C254 Archaeology West
Archaeological Watching Brief in the vicinity of Westbourne Park and Royal Oak Stations, Paddington, London
Targeted and General Watching Brief Fieldwork Report

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APPENDIX 6 - FIGURES

Plates

SUMMARY

Oxford Archaeology/Gifford (OAG) carried out a series of archaeological investigations on behalf of Crossrail during 2010 and 2011 on land adjoining Westbourne Park and Royal Oak stations in West London.

The work consisted of an intermittent watching brief programme comprising two main phases; initial works associated with installation of the guide / diaphragm walls and, subsequently, major ground reduction works. The initial works took place between July-September 2010, with the subsequent bulk excavations occurring between February and June 2011.

At Royal Oak the main findings were of a geological scour or channel which had cut through the London Clay and infilled with a series of cold-climate Pleistocene deposits and a possible warm climate interglacial deposit. A channel cut filled with gleyed silt clay deposits possibly represented a former later channel of the river Westbourne. The upper sequence had been truncated by a Victorian railway cutting.

At Westbourne Park the brick remains of a house associated with the railway, Alfred Villa, were excavated and recorded. The majority of the building's basements and foundations were seen to be preserved to a level just below the ground floor level. There were two main phases of construction that could be discerned - the original build dating to about 1855-69, and a number of alterations dating to c. 1875.

1. INTRODUCTION

1.1 Scope of work

This report details archaeological work undertaken by Oxford Archaeology/Gifford (OAG) during 2010 and 2011 in connection with Crossrail works at Westbourne Park (WP) and Royal Oak Portal (ROP) in West London. This area will provide the western portal for the Crossrail tunnels (Royal Oak Portal) and an approach ramp and train reversing facility (Westbourne Park). The area combines three worksites (Figure 1), described in the Crossrail Environmental Statement as:

- Royal Oak Worksite East (Royal Oak Portal, ROP in the current text)
- Paddington Central Worksite (Royal Oak Portal, ROP in the current text) and
- Royal Oak Worksite West (Westbourne Park, WP in the current text)

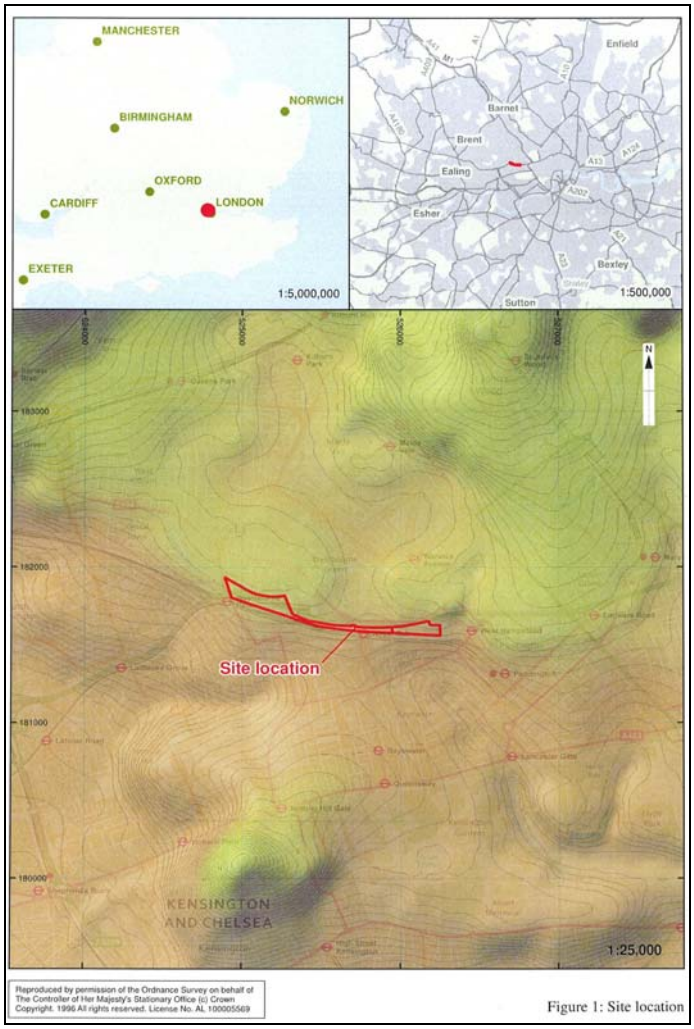


Figure 1: Royal Oak and Paddington worksites

The work consisted of an intermittent watching brief programme comprising two main phases; initial works associated with installation of the guide / diaphragm walls and, subsequently, major ground reduction works. The initial works took place between July-September 2010, with the subsequent bulk excavations occurring between February and June 2011 (Figure 3).

The archaeological work was specified in a Site Specific Written Scheme of Investigation (SSWSI) for the site (C150-CSY-T1-RGN-CR076_PT001-00005 v1-5) and an Archaeology Method Statement (C254-OXF-T1-GMS-CR076-50001). Both documents were approved in advance of works by Crossrail's Project Archaeologist. In addition, Framework Design Consultant Notifications (FDCN) C150-0001 - C150-0005 detailed the works.

The archaeological work undertaken comprised Targeted Watching Briefs (TWB) and General Watching Briefs (GWB). The two classes of watching brief are set out in the Generic WSI (Document Reference 14022008-44ES-P2Z1, Section 7)):

> i) A general watching brief shall comprise observation and recording of the Principal Contractor's works without constraint on their working methods. (GWB)
>
> ii) A targeted watching brief shall comprise observation and recording of the Principal Contractor's works with specific operations carried out under the supervision of the Archaeology Contractor. Under targeted watching brief, the Archaeology Contractor may impose constraints on, or require changes to, the Principal Contractors' or his sub-contractor's method of working to enable the archaeological investigation to take place alongside construction works. (TWB)

Targeted watching brief shall be used for areas of known occasional, dispersed features which are either not considered to be of sufficient significance to warrant archaeological investigation in advance of construction, or where access prior to construction has not been possible and where, as a result, there is a possibility of unexpected discoveries

Except in cases where unexpected, potentially nationally important, archaeological remains are discovered, the targeted watching brief shall be designed and implemented so as to avoid adverse impact on the construction programme, wherever practicable.

The Principal Contractor was required to make allowance in their activity programme for the completion of any targeted or general watching briefs as set out in the SS-WSIs.

A TWB was undertaken during:

- Construction of the Royal Oak Portal section of the portal's guide walls
- Construction of the Westbourne Park section of the portal's guide walls
- Ground reduction within the diaphragm and sheet-piled walls of the new portal and ramp, including the tunnel eye and head house (chainages 230-510)
- Ground reduction of the upper level of the Westbourne Park worksite between an existing retaining wall and a new retaining wall (Westminster Academy and Murphy's Yard)
- Ground reduction within Murphy's Yard
- Temporary and permanent diversions of the Marcon Sewer at Royal Oak Portal
- Ground reduction for landscaping and access roads between Lord Hill's Bridge and Westbourne Bridge (approximately chainages 130 – 370)

A GWB was undertaken during:

- LUL drainage excavation of reception and drive shafts
- Excavation for the portal capping beams
- New drainage and utilities east of the portal, and connection of the foul water drainage to the Ranelagh Sewer

1.2 Location

The Westbourne Park and Royal Oak Portal sites are located in the City of Westminster on the northern side of the First Great Western railway line, a short distance west of Paddington Station and immediately south of and underneath the A40 Westway flyover (Figures 1 and 3).

The Royal Oak Portal site lies between the Hampden Street/Westbourne Passage footbridge to the west, and the Paddington Central development to the east. It consists of two worksites: the Royal Oak Worksite West west of Lord Hill's Bridge (within which the portal has been constructed), and Paddington Central (approximate site centre: NGR 525800 181600).

The Westbourne Park site lies between Green Lane Bridge (carrying the Great Western Road and adjacent to Westbourne Park Station) to the west, and the Hampden Street/Westbourne Passage footbridge to the east (where it abuts the Royal Oak Portal site). It consists of the Royal Oak Worksite West (approximate site centre: NGR 525180 181730).

2. PLANNING BACKGROUND

The overall framework within which archaeological work was undertaken is set out in the Environmental Minimum Requirements (EMR) for Crossrail (3rd draft November 2007) and confirmed in the Crossrail Act 2008.

http://www.legislation.gov.uk/ukpga/2008/18/schedule/7

The requirements being progressed follow the principles of Planning Policy Guidance Note 16 on archaeology and planning (1990), superseded by PPS5 as of 23 March 2010. Accordingly the nominated undertaker or any contractors will be required to implement certain control measures in relation to archaeology before construction work begins.

The strategy for archaeological works was set out in the Crossrail Generic Written Scheme of Investigation (WSI) (Document Number 14022008-44ES-P2Z1); it presented the strategy for archaeological design, evaluation, mitigation, analysis, dissemination and archive deposition that will be adopted for design and construction of Crossrail. The Generic WSI provides a general statement of objectives, standards and structure for the planning and implementation of archaeological works. The strategy was revisited as Site Specific Written Scheme of Investigation (SSWSI) (Document Number C150-CSY-T1-RGN-CR076_PT001-00005).

3. GENERAL ARCHAEOLOGICAL BACKGROUND

The following summary is drawn from the DDBA (CR-SD-CT1-EN-SR-00002) and the SSWSI (C150-CST- T1-RGN-CR076_PT001-00005 V.5).

The landscape of the study area during the prehistoric period would have been dominated by the valley of the River Westbourne which would have provided a landscape ideal for hunter-gatherer activity and occupation. Isolated finds of Palaeolithic axes (*c.* 450,000-12,000 BC) have been recovered from the gravel deposits of the area, and an assemblage of flintwork, including Levallois flakes and cores and a *Bos* tooth, were recovered from clay and gravel deposits beside the former course of the Westbourne in Hyde Park in 1925. Little evidence remains of early farming and land use dating to the later prehistoric period, and what has been recovered is piecemeal in nature.

The Roman city of *Londinium* lay approximately 6km to the east of the site. The city was served by a series of roads, two of which lay in the vicinity of the site. Bayswater Road is aligned on Roman Stane Street, approaching London from Chichester in the south-west (MLO14883; MLO11208). The area is located to the north-west of the Roman road *Via Trinobantia* (Oxford Street) which ran to the Roman town of Silchester. Previous archaeological field work and research has determined that there are no known Roman remains in the area and no known deposits in the immediate locality of the study area.

Rural settlement around London survived the demise of Roman control of Britain in the 5th century and, gradually, villages such as Paddington and Lillestone to the north-east developed. The land of Hyde Park and surrounding regions, including the Westbourne River, formed the Saxon agricultural lands of Eia, which was bequeathed by Geoffrey de Mandeville to Westminster Abbey in 1086. The medieval village of Westbourne Green was situated approximately 500m to the north-east of the construction area. Westbourne Park was formerly located through the study area.

Land use in the area changed dramatically in the post-medieval period, with economic factors during the Tudor period leading to a population explosion in London. Urbanisation extended out from the City, particularly after the Great Fire of 1666. During the 16th and 17th centuries Paddington was still a small settlement centred around a village green. In 1756 Marylebone Road was constructed to connect Islington to Paddington and this gave rise to increased housing, commercialism and industrialisation of the area. The area was first impacted upon by transportation requirements as a result of an expanding population. The Grand Union Canal was constructed through the area in 1801 and Great Western Railway terminus at Paddington was completed in 1840.

Further construction across the study area resulted from increased urbanism. The Victorian Ranelagh sewer, a brick structure which crosses under Ranelagh Bridge, takes the former Westbourne River underground and was commissioned as part of the Metropolitan Board of Works improvements to the area in the 1870s (VCA Vol.9 p246).

3.1 Royal Oak Portal - Worksite East and Paddington Central Worksite

A historic map regression exercise, utilising the 1746 Roque map, Greenwood's 1824 map, Stanford's map of 1862, the 1872 OS map and the 1914-15 Ordnance Survey map, was undertaken as part of the DDBA. This exercise demonstrated that until the mid 19th century the area remained as fields and was not extensively developed. The construction of the Great Western Railway through to Paddington, together with the Grand Union Canal and road upgrades, had the most impact on the study area. The Ranelagh Sewer is also noted as a significant local feature.

The first railway line through this area, constructed by Brunel in *c.* 1836–1838, initially terminated in a temporary timber station. This line would have run within the later railway corridor seen on Stanford's map of 1862 (Crossrail SSWSI 2010, Figure 13) and all three worksites. Part of what may be a turntable from this Brunellian phase of railway construction has been observed just west of Westbourne Bridge (Crossrail SSWSI 2010, Para 2.8.1).

The part of Paddington Central Worksite which lies east of Westbourne Bridge was previously the location of a temporary GWR terminus that occupied the site between 1838 and 1854. Designed by Brunel and constructed primarily from timber, the terminus was intended to be a purely functional and temporary affair before the building of a more permanent station to the south-east in 1854. The engine shed, with an octagonal 'roundhouse' housing a turntable and eight 'roads' (apparently with sunken working pits), stood to the west of carriage sheds and offices (Brindle 2004, 20).

Subsequent modern development of this part of the Paddington Central Worksite lies at a lower level than the area to the west of the bridge, and this may have removed shallow remains of these structures. However, previous fieldwork to the east of the worksite (Crossrail DDBA 2008, Appendix 2: Document Number CR-SD-CT1-EN-SR-00002) revealed truncated remains associated with the 19th-century railway.

After the opening of the current Paddington Station south of Bishops Bridge Road in 1854, the area of the earlier terminus became the site of the second goods depot (shown on Stanford's map of 1862, Crossrail SSWSI 2010, Figure 13). This map indicates three sets of tracks in the western part of the Royal Oak East worksite, running eastwards past Lord's Hill Bridge and Ranelagh Bridge and terminating at the goods depot and the new Paddington station. The precise location of Brunel's original 1830s trackwork is uncertain, but it must have lain within the footprint of the tracks shown on the Stanford map.

The trackwork leading to the goods depots and Paddington Station was progressively expanded to the south to encompass Royal Oak Station as shown on the 1872 and 1914 Ordnance Survey maps (Crossrail SSWSI 2010, Figures 14 and 15). Royal Oak Station was constructed on an area of gardens that had originally lain to the south of the railway, between Ranelagh Bridge and Lord Hill's Bridge. This area and Victorian terraces to its west were gradually subsumed by the railway expansion, and the remainder of the Royal Oak Worksite East and Paddington Central Worksite was given over to sidings or goods-related activities, such as cattle sheds. During the 20th century the area was generally used as railway sidings, light industry and service facilities.

The Ranelagh Sewer is a 2.4m diameter brick sewer which crosses the site below the Ranelagh Bridge. The sewer was enlarged in 1817, by which time it had become effectively a vast cesspit. Ten years later it polluted the water supply taken by the Grand Junction Water Company from near its mouth in the Thames. At this time, the Westbourne still largely followed its natural route but, as new housing on the Grosvenor and Lowndes estates demanded effective sewerage, the builder Thomas Cubitt, in the late 1820s, altered the course of the Ranelagh Sewer and covered part of it over (Croot 2004, 217-233). Through the Metropolitan Board of Works, the remaining open stretches were covered as part of improvements to the area in the 1870s (VCA vol 9, p 246).

3.2 Westbourne Park - Royal Oak Worksite West

To the north-east of the worksite lay the medieval settlement of Westbourne Green, recorded in AD 1222 as one of the three settlements in the parish of St Margaret's Westminster, and which would have formed part of the estates held by Westminster Abbey (Elrington *et al*, 1989). The Royal Oak Worksite West comprised open fields until the mid 19th century. The construction of the Grand Union Canal defined the northern boundary of the worksite from 1805 and from the early 1840s the southern edge was defined by the GWR Bristol to Paddington line.

The railway transformed the land-use of the site, effectively splitting it into two levels. Stanford's map of 1862 shows a GWR engine shed straddling a single railway line and a second workshop to the north of the track, both constructed within the cutting. The main line passed to the south of the engine shed. Further disturbance of the upper level of the site is evidenced by an oval reservoir shown in the north-east corner of the site; the construction of the reservoir will have truncated both the terrace gravels and potential archaeological deposits in this area. The western part of the site (now occupied by the bus depot) was in the 1860s occupied by the Westbourne Schools, whilst to the south of the main line lay the Crimea Goods Yard.

By 1870 the site had been developed further with the addition of a new engine shed to the north-west of the existing engine shed, in the area now occupied by the Tarmac Topmix depot. A turntable had also been constructed on one of four railway tracks which at that time passed through the main engine shed. A lifting shop is shown to the east of the workshop, in the area now occupied by the eastern end of the bus washing facility.

By 1872 the northern part of the site was separated from the railway yards by an access road leading to Alfred Road, north of which the site remained undeveloped except for the reservoir, which had been enlarged.

