ARCADIS Design & Consultancy for natural and built assets

LONDON BOROUGH OF HOUNSLOW SMALL SITES SMALL BUILDERS PROGRAMME

GARAGE BLOCK ADJACENT TO 86 BEECH AVENUE, BRENTFORD, TW8 8NH

Geotechnical and Geo-Environmental Desk Study

NOVEMBER 2019

Garage Block Adjacent to 86 Beech Avenue, Brentford, TW8 8NH

Geotechnical and Geo-Environmental Desk Study

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1 INTRODUCTION

1.1 Terms of Reference

Arcadis Consulting (UK) Limited (Arcadis) has been commissioned by London Borough of Hounslow (LBH) 'the Client' to undertake a desk-based survey and site walkover for the garage block adjacent to 86 Beech Avenue, Brentford, TW8 8NH ('the Site').

LBH is aiming to divest a number of small sites to enable positive regeneration. It is believed the proposed end use for the Site will be for residential purposes. However, no proposed development plans are available for the Site at the time of writing.

The objectives of this review are to:

- Review geo-environmental information regarding the Site and its surrounding area;
- Provide outline information on potential geo-environmental and geotechnical constraints which may impact on the land value or redevelopment potential for the Site; and
- Identify potential development constraints due to geotechnical and geo-environmental conditions on Site.

The Site location is shown in Figure 1 below.



Figure 1: Site Location Plan provided by LBH

1.2 Sources of Information

As part of this report various sources of information have been used and are detailed below:

- The on-line British Geological Survey (BGS) Geology of Britain Map Viewer (Ref. 1);
- BGS 1:50,000 Map 270 (South London) solid and drift edition 1998;
- Historical borehole records available through BGS website (above) (Ref.1);
- Historical Ordnance Survey maps obtained from Groundsure (included in Appendix A);
- Environmental Information from Groundsure (Appendix B);
- Current publicly available aerial images and maps from Google maps (Ref. 2);
- Zetica Regional Unexploded Ordnance Map & Pre-Desk Study Assessment report (contained within the Arcadis UXO Assessment report for this site, 10030793-ARC-XX-XX-RP-YY-0184-01-UXO Report);
- Department for Environment, Food and Rural Affairs “Magic” website (Ref.7);
- Zetica Bomb map (Ref.9.); and
- A site walkover conducted by Arcadis.

1.3 Limitations and Expectations

This report has been prepared for the Client in accordance with the terms and conditions of appointment. Arcadis cannot accept any responsibility for any use of or reliance on the contents of this report by any third party. The copyright of this document, including the electronic format shall remain the property of Arcadis.

This report has been compiled from a number of sources, which Arcadis believes to be trustworthy. However, Arcadis is unable to guarantee the accuracy of information provided by others. The report is based on information available at the time. Consequently, there is a potential for further information to become available, which may change this report’s conclusion and for which Arcadis cannot be responsible.

2 SITE SETTING AND HISTORY

2.1 Site Location

Table 2.1: Details relating to Site Location

Site Location / Address	Adjacent to 86 Beech Avenue, Brentford, TW8 8NH
National Grid Reference	516773, 177360
Approximate Site Area	The Site covers an area of approximately 0.01 hectares
Description of Site	The Site is currently occupied by 3 no. garages with spaces for car parking at the front. The garage roof is corrugated and may be constructed from an asbestos type material. The door frames and doors are of a powder coated metal construction. The northern and southern Site boundaries comprise a well-kept garden and a brick wall which separate the Site and the properties to the north and south. Access to the Site and the garages is to the east on Almond Grove. The Site surfacing is concrete which is in reasonably good condition with a few cracks and some grass and weeds are growing from the joints. There is some staining on the hardstanding. The Site is in an urban residential area. Site photographs are included in Appendix C.
Topography	The topography of the Site is generally flat at approximately 8 m Above Ordnance Datum (AOD). The topography of the immediate area is also generally flat, with the hardstanding slightly sloping down towards Almond Grove to the east.
Surrounding Area	The Site lies within in urban setting, surrounded by residential homes and industrial land to the northwest within an approximate 200m radius. Industrial land uses within 500m to the north appear to be mainly shopping outlets, car sales and workshops. Hawthorn Road Park and Brent Lea Recreation Ground lie to the south and south east.

2.2 Site History

A review of the available historical Ordnance Survey maps (Appendix A) has been undertaken to assess the historical development of the Site and surrounding areas.

It is not the intention of this report to provide a full history, but to identify those past uses on and within the vicinity of the Site that could have resulted in contamination of the soils and/or waters. Significant changes to the land use of the Site and surrounding areas are summarised in Table 2.2 below.

Table 2.2: History of Site and Surrounding Area

Map Dates	Historical Detail
1865 - 1933	The Site location is within an empty parcel of land, which is detailed to be associated with “Marlborough Cottage” (260m south-west). There are two railway lines; “The Loop Line” (90m north-west) running south-west north-east and The Great Western Railway (210m north-east) running perpendicular. The River Brent is located 450m east of the Site, which flows in a south-easterly direction into the River Thames.

Map Dates	Historical Detail
1935 - 1948	The farms that occupied the Site and surrounding area are developed into a residential housing estate. The Site is left as a small parcel of land adjacent to 86 Beech Avenue. Unspecified Works, two Motor Car Service Station, Fire Extinguishers Manufactory and Perfume Manufactory are noted to have been constructed approximately 120-160m north of the Site. Tanks of unspecified use are detailed 180m north of the Site. A Rubber Tyre Manufactory (300m) and associated tanks (500m) of unspecified use are detailed northwest of the Site.
1960 - 1987	The Site remains unchanged. There are two warehouses approximately to be 275m and 310m southeast of the Site, an industrial type structure extends to approximately 150m south east of the Site. The Fire Extinguishers Manufactory has expanded and is now labelled as Works. Large, unspecified industrial developments are noted north of the Loop Line, within 500m of the Site. The Rubber Tyre Manufactory now labelled Factory has expanded by 1966 and is no longer shown by 1987. By 1974, the section of the Great Western Railway Line 210m north-east of the Site is dismantled and remains undeveloped.
1988 - 2019	By 1991, the empty parcel of land where the Site is located is developed into the garage structures that are present now. The warehouses southeast of the Site are redeveloped into residential housing. The land 235m north-east of the Site, north-east of the dismantled Great Western Railway line, is used as a depot storage area.

2.2.1 Summary of Site History

The Site is mapped as an empty parcel of land in 1865 until 1935 when a residential estate was developed. These residential properties are widely still present today. The parcel of land that comprises the Site was mapped in the present-day configuration in 1991 comprising 3No. of vehicle parking garages and hardstanding. The historical on-Site sources of potential contamination are therefore:

- Made Ground from construction of the residences; and
- Spills and leaks from vehicles using the parking garages.

The surrounding land has seen growth in residential and industrial development, with the most pertinent potentially contaminative activities which could have viably impacted Site are summarised as follows:

- The Loop Line railway 90m north of the Site;
- Car Service Stations approximately 120m north;
- Fire Extinguisher Factory approximately 120m north. This has been identified as the Pyrene Company Factory (https://www.britainfromabove.org.uk/en/image/EPW032164); and,
- Tyre Factory approximately 300m northwest. This has been identified as the former Firestone Factory. (https://www.britainfromabove.org.uk/en/image/EAW050744).

The warehouses to the south east considered likely to be located down hydraulic gradient of the Sites based on local topography. Given the distance from the Site, limited size, and the lack of specific information as to the activities undertaken it is considered the risk posed by these potential sources is low and therefore, they have not been considered further.

2.3 Unexploded Ordnance

With reference to the Zetica unexploded bomb risk map (Ref 9) the Site lies within an area of 'moderate' bomb risk.

An Unexploded Ordnance (UXO) assessment has been undertaken for the Site, the findings of which are detailed in 10030793-ARC-XX-XX-RP-YY-0186-01-UXO Report, November 2019.

The Preliminary Desk Study Assessment (PDSA) from Zetica recommends that a detailed desk study needs to be commissioned to assess, and potentially zone, the UXO hazard level on the Site. The detailed desk study provides an in-depth review of a Site's history with respect to UXO, and each hazard zone will detail the potential type/depth of UXO which could be encountered. This will ultimately help inform proposed construction techniques and for the selection of appropriate mitigation measures during intrusive works.

3 PHYSICAL AND ENVIRONMENTAL SETTING

3.1 Published Geology, Hydrogeology and Hydrology

With reference to the sources of information detailed in section 1.2, the following information has been obtained.

Table 3.1: Information Regarding Geology, Hydrogeology and Hydrology

Geology / Aquifer Status	Artificial Ground: British Geological Survey (BGS) did not identify any artificial ground beneath the Site; however, due to historic development on the Site, Made Ground is anticipated. Superficial Deposits: BGS did not map a superficial deposit beneath the Site. The closest known deposit is the Langley Silt Member – Silt, which located 120m south-east and is designated as an Unproductive Aquifer. Solid Geology: London Clay Formation - Clay which is designated as Unproductive Strata.
BGS Boreholes (within 100m of the Site)	There are no BGS boreholes within 100m of the Site. The closest borehole (TQ17NE138 dated 1936) is located approximately 330m away in different geology.
Within a Source Protection Zone	None recorded within 250m of the Site boundary.
Licensed Groundwater Abstraction Points	None recorded within 250m of the Site boundary, 2 noted within 1km. The closest abstraction licence is associated with Horticultural Watering at Syon Park that is situated 415m south-east of the Site for spray irrigation and horticultural watering.
Surface Water Feature	None recorded within 250m of the Site boundary. The closest surface water body is the River Brent, which is situated 450m east of the Site, and flows north-west south-east.
Likely Groundwater Flow Direction	The superficial and bedrock geology within the surrounding area are detailed as unproductive. Significant groundwater content and sub-surface flow is not expected within the underlying geology. Based on the local topography of Site and surrounding area, any shallow groundwater would likely flow east towards the River Brent.

3.2 Environmental Public Registers

Public register information from the Groundsure Report (Appendix B) for the Site and the surrounding area (within 250m radius) has been summarised in Table 3.2 below.

Table 3.2: Environmental Data

Data type	Description	Distance (m) and Direction-
Radon	The Site is in a lower probability radon area as less than 1% of properties are above the Action Level. No radon protection measures are considered necessary for new dwellings.	N/A
Licensed Discharge Consents	None identified within 250m of Site	N/A
Mining Features	None identified within 250m of Site	N/A
Pollution Incident to controlled waters	None identified within 250m of Site	N/A
Landfill Sites (current and historical)	None identified within 250m of Site	N/A
Potentially Infilled Land	Cuttings	15 No. of features from 236m to 250m north-west
Local Authority pollution prevention and controls	None identified within 250m of Site	N/A
Contemporary Trade Directory	Electricity substation	51m southwest 192m north 199m northeast 202m west 205m southwest
	Industrial Products	171m east 172m north 234m northwest
	Garage / Motoring	243m west
Fuel Station Entries	No records of petrol or fuel Sites have been identified within 250m of Site	N/A
Flooding information	An Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m has not been identified. An Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m has not been identified. The Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating is very low.	N/A
Designated environmentally sensitive sites	None within 250m of the Site	N/A

Data type	Description	Distance (m) and Direction-
Tunnels	None within 250m of the Site	N/A

3.2.1 Summary

In terms of the environmental public register information identified in Table 3.2, the following potentially contaminative activities exist which could have viably impacted the Site:

- Electrical substation that is located westwards of the Site.

All other features identified are considered too far away considering the impermeable nature of the underlying geology to have a feasible pathway to reach the Site. Therefore, they are not considered to pose a significant risk and have not been considered further.

4 PRELIMINARY CONCEPTUAL MODEL

Geo-environmental assessments are required in accordance with current regulatory guidance (CIRIA C552 - Ref. 3 and LC:RM – Ref. 4) to consider the significance of potential contamination in terms of plausible source-pathway-receptor pollutant linkages. As part of this process, it is necessary to develop a conceptual model of these potential pollutant linkages by identifying the potential contamination sources, sensitive receptors and any potential exposure pathways. A risk assessment is then undertaken to determine the likelihood that these potential pollutant linkages are complete.

4.1 Potential Contaminant Sources

Based on the information obtained from the historical and environmental research, the following potential sources of contamination have been identified on Site and within the surrounding area (Table 4.1).

Table 4.1: Potential sources of contamination on Site

Source	Potential Contaminants
On Site	
Made Ground is likely to be present on the Site from previous development	Asbestos, metals, polyaromatic hydrocarbons (PAH), hydrocarbons, sulphates, pH, and ground gas
London Clay	Sulphates
Vehicle Parking/Garages use	Hydrocarbons, lubricants and solvents (volatile organic compounds (VOC)) from potential spills/leaks from vehicle maintenance activities and asbestos.
Off Site	
Made Ground from off-Site developments	Asbestos, metals, PAH, hydrocarbons, sulphates, pH, and ground gas
Unspecified Works, Motor Car Service Station, Fire Extinguishers Manufactory and Perfume Manufactory (120m north of the Site) that may have impacted the Site	Asbestos, metals, PAH, hydrocarbons, pH, and volatile and semi volatile organic compounds (VOC / SVOC) including chlorinated solvents, poly and perfluoroalkyl substances (PFAS).
Electrical Substation located up hydraulic gradient, 51 south-west	Hydrocarbons, polychlorinated biphenyls (PCBs)
Railway	Asbestos, hydrocarbons, heavy metals, polyaromatic hydrocarbons (PAH), phenols, sulphate, ethylene glycol, herbicides and PCBs.

Compounds in green are of low mobility and have been discounted further when from off-site sources.

With the exception of off-Site Made Ground the features identified are considered too far away considering the impermeable nature of the underlying geology to have a feasible pathway to reach the Site. Therefore, they are not considered to pose a significant risk and have not been considered further.

4.2 Potential Receptors

At the time of writing the proposed end use of the Site will comprise residential dwellings, however no design plans are available.

As a precautionary approach the potential human health receptor detailed below take into consideration the most conservative future land use as residential properties with private gardens and landscaped areas. It is

considered possible that any potential contamination within the soils may be disturbed during the construction phase, or during gardening or landscaping undertaken by any future Site users.

4.2.1 Human Health

- Future Site users (residents, visitors, maintenance workers and contractors).

Contamination risks to construction workers are not appraised by chronic (long term) exposure human health risk assessments. There are no appropriate published criteria applicable to the assessment of potential risks to construction workers. The potential risks should be addressed by a site-specific construction workers risk assessment and implementation of appropriate health and safety measures to adequately mitigate any potential risks. All works should be conducted in accordance with the CDM regulations 2015 (Ref. 5) or any other relevant guidance. Construction workers are not considered further as human health receptors.

4.2.2 Controlled Waters

- The superficial and bedrock geology beneath the Site are both classified as Unproductive Strata and therefore considered at low risk. Therefore, for the purposes of this report groundwater has not been considered as a potential receptor.
- The nearest surface water feature is the River Brent located 450m east of the Site. Considering the significant distance from Site and the underlying geology it is considered unlikely for any potential pollutants to reach the river. Therefore, for the purposes of this report surface waters has not been considered as a potential receptor.
- Perched water within the Made Ground would not be considered a Controlled Water.

4.2.3 Buildings

- Underground/ structures/services (water pipes, concrete, foundations).
- Proposed buildings.

4.3 Potential Pathways

Potential pathways are the routes that link the receptor to the contamination. The potential pathways for this Site are summarised in the table below.

Table 4.2: Potential Contaminative Pathways

Receptor	Description
Human health (future Site users/residents' visitors, maintenance workers and contractors)	Accidental ingestion of contaminants within soil, water and dust. Inhalation of dust, vapours and ground gases Dermal contact with contaminants within soil, water and dust. Ingestion of contaminated vegetables and soil attached to vegetables.
Buildings and structures including water supply pipes	Direct contact of building services or foundations with contaminants in the soil and Made Ground leading to degradation of concrete or tainting of water supply. Migration of ground gases into buildings and accumulation of gasses in confined and poorly ventilated spaces leading to explosive gases or vapour.

4.4 Preliminary Qualitative Risk Assessment

Potential pollutant linkages have been established associated with on-Site and to a lesser extent off-Site potential sources of contamination. The main potential sources of contamination identified within this report are Made Ground from previous developments in the surrounding area, high sulphate content within the

London Clay and of the use of the garages. Asbestos sheeting may have been utilised in the construction of the Garages.

In order to assess the risk (if any) posed by these sources to the Site, an appropriate ground investigation is recommended.

5 WASTE MANAGEMENT AND POTENTIAL DEVELOPMENT CONSTRAINTS

5.1 Waste Management

Consideration should be given to the disposal of waste soils/Made Ground which are likely to be generated by the development. Chemical testing of soils/Made Ground is likely to be required to inform a waste classification assessment and determine the potential disposal options. The waste contractor may require testing of the actual material to be disposed of prior to acceptance, and there is no obligation on a landfill operator to accept the waste.

Soils suspected of being contaminated should be segregated from soils which appear to be 'clean' and should not be used elsewhere on the Site as fill or landscaping unless they can be proven to be fit for purpose.

Imported topsoil for gardens and landscaped areas should be clean, fit for purpose and validated as necessary.

5.2 Potential Development Constraints

From experience, the potential risk for significant remediation to be required, is likely to be low given the Site has not previously been used for industrial or commercial use. However, a detailed ground investigation has not been undertaken, therefore ground conditions are still unknown at this point and this assessment is a guide.

A ground investigation is recommended to determine the potential contamination present on the Site and any potential geotechnical constraints.

The following potential environmental conditions have been identified that will warrant further consideration and/or implementation:

- Potential for asbestos to be present in existing structures;
- Potential for perched water to be present in the Made Ground which may require management;
- Asbestos protection measures during disturbance of Made Ground (depending on the findings of the ground investigation);
- Provision of gas protection measures (depending on the findings of the ground investigation);
- Provision of contaminant resistant water supply pipes (depending on the findings of the ground investigation);
- Provision of clean cover system in garden areas and public open space;
- Potentially further investigation and consultancy advice to support planning obligations;
- Potential for UXO; and
- Potential presence of public utilities and services.
- Reference should be made to the Ecological Assessment Report (Ref: 10030793-ARC-XX-XX-RP-EC-0210-01) with respect to potential presence of invasive species.

6 GEOTECHNICAL CONSIDERATIONS

6.1 General Comments

Based on the lack of site-specific intrusive investigation the following potential geotechnical constraints and ground engineering abnormal should be considered which may influence future development. These are not conclusive and site-specific ground investigation should be carried out to confirm prevailing constraints:

- **Made Ground** - The nature and thickness of the Made Ground (if present) is unknown. The likely engineering performance of the Made Ground is not known.
- **Ground Gas** - Future development may need to be designed to mitigate against soils borne ground gas from Made Ground.
- **Shrinkable Clays** - The Groundsure Report (Appendix A) details that there is a moderate risk associated with the shrink and swell potential of the London Clay. The plasticity of the Made Ground and Superficial Deposits and depth to the London Clay Formation are not known and therefore consideration will need to be given to the potential impact of shrinkable clays, existing off-Site vegetation and future planting when considering the depths of foundations.
- **Variable Ground Conditions** - The potential presence of Made Ground and superficial deposits and their potentially heterogeneous nature is likely to produce variable conditions across the Site depending on thickness and composition.
- **Underground Structures** - Former foundations, services and concrete obstructions (if present) from on-Site development may need removal.
- **Contamination** - Potential contamination may require mitigation for future development, and Site users.
- **Sulphates** - Buried concrete may need to be designed to mitigate against natural adverse chemical conditions.
- **Excavations / Support** - The consequences of trench stability can vary, but usually pose a problem to the Contractor either by collapse into an already excavated trench or by the removal of support to plant, equipment or materials located adjacent to the excavation. The need to ensure stability and limit ground movements is of prime importance where excavations are adjacent to structures, roads, and public utilities or where man entry is envisaged. The suitability of the Contractor's proposals for ground support will be particularly important in such areas.

  It is anticipated that excavations within the Made Ground and superficial deposits should be achievable using a suitable size of conventional excavation plant. Excavations within these materials are unlikely to remain stable even in the short term and close lateral support will always be required or the sides of the excavation battered back to a safe angle. Groundwater may require management. Obstructions may require breaking out.
- **Instability of nearby structures** - Consideration will need to be given to the potential impacts of instability of excavations upon adjacent to existing buildings/structures. Ground movement and vibrations may affect existing structures and may require mitigation.

6.2 Foundations

Potential founding solutions will be dependent on the thickness of Made Ground and the geotechnical properties of the natural deposits. Made Ground is generally considered unsuitable for foundations due to its variable composition and its potential for high total and differential settlement.

At this stage it is envisaged that where Made Ground is absent or shallow, the London Clay, may be suitable for shallow foundations for light weight structures, however this will need to be confirmed via an appropriate ground investigation.

In areas of deeper Made Ground, or where deeper soft compressible or loose material is present (the depth of which would need to be determined) deeper foundation options including piles or ground improvement methods maybe required.

7 CONCLUSIONS AND RECOMMENDATIONS

The Site was agricultural land until 1935 when a residential estate was developed. The parcel of land that comprises the Site was vacant after 1935 and developed into garages by 1991.The Site is currently used as a car parking and garages.

7.1 Design Considerations

Potential sources of contamination have been identified, as shown in table 4.1 and potential pollutant linkages exist. Therefore, an appropriate ground investigation is recommended to determine ground conditions for foundation design and the chemical regime to assess the degree of risk to end users and controlled waters. This should include for chemical testing of soils, groundwater monitoring (if present) and gas monitoring in accordance with the recommendations in CIRIA C665 (Ref. 6) and LC:RM (Ref. 4) and consideration of shrinkage and swelling and sulphate attack to below ground concrete.

7.2 Construction Considerations

During construction, a watching brief should be undertaken to identify the presence of any unforeseen contamination. If contamination is encountered, all works should cease until the advice of a suitably qualified professional can be sought.

Construction / demolition workers should use appropriate PPE and follow the site-specific contractors risk assessment which should include risks to human health from potential contamination including soil borne gas. Due to the historic phases of development consideration should be given to the potential presence of asbestos within the Made Ground, soil contamination and the potential for impacted perched groundwater.

Good Site management practices should be adopted during the construction phase such as covering stockpiles to minimise surface runoff/dust creation.

There is a potential risk from UXO, and it is recommended that a site-specific detailed desk study is undertaken prior to any intrusive investigations or earthworks. A watching brief from a UXO specialist may be required.

Underground ground services may be present the Site. These will need to be taken into consideration during the proposed development.

8 REFERENCES

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8. Unexploded Ordnance Survey (Arcadis Ref: 10030793-ARC-XX-XX-RP-YY-0153-01-UXO Report)
9. Zetica unexploded bomb map accessed September 2019.

APPENDIX A

Historical Ordnance Survey Maps



Groundsure INSIGHTS

Site Details:

GARAGES ADJACENT 86,
BEECH AVENUE, BRENTFORD,
TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

Map date: **1865**

Scale: 1:2,500

Printed at: 1:2,500

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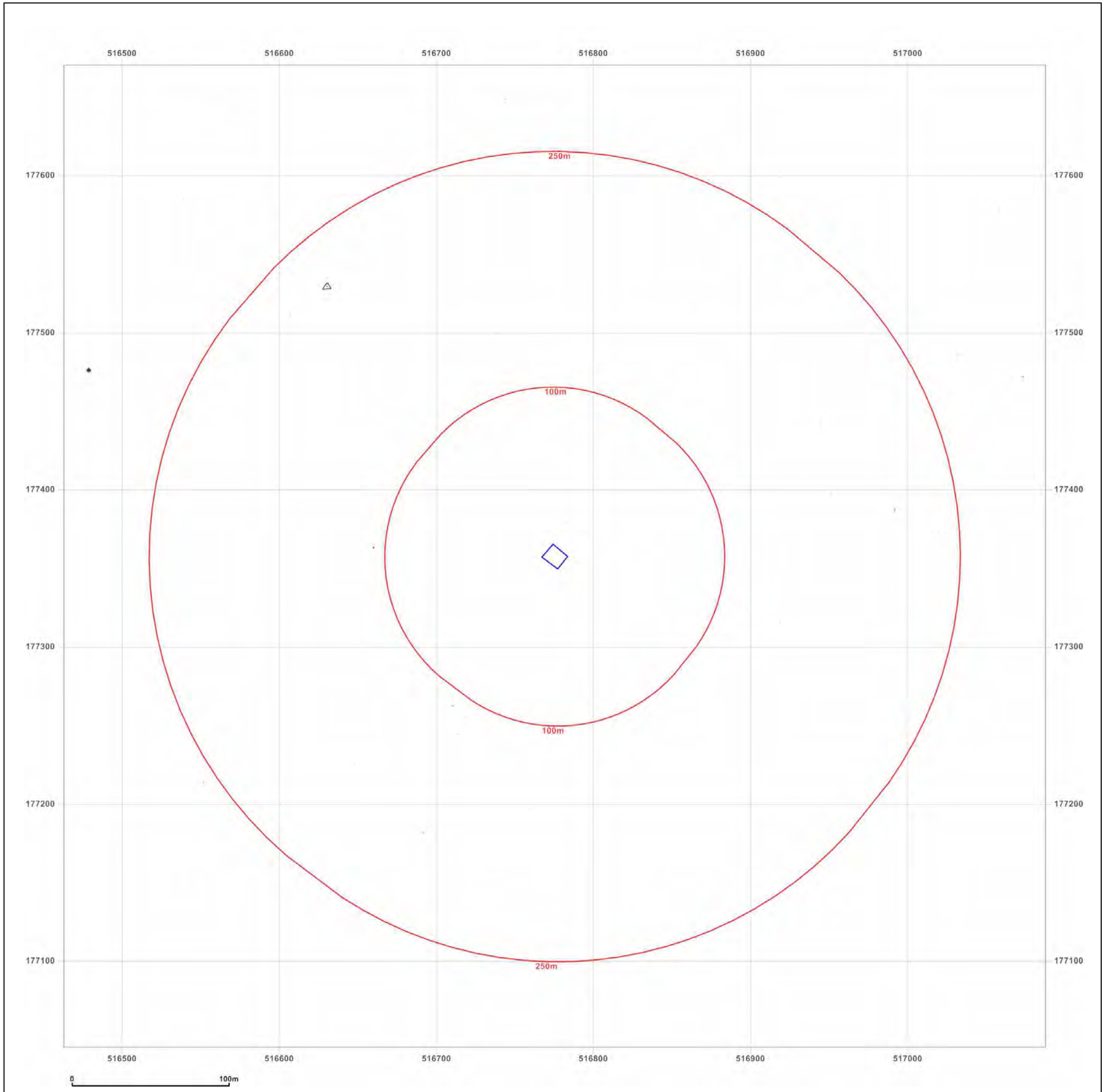
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Production date: 08 November 2019

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



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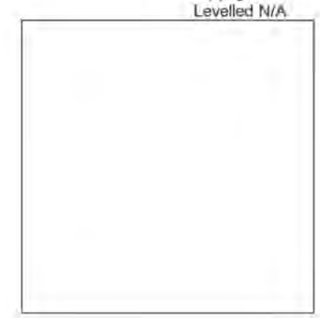
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Revised 1867
Edition N/A
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Levelled N/A



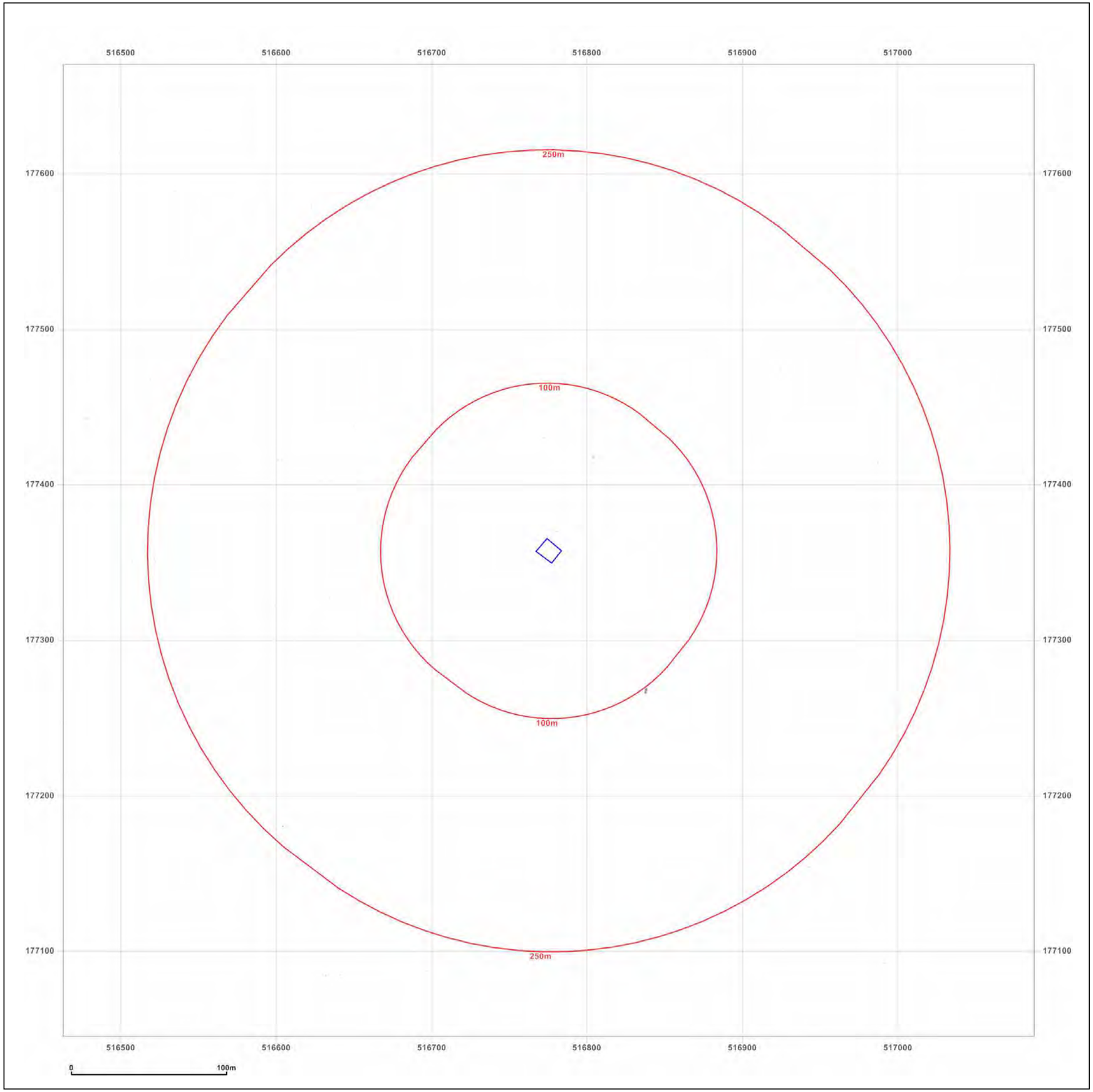
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Surveyed 1867
Revised 1867
Edition N/A
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Levelled N/A

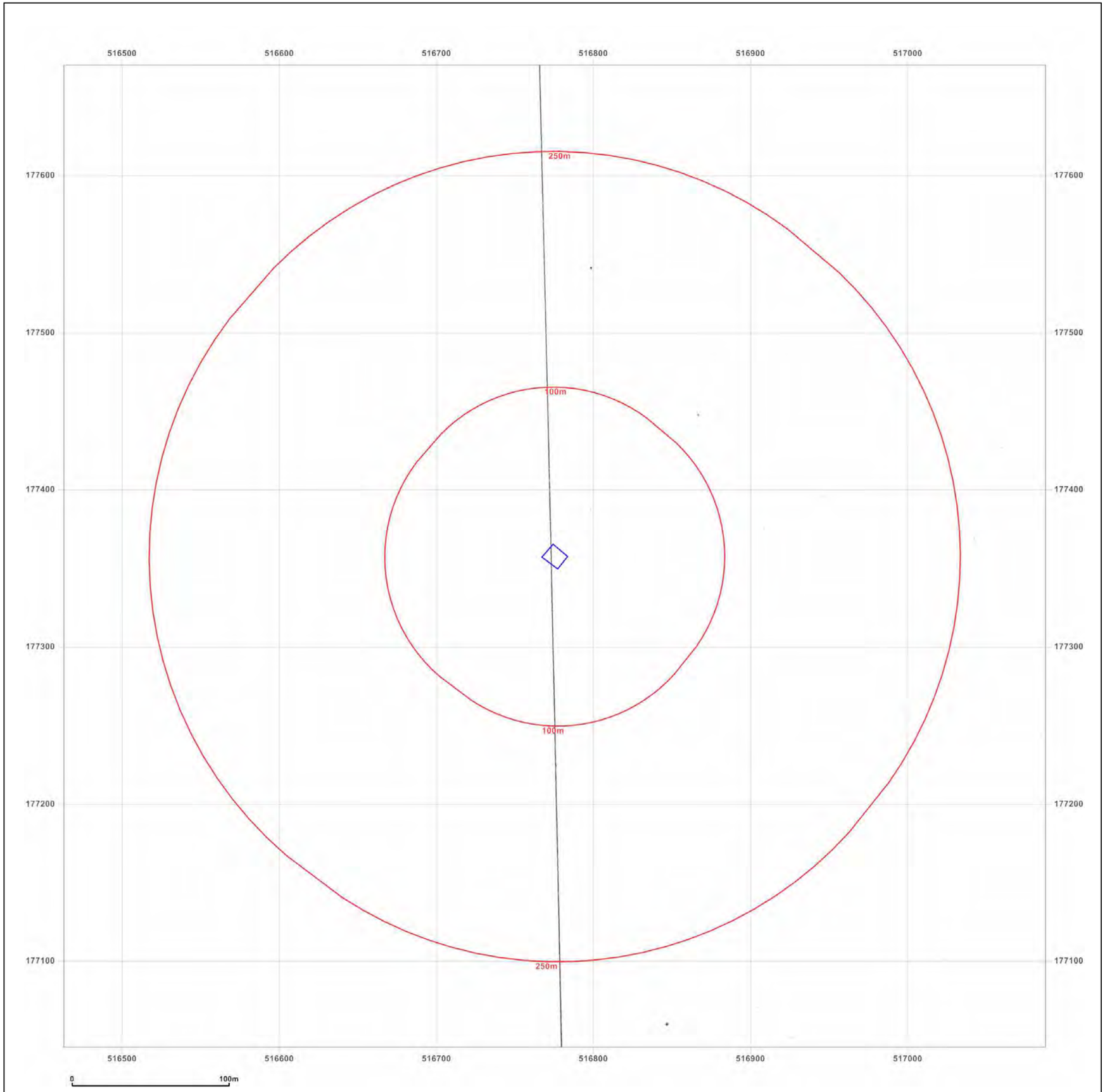
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Site Details:

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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

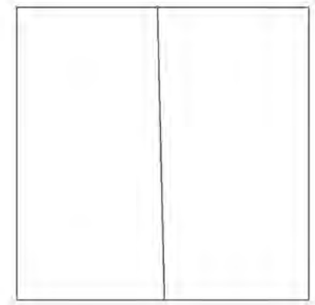
Map date: **1869**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1869
Revised 1869
Edition N/A
Copyright N/A
Levelled N/A



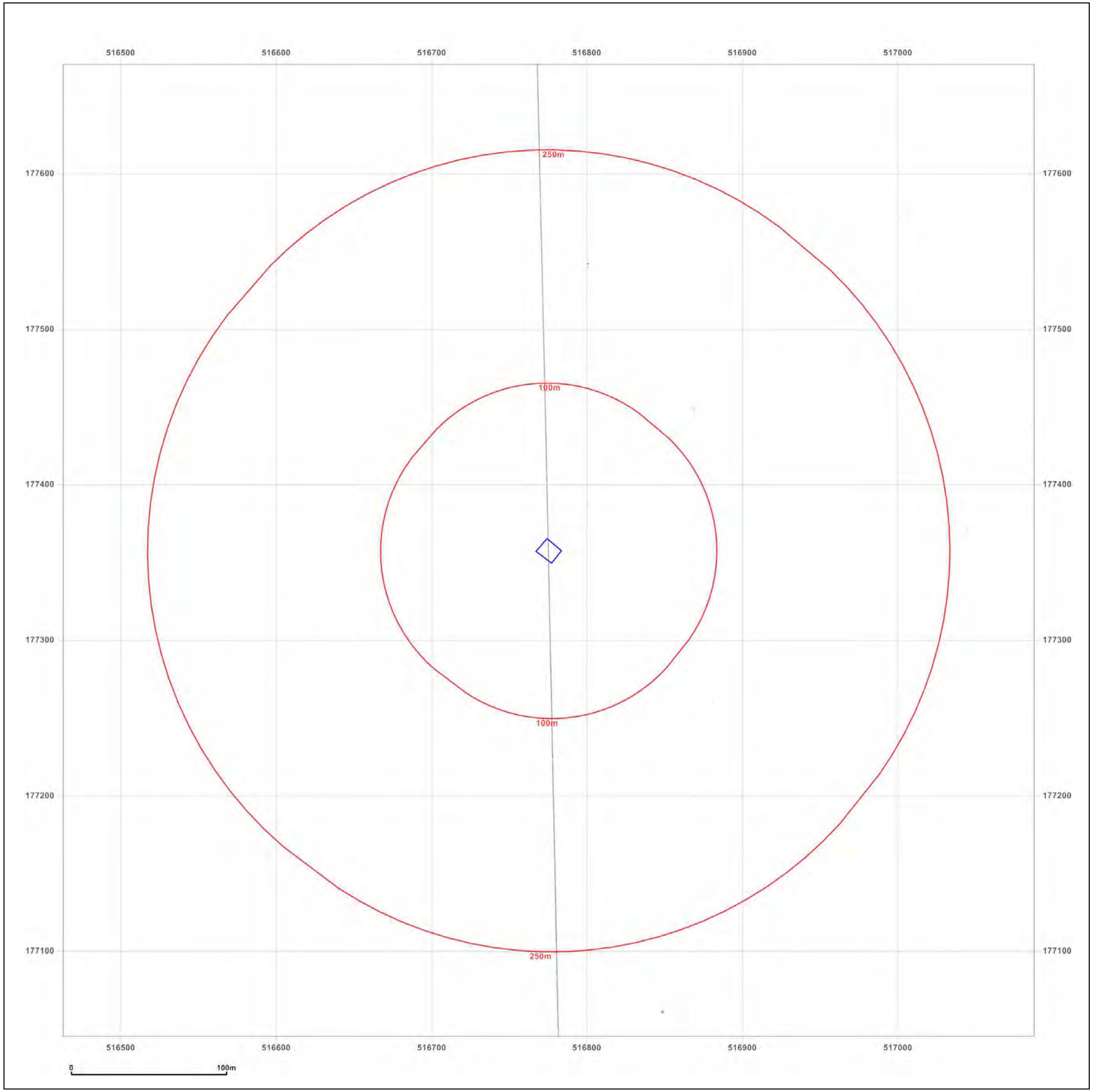
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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

