watling, 1989: 63).
- 5.8.2 Bombing on the nights of 10th October 1940 and 11th May 1941 (the last raid of the Blitz) damaged railway property including signal boxes and bridges in the vicinity of Devonshire Street, although the coal yard appears to have survived these raids relatively unscathed (Brooksbank, 2007: 29, 89).
- 5.8.3 With Germany preoccupied with the war against the Soviet Union after June 1941, London was largely spared the attentions of the Luftwaffe over the next two and-a-half years. Enemy air activity over the capital during this period was chiefly confined to small scale 'nuisance' attacks, one of which inflicted severe damage at the depot (*ibid*: 103). At 6 am on 20th December 1943 a High Explosive (HE) bomb fell on the 'Lower Yard', damaging the "reception line and slip", dislodging staging in "a girder bridge carrying local lines", as well as destroying staff mess rooms, platelayers' huts, a weighbridge hut, one locomotive, 26 wagons and one coach (*ibid*). The explosion injured three members of staff and delayed traffic running over local lines.
- 5.8.4 In the early hours of 13th June 1944 the first V1 flying bomb to strike Britain crashed on agricultural land near Dartford in Kent. Shortly afterwards at 4.30 am a V1 crashed adjacent to the mainline between Devonshire Street and Coborn Road, the first to fall on the capital (*ibid*: 110). Described by initial reports as an

“enemy aircraft loaded with bombs”, the V1 caused serious damage to Grove Road Bridge, bringing down the portion carrying the local lines. Although the attack greatly interfered with the movement of freight traffic to Bishopsgate, Spitalfields and Devonshire Street yards, the latter yard escaped the raid unscathed.

- 5.8.5 Just over a month later, at 4.55pm in on Sunday 16th July an exploding V1 inflicted severe damage to the main line signal boxes at Devonshire Street, temporarily blocking the mainline (*ibid*: 116). The explosion also damaged a number of vehicles and destroyed track in the depot, as well as damaging a retaining wall, which was subsequently judged to be unsafe (*ibid*). This resulted in the closure of nos. 7 and 8 roads; post-war drawings of repairs suggest that the retaining wall mentioned in the air raid damage report was the one erected in 1883 (*ibid*; NR 5342420_LTN_138). The last V1 to inflict damage upon the depot fell near the entrance of the goods, damaging the shunter’s cabin there and breaking glass in one of the long-suffering signal boxes (Brooksbank, 2007: 118).

5.9 The Mile End Depot during the post-war period, 1946-present

- 5.9.1 An historical photograph taken shortly after the end of the War showed the impact of wartime damage at the east end of the coal drops viaduct (**Plate 52**). Taken after the ruins of ‘the toboggan’ had been cleared, the photograph showed the redundant girder bridge at the south-east end of the viaduct, shortly before it too was removed. The extent of this repair work was reflected in the extensive use of engineering bricks at the south-eastern angle of the viaduct. An Ordnance Survey map of 1948 showed the site following the removal of the last traces of both the bridge and the coal shoots (**Figure 9**). The map also revealed the extent of wartime destruction in nearby Bradwell Street and Longnor Road, both of which had lost a substantial proportion of their housing stock to enemy bombing.
- 5.9.2 Within seven years of the end of the Second World War, the number of coal merchants at the depot in Longnor Street had halved, leaving just Drake and Lawson as the only representatives of the trade working at the yard (*Post Office London Directory*, 1952: 474). Following nationalisation in 1948, the yard continued to accommodate the two companies until at least 1959; within six years both had left (*Post Office London Directory*, 1959: 551; *Post Office Directory*, 1965: 683). The replacement of much of the 19th century housing stock in the surrounding area with modern council housing (including the Longnor Estate) after the war greatly reduced demand for coal from local residents and businesses, accelerating the end of the domestic coal business at the yard (**Figure 10**).
- 5.9.3 The coal depot formally closed in 1967, although the coal drops viaduct had ceased being used for handling coal at least five years before that (*Post Office London Directory*, 1967: 702). In 1962 British Railways began running trains carrying sand and aggregates from Southminster in Essex to Mile End (Peter Kay, *pers. comm.*). Within a few years the drops were also being used by trains carrying sand from Marks Tey in Essex (Goldsmith *et al*, 1996: 17). These sand trains were made up of bottom discharge hopper wagons, which were shunted over the drops in order to discharge their loads into a number of the arches. The yard was purchased by Tarmac Ltd, the owners of the extraction facilities at Marks Tey and Southminster, while the viaduct remained in state ownership, the property of the British Railways Board.
- 5.9.4 Sand trains formed from 21-ton bottom discharge hopper wagons (TOPS codes HTO/HTV) continued to discharge their loads at the Mile End yard until the late 1980s. Drawings prepared in 1988 by the Divisional Civil Engineer of the Eastern Region indicate that it was proposed to remodel a number of the drops at this time, possibly in anticipation of the introduction of new rolling stock (NR 5342425_LTN_138; **Figure 11**). The drawings included a plan which indicated

that certain drops were to be blocked, while others were to be enlarged.¹⁴ The plan confirmed that sand trains discharged their loads into the arches in the eastern half of the viaduct (Arches 12-15 and 17-23); the drops in the arches in the western half (Arches 1-11) having been blocked previously.

- 5.9.5 According to Dave Underwood, the Area Freight Supervisor at Dagenham Dock whose responsibilities included supervision of the Mile End depot from 1988-89, the drops were temporarily closed for remodelling at this time (Peter Kay, *pers. comm.*). Following the resumption of traffic, the sidings were able to host fully air-braked trains made up of eighteen 90-tonne capacity bogie bottom discharge hopper wagons built by W.H. Davis Ltd of Mansfield. The introduction of these trains however, coincided with a decision that loads would be discharged (via the bottom doors of the wagons) into a shallow hopper connected to a conveyor, which carried the sand to the edge of the viaduct, from which it was launched over the parapet into a pile at ground level (*ibid*). The sand was subsequently moved by a digger to another part of the yard for onward distribution by road. The adoption of this new method of working appears to have marked the end of the active use of the drops themselves.
- 5.9.6 A survey of the existing drops was undertaken by the Chief Civil Engineer's office of the BRB at the turn of 1990s (NR 5342422_LTN_138; **Figure 12**). The surveyors recorded which drops remained open and drew plans and sections of the surviving frames at the apertures of the open drops. The survey revealed that drops remained open in Arches 12 (two drops), 13 (two drops), 15 (one drop), 17 (two drops), 18 (two drops), 19 (two drops), 20 (one drop), 21 (one drop), 22 (one drop) and 23 (one drop).
- 5.9.7 Tarmac appears to have ceased using the viaduct altogether for its sand and aggregates business at some point during the early 1990s (Goldsmith *et al*, 1996: 17). The site was subsequently acquired by Queen Mary and Westfield College, University of London (now Queen Mary University) for the development of halls of residence for its Mile End campus. Photographic evidence indicates that Pooley House and other halls of residence were under construction in 1999/2000, following which the university occupied a number of the arches of the 1854/5 viaduct for laundry storage (aerial photograph from 'Google Earth', date of image 09/09/1999). In addition to those arches used by the university, a number of the remaining arches were let to commercial tenants as part of the Apple Tree Yard development. Several of the arches remained in occupation at the commencement of the building recording process.

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¹⁴ Unfortunately the scan of this drawing supplied by Network Rail was black and white, which meant that the colour coding used to denote which drops were to be filled (red) and enlarged (green) was lost

6 BUILDING DESCRIPTIONS

6.1 Introduction

- 6.1.1 The following descriptive text provides objective information on the redundant railway viaduct at Westfield Road at the time that the surveys were conducted (17/06/2013 to 19/06/2013 and 13/09/2013). Interpretations of use and the phasing of the structure are based upon information gathered during the fieldwork, analysis of the building fabric and the historical research.
- 6.1.2 The viaduct comprised a total of twenty-five arches numbered 1-25 from west to east (**Plates 1 and 2**). This numbering was taken from an existing numerical sequence shown on plaques above each arch. During the survey work it became apparent that access to and inspection of some of the arch spaces below the viaduct was restricted by internal structures associated with their later reuse as general and laundry storage for Queen Mary University, London or as commercial lettings within Apple Tree Yard. Arches 11, 12, 14, 15 and 16 were used by the University. The internal structures within these arches comprised modern timber-framed and boarded storage rooms which extended the full depth and width of the arch vault. Arches 1, 2, 4 and 5 contained purpose-built shed-like structures constructed of scaffold tubing and sheet steel. Given the restrictions to access, arches 7-10, 13, 17-20 and 22-25 were fully inspected during the initial survey, whilst Arches 3 and 21 were only partially recorded at that time. Arches 1-2 & 4-5 within Apple Tree Yard and 11, 12 and 14-16 were not recorded during the initial survey.
- 6.1.3 Following the removal of the structures inside Arches 1, 2, 3, 4 and 5 and the grant of access to those used by the University, a photographic survey of the remaining arches was undertaken on Friday 13th September 2013.

6.2 General Description

- 6.2.1 The Mile End railway sidings and sand drops (also known as the coal drops viaduct), are situated to the east of the Regent's Canal, alongside the southern side of the earthen embankment that carries the London to Norwich main line and just short (west) of the railway crossing over the canal. They comprised a brick-built railway viaduct originally constructed between 1854 and 1855, and subsequently converted into coal drops in 1864-65 in association with the enlargement of the Devonshire Street Coal depot to the south. The site of the latter is currently occupied by University buildings.
- 6.2.2 A modern earthen banked ramp, which partially overbuilds two of the arches (Arches 8 and 9), had been added to enable vehicular access onto the viaduct from the south and via Longnor Road. At the time of recording, the siding, which originally carried five lines of rails, was still partly used with a single line or spur off the main track. The rest of the viaduct i.e. that above the vaulting, is presently unused and only a single disused length of track remains.
- 6.2.3 Historical evidence suggests that each of the arches contained openings within the crown of the arch to facilitate by gravity the passage of coal from coal wagons situated on the sidings above into receptacles situated below. Research undertaken by GLIAS suggests that the openings were situated between the sidings rather than centred between the rails, as was more common. This arrangement suggests that the coal drops were designed for side-discharging coal wagons in preference to bottom-discharging wagons (see Section 5 above).
- 6.2.4 The redundant viaduct is a linear brick-built structure which occupies a narrow strip of land along the southern side of the embankment which supports the main line. It presents its principal elevation to the south, with twenty-five open arches and terminates to the east, at its junction with the Regent's Canal. Internally each arch incorporates a pair of segmental headed transverse arches built into each flank elevation and evidence of open and blocked coal drops and later sand drops within the crown of the brick vaulting. The easternmost end of the

siding fronting the canal also contains a series of six smaller open fronted cross arches, built to strengthen the viaduct structure along the end elevation.

6.3 External Descriptions

- 6.3.1 Externally all twenty-five arches were identical in form and dimension. Each measured on average 6.06m in width and 3.5m in height and was segmental in form with rough brick arches of alternating brick courses, either laid on end (as soldiers) or as headers on edge, providing the appearance of cross-cuts. The arch structure measured 0.48m in depth and springs from brickwork jambs (0.96m wide) each with a prominent impost band of two brick courses, at the base of the arch. The original fabric comprised hard yellow and red stock bricks measuring 225-230 x 65-70 x 105-110mm. The bricks had sharp arises and incorporated many over-fired or part burnt examples. They also showed a combination of horizontal and diagonal quish and kiss marks, a feature of brick stacking more commonly associated with the early or mid-19th century.
- 6.3.2 The arches, parapets and many of the brick jambs have over recent years been repaired using modern yellow brickwork. A notable feature of the south facing elevation was the presence of two stone plaques set into the spandrel wall above Arches 8 and 12 (**Plates 17** and **19**). Both were boundary marker stones dating to 1885, recording the limits of the parishes of St Matthew's, Bethnal Green (St M BG) and Mile End Old Town (ME OT). Historic Ordnance Survey maps (**Figures 4, 7** and **8**) showed these boundaries crossing and returning over the viaduct.
- 6.3.3 A change in the uniformity of the structure occurred at the easternmost end and particularly around the south-eastern angle where the south wall and three arches along the canal (east) end wall had been rebuilt in English bond using hard blue engineering bricks (225-230 x 65 x 100mm) (**Plates 2** and **3**). This extends in height for nine courses above the tops of the arches and is capped with a brick on edge coping course along most of the south elevation. The coping course appears to have been removed from the east elevation. Above the top of the blue engineering brickwork, further yellow stock brickwork has been added. The parapet therefore, along both elevations is a later addition. The blue engineering brick rebuilding work occurs to the east of the stub of a north-south aligned return wall or buttress, immediately adjacent to Arch 25. The return wall extended for at least 3 metres to the south as its foundation was recorded in a construction trench for a temporary store, to the south.
- 6.3.4 The rebuilding of the south-east end of the viaduct with blue engineering bricks appears to relate to repair during or shortly after the Second World War, in order to make good bomb damage. A photograph of the east elevation of the viaduct taken c.1945 (**Plate 52**) appears to show the wall newly rebuilt.
- 6.3.5 The elevation at the eastern end facing the canal comprised an alignment of six narrower arched openings (**Plate 3**) each measuring 2.3m in width, apart from the northern arch which was narrower (at 1.82m) due to the insertion of an internal 1 brick, red brick 'lining' arch. All six were built to the same height with a segmental rough brick arch of three on edge courses, but their depth (east-west) became progressively smaller from south to north (from 8.31m to 5.44m). When built, access between these cross arches and Arch 25 was not possible, although a small access archway had latterly been inserted into the back wall of the central (south) arch.