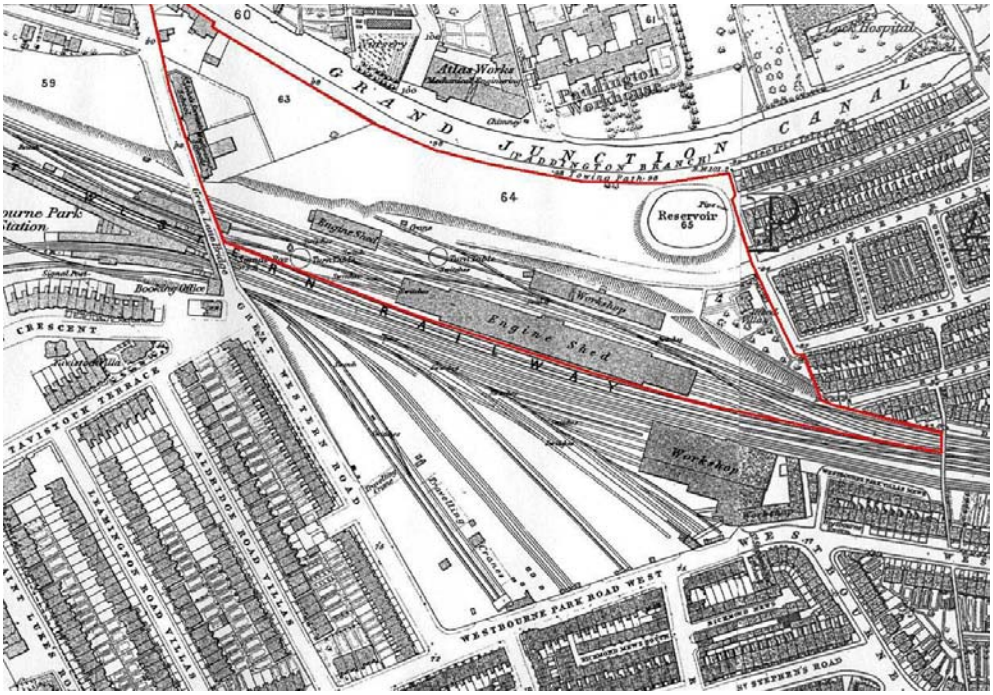


Figure 2: 1872 Ordnance Survey map extract with the Westbourne Park site limits superimposed

The 1880s and 1890s were the heyday of the worksite, by then known as the Paddington New Yard. A GWR survey plan of 1880 depicts a new sand house and storage tank at the eastern end of the site, adjacent to the Westbourne School.

A second GWR survey, dated to 1890, shows that the cutting had been extended northwards almost to the site boundary with the Grand Union Canal at the western end of the site and up to the reservoir at the eastern end. Within the cutting the main workshop straddled four tracks and had a number of inspection pits at either end of its structure. The turntable depicted on the 1870-72 survey had by this time been removed to make way for the additional tracks. In the area now occupied by the Tarmac Topmix depot the smaller engine shed, the sand house and the tanks were still in use and a 45' diameter turntable with short platform had been added to the west of the smaller engine shed. To the north of the main engine shed, in the area until recently occupied by the Great Western Studios, were the locomotive workshop and offices, to the west of which lay a lifting shop and a 55' diameter turntable. All of these structures were linked by sidings and three lines branched north of the locomotive workshop to the north-west corner of the site where they passed under Great Western Road.

The layout of these structures, if not all track detail, is also depicted on a GWR plan dated 29th May 1899 (GWR Drawing No. 2515-410-1331). The 1895 Ordnance Survey map showed the new Portobello Junction lines. As part of the routes out to the west the underground/overground line split from the Great Western Railway at the Portobello Junction, where Westbourne Park station was established (originally as the Green Bridge Lane station), and proceeded via the arch over the Portobello stream and marshland to Ladbroke Grove station (originally Notting Hill, then Notting Hill and Ladbroke Grove).

Between 1907 and the publication of the 1914 Ordnance Survey map the worksite was redeveloped to provide a new goods depot for GWR.

The 1914-15 Ordnance Survey map shows that the engine sheds had been demolished and the two turntables and much of the trackwork removed. The sand house was still extant at this time, but the lifting shop and locomotive workshop had been converted into goods sheds. In the northern part of the site the reservoir had been filled and buildings comprising the GWR motor works constructed in the area now occupied by the TFL archive building.

The Alfred Road Warehouse (later the Great Western Studios) was constructed in 1938 and is shown on the OS mapping of this date. It replaced the earlier goods sheds on the site. The access ramp from Alfred Road into the site from the east was also modified at this time, with the brick retaining wall and grass embankment being replaced by a concrete retaining wall topped with guard rail immediately north of the Great Western Studios.

The Paddington New Yard closed as a goods yard in 1972 and the Alfred Road Warehouse became a British Rail lost-property depot until its sale and conversion into the Great Western Studios in 1994.

The two remaining sidings have since 1972 been used to service the Tarmac Topmix (Marcon) aggregate plant.

3.3 Alfred Villa

A large residential property and gardens occupied the south-east corner of the Royal Oak Worksite West, until recently 'Murphy's Yard' (named after its occupants, the civil engineering contractor). The 1:5,280 1850 Town map of the area does not show Alfred Villa, but this is probably a bias of the mapping since it does not depict individual buildings. The building is first shown on a map of 1869 and by 1915 there is a suggestion from the size that the building may have been extended. It is still shown on the 1938 OS map although there is no definition as the map scale is too small. Aside from the general mapping taking place in this era there are also depictions of the building on documents from the GWR works in the area. These vary in quality and are not of a small enough scale to show the individual components of the building. The early depictions show that the house was set in formal grounds and that there was a sloped area down to the railway tracks.

A Henry Kirtley, a superintendent for the railways, was noted as living at Alfred Villa in the 1871 census. There is also a mention of Henry Kirtley, his wife Sarah and a William Hunt as defendants in a case involving the estate of a John Nodes, late of Alfred Villa (Chancery Records 1872). Separately, a report in *The Times* dated 12th July 1875 records that he and a second Henry Kirtley (a foreman engine fitter, of nearby 4 Alfred Mews) were witnesses at the inquiry over the death of an apprentice in the engine fitters department.

3.4 Fieldworks subsequent to the DDBA

In 2009 a trial pit investigation (Works Package S-0008) at the Royal Oak Worksite West was undertaken to identify and locate the presence of utilities, services and sub-surface structures. Five test trenches (S3/03, S3/04, S3/11, S3/12 and S3/13) were targeted to locate and identify any surviving remains associated with the main and smaller engine sheds in the area of the Tarmac Topmix depot and Marcon sidings (see Figure 4 below). Trenches S3/03 and S3/11 uncovered the remains of the engine shed structure. Trenches S3/04 and S3/13 revealed concrete foundations for unknown structures and Trench S3/12 located deposits of railway ballast. The full results of the archaeological watching brief have been summarily reported in document C150-CSY-T1-RGN-CR076_PT001-00005.

Recording in advance of demolition at Royal Oak Portal was conducted by MOLA in May 2010 and for Westbourne Park in June 2010 (site codes were XRT10 for ROP [Document Number: C150-CSY-T1-RGN-CR076_PT001-00010] and XSA10 for Westbourne Park. Non-listed built heritage features at Royal Oak Worksite East and Paddington Central Worksite were assessed by MOLA in January 2010, and those at the Royal Oak Worksite West were assessed by Scott Wilson (Crossrail (Scott Wilson) 2009, Westbourne Park GI Report, WEB-S-0008C).

4. GEOLOGICAL AND TOPOGRAPHICAL SETTING

A ground model of this area reproduced in the Detailed Desk-Based Assessment (DDBA) for the site showed a thickness of made ground from between 0.8m to 2.5m (+ 121.4 to + 122.9m ATD). Underlying the made ground, alluvium was encountered in some of the boreholes and this was interpreted as being a relict course of the former Westbourne River, which once traversed the site prior to its removal by the construction of the 19th-century railway cutting and re-route to the Ranelagh Sewer.

Below these levels the site is situated on London Clay and, east of Bishops Bridge Road Bridge, this is overlain by the Lynch Hill terrace gravels. The top of the London Clay has largely defined as being fairly level, except in isolated pockets where it dips. This again has been interpreted as relating to the possible location of the former course of the Westbourne River.

The geological cross section (Plate 1) shows an interpretation of the geological formation across the Royal Oak Worksite East. Of interest archaeologically and geo-archaeologically is that, although alluvium was only encountered in some of the boreholes, it was interpreted as being a relict of the course of the former Westbourne River, much of which was removed by the construction of the 19th-century railway cutting. The boreholes indicated that the alluvium was present across approximately the eastern third of the portal footprint, and extended further to the east of Lord Hill's Bridge. It was recorded to depths of between 2.8m and 4.0m below ground level (dwg. C150-CSY-C2-DDL-CR076_PT01-0012 Rev. P01). The thickness of this alluvium was predicted to be 3.2m, at 117.9 to 121.2m ATD.

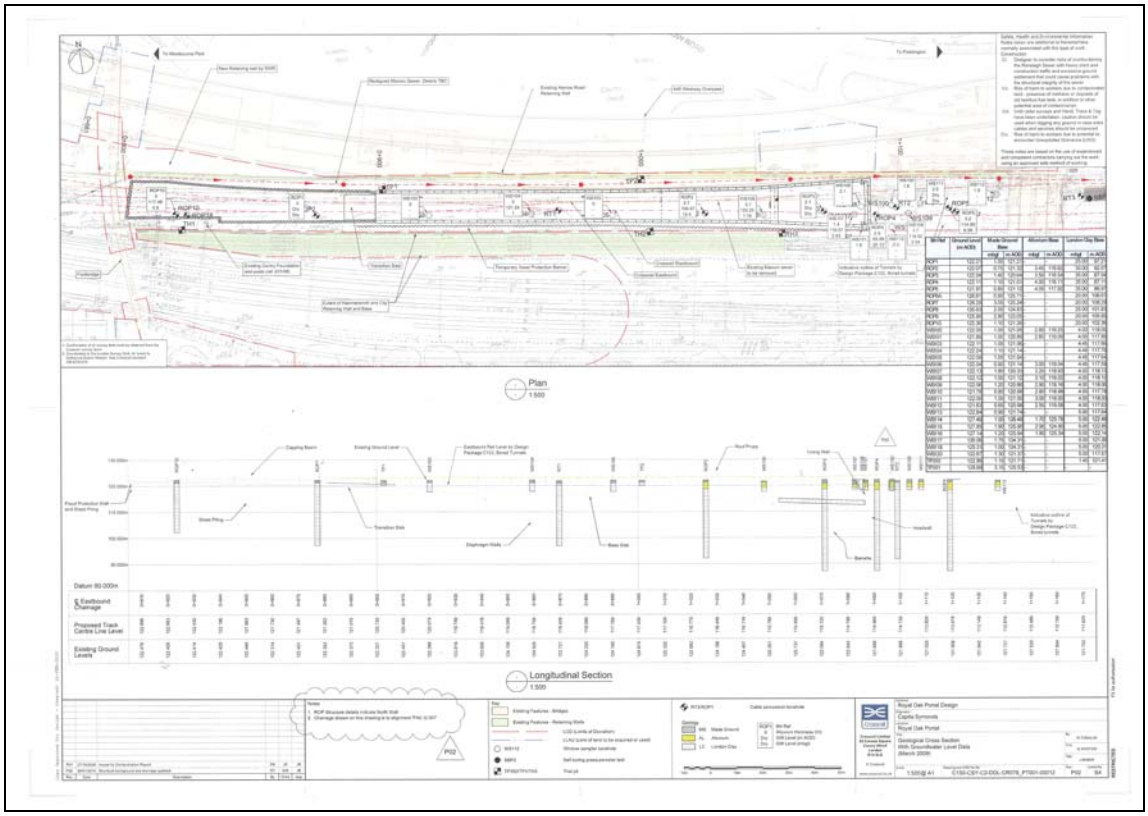


Plate 1: Geological cross section, from dwg. no. C150-CSY-C2-DDL-CR076_PT001-00012 (A full size copy is to be found in that document)

The Royal Oak Worksite West is also located on London Clay, within a cutting constructed for the Great Western Railway (GWR) which formed a terraced land parcel located between the Grand Union Canal and the main railway lines into Paddington Station (Figures 1 and 3). With the exception of an area of level ground in the north-east corner, the upper terrace sloped from *c.* 129m ATD adjacent to the Grand Union Canal, to between *c.* 128m and 125m ATD at the top of the former retaining wall as it extended west-to-east across the site. The lower terrace was relatively flat, sloping gently from *c.* 123m ATD at the base of the retaining wall of the railway cutting to *c.* 122.6m TD, the existing track level of the railway line. This extensive landscaping was interpreted to suggest that there would be a low likelihood of locating archaeological remains which pre-dated the 19th-century railway.

Geotechnical and geoenvironmental conditions within the Royal Oak Worksite West were investigated by geotechnical ground investigations undertaken between February and June 2009 (Crossrail SSWIS 2010, 6: Document Number: C150-CSY-T1-RGN-CR076_PT001-00005)). The ground investigation confirmed the natural slope southward of the underlying London Clay. The investigation also confirmed that the site had been subjected to significant truncation relating to the excavation of the GWR cutting, construction of railway buildings and track layout and, more recently, the A40 Westway.

Three window samples (WS114–116) located outside the cutting, on the upper terrace of the site, identified a firm brown/brown mottled orange clay alluvial deposit (0.30m–1.05m thick), overlain by between 1.00 and 1.90m of made ground (Crossrail SSWIS 2010, 6: Document Number: C150-CSY-T1-RGN-CR076_PT001-00005)). In WS116 the brown alluvial deposit sealed a grey mottled black, organic alluvium 0.30m thick which overlaid the London Clay. Within the cutting, borehole ROP15R identified a light brown/blue grey clay alluvial deposit (0.05m thick) sealed by 1.15m of made ground. The alluvial deposit also sealed the London Clay.

5. RESEARCH AIMS AND OBJECTIVES

The overall objective of the investigations was to establish the character, nature, date, extent and state of preservation of any surviving archaeological remains that would be impacted upon by the development.

Selected research themes derived from the regional research aims outlined in *A Research Framework for London Archaeology 2002* (Museum of London, 2002) were included in the *Assessment of Archaeology Impacts Technical Report, Part 2* (Crossrail 2005), and the SSWSI (C150-CSY-T1-RGN-CR076_PT001-00005 v5). The below-ground archaeological remains predicted to survive on the site were seen to have the potential to contribute to the following research themes:

- The concept of core/periphery for different periods in London's past, as a means of understanding a settlement and its environs, a city and its hinterland
- Understanding the creation of the London suburbs
- Defining levels of landscape change due either to environment and climate or human interaction
- Early railway construction, particularly that associated with Brunel's railway and the Ranelagh Sewer
- Evolution of the road systems, street layouts and river crossings, and their importance as engines of development and change
- How daily work and life in London reflected and contributed to the rise of London as the commercial centre of the British Empire, and to its continued eminence as a world city thereafter

6. INVESTIGATION METHODOLOGIES

6.1 Watching Brief Methodology: Introduction

A Watching Brief, as defined in the Generic WSI, is a programme of archaeological monitoring (*i.e.* observation, investigation and recording) which is carried out by a suitably qualified archaeologist during site investigations and construction works.

The purpose of a watching brief is to identify the potential of any archaeological remains that are uncovered during the course of the works and record them appropriately (as far as is reasonably practicable). The watching brief results in the preparation of an ordered archive which will be incorporated into the post-excavation works and into publication of the project results.

The following observations were recorded on a daily basis:

- The Event Code and location of the area observed
- The date of the observation
- Personnel employed on site
- A description of the construction works observed
- Any relevant works sub-contractor and personnel undertaking and supervising the construction activity
- Depths and extents of excavation works observed
- A measure of confidence that any archaeological remains would have been observed and reasons
- The areas and horizons (both those containing archaeological or remains of quaternary geological importance and those which do not) unaffected by construction activity (with special reference to archaeological sites identified for preservation in situ)
- The reasons why any particular area of the works was not observed, and noting those areas not subject to disturbance from construction
- Location and description of any archaeological remains
- Location and description of any modern remains

6.2 Specific Techniques for Watching Brief Work

The majority of the works involved the monitoring of bulk excavations, with the Supervising Archaeologist (on a TWB area) able to directly control plant activity/movements. Ground reduction within the diaphragm walls of Royal Oak Portal removed the uppermost layer of railway ballast with a toothed bucket; while the lower ballast sequence, which sat directly on the London Clay, was undertaken with a flat-bladed ditching bucket.

Areas requiring a watching brief, methods, health and safety issues, programme and lines of communication were agreed between the Principal Contractor, the Project Archaeologist, the Framework Design Consultants and Oxford Archaeology/Gifford, before the start of each field event.

The extent of sampling of archaeological remains was determined by OAG in liaison with the Project Archaeologist (and, as required, with English Heritage and a quaternary specialist). All work was done with the aim of recovering sufficient information to determine function, form, and date.

Royal Oak Portal: Bulk excavation through alluvial fills was done in two, stepped horizontal spits. Each one resulted in a vertical face, east-to-west aligned, against the southern side of the works.

In order to accurately sample deposits identified as having the potential for faunal remains and evidence of human activity, twelve hand-dug test pits was excavated through the alluvial fills of the watercourse. The area excavated in this way totalled 15.5m^2 (see Figure 7).

The main east-to-west sections were recorded and geoarchaeologically sampled, and later combined using CAD (Sections 1007 and 1008, Figures 5 and 6). The drawing baselines were surveyed by CSjv (Costain/Skanska joint venture) and the remains themselves were hand drawn (see below). A full series of samples were taken for dating, artefact retrieval and deposit formation evidence.