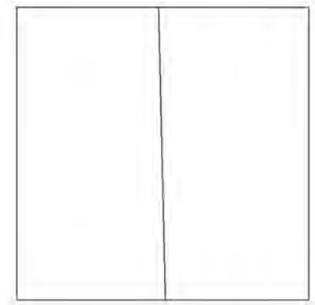
Map date: **1869**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1869
Revised 1889
Edition N/A
Copyright N/A
Levelled N/A



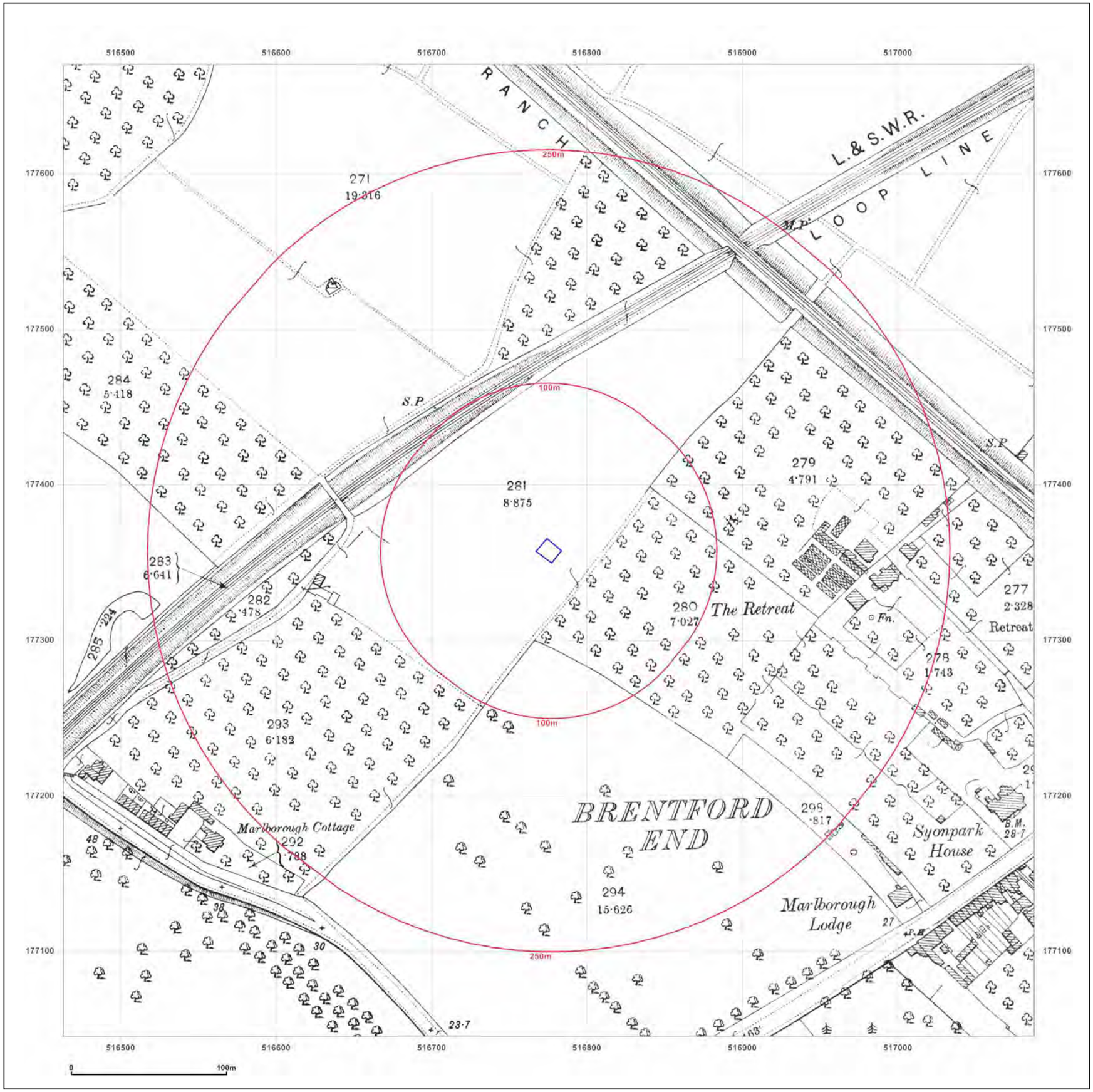
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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

Map date: **1896**

Scale: 1:2,500

Printed at: 1:2,500

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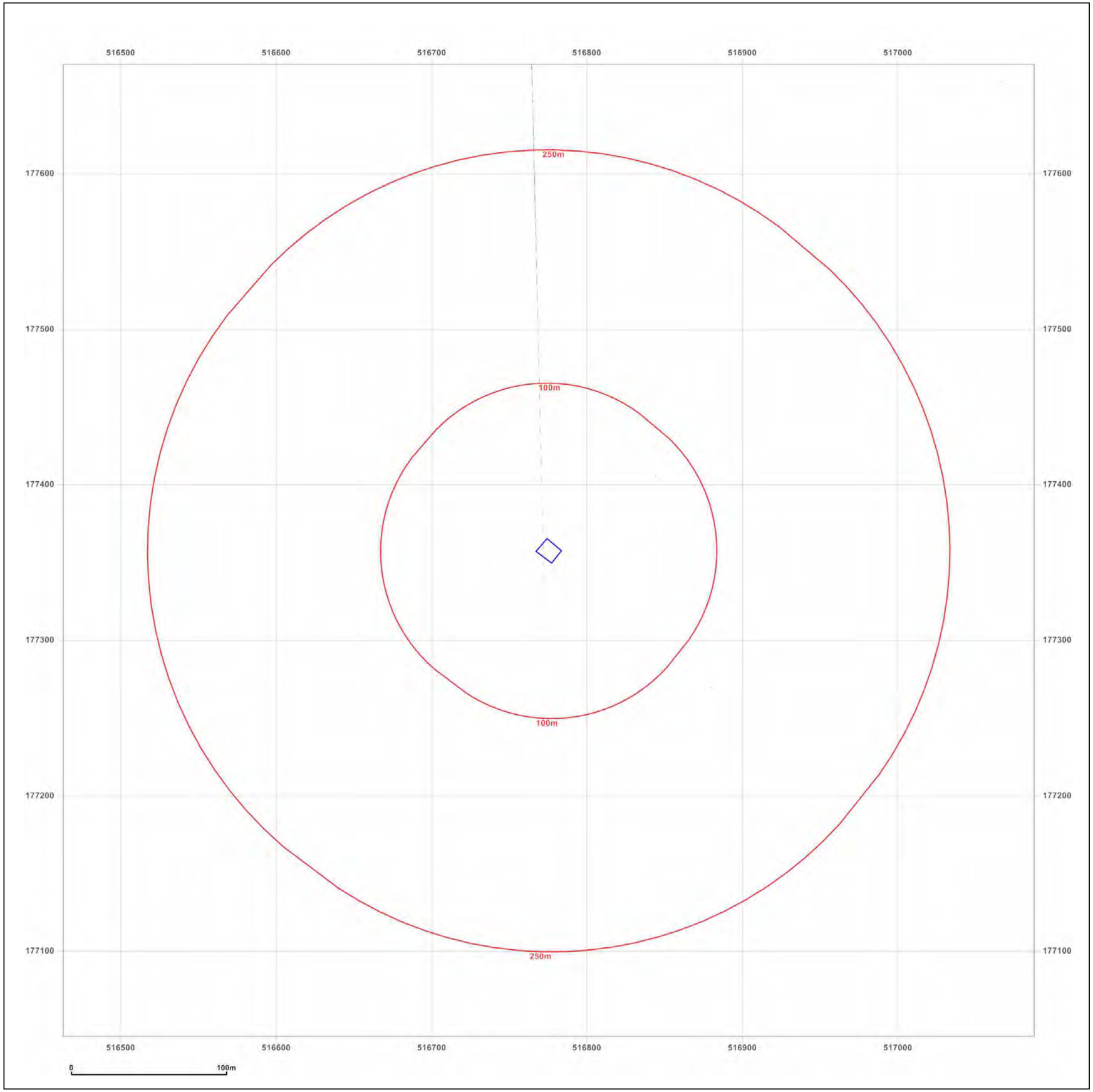
Surveyed 1896
Revised 1896
Edition N/A
Copyright N/A
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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

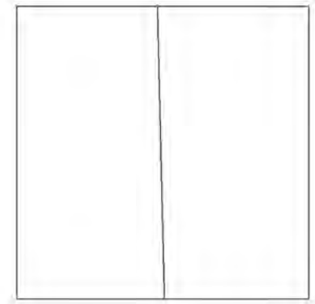
Map date: **1913**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1913
Revised 1913
Edition N/A
Copyright N/A
Levelled N/A



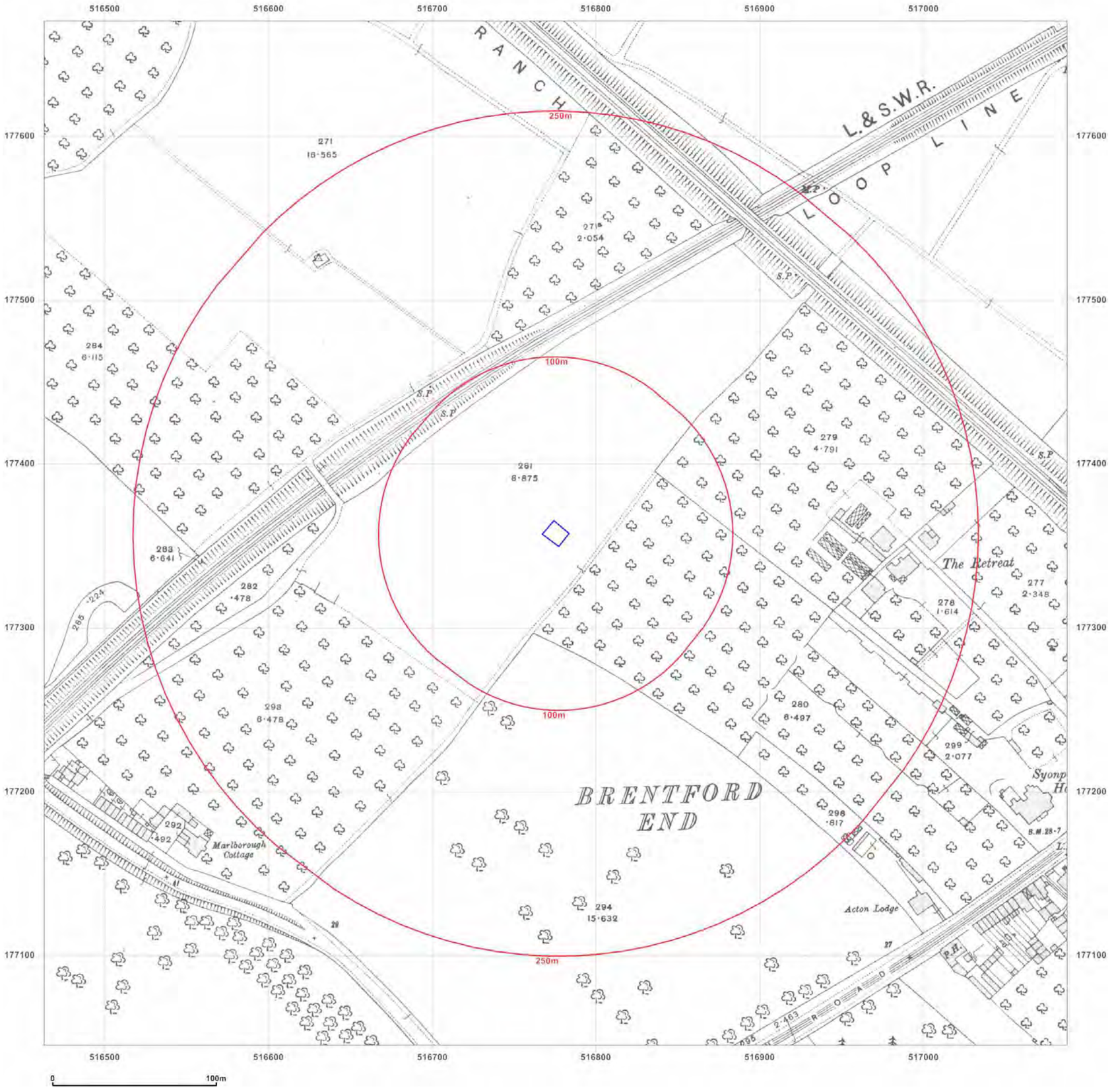
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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

Map date: **1915**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1915
Revised 1915
Edition N/A
Copyright N/A
Levelled N/A

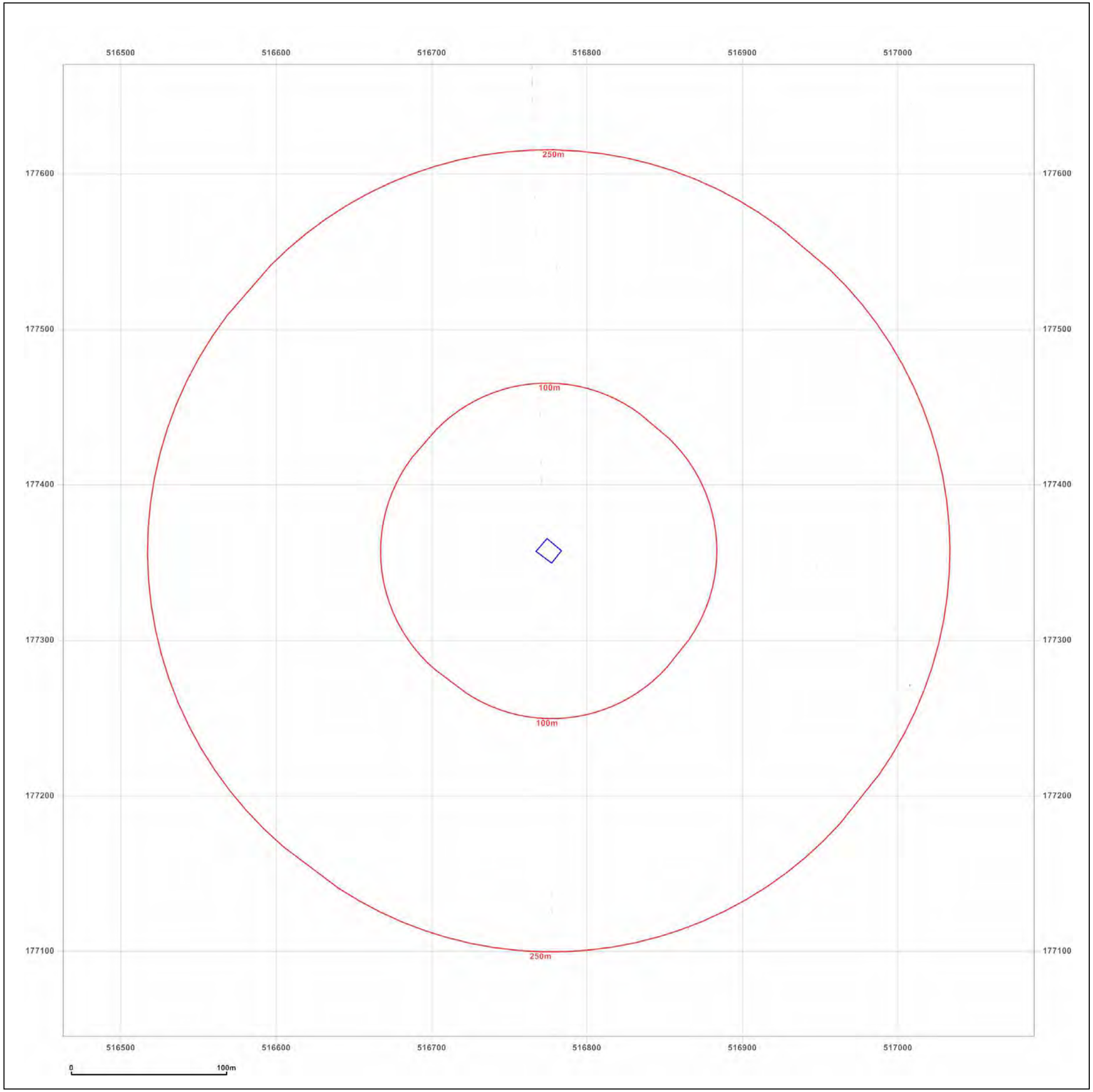
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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

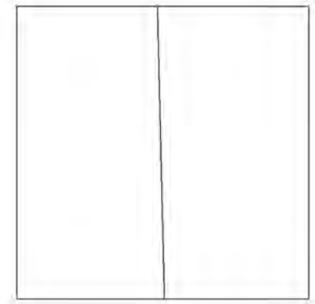
Map date: **1933**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1933
Revised 1933
Edition N/A
Copyright N/A
Levelled N/A



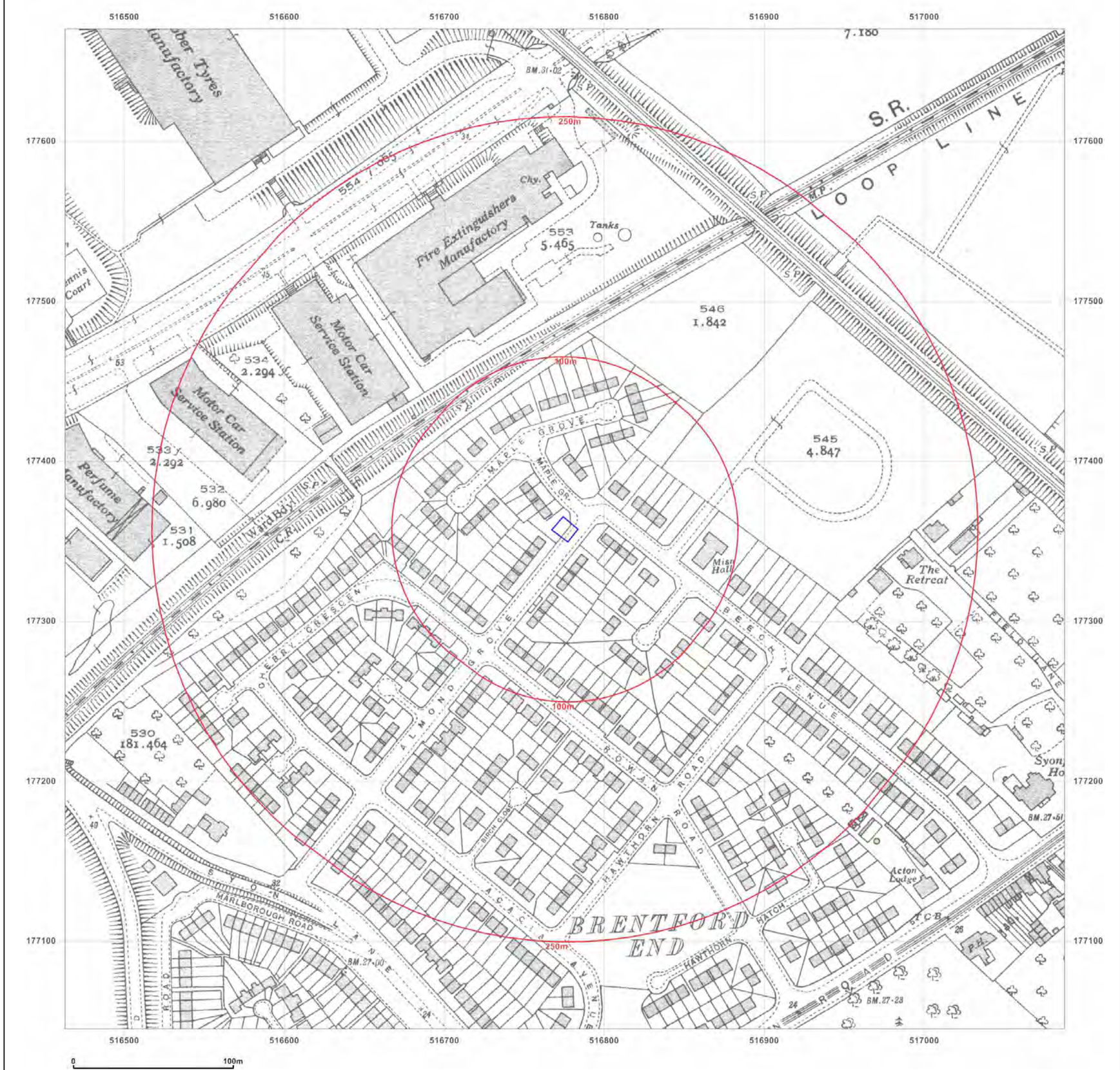
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Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

Map date: **1935**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1935
Revised 1935
Edition N/A
Copyright N/A
Levelled N/A

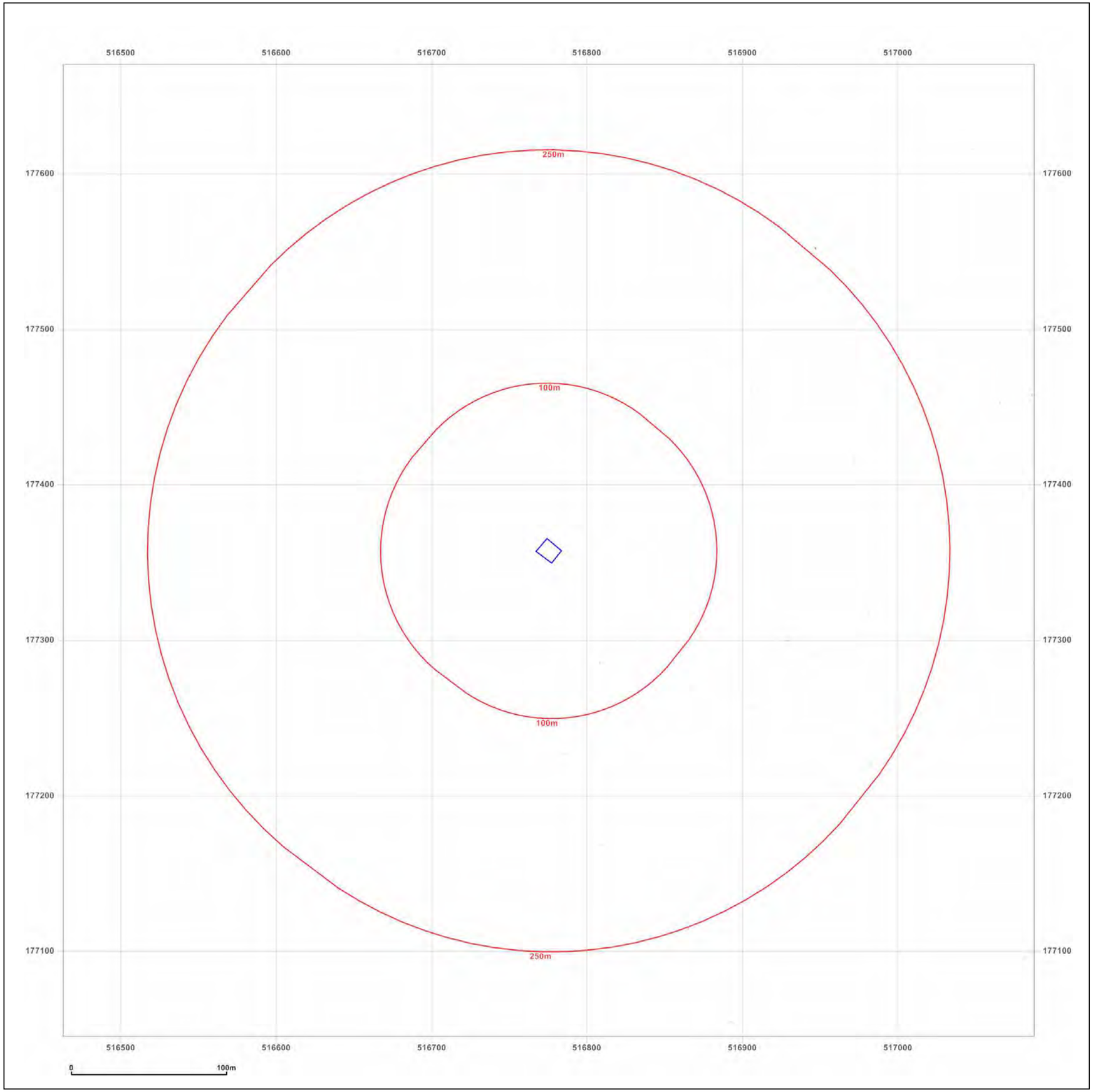
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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

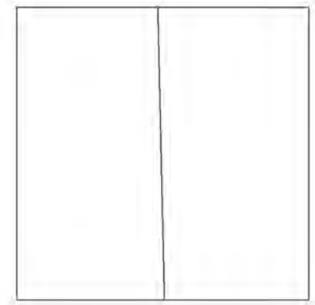
Map date: **1940**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1940
Revised 1940
Edition N/A
Copyright N/A
Levelled N/A

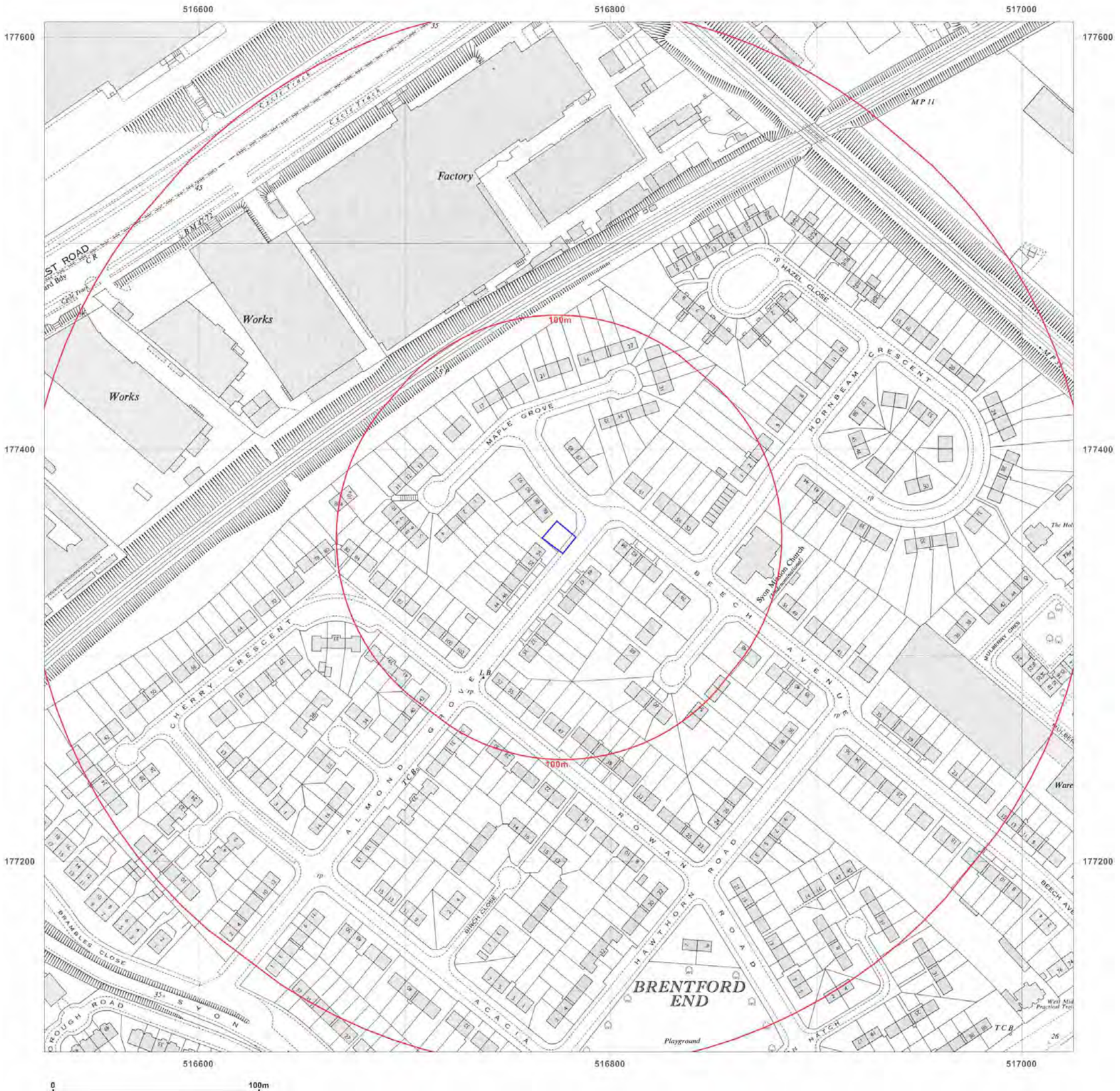


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Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

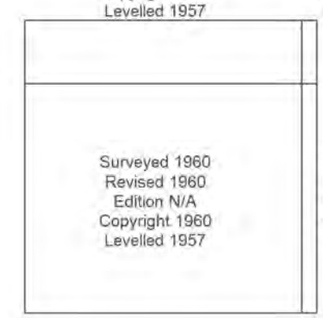
Map Name: National Grid

Map date: **1960**

Scale: 1:1,250

Printed at: 1:2,000

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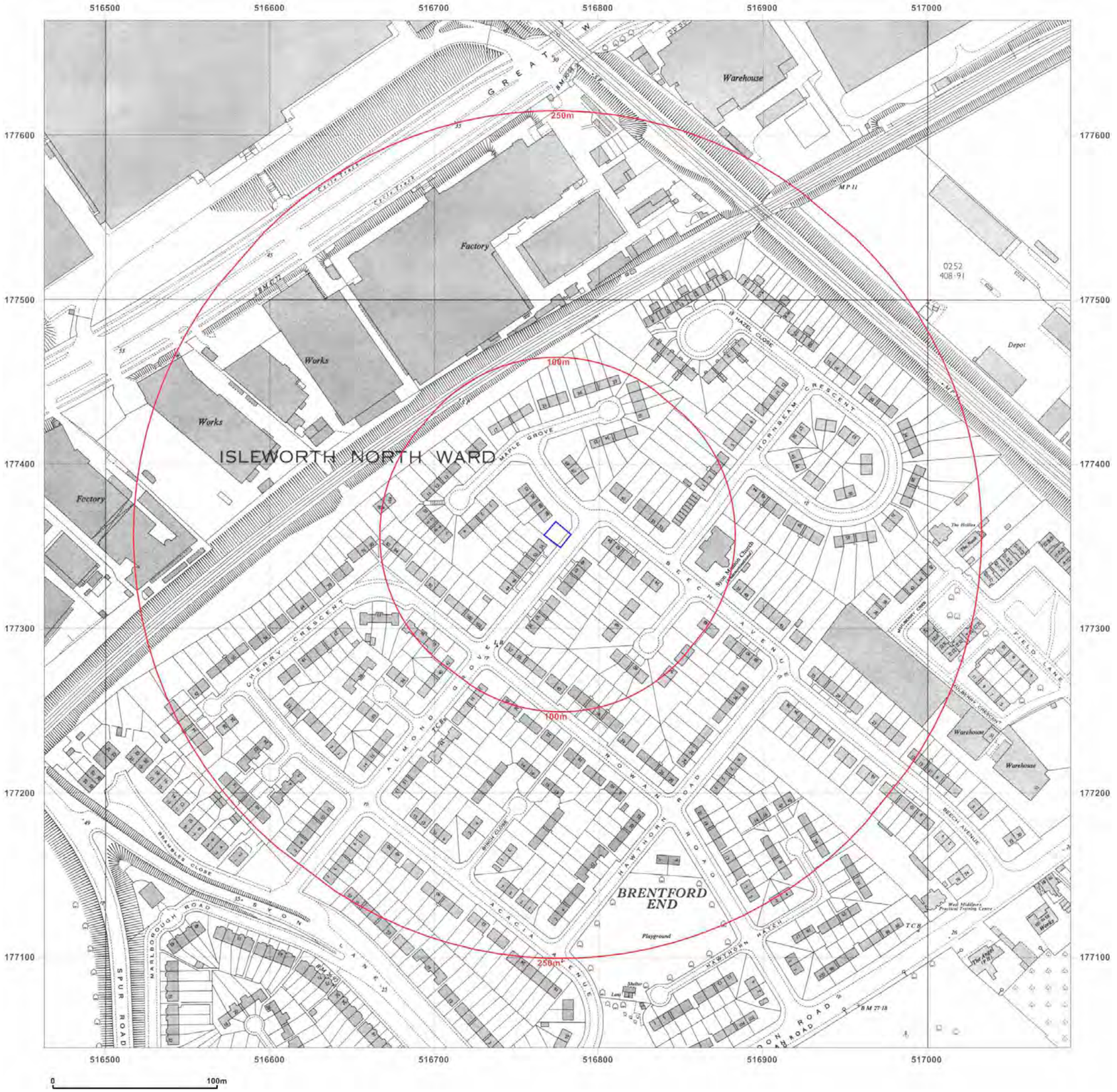
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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: National Grid

Map date: **1960**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1960
Revised 1960
Edition 1961
Copyright 1961
Levelled 1957

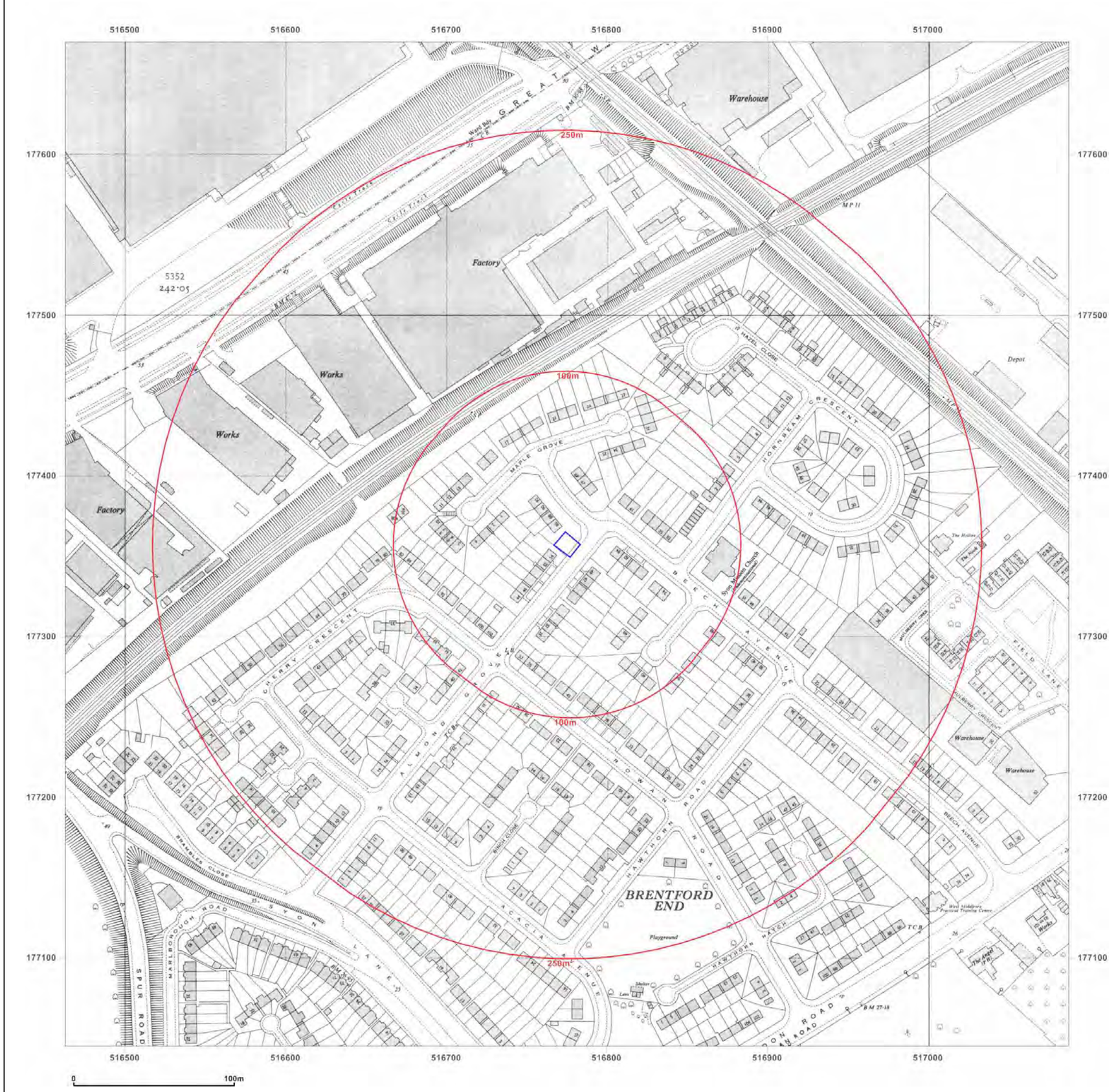
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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: National Grid

Map date: **1960**

Scale: 1:2,500

Printed at: 1:2,500

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W E
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Surveyed 1960
Revised 1960
Edition 1961
Copyright 1961
Levelled 1957

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Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: National Grid

Map date: **1983-1988**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed 1956 Revised 1983 Edition N/A Copyright 1983 Levelled 1956	Surveyed N/A Revised N/A Edition N/A Copyright 1987 Levelled N/A
Surveyed 1957 Revised 1984 Edition N/A Copyright 1984 Levelled 1957	Surveyed 1957 Revised 1988 Edition N/A Copyright 1988 Levelled 1957