6.4 Internal Descriptions

- 6.4.1 Each of the arches incorporated pairs of transverse arches built into their flank walls, with the exception of the two end (eastern- and westernmost Arches 1 and 25) which did not originally include openings in their outermost walls. The transverse arches were identical in form and dimension with a segmental rough brick arched head of three on-edge courses (**Plate 4**). They typically measured 180-183mm in width although the height of the openings varied with changes in

floor levels within each arch. As seen throughout the survey the locations of these four transverse arches were consistent, providing an east–west alignment of openings through the viaduct (**Figure 14**). In many cases the same could be said for the brick-blocked former coal drops. Most of the arches typically comprised two large blocked openings of similar dimension (approximately 2m x 3m) and location within the crown of the vault (**Figure 14**). The majority of these were blocked in yellow stock brick laid flush with the vault, suggesting that a ‘form’ was used and the brickwork was laid from above. A number of examples blocked from above, blocked not with brick but materials including timber, re-used rails or shuttered concrete, still retained the timber shuttering to the opening. Later openings, associated with subsequent use, were also present within some of the arches but not all. The arches consistently measured between 17.9 and 18.1m in depth and c.6.05- 6.06m in width

6.5 Apple Tree Yard, Arches 1-7 (Plates 5-14)

- 6.5.1 Apple Tree Yard comprised seven arches at the western end of the viaduct, to the west of the access ramp to the railway sidings. The arches within this area had latterly been in commercial use, including a cafe, a taxi hire service and car repair business. At the time of the initial survey (June 2013), five of the arches were fronted by heavy security cage doors and contained purpose-built shed-like structures, each of which was constructed around a frame of scaffold tubing overlain by corrugated steel sheeting (**Plates 5 and 6**). The sheds each had a pitched roof (an important feature due to water penetration through the vaulting) and were built to the full depth of the arch, apart from Arch 3 which retained a small open area to the rear. Although Arches 1, 2, 4, 5 and 6 were inaccessible during the initial survey, all of these arches were open to inspection during the follow-up survey in September 2013. Externally this series of arches displayed no historic features apart from the end of a cast-iron drainage pipe (from the siding above) projecting from the wall between Arches 1 and 2.
- 6.5.2 A photographic survey of **Arch 1** was undertaken in September 2013. Internal inspection confirmed that there were no transverse arches in the west wall of the arch. The transverse arches in the east wall were blocked and faced with hard yellow and red stock bricks of the same dimensions as those used in the original construction, laid flush with the surrounding brickwork. The use of these bricks and the quality of finish suggests that these arches may have been blocked not long after the viaduct had been built (**Plate 7**). Similar brickwork was used to block the former coal drops, suggesting that these too may have been blocked at an early date. A concrete floor surface was recorded at the north end of Arch 1.
- 6.5.3 A recess, 0.11m in depth extended the full height of the rear northern wall of Arch 1 (**Plates 7 and 8**). The absence of closer bricks in the adjacent brickwork suggests that the recess had been cut into the existing brickwork of the arch. The recess appeared to flare outward at both top and bottom (**Plate 8**). An aperture at the top of the recess had been filled by rubble that appeared to have fallen in from above, suggesting that there had been an opening at the back of the roof of the arch. It is conceivable that this structure and the other alterations to the fabric of Arch 1 dated from its conversion into a grain store in the late 1860s, although its function is uncertain.
- 6.5.4 **Arch 2** was also recorded after access was gained in September 2013. The four transverse arches had been blocked, those to the east faced in flush stock bricks, whilst those to the west were recessed back and also faced with stock brickwork (**Plate 9**). All four transverse arches appeared to have been blocked relatively early in the history of the structure. The northern of the two coal drops was blocked with stock bricks similar to those of the surrounding arch. In contrast the southern drop was blocked with modern yellow bricks (**Plate 9**).
- 6.5.5 All four transverse arches in **Arch 3** were blocked using brickwork (**Plate 10**), the eastern pair in modern Fletton brickwork and the western pair in stock bricks. The brick blocking in all four arches was recessed. Both of the former coal drops

were blocked with yellow stock bricks. A brick kerb of a single brick height extended along the base of the wall and was abutted by an extant 19th century brick floor of on-edge bricks (230 x 70mm) laid in a common stretcher course on a half lap. A modern raised concrete plinth 1.38m in width was present along the northern wall. A roof scar in the north (rear) wall of the arch marked the extent of the metal shed that had previously occupied the space.

- 6.5.6 The transverse arches in **Arch 4** had all been blocked by brickwork, the face of each being flush with that of the surrounding arch. The two western arches had been infilled with Flettons; the others with stock bricks. Both coal drops had been blocked with yellow stock bricks.
- 6.5.7 The brickwork blocking the transverse arches in **Arch 5** was recessed in all four arches. A 'lip', presumably a drip gully, constructed of bricks laid on edge and then rendered, had been added along the base of the walls (**Plate 11**). The gully had been broken in several places, particularly towards the south end of the arch.
- 6.5.8 Like its neighbour to the west, all of the transverse arches in **Arch 6** were blocked. Three were blocked by recessed brickwork, although the south-westernmost one was blocked with timber-shuttered concrete (**Plate 12**). Both of the former coal drop arches had been blocked with yellow stock bricks. A concrete drip gully had been added along the base of the walls; the floor of the arch was concrete screed.
- 6.5.9 Arch 7 (**Plates 13 and 14**) was enclosed by a makeshift part-railway sleeper and part-boarded doorway during the initial building survey. Localised repair of the arch, parapet and the western jamb was present. Internally the arch displayed the same arrangement of transverse arches, all blocked using modern materials of either Fletton brickwork or shuttered concrete. The two yellow stock brick blockings to the former coal drops were the only features within the vaulting. A modern addition of a concrete-built drip gully had been added along the base of the walls while some areas of wall had been re-pointed using a hard cement based mortar.

6.6 Arches 8-11 (Plates 15-21)

- 6.6.1 **Arch 8** was partly obscured along its southern elevation by the recent addition of an earthen bank/ramp construction facilitating vehicular access up to the siding. This entailed the blocking of three-quarters of the arch opening, the end wall of the ramp (facing into the arch) faced with modern imitation granite rough faced blockwork. All the four transverse arches had been blocked using modern materials or red stock brickwork, and the two former coal drops blocked using yellow stock bricks (**Plates 15 and 16**). The floor was concrete screed. A pair of timber joists, running the length of the vaulted ceiling and coinciding with the outer edges of coal drops, may have been the sole remains of a timber structure for an internal cladding, associated with a subsequent use.
- 6.6.2 **Arch 9** was also partly obscured by the ramp access to the siding and incorporated the same rough faced granite style blockwork end wall facing into the arch. All the four transverse arches had been blocked, those to the west faced in flush brickwork and those to the east, recessed back with modern brickwork. The two former coal drops were blocked using yellow stock bricks and located in the same position as previously recorded. A similar timber joist to that seen in Arch 8, running the length of the vaulted ceiling was probably present for the same reason. No other features were noted apart from an Ordnance Survey Bench Mark carved into the brickwork of the western wall. Full access to the interior of Arch 10 was restricted by the presence of a large shipping container used for storage. Despite this it was clear that the vaulted ceiling included the

same yellow brick blocked former coal drops, whose dimension and location were consistent with those already recorded.

- 6.6.3 The external elevations of these arches had in places been repaired using modern yellow brickwork, particularly along the bases/jambes of the arch openings. A cast iron cylindrical 'sleeve' fixed into the brickwork of the viaduct using a T-shaped flange was present within the spandrel between Arches 10 and 11 (**Plate 18**). Its function is unclear although it appears to have been used as a guide or housing to locate piping or similar from the siding above. The spandrel to the east between Arches 11 and 12 incorporated the boundary marker stones for the parishes of St Matthew and Mile End Old Town (**Plate 19**).
- 6.6.4 **Arch 11** was the easternmost of the arches in which both coal drops had been blocked with stock bricks. Two pairs of parallel north-south aligned timber joists similar to those in Arches 8 and 9 were recorded in the roof of the arch, although all four were incomplete (**Plate 20**). The transverse arches in the west wall of the arch were recessed, containing brick pillars which strengthened the brickwork blocking the corresponding arches in the east wall of Arch 10 (**Plate 21**).

6.7 Arches 12-16 (Plates 22-32)

- 6.7.1 **Arch 12** was the westernmost of the group of arches that were used as receptacles for sand and aggregates during the second half of the 20th century. The interior was constructed to the same design as adjoining arches, containing four transverse arches (all blocked with recessed brickwork), and two drops in the roof of the arch (**Plate 22**). The brickwork of the south western transverse arch contained signs of recent damage, while the adjacent wall also bore scars inflicted by the bucket of a mechanical excavator when moving sand from within the arch (**Plate 23**).
- 6.7.2 Both of the former coal drop openings in **Arch 12** remained 'open', albeit blocked from above by shuttered concrete. The southern drop had historically been blocked with yellow stock brickwork in English bond, but had subsequently been re-opened along its northern side in order to create a new east-west aligned drop. A caption to **Figure 12** suggests that the 'new' drop had previously been lined with a timber frame, part of which was already 'missing' by the late 1980s/early 1990s. Most of the remainder of the frame had been taken out since, exposing the brickwork surrounding the aperture. In contrast the aperture of the northern drop had not been closed historically, which meant that its historic timber lining had been retained (**Plate 24**). This lining was constructed of two large heavy scantling beams per edge, held in place from above by heavy through bolts with square nuts and washers. The timber lining was substantial, measuring 5 inches by 12 inches deep. Cross sections of these linings drawn c.1991 are shown in **Figure 12**. The southern end of the drop had been blocked from above with shuttered concrete. Annotations to **Figure 11** suggest that this blocking took place c.1988/9.
- 6.7.3 The exterior of **Arch 13** had been repaired using modern yellow brickwork. These localised repairs included modern brick cut into the existing arch and in areas of the parapet. A more substantial modern repair of both jambes had also been undertaken, though all of this work used unsympathetic cement mortar and inappropriate weather-struck pointing.
- 6.7.4 The interior was unremarkable, containing standard four transverse arches, three blocked up using flush brickwork and one (the north-east example) using later blockwork. The two former coal drop openings (though blocked from above using shuttered concrete) both remained 'open' and retained their original, or at least historic, timber lining. This lining was constructed using the same structural components and fittings as the surviving example in Arch 12. The dimensions of the timber and the presence of Baltic scribe marks (**Plates 25 and 26**) indicated that it was imported softwood, shipped in from the Baltic region. The use of structural Baltic timber in British buildings became increasingly common during the

19th century. It therefore appears that the timber lining for these openings was, if not original, certainly 19th century in origin.