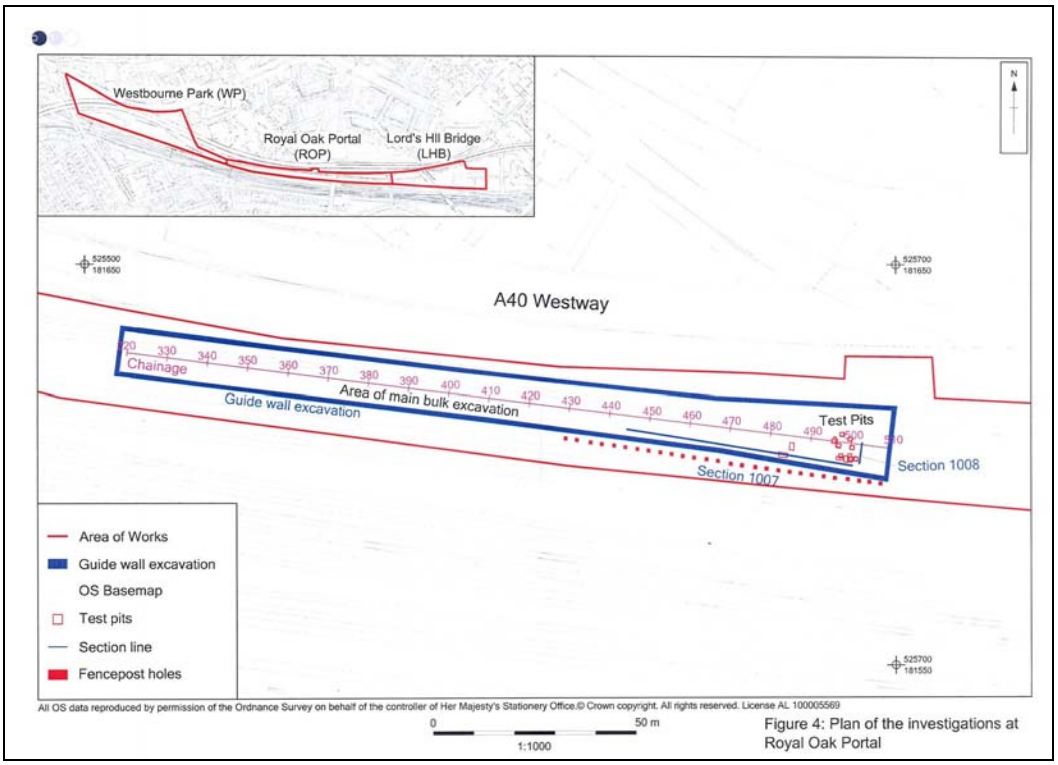


Figure 4: Plan of the investigations at Royal Oak Portal

Westbourne Park: in the area of Alfred Villa the area was carefully machined under full archaeological supervision and surviving walls were cleaned, photographed and mapped. Some recording, and excavation of certain areas, was constrained by the presence of asbestos. The fills of most of the identified rooms were subsequently excavated using a smaller excavator to reveal the full depth of the remains.

A survey of the remains was undertaken by Morgan Sindall and the remains were also hand-planned (see below).

Recording standards

All observations were undertaken against a unique Event Site Code (XSI10). A continuous unique numbering system was operated for each of the sites.

Plans and sections were drawn 1:50 1:20 or 1:10. Isolated archaeological remains (artefacts) were spot-located in plan and a height provided where applicable.

The photographic record consists of 35mm monochrome and colour transparencies, as well as digital formats. Archived photographs and transparencies include an appropriate graduated scale, a north arrow, and a header board detailing (as a minimum) the event code and context/feature number.

Archaeological remains were fully recorded to the following standards and guidance;

- Westbourne Park and Royal Oak Portal, Site-Specific Archaeological Written Scheme of Investigation (SSWSI). Document No: C150-CSY-T1-RGN-CR076_PT001-00005 (Rev. 5, 5 November 2010)
- Archaeology West – Contract No. C254, Archaeological Works at Westbourne Park and Royal Oak Portal, Archaeology Method Statement, Document No. OAG16188.R19 (CRL Document Ref; C254-OXF-T1-GMS-CR076-50001)
- Archaeological Generic Written Scheme of Investigation, Document No: CR-PN-LWS-EN-SY-00001, 7 July 2009 (AWSI)
- Archaeology Specification for Evaluation and Mitigation (including Watching Brief), Document No: CR-PN-LWS-EN-SP-00001, 26 June 2009, (ASEM)
- Works Information (Volume 1 - General), Document No: CR-SD-PRW-X-RT-00151, 5 June 2009 (WIV1)
- Works Information (Volume 2 - Particular), Document No: CR-SD-PRW-X-ITT-00001, 13 July 2009 (WIV2)
- Crossrail standards and specifications
- Institute for Archaeologists – Standard and Guidance for archaeological excavation, 2008 (revised)
- Institute for Archaeologists – Standard and Guidance for an archaeological watching brief, 2008 (revised)
- Museum of London collections and archive policies and guidance
- English Heritage – Geoarchaeology, 2007
- English Heritage - Archaeological Science at PPG16 interventions: Best Practice Guidance for Curators and Commissioning Archaeologists, 2003
- GLAAS Archaeological Guidance Papers 1999
- Corporation of London archaeology guidance – Planning Advice Note 3, 2004
- Museum of London Archaeology Service site recording manual (MOLA 1994)

6.3 Auger Survey

A hand auger survey, at two locations, was undertaken during the initial works for the guide walls at the Royal Oak Portal worksite. These were designed to test the depth and characteristics of sandy deposits encountered at the eastern end of the southern guide wall. A selection of different auger heads was employed in order to deal with the variety of sediment types encountered (Dutch, Bucket, Stoney soil, Gouge, Screw auger). The work was undertaken between 11 – 13th August 2010. The deposits were inspected by a specialist geoarchaeologist, and the thickness of the deposit was measured.

6.4 Survey Work

All survey setting out was undertaken by CSjv's surveyor. The set outs were usually conducted using a Total Station Theodolite or other suitable automated equipment referenced from approved Crossrail Permanent Ground Marker (PGM) data. At Royal Oak Portal the archaeological drawing points and baselines were surveyed in by CSjv using an approved and calibrated Leica TS1200. At Westbourne Park, Morgan Sindall surveyed the drawing points, baselines and the outline plan of Alfred Villa, using an approved robotic Leica. Where survey was not possible, significant features were measured and drawn onto reproduced Crossrail-issued scaled drawings.

The positions of the interventions and survey points were verified by OAG through discussion and observation. The use of main contractor surveyors meant that data management of raw survey by OAG was not necessary.

Heights for all remains were related to approved Permanent Ground Markers (PGMs) or approved Ordnance Survey Bench Marks (OSBM), where reasonably accessible. Levelling accuracy between OSBMs/PGMs and site Temporary Bench Marks (TBMs) were within 10 mm/k: where 'k' is the total distance levelled in kilometres.

All drawings have been composed of closed polygons, polylines or points in accordance with the requirements of GIS construction and OA Geomatics protocols.

In all instances, CAD work has, and will, follow the guidelines set out in Crossrail's CAD Standards (CR-STD-005 CAD Standards v2) and Crossrail's *Archaeology Specification for Evaluation & Mitigation (including Watching Brief)* (Document CR-PN-LWS-EN-SP-00001). Two main drawings are maintained; one consists of the compiled survey data, digitised features and raster images in the Crossrail co-ordinates system. The other has the same information but has been inserted to a certified Ordnance Survey mapping system and uses the OS co-ordinates. This second drawing will be a requirement for archiving in London.

All plan scans have been numbered according to their plan site number. Digital plans will be given a standard new plan number from the site plan index at the time of archiving.

7. RESULTS

7.1 Introduction

Royal Oak Portal is divided into chainages that relate to linear positions, and this report is concerned with chainage 300 (at the eastern end of WP) to chainage 520 (the point at which the portal head commences). The results below are referenced to these chainages.

The works detailed below included a targeted watching brief on the excavations for asset protection barrier footings, guide wall trenches for the portal diaphragm walls and temporary Marcon Sewer diversion works, and a general watching brief during excavation of the capping beams for the diaphragm walls.

Broad phasing has been ascribed to the deposits and structures encountered during the investigations, and the results are presented below in chronological order. Four broad phases of archaeological activity could be defined across the site. This phasing is provisional, and may be refined in the light of evidence produced from detailed analysis of the dataset.

- Phase 0 Natural Drift Geology
- Phase 1 Prehistoric periods (Upper Palaeolithic onwards)
- Phase 1A Palaeolithic ground surface
- Phase 1B Langley Silts complex
- Phase 1C Holocene river course
- Phase 2 Nineteenth to twentieth centuries
- Phase 2 A Alfred Villa 1869-1894
- Phase 2 B Alfred Villa 1895-1915
- Phase 3 Modern period

<table>
<tr><th>Trenches</th><th colspan="2">Results</th></tr>
<tr><td></td><td colspan="2">Royal Oak Portal (ROP)</td></tr>
<tr><td>XSI 10
ROP Barrier Fence postholes

August 2010</td><td> 
Posthole excavations for barrier fencing between the site and London Underground tracks, looking west</td><td>A series of relatively small excavations were required to secure the posts for a protective fence between the London Underground tracks and the site. These formed the Temporary Asset Protection Barrier (Crossrail Drawing ref. C150-CSY-C2-DDL-CR076_PT001-00012)
The holes measured, on average, 0.8m x 0.8m in plan and were between 1.1m and 1.5m deep.
The top deposit disturbed by these excavations was either 0.6m depth of concrete or made ground. This sealed 0.4m-0.5m of grey brown coarse sandy gravel with occasional brick fragments. Below this a 0.2m-0.3m layer of crushed red brick was encountered. This sequence of deposits was observed from Lord's Hill Bridge to a point level with the east end of the guide wall.
In the deepest excavations a clay deposit was seen which may have been London Clay but, in the restricted areas available, this was difficult to determine with any certainty.</td></tr>
</table>

Trenches	Results	
	 Individual posthole, looking west	
XSI 10 ROP Guide walls July – August 2010	 Upper stage of works , looking west  Section showing deposits 1001-1004, looking north	Northern and southern guide wall trenches were excavated using mechanical means, generally in spits of 0.3m depth. The east-to-west aligned trenches were generally 2.6m wide (from 122.4m ATD), with a stepped profile decreasing this to 1.8m at the base. The two trenches were spaced at between 11m and 16.5m apart. The exposed sequence of deposits was fairly consistent throughout. The uppermost deposit was of Tarmac and pea grit. Below this lay a 0.6m thick layer of dark greyish black ashy gravel with clinker inclusions (context 1001). Beneath the gravel was a compact mid greyish yellow coarse sand gravel (greater than 40mm sediment size) containing occasional yellow and red brick fragments (1002). This formed a layer of approximately 0.2m thickness. Under this was a 0.2m thick layer of crushed red brick fragments with frequent flecks of mortar (1003). This could suggest that the material derived from crushed demolition waste from buildings. At the lowest parts of the trench a stiff light brown clay with no inclusions was observed. This was consistent with London Clay (1004). The deposits were found from chainages 320 – 500, but at chainage 400 the crushed brick layer, and the gravel layer (1002) thinned out and disappeared, before reappearing at chainage 440. At chainage 490 deposits 1002-1004 were were truncated by an east-to-west aligned, 0.5m wide pipe trench filled with black ashy ballast material.. Along the northern side of the northern trench a cast iron pipe was observed in a trench backfilled with a dark black ashy gravel. A small extent of wall (1007) of dark red, machine-made bricks was seen in the northern trench. This wall was probably 20th-century in date and was 'L'-shaped in plan. The wall measured 1.2m in length and turned eastwards for 0.6m. Two further service pipes (one iron, the other ceramic), both in the same trench, were observed in the northern trench. These appeared to cut through the deposits 1001-1004.

Trenches	Results	
	 Lower stage of works, south side, looking east  Upper stage of works north side, looking east	

Trenches	Results	
	 Pipe exposed along northern side of site, looking north-east  Brick wall 1007 visible along northern side of site, looking north-east	
XSI 10 ROP August 2010	No image available.	Two Crossrail boreholes (BH01 and BH02) were monitored by OAG geoarchaeologists. The boreholes were designed to test for previously-observed sediments that may have indicated the presence of a past river channel. Their co-ordinates were: BH01 – 75987.2, 36476.729, 121.238 ATD (top level) BH02 – 75994.927, 36475.505, 121.194 ATD (top level) Borehole 1 was investigated to a depth of 2.45m below ground level (118.788m ATD), the core being visually examined and recorded. A total of 11 distinct deposits were identified (1031-1038, 1055-1056 and 1004). Borehole 2 was investigated to a depth of 2.3m below ground level (118.894m ATD). A total of 17 distinct deposits were

Trenches	Results	
		identified (1039-1054 and 1004). The general sequences appeared to show a series of thin layers at the top, alternating between sands and clays. Beneath that were several thicker clay layers and deposits consistent with alluvium and indicative of a river channel. Below the channel deposits was a mid brown clay with small angular pebbles (1054, 1956). In both cases the base of the sequence featured London Clay (1004).
XSI 10 ROP Marcon Sewer September 2010	 Marcon sewer works, looking south-west  Marcon sewer revealed, looking south-west	The Marcon sewer was located in an east-to-west alignment through much of the Royal Oak Portal worksite. In several locations deep shafts were required. At the base of the works, 2.7m below the ground level, the top of the sewer brickwork was exposed. The straight sides of the cut for the sewer were seen to truncate the compact mid greyish yellow coarse sand gravel (see below 1002=1022=1028). It was probably sealed by the dark ballast material, although this was difficult to discern. The sewer was built of red unfrogged bricks and bonded with a pale grey mortar which contained frequent white flecks. The sewer was *c.*2m wide and was barrel vaulted in profile.

Trenches	Results	
XSI 10 ROP Bulk ground Reduction February – March 2011	 Upper deposits during bulk dig, looking south-west  Lower excavations during bulk dig, looking west	The main bulk excavation of deposits between the guide walls showed that the sequence of deposits was identical to that seen in the upper part of the excavation for the guide walls. The sequence included the 0.6m thick layer of dark ballast (1001), the compact mid greyish yellow coarse sand gravel (1002=1022=1028), the layer of crushed red brick fragments (1003=1023=1029), with a stiff light brown natural clay at the base (1004).
XSI 10 ROP Bulk ground Reduction February – March 2011	 Ground reduction between guide walls. Sleeper bed visible as black stripe, looking south-east	Two stretches of east-to-west aligned track bed were visible in several locations (1059 and 1061). Both features were 1.1m wide, set approximately 1.4m apart and were filled with pale brown silty clay with flinty gravel inclusions. Two possible north-to-south aligned sleeper beds were seen (1063 and 1069). They had similar dark grey silty clay fills with soot, charcoal and clinker inclusions. East-to-west lengths of timber, probably re-used wooden railway sleepers, were also found. A section of iron rail, which by its profile was of the Brunel type (see below – Westbourne Park section), was found within the back fill (1025) of the sewer (1027).

Trenches	Results	
	 Timber sleepers, looking east   Displaced section of Brunel railway track	

Trenches	Results	
XSI 10 ROP Bulk ground Reduction February – March 2011	 Marcon sewer 1027, looking east  Brick drain 1057, looking east	The Marcon sewer (1027) was exposed. This was constructed from two skins of bricks laid as stretcher courses to form the walls. A drain (1066, 1057 and 1070) was exposed at approximately chainages 320, 365 and 385. The drain was formed by a square of bricks several courses high and presumably received water from a vertical pipe or opening. It measured 1.04m x 0.95m x *c.* 0.5m. The brickwork was of yellow unfrogged bricks built in an English bond using a pale greyish yellow mortar with white flecking throughout. Features 1027 and 1057 were found at depths of approximately 2.7m below the original ground level. In the vicinity, a north-to-south ceramic drain (1065) was found at a higher level. This connected into the sewer. The same was found to be the case for a north-to-south aligned cut (1072), although no pipe remained in this feature.
XSI 10 ROP Bulk ground Reduction February – June 2011	 General view of the deposits, looking south  Downwards slope of deposits, looking west	Towards the eastern end of the works, at approximately chainage 345, a change in the lower 'natural' deposits was noted. This manifested itself by a distinct downward slope to deposits, which varied from alternating thin layer of sands and clay to blue clays. At the base of the sequence was a stony clay overlying London Clay (1004). This change marked the western edge of a roughly north-to-south aligned water channel. The deposits continued through to chainage 510. This sequence of deposits (1073-1104, 1108-1116 and 1119-1141) was identified as a previous course of the River Westbourne. Its location matched the geoarchaeological boreholes described above.

Trenches	Results	
XSI 10 ROP Manual Test Pit 1 12th May 2011	 Test Pit 1, looking south	A series of test pits were excavated through the deposits noted above, in order to provide a detailed description of the deposits, to allow soil samples to be taken and to aid finds recovery (Figure 7). Test Pit 1 was excavated by hand by OAG to further investigate the deposits described above. The pit measured 2m x 1m, was no more than 1m deep, and was located at approximately chainage 485. The test pit was primarily excavated through deposit 1073. Animal bones had been recovered in close proximity during the bulk excavation machining although the test pit itself did not uncover any further remains.
XSI 10 ROP Manual Test Pit 2 13th May 2011	 Test Pit 2. Looking south-west	Test Pit 2, located at approximately chainage 485, also measured 2m x 1m, and was dug to 0.3m depth. This test pit was positioned at right angles to, and east of, Test Pit 1 (Figure 7). The aim of this pit was to excavate through lower brickearth deposits 1101 and colluvial gravelly clay 1073. A 100 litre sample from deposit 1073 was obtained to examine the deposit for small animal bones.
XSI 10 ROP Manual Test Pit 3 23rd May 2011	 Test Pit 3, looking south	This test pit measured 1.4m x 0.8m x 0.3m depth. It was aligned north-to-south and was positioned east of Test Pits 1 and 2, at chainage 500 (Figure 7). The main stratigraphic unit excavated here was deposit 1134, one of the upper brickearth deposits. The test pit yielded several fragments of animal bone including Small Finds (SF) 18, 22, 25 and 31.