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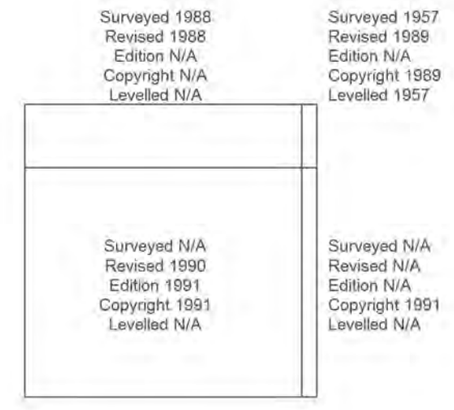
Site Details:

GARAGES ADJACENT 86,
BEECH AVENUE, BRENTFORD,
TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: National Grid
Map date: **1988-1991**
Scale: 1:1,250
Printed at: 1:2,000

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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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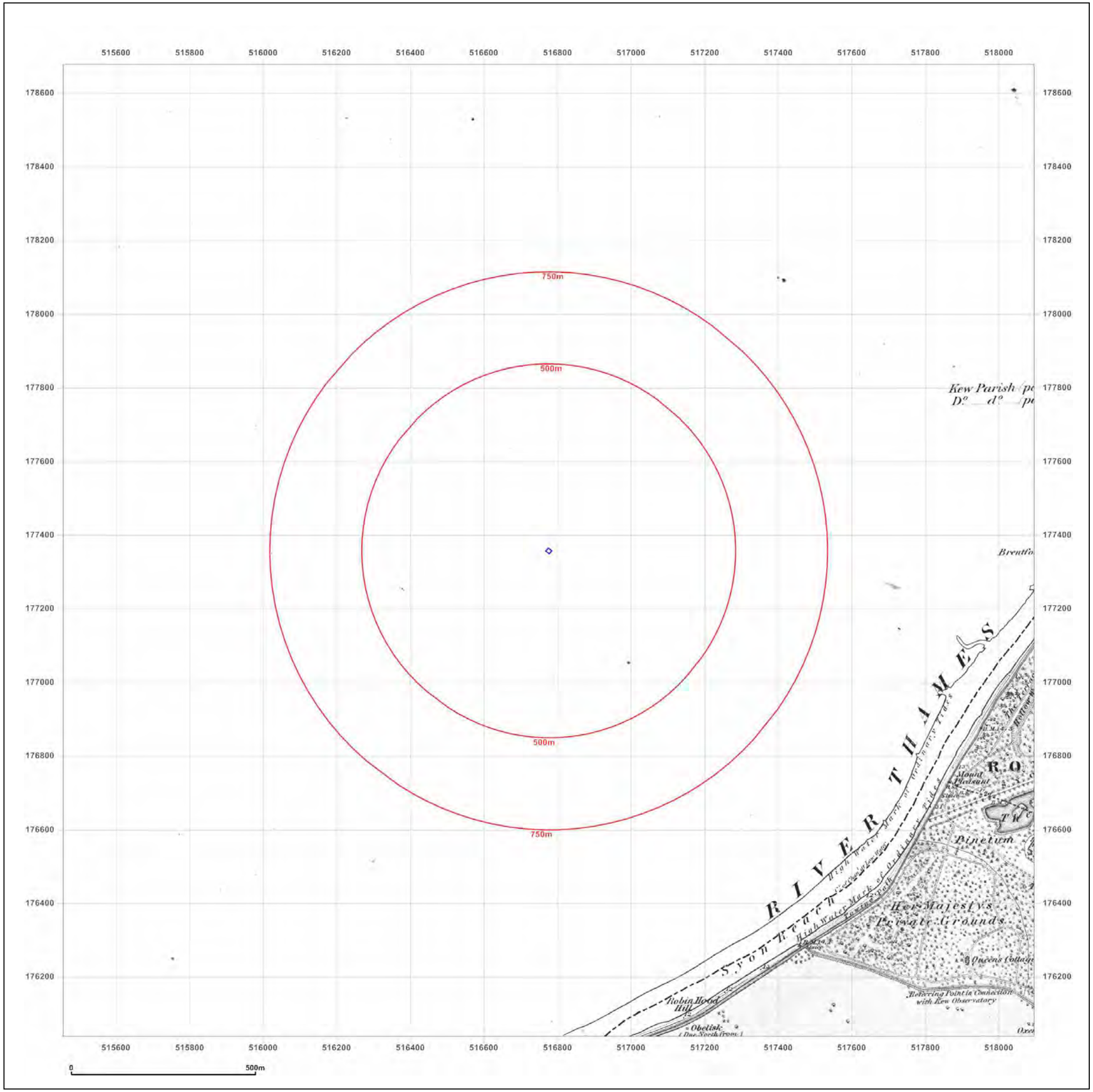
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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series
Map date: **1867**
Scale: 1:10,560
Printed at: 1:10,560

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W E
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Surveyed 1867
Revised 1867
Edition N/A
Copyright N/A
Levelled N/A

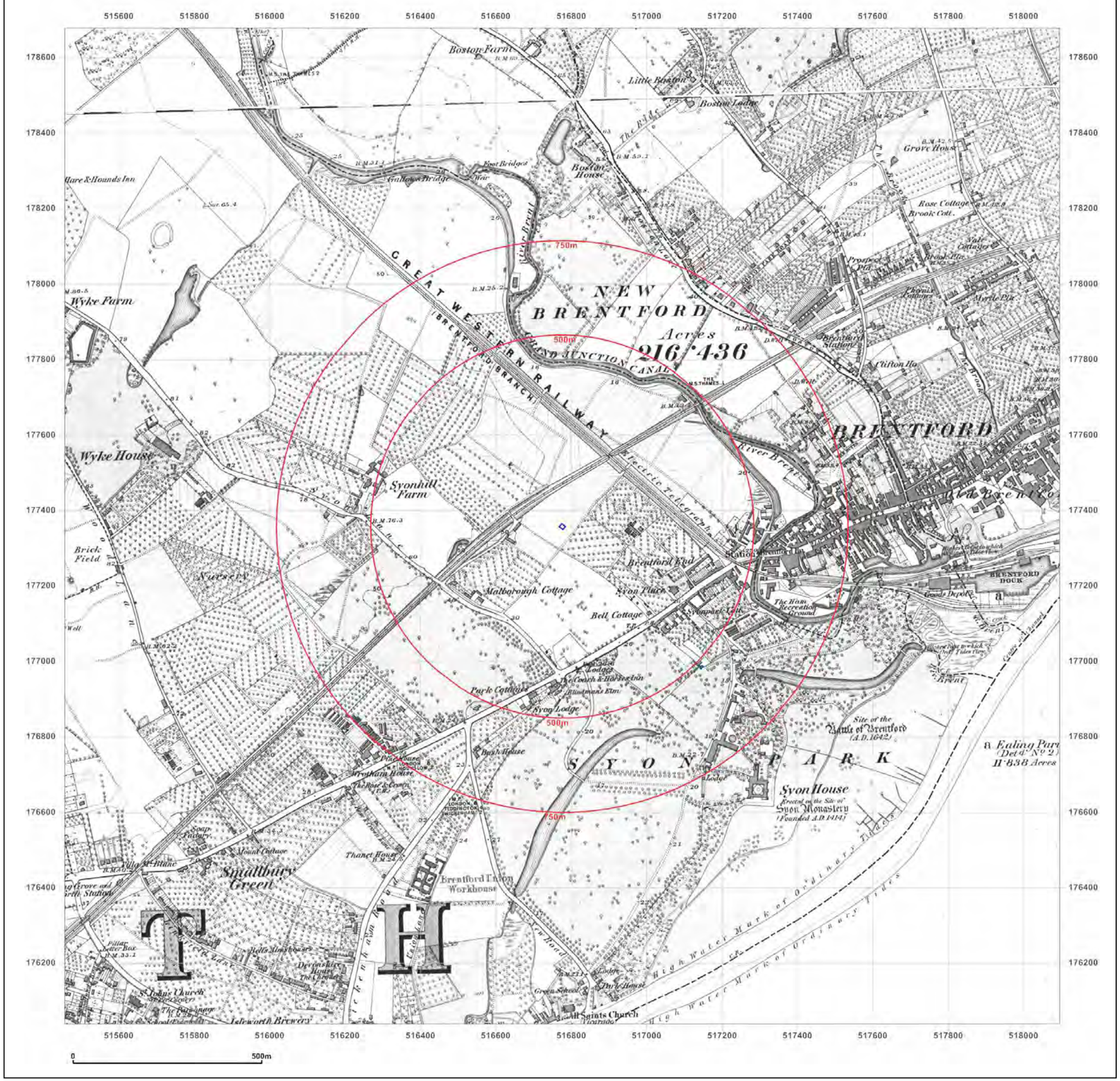
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Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

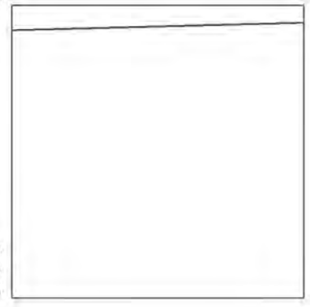
Map date: **1865-1868**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1865
Revised 1865
Edition 1868
Copyright N/A
Levelled N/A



Surveyed 1865
Revised 1865
Edition N/A
Copyright N/A
Levelled N/A

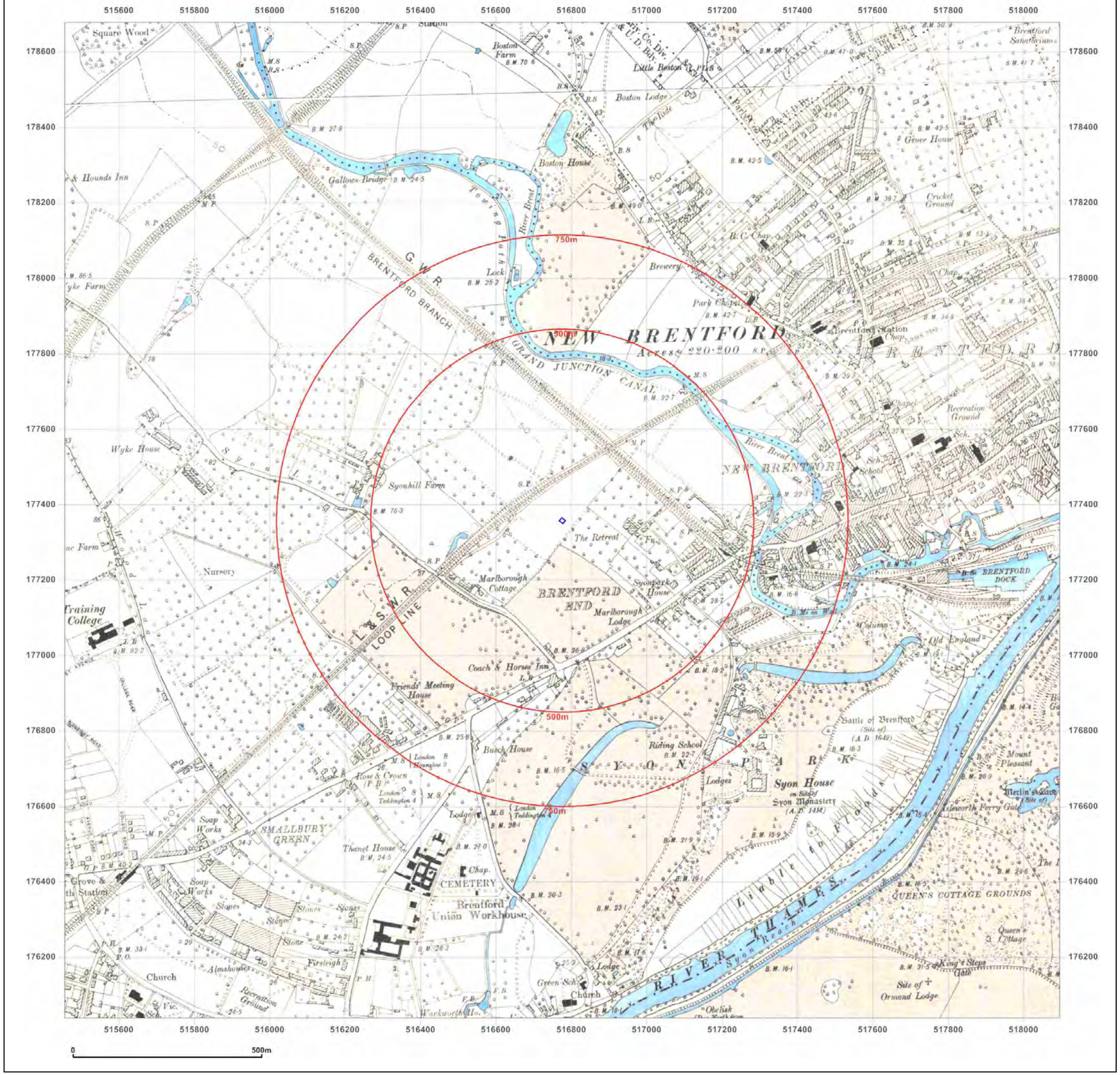
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Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

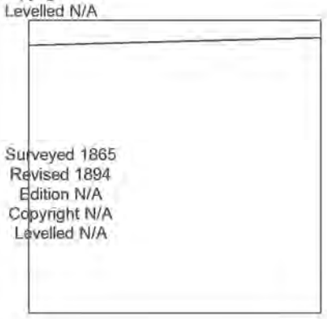
Map date: **1894**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1894
Revised 1894
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1865
Revised 1894
Edition N/A
Copyright N/A
Levelled N/A

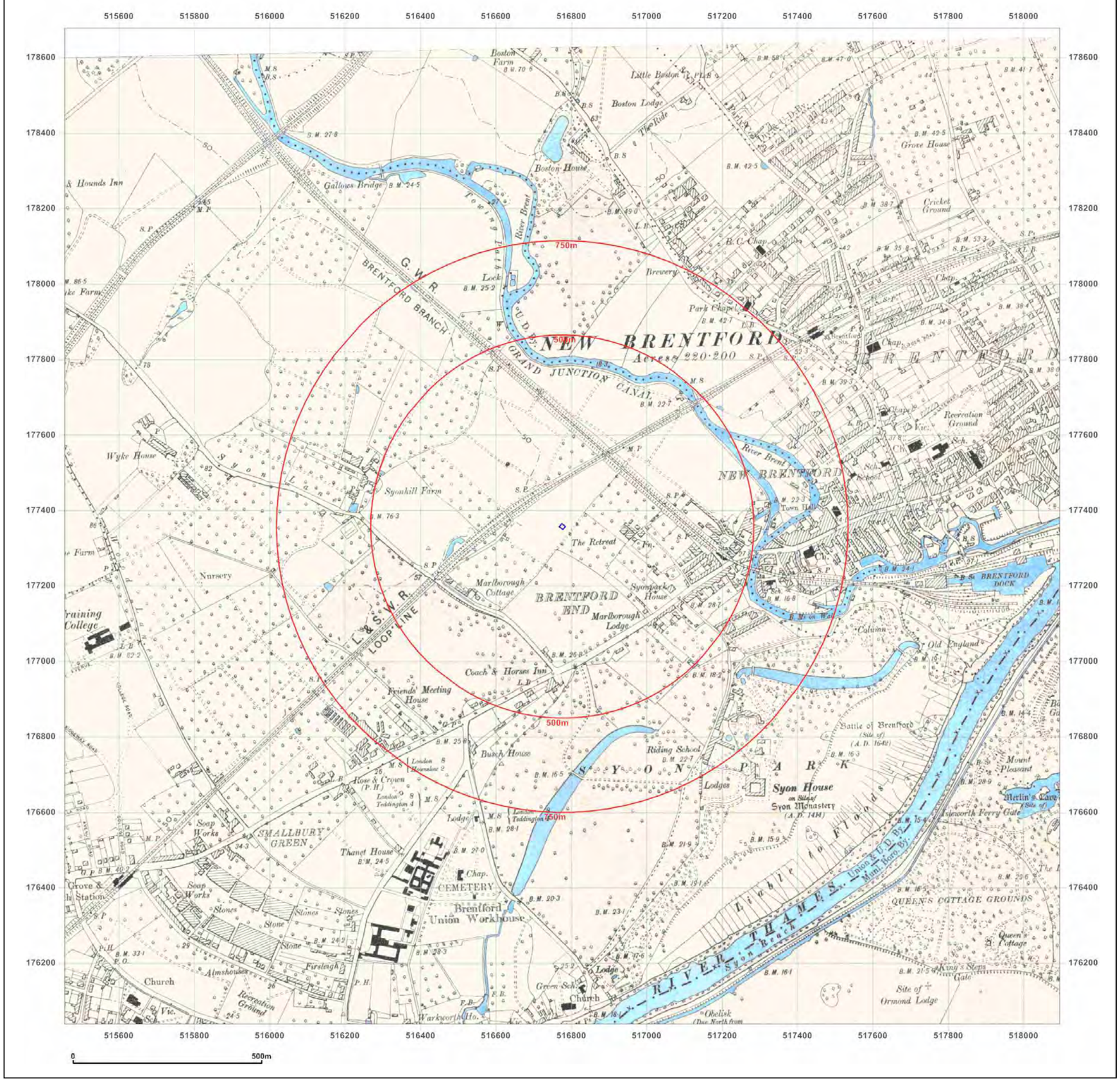
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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

Map date: **1894**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1865
Revised 1894
Edition N/A
Copyright N/A
Levelled N/A

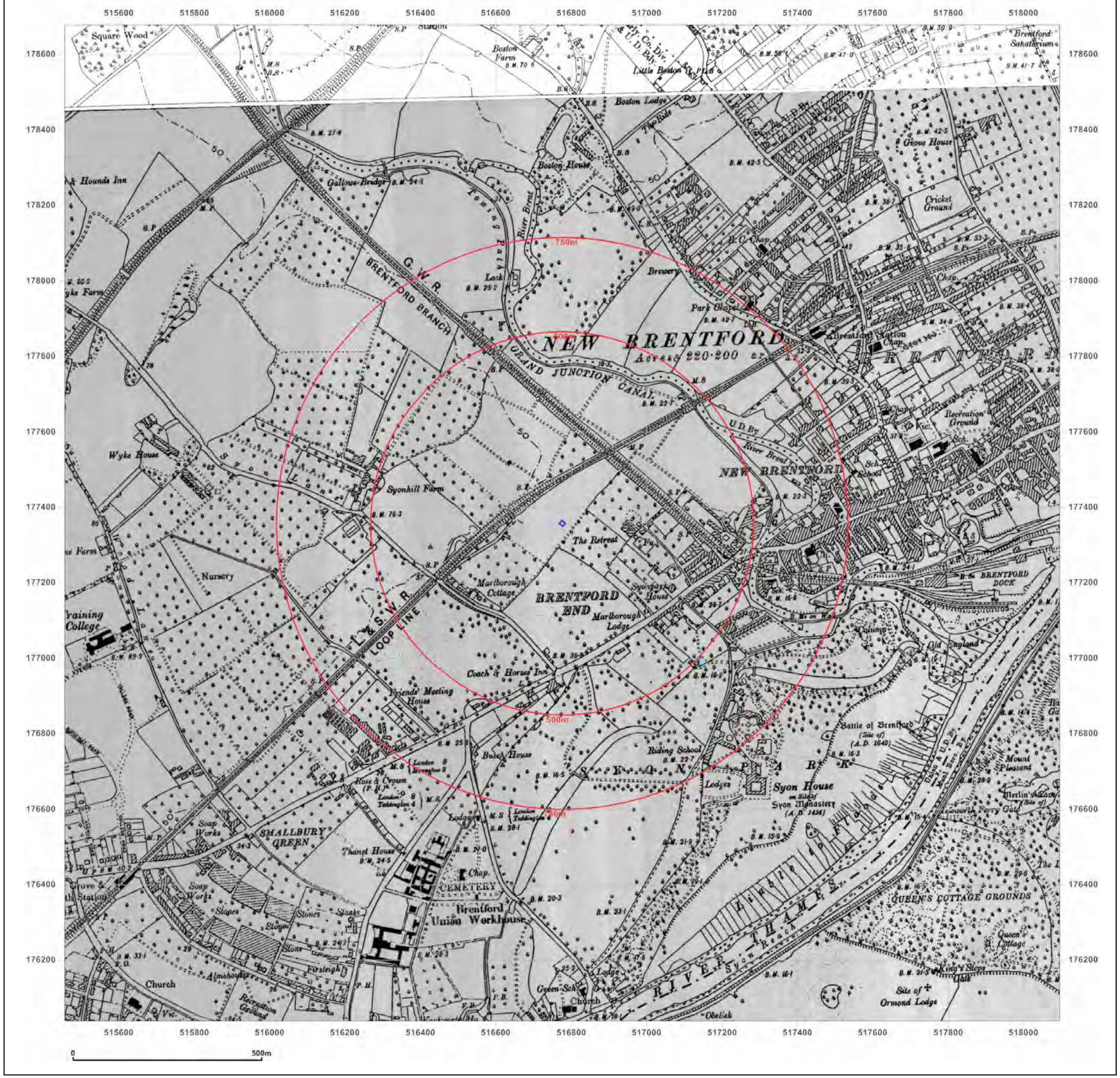
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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

Map date: **1896**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1864
Revised 1896
Edition 1896
Copyright N/A
Levelled N/A

Surveyed 1865
Revised 1896
Edition 1896
Copyright N/A
Levelled N/A

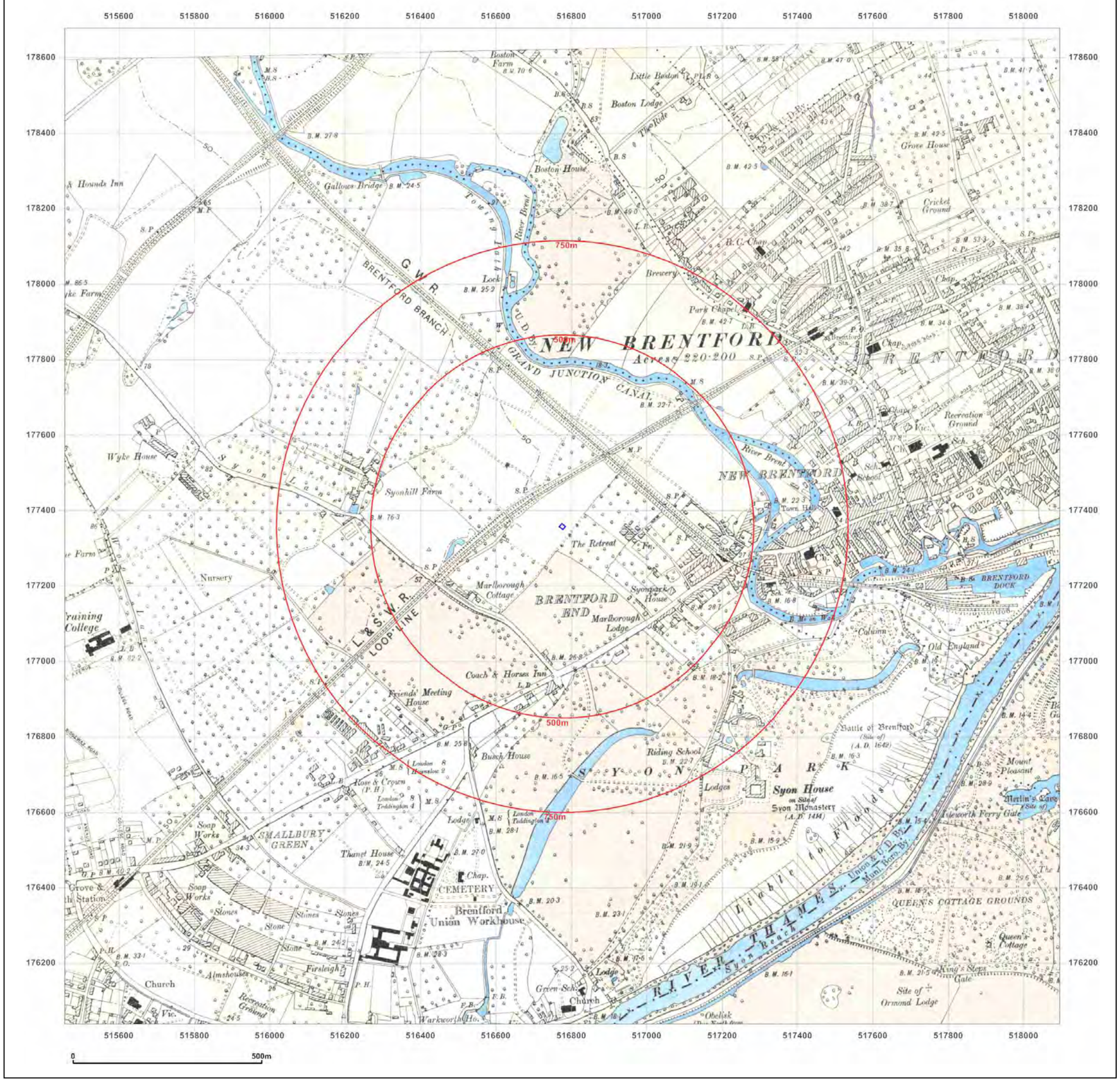
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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

Map date: **1898**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1866
Revised 1894
Edition N/A
Copyright N/A
Levelled N/A

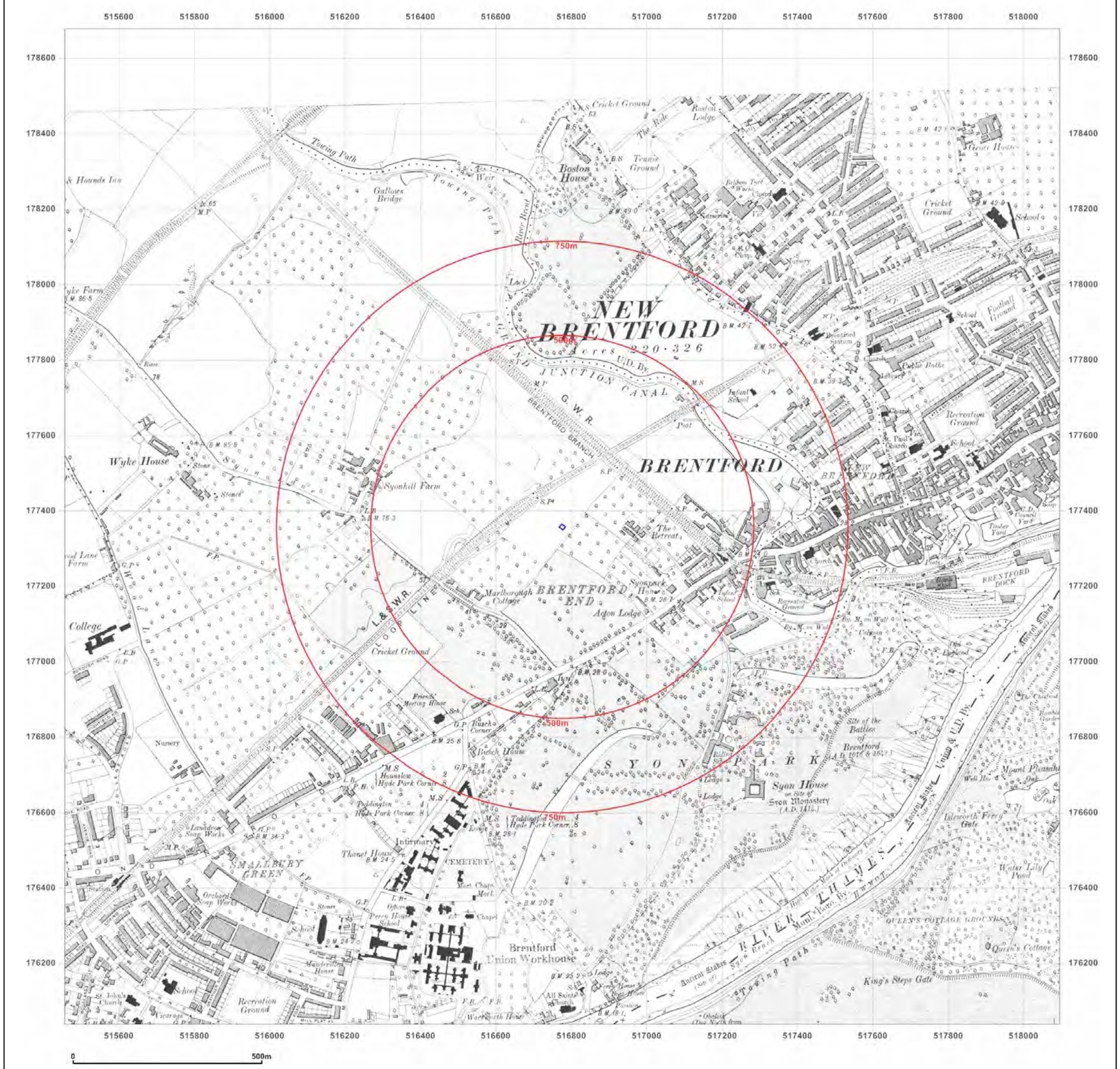
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Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

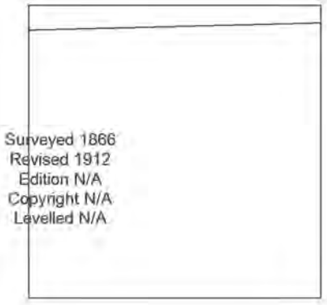
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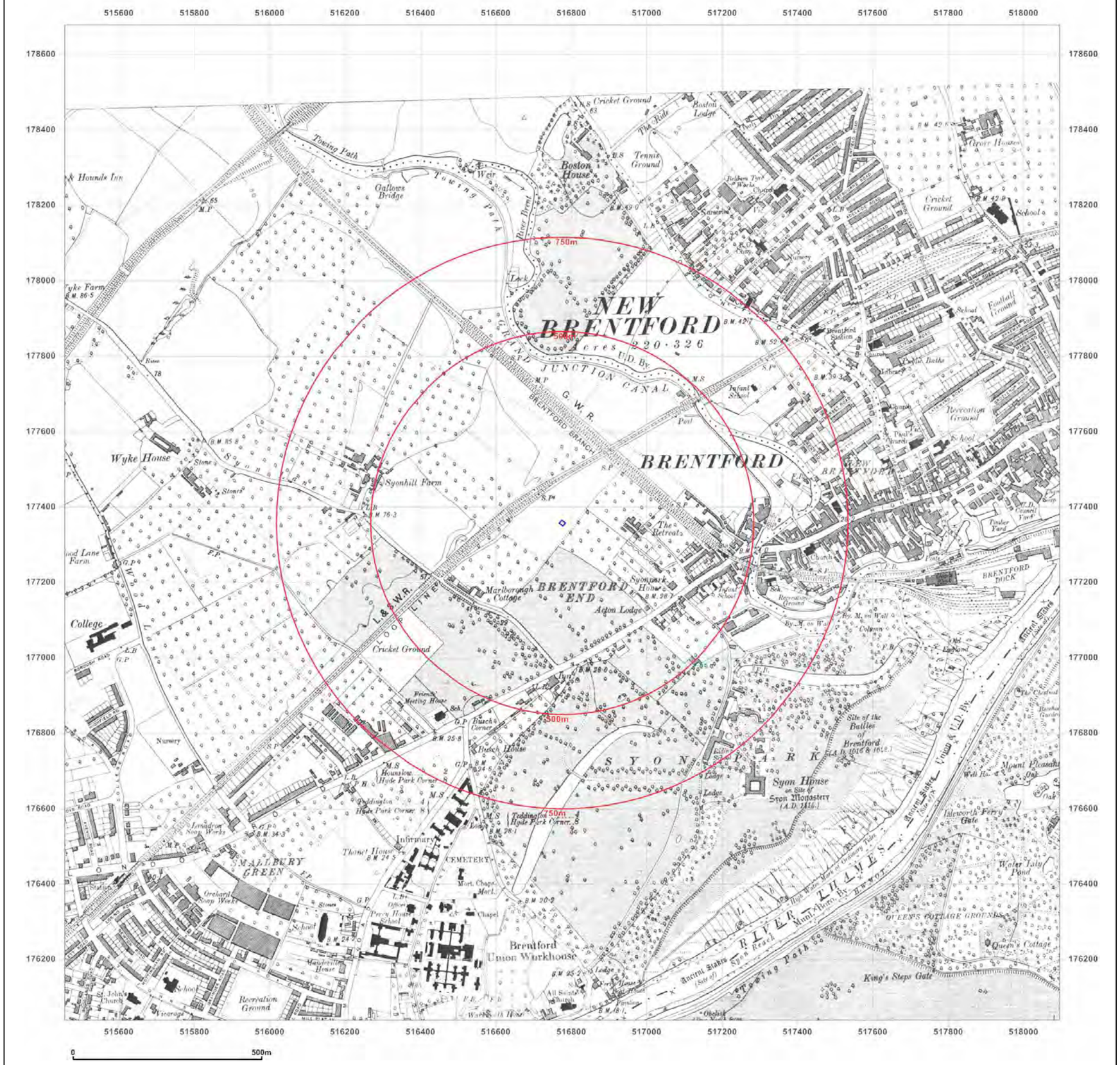
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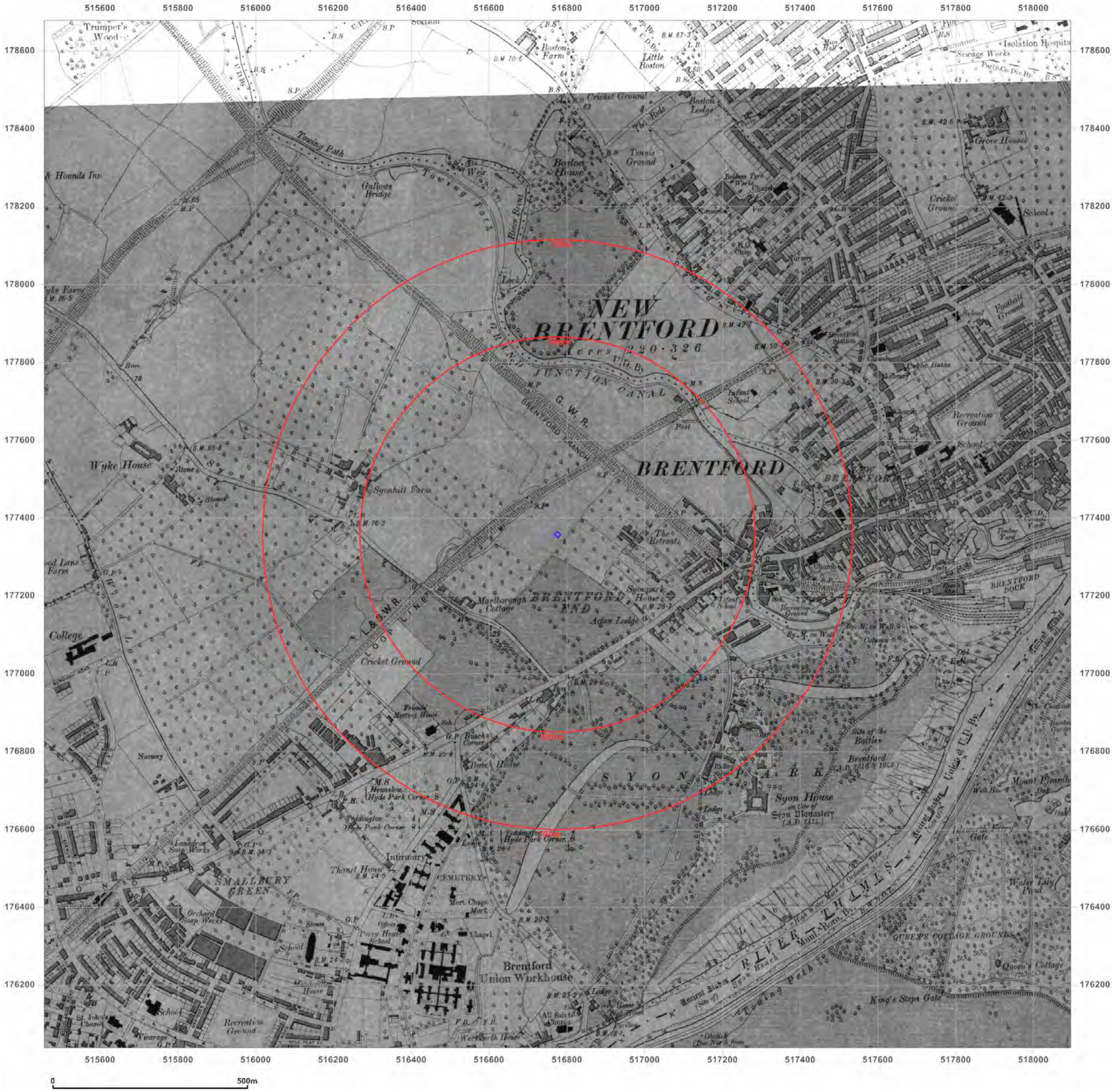
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176600
176400
176200
NEW BRENTFORD
220·326 Acres U.D. By
BRENTFORD
BRENTFORD END
SYON PARK
Syon House on Site of Syon Monastery (A.D. 1431.)
Brentford Union Workhouse
Wyke House
Syonhill Farm
Boston House
Gallows Bridge
Towing Path
River Brent
GRAND JUNCTION CANAL
G. W. R.
BRENTFORD BRANCH
L. & S. W. R.
LOOP LINE
Cricket Ground
Tennis Ground
Recreation Ground
Infant School
Football Ground
Public Baths
Library
Cricket Ground
Grove Houses
Boston Lodge
The Ride
Arlon Lodge
Marlborough Cottage
Syonpark House
The Retreats
Brentford Dock
Queen's Cottage
Queens Cottage Grounds
King's Steps Gate
Isleworth Ferry Gate
Ancient Stakes
Site of the Battles of Brentford (A.D. 1016 & 1642.)
Mount Pleasant
Water Lily Pond
Thorney House
CEMETERY
Mort. Chapel
Chapel
Nursery
Orchard Soap Works
Loudoun Soap Works
Bush's Corner
Bush House
Friends' Meeting House
Percy House School
Mandeville House
St. John's Church
Vicarage
All Saints Church
Warren House
Obelisk
Brentford Station
Baptist Chapel
Public Baths
Timber Yard
W.D. Council Yard
Hounds Inn
Tyke Farm
College
Lock
Post
Stone
Stones
Ruins
Toll House
Toll
Pump
Sluice
Weir
Tank
Reservoir
Gas Works
Tumulus
Obsolete Boundary
Site of
Ditch
Path
Ferry
Pond
Lodge
Entrance
Gate
Column
Wall
Fence
Hedge
Trees
Shrubs
Rough Pasture
Marsh
Sand
Shingle
Mud
Foreshore
Sea Wall
Mean Water Mark of Ordinary Tides
Mean Water Mark of Spring Tides
Boundary Stone
Telegraph Line
Telegraph Office
Post Office
Police Station
Coastguard Station
Lifeboat Station
Pillar Box
Fire Alarm
Fire Hydrant
Fire Engine Station
Hydrant
Sluice Valve
Sluice Gate
Flood Gate
Level Crossing
Milestone
Boundary Post
Mile Post
Kilometre Post
Telephone Kiosk
Telephone Line
Telephone Exchange
Telephone Call Box
Telephone Call Office
Telephone Call Office (Automatic)
Telephone Call Office (Kiosk)
Telephone Call Office (Public)
Telephone Call Office (Private)
Telephone Call Office (Coin Box)
Telephone Call Office (Card Box)
Telephone Call Office (Token Box)
Telephone Call Office (Key Box)
Telephone Call Office (Meter Box)
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Telephone Call Office (Not Applicable)
Telephone Call Office (Not Available)
Telephone Call Office (Not Working)
Telephone Call Office (Out of Order)
Telephone Call Office (Vandalised)
Telephone Call Office (Removed)
Telephone Call Office (Relocated)
Telephone Call Office (Replaced)
Telephone Call Office (Upgraded)
Telephone Call Office (Downgraded)
Telephone Call Office (Converted



