

WOLVERTON PARK, MILTON KEYNES

**A PROGRAMME OF ARCHAEOLOGICAL AND
ARCHITECTURAL INVESTIGATION
OF THE
ROYAL TRAIN SHED
TRIANGULAR BUILDING
AND READING ROOM**

Project: WP1213

Document: 2008/92
Version 1.1

21st May 2009

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Preface

Every effort has been made in the preparation of this document to provide as complete a summary as possible within the terms of the method statement. All statements and opinions in this document are offered in good faith. Albion Archaeology cannot accept responsibility for errors of fact or opinion resulting from data supplied by a third party, or for any loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in this document.

This report has been prepared by Christiane Meckseper (Project Officer). Joan Lightning (CAD Technician) digitised the plans and produced the figures. Figures 14–20 were produced by Cecily Marshall. The building recording was undertaken by Christiane Meckseper. The archaeological observation and recording was undertaken by Ben Barker (Project Officer), Christiane Meckseper and Richard Gregson (Supervisor). Nigel Macbeth (Freelance Archaeological Photographer) was responsible for the photographic survey. The project was managed by Hester Cooper-Reade (Business Manager) and Jeremy Oetgen (Project Manager). Drew Shotliff (Operations Manager) was responsible for quality control.

Albion Archaeology is grateful to Willmott Dixon for commissioning the project. Particular thanks go to Harry Robinson and Terry White (Operations Managers), Liam Smyth and Garry Harlock of Willmott Dixon for their cooperation and help during the project. Albion Archaeology is also grateful for the cooperation of InSpace during the photographic survey on March 31st 2009.

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21st May 2009

Structure of the Report

After the introductory Section 1, there is a summary of the history of the Wolverton Works in section 2. The buildings are described in Section 3 and the results of the archaeological watching brief in Section 4. This is followed by a conclusion in Section 5. Section 6 is a bibliography. A summary of the pile logs is given in Appendix 1 and the documentary sources are listed in Appendix 2.



Key Terms

Throughout this report the following terms or abbreviations are used:

Albion	Albion Archaeology
MKAO	Milton Keynes Archaeological Officer
Client	Wilmott Dixon Construction Ltd.
IFA	Institute of Field Archaeologists
MKC	Milton Keynes Council
<i>Procedures Manual</i>	<i>Procedures Manual Volume 1 Fieldwork</i> , 2nd Edition 2001. Bedfordshire County Council
WSI	Written Scheme of Investigation



Non-Technical Summary

Willmott Dixon Construction Ltd is implementing a mixed-use development on land at Wolverton Works in Milton Keynes. The development includes conversion of the existing industrial buildings of the Wolverton Railway Works into residential accommodation and small enterprise units, and the construction of a new residential building adjacent to the Grand Union Canal. The sports ground and velodrome of Wolverton Park is being developed into a new public open space and recreational resource.

The works reported here concern the Royal Train Shed, Triangular Building and Reading Room.

Wolverton is the world's first planned railway works town and was designated a Conservation Area in 2001. The development site incorporates the Royal Train Shed and the Triangular Building, Reading Room and the Wolverton Park recreation ground and football stand. All of these buildings are of particular importance for the historical and industrial development of the Wolverton Works. They are Grade II listed buildings.

Wolverton Park and the Reading Room also serve to illustrate the social history of the industrial heritage and the role Wolverton Works played in the social and cultural development of Old Wolverton town and its workforce.

A watching brief was undertaken by Albion Archaeology in the period from December 2006 to April 2008. This covered all groundworks within the Royal Train Shed for a distance of 40m from its main south entrance and all groundworks within the Triangular Building.

In addition a programme of building recording was undertaken by Albion Archaeology in the summer and autumn of 2008. It covered the Royal Train Shed, Triangular Building and Reading Room. It consisted of a comprehensive photographic survey supported by existing engineers' drawings of plans and elevations of the buildings. The drawings were supplemented by Albion Archaeology's own measured survey.

Investigations at the Royal Train Shed revealed railway tracks, inspection pits and track foundations relating to the present building and an earlier carriage shed on the same location. No traces of the first Wolverton Station were found.

The watching brief at the Triangular Building concentrated on observations during the removal of the modern concrete floor and the piling operations in the area of a preceding wharf structure by the canal side, the location of which was known from historical maps. Observations were also carried out during ground reduction along the foundations of the outer walls and around a group of pile caps in the south-eastern corner of the building.

The main structures observed and recorded within the Triangular Building represent the foundation for the multitude of rail tracks that were laid throughout the building after its conversion from a locomotive erecting shop to a carriage paint shop after 1863.





1. INTRODUCTION

1.1 *Planning background*

Willmott Dixon Construction Ltd is implementing a mixed-use development on land at Wolverton Works in Milton Keynes (Figure 1). The development is part of a regeneration scheme incorporating important industrial remains of Wolverton Works and Wolverton Park.

Two key structures – The Royal Train Shed and Triangular Building, which are Grade II listed buildings – are being converted into flats, with the additional construction of a new residential building adjacent to the Grand Union Canal. The Reading Room, also a Grade II listed building, is being converted to a mixed use development incorporating a restaurant, bar and commercial offices. The sports ground and velodrome of Wolverton Park are being developed as a new public open space and recreational resource.

The regeneration process began in 2001 when Wolverton's 19th-century core and railway works were designated a Conservation Area, recognising the unique character of Wolverton as Britain's first planned railway town.

This was shortly followed by a "Future Wolverton Vision and Action Plan" that was drawn up with community involvement as part of the Countryside Agency's Healthcheck for Market Towns Initiative and contained a "wish list" for the regeneration of the town and its heritage assets.

The "Future Wolverton Vision and Action Plan" fed into the Development Framework Plan and Regeneration Strategy, designed by Milton Keynes Council (MKC), English Partnerships and the South East England Development Agency (SEEDA). The Regeneration Strategy was adopted as a Supplementary Planning Guidance (SPG) in 2004 (MKC *et al* 2004).

The key role of the surviving railway works buildings within the Wolverton Conservation Area was emphasised when, after an application by MKC and English Partnerships, funding to regenerate two railway works sites was made available by the then Office of Deputy Prime Minister's (ODPM) Sustainable Communities Plan initiative. The sites selected for funding were the Triangular Building, including the Reading Room, and Wolverton Park, including the Royal Train Shed.

Subsequently detailed Design Guidelines for the "Wolverton Park Regeneration" (drawing together all highlighted ODPM Sustainable Communities Plan Sites) were drawn up by Urban Initiatives (Urban Initiatives 2005) and a Conservation Management Plan of the Communities Plan Sites (CPD) commissioned and implemented (White Young Green 2005).

The Conservation Management Plan (CMP) highlights the significance of Wolverton Works as the world's first planned railway works with a remarkable ensemble of heritage assets relating to industrial, social, architectural and railway history (White Young Green 2005). The current development was designed on the basis of the recommendations of the CMP



and is preserving the fabric and character of the railway works buildings by inserting modern structures within them. It is also applying a programme of mixed use development to the whole site and tying the railway buildings into an improved access plan for the whole of Wolverton Town.

As part of the refurbishment of the buildings and construction work taking place, national and regional planning policy guidelines needed to be adhered to. In the case of Wolverton, both Planning Policy Guidance 15: Planning and the historic environment (PPG 15), and Planning Policy Guidance 16: Archaeology and planning (PPG 16) applied.

In line with PPG 15 and PPG 16 a long list of Planning Consent and Listed Building Consent documents was attached to the project:

- Planning Consent documents 06/00022/FUL and 06/01473/FUL refer to the conversion and change of use of the Royal Train Shed, Triangular Building and Reading Room respectively.
- Listed Building Consent was granted for the alterations to the Royal Train Shed and Triangular Building (06/00023/LBC).
- Two Listed Building Consent documents are attached to the Reading Room: Application number 06/01475/LBC for its change of use from industrial purposes to leisure and commercial facilities and 06/00825/LBC for the renovation and refurbishment of the building, including part demolition.

Because the work included the renovation, refurbishment and part demolition of the buildings and had the potential to disturb archaeological deposits, three archaeological conditions were part of the planning consent:

- With regards to the groundworks at the Royal Train Shed and Triangular Building conditions 17 and 19 of the Planning Consent (06/00022/FUL) applied which stated that:

Prior to work commencing on the site, the applicant shall employ an archaeological contractor to carry out a watching brief of all foundations, service trenches and any other works involving excavations [...].

For the Royal Train Shed the watching brief was restricted to the first 40m from the southern entrance of the building.

- For the building alterations at the Triangular Building and Reading Room conditions 18 (06/00022/FUL) and 9 (06/01475/FUL) respectively of the Planning Consent stated that:

Prior to work commencing on the site, the applicant shall employ a competent archaeologist, surveyor or architect to record the elevations of the south and west walls of the Triangular Building [and] building(s) [of the Reading Room] to a scheme agreed in writing with the



Council's Archaeological Officer. The record will comprise a report with plans, elevations and sections of the building at a scale of 1:50 drawn to standards set by English Heritage 2006. This will be accompanied by a written description of the building and its development, together with a photographic record of the interior and exterior. All photographs will be dated and annotated. Two copies of the building recording report will be deposited with Milton Keynes Sites and Monuments Record prior to demolition works or building commencing, and within three months of the recording survey being completed. An additional copy of the report will be forwarded to the National Monuments Record.

Subsequently the MKAO issued a specification for an archaeological watching brief at both buildings (Giggins 2006a and 2006b) and for the architectural recording at the Triangular Building (Giggins 2006c).

No specific brief was issued for architectural recording at the Royal Train Shed and Reading Room. A project design (Albion Archaeology 2007b) for architectural recording covering both the Triangular Building and Reading Room was submitted to the MKAO by Albion Archaeology after verbal agreement with the MKAO. The Royal Train Shed was later included in the programme of architectural recording after consultation and agreement with the client Willmott Dixon.

A separate written scheme of investigation (WSI) was prepared for the archaeological mitigation works at the Royal Train Shed (Albion Archaeology 2006) and archaeological investigation at the Triangular Building (Albion Archaeology 2007).

All WSIs were approved by the MKAO and Albion Archaeology was commissioned by Willmott Dixon to carry out the relevant work.

1.2 Site Location and Description

Wolverton lies in the north-western part of Milton Keynes c. 2.5km east of the A5. The Wolverton works lie at the eastern end of the village. The development site is bounded to the east by the present West Coast Mainline railway and to the west by the tracks of the original main line. To the north it is bounded by the Old Wolverton Road and to the south by Stratford Road.

The natural topography in the area is fairly flat with the lie of the land changing between 70 and 90m OD, however, industrial earth moving operations in association with the building of the London to Birmingham Railway in the 19th century have changed the local micro-topography of the site considerably.

The channel for the Grand Union Canal generally lies on an elevated level within the landscape and in order to connect the crossing point of the canal with the higher land to the north, a massive embankment was built in 1838 that accommodated the first Wolverton station as well as the main north-south line.



When the line was diverted to its current position to the east of the site in 1880, the ground level there was also raised to create a new embankment, albeit in a less imposing manner than its predecessor to the west.

The lowest part of the site is the Wolverton Park recreation ground with an average height of 65.90m OD. The embankment with the Royal Train Shed was raised to a height of 75.60m OD, while the eastern embankment on the other side of Wolverton Park rises gradually to a height of 73.00m OD. The Triangular Building on the southern bank of the Grand Union Canal lies at a height of 75m OD (Milton Keynes Surveys 2006).

The Royal Train Shed is situated in the north-western half of the site, at grid reference SP 8187 4149. The Triangular Building is located in the southern half, centred at grid reference SP 81969 41364. The Reading Room is to the east of the Triangular Building at grid reference SP 82034 4136.

1.3 Objectives of this Report

This report represents a synthesis of the information recorded during the archaeological watching brief and standing buildings survey. As part of the report and to fulfil the standards set by the English Heritage Level 3 analytical record set for standing buildings (EH 2006), documentary research and a map regression was undertaken in order to set the buildings in their local context and help assess their significance.

The results of the investigative work is detailed below.



2. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Several comprehensive accounts of the foundation, development and appearance of Wolverton Works have been written. These often include detailed descriptions and photographs of the components of the works, including the Royal Train Shed, Triangular Building and Reading Room. The publications range from contemporary descriptions of the Works and Railway Station shortly after their foundation (Whishaw 1842, Head 1849, Dickens 1854) to later appraisals of the Works at the beginning of this century (Townshend 1907, Gairns 1914).

The story of Wolverton Works has also been told in an informative book that collates much of the historic documentary and photographic evidence and which has been invaluable in the compiling of this report (West 1982). West also published further volumes on Wolverton, including many historic photographs taking in all aspects of Wolverton, its works and workforce (West 1987, 1988, 1993). More recently the works and their history have been described in detail in a volume published by The Railway Correspondence and Travel Society (Jack 2001).

Little archaeological investigation has taken place within the vicinity of the development area. Oxford Archaeology undertook a strip, map and sample investigation in 2006 during the construction of an access road and renovation of the listed bridge over the Grand Union Canal south of the Royal Train Shed. The results have not yet been published.

The development area was the subject of a desk-based assessment by L-P Archaeology in 2004. The site and its buildings have also been extensively surveyed as part of the *Conservation Management Plan for the Wolverton Communities Plan Sites* undertaken by White Young Green in 2005.

Milton Keynes's Historic Environment Record was consulted for the preparation of the WSI (Albion Archaeology 2007). This is a database of archaeological information containing written and pictorial records of known archaeological monuments, previous archaeological investigations, find spots and buildings of historical and archaeological significance.

A map regression was undertaken by Albion Archaeology as part of its preparation of the project designs for the investigations at the Royal Train Shed and the Triangular Building (Albion Archaeology 2006 and 2007). The results have been reviewed in the present report (sections 2.1, 2.2 and 2.3. below).

The following sections discuss the Wolverton Works and the Royal Train Shed, Triangular Building and Reading Room in terms of their historical background.

2.1 Wolverton Works

Wolverton is the world's first planned railway works village. Robert Stephenson chose the site of the present Wolverton as a convenient half-way point on the newly built railway line between London and Birmingham for the



servicing and refuelling of locomotives in 1838. He also built a station and refreshment rooms to the north of the canal, on a high embankment of made up ground (see below). The site was originally known as ‘Wolverton Station’ before it rapidly grew with the expansion of the works into the ‘new’ Wolverton village.

Wolverton Works was built by the London and Birmingham Railway which became part of the London and North Western Railway (LNWR) in 1846. From 1851 to 1862 the famous Class 31 locomotives, nicknamed ‘Bloomers’, were constructed at the locomotive erecting shops in the Triangular Building for the London and North Western Railway. When locomotive building moved to Crewe in 1863, Wolverton became the main carriage works for the company and it remained so until 1992 when it was ceased to be used by the railway.

The works at Wolverton were described by Charles Dickens in 1854 who emphasised their function as being engaged “solely upon repairs and alterations”. He stated that while Crewe “is the nursery, Wolverton [is] the hospital for locomotives”, giving a lively account of a railway hospital with “hundreds of locomotive surgeons – stalwart, brawny limbed and iron fisted – [which] dress and bind up the cases in their wards with a tremendous energy.” (Dickens 1854, p 413).

The map of 1840 shows the original core of the Wolverton Works (Figure 2) with engine depot, repair sheds, foundries and other workshops arranged around a large square yard to the east of the main north-south line. The main north-south line consisted of four tracks with the main double way in the middle. A carriage wharf or landing is shown to the east of the main line with a connecting track to the main rail road.

Goods and building materials were transported to Wolverton along the Grand Union Canal. The map of 1840 shows a large goods warehouse at the southern bank of the canal which is connected to the main north-south line by a double track (Figure 2). Two platforms and parallel tracks are inside the warehouse and the platforms supported cranes that lifted goods from the barges on the canal onto the supplied trains. The building is described further in “The Railways of Great Britain and Ireland”:

“Beneath the front stage is a coal-store, with six loop-holes next the canal. This building is lighted by four skylights in the roof, which is slated, and projects over part of the canal to protect the barges in bad weather”. (Whishaw 1842).

An additional siding and a track on an east-west alignment are also shown south of the Grand Union Canal. In the south-western corner of this triangular plot of land, a small rectangular building is illustrated, which may represent an early repair or engine shed. The Reading Room and Library, that was provided by the railway company for the education and free use of its workforce, was built in 1838 and can be seen, in its original form before expansion, in the south-eastern corner.



A bridge built in 1834-5 by Robert Stephenson of cast iron beams with brick and stone abutments led across the Grand Union Canal to the original Wolverton station to the north.

The station was built on a large man-made embankment that connected the crossing point of the canal with the higher lying land to the north. The soil of the embankment contained a large quantity of alum shale with a high component of sulphure of iron or pyrite. This was highly combustible and caused the entire embankment to burst into flames during its construction. However, as the high temperatures also baked the soil this meant that the embankment was consolidated into a very stable structure (Head 1849).

The station was reached by a ramped access road leading up from the Old Wolverton Road. At the top of the embankment the access road continued beyond the station and crossed the Grand Union Canal to the south (Figure 27).

The first Wolverton station also incorporated a lifting shop that allowed for the inspection and slight repair of engines travelling along the London to Birmingham line, which had to be carried out at a distance of every 50 miles (Whishaw 1842).

Because of increasing traffic and problems with access from the Old Wolverton Road, the original station was replaced in 1840 by a second station on a new site to the south of the Grand Union Canal. This second station is shown on the map of 1860 (Figure 3). The map concentrates on the area south of the canal and also shows for the first time the Triangular Building which was constructed in 1845 (see detailed description in section 2.3).

The map of 1873 (Figure 5) shows the spare carriage shed that was now built on the site of the original station (see section 2.2 below). In 1880 the main north-south line was planned to be diverted to the east of the Grand Union Canal along the boundary of what is now the development site. A map was drawn up that shows the “deviation” route as a red line and also the proposed location of the new, third station (Figure 6).

The subsequent maps show the progression of the building of the new line with the construction of embankments in 1881 (Figure 7) and the laying of tracks and outline of the new station in 1882. The third station is first shown on the map of 1883 (Figure 9).

The next important development on the site was the construction of Wolverton Park in 1885. The LNWR wanted to provide a recreation facility for the fitness for its workers and Wolverton Park included a velodrome, cricket ground, bowling green and football club. The football club became very successful at the turn of the 20th century and the railway company actively pursued a policy of attracting good sportsmen with the offer of jobs at the Works (<http://www.mkheritage.co.uk/wsah/hood/>).

The recreation ground is first shown on the map of 1886 (Figure 10) which shows the complete re-design of the area east of the carriage lifting shop (now



the Royal Train Shed) and the obliteration of the Radcliffe Arms pub that had stood on the site. The recreation ground also included a bandstand which is now gone and a groundskeepers cottage, which was built in 1885 and still stands at the northern end of the site. The grandstand on the east side of the grounds was built in 1899. It was in very poor condition and the structure was not preserved in its entirety. A new structure sympathetic to the original design has been built in its place.

2.2 The Royal Train Shed

The present building stands on the site of the former station, which was in use between 1838 and 1840. Analysis of the map of 1840 (Figure 2) indicates that the original station must have been situated largely to the west of the Royal Train Shed and extended slightly into its southern half.

In 1869 a new carriage shed, possibly wooden (Jack 2001), was erected on the site of the first station. This building is first shown on the map of 1873 (Figure 5).

The new building was constructed adjacent to the original main railway line and is situated partially on the site of the first station and partially on top of the original access road. The slope of the road was built up to the same level as the rest of the embankment to form a level base for the construction of the main shed. The southern end of the original access road was used for additional railway tracks leading into the new sheds.

The retaining wall for the original embankment was added to and partially redesigned at the same stage as part of the general improvement to the works. The southern, brick-built elevation of the wall still shows a distinctive change in brickwork where ground had been made up from the level of the sloping access road to the present-day ground level of the Royal Train Shed (Figure 28). The northern part of the retaining wall most likely was the latest phase in the remodelling, as indicated by the sandstone facing (Giggins 2006a).

The carriage shed was later demolished to make way for a new lifting shop, which is now the Royal Train Shed, designed by C. A. Park, the Works Superintendent. The building re-used the foundations of the earlier shed but was constructed in two phases with the superstructure of the smaller shed, which now forms the north-western annexe of the building, being built in 1888 and the adjoining larger shed in 1889. (White Young Green 2005).

The new building can be seen on the map of 1897 (Figure 11), where it does not look much different from the old carriage lifting shop and lamp shed indicated on the map of 1886 (Figure 10). In fact, the description of ‘lamp shed’ for the annexe building continues to be used on historical maps until at least 1940 (Figure 12).

“Lamp shop” was the generic name for a workshop producing any kind of tinsmiths’ products used in the fittings of the trains from the lavatories to the dining rooms and parcel vans. However, the manufacture of lamps and footwarmers formed the largest part of the work undertaken in the lamp shed



(Townsend 1907). The lamp shop continued to be used as a tinsmiths workshop until its closure in 1967 (West 1993).

The new lifting shop was originally designed with three pit roads and two overhead cranes. By 1907 it was called the “Old Lifting Shop” to distinguish it from a new and larger one built in the western part of the works.

By 1926 it had become an underframe shop and was used as a heavy machine shop between 1926 and 1934. The map of 1940 indicates the addition of two long “boshes” or troughs against the western side of the building “for the boiling of clothing”, possibly a temporary war-time measure. No traces of the troughs survive.

Between 1963 and 1991 the building was used as the store for the Royal Train. It stopped being used by the railway in 1991 and for some time was used as a book store (White Young Green 2005). At the time of investigation it was empty.

2.3 *The Triangular Building*

The Triangular Building was constructed in 1845 on the site of the old wharf building and goods warehouse (see section 2.1) for the London and Birmingham Railway. It was extended towards the canal in 1850 and the map of 1860 (Figure 3 and Figure 4) shows the building in its full extent, with a number of subdivisions that represent repair shops, a locomotive erecting shop, turning shop, tender shop and a steam hammer and furnaces.

The smaller, rectangular subdivision, labelled ‘Spring Makers & Smiths Shops’ may depict the integration of the rectangular building shown on the 1840 map (Figure 2) into the main complex. From 1851 to 1862 the building functioned as a locomotive erection shop. When locomotive building moved to Crewe in 1863 its function changed to being a carriage repair and paint shop.

This is confirmed on the maps of 1873 (Figure 5 and Figure 13) onwards, which show the main part of the Triangular Building being used as a carriage paint shop. The eastern part of the building was subdivided into several workshops which were the Trimming Department with a neighbouring “Colour Store” (1873), “Paint Mixing” (1882) and a Leather Shop. The Trimming Department also had use of the neighbouring Reading Room that had been requisitioned as a “Trimming and Cutting Room” in 1870.

A description of the Triangular Building of 1907 suggests that it retained its character of three distinctive parts: the original 1845 workshop, the 1849 extension and the paint and trimming workshops:

“The East Paint Shop is the older of the two Paint Shops and comprises three distinct buildings, giving on 48 roads, accommodation for about 240 vehicles. [...]. A special feature of the shop is the large colour room [...]. An electric traverser runs at right angles to the roads in the older part of the shop, and between the part known as the “Extension” and the third building there is another traverser by means



of which vehicles are transferred from one shop to the other.”
(Townsend 1907).

A small curious room existed in the south-western corner of the Triangular Building until around 1880. In 1860 it is labelled “Drivers Room” and in 1874 “Foot Warmer Store Room”. Footwarmers were supplied to first class passengers and remained popular even after the introduction of continuous steam heating on trains (West 1982). These were produced in the Lamp Shop that is part of the Royal Train Shed complex (see above). The store room in the Triangular Building would have been easily accessible from the main (second) station for the supply of foot warmers to stopping trains.

Access to the Triangular Building would always have been mainly from the N-S railtrack to the west. In 1860 two sidings are shown running E-W through the locomotive erecting shop and connecting to the main line via turntables. Carriages also entered the building on the N-S rail line that led through the portico in the western façade and then were transferred to the other lines within the building using the traverser rail. The traverser line most likely was a feature of the building from its very beginning (Jack 2001), however, it does not feature on any of the earlier maps. It is first shown in faint pencil lines on the historical map of 1874.

Another later, main access route for carriages into the Triangular Building would also have been from the south. The 1882 “Plan of Wolverton Works and Town. Showing Proposed Alterations and Additional Shops and Sheds”, apart from indicating the move of the main train line and station to the east of the Works (see section 2.1 above) also shows a proposed new bay to the paint shop to the south of Stratford Road and three rail tracks leading from this extension underneath the Stratford Road into the Triangular Building.

The map of 1886 (Figure 10) shows that by then the extension to the paint shop was built and two large, rectangular carriage size openings with steel lintels in the south-western corner of the Triangular Building still bear witness to trains being shunted underneath the Stratford Road into the building from the south. The tracks also run straight through the former Foot Warmer Store Room, which, with the move of the main station to the east of the canal, was now obsolete.

As part of the paint shop the maps also show a multitude of tracks on a N-S alignment throughout the Triangular Building (Figure 8). On the 1882 map these are labelled “Present Lines for Rubbing Down 21 Carriages”. The remains of those track foundations were recorded underneath the concrete floor during the watching brief (see section 4.5)

From 1992 until recently the building was used as a store and was empty at the time of investigation. The Triangular Building is now a Grade II listed building.

2.4 The Reading Room

The Reading Room was one of the first buildings built on the site in the foundation period of the works in 1839. It was built to provide for the social



and educational needs of the workforce and the inhabitants of the new town that had rapidly begun to build up around the works. Under the worker's initiative a Mechanics' Institute, initially known as The Intellectual and Moral Improvement Society, was founded at Wolverton in 1940 (Bellchambers 1988).

The Mechanics' Institutes was a movement that had started in Glasgow in the late 18th century with the idea to provide adult education for working men. Throughout the 19th century the institutes were largely funded and propagated by industrialists who hoped to benefit from a more knowledgeable and skilled workforce and also to attract more educated employees. Mechanics' Institutes contained libraries but also held lectures programmes and often became the focus for the general social life of a works town.

According to a contemporary source (Head 1849, p 89) the Reading Rooms at Wolverton stocked:

[...] about 700 volumes, which have mostly been given; and the list of papers, &c. in the reading room was as follows :- Times, Daily News, Bell's Life, Illustrated News, Punch, Weekly Dispatch, Liverpool Albion, Glasgow Post, Railway Record, Airs' Birmingham Gazette, Bentley's Miscellany, Chambers' Information, Chambers' Journal, Chambers' Shilling Volume, Practical Mechanic's Journal, Mechanic's Magazine.

The Wolverton Mechanic's Institute held its meetings at the Reading Room but the building also served as a meeting house for the local Wesleyan Methodist congregation. The position of the Reading Room was very much at the edge of the town and the works. It was one of the earliest buildings of the works but may have been built under pressure from the Radcliffe Trust.

The Radcliffe Trust was a charitable trust and the largest landowner in the area. The Wolverton station and works were built on land bought from the Trust. Therefore it was important for the railway company to retain the goodwill of the Trust as it was also dependent on their willingness to sell more land if Wolverton Works were looking to expand. The Trust had made it clear that they thought it the responsibility of the railway company to look after the social, educational and spiritual needs of their workforce but that they were willing to donate money as charitable acts for schools and churches to be built (Guest 1991).