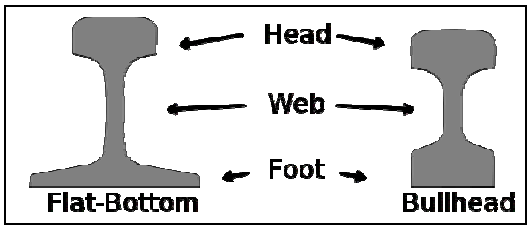
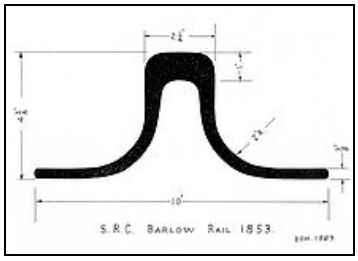
Trenches	Results	
	 Test Pits 3 and 4, looking west	
XSI 10 ROP Manual Test Pit 4 24th May 2011	 Test Pit 4, looking south	Test Pit 4 measured 1.6m x 0.8m x 0.2m depth, and was aligned east-to-west. The test pit was positioned at right angles to, and west of, Test Pit 3 (Figure 7). The test pit was primarily excavated through deposit 1134. Animal bones SF 20, 27 and 28 were found within this area.
XSI 10 ROP Manual Test Pit 5 25th May 2011	 Test Pit 5 in the background, looking south-west	This test pit was excavated in approximately the same position as Test Pit 4 but at a lower level, after the overall area had been machined down for safety reasons (Figure 7). The test pit measured 1m x 1m and was excavated to a depth of 0.3m. The test pit excavated deposit 1121, which lay beneath 1134. Only two fragments of animal bone were found (SF 26 and 29).

Trenches	Results	
XSI 10 ROP Manual Test Pit 6 26th May 2011	 Test Pit 6, looking south  Test Pit 6, looking south-west	Test Pit 6 measured 2m x 1m in area, reducing to 1m x 1m. Test Pit 6 was located at approximately chainage 500 (Figure 7). The aim of the pit was to excavate through the lower brickearths (1124 and 1134), the possible channel (1125 and 1121) and to reach the thin colluvial gravel (1129). A larger concentration of bones was present in this test pit and were recorded as SF 13, 14 and 15 (deposit 1134), SF 3 (deposit 1125) and SF 2 and 4 (deposit 1121).
XSI 10 ROP Manual Test Pit 7 26-27th May 2011	 Test Pit 7, looking east	This test pit measured 1m x 1m and was 0.83m deep. It was positioned east of Test Pit 6, at chainage 500 (Figure 7). The main deposits excavated here were, in sequence, 1124, 1134, 1125, 1121 and 1129. The test pit yielded several fragments of animal bone including SF 6 and 10 (1134), SF 8, 9, 16, 30 and 32 (1125) and SF 83 and 84 (1121). A 50 litre sample was taken from 1121.

Trenches	Results	
XSI 10 ROP Manual Test Pit 8 28th May – 1st June 2011	 Test Pit 8, looking west	Test Pit 8 measured 1m x 1m x 0.48m depth (Figure 7). This was excavated through the lower brickearths (1124 and 1134), the possible channel (1125) and the thin colluvial gravel (1129). Animal bones were found deposits 1134 (SF 33, 34, 39, 40, 53, 54, 55 and 57) and 1125 (SF 58 and 61).
XSI 10 ROP Manual Test Pit 9 28th May – 1st June 2011	 Test Pit 9, looking south  Test Pit 9, looking south	Test Pit 9 measured 1m x 1m and was dug to a maximum depth of 0.75m (Figure 7). The test pit was excavated through the lower brickearths (1124 and 1134), the possible channel (1125 and 1121) and the thin colluvial gravel (1129), reaching London Clay (1004). Animal bones were found in deposits 1134 (SF 38, 42, 44, 45, 46, 47, 48 and 50), 1125 (SF 56, 63 and 64) and 1121 (SF 62).
XSI 10 ROP Manual Test Pit 10 28th May – 1st June 2011	 Test Pit 10, looking west	Test Pit 10 measured 1.6m x 1m and was dug to a maximum depth of 0.66m (Figure 7). The test pit was excavated through the lower brickearths 1124 and 1134, the possible channel (1125 and 1121), the thin colluvial gravel (1129), and attained the London Clay (1004). A small area to the north-east of the test pit was extended to fully recover finds. A larger concentration of bones was present in this test pit, and they were encountered in a number of the deposits. These were 1124 (SF 36), 1134 (SF 35, 37, 41, 43 and 110), 1125 (SF 49, 52, 59, 60, 67, 68 and 92 – 104) and 1121 (SF 105 and 109).

Trenches	Results	
	 Test Pit 10, looking east	
XSI 10 ROP Manual Test Pit 11 28th May – 1st June 2011	 Test Pit 11, looking west	Test Pit 11 (positioned north of Test Pit 8) measured 1m x 1m, and was no more than 0.46m in depth (Figure 7). The test pit was primarily excavated through deposits 1124, 1139 and excavation ceased when deposit 1129 was encountered. Animal bones SF 65 and 66 were found within deposit 1124.
XSI 10 ROP Manual Test Pit 12 28th May – 1st June 2011	 Test Pit 12, looking west	Test Pit 12 measured 1m x 1m, and was excavated to a maximum depth of 0.57m (Figure 7). The test pit was positioned north of Test Pits 9 and 10. The test pit was primarily excavated through deposits 1124and 1139, and excavation ceased when deposit 1129 was encountered. No animal bones were found within this test pit.

Table 1: Results of archaeological watching briefs at Royal Oak Portal

	Westbourne Park (WP)	
XSI 10 Westbourne Park General Watching Brief October 2010	 Location of the watching brief, north of the Great Western Studios, looking west  Rail 7004 in plan  Rail 7004 in profile	A number of rails, a continuation of existing rails seen and recorded as part of the non-listed built heritage survey (C150-T1-RGN-CR076_PT001-005), were revealed in a watching brief along the northern side of the Great Western Studios building (Figure 8). Rail 7004 was seen to extend for approximately 2m, was slightly curved in plan and lay about 400mm below the surface. The rail itself was made of steel and displayed a bullhead 'I' shaped profile *i.e.* was not Brunel's wide gauge rail. The rail was bolted to underlying transverse wooden sleepers (7005 and 7013). A layer of black ashy stone ballast (7000) was associated with the remains, all of which were clearly truncated by the concrete column bases for the studios. Several layers of material were used to level the ground for the tracks (7008 and 7010-7012). The position of the tracks shows that they were associated with the Portobello Junction lines rather than earlier lines. Mapping from 1872 and 1895 clearly shows the addition of tracks to the north of the studio's position. The rails identified date to this period, and must post-date 1892, when all broad gauge rails were lifted and replaced. A surface of rectangular granite setts (7002) had been laid at the same level as the rails and may therefore have been of contemporary date. An overlying Tarmac surface (7001) sealed both.   Rail profiles: the lower is a Brunel type broad gauge rail

XSI 10 Westbourne Park General Watching Brief March 2011	 Rails 7039, looking west  Rails recorded as part of the NLBH in a location further west	Further east, between the studios and the rails described above visible, a further 5m segment of buried rail (7039) was uncovered. A pair of parallel rails were visible, positioned approximately 1.48m apart, and consistent with narrow gauge track. The rails sat on wooden sleepers (7040), set at regular intervals of 0.8m. A surface of rectangular granite setts (7038) had been laid between and around the tracks and were sealed by a Tarmac road surface.
XSI 10 Westbourne Park General Watching Brief February 2011	 General view of the arched brick structures 7025  Sectional view through the wall 7025, looking east	The rear faces of brick arched structures (7025) were seen along the southern side of the site, just north of the existing live railway lines. These were part of the original railway cutting and probably date to the mid 19th century.

XSI 10 Westbourne Park General Watching Brief February 2011	 Wall 7026, looking north-west	The arched brickwork was surmounted by a low wall (7026), eight courses in height and set on a concrete foundation. The wall was clearly a later addition built from machine-made frogged yellow bricks capped with concrete slabs. This wall returned northwards at its western end and became the property wall for Murphy's Yard. Further sections of wall to the west (7032 and 7037) may also have been part of the general boundary walls associated with the yard.
XSI 10 Westbourne Park General Watching Brief February 2011	 Drain 7017, looking south	Aligned north-to-south and truncating the top level of the natural clay was a linear brick drain (7017). This was visible for approximately 2m, was 0.5m wide and was constructed of shallowly frogged dark purplish red bricks.
XSI 10 Westbourne Park General Watching Brief February 2011	 General view, looking south	Redeposited clay 7036, overlying humic layer 7023=7035=7041, and London Clay (7024=7044).

XSI 10 Westbourne Park General Watching Brief February 2011	 Wall 7018, looking south-west	A section of wall foundation (7018) was seen toward the southern part of the site, at the higher level of works. The walls were seen to be aligned north-west/south-east and returned westwards at the southern end. They measured approximately 6.6m by 4m and were constructed of dark purple-red bricks with shallow frogs. Some were stamped 'V W', which could suggest that they originated from the Victoria Works, a brickworks near Wareham known to have operated from the mid 19th century. These partially uncovered walls did not appear to be part of the Albert Villa building (see below).
XSI 10 Westbourne Park Targeted Watching Brief February 2011	 Alfred Villa, looking south	The remains of Alfred Villa were uncovered beneath the elevated Westway road. Full details are discussed below.

Table 2: Table of archaeological watching briefs at Westbourne Park

Royal Oak Portal Phased Results

Phase 0 Natural Drift Geology: the initial excavation of the guide wall and capping beam trenches, and the subsequent bulk ground-reduction excavation, revealed a relatively consistent sequence of deposits across the area. Archaeologically sterile London Clay (1004=1030) was seen at *c.* 0.9m – 1.0m below ground level at the western end of the works, but at a greater depth at the eastern end. Above this was a series of natural deposits potentially associated with human activity.

Phase 1 Upper Palaeolithic to Prehistoric period: From chainages 440 to 520, a series of sands and alluvium filling a channel of the former Westbourne River was present. This extended to a total depth of *c.* 3.5m below ground level.

During the bulk excavation the complete lower profile was examined in one east-to-west section situated along the southern side of the works. This section allowed recording of a series of deposits, which proved to be compatible with those observed from the boreholes. These deposits were recorded at heights of between 121.14 and 118.52m ATD. The sequence was relatively consistent, with six main stratigraphic units identified in the cross-sections and denoted as Phases 1A - F (Figures 5 and 6).

The deposits are not identified within the geological mapping of the area (BGS Sheet 256 1:50,000) which shows the area to be entirely derived of London Clay. Critically, however, the site is located towards the head of the former valley of the River Westbourne, and therefore had the potential, proved, to contain Pleistocene deposits.

Plate 2: Sectional view of the main stratigraphical units, looking south

Plate 3: Sampling and recording the stratigraphic sequence

Phases 1A and B: The lowest deposit consisted of firm clay, with poorly-sorted sub-rounded cobble gravels (1054, 1056 and 1073) recorded at the base to the west, and thin gravel deposits (1129) that gradually rose up towards the east. These gravel-rich deposits possibly represented colluvially derived material eroded from the terrace edge. The gravely clay nature of the deposits is very similar in description to the deposits found at Hyde Park in 1925, beside the former course of the Westbourne River, where Levallois tools and cores and an auroch's tooth were discovered. A number of animal bones were recovered from deposits 1073 and 1129 and these are currently undergoing study.

Phase 1C: These deposits were overlain by brickearth silt deposits (including 1128, 1101, 1092, 1099, 1084 and possibly 1139) that were just over 1m in thickness. The brickearth deposits were laid down in cold climate periglacial environments by wind-blown processes, and were possibly reworked by later fluvial activity. A number of animal bones were recovered from deposits 1101, 1128 and 1139, and these are currently undergoing study.

Plate 4: Auroch bone *in situ* in deposit 1074, looking south

Phase 1D: The silts were sealed by a sequence of finely laminated sands and silts (1087, 1074, 1097 and 1100), which possibly represented inter-bedded cold-climate fluvial and colluvial deposits (Plate 4). A very small number of animal bone fragments were found within deposit 1074.

Plate 5: Uppermost part of the sequence, showing inter-bedded fluvial and colluvial deposits, looking south

Phase 1E: A channel cut, filled with three grey-coloured low-energy silty clay deposits (1134, 1121 and 1125, Plates 5 and 7), was identified within the eastern part of the sequence, and possibly represented an inter-glacial (warmer period) during the Pleistocene. These deposits contained a significant amount of animal bone, which is currently undergoing study (Figure7).

Plate 6: Manual test pitting through the lower brickearth deposits, the channel deposits and the colluvial gravels, looking south-west

Phase 1F: The channel was overlain by a similar sequence of cold-climate brickearth deposits (1124, 1133 1135, 1122, 1123 and 1137) which also infilled the top of the channel. A number of animal bones were recovered from deposits 1124, 1134 and 1137, and these are currently undergoing study. The uppermost sequence was truncated by Brunel's railway cutting and associated drainage features. This had removed between 2-3m of potential Holocene and urban make-up deposits from the top of the sequence.

Plate 7: Blue-grey clay of the former river channel, and a 19th-century railway related feature in the foreground, looking south-west

A series of optical stimulated luminescence (OSL) samples were taken during the work, the results of the sample analysis indicate that the faunal bearing silts date to c 68.8 ± 4.2 ka, the Devensian period.

Phase 2 Nineteenth to Twentieth centuries: Various components and deposits associated with the construction of the Victorian railway cutting and railway lines were uncovered.

The remains of an extensive brick-built Victorian sewer, referred to as the Marcon sewer, and various offshoots and drains, were seen during the works. The main structure was east-to-west aligned and was visible for much of the length of the portal area. It was seen to truncate the bedding layer for the railway lines. The sewer was probably designed to transport drainage water from the track area to the Ranelagh Sewer.

Westbourne Park Phased Results

Phase 0 Natural Drift Geology: At Westbourne Park (Figure 8) the lower deposits were a light greyish brown clay, with a visible thickness of over 1.5m. This was consistent with the London Clay of the area, and was seen to slope gently downwards from beneath the Westway road, on the northern side, towards the live railway lines.

Phase 1 Upper Palaeolithic to Prehistoric period: Not present at this end of the site.

Phase 2 Nineteenth to Twentieth centuries: During the capping beam and diaphragm wall works a number of features were seen.

At the bottom of the sequence, and lying below a redeposited clay (7036), an ill-defined area of friable brownish grey clay silty clay (7023 and 7035), with occasional brick fragments impressed into it, may have represented the remains of an old soil horizon, possibly the original ground surface. A similar deposit (7041) was of a darker humic clay which downwards from the northern side of the site towards the south. This suggests that it may have been part of the original ground surface. The 1746 Rocque map (according to the 2008 DDBA), shows shading indicating a rounded hill through which the site is situated.

Plate 8: The sequence of deposits south of Alfred Villa in Westbourne Park which show the gentle slope of the dark humic deposit 7023=7035=7041. Looking south-west.

Plate 9: Section showing dark humic deposit 7023=7035=7041, with the London Clay 7024=7044 below and redeposited clay 7036 above. Looking south-east

Plate 10: Section showing dark humic deposit 7023=7035=7041, below later deposits and the redeposited clay (on the right), looking east

This possible soil layer was overlain by made ground (7022), which was truncated by a number of features. These included a drain (7017), a wall (7018) and the retaining wall (7025), all attributed to Phase 2.

A layer of 0.75m thick mid pinkish brown clay (7036) sealed earlier layers across the site. The layer was extensive in plan, and was seen over an area of approximately 65m x 16.5m. It may have represented a systematic levelling of the area in the late 19th century, or even more recent, perhaps relating to construction of the Westway or Murphy's Yard.

Along the southern part of the site, a series of partially surviving arched brick structures, (7025) formed an east-to-west aligned wall. At least ten or these were visible over a 30m in length. They stood to a height of 2.5m. The brickwork was of dark purple-red bricks, laid as rows of headers. The rough finish to the brickwork suggests that this face was the rear, hidden, face. The remains appeared to have been built into a cut through the natural clay.

The arched structures lay parallel to, and just north of, the current railway lines, and were probably structures similar to those that still exist north of the Royal Oak Portal section of the site. The date of the retaining wall was difficult to determine, but was probably built during the construction of the mid 19th-century railway cutting.

Plate 11: Arched brick structures 7025 along the southern side of the site, looking south

Alfred Villa: The brick remains of a substantial building, named Alfred Villa on various maps (group context number 7073), and comprising the majority of the building's basements and foundations, were exposed, excavated and recorded during the watching brief works (Figure 9). The building measured approximately 16.7m by 10.4m in plan and was aligned north-west/south-east, with the front of the building on the south-west side. There were two main phases of construction. The remains survived to a height of 126.08m ATD.