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Site Details:

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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

Map date: **1920**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1864
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Edition 1920
Copyright N/A
Levelled 1912

Surveyed 1866
Revised 1911
Edition 1920
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Levelled 1911

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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

Map date: **1933-1934**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1864
Revised 1934
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1866
Revised 1933
Edition N/A
Copyright N/A
Levelled N/A

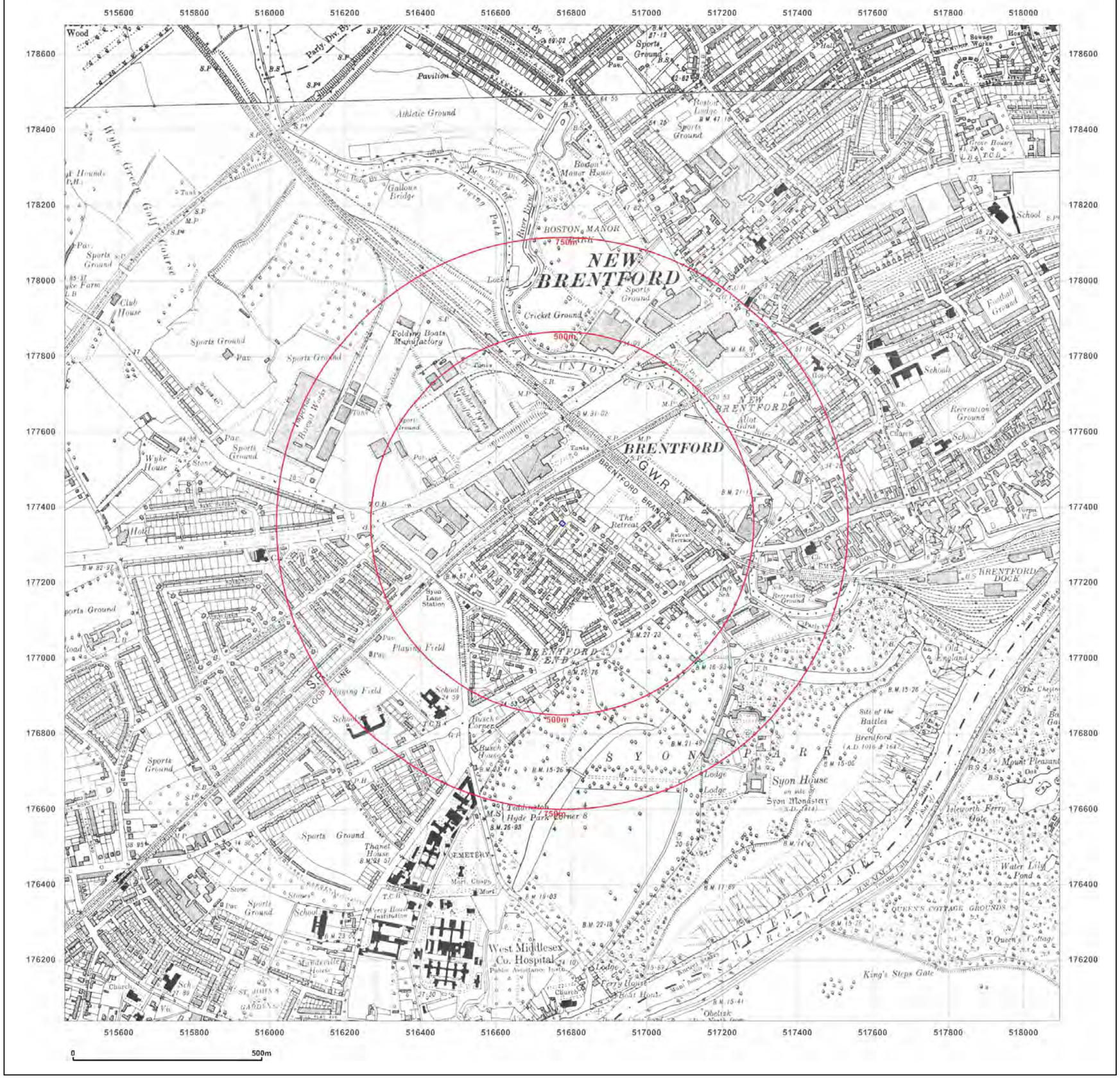
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BEECH AVENUE, BRENTFORD,
TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: County Series

Map date: **1935-1938**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1864
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1866
Revised 1935
Edition N/A
Copyright N/A
Levelled N/A

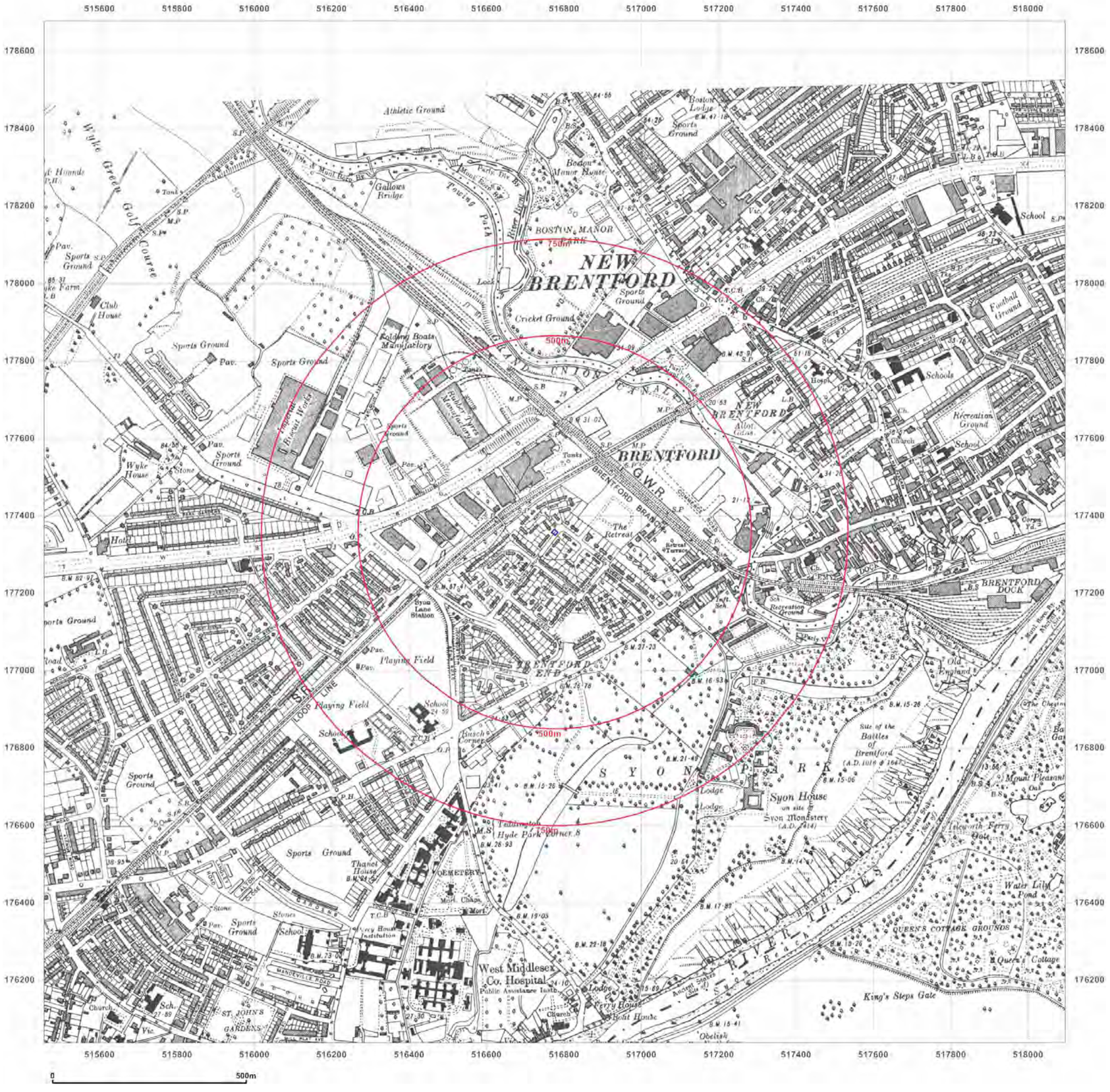
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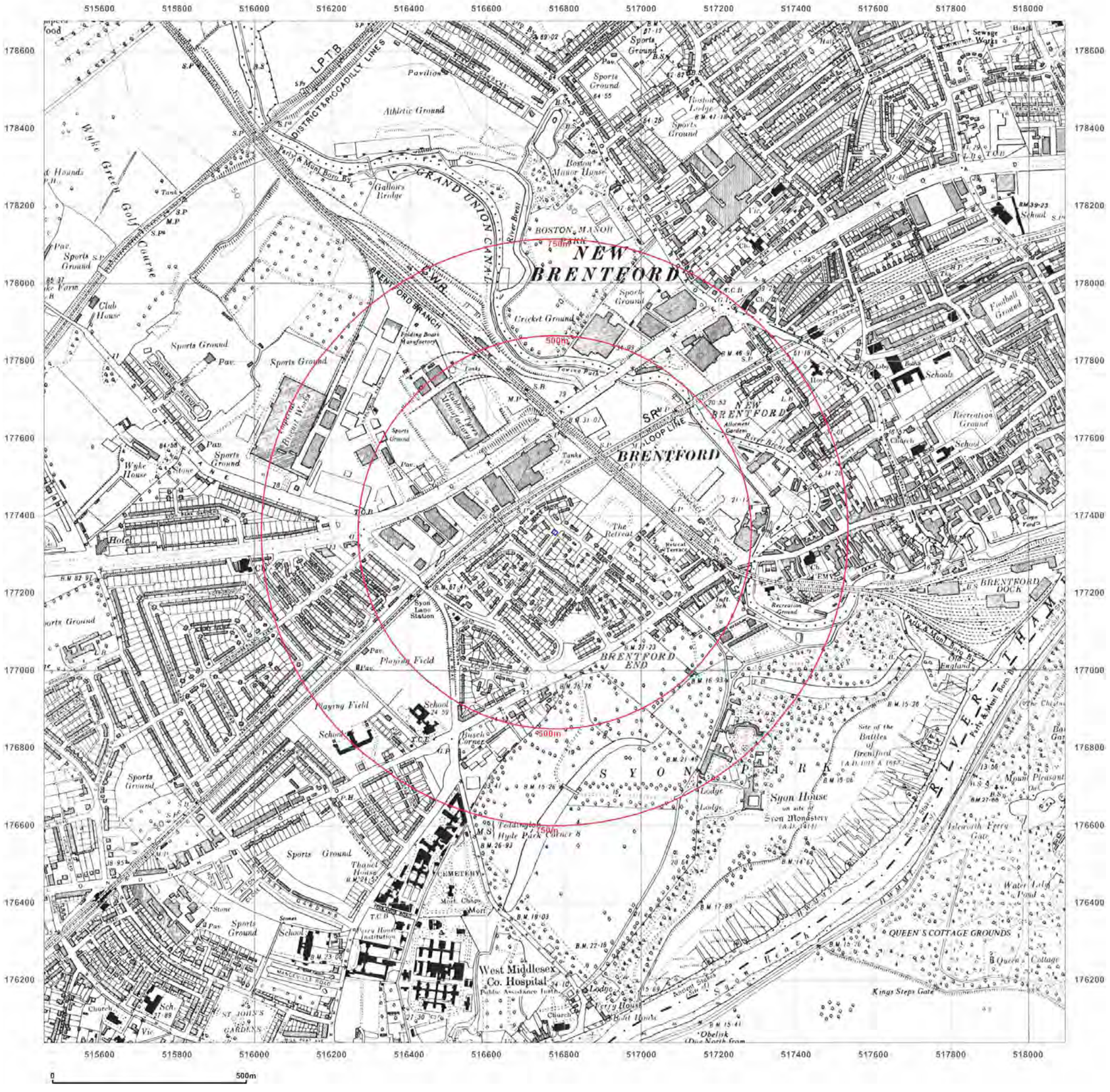
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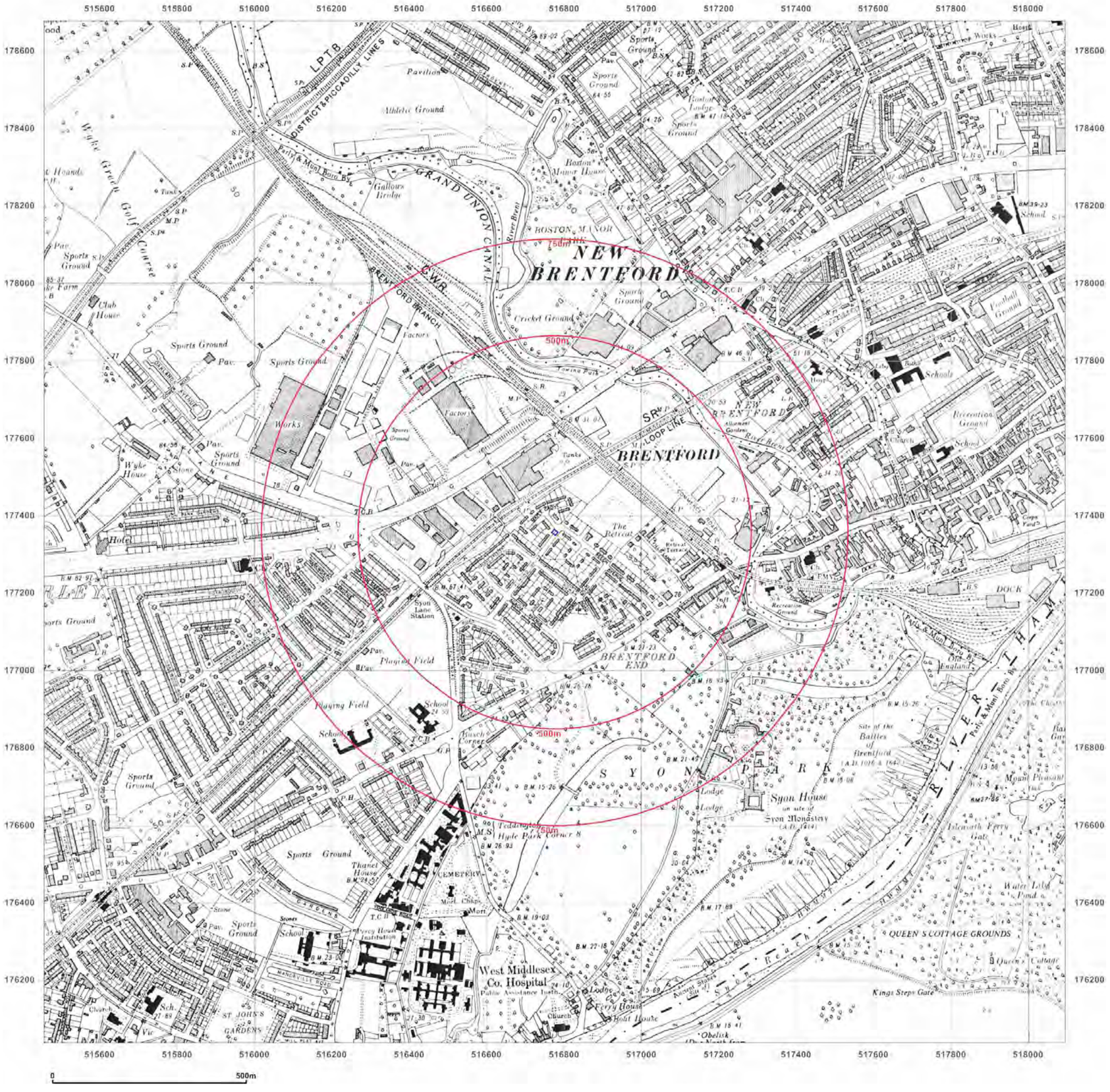
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Wyke Green Golf Course
Gallows Bridge
Towing Path
Boston Manor House
BOSTON MANOR
NEW BRENTFORD
Sports Ground
Cricket Ground
Club House
Sports Ground
Folding Boats Manufactory
GRAND UNION CANAL
Rubber Tyres Manufactory
Imperial Biscuit Works
Wyke House
Wyke Farm
Schools
Football Ground
Recreation Ground
Church
School
BRENTFORD
G.W.R.
BRENTFORD BRANCH
The Retreat
BRENTFORD DOCK
Syon Lane Station
Playing Field
BRENTFORD END
LOOP LINE
Hyde Park Corner
Thanet House
CEMETERY
Mort. Chaps.
West Middlesex Co. Hospital
Public Assistance Instn.
ST. JOHN'S GARDENS
Sch.
Vic.
Ferry House
Boat House
Obelisk
Site of the Battles of Brentford
(A.D. 1016 & 1642)
SYON PARK
Syon House
on site of
Syon Monastery
(A.D. 1414)
Lodge
Lodge
Tudor Wall
Mount Pleasant
Isleworth Ferry Gate
Water Lily Pond
RIVER THAMES
QUEEN'S COTTAGE GROUNDS
Queen's Cottage
King's Steps Gate
Ancient Stairs
Ancient Steps
Boston Lodge
Sports Ground
Corpn. Yd.
Old England
Ch.
Hosp.
Pav.
Tanks
Stone
Stones
Tennis Courts
Bowling Green
Allot. Gdns.
Mount Boro. Br.
Parish Bdy.
Mid. Br.
Tram Depot
Tram Shelter
Tram Terminus
Gas Works
Gasholder
Sub Sta.
Pumping Station
Reservoir
Tank
Lock
Weir
Ferry
Boat Station
Slip Way
Pier
Jetty
Landing Stage
Boat House
Boat Yard
Boat Repairing Yard
Boat Building Yard
Boat Builder
Boat Builders Yard
Boat Hire
Boat Hire Station
Boat Hire Yard
Boat Hire Office
Boat Hire Shop
Boat Hire Depot


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DISTRICT&PICCADILLY LINES
Athletic Ground
Pavilion
Sports Ground
Wyke Green Golf Course
Gallows Bridge
GRAND UNION CANAL
River Brent
BOSTON MANOR
NEW BRENTFORD
GWR
BRENTFORD BRANCH
Cricket Ground
Club House
Tennis Courts
Bridge
Tanks
Rubber Proofing Manufactory
Imperial Wharf
Wyke House
Stone
Hotel
Syon Lane Station
Playing Field
School
BRENTFORD END
The Retreat
BRENTFORD DOCK
Recreation Ground
Church
Allotment Gardens
SRW & LOOP LINE
BRENTFORD
Syon House
on site of Syon Monastery
S Y O N P A R K
Site of the Battles of Brentford
Isleworth Ferry Gate
Mount Pleasant
RIVER THAMES
Thatched House
CEMETERY
Mort. Chapel
Mort
West Middlesex Co. Hospital
Public Assistance Institution
Ferry House
Boat House
Obelisk
QUEEN'S COTTAGE GROUNDS
Queen's Cottage
Kings Steps Gate
Water Lodge Pond
Boston Manor House
Boston Lodge
Sewage Works
Hall
Tennis Courts
Football Ground
Schools
Recreation Ground
School
Church
Lodge
Ferry Gate
Pond
Tanks
Sports Ground
Pav.
Pavilion
Club House
Playing Field
Thatched House
Institution
Lodge
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Tank
Tennis Courts
Bridge
Allotment Gardens
Recreation Ground
Football Ground
Schools
Sewage Works
Hall
Boston Lodge
Boston Manor House
Site of the Battles of Brentford
Mount Pleasant
Water Lodge Pond
Queen's Cottage
Kings Steps Gate
Obelisk
Ferry House
Boat House
Public Assistance Institution
Thatched House
Isleworth Ferry Gate
Syon Monastery
Syon House
on site of
Syon Lane Station
Playing Field
Recreation Ground
Allotment Gardens
Rubber Proofing Manufactory
Folding Boats Manufactory
Imperial Wharf
Wyke House
Stone
Hotel
Tennis Courts
Bridge



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Site Details:

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BEECH AVENUE, BRENTFORD,
TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: Provisional

Map date: **1948**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed N/A
Revised 1948
Edition N/A
Copyright N/A
Levelled 1934

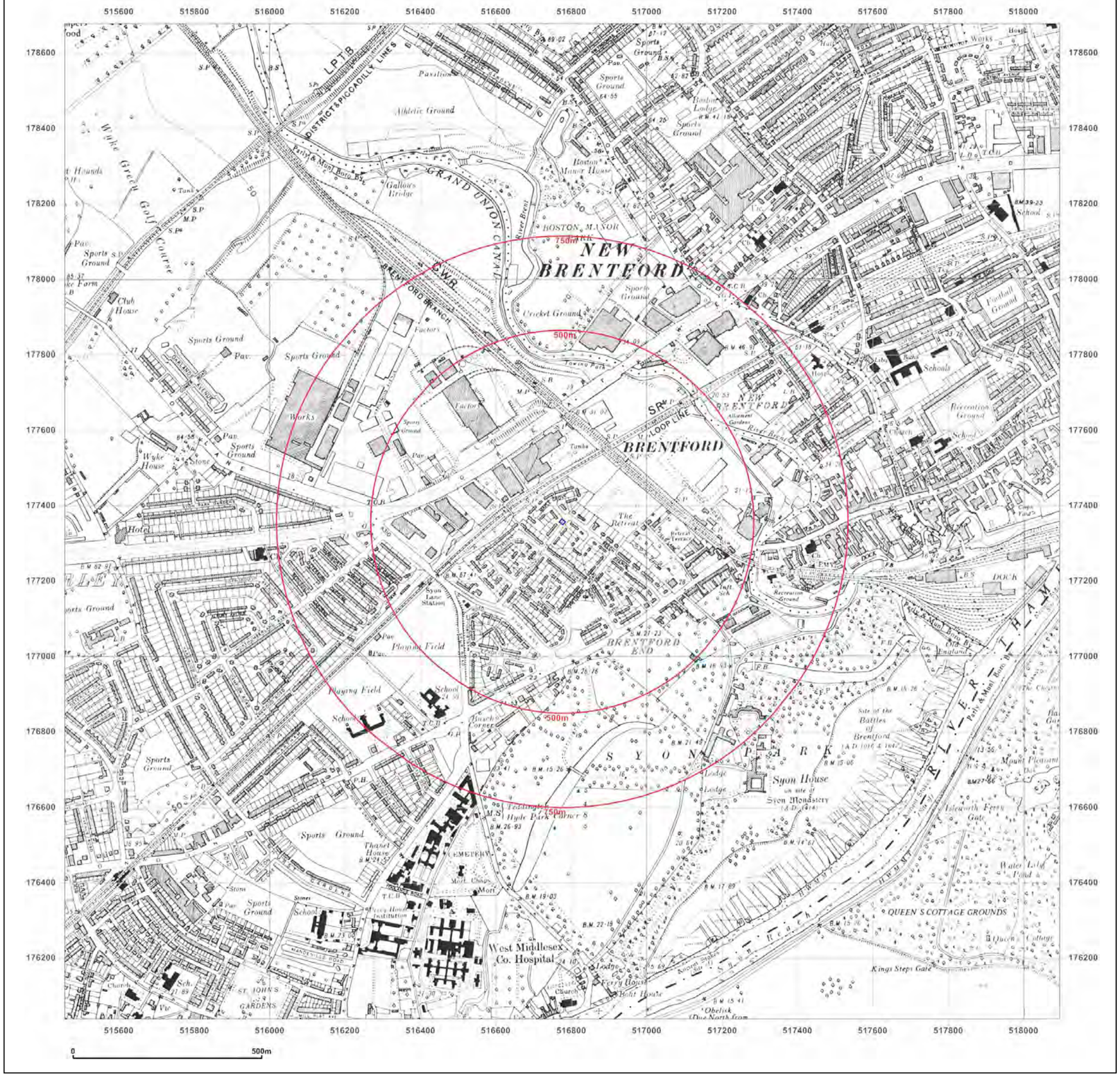
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Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: Provisional

Map date: **1961**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1940
Revised 1961
Edition N/A
Copyright N/A
Levelled N/A

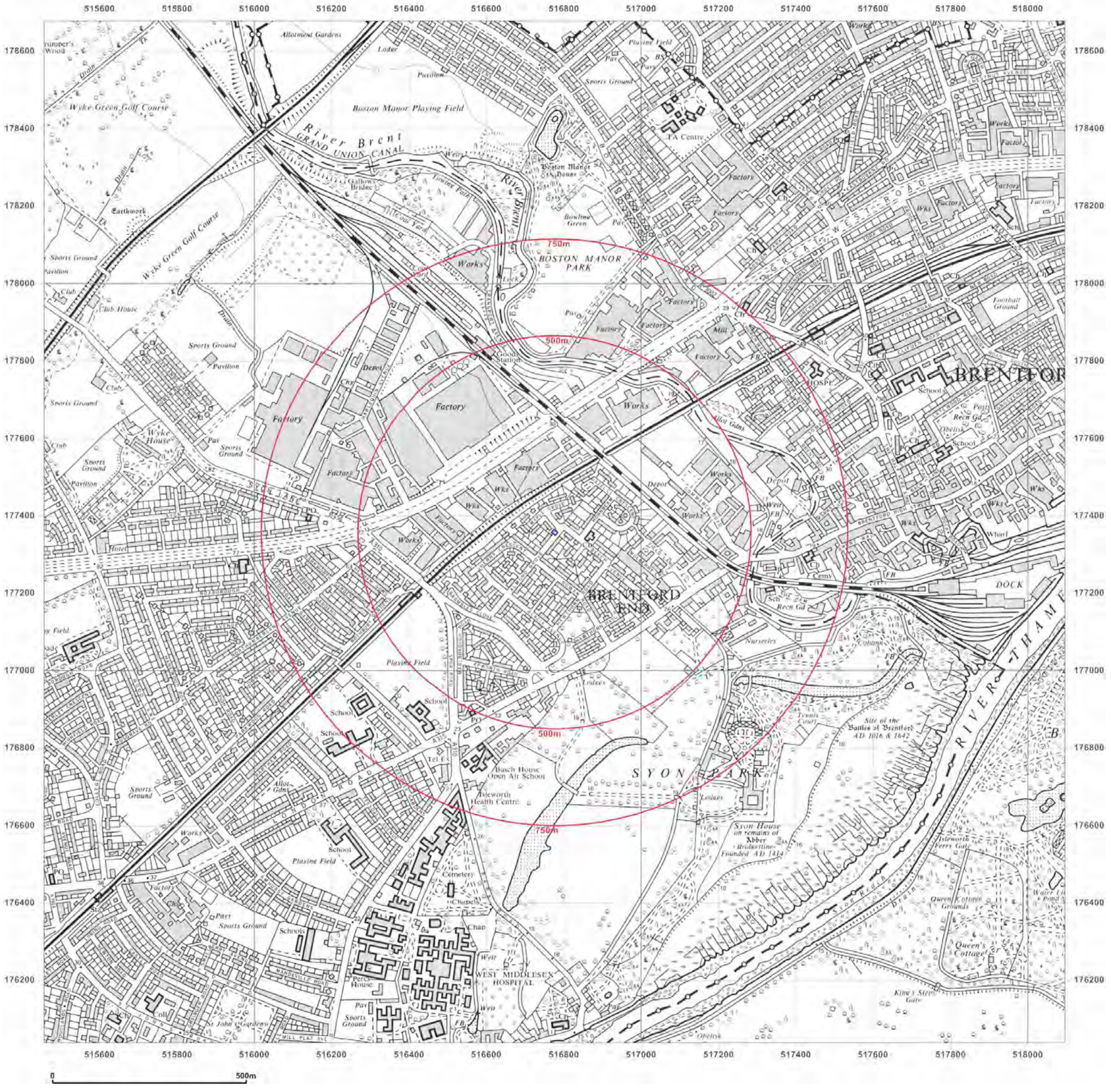
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Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: Provisional

Map date: **1966**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1966
Revised 1966
Edition N/A
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Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: National Grid
Map date: **1974**
Scale: 1:10,000
Printed at: 1:10,000

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Surveyed 1973
Revised 1974
Edition N/A
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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: National Grid

Map date: **1987**

Scale: 1:10,000

Printed at: 1:10,000

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Surveyed 1982
Revised 1987
Edition N/A
Copyright N/A
Levelled N/A

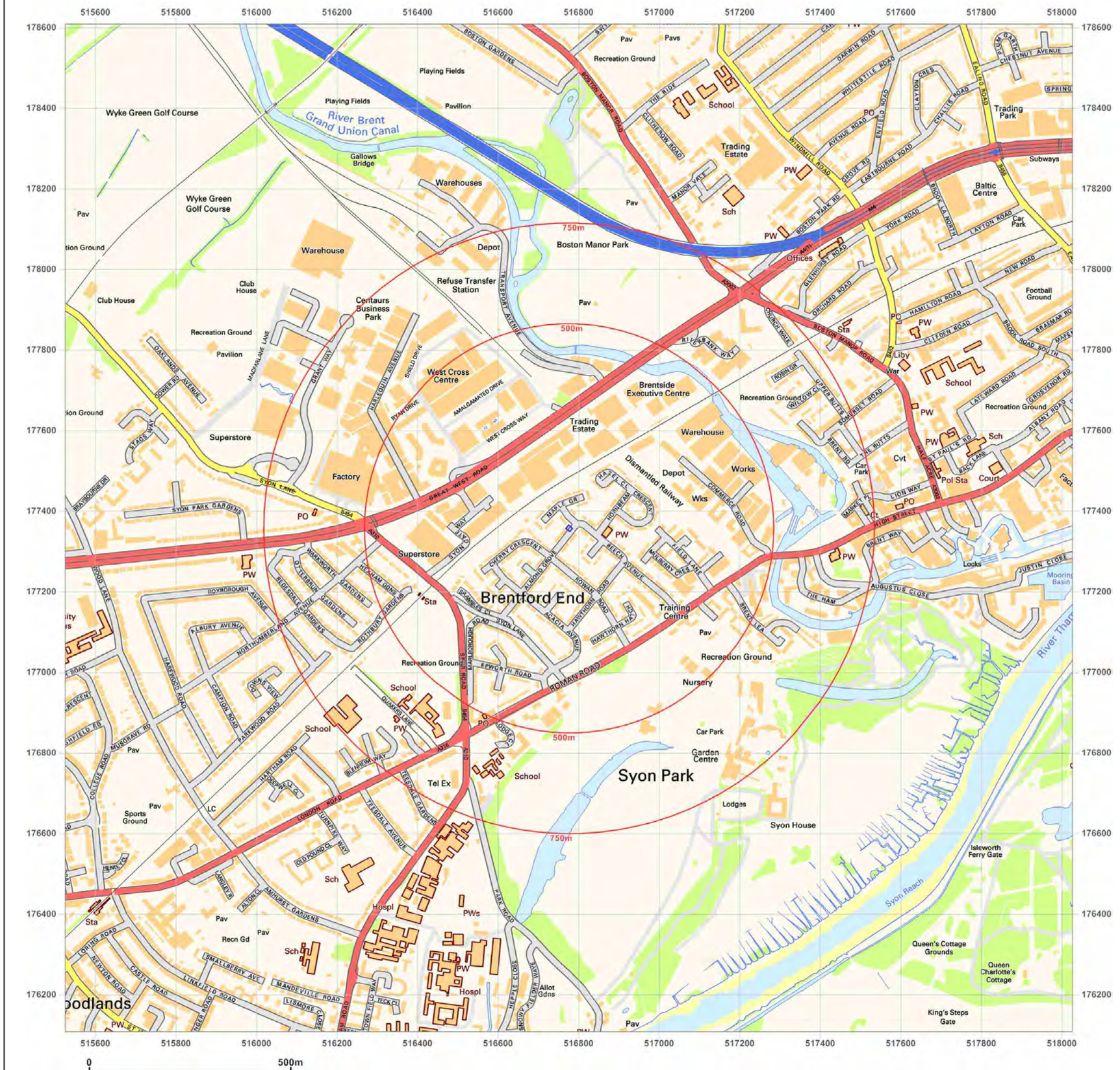
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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

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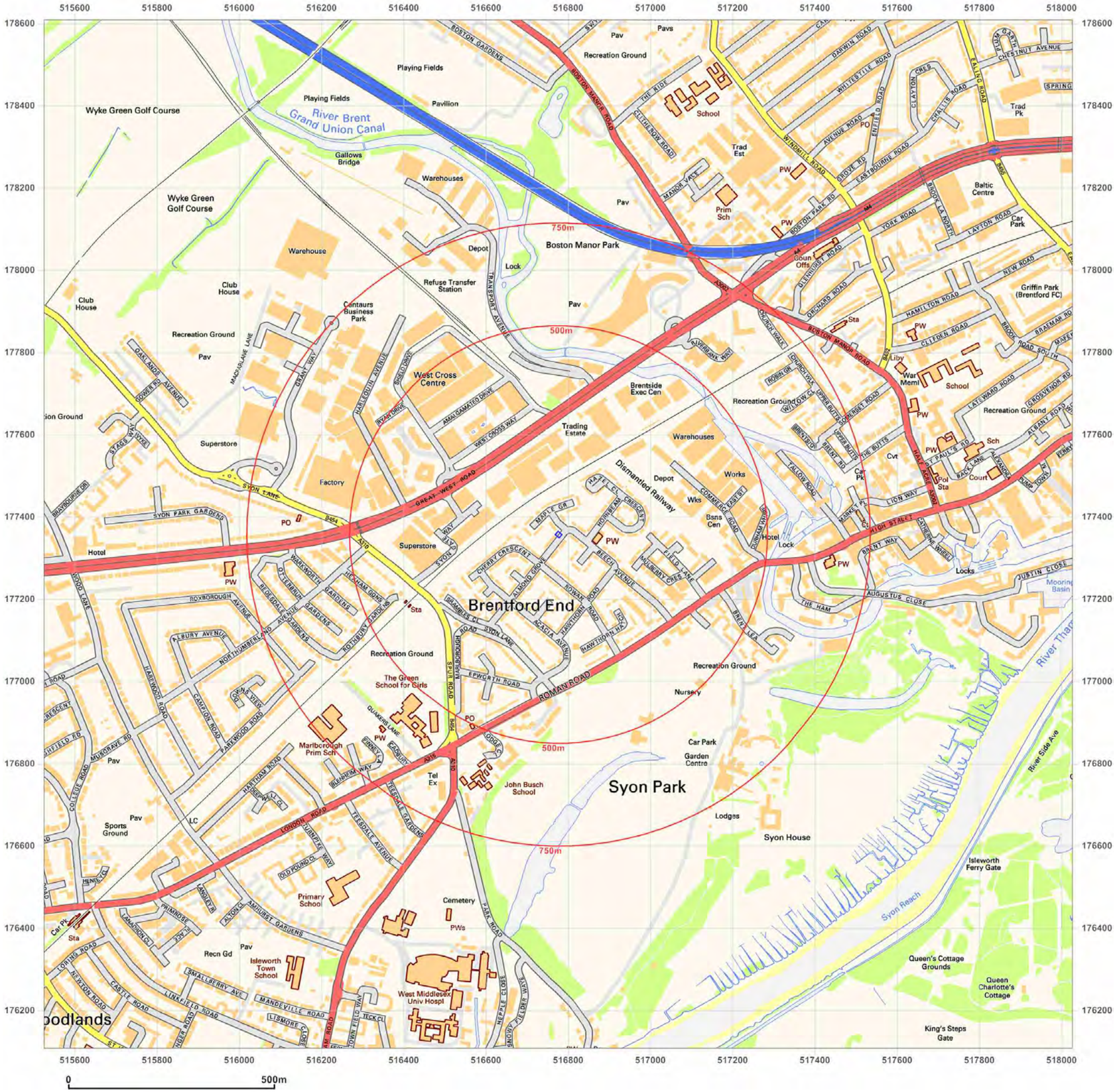
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Site Details:

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BEECH AVENUE, BRENTFORD,
TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: National Grid
Map date: **2010**
Scale: 1:10,000
Printed at: 1:10,000

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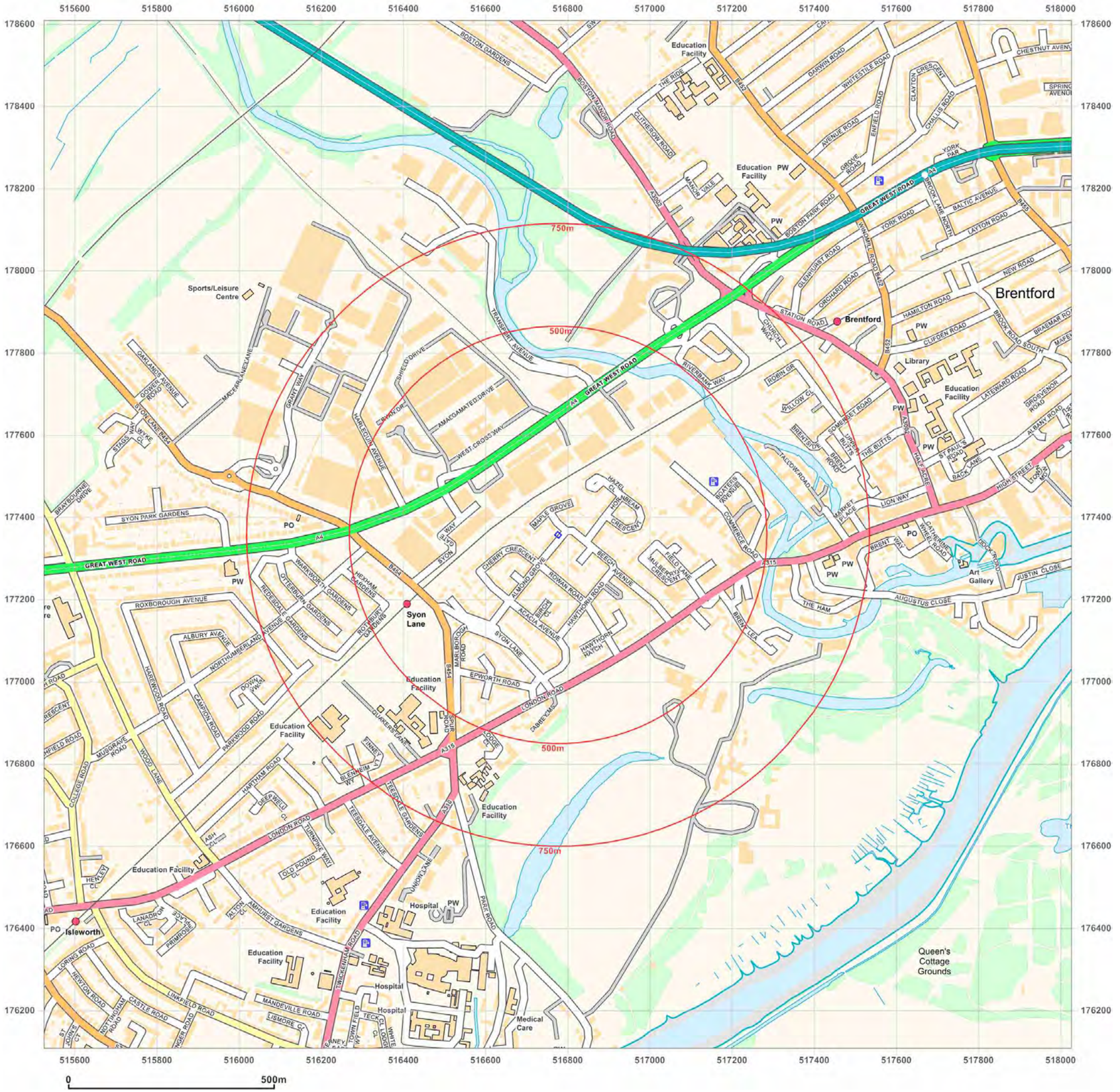
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TW8 8NH

Client Ref: 14032643
Report Ref: GS-6449725
Grid Ref: 516775, 177358

Map Name: National Grid

Map date: **2019**

Scale: 1:10,000

Printed at: 1:10,000

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APPENDIX B

Groundsure Data Sheets and Site Sensitivity Maps

Arcadis Consulting UK Ltd

Arcadis CONSULTING UK LTD, THE PITHAY, BRISTOL, BS1 2NL

Groundsure Reference:	GS-6449723
Your Reference:	14032643
Report Date	8 Nov 2019
Report Delivery Method:	Email - pdf

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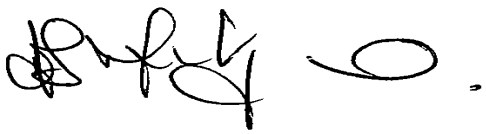
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If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



Managing Director
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Address:	**GARAGES ADJACENT 86, BEECH AVENUE, BRENTFORD, TW8 8NH**
Date:	**8 Nov 2019**
Reference:	**GS-6449723**
Client:	**Arcadis Consulting UK Ltd**

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SW S SE

Aerial Photograph Capture date:	20-Apr-2015
Grid Reference:	516773,177360
Site Size:	0.0129ha

Report Reference: GS-6449723
Client Reference: 14032643

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Overview of Findings

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Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	0	55	97
1.2 Additional Information – Historical Tank Database	0	0	2	28
1.3 Additional Information – Historical Energy Features Database	0	2	19	25
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	2	5
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	0	29	31

Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	3
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	0	4
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	0	2
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	2	2	3
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	4	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	6	6	1

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	10	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	1
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Records of Artificial Ground and Made Ground present beneath the study site	None identified
5.2 Records of Superficial Ground and Drift Geology present beneath the study site	None identified
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology	0-500m
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site	Identified
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site	Identified

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	2	2	10
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	1	0	4
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	0	0	1	2	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	No	Yes	Yes
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	0	0	0	12	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	No	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Enviroment Agency Zone 2 floodplains within 250m of the study site	None identified
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	None identified
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	Very Low
7.4 Flood Defences within 250m of the study site	None identified
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified
7.6 Areas used for Flood Storage within 250m of the study site	None identified
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Not Prone
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	Not Applicable

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	1	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	0
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	3
8.8 Records of World Heritage Sites	0	0	0	1	0	1
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	0	0	0	0	0	0
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards

9.1 Maximum risk of natural ground subsidence	Moderate
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Moderate
9.1.2 Maximum Landslides hazard rating identified on the study site	Very Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Negligible
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Negligible
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining

10.1 Coal mining areas within 75m of the study site	None identified
10.2 Non-Coal Mining areas within 50m of the study site boundary	None identified
10.3 Brine affected areas within 75m of the study site	None identified

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

1. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

5. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

6. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licences, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

7. Flooding

Provides information on river and coastal flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon..