- 6.7.5 A variety of materials had been used to block the four transverse arches in **Arch 14**. On the west elevation the southern arch had been blocked with modern Fletton brickwork, whilst the northern arch was blocked with modern concrete blocks. The arches in the east elevation were both crudely blocked, the southern comprising a lump of mass concrete surmounted by a metal plate in the adjacent Arch 15 (**Plate 27**). The stumps of a Fletton-built wall on the west side of this arch suggested that the latter had been inserted then subsequently demolished. The northern coal drop was blocked with yellow stock bricks and the southern one had been blocked in the same manner, following which a smaller aperture had been created. The latter was 'open', albeit blocked from above. The latter drop was shown as being 'open' in the early 1990s (**Figure 12**). The brick face exposed when the later drop was opened had been sealed with shuttered concrete (**Plate 28**).
- 6.7.6 All four transverse arches in **Arch 15** had been covered with metal plates (**Plate 29**). Substantial concrete plinths had been constructed along the bases of the east and west walls of the arch. The arrangement of coal drops was the same as in Arch 14.
- 6.7.7 Both transverse arches in the west wall of **Arch 16** had been blocked with bricks, flush with the surrounding brickwork (**Plate 30**). The wall in the southernmost arch had been partially demolished, exposing the crude construction of the blocking brickwork (**Plate 31**). The north-east transverse arch had also been blocked with brickwork; although the south-eastern arch remained open (**Plate 30**). A plaster plinth, 0.48m high, was present along the base of the western wall of Arch 16 adjacent to the south-west transverse arch (**Plate 32**). The lower section of the arch above the springing had also been rendered. This area formerly housed a fixed structure. Both coal drops in Arch 16 had been blocked with yellow stock bricks.

6.8 Arches 17-19 (Plates 33-38)

- 6.8.1 The brick courses and the parapet above **Arch 17** had been repaired using the same yellow brickwork seen elsewhere (**Plate 33**). The opening of the arch had been closed in recent years using a recessed (set back 2.44m) lightweight timber partition wall with a central door opening. This partition wall was built in a similar style to those to the east (Arches 14-16) but did not incorporate the same internal structure, leaving the arch open. The position and alignments of both the transverse arches and the coal drops in the crown of the vaulted ceiling were consistent with those recorded elsewhere. The two former coal drops were both blocked from above (siding level), but 'open' from below. The southern drop comprised an opening edged with a cement render along the eastern and western sides. The northern 'opening' however retained a timber lining, consistent structurally with that recorded in Arches 12 and 13, though it did not include evidence of Baltic markings (**Plate 34**). The fact that these openings were not brick-blocked suggests they were operational while the viaduct was still in use in an industrial context. Only one of the transverse arches of Arch 17 had been totally blocked, the two along the eastern side were part blocked re-using railway sleepers and the north-western arch fully blocked in brick recessed back from the wall line (**Plate 36**).
- 6.8.2 **Arch 18** featured the same layout of transverse arches and similar levels of repair to the brickwork along the frontage to other arches. The southern of the two coal drops had been typically blocked using the yellow stock brickwork in English bond, but had been subsequently re-opened along its northern side and a new drop, aligned east-west, created. This opening, and the earlier coal drop to the north, which had retained its timber lining, had been in use together. This arrangement also appeared in the adjacent **Arch 19**. The southernmost of the two coal drops had been first blocked and then reopened at a later date. Like the

opening in Arch 18, this opening was aligned east-west and was edged using shuttered concrete (**Plate 37**). The northern of the two coal drop openings was also unblocked but appears to have been slightly enlarged or had collapsed along its eastern edge. Some evidence of a timber shuttering to the opening was still present along the western edge. The modern use of the arches for storing sand was evident from the deep scarring (**Plate 38**) within the walls of the arches, caused by the bucket of a mechanical excavator or similar.

6.9 Arches 20-23 (Plates 39-42)

- 6.9.1 **Arch 20** departed from the standard arrangement of coal drop openings. Unlike those to the west (Arches 18 and 19), this arch incorporated a single inserted opening central to the vault, between the two brick-blocked original coal drop openings (**Plate 39**). The former was also laid out to an east-west bias and was lined using a heavy timber frame very similar in appearance to those used in the openings to the east. Whilst this timber was a similar scantling and was fixed using the same style of bolts, it appeared to be less heavily 'used' and may have been built re-using existing timber from another opening. Its location central to the arch marks a change in the position of the openings, present within a block of Arches from 20 to 23 (though 21 not clear). The rear northern wall of the arch had latterly been completely rebuilt using red and yellow stock bricks in English bond. The rear wall, as seen throughout the viaduct, butted up to the arch via a straight joint.
- 6.9.2 The presence of an internal structure similar to those recorded in Arches 11, 12, 16, 15 and 16 meant that only partial access could be gained to **Arch 21**. However, as the frontage was recessed further back (5.4m) from the southern wall line, part of the southern yellow stock brick blocked coal drop was visible. The southern edges of the two transverse arches were also visible, that to the west, blocked using flush Fletton brickwork. No further features were recorded apart from the remains of a granite sett floor comprising rectangular setts (on average 130 x 90mm to 250 x 90mm) laid in a stretcher course (**Plate 40**). Whether this flooring, present within the southern end of Arch 21, extended across its entire length remains unclear. **Arches 22** and **23** retained much the same arrangement of openings as Arch 20, with pairs of original brick blocked coal drops either side of an inserted central opening broken through the crown of the vault. These central openings, though blocked from above, had edges consolidated and protected by shuttered concrete (**Plate 41**). Concrete was also used to block the two transverse arches between the two arches, many of which had been severely damaged by a mechanical excavator during the movement of sand in and out of the arches (**Plate 42**).

6.10 Arches 24 and 25 (Plates 43-47)

- 6.10.1 **Arches 24** and **25** formed the easternmost arches of the viaduct. The arrangements of openings within both were noticeably different from those to the west. Arch 24 retained two 'open' coal drops within the vaulted ceiling (**Plate 43**). Both were blocked from above and unlike other brick blocked openings were sub-rectangular, almost trapezoid in plan, tapering toward the eastern side (**Plate 44**). Neither showed any sign of a timber lining and both retained a thin skim of cement render along the inner side of the opening. The inserted central opening present in Arches 20-23 was not a feature of either Arch 24 or 25. The walls of these two arches were also far less scarred than those to the west, suggesting that they were not subsequently used for sand storage. Arch 25 was unusual in that whilst it did incorporate two openings within the arch structure, these were considerably smaller openings than any seen throughout the viaduct and were more centrally located (**Plate 45**). The two transverse arches in the party wall between the two arches were brick blocked. No original transverse arches were built into the eastern wall of Arch 25, although a later opening had been broken through the eastern wall to enable access to the canal via one of the cross-arches built into the eastern end elevation (**Plate 46**). Later alterations

also included the construction of an internal one brick red brick lining arch, extending 4.65m from the northern end of Arch 25. This strengthening of the structure using a red brick arch is also present within the northernmost of the narrow arches along the end elevation (**Plate 47**). Another feature of note was the lining of the lower walls with sheet metal. Fragmentary evidence of this lining remained at the top of the wall just below the arch springing. It was no doubt added to protect the walls, and was a later adaptation as it appeared to overlay the blocked-up transverse arches.

6.11 The Siding (Figure 2; Plates 48-50)

- 6.11.1 The siding was reached from the south via a modern earthen banked ramp, which partially overbuilds Arches 8 and 9. It had been added to enable vehicular access onto the siding and via Longnor Road along the southern side of the viaduct. The structure, which originally carried five lines of track (later seven lines), is still partly used with a single line or spur off the main track (**Plate 48**). The remainder of the siding (i.e. that above the vaulting), is presently unused, with a single disused line and buffer stop surviving alongside (south) of the active line (**Plate 49**). Few other features of note remain. A modern mechanical winch set into a concrete base, presumably for hoisting vehicles or containers along the siding or up from canal-side was present at the eastern end of the siding. It was driven via external separate portable engine (not present) and was manufactured by SADI Engineering of 10-14 Ansdell Street, Kensington Square, London (**Plate 50**). The remains of a part-buried trolley rail, running parallel with the siding tracks remained along the southern side of the siding. It only appeared to extend from the east end as far as the ramp, suggesting that it was a relatively recent addition. The siding was latterly occupied by a number of stores and containers set onto concrete bases. These could clearly be seen along the southern side of the siding.

7 DISCUSSION AND CONCLUSIONS

- 7.1.1 Documentary evidence and the analysis of the historic fabric has confirmed that all twenty-five of the arches that comprised the former Devonshire Street Goods Depot Viaduct were erected by the Eastern Counties Railway (ECR) in the mid-1850s. The minutes of the ECR suggested that the initial impetus for the construction of the viaduct was a demand for additional siding accommodation in the capital which could be used to relieve the main line of goods trains at times when passenger traffic was particularly heavy. Although this idea was first mooted in September 1853, it was not until the following spring that the company decided to proceed with the proposed works, by which date the original scheme had been considerably altered. In addition to the sidings, officers of the railway company also proposed to establish a coal depot on the south side of the main line at Devonshire Street, where a goods depot had been established on the north side of the line a few years earlier. The new coal depot would allow coals brought in by rail to be loaded into barges for onward distribution via the adjacent Regent's Canal.
- 7.1.2 Because the Eastern Counties line at Devonshire Street was carried on an embankment, it was necessary to construct the sidings at the same level as the existing tracks. Having convinced the Board of the ECR that the cost of building a brick viaduct was less than that of widening the embankment, the officers of the railway company ensured that a dual purpose structure was built, from which coal could be discharged from wagons via shoots to ground level. The documentary resource suggests that the railway company failed to acquire all of the land on the south side of the railway embankment necessary to complete the scheme as intended, which meant that the viaduct was built but the depot necessary to store, sell and tranship the coal was not. The plans of the ECR were not realised until the mid-1860s, when its successor the Great Eastern Railway (GER) acquired the land necessary to fully develop the coal depot.
- 7.1.3 The Devonshire Street coal depot was complete by mid-April 1865 by which date accommodation at the arches had been let out to a number of coal merchants. Although the cost of acquiring the land necessary to complete the coal depot is well documented, the extent to which the existing arches themselves were adapted at this time for the use of the coal trade is not entirely clear. Documentary evidence suggests that it is reasonable to conclude that the arches were built as coal drops from the outset, although the archaeological evidence observed in the present investigation does not allow a definitive conclusion to be drawn either way, owing in part to the later blocking or alterations made to the original openings. However, examination of the transverse arches within the viaduct strongly suggests that all were properly built using queen closers, as part of the original work. Although the function of these transverse arches is uncertain, their location directly adjacent to the coal drop openings suggest a direct relationship, possibly a means to vent the clouds of dust that invariably accompanied large quantities of coal falling from a height.
- 7.1.4 The First Edition Ordnance Survey map of 1870 showed the track configuration of the Devonshire Street viaduct shortly after the coal depot opened for business. It depicted five sidings (two pairs and a single central track), terminating at the eastern end in a bank of three wagon turntables. Investigations conducted by Peter Kay and Malcolm Tucker into the operation of the coal drops concluded that the central track was used for returning empties, which were manoeuvred onto the siding via the turntables at the east end. The outermost paired sidings received trains of loaded coal wagons, which discharged their loads sideward via the drop holes, which were situated at regular intervals between each pair of sidings. Thus discharged, the coal was stored in the arches below prior to onward distribution by road or canal. This assumption fits well with the locations of the original coal drops, which were not

central but placed toward the northern and southern ends of each arch and in an area which would be with the use of side-loading wagons.