Plate 12: The remains of Alfred Villa, looking west

Phase 2A: The earliest part of the building measured 12.5m by 8.75m and appeared to comprise seven rooms, and a flight of steps (Rooms 1-7 and context 7108). To the north-east there were stubs of walls that suggested that may have been further foundations for a room, entrance or other structure to the rear, so the overall dimensions may have been a little larger than were visible. The walls survived to a depth of 23-24 courses of brickwork (1.62m), and from what could be seen this would have been just below the original ground floor level. Rooms 4 – 7 were fully excavated, as were the steps, Rooms 1-3 were only partially excavated. The remains correspond to the building outline seen on an 1872 Ordnance Survey plan and an undated GWR archive plan. The latter is at a sufficient scale to depict the grounds of the house and shows a footpath running south-west from what is assumed to be the front door.

Plate 13: Phased remains of Albert Villa overlaid onto a GWR archive plan

The walls, generally in an English Garden Wall bond, were of dark red bricks with shallow frogs, and many bore the stamp P A W. The origin of this stamp is not known. The bonding material was a mid yellow to brown sandy mortar. The basement rooms had brick floors (7109), where floor levels were visible.

There were different finishes to the walls of the cellars. Room 4, at the rear of the property, appeared to have been whitewashed, while larger rooms at the front (Rooms 5-7) had not. The use of limewash is associated with two factors. The first is hygiene, as it makes the surfaces smoother and easier to clean, and the chemical nature of the application is mildly antibacterial. The second reason is to increase light levels, particularly where only ambient light is available or there are no windows. There was no surviving evidence for the manner in which the cellars may have been directly lit.

The plan of the house at the lower, basement/cellar level appears to have been symmetrical, with the back having two larger cellars (Room 1 and another not uncovered at the other end). It is not known whether there was a further room to the south-east of Room 4, although maps and plans suggest this was likely (see Figure 9).

Rooms 2 and 3 and steps: Room 2 contained a high proportion of coal and slate debris. From the walls that were visible there was no evidence that either room was whitewashed. Two short stretches of wall seen to the south of the building (7110 and 7111) may have been part of a rear porch affording entrance to the steps on this side of the house.

Plate 14: Room 4 with Rooms 3 and 2 behind, looking north

Room 4 (Plates 14 and 15): The section of wall in Room 4 adjacent to the steps had a sloped finish consistent with a window light, which allows the natural light at ground level to be partially re-directed into basement areas, enhanced by the use of whitewash or paint. Based on the chute present in this room, there was a suggestion that Room 4 was a coal cellar. The room's door was on the southern side and its wooden door frame was still partially preserved. At the uppermost level seen, a small bore iron pipe, parallel and internal to wall 7083, may have been part of a gas supply for lighting. In the top part of the surviving brick wall between Rooms 4 and 5 was a small iron vent to allow air circulation.

Plate 15: Steps 7108 and Room 4, looking south-east

Room 5: This room was probably the southern mirror to Room 7, with Room 6 potentially being a corridor between them with doors leading off, although it was difficult to discern this due to the disturbance form later concrete (7074). The south-eastern and south-western exterior walls of Room 5 contained unusual features. In the south-eastern wall (7086) there was a single arched brick recess. This was part of the original construction, and may have served both to provide storage space, and additional structural load capacity for the above-ground elements of the building. If the latter was the case it had not proved to be wholly successful because the arched recess had suffered a degree of structural failure. To correct this a brick pier with a concrete join at the top had later been inserted. On the south-western wall (7088), there was a pair of regularly spaced arched recesses of identical construction and similar size (of three rows of soldier courses with recesses of 0.37m depth, and 0.9m high and 1.1m wide). These arches were complete and had not required additional support.

Plate 16: Room 5 - the arched recesses in wall 7088, looking south-west

Room 6: This basement area was difficult to characterise since it had been truncated by a later brick wall (7091) and concrete foundations (7074). It was formed by walls 7094 and 7117.

Room 7: This was probably arranged in a similar way to Room 5, as two visible arched recesses were seen on the south-western wall. There was also tentative evidence of the top of an arch in the north-western wall (7092) but almost all of it had been obliterated by a foundation (7074). There was nothing found within the recesses or in the cellar backfill to indicate the purpose of function of the cellar, but storage would have been likely.

Plate 17: Room 7, looking south

Front door: Two brick pillars (7098 and 7099), external to the building but in positions that put them in line with Room 6, may indicate the position of the front door to the building. The GWR archive plan depicts the grounds of the house, with a footpath running south-west from what is assumed to be the front door.

A short 2.95m stretch of wall (7097), seen to run parallel to the front of the house, was of similar materials as the original phase of construction. The position of the wall corresponds to a dashed line on the GWR archive plan.

To the rear of the building was a narrow wall, only one brick header in width, which formed a three-sided structure (7076). The relationship between the structure and the building was not preserved, but reference to the mapping shows that its position and size correspond to what was probably an outbuilding attached to the rear.

Phase 2B: The later phase of the building saw it extended by at least 4.3m to the north-west, and probably beyond. This wall (7096) was bonded with a pale grey hard mortar, which obscured much of the brickwork. It clearly abutted the adjacent wall (7093), continued north and then returned eastwards. At the eastern end was an area of brick surface (7105) which had obviously been laid to respect walls 7106 and 7104. The surface was well worn, and the bricks were laid flat, with a strip of possible edging along the northern side.

A further wall (7103), east of surface 7105, was, in terms of the bricks and the mortar used, similar to the earlier phase of walling.

Plate 18: Surface 7105 and surrounding walls, looking south-east

There were also additions to the south-western, front face of the house. The two brick pillars (7098 and 7099) were added to by wall 7089. This wall had been partly truncated, but appeared to be either a continuous three-sided or a two armed addition. The structure was almost certainly a front porch, given its internal size of 1.95m by 1.35m.

Plate 19: Phased remains of Albert Villa as found, overlain onto the 1914-15 OS map

Part of what may be a bay window arrangement was seen as an oblique wall (7090) with a return parallel to the main exterior wall of the building. It was truncated at the northern end but it seems likely that it had been added after the building was extended. Both the porch and the window are evident in the building outline on the large scale Ordnance Survey maps of 1895 and 1915. The maps also indicate that the building may have extended eastwards, beyond the limit of the current works.

Plate 20: Additional brick bay structure 7090, abutting wall 7093, with wall 7096 in the distance. Looking north-west

A stretch of north-east to south-west aligned wall (7102), over 10m in length, was seen to the west of the main building. The hard dark grey bonding material indicated that it was part of the second phase of construction. The wall returned northwards at the eastern end. Only three courses were recorded. The position of the remains corresponds to a substantial outbuilding on the 1895 Ordnance Survey map, but interestingly, it also fits with the position of a possible terrace or footpath shown on the GWR archive plan (Plate 13).

Phase 3 Twentieth century: The date of demolition is not presently known. Some of the demolition debris was used to backfill the cellars, but there was insufficient material within them to account for all of the building's remains, which must therefore have been transported away.

The final phase at Alfred Villa was represented by a single brick wall (7091) that was aligned in a south-west to north-east direction, and substantial concrete foundations (7074) that were the base of a tower crane used during the construction of the A40 Westway road, built between 1964 and 1970.

7.2 Stratigraphic Results: Overview

Quantification: The site archive is in Table 3.

Investigation	Context Block	Deposits	Structures	Cuts	Groups	Total No. Of contexts
XSI10 ROP	1000-1145	118	7	20	0	146 (1 void)
XSI10 WP	7000-7117	56	47	15	1	118
Totals		**174**	**54**	**35**	**1**	**264**

Table 3: Context data for XSI 10

7.3 Artefactual / Finds Results

The finds assemblage deriving from the work was small and varied in composition (Table 4). The most important finds classes for dating at Westbourne Park were the pottery and the clay tobacco pipes, whilst the most important for Royal Oak Portal will clearly be the animal bone assemblage.

Finds Class	No. of Contexts	No. of sherds / fragments	Total weight (g)
Pottery - WP	1	2	< 75
Clay tobacco pipe - WP	1	2	<20
CBM – fragments WP	1	1	<100
CBM – bricks ROP	2	2	Approx 2000
CBM – bricks WP	3	3	Approx 3000
Glass - WP	1	1	<75
Animal bone - ROP	12	4 544	18 050
Shell	1	2	<50
Stone - ROP	1	1	2

Table 4: Finds recovered from XSI 10
(ROP = Royal Oak Portal, WP = Westbourne Park)

A range of samples has been taken from the sequence in order to aid in the interpretation of the sedimentary sequence, its palaeoenvironmental context and its age.

No of Samples	Type	Purpose	Quantity
12	Bulk	Small animal bones	650 litres
13	Monolith	Deposition conditions	11 x 0.5m lengths 2 x 0.3m lengths
6	OSL	dating	6 max litres
Total of 31			

Table 5: Samples recovered from XSI10, ROP. None were taken at WP

8. ASSESSMENT OF RESULTS IN RELATION TO INVESTIGATION AIMS

8.1 Introduction

At each stage of this project, aims were established as part of the framework of investigation. After the completion of each stage the aims were re-examined and the results checked to see whether the general and site specific objectives had been achieved. Although it is not intended to reiterate the detailed findings of this exercise, they are briefly outlined below.

The overall objective of the investigations was to establish the character, nature, date, extent and state of preservation of any surviving archaeological remains that would be impacted upon by the development.

Selected research themes derived from the regional research aims outlined in *A Research Framework for London Archaeology 2002* (Museum of London, 2002) were included in the *Assessment of Archaeology Impacts Technical Report, Part 2* (Crossrail 2005), and the SSWSI (C150-CSY-T1-RGN-CR076_PT001-00005 v5). The below-ground archaeological remains predicted to survive on the site were seen to have the potential to contribute to the following research themes:

- The concept of core/periphery for different periods in London's past, as a means of understanding a settlement and its environs, a city and its hinterland

The areas of Royal Oak and Westbourne Park and even Paddington itself were essentially open with only small settlements in a rural landscape. At that stage they were certainly at the periphery of London. It was the construction of the railway and the location of the major route westwards that was instrumental in extending the core of London into these areas. The expansion of the transport network allowed the establishment of residential and light manufacturing into these areas. There is an ongoing fluid situation between the residential areas and the transport corridors as to which forms the core and which the periphery.

- Understanding the creation of the London suburbs

The areas of work did not encompass any substantial part of London suburbs as such. The remains of Alfred Villa does show that in the earlier Victorian era the construction of structures specific to the railway occurred and the mapping of the area also indicates that the other residential dwellings in the vicinity may have been related or focused on the station and the stationmaster's house. These dwellings would have provided homes for the increasing population of London attracted by the prospect of work, but in contrast to the detached Alfred Villa, they were terraced in nature.

- Defining levels of landscape change due either to environment and climate or human interaction

The investigation revealed a sedimentary sequence associated with cool climate waterlain deposition towards the edge of the River Westbourne floodplain, at Royal Oak Portal. During the excavation an assemblage of around 100 identifiable large mammal bones was recovered, dating to the Pleistocene. The major concentration of bones, from bison and reindeer, was located and excavated in a shallow sequence at the eastern edge of a possible interstadial channel. Analysis of the bones indicates that they represent a natural death assemblage, scavenged and subsequently disarticulated, transported by water, exposed and further dispersed and broken by trampling. The site is of regional and national importance.

The below ground investigations also contribute to the change in landscape from the essentially open rural conditions to the urban landscape dominated by the railway transport network. The changes were on a large scale and were of a fairly rapid nature.

- Early railway construction, particularly that associated with Brunel's railway and the Ranelagh Sewer

At both Royal Oak Portal and Westbourne Park there were no in situ remains of early railway construction, although the routes of the lines have been fossilised in the landscape. Elements such as: stretches of track bed: sleeper beds with dark grey silty clay fills and soot, charcoal and clinker inclusions; re-used wooden railway sleepers; and sections of iron rail both in and ex situ were encountered. At Royal Oak Portal one section, which by its profile was of the Brunel type was found within the deposits. It was part of the deliberate dismantling that occurred in the rapid changover from broad to narrow gauge track. Where in situ tracks were seen they consisted of a pair of parallel rails were visible, positioned approximately 1.48m apart, and consistent with narrow gauge track. The rails sat on wooden sleepers, set at regular intervals of 0.8m. A surface of rectangular granite setts had been laid between and around the tracks.

There was no evidence for the Victorian Ranelagh sewer, a brick structure which crosses under Ranelagh Bridge, takes the former Westbourne River underground and was commissioned as part of the Metropolitan Board of Works improvements to the area in the 1870s, uncovered in the investigations.

- Evolution of the road systems, street layouts and river crossings, and their importance as engines of development and change

There was relatively little evidence from the investigations at Royal Oak Portal and Westbourne Park of these aspects. Most of the evidence related to the prehistoric era of the river channel at Royal Oak or to the railway era. The only direct evidence for the road systems came from the concrete crane base seen to truncate Alfred Villa and was part of the construction phase of the A40 Westway. The A40 now provides a crucial trunk road into central London.

- How daily work and life in London reflected and contributed to the rise of London as the commercial centre of the British Empire, and to its continued eminence as a world city thereafter.

In the 1850s, the abolition of tax on glass and bricks made these items cheaper and the coming of the railway allowed them to be manufactured elsewhere, at low cost and to standard sizes and methods, and brought to site. Such building materials were used in the construction of Alfred Villa. This system allowed the rapid expansion of London which provided both the workforces and the consumers at a pace commensurate with the commercial increase of London.

9. ASSESSMENT OF THE RESULTS AND STATEMENT OF THE POTENTIAL OF THE EVIDENCE RECOVERED

9.1 Assessment criteria

The results of the evaluation and excavation have produced a body of data that can be gauged using the criteria for assessing national importance outlined in documents such as MoRPHE (Management of Research Projects in the Historic Environment) and DCMS Scheduling (Department for Culture, Media and Sport), PPS5 (and its predecessor, PPG16) and in accordance with section 8.F.7.of the Method Statement (CR-PN-LWS-EN-SP-00001).

Assessing the results of the watching brief and excavations against the original expectations may be done by comparing the results against the previous baseline.

Historic Environment Record data (HER) from the GLSMR (Greater London Sites and Monuments Record), as derived from the DDBA (CR-SD-CT1-EN-SR-00002), shows 7 known sites in the vicinity.

In the ADS ArchSearch site there are over 10,000 entries for post-medieval Westminster. These entries range from standing buildings of various functions to below-ground investigations.

A similar search of the English Heritage Pastscape site, conducted at the same time and using parameters as closely matched as possible (sites in the City of Westminster) produced 786 entries (1,285 entries for all periods), and within 1km of TQ 251 817 there were 25 results. The majority of these were standing buildings rather than below-ground archaeological remains.

9.2 Period

The results demonstrated a series of cold-climate Pleistocene deposits and a possible warm climate interglacial deposit at Royal Oak Portal. These were truncated by post-medieval remains and modern development. The Westbourne Park site produced only post-medieval remains.

9.3 Relative completeness

None of the various elements of the site survived intact. All the features had suffered truncation from the construction of the sequence of later buildings, both vertically and horizontally. At ROP the uppermost sequence was truncated by Brunel's railway cutting and associated drainage features. This had removed between 2-3m of potential Holocene and urban make-up deposits from the top of the sequence. At WP the earlier deposits were truncated by railway activity. The remains of the railway related structure, Alfred Villa, was affected by the substantial concrete foundations of the base of a tower crane used during the construction of the A40 Westway road, built between 1964 and 1970. Only the basement remains survived, all of the above ground structure had been deliberately demolished.

9.4 Condition

The surviving features, deposits and artefacts encountered were all in a reasonable state of preservation. All remains were incomplete (see above) but were not so fragmentary as to obscure their form and function. Brickwork was generally in good order, deposits were uncontaminated and a wide range of artefacts have been preserved as part of the archaeological record. In damper areas organic remains were recovered (*e.g.* animal bone), of particular importance for the ROP Pleistocene remains, and inorganic items of ceramic, glass and metal were also present throughout.

9.5 Rarity

Although fossiliferous deposits are known from Trafalgar Square and the Ismali Centre in South Kensington, vertebrate fossils in central and west London are very rare. The post-medieval remains are unique to themselves but are not a rare form or fabric.

9.6 Group value

The value of the ROP site can be described as moderate to high. Primarily due to the survival of a sequence of deposits, and faunal assemblages, consisting of cold climate bedded silts and clay-silts, deposited within an undulation in the London Clay, with a sequence of low-energy fluvial deposits, potentially representing interglacial deposits sandwiched between them.
The value of the WP site can be described as low. Although the area was of a reasonable size there was only a limited amount of in situ sequential deposition and what was present pertained to the mid 19th century development of the railways, of which this was only a small element.

9.7 Stratigraphic data

The potential for analysis of the stratigraphic data lies in the confirmation of the phasing and dating of the sequence of sedimentary and archaeological deposits revealed by the investigation. The stratigraphic data will also provide the framework within which other analysis can take place. Further analytical study of the stratigraphic record may elucidate a more detailed, chronological sequence of events relating to the development of the surrounding urban landscape, and aid understanding of the transport, social and economic history of London as represented by the surviving structures on the site.