10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

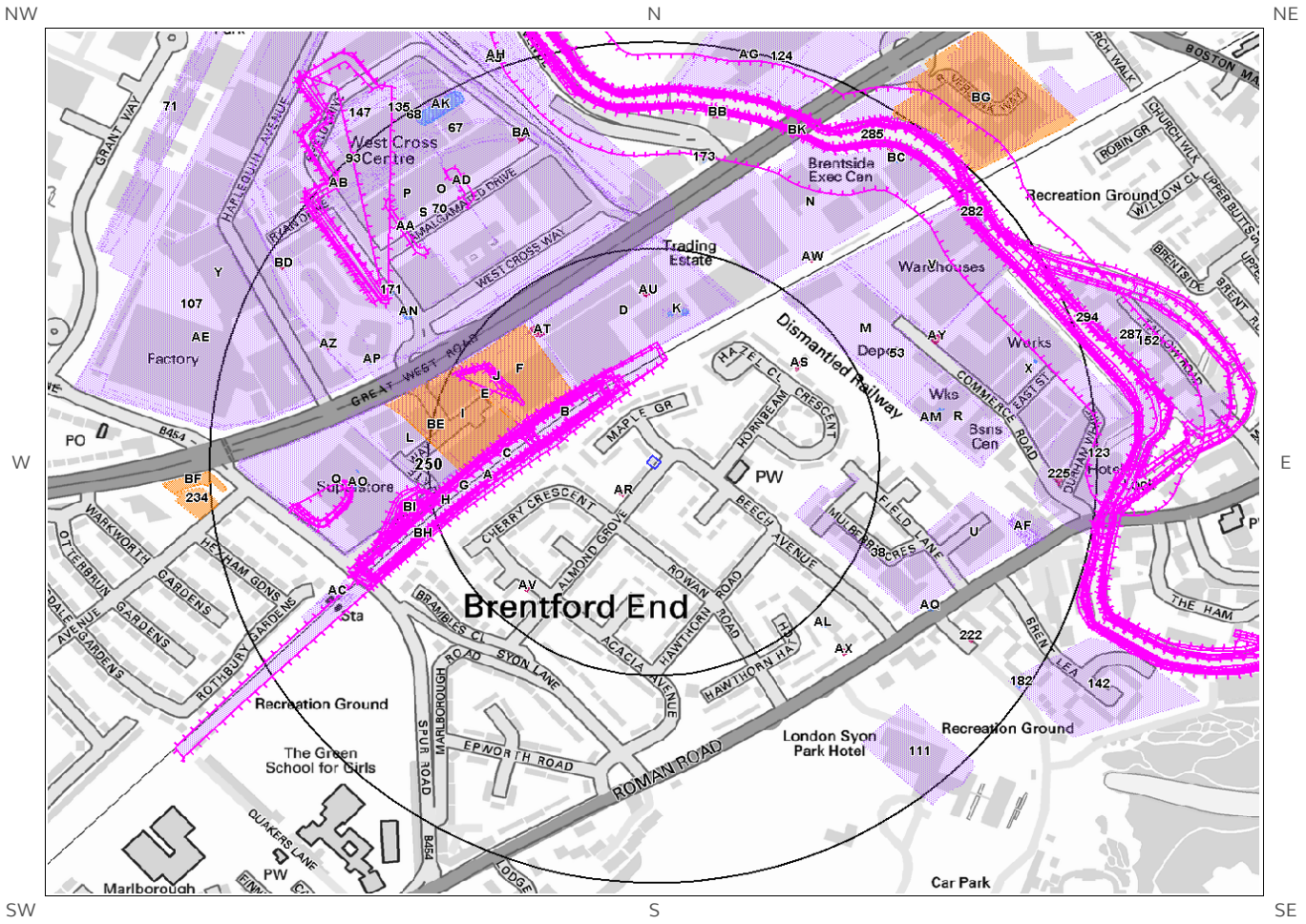
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier “A” on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as “Not Shown”.

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Historical Land Use



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Historical 1:10,000 and 1:10,560 scale mapping

Site Outline

Industrial Land Use

Potentially Infilled Land

250
500
Search Buffers (m)

Historical 1:2,500, 1:1,250 and 1:500 scale mapping

Energy Features

Petrol Stations

Historical military sites

Tanks

Garages

1. Historical Industrial Sites

1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 152

ID	Distance [m]	Direction	Use	Date
1BH	78	NW	Cuttings	1865
2B	83	NW	Cuttings	1894
3A	84	NW	Cuttings	1894
4A	85	NW	Cuttings	1896
5A	86	NW	Cuttings	1912
6B	86	NW	Cuttings	1933
7C	86	NW	Cuttings	1974
8C	86	NW	Cuttings	1966
9C	87	NW	Cuttings	1987
10A	87	NW	Cuttings	1898
11B	88	NW	Cuttings	1912
12A	89	NW	Cuttings	1935
13A	90	NW	Cuttings	1948
14A	90	NW	Cuttings	1948
15B	90	NW	Cuttings	1938
16B	92	NW	Cuttings	1913
17G	103	NW	Cuttings	1961
18D	111	NW	Unspecified Commercial/Industrial	1961
19E	111	NW	Unspecified Commercial/Industrial	1935
20D	113	NW	Unspecified Factory	1974
21D	113	NW	Unspecified Factory	1966
22E	113	NW	Unspecified Commercial/Industrial	1948
23E	113	NW	Unspecified Commercial/Industrial	1948
24F	117	NW	Unspecified Works	1987
25F	117	NW	Unspecified Works	1974
26F	117	NW	Unspecified Works	1966
27L	118	NW	Unspecified Commercial/Industrial	1961
28G	130	W	Cuttings	1938
29H	130	W	Cuttings	1912
30H	131	W	Cuttings	1913
31H	131	W	Cuttings	1933

32H	131	W	Cuttings	1894
33BE	145	W	Unspecified Commercial/Industrial	1987
34I	153	W	Unspecified Works	1974
35I	153	W	Unspecified Works	1966
36J	156	NW	Unspecified Ground Workings	1935
37J	156	NW	Unspecified Ground Workings	1935
38	165	E	Unspecified Commercial/Industrial	1974
39K	166	N	Unspecified Tanks	1961
40J	166	NW	Unspecified Heap	1961
41J	170	NW	Unspecified Ground Workings	1948
42J	170	NW	Unspecified Ground Workings	1948
43K	171	N	Tanks	1948
44K	171	N	Tanks	1948
45K	172	N	Unspecified Tanks	1938
46K	173	N	Unspecified Tanks	1935
47K	175	N	Unspecified Tanks	1938
48O	203	NW	Folding Boats Manufactory	1938
49L	209	W	Unspecified Factory	1974
50L	209	W	Unspecified Factory	1966
51M	240	NE	Unspecified Depot	1966
52M	240	NE	Unspecified Depot	1974
53	244	NE	Unspecified Works	1987
54N	245	NE	Unspecified Works	1966
55N	245	NE	Unspecified Works	1974
56O	253	NW	Rubber Tyres Manufactory	1935
57P	253	NW	Unspecified Factory	1961
58P	254	NW	Rubber Tyres Manufactory	1948
59P	254	NW	Factory	1948
60Q	255	W	Unspecified Works	1966
61Q	255	W	Unspecified Works	1974
62Q	255	W	Unspecified Works	1987
63P	258	NW	Unspecified Factory	1966
64S	258	NW	Unspecified Factory	1974
65R	288	E	Unspecified Works	1974
66R	288	E	Unspecified Works	1966
67	292	N	Railway Sidings	1961
68	292	N	Railway Sidings	1938
69S	295	NW	Rubber Tyres Manufactory	1938
70	295	NW	Unspecified Factory	1961

71	298	N	Railway Sidings	1935
72T	303	N	Railway Sidings	1948
73T	303	N	Railway Sidings	1948
74U	315	E	Unspecified Works	1987
75U	315	E	Unspecified Commercial/Industrial	1974
76V	316	NE	Unspecified Commercial/Industrial	1974
77V	320	NE	Unspecified Depot	1987
78W	338	W	Unspecified Ground Workings	1935
79W	338	W	Unspecified Ground Workings	1935
80W	339	W	Unspecified Heap	1938
81W	341	W	Unspecified Ground Workings	1948
82W	341	W	Unspecified Ground Workings	1948
83X	343	NE	Unspecified Works	1987
84X	343	NE	Unspecified Works	1974
85X	343	NE	Unspecified Works	1966
86Y	345	W	Folding Boats Manufactory	1948
87Y	345	W	Factory	1948
88Y	346	W	Unspecified Commercial/Industrial	1961
89Z	353	NW	Unspecified Ground Workings	1935
90Z	353	NW	Unspecified Ground Workings	1935
91AA	355	NW	Unspecified Ground Workings	1948
92AA	355	NW	Unspecified Ground Workings	1948
93	355	NW	Unspecified Ground Workings	1938
94AB	362	NW	Unspecified Pit	1961
95AB	362	NW	Unspecified Ground Workings	1948
96AB	362	NW	Unspecified Ground Workings	1948
97AC	369	SW	Railway Station	1948
98AC	369	SW	Railway Station	1948
99AC	370	SW	Railway Station	1974
100AC	370	SW	Railway Station	1987
101AC	370	SW	Railway Building	1966
102AD	370	NW	Unspecified Ground Workings	1948
103AD	370	NW	Unspecified Ground Workings	1948
104AC	372	SW	Railway Station	1938
105AC	374	SW	Railway Building	1935

106AC	374	SW	Railway Station	1961
107	388	W	Unspecified Factory	1987
108AE	389	W	Unspecified Factory	1974
109AE	389	W	Unspecified Factory	1966
110AC	392	SW	Railway Station	1935
111	403	SE	Nursery	1987
112AF	404	E	Railway Station	1933
113AF	404	E	Railway Station	1894
114AF	404	E	Railway Station	1948
115AF	404	E	Railway Station	1948
116AF	405	E	Railway Station	1961
117AF	406	E	Railway Station	1913
118AF	406	E	Railway Station	1898
119AF	406	E	Railway Station	1938
120AF	406	E	Railway Station	1935
121AF	407	E	Railway Station	1912
122AF	412	E	Railway Station	1894
123	428	E	Unspecified Commercial/Industrial	1961
124	443	N	Unspecified Commercial/Industrial	1961
125AG	443	N	Unspecified Factory	1974
126AG	443	N	Unspecified Factory	1966
127AH	446	N	Railway Sidings	1974
128AH	446	N	Railway Sidings	1961
129AH	446	N	Coal Yard	1966
130AH	446	N	Railway Sidings	1966
131AG	449	N	Unspecified Factory	1987
132BG	456	NE	Unspecified Factory	1966
133AI	460	N	Railway Sidings	1948
134AI	460	N	Railway Sidings	1948
135	469	NW	Unspecified Commercial/Industrial	1938
136AJ	473	N	Railway Buildings	1935
137AJ	473	N	Goods Station	1966
138AJ	473	N	Railway Building	1974
139AK	476	NW	Unspecified Tanks	1966
140AK	476	NW	Unspecified Tanks	1974
141AK	477	NW	Unspecified Tanks	1935
142	477	SE	Nurseries	1966
143AK	477	NW	Unspecified Tanks	1961
144AK	479	NW	Unspecified Tanks	1938
145AK	480	NW	Tanks	1948
146AK	480	NW	Tanks	1948
147	486	NW	Railway Sidings	1966
148AJ	494	N	Railway Building	1961
149AJ	494	N	Railway Building	1938

150AJ	495	N	Railway Building	1948
151AJ	495	N	Railway Building	1948
152	500	NE	Unspecified Depot	1966

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary: 30

ID	Distance (m)	Direction	Use	Date
153K	169	N	Tanks	1935
154K	173	N	Tanks	1935
155AL	267	SE	Unspecified Tank	1935
156AL	267	SE	Unspecified Tank	1865
157AL	267	SE	Unspecified Tank	1915
158AL	269	SE	Unspecified Tank	1896
159AM	309	E	Tanks	1966
160AM	319	E	Tanks	1966
161AN	321	NW	Unspecified Tank	1991
162AN	321	NW	Unspecified Tank	1995
163AO	327	W	Tanks	1984
164AO	329	W	Unspecified Tank	1984
165AP	335	W	Unspecified Tank	1995
166AP	335	W	Unspecified Tank	1995
167AP	335	W	Unspecified Tank	1992
168AQ	352	SE	Unspecified Tank	1935
169AQ	352	SE	Unspecified Tank	1915
170AQ	352	SE	Unspecified Tank	1865
171	353	NW	Unspecified Tank	1995
172AQ	356	SE	Unspecified Tank	1896
173	359	N	Unspecified Tank	1935
174X	443	E	Unspecified Tank	1988
175X	444	E	Unspecified Tank	1996
176X	444	E	Unspecified Tank	1966
177BC	450	NE	Unspecified Tank	1970
178AK	476	NW	Tanks	1960
179AK	476	NW	Tanks	1960
180AK	476	NW	Tanks	1960
181AK	477	NW	Tanks	1935
182	488	SE	Unspecified Tank	1935

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary: 46

ID	Distance (m)	Direction	Use	Date
183AR	43	SW	Electricity Substation	1991
184AR	43	SW	Electricity Substation	1991
185AS	190	NE	Electricity Substation	1991
186AS	190	NE	Electricity Substation	1991
187AU	191	N	Electricity Substation	1988
188AT	192	NW	Electricity Substation	1988
189AT	192	NW	Electricity Substation	1994
190AU	193	N	Electricity Substation	1994
191AU	193	N	Electricity Substation	1983
192AU	193	N	Electricity Substation	1991
193AT	193	NW	Electricity Substation	1988
194AT	193	NW	Electricity Substation	1983
195AT	193	NW	Electricity Substation	1991
196E	195	NW	Electricity Substation	1991
197E	195	NW	Electricity Substation	1984
198E	195	NW	Electricity Substation	1991
199E	196	NW	Electricity Substation	1984
200AT	197	NW	Electricity Substation	1991
201AT	198	NW	Electricity Substation	1994
202AV	202	SW	Electricity Substation	1991
203AV	202	SW	Electricity Substation	1991
204AW	296	NE	Electricity Substation	1994
205AW	296	NE	Electricity Substation	1991
206AW	296	NE	Electricity Substation	1988
207AX	305	SE	Electricity Substation	1984
208AX	305	SE	Electricity Substation	1991
209AX	305	SE	Electricity Substation	1991
210AX	306	SE	Electricity Substation	1984
211AY	343	NE	Electricity Substation	1970
212AY	343	NE	Electricity Substation	1989
213AY	343	NE	Electricity Substation	1995
214AY	343	NE	Electricity Substation	1991
215AZ	387	W	Electricity Substation	1992
216AZ	387	W	Electricity Substation	1995
217AZ	387	W	Electricity Substation	1995
218BA	408	N	Electricity Substation	1988
219BA	409	N	Electricity Substation	1983

220BA	409	N	Electricity Substation	1991
221BA	409	N	Electricity Substation	1994
222	411	SE	Electricity Substation	1996
223BB	413	N	Electricity Substation	1988
224BB	413	N	Electricity Substation	1983
225	450	E	Electricity Substation	1996
226BC	454	NE	Electricity Substation	1970
227BD	476	NW	Electricity Substation	1991
228BD	477	NW	Electricity Substation	1995

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 7

ID	Distance (m)	Direction	Use	Date
229F	117	NW	Motor Car Service Station	1935
230BE	153	W	Motor Car Service Station	1935
231BF	481	W	Garage	1960
232BF	481	W	Garage	1960
233BF	482	W	Garage	1960
234	492	W	Garage	1935
235BG	494	NE	Garage	1970

1.6 Historical military sites

Certain military installations were not noted on historic mapping for security reasons. Whilst not all military land is necessarily of concern, Groundsure has researched and digitised a number of Ordnance Factories and other military industrial features (e.g. Ordnance Depots, Munitions Testing Grounds) which may be of contaminative concern. This research was drawn from a number of different sources, and should not be regarded as a definitive or exhaustive database of potentially contaminative military installations. The boundaries of sites within this database have been estimated from the best evidence available to Groundsure at the time of compilation.

Records of historical military sites within 500m of the search boundary: 0

Database searched and no data found.

1.7 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 60

The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
236BH	78	NW	Cuttings	1865
237B	83	NW	Cuttings	1894
238A	84	NW	Cuttings	1894
239G	85	NW	Cuttings	1896
240A	86	NW	Cuttings	1912
241B	86	NW	Cuttings	1933
242C	86	NW	Cuttings	1966
243C	86	NW	Cuttings	1974
244C	87	NW	Cuttings	1987
245G	87	NW	Cuttings	1898
246B	88	NW	Cuttings	1912
247G	89	NW	Cuttings	1935
248G	90	NW	Cuttings	1948
249G	90	NW	Cuttings	1948
250B	90	NW	Cuttings	1938
251B	92	NW	Cuttings	1913
252G	103	NW	Cuttings	1961
253G	130	W	Cuttings	1938
254G	130	W	Cuttings	1912
255G	131	W	Cuttings	1913
256H	131	W	Cuttings	1933
257H	131	W	Cuttings	1894
258J	156	NW	Unspecified Ground Workings	1935
259J	156	NW	Unspecified Ground Workings	1935
260J	166	NW	Unspecified Heap	1961
261J	170	NW	Unspecified Ground Workings	1948
262J	170	NW	Unspecified Ground Workings	1948
263BI	244	W	Pond	1894
264BI	244	W	Pond	1865
265BI	252	W	Pond	1894
266BI	253	W	Pond	1898
267BI	279	W	Pond	1935
268BI	279	W	Pond	1938

269W	338	W	Unspecified Ground Workings	1935
270W	338	W	Unspecified Ground Workings	1935
271W	339	W	Unspecified Heap	1938
272W	341	W	Unspecified Ground Workings	1948
273W	341	W	Unspecified Ground Workings	1948
274Z	353	NW	Unspecified Ground Workings	1935
275Z	353	NW	Unspecified Ground Workings	1935
276AA	355	NW	Unspecified Ground Workings	1948
277AA	355	NW	Unspecified Ground Workings	1948
278Z	355	NW	Unspecified Ground Workings	1938
279AB	362	NW	Unspecified Pit	1961
280AB	362	NW	Unspecified Ground Workings	1948
281AB	362	NW	Unspecified Ground Workings	1948
282	362	N	Canal	1865
283AD	370	NW	Unspecified Ground Workings	1948
284AD	370	NW	Unspecified Ground Workings	1948
285	416	N	Canal	1898
286BJ	418	N	Canal	1894
287	418	NE	Canal	1912
288BL	419	N	Canal	1894
289BC	420	N	Canal	1912
290BJ	421	N	Canal	1933
291BK	421	NE	Canal	1948
292BK	421	NE	Canal	1948
293BL	422	NE	Canal	1935
294	423	NE	Canal	1938
295BJ	424	NE	Canal	1913

2. Environmental Permits, Incidents and Registers Map



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- Site Outline
- Search Buffers (m) — 250 — 500
- Recorded Pollution Incident
- Dangerous Substances (List 1)
- Dangerous Substances (List 2)
- Water Industry Referrals
- Licenced Discharge Consents
- Red List Discharge Consents
- RAS 3 & 4 Authorisations
- Part A(1) Authorised Processes and Historic IPC Authorisations
- Part A(2) and Part B Authorised Processes
- COMAH / NIHHS Sites
- Sites Determined as Contaminated Land
- Hazardous Substance Consents and Enforcements

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency/Natural Resources Wales and Local Authorities reveal the following information:

2.1.1 Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

0

Database searched and no data found.

2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

0

Database searched and no data found.

2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

3

The following Part A(2) and Part B Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
7	371	W	516400 177301	Address: Gillette UK, Gt West Rd, TW7 5ND Process: Other Metal Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
8B	453	N	516900 177801	Address: Texaco The Dome, Gt West Rd Process: Petrol Vapour Recovery Process Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
9B	453	N	516900 177801	Address: Dome Filling Station, The Dome, Great West Road, Brentford, Middlesex, TW8 9AD Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

2.1.8 Records of Licensed Discharge Consents within 500m of the study site:

4

The following Licensed Discharge Consents records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
3A	357	N	516900 177700	Address: GREAT WEST ROAD, BRENTFORD, MIDDX, GREAT WEST ROAD, BRENTFORD, MIDD, X Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: CTMR.0330 Permit Version: 1	Receiving Water: (BRENT RIVER) Status: REVOKED - UNSPECIFIED Issue date: 06/12/1976 Effective Date: 06-Dec-1976 Revocation Date: 26/01/1993
4A	357	N	516900 177700	Address: GREAT WEST ROAD, BRENTFORD, MIDDX, GREAT WEST ROAD, BRENTFORD, MIDD, X Effluent Type: MISCELLANEOUS DISCHARGES - UNSPECIFIED Permit Number: CTMR.0331 Permit Version: 1	Receiving Water: (BRENT RIVER) Status: REVOKED - UNSPECIFIED Issue date: 06/12/1976 Effective Date: 06-Dec-1976 Revocation Date: 24/07/1995

ID	Distance (m)	Direction	NGR	Details	
5	380	S	516780 176970	Address: NEW LODGE, LION GATE, SYON PARK, BR, NEW LODGE, LION GATE, SYON PARK, BRENTFORD, MIDDX Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: CTCU.1933 Permit Version: 1	Receiving Water: GRAVEL STRATA Status: TRANSFERRED FROM WRA 1963 Issue date: 25/01/1985 Effective Date: 25-Jan-1985 Revocation Date:
6B	449	N	516908 177794	Address: GLAXOSMITHKLINE SERVICES UNLIMITED, 980, GREAT WEST ROAD, BRENTFORD, MIDDLESEX, TW8 9GS Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: CANM.1310 Permit Version: 1	Receiving Water: RIVER BRENT Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 24/10/2007 Effective Date: 24-Oct-2007 Revocation Date:

2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site: 0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

2

The following NIRS List 2 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
1	430	NE	516949.0	Incident Date: 06-Jul-2001	Water Impact: Category 1 (Major)

ID	Distance (m)	Direction	NGR	Details	
			177758.0	Incident Identification: 14395.0 Pollutant: Contaminated Water Pollutant Description: Urban Run-Off	Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2	475	NE	517151.0 177659.0	Incident Date: 06-Jul-2001 Incident Identification: 14212.0 Pollutant: Contaminated Water Pollutant Description: Urban Run-Off	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

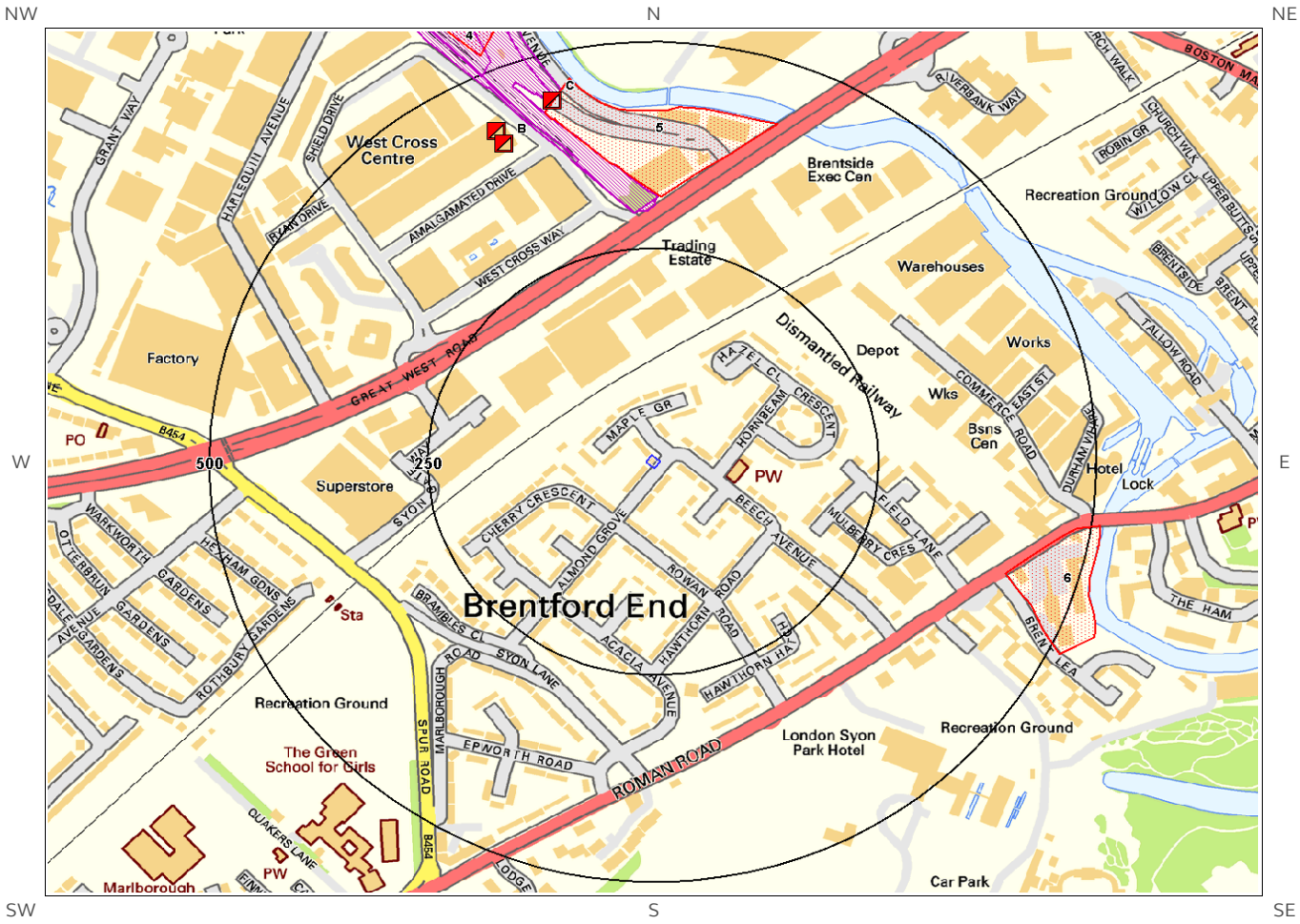
Database searched and no data found.

2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

Records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site 0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



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Site Outline

250
500
Search Buffers (m)

EA/NRW Active Landfill

EA/NRW Historic Landfill

BGS / DoE Survey Landfill

Historic and Planned Waste Sites

EA/NRW Licensed Waste Site

Local Authority/Historical Mapping Landfill Records

3. Landfill and Other Waste Sites

3.1 Landfill Sites

3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site:

0

Database searched and no data found.

3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site:

7

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
5	313	N		Site Address: Transport Avenue, Brentford, Hounslow, London Waste Licence: - Site Reference: 8HO084, WES002 Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: 31-Dec-1961
6	418	E		Site Address: Northumberland Wharf, Brentford End, Brentford, London Waste Licence: - Site Reference: 8HO067 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: -
7	521	N		Site Address: Transport Avenue, Transfer Avenue Waste Licence: - Site Reference: 8HO060, HOUX13 Waste Type: Commercial, Household Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: 31-Dec-1900 Last Recorded: 31-Dec-1938
Not shown	992	NE		Site Address: Layton Road, Brentford, Hounslow, London Waste Licence: - Site Reference: 8HO083 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: 31-Dec-1865
Not shown	1291	NW		Site Address: Wyke Green, Brentford, Hounslow, London Waste Licence: -	Licence Issue: Licence Surrendered: Licence Holder Address: -

ID	Distance (m)	Direction	NGR	Details	
				Site Reference: 8HO089 Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Operator: - Licence Holder: - First Recorded: 31-Dec-1949 Last Recorded: -
Not shown	1321	W		Site Address: Jersey Gardens, Osterley, Hounslow, London Waste Licence: - Site Reference: 8HO034 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: L B Hounslow First Recorded: 31-Dec-1895 Last Recorded: 31-Dec-1951
Not shown	1432	E		Site Address: Watermans Park, High Street, Brentford Waste Licence: - Site Reference: 8HO066 Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: 31-Dec-1865

3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

0

Database searched and no data found.

3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

0

Database searched and no data found.