On the map of 1840 the building can be seen next to the Grand Union Canal, a thin, elongated, rectangular building labelled "Reading Room", with a smaller annexe to the east. It is in an area of the Wolverton Works that at that time was still an open goods yard and access was most likely from the Stratford Road to the south.

Twenty years later on the 1860 map the building is still largely unaltered. The eastern annexe has had another smaller addition which may relate to its access from the Stratford Road. An entrance gate on the Stratford Road is clearly labelled on the map dating from around 1850-60 (Figure 4). The main change



is in its immediate surroundings is that the Reading Room now stands in the shadow of the Triangular Building that was built in 1845 less than 10m to the east.

A further map also dated to approximately 1860 shows a western extension of the building. The northern addition on the canal side most likely took the form of a built extension as it is drawn in a similarly thick line to the rest of the building. The southern part of the western extension, however, is drawn with a thinner line type (Figure 16), suggesting that it was simply an enclosed yard area. The main cell of the building is marked “Wesleyan Chapel”.

In 1860 the Mechanics’ Institute moved to the newly built Wolverton Science and Arts Institute in the centre of town and from 1870 onwards, with the expansion of the Works, the Reading Room was requisitioned for industrial purposes and used as a trimming and sewing room (the Wesleyan congregation also moved to a newly built chapel in town).

In 1878 plans took shape to divert the main north-south rail line from the centre to the east of the Works to make room for a greatly expanded four track line and a new station (West 1982). To prepare for this diversion and the increased traffic from the Works to the station a new bridge was built over the canal and the Stratford Road leading over the bridge was widened. This had a considerable impact on the Reading Room, as the new road cut into its southern façade, leading to a complete re-organisation of the southern part of the building.

It was probably in this period that the western façade towards the canal side was added. The map of 1880 (Figure 17), and more clearly of 1883, shows that the original cell of the Reading Room has now doubled in size with a new eastern wall parallel to the original western wall. This suggests that the original eastern façade of the building was taken down completely.

Examining the building as it stands today, a definite change in brick type and size is noticeable between the original western cell of the building and the added eastern cell (Figure 37).

The western extension towards the canal looks similar to the possible enclosed yard indicated on the 1873 map, but it is likely that a western outbuilding was added to the re-organised Reading Room that utilised the same external perimeter wall foundation as in 1873. The map of 1880 also shows a northern extension to the canal edge. The western smaller annexe has disappeared.

The map of 1883 (Figure 18) clearly shows that a ‘wing’ perpendicular to the original rectangular cell of the Reading Room was established to accommodate the widening of the road. Inspecting the building from the inside, the line of the Stratford Road is clearly visible, routed through the south-eastern corner of the building and supported by a steel girder and heavy stone plates.

On the map the cross room is labelled “Trimming and Cutting room” while the rest of the building bears the label “Polishing and Lining Room”. At this time



the purpose of the Reading Room was closely associated with the neighbouring Triangular Building which had its Trimming Department in the eastern part of the building with assumed easy access from one building to the other.

The slightly earlier 1882 map again shows the access to the Reading Room (and Triangular Building) from the Stratford Road. Stairs are leading from the road level down to the ground floor level of the between the two railway works buildings. The original steps were only demolished as part of the current re-development of the site, even though a new staircase is now in place. A 1914 description of the works describes the Stratford Road entrance as “A separate entrance to this department [the Trimming Department] direct from the Stratford Road enables the girls to enter after and leave before the male employés” (Gairns 1914).

The 1897 map (Figure 19a) shows the Reading Room in more detail with a clear indication of the southern cross wing, a new layout of the northern extension to the building and an added corridor and stairs along the western side of the structure.

Between 1897 and 1909 the Reading Room and Triangular Building were fully integrated with one another (Figure 20). The windows in the eastern façade of the Triangular Building were blocked up and extensions built at first floor level from the Reading Room to the Triangular Building. The space in between was roofed over. This formed a large open working area on the first floor level that is beautifully illustrated in *The Railway Magazine* of 1914 (Gairns 1914, p 266). In 1914 a lift was in existence that allowed access from the Sewing Room on the ground floor to the Trimming Room above (*ibid* 1914).

A 1907 description of the Wolverton Works describes the interaction between the Triangular Building and the former Reading Room:

“The Trimming Shop is reached through the Paint Shop [part of the Triangular Building] of which building it is really a part. In it all the cushions, seats and backs used in the upholstering of the coaches are made. The linings of these cushions are sewn by girls – of whom there are about 60 employed in the Sewing Room, which is in close proximity to the Trimming Shop – after being cut out in the Cutting-Out Room. [...] After being dealt with by the girls, the linings are returned to the Trimming Shop where the seats, arms, or whatever they may be are taken in hand by the trimmers and stuffed and sewn up ready to be fixed in the coaches.” (Townsend 1907).

A small, low annexe was added in the south-west of the Reading Room which still survives today and roofs over the entrance into the southern cross-wing of the Reading Rooms.

In 1923 the Reading Room was converted to stores offices and used for administrative purposes until 1968 (West 1982). As part of modernisation plans the building was unsuccessfully put up for sale (*ibid* 1982) and has remained empty until its current refurbishment.





3. RESULTS OF BUILDING RECORDING

3.1 Introduction

The historic buildings appraisal consisted of an architectural survey of the Royal Train Shed, the Triangular Building and the Reading Room to English Heritage Level 3 standards (EH 2006). The basis for the record of the buildings are the detailed survey plans prepared by the architects RPS Planning and Development Ltd and the engineers Rolton Group for the client Willmott Dixon.

This is supplemented by a photographic record of the Triangular Building and Royal Train Shed, which was carried out by RPS Ltd. as part of a brick survey prior to any work being undertaken on the buildings. The RPS photographic survey was very detailed but the images were of fairly low resolution. An additional specific photographic survey, using high quality digital images in tiff format, and medium format black and white images was commissioned by Albion Archaeology.

Some additional elements of the buildings were recorded by hand drawn elevations at a scale of 1:50. These were digitised and added to the drawings submitted by the architects and engineers.

The Royal Train Shed and Triangular Building are made up of fairly uniform architectural building blocks, usually consisting of a brick bay with a recessed panel and one or two multi-panelled windows. In the RPS brick survey these bays were numbered in order to have a consistent recording system and cross reference to the accompanying photographs (Figure 21 and Figure 22). This numbering system has been kept on for the current investigation and has also been used in this report.

The buildings are Grade II listed buildings. The listed buildings descriptions are reproduced in Appendix 2, section 8.4.

3.2 The Royal Train Shed

The Royal Train Shed is situated in the north-western part of the development and covers an area of c. 3050 m². It lies parallel to the still existing rail tracks in the west, fronts onto the Old Wolverton Road in the north and looks over Wolverton Park in the east. Its southern façade now meets the new approach road over the railway bridge across the canal.

At the time of recording the Royal Train Shed was largely unaltered since its use as a store room for the Royal Train. The roof and concrete floor with its rail lines were still in place. A wooden block floor in the Lantern Building had started to be removed. Some walls of the building were in bad repair (Figure 40: *Royal Train Shed elevations*)

The Royal Train Shed as it stands today was designed by the works superintendent C.A. Park and built in 1888 and 1889 as a carriage lifting shop and adjoining smaller tinsmiths' shop (called the 'Lamp Shop') respectively



(see section 2.2 and Figure 39). It is made up of a number of identical brick bays consisting of recessed brick panels and segmental arched multi-panelled windows with metal frames and a simple stone sill (Figure 40, Figure 48 and Figure 49).

The southern end of the Royal Train Shed has three rectangular carriage doors with three rail tracks leading into the building. The gable end of the roof has three arched windows with wooden, horizontally slatted shutters. These are mirrored in the northern gable of the shed but instead of three carriage doors there are three sunken brick panels.

The southern end of the adjoining lantern building has one central carriage door and track, flanked by two segmented arched windows and the same tripartite wooden slatted windows in the roof gable end (Figure 40, Figure 41).

The brickwork is English Bond with closers in the pilasters separating each recessed bay but not around the windows. The listed buildings description describes the roof as “Welsh slate and glazed [...] with continuous rooflights both at the ridge and along each slope” (English Heritage 2001, LBS no. 487605, see Appendix 2).

The Royal Train Shed stands on a large man-made embankment that was built for the main N-S line and accommodated the first Wolverton Station (see section 2.1). The embankment forms an impressive part of the eastern elevation of the building. The later, northern part of the structure is encased in rock faced stonework forming an angled plinth that supported the first station.

The southern part of the embankment is revetted by bricks and supported by regularly spaced brick buttresses. When the station moved to the south of the Grand Union Canal, its approach road up the eastern side of the embankment was filled in and its level raised to be in line with the rest of the embankment (see section 2.2). The line of the approach road is still clearly visible as a change in brick colour moving diagonally up the eastern face of the brick built plinth. No other traces of the first station survive as part of the embankment or within the building (see section 4.4.1).

Rather than the exterior of the Royal Train Shed, it is the interior and below-ground remains that speak most clearly of the history of the building and its predecessors (see discussion of archaeology in section 4.4). Some of the interior features for example the cranes used to lift and manoeuvre the carriages were still *in situ*. The cranes have been preserved as part of the current development.

Only a few modern alterations in the form of additional doors were inserted in the western façade of the building, notably in Bays 54 and 66. A small modern brick shed was built against Bay 71.

3.3 The Triangular Building

The Triangular Building is located in the southern part of the development site and fronts onto the old north-south rail line in the west, the Stratford Road in



the south and the Grand Union Canal in the north and east. It covers an area of c. 8500 m² (Figure 42).

At the time of recording all interior walls of the Triangular Building had been removed. All that remained standing within the building were the cast iron columns that supported the roof trusses. The roof itself had collapsed and had been removed by the developers. The concrete floor was in the process of being removed, revealing a layer of brick rubble below (see section 4).

Two building phases are known from historical sources and are also visible in the current layout of the roof sections of the building. The first phase, built in 1845, makes up the southern third of the building and stands adjacent to the Stratford Road. It has five gable ends fronting onto the N-S train line and roof bays running in an EW direction. The 1849 extension to the building fronts onto the Grand Union Canal and has five roof bays on a N-S alignment.

It is likely that the building in fact consisted of three phases, as the simple rectangular structure in the corner between Stratford Road and the N-S rail line, shown on the earliest map of the works, dating from 1840 (Figure 2), seems to be precisely the same shape and size as the “Spring Makers and Smiths Shop” that is part of the Triangular Building on the map of c. 1850-1860 (Figure 4). However, it can not be distinguished architecturally.

The façade of the Triangular Building on all sides consists of fairly uniform bays with recessed brick panels containing two arched multi-panelled windows with metal frames and a plain stone sill (Figure 43). On the western side of the building the windows themselves are set back within the panel with each window bay extending from ground level to the top of the window arch. The western façade is also the least regular with some of the bays being staggered; Bay 23 is set back from the rest and Bays 27 and 28 are set forward to form a portico in the centre of the building (Figure 50 and Figure 51).

The set-back Bay 23 marks the first bay that would have been part of the 1849 extension. The architectural style of the original building was continued along the western façade and up to the northern end gable facing the Grand Union Canal. This is characterised by a plain stone cornice that runs continuously along the top of the building and a brick plinth, the width of a quarter of a brick and topped by a sloping brick, that runs along its base.

The southern bays of the western façade, facing the N-S rail line have gabled roofs with a stone verge and a plain wooden shuttered window set into each gable. The brickwork is of Flemish bond with closers placed around each opening and at the returns of walls. The Flemish Bond is not always regular. In some bays double and triple headers are used as part of the bond. This is particularly noticeable in Bays 23, 27 and 28.

The southernmost Bay 36 is different to the rest of the Triangular Building, as it is much lower and simpler in style (Figure 33). It is too far south to be the early 1840 workshop mentioned above but could represent the small “Drivers Room” that is marked on the 1860 map at this point. Original bricked up door openings are still visible in its façade.



Access to the Triangular Building would always have been from the west. From 1851 to 1862 the building functioned as a locomotive erecting shop for the Class 31 locomotives, nicknamed 'Bloomers'. The 1860 map shows that rolling stock was shunted in and out of the building from the main N-S line via turntables onto two EW aligned sidings within the building.

This required two large train size openings in the western façade. These are still clearly visible in Bay 23 (Figure 34) and in Bay 32 (Figure 35). The openings were of a simple arched design and must have been bricked up when locomotive building moved to Crewe in 1863 and the Triangular Building was converted into a carriage workshop. They were replaced with the same multi-panelled windows that are in evidence throughout the rest of the building.

The portico, formed by Bays 27 and 28 in the centre of the building, had an additional track running through it from north to south through large rectangular carriage doors. This provided additional access from the siding beside the main line to a central traverser road down the length of the Triangular Building (see section 2.3)

The southern carriage door of the portico is still open in its original format, while the northern opening was bricked up and a half-sized window of the same style to the rest of the building inserted. The lighter colour of the bricks suggests that this may have taken place at a later stage but the precise date is unclear.

The spacing of the roof bays also widens in the centre of the building in order to provide a wide enough space for the traverser line. It is not clear whether the current roof columns and roof trusses still represent the original roof of the building. Looking at the engineers CAD plans the width between the current columns, supporting the roof trusses is an average of 7.7m, while the original roof columns, as indicated in the eastern part of the building on the 1850/60 map (Figure 4) are only an average of 4.6m apart. Even taking into consideration variations in scale due to inaccuracies of historical maps, scanning and geo-referencing procedures, this is a considerable difference. It suggests that a good part of the current roof could date from the possible alterations to the building after 1863.

Several modern alterations are in evidence throughout the western façade of the Triangular Building. Some of the arched windows were bricked up and additional rectangular openings inserted. These are usually doorways for pedestrian or larger openings for vehicular access. This can be seen in Bays 35, 32, 31 and 17. An additional rectangular door had been inserted into Bay 36 (now bricked up) and the porch Bays 27 and 28, as discussed above.

A modern brick built shed was attached to Bays 21 and 22, partially blocking one of the arched windows. It is difficult to attach precise dates to any of these alterations.

Bays 15 and 16, the northern terminus of the building and the first bays to face the canal are still in the architectural style of the western façade. They have



two blind arched openings and a small brick shed that rises about half way up the side of the building. This may be the remains of the engine room, that is marked on the map of 1874. More recently the building was converted into a toilet block.

Further modern alterations are visible in the northern terminus of the building in the form of small rectangular doors, the remains of a balcony halfway up the building and the paint scar of another lean-to shed.

The northern façade of the Triangular Building is uniform in character. The four gable ends of the 1849 extension of the building are fronting onto the Grand Union Canal, each consisting of two recessed brick panels with a segmental arched window (as opposed to the tall round arched windows in the remainder of the building). The windows are multi-panelled and metal framed with a thin stone sill.

The gable ends have a wooden verges and a plain small arched window with wooden shutters (Figure 52). It is noticeable that each arched window is situated slightly off-centre to the gable end. All brickwork is English Bond.

Bays 6 to 1, the eastern end of the façade fronting the Grand Union Canal, have no gabled roofs and revert to the high round arched windows that are in evidence in the rest of the building (Figure 53). This part of the façade was most likely added to the building between 1860 and 1874 as it first features on the map of the latter date. Otherwise the brick panels are identical to the rest of the northern façade. Modern openings for ventilation fans, ducts and other services have been inserted into the walls and windows.

The eastern façade of the Triangular Building was until recently mainly hidden behind the extension of the Reading Room. The eastern façade has the same rectangular recessed brick panels with their tall, arched multi-panelled windows as its corresponding façade in the west. However, it has only three large gable ends, with the gables spanning three window bays in Bays 39 and 38, and two bays in Bay 37. The gables have three wooden shuttered arched windows with one continuous stone sill, consisting of one larger central opening, flanked by two lower ones. All three gable ends have wooden vergeboards.

It is also noticeable that the brickwork of the eastern façade is English Bond. The pilasters between the recessed brick panels are also English Bond but with a single header placed centrally to the pilaster in every row of stretchers.

All of the windows had been blocked and the valleys between the gable ends filled with brick to accommodate the extension of the Reading Room onto the Triangular Building at the turn of the century. As part of the increasingly related function of the two buildings, requiring access from one to the other, rectangular doorways with steel frames and concrete lintels were inserted into the façade.

The southern wall of the Triangular Building always consisted of a plain brick built wall that fronted onto the Stratford Road. When the main north-south rail



line moved from the centre of the works to the east of the Grand Union Canal in 1880, the Stratford Road was considerably heightened to lead over the newly built bridge across the canal. With the raising of the road level, the southern wall of the Triangular Building also had to be heightened. The internal southern wall clearly shows this elevation with a change in brick colour and the insertion of new brick buttresses that extend the full height of the wall, and replace the smaller buttresses, which are also still in evidence (Figure 36).

Brick arches can clearly be seen in the eastern part of the wall, associated with the smaller buttresses and springing from the lower part of one buttress to the other. It is possible that these arches originally supported the approach road over the original canal bridge.

It is unclear if the original façade ever contained any windows. Of importance in the southern wall of the Triangular Building are the carriage doors in its western end, which led from the Triangular Building underneath the Stratford Road into the Paint Shed to the south and would have been another of the main access points for carriages into the building from c. 1882 onwards (see section 2.3 above).

No internal subdivisions survive within the Triangular Building that would have indicated the physical separation between the main carriage shed and the smaller workshops, like the paint shop and trimming department, that were located in the eastern part of the building and closely related in use and function with the former Reading Room.

3.4 The Reading Room

The Reading Room is situated in the south-eastern corner of the development site and covers an area of 653m². It was built in 1839 for use as a library and Wesleyan chapel and one of the first purpose-built social facilities for the Works' employees. It is now a Grade II listed building.

At the time of investigation the Reading Room had stood empty for a considerable time and was in a bad state of repair. Very few of the internal subdivisions were still *in situ* and some of the floors/ceilings had also been removed in order to secure the building for access.

The Reading Room is much smaller in scale and more vernacular in character than the industrial railway sheds that are part of the group of buildings to be regenerated. It is built of red brick in English Bond with a slate hipped roof and wooden sash windows (Figure 45).

The Reading Room has undergone considerable alterations during its history and due to the fragmented survival of the building and its state of repair, certain parts of its evolution are difficult to reconstruct. Figure 47 gives an indication of the development of the Reading Room and its constituent parts and which elements survive within the fabric of the present building.

The Reading Room was built in 1839 and historic maps (see section 2.4) show that in its original form it consisted only of a narrow rectangular cell that



has undergone considerable changes throughout its history (Figure 14). It doubled in size towards the east in c. 1880 when the original eastern façade was demolished and the building was extended towards the canal. The surviving brick columns in the basement of the building most likely date from this extension when they replaced the original wall.

A change in brick size and an irregular joint in the centre of the northern wall (Figure 37) shows that the original structural fabric is still part of the current building. The original bricks measured a fairly uniform 220x100x70mm, while the later bricks were a slightly larger and more irregular 230x100x80mm.

The building probably always consisted of three floors: a basement floor, level with the Grand Union Canal, a ground floor, level with the Triangular Building and a first floor, almost level with the Stratford Road. Each floor had several rooms, which were not in evidence any more during the building recording, including large working areas on the ground and first floor (White Young Green 2005). The first floor was open to the roof, displaying the intricate wooden roof trusses and a continuous row of skylights which provided ample light (Figure 46).

Access to the Reading Room from the Stratford Road existed in the form of steps, which led down to a half landing (*ibid* 2005). These have been demolished but the doorway is still visible in the wall fronting the Stratford Road between the Triangular Building and the Reading Room.

The western, most likely partially original façade of the Reading Room, has a row of four rectangular multi-panelled wooden sash windows at ground level. On the basement floor level there are four segmented arched door openings. These are bricked up and no fittings survive. At a later stage the narrow corridor alongside the door openings was roofed over to provide a surface at ground floor level, most likely rendering the basement passage obsolete. This has recently been opened up again but current development plans again mean to seal it over.

On the first floor level of the western façade four slender cast iron columns support one of the main steel roof beams. The space between the columns was open and the steel girder they support seems to take the weight of the eaves of both the main Reading Room roof and the roof spanning the space between it and the Triangular Building. This suggests that the columns were a feature added to the Reading Room during its extension in c. 1900 to support the roof and to form a large open working area on the first floor.

Steel girders extending from the Reading Room to the Triangular Building, and a paint scar on the eastern wall of the Triangular Building also still bear witness that a floor/ceiling existed between the two buildings at first floor level. The connecting walls between the Reading Room and Triangular Building still exist at first floor level. Each has a large wooden sash window and the southern panel also still contains the access door to the first floor from the Stratford Road entrance.



The 1880 eastern façade of the Reading Room is of plain design and consists of two rows of rectangular, multi-panelled windows with stone lintels and sills on the ground and first floor, and a row of segmented arched windows on the basement level. It seems likely that the eastern façade mirrors what its predecessor would have looked like before its extension towards the Triangular Building.

The same rectangular windows were also inserted into the southern façade. This part of the building was completely remodelled when the Stratford Road was considerably widened in c.1878 (West 1982). The road literally cut into the current building and is visible in its interior in the form of a jutting out wedge supported by a steel girder and stone plates (Figure 38). Blocked up doors of various size and form in the internal wall on the first floor trace the changing forms of access from the main rooms into the southern traverse wing.

Extensions were added onto the Reading Room, and demolished again, throughout its history (see section 2.4). Blocked up doors in the northern wall on the first floor still indicate access to the now demolished northern extensions that were in place from c. 1880 onwards.

The building did not contain any fixtures or fittings that may indicate its use during its railway history. Only a large number of wooden bookshelves remained in the building until its refurbishment. These most likely originate from its administrative use from 1923 to 1968. It is unlikely that they date back to the original use of the Reading Room as a library.



4. RESULTS OF THE WATCHING BRIEF

4.1 Introduction

The programme of archaeological monitoring and observation was undertaken between December 2006 and November 2007. During this period, all groundworks which required monitoring were completed to the satisfaction of the MKAO.

4.2 Extent and Nature of Groundworks

A watching brief was undertaken from 18th to 21st December 2006 during the excavation of four sondage trenches in the southern part of The Royal Train Shed. Further groundworks observations were carried out from 12th October to 14th November 2007 during the preparation for and the piling operations themselves within the southern 40m of the building.

A watching brief was carried out intermittently during the summer of 2007 and winter 2008 during the stripping of the concrete floor and ground reductions around pile caps and along wall foundations of the Triangular Building. Piling operations were observed during October and November 2007.

4.3 Methodology

Throughout the project the standards set out in Appendix 1 of the project design (Albion Archaeology 2006 and 2007) were adhered to.

Albion Archaeology also follows the standards set out in the IFA's *Codes of Conduct* (Revised edition 2006), *Standard and Guidance for Archaeological Excavations* (2001), *Standard and Guidance for Archaeological Watching Brief* (2001), and *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* (2001).

4.3.1 Sondage trenches

Four sondage trenches were excavated by Willmott Dixon in the southern 40m of the Royal Train Shed in order to investigate ground conditions (Figure 23). The trenches were excavated by a tracked mini-digger with a toothless ditching bucket under constant archaeological supervision. The sondage trenches were situated on an east-west alignment and measured c.13m in length and 0.80m in width. Archaeological observations were recorded in plan and in section (Figure 24 and Figure 25).

4.3.2 Piling operations

In preparation for the piling operations the concrete floors in both the Royal Train Shed and the Triangular Building were lifted. The concrete measured c 0.10-0.20m in thickness and revealed a layer of brick hardcore and coarse yellowish brown gravely silty sand underneath. Archaeological observations were recorded photographically.



During piling operations the insertion of piles and material from the arisings was monitored and inspected. Pile logs were kept by the contractors in the Triangular building and are reproduced in Appendix 1.

4.4 The Royal Train Shed

Archaeological observations in the Royal Train Shed revealed several phases of the building in the form of track foundations, pit roads and wall foundations.

4.4.1 First Wolverton station

No definite evidence of the first Wolverton station was found. A concentration of brick rubble was recorded in the north-western corner of Trench 1. Its position could indicate that this was derived from the demolition of the earliest Wolverton Station, however, this cannot be verified with any certainty.

4.4.2 Levelling of access ramp

Given the location of the Royal Train Shed on top of an artificial embankment, all the deposits encountered comprised made ground. The deepest deposits comprised make-up that had been deposited on top of the access road for the first Wolverton Station in order to form a level surface for the construction of the subsequent carriage shed. It was recorded at a depth of c. 1.0m below the present floor level within the Royal Train Shed, which was also the maximum depth of hand excavation. The excavations did not expose any of the original surface of the road.

4.4.3 First carriage shed

Three phases of track construction were visible in the trenches. The first phase consisted of possible track foundations in the form of large sandstone blocks, spaced c. 1.5m apart. The uppermost of the sandstone blocks may have carried a steel rail. Some remains of brick paving were recorded between the corresponding foundations, suggesting that they were pit roads for the inspection of the carriages and their running gear (Figure 29).

4.4.4 New lifting shed and conversion to Royal Train Shed

Brick foundations for the metal frames that form part of the structure of the current Royal Train Shed were encountered at the eastern and western end of each trench. The foundations were stratigraphically later than the earlier sandstone blocks, suggesting that they most likely represent the re-build of the new lifting shop on the foundations of the earlier carriage shed.

In most of the trenches the early sandstone track foundations had been partially damaged by new brick-built track foundations, again most likely for the tracks of the new lifting shed. The new tracks had been shifted slightly over to the east but were also spaced c. 1.5m apart. Remains of brick and wooden block paving survived between the corresponding brick walls (Figure 30). Again, all tracks were in the form of pit roads.

The lifting of the concrete floor of the present building in preparation for the piling also revealed a row of large square stone slabs measuring a total of 7.0m in length. The position of the stone slabs immediately below the concrete floor of the Royal Train Shed, and their parallel alignment to the building's walls,



suggest that they were part of the lifting shed floor and possibly contemporary with the second phase of tracks.

When the second phase of pit roads went out of use they were filled with soil, the original tracks removed and the ground levelled with several layers of concrete. The partially levelled brick foundations were built up with concrete to form a base for new tracks let into the ground in the same position as the second phase of the tracks. It is unclear whether this was undertaken as part of changes in use of the lifting shed, or later when the shed was used to store the Royal Train.

4.4.5 Piling operations

A watching brief was kept during the piling operations of several of the piles within the southern 40m of the Royal Train Shed. Pile arisings consisted of a black, coarse, sandy, silty material, c. 1.0m thick, above several meters of orange and greenish clay. No obstructions were encountered by any of the piles that could indicate the survival of structures below ground.

The arisings most likely represent the material used to build up the level of the access ramp prior to the construction of the carriage shed in 1869.

Piling logs were not maintained by the contractor.

4.5 The Triangular Building

A watching brief was undertaken in the Triangular building during removal of the concrete floor in the summer of 2007 and during piling operations in October and November 2007. In winter 2008 observations were also carried out during ground reduction along the foundations of the outer walls and around a group of pile caps in the south-eastern corner of the building.