9.8 Documentary study

The significance of the fieldwork results is increased by the supporting primary documentary evidence available. A limited appraisal of these sources has been undertaken as part of earlier desk-based work, although this has by no means been exhaustive. Further detailed examination of the primary documentary evidence, particularly records relating to property ownership and use, probates, leases, bibliographic records and photographic material could provide significant additional information. Antiquarian and contemporary reports of life in London during the periods of occupation would provide an intriguing comparison to the results of the fieldwork and their interpretation. In particular sources at national repositories for railways could be approached for information regarding the construction, use and occupants of Albert Villa.

9.9 Finds data

The moderate assemblage and variety of finds recovered from the works has a reasonable potential; their presence is important in terms of the archaeological record and as a record of the site for the future. The material culture has some limited potential to examine spatial and temporal distributions of produced goods, personal items, wholesale and retail/consumer issues and regional and global trade. It can reveal and confirm the hypothesised nature of the occupation on site and the range of activities that occurred there and can shed light on activities that relate to a wider sphere of influence. In addition the faunal assemblage form the ROP site has the potential to allow comparisons and provide data to specialists beyond archaeological the sphere.

9.10 Primary Potential

If the results of these excavations are added to the body of knowledge generated by the Crossrail scheme they will contribute positively at all levels.

The ROP findings have clear potential to answer the main research aims and can help determine the levels of landscape change due either to environment and climate or human interaction.

The ROP and WP post-medieval findings have potential to contribute to the understanding of the early railway landscape of the 19th century, including that associated with Brunel's railway and the Ranelagh Sewer. There is only a limited potential for adding to the knowledge of how daily work and life in London was an aspect of the commercial centre of the British Empire, but this is possible from the Albert Villa remains.

An important feature of urban excavations such as these is the potential they have to produce a relatively non-judgemental transect through the local urban landscape, its parameters defined by criteria other than prospecting for sites of enhanced archaeological potential. This probably produces a more representative landscape sample on which to draw conclusions regarding a wide number of questions, from the survival and visibility of ancient activity within the modern landscape, to a realistic assessment of the nature and density of settlement at any specific period in the past. Thus, whilst of only moderate archaeological value if considered alone, the cumulative value of the various sites investigated during the project can contribute significantly to one or more of the research themes, contributing especially to an understanding of the development of the modern landscape.

10. CONCLUSIONS AND RECOMMENDATIONS

10.1 Royal Oak Portal

The local and regional significance of the deposit sequence seen at Royal Oak Portal rests both with the information it provides in terms of both the terrain modelling studies for past landscapes, and the presence of mammalian remains within the channel sediments. Although fossiliferous deposits are known from Trafalgar Square and the Ismali Centre in South Kensington, vertebrate fossils in central and west London are very rare. The information from this current work will be of great interest to those engaged now and in the future in studies of early Britain.

The approximate date of the deposits has been suggested by the results of the OSL dating undertaken during the fieldwork. These results place the Royal Oak channel fills within the Devensian period.

The faunal assemblage was analysed at the Natural History Museum and environmental studies were also undertaken. An interim publication on the findings will appear in the Proceedings of the Geological Association in 2012.

A secondary area of interest is the evidence uncovered for the industrialisation of the Royal Oak are in the 19th century. Glimpses of the Marcon Sewer and the materials used to prepare the cutting for rail use, have allowed details to be recorded of the methods and materials used. These form a modest but useful addition to the corpus of information about Victorian west London.

10.2 Westbourne Park

The remains of Alfred Villa can be reasonably well dated by documentary and cartographic sources to the mid 19th-century development of the GWR's terminus in west London. Although the maps and plans already examined provide a relatively detailed external plan for this structure, the excavation has provided information on the materials used, the construction techniques employed and the internal layout provided for the superintendent, which would hitherto have remained unknown.

As with Royal Oak, the recording of displaced and *in situ* rails and railway beds, and the retaining walls and make-up layers used to construct the cutting form a modest but useful addition to the corpus of information about the Victorian industrialisation of this area of London.

11. PUBLICATION AND DISSEMINATION

The earlier remains uncovered during the project are of sufficient significance to warrant publication. A publication on the findings will appear in the Proceedings of the Geological Association in 2013 as Devensian sediments and palaeoenvironments from the excavations at the Royal Oak Portal Paddington, West London, UK by Martin R. Bates, Carl Champness, Andrew Haggart, Richard I. Macphail, Simon A.Parfitt, and Jean-Luc Schwenninger.

Abstract: This report discusses the results of the investigation of Pleistocene sediments at the Royal Oak Portal site (ROP) on the new Crossrail scheme near Paddington Station, London. The site was sampled and recorded in May 2011 by archaeologists from Oxford Archaeology commissioned by Crossrail Ltd. The investigation revealed a sedimentary sequence associated with cool climate waterlain deposition towards the edge of the River Westbourne floodplain. During excavation an assemblage of around 100 identifiable large mammal bones was recovered, dating to the Pleistocene. The major concentration of bones, from bison and reindeer, was located and excavated in a shallow sequence at the eastern edge of a possible interstadial channel. Analysis of the bones indicates that they represent a natural death assemblage, scavenged and subsequently disarticulated, transported by water, exposed and further dispersed and broken by trampling. The site is of regional and national importance because the assemblage derives from a well-constrained geological context, with associated dating evidence suggesting accumulation during the later parts of MIS 5 and continuing within MIS 4. The site is also of significance because it is one of a growing number of recently discovered sites away from the main fluvial archive for the British Middle and Upper Pleistocene. These sites have the potential to add significantly to our understanding of parts of the Pleistocene record that remain difficult to document through the investigation of the more active sequences associated with major rivers such as the Thames, Severn or Trent.

12. ARCHIVE DEPOSITION

The complete project archive includes paper context records and indices, permatrace drawings, black and white and colour photographs, digital plans and photographs, artefacts, ecofacts and sieved residues. A full list is given in Appendix 5. These will be prepared following the guidelines set out in *Environmental Standards for the Permanent Storage of Excavated Material from Archaeological Sites* (UKIC 1984, Conservation Guidelines 3) and *Guidelines for the Preparation of Excavation Archives for Long-term Storage* (Walker 1990).

The digital data is stored on the server at OA South, which is backed up on a daily basis. For long-term storage of the digital data, CDs and DVDs will be used to store the reports, plans, scanned images and digital photographs. Each disk will be fully indexed and accompanied by the relevant metadata as provenance.

All dry and stable finds will be packaged according to the recipient museum's specifications, in either acid-free cardboard boxes, or in airtight plastic boxes for unstable material. Each box will have a compiled list of its contents and the boxes will in general contain only one type of material *eg* bone or ceramic *etc*.

The recipient museum will be the:

London Archaeological Archive and Research Centre
Mortimer Wheeler House
46 Eagle Wharf Road

London N1 7ED
tel: 020 7566 9319

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Elrington, CR (Editor): Baker, TFT; Bolton, DK: Croot, PEC	1989	A History of the County of Middlesex: Volume 9: Hampstead and Paddington, pp. 174-181 (Victoria County History) URL: http://www.british-history.ac.uk/report.aspx?compid=22660
Hey, G and Lacey, M	2001	Evaluation of Archaeological Decision-making Processes and Sampling Strategies http://www.persona.uk.com/kent/Core_docs/CD-06_7_2.pdf
The Methodist	1912	Who's Who (British Library shelfmark P.P. 2485.baa) http://www.archive.org/stream/themethodistwhos00unknuoft/themethodistwhos00unknuoft_djvu.txt
Oxford	2010	C254 Archaeological Works at Westbourne Park and Royal Oak Portal

Archaeology/ Gifford		Archaeology Method Statement (Document Number: C254-OXF-T1-GMS-CR076-50001 / OAG 16188.R19)
MoRPHE	2008	Management of Research Projects in the Historic Environment PPN 3: Archaeological Excavation http://www.english-heritage.org.uk/publications/morphe-project-planning-note-3/morpheprojectplanningnote3.pdf
Whitfield, P	2006	London: A Life in Maps

14. ACKNOWLEDGEMENTS

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Royal Oak Portal: Thanks are due to Vicknayson Thevendran, Geraint Rowland, Kenneth Hills, John Harrison, Helen Poon, John Dana, Steve Hunt, Paul Hofmeyr, Brett Clevelly, Rob Tuttle, Kevin Cousins and Adam Barrett for their support and help. The machine plant operators of both D Sullivan and Gordon Plant Hire are also thanked for their patience and professionalism in undertaking the machining on site.

Westbourne Park: At Morgan Sindall thanks are due to Steve Gollan for his support and help. David Gibbs of Three Dimensional Services is thanked for his surveying. The machine plant operators of Flannery Plant Hire are also thanked for their patience and professionalism in undertaking the machining on site.

The watching brief work was undertaken by Gary Evans, John Griffiths, Vix Hughes, Harriet Bloore, Christof Heistermann and Dave Jamieson. The report was compiled by Vix Hughes, with significant contribution from Carl Champness on matters of geoarchaeology. The report was edited by Andy Shelley who, together with Richard Brown, provided Oxford Archaeology/Ramboll project management.

15. APPENDIX 1 ARCHAEOLOGICAL CONTEXT INVENTORY

Royal Oak Portal

Context No.	*Context Type*	*Category*	*Finds*
1000	void	-	
1001	deposit	layer -makeup	
1002	deposit	layer -makeup	
1003	deposit	layer -makeup	
1004	deposit	natural London Clay	
1005	deposit	services	
1006	cut	services	
1007	structure	wall	
1008	cut	wall	
1009	deposit	wall	
1010	cut	services	
1011	deposit	services	
1012	cut	services	
1013	deposit	services	
1014	cut	river channel	
1015	cut	wall	
1016	deposit	wall	
1017	structure	wall	
1018	cut	uncertain	
1019	deposit	uncertain	
1020	deposit	Pleistocene sequence	
1021	deposit	Pleistocene sequence	
1022	deposit	layer -makeup	
1023	deposit	layer -makeup	
1024	deposit	layer -makeup	
1025	deposit	Services / marcon sewer	
1026	cut	Services / marcon sewer	
1027	structure	Services / marcon sewer	
1028	deposit	layer -makeup	
1029	deposit	layer -makeup	
1030	deposit	natural London Clay	
1031	deposit	Pleistocene sequence	
1032	deposit	Pleistocene sequence	
1033	deposit	Pleistocene sequence	
1034	deposit	Pleistocene sequence	
1035	deposit	Pleistocene sequence	
1036	deposit	Pleistocene sequence	
1037	deposit	Pleistocene sequence	
1038	deposit	Pleistocene sequence	

Context No.	Context Type	Category	Finds
1039	deposit	Pleistocene sequence	
1040	deposit	Pleistocene sequence	
1041	deposit	Pleistocene sequence	
1042	deposit	Pleistocene sequence	
1043	deposit	Pleistocene sequence	
1044	deposit	Pleistocene sequence	
1045	deposit	Pleistocene sequence	
1046	deposit	Pleistocene sequence	
1047	deposit	Pleistocene sequence	
1048	deposit	Pleistocene sequence	
1049	deposit	Pleistocene sequence	
1050	deposit	Pleistocene sequence	
1051	deposit	Pleistocene sequence	
1052	deposit	Pleistocene sequence	
1053	deposit	Pleistocene sequence	
1054	deposit	Pleistocene sequence	
1055	deposit	Pleistocene sequence	
1056	deposit	Pleistocene sequence	
1057	structure	drain	
1058	deposit	layer -makeup	
1059	cut	foundation trench	
1060	deposit	layer -makeup	
1061	cut	foundation trench	
1062	deposit	layer -makeup	
1063	cut	foundation trench	
1064	deposit	drain	
1065	cut	drain	
1066	structure	drain	
1067	structure	worked timber	
1068	deposit	layer -makeup	
1069	cut	foundation trench	
1070	structure	drain	
1071	deposit	drain	
1072	cut	drain	
1073	deposit	Pleistocene sequence	Animal bone
1074	deposit	Pleistocene sequence	Animal bone
1075	deposit	Pleistocene sequence	
1076	deposit	Pleistocene sequence	
1077	deposit	Pleistocene sequence	
1078	deposit	Pleistocene sequence	
1079	deposit	Pleistocene sequence	
1080	deposit	Pleistocene sequence	
1081	deposit	Pleistocene sequence	
1082	deposit	Pleistocene sequence	
1083	deposit	Pleistocene sequence	

Context No.	Context Type	Category	Finds
1084	deposit	Pleistocene sequence	
1085	deposit	Pleistocene sequence	
1086	deposit	Pleistocene sequence	
1087	deposit	Pleistocene sequence	
1088	deposit	Pleistocene sequence	
1089	deposit	Pleistocene sequence	
1090	deposit	Pleistocene sequence	
1091	deposit	Pleistocene sequence	
1092	deposit	Pleistocene sequence	
1093	deposit	Pleistocene sequence	
1094	deposit	Pleistocene sequence	
1095	deposit	Pleistocene sequence	
1096	deposit	Pleistocene sequence	
1097	deposit	Pleistocene sequence	
1098	deposit	Pleistocene sequence	
1099	deposit	Pleistocene sequence	
1100	deposit	Pleistocene sequence	
1101	deposit	Pleistocene sequence	Animal bone
1102	deposit	Pleistocene sequence	
1103	deposit	Pleistocene sequence	
1104	deposit	Pleistocene sequence	
1105	deposit	drain	
1106	cut	drain	
1107	deposit	layer -makeup	
1108	deposit	Pleistocene sequence	
1109	deposit	Pleistocene sequence	
1110	deposit	Pleistocene sequence	
1111	cut	Pleistocene sequence	
1112	deposit	Pleistocene sequence	
1113	deposit	Pleistocene sequence	
1114	deposit	Pleistocene sequence	
1115	deposit	Pleistocene sequence	
1116	deposit	Pleistocene sequence	
1117	deposit	drain	
1118	cut	drain	
1119	deposit	Pleistocene sequence	
1120	deposit	Pleistocene sequence	
1121	deposit	Pleistocene sequence	Animal bone
1122	deposit	Pleistocene sequence	
1123	deposit	Pleistocene sequence	
1124	deposit	Pleistocene sequence	Animal bone
1125	deposit	Pleistocene sequence	Animal bone
1126	deposit	pit	
1127	cut	pit	Animal bone
1128	deposit	Pleistocene sequence	Animal bone

Context No.	Context Type	Category	Finds
1129	deposit	Pleistocene sequence	Animal bone
1130	deposit	Pleistocene sequence	
1131	deposit	Pleistocene sequence	
1132	deposit	Pleistocene sequence	
1133	deposit	Pleistocene sequence	
1134	deposit	Pleistocene sequence	Animal bone
1135	deposit	Pleistocene sequence	
1136	deposit	Pleistocene sequence	
1137	deposit	Pleistocene sequence	Animal bone
1138	deposit	Pleistocene sequence	
1139	deposit	Pleistocene sequence	Animal bone
1140	deposit	Pleistocene sequence	
1141	deposit	Pleistocene sequence	
1142	deposit	modern disturbance	
1143	cut	modern disturbance	
1144	deposit	drain	
1145	cut	drain	

Westbourne Park

Context No.	*Context Type*	*Category*	*Finds*
7000	deposit	layer -makeup	
7001	deposit	road	
7002	deposit	road	
7003	deposit	layer -makeup	
7004	structure	railway track	
7005	structure	worked timber / railway sleeper	
7006	deposit	layer -makeup	
7007	deposit	layer -makeup	
7008	deposit	layer -makeup	
7009	deposit	foundation	
7010	deposit	layer -makeup	
7011	deposit	layer -makeup	
7012	deposit	layer -makeup	
7013	deposit	worked timber / railway sleeper	
7014	cut	foundation	
7015	cut	foundation trench	
7016	deposit	foundation trench	
7017	structure	drain	
7018	structure	wall	
7019	deposit	layer -makeup	
7020	deposit	layer -makeup	
7021	deposit	layer -makeup	
7022	deposit	layer -makeup	
7023	deposit	layer	Brick
7024	deposit	natural feature	
7025	structure	wall	Brick
7026	structure	wall	
7027	deposit	wall	
7028	cut	wall	
7029	cut	foundation	
7030	cut	wall	
7031	cut	drain	
7032	structure	wall	
7033	cut	wall	
7034	deposit	layer -makeup	
7035	deposit	layer	CBM, pot
7036	deposit	layer -makeup	
7037	structure	wall	
7038	deposit	surface	
7039	structure	railway track	
7040	structure	worked timber	
7041	deposit	layer -makeup	
7042	structure	wall	

Context No.	Context Type	Category	Finds
7043	structure	wall	
7044	deposit	natural feature	
7045	deposit	layer -makeup	
7046	deposit	layer -makeup	
7047	deposit	road	
7048	deposit	wall	
7049	deposit	demolition	
7050	deposit	modern disturbance	
7051	structure	wall	
7052	deposit	uncertain linear	
7053	deposit	uncertain	
7054	deposit	uncertain	
7055	deposit	uncertain	
7056	deposit	uncertain	
7057	deposit	uncertain	
7058	deposit	uncertain	
7059	deposit	uncertain	
7060	structure	drain	
7061	cut	uncertain	
7062	deposit	layer	
7063	deposit	road	
7064	deposit	layer -makeup	
7065	deposit	natural feature	
7066	deposit	natural feature	
7067	deposit	pit	CBM
7068	cut	pit	
7069	deposit	wall	
7070	cut	wall	
7071	deposit	uncertain	
7072	cut	uncertain	
7073	group	Alfred Villa building foundations	
7074	deposit	foundation	
7075	cut	foundation	
7076	structure	wall	
7077	structure	wall	
7078	structure	wall	
7079	structure	wall	
7080	structure	wall	
7081	structure	wall	
7082	structure	wall	
7083	structure	wall	
7084	structure	wall	
7085	structure	wall	
7086	structure	wall	
7087	structure	wall	

Context No.	Context Type	Category	Finds
7088	structure	wall	
7089	structure	wall	
7090	structure	wall	
7091	structure	wall	
7092	structure	wall	
7093	structure	wall	
7094	structure	wall	
7095	structure	wall	
7096	structure	wall	
7097	structure	wall	
7098	structure	wall	
7099	structure	wall	
7100	cut	wall	
7101	deposit	layer	
7102	structure	wall	
7103	structure	wall	
7104	deposit	fill	
7105	structure	wall	
7106	structure	wall	
7107	structure	wall	
7108	structure	steps / stairs	
7109	deposit	surface	
7110	structure	wall	
7111	structure	wall	
7112	deposit	layer -makeup	
7113	deposit	services	
7114	cut	services	
7115	deposit	services	
7116	cut	services	
7117	structure	wall	

16. APPENDIX 2 FAUNAL REMAINS

Faunal remains were recovered at Royal Oak from a total of 12 individual deposits. The assemblage comprises 4,544 fragments, which weigh 18.05kg. Fragments of large mammal bones appear from initial inspection to include those from auroch, deer and bison. A few poorly-preserved and isolated bones were identified at the interface between the gravelly clay deposits (1073) and the lower brickearth deposits (1101). The vast majority of the faunal assemblage was recovered from the later interglacial channel fills (1125 and 1121). The assemblage is stored at the premises of the Natural History Museum in London.