- 7.1.5 Documentary evidence indicated that within four years of the coal depot becoming fully operational, competition from the Great Eastern's own coal handling facility at Whitechapel for coal merchants' business meant that "a large portion of the coal traffic from Devonshire Street" had been taken by its larger rival. The two westernmost arches (Arches 1 and 2) were converted to receive and store grain and malt respectively, which may account for the quality of the brickwork used to block the (redundant) transverse arches in both arches, and in the northernmost coal drop in each. The use of pale yellow stocks to block the southern drop in Arch 2 suggests that this drop remained open for a longer period of time. Goad fire insurance plans indicated that by the early 1890s Arch 22 had been converted into a bottle store, suggesting that alternative uses had been found for a number of viaduct arches at both eastern and western ends by the end of the century.
- 7.1.6 Building recording revealed that whilst the blocking of the transverse arches had occurred *ad hoc*, mainly after the end of the coal trade, the majority of the original coal drop openings that had been blocked appear to have been bricked up at the same time using the same style of brickwork, possibly during the post-war period.
- 7.1.7 Whilst all of the drops in the western half of the viaduct (Arches 1 to 11) and several in the eastern half were blocked, a number remained open. The use of the former coal depot as a yard for sand and aggregates after 1962 prolonged the working life of the drops in this half of the viaduct. Evidence for the insertion of a series of openings cut through the crown of the vaults during this phase was recorded on site. These openings were sited more centrally within the arches (as seen in Arches 20 to 23) or slightly toward the south (as seen in Arches 18 to 19). The latter were also cut through the previously brick-blocked original openings. The locations of these insertions correspond with the use of bottom discharging trucks, gravity feeding sand and aggregate into the viaduct arches. Sand deposits within the arches and scarring in the walls caused by mechanical excavators and grabs were testament to this phase of use. The practice of discharging loads through apertures in the roofs of the arches ceased at the end of the 1980s, when a new method of unloading was introduced. The sand yard closed altogether in the early 1990s.
- 7.1.8 Relatively few original features associated with the coal trade survived within the arches. Of particular interest were the timber frames that lined a number of the original coal drop openings in Arches 12, 13, 17 and 18. These linings were constructed from heavy scantling softwood imported from the Baltic regions, as seen from the presence of distinctive Baltic scribe marks on one example in Arch 13. The importation and use of structural Baltic timber became increasing common during the second half of the 19th century. Given that, it appears that the timber lining for these openings was, if not original, at least 19th century in origin.
- 7.1.9 The viaduct structure mainly survives intact with very little alteration, although it has clearly been patched up and repaired during its lifetime. The most significant rebuilding event occurred at the eastern end and around the south-eastern corner of the structure, where the viaduct wall and three jack arches in the adjacent canal elevation had been rebuilt using blue engineering bricks. Historical photographs and documentary evidence suggest strongly that this work was carried out during or shortly after the Second World War, in order to make good bomb damage.

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- 8.3 The project was managed for Pre-Construct Archaeology Limited by Charlotte Matthews. The building recording was carried out by Adam Garwood and Paul McGarrity and the documentary research was undertaken by Guy Thompson. This report was written by Guy Thompson (Historical Background and Building Descriptions) and Adam Garwood (Building Descriptions). The figures were prepared by Mark Roughley.

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APPENDIX 1: OASIS FORM

OASIS ID: preconst1-154672

Project details

Project name	Redundant Viaduct Tower Hamlets
Short description of the project	Pre-Construct Archaeology was commissioned by CgMs on behalf of Network Rail to undertake building recording of a redundant railway viaduct, off Westfield Way, London Borough of Tower Hamlets. The work was carried out in response to a condition on planning permission for its replacement with student apartments. The building recording was undertaken in 2013 in accordance with English Heritage Level 4. Documentary evidence and building recording confirmed that all twenty-five arches of the former Devonshire Street Goods Depot Viaduct were erected in the mid-1850s. The initial impetus for the viaduct was a demand for additional sidings but by the time it was decided to proceed with the works in 1854, the railway company also proposed to establish a coal depot at Devonshire Street. The new coal depot would allow coals brought in by rail to be loaded into barges for onward distribution via the adjacent Regent's Canal. The railway company built the viaduct so that coal could be discharged from wagons via shoots to ground level. The Devonshire Street coal depot was completed in 1865. The building recording and documentary evidence suggest that the arches were built as coal drops from the outset. After 1962 part of the viaduct was used as a yard for sand and aggregates. The sand yard closed in the early 1990s. The south-eastern corner of the viaduct was rebuilt during or shortly after the Second World War, in order to make good bomb damage.
Project dates	Start: 17-06-2013 End: 05-09-2013
Previous/future work	Yes / No
Any associated project reference codes	RWV13 - Sitecode
Type of project	Building Recording
Site status	None
Current Land use	Industry and Commerce 4 - Storage and warehousing
Monument type	RAILWAY VIADUCT Post Medieval
Significant Finds	NONE None
Methods & techniques	"Photographic Survey"
Prompt	Planning condition

Project location

Country	England
Site location	GREATER LONDON TOWER HAMLETS TOWER HAMLETS Railway Viaduct, North of Pooley House, off Westfield Way

Postcode	E1 4PR
Study area	4000.00 Square metres
Site coordinates	TQ 35980 82680 51 0 51 31 34 N 000 02 22 W Point

Project creators

Name of Organisation	Pre-Construct Archaeology Limited
Project brief originator	Greater London Archaeological Advisory Service
Project design originator	CgMs Consulting and Pre-Construct Archaeology Ltd
Project director/manager	Charlotte Matthews
Project supervisor	Adam Garwood
Type of sponsor/funding body	Developer
Name of sponsor/funding body	Network Rail

Project archives

Physical Archive Exists?	No
Digital Archive recipient	LAARC
Digital Archive ID	RWV13
Digital Contents	"none"
Digital Media available	"Images raster / digital photography", "Survey", "Text"
Paper Archive recipient	LAARC
Paper Archive ID	RWV13
Paper Contents	"none"
Paper Media available	"Plan", "Report", "Survey "

Project bibliography 1

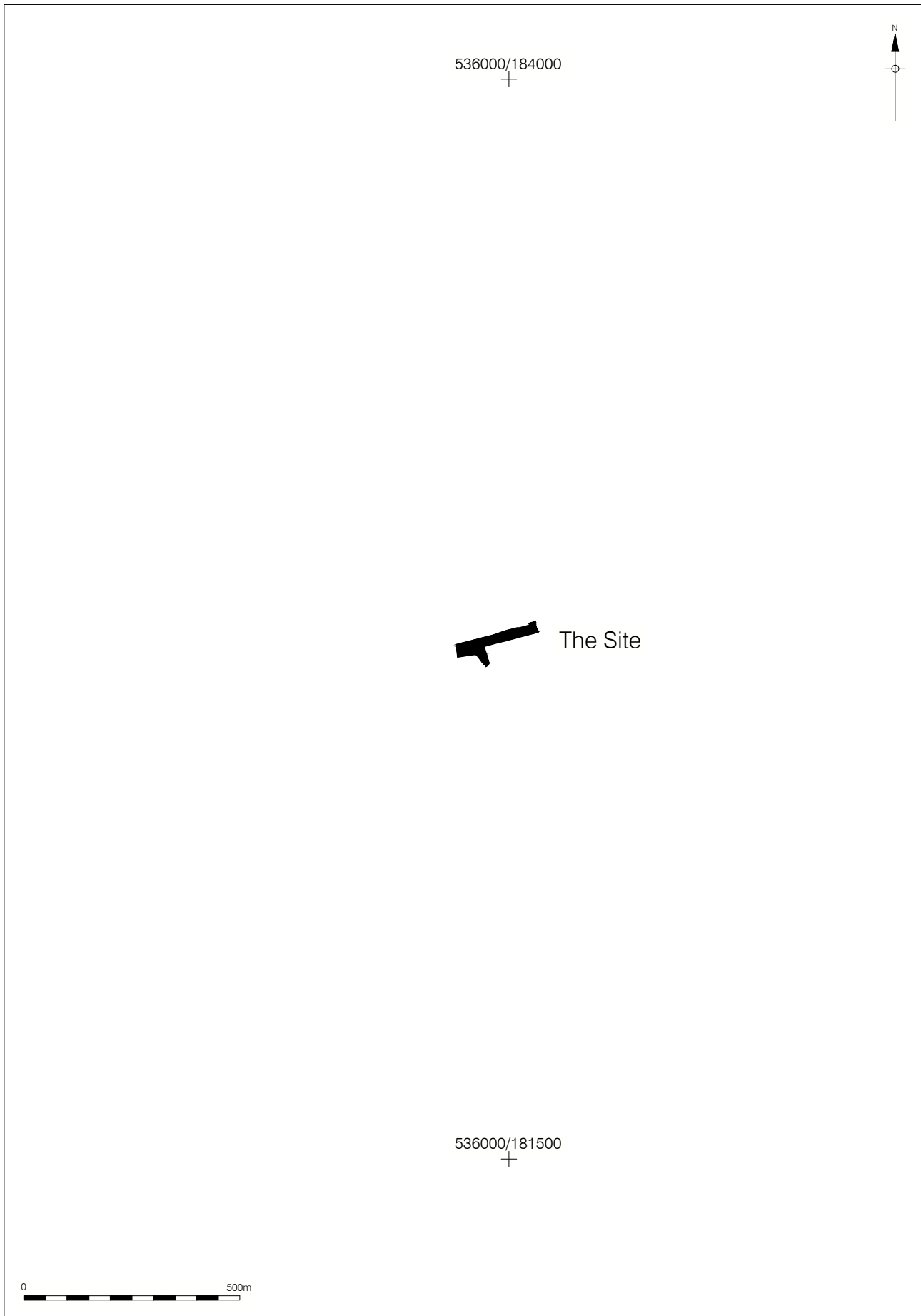
Publication type	Grey literature (unpublished document/manuscript)
Title	Historic Building Recording of the Redundant Railway Viaduct, Westfield Way, London Borough of Tower Hamlets, E1
Author(s)/Editor(s)	Thompson, G. and Garwood, A.
Other bibliographic details	PCA Report no. R11459
Date	2013
Issuer or publisher	Pre-Construct Archaeology Limited

Place of issue or publication Brockley, London

Description A4 document

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Entered on 22 September 2013