The natural strata of clayey sand and sandy clay above bedrock occurred at a depth of between 5.3m and 6.2m below ground level (see pile logs in Appendix 7) which translates to approximately 67.00m to 66.10m OD, accepting that the floor level of the Triangular Building was at an average of 72.30m OD (Milton Keynes Surveys 2006) in its northern corner where most of the piles were monitored.

The watching brief of the piling operations concentrated in particular on the area in the north-east of the building, which was the location of the previous wharf structure and goods warehouse that fronted onto the Grand Union Canal (Figure 26). However, no trace of this structure was identified. A thick layer of brick hardcore was recorded in the pile arisings which suggests that all earlier buildings on the site had been destroyed. It was not possible to associate the brick rubble directly with any of the buildings.

In the south-eastern corner of the building the ground had been reduced intermittently around several groups of pile caps. This allowed a view of deposits below ground over an area of circa 15m x 20m and up to a depth of 1.10m.



A series of thin brick walls was revealed in this area (Figure 31). These were mainly the width of one brick stretcher, c. 1.0m high and set c. 1.0m apart from each other. Their precise function is unclear but their alignment seems to coincide with the arrangement of N-S rail tracks that were laid throughout the Triangular Building and are shown on historical maps from 1882 onwards.

No tracks survive and the walls seem a bit too thin to have supported carriages, however, the infill between the brick walls is very similar to deposits encountered between the tracks at the Royal Train Shed. The tracks must have been cleared and the original floor removed before the last concrete floor prior to the present development was laid down.

In places the large foundation blocks for the cast iron columns that supported the roof trusses had been exposed (Figure 31). These consisted of a large, square sandstone block that was in turn imbedded within a brick foundation. The brick foundations measured >1.05m in height and width. The brick courses were gradually stepped out until the full width of the base was reached. They were built of red brick with a singular band of blue brick running around the foundation one course below the stone block.

The build up of deposits recorded in the sections varied across the site and consisted of made-up ground, demolition debris and various dumps of industrial materials.

In most sections the man-made ground consisted of 50mm mid yellowish brown gravely clayey silt with frequent small brick and concrete fragments, located directly below the removed concrete floors of the building. This was above a dark blackish grey deposit of coarse silty sand with frequent large brick and limestone fragments, mortar flecks, small slag fragments and charcoal fragments circa 0.40m thick. The lowest deposit observed consisted of mid brownish orange sandy clay with moderate inclusions of small brick and limestone fragments which was 0.50m thick.

Short sections of the lower outer wall foundations of the Triangular Building were also exposed. These were observed during one visit by the Milton Keynes Conservation Officer Simon Peart and also on a later visit by an Albion Project Officer (Figure 32).

The foundations consist of low brick arches supported by square brick columns set deeper into the ground. They were not exposed to their full depth.

4.6 Interpretation

No traces of the first Wolverton Station were found. The only deposit that could possibly be attributed to the remains of the station was a concentration of brick rubble in one of the sondage trenches in the Royal Train Shed, suggesting that the station was demolished to make way for the construction of the Royal Train Shed.

The sondage trenches revealed three phases of structures comprising steel rails, pit roads and track foundations relating to the sequence of railway sheds on the site.



The earliest phase consisted of track foundations and pit roads made of sandstone blocks. These most likely relate to the carriage shed built in 1869.

The carriage shed was later demolished and the current structure of the Royal Train Shed was built as a lifting shop in 1889, re-using the foundations of the earlier carriage shed. This was confirmed by the brick built foundations of the outer walls of the current building, that truncate the earlier sandstone block foundations. The earlier sandstone track foundations and pit roads were also replaced by brick built structures as part of the re-organisation of the shed.

In the last phase of re-structuring, the pit roads were filled with soil and rubble and a concrete floor put down with rails laid directly into the concrete. This could conceivably have been part of the change in function of the building as a storage shed for the Royal Train, when pit roads for inspection and repair were no longer necessary.

Observations during groundworks in the Triangular Building revealed a series of thin brick walls which most likely represent the foundation for the multitude of rail tracks that were laid throughout the building after its conversion from a locomotive erecting shop to a carriage paint shop after 1863. The tracks are marked on the 1882 map of the Works as “Present Lines for Rubbing Down 21 Carriages”.

More than 1.10m of made up ground was recorded within the sections. This consisted of a thick layer of deliberately imported orange sandy clay levelling and make up layer below several dumps of industrial waste and demolition rubble. It is unclear precisely when this material was imported. The clay layer may precede the Triangular Building, however, the dumps of demolition material and industrial waste were deposited during the life of the building, marking its use and change in function over time.

No remains of the wharf structure and rail tracks preceding the Triangular Building were found. A thick layer of brick rubble was recorded within the pile shafts on the site of the former wharf structure which may represent its demolition rubble.

4.7 Limitations of the Results of the Investigation

The archaeological watching brief covered the four sondage trenches in the Royal Train Shed and an area of reduced ground around several pile caps in the south-eastern corner of the Triangular Buildings.

Apart from those areas of ground reduction, all further observations relied on evidence recorded during piling operations and the limited deposits observed after the stripping of the concrete floors in both buildings.

The only possible evidence for the earliest Wolverton Station was represented by a deposit of brick rubble in the north-western corner of Trench 1 of the sondage trenches. The trench would have just clipped the eastern edge of the station and it is unclear how much confidence can be put in the interpretation of the rubble layer as remains of Wolverton Station.



However, the remainder of the trenches gave a good picture of surviving deposits and structures below ground. It is likely that the southern 40m of the Royal Train Shed, that were investigated with the sondage trenches, give a good reflection of the surviving archaeology below ground in the northern part of the building.

Similarly, the features exposed in the south-eastern corner of the Triangular Building most likely serve as a reliable sample of the nature of below ground deposits and structures in the rest of the building.

The latter observations also emphasised that the information glimpsed from pile cores was very limited. Deposits within the pile arisings were summarily classed as 'brick rubble'. While there was a large percentage of brick fragments within all deposits encountered in the open ground around the pile caps, the sequence of layers was nevertheless more sophisticated. Recording the sections within the areas of ground reduction allowed a better interpretation of the sequence of activity within the Triangular Building to be drawn.

No artefacts were uncovered during the investigations.



5. CONCLUSIONS AND SUMMARY OF SIGNIFICANCE

5.1 Phasing

Very little evidence survives on the site today of the first phase of Wolverton Works in 1839, when the station was to the north of the canal and the Triangular Building had not yet been built. The most obvious remnant of the first station and construction of the railway line is the embankment, that now carries the Royal Train Shed. This is still an impressive feature of the current landscape at Wolverton.

Excavations in the Royal Train Shed did not expose any traces of the original station. They did reveal clear evidence of all phases of the subsequent railway sheds built on the same site. Most of the phases of tracks and building foundations can be attributed to the earlier carriage shed and the current building of the Royal Train Shed, thus archaeological record maps the change in function of the building over time.

The architectural fabric of the Royal Train Shed had remained largely unaltered since its construction as a lifting shed in 1888/89 and until the present development. The main change being the infilling of the inspection pits and the insertion of the concrete floor, most likely when it changed its function to house the Royal Train.

Within the Triangular Building ground disturbance, including dumping of demolition and industrial waste has taken place. This has obliterated and obscured earlier structures on a larger scale than in the Royal Train Shed.

No reliable evidence of internal partitions or the preceding wharf structure survived on the site. However, the foundations for the rail lines of the carriage paint shop are of considerable interest. The survival of these structures was far less complete and more difficult to interpret than the structures within the Royal Train Shed but as they are directly related to the main use of the Triangular Building throughout its life they are of considerable significance.

The brick track foundations occurred wherever ground reduction took place in the Triangular Building and the survival of further walls of the same nature in undisturbed areas of the building can be projected from the current results.

Architecturally, the phases of the Triangular Building are virtually indistinguishable as they were built in very close succession. However, they can still be traced within the structure of the building and changes and alterations to the Triangular Building over time are still visible as part of its structure and façades.

Within the Reading Room, only its western façade can be dated with any certainty to the original form of the building as it stood in 1839. The overall development and transformation of the building over time, up to the present day, can be read from the surviving components that make up its structure and can be mapped to the historical records and maps for the building which are still in existence.



5.2 Architectural form and industrial processes

Architecturally the buildings are very much of their kind, namely brick-built industrial structures of a simple functional design that clearly reflects contemporary railway works buildings at the time, which is also in evidence, for example at Swindon (Cattell 1995).

The details of the buildings reveal a thorough workmanship and design. This is particularly evident in the Triangular Building where the western façade exclusively was built in Flemish Bond. This is a more delicate brick bond that was often used because it was easier on the eye (Brunskill 1990) and was most likely employed in the western façade as it represented the main access points to the building.

The rest of the building is built in the more sturdy English Bond, as are the Royal Train Shed and Reading Room. But even here attention to detail is evident with the brick bond being carefully designed with little flourishes built in, for example the centrally placed headers in the pilasters of the eastern façade of the Triangular Building.

It is also possible that the slightly wider and more elaborate gable ends of the Triangular Building in its eastern end were designed with regards to this part of the building facing the Reading Room and being seen from a higher point, ie the entrance to the Reading Room from the Stratford Road area.

Also of potential high significance are the exposed foundations of the outer walls and column roof supports of the Triangular Building. This showed that the outer walls were set on low brick arches set on brick columns. The intricate detail of the brick foundations of the cast iron columns, that would never have been visible above ground, also documents the craftsmanship and architectural detail of a building that still very much defines this part of Wolverton.

The Royal Train Shed is a functional building and much of its significance derives from its later function as a store room for the Royal Train. Its imposing impression also largely stems from its position on top of the artificial embankment and stone plinth that was built to bridge the Great Ouse Valley. This represents a significant achievement in engineering terms. Its design engineer did not need to add any architectural flourishes to this visual impression.

As a full assessment of the Wolverton Works was not part of the current brief and the three buildings discussed have mainly an industrial function it is difficult to comment on any variations in terms of movement around the works or social hierarchies. The Reading Room was the only building designed purely with a social function in mind, but apart from its more vernacular style compared to the workshops, little of its original form survives.

What is of interest with regards to the Reading Room is its main entrance from the Stratford Road that was used by the women workers to enter the workshops separately from the men (see section 2.4 above). Segregation by gender and class was a common practice in the design of Victorian buildings.



In this case little distinguishes this entrance from any of the other doorways in architectural form or design.

Few internal fixtures or fittings survived that would give an indication as to the industrial processes that took place within the buildings. However, again the evidence for below ground remains enhances the standing structures. The pit roads excavated within the Royal Train Shed and the foundations for the rail lines within the Triangular Building are a clear indication of the repair and maintenance processes carried out in those buildings.

5.3 Conclusion

The role of the Royal Train Shed, Triangular Building and Reading Room as the remainder of one of the first planned railway towns had been recognised when they were included in the Development Framework Plan and Regeneration Strategy for Wolverton and highlighted as Community Plan Sites by the then ODPM.

The excavation and recording work undertaken at Wolverton as part of the conservation and refurbishment of the buildings has shown how the above ground remains and the archaeological evidence can work together. Looking at the above-ground structural evidence as well as the surviving archaeological remains, all buildings still bear clear evidence of their development through time as well as subsequent re-organisation of space or re-formulation of form and function.

The Royal Train Shed, Triangular Building and Reading Room represent an important historical heritage asset, consisting of significant above-ground and below-ground remains, that have been largely preserved and incorporated into the life of the modern town today in a way that still bears witness of its industrial past.





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7. APPENDIX 1 – PILE LOGS

The following data are reproduced from pile logs supplied by Martello Ltd. The piles relate to the position of the 1838 wharf building on the site of the Triangular Building (Figure 18).

Note: No pile logs were kept by Abbey Pynford Ltd, piling engineers in Royal Train Shed

The pile logs give measurements of change in deposits below ground level. All uppermost deposits consisted of clay brick rubble.

T12

Clay brick rubble
1.8m clay
3.8m clay sand
5.5m stone
6.2m clay
11.8m final length

T21

2m clay brick rubble
3.4m clay sand
5.5m stone
6m clay sand
6.2m clay
11.8m final depth

T29A

Clay brick rubble
2.7m clay
4m clay sand
6.2m stone
6.7m clay sand
7m clay
10.2m final depth

T30

Clay brick rubble
1.6m clay
3.5m clay sand
5.3m stone
5.9m clay sand
6.2m clay
11.7m final depth

T34

0.26m brick rubble clay
4.7m sandy clay
5.8m rock layer
6.1m sandy clay and root
7.2m clay and water
10.00 final depth

T38A

Clay brick rubble
2.3m clay
6m stone
6.8m clay sand
7m clay
10.3m final depth

T41

1m brick rubble clay
3m clay sand
5.5m clay stone
6m clay
10.25 final depth

T56

2.5m brick rubble
5.5m clay stone
6m clay sand
7m clay
10.35 final depth



8. APPENDIX 2 – SOURCES

This appendix lists all sources used in the production of this report, as well as those materials supporting the architectural and archaeological record and submitted for archiving. Archive materials are provided electronically on CD.

8.1 *Historic sources*

Historical maps located in Milton Keynes Historic Environment Record.

<http://www.heritage-gateway.org.uk/Gateway/CHR/Milton+Keynes+SMR.htm>

Maps

- 1840 Wolverton Works
- 1860 Wolverton Works
- 1860 transcribed map of Wolverton Works (B. West)
- 1874 Wolverton Works
- 1880 Wolverton works showing new line
- 1881 Map of Wolverton & new Bradwell showing LNNR ownership
- 1882 Wolverton works and town
- 1882 Wolverton Works proposed extensions
- 1883 Wolverton Works & 3rd station
- 1886 Wolverton works and town
- 1897 Wolverton Works, Wolverton Town and New Bradwell
- 1898 LNWR plan of additional land in Wolverton
- 1909 plan of domestic water supply for Wolverton & New Bradwell
- 1940 Works air raid precautions
- Undated - extension to Carriage repair shed post 1887
- Undated - sketch of proposed alterations to workshop
- Undated map of Wolverton and New Bradwell with leasing details
- Undated of Wolverton Engine Works circa 1850-60
- Undated plan naming shops & sheds
- Undated Railway works post 1887

8.2 *Materials submitted for archiving*

8.2.1 **List of engineering drawings supporting the building recording**

Drawings showing the buildings in their original, unaltered stage are provided as .dwg files. All pdf files are drawings that include proposed changes to the buildings. However, many of the changes were minor and the drawings still give vital and precisely surveyed information on many of the original components of the structures. For example files showing sections of the buildings may include added or altered details, but the basic measurements and relationships of building components are unaltered.

Drawings provided by Willmott Dixon and RPS Ltd.



Description	Drawing reference	Format
Reading Room		
RR all existing elevations	33475-A-ELE-D08	dwg
RR detailed roof sections	05-0218 GA 304_C1	pdf
RR east-west sections (proposed alterations)	33475-A-SEC-D13	pdf
RR north-south sections (proposed alterations)	33475-A-SEC-D14	pdf
RR all existing elevations	33475-A-ELE-D08 Block D	pdf
RR western elevation (proposed but includes detail of existing basement level)	33475-A-DET-D552 Block D Rev A	pdf
RR basement plan (proposed)	33475-A-PLN-D05 Block D Rev E	pdf
RR ground floor plan (proposed)	05-0218 GA 301_C1	pdf
RR first floor plan (proposed)	05-0218 GA 302_C1	pdf
Royal Train Shed		
RTS existing floorplan, internal and external elevations and sections	11887	dwg
RTS windows detail	A-DET-C554	pdf
RTS lantern building proposed W elevation	05-0218 S 120_C1	pdf
RTS proposed S elevation	A-ELE-C303	pdf
RTS section (proposed alterations)	A-SEC-C401-Rev G	pdf
RTS lantern building section (proposed alterations)	A-SEC-C402 Rev C	pdf
RTS all proposed elevations	A-ELE-C301	pdf
Triangular Building		
TB existing floorplan, external elevations, sections	11887	dwg
TB all proposed external elevations	33475-A-ELE-B307 B022 (1)	pdf
TB windows detail	33475-A-DET-B561- Rev A	pdf
TB roof truss detail	05-0218 R 222_C1	pdf

8.2.2 RPS Design Ltd. brick repair surveys

- Triangular Building Wolverton (.doc file).
- Royal Train Shed Wolverton (.doc file).
- Folder of original jpgs.

8.2.3 Albion Archaeology photographic survey

- Photographic survey in .tif format (colour and black & white).
 - For photo lists see Appendix 8.3



8.3 Albion photographic survey photo list

Photographer: Nigel Macbeth

Date: 08.05.2008

TB = Triangular Building

RR = Reading Room

Shot id	Subject
CSC_1673.JPG	TB W wall internal elevation, S. end
CSC_1674.JPG	TB S wall meeting National Rail wall
CSC_1676.JPG	RR extension towards TB, looking S.
CSC_1677.JPG	RR extension towards TB, roof
CSC_1680.JPG	TB, E wall, external elevation
CSC_1681.JPG	TB, E wall, external elevation
CSC_1682.JPG	RR, S end room, looking E, internal
CSC_1683.JPG	RR, S end room, looking E, internal
CSC_1684.JPG	RR main room, looking E
CSC_1685.JPG	RR, main room, looking SW
CSC_1686.JPG	RR, main room, looking SE
CSC_1687.JPG	RR, S end room, roof
CSC_1688.JPG	RR, S end room, looking E
CSC_1689.JPG	RR, S end room, looking SE
CSC_1690.JPG	RR, stairs to basement level
CSC_1691.JPG	RR, main room upstairs, roof
CSC_1692.JPG	RR, bridge and door into main room
CSC_1693.JPG	RR, S end room, looking SE
DSC_1359.JPG	TB, W wall internal elevation
DSC_1361.JPG	TB, general shot, looking E
DSC_1362.JPG	TB, general shot, looking NE
DSC_1363.JPG	TB, general shot, looking N
DSC_1364.JPG	TB, general shot, looking NW
DSC_1365.JPG	TB, general shot, looking W
DSC_1366.JPG	TB, general shot, looking W
DSC_1367.JPG	TB, general shot, looking SW
DSC_1368.JPG	TB, S wall, internal elevation, W end
DSC_1369.JPG	TB, S wall, internal elevation, W end
DSC_1370.JPG	TB, S wall, internal elevation, W end
DSC_1371.JPG	TB S wall meeting National Rail wall
DSC_1372.JPG	TB S wall meeting National Rail wall
DSC_1374.JPG	TB, S wall internal, W end, looking W
DSC_1375.JPG	TB, S wall internal
DSC_1376.JPG	TB, S wall internal
DSC_1377.JPG	TB, S wall internal
DSC_1378.JPG	TB, S wall internal
DSC_1379.JPG	TB, S wall internal
DSC_1380.JPG	TB, S wall internal
DSC_1381.JPG	TB, S wall internal
DSC_1384.JPG	TB, S wall internal



Shot id	Subject
DSC_1385.JPG	TB, S wall internal
DSC_1388.JPG	TB, cfm
DSC_1389.JPG	TB, S wall internal, looking W
DSC_1390.JPG	TB, S wall internal, looking W
DSC_1392.JPG	TB, general shot, looking W
DSC_1393.JPG	TB, S wall internal, looking W
DSC_1394.JPG	TB, general shot
DSC_1396.JPG	TB, S wall internal
DSC_1398.JPG	TB, S wall internal
DSC_1399.JPG	
DSC_1400.JPG	
DSC_1401.JPG	
DSC_1402.JPG	
DSC_1403.JPG	
DSC_1404.JPG	TB, E wall, internal elevation
DSC_1405.JPG	
DSC_1406.JPG	
DSC_1407.JPG	
DSC_1408.JPG	
DSC_1410.JPG	
DSC_1417.JPG	TB, E wall, external elevation, N end
DSC_1418.JPG	TB, E wall, external elevation, N end
DSC_1419.JPG	TB, E wall, external elevation, N end
DSC_1420.JPG	TB, E wall, external elevation, N end
DSC_1422.JPG	RR extension towards TB, N wall
DSC_1423.JPG	RR extension towards TB, N wall
DSC_1424.JPG	RR extension towards TB, N wall
DSC_1425.JPG	RR extension towards TB, N wall
DSC_1426.JPG	RR extension towards TB, N wall
DSC_1428.JPG	RR extension towards TB, roof
DSC_1429.JPG	RR extension towards TB, internal looking S
DSC_1431.JPG	
DSC_1433.JPG	RR extension towards TB, internal looking N
DSC_1435.JPG	
DSC_1436.JPG	
DSC_1437.JPG	TB, E wall, external elevation
DSC_1439.JPG	
DSC_1441.JPG	
DSC_1442.JPG	
DSC_1443.JPG	
DSC_1444.JPG	TB, E wall, external elevation
DSC_1445.JPG	
DSC_1446.JPG	
DSC_1449.JPG	RR extension towards TB, S end
DSC_1450.JPG	RR S end, W wall external, looking E
DSC_1451.JPG	RR extension towards TB, looking N
DSC_1453.JPG	RR, S room, internal looking E, 1 st floor level



Shot id	Subject
DSC_1454.JPG	RR, S room, internal looking E, 1 st floor level and roof
DSC_1456.JPG	RR, S room, internal looking E, 1 st floor level and roof
DSC_1457.JPG	RR extension towards TB, looking N
DSC_1459.JPG	RR extension towards TB, looking N
DSC_1460.JPG	RR extension towards TB, roof
DSC_1461.JPG	RR extension towards TB, roof
DSC_1462.JPG	RR room, original W wall, external elevation
DSC_1463.JPG	
DSC_1464.JPG	
DSC_1466.JPG	
DSC_1467.JPG	
DSC_1468.JPG	
DSC_1469.JPG	
DSC_1470.JPG	
DSC_1471.JPG	
DSC_1472.JPG	TB, general shot
DSC_1473.JPG	TB, general shot
DSC_1474.JPG	TB, W wall internal
DSC_1475.JPG	TB, W wall internal
DSC_1476.JPG	TB, W wall internal
DSC_1477.JPG	TB, E wall external, taken from RR 1 st floor level
DSC_1479.JPG	
DSC_1481.JPG	
DSC_1482.JPG	
DSC_1483.JPG	
DSC_1484.JPG	
DSC_1485.JPG	
DSC_1486.JPG	RR, 1 st floor roof
DSC_1487.JPG	RR, 1 st floor
DSC_1489.JPG	RR extension towards TB, N wall internal
DSC_1491.JPG	RR extension towards TB, N wall internal
DSC_1494.JPG	RR room, main room, roof
DSC_1495.JPG	
DSC_1496.JPG	
DSC_1497.JPG	
DSC_1498.JPG	RR room, main room, roof
DSC_1499.JPG	
DSC_1500.JPG	
DSC_1501.JPG	
DSC_1502.JPG	
DSC_1503.JPG	RR, W external elevation, column detail
DSC_1504.JPG	RR room, 1 st floor N wall, stairway access
DSC_1505.JPG	TB, E wall external, taken from RR 1 st floor level
DSC_1506.JPG	TB, E wall external, taken from RR 1 st floor level
DSC_1507.JPG	TB, E wall external, taken from RR 1 st floor level
DSC_1508.JPG	TB, E wall external, taken from RR 1 st floor level
DSC_1510.JPG	RR extension towards TB, S wall internal



Shot id	Subject
DSC_1511.JPG	
DSC_1513.JPG	
DSC_1515.JPG	
DSC_1516.JPG	
DSC_1517.JPG	
DSC_1519.JPG	RR, central building, 1 st floor room internal
DSC_1522.JPG	
DSC_1523.JPG	
DSC_1525.JPG	
DSC_1527.JPG	
DSC_1528.JPG	
DSC_1529.JPG	
DSC_1531.JPG	
DSC_1533.JPG	
DSC_1535.JPG	RR extension towards TB, N wall internal, window
DSC_1536.JPG	RR 1 st floor, staircase enclosure, looking down
DSC_1537.JPG	
DSC_1538.JPG	
DSC_1539.JPG	
DSC_1540.JPG	
DSC_1542.JPG	
DSC_1543.JPG	RR, central building, basement level, internal
DSC_1545.JPG	
DSC_1546.JPG	
DSC_1547.JPG	
DSC_1548.JPG	
DSC_1549.JPG	
DSC_1551.JPG	
DSC_1553.JPG	RR, basement level, taken from SE corner looking WNW
DSC_1555.JPG	RR, basement level, taken from SE corner looking WNW
DSC_1556.JPG	RR, basement level, taken from SE corner looking WNW
DSC_1559.JPG	RR, southern part, roof
DSC_1561.JPG	RR, central building E external
DSC_1562.JPG	RR, eastern part, internal looking S
DSC_1564.JPG	RR, eastern part, internal looking SE
DSC_1566.JPG	RR, eastern part, internal looking E
DSC_1567.JPG	RR, central building E external
DSC_1568.JPG	RR, central building E wall external
DSC_1569.JPG	RR, central building E wall external
DSC_1570.JPG	
DSC_1571.JPG	
DSC_1574.JPG	
DSC_1576.JPG	RR, southern extension, internal
DSC_1577.JPG	
DSC_1578.JPG	RR, southern extension, internal
DSC_1579.JPG	
DSC_1580.JPG	



Shot id	Subject
DSC_1582.JPG	RR, southern extension, internal
DSC_1583.JPG	RR, original? S external wall
DSC_1584.JPG	RR, original? S external wall
DSC_1586.JPG	RR, southern extension, W wall internal
DSC_1588.JPG	RR, basement detail
DSC_1589.JPG	RR, basement detail
DSC_1590.JPG	RR, basement detail
DSC_1591.JPG	RR southern and eastern parts internal
DSC_1592.JPG	RR southern and eastern parts internal
DSC_1593.JPG	RR southern and eastern parts internal
DSC_1594.JPG	RR southern and eastern parts internal
DSC_1595.JPG	RR southern and eastern parts internal
DSC_1597.JPG	RR, original? W outer wall, basement level
DSC_1598.JPG	RR, original? W outer wall, basement level
DSC_1599.JPG	RR, original? W outer wall, basement level
DSC_1600.JPG	RR, original? W outer wall, basement level
DSC_1601.JPG	RR, original? W outer wall, basement level
DSC_1602.JPG	RR, original? W outer wall, basement level
DSC_1604.JPG	TB, W wall internal
DSC_1605.JPG	TB, W wall internal
DSC_1606.JPG	TB, W wall internal
DSC_1607.JPG	TB, W wall internal
DSC_1608.JPG	TB, W wall internal
DSC_1609.JPG	RR, S wall central building, detail
DSC_1610.JPG	RR, S wall central building, detail
DSC_1612.JPG	RR, S wall central building, detail
DSC_1614.JPG	RR, S room roof
DSC_1616.JPG	RR, S room roof
DSC_1619.JPG	RR, N wall external
DSC_1621.JPG	RR, N wall external
DSC_1622.JPG	RR, N wall external
DSC_1624.JPG	RR, N wall external
DSC_1625.JPG	RR, N wall external
DSC_1626.JPG	TB, Great Union canal, looking W
DSC_1627.JPG	RR, Great Union canal, looking S
DSC_1628.JPG	RR, Great Union canal, looking S
DSC_1629.JPG	RR, Great Union canal, looking S
DSC_1630.JPG	RR, Great Union canal, looking S
DSC_1631.JPG	RR, Great Union canal, looking S
DSC_1632.JPG	RR, Great Union canal, looking S
DSC_1634.JPG	TB, N wall external
DSC_1635.JPG	TB, N wall external
DSC_1636.JPG	TB, N wall external
DSC_1638.JPG	TB, E wall external
DSC_1639.JPG	TB, E wall external
DSC_1640.JPG	General shot from RR, looking N
DSC_1641.JPG	RR, E wall external