3.2 Other Waste Sites

3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

4

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details		
1A	293	N	516640 177829	Type of Site: Refuse Transfer Station Site Address: N/A	Planning Application Reference: N/A Date: 1994	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
2A	294	N	516598 177829	Type of Site: Refuse Transfer Station Site Address: N/A	Planning Application Reference: N/A Date: 1991	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon

ID	Distance (m)	Direction	NGR	Details		
3A	294	N	516598 177829	Type of Site: Refuse Transfer Station Site Address: N/A	Planning Application Reference: N/A Date: 1983	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
4	497	NW	516544 177896	Type of Site: Refuse Transfer Station Site Address: N/A	Planning Application Reference: N/A Date: 1988	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon

3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

13

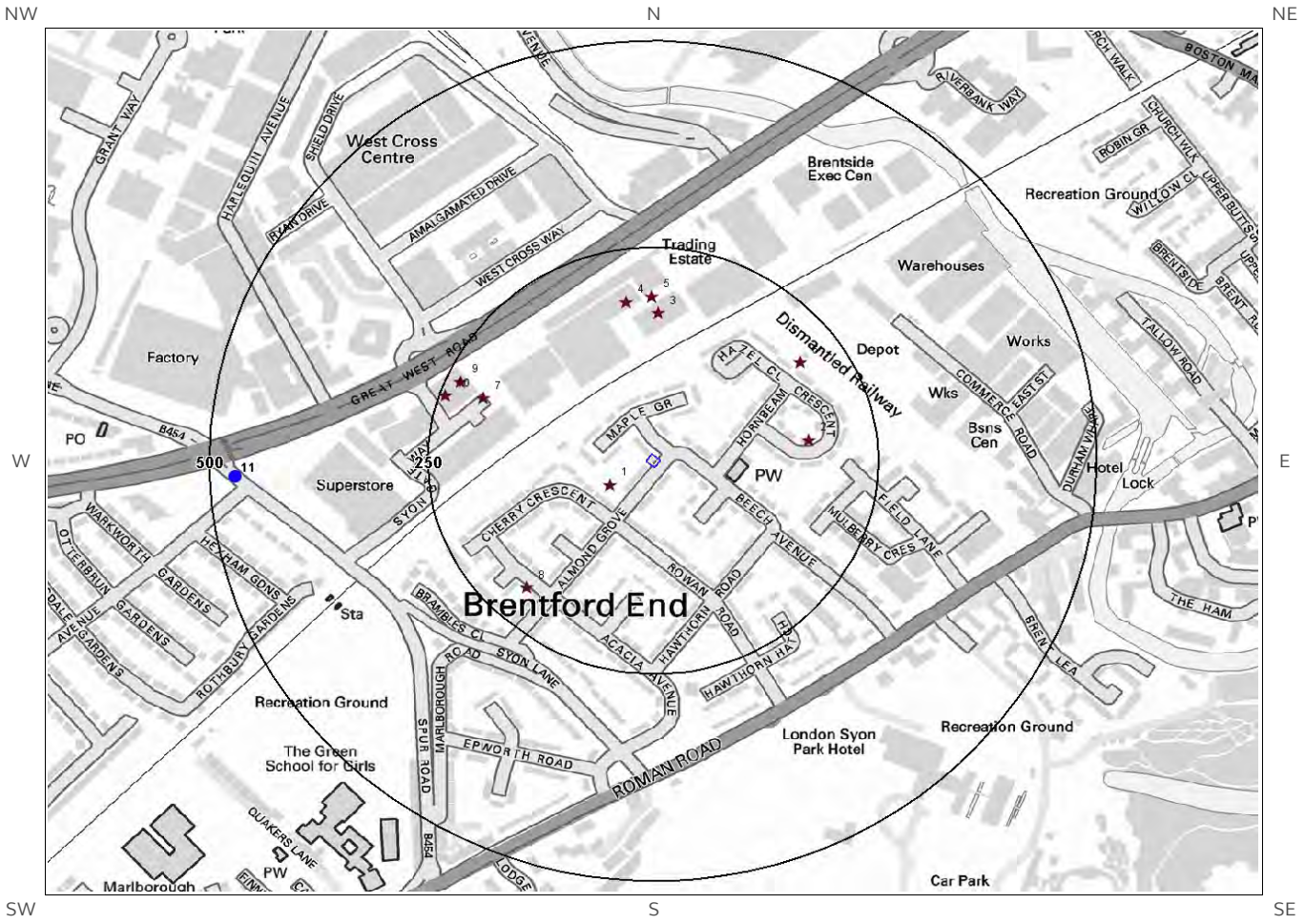
The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
12B	414	NW	516604 177743	Site Address: Unit 8, Amalgamated Drive, West Cross Ind Park, Brentford, Middlesex, TW8 9EZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: REN041 EPR reference: EA/EPR/DB3800XR/T001 Operator: Rentokil Initial U K Limited Waste Management licence No: 100044 Annual Tonnage: 4999.0	Issue Date: 09/09/2007 Effective Date: 01/02/2016 Modified: 15/08/2014 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Brentford Service Centre Correspondence Address: -
13B	414	NW	516604 177743	Site Address: Initial Washrooms (Brentford) Service Centre, Unit 8, Amalgamated Drive, West Cross Ind Park, Brentford, Middlesex, TW8 9EZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: REN041 EPR reference: EA/EPR/DB3800XR/V003 Operator: Rentokil Initial U K Ltd Waste Management licence No: 100044 Annual Tonnage: 4999.0	Issue Date: 09/09/2007 Effective Date: 01/02/2016 Modified: 08/06/2018 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Initial Washrooms (Brentford) Service Centre Correspondence Address: -
14B	431	NW	516595 177758	Site Address: Unit 8, Amalgamated Drive, West Cross Ind Park, Brentford, Middlesex, TW8 9EZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: REN005 EPR reference: EA/EPR/FP3395EE/V003 Operator: Rentokil Initial Services Limited Waste Management licence No: 100044 Annual Tonnage: 4999.0	Issue Date: 09/09/2007 Effective Date: - Modified: 15/08/2014 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Brentford Service Centre Correspondence Address: -
15B	431	NW	516595 177758	Site Address: Unit 8, Amalgamated Drive, West Cross Ind Park, Brentford, Middlesex,	Issue Date: 09/09/2007 Effective Date: -

ID	Distance (m)	Direction	NGR	Details	
				TW8 9EZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: REN005 EPR reference: EA/EPR/FP3395EE/V002 Operator: Rentokil Initial Services Ltd Waste Management licence No: 100044 Annual Tonnage: 4999.0	Modified: 31/03/2010 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Brentford Service Centre Correspondence Address: -
16C	445	N	516659 177795	Site Address: Transport Avenue Transfer Station, Transport Avenue, Off Great West Road, Brentford, Middlesex, TW8 9HF Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WES002 EPR reference: EA/EPR/RP3496NV/A001 Operator: West London Waste Authority Waste Management licence No: 80077 Annual Tonnage: 552975.0	Issue Date: 20/04/1993 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Transport Avenue Transfer Station Correspondence Address: -
17C	445	N	516659 177795	Site Address: Transport Avenue Transfer Station, Transport Avenue, Off Great West Road, Brentford, Middlesex, TW8 9HF Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT773 EPR reference: EA/EPR/AB3709CF/V002 Operator: Sita U K Ltd Waste Management licence No: 80077 Annual Tonnage: 432840.0	Issue Date: 20/04/1993 Effective Date: 19/01/2014 Modified: 25/11/2014 Surrendered Date: 0 Expiry Date: - Cancelled Date: - Status: Modified Site Name: Transport Avenue Transfer Station Correspondence Address: -
Not shown	725	NW	516454 178016	Site Address: Transport Avenue Transfer Station, Transport Avenue, Off Great West Road, Brentford, Middlesex, TW8 9HF Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT773 EPR reference: EA/EPR/AB3709CF/V003 Operator: Suez Recycling And Recovery U K Ltd Waste Management licence No: 80077 Annual Tonnage: 432840.0	Issue Date: 20/04/1993 Effective Date: 19/01/2014 Modified: 30/06/2016 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Transport Avenue Transfer Station Correspondence Address: -
Not shown	782	N	516496 178096	Site Address: Transport Avenue, Brentford, Middlesex, TW8 9HF Type: Mobile plant treatment for soil <75,000 tpd Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DAY057 EPR reference: EA/EPR/DB3639DV/A001 Operator: Day Group Limited Waste Management licence No: 105269 Annual Tonnage: 74999.0	Issue Date: 16/12/2011 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: S R 2010 No 11 Correspondence Address: -
Not shown	836	N	516490 178152	Site Address: Brentford Aggregate Materials Recycling Facility, Transport Avenue, Brentford, Middlesex, TW8 9HF Type: Material Recycling Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DAY051	Issue Date: 31/05/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Brentford Aggregate Materials

ID	Distance (m)	Direction	NGR	Details	
				EPR reference: EA/EPR/BB3232RX/A001 Operator: Day Group Ltd Waste Management licence No: 103193 Annual Tonnage: 775000.0	Recycling Facility Correspondence Address: -
Not shown	896	NW	516323 178140	Site Address: Mayer Parry Brentford, Private Sidings, Transport Avenue, Brentford, Middlesex, TW8 9HA Type: Metal Recycling Site (mixed MRS's) Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MAY003 EPR reference: EA/EPR/YP3091NU/V002 Operator: Mayer Parry Recycling Ltd Waste Management licence No: 80370 Annual Tonnage: 74999.0	Issue Date: 28/07/1998 Effective Date: - Modified: 11/12/2009 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Mayer Parry, Brentford Correspondence Address: -
Not shown	960	NW	516300 178200	Site Address: Mayer Parry Brentford, Private Sidings, Transport Avenue, Brentford, Middx, TW8 9HA Type: Metal Recycling Site (mixed MRS's) Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MAY003 EPR reference: - Operator: Mayer Parry Recycling Ltd Waste Management licence No: 80370 Annual Tonnage: 0.0	Issue Date: 28/07/1998 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Mayer Parry, Brentford Correspondence Address: Mayer Parry Recycling Ltd, Manor Road, Erith, Kent, DA8 2AD
Not shown	974	NW	516294 178213	Site Address: Brentford Aggregate Materials Recycling Facility, Transport Avenue, Brentford, Middlesex, TW8 9HF Type: Material Recycling Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DAY051 EPR reference: EA/EPR/BB3232RX/V004 Operator: Day Group Limited Waste Management licence No: 103193 Annual Tonnage: 500000.0	Issue Date: 31/05/2012 Effective Date: - Modified: 15/03/2018 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Brentford Aggregate Materials Recycling Facility Correspondence Address: -
Not shown	1167	S	516558 176203	Site Address: West Middlesex University Hospital, Twickenham Road, Isleworth, Middlesex, TW7 6AF Type: Physical Treatment Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MAR005 EPR reference: EA/EPR/GB3905XH/A001 Operator: Mariana W M Limited Waste Management licence No: 405865 Annual Tonnage: 5120.0	Issue Date: 11/04/2019 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: W M U H Clinical Waste Treatment Facility Correspondence Address: -

4. Current Land Use Map



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Site Outline

Search Buffers (m)
250
500

Current Industrial Sites

Petrol & Fuel Sites

Electricity Transmission Cables

Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 10

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	51	SW	Electricity Sub Station	516725 177329	Greater London, TW8	Electrical Features	Infrastructure and Facilities
2	171	E	J H Windows	516952 177383	50, Hornbeam Crescent, Brentford, Greater London, TW8 8NE	Conservatories	Consumer Products
3	172	N	Safestore Ltd	516781 177536	Unit 5 Great West Trading Estate 983, Great West Road, Brentford, Greater London, TW8 9DN	Container and Storage	Transport, Storage and Delivery
4	188	N	Tom Davies	516743 177550	Unit 1 983, Great West Road, Brentford, Greater London, TW8 9DN	Photographic and Optical Equipment	Consumer Products
5	192	N	Electricity Sub Station	516773 177557	Greater London, TW8	Electrical Features	Infrastructure and Facilities
6	199	NE	Electricity Sub Station	516943 177477	Greater London, TW8	Electrical Features	Infrastructure and Facilities
7	202	W	Electricity Sub Station	516580 177434	Greater London, TW8	Electrical Features	Infrastructure and Facilities
8	205	SW	Electricity Sub Station	516630 177205	Greater London, TW8	Electrical Features	Infrastructure and Facilities
9	234	NW	Big Yellow Self Storage Company Ltd	516554 177454	961, Great West Road, Brentford, Greater London, TW8 9FX	Container and Storage	Transport, Storage and Delivery
10	243	W	Berry Chiswick	516537 177437	10-11, Syon Gate Way, Brentford, Greater London, TW8 9DD	New Vehicles	Motoring

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 1

The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
11	471	W	516296 177338	TEXACO	Great West Road, Syan Lane, Brentford, Outer London, TW7 5NU	Not Applicable	Obsolete

4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site: 0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

The database has been searched on site, including a 50m buffer.

5.2 Superficial Ground and Drift Geology

Database searched and no data found.

The database has been searched on site, including a 50m buffer.

5.3 Bedrock and Solid Geology

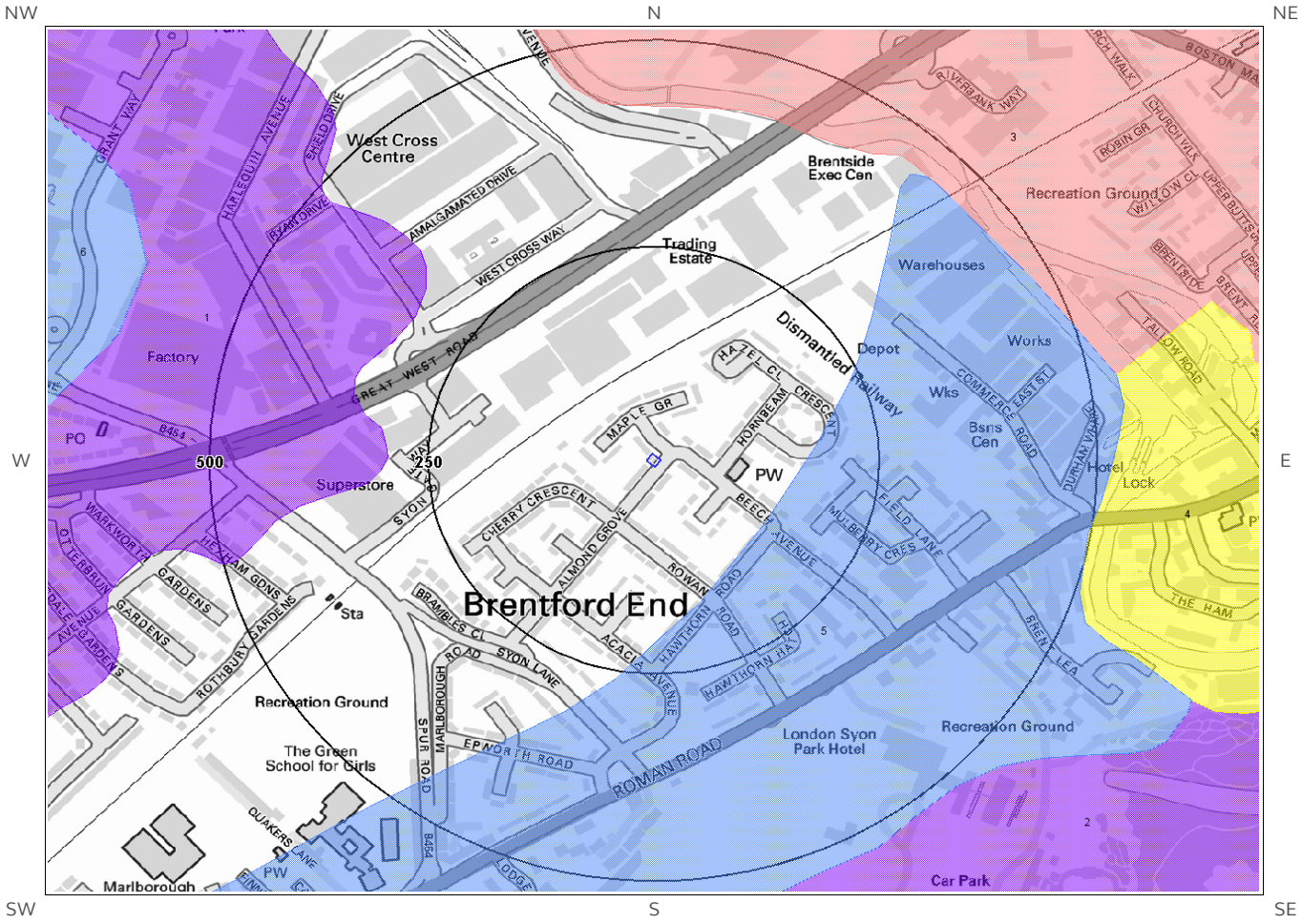
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
LC-XCZ	LONDON CLAY FORMATION	CLAY AND SILT

(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology



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Site Outline

250 — 500 — Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

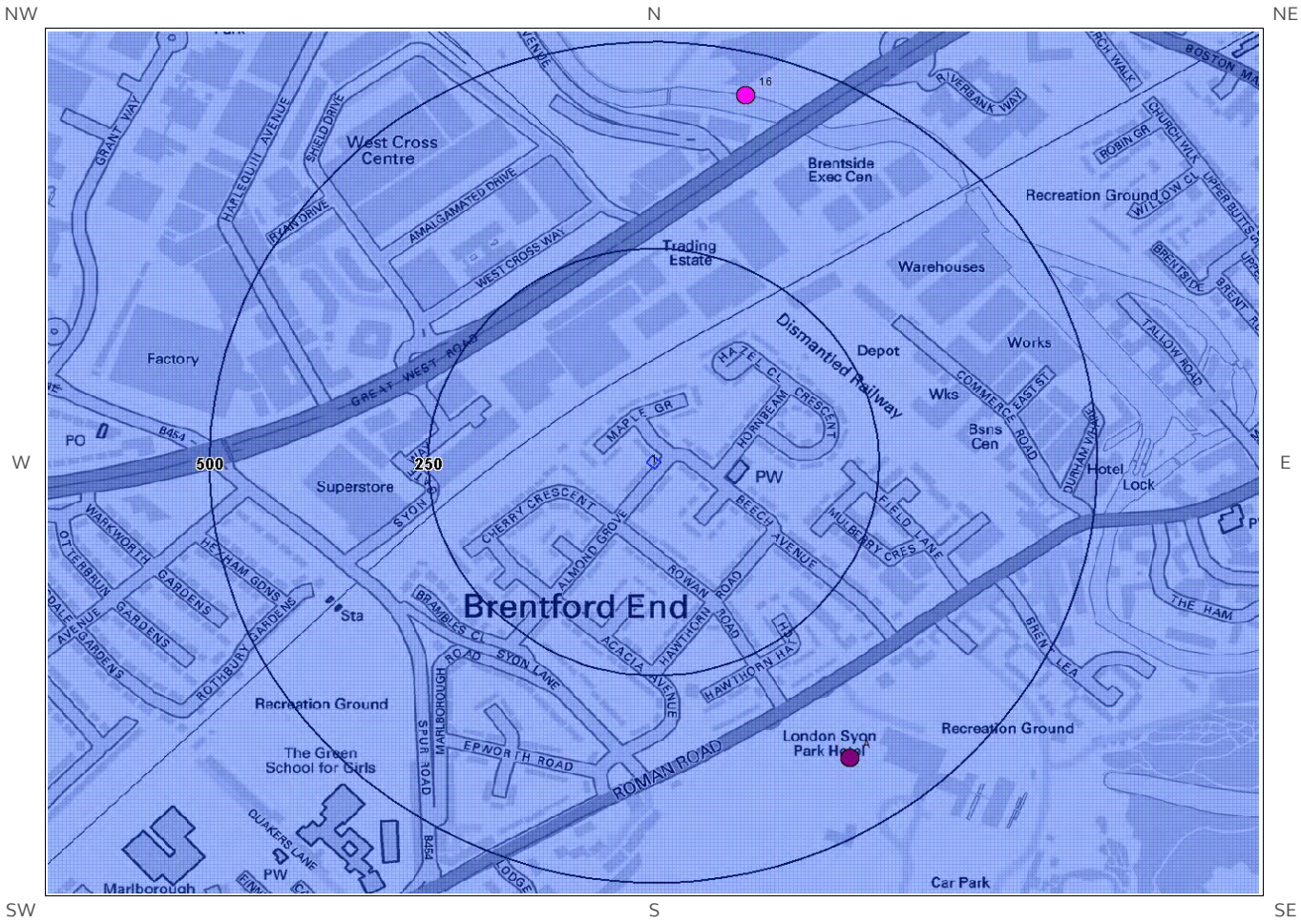
Secondary (B) Aquifer - Lower Permeability Layers

Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

6b. Aquifer Within Bedrock Geology and Abstraction Licences



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Site Outline

250 — 500 — Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

Secondary (B) Aquifer - Lower Permeability Layers

Groundwater Abstraction Licence

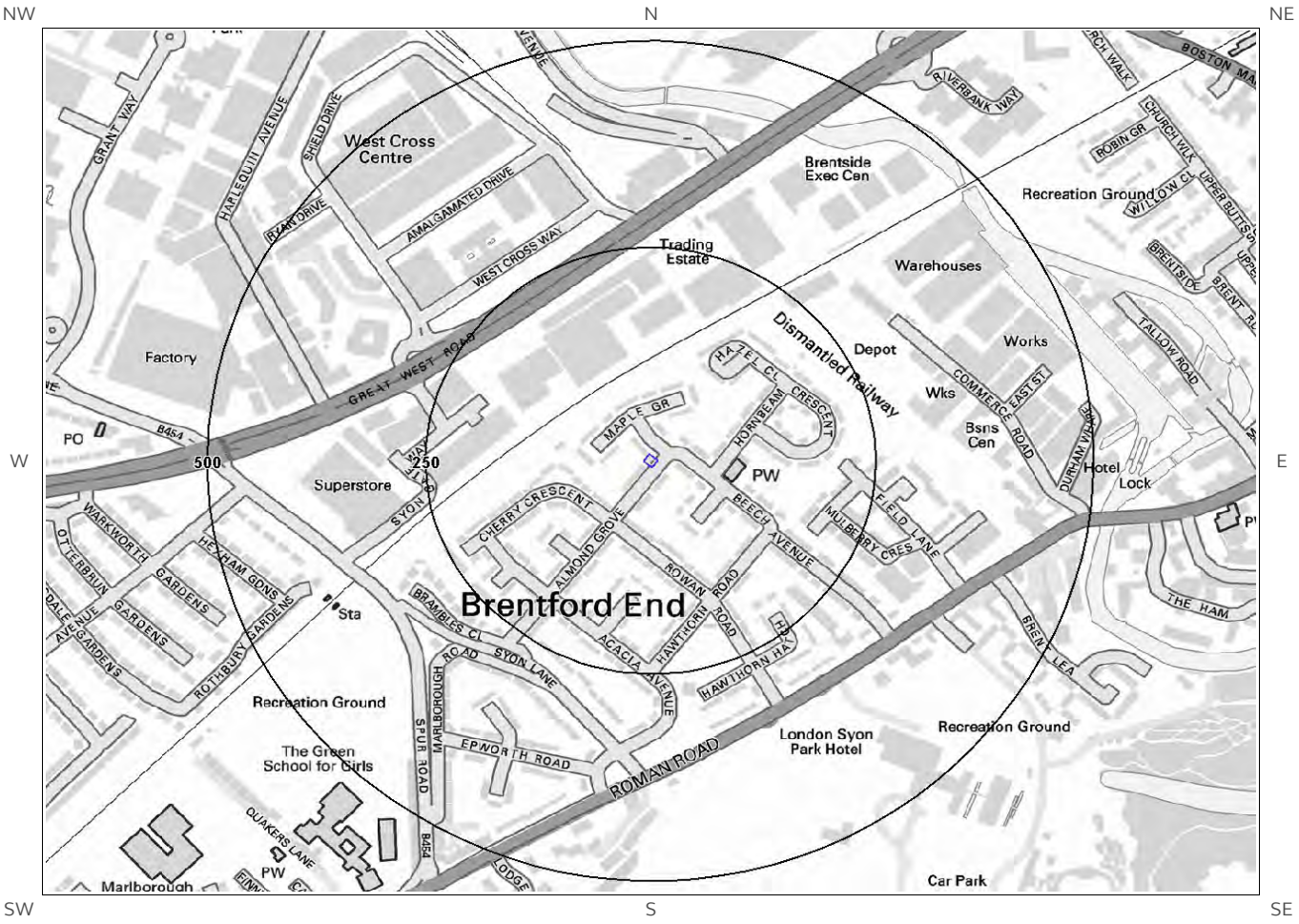
Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

Surface Water Abstraction Licence

6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



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Site Outline

250 — 500 — Search Buffers (m)

Source Protection Zone 1 - Inner Catchment

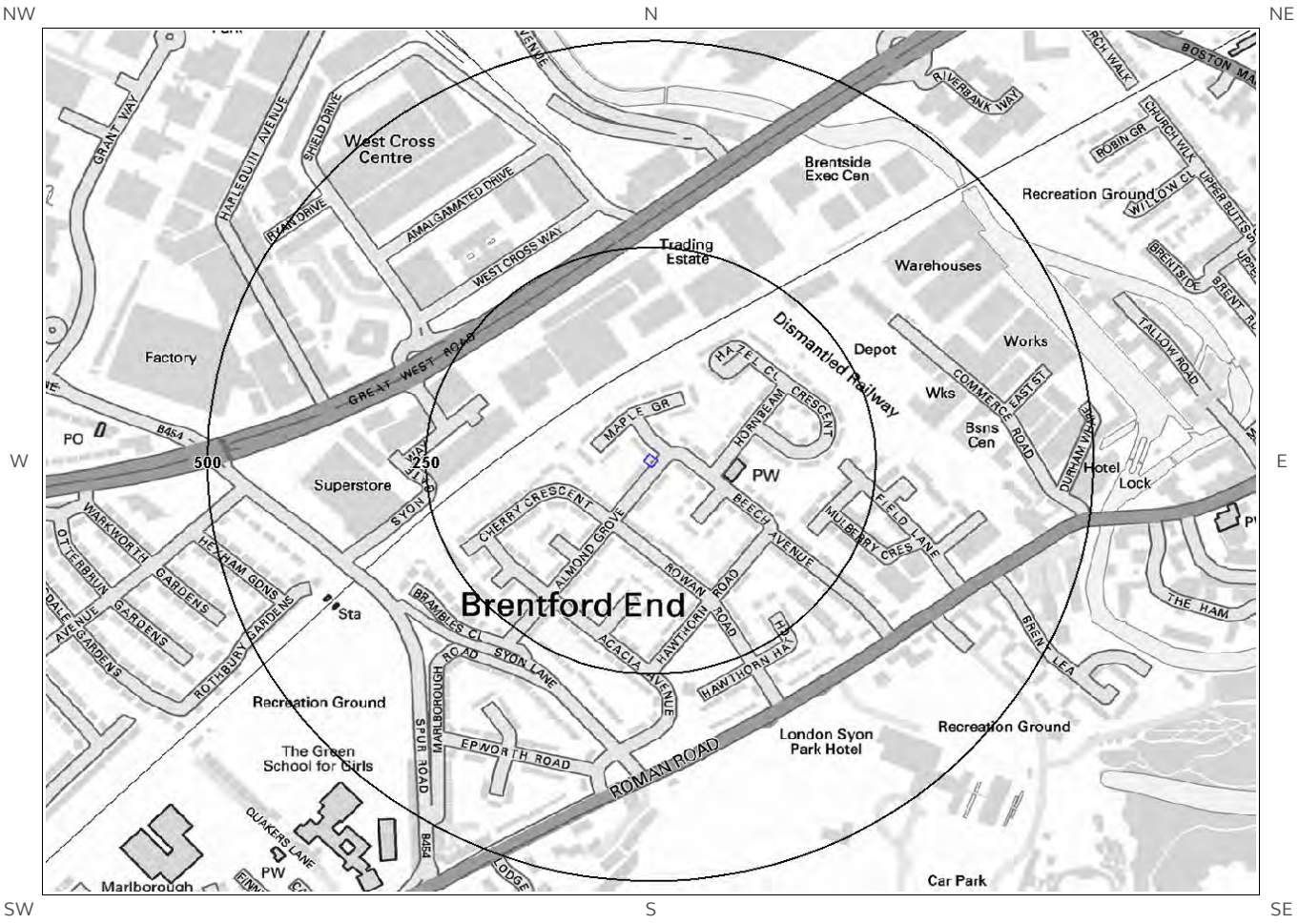
Source Protection Zone 2 - Outer Catchment

Source Protection Zone 3 - Total Catchment

Source Protection Zone 4 - Zone of Special Interest

Potable Water Abstraction Licence

6d. Hydrogeology – Source Protection Zones within confined aquifer



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Source Protection Zone 1 - Inner Catchment

Source Protection Zone 2C - Outer Catchment within Confined Aquifer

Source Protection Zone 3C - Total Catchment within Confined Aquifer

Site Outline

250 500 Search Buffers (m)

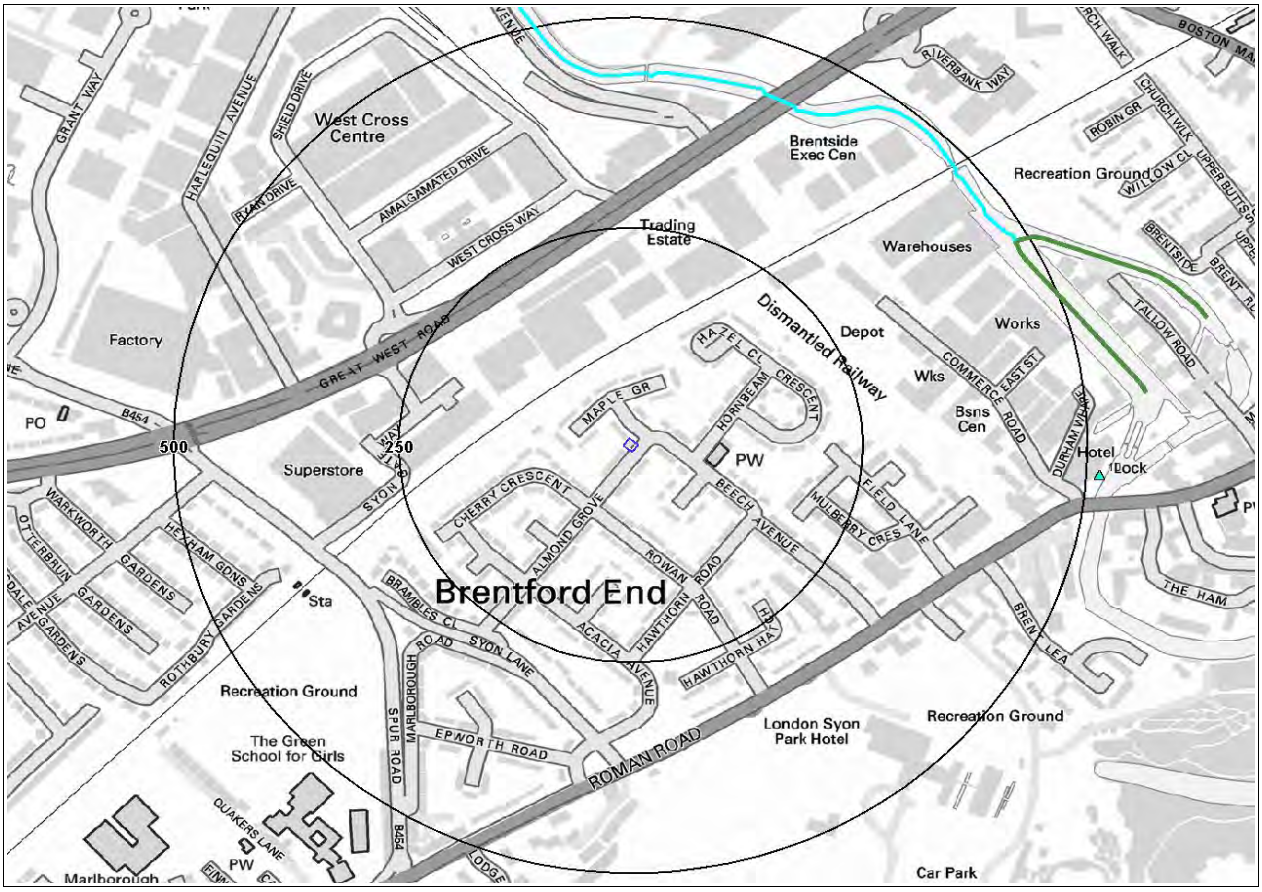
Potable Water Abstraction Licence

6e. Hydrology – Watercourse Network and River Quality

NW N NE

W E

SW S SE



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Site Outline

250 Search Buffers (m)
500

Watercourse type

- Tidal River
- Inland River
- Canal
- Lock or Flight of Locks
- Lake, Reservoir, or Marsh
- Foreshore
- Drain or Transfer

Watercourse level

- On ground surface
- Underground or Elevated
- Level unknown

- General Quality Assessment: Biology
- General Quality Assessment: Chemistry

6.Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Records of strata classification within the superficial geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
5	141	SE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
1	296	W	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
3	420	N	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
4	497	E	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

6.2 Aquifer within Bedrock Deposits

Records of strata classification within the bedrock geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site — Identified

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details	
2A	415	SE	517000 177000	Status: Active Licence No: 28/39/37/0005 Details: Horticultural Watering Direct Source: THAMES GROUNDWATER Point: BOREHOLE 'A' AT SYON PARK, BRENTFORD Data Type: Point Name: Trustees Of Syon Park Estate	Annual Volume (m^3): 9,092 Max Daily Volume (m^3): 218 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 28/09/2010 Version End Date:
3A	415	SE	517000 177000	Status: Active Licence No: 28/39/37/0005 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: BOREHOLE 'A' AT SYON PARK, BRENTFORD Data Type: Point Name: Trustees Of Syon Park Estate	Annual Volume (m^3): 9,092 Max Daily Volume (m^3): 218 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 28/09/2010 Version End Date:
Not shown	726	SE	517100 176700	Status: Active Licence No: 28/39/37/0005 Details: Horticultural Watering Direct Source: THAMES GROUNDWATER Point: BOREHOLE 'B' AT SYON PARK, BRENTFORD Data Type: Point Name: Trustees Of Syon Park Estate	Annual Volume (m^3): 9,092 Max Daily Volume (m^3): 218 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 28/09/2010 Version End Date:
Not shown	726	SE	517100 176700	Status: Active Licence No: 28/39/37/0005 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: BOREHOLE 'B' AT SYON PARK, BRENTFORD Data Type: Point Name: Trustees Of Syon Park Estate	Annual Volume (m^3): 9,092 Max Daily Volume (m^3): 218 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 28/09/2010 Version End Date:
Not shown	1739	SE	517460 175750	Status: Active Licence No: 28/39/35/0006 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: BOREHOLE A GRAVEL AT ROYAL MID SURREY GOLF CLUB, RICHMOND Data Type: Point Name: ROYAL MID SURREY GOLF CLUB	Annual Volume (m^3): 43,000 Max Daily Volume (m^3): 480 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 28/03/1996 Version End Date:
Not shown	1739	SE	517460 175750	Status: Historical Licence No: 28/39/35/0006 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: GRAVEL AT ROYAL MID SURREY GOLF CLUB, RICHMOND Data Type: Line Name: ROYAL MID SURREY GOLF CLUB	Annual Volume (m^3): 43,000 Max Daily Volume (m^3): 480 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 28/03/1996 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1782	S	517450 175700	Status: Active Licence No: 28/39/35/0006 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: BOREHOLE B GRAVEL AT ROYAL MID SURREY GOLF CLUB, RICHMOND Data Type: Point Name: ROYAL MID SURREY GOLF CLUB	Annual Volume (m^3): 43,000 Max Daily Volume (m^3): 480 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 28/03/1996 Version End Date:
Not shown	1886	E	518643 177669	Status: Historical Licence No: TH/039/0035/001 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (3) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW	Annual Volume (m^3): 124,300 Max Daily Volume (m^3): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 10/07/2014 Version End Date:
Not shown	1886	E	518643 177669	Status: Active Licence No: TH/039/0035/001/R01 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (3) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW	Annual Volume (m^3): 124,300 Max Daily Volume (m^3): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 19/05/2016 Version End Date:
Not shown	1892	E	518649 177670	Status: Active Licence No: TH/039/0035/001/R01 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (2) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW	Annual Volume (m^3): 124,300 Max Daily Volume (m^3): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 19/05/2016 Version End Date:
Not shown	1892	E	518649 177670	Status: Historical Licence No: TH/039/0035/001 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (2) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW	Annual Volume (m^3): 124,300 Max Daily Volume (m^3): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 10/07/2014 Version End Date:
Not shown	1909	E	518665 177680	Status: Active Licence No: TH/039/0035/001/R01 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (1) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW	Annual Volume (m^3): 124,300 Max Daily Volume (m^3): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 19/05/2016 Version End Date:
Not shown	1909	E	518665 177680	Status: Historical Licence No: TH/039/0035/001 Details: Heat Pump Direct Source: THAMES GROUNDWATER Point: KEW GARDENS, RICHMOND - BOREHOLE (1) Data Type: Point Name: THE BOARD OF TRUSTEES OF THE ROYAL BOTANIC GARDENS, KEW	Annual Volume (m^3): 124,300 Max Daily Volume (m^3): 380 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 10/07/2014 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1984	SE	517800 175650	Status: Active Licence No: 28/39/35/0009 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: GRAVEL AT RICHMOND ATHLETICS GROUND, KEW FOOT ROAD, RICHMOND Data Type: Point Name: RICHMOND ATHLETICS ASSOC LTD	Annual Volume (m^3): 15,911 Max Daily Volume (m^3): 75 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 01/04/2008 Version End Date:

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site — Identified

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details	
16	447	N	516880 177800	Status: Active Licence No: 28/39/36/0074 Details: Non-Evaporative Cooling Direct Source: THAMES SURFACE WATER - NON TIDAL Point: 980 GREAT WESTERN ROAD, BRENTFORD- RIVER BRENT Data Type: Point Name: Canal and River Trust	Annual Volume (m^3): 876,000 Max Daily Volume (m^3): 2,400 Application No: - Original Start Date: 03/09/2007 Expiry Date: 31/03/2025 Issue No: 2 Version Start Date: 17/12/2007 Version End Date:
Not shown	1099	NW	516180 178290	Status: Historical Licence No: 28/39/38/0039 Details: Dust Suppression Direct Source: THAMES SURFACE WATER - NON TIDAL Point: GRAND UNION CANAL AT BRENTFORD, MIDDLESEX Data Type: Point Name: BRITISH WATERWAYS BOARD	Annual Volume (m^3): 20,000 Max Daily Volume (m^3): 100 Application No: - Original Start Date: 21/04/1999 Expiry Date: 31/12/2009 Issue No: 101 Version Start Date: 17/12/2007 Version End Date:
Not shown	1099	NW	516180 178290	Status: Historical Licence No: TH/039/0038/004 Details: Dust Suppression Direct Source: THAMES SURFACE WATER - NON TIDAL Point: GRAND UNION CANAL AT BRENTFORD, MIDDLESEX Data Type: Point Name: Canal and River Trust	Annual Volume (m^3): 20,000 Max Daily Volume (m^3): 100 Application No: - Original Start Date: 25/05/2010 Expiry Date: 31/03/2019 Issue No: 1 Version Start Date: 25/05/2010 Version End Date:
Not shown	1105	NW	516186 178301	Status: Active Licence No: TH/039/0038/004/R01 Details: Dust Suppression Direct Source: THAMES SURFACE WATER - NON TIDAL Point: GRAND UNION CANAL AT BRENTFORD, MIDDLESEX Data Type: Point Name: Canal and River Trust	Annual Volume (m^3): 30,000 Max Daily Volume (m^3): 200 Application No: - Original Start Date: 01/04/2019 Expiry Date: 31/03/2025 Issue No: 1 Version Start Date: 01/04/2019 Version End Date:
Not shown	1105	NW	516186 178301	Status: Active Licence No: TH/039/0038/004/R01 Details: General Washing/Process Washing Direct Source: THAMES SURFACE WATER - NON TIDAL Point: GRAND UNION CANAL AT BRENTFORD, MIDDLESEX	Annual Volume (m^3): 30,000 Max Daily Volume (m^3): 200 Application No: - Original Start Date: 01/04/2019 Expiry Date: 31/03/2025 Issue No: 1 Version Start Date: 01/04/2019

ID	Distance (m)	Direction	NGR	Details	
				Data Type: Point Name: Canal and River Trust	Version End Date:

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site — None identified

Database searched and no data found.

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site — None identified

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site — None identified

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site Identified

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
231	NW	Major Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
443	NE	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
471	S	Major Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.

6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site Identified

6.9.1 Biological Quality:

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

The following Biological Quality records are shown on the Hydrology Map (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Biological Quality Grade				
					2005	2006	2007	2008	2009
Not shown	1174	NW	516120 178340	River Name: Grand Union Canal (brent) Reach: Wyke Stream - Tideway End/Start of Stretch: Start of Stretch NGR	D	D	E	E	E
Not shown	1174	NW	516120 178340	River Name: Brent Reach: Costons Brook - Wyke Stream End/Start of Stretch: End of Stretch NGR	E	E	E	E	E
Not shown	1427	E	518210 177380	River Name: Grand Union Canal (brent) Reach: Wyke Stream - Tideway End/Start of Stretch: End of Stretch NGR	D	D	E	E	E

6.9.2 Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAHI). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (6e):

					Chemical Quality Grade				
ID	Distance (m)	Direction	NGR	River Quality Grade	2005	2006	2007	2008	2009
10	515	E	517297 177321	River Name: Brent Reach: Wyke Stream - Tideway End/Start of Stretch: Sample Point NGR	C	C	C	D	D
Not shown	1174	NW	516120 178340	River Name: Brent Reach: Wyke Stream - Tideway End/Start of Stretch: Start of Stretch NGR	C	C	C	D	D
Not shown	1427	E	518210 177380	River Name: Brent Reach: Wyke Stream - Tideway End/Start of Stretch: End of Stretch NGR	C	C	C	D	D

6.10 Ordnance Survey MasterMap Water Network

Ordnance Survey MasterMap Water Network entries within 500m of the study site

This watercourse information is provided by Ordnance Survey MasterMap Water Network. The data provides a detailed centre line following the curve of the waterway precisely, so all distances provided in the report should be understood as measurements to the centreline rather than a measurement to the nearest point of the watercourse. Underground watercourses are inferred from entry and exit points so caution is advised in using these to indicate precise locations of underground watercourses when planning site investigation and development.