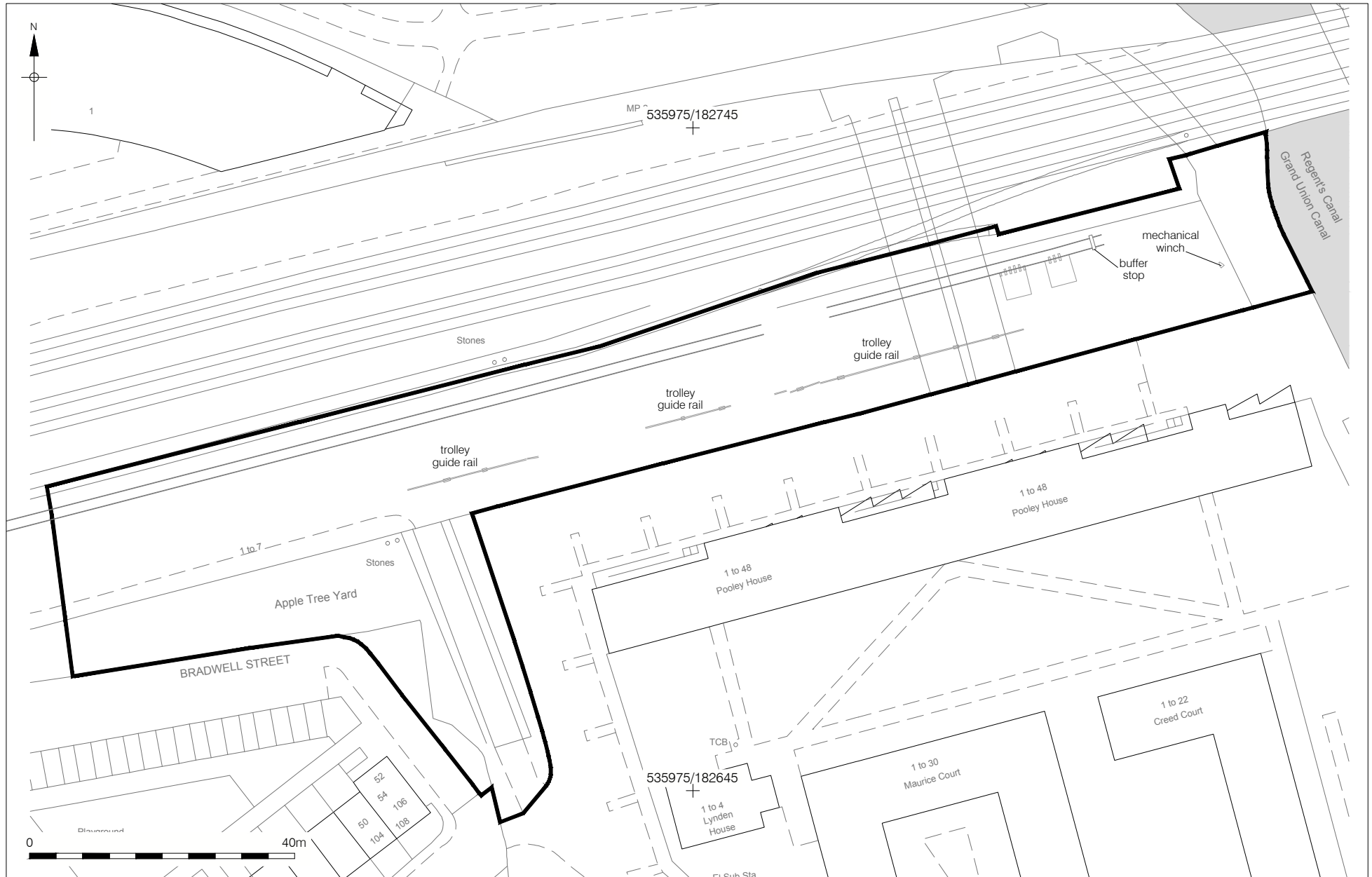


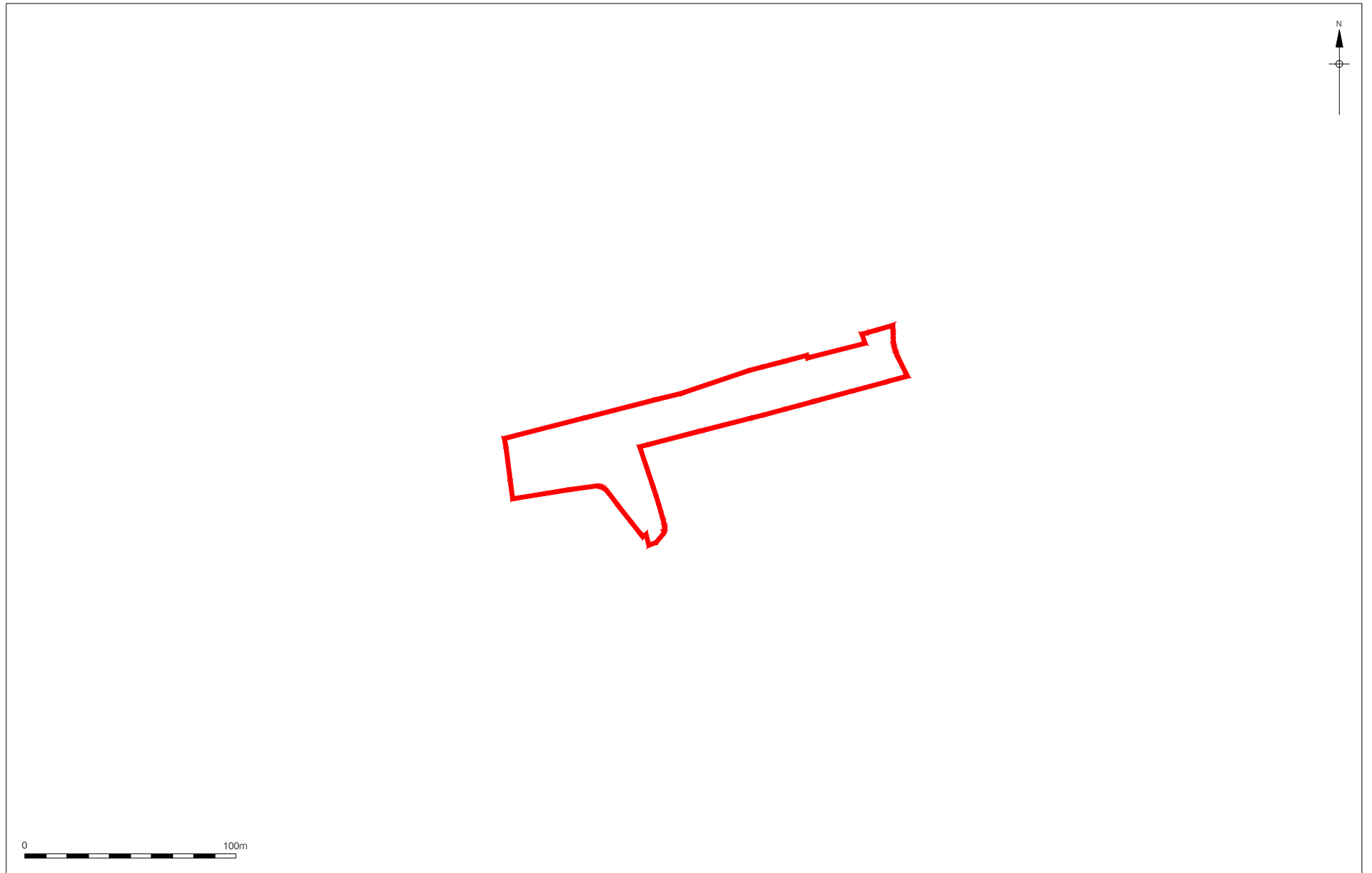
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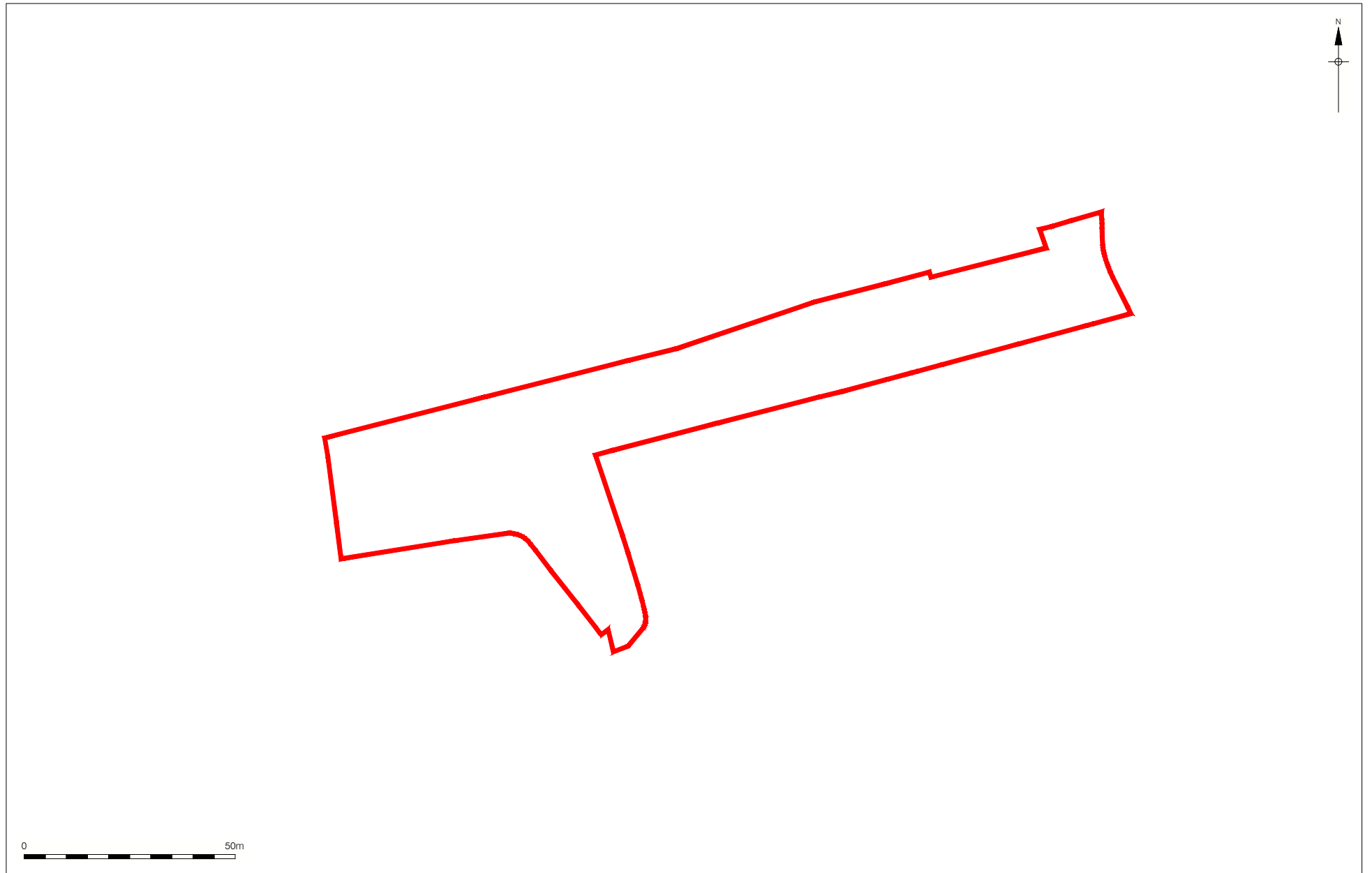
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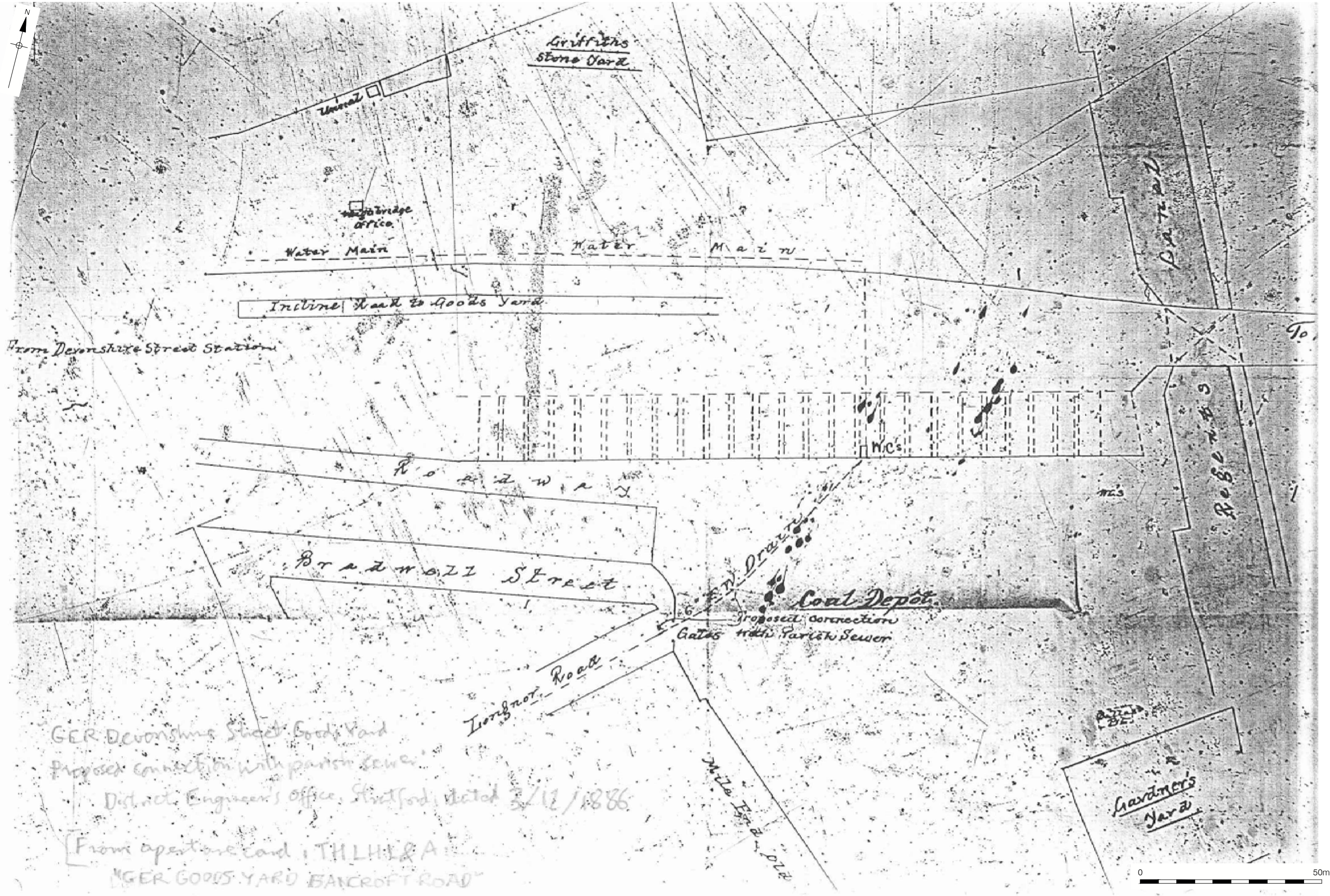
26/06/13 MR