Shot id	Subject
DSC_1643.JPG	RR, central room E wall external
DSC_1644.JPG	RR, central room E wall external
DSC_1645.JPG	RR, E wall external
DSC_1646.JPG	RR, E wall external
DSC_1647.JPG	RR, E wall external
DSC_1649.JPG	RR, central room E wall external
DSC_1651.JPG	RR, W wall basement level
DSC_1652.JPG	RR, extension towards TB, S end floor
DSC_1653.JPG	RR, extension towards TB, S end floor
DSC_1654.JPG	RR, extension towards TB, S end floor
DSC_1655.JPG	RR, central building, entrance parterre
DSC_1656.JPG	RR, central building, entrance parterre
DSC_1657.JPG	RR, central building, entrance parterre
DSC_1661.JPG	RR, W side, stairs to basement level
DSC_1662.JPG	RR, central complex, basement level
DSC_1663.JPG	RR, S extension internal column detail
DSC_1666.JPG	RR, S extension internal column detail
DSC_1667.JPG	RR, S extension internal, looking E
DSC_1687.JPG	RR, S extension internal, looking E



Photographer: Nigel Macbeth Date: 14.05.2008

TB = Triangular Building

RTS = Royal Train Shed

RR = Reading Room

Shot id	Subject
DSC_1758.JPG	Internal wall TB, looking W. Detail of bricked (and boarded) up original train door opening.
DSC_1759.JPG	Internal wall TB, looking W. Detail of bricked (and boarded) up original train door opening.
DSC_1760.JPG	Central roof window, internal wall TB, looking W
DSC_1761.JPG	Central roof window, internal wall TB, looking W
DSC_1762.JPG	Roof trusses TB, electrical fittings
DSC_1763.JPG	Roof trusses TB, electrical fittings detail
DSC_1764.JPG	Roof trusses TB, fan detail
DSC_1765.JPG	Roof trusses TB
DSC_1766.JPG	Roof trusses TB
DSC_1767.JPG	Roof trusses TB
DSC_1768.JPG	Roof trusses TB
DSC_1769.JPG	Roof trusses TB
DSC_1771.JPG	RTS, lamp shed, internal view, looking N
DSC_1772.JPG	RTS, lamp shed, internal view, looking N, central window openings
DSC_1775.JPG	RTS, lamp shed, internal view, looking S
DSC_1776.JPG	RTS, lamp shed, roof trusses detail
DSC_1777.JPG	RTS, lamp shed, window detail
DSC_1778.JPG	RTS, lamp shed, internal view, looking S
DSC_1779.JPG	RTS, lamp shed, internal view, looking S
DSC_1781.JPG	RTS, lamp shed, external view, southern elevation, looking N
DSC_1782.JPG	RTS, lamp shed, external view, southern elevation, looking N
DSC_1783.JPG	RTS, lamp shed, external view, southern elevation, looking N
DSC_1786.JPG	RTS, external view, southern elevation, looking N
DSC_1787.JPG	TB, view from N across canal
DSC_1788.JPG	TB, view from N across canal
DSC_1789.JPG	Albion project officer and Willmott Dixon foreman



Photographer: Nigel Macbeth Date: 31.03.2009

TB = Triangular Building

RTS = Royal Train Shed

RR = Reading Room

Shot id	Subject
260.JPG	RTS eastern external elevation, general and oblique shots
261.JPG	RTS eastern external elevation, general and oblique shots
262.JPG	RTS eastern external elevation, general and oblique shots
263.JPG	RTS eastern external elevation, general and oblique shots
264.JPG	RTS northern external elevation
265.JPG	RTS eastern external elevation, head on shots, taken from N to S (including new football stand)
266.JPG	
267.JPG	
268.JPG	
269.JPG	RTS eastern elevation, plinth northern section, looking N
270.JPG	
271.JPG	
272.JPG	
273.JPG	RTS eastern elevation, oblique shots, looking NW
274.JPG	
275.JPG	
276.JPG	
277.JPG	RTS, lantern building, western elevation
278.JPG	
279.JPG	
280.JPG	
281.JPG	RTS, lantern building, internal view, looking SE
282.JPG	
283.JPG	
284.JPG	
285.JPG	RTS, lantern building, internal view, looking N
286.JPG	
287.JPG	
288.JPG	
289.JPG	RTS, lantern building, southern elevation
290.JPG	
291.JPG	
292.JPG	
293.JPG	RTS, western elevation, head on shots taken from N to S
294.JPG	
295.JPG	
296.JPG	
297.JPG	RTS western elevation oblique shot looking N
298.JPG	
299.JPG	
300.JPG	
301.JPG	RTS western elevation without van
302.JPG	RTS southern elevation



Shot id	Subject
303.JPG	RTS southern elevation
304.JPG	TB northern canal side façade oblique shots
305.JPG	
306.JPG	
307.JPG	
308.JPG	
309.JPG	
310.JPG	
311.JPG	RR, seen across canal looking S
312.JPG	TB internal western wall, bricked up original train carriage entrance
313.JPG	TB, western external elevation, northern end
314.JPG	TB, northern elevation head on shots from W to E
315.JPG	TB, northern elevation head on shots from W to E
316.JPG	TB, northern elevation head on shots from W to E
317.JPG	TB, northern elevation head on shots from W to E
318.JPG	TB, northern elevation and new roof sections, photographed from new building across canal
319.JPG	
320.JPG	
321.JPG	
322.JPG	
323.JPG	
324.JPG	
325.JPG	
326.JPG	
327.JPG	
328.JPG	
329.JPG	
330.JPG	
331.JPG	
332.JPG	
333.JPG	
334.JPG	TB, northern elevation, head on and oblique shots moving from W to E
335.JPG	
336.JPG	
337.JPG	
338.JPG	
339.JPG	
340.JPG	
341.JPG	TB, northern elevation, head on and oblique shots moving from W to E
342.JPG	
343.JPG	
344.JPG	
345.JPG	
346.JPG	
347.JPG	
348.JPG	
349.JPG	TB, western elevation, oblique and head on shots



Shot id	Subject
350.JPG	TB, western elevation, oblique and head on shots
351.JPG	
352.JPG	
353.JPG	
354.JPG	
355.JPG	TB, NW corner
356.JPG	TB, NW corner
357.JPG	TB, NW corner
358.JPG	TB, NW corner
359.JPG	TB, NW corner
360.JPG	TB, NW corner
361.JPG	TB, western elevation oblique shots, moving from N to S
362.JPG	
363.JPG	
364.JPG	
365.JPG	
366.JPG	
367.JPG	
368.JPG	
369.JPG	
370.JPG	
371.JPG	
372.JPG	
373.JPG	
374.JPG	
375.JPG	
376.JPG	
377.JPG	TB, western elevation portico, southern façade
378.JPG	TB, internal view, post construction, looking E
379.JPG	TB, internal view, post construction, looking E
380.JPG	TB, western elevation, southern part (former foot warmer room)
381.JPG	TB, western elevation southern part taken from Stratford Road
382.JPG	TB, western elevation southern part, taken from Stratford Road
383.JPG	TB, southern part, western façade and internal new builds
384.JPG	RR workers entrance in southern wall
385.JPG	RR post-development eastern elevation
386.JPG	RR post-development eastern elevation
387.JPG	Canal bridge detail
388.JPG	RR post-development eastern elevation
389.JPG	RR post-development eastern elevation
390.JPG	RR post-development eastern and northern elevation
391.JPG	RR post-development eastern and northern elevation
392.JPG	RR post-development northern elevation
393.JPG	RR post-development northern elevation
394.JPG	TB northern elevation, images taken from towpath moving from W to E
395.JPG	TB northern elevation, images taken from towpath moving from W to E
396.JPG	TB northern elevation, images taken from towpath moving from W to E



Shot id	Subject
397.JPG	
398.JPG	
399.JPG	TB northern elevation, images taken from towpath moving from W to E
400.JPG	
401.JPG	
402.JPG	
403.JPG	British Rail wall, external wall to Wolverton Works along Stratford Road, looking N
404.JPG	British Rail wall, external wall to Wolverton Works along Stratford Road, looking N
405.JPG	British Rail wall, external wall to Wolverton Works along Stratford Road, looking N, including entrance to RR
406.JPG	British Rail wall, external wall to Wolverton Works along Stratford Road, looking N, including entrance to RR
407.JPG	British Rail wall, external wall to Wolverton Works along Stratford Road, looking N, including entrance to RR



8.4 Listed buildings descriptions

Descriptions are reproduced from English Heritage's database of Listed Buildings Online. Available at: <http://lbonline.english-heritage.org.uk/Login.aspx>

Building Details:

Building Name: FORMER ROYAL TRAIN SHED
Parish: WOLVERTON AND GREENLEYS
District: MILTON KEYNES
County: BUCKINGHAMSHIRE

Details:

LBS Number: 487605
Grade: II
Date Listed: 23/05/2001
Date Delisted:
NGR: SP8185341580

Listing Text:

SP 8241 OLD WOLVERTON ROAD
 891/2/10005 Wolverton
 23-MAY-01 Former Royal Train Shed

GV II

Railway works building. Built in 1889 and designed by C A Park. The building is constructed of red brick with a Welsh slate and glazed roof. It is a long narrow gabled three-road shed of thirty-three bays built parallel with the tracks with an additional shorter and narrower gabled shed built onto the north-west side of the main one. The south gable has triple doors with a tripartite arched opening in the gable above. The north gable has three sunk panels with a tripartite opening in the gable above. The north gable of the additional building has only two sunk panels, but it also has a tripartite opening in the gable. The long walls have thirty-three sunk panels separated by pilasters. Each bay has a large iron framed window with 5 x 6 panes. Continuous rooflights both at the ridge and along each slope. The west wall is level with the tracks, the east wall stands on the earlier revetted stone and brick embankment which itself is articulated by plain pilasters acting as buttresses.

Interior: The interior was not inspected, but each wall pier will carry a light wrought iron or steel truss spanning the building and leaving the floor space unimpeded. Since it was designed as a lifting shop the walls had to be very strong to support the tracks for the travelling cranes.

History: This building was constructed in 1889 as a part of the improvements to the Wolverton works designed by the Works Superintendent C A Park and was a state-of-the-art railway works building for its time. It is built on a rock faced sandstone and red brick revetted embankment, which dates from the 1830s and carried the original Wolverton station in use 1838-40. It is an important component of what was in the 1890s one of the most important integrated large-scale manufacturing sites in the world. It was built first as a lifting shop, but it had become an underframe shop by 1926 and a heavy machine shop in 1934. When the works were reorganised post-Beeching in 1963 it became the storehouse for the Royal train (built in the adjoining works) which it remained until 1991, and it has been unused since.

References: M A Bird, *The Development of Wolverton, Buckinghamshire from Railway Town to New City* (1838-1974), Goldsmiths College dissertation, 1974 (Wolverton Library).

Bill West, *The Trainmakers, The Story of Wolverton Works, 1838-1981*.

Bill West, *Wolverton Works in Camera, 1838-1993*.

Information from Milton Keynes Borough Council.

**Building Details:**

Building Name: FORMER RAILWAY
WORKS BUILDING
Parish: WOLVERTON AND GREENLEYS
District: MILTON KEYNES
County: BUCKINGHAMSHIRE

Details:

LBS Number: 487608
Grade: II
Date Listed: 23/05/2001
Date Delisted:
NGR: SP8197841365

Listing Text:

SP 8141 STRATFORD ROAD
891/2/10002 Wolverton
23-MAY-01 Former Railway Works Building

GV II

Railway works building. 1845, for the London and Birmingham Railway, extended 1850 and altered late C19 and early C20 by the London and North Western Railway. Red brick with some stone dressings and slate roofs with extensive glazed lights. A high single storey with gabled roofs running in different directions. The 1845 build is a rectangle facing west onto the railway line with five gabled roofs running east-west, the southern one of these flanks the Stratford Road. Stretching north along the railway to the canal bridge is a gabled range, once the tender shop. To the north and east of the original build are extensions of 1850 and later. The whole is in a very similar 'house' architectural character, which make it very difficult to separate into different builds. The infilled site forms a triangle with the west elevation facing the railway, the south elevation the road and the north-east one the Grand Junction canal.

West elevation: This has three and a half bays of the former tender shop running parallel with the track and then the five gable ends of the engine plant to the right. Each of the left-hand bays have sunk panels containing two arch headed metal-framed multi-pane windows. The piers between the bays carry a plain stone cornice. The half-bay to the right has only a single window. Glazed ridge light to the roof. The five gables to the right are fronted by a wall again with a sunk panel to each gabled section with two recessed arched windows, some of which have been bricked up. Stone parapet and stone coped gables which each have an arched louvered vent. The second bay from the left is set forward with carriage doors in the returns, this originally had a through line with a turntable inside to give rail access to the workshop. The south elevation to the road is largely hidden by the perimeter wall, but the east end of the south gable has a tripartite light.

The north-east elevation is obscured at the south end by the old reading room. Where it fronts the canal there are four bays parallel with the water, each has a single arched window. Then there are four gables each divided into two sunk panels containing an elliptically headed window; small central arched louvered vent in the gable above. At the far right hand adjoining the railway bridge is the gable end of the 1845 tender shop (see above). This completes the circuit. The three sections have can be clearly seen as different builds with straight joints between, but are so close in character as to be very difficult to date.

Interior: Interior not seen but it is known to have timber roofs of wide span carried on plain cast iron columns. The roof trusses have principal rafters, which carry collars and king-posts; the principals do not go to the ridge but to large purlins surrounding the ridge glazing.

History: The new locomotive erecting shop of the London and Birmingham Railway was the second phase of the development of Wolverton works following its beginnings to the west of



the line in 1838. The new shop was built in 1845 and after J McConnell was made Locomotive Superintendent of the southern division of the London and North Western Railway in 1847 it became extremely busy and was where his famous 'Bloomers' were constructed in the years 1851-62. On the resignation of McConnell in 1862 locomotive building was confined to Crewe and Wolverton became the principal carriage works of the LNWR. These particular buildings were thus the locomotive erecting shop and forges until 1873 and then the carriage painting shop, which it remained until reorganisation in 1963. It then became the cell shop and general store until final closure in 1991. It is of particular significance as being the earliest surviving part of the Wolverton works which was, for a long period, one of Britain's premier industrial complexes.

References: M A Bird, *The Development of Wolverton, Buckinghamshire from Railway Town to New City (1838-1974)*, Goldsmiths College dissertation, 1974 (Wolverton Library).

Bill West, *The Trainmakers, The Story of Wolverton Works, 1838-1981*.

Bill West, *Wolverton Works in Camera, 1838-1993*.

Information from Milton Keynes Borough Council.



Building Details:

Building Name: FORMER READING ROOM FOR WOLVERTON RAILWAY WORKS
Parish: WOLVERTON AND GREENLEYS
District: MILTON KEYNES
County: BUCKINGHAMSHIRE

Details:

LBS Number: 491609
Grade: II
Date Listed: 06/02/2004
Date Delisted:
NGR:

Listing Text:

891/0/10003 STRATFORD ROAD
 06-FEB-04 Wolverton
 Former Reading Room for Wolverton Railway Works

GV II

Former Reading Room, for the London and Birmingham Railway, empty at the time of inspection (2003). 1839 with minor C20 alterations. Red brick in English Bond. with some stone dressings. Hipped slate roof with roof lights and ridge ventilators. Restrained Classical style.

EXTERIOR: Long east elevation to Canal has 6 first floor windows with some of those to ground floor blocked by a lower addition; slightly lower single bay to rear. West elevation faces the 1846 former locomotive shed (q.v.), to which it is attached with later in-fill structures. Windows have steel frames with 12 lights, under stone lintels with keyblocks.

INTERIOR: Not inspected

HISTORY: Built in 1839 as a reading room for the London and Birmingham Railway at the Wolverton Works, which had opened the previous year. The first buildings constructed were a passenger station, workshop, gas works, and five rows of houses; the reading room was one of several buildings constructed immediately afterwards to serve the social and spiritual needs of the railway employees. As a library and reading room it had 700 books and numerous periodicals; the building also served as a Wesleyan Chapel before the Chapel was built, and fulfilled several light industrial uses in the later C19 and early C20.

SOURCES: West, Bill. *The Trainmakers: The Story of Wolverton Works*. Barracuda Books, 1982.

Head, F.B. *Stokers and Pokers; or the London and North Western Railway*, 1849.

The 1839 brick former Reading Room is listed as an early and interesting example of social provision within a large scale works that has strong group value, and that survives relatively unaltered as an historically important component of the nationally important Wolverton Railway Works.

Group value with the other listed railway buildings at Wolverton, particularly the adjacent Former Railway Works Building (q.v.).

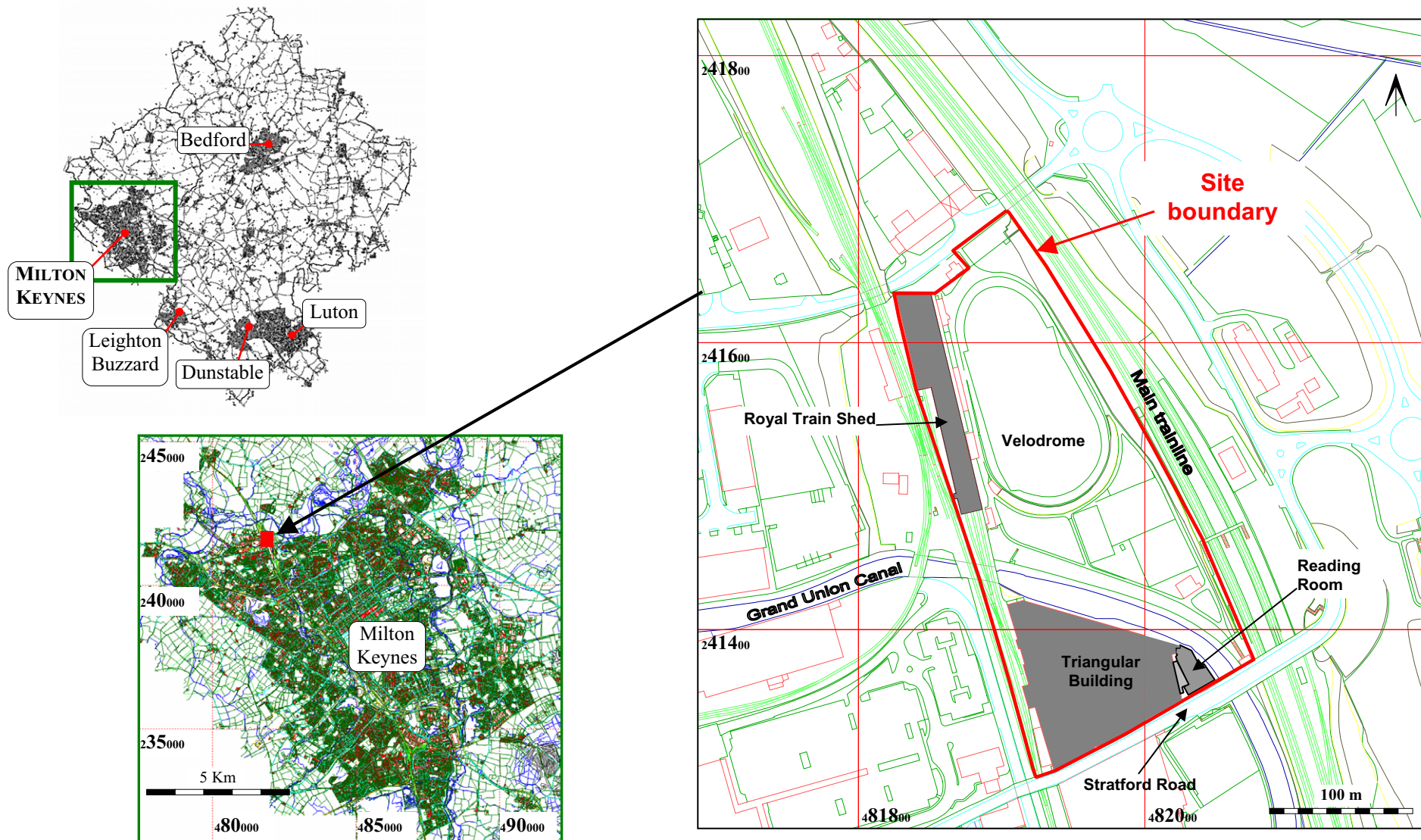


Figure 1: Site location map

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Wolvorton Park, Milton Keynes. A Programme of Archaeological and Architectural Investigation of the Royal Train Shed, Triangular Building and Reading Room

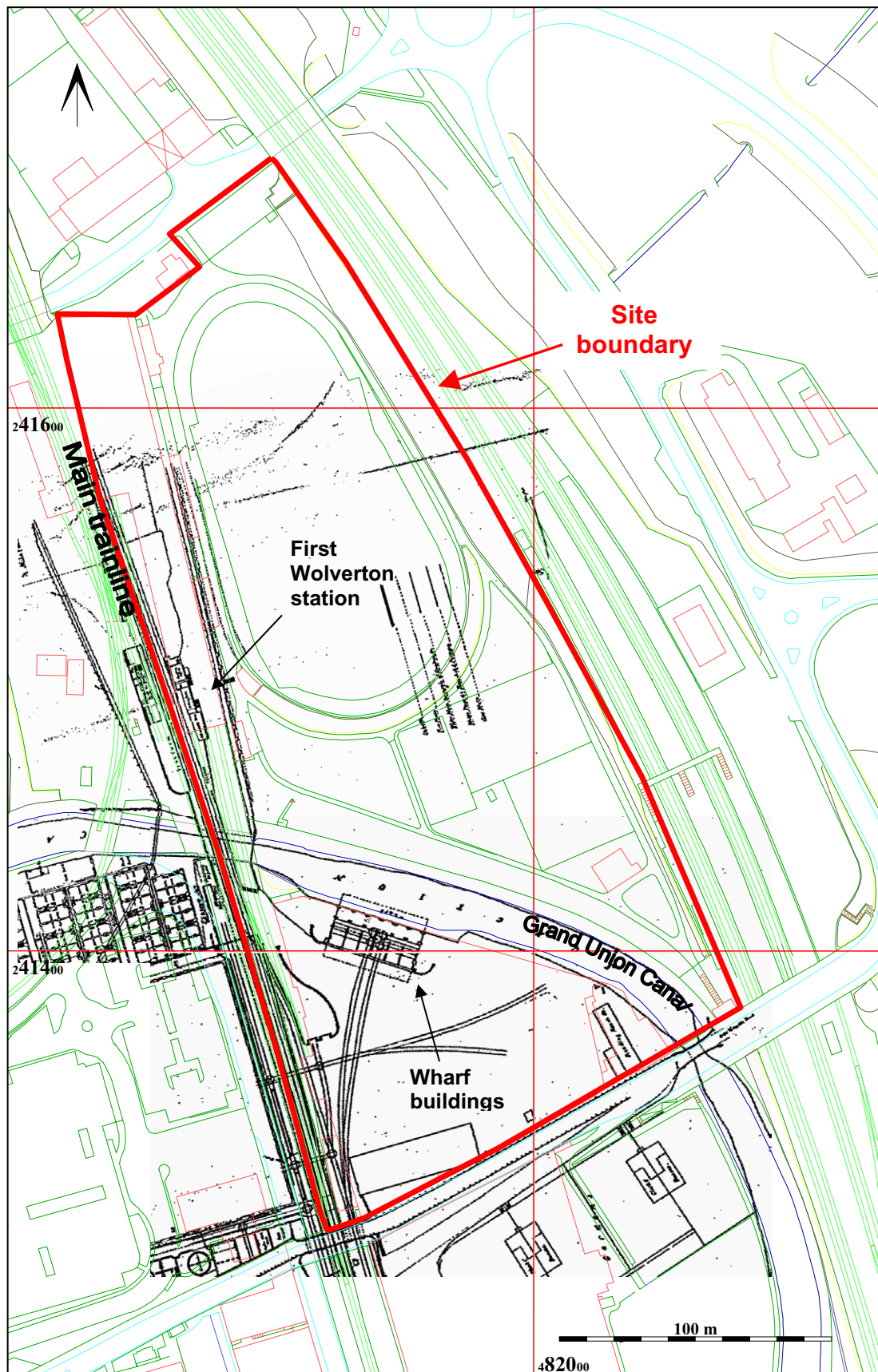


Figure 2: Wharf structures and buildings on the site of the Triangular building
1840

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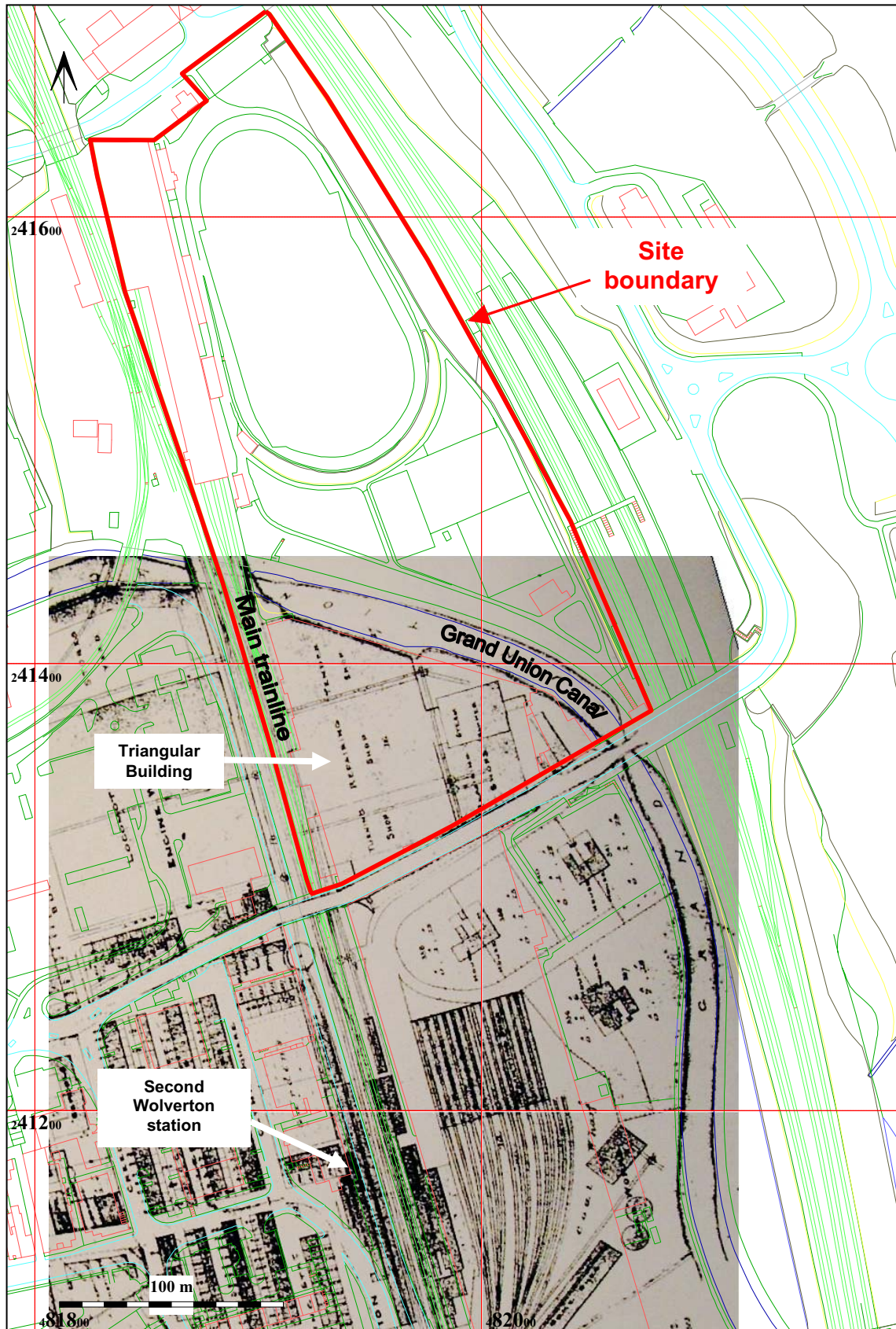