17. APPENDIX 3 SUMMARY OF SITE DETAILS

Client name: Crossrail Ltd
Site name: Royal Oak Portal/Westbourne Park
Site code: XSI 10
Grid references: centred on 525800 181600 and 525180 181730
Type of investigation: Watching brief
Date and duration of project: 14/07/10 to 16/06/11
Location of archive: The archive is currently held at Oxford Archaeology, Janus House, Osney Mead, Oxford, OX2 0ES and will be deposited with the London Archaeological Archive and Research Centre in due course.

18. APPENDIX 4 ARCHIVE QUANTIFICATION

Description	Royal Oak Portal	Westbourne Park	Totals
Contexts			
Context numbers used	1000-1145	7000-7117	264
Checklists	5	4	9
Number of void contexts	1	0	1
Context sheets	145	118	263
Additional sheets	2	17	19
Test pit sheets	12 + 1 index		12 + 1 index
Drawings			
Plan numbers used	1001-1018	7000-7005	
Checklists	1	1	2
A1 permatrace plans	0	0	0
Other permatrace plans	28	17	45
Section numbers used	1001-1014	7001-7014 (1 void)	
Checklists	1	1	2
A1 permatrace plans	0	0	0
Other permatrace plans	34	11	45
Small finds			
Small find numbers used	1-110	-	
Checklists	4	-	
Environmental samples			
Environmental sample numbers used	1-10, 1011-1025, ROP11 01-06	-	31
Checklists	6	-	6
Photographs			
Film numbers used	22, 50, 51,	40, 41, 48,	

	56-61, 64-73	62	
Black and white	9	2	
Colour slide	10	2	
Individual digital photographs	1197	163	
Approximate size of digital data (MB)	2500	400	
Checklists	43	5	
EDM Survey			
Survey record sheets	N/A	N/A	
Rectified/geo-reference photo survey sheets	N/A	N/A	
Approximate size of digital data (MB)			10

Folders
1 x Project Administration, copies of the SSWSI, reports, interim results, daily journal, health and safety

2 x Contexts and checklists, all indices including 5x5m scale drawings, draft matrix.

19. APPENDIX 5 – SMR / HER / OASIS RECORD FORMS

OASIS DATA COLLECTION FORM: England
OASIS ID: oxfordar1-106692

Project details

Project name Crossrail Ltd, Archaeological Watching Brief in the vicinity of Westbourne Park and Royal Oak Stations

Short description of the project:

A series or archaeological investigations were undertaken on land comprising sites at Westbourne Park and Royal Oak Portal. The work consisted of an intermittent watching brief program, with two main phases; the initial works for the guide / diaphragm walls; and subsequently, the ground reduction works. The initial works took place between July-September 2010 and the subsequent bulk excavations occurred between February and June 2011. Oxford Archaeology/Gifford (OAG) carried out the fieldwork on behalf of Crossrail. The investigations revealed only minimal survival of significant archaeological remains.

At the Royal Oak Portal site the main findings were of a scour or channel feature has been identified during the watching brief along the Royal Oak Cutting, cut through the London Clay and infilled with a series of cold climate Pleistocene deposits and a possible warm climate interglacial deposit A channel cut, filled with gleyed silt clay deposits, was identified within upper part of the sequence possible representing a former later channel of the river Westbourne. The upper sequence has been truncated by Brunel's railway cutting.

At Westbourne Park the brick remains of Alfred Villa were excavated and the majority of the building basements and foundations were seen to be preserved to a level just below the ground floor level. The building measured approximately 16.7m by 10.4m and was aligned north-west/south-east, with the front of the building on the south-west side. There are two main phases of construction that could be discerned. The first was the original build dated to about 1855-69, while the second visible phase was a number of alterations that took place later in the history of the property, dated to the around 1875 onwards.

Project dates Start: 14-07-2010 End: 16-06-2011
Previous/future work Not known / Not known
Any associated project reference codes XSI10 - Sitecode
Any associated project reference codes XSI10 - Museum accession ID
Type of project Recording project
Current Land use Other 3 - Built over
Monument type N/A None
Significant Finds None
Investigation type 'Watching Brief'
Prompt Schedules 9, 10 and 15 and the Environmental Minimum Requirements (EMR) of the Crossrail Bill

Project location
Country England
Site location GREATER LONDON Westbourne Park to Royal Oak, Paddington
Study area 20330 Square metres
Site coordinates TQ 258 816 51.5187985797 -0.186663499342 51 31 07 N 000 11 11 W Point
Site coordinates TQ 251 817 51.5198531578 -0.196712714158 51 31 11 N 000 11 48 W Point

Project creators
Name of Organisation Oxford Archaeology/Gifford
Project brief originator Crossrail
Project design originator Oxford Archaeology/Gifford
Project director/manager R. Brown
Project supervisor V. Hughes

Project archives
Physical Archive recipient Museum of London
Physical Archive ID **XSI10**
Physical Contents Animal Bones, Ceramics, Glass, other
Digital Archive recipient Oxford Archaeology
Digital Archive ID **XSI10**
Digital Contents 'Stratigraphic'
Digital Media available 'Images raster / digital photography','Text'
Paper Archive recipient Museum of London
Paper Archive ID **XSI10**
Paper Contents 'Stratigraphic'
Paper Media available 'Context sheet','Photograph','Plan','Report','Section','Unpublished Text'

Project bibliography 1

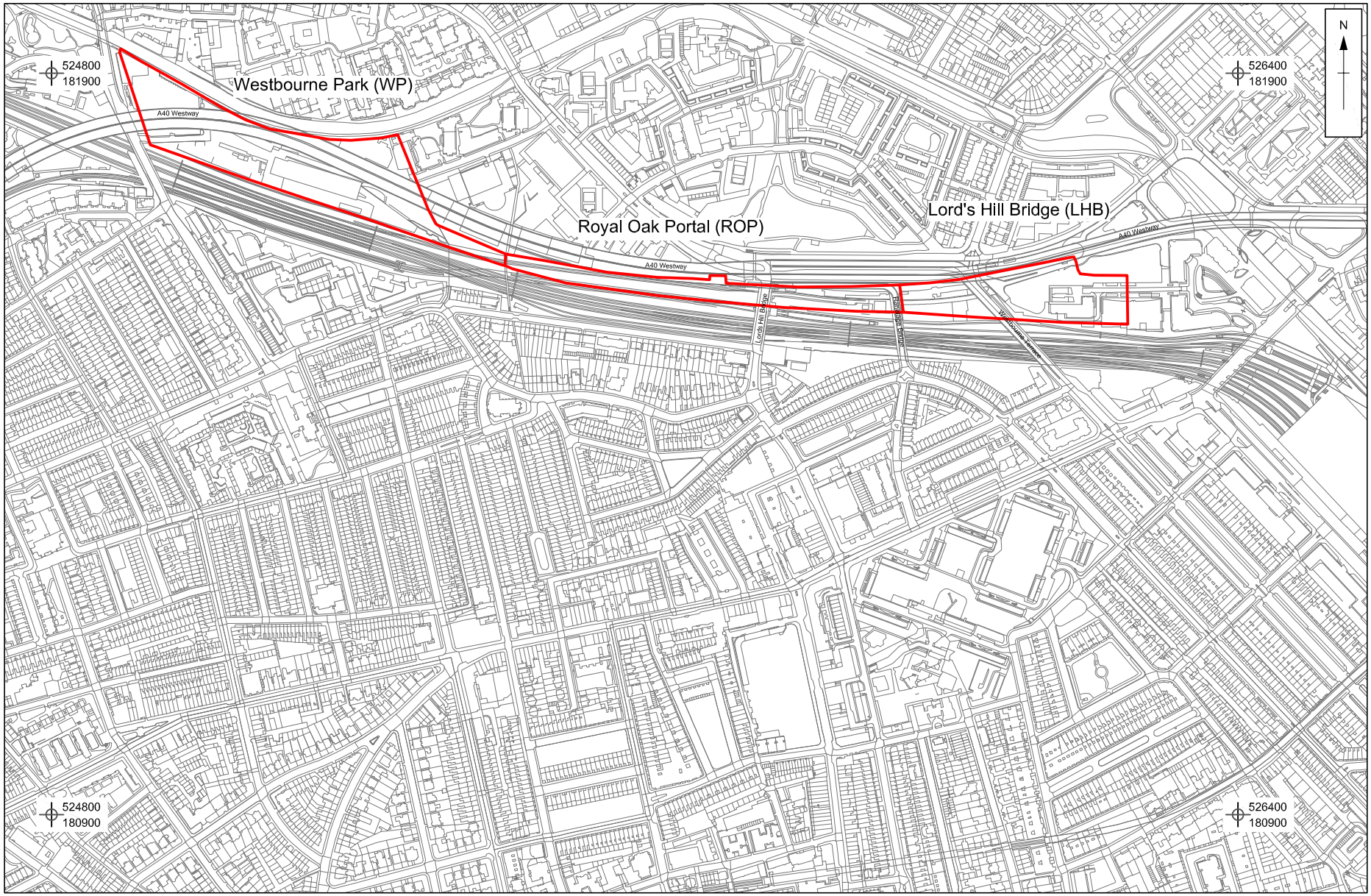
Publication type Grey literature (unpublished document/manuscript)

Title Archaeological Watching Brief in the vicinity of Westbourne Park and Royal Oak Stations, Paddington, London
Author(s)/Editor(s) Hughes, V
Author(s)/Editor(s) Evans, G
Author(s)/Editor(s) Champness, C
Author(s)/Editor(s) Shelley, A

Date 2011
Issuer or publisher Oxford Archaeology/Gifford
Place of issue or publication Oxford
Description A4 bound client report

Entered by Susan Rawlings (susan.rawlings@oxfordarch.co.uk)
Entered on 4 August 2011

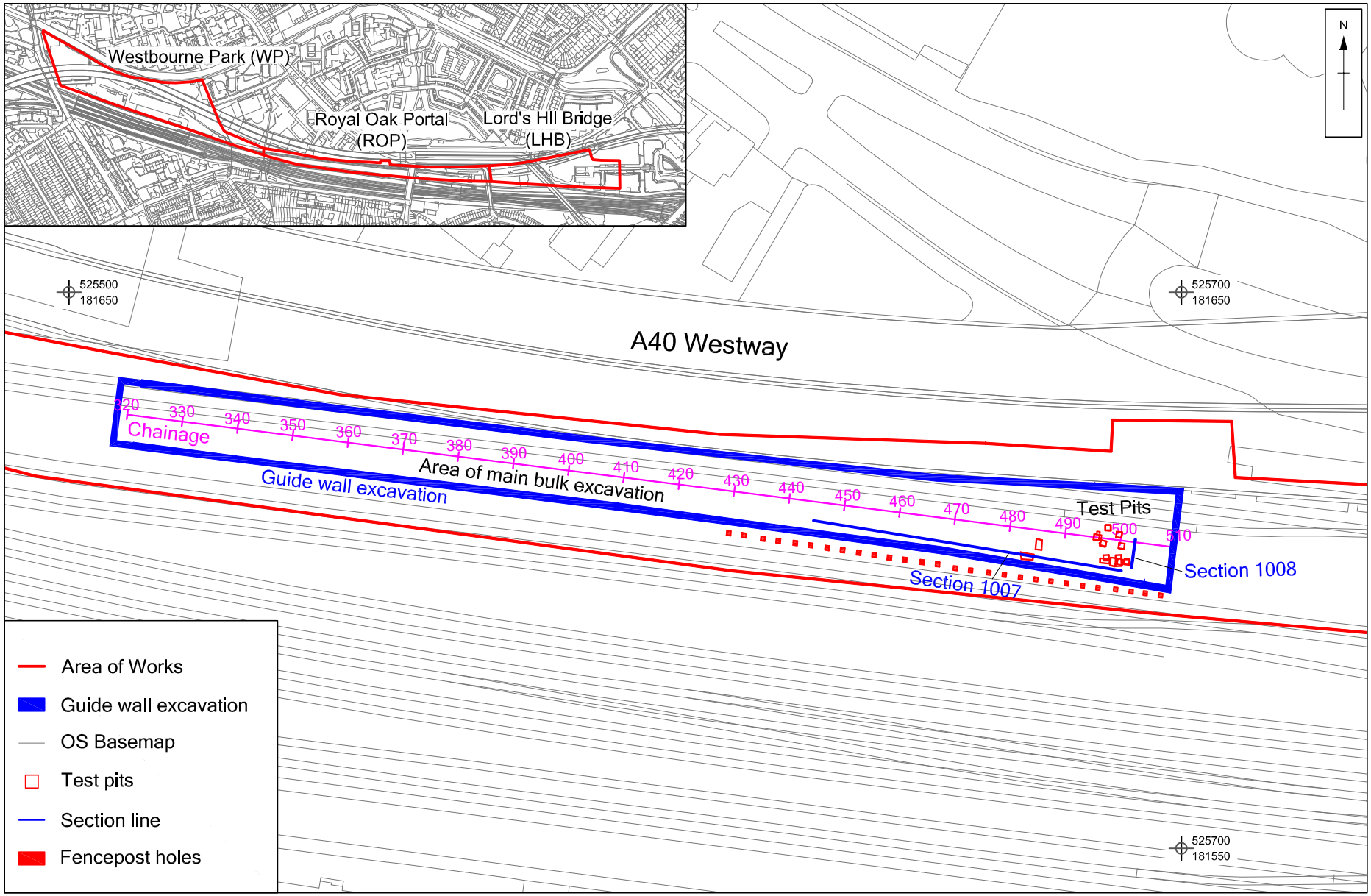
20. APPENDIX 6 – FIGURES



0 500 m

1:7500

Figure 3: Location figure showing the sites of XSI 10



0 50 m

1:1000

Figure 4: Plan of the investigations at Royal Oak Portal

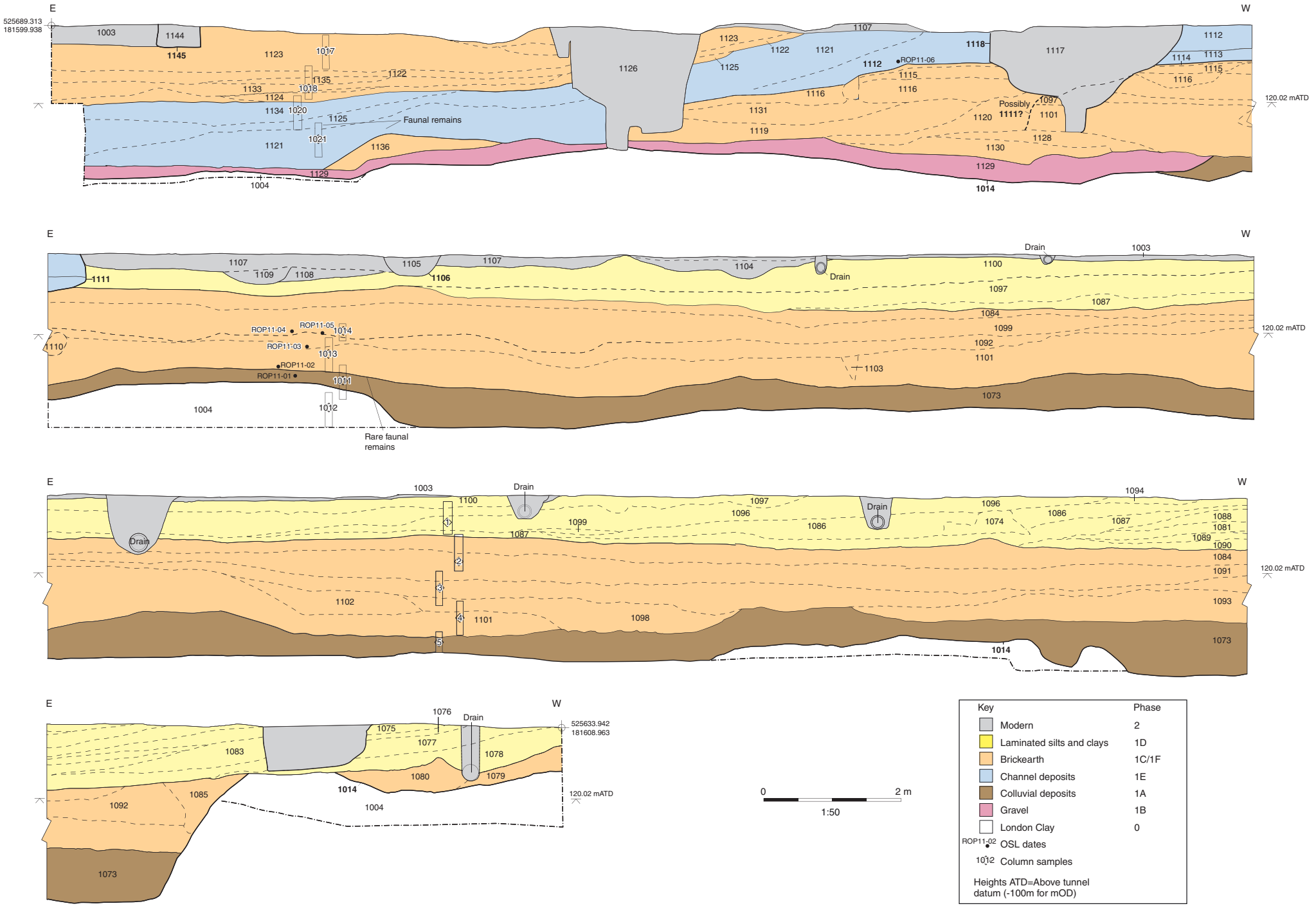


Figure 5: Section 1007, north facing section extending from approximately chainage 480-505