Figure 1
Site Location
1:12,500 at A4

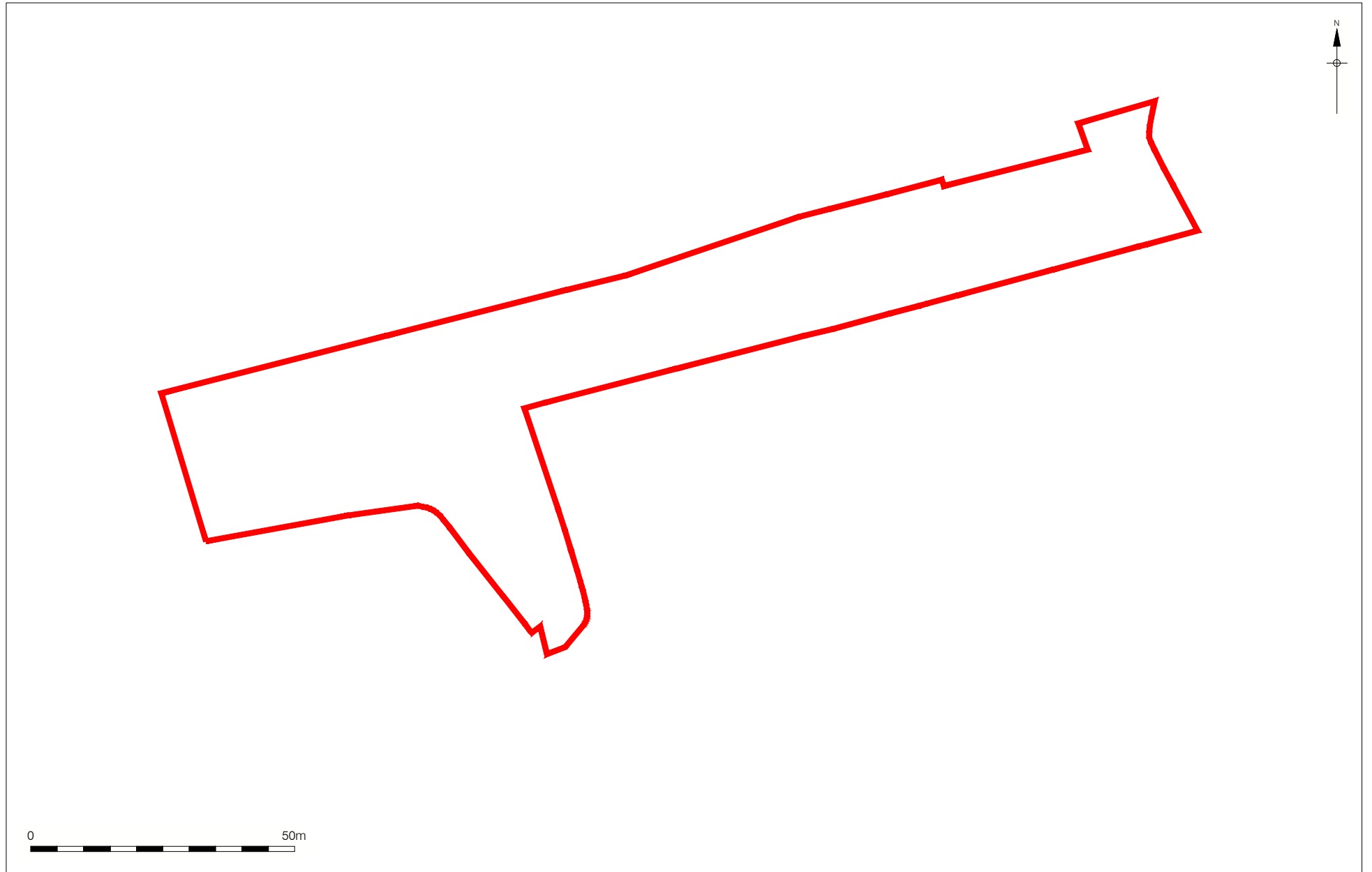


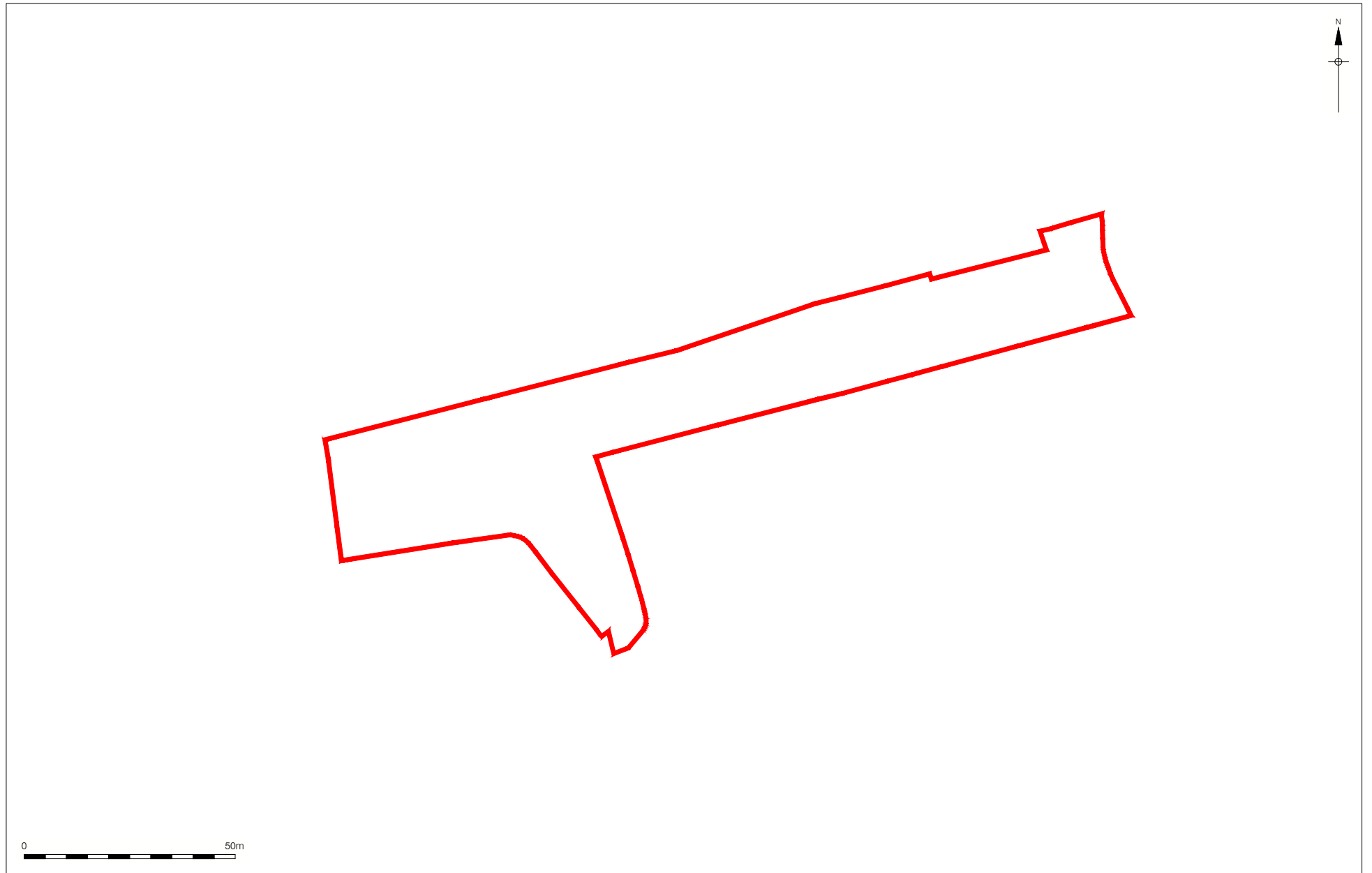


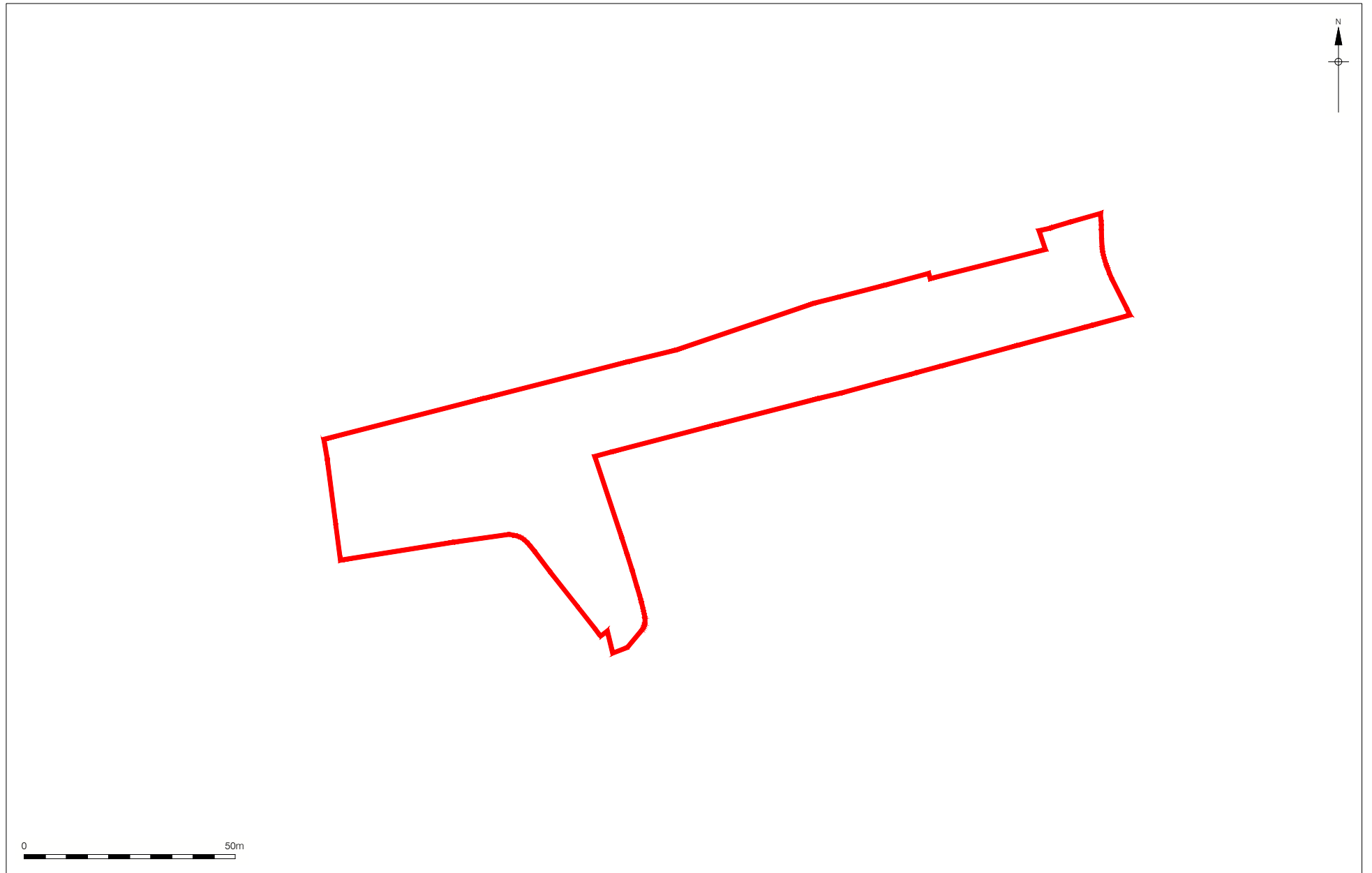


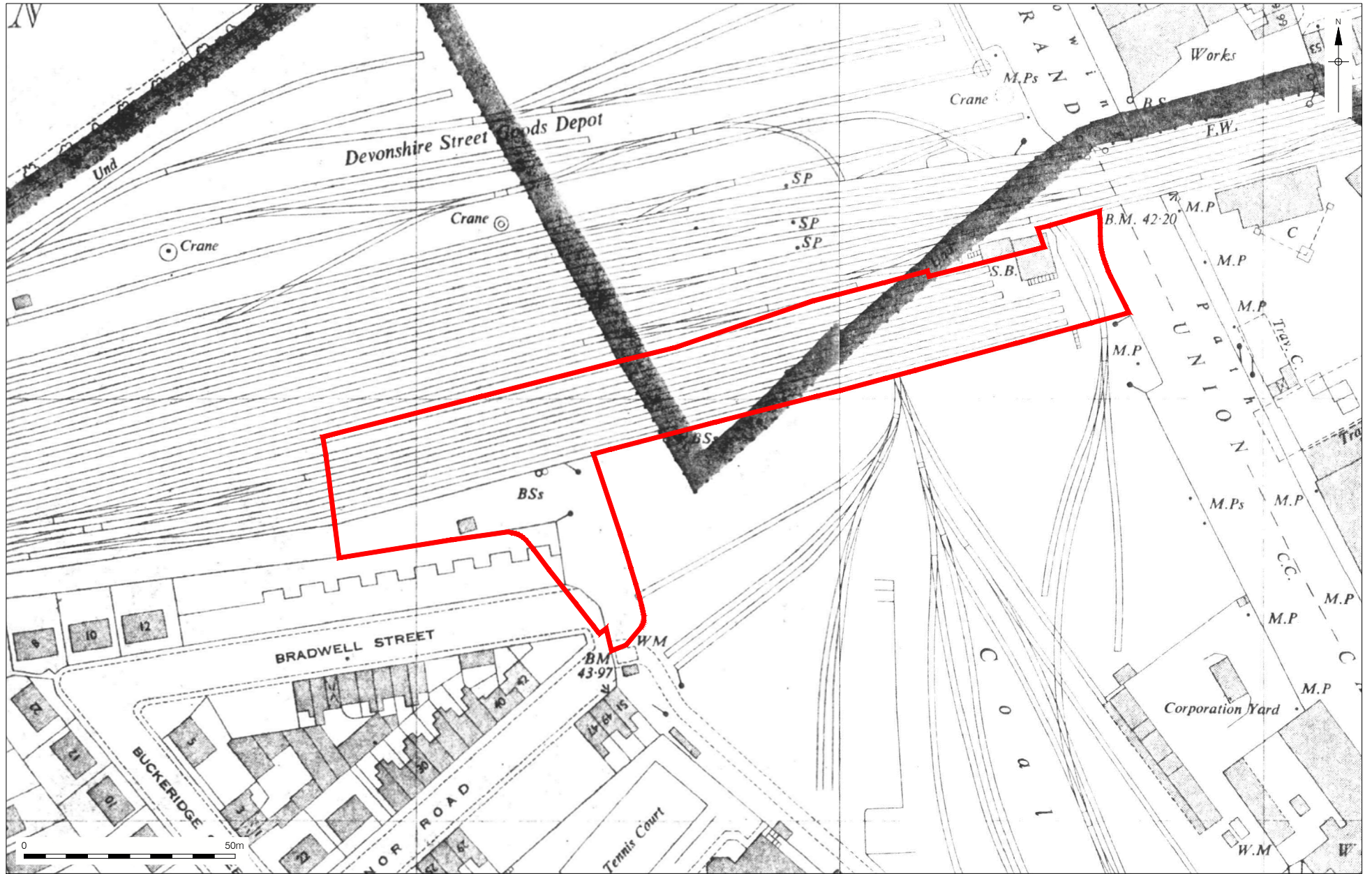


GER Devonshire Street Goods Yard
 Proposed connection with parish sewer