Figure 3: 1860 historical map overlaid onto modern OS landline map

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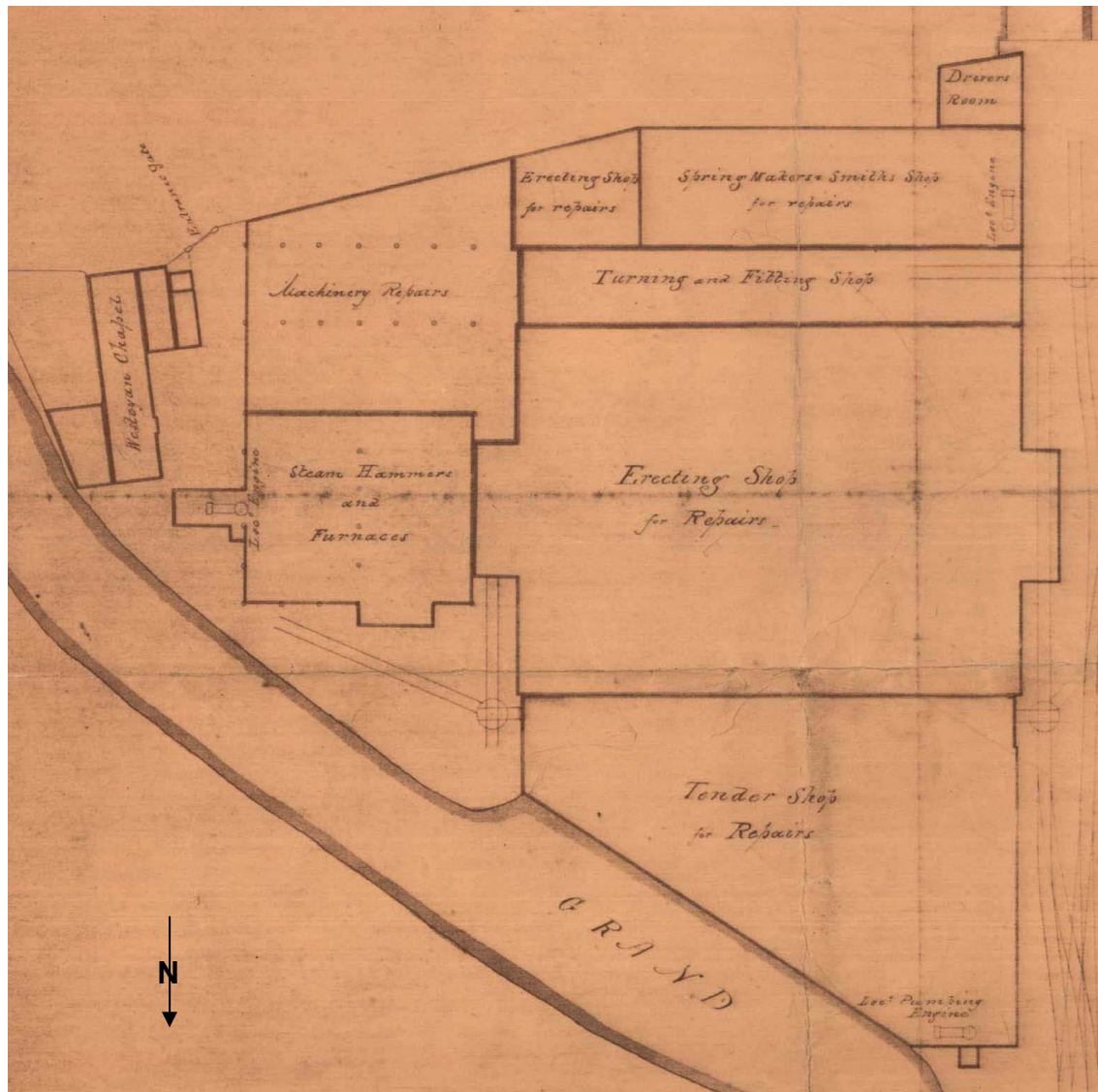


Figure 4: Undated historical map of the Triangular Building and Reading Room (circa 1850/60)

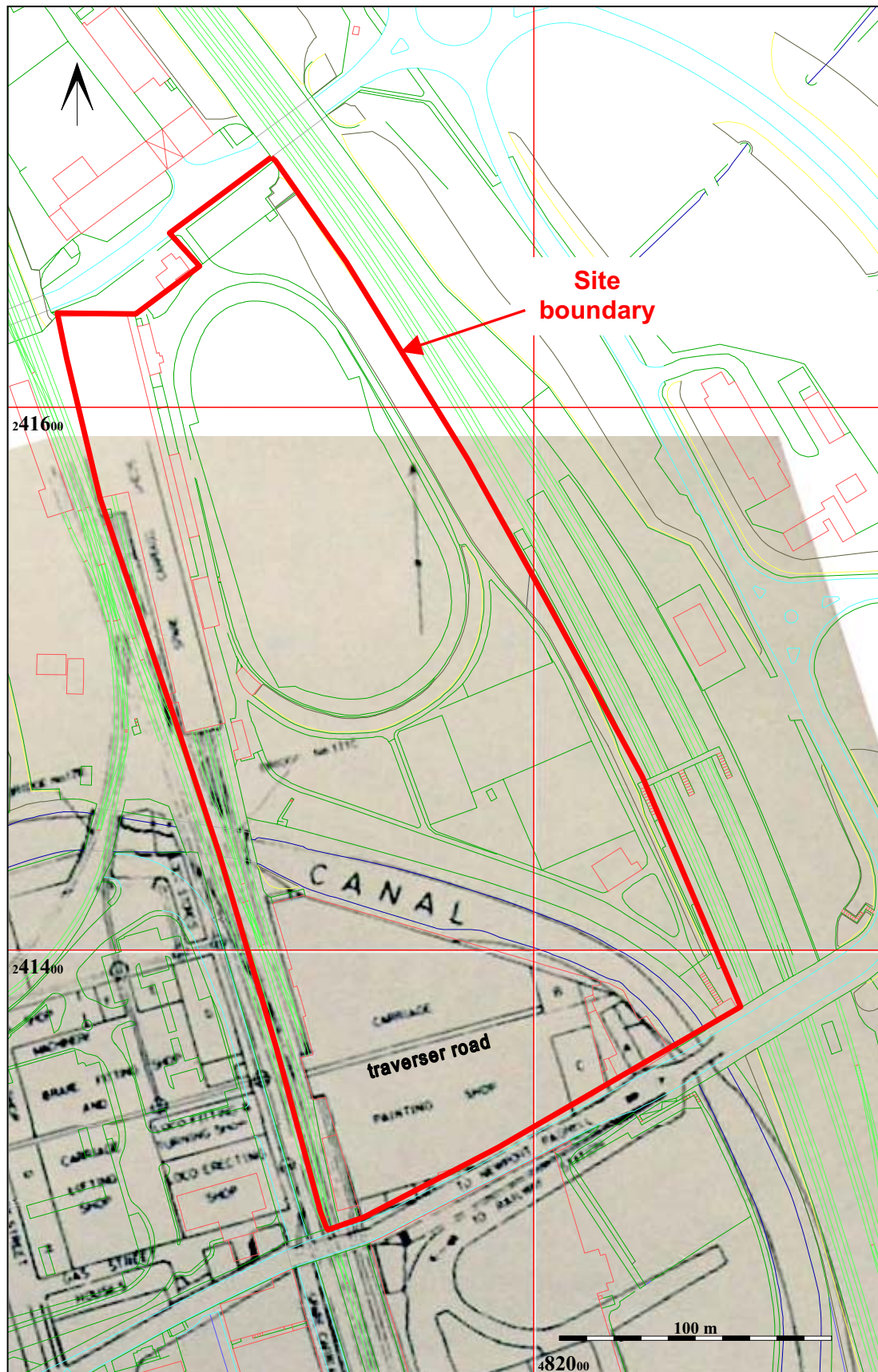


Figure 5: 1873 historical map overlaid onto modern OS map

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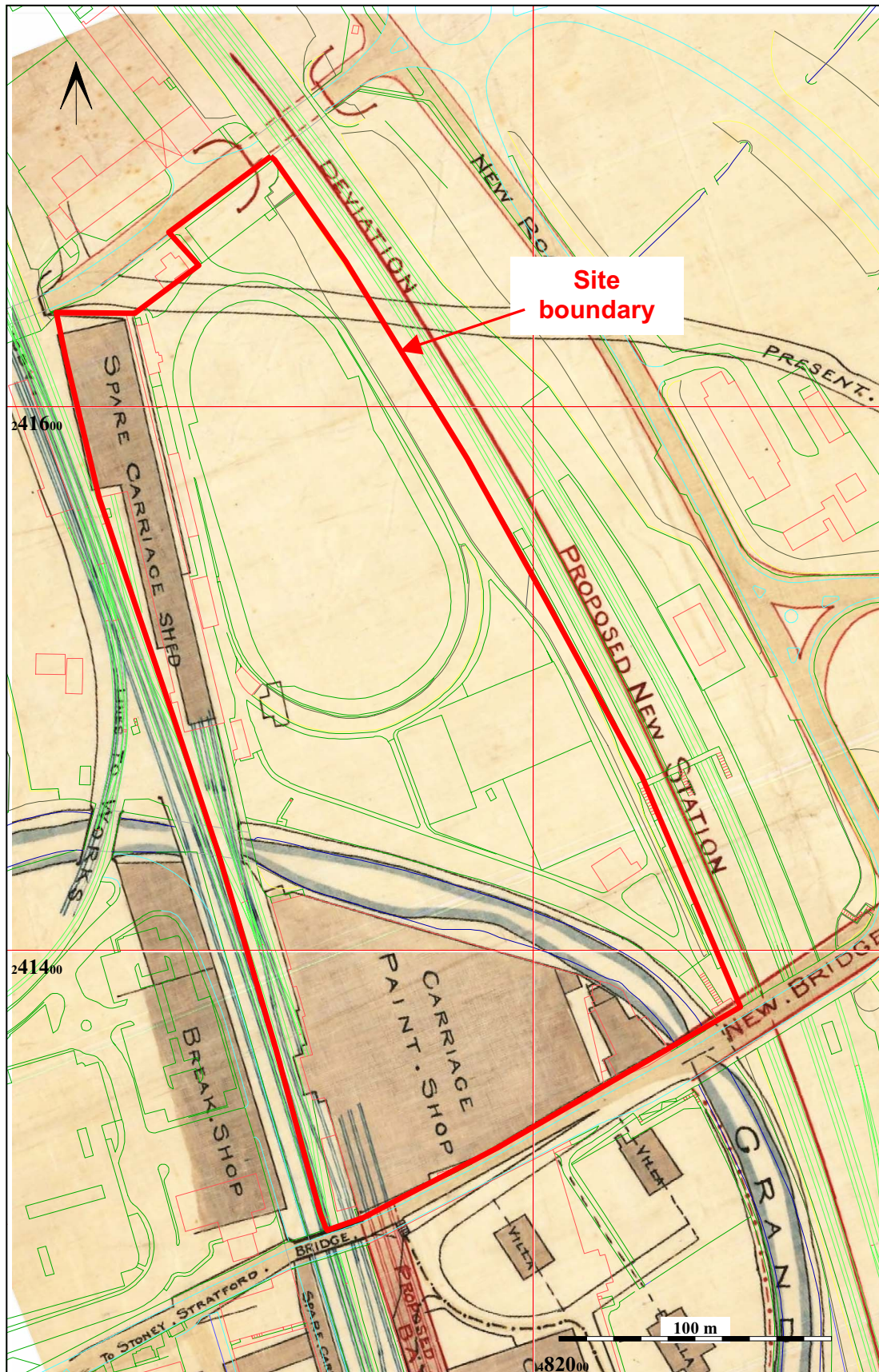


Figure 6: 1880 historical map overlaid onto modern OS landline map

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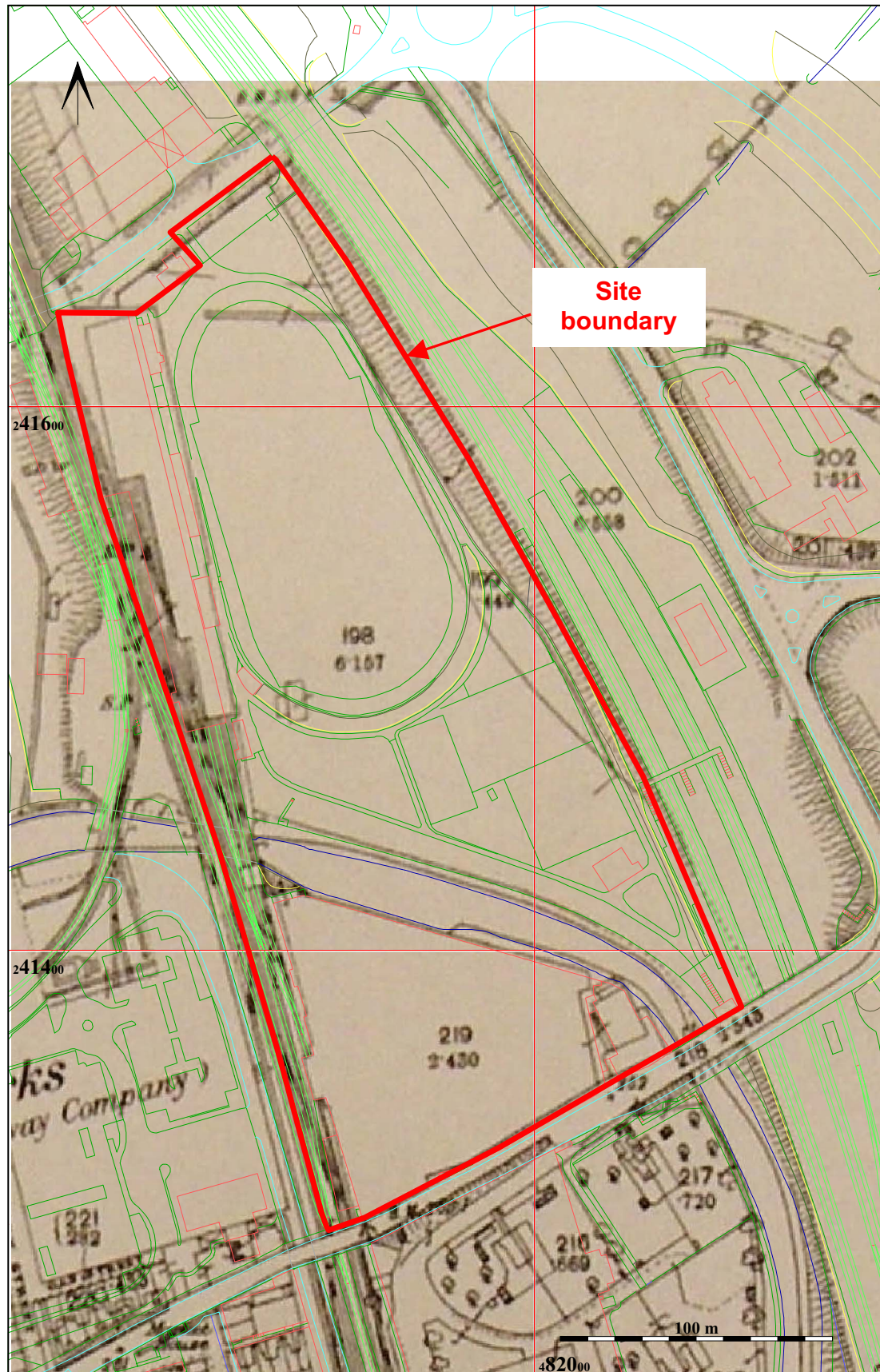


Figure 7: 1881 historical map overlaid onto modern OS landline map

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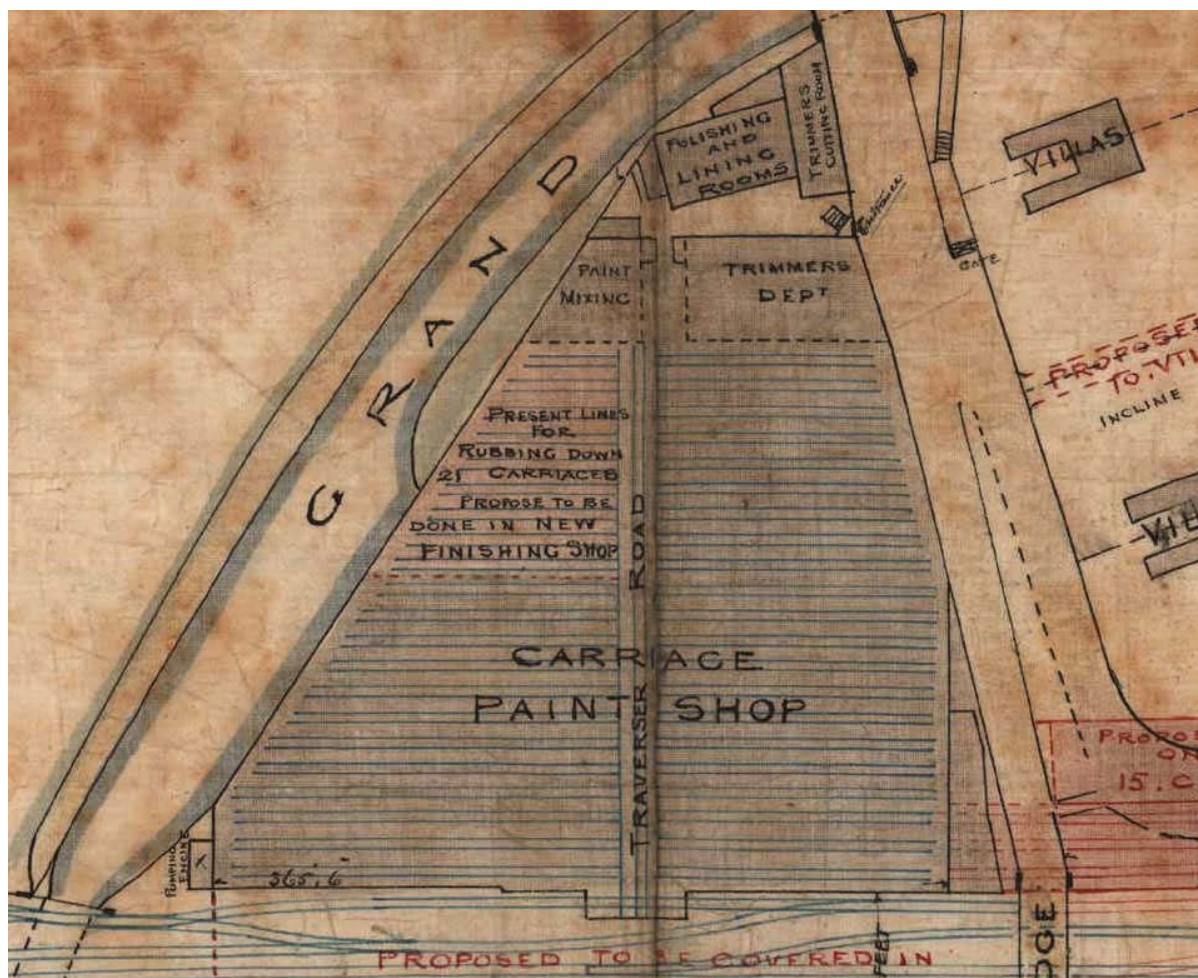
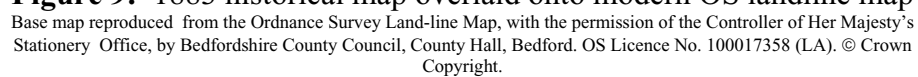


Figure 8: 1882 historical map Triangular Building detail





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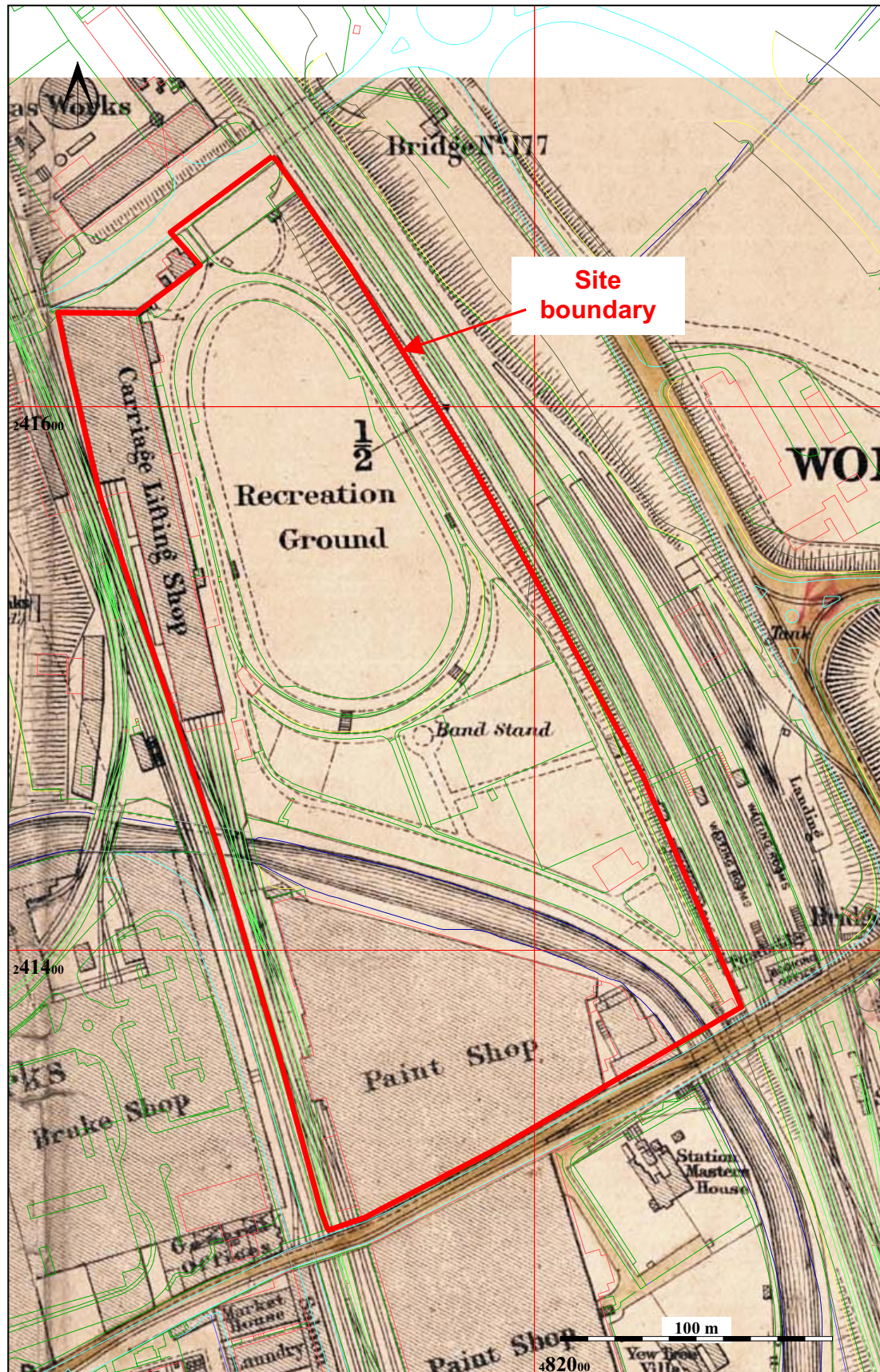


Figure 11: 1897 historical map overlaid onto modern OS landline map

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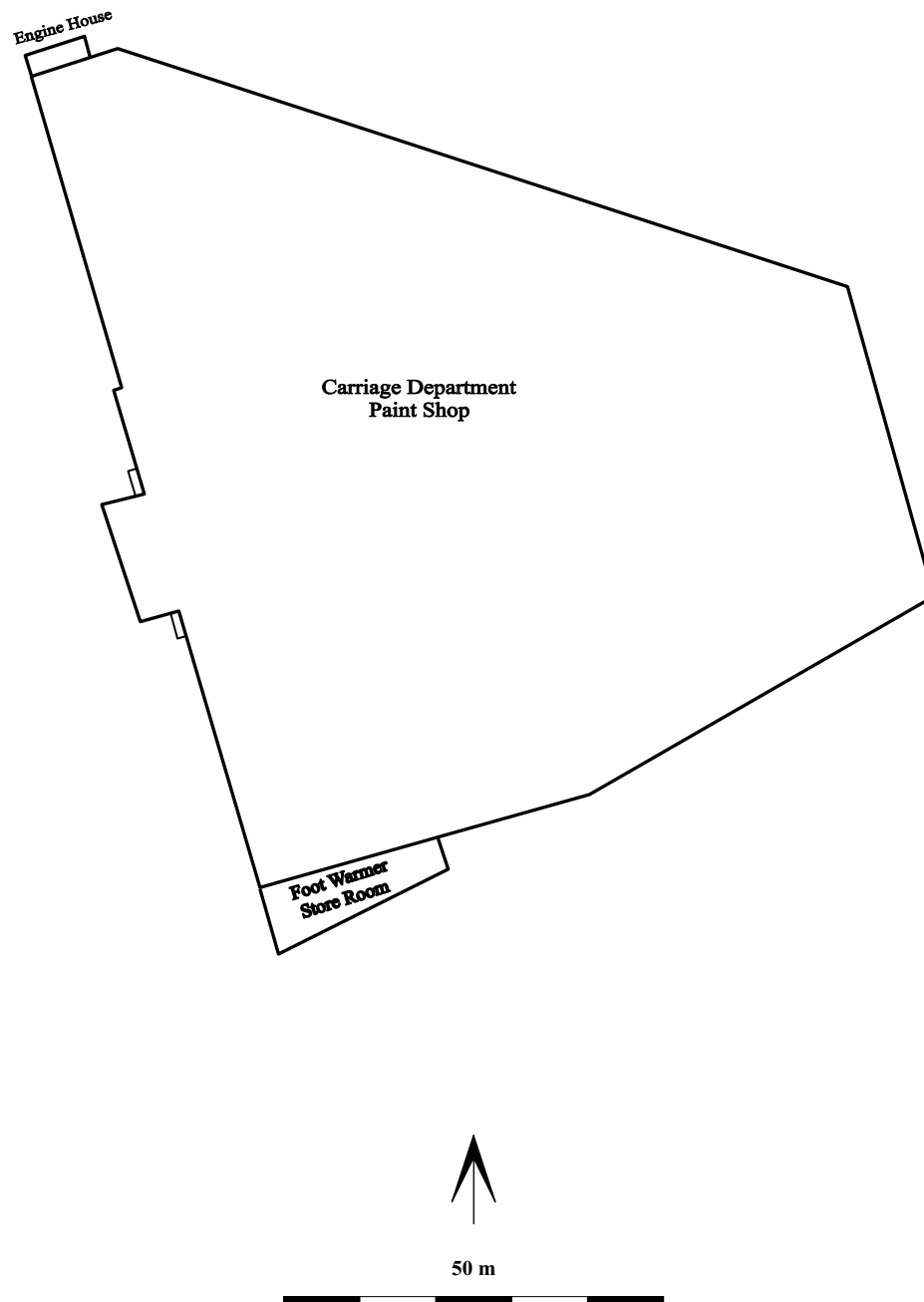