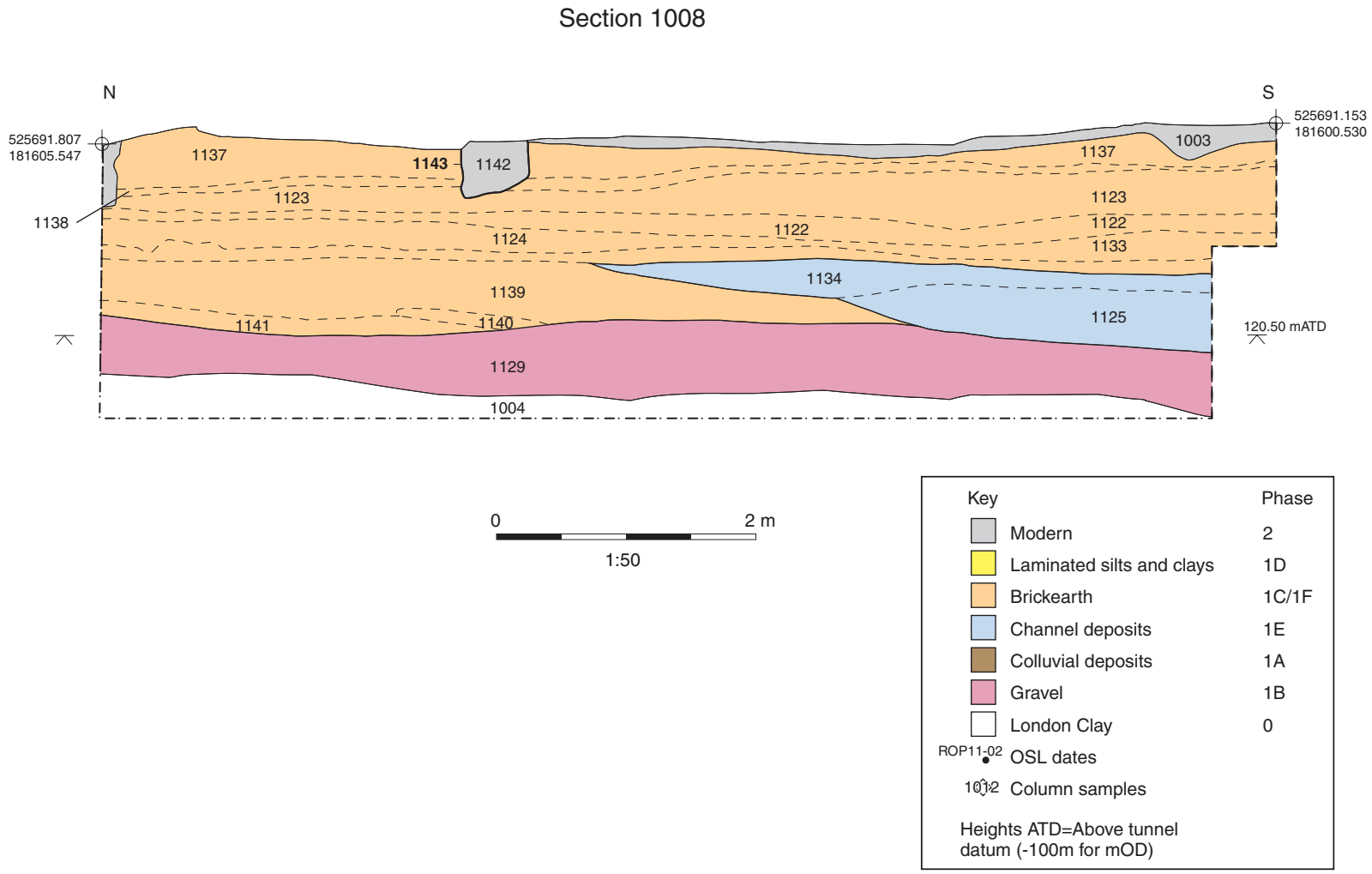


Figure 6: Section 1008, west facing section at approximately chainage 505

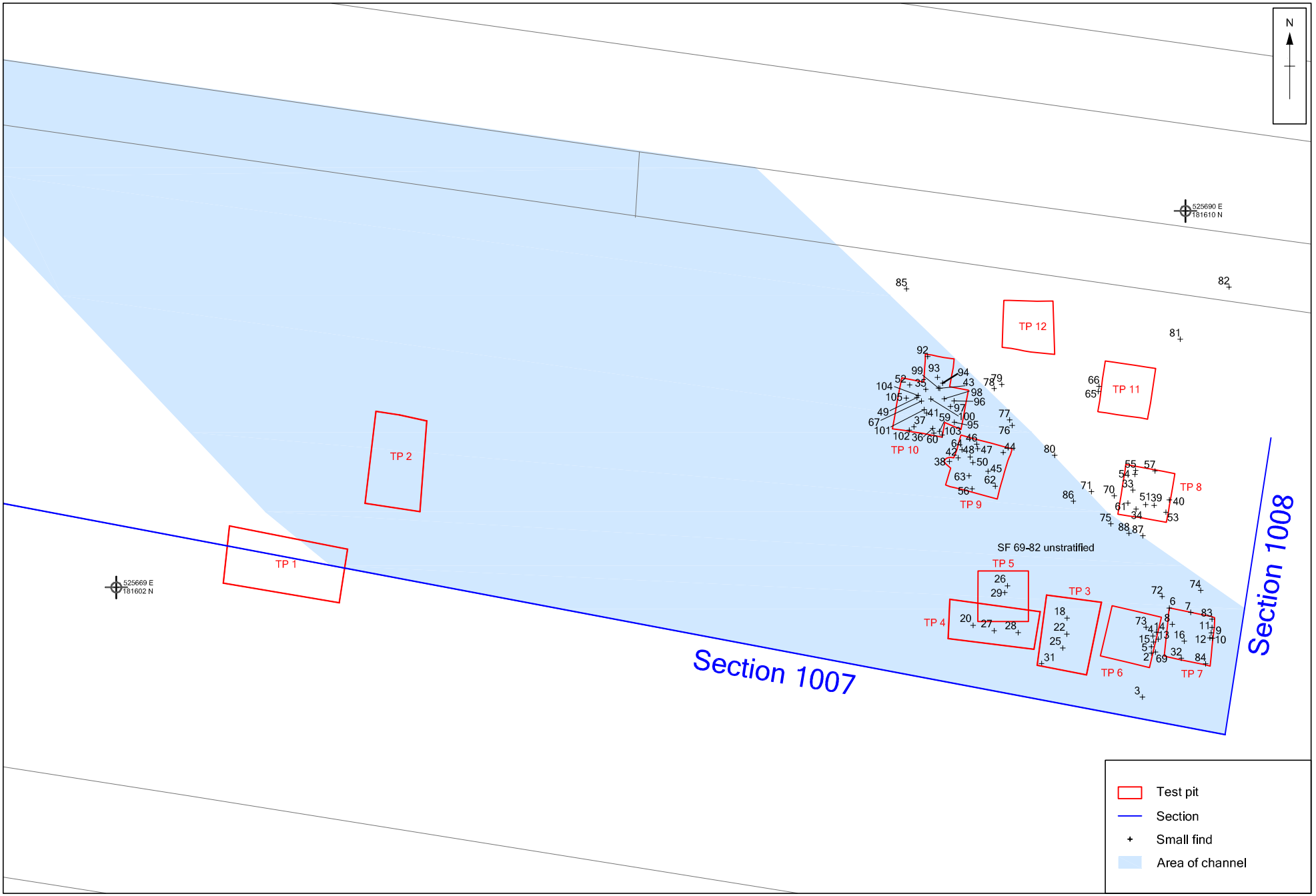
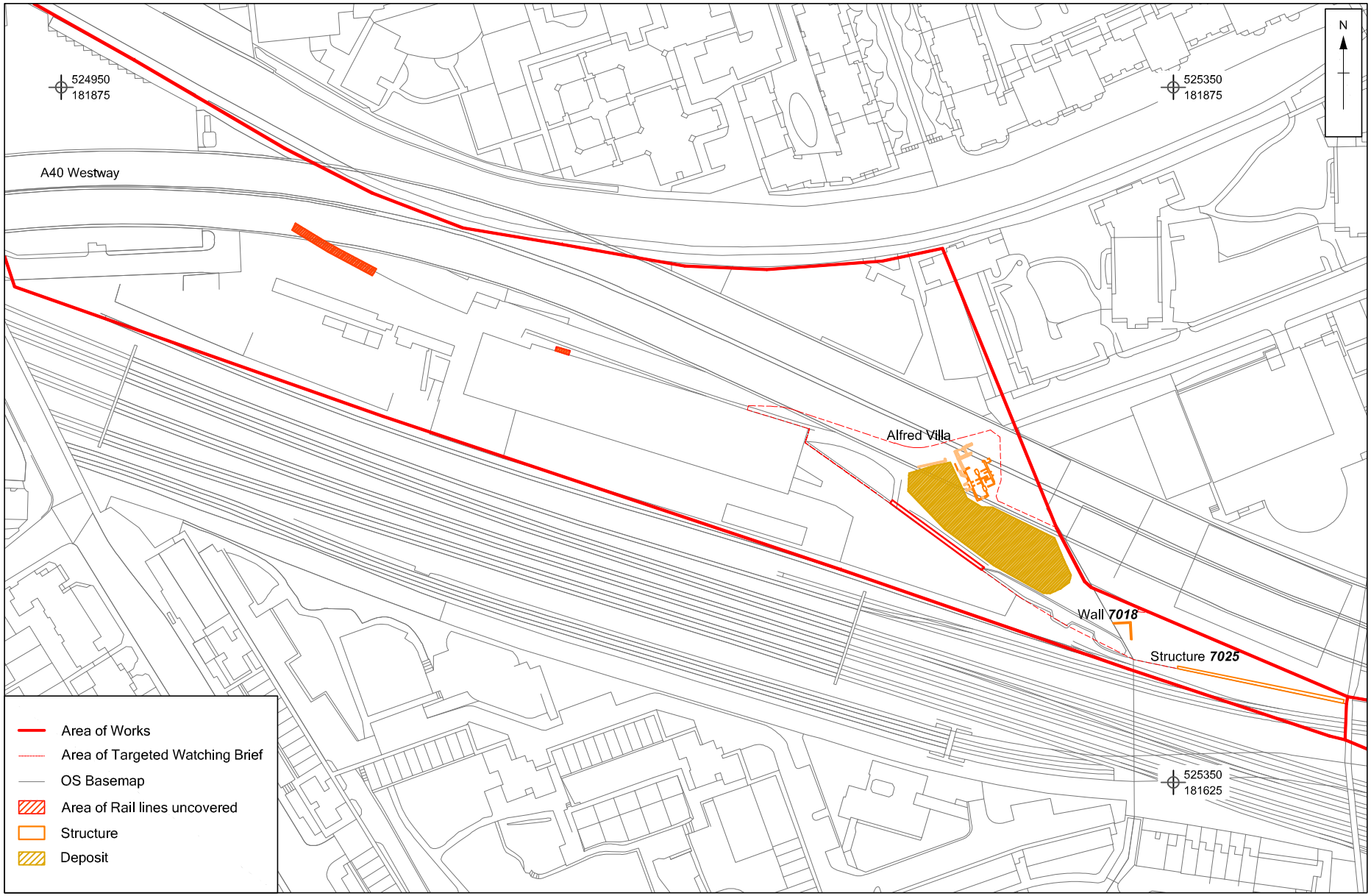


Figure 7: Distribution of faunal remains and channel deposits



0 100 m

1:2000

Figure 8: Plan of Investigations at Westbourne Park

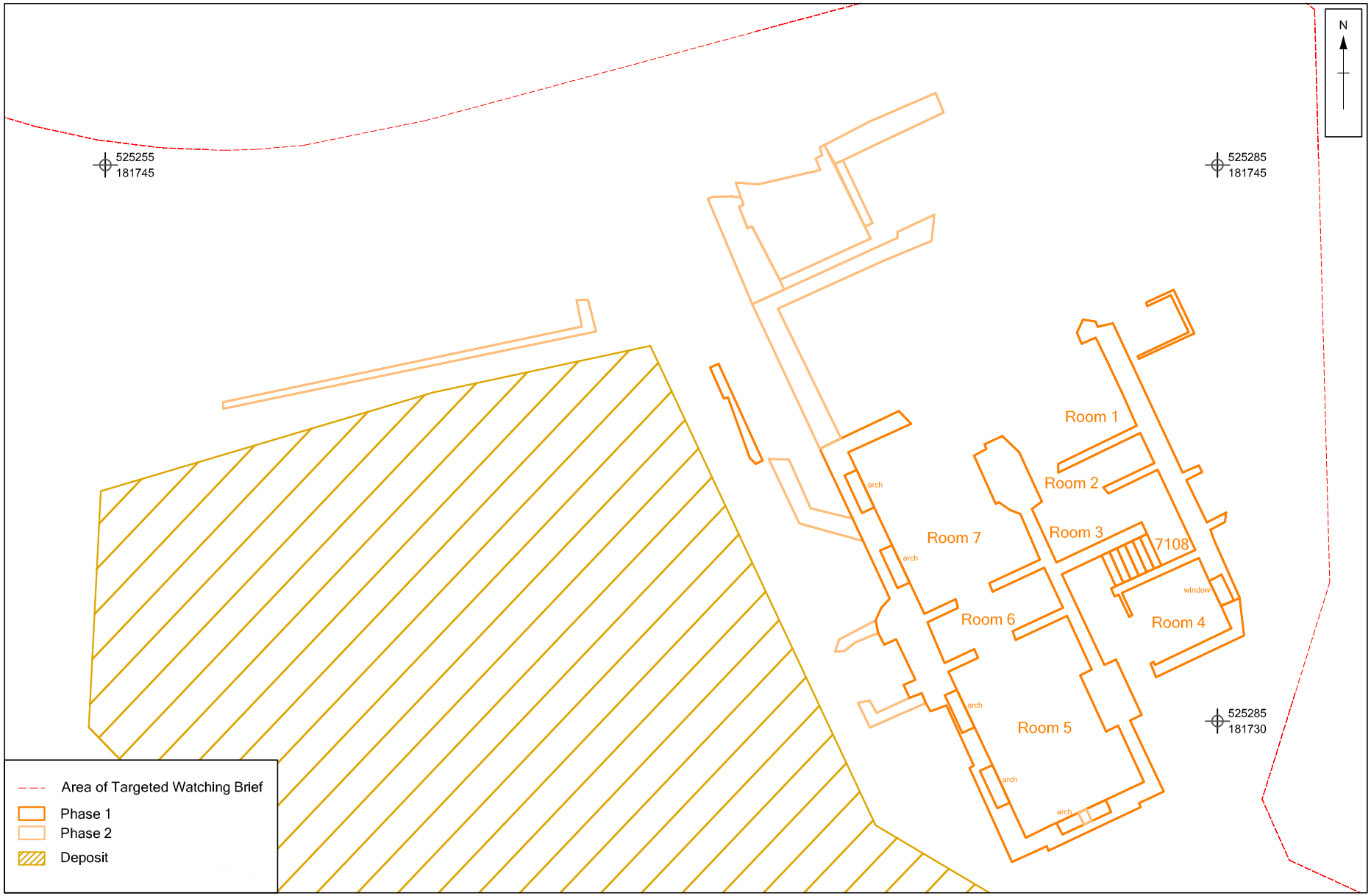


Figure 9: Phased plan of Alfred Villa