 District Engineer's Office, Stratford, dated 3/12/1886
 [From aperture card, THLHL&A
 GER GOODS YARD BANCROFT ROAD









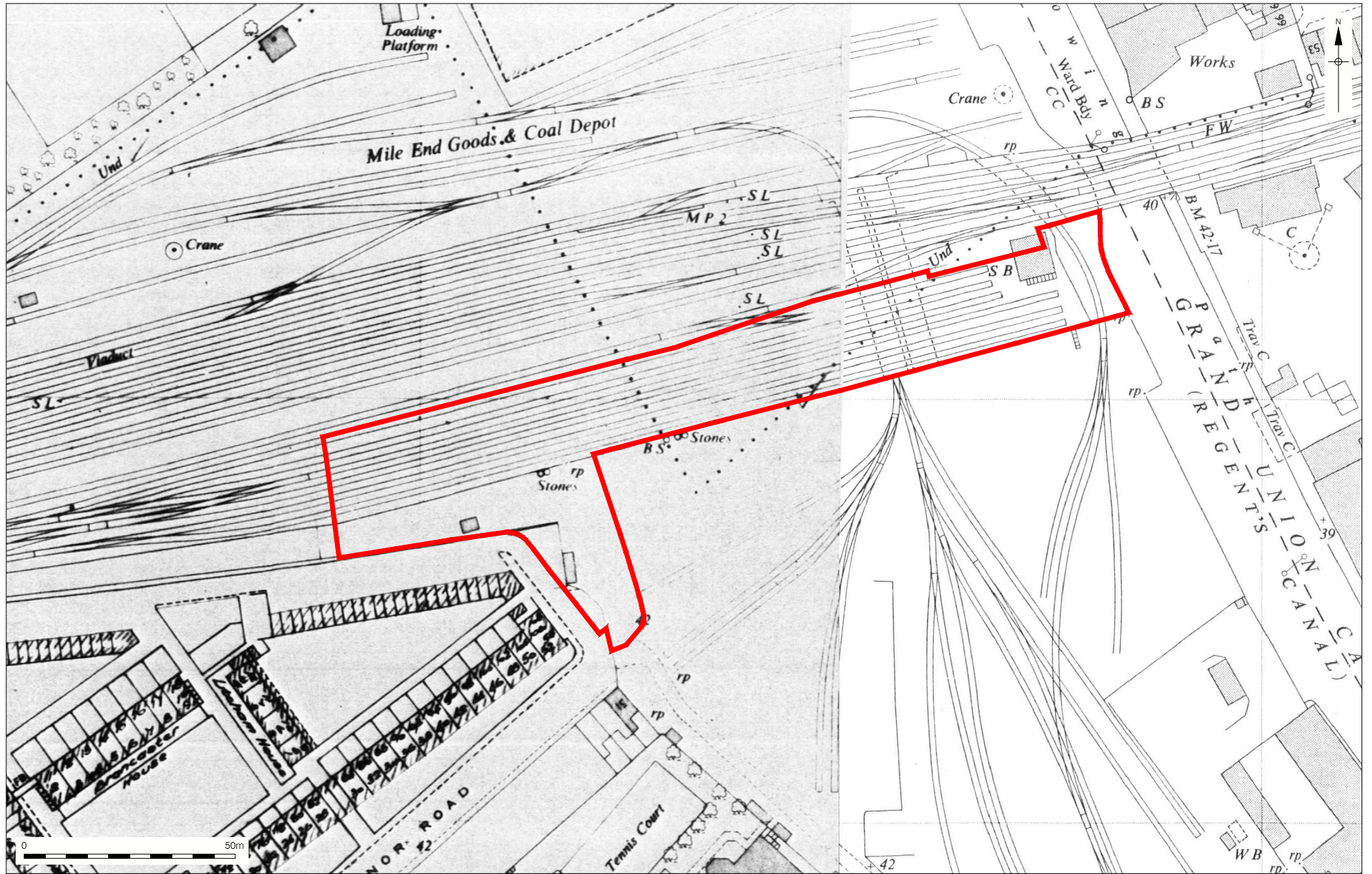
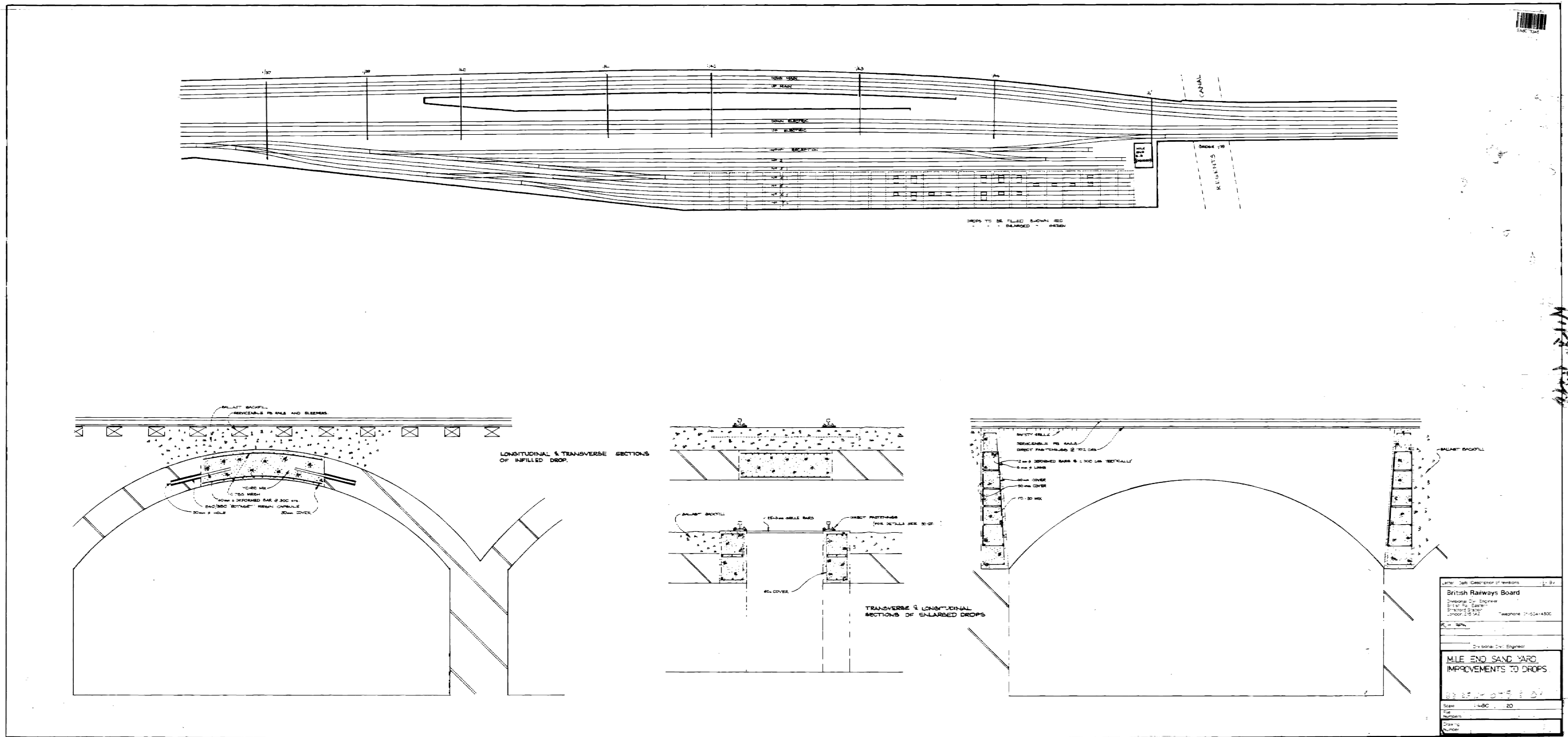
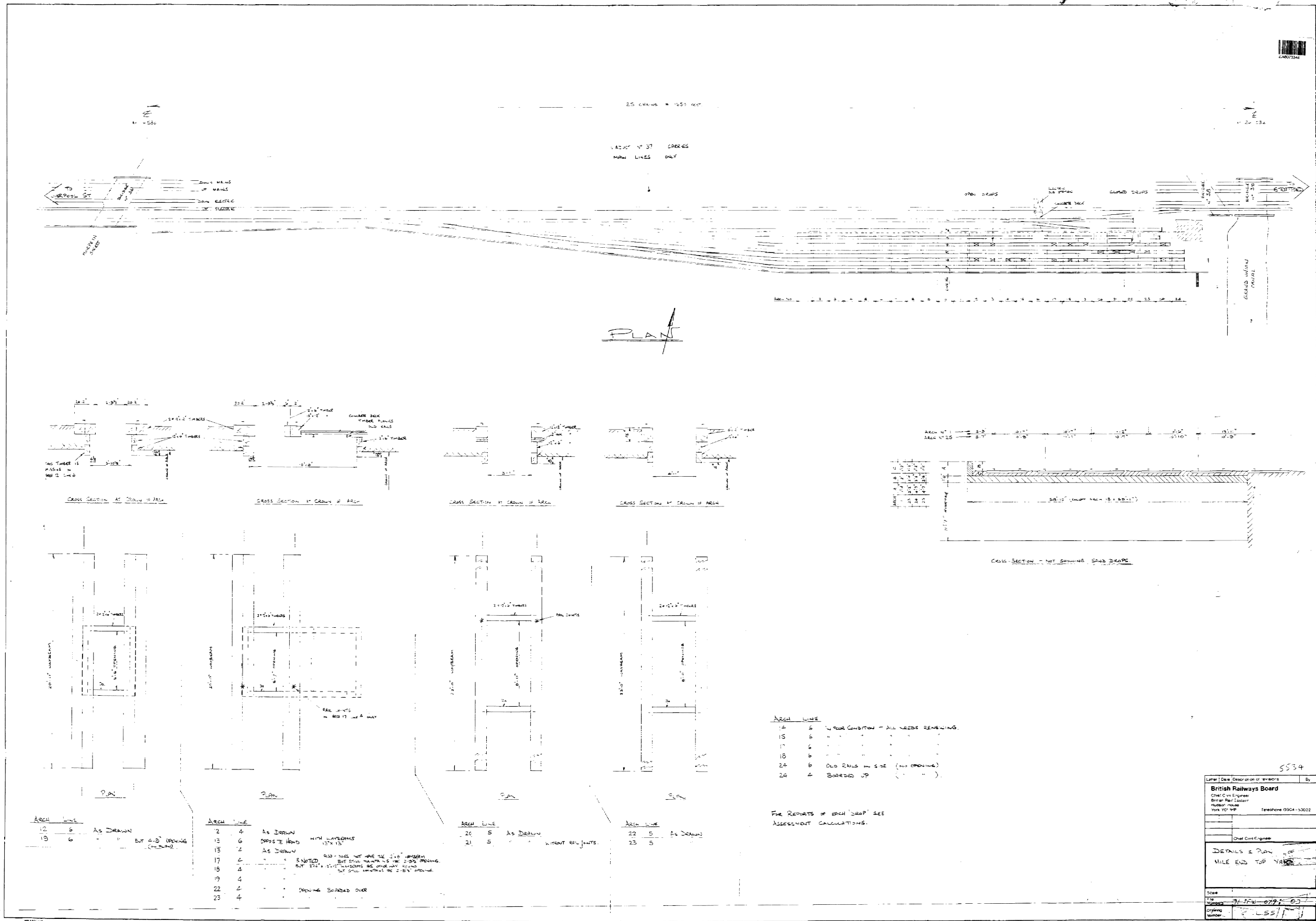
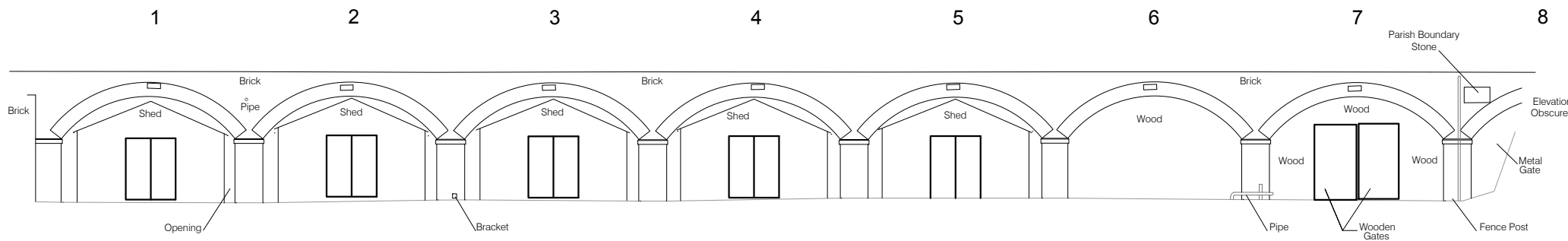