Figure 13: Transcribed map of Triangular Building in 1874

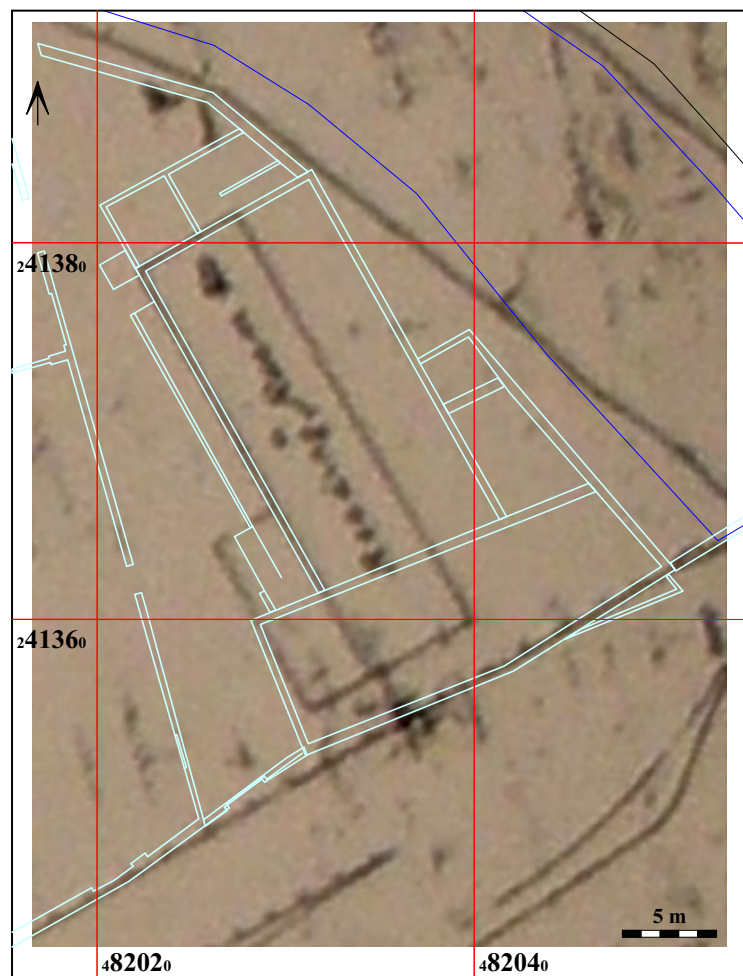


Figure 14: Reading Room historical map 1840
(Scale and OS grid approximate)

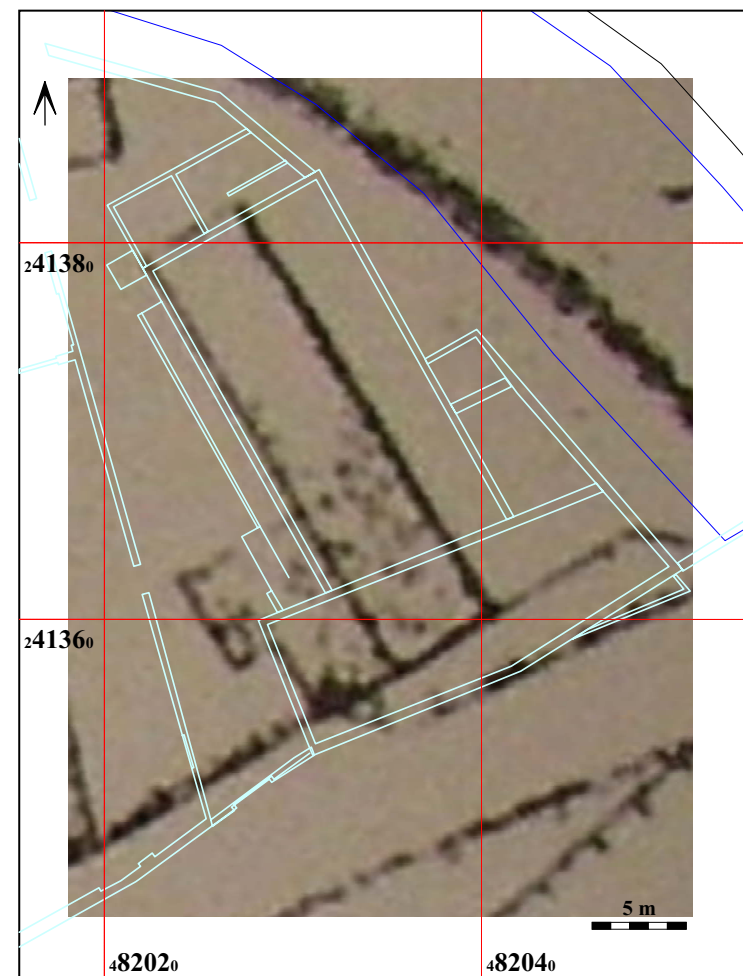


Figure 15: Reading Room historical map 1860
(Scale and OS grid approximate)

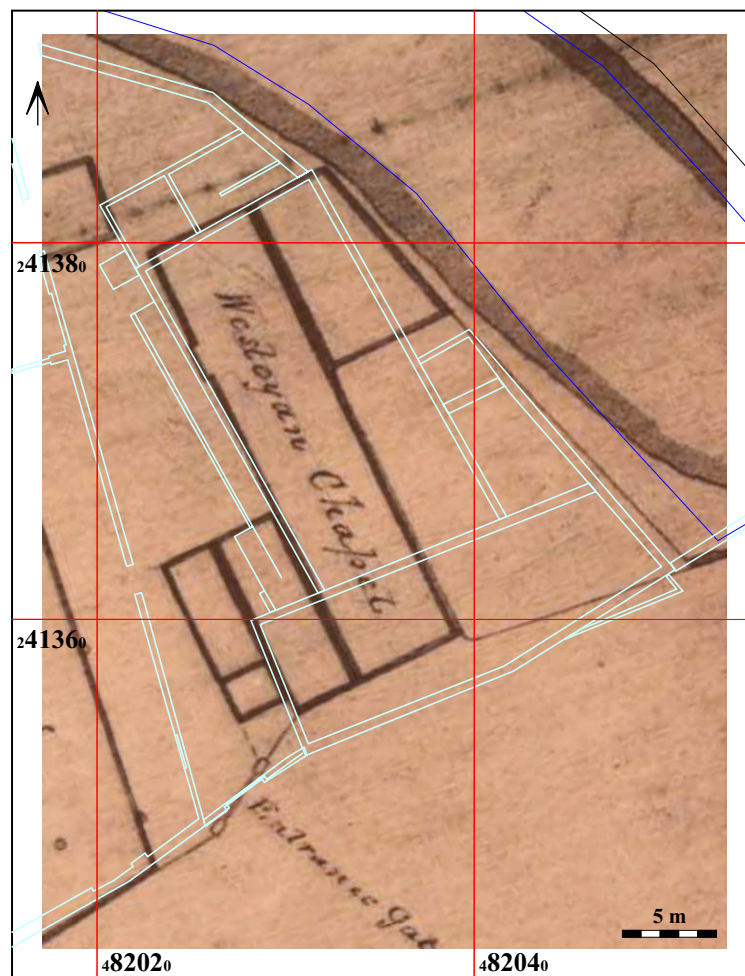


Figure 16: Reading Room historical map circa 1850-1860
(Scale and OS grid approximate)

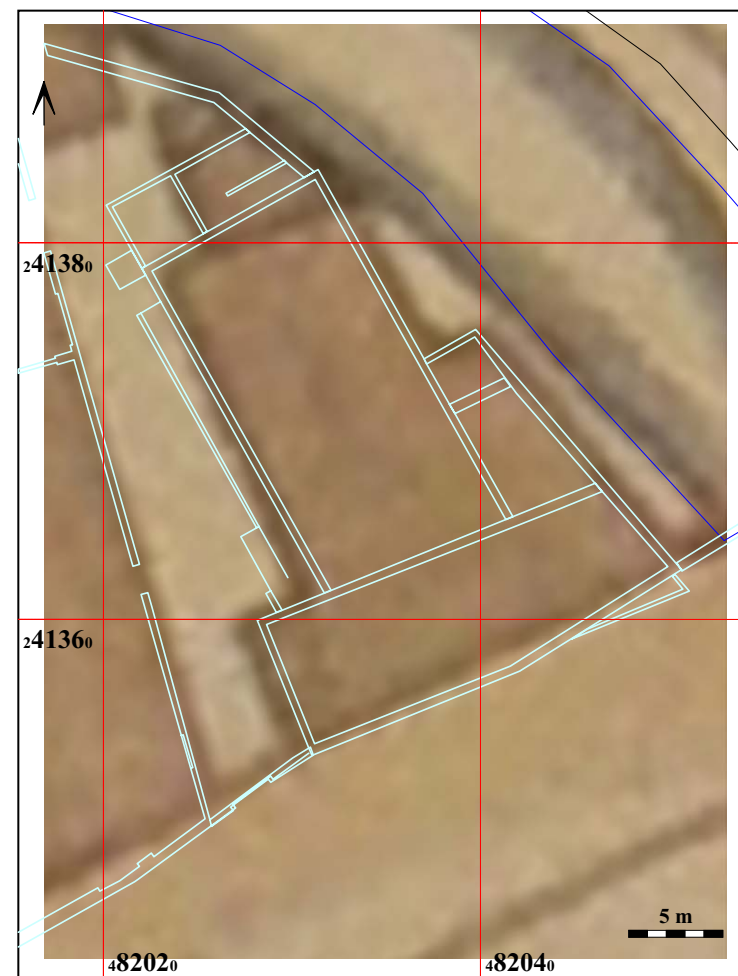


Figure 17: Reading Room historical map 1880
(Scale and OS grid approximate)

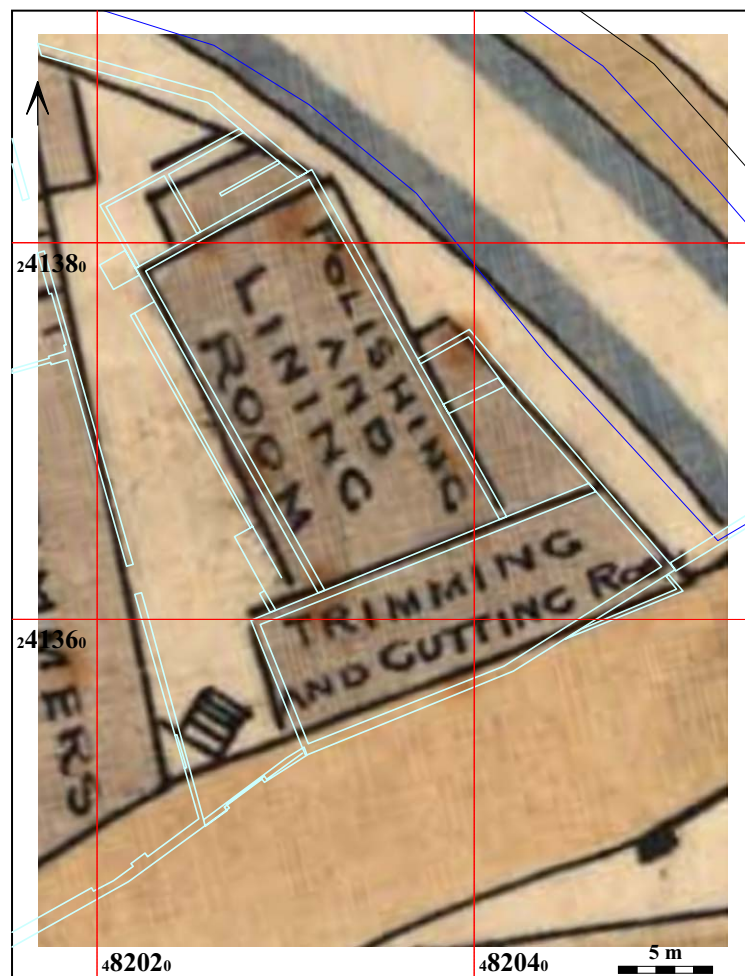


Figure 18: Reading Room historical map 1883
(Scale and OS grid approximate)

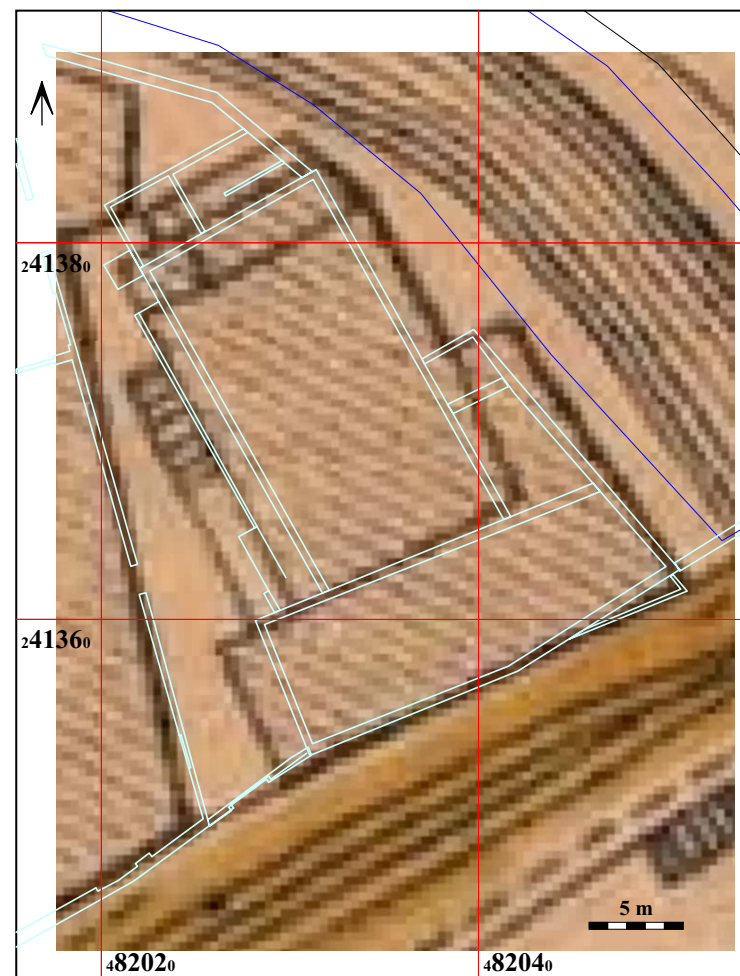


Figure 19: Reading Room historical map 1897
(Scale and OS grid approximate)

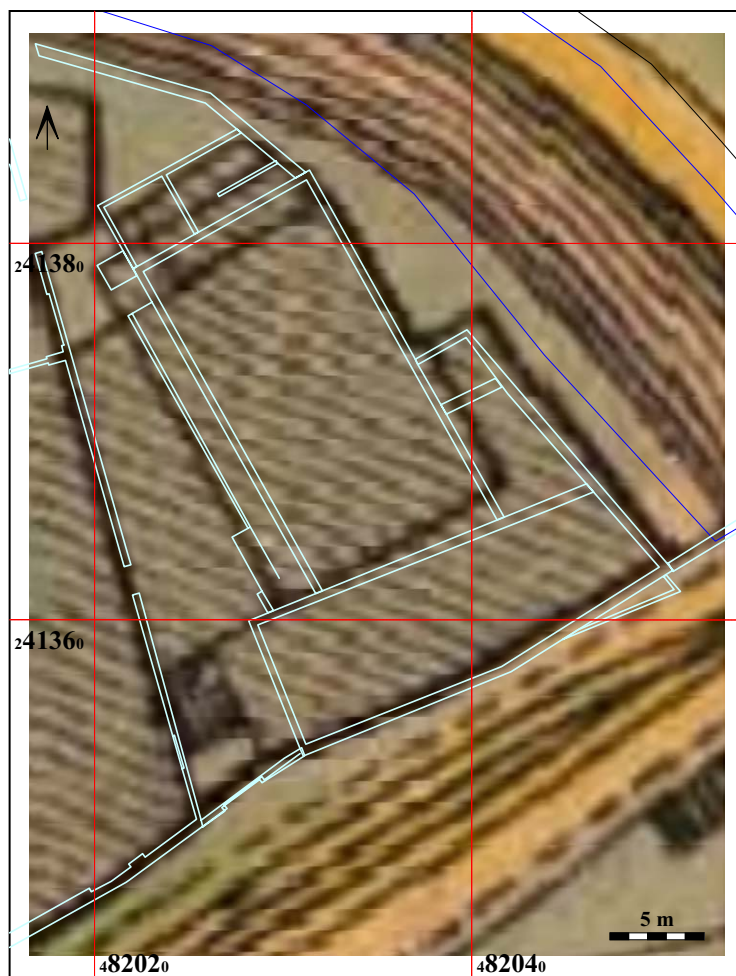


Figure 20: Reading Room historical map 1909
(Scale and OS grid approximate)

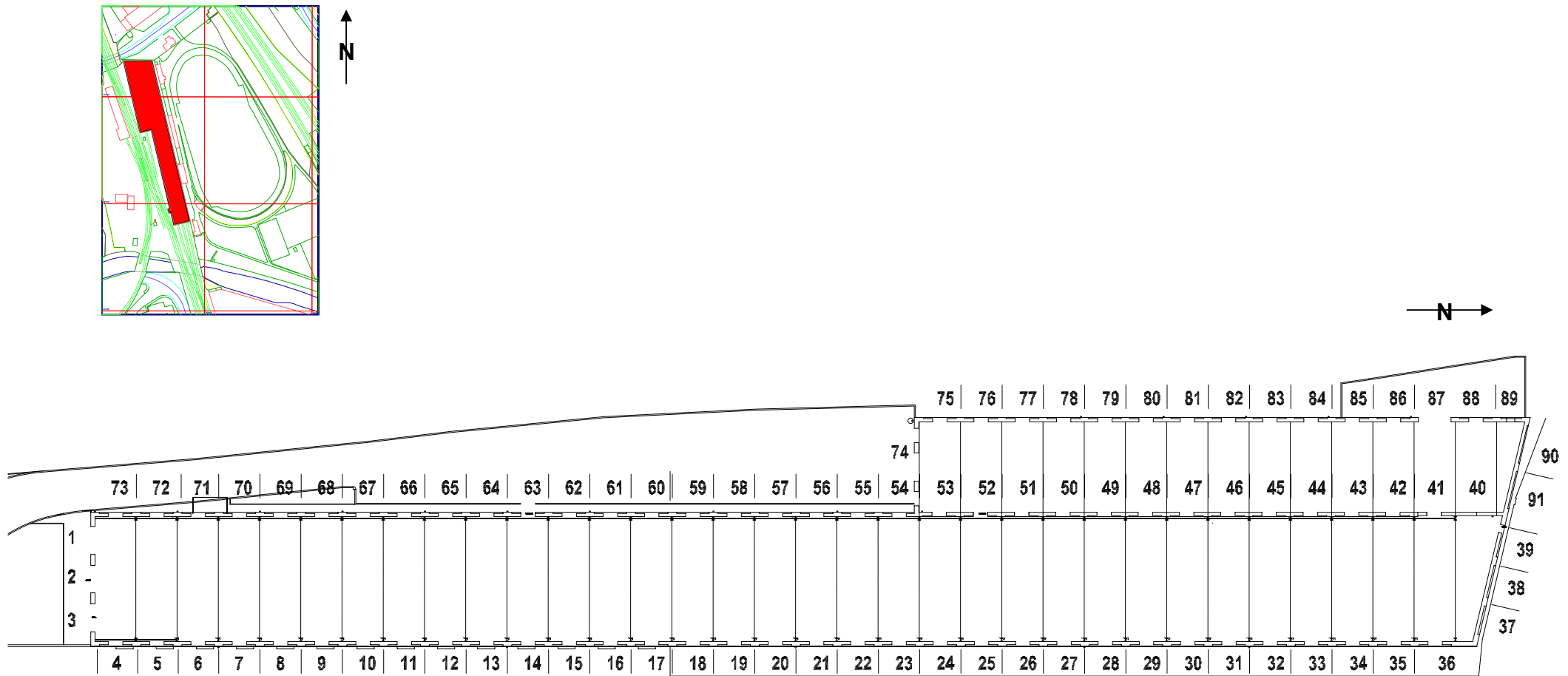


Figure 21: Royal Train Shed numbering of bays (figure reproduced from RPS 2007a)

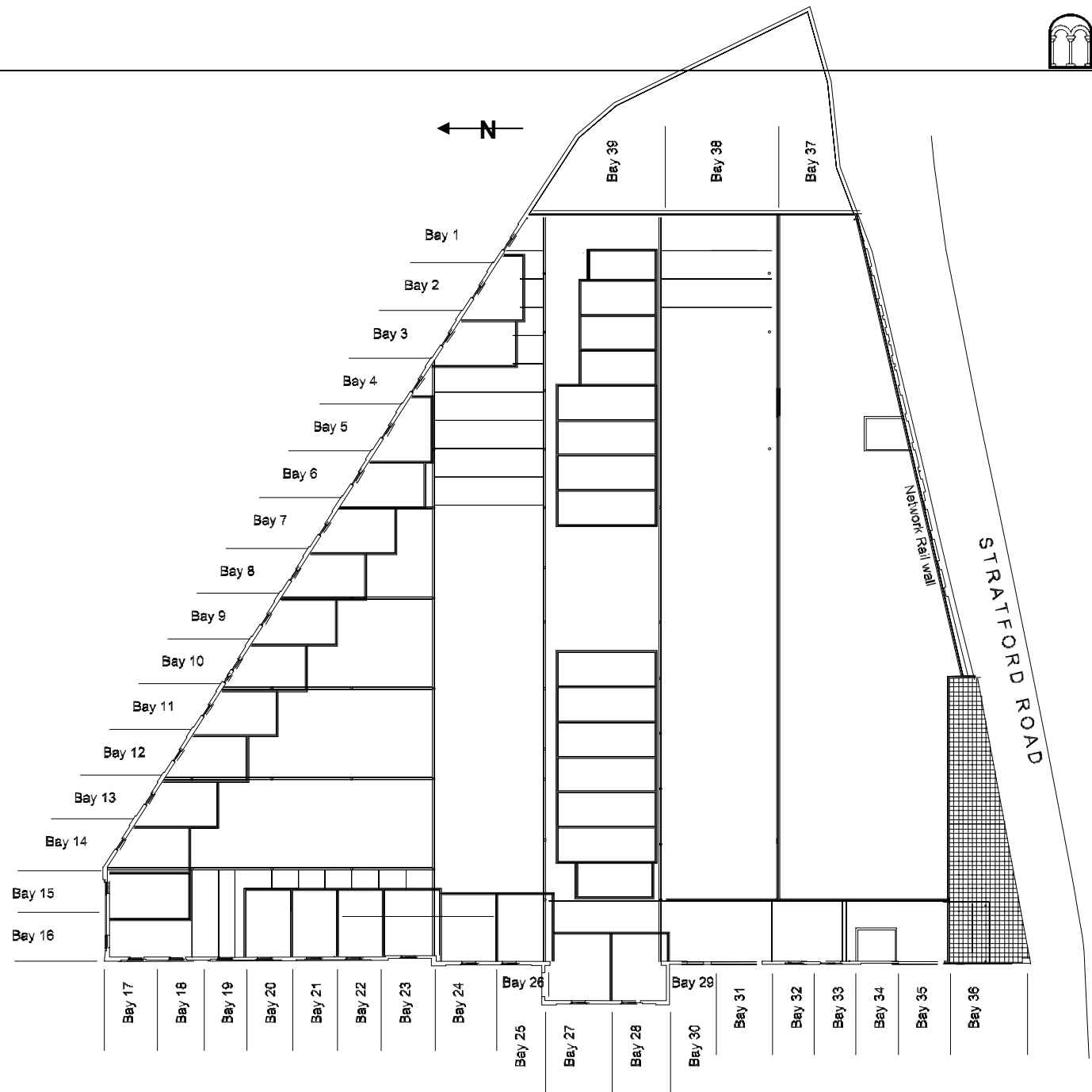
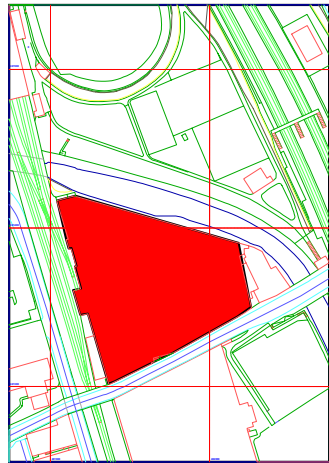


Figure 22: Triangular Building numbering of bays (figure reproduced from RPS 2007b)