The following Ordnance Survey MasterMap Water Network records are represented on the Hydrology Map (6e):

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
1	431 N	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Cam Ely Ouse and South Level Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 16.3
2	431 N	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Cam Ely Ouse and South Level Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 20.5
Not shown	431 N	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Cam Ely Ouse and South Level Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 16.3
Not	431	Grand Union Canal	Inland river not influenced	Catchment Area: Cam Ely Ouse and South Level

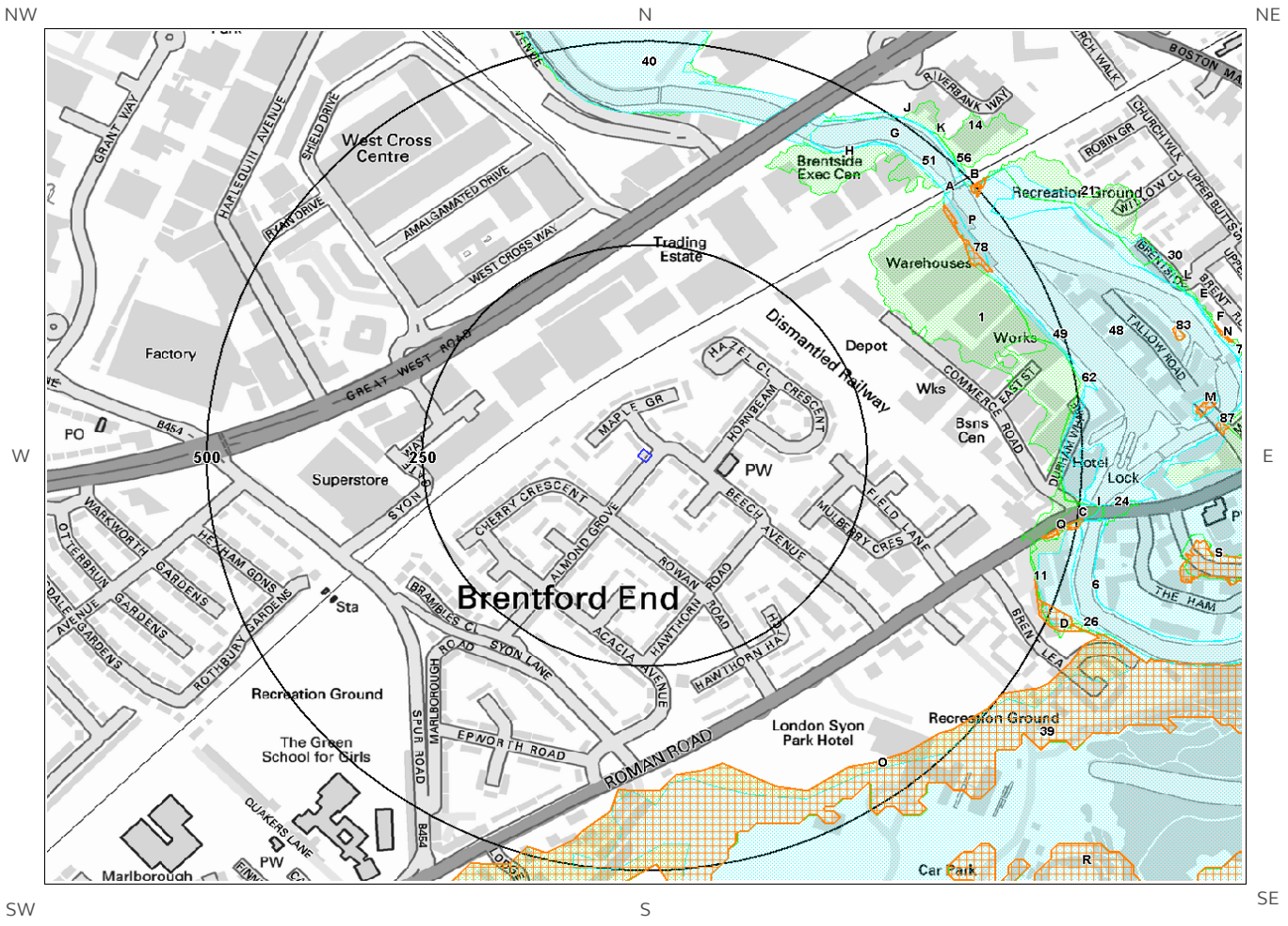
ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
shown	N		by normal tidal action.	Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 20.5
3	473 NE	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Cam Ely Ouse and South Level Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.6
Not shown	473 NE	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Cam Ely Ouse and South Level Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.6
4	477 NE	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Cam Ely Ouse and South Level Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 15.8
Not shown	477 NE	Grand Union Canal	Inland river not influenced by normal tidal action.	Catchment Area: Cam Ely Ouse and South Level Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 15.8
5	483 NE	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Cam Ely Ouse and South Level Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.6
Not shown	483 NE	Grand Union Canal	Canal. A manmade watercourse for inland navigation.	Catchment Area: Cam Ely Ouse and South Level Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.6
6	485 NE	River Brent	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.6
Not shown	485 NE	River Brent	Canal. A manmade watercourse for inland navigation.	Catchment Area: Thames Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 14.6

6.11 Surface Water Features

Surface water features within 250m of the study site — None identified

Database searched and no data found.

7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



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Site Outline

Search Buffers (m)
100
250

Zone 2 Floodplain

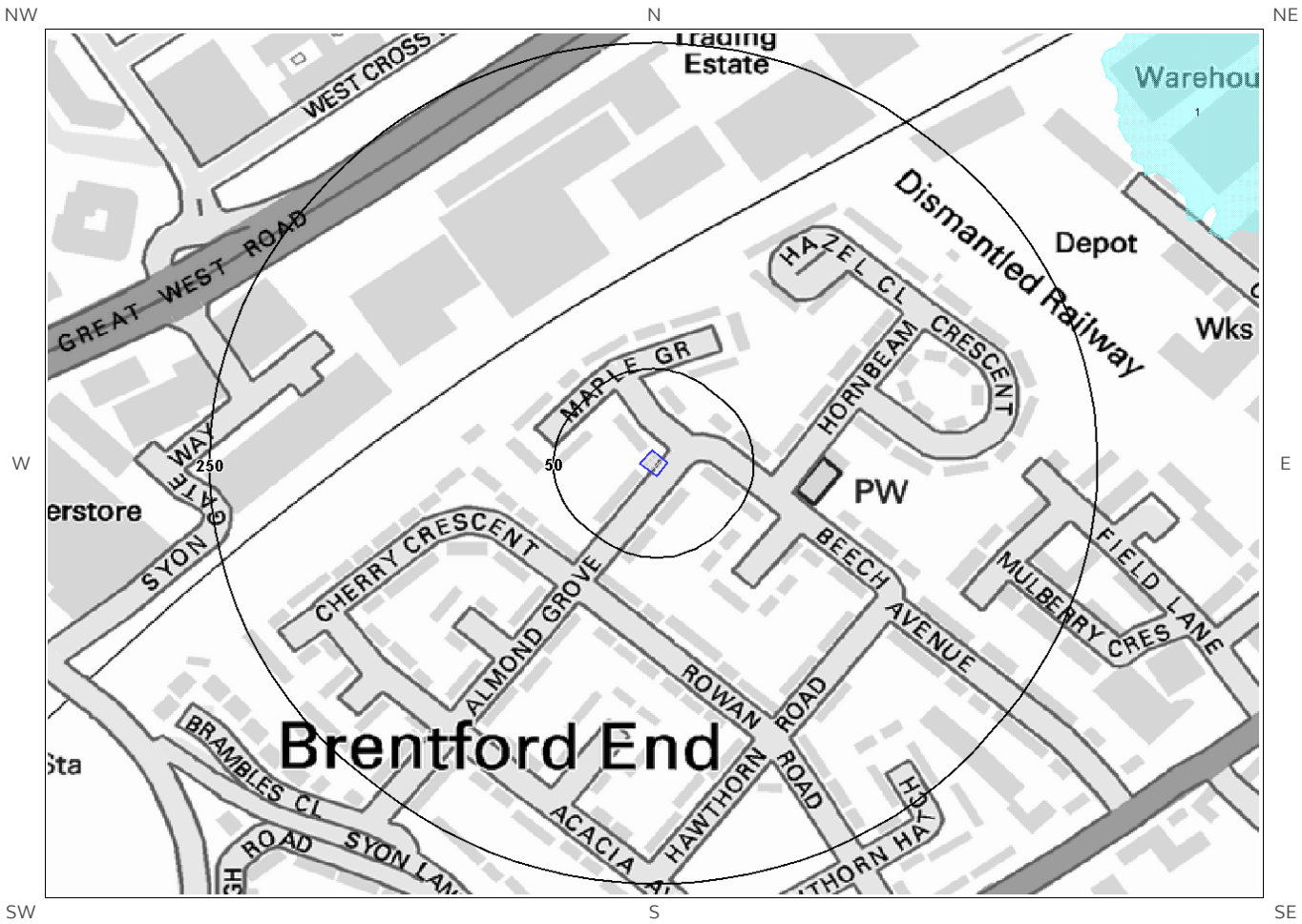
Zone 3 Floodplain

Flood Defences

Area used for Flood Storage

Area Benefiting from Flood Defences

7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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Site Outline

100 / 250 Search Buffers (m)

RoFRaS Rating

- Very Low
- Low
- Medium
- High

7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m — None identified

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

Database searched and no data found.

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m — None identified

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

Database searched and no data found.

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

Highest risk of flooding onsite — Very Low

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year.

7.4 Flood Defences

Flood Defences within 250m of the study site — None identified

Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site — None identified

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site — None identified

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site — None identified

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 Highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions

Not Prone

The area is not considered to be prone to groundwater flooding based on rock type.

7.8 Groundwater Flooding Confidence Areas

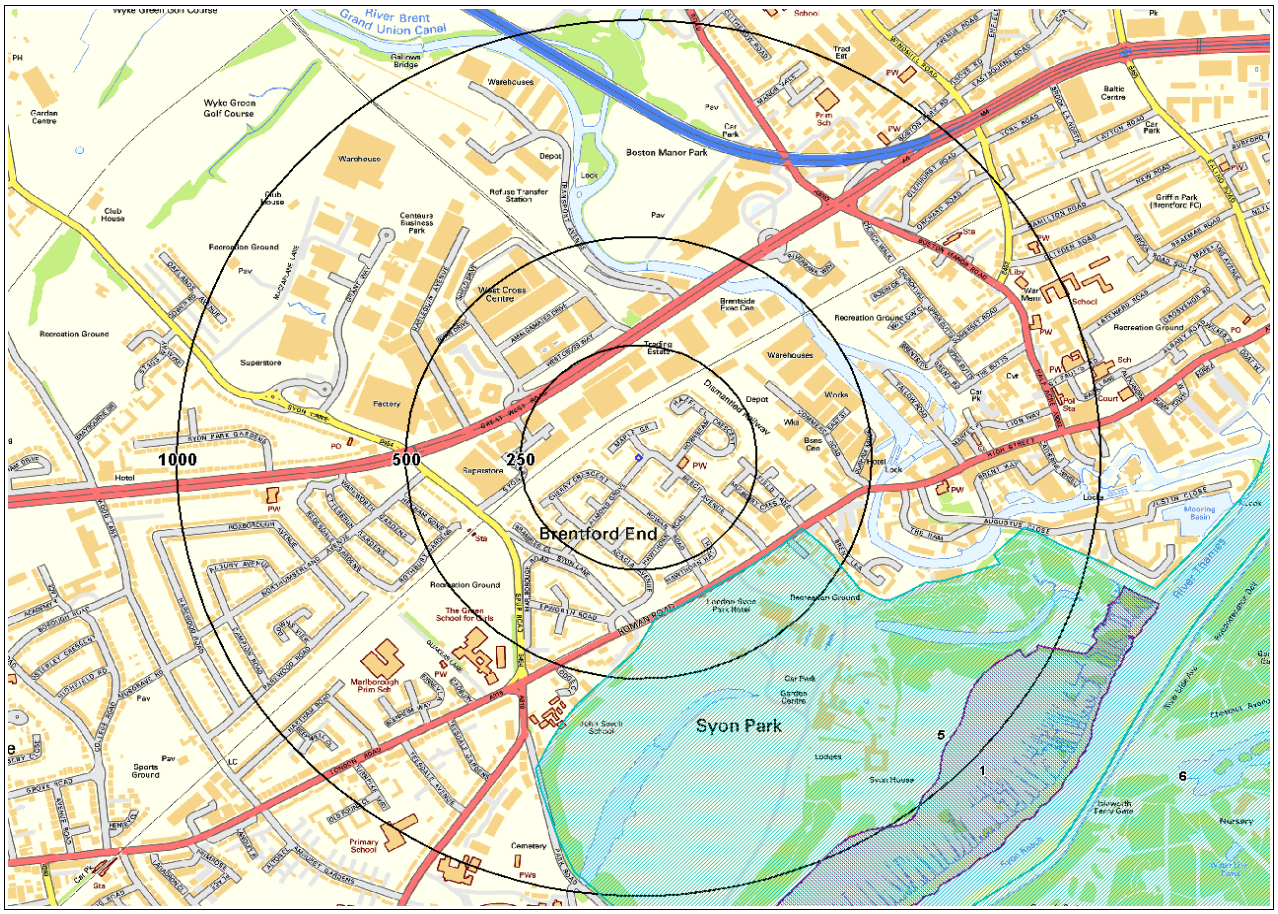
British Geological Survey confidence rating in this result — Not Applicable

Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

8. Designated Environmentally Sensitive Sites Map

NW N NE



W E

SW S SE

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Site Outline

100 250 Search Buffers (m)

AONB

National Park

SSSI

Special Protection Areas

Nitrate Vulnerable Zones

Green Belt

Environmentally Sensitive Areas

Special Areas of Conservation

World Heritage Sites

Nitrate Sensitive Areas

Ancient Woodland

National Nature Reserve

Local Nature Reserves

Ramsar Sites

8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site | Identified

8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

1

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SSSI Name	Data Source
1	894	SE	Syon Park	Natural England

8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

0

Database searched and no data found.

8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

0

Database searched and no data found.

8.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

8.6 Records of Ancient Woodland within 2000m of the study site:

0

Database searched and no data found.

8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

3

The following Local Nature Reserve (LNR) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
Not shown	1227	N	Blondin Nature area	Natural England
Not shown	1376	S	Isleworth Ait	Natural England
Not shown	1960	NW	Long Wood	Natural England

8.8 Records of World Heritage Sites within 2000m of the study site:

2

The following World Heritage Site records provided by English Heritage and Cadw are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	World Heritage Site Name	Data Source
5	330	SE	Royal Botanic Gardens, Kew Buffer Zone	Historic England
6	1231	SE	Royal Botanic Gardens, Kew	Historic England

8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

0

Database searched and no data found.

8.11 Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

0

Database searched and no data found.

8.14 Records of Green Belt land within 2000m of the study site:

0

Database searched and no data found.

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a Groundsure Geo Insight, available from our website. The following information has been found:

9.1.1 Shrink Swell

Maximum Shrink-Swell* hazard rating identified on the study site — Moderate

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

9.1.2 Landslides

Maximum Landslide* hazard rating identified on the study site — Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

9.1.3 Soluble Rocks

Maximum Soluble Rocks* hazard rating identified on the study site — Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

* This indicates an automatically generated 50m buffer and site.

9.1.4 Compressible Ground

Maximum Compressible Ground* hazard rating identified on the study site — Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site — Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

9.1.6 Running Sand

Maximum Running Sand** hazard rating identified on the study site — Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

* This indicates an automatically generated 50m buffer and site.

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing
ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site — None identified

Database searched and no data found.

10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary — None identified

Database searched and no data found.

10.3 Brine Affected Areas

Brine affected areas within 75m of the study site — None identified
Guidance: No Guidance Required.

Contact Details

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info@groundsure.com

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Fax: 0115 936 3276.
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BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

Environment Agency
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Gemapping PLC
Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444

Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England/Natural Resources Wales who retain the Copyright and Intellectual Property Rights for the data.
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https://www.groundsure.com/terms-and-conditions-feb11-2019

Groundsure
LOCATION INTELLIGENCE

Arcadis Consulting UK Ltd

Arcadis CONSULTING UK LTD, THE PITHAY, BRISTOL, BS1 2NL

Groundsure Reference:	GS-6449724
Your Reference:	14032643
Report Date	8 Nov 2019
Report Delivery Method:	Email - pdf

Geo Insight

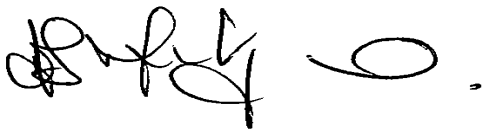
Address: GARAGES ADJACENT 86, BEECH AVENUE, BRENTFORD, TW8 8NH

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Geo Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Geo Insight

Address:	**GARAGES ADJACENT 86, BEECH AVENUE, BRENTFORD, TW8 8NH**
Date:	**8 Nov 2019**
Reference:	**GS-6449724**
Client:	**Arcadis Consulting UK Ltd**

NW N NE

W E



SW S SE

Aerial Photograph Capture date:	20-Apr-2015
Grid Reference:	516773,177360
Site Size:	0.0129ha

Groundsure
LOCATION INTELLIGENCE

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Overview of Findings

The Groundsure Geo Insight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Geology 1:10,000 Scale		
1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	No
	1.2.2 Are there any records of landslip within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and linear features	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale?	No

Section 2: Geology 1:50,000 Scale		
2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	No
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	No
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	No
	2.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features	2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?	Yes
	2.3.3 Are there any records of linear features within 500m of the study site boundary?	No

Section 3: Radon

3. Radon	3.1Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
	3.2Radon Protection	No radon protective measures are necessary.

Section 4: Ground Workings	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	0	29	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	0	0	3

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	0	0
5.2 Coal Mining	0	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	0	0	0	0	0
5.5 Non–Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Cornwall and Devon Metalliferous Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0

Section 6: Natural Ground Subsidence	On-site
6.1 Shrink-Swell Clay	Moderate
6.2 Landslides	Very Low
6.3 Ground Dissolution of Soluble Rocks	Negligible
6.4 Compressible Deposits	Negligible
6.5 Collapsible Deposits	Very Low
6.5 Running Sand	Negligible

Section 7: Borehole Records	On-site	0-50m	51-250
7 BGS Recorded Boreholes	0	0	0

Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	1	0	0

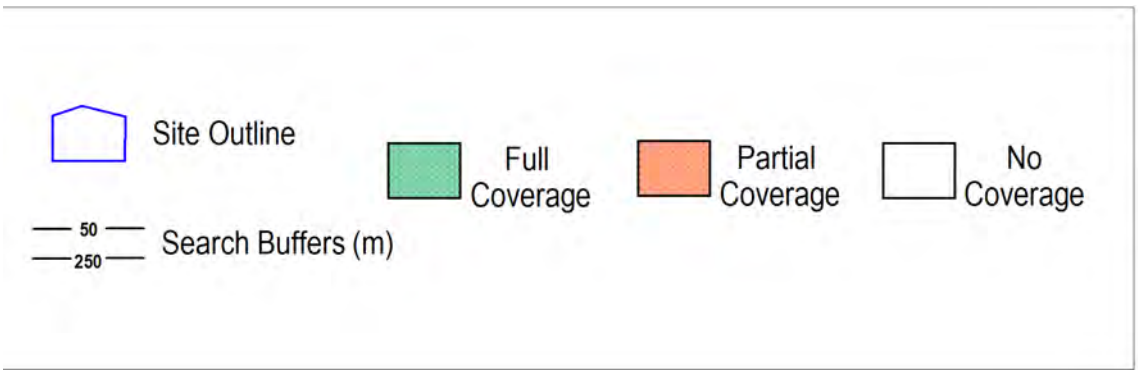
Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500
9.1 Tunnels	0	0	0	Not Searched
9.2 Historical Railway and Tunnel Features	0	0	10	Not Searched
9.3 Historical Railways	0	0	2	Not Searched
9.4 Active Railways	0	0	6	Not Searched
9.5 Railway Projects	0	0	0	0

1:10,000 Scale Availability



1_10,000 Availability Legend

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Availability of 1:10,000 Scale Geology Mapping

The following information represents the availability of the key components of the 1:10,000 scale geological data.

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	No coverage
N2	1767.0	Some deposits are mapped	Full	Full	No coverage

Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not all themes are mapped or available on every map sheet. Therefore a coverage layer showing the availability of the four themes is presented above.

The definitions of coverage are as follows:

Geology	Full Coverage	Partial Coverage	No Coverage
Bedrock	The whole tile has been mapped	Some but not all the tile has been mapped	No coverage
Superficial	The whole tile has been mapped	Some but not all of the tile has been mapped	No coverage
Artificial	Some deposits are mapped on this tile	-	No deposits are mapped
Mass Movement	Some deposits are mapped on this tile	-	No coverage

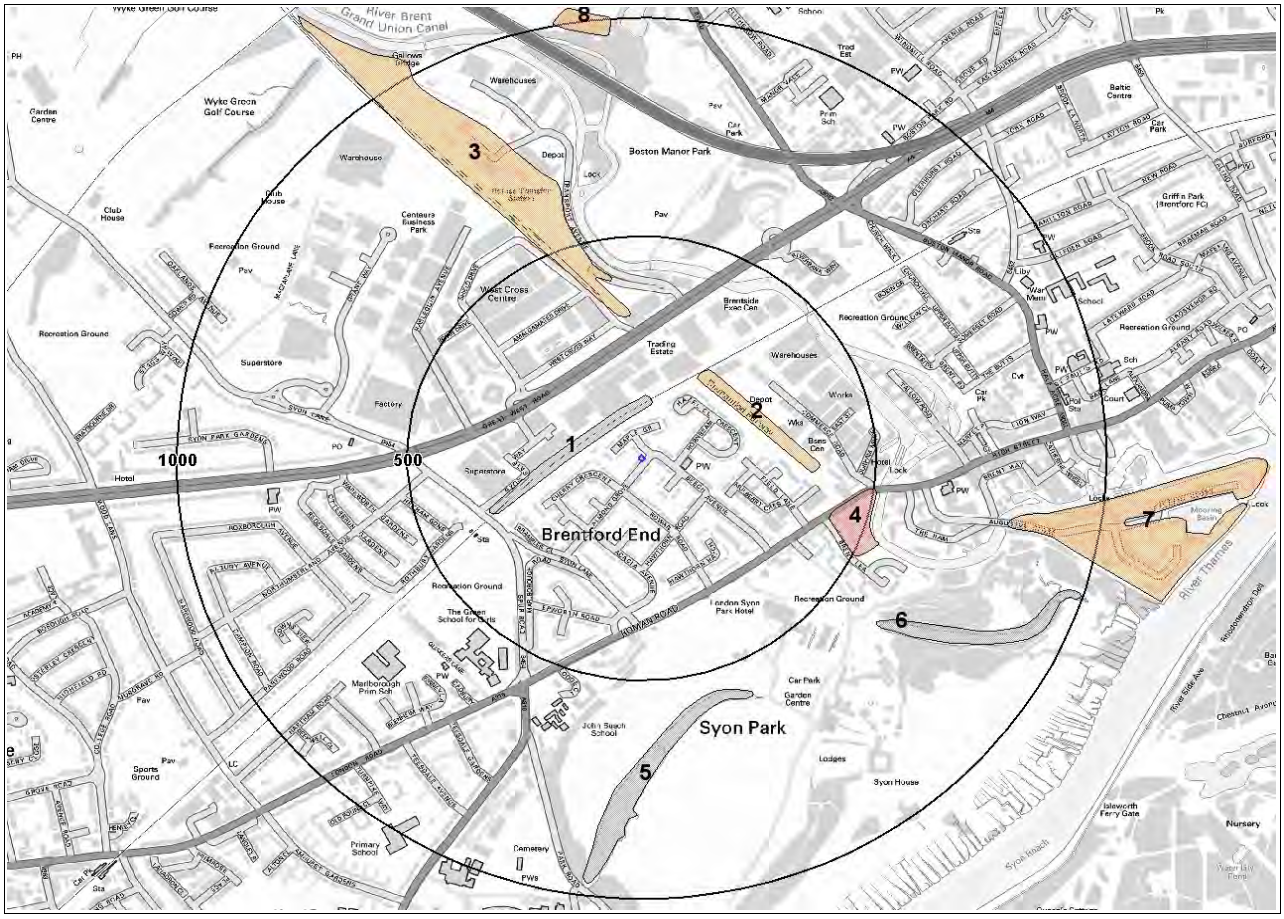
1 Geology (1:10,000 scale).

1.1 Artificial Ground map (1:10,000 scale)

NW N NE

W E

SW S SE



Artificial Ground Legend

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1. Geology 1:10,000 scale

1.1 Artificial Ground

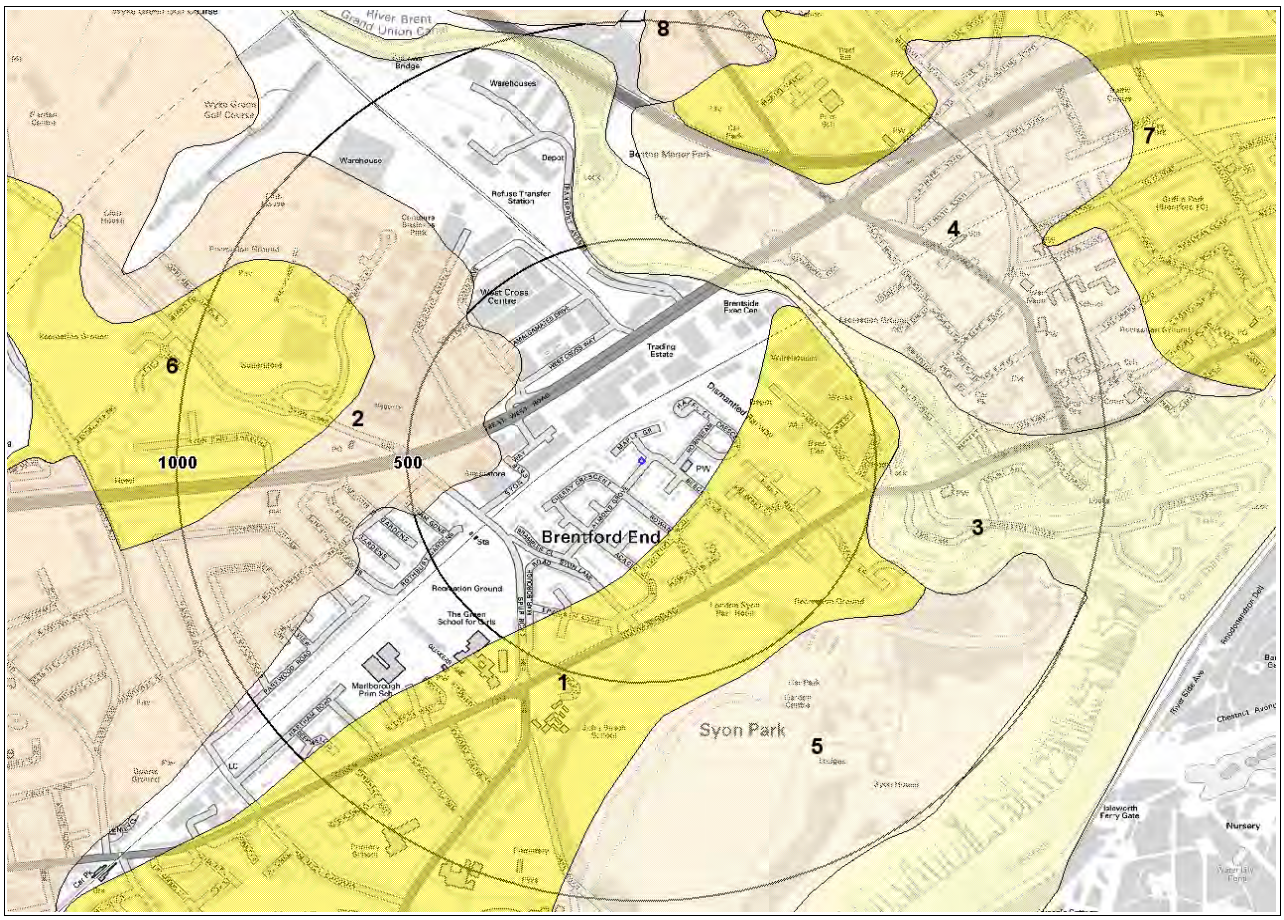
The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	84.0	NW	WGR-UKNOWN	Worked Ground (Undivided)	Unknown/unclassified Entry
2	211.0	NE	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
3	317.0	N	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
4	419.0	E	WMGR-UKNOWN	Infilled Ground	Unknown/unclassified Entry

1.2 Superficial Deposits and Landslips map (1:10,000 scale)

NW N NE



W E

SW S SE

Artificial Ground Legend

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Site Outline

500
1000
Search Buffers (m)

1.2 Superficial Deposits and Landslips

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	141.0	SE	LASI-Z	Langley Silt Member - Silt (unlithified Deposits Coding Scheme)	Silt
2	296.0	W	TPGR-XSV	Taplow Gravel Formation - Sand And Gravel	Sand And Gravel
3	420.0	N	ALV-Z	Alluvium - Silt (unlithified Deposits Coding Scheme)	Silt
4	486.0	NE	KPGR-XSV	Kempton Park Gravel Formation - Sand And Gravel	Sand And Gravel

1.2.2 Landslip

Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale?

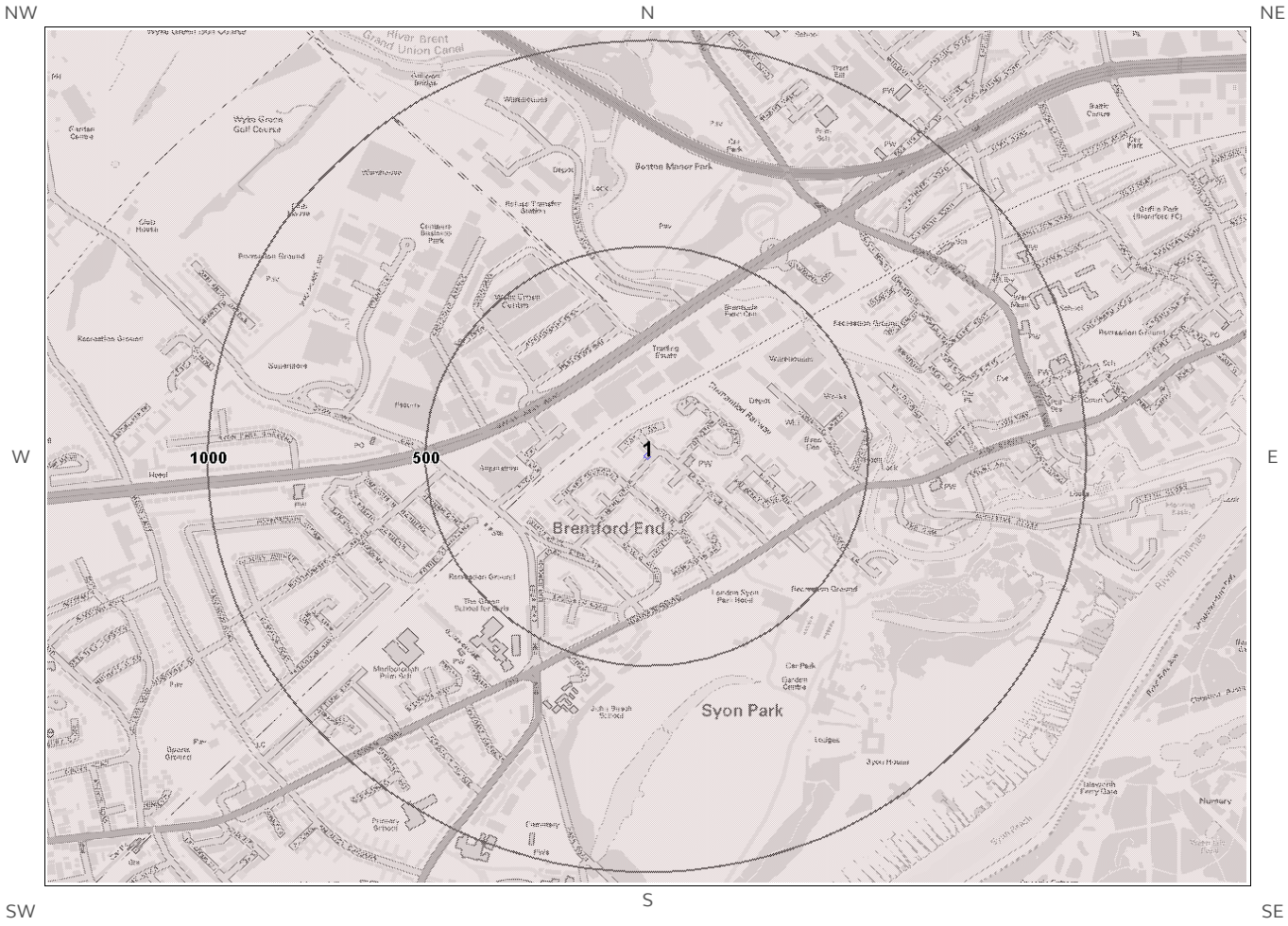
No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.3 Bedrock and linear features map (1:10,000 scale)



Bedrock and linear features Legend

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Site Outline

500
1000
Search Buffers (m)

1.3 Bedrock and linear features

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary at 1:10,000 scale.

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	LC-CLAY	London Clay Formation - Clay	Eocene Epoch

1.3.2 Linear features

Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found at this scale.

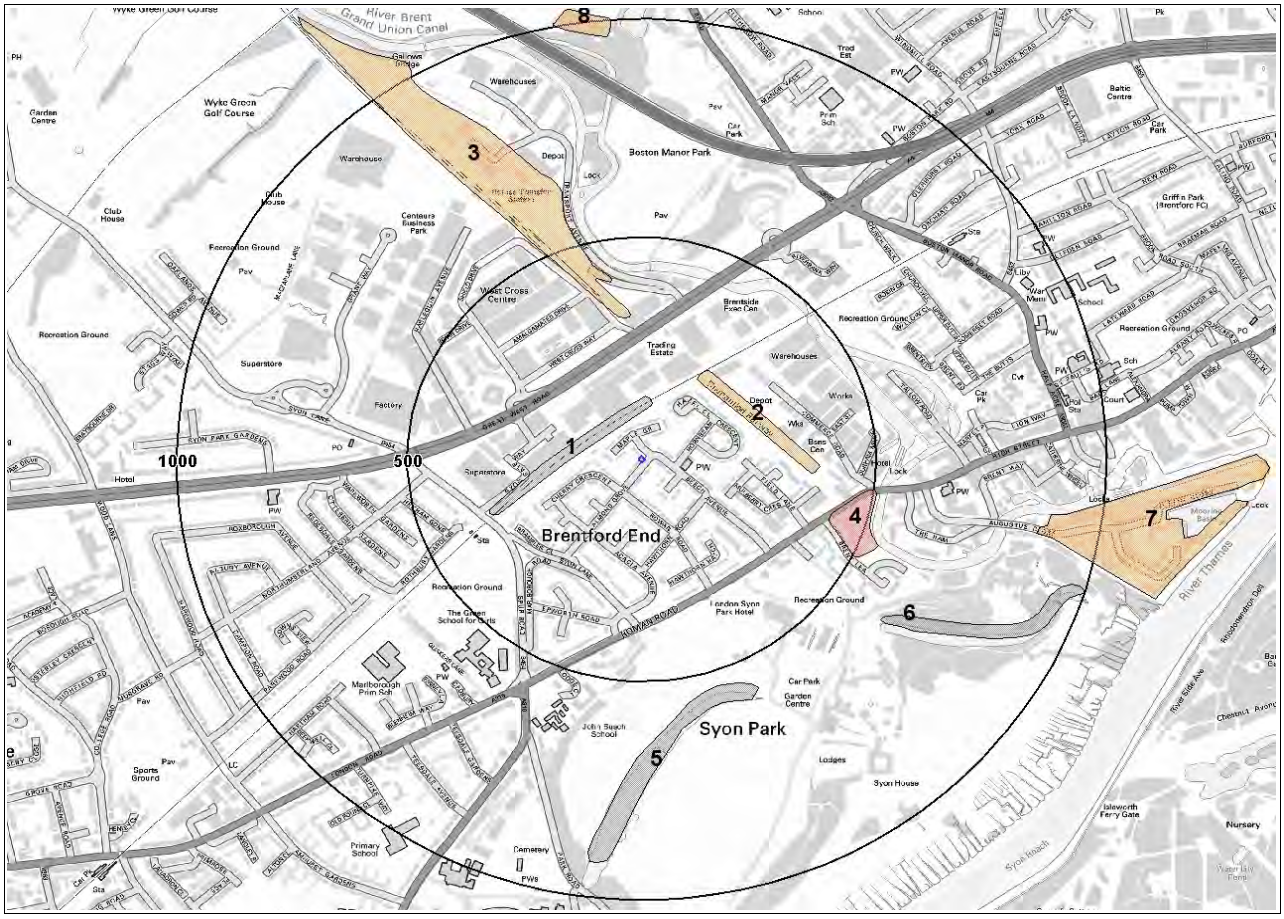
The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2 Geology 1:50,000 Scale

2.1 Artificial Ground map

NW N NE



W E

SW S SE

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Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Worked Ground (undivided)

Infilled Ground

Disturbed Ground (undivided)

Landscaped Ground (undivided)

Reclaimed Ground

2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 270

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? Yes

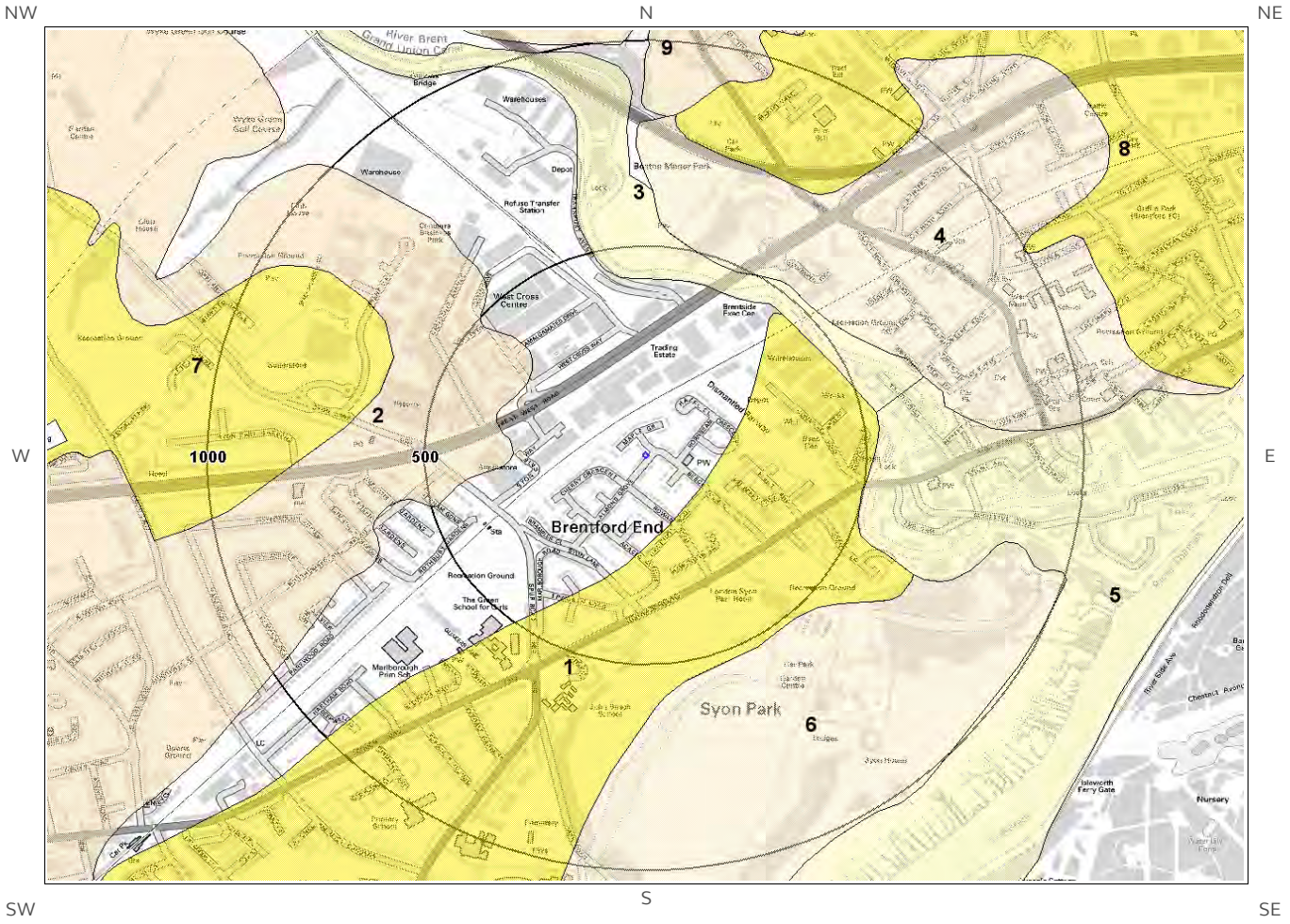
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	83.0	NW	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID
2	210.0	NE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
3	318.0	N	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
4	419.0	E	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

2.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

2.2 Superficial Deposits and Landslips map (1:50,000 scale)



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Site Outline

500
1000
Search Buffers (m)

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	141.0	SE	LASI-XCZ	LANGLEY SILT MEMBER	CLAY AND SILT
2	296.0	W	TPGR-XSV	TAPLOW GRAVEL MEMBER	SAND AND GRAVEL
3	420.0	N	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
4	486.0	NE	KPGR-XSV	KEMPTON PARK GRAVEL MEMBER	SAND AND GRAVEL
5	497.0	E	ALV-XCZSP	ALLUVIUM	CLAY, SILT, SAND AND PEAT

2.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? No

Database searched and no data found.