Figure 10
 Ordnance Survey map, 1961/66
 1:1,250 at A4

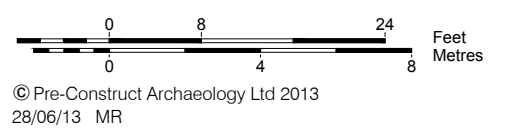
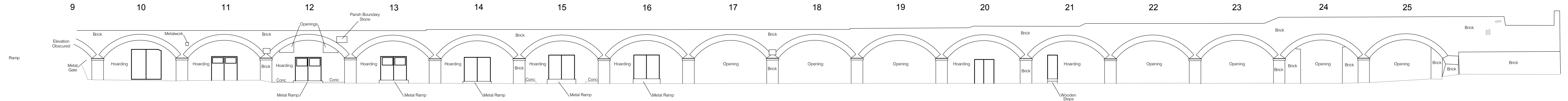


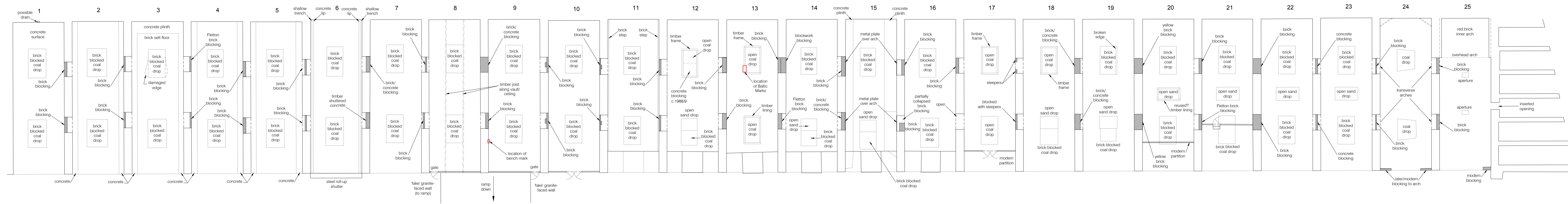


West



East





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20/09/13 MR

Figure 14
Lower level plan showing the soffits of the coal and sand drops
1:200 at A0



Plate 1 Viaduct from Arch 19 looking west



Plate 2 Viaduct at the eastern end looking west



Plate 3 Eastern canal-side elevation looking north-west



Plate 4 Typical transverse arch (blocked)



Plate 5 Apple Tree Yard, Arches 1-5 looking west



Plate 6 Apple Tree Yard, Arches 6-7 looking east



Plate 7 Arch 1 looking north (RWV13 D101 8403-2)



Plate 8 North wall of Arch 1 looking north (RWV13 D101 8406-2)



Plate 9 Arch 2 looking north (RWV13 D101 8398-2)



Plate 10 Arch 3 looking north (RWV13 D101 8392-2)



Plate 11 Arch 5 looking north (RWV13 D101 8379-2)



Plate 12 Transverse arch in Arch 6 looking east (RWV13 D101 8376-2)



Plate 13 Arch 7 looking north



Plate 14 Arch 7 blocked coal drop



Plate 15 Arch 8 looking north



Plate 16 Blocked transverse arch within Viaduct Arch 8, looking north-east



Plate 17 Boundary stone over Arch 8



Plate 18 Cylindrical sleeve above Arches 10/11



Plate 19 Boundary stone over Arch 12



Plate 20 Blocked coal drop in Arch 11 looking north (RWV13 D101 8367-2)



Plate 21 Transverse arch in Arch 11 looking west (RWV13 D101 8368-2)



Plate 22 Arch 12 looking north (RWV13 D101 8352-2)



Plate 23 Transverse arch in Arch 12 looking west (RWV13 D101 8359-2)



Plate 24 Timber-lined coal drop at the north end of Arch 12 looking north (RWV13 D101 8357-2)



Plate 25 Timber-lined coal drop within Arch 13



Plate 26 Baltic marks on above



Plate 27 South transverse arch in Arch 14 looking east (RWV13 D101 8350-2)



Plate 28 South coal drop in Arch 14 looking north-west (RWV13 D101 8345-2)



Plate 29 Arch 15 looking north (RWV13 D101 8340-2)



Plate 30 Arch 16 looking north (RWV13 D101 8328-2)



Plate 31 South transverse arch in Arch 16 looking west (RWV13 D101 8330-2)



Plate 32 South end of the west wall in Arch 16 looking west (RWV13 D101 8335-2)



Plate 33 Arch 17 looking north



Plate 34 'Open' coal drop with timber lining in Arch 17



Plate 35 Transverse arch within viaduct Arch 17



Plate 36 Arch 18 looking north



Plate 37 Later inserted opening into former blocking, Arch 19



Plate 38 Damage to arch walls



Plate 39 Arch 20 looking north



Plate 40 Granite sett floor Arch 21



Plate 41 Later central coal drop Arch 23 with blocking to rear



Plate 42 Damage to transverse arch in viaduct Arch 22



Plate 43 Arch 24 looking north



Plate 44 Detail of trapezoid opening Arch 24



Plate 45 Smaller opening within vaulted ceiling of Arch 25



Plate 46 Inserted opening in Arch 25 east wall



Plate 47 Arch 25 looking north, showing later inserted arch



Plate 48 Siding and extant rail looking west



Plate 49 Buffer stop looking north-east



Plate 50 Mechanical winch looking east



Plate 51 Aerial photograph of the Mile End and Devonshire Street Coal and Goods Depots, c.1930

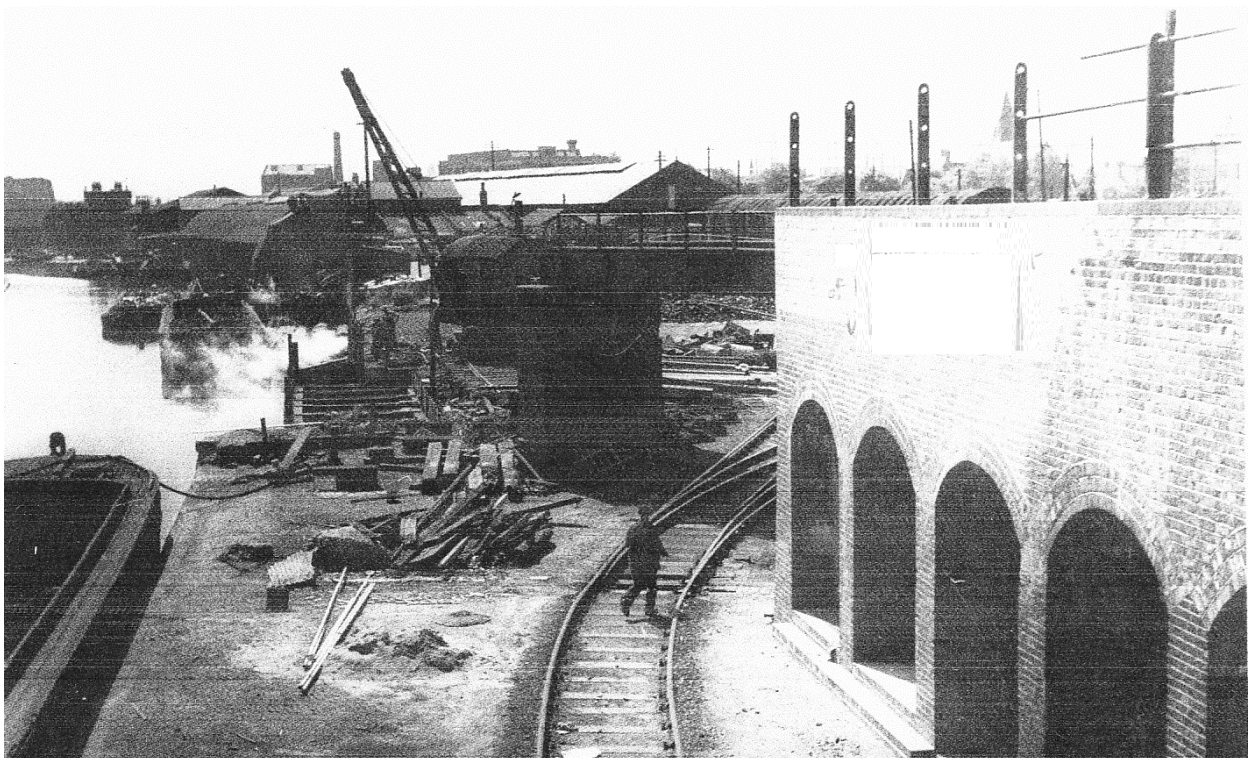


Plate 52 Repairs to the bomb-damaged coal wharf at the Mile End and Devonshire Street Coal and Goods Depots, c.1945

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