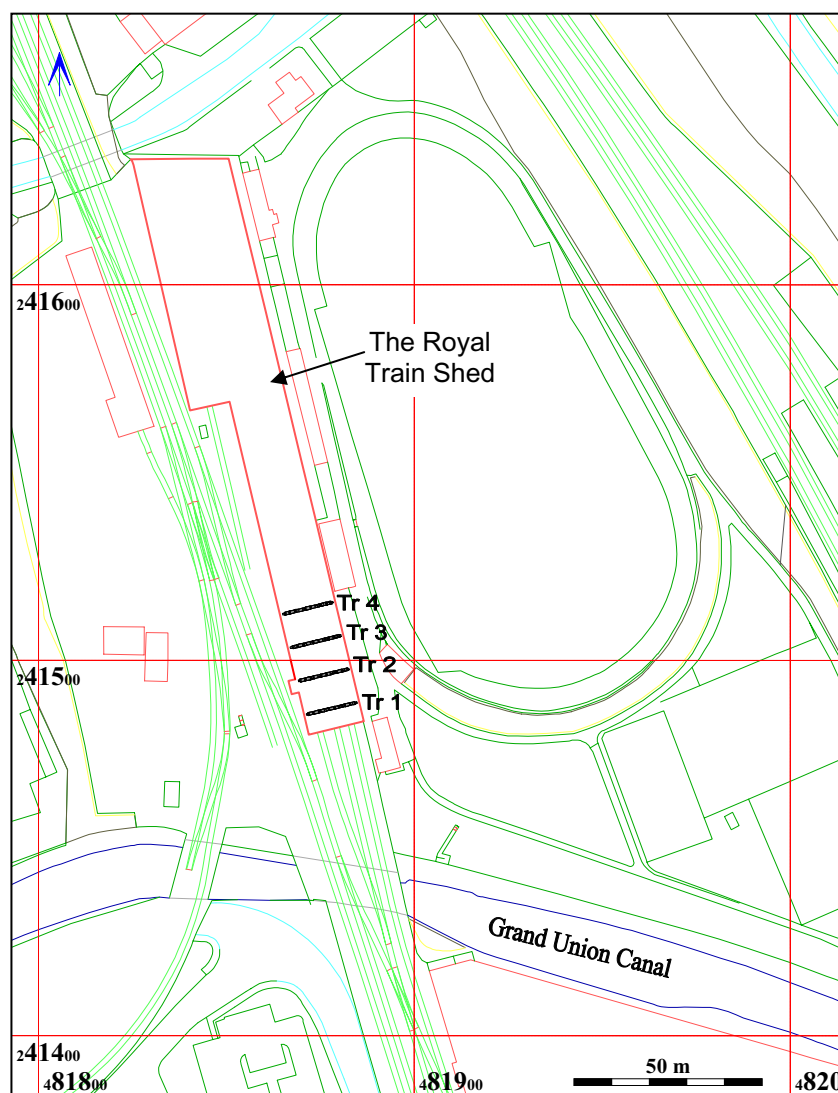


Figure 23: Sondage trenches within Royal Train Shed overlaid on modern OS map

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Figure 24: Sondage trenches within Royal Train Shed overlaid on 1840 map
(Note, position of 1840 map on modern OS grid is approximate only)

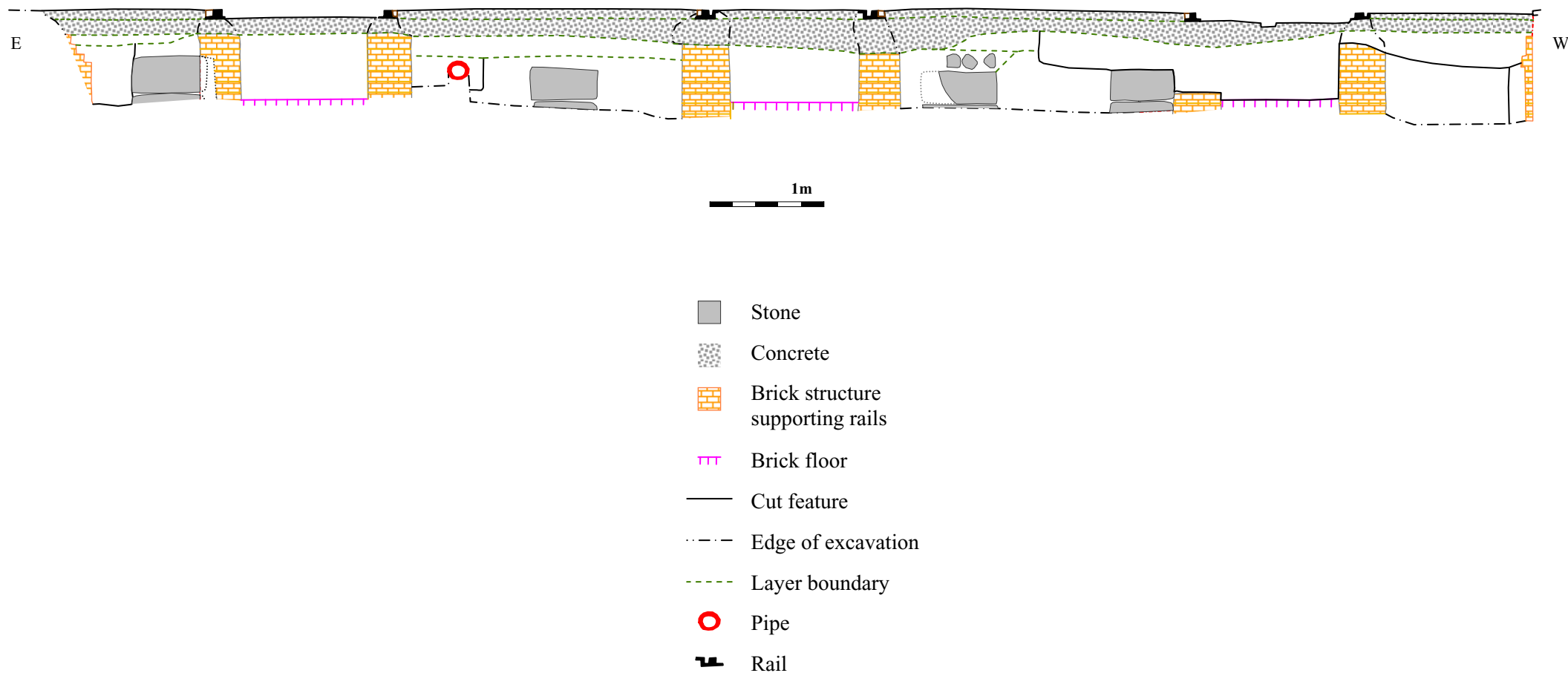


Figure 25: Cross section of Trench 1, Royal Train Shed

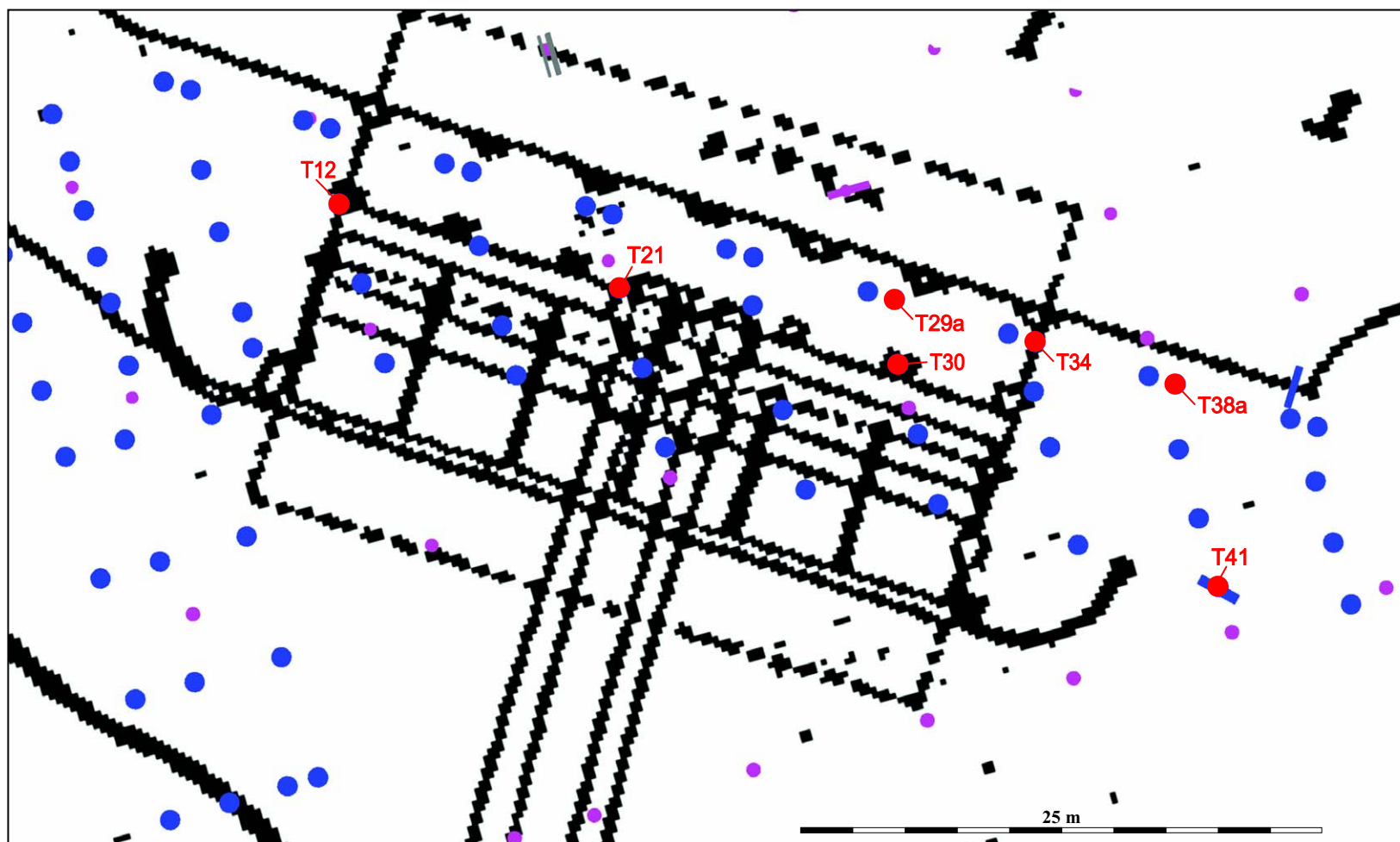


Figure 26: Location of piles in relation to 1840s wharf building on site of Triangular building (numbered piles are described in pile logs in Appendix 1)

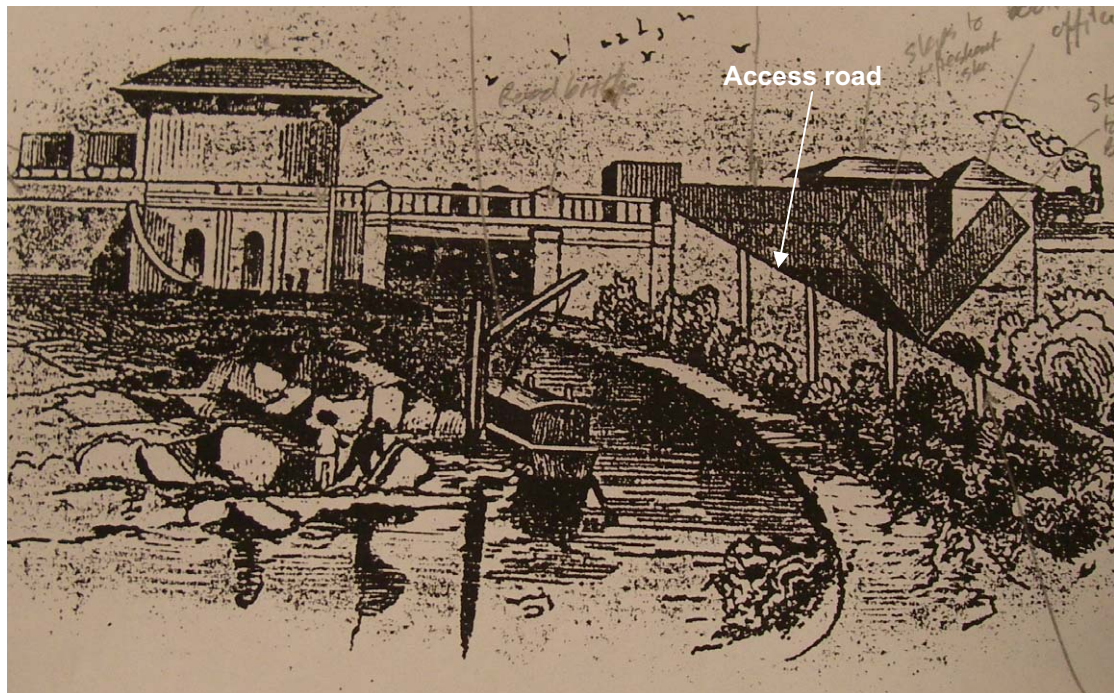


Figure 27: Print of the first Wolverton Station, looking west, showing access road below station.



Figure 28: Retaining wall of Wolverton Station showing line of old access road as different coloured bricks



Figure 29: Inspection pit of carriage shed that is now the Royal Train Shed (looking West). Showing brick built foundation with steel rail and brick floor.



Figure 30: Sequence of rail foundations in Royal Train Shed. The sandstone blocks visible to the right are replaced by a brick-built foundation with steel rail.

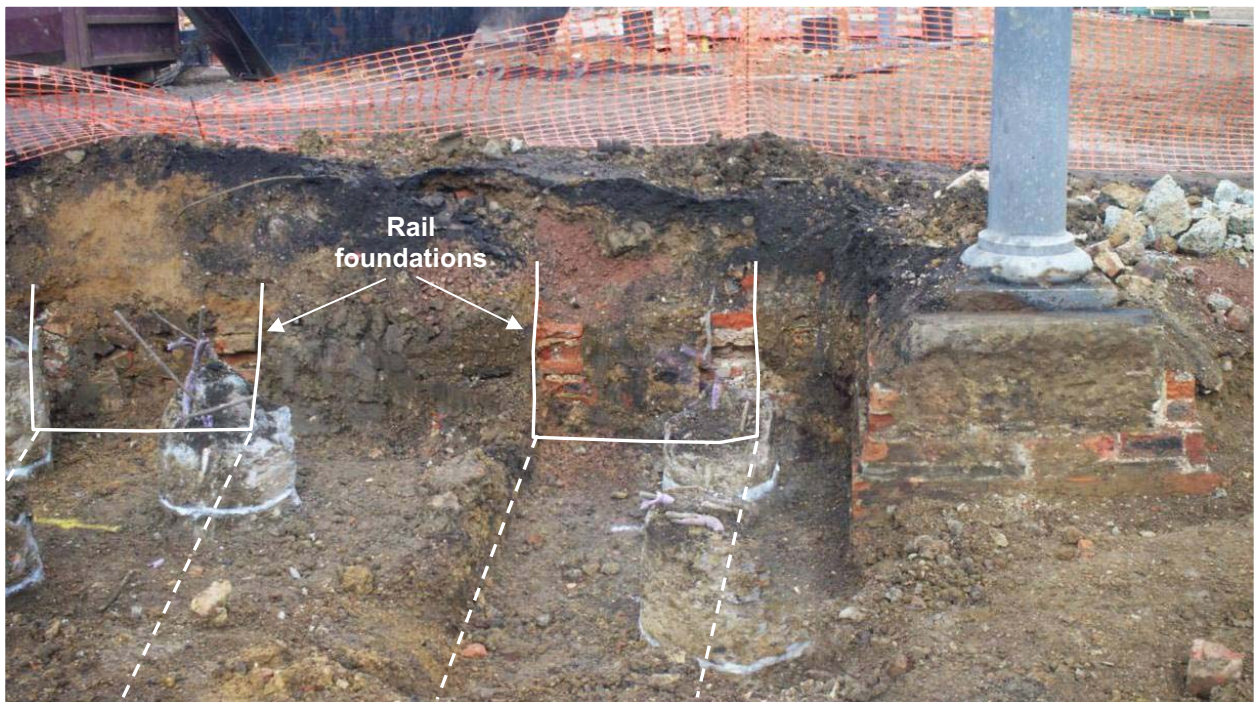


Figure 31: Deposits below floor of Triangular building, looking North. Showing rail foundations for parallel tracks and brick foundation for cast iron column.



Figure 32: Arched wall foundation in eastern external wall of Triangular Building



Figure 33: Triangular Building Bay 36



Figure 34: Triangular Building Bay 23



Figure 35: Triangular Building Bay 32



Figure 36: Triangular Building southern wall internal view



Figure 37: Reading Room building seam from original building (right) to extension (left)



Figure 38: Reading Room southern wall, showing insertion of widened Stratford Road.

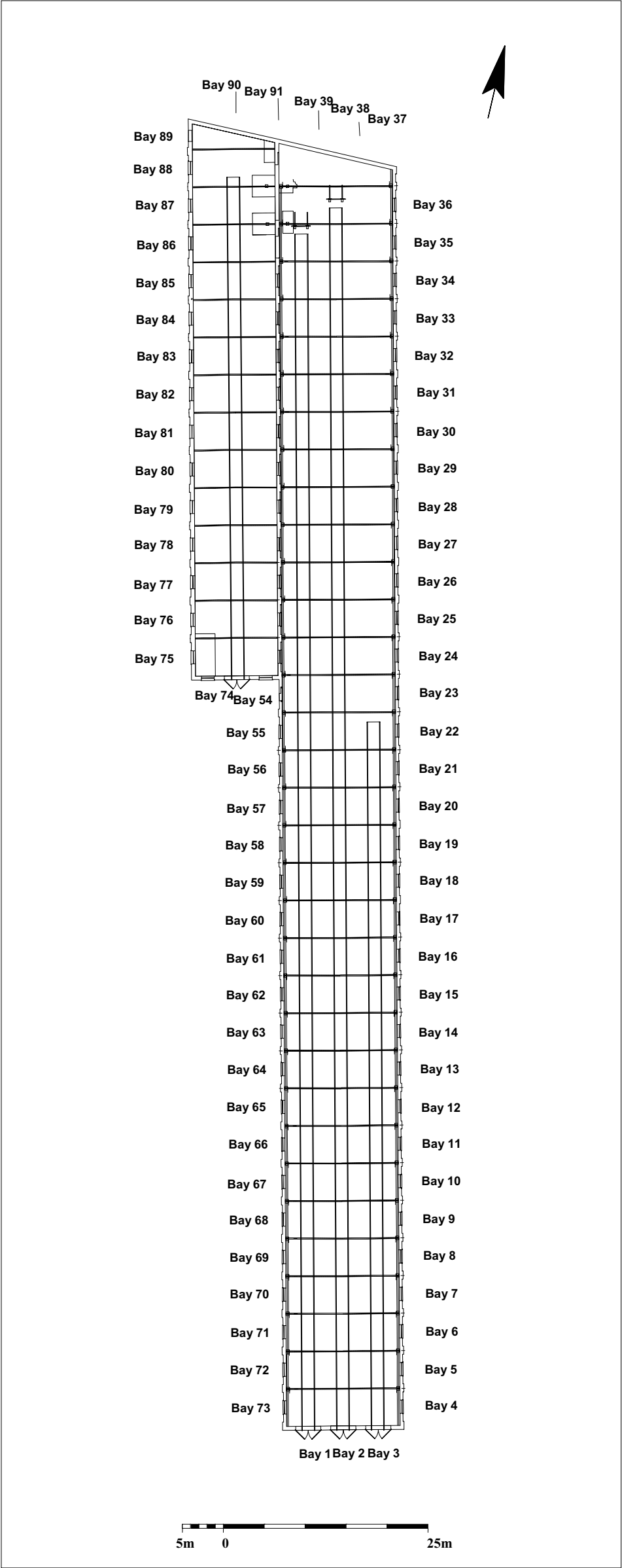


Figure 39 : Royal train shed plan (based on drawing ref: 11887 RTS Floorplans OS grid1.dwg supplied by Willmott Dixon)

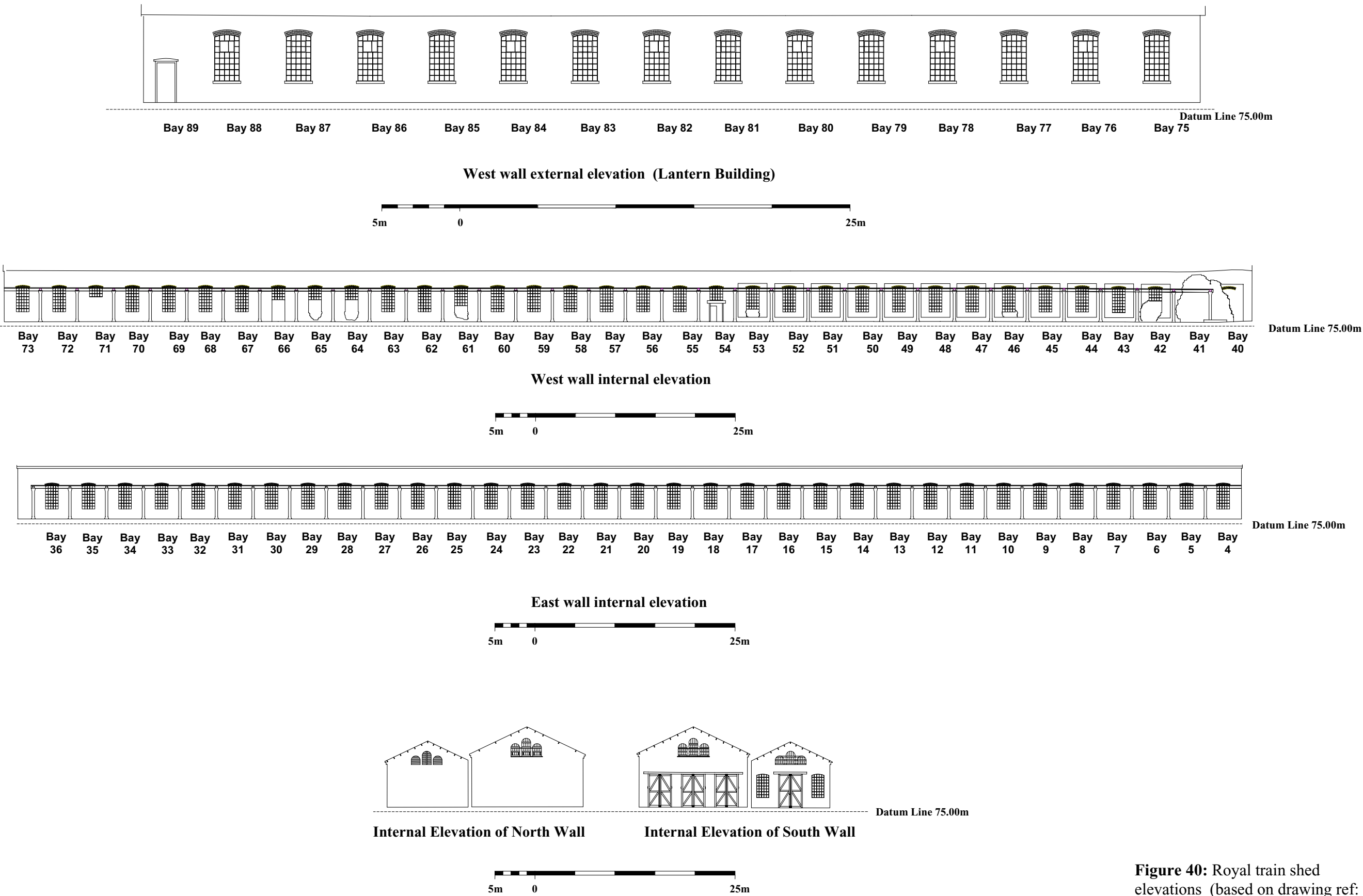


Figure 40: Royal train shed elevations (based on drawing ref: 11887 RTS Floorplans OS grid1.dwg supplied by Willmott Dixon)

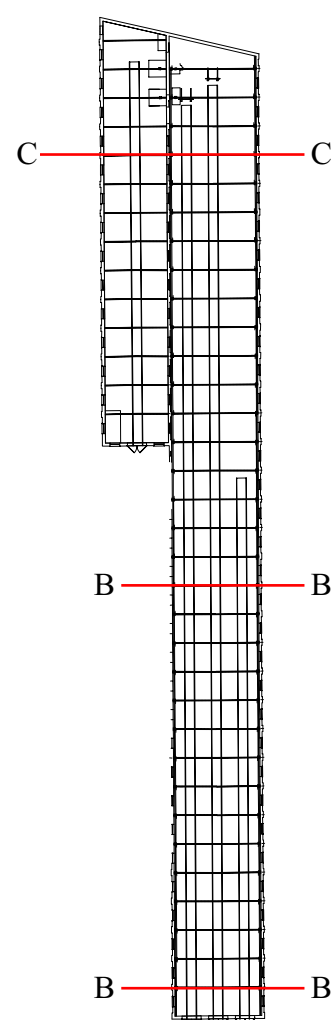
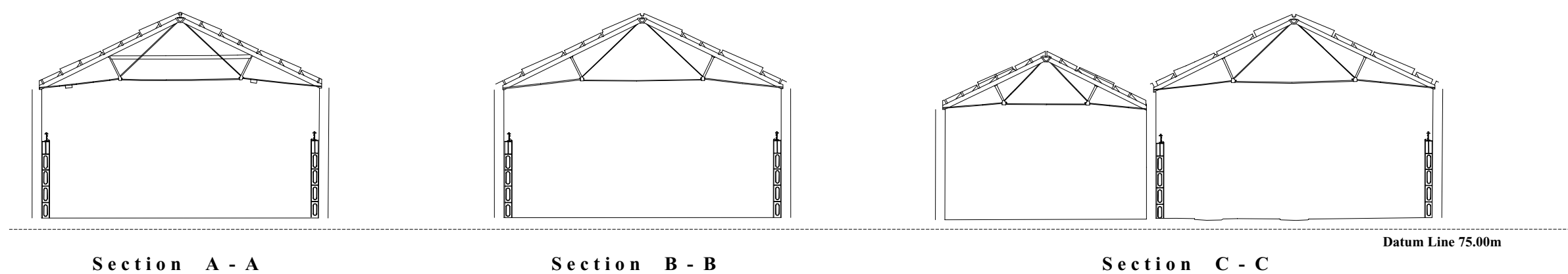


Figure 41 : Royal train shed profiles
(based on drawing ref: 11887 RTS
Floorplans OS grid1.dwg supplied by
Willmott Dixon)