2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

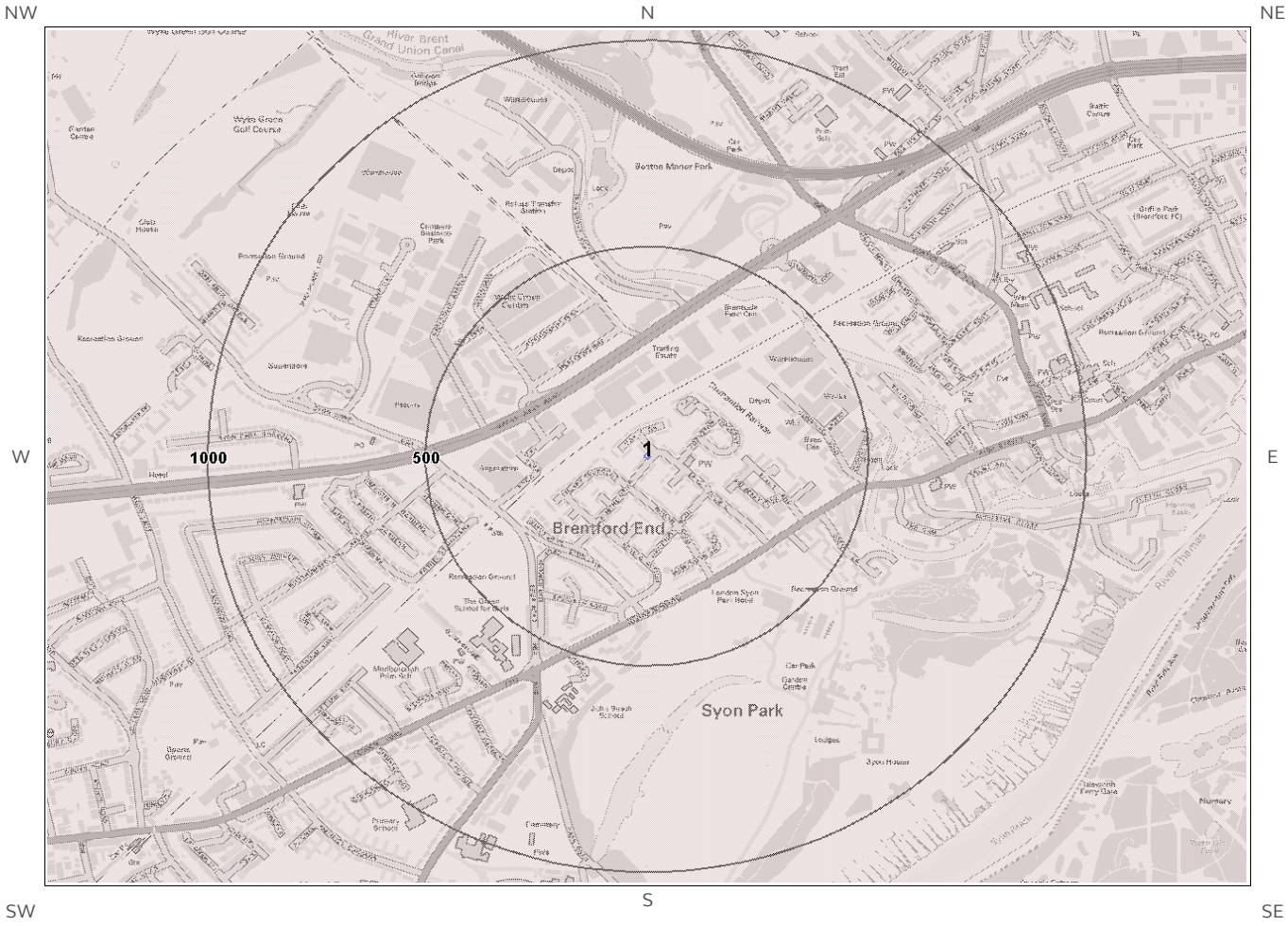
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site boundary? No

Database searched and no data found.

2.3 Bedrock and linear features map (1:50,000 scale)



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Site Outline

500
1000
Search Buffers (m)

2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 270

2.3.1 Bedrock/Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary:

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	LC-XCZ	LONDON CLAY FORMATION - CLAY AND SILT	YPRESIAN

2.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site boundary? Yes

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	Low	Very Low

2.3.3 Linear features

Are there any records of linear features within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nation wide coverage.

3 Radon Data

3.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

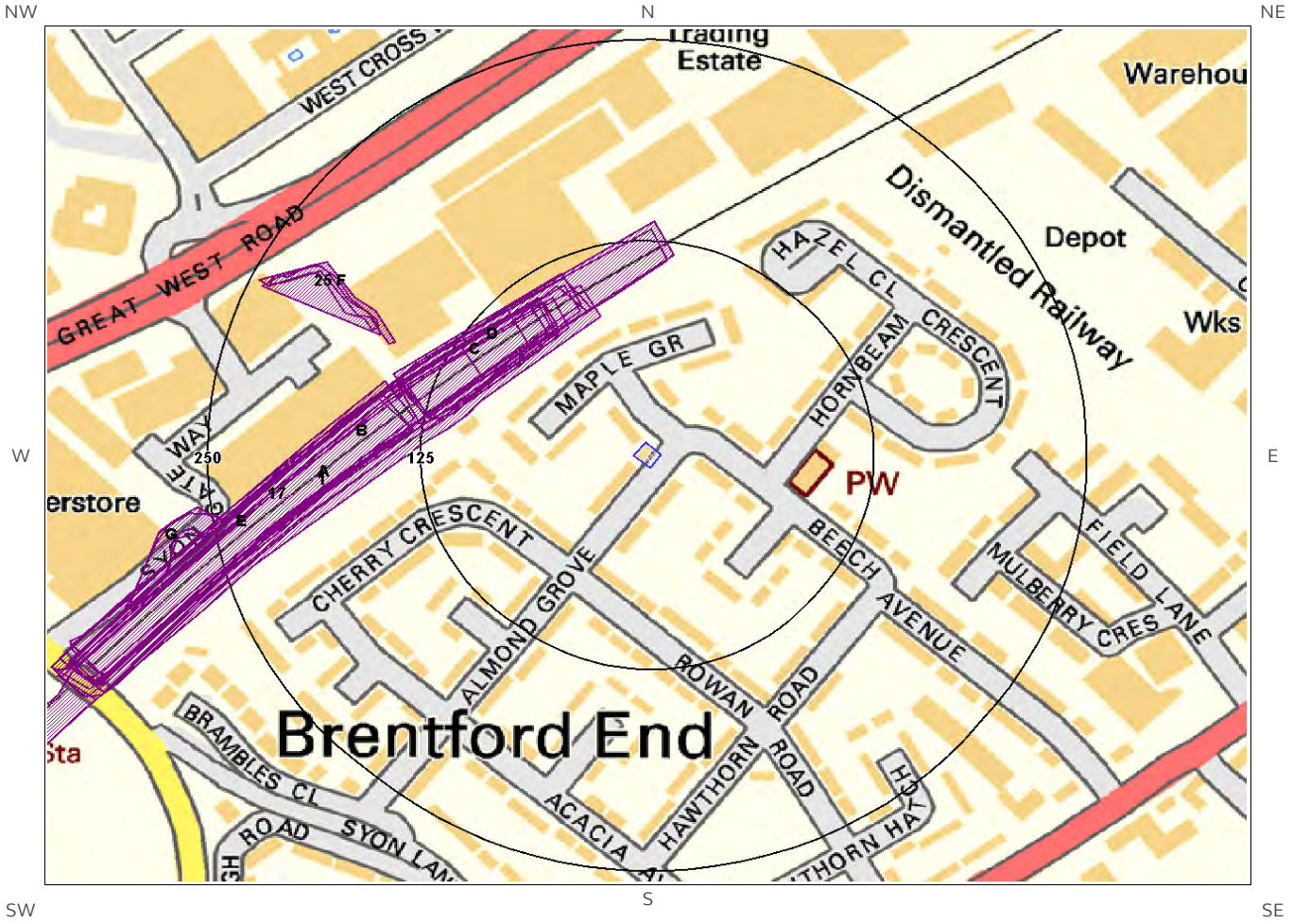
The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

3.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

---

4 Ground Workings map



Ground Workings Legend

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Site Outline

125
250
Search Buffers (m)

Historic Surface Ground Workings

Historic Underground Workings

Current Ground Workings

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Use	Date
1	78.0	NW	516464 177232	Cuttings	1865
2C	83.0	NW	516675 177415	Cuttings	1894
3A	84.0	NW	516587 177333	Cuttings	1894
4A	85.0	NW	516578 177329	Cuttings	1896
5A	86.0	NW	516583 177335	Cuttings	1912
6D	86.0	NW	516687 177423	Cuttings	1933
7B	86.0	NW	516612 177359	Cuttings	1974
8B	86.0	NW	516612 177359	Cuttings	1966
9B	87.0	NW	516614 177362	Cuttings	1987
10A	87.0	NW	516575 177331	Cuttings	1898
11C	88.0	NW	516682 177422	Cuttings	1912
12A	89.0	NW	516577 177334	Cuttings	1935
13A	90.0	NW	516572 177331	Cuttings	1948
14A	90.0	NW	516572 177331	Cuttings	1948
15C	90.0	NW	516677 177419	Cuttings	1938
16D	92.0	NW	516681 177426	Cuttings	1913
17	103.0	NW	516562 177327	Cuttings	1961
18E	130.0	W	516536 177305	Cuttings	1938
19E	130.0	W	516536 177305	Cuttings	1912
20E	131.0	W	516534 177312	Cuttings	1913
21E	131.0	W	516574 177333	Cuttings	1894

ID	Distance (m)	Direction	NGR	Use	Date
22E	131.0	W	516574 177333	Cuttings	1933
23F	156.0	NW	516604 177452	Unspecified Ground Workings	1935
24F	156.0	NW	516604 177452	Unspecified Ground Workings	1935
25	166.0	NW	516584 177454	Unspecified Heap	1961
26F	170.0	NW	516595 177455	Unspecified Ground Workings	1948
27F	170.0	NW	516595 177455	Unspecified Ground Workings	1948
28G	244.0	W	516489 177293	Pond	1894
29G	244.0	W	516488 177292	Pond	1865

4.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? No

Database searched and no data found.

4.3 Current Ground Workings

This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

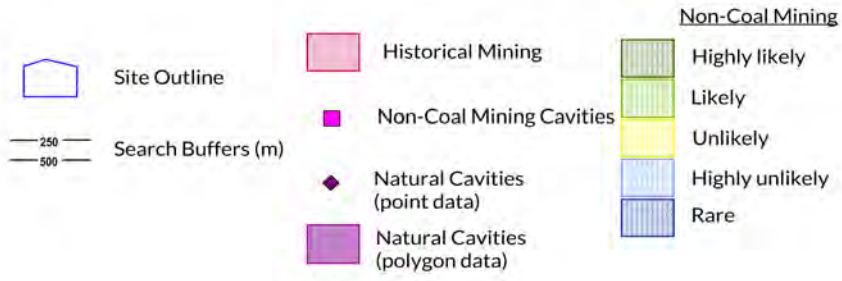
ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	716.0	NW	516425 177990	Crushed Rock	Brentford Rail Depot	A site where mineral commodities are unloaded from rail trucks and stored	Active
Not shown	716.0	NW	516425 177990	Marine Sand & Gravel	Brentford Rail Depot	A site where mineral commodities are unloaded from rail trucks and stored	Active
Not shown	716.0	NW	516425 177990	Secondary	Brentford Rail Depot	A site where mineral commodities are unloaded from rail trucks and stored	Active

5 Mining, Extraction & Natural Cavities map



Mining, Extraction and Natural Cavities Legend

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5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? No

The following information provided by JPB is not represented on mapping: Database searched and no data found.

5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled "Review of mining instability in Great Britain, 1990" PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.6 Natural Cavities

This dataset provides information based on the Peter Brett Associates natural cavities database. The dataset is made up of points and polygons. Where polygons are used these represent an area in which it is expected the cavities could be found. It does not indicate that cavities are present everywhere within the polygon, and caution should be used in the interpretation of this data.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.9 Cornwall and Devon Metalliferous Mining

This dataset provides information on metalliferous mining areas in Cornwall/Devon and is derived from records held by Mining Searches UK.

Are there any Cornwall and Devon Metalliferous Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

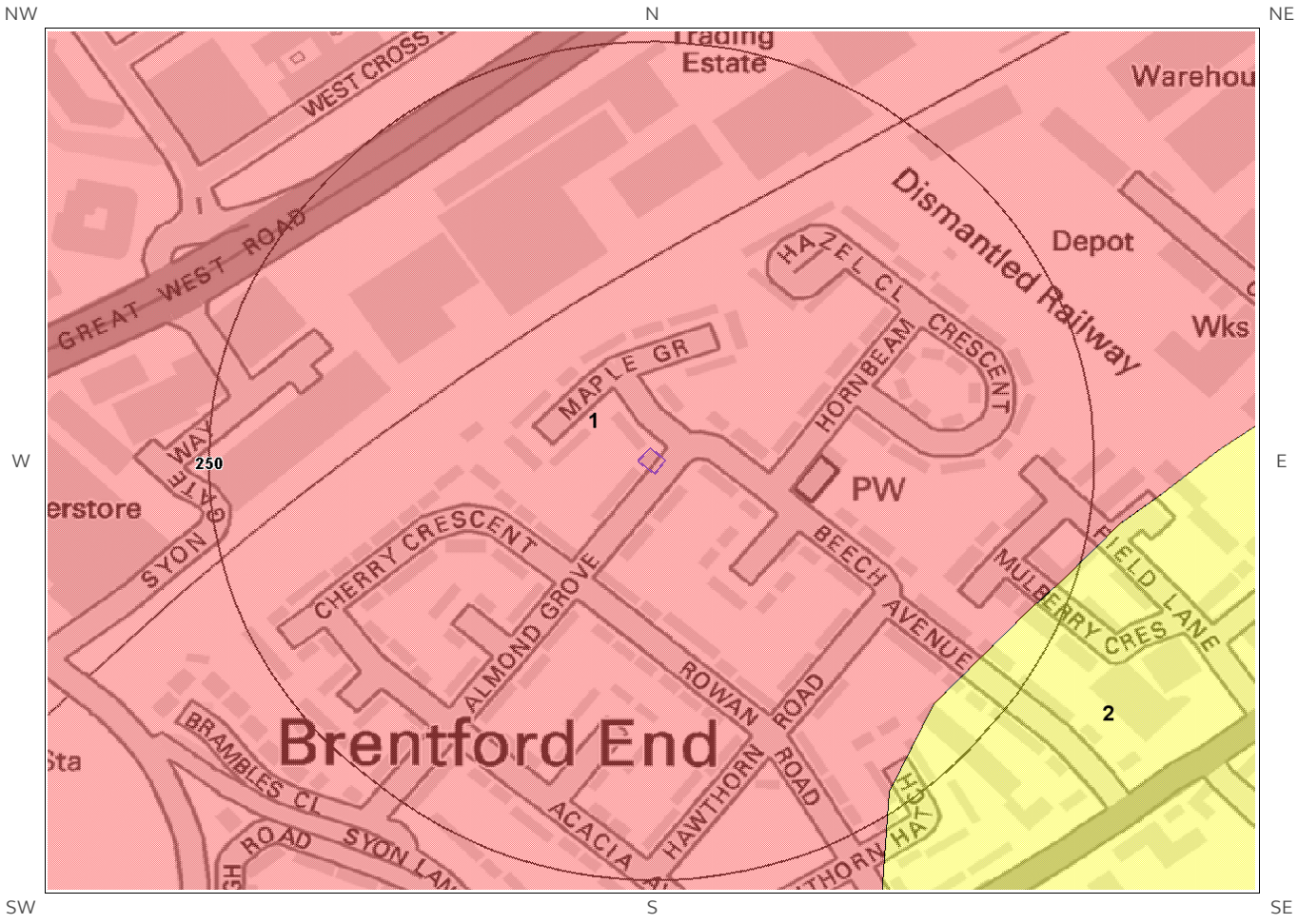
This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map

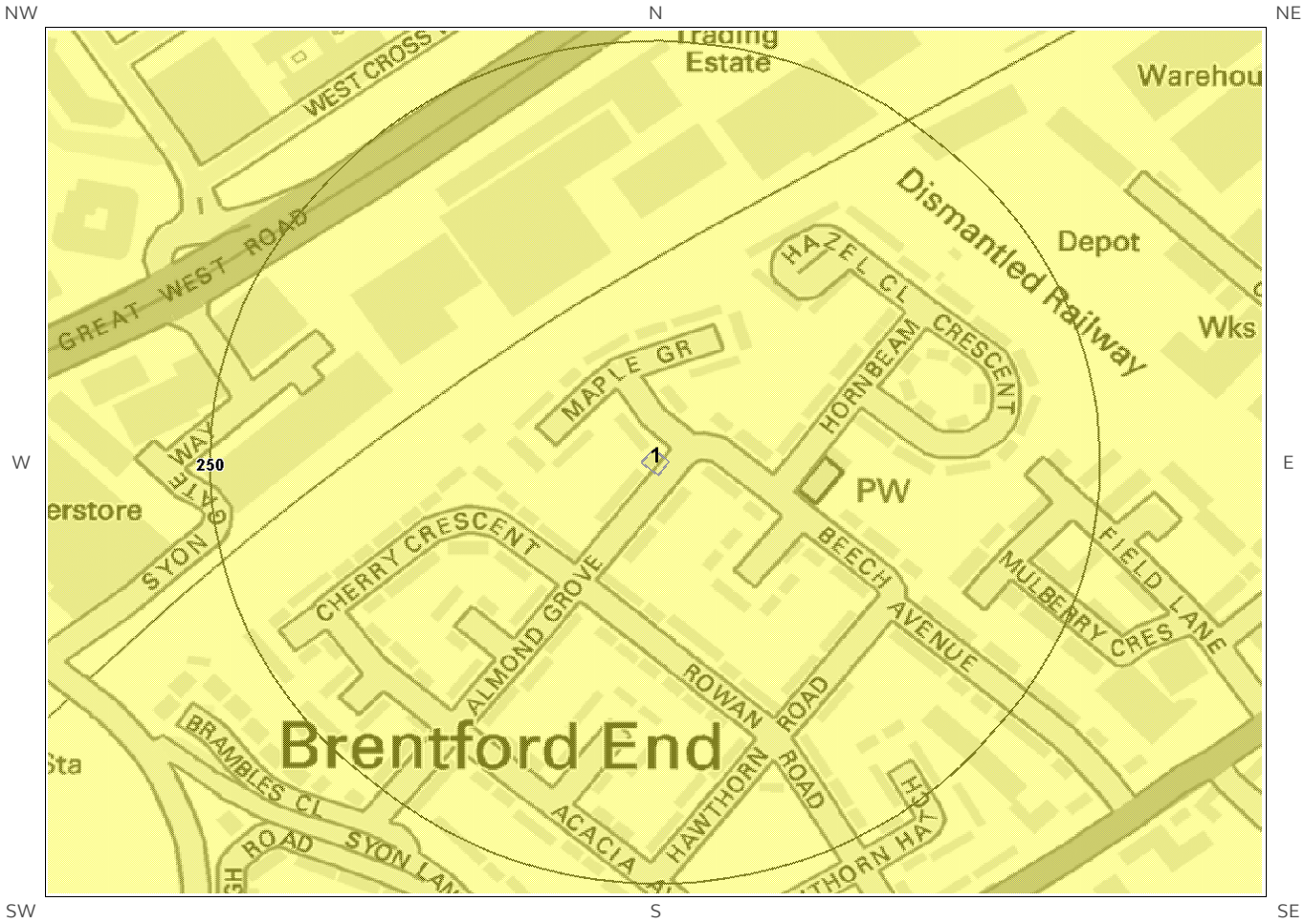


Shrink Swell Clay Legend

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6.2 Landslides map



Landslides Legend

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6.3 Ground Dissolution of Soluble Rocks map



Ground Dissolution Soluble Rocks Legend

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6.4 Compressible Deposits map

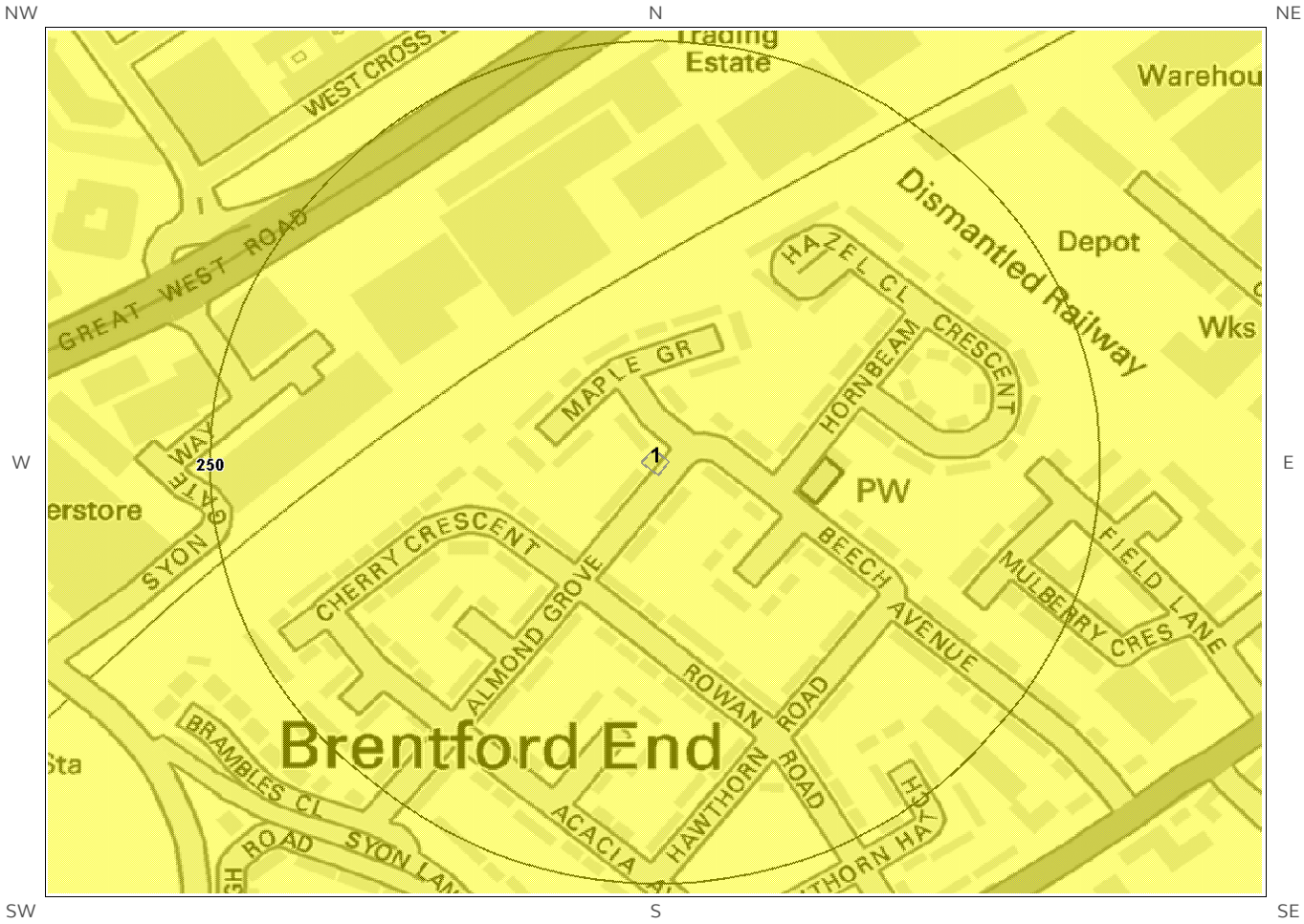


Compressible Deposits Legend

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6.5 Collapsible Deposits map



Collapsible Deposits Legend

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6.6 Running Sand map



Running Sand Legend

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6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site*[*] boundary? Moderate

6.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Moderate	Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

* This includes an automatically generated 50m buffer zone around the site

6.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

6.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

6.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

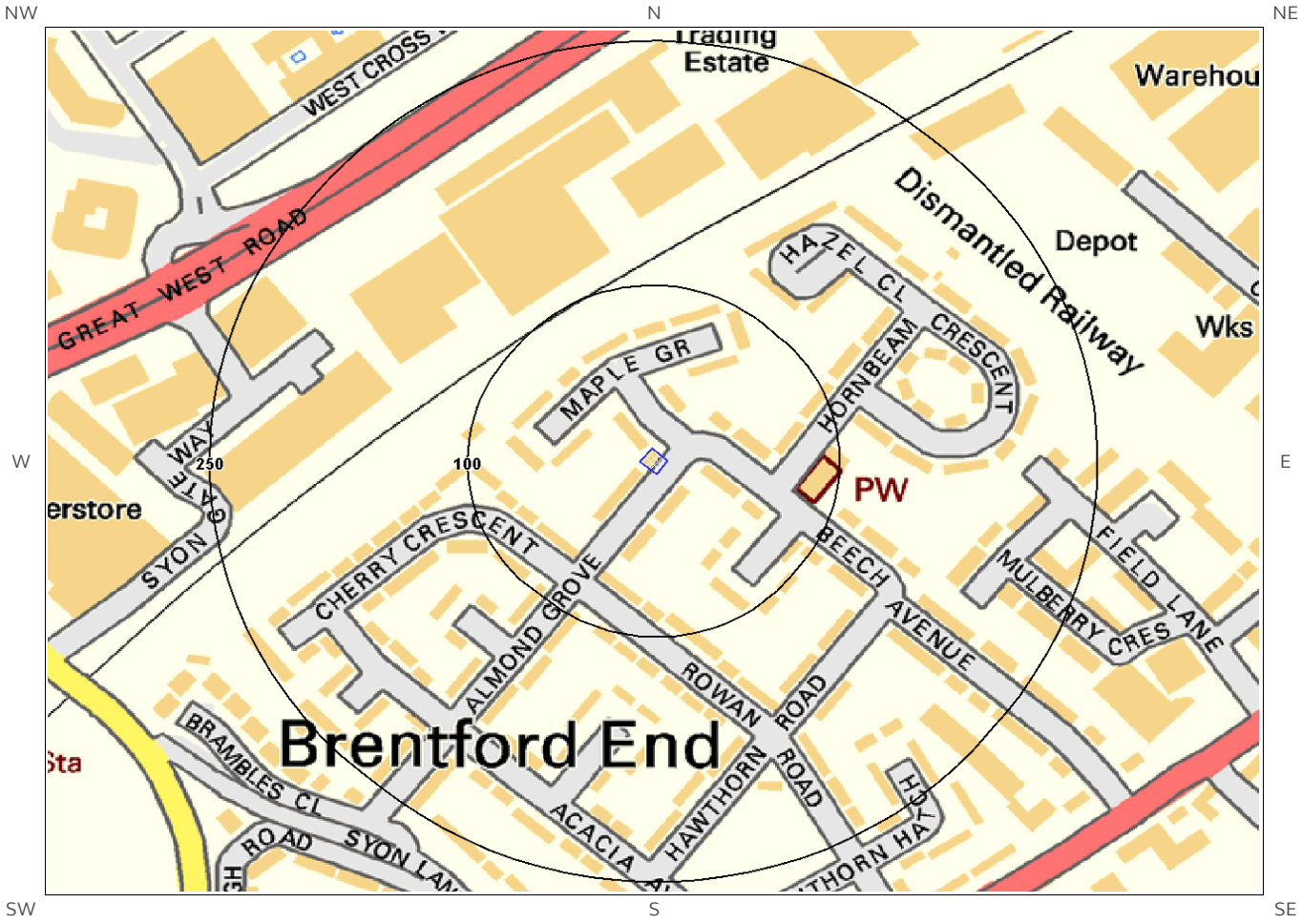
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

6.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

7 Borehole Records map



Borehole Records Legend

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Site Outline

Borehole Locations

125
250
Search Buffers (m)

7 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary:	0

Database searched and no data found.

8 Estimated Background Soil Chemistry

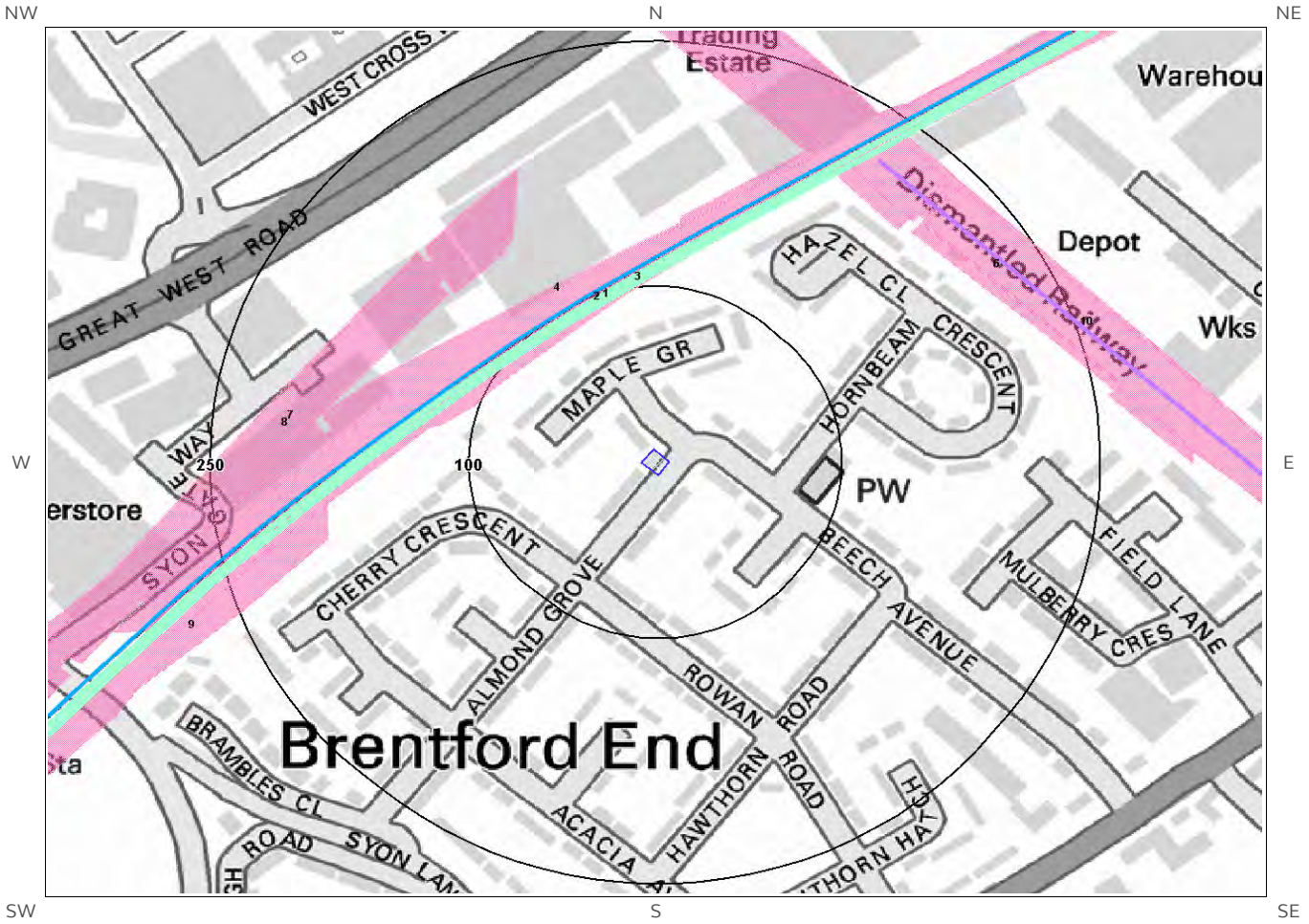
Records of background estimated soil chemistry within 250m of the study site boundary: 1

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	London	No data	No data	No data	No data	No data

*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels map



Railways and Tunnels Legend

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- Site Outline
- Search Buffers (m): 250, 500
- Underground or Partially Underground Railway / Subway System
- Railway Tunnel (OS Mapping)
- Abandoned or Dismantled Railway (OpenStreetMap)
- Railway Track (OS Mapping)
- Railway Track (OpenStreetMap)
- High Speed 2
- High Speed 2 Revised Proposed Route
- Crossrail 1
- Railway and/or Tunnel Feature from Historical Mapping

9 Railways and Tunnels

9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? No

Have any historical railway or tunnel features been identified within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Details	Date
1	86	NW	n/a	Railway	1915
2	86	NW	n/a	Railway	1936
3	86	NW	n/a	Railway	1880
4	95	NW	n/a	Railway	1897
5	123	N	n/a	Railway	1872
6	123	N	n/a	Railway	1915
7	147	NW	n/a	Railway	1870
8	147	NW	n/a	Railway	1915
9	183	W	n/a	Railway	1871
10	204	NE	n/a	Railway	1935

Any records that have been identified are represented on the Railways and Tunnels map.

9.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? No

Have any historical railway lines been identified within 250m of the study site boundary? Yes

Distance (m)	Direction	Status
219	NE	Razed
219	NE	Abandoned

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary? No

Have any active railway lines been identified within 250m of the study site boundary? Yes

Distance (m)	Direction	Name	Type
92	NW	Hounslow Loop Line	rail
92	NW	Hounslow Loop Line	rail
95	NW	Hounslow Loop Line	rail
95	NW	Hounslow Loop Line	rail
99	NW	Not given	Multi Track
99	NW	Not given	Multi Track

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

Is the study site within 5km of the route of the High Speed 2 rail project? No

Is the study site within 500m of the route of the Crossrail 1 rail project? No

Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a Groundsure HS2 and Crossrail 1 Report.

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Please note that this assessment takes account of both the original Phase 2b proposed route and the amended route proposed in 2016. As the Phase 2b route is still under consultation, Groundsure are providing information on both options until the final route is formally confirmed. Practitioners should take account of this uncertainty when advising clients.

Contact Details

Groundsure Helpline

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info@groundsure.com

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Fax: 0115 936 3276.
Email:**enquiries@bgs.ac.uk**
Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries

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The Coal Authority

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www.coal.gov.uk

Public Health England

Public information access office
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https://www.gov.uk/government/organisations/public-health-england
Email: **enquiries@phe.gov.uk**
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Getmapping PLC

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Standard Terms and Conditions

Groundsure's Terms and Conditions can be viewed online at this link:
https://www.groundsure.com/terms-and-conditions-feb11-2019

APPENDIX C

Site Photographs

CLIENT:	London Borough of Hounslow		**DATE:**	11/2019
REFERENCE:	10030793	**SITE NAME:**	86 Beech Avenue	

ARCADIS Design & Consultancy for natural and built assets
2 Glass Wharf,
Temple Quay,
Bristol, BS2 0FR
T: 0161 245 8700
F: 0161 245 8701

Plate 1 – Garage frontage looking west, fly tipped waste noted



Plate 2 – Garage frontage looking west, fly tipped waste noted



CLIENT:	London Borough of Hounslow		**DATE:**	11/2019	ARCADIS Design & Consultancy for natural and built assets
REFERENCE:	10030793	**SITE NAME:**	86 Beech Avenue		2 Glass Wharf, Temple Quay, Bristol, BS2 0FR T: 0161 245 8700 F: 0161 245 8701

Plate 3 – Possible hydrocarbon staining on hardstanding



Plate 4 – Potential underground services adjacent to the Site



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