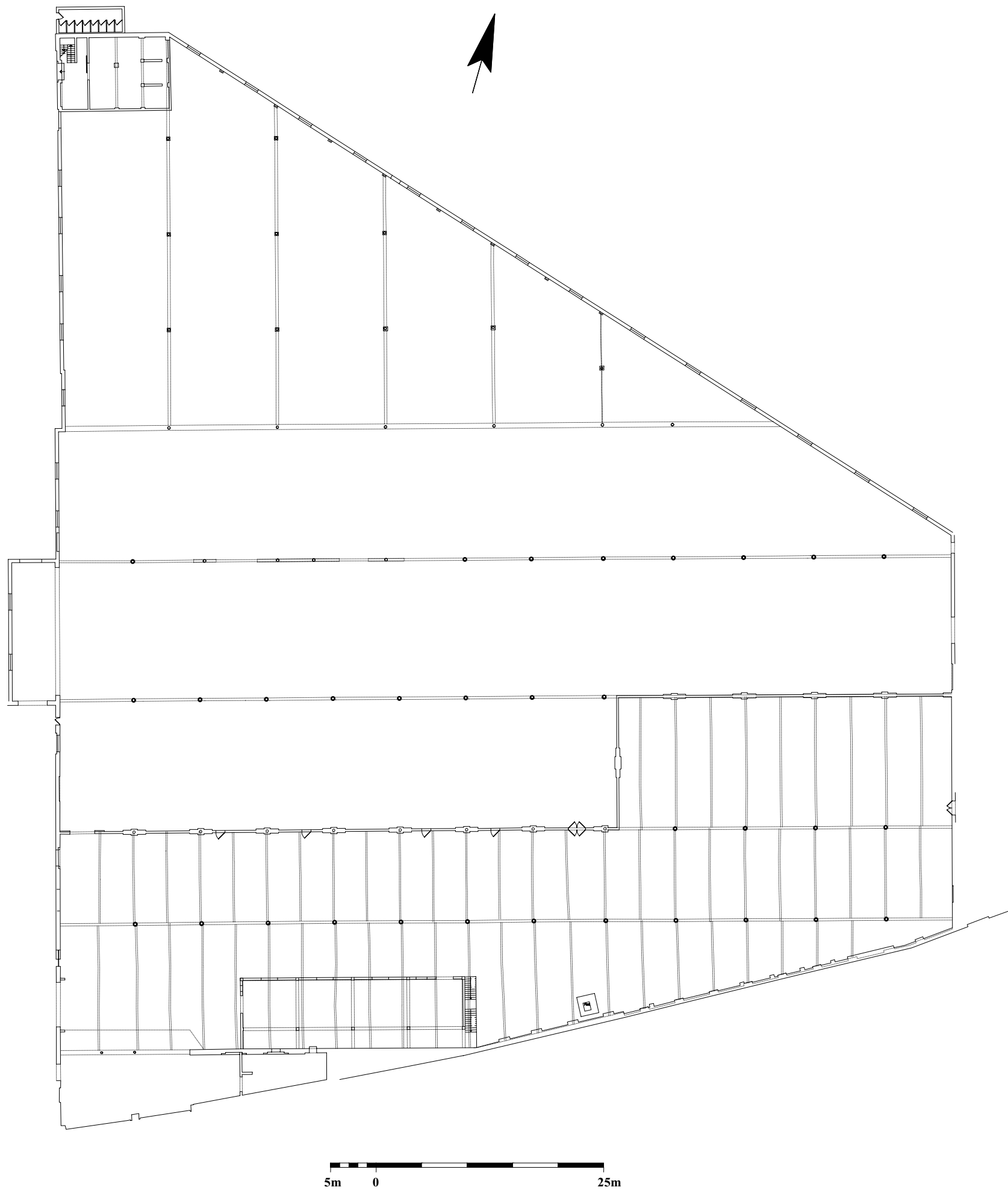


Figure 42 : Triangular building plan 11887 (based on drawing ref: Triangle building floorplans
OS grid_R11.dwg supplied by Willmott Dixon)

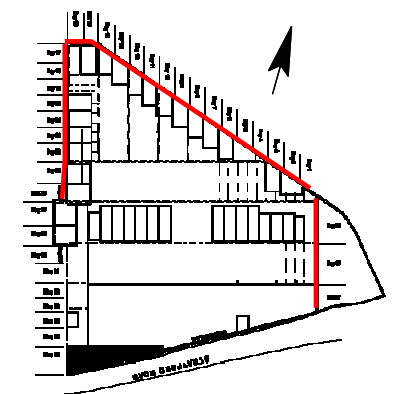
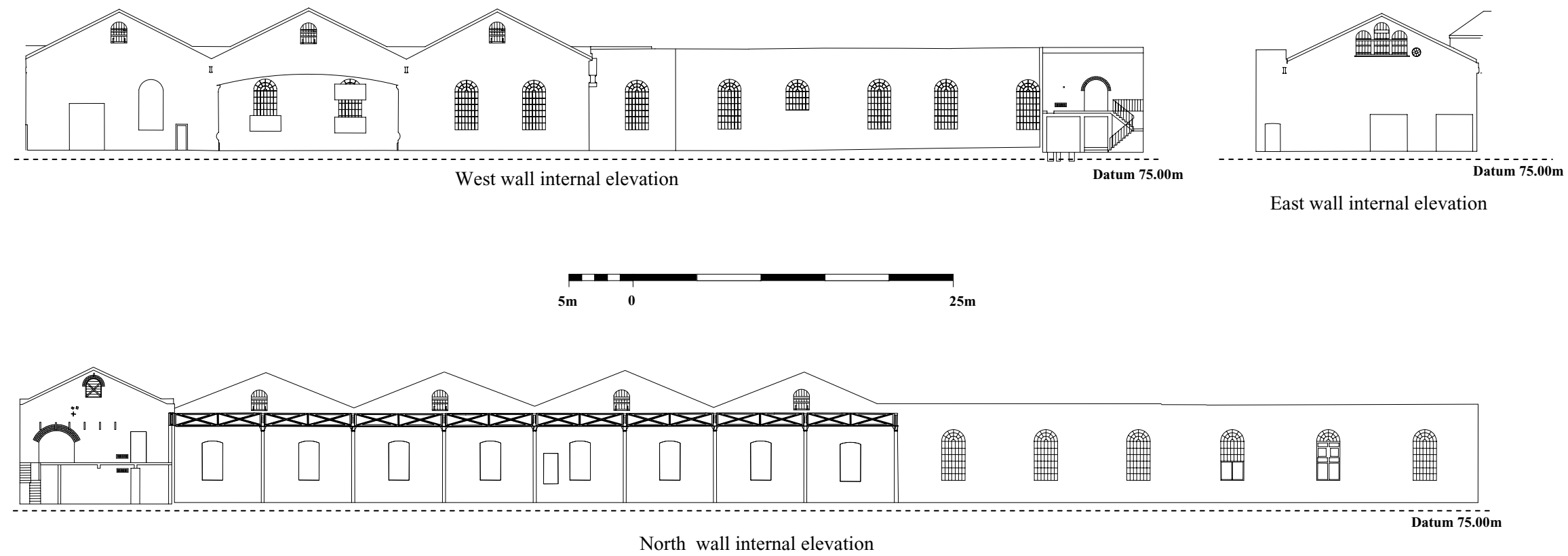


Figure 43 : Triangular building internal elevations (based on drawing ref: Triangle building floorplans OS grid_R11.dwg supplied by Willmott Dixon)

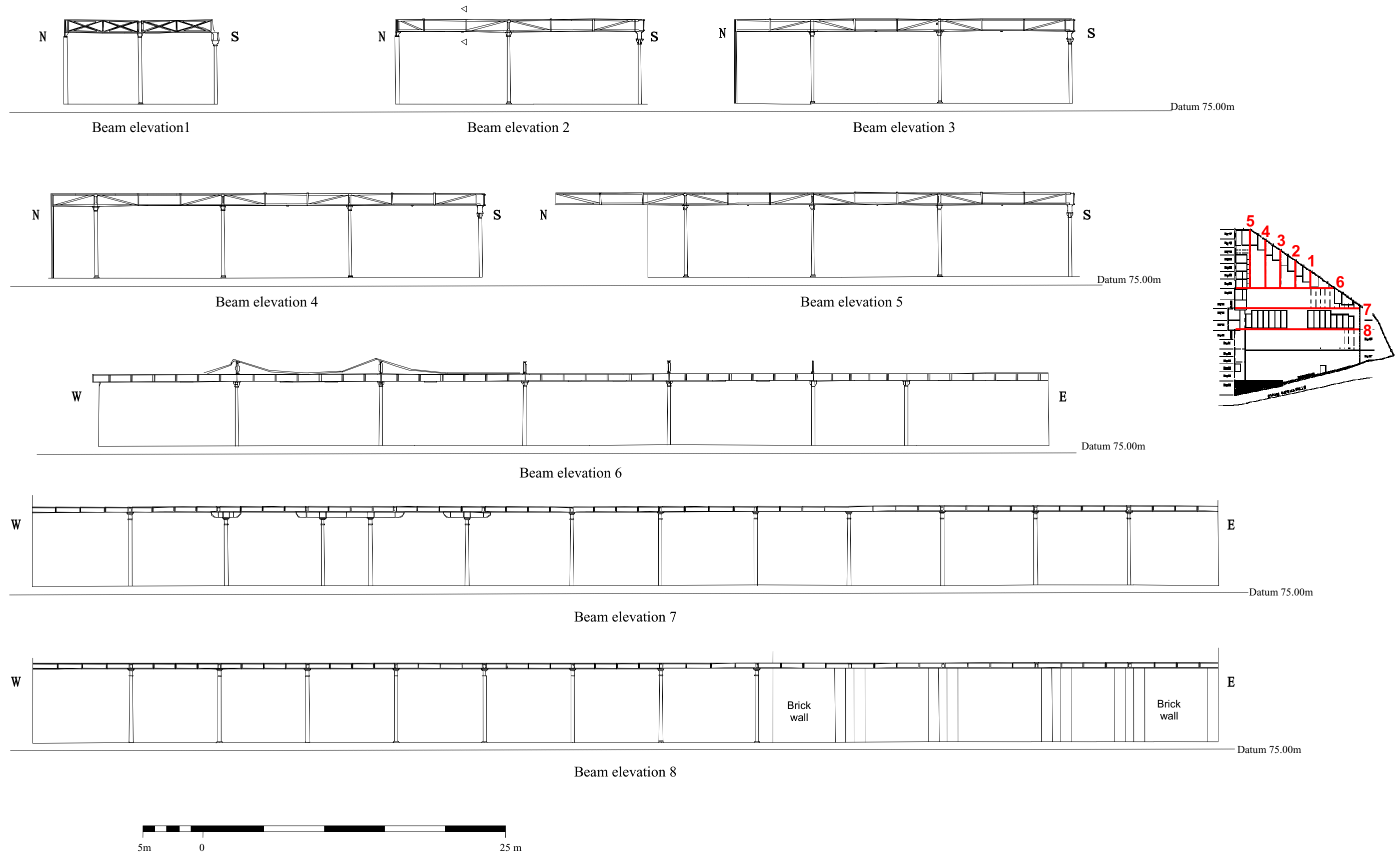


Figure 44: Triangular Building beam elevations (based on drawings supplied by client Wilmott Dixon).

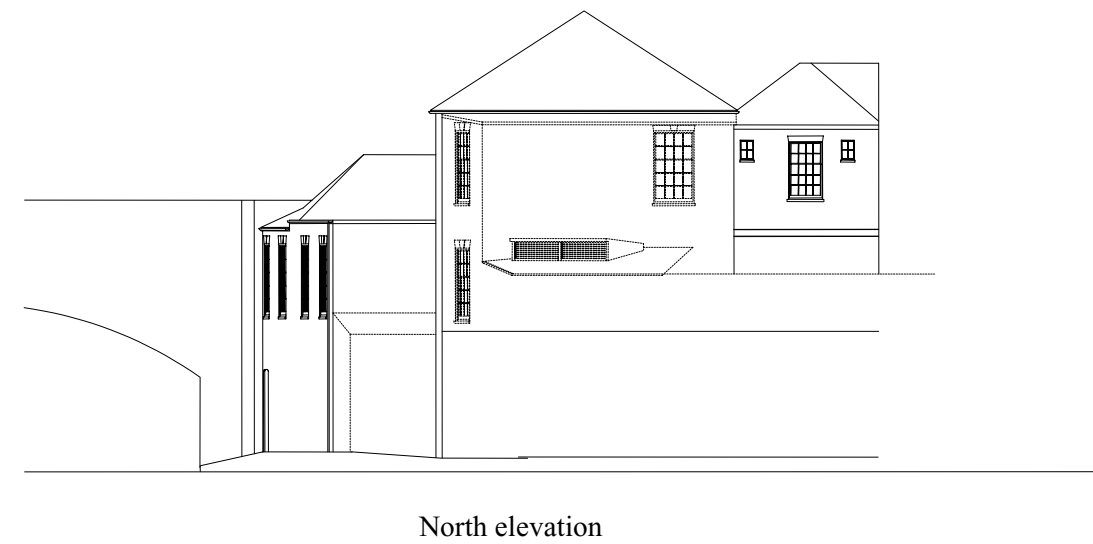
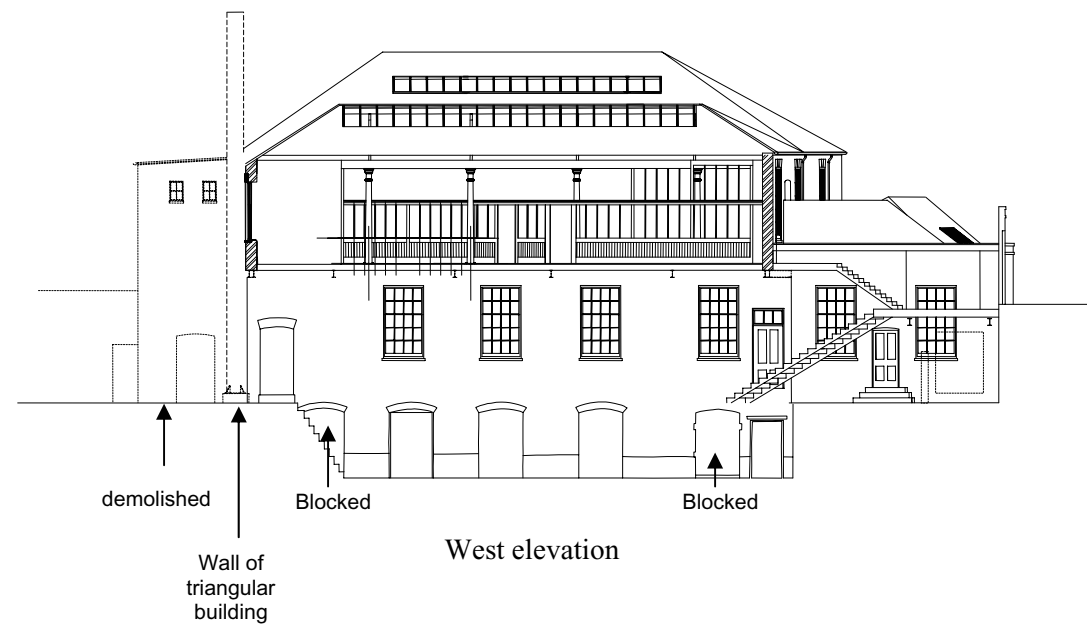
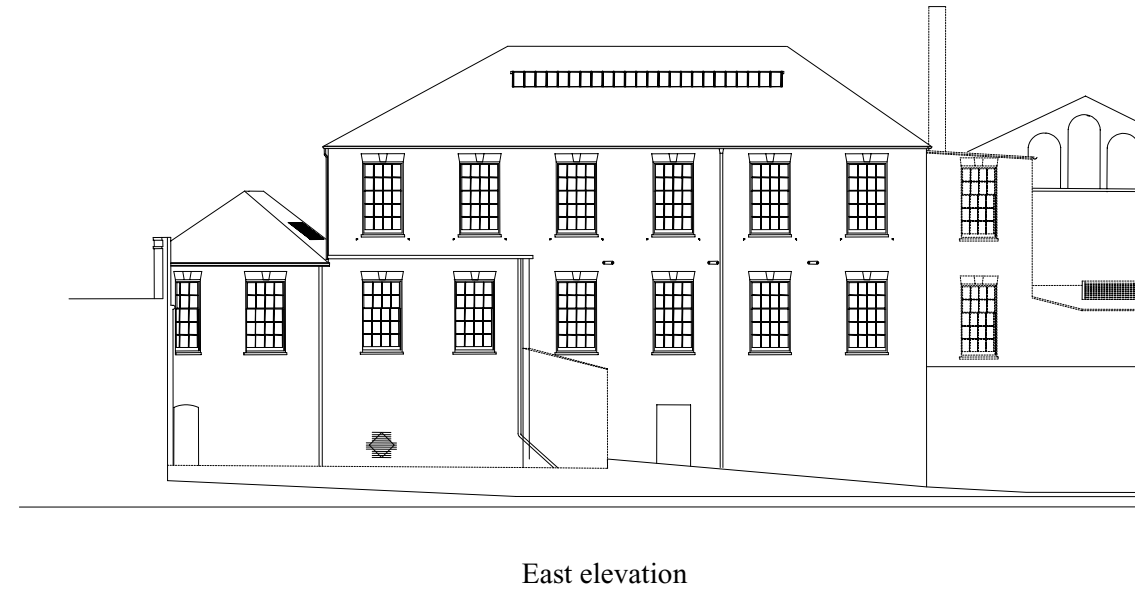
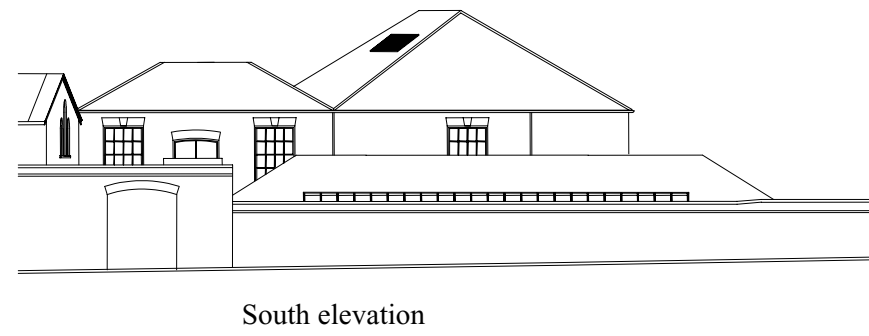


Figure 45 : Reading room elevations
(based on drawing ref: 33475-A-
ELE-D08 - Existing
Elevations(A1).dwg supplied by
Wilmott Dixon)

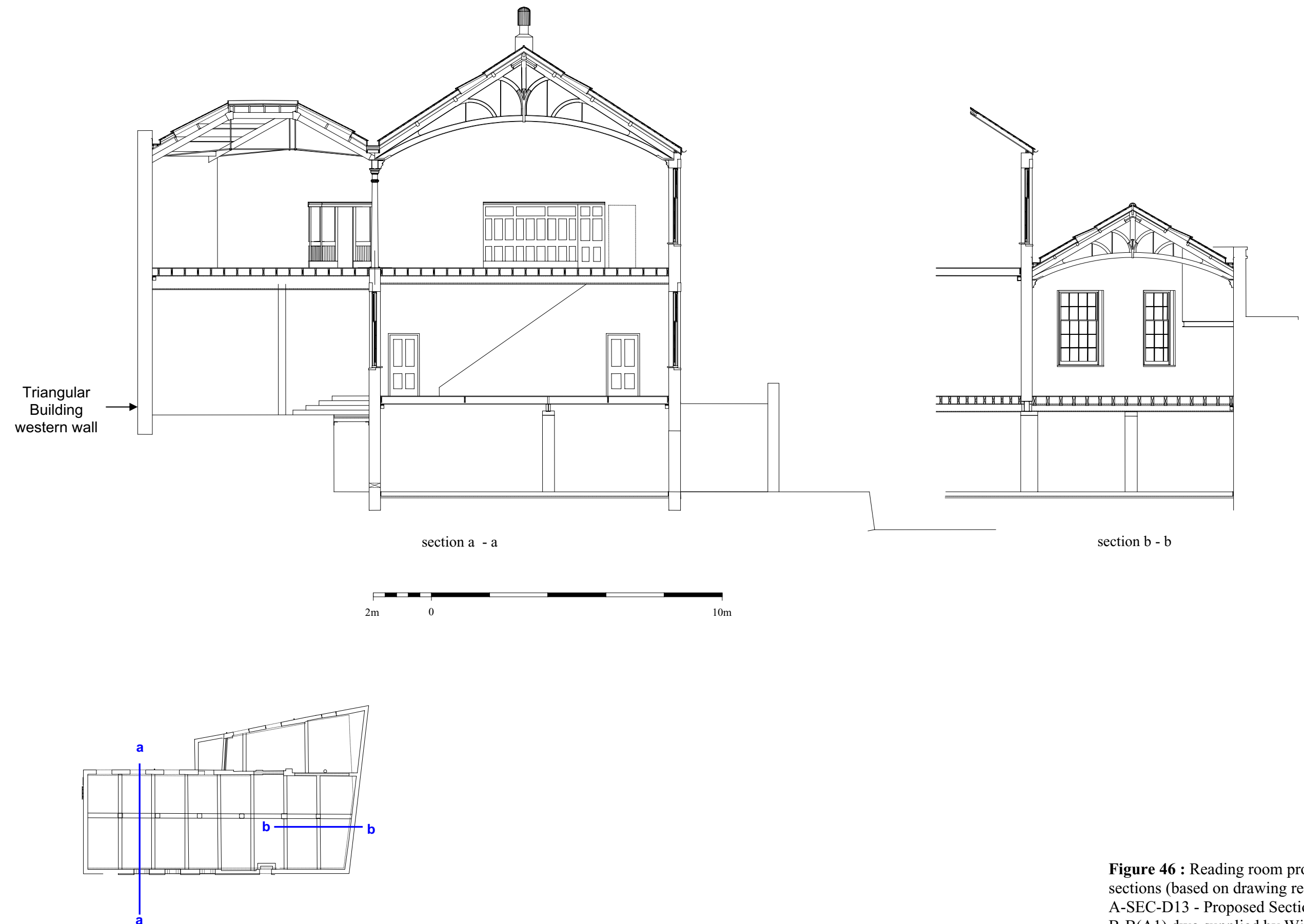
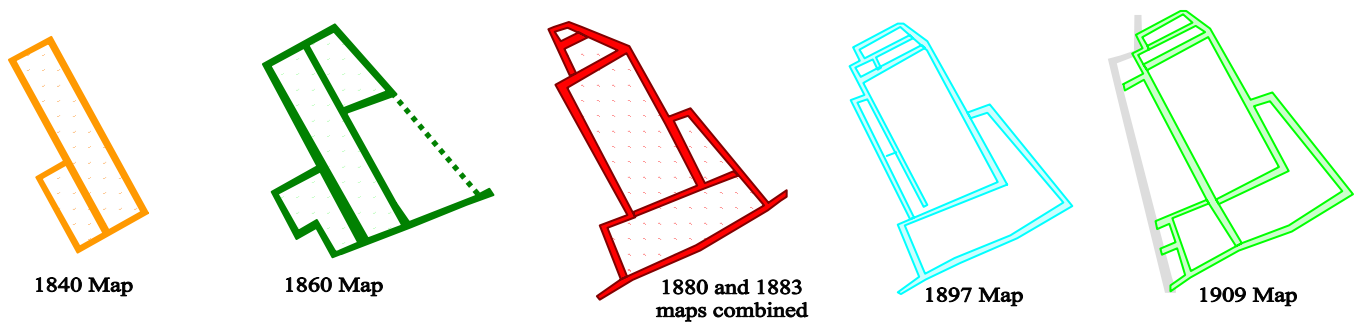
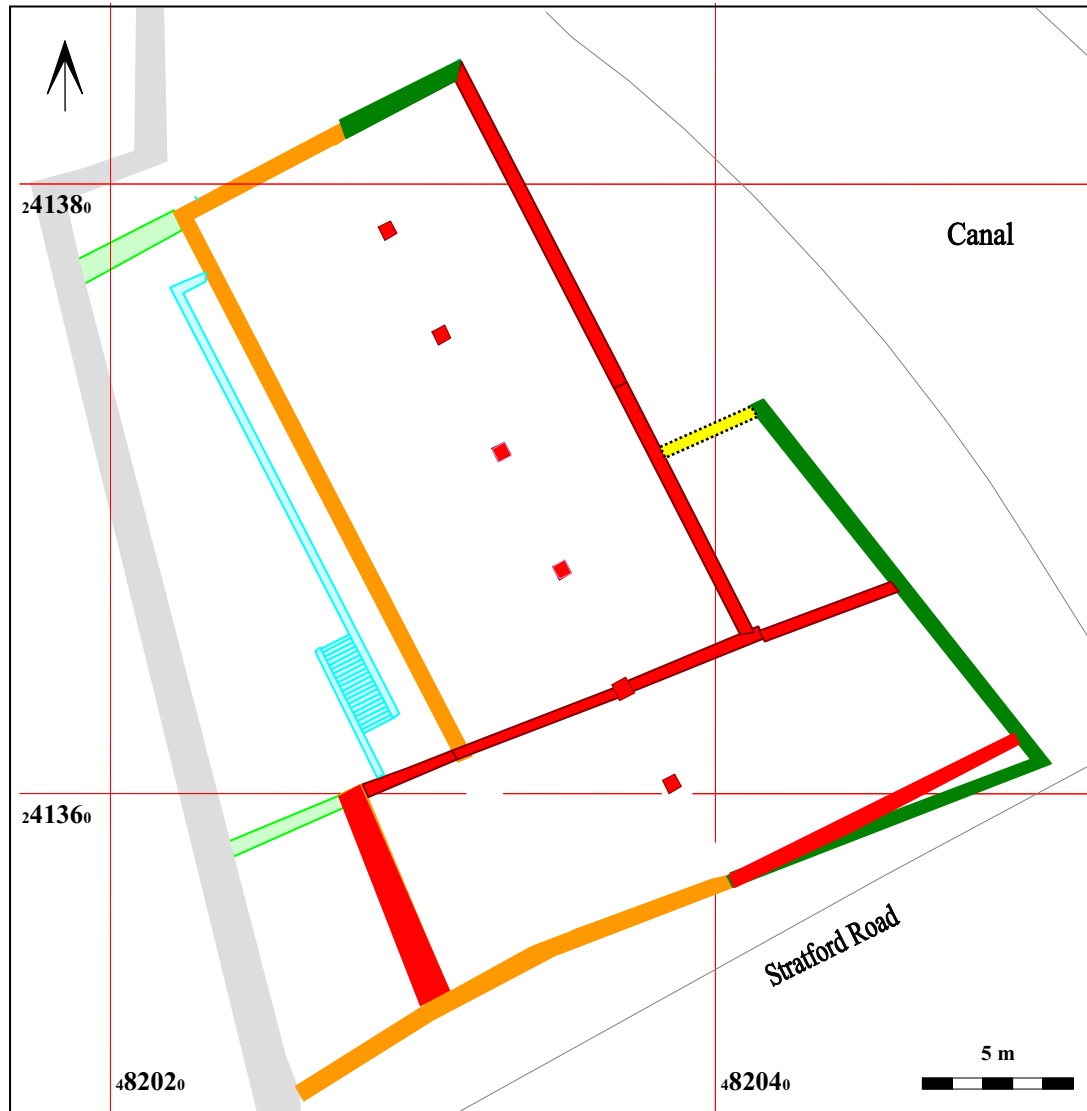


Figure 46 : Reading room proposed sections (based on drawing ref: 33475-A-SEC-D13 - Proposed Sections A-A & B-B(A1).dwg supplied by Wilmott Dixon)



Evolution of Reading Room as seen from historical maps



Dates of surviving walls in existing building

- | | |
|--|--|
| ■ Wall first seen on 1840 map | ■ Wall first seen on 1880 and 1883 maps |
| ■ Wall first seen on 1860 map (but could be partial 1880 rebuild) | ■ Wall first seen on 1897 map |
| | ■ Wall first seen on 1909 map |
| | ■ New wall |

Figure 47 : Reading